

**TECHNICAL REPORT ON THE MT. NAKRU,  
SIMUKU, SINIVIT, NORMANBY AND FENI PROPERTIES,  
PAPUA NEW GUINEA**

**LOCATIONS**

MAP 1:5,000,000 GNC 14 SOUTH PACIFIC OCEAN  
FENI, FENI ISLANDS, PNG  
NORMANBY, NORMANBY ISLAND, PNG  
SIMUKU, MT. NAKRU, & SINIVIT, NEW BRITAIN ISLAND, PNG

**PREPARED FOR**

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## **GENERAL SECTION**

### **1.0 SUMMARY OF REPORT**

New Guinea Gold Corporation through an agreement with Mackmin Silver Ltd. (Macmin), a junior mining company listed on the Australian Stock Exchange, has acquired the mineral rights to several advanced exploration properties in Papua New Guinea (PNG). The Mt. Sinivit (also called Wild Dog), Normanby, Sehulea, Feni, Mt. Nakru, Simuku and Crater Mountain properties are all situated along the Rim of Fire, the active circum-Pacific volcanic belt which hosts most of the areas large porphyry copper-gold deposits and a number of world class epithermal gold deposits. The seven PNG properties, covering a combined area of over 292.2km<sup>2</sup> represent the selected reductions of much larger prospecting authorities evaluated on a reconnaissance basis by Esso, City Resources, BHP, Asarco, INCO, Cyprus/Amax, CRA Exploration Pty Ltd., and others. The major exploration efforts were generally conducted after discovery of world-class deposits like Ok Tedi, Porgera, Lihir and Bougainville with an objective of locating similar world-class deposits. Excellent prospects and anomalies, considered to have moderate size potential, remain to be tested. Recent volcanic deposits blanket large areas of the properties and may conceal mineralized zones with larger potential.

**Sinivit (Wild Dog) property** covers about 43.0km<sup>2</sup> and a >10km long, NNE trending vein zone. It is about 50km SSW of Rabaul, East New Britain Province, PNG.

The Wild Dog vein has several near surface, oxide gold deposits. A previous positive feasibility study suggested that the Wild Dog deposits could be profitably exploited by conventional milling and extraction. Macmin's experience in PNG has resulted in a decision to evaluate vat leaching of oxide zone material to save on grinding, processing and tailings disposal costs.

The writer believes that evaluation of lower cost leaching methods is prudent and a revised and updated feasibility study is necessary. A recommended Stage 1 revision and update of the 1995 feasibility study is estimated to cost CDN\$ 165,000. A Stage 2 program, consisting of drilling and trenching along strike of the Wild dog vein system and in the dilational jog zone, is recommended and estimated to cost CDN\$ 286,000. The writer believes that Stage 2 drilling and trenching has excellent potential for locating additional gold mineralization.

**Simuku property**, covering 43 km<sup>2</sup>, is situated about 20km SW of Kimbe in West New Britain Province, PNG. The Simuku and Mt. Nakru properties are in the Kulu-Awit trend, a prominent WNW belt of mainly intermediate intrusive rocks with associated precious metal enhanced copper mineralization.

At the Simuku prospects, four holes drilled by Esso in 1983 have demonstrated the presence of a secondary enriched, chalcocite blanket in a zone above significant primary porphyry copper mineralization. Hole SM4 intersected 40.7m. grading 0.64% Cu in a secondary blanket above 84.6m of primary mineralization grading 0.28%Cu. Hole SM3 ended in primary mineralization

with 50.2m (100-150.2m) grading 0.50% copper and a final interval grading 0.66% Cu. Only 12 holes have been drilled in a mineralized zone over 3 km long and from 300 to 500m wide. Based on previously encouraging results, further drilling is justified.

A Stage 1 program, consisting mainly of further geological, geochemical and surface trenching programs to meet assessment requirements, is estimated to cost CDN\$ 30,000 in 2002 and CDN\$ 50,000 in 2003. Contingent on funding, further drilling is justified with a Stage 2 (1,200m) drilling program estimated to cost CDN\$ 575,000. The cost of the two stages total an estimated CDN\$ 655,000.

**Mt. Nakru property**, covering about 47km<sup>2</sup>, is located about 60 km south of Hoskins in West New Britain Province, PNG. A series of high-level plutons have associated copper and gold mineralization. The Mt. Nakru prospect has good gold values with a near surface gold deposit in a leached cap below thin pumice and ash cover. The Mt Nakru 1 prospect has the best results from trenching (45m @ 2.50 g/t Au) and drilling (74m @ 0.78% Cu; 45m @ 0.75 g/t Au), and it should be the main target of further Stage 1 exploration.

A success contingent staged exploration program is recommended for further evaluation of the Mt. Nakru property. A Stage 1 program, consisting of further geological, geochemical and surface trenching program, is designed to meet minimum assessment requirements. The Stage 1 program is estimated to cost CDN\$ 25,000 in 2002 and CDN\$ 50,000 in 2003. Contingent on funding, further drilling is justified with a Stage 2 drilling program (400m) estimated to cost CDN\$ 170,000. The total estimated cost of the Stage 1 and Stage 2 programs is CDN\$ 245,000.

**Feni property**, covering 37.0km<sup>2</sup> in the Feni Islands group, in a chain of alkaline volcanic islands which contain a significant gold deposit on Tabar Island and a world class gold deposit on Lihir Island. On the Feni property, previous drilling at the Kabang prospect has defined a zone of near surface gold mineralization that remains open in most directions. Previous significant drill intersections (e.g. 113m at 1.12 g/t Au; 15m at 2.56 g/t Au and 2.2m at 6.5 g/t Au) justify further drilling for reserve definition at the Kabang zone. At the North Caldera Zone, a drill intersection of 16.7m at 2.3 g/t Au is reported to be open along strike. Detailed mapping, surface trenching and sampling is required to properly direct further drilling of the North Caldera Zone. Several of the other geochemical anomalies and gold occurrences should be promotable to the drill stage with further surface evaluation.

A Stage 1 program, consisting of surface work, is recommended to cover minimum assessment in 2002 and 2003. The Stage 1 program is estimated to cost CDN\$ 160,000 and should expand geophysical and geochemical coverage. A recommended Stage 2, 1,200m diamond drill program, is estimated to cost CDN\$ 570,000 and should be directed at further definition of the Kabang zone, and quality targets developed during Stage 1 exploration.

**Normanby property**, covering 44.2km<sup>2</sup>, is situated on Normanby Island about 325km east of Port Moresby, PNG. This property, situated near the WNW end of the Misima Corridor, has a geological setting similar to Placer Dome's Misima Gold Mine.

The Normanby property has 19 named prospects. The Imwauna and Wahola prospects have been tested by over 60 drill holes and by extensive trenching programs. The Imwauna vein system has parallel structures or strike continuations called the Kella's, Ebessowa and Knob prospects that have a combined strike length of over 4km and occur over a 1 to 2km width. A small portion of the zone, tested by trenching and drilling, contains a higher grade, near surface, oxidized zone.

A Stage 1 minimum assessment program, consisting of geological evaluation, trenching and metallurgical testing, is recommended at an estimated cost of CDN\$ 75,000. A success contingent Stage 2 pre-feasibility study of the near surface mineralization is estimated to cost CDN\$ 400,000. The two stages total an estimated CDN\$ 475,000.

## **2.0 INTRODUCTION AND TERMS OF REFERENCE**

### **2.1 TERMS OF REFERENCE AND PURPOSE**

New Guinea Gold Corporation (NGG) controls the mineral rights to the Sinivit (formerly Wild Dog), Normanby, Feni, Simuku, Mt. Nakru, Sehulea and Crater Mountain Properties, Papua New Guinea (PNG). NGG recently consolidated its interests in the Mt. Sinivit (Wild Dog), Normanby, Feni, Simuku and Mt. Nakru properties and obtained control of the Crater Mountain and Sehulea Properties from Macmin with the acquisition subject to shareholder and regulatory approval.

Peter Christopher & Associates Inc. was retained by the management of NGG to review extensive files in Macmin's office at Coolangatta, Australia and to prepare technical reports in compliance with the requirements of National Instrument 43-101 and Form 43-101F1 for use as a support document to be filed with the British Columbia Securities Commission and TSX Venture Exchange. The writer updated his engineering reports on the Sinivit (Wild Dog), Normanby, Feni, Simuku and Mt. Nakru properties, and prepared separate 43-101F1 technical reports on the Crater Mountain and Sehulea properties with the assistance of NGG Australian consulting geologists with experience on the Crater Mountain and Sehulea properties.

### **2.2 SOURCE OF INFORMATION AND DATA**

This report is based upon the writer's knowledge of the properties gained from published and unpublished technical reports and maps, discussions of the properties with NGG personnel and consulting geologists, and field examinations. In addition the writer has co-authored separate engineering reports on the Crater Mountain property with consulting geologist Trevor Smith and the Sehulea property with consulting geologist Dr. David Lindley. The writer previously has been involved in the following Technical Reports for NGG:

Christopher, P.A., and Lindley, I.D., 2002. Technical Report on the Sehulea property, Normanby Island, Milne Bay Province, Papua New Guinea; for New Guinea Gold Corporation, 10th September.

Christopher, P.A., and Smith, Trevor W., 2002. Technical report on the Crater Mountain property, Chimbu and Eastern Highland Provinces, Papua New Guinea; for New Guinea Gold Corporation, 10th September.

Christopher, P.A., 1996. Report on the Mt. Nakru, Simuku, Wild Dog, Normanby, and Feni Properties, Papua New Guinea and Tafuse property, Vanuatu. for Multinational Resources Inc. (now New Guinea Gold), dated April 26, 1996.

Christopher, P.A., 1998. Report on the Normanby, and Feni Properties, Papua New Guinea; for New Guinea Gold Corporation, dated March 15, 1998.

This Technical Report provides an updated overview of previous exploration and geological settings of the Normanby, Mt. Sinivut, Feni, Simuku, and Mt. Nakru properties and provides recommendations for further staged and success-contingent staged exploration programs.

## **2.3 FIELD INVOLVEMENT OF THE QUALIFIED PERSON**

This report is based on extensive property files reviewed by the writer in Macmin's Gold Coast, Queensland, Australia Office in conjunction with 1996 and 1998 property visits, and between August 1<sup>st</sup> and 7<sup>th</sup>, 2002. In 1996, the writer examined the Feni, Sinivit, Simuku, Mt. Nakru, and Normanby properties between the 7<sup>th</sup> and 19<sup>th</sup>, March 1996 with geologists Dr. David Lindley and John Kirakar providing guidance and a geological and historical perspective on the properties. In 1998, the writer updated his Normanby property examination with NGG geologist Peter McNeil.

## **3.0 DISCLAIMER**

The writer has included a property title and ownership sections as required by NI 43-101. The ownership information was obtained from documents in the Macmin property files and reviewed with Macmin personnel. The data is believed to be accurate however ownership is a legal matter and should be confirmed by NGG legal counsel.

## **4.0 GENERAL PROPERTY DESCRIPTIONS AND LOCATIONS (FIGURE 1)**

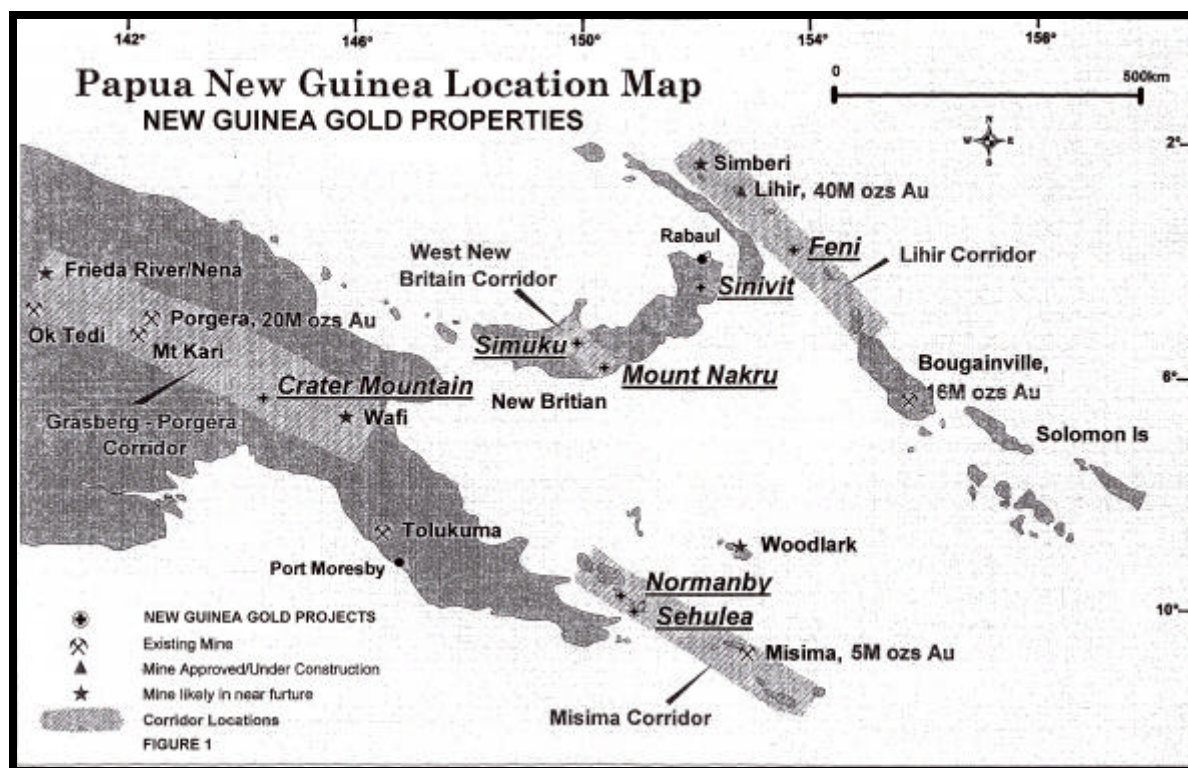
### **4.1 LOCATIONS (FIGURE 1)**

The Feni, Sinivit (Wild Dog), Simuku, Mt. Nakru, and Normanby property in PNG all occur in the South Pacific Ocean archipelago (Figure 1) that extends from the Asian mainland to New Zealand. The properties are all situated along the Rim of Fire, the active circum-Pacific volcanic belt that hosts several large porphyry copper-gold deposits and a number of world-class epithermal gold deposits.

### **4.2 PROPERTY TITLE AND OWNERSHIP**

Table 1 summarizes pertinent property data, and Table 2 provides a schedule of mining tenements. Detailed descriptions of the locations and tenement data are provided in individual property sections.

TECHNICAL REPORT ON THE MT. NAKRU, SIMUKU, SINIVIT, NORMANBY  
AND FENI PROPERTIES, PAPUA NEW GUINEA



**Figure 1. General Location of NGG Properties and Relationships to Metallogenic Corridors.**

**TABLE 1. Pertinent Property Data.**

PROPERTY NAME	RECORD NUMBER	AREA (km <sup>2</sup> )	PROVINCE/ ISLAND	DATE ISSUED	MAP	OWNER
A: SINIVIT	EL 1140	1.44	E. New Britain	11/05/95	SB56	Macmin 90% GMN <sup>1</sup> 10%
Including	ML 122	3.536	E. New Britain	16/02/96	SB56	
Including	ME 70	1.44	E. New Britain	16/02/96	SB56	
B: SIMUKU	EL 1077	43.0	W. New Britain	29/11/93	SB55	Macmin 50% Yeaman 50%
C: MT. NAKRU	EL 1043	43.0	W. New Britain	8/12/92	SB56	Macmin 100%
D: FENI	EL 1021	37.0	New Ireland	4/11/92	SB56	Janjuble Pty Ltd. <sup>2</sup> 100%
E: NORMANBY	EL 1091	68.0	Milne Bay	26/4/94	SC56	Macmin 100%

ME = Mining Easement; PL = Prospecting License;

EL = Exploration License; ML = Mining Lease Granted For 20yrs.

1 GMN = Goldmines of Nugini Holdings Pty Limited.

2 Janjuble PTY wholly owned subsidiary of Macmin.



**TABLE 2. NGG Schedule of Mining Tenements.**

PROPERTY	LICENSE	LICENSE NOUMBER	LICENSE AREA KM <sup>2</sup>	RENEWAL REQUIRED	RENEWAL AREA KM <sup>2</sup>
A. Sinivit	Nengmutuka	EL1140	135	11/05/03	43.0
A. Sinivit		ML122	3.536	N/A	N/A
A. Sinivit		ME70	1.440	N/A	N/A
B. Simuku	Simuku	EL1077	203	29/11/03	43.0
C. Mt. Nakru	Mt. Nakru	EL1043	322	07/12/02	47.0
D. Feni	Feni	EL1021	81	07/12/02	47.0
E. Normanby	Normanby	EL1091	203	26/04/04	68.2

## 5.0 SUMMARY OF STAGED AND TOTAL COSTS FOR EACH PROJECT (TABLE 3)

Staged and total costs for each of the five properties are summarized in Table 3, below. The total for all projects is CDN\$ 2,518,000 (Table 3).

**TABLE 3. Staged and Total Cost for Each Project.**

PROPERTY	STAGE	WARRANTED/ CONTINGENT	STAGE COST (CDN\$)	TOTALS (CDN\$)
A. SINIVIT	1		165,000	
	2	WARRANTED	266,000	
SUBTOTAL				431,000
B. SIMUKU	1		80,000	
	2	WARRANTED	575,000	
SUBTOTAL				655,000
C. MT. NAKRU	1		75,000	
	2	CONTINGENT	170,000	
SUBTOTAL				245,000
D. FENI	1		160,000	
	2	WARRANTED	570,000	
SUBTOTAL				730,000
E. NORMANBY	1		75,000	
	2	CONTINGENT	400,000	
SUBTOTAL				457,000
<b>TOTAL</b>				<b>CDN\$ 2,518,000</b>

## **SECTION B: SIMUKU PROPERTY**

### **B1.0 SUMMARY FOR SIMUKU PROPERTY**

New Guinea Gold Corporation through an agreement with Macmin, a junior mining company listed on the Australian Stock Exchange, has acquired the mineral rights to the Simuku property. It is situated along the Rim of Fire, the active circum-Pacific volcanic belt that hosts most of the areas large porphyry copper-gold deposits and a number of world-class epithermal gold deposits. This property represent the selected reductions of much larger prospecting authorities evaluated on a reconnaissance basis by Esso, City Resources, BHP, Asarco, INCO, Cyprus/Amax, CRA Exploration Pty Ltd., and others. The major exploration efforts were generally conducted after discovery of world-class deposits like Ok Tedi, Porgera, Lihir and Bougainville with an objective of locating similar world-class deposits. Excellent prospects and anomalies, considered to have moderate size potential, remain to be tested. Recent volcanic deposits blanket large areas of the property and may conceal mineralized zones with larger potential.

Simuku property, held as EL 1077(Figure B1), covers 43km<sup>2</sup> SW of Kimbe in West New Britain Province, PNG. It is situated in the Kulu-Awit trend, a prominent WNW belt of mainly intermediate intrusive rocks with associated copper mineralization.

The Simuku property is mainly underlain by andesitic to basaltic volcanic and volcanoclastic rocks of the Kapuluk Volcanics and felsic andesitic to dacitic intrusive dykes, sills and stocks belonging to the Upper Oligocene intrusive suite related to the Kapuluk Volcanics. The main exploration target on the Simuku property is a gold enhanced porphyry copper deposit with enrichment resulting from generation of a supergene, chalcocite rich blanket or secondary enriched zone. Skarn mineralization occurs when dacite porphyry intrusive intrude limy volcanoclastic or sedimentary rocks, and may be a target on the Simuku property. Structurally controlled zinc mineralization and auriferous quartz veins occur peripheral to the porphyry system. The presence of auriferous (single grab sample grading 210 g/t Au) phyllic altered crystal lithic tuff, along Misauguran Creek, suggest the possible of epithermal gold deposition in porous volcanic rocks.

The Simuku prospects comprise a mineralized zone about 3km long and 300 to 500m wide within a mineralized area of about 12km<sup>2</sup>. Three 400m high hills (i.e. Wokayalae in south Simuku and Misilli and Tobarum in central Simuku) have hematitic, siliceous, leached caps within the zone. On Tobarum Hill, drill hole 83-SM-4 has intersected a chalcocite rich zone or blanket. Similar blankets may underlie the leached caps at Wokayalae and Misilli hills. The Simuku north prospect has lower relief with elevations less than 230m, but narrower secondary blankets of chalcocite mineralization were encountered in holes 83-SM-1 and 83-SM-3 (Figure 20).

Mineralization at the Simuku prospects appears to be associated with porphyritic microdiorite which has estimated sulphide content ranging from 5-7%, comprised of pyrite and chalcocite in the enriched zone and pyrite, chalcopyrite, sphalerite and molybdenite in the primary zone. Hydrothermal breccias, associated with the microdiorite, have intrusive clasts with sulphide content up to 15%, comprised of pyrite, chalcopyrite, chalcocite, bornite and minor molybdenite. Propylitic

altered volcanics are generally pyritic with only minor chalcopyrite. Four high chargeability IP anomalies obtained by Placer were interpreted to contain up to 15% disseminated sulphide mineralization.

Four holes drilled by Esso at the Simuku prospects in 1983 have demonstrated the presence of a secondary enriched, chalcocite blanket in a zone above significant primary porphyry copper mineralization. Hole SM-4 intersected 40.7m grading 0.64% Cu in a secondary blanket above 84.6m of primary mineralization grading 0.28%Cu. Hole SM-3 ended in primary mineralization with 50.2m. (100-150.2m) grading 0.50% copper and ended in primary mineralization grading 0.66% Cu. Only 12 holes have been drilled in a mineralized zone from 300 to 500m wide and over 3km long with further drilling justified by previous encouraging results.

Results of previous exploration surveys suggest that excellent exploration potential exists for both a economic supergene copper blanket overlying primary porphyry copper-gold mineralization, and for an economic, precious metal enhanced, primary porphyry copper system. Since phyllic altered crystal lithic tuff along Misasuguran Creek has produced a grab sample that returned an assay of 210 g/t Au, and a nearby 1.5m wide clay silica altered fault zone returned 7.2% Zn, the Misasuguran Creek area represents a possible low cost prospecting target with possible bonanza grade gold or base metal vein potential. Low cost assessment programs, consisting of geological and geochemical prospect, and hand trenching, can be used for follow-up of previously defined anomalous targets.

A success contingent staged exploration program is recommended for further evaluation of the Simuku property. A Stage 1 program, consisting mainly of further geological, geochemical and surface trenching programs to meet assessment requirement, is estimated to cost CDN\$ 30,000 in 2002 and CDN\$ 50,000 in 2003. If sufficient funding is available, further drilling is justified with a Stage 2 (1,200m) drilling program estimated to cost CDN\$ 575,000. The cost of the two stages total an estimated CDN\$ 655,000.

The writer is of the opinion that the recommended programs for the Simuku property are warranted and of sufficient merit to justify the investment in the recommended exploration.

## **B2.0 INTRODUCTION, TERMS OF REFERENCE, AND FIELD INVOLVEMENT**

### ***B2.1 INTRODUCTION AND TERMS OF REFERENCE***

The Simuku porphyry Cu prospect is situated in the NW part of the WNW Kulu-Awit trend of copper mineralized intrusive and/or volcanic centers. The property, reduced from about 203km<sup>2</sup>, presently covers about 43km<sup>2</sup> and six named prospects. This report was prepared at the request of the management of NGG to update the writer's 1996 technical report to NI 43-101 form for submittal to regulatory authorities.

Prior to the 1996 technical report, the Simuku prospect area had been advanced by four diamond drill holes with drill intersections of up to 40m at 0.64% Cu and 100m at 0.45% Cu.

This report summarizes the setting of the Simuku property and provides recommendations for further success contingent, staged exploration of the property.

## ***B2.2 FIELD INVOLVEMENT OF THE QUALIFIED PERSON***

The writer and geologists John Kirakar and Dr. David Lindley conducted a brief, helicopter supported examination of the Simuku property on March 12<sup>th</sup>, 1996. The update is based on extensive property files reviewed in Macmin's Gold Coast, Queensland, Australia office between August 1<sup>st</sup> and 7<sup>th</sup>, 2002 by the writer, and on discussions with Macmin/NGG exploration personnel.

## **B3.0 PROPERTY DESCRIPTION AND LOCATION (FIGURE B1)**

### ***B3.1 LOCATION (FIGURE B1)***

The Simuku prospect, held as EL 1077(Figure B1), covers 43km<sup>2</sup> SW of Kimbe in West New Britain Province, PNG. The EL is centred at geographic coordinates 5°44'S latitude and 150°02'E longitude in the 1:100,000 topographic sheets Dagi (8996) and Namo (8886) and 1:250,000 geological map sheets Andewa (SB55-8) and Tolasea (SB56-5) (Figure B1).

### ***B3.2 PROPERTY DESCRIPTION AND OWNERSHIP (FIGURE B1)***

The Simuku exploration licence (EL1077) covering 203km<sup>2</sup> was granted to Macmin on 29<sup>th</sup> November 1993. The licence has gone through several two-year renewals and reductions. The present Simuku tenement covers about 43km<sup>2</sup> with the location of the 13 sub-blocks shown on Figure B1.

NGG, subject to shareholder and regulatory approval, is presently acquiring a 90% interest in the Simuku property from Macmin. Mr. S. Yeaman has a 10% carried equity in the Simuku project up to Bankable Feasibility Study stage. If the parties decide to develop mining operations Yeaman's interest becomes 10% fully contributing interest.

Subject to any agreement made under Section 17 of the PNG Mines Act, the State reserves the right to elect at any time, prior to the commencement of mining, to make a single purchase of up to 30% equitable interest in any mining discovery arising from this licence, at a price pro rata to the accumulated exploration expenditures and then to contribute to further exploration and development in relation to the lease on a pro rata basis, unless otherwise agreed. Macmin estimates that CDN \$518,810 has been spent on EL 1077.

TECHNICAL REPORT ON THE MT. NAKRU, SIMUKU, SINIVIT, NORMANBY  
AND FENI PROPERTIES, PAPUA NEW GUINEA

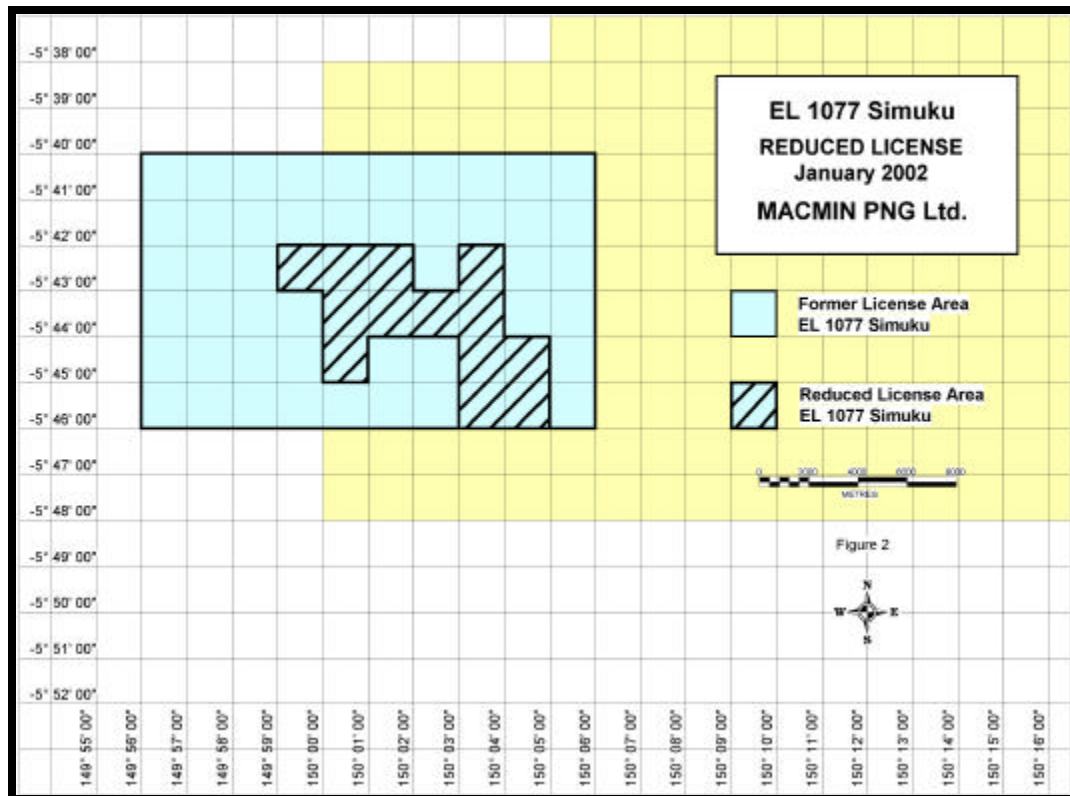
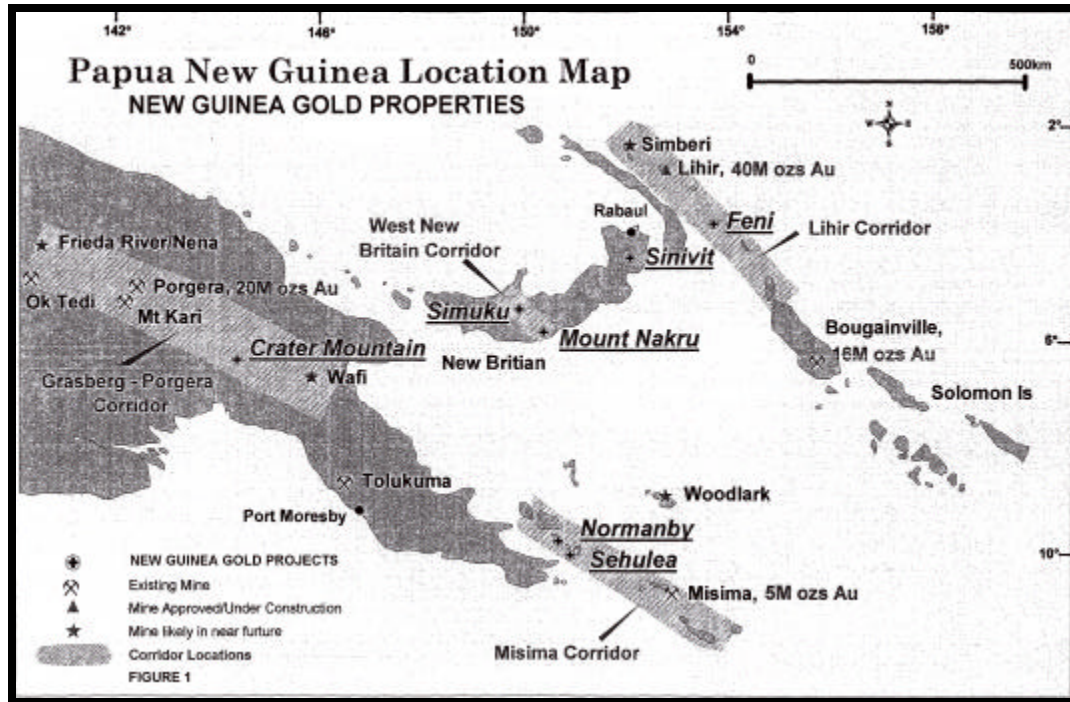


Figure B1. Simuku License.

## **B4.0 ACCESSIBILITY, PHYSIOGRAPHY, CLIMATE, LOCAL RESOURCES & INFRASTRUCTURE**

### ***B4.1 ACCESSIBILITY***

Four-wheel drive access is via a logging road north of the property, however due to heavy rainfall this track is unlikely to remain in good repair without continuous maintenance. Walking tracks, along moderate gradients, and a road/trench system provide access to most of the prospect locations, but tracks not used for a wet season require brushing. Alternate access is by helicopter from Kimbe or the Haskins airport. No population centers occur in the EL, landownership claims related to traditional hunting grounds and cultivated areas originate from coastal villages at Ismi, Mingai, Morokea, Ruango and Kulungi.

### ***B4.2 PHYSIOGRAPHY AND CLIMATE***

The exploration licence is on the northern flank of the Whiteman Range. Rugged terrain results from incised, seasonal streams and relief of about 600m with elevations ranging from about 200m to 800m. Small garden areas are restricted to nomadic developments at lower elevations with the remainder of the EL covered by dense tropical forest.

A tropical monsoonal climate has a wet season from November through April. Hoskins receives about 75% of about 4m of annual rainfall during the wet season.

### ***B4.3 LOCAL RESOURCES AND INFRASTRUCTURE***

Costal villages provide a good supply of camp personnel and labour for exploration projects. Hiring locally also creates good will that generates local support for renewal of tenements. PNG has a good supply of exploration geologists, miners, and equipment operators that can be called on as the project progresses.

## **B5.0 HISTORY**

After discovery of Bougainville, CRA investigated New Britain Island with a regional stream-sediment sampling program in 1965. Four areas of anomalous copper in stream sediments were detected within tributaries of the Kulu River. The stream sediments led to location of the Simuku, Kulu, Talelumas, Rapisme and Rapilli prospects. CRA used ridge and spur auger soil sampling and limited rock chip sampling for follow-up. A copper in soil geochemical anomaly, in the Rapilli prospect area, was tested with three diamond drill holes totaling 916.1m. Only primary copper mineralization with generally less than 0.2%Cu was encountered. Soil sampling in the Central Simuku area revealed a zone 400m by 800m of >10ppm Mo associated with weakly anomalous and patchy copper values.

In the early 1970's BHP used rock chip sampling to outline the Rapisme prospect. Four diamond drill holes totaling 607.3m were reported by Bateman Kinhill (1993) to have intersected comparable results to those from the Rapalli anomaly.

In 1979 Nord Resources conducted regional surveys that included the Simuku area. Esso worked the area between 1981 and 1986 with programs directed toward evaluation of identified porphyry Cu systems. Four diamond drill holes, totaling 624.7m, were drilled at the Simuku prospect in 1983. The drill holes confirmed the presence of a chalcocite enriched zone overlying primary copper mineralization. A gold enriched system is also suggested with a best intersection of 0.12 g/t Au from hole-SM-1. A summary of significant copper intersections (Table B1 from Bateman Kinhill) follows:

**TABLE B1. Drill Intersections, Simuku Prospect (plus 1m @ 0.1% Cu).**

HOLE NO.	DEPTH (m)	FROM (m)	TO (m)	INTERSECT-ION (m)	CU %	AU g/t	AG g/t	MO ppm	REMARK
83SM-1	174.5	2.5	174.25	171.75	0.19	0.05	1.7	25	
Including		5.5	18.95	13.45	0.33	0.03	1.5	449	Sec. blanket
Including		55.2	125.0	69.80	0.19	0.05	2.4	25	Primary
Including		125.0	174.25	49.25	0.28	0.07	1.4	34	Primary
83SM-2	150.0	0.0	150.0	150.0	0.15	0.02	1.4	101	
Including		13.6	29.1	15.5	0.30	0.02	1.0	118	Oxide
83SM-3	150.2	0.0	150.2	150.2	0.35	0.06	3.4	21	
Including		17.2	24.8	7.6	0.47	0.06	0.9	5	Sec. blanket
Including		51.4	100.0	48.6	0.40	0.08	3.1	19	Primary
Including		100.0	150.2	50.2	0.50	0.06	2.5	40	Primary
83SM-4	150.0	0.0	50.0	150.0	0.32	0.04	1.3	23	
Including		24.7	65.4	40.7	0.64	0.04	1.9	28	Sec. Blanket
Including		65.4	150.0	84.6	0.28	0.03	1.3	18	Primary

City Resources acquired the Simuku property in 1987 and conducted further basic geochemical sampling and mapping for definition of the Talelumis Prospect before financial problems lead to termination of City's interest.

In 1993 Macmin conducted a data compilation of the Kulu River in order to select an appropriate EL application area. The Simuku Tenement was granted to Macmin on 29/11/93 with Macmin holding 50% in trust for W.S. Yeaman.

In September 1994 Placer (PNG) Exploration Pty Ltd. (Placer) optioned the Simuku property. Placer's work program consisted of IP and magnetic surveys, detailed mapping, geochemical sampling, pitting and bulldozer trenching on the Simuku prospect. Placer's report (1995) stated: "The hypogene potential of the Simuku prospect has been demonstrated by surface geochemistry in conjunction with IP geophysics and diamond drilling by Esso. It is believed that high grades encountered in Trench 2 are due to an overprint of supergene mineralization on a disseminated hypogene zone. The requirement for additional exploration of a hypogene copper target has been highlighted. The recommended program should include a structural air photo interpretation over the entire EL, reconnaissance mapping of all hypogene Cu occurrences, additional hand dozer trenching over all IP anomalies followed by a 2-3 diamond hole drilling program." Although

Placer's property report contained a positive recommendation for further work, Placer terminated its option in late 1995 without completing the recommended work program.

In 1996/1997 a Macmin joint venture with NGG completed 3,200m of bulldozer trenching with large intervals grading 0.2 to 0.5% Cu, and completed 8 drill holes totaling 857m (RC 584m; Diamond Core 273m). Significant copper mineralization was encountered in holes 7, 10, 11 and 12 that are tabulated below:

**TABLE B2. Significant Simuku Drill Results 1996/97.**

HOLE NO.	LENGTH (m)	INTERVAL (m)	Cu%	Au g/t
SMH-7	63.0	0- 63.0	0.52	0.12
SMH-10	82.0	24- 82.0	0.53	0.10
SMH-11	77.0	0- 77.0	0.49	0.11
SMH-12	276.6	0-276.6	0.33	0.06
including		0- 91.3	0.43	0.06

In February 1999, Cyprus Amax PNG Holdings Inc. finalized a farm in agreement with Macmin and Stan Yeaman (on EL 1077 only) to earn up to 80% in 3 exploration licences covering >4,000km<sup>2</sup>. After spending over US \$302,000, a November 1999 merger of Cyprus Amax with Phelps Dodge resulted in restructuring and withdrawal from the joint venture. Creek mapping and prospecting was conducted on the Simuku tenement and supported by 91 rock chip samples. The best rock sample results were from outcrop of phyllic altered crystal lithic tuffs along Misasuguran Creek where a single grab sample returned a high grade gold assay of 210 g/t Au. A nearby 20m chip channel returned 20m @ 0.2% Zn, and a 1.5m wide clay silica altered fault zone returned 7.2% Zn (Richardson, 1999).

After Cyprus Amax returned the Simuku property to Macmin, a petrographic study was completed on sixteen drill core samples from hole SMH-012 by Terry Leach & Co (Topp et al., 2002).

Table B3 presents a summary of all exploration on the Simuku property by a variety of companies over the area. A complete description of these programs can be found in annual exploration reports that were submitted to the PNG Government.

**TABLE B3. Summary of Previous Exploration.**

COMPANY	EXPLORATION LICENCE	PERIOD HELD	EXPLORATION CAMPAIGNS	DISCOVERIES
<b>CRA</b>	N/A	1965	Regional steam sediment campaign Ridge & spur sampling at Kulu Rapilli) 3 Drill holes (NBK 1-3) in Rapilli – no significant results, all holes less than 0.2% Cu.	Kulu Prospect Central Simuku North Simuku South Simuku



<b>BHP</b>	N/A	1971	Steam sediment sampling of the Mawaiyeun drainages. Follow up mapping and sampling defined the Rapisme prospect. 4 vertical drill holes (DK 1-4) completed – Most significant results 0.22% Cu over 16m.	Rapisme Cu
<b>Nord Resources</b>	N/A	1979	Regional compilation of CRA & BHP work. Limited mapping and sampling.	No discoveries
<b>Esso (PNG)</b>	467	6/1981 to 6/1983	Mapping & sampling of the Mawaiyeun-Rapilli drainages. Complete aeromagnetic coverage. 1983 completed 4 drill holes into the Simuku prospect. Significant secondary and primary Cu mineralisation located including: 83SM3 100m @ 0.45% Cu 83SM4 40m @ 0.64% Cu 1985 reconnaissance work in the Talelumus area	Talelumus Definition of Simuku prospect
<b>City Resources</b>	Daluavu, EL 789  J/V BHP	12/1987 to 9/1991  1989 to 1991	Detailed soil sampling, mapping led to the definition of the Talelumus Prospect.  BCL gold anomalism in soils outlined at Simuku Prospect.	
<b>Macmin</b>	1077  J/V Placer  J/V NGG	1994-1995  1996-1997	Trenching encountered high grade Cu-Mo at Simuku.  In 1996/1997 8 holes drilled. Significant primary Cu mineralisation encountered:- 276m @ 0.33% Cu, 0.06 g/t Au in hole 12; and 47m @ 0.58% Cu, 0.11 g/t Au, 80 ppm Mo in hole 7.	Significant depth extent to Simuku Porphyry system
<b>Cyprus Amax</b>	1077	1999	12km of creek mapping and prospecting, 91 rock chip samples.	

## B6.0 REGIONAL GEOLOGY (FIGURE B2)

The island of New Britain formed as a result of Eocene to Oligocene volcanism above a southwest dipping subduction zone. The subduction pattern changed during the Miocene with subduction

moving to the New Britain trench to the south of the island. Lower Tertiary island arc volcanics, volcanoclastics and intrusives form the basement rocks for New Britain with Eocene Baining Volcanics, Oligocene Merai Volcanics (East New Britain) and Kapuluk Volcanics and Oligocene intrusives (Figure B2).

Baining Volcanics are mainly massive to well bedded volcanics, volcanic sediments and related intrusives. The volcanics are basic to intermediate and believed to be over 600m thick. Sediments consist mainly of marine conglomerates, sandstones and siltstones with minor limestone lenses.

The Kapuluk volcanics are compositionally similar to the Baining Volcanics and formed under similar island arc conditions. Plutonic and hypabyssal rocks, of granodiorite to gabbro composition, are mainly comagmatic with the upper Oligocene volcanics. Porphyry copper mineralization is mainly found within the intrusive complex.

Change in the subduction pattern during Early Miocene resulted in a hiatus in volcanic activity, and gradual subsidence accompanied by deposition of thick limestone sequences of the Yalam and Sai Beds. Volcanism resumed in the Pliocene with deposition of tuffaceous sediments, acid tuff and basal conglomerates of the Kapiura Beds. The Quaternary Kimbe Volcanics border the Bismarck Sea and form islands off the north coast of New Guinea. The Kimbe Volcanics are products of strato-volcanoes that produce mainly andesitic lavas. Recent volcanic activity has resulted in extensive post mineral cover of a large part of New Britain with pumice and volcanic ash.

The Simuku property geology is shown in Figure B4 after Kirakar (1987), Carter 1988) and other previous property geologists. The Simuku property is mainly underlain by andesitic to basaltic volcanic and volcanoclastic rocks of the Kapuluk Volcanics and felsic andesitic to dacitic intrusive dykes, sills and stocks belonging to the Upper Oligocene intrusive suite related to the Kapuluk Volcanics.

## **B7.0 DEPOSIT TYPES**

The main exploration target on the Simuku property is a gold enhanced porphyry copper deposit with enrichment resulting from generation of a supergene, chalcocite rich blanket or secondary enriched zone. Skarn mineralization occurs when dacite porphyry bodies intrude limy volcanoclastic or sedimentary rocks, and may be a target on the Simuku property. Structurally controlled zinc mineralization and auriferous quartz veins occur peripheral to the porphyry system. The presence of auriferous (single grab sample grading 210 g/t Au) phyllic altered crystal lithic tuff, along Misauguran Creek, suggest the possibility of epithermal gold deposition in porous volcanic rocks.

## **B8.0 MINERALIZATION (FIGURES B3 – B6, TABLE B4)**

The Simuku property is part of a WNW trending Kulu-Simi belt of Kapuluk Volcanics and associated, sub-volcanic intrusives with potential for precious metal enhanced porphyry copper

mineralization (Figures B2 - B4). The Simuku property is near the NW extremity of the mineralized trend that also includes the Mt. Nakru property.

The Simuku prospects comprise a mineralized zone about 3km long and 300 to 500m wide within a mineralized area of about 12km<sup>2</sup>. Three 400m hills (i.e. Wokayalae in south Simuku and Misilli and Tobarum in central Simuku) have hematitic, siliceous, leached caps within the zone. On Tobarum Hill, drill hole 83-SM-4 has intersected a chalcocite rich zone or blanket. Similar blankets may underlie the leached caps at Wokayalae and Misilli hills. The Simuku north prospect has lower relief with elevations less than 230m, but narrower secondary blankets of chalcocite mineralization were encountered in holes 83-SM-1 and 83-SM-3 (Figure B5).

Mineralization at the Simuku prospects appears to be associated with porphyritic microdiorite which has estimated sulphide content ranging from 5-7%, comprised of pyrite and chalcocite in the oxidized zone and pyrite, chalcopyrite, sphalerite and molybdenite in the primary zone. Hydrothermal breccias, associated with the microdiorite, have intrusive clasts with sulphide content up to 15%, comprised of pyrite, chalcopyrite, chalcocite, bornite and minor molybdenite. Propylitic altered volcanics are generally pyritic with only minor chalcopyrite. Four high chargeability IP anomalies obtained by Placer were interpreted to contain up to 15% disseminated sulphide mineralization.

The Kulu prospects, shown on Figures B3 & B4 as the Mawaiyuen, Rapisme, and Rapilli prospects, have been explored in the past by CRA, BHP and Esso as supergene porphyry copper targets. Drilling on the Rapilli and Rapisme prospects, by CRA and BHP respectively, intersected mainly primary mineralization grading less than 0.2% copper with no gold analyses conducted. Bateman Kinhill (1993) reported that Esso obtained anomalous gold (from 0.02 to 0.09 g/t Au) from five creeks that drain the drill area. Addition checking of the gold content of the Kulu prospect areas is warranted.

The Talelumas prospect was located in 1984 by Esso following up anomalous arsenic in silt samples and pyritic float in creeks draining an airport circular feature. Gold mineralization discovered to date consists of narrow shear zones with quartz, sphalerite, chalcopyrite and pyrite.

A grab sample from a 20cm. wide sphalerite-quartz vein in the Misek creek area assayed 26.65 g/t Au, 24.0 g/t Ag, 2.14 Cu and 22.4% Zn. A 5m channel taken across the structure averaged 5.0 g/t Au (Bateman Kinhill, 1993).

**TABLE B4. Exploration Characteristics of Porphyry Targets on the Simuku Property.**

PROSPECT/ TARGET	GEOLOGY / ALTERATION	GEOCHEM- ISTRY	GEO- PHYSICS	DRILL HOLES	POTENTIAL
Simuku Porphyry	Elongate NNE- trending body of phyllitic altered dacite 2500 m by 200 to 500m Drill hole and rock chip data suggest that a	Central Simuku 800m x 400m soil, elevated cu and mo	Detailed airborne mag survey. IP survey defines leach cap	12 holes ( completed to date. Best intercepts as follows: SMD001 13m @ 0.33% Cu	Areas of potential for higher grade copper mineralisation such as overprinting phases of

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	<p>significant portion of the dacite averages 0.2% to 0.4% Cu and &lt;0.1 g/t Au.</p> <p>-Mineralised zones consist of multi-directional quartz pyrite chalcopyrite veins in phyllic altered dacite porphyry, with some pyrite and chalcopyrite in late gypsum-anhydrite veins. Early potassic alteration (K-feldspar, biotite, magnetite) is not mineralised.</p> <p>-Late potassic altered (mt, kspar) andesite porphyry dikes contain K-feldspar quartz magnetite veins and quartz pyrite +/- chalcopyrite magnetite shear veins and late anhydrite veins - no improvement in grade</p>		<p>zones.</p> <p>Mag low north of Mt Torabrum around SMH-07 may indicate leach capping</p>	<p>SMD003 13m @ 0.6% Cu and 51.2m @ 0.48% Cu</p> <p>SMD004 49.5m @ 0.57% Cu</p> <p>SMH007 63m @ 0.52 % Cu</p> <p>SMH008 66m @ 0.24% Cu</p> <p>SMH009 93m @ 0.24% Cu</p> <p>SMH010 58m @ 0.53% Cu</p> <p>SMH011 77m @ 0.5% Cu</p> <p>SMH012 277m @ 0.33% Cu Incl. 25m @ 0.54% Cu and 20.5m @ 0.54% Cu</p>	<p>alteration, better developed quartz vein and stockwork zones, hydrothermal breccias, and magnetic targets were not found to contain significantly better copper grades. Lower temperature structurally controlled base metal and gold mineralisation was found in several locations peripheral to the dacite porphyry. The best results were from outcrop of phyllic altered crystal lithic tuffs along Misasuguran Creek where a single grab sample returned a surprisingly high grade gold assay of 210 g/t Au. A nearby 20m chip channel returned 20m @ 0.2% Zn, and a 1.5m wide clay silica altered fault zone returned 7.2% Zn.</p>
Talelumis Porphyry,	<p>Elevated Cu 3100ppm and Au 0.65 g/t were found in argillic phyllic altered faulted intrusives.</p>	<p>City Resources work 1987-8 Grid soils up to 761ppb Au and 650 ppm Cu on east slope of Talelumas hill. Rock chip samples of outcrop in the area returned up to 25.65 g/t Au and 3% Cu and 3.3% Zn.</p>	<p>Mag high under Mt Talelumis</p>		<p>No work completed by Cyprus at Talelumis. Results to date suggest narrow zones of mineralization however creek traverses are warranted find extent mineralised float and o/c in the area.</p>

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		Costeans to follow-up rock chip data produced best results of 2.6m @ 7.84 g/t and 2.6m @ 5.07 g/t Au. BHP 1989 channel samples up to 7.06 g/t over 0.6m and 5.12 g/t Au over 1.0m			
Kulu Porphyry System  and the  Mawaiyeun-Rapisme-Rapilli Porphyry Systems	A 6 km N-S corridor, 5km east of Simuku. Mineralisation assoc with dioritic porphyry dykes that intruded early phases of the Kulu Complex and Baining Volcanics. Sulphides occur as disseminations and along fractures as veinlets. Primary sulphides are py, cpy, bo, mo, sph Secondary mineralisation include include: cc, cuprite, jar go, hem neotocitre, mal, az, chrysocolla	CRA and BHP in 1965 -80 ss and ridge and spur defined defined a number of Cu anomalies Rapisme headwater of Mawaiyuen Ck +300ppm Cu (followed up with 4DDH) Esso in 81-83 concluded that best copper soil anomaly was untested, further work –80mesh ss <u>returned up to 1.18 g/t Au. This was never followed up.</u> Placer 1995 Ridge and spur sampling defined low order Cu, Au, Pb, Zn and Mo anomalism with best results of 840ppm Cu, 630ppm Zn, 90ppm Pb, and 20ppm Mo. Soil geochem results were not anomalous-possibly due to surface leaching?? Placer preferred		7 ddh completed to test the Rapisme and Rapilli targets. Holes DK1-4 completed by BHP do not appear to have tested best a + 1000ppm soil anomaly, which appears to be located 200 to 300m SE of DK1-4, the best intercept was 16m @ 0.22% Cu, 3 holes completed by CRA NBK1-3 averaged less than 0.2% Cu  However a 900m gap between CRA and BHP drilling was the area of sig copper and mo mineralisation observed in o/c by Placer.	Field check and sampling of a number of gold and copper anomalies that have not been drill tested. Drill holes NBK1-4 did not test a 200mx 300m +1000 ppm Cu anomaly which appears to be located to be SE of these drill holes. A number of other drainage gold anomalies remain untested. The best result being 1.18 g/t Au occurs in the Mawaiyuen drainage.

		to concentrate on Simuku prospect			
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## B9.0 EXPLORATION BY MACMIN/NGG (FIGURES B3 – B6)

In 1996/1997 a Macmin joint venture with NGG completed 3,200m of bulldozer trenching with large intervals grading 0.2 to 0.5% Cu, and completed 8 drill holes totaling 857m (RC 584m; Diamond Core 273m). Significant copper mineralization was encountered in holes 7, 10, 11 and 12.

In 2002, a petrographic study was completed on sixteen drill core samples from hole SMH-012 by Terry Leach & Co (Topp et al., 2002).

Exploration since 1995 of the Sinivit project area has been conducted by NGG and Macmin with the work supervised by company personnel, but contractors used for mapping, sampling, petrographic studies and drilling. NGG is acquiring the Sinivit property from Macmin and both NGG and Macmin share the same professional personnel. Macmin and NGG management are qualified persons using criteria outlined in NI 43-101.

Surface exploration and drilling programs conducted by Esso Papua New Guinea/City Resources (PNG), Placer, Cyprus Amax, and BHP validate the presence of significant porphyry mineralization on the Simuku property. The writer has checked several Macmin/NGG PNG exploration projects and found their work to be of good quality.

## B10.0 DRILLING (FIGURES B5 & B6)

The Simuku prospect, the most advanced prospect with the license, has been tested by five diamond drill holes totaling 897.7m and 7 RC holes totaling 584m. Significant results from the Simuku prospect drilling are summarized in Table B5 with hole-locations shown on Figures B5 and B6.

**TABLE B5: Drill Intersections, Simuku Prospect (>0.1% Cu).**

HOLE NO.	MINERALISED INTERSECTION				ASSAY RESULTS			
	TOTAL DEPTH (M)	FROM (M)	TO (M)	INTERSECCION (M)	CU %	AU G/T	AG G/T	MO PPM
83-SM-1 (Esso)	174.5	2.5	174.25	171.75	0.19	0.05	1.7	25
	Including	5.5	18.95	13.45	0.33	0.03	1.5	49
		55.2	125.00	69.8	0.19	0.05	2.4	25
		125.0	174.25	49.25	0.28	0.07	1.4	34
83-SM-2 (Esso)	150.0	0	150.0	150.0	0.15	0.02	1.4	101
	Including	13.6	29.1	15.5	0.30	0.02	1.0	118
83-SM-3 (Esso)	150.20	0	150.2	150.2	0.35	0.06	3.4	21
	Including	17.2	24.8	7.6	0.47	0.06	0.9	5

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		51.4	100.0	48.6	0.40	0.08	3.1	19
		100.0	150.2	50.2	0.50	0.06	2.5	40
83-SM-4 (Esso)	150.0	0	150.0	150.0	0.32	0.04	1.3	23
	Including	24.7	65.4	40.7	0.64	0.04	1.9	28
		65.4	150.0	84.6	0.28	0.03	1.3	18
SMH-5	100	28	67	39	0.18	0.02	1.5	4
	Including	93	100	7	0.17	<0.02	<1.0	<5
		43	55	12	0.20	<0.02	2.8	<5
SMH-6	100				<0.10			
SMH-7	63	0	63	63	0.52	0.12	2.1	65
		18	63		0.58	0.11		79
SMH-8	66	4	66	62	0.24	0.12	3.0	15
SMH-9	93	6	93	87	0.24	0.12	1.0	16
	Including	6	16	10	0.46	0.15	1.4	26
SMH-10	82	24	82	58	0.53	0.10	2.3	30
		30	66	36	0.70	0.10	1.8	40
SMH-11	77	0	77	77.00	0.49	0.11	2.0	85
SMH-12	276.6	0	276.6	276.6	0.33	0.06		25
		0	91.3	91.3	0.43	0.06		81
	Including	21.5	46.4	24.9	0.54	0.05		82
	& Including	65.0	85.5	20.5	0.54	0.08		77
		147.6	203.6	56	0.38	0.10		
		258	276.6	18.6	0.36	0.10		

Notes:

Drilling by NGG/MacminRC – 584m

Diamond Core – 273m

Drilling by Esso 624.7m – Diamond Core

Trenching by Macmin 3.2km

Trenching by Placer 1.3km

## B11.0 SAMPLING METHODS AND APPROACH

Samples were dried and shipped to Analabs in Lae, PNG for base metal, and silver and gold analysis. Base metals and silver were analysed by AAS methods and gold by fire assay and AAS finish.

## **B12.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY**

RC samples from the Macmin (PNG) Pty Ltd. Drilling program were collected at 1m intervals downhole. Each sample was dried and weighed. Actual recoveries (recorded dry weight of each 1m drill interval) were compared with theoretical recoveries to ensure adequate and representative downhole sampling. Successive 1m intervals were combined using a clean riffle splitter, that sub-sampled ¼ portions of each 1m sample, to prepare samples for assay submission. Sample preparation, weighing of 1m returns to determine recoveries, and riffle splitting of 2m composite samples for assay submission, were all completed under the supervision of the site geologist. Logging of representative chips retained from each 1m sample, was completed on-site by a geologist. Representative chips, on a meter per meter basis, from each RC hole have been retained for future reference.

Diamond drill core was logged and split, using a core saw, on site. Half-core, from hole SMH-012, is stored at the Simuku Camp. Sixteen core samples were submitted at a later date to Terry Leach & Co for petrographic study (Topp et al., 2002).

Samples were sent to Analabs Pty Ltd, a division of Pilbara Laboratories (Nuigini) Pty Ltd, Lae, PNG, for gold assay, and Cu, Mo, Zn and Ag analysis.

## **B13.0 DATA VERIFICATION**

The writer has not taken personal samples to verify previous trench sampling results because chalcopryite, chalcocite and malachite visible in the trenches was adequate to explain previous trench sample results.

At the time of the writer's property examination the Simuku property had been explored and confirmed as a significant porphyry by City Resources, Esso, Nord Resources, BHP, CRA Explorations, and Placer. All of the previous operators confirmed the presence of low-grade porphyry mineralization on the Simuku property.

## **B14.0 ADJACENT PROPERTIES**

The Simuku property is situated in the WNW Kulu-Awit trend of porphyry copper-gold prospects (Figure B1) that was discovered in the late 1960s by Placer Prospecting Ltd. The Plesyumi copper prospect, part of the Mt. Nakru property, was described by Titley (1978). The Mt. Nakru prospect, in the central part of the porphyry belt, is described in the Mt. Nakru section of this report. The Talelumus, Rapisme and Rapilli porphyry prospects are also on Simuku (EL1077) property with further surface exploration need to develop targets comparable to the Simuku prospect.



## **B15.0 MINERAL PROCESSING AND METALLURGICAL TESTING**

The writer is not aware of any metallurgical test work completed on the Simuku property, but leach tests should be considered if continuity is demonstrated for a higher-grade portion of the supergene enriched zone.

## **B16.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES**

The Simuku prospect area is at the drilling stage with a total of 12 holes completed in a 3km by 300 to 500m wide mineralized zone. The drill hole spacing allows a qualified person to connect widely spaced holes because they have similar geology and are within similar intensity IP areas. The deepest hole, SMH-12, graded 0.33% Cu and 0.06 g/t Au over its entire 276.6m length and holes SMH-11 and SMH-7 contained 0.50% Cu and 0.52% Cu, respectively, over their entire lengths. Resource blocks can be constructed that would result in a multi million tonne inferred resource grading over 0.35% Cu with small precious metal credits. In a 1999 exploration summary for Cyprus Amax, Richardson (1999) stated, "A 2-week review of the Simuku prospect confirmed the presence of low grade porphyry copper mineralization in an elongate NNE-trending body of phyllic altered dacite porphyry measuring approximately 2500m by 200 to 500m. Diamond drill holes (12 holes, 1463m) and rock chip data suggest that a significant portion of the dacite averages 0.2% to 0.4% Cu and <0.1 g/t Au."

The writer has not completed the exercise to assign specific resources. Very large inferred resources have been cited by others but without knowing parameters used for calculation should not be included in a technical report. Resource calculations will become more meaningful if higher-grade zones can be defined within the large mineralized system at the Simuku prospect. If the Stage 2 drilling recommended by the writer is successful then resources should be calculated using the guidelines in NI 43-101.

Other porphyry prospects, on EL 1077, are at an early exploration stage and do not have sufficient data for resource determinations.

## **B17.0 OTHER RELEVANT DATA AND INFORMATION**

The Sukuma property has been worked by junior and major companies since the discovery of the Kulu-Simi Porphyry trend by CRA in 1965. The writer has summarized previous work in various sections of this report. The writer is not aware of any additional data that would change the conclusions and recommendations in this report.

## **B18.0 DISCUSSION OF SIMUKU PROPERTY**

The Simuku property is situated in the Kulu-Awit trend, a prominent WNW belt of mainly intermediate intrusive rocks with associated copper mineralization. Copper prospects within the

trend have enhanced precious metal content that requires further evaluation at both the Simuku, and Rapsime and Rapilli prospects.

At the Simuku prospects, four holes drilled by Esso in 1983 demonstrated the presence of a secondary enriched, chalcocite blanket in a zone above significant grades of primary porphyry copper mineralization. Hole SMD-4 intersected 40.7m grading 0.64% Cu in a secondary blanket above 84.6m of primary mineralization grading 0.28%Cu. Hole SM-3 ended in primary mineralization with 50.2m (100-150.2m) grading 0.50% copper and terminated in primary mineralization grading 0.66%. An eight hole drilling program completed by Macmin/NGG in 1987 resulted in good porphyry type mineralization in holes SMH-7 through SMH-12 with hole SMH-7 grading 0.52% Cu and 0.12 g/t Au over the 63m hole length, hole SMH-11 grading 0.49% Cu and 0.11 g/t Au over the 77m hole length, and hole SMH-12 grading 0.33% Cu and 0.06 g/t Au over the 276.6m full hole length. Only 12 holes have been drilled in a mineralized zone from 300 to 500m wide and over 3km long with further drilling justified by previous encouraging results.

## **B19.0 CONCLUSIONS AND RECOMMENDATIONS**

### ***B19.1 CONCLUSIONS***

Results of previous exploration surveys suggest that excellent exploration potential exists for both a economic supergene copper blanket overlying primary porphyry copper-gold mineralization, and for an economic, precious metal enhanced, primary porphyry copper system. Since phyllic altered crystal lithic tuff along Misasuguran Creek has produced a grab sample that returned an assay of 210 g/t Au, and a nearby 1.5m wide clay silica altered fault zone returned 7.2% Zn, the Misasuguran Creek area represents a possible low cost prospecting target with possible bonanza grade gold or base metal vein potential. Low cost assessment programs, consisting of geological and geochemical prospect, and hand trenching, can be used for follow-up of previously defined anomalous targets.

### ***B19.2 RECOMMENDATIONS***

A staged exploration program is recommended for further evaluation of the Simuku property with a Stage 1 program, consisting mainly of further geological, geochemical and surface trenching programs to meet assessment requirements. The Stage 1 program is estimated to cost CDN\$ 30,000 in 2002 and CDN\$ 50,000 in 2003. If sufficient funding is available, further drilling is justified with a Stage 2 (1,200m) drilling program estimated to cost CDN\$ 575,000. Details of these two stages are in Cost Estimates on Simuku property, below.

## **B20.0 AUTHOR'S OPINION THAT THE SIMUKU PROPERTY IS ONE OF MERIT**

The writer is of the opinion that the recommended programs are warranted and of sufficient merit to justify the investment in exploration set out in the Cost Estimates on Simuku property, below.

## **B21.0 COST ESTIMATES ON SIMUKU PROPERTY (TABLES B6 & B7)**

### ***B21.1 STAGE 1.COSTS FOR GEOLOGICAL, GEOCHEMICAL AND TRENCHING WORK ON SIMUKU PROPERTY (TABLE B6)***

Stage 1 cost for work preparatory to diamond drilling on the Simuku property has an estimated total of CDN\$ 80,000 (Table B6).

**TABLE B6. Stage 1 Costs Preparatory to Drilling on the Simuku Property.**

<b>Preparatory Administration</b>	
2002 For Filing of Annual Report, Permitting, etc.	CDN\$ 30,000
Public Relations, Site Inspection	
2003 Geological Mapping, Prospecting, Sampling and Hand Trenching	<u>50,000</u>
Stage 1 (Minimum Assessment) \$ 80,000	
<b><u>STAGE 1 TOTAL</u></b>	<b><u>CDN \$ 80,000</u></b>

### ***B21.2 STAGE 2 COSTS FOR DRILLING ON THE SIMUKU PROPERTY (TABLE B7)***

Stage 2 (noncontingent on Stage 1) estimated cost for diamond drilling on the Simuku property totals CDN\$ 575,000 (Table B7).

**TABLE B7. Estimated Diamond Drilling Costs on the Simuku Property.**

<b>GEOLOGICAL</b>		
Geologists:	20days @ \$400/day	CDN\$ 10,000
	120days @ \$300/day	36,000
	120days @ \$120/day	14,400
Technicians:	350days @ \$ 20/day	7,000
Labour	1,200days @ \$ 5/day	6,000
Supplies/Food:	2,000days \$15/day	30,000
<b>EQUIPMENT/CONSUMABLES/CAMP</b>		
	Expediting	8,000
	Consumables (including fuel)	14,600
	Capital Equipment (Bombardier, Generator, Saw)	30,000
	Vehicle	20,000
	Camp	20,000
<b>FREIGHT</b>		8,000
<b>TRAVEL</b>	Airfares/Accommodation	15,000
	Helicopter/Charter	30,000
<b>DRAFTING/MAPS</b>		10,000
<b>LEGAL</b>		2,000
<b>FEES/COMPENSATION/PUBLIC RELATIONS</b>		15,000
<b>BULLDOZER</b>	360 Hours @ \$100/hour	36,000
<b>DRILLING</b>	1,200m @ \$140/Meter	168,000
<b>ASSAYS</b>		20,000
	<b>Sub Total</b>	<b>\$ 500,000</b>
<b>MANAGEMENT (~10%)</b>		50,000
<b>CONTINGENCY</b>		<u>25,000</u>
	<b>STAGE 2 TOTAL</b>	<b><u>CDN \$ 575,000</u></b>

### **B21.3 STAGE 1 & 2 COSTS OF EXPLORATION ON THE SIMUKU PROPERTY**

Stage 1 and 2 costs for exploration on the Simuku property are estimated to total CDN\$ 655,000 (Tables B6 and B7).

### **B22.0 AUTHOR'S SIGNATURE FOR SIMUKU PROPERTY**

Dated: 1<sup>st</sup> October 2002

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Peter Christopher P.Eng., PhD

TECHNICAL REPORT ON THE MT. NAKRU, SIMUKU, SINIVIT, NORMANBY  
AND FENI PROPERTIES, PAPUA NEW GUINEA

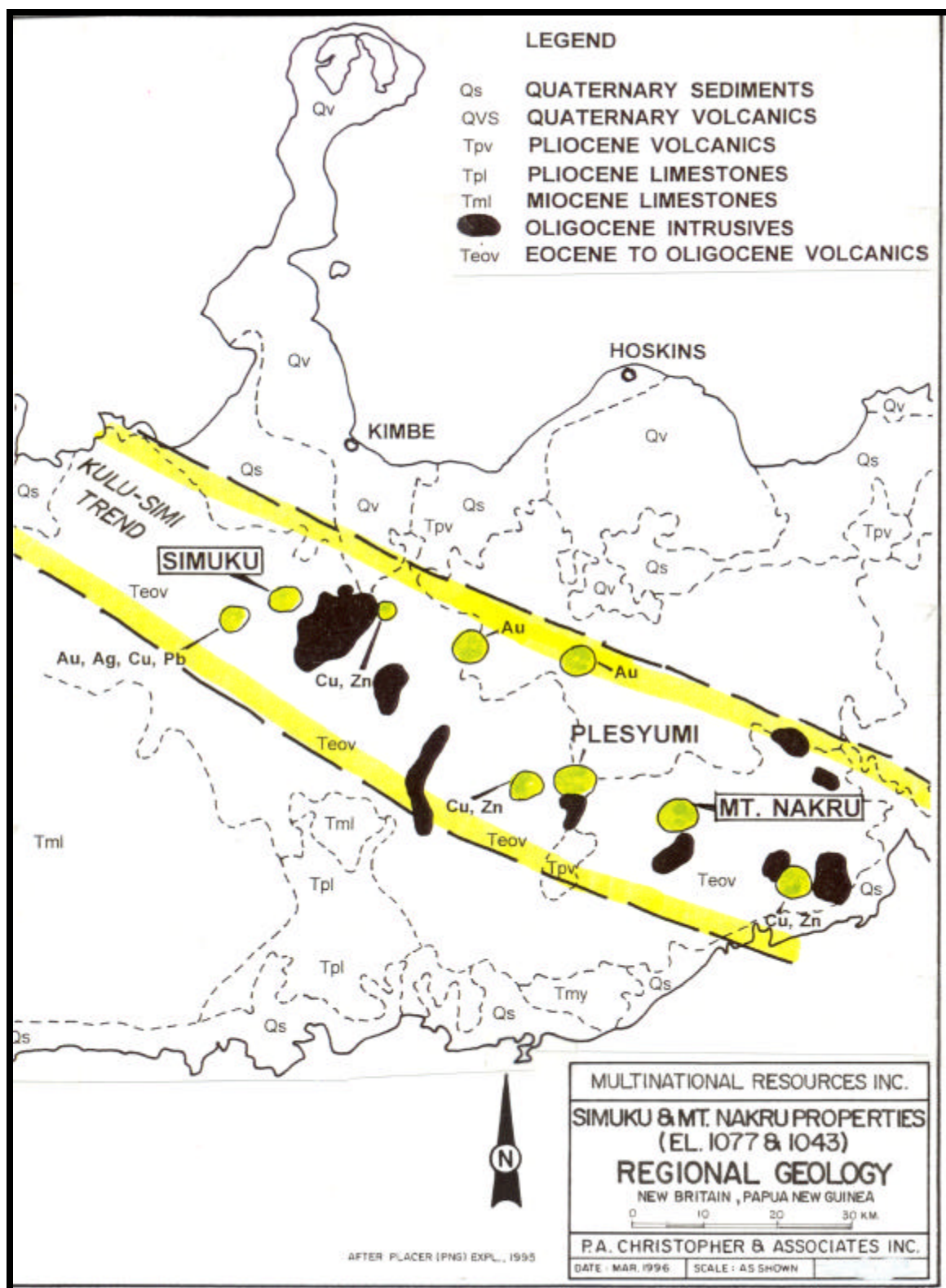


Figure B2. Simuku and Nakru Regional Geology.



TECHNICAL REPORT ON THE MT. NAKRU, SIMUKU, SINIVIT, NORMANBY  
AND FENI PROPERTIES, PAPUA NEW GUINEA

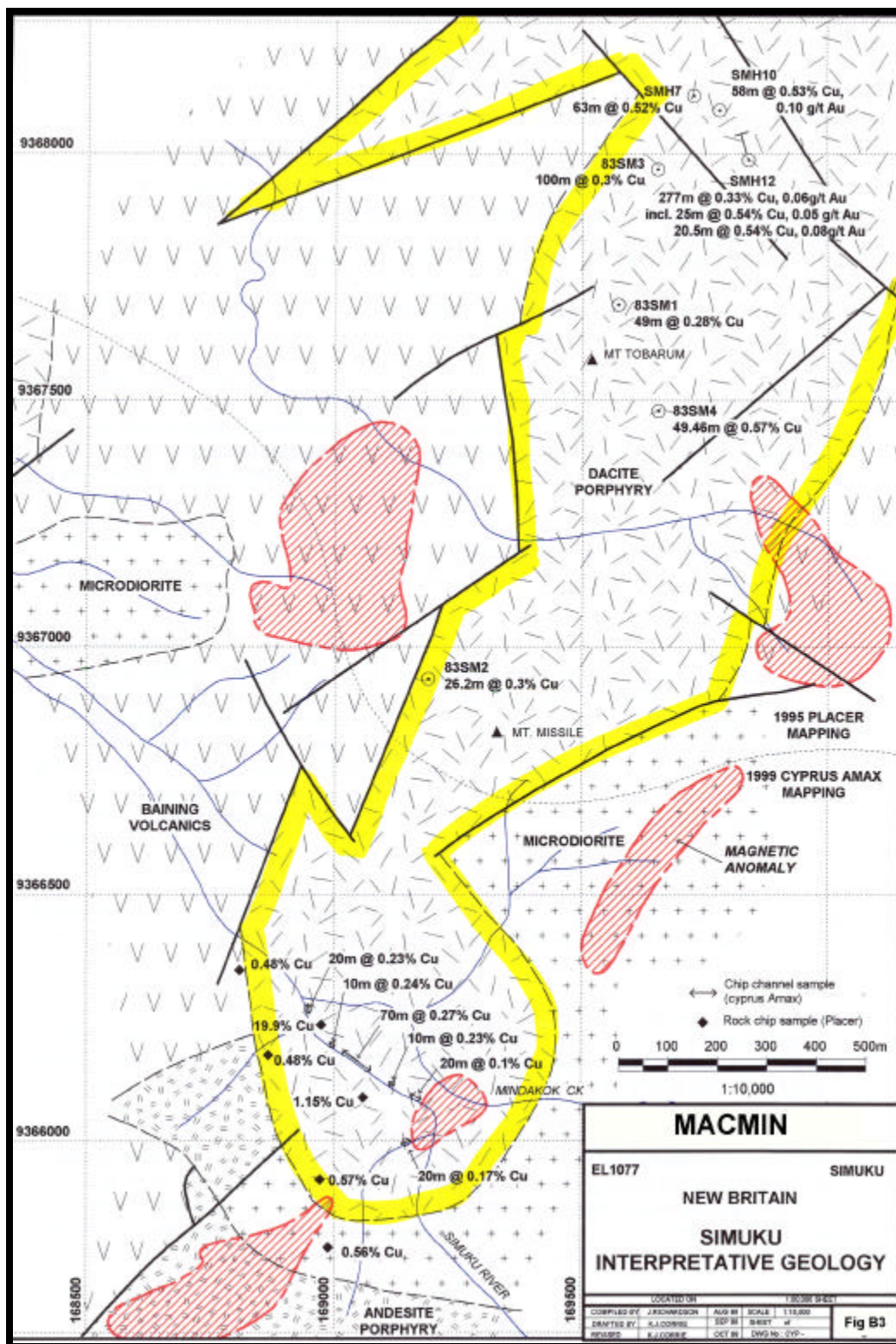


Figure B3. Simuku Interpreted Geology.

TECHNICAL REPORT ON THE MT. NAKRU, SIMUKU, SINIVIT, NORMANBY  
AND FENI PROPERTIES, PAPUA NEW GUINEA

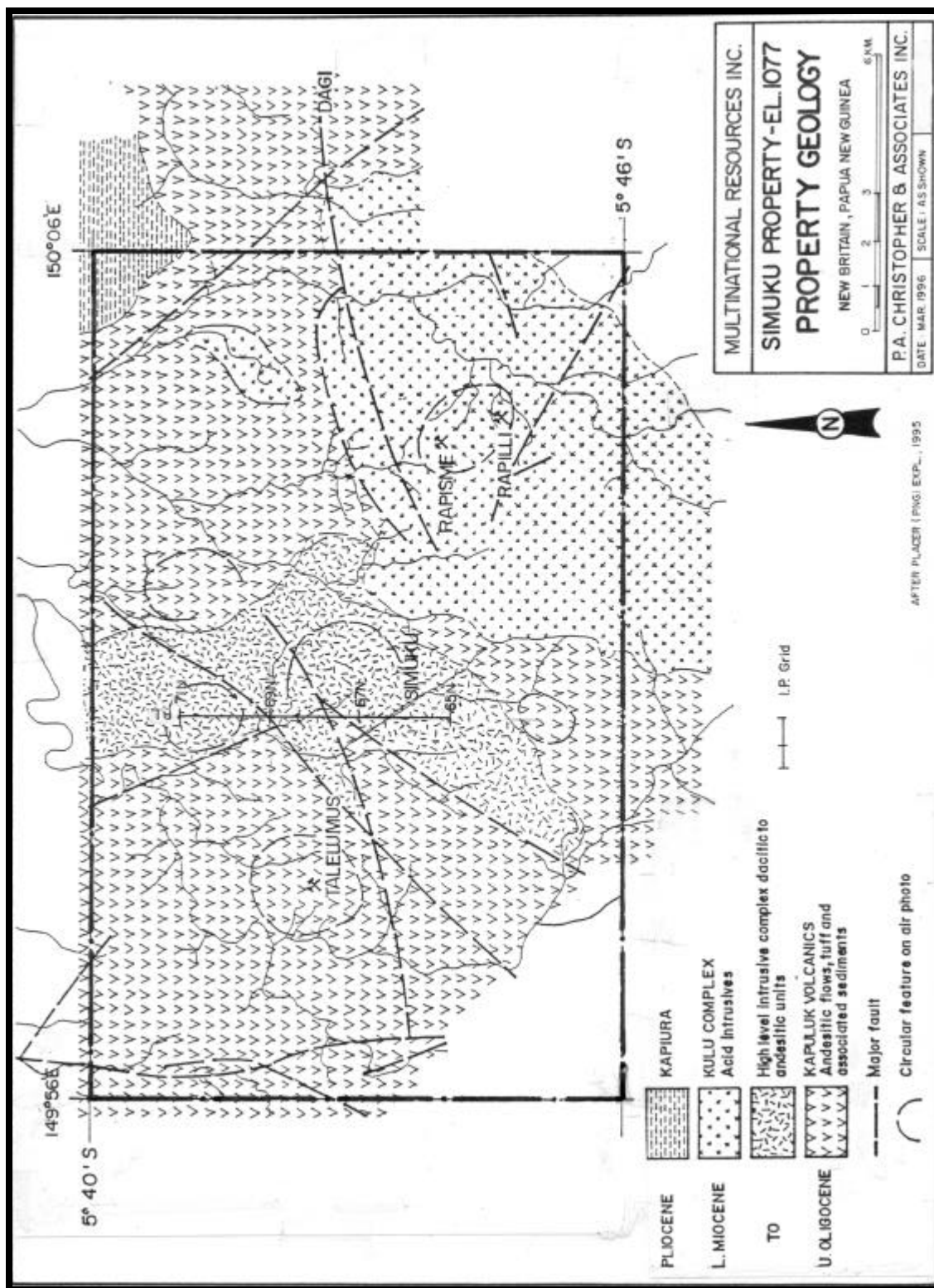


Figure B4. Simuku Property Geology.

9

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0 10 20 30 40 50m

SCALE

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50m

25m

12.5m

6.25m

3.125m

1.5625m

0.78125m

0.390625m

0.1953125m

0.09765625m

0.048828125m

0.0244140625m

0.01220703125m

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Technical Report by Peter A. Christopher, Peter Christopher & Associates Inc.  
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TECHNICAL REPORT ON THE MT. NAKRU, SIMUKU, SINIVIT, NORMANBY  
AND FENI PROPERTIES, PAPUA NEW GUINEA

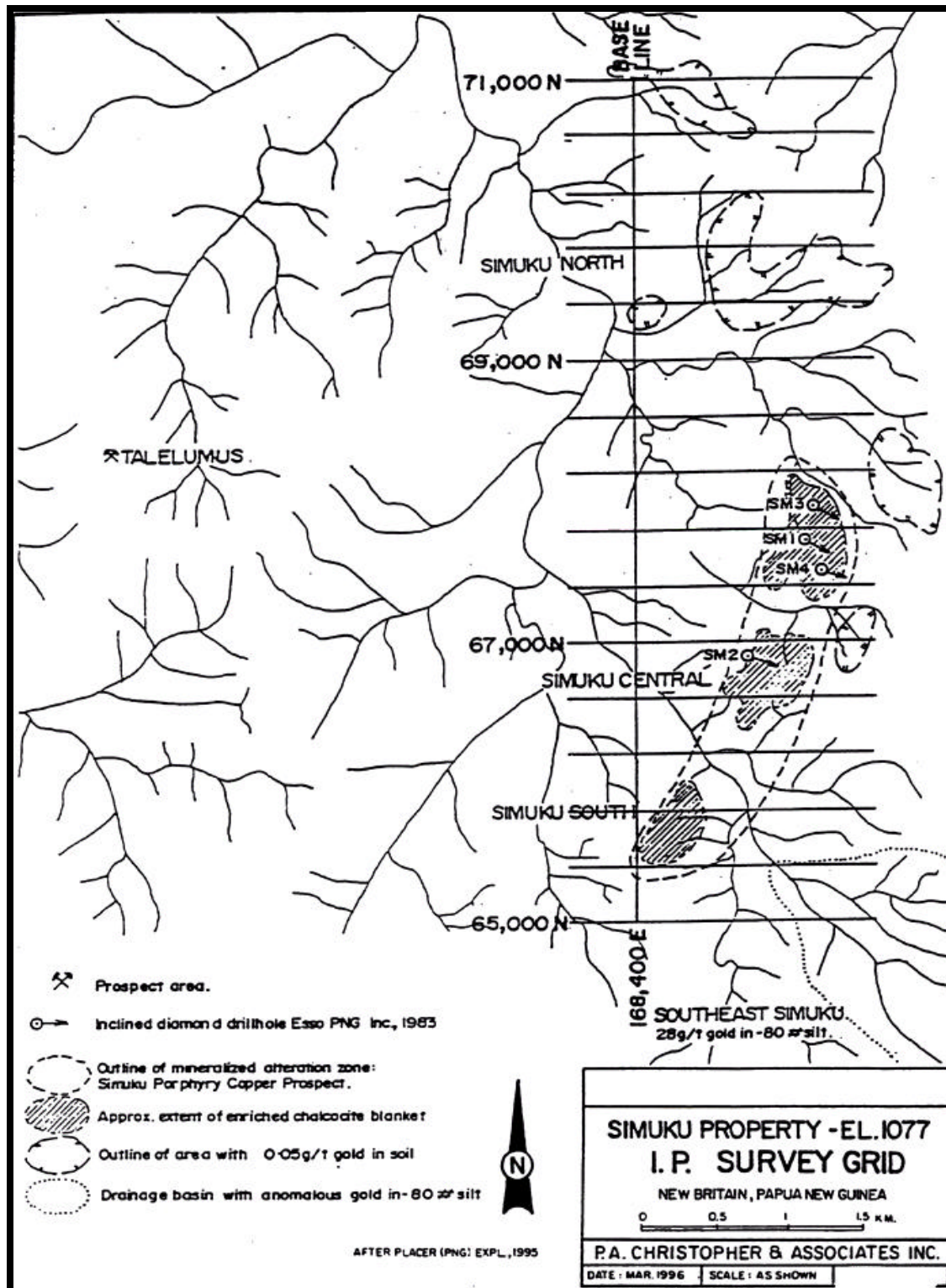


Figure B6. Induced Polarization Survey of the Simuku Property.

## **GENERAL SECTION (CONTINUED)**

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## **7.0 AUTHOR'S SIGNATURE FOR OVERALL REPORT**

Dated 15<sup>th</sup> September 2002

Peter A. Christopher P.Eng., Phd.

## 8.0 CERTIFICATE OF AUTHOR

I Peter A. Christopher P.Eng., Ph.D., with business address at 3707 West 34<sup>th</sup> Avenue, Vancouver, British Columbia V6N 2K9, do hereby certify that:

1. I am the owner and manager of and provide geological and consulting services through my company:  
Peter Christopher & Associates Inc  
3707 West 34<sup>th</sup> Avenue,  
Vancouver, British Columbia, CANADA V6N 2K9  
Fax 604-263-6564; Phone 604-263-6152;
2. I hold a B.Sc. (1966) from the State University of New York at Fredonia, a M.A. (1968) from Dartmouth College and a Ph.D. (1973) from the University of British Columbia.
3. I am a consulting geological engineer registered (#10474) with the Association of Professional Engineers and Geoscientists of British Columbia since 1976, and a Fellow of the Geological Association of Canada.
4. I have been practicing my profession as a geologist for over 35 years and as a consulting geological engineer since June 1981. I have authored over 200 qualifying engineering and exploration reports, and over 20 professional publications.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with professional association and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I am responsible for the preparation of the Technical Report titled “Technical Report Report on the Mt. Nakru, Simuku, Sinivit, Wild Dog, Normanby, and Feni Properties, Papua New Guinea” and dated 1<sup>st</sup> October 2002). I visited PNG from March 7-15, 1996 and visited the Mt. Nakru and Simuku properties on March 12, 1996 with about three hours spent on helicopter supported examinations of each property. I visited the Wild Dog property on March 8-9, 1996 for 2 days. I visited the Feni property on March 11, 1996 with about three hours spent on the property and 3 hours commuting by helicopter from Rabaul, New Britain Province, PNG. I visited the Normanby property on March 15-18, 1996 and February 26-28, 1998 for four days and three days respectively.
7. I have had prior involvement with the properties that are the subject of the Technical Report. I previously prepared technical reports entitled:  
Christopher, P.A., 1996. Report on the Mt. Nakru, Simuku, Wild Dog, Normanby, and Feni Properties, Papua New Guinea and Tafuse property, Vanuatu. For Multinational Resources Inc. (now New Guinea Gold Corporation) dated April 26, 1996.  
Christopher, P.A., 1998. Report on the Normanby, and Feni Properties, Papua New Guinea. For New Guinea Gold Corporation, dated March 15, 1998.  
Christopher, P.A., and Lindley, I.D., 2002. Technical report on the Sehulea property, Normanby Island, Milne Bay Province, Papua New Guinea; for New Guinea Gold Corporation, 10th September.  
Christopher, P.A., and Smith, Trevor W., 2002. Technical report on the Crater Mountain



property, Chimbu and Eastern Highland Provinces, Papua New Guinea; for New Guinea Gold Corporation, 10th September.

8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
9. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
10. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication of the Technical Report by the stock exchange, regulatory authority, or the company, including electronic publication in the public company files on their websites accessible by the public.

Dated: 1<sup>st</sup> October 2002

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Peter A. Christopher, P.Eng. Ph.D.

# APPENDIX A.0 AUTHOR'S ASSAY CERTIFICATES FOR CHECK SAMPLES.

ACME ANALYTICAL LABORATORIES LTD. 152 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Peter A. Christopher PROJECT PNG-1 File # 96-1172  
3707 W. 34th Ave, Vancouver BC V6M 2C9

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ml	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Mo	K	M	Au**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	%	%	%	%	%	%	%	%
E 59361	14	71	43	17	4.3	19	2	43	.58	7	<5	<2	<2	15	1.0	5	6	192	.19	.047	5	12	.15	36	.26	<3	.90	.13	.15	<2	205
FPC 96311-1	3	42	25	44	.7	5	5	176	7.08	53	<5	<2	<2	15	1.0	5	6	192	.19	.047	5	12	.15	36	.26	<3	.90	.13	.15	<2	205
RE FPC 96311-1	4	40	27	43	.6	3	4	166	6.98	46	<5	<2	<2	15	.9	4	<2	188	.18	.045	5	12	.15	31	.25	<3	.87	.13	.14	<2	165
FPC 96311-1	4	41	35	43	.5	6	5	173	7.03	51	<5	<2	<2	15	1.7	4	<2	189	.18	.046	4	12	.15	34	.26	<3	.88	.13	.14	<2	173
FPC 96311-2	58	83	26	6	.4	3	2	9	1.71	59	<5	<2	<2	222	<2	3	4	50	.01	.038	7	3	.01	459	.01	3	.96	.01	.43	<2	310
FPC 96311-3	96	145	30	8	1.5	4	3	16	2.54	109	<5	<2	<2	134	.3	7	3	48	.01	.009	4	2	<.01	107	.01	<3	1.01	.01	.44	<2	589
FPC 96311-4	433	253	49	62	1.5	29	31	240	13.10	1494	<5	4	2	271	2.0	192	<2	240	.06	.030	4	27	.19	34	.07	73	2.39	1.63	1.61	12	3631
NPC 96312-1	140	584	47	81	1.2	6	2	28	7.14	235	<5	<2	<2	10	1.4	68	44	25	.01	.012	1	10	.01	28	.01	<3	.59	.02	.04	2	1207
GPC 96315-1	31	3641	56	693	.8	3	38	77	45.91	112	<5	<2	6	3	2.7	<2	<2	328	.01	.192	1	59	.01	21	.03	<3	.27	<.01	.02	<2	414
WPC 96315-2	1	95	202	66	26.9	11	6	127	3.02	61	<5	55	<2	14	.6	3	2	81	.04	.014	3	66	.30	202	.01	<3	.90	.01	.12	3	25621
IPC 96316-1	2	30	8	19	39.4	18	87	1522	.54	5	<5	20	<2	1	.2	3	<2	17	.01	.002	1	20	.01	195	<.01	<3	.16	.01	<.01	5	22416
IPC 96317-1	1	16	12	12	20.2	6	8	184	.52	5	<5	45	<2	1	<.2	<2	<2	10	<.01	.002	1	16	.01	14	.01	<3	.11	<.01	.01	4	35816
STANDARD C2/NU-R	25	63	37	133	6.7	76	39	1139	4.30	43	17	7	40	57	23.0	22	23	80	.57	.104	46	71	.98	202	.09	26	2.09	.07	.15	14	479

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.

THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.

ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPM

- SAMPLE TYPE: ROCK AU\*\* ANALYSIS BY FA/ICP FROM 30 GM SAMPLE.

Samples beginning 'RE' are Retests and 'RSE' are Reject Retests.

DATE RECEIVED: MAR 28 1996

DATE REPORT MAILED: April 8/96

SIGNED BY: C. Christopher D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

TECHNICAL REPORT ON THE MT. NAKRU, SIMUKU, SINIVIT, NORMANBY  
AND FENI PROPERTIES, PAPUA NEW GUINEA

ACME ANALYTICAL LABORATORIES LTD.

852 E. HASTINGS ST. VANCOUVER BC V6A 1R6

PHONE(604)253-3158 FAX(604)253-1716

AA

GEOCHEMICAL ANALYSIS CERTIFICATE

AA

Christopher, Peter A. PROJECT NGG 98-1 File # 9800690

3707 W. 34th Ave, Vancouver BC V6N 2C9

SAMPLE#

	Mo	Cu	Pb	Zn	Ag	Mi	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au**	
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	%	%	%	%	%	%	%	ppm	ppm
E 81002	<1	67	5	45	3.2	16	109	847	3.79	26	9	4	<2	<1	<2	<3	<3	123	.01	.028	1	69	.03	36	.04	<3	1.28	.01	.02	<2	5.05	
E 81003	<1	53	6	41	3	22	20	532	1.88	403	<8	<2	<2	1	3	<3	<3	118	.02	.041	5	74	.08	31	.03	<3	.85	.01	.08	<2	3.38	
E 81004	<1	36	11	23	25	8	20	12	640	1.91	45	<8	10	<2	2	2	3	57	.04	.015	2	57	.10	19	.06	<3	.78	<.01	.02	<2	6.12	
E 81005	<1	26	8	15	60	0	10	9	548	1.07	10	<8	20	<2	3	2	3	30	.06	.006	1	37	.09	13	.04	<3	.49	<.01	.02	<2	23.88	
E 81006	1	21	15	14	132	.6	8	556	.76	7	10	71	<2	1	<2	3	<3	20	.01	.003	1	27	.02	27	.01	<3	.27	<.01	.01	<2	55.03	
E 81007	<1	19	8	9	12	.5	11	8	887	.63	3	<8	11	<2	1	2	<3	3	16	.03	.002	1	23	.03	27	.02	<3	.31	<.01	.01	<2	11.16
E 81008	1	49	13	15	16	.0	11	4	936	.94	12	<8	9	<2	2	2	<3	<3	22	.04	.006	1	25	.04	35	.01	<3	.29	<.01	.02	2	9.07
E 81009	<1	33	6	19	2.9	12	30	1307	2.58	45	<8	3	<2	1	<2	<3	5	68	.03	.013	5	49	.07	29	.01	<3	.99	<.01	.02	<2	3.53	
RE E 81009	<1	35	7	20	2.6	14	33	1376	2.74	50	<8	3	<2	2	2	<3	<3	73	.03	.014	6	53	.08	30	.01	<3	1.05	<.01	.03	<2	3.71	
E 81010	1	70	12	14	59	.2	6	7	423	.87	17	<8	38	<2	2	<2	3	<3	20	.01	.004	2	36	.03	47	.01	<3	.27	<.01	.02	2	50.69
E 81011	2	44	20	12	31	.0	17	15	752	.89	14	<8	14	<2	1	<2	<3	<3	24	.02	.004	1	35	.03	13	.01	<3	.33	<.01	.01	<2	16.26
STANDARD C3/AJ-1	26	67	36	162	5.8	40	12	799	3.36	57	15	<2	20	30	24	5	19	25	86	.61	.092	18	176	.62	155	.10	21	1.96	.04	.17	21	3.24

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THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.

- SAMPLE TYPE: ROCK AU\*\* BY FIRE ASSAY FROM 1 A.T. SAMPLE.

Samples beginning "RE" are Retests and "RE\*" are Reject Retests.

DATE RECEIVED: MAR 3 1998 DATE REPORT MAILED: MAR 6 1998

SIGNED BY: J. M. J.

J. D. TOYE, C. LEONG, J. WANG, CERTIFIED S.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.  
- SAMPLE TYPE: ROCK AU\*\* BY FIRE ASSAY FROM 1 A.T. SAMPLE.  
Samples beginning 'RE' are Retruns and 'REB' are Relect Results.

DATE RECEIVED: MAR 3 1998 DATE REPORT MAILED: MAR 6/98 SIGNED BY: *[Signature]* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

DATA: *[Signature]* VJL