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### LINECUTTING AND GEOPHYSICAL REPORT

ON THE

NAK 1 to 5 CLAIMS

Owned by

HERA RESOURCES INC.
Suite 350 P.O.Box 11611
650 W Georgia Street
Vancouver, B.C. V6B 4N9

SUB-RECORDER RECEIVED APR 5 1995

M.K. # ........... \$ ............ VANCOUVER, B.C.

Babine Lake Area
Omineca Mining Division
British Columbia, Canada

FILMED

MEOLOGICAL BRANCH

Latitude 55° 17' N

Longitude 6°

848

William A. Howell, P.Geo.

April 4, 1995.

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POLARIZATION SURVEY ON THE NAKINILERAK LAKE PROPERTY by D.A.	Klit
and J.Lloyd.	

### SUMMARY

The Nak claims are located in the Babine Lake area, Omineca Mining Division, British Columbia. The Nak Property consists of 11 claims, Nak 95-1 to 95-3, Nak 4 to 11, all located by Lorne Warren of Smithers B.C. and aguired under option by Hera Resources Inc.

Access for the work done on the claims was via helicopter from the end of the road to the south of the property a distance of some 3 Kms. Supplies and personnel were brought to the property from the end of the road or from Smithers, 30 min. by helicopter.

During the period October 6 to November 9, 1994, a base camp was set up and a cut and chained grid was established on the Nak 1 to 5 claims. The camp was closed down for the winter. The cut grid consisted of a 2600 m north-south baseline and tie line and 14 east-west cross lines 200 metres apart, 2000 to 3000 m in length. A total of 45200 m of line was cut.

During the period of October 15 to November 7, 1994, Lloyd Geophysics Inc. carried out a time domain Induced Polarization (IP) survey over the cut grid on the Nak Claims.

The IP survey outlined a central zone, believed to be the inner limits of a pyrite halo associated with classical porphyry copper alteration and sulphide zoning, as well as several other anomalous zones worthy of further exploration.

### INTRODUCTION

During the period October 6 to November 9,1994, Hera Resources Inc. conducted a exploration program on the Nak claims, Babine Lake area, Omineca Mining Division, British Columbia. The Claims are centred at Latitude 55° 17'N, longitude 126° 14' W on map sheet N.T.S.93 M/8.

The work consisted of camp construction, establishing a 45200 m cut grid on the Nak 1 to 5 claims, and conducting an Induced Polarization (IP) survey over the cut grid.

The area of the Nak property was originally staked by Noranda Exploration Company in 1964 following the detection of anomalous copper values in stream silt sediments northeast of Nakinilerak Lake. Over the next six years, Noranda completed airborne and surface geophysical programs, soil geochemical, geological mapping and alteration studies, limited trenching and 6,020 feet (1835 metres) of diamond drilling in 28 holes. Geological, geochemical and geophysical surveys were completed by Noranda on the Sno claims southeast of their original property, in 1971, which is now part of the southern portion of the present Nak property.

The northern portion of the Nak Claims includes most of the original Lynn property which was investigated by Ducanex Resources in the early 1970's. In addition to geochemical and geophysical surveys, 1,580 feet (480 metres) of diamond drilling was completed in eight holes.

Tri-Alpha Investments Ltd. optioned the Lynn property in 1992 and completed some grid construction prior to returning the claims to the owners. In addition, Noranda Exploration Company Ltd. conducted a 16 line km helicopter-borne magnitometer, electromagnetic and VLF-EM survey over the central portion of the claims on behalf of the owners in 1993. Geologists from Teck Exploration Ltd. collected bedrock and drill core samples in 1993, for petrographic and lithogeochemical studies.

### LOCATION AND ACCESS

The property is located in the Omineca Mining Division, British Columbia at Latitude 55° 17'N, Longitude 126° 14' W, on map sheet 93 M/8. The property is approximately 55 km north east of the city of Smithers B.C., as shown on figure 1.

Access to the property is via Helicopter from Smithers or via roads and ferry from Smithers to a point 3 km immediately south of the property. This route follows the highway from Smithers to the ferry dock at Topley Landing, across the lake to a landing south of the Newman Peninsula and thence northwards via logging roads to a point approximately 3 km south of the property. The remaining distance can either be walked or flown by helicopter chartered from Smithers.

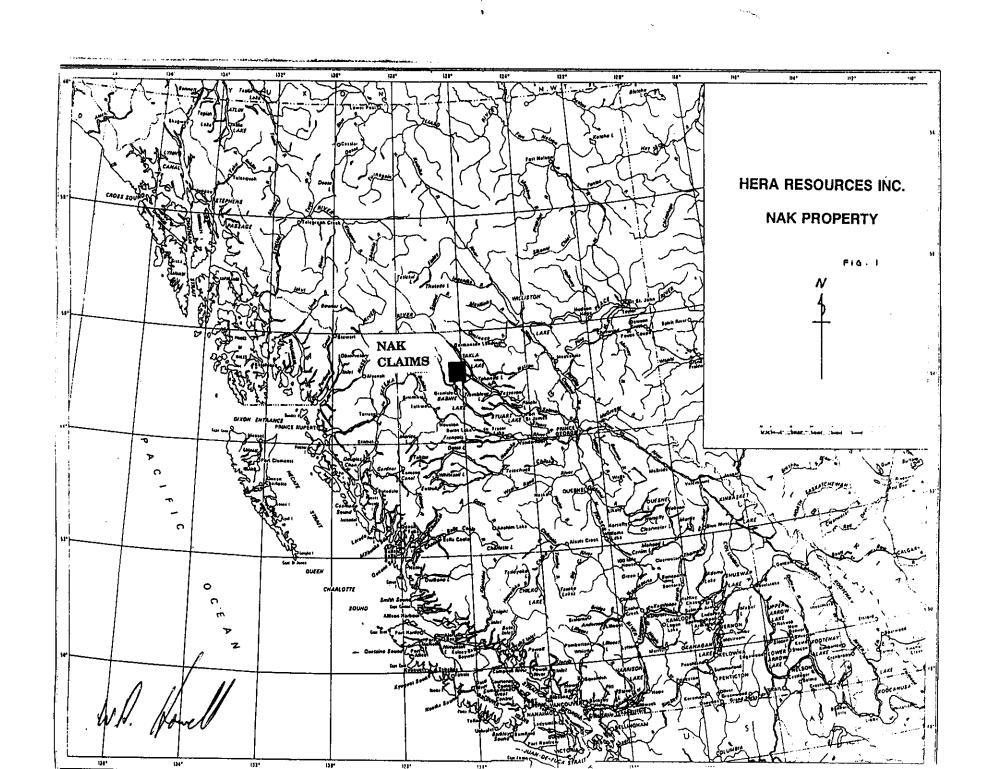
### PROPERTY STATUS AND CLAIM HOLDINGS

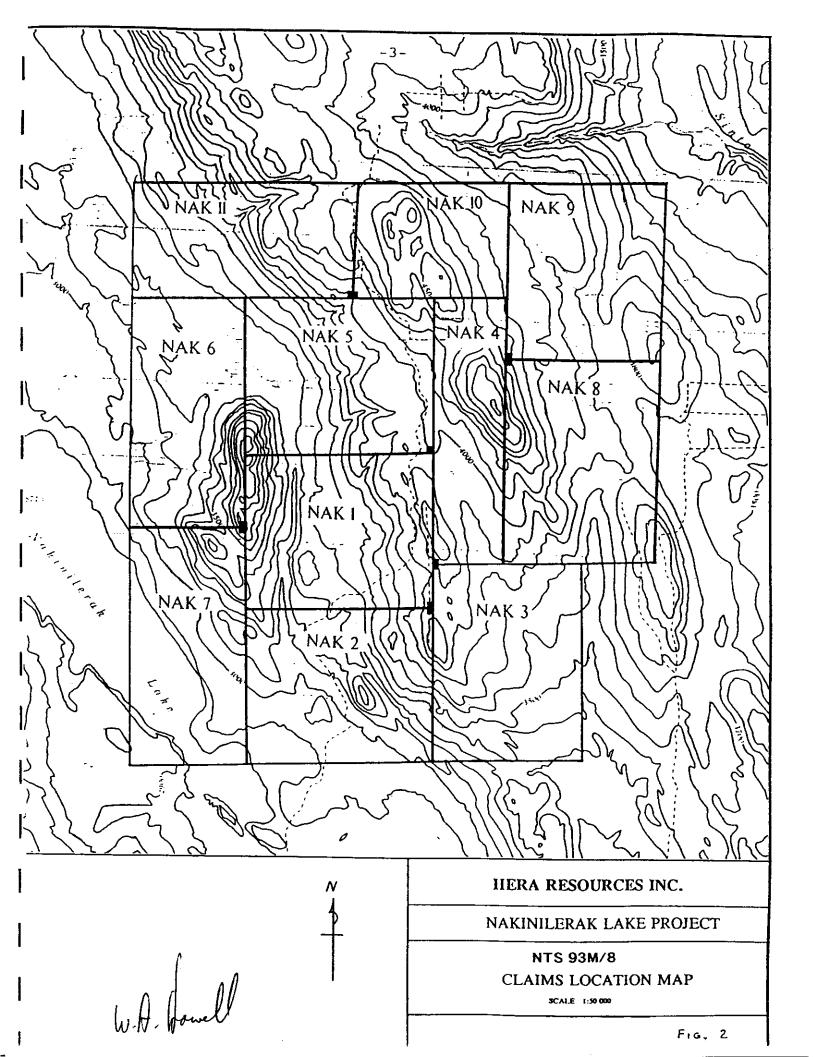
The Nakinilerak Lake property consists of 11 contiguous claims totalling 200 units located in the Omineca Mining Division, British Columbia. The claims were located by Lorne Warren of Smithers B.C. and are held, under option, in the name of Hera Resources Inc., Suite 350, P.O.Box 11611, 650 W Georgia Street, Vancouver B.C., V6B 4N9.

The table below shows the current status of the claims. The configuration of the claims are shown on figure 2.

CLAIM NAME	UNITS	RECORD NO.	COMPLETION DATE	EXPIRY DATE
NAK 95-1	20	333958	Feb.17,1995	Feb.17,1996
NAK 95-2	20	333959	Feb.17,1995	Feb.17,1996
NAK 95-3	20	333960	Feb.18,1995	Feb.18,1996
NAk 4	14	308552	April 9,1992	April 9,1995
NAK 5	20	308553	April 9,1992	April 9,1995
NAK 6	18	332417	Nov. 6,1994	Nov. 6,1995
NAK 7	18	332418	Nov. 6,1994	Nov. 6,1995
NAK 8	20	332419	Nov. 8,1994	Nov. 8,1995
NAK 9	20	332420	Nov. 8,1994	Nov. 8,1995
NAK 10	12	332421	Nov. 8,1994	Nov. 8,1995
NAK 11	18	332422	Nov. 8,1994	Nov. 8,1995
	200			

Work under this report will be applied to the Nak 4 and 5 claims.





### REGIONAL GEOLOGY

The northern Babine Lake area is within the Intermontain tectonic belt and is composed primarily of Mesozic volcanic and sedimentary rocks of the Jurassic Hazelton Group. Younger sequences include sedimentary and lesser volcanic rocks ranging in age from late Jurassic to early Tertiary. The layered rocks are intruded by granitic rocks of several ages including lower Jurassic Topley intrusions, Omineca intrusions of early Cretaceous age, late Cretaceous rhyolite and granitic porphyries (Bulkley intrusions) and Babine intrusions of early Tertiary (Eocene) age.

Porphyry copper mineralization in the Babine Lake area is well documented and is associated with three ages of intrusive activity. The most significant of which are the Eocene Babine intrusions which regionally, occur as small stocks and dyke swarms and host more than a dozen known porphyry deposits and occurrences including the former Granisle mine and the Bell mine.

Both of these mine deposits contained a significant gold content in addition to copper grades in the 0.45 to 0.70% range.

### PROPERTY GEOLOGY

The Nak property is underlain by a north west trending, east dipping sequence of andesite flows and fragmental rocks with argillaceous and cherty sediments which are part of the Hazelton Group of Jurassic age. Conglomerates bordering Nakinilerak Lake may be part of a younger sequence.

The volcanics and sediments are intruded by small monzonite-diorite stocks, sills, and dykes of Eocene age Babine porphyry. The largest

of these is a stock in the central portion of the property made up of several intrusive phases including fine grained quartz diorite and quartz monzonite along with several varieties of biotite (hornblende) - feldspar porphyry. Two mineralized and one post mineral biotite-hornblende porphyry were noted in a 1993 petrographic study conducted by Teck Exploration Ltd.

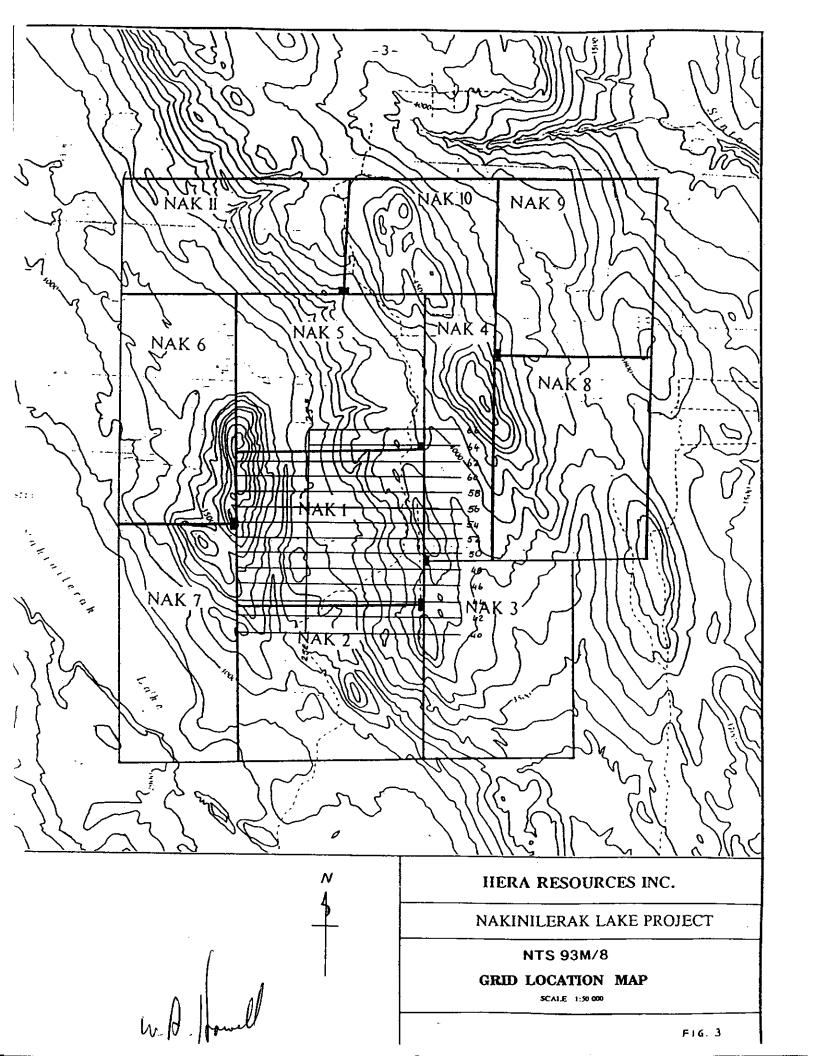
Rock outcropping in the central portion of the claims is not common and mapped intrusive contacts are not well defined. Numerous dykes and sills cut layered rocks several hundred metres south and west of the main stock and also near the north boundary of the property. Similar intrusive rocks underlie much of the ridge near the western claim boundary.

The central porphyry stock is situated near the projected intersection of northwest and northeast striking faults, a structural setting similar to other porphyry intrusions in the general area. Previous drilling by Noranda has demonstrated the presence of copper mineralization in favourable intrusive host rocks.

### 1994 WORK PROGRAM

The 1994 work program on the Nak claims consisted of a program of camp building, grid establishment by line-cutting, and a geophysical Induced Polarization (IP) survey over the cut grid. The program on the Nak claims covered the period from October 6 to November 9,1994.

The camp was built in a felled clearing approximately  $50 \times 75$  metres. The camp consists of two 12' x 14', and three 14' x 16' wood floored and 4 foot high walled frames for canvas tents. The tent frames were left standing at the end of the survey so that they may be utilized on future programs.



A cut grid, with a cut and brushed width of 1 metre, was established on the property. The grid consisted of a 2600 metre north-south baseline and tie line with east-west cross-lines 2000 to 3000 metres long turned 90 degrees at 200 metre intervals along the baseline. An outline of the grid in relationship to the respective claim boundaries is shown in figure 3. The base camp construction, line-cutting and camp operation were contracted to The Hewitt Co. and Associates. of Telkwa B.C.

A geophysical time domain, Induced Polarization (IP) survey, was conducted over the cut grid by Lloyd Geophysics Inc. of Vancouver B.C. between October 15 and November 7, 1994. Their report is appended and is a integral part of this report.

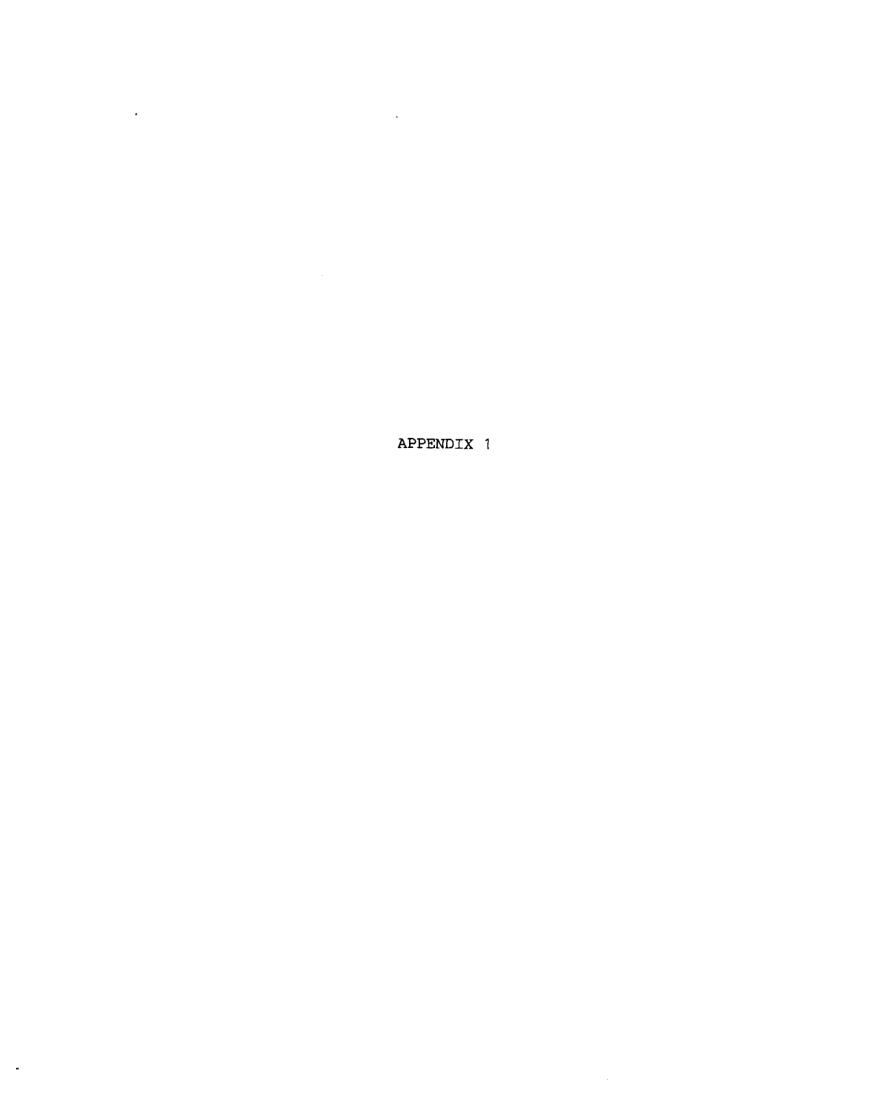
Helicopter services for the project were supplied by Highland Helicopters Ltd. From Smithers B.C.

### CONCLUSIONS AND RECOMMENDATIONS

The program was successful in outlining the central porphyry stock as well as several other anomalous zones worthy of further exploration.

An expanded Induced Polarization (IP) survey along with a correspondingly enlarged grid to cover the area of the survey is recommended to further evaluate the property and to further delineate existing geophysical anomalies.

A number of diamond drill holes, drilled to a depth of 300 metres is also recommended for the central anomalous zone which has been shown to be, at least in part, underlain by mineralized porphyry.

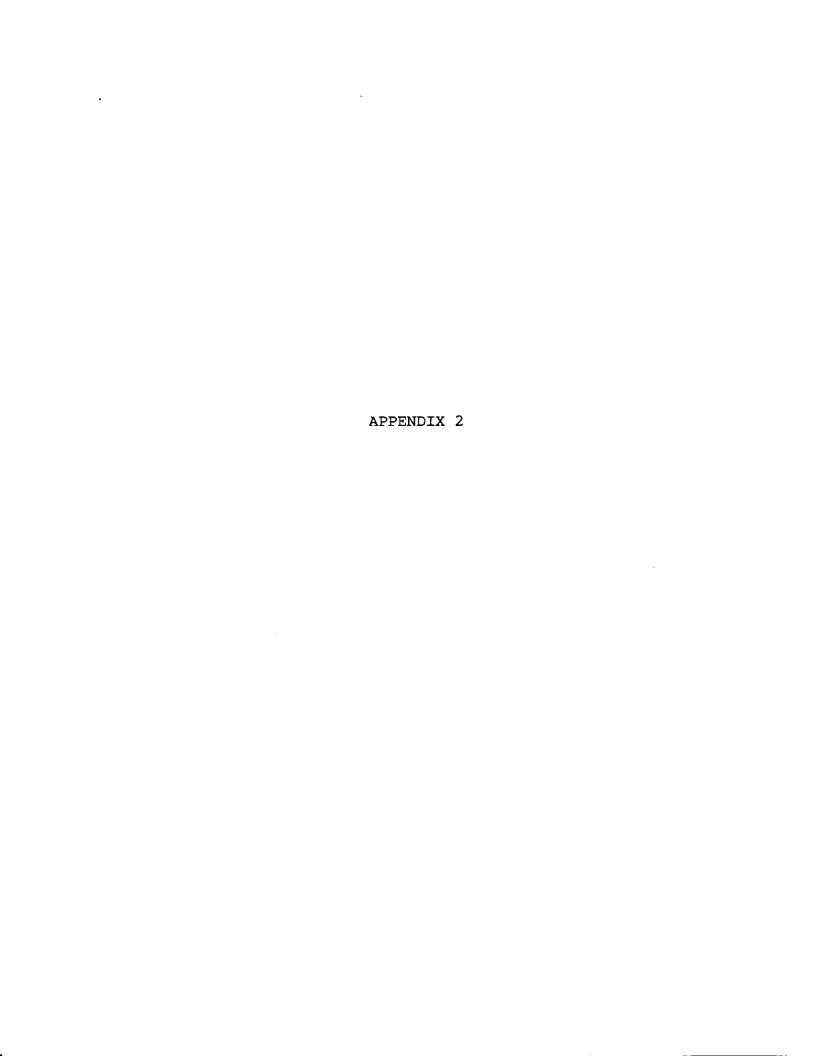


### Appendix I

### Statement of Qualifications

- I, William A. Howell, hereby certify that:
- 1. I am a Professional Geoscientist registered with the Association of Professional Engineers and Geoscientists of British Columbia, Reg. No. 20440.
- I reside and operate a consulting practice at 15294 96A
   Avenue, Surrey, B.C., V3R 8P5. Tel. (604) 583-2049
- 3. I am a graduate of the University of British Columbia with a degree of Bachelor of Science in Geology (1971).
- 4. I am a member of the Geological Association of Canada.
- 5. I have practised my profession as a geologist since 1971, having worked as an employee and/or consultant for several international mining corporations and junior resource companies.
- 6. This report is based upon field work undertaken on the property Oct. 6, 1994 to Nov. 9, 1994 and upon previous experience on the property and surrounding area.
- 7. I am a director, and own shares in Hera Resources Corp. From time to time I have participated, and expect to partipate in various share offerings and financial ventures of the company.

April 3, 1994. Surrey, B.C. William A. Howell, B.Sc. P.Geo.



### STATEMENT OF COSTS

### CAMP CONSTRUCTION AND LINECUTTING

Invoice - The Hewitt Co and Assoc

Invoice \$115943.70
Less Staking Costs 7975.00
\$107968.76

45200 m of linecutting total 9750 m of linecutting proportioned to the Nak 4 and 5 claims

Proportioned Costs to Nak 4 and 5 9750/45200 x 107,968.76 = \$23289.72

### I.P.SURVEY

Lloyd Geophysics Inc Invoice \$43,480.94

Proportioned Costs to Nak 4 and 5 9750/45200 x 43,480.94 = \$ 9379.18

### TRANSPORTATION

Highland Helicopters Ltd.

Invoices \$30220.22 Less Staking costs <u>4220.22</u> \$26000.00

Proportioned costs to Nak 4 and 5 9750/45200 x 26000.00 = \$ 5608.41

### SUPERVISION

W.A. Howell

15 days @ \$250.00/day = \$3750.00

Proportioned costs to Nak 4 and 5 9750/45200 x 3750.00 = \$ 808.90

TOTAL COST OF PROGRAM NAK 4 and 5 CLAIMS \$39,086.21

APPENDIX 3



# THE HEWITT CO. & ASSOC. MINING EXPLORATION SERVICES SMITHERS. B.C. (BOX 340, TELKWA, B.C., VOJ 2XO) PHONE: (604) 846-9244

FAX: (604) 846-9244

November 18, 1994

Hera Resources Inc. PO Box 11611 Suite 1200 650 W. Georgia Street Vancouver BC V6B 4N9

Attention: Bill Howell

### INVOICE

### FOR THE FOLLOWING SERVICE:

Supply of crew, gear, camp, staking crew and supplies for the Nak Grid, - Nakinilerak Lake.

1.	Food @ \$25/man day x 383 =	\$ 9,575.00
2.	Camp Building Supplies, lumber, plywood, Camp supplies, electrical, plumbing	4,740.89 1,044.90 \$ 5,785.79
3.	Camp Rental @ \$30/man day x 383 =	\$11,490.00
4.	Equipment Rental Chain saws 128 saw days x \$25.00 =	\$ 3,200.00
	Spare saws $4 \times $150.00$	600.00
	Saw Rental	\$ 3,800.00
	Truck #1 42 days x \$40/day Truck #2 8 days x \$75/day Suburban 4 days x \$75/day Quad 42 days x \$25/day First Aid 42 days x \$20/day	1,680.00 600.00 300.00 1,050.00 840.00 \$ 4,470.00
	Sub Total	\$ 8,270.00
5.	Pickets - 15 bundles @ \$20.00 Flagging - 182 rolls @ \$1.50 Top-O-Fill - 10 rolls @ \$4.00 Paint - 12 cans @ \$7.50 Photo finishing	\$ 300.00 273.00 40.00 90.00 22.68 \$ 725.68
	Felt Markers and Tape Tyvex Tags	179.54 125.00 \$ 1,030.22 /



# THE HEWITT CO. & ASSOC. MINING EXPLORATION SERVICES SMITHERS. B.C. (BOX 340, TELKWA. B.C., VOJ 2XO) PHONE: (604) 846-9244 FAX: (604) 846-9244

Hera Resources Inc. Invoice - November 18,1994

Page 2

	,		
6.	Gas and Oil/Diesel/Propane		
	Gas - Camp generator/water pump 605L		380.32
	Diesel - Camp stoves 800L Propane - Cook stoves, shower/day		403.20
	11 opane Cook stoves, snower/day		290.00
	Trucks (Subunban (Out of Case and all		405.05
	Trucks/Suburban/Quad Gas and oil	Ś	600.00 1 <b>,673.52</b>
l.A	BOXUR:	•	-,0,0,5
	Crew: P. Charbonneau, G. Charbonneau, J.D. Katz		
	C. Soby, K. Soby, R. Redding, R. Hayward, L. Hewitt.		
	D. Mewitt.		
Р.	Charbonneau: Sept.30th - Nov. 9th		
	No. days employed - 41 (+1 day off)		
	Grid days (includes safety trail, camp construction,		<i>-</i>
	camp site prep, demobe) 38 x \$175 Staking - 3 x \$200		6,650.00
	Studing 3 X 9200	-	7,250.00
G.	Charbonneau: Sept. 30th - Nov. 9th		7,230.00
	No. days employed - 42		
	Grid days - 39 x \$175		6,825.00
	Staking - 3 x \$200		600.00
κ.	Biddel: Oct. 1st Nov. 9th	Ş	7,425.00
	No. days employed - 39		
	Grid days ~ 36 x \$175		6,300.00
	Staking - 3 x \$200		600.00
7	D. Katz: Oct. 6th - Nov. 6th	\$	6,900.00
3.	No. days employed - 32		
	Grid days - 32 x \$175		5,600.00
_			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
c.	Soby: Oct. 3rd - Oct. 24th		
	No. days employed - 21 Grid days - 21 x \$175		2 (75 00
	Grid days 21 x \$175		3,675.00
Κ.	Soby: Oct. 3rd - Nov. 9th		
	"A" First Aid Ticket		
	No. of days employed - 38		
	3 days mobe @ \$175 35 days cook/first aid @ \$200		525.00 7.000.00
	22 days cook/litst aid & \$200	Š	7,525.00
R.	Bedding: Oct. 24 - Nov. 9th	~	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	No. of days employed - 15 (+ 2 days off)		<u> </u>
	Grid days - 12 x \$175 Staking 3 x \$200		2,100.00
	2 x 2200	Ś	600.00 2,700.00
		•	



THE HEWITT CO. & ASSOC. MINING EXPLORATION SERVICES (BOX 340, TELKWA, B.C., VOJ 2XO) PHONE: (604) 846-9244 (604) 846-9244

Hera Resources Inc. Invoice - November 18, 1994

Page 3

D. Hayward: Oct. 2nd - Oct. 4th No. of days employed - 3 Grid days 3 x \$175

525.00

L. Hewitt: Sept. 30th - Nov. 9th No. of days employed - 42 Grid days 39 x \$200 Staking 3 x \$200

7,800.00 600.00 \$ 8,400.00

Employee Benefits @ 20%

\$50,025.00 <u>10,005,</u>00 \$60,030.00

Hewitt Co. - 15% on Labour

9,004.50 \$69,034.50

Hewitt Co. Staking: 5 men at \$100/day x 3

1.500.00 \$70,534.50

#	1
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#	3
#	4
36	~

9,575.00 5,785.79 11,490.00

#5 #6 8,270.00 1,030.22 1,673,<u>52</u>

**GST @ 7%** 

7.584.73 \$115,943.76

\$108,359.03

Less ADVANCE.

5,000.00 \$110.943.76

TOTAL AMOUNT OWING THIS INVOICE - \$110,943.76

\$50,000 Dec 5/94

60,943.76 0/S) 657-4,266.06



4240 Agar Drive, Vancouver Airport South, Richmond, B.C. V7B 1A3

Bus: (604) 273-6161 Fax: (604) 273-6088

### IN ACCOUNT WITH

DATE:

Hera Resources Inc. Box 11611 #1200-650 W. Georgia Oct 31, 1994

L Vancouver, BC

INVOICE #:

V6B 4N9

P.O. #: 92531

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Box 11611
#1200-650 W. Georgia
Vancouver, BC
V6B 4N9

DATE: Nov 30, 1994

INVOICE #:

92828

P.O. #:

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Hera Resources Inc. ... Box 1161450 to --- 5

#1200-650 W. Georgia

Vancouver, BC  $W^{\infty}$ 

DATE: Nov 25, 1994

INVOICE #:

92788

P.O. #:

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11/06/94	59593			
	4.9	Hours	675.00	3,307.50
	539.0	Fuel (litres)	.55	296.45
11/07/94	59594			
	5.5	Hours	675.00	3,712.50
6.	605.0	Fuel (litres)	.55	332.75
11/08/94	59595			
	3.6	Hours	675.00	2,430.00
	396.0	Fuel (litres)	.55	217.80
11/09/94	59596			
	2.4	Hours	675.00	1,620.00
	264.0	Fuel (litres)	.55	145.20

Chag-lo NAIL Project

12,062.20

GST 7.00% 844.35

G.S.T. - REGISTRATION #R102349743

INVOICE TOTAL:

\$ 12,906.55

TERMS: Net 30 days from date of invoice Interest at 1.5% per month will be

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HERA RESOURCES INC. BOX 11611 #1200-650 W. GEORGIA VANCOUVER, BC V6B 4N9 DATE: SEP 21, 1994

INVOICE #: 91713

P.O. #:

DATE	FLIGHT TICKET #	FLIGHT TIME	RATE/HOUR	CHARGE
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Hera Resources Inc. Box 11611 #1200-650 W. Georgia Vancouver, BC V6B 4N9 DATE: Oct 27, 1994

INVOICE #: 92400

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BOX 11611
#1200-650 W. GEORGIA
VANCOUVER, BC
V6B 4N9

DATE: OCT 21, 1994

INVOICE #:

92212

P.O. #:

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10/07/94	5956 <i>7</i>	3.0	Hours		675.00	2 025 00	
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INVOICE TOTA	L:					\$ 5,981.09	

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### IN ACCOUNT WITH

Hera Resources Inc. Box 11611 #1200-650 W. Georgia Vancouver, BC V6B 4N9



DATE: Oct 26, 1994

INVOICE #:

92350

P.O. #:

DATE	FLIGH	T TICKET #	FLIGHT TIME	··	RATE/HOUR	CHARGE
10/12/94	59571					
		1.1	Hours		675.00	742.50
		121.0	Fuel (litres)		.55	66.55
10/16/94	59573				•	
		4.2	Hours		675.00	2,835.00
		462.0	Fuel (litres)		.55	254.10
						3,898.15
			G	ST	7.00%	272.87
G.S.T REGIS	TRATION #R10	2349743				-
INVOICE TOTAL:		TCRAC: Not 20 days for dec.			\$ 4,171.02	
		TERMS: Net 30 days from date of invoice Interest at 1.5% per month will b charged on all overdue accounts	e			

KUG , SR

**推出,** 

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TO, IS SUBJECT TO THE TERMS, CONDITIONS AND COMPAND HELICOPTERS ORTH IN ITS TARIFF (E.G. LIABILITY FOR LOSS OR DAMAGE TO GOODS IS LIMITED TO CENTS PER POUND) FILED WITH THE A T.C., AN EXTRACT OF WHICH IS AVAILABLE FOR EXAMINATION AT THE OFFICE OF HIGHLAND HELICOPTERS LTD.

### Appendix B

### **COST OF SURVEYS AND REPORTING**

Lloyd Geophysics Inc. contracted the IP data acquisition on a per diem basis. The mobilization/ demobilization, living and travelling expenses, truck charges, data processing, consumables and map reproduction and interpretation and report writing were additional costs. The breakdown of these costs were as follows:

IP Data Acquisition	\$ 31,500.00
Mobilization/Demobilization	4,500.00
Living and Travelling Expenses	859.65
Truck Charges	1,523.50
Data Processing	487.50
Consumables and Map Reproduction	640.74
Interpretation and Report Writing	1,125.00
Subtotal	40,636.39
G.S.T. @ 7%	<u>2,844.55</u>
TOTAL	\$ <u>43,480.94</u>



APPENDIX 4

## HERA RESOURCES INC.

# A GEOPHYSICAL REPORT ON AN INDUCED POLARIZATION SURVEY ON THE NAKINILERAK LAKE PROPERTY

Babine Lake Area Omineca Mining Division British Columbia, Canada

N.T.S. 93M/8E Latitude 55° 17'N Longitude 126° 14'W

by

Daniel A. Klit, B.Sc. and John Lloyd, M.Sc., P.Eng.

LLOYD GEOPHYSICS INC. VANCOUVER, BRITISH COLUMBIA

FEBRUARY 1995



### SUMMARY

During the period of October 15 to November 7, 1994, Lloyd Geophysics Inc. carried out a time domain Induced Polarization (IP) survey on the Nakinilerak Lake Property in the Babine Lake area of west-central British Columbia for Hera Resources Inc.

The IP survey successfully outline a central porphyry stock as well as several other anomalous zones worthy of further exploration by drilling.

A total of 4,700 metres (15,400 feet) of Phase I drilling has been recommended as an initial test of the IP targets. If encouraging results are obtained then a follow-up Phase II drill programme totalling 6,000 metres (20,000 feet) is recommended.

Finally, additional IP surveying is recommended to close off and determine the extent of anomalous zones to the south and to the west. If geology suggests the potential for the presence of another intrusive stock near the northwest corner of the grid then additional IP in this area is recommended to close off the zone.



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### 1.0 <u>INTRODUCTION</u>

During the period of October 15 to November 7, 1994, Lloyd Geophysics Inc. carried out a time domain Induced Polarization (IP) survey on the Nakinilerak Lake Property in the Babine Lake area of west-central British Columbia for Hera Resources Inc.

The IP survey was designed to systematically outline anomalous IP targets associated with a large porphyry stock in the central part of the property which could then be tested with follow-up drilling.

### 2.0 PROPERTY LOCATION AND ACCESS

Nakinilerak Lake is 30 km north of Bell Copper mine on Babine Lake and 80 air km northeast of Smithers in west-central British Columbia (Figure 1).

Logging roads along the east side of Babine Lake provide access to Morrison Lake from which a 15 km bulldozer road extends through the central part of the present property.

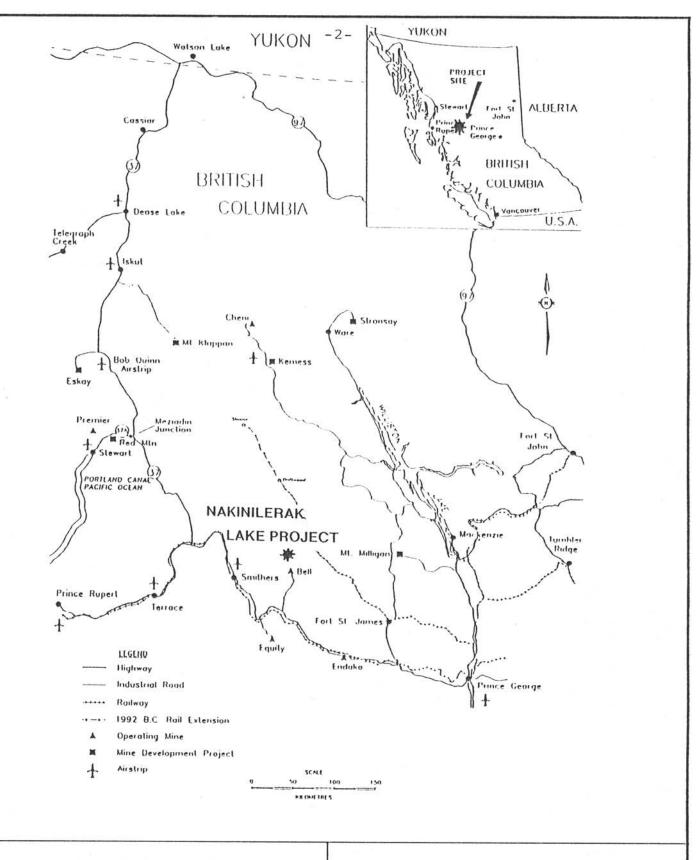
### 3.0 PROPERTY STATUS AND CLAIM HOLDINGS

The Nakinilerak Lake property consists of 11 contiguous mineral claims totalling 200 units located in west-central British Columbia. The claim locations as provided by Hera Resources Inc. are shown in Figure 2.

### 4.0 REGIONAL GEOLOGY

The northern Babine Lake area is within the Intermontane tectonic belt and is underlain primarily by Mesozoic volcanic and sedimentary rocks of the Jurassic Hazelton Group.





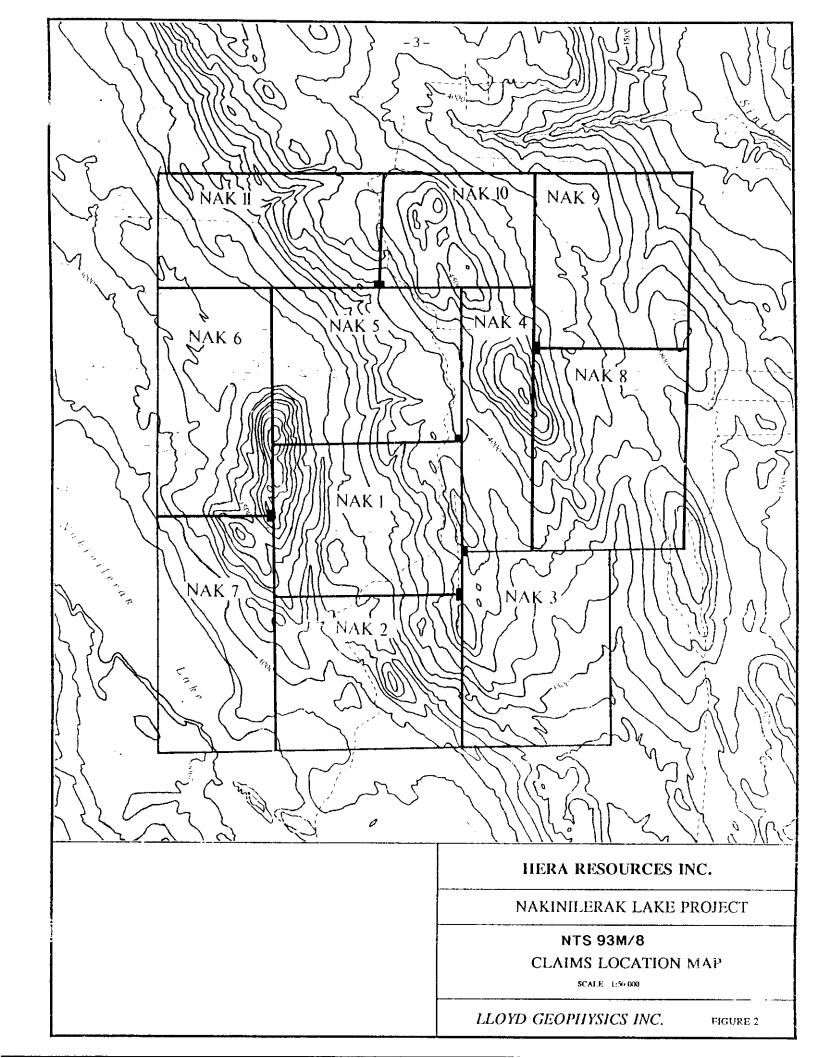
### HERA RESOURCES INC.

## NAKINILERAK LAKE PROJECT

PROPERTY LOCATION MAP

LLOYD GEOPHYSICS INC.

FIGURE 1



Younger sequences include sedimentary and lesser volcanic rocks ranging in age from late Jurassic to early Tertiary. The layered rocks are intruded by granitic rocks of several ages including Lower Jurassic Topley intrusions, Omineca intrusions of early Cretaceous age, late Cretaceous rhyolite and granodiorite porphyries (Bulkley intrusions) and Babine intrusions of early Tertiary (Eocene) age.

Porphyry copper mineralization in the Babine Lake area is well documented and is associated with three ages of intrusive activity. The most significant are the Eocene Babine intrusions which occur as small stocks and dyke swarms and host more than a dozen known porphyry copper deposits and occurences including the former Granisle mine and Noranda's Bell Copper mine.

These deposits have a significant gold content in addition to copper grades in the 0.45 to 0.70% range.

### 5.0 PROPERTY GEOLOGY

The Nakinilerak Lake property is underlain by a northwest trending, east dipping sequence of andesite flows and fragmental rocks and argillaceous and cherty sediments which are part of the Hazelton Group of Jurassic age. Conglomerates bordering Nakinilerak Lake may be part of a younger sequence.

The volcanics and sediments are intruded by small monzonite-diorite stocks, sills and dykes of Babine porphyry of Eocene age. The largest of these is a 1500 x 1200 metre stock in the central property area which is made up of several intrusive phases including fine-grained quartz diorite and quartz monzonite and several varieties of biotite (hornblende)-feldspar porphyry. Two mineralized and one post-mineral BFP phases were noted in the 1993 petrograpic study.



Intrusive contacts are not well defined and numerous dykes and sills cut layered rocks several hundred metres south and west of the main stock and near the property north boundary. Similar intrusive rocks underlie much of the ridge near the western claim boundary.

The central porphyry stock is situated near the intersection of northwest and northeast striking faults, a structural setting similar to other porphyry intrusions in the area.

#### 6.0 PREVIOUS WORK

Original claims were staked in the area by Noranda Exploration Company, Limited following the detection of anomalous copper values in stream sediments northeast of Nakinilerak Lake in 1964. Over the next six years, Noranda completed airborne and surface geophysical programmes, soil geochemistry, geological mapping and alteration studies, limited bulldozer trenching and 6,020 feet (1835 metres) of diamond drilling in 28 holes. Geological, geochemical and geophysical surveys were completed by Noranda on the Sno claim group, southeast of the main property, in 1971. This area is included in the southern part of the present property.

The northern part of the property includes most of the original Lynn property which was investigated by Duncanex Resources in the early 1970's. In addition to geochemical and geophysical surveys, 1,580 feet (480 metres) of diamond drilling was completed in eight holes.

Tri-Alpha Investments Ltd. optioned the claims in 1992 and completed some grid construction in early 1993 prior to returning the claims to the owner. Noranda Exploration Company, Limited, conducted a 16 line-kilometre helicopter-borne magnetometer, electromagnetic and VLF-EM survey over the central part of the claim block on behalf of the owner in February of 1993. Bedrock and drill core samples



were collected in mid-1993 for subsequent petrographic and lithogeochemical studies by J.L. Oliver of Teck Exploration Ltd.

### 7.0 INSTRUMENT SPECIFICATIONS

The equipment used was a time domain measuring system consisting of a Wagner Leland/Onan motor generator set and a Mark II transmitter manufactured by Huntec Limited, Toronto, Canada and a 6 channel IP-6 receiver manufactured by BRGM Instruments, Orleans, France. The Wagner Leland/Onan motor generator supplies in excess of 7.5 kilowatts of 3 phase power to the ground at 400 hertz via the Mark II transmitter.

The transmitter was operated with a cycle time of 8 seconds and the duty cycle ratio: [(time on)/(time on + time off)] was 0.5. This means the cycling sequence of the transmitter was 2 seconds current "on" and 2 seconds current "off" with consecutive pulses reversed in polarity.

The IP-6 receiver can read up to 6 dipoles simultaneously. It is microprocessor controlled, featuring automatic calibration, gain setting, SP cancellation and fault diagnosis. To accommodate a wide range of geological conditions, the delay time, the window widths and hence the total integration time is programmable via the keypad. Measurements are calculated automatically every 2 to 4 seconds from the averaged waveform which is accumulated in memory.

The window widths of the IP-6 receiver can be programmed arithmetically or logarithmically. For this particular survey the instrument was programmed arithmetically into 10 equal window widths or channels,  $Ch_0$ ,  $Ch_1$ ,  $Ch_2$ ,  $Ch_3$ ,  $Ch_4$ ,  $Ch_5$ ,  $Ch_6$ ,  $Ch_7$ ,  $Ch_8$ ,  $Ch_9$  (see Figure 3). These may be recorded individually and summed up automatically to obtain the total chargeability. Similarly the resistivity  $(\rho_a)$  in ohm-



metres is also calculated automatically.

The instrument parameters chosen for this survey were as follows:

Cycle Time  $(T_c)$  = 8 seconds

Ratio (<u>Time On</u>) = 1:1 (Time Off)

**Duty Cycle Ratio** 

(Time On) = 0.5 (Time On) + (Time Off)

Delay Time  $(T_p)$  = 120 milliseconds

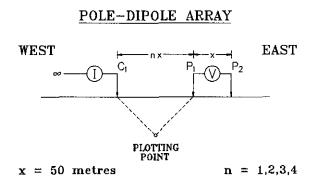
Window Width  $(t_p)$  = 90 milliseconds

Total Integrating

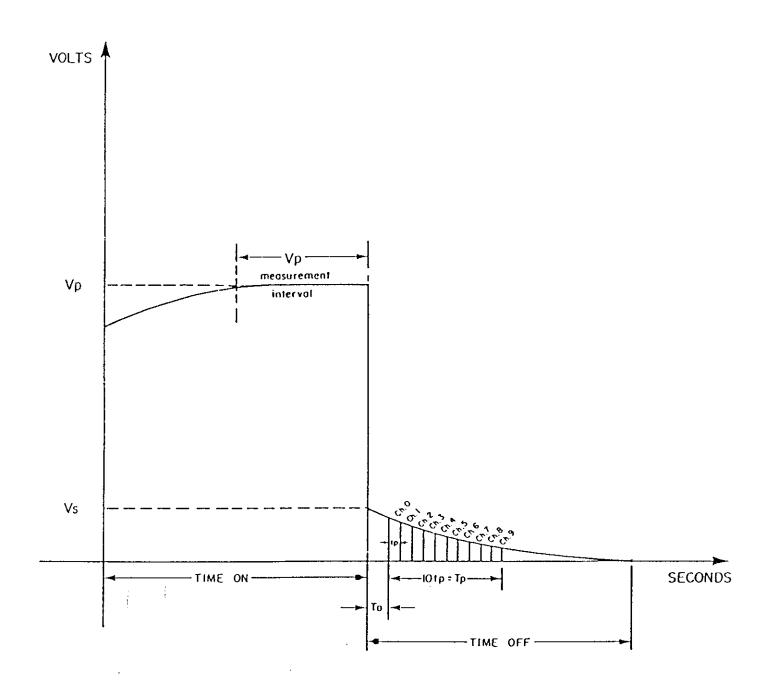
Time  $(T_p)$  = 900 milliseconds

### 8.0 **SURVEY SPECIFICATIONS**

The Induced Polarization (IP) data was collected using the pole-dipole array which was configured as follows for all of the lines surveyed:







# **BRGM IP6 RECEIVER PARAMETERS**

Figure 3



The dipole length (x) is the distance between  $P_1$  and  $P_2$  and determines mainly the sensitivity of the array. The electrode separation (nx) is the distance between  $C_1$  and  $P_1$  and determines mainly the depth of penetration of the array.

The survey measurements were made with the current electrode  $C_1$ , to the west of the potential measuring dipole  $P_1P_2$ . Measurements were taken for x=50 m and for n=1 to 6.

#### 9.0 DATA PROCESSING

All the geophysical data collected was processed in the field using a 386 computer and a Fujitsu colour printer. Using this system, IP pseudo-sections and contour maps were generated and plotted at the end of each survey day.

In the office, using appropriate software, final data processing was completed and the field data was transferred to mylar or colour prints (not included in this report) using a Pentium 586 desktop computer coupled to either a Hewlett Packard Draftsmaster II Plotter or a Hewlett Packard Design Jet 650C Colour Plotter.

#### 10.0 DATA PRESENTATION

The data obtained from the geophysical surveys described in this report are presented on 14 pseudo-sections and 2 maps as listed below:

#### PSEUDO-SECTIONS (1:2500)

Line No.	Dwg. No.	Line No.	<u>Dwg. No.</u>
4000E	94359-01	4600E	94359-04
4200E	94359-02	4800E	94359-05
4400E	94359-03	5000E	94359-06



Line No.	Dwg. No.	<u>Line No.</u>	<u>Dwg. No.</u>
5200E	94359-07	6000E	94359-11
5400E	94359-08	6200E	94359-12
5600E	94359-09	6400E	94359-13
5800E	94359-10	6600E	94359-14

#### **PLAN MAPS (1:5000)**

TITLE	DWG. NO
Chargeability, 21 Point Triangular Filter	94359-15
Resistivity, 21 Point Triangular Filter	94359-16

#### 11.0 DISCUSSION OF RESULTS

A large portion of the 1994 IP survey area was anomalous. It is important then to keep in mind that an IP response depends on a number of factors. These factors are as follows:

- the volume content of sulphide minerals
- the number of pore paths that are blocked by sulphide grains
- the number of sulphide faces that are available for polarization
- the absolute size and shape of the sulphide grains and the relationship of their size and shape to the size and shape of the available pore paths
- the electrode array employed
- the width, depth, thickness and strike length of the mineralized body and its location relative to the array
- the resistivity contrast between the mineralized body and the unmineralized host rock.

The sulphide content of the underlying rocks is one of the critical factors that we would like to determine from field measurements. Experience has shown that this is



both difficult and unreliable because of the large number of variables, described above, which contribute to an IP response. The problem is further complicated by the fact that rocks containing magnetite, graphite, clay minerals and variably altered rocks produce IP responses of varying amplitudes.

A detailed study has been made of the pseudo-sections which accompany this report. These pseudo-sections are not sections of the electrical properties of the sub-surface strata and cannot be treated as such when determining the depth, width and thickness of a zone which produces an anomalous pattern. The anomalies are classified into four groups; definite, probable and possible anomalies and anomalies which have a much deeper source.

This classification is based partly on the relative amplitudes of the chargeability and to a lesser degree on the resistivity response. In addition the overall anomaly pattern and the degree to which this pattern may be correlated from line to line is of equal importance.

The IP survey on the Nak claims outlined a large oval shaped area, roughly 1300 x 2000 metres, with low to moderately high chargeability values (as low as 8 milliseconds in the centre and up to 30 milliseconds in the outer periphery). It is believed that this zone represents a large porphyry stock with copper credits. Surrounding chargeabilities increase rapidly to over 60 milliseconds and are believed to represent a pyritic halo.

Previous drilling on the property has been concentrated in the north-eastern area of the stock. The locations of previous drill holes have been plotted on the Chargeability and Resistivity plan maps (dwgs 94359-15 and 94359-16) with a crude outline drawn around those holes considered to have significant copper grade intersections (greater than 0.15% Cu). These intersections are as follows:



Hole No.	<u>Interval</u>	<u>Length(ft)</u>	<u>Cu%</u>
1	0-20	20	0.42
2	20-136	116	0.23
3	20-70	50	0.20
7	240-350	110	0.20
8	80-100	20	0.26
12	70-120	50	0.15
13	150-200	50	0.15
14	200-310	110	0.22
15	210-270	60	0.57
18	320-400	80	0.20
19	120-130	10	0.96
20	160-170	10	1.14
	270-280	10	1.02
21	270-340	70	0.27
22	210-230	20	0.15
XR-6	13-38	25	0.18

Clearly the locations of these holes indicates that there exists substantial room for fillin and step-out drilling within the central stock.

Approximately 90% of the survey area outside of the stock is anomalous and open in all directions. To test all of this ground with drilling would be cost prohibitive for an early stage Phase I exploration programme. Discussion of these anomalies will therefore be limited to those which are believed to depict significant "porphyry style" targets.

The first IP anomaly outside of the central stock which warrants further exploration by drilling occurs on the west side of the grid at about 1700E between lines 4800N and 5800N and is open to the west. Chargeability values here are between 30 and 40 milliseconds and are associated with a resistivity low of about 100 to 200 ohm-m. There are also indications that this anomaly is continuous at depth to the east.

The next two zones of interest are centred at 1250E and 2700E on line 5600N.



These two anomalies are similar in that they both have high amplitude IP responses and are situated on resistivity lows. They are relatively small circular targets, about 250 metres in diameter, and are separated by a resistivity high. The anomaly at 2150E is centred on what has been interpreted as a north-south trending fault.

The final zone of interest for a Phase I drill programme is a linear feature which is probably structurally controlled and has a resistivity high associated with it. This anomaly has a north-northwest to south-southeast trend and passes through the central stock from about 2350E on line 5400N to 2450E on line 4800N where it is truncated. The anomaly continues again on line 4400N but is shifted slightly to the east suggesting that it may have been crosscut by a fault.

The entire eastern and northeastern portion of the grid is anomalous. Chargeability values are as high as 80 milliseconds and are believed to reflect the pyritic halo along the eastern margin of the central stock and possibly argillites where resistivities drop below 100 ohm-m.

Lastly, an area with an IP response similar to that of the central stock exists to the north and to the west of 2500E on line 6200N. No IP data has been collected northeast of this point however chargeability values on line 6200N and 6400N are anomalous at depth and may be indicative of another intrusive stock.

#### 12.0 CONCLUSIONS AND RECOMMENDATIONS

The IP survey described in this report has detected 5 main anomalous areas, including the central stock, which are recommended for drill testing. It is recommended that drilling be carried out in two phases. Phase I drilling is designed to test areas of known copper grades as well as to test targets depicting significant "porphyry style" IP responses. If favourable results are obtained from Phase I then a Phase II programme is recommended which would consist of expansion and infill drilling.

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### Phase I

A total of 4,700 metres (15,400 feet) in 23 widely spaced holes has been recommended to initially test the 5 main geophysical targets.

# Central Porphyry Stock

To date, only the northeastern portion of the stock has been drill tested. The following holes are recommended to further prove and expand areas which produced significant copper grade intersections.

<u>Hole</u>	Line No.	Station No.	<u>Dip</u>	Depth (metres)
1	5000N	2800E	Vertical	300
2	5000N	3100E	Vertical	300
3	5000N	3400E	Vertical	200
4	5000N	3750E	Vertical	150
5	4600N	2950E	Vertical	300
6	4600N	3250E	Vertical	300
7	4600N	3550E	Vertical	250
8	4600N	3850E	Vertical	150
9	4200N	3400E	Vertical	300
10	4200N	3750E	Vertical	150
11	5400N	3200E	Vertical	200
12	5400N	2900E	Vertical	200
13	5400N	3500E	Vertical	150



### Zone 1 (Western anomaly)

<u>Hole</u>	Line No.	Station No.	Dip	Depth (metres)
14	5000N	1900E	Vertical	150
15	5000N	1650E	Vertical	150
16	5600N	1900E	Vertical	150
17	5600N	1650E	Vertical	150

# Zones 2 and 3 (Small circular anomalies)

<u>Hole</u>	Line No.	Station No.	<u>Dip</u>	Depth (metres)
18	5600N	2150E	Vertical	150
19	5600N	2400E	Vertical	150
20	5600N	2650E	Vertical	150

# Zone 4 (Linear Feature)

<u>Hole</u>	Line No.	Station No.	<u>Dip</u>	Depth (metres)
21	5400N	2400E	Vertical	200
22	5200N	2400E	Vertical	250
23	5000N	2450E	Vertical	250

### Phase II

If favourable results exist from the initial Phase I drill programme then an additional 6000 metres (20,000 feet) of drilling is recommended. This would consist of step-out and fill-in drilling in areas which produced encouraging results as well as further

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testing the central stock to the south and to the west where anomalies are present at depth.

Finally, additional IP surveying is recommended to close off and determine the extent of anomalous zones to the south and to the west. If geology suggests the potential for the presence of another intrusive stock near the northwest corner of the grid then additional IP in this area is recommended to close off the zone.

Respectfully submitted,

Daniel a. 19

LLOYD GEOPHYSICS INC.

Daniel A. Klit B.Sc.

Geophysicist

John Lloyd, M.Sc., P.Eng.

Senior Geophysicist

Vancouver, B.C.

February 1995

Note: The area and property geology has been taken from the "Summary Report on the Nakinilerak Lake Property" by N.C. Carter, Ph.D.,P.Eng., March, 1992. This report was provided to the writers by Hera Resources Inc.

Lloyd Geophysics

**APPENDICES** 



# Appendix A

# PERSONNEL EMPLOYED ON THE SURVEYS

J. Lloyd	Geophysicist	Lloyd Geophysics Inc. 1007 - 1166 Alberni Street Vancouver, B.C. V6E 3Z3	Feb 22 /95
D. Klit	Geophysicist	n	Oct 15 - Nov 7/94 Feb 17,21,22 /95
I. Campbell	Helper	w	Oct 15 - Nov 7/94
A. Savard	Helper	11	Oct 15 - Nov 7/94
A. Lloyd	Helper	n	Oct 15 - Nov 7/94
M. Cordiez	Helper	n	Oct 15 - Nov 7/94



### Appendix B

### **COST OF SURVEYS AND REPORTING**

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Interpretation and Report Writing	<u>1,125.00</u>
Subtotal	40,636.39
G.S.T. @ 7%	2,844.55
TOTAL	\$ <u>43,480.94</u>



### Appendix C

### **CERTIFICATION OF SENIOR AUTHOR**

I, John Lloyd, of 1007 - 1166 Alberni Street, in the City of Vancouver, in the Province of British Columbia, do hereby certify that:

- 1. I graduated from the University of Liverpool, England in 1960 with a B.Sc. in Physics and Geology, Geophysics Option.
- I obtained the diploma of the Imperial College of Science, Technology and Medicine (D.I.C.), in Applied Geophysics from the Royal School of Mines, London University in 1961.
- 3. I obtained the degree of M.Sc. in Geophysics from the Royal School of Mines, London University in 1962.
- 4. I am a member in good standing of the Association of Professional Engineers in the Province of British Columbia, the Society of Exploration Geophysicists of America, the European Association of Exploration Geophysicists and the Canadian Institute of Mining and Metallurgy.
- 5. I have been practising my profession for over 30 years.

Vancouver, B.C.

February 1995



#### **CERTIFICATION**

- I, Daniel A. Klit, of 1007 1166 Alberni Street in the City of Vancouver, in the Province of British Columbia, do hereby cerfity that:
- 1. I graduated from the University of British Columbia in 1987 with a B.Sc. in Geophysics.
- 2. I am a member in good standing of the Society of Exploration Geophysicists of America, British Columbia Geophysical Society, British Columbia and Yukon Chamber of Mines and the Northwest Mining Association.
- 3. I have practiced my profession continuously since 1987.

February 1995 Vancouver, B.C.



94359-15 CHARGEABILITY 21 POINT
TRIANGULAR FILTER

94359-16 RESISTIVITY 21 POINT
TRIANGULAR FILTER

