## SCOTIA ZINC PROPERTY

 1984 EXPLORATION DRILL PROGRAM GEOLOGICAL EVALUATION REPORTon
SCOTIA No.1-1418 AND SCOTIA No. 2-1419
ALBERE Nos. 1-4, RECORD Nos. 19318-19321
N.T.S. SHEET 103-1-4E

SKEENA MINING DIVISION
BRITISH COLUMBIA
LATITUDE $54^{\circ} 05^{\prime} \mathrm{N}$ - LONGITUDE $129^{\circ} 40^{\prime} \mathrm{W}$.
Claim Owner
KIDD CREEK MINES LTD.
VANCOUVER, BRITISH COLUMBIA
Operator
ANDAUREX RESOURCES INC. TORONTO, ONTARIO
by
RG.HILKER, PENG.
TRON DUIK CONSULTANTS LTD.
CALGARY, ALBERTA
MAY 14, 1985

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GEOLOGICALBRANCH
ASSESSMENTREPORT


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INTRODUCTION:
The Scotia zinc mineralized property is located 42 kilometres or 26 miles southeast of Prince Rupert, British Columbia. The Scotia 1 and 2 claims enclose 26 units that overstake the Albere 1-4 claims and are situated in the Skeena Mining Division, on NTS Sheet 103-I-4E. The property was first discovered in 1958 and exploration was conducted in 1960, 1977, 1980 and 1981. The exploration consisted of diamond drilling in 1960, 1980 and 1981; surface geological mapping; geochemical soil sampling and property re-evaluation in 1977; geophysical borehole pulse Electro-Magnetic Survey, within the 1981 diamond drill holes.

The West Ridge Scotia prospect is exposed in a large spectacular gossan zone, that contains massive sphalerite mineralization. The gossan zone and massive sphalerite, within drag folds, is centered at an approximate elevation of 2,780 feet or 847 metres. The West Ridge is situated on a mountain slope that faces south, between an upper ridge elevation of 3,800 feet or 1,158 metres and the lower creek valley at an elevation of 1,000 feet or 305 metres. The slope decreases in elevation, from the ridge to the creek, 853 metres vertically along a horizontal distance of 1,416 metres. The West Ridge and south face of the mountain slopes $-31^{\circ}$ with a grade of $60 \%$. The mountain slope terrain is situated in a north-south direction and the massive sphalerite zone strikes $N 20^{\circ} \mathrm{W}$ upslope from the 847 metre elevation gossan stained outcrop. Therefore, because of the upslope terrain it is difficult to locate drill sites on the West Ridge to intersect the 853 metre level of the sphalerite mineralized zone that strikes $\mathrm{N} 20^{\circ} \mathrm{W}$ and dips $40^{\circ}$ southwest.

The south slope of the mountain and drill site area contains sparsely scattered coniferous species of trees. The coniferous trees are medium size from 10-15 metres in height, scattered and of no commercial timber value. The species noted were Rocky Mountain juniper, balsam fir, Douglas fir and Western hemlock. Small willows are abundant in the open areas and under the coniferous trees. Moss grows from the lower branches of the larger trees and is draped downward to the ground.

The Scotia property is within 32 kilometres of Chatham Sound, Hecate Strait, Dixon Entrance and the Pacific Ocean. The property is on the west side of the Kitimat Ranges of the Coast Mountains and within the coastal rainbelt. The area receives abundant rainfall from May to November and heavy snowfall at higher elevations from December through April. During the summer months broken low čloud or "clagg" extends from the valley bottoms to above the mountain tops with almost daily light rain. Occasionally severe rainstorms are accompanied by winds in the $48-80 \mathrm{kmph}$ range. The low hanging "clagg" or cloud cover prevents fixed wing flying and hazardous heliocopter flying in the rugged mountain terrain. The possibility of the most favourable weather conditions occurs between the third week of August through the third week of October.

The Scotia property and area between Prince Rupert, Skeena River, Terrace and Smithers is extremely beautiful in late summer and fall when the weather clears and sunshine with a blue sky prevails.

The writer wishes to acknowledge and thank Mr. P. R. DeLancey, Regional Manager of the Western Canada Exploration Division, Kidd Creek Mines Ltd. Vancouver, B.C., for his very valuable personal communications concerning the Scotia massive sulphide property.


ANOAUREX RESOURCES INC.
WEST SCOTIA PROPERTY-B.C.

LOCATION AND ACCESS:
General
The Scotia property is located 42 kilometres southeast of Prince Rupert, British Columbia. The port of Prince Rupert is situated on Kaien Island and the inlet of Prince Rupert Harbour. Road access between Terrace and Prince Rupert is by the paved Highway \#16 on the north side of the Skeena, Tidal River. The Canadian National Railway tracks are located adjacent to Highway \#16 between Terrace and Prince Rupert. The Scotia claim group is located 12 kilometres $505^{\circ} \mathrm{W}$ of Telegraph Point on the north bank of the Skeena River and Highway \#16. A logging operator has constructed a camp and river barge landing dock near the confluence of Scotia Creek with the Skeena River. The barge landing site is located on the south bank of the Skeena River and south of Carnation Island. Access to Scotia Creek is possible by hauling equipment on Highway \#16 from Prince Rupert or Terrace and by river barge from Tyee Landing at Highway \#16, 23 kilometres upstream to Scotia Landing. The Skeena River is tidal from the Inverness and Telegraph Passages upstream to Terrace.

Heliocopter charter service is available from Prince Rupert, Terrace and Smithers, British Columbia. Access to the Scotia property is currently only possible by moving all camp gear, exploration supplies, drill equipment and personnel by Bell 204B Jetranger from a roadcut between Highway \#16 and the CNR Tracks two miles east of Telegraph Point.

The Scotia Creek logging operator and British Columbia Forestry Service Department has constructed an excellent logging road 13 kilometres in length upstream on the west bank of the Scotia drainage system. The reader is referred to the Scotia Property Topography PTan - Showing Existing and Proposed Roads, Scale 1:25,000. To continue the existing road on Scotia Creek to an elevation of 838 metres on the Scotia claim group and the Albere \#l claim, requires 6 additional kilometres of road. Road building to the Scotia property will cost approximately $\$ 15,000$ per kilometre by backhoe equipment for sidehill construction.

Road construction in mountain valleys costs about $\$ 5,000$ per kilometre using backhoe equipment. The backhoe method of road construction is used extensively in British Columbia logging operations as the system is one-half the cost of road building by crawler tractor.

The Scotia property is located at Latitude $54^{\circ} 05^{\prime} \mathrm{N}$ and Longitude $129^{\circ} 40$ ' W on The Port Essington, British Columbia Topography Sheet 103-I-4, Mapping Branch of the Department of Energy Mines and Resources, Ottawa - 1980.

|  | Location | Air Distance | Jetranger Time |
| :---: | :---: | :---: | :---: |
| 1) | Smithers - Property | 167 km | 1.0-1.2 hours |
| 2) | Smithers - Terrace | 84 km | 0.5-0.6 hours |
| 3) | Terrace - Property | - 84 km | 0.5-0.6 hours |
| 4) | Prince Rupert - Prop | - 42 km | 0.25-0.35 hours |
| 5) | Telegraph Point - Propar | 12 km | 0.15-0.20 hours |

Note - The Jetranger flying time between the various points may vary due to low laying and broken cloud cover in the valleys.

## Radio Communications

The Scotia campsite is located at an elevation of 1,158 metres on the ridge above the massive sphalerite outcrop. Radio telephone communications are possible but sporadic, using a single-side band SBX-11 radio equipped with a frequency for use in the British Columbia Telephone System. A VHF transmitter/receiver was tested at the campsite and discovered to work perfectly from receivers in the Prince Rupert and Terrace areas.

## SCOTIA CLAIM GROUP

The Scotia claim group consists of the Scotia \#l that contains 20 units and Scotia \#2 with 6 units. The Scotia claims were staked in June of 1976 and overstake the Albere 1-4 claims that were originally staked in 1960 and remain in good standing and valid.

The Scotia claims are within the Skeena Mining Division of British Columbia. The Skeena Mining Recorders office is located in Smithers. The property is located on the mining claim sheet $103-I-4 E$ and the Scotia claims are at approximately Latitude $54^{\circ} 05^{\prime} \mathrm{N}$ and Longitude $129^{\circ} 40^{\prime} \mathrm{W}$.

| Claim | Units |  | Record No. |  | Recorded |
| :--- | :---: | :---: | :---: | :---: | :---: |

The Scotia and Albere claims are recorded in the name of Kidd Creek Mines Ltd., 701 - 1281 West Georgia Street, Vancouver, British Columbia.


## PREVIOUS EXPLORATION - SCOTIA PROPERTY:

## General

The Scotia massive sphalerite mineralization has been known for the past 25 years and sporatic exploration was conducted on the property in 1960 -1977-1980 - 1981 and 1984. There has been several company geologists who conducted geological programs in specific exploration years. However, there has been no single geologist who has contributed continuity to the Scotia property exploration. The Scotia sphalerite mineral zones are contained within a structural complicated fold system on a steep south mountain face. Fortunately, the ore zones delineated to 1984 are constant in strike direction and predictable to dip and rake. The writer has attempted to consolidate the most significant parts of previous exploration data and relate it to the results of the 1984 drill program.

1958 - Sphalerite mineralization discovered by Texasgulf Inc. field crews.

## 1960 Exploration

Drill program 568.9 metres drilled in 10 holes that were documented in brief logs and assays of the drill core. The first three of the 1960 holes were drilled with EX rods by a packsack drill and the remaining seven holes were drilled with a larger drill using $A X$ rods. The field geologist was W. R. Bacon and the supervising geologist was R. D. Mollison. Topography map Scale $1 \mathrm{in}=40$ feet used for ground control and location of drill holes.

| Hole No. | Dip | Length | Mineralization |
| :---: | :---: | :---: | :---: |
| S-1-60 | $-54^{\circ}$ | $78.2 \mathrm{ft} .-\mathrm{EX}-23.8 \mathrm{~m}$ | In intersects |
| S-2-60 | $-47^{\circ}$ | 78.0 ft. - EX - 23.8 m | Zn intersects |
| S-3-60 | $-56^{\circ}$ | 30.0 ft. - EX - 9.1 m | Ni 1 |
| S-4-60 | $-60^{\circ}$ | 263.0 ft. - AX - 80.2 m | Nil |
| S-5-60 | $-60^{\circ}$ | 347.0 ft. - $A X-105.8 \mathrm{~m}$ | Zn intersects |
| S-6-60 | $-60^{\circ}$ | 252.0 ft. - AX - 76.8 m | Zn intersects |
| S-7-60 | $-85^{\circ}$ | 158.5 ft . - AX - 48.3 m | Zn intersects |
| S-8-60 | $-60^{\circ}$ | 158.0 ft. - AX - 48.2 m | Zn intersects |
| S-9-60 | $-45^{\circ}$ | 227.0 ft. - $A X-69.2 \mathrm{~m}$ | Zn intersects |
| S-10-60 | $-75^{\circ}$ | 273.0 ft . - AX - 83.2 m | In intersects |

The drill core remained on the property and was salvaged in 1980. The original core boxes were rotten, and placed in new boxes by the 1980 exploration geologists.

The Scotia property mineralization was interpreted to be related to pegmatite dikes during the 1960 exploration. The 1960 drill program is reported to have delineated $30,000-50,000$ tons of sphalerite ore that graded $20 \%$ zinc and $2 \%$ lead.

- Peter Read conducted regional geological mapping on the property. The mapping indicated northwest regional foliation with a moderate steep dip southwest.


## 1977 Exploration

The 1977 exploration and Scotia property re-evaluation was conducted by Texasgulf Inc. geologist P. R. DeLancey and assistant geologist Glen Tetu.

- Review of the Ecstall Pendant and Scotia property as part of the B.C. Massive Sulphide compilation.
- Scotia property was interpreted to have characteristics of a deformed "volcanogenic" massive sulphide deposit rather than a pegmatite dike type of deposit.
- Six days at the property; geological mappping, geochemical sample collecting, brief examination of 1960 drill core and location of 1960 drill holes.
- 1977 Report On The West Scotia Property by P. R. DeLancey:
a) Geology Map Scotia Property 1:500 metric.
b) Geochemical Survey and plans showing zinc, lead, copper and moly.
c) Topography base map - Scale $1 \mathrm{in}=40 \mathrm{ft}$. by transit and compass in 1960 was used for ground control.


## 1980 Exploration

During the summer of 1980 a Texasgulf Inc. geological crew re-boxed the 1960 core and drilled a total of 955 metres of BQ core in seven holes. The drilling was conducted Aug. 5-13 with 528 metres or 1,732 feet of core and Sept. 5-22 with 432 metres or 1,417 feet of core recovered. Project geologist P. R. DeLancey and Dr. Richard Moore - Toronto and assistant

Mark McCormic conducted the 1980 drill program.

- A topography plan at Scale 1:500 metric was compiled for the West Ridge drill area and gossan zone. The Scotia claim group was covered in a 1:5,000 orthophoto by McElhanney Surveying and Engineering - Vancouver, B.C.
- The 1980 core was logged and mineralized sections split and assayed for copper-lead-zinc-silver/gold.
- The 1960 core was re-boxed and labelled. The core was relogged and some core split for assaying in holes $5-5-60$ and $5-6-60$ where zinc values of $3.2 \%-5 \%$ were obtained.
- All of the 1960 and 1980 core was stored on the property at the ridge campsite.

1980 Drill Holes:

| Hole No. | Dip | Length | Mineralization |
| :---: | :---: | :---: | :---: |
| Drillsite \#1 |  |  |  |
| S-11-80 | $-70^{\circ}$ | 322 ft . | high Zn values |
| S-12-80 | $-90^{\circ}$ | 450 ft | high Zn values |
| Drillsite \#2 |  |  |  |
| S-13-80 | $-55^{\circ}$ | 456 ft . | intersects Zn values |
| S-14-80 | $-90^{\circ}$ | 503 ft . | intersects Zn values |
| Drillsite \#3 |  |  |  |
| S-15-80 | $-90^{\circ}$ | 427 ft | low Zn values |
| S-16-80 | $-50^{\circ}$ | 286 ft . | high Zn values |
| Drillsite \#4 |  |  |  |
| S-17-80 | $-60^{\circ}$ | $707 \mathrm{ft}$. | no Zn values |

- Estimate of ore reserves are reported to be 187,000 tonnes grading $11.8 \%$ Zinc, $1.3 \%$ lead and $0.6 \mathrm{oz} . / \mathrm{T}$ silver.


## 1981 Exploration

In July to September 1981 geology mapping, drill program and a Borehole Pulse EM Survey was conducted on the property. The geologists were R. E. Meyers and E. P. Moreton and the geophysical survey was conducted by W. A. Gasteiger.

- Reconnaissance Geology mapping Scale 1:5,000 metres. Detail geology mapping Scale 1:1,000 metres.
- Drill Program of $1,104.2$ metres or 3,623 feet of BQ drilling in four holes.


## 1981 Drilling:

| Hole No. | Dip | Length |  | Mineralization |
| :--- | :--- | :--- | :--- | :--- |
| S-18-81 | $-70^{\circ}$ | $\left(-56^{\circ}\right)$ | $827 \mathrm{ft} .-252.1 \mathrm{~m}$ | $20 \%$ pyrite mnr zinc |
| $\mathrm{S}-19-81$ | $-65^{\circ}$ | $\left(-53^{\circ}\right)$ | $880 \mathrm{ft} .-268.2 \mathrm{~m}$ | mnr. pyrite |
| $\mathrm{S}-20-81$ | $-44^{\circ}$ | $\left(-37^{\circ}\right)$ | $1,255 \mathrm{ft} .-382.4 \mathrm{~m}$ | $14.4 \mathrm{ft} . \mathrm{mnr}$ zinc |
| $\mathrm{S}-21-81$ | $-65^{\circ}$ | $\left(-58 \frac{1}{2}^{\circ}\right)$ | $661 \mathrm{ft} .-201.5 \mathrm{~m}$ | $2-5 \%$ pyrite |

- A Borehole Pulse EM Survey was carried out on drill holes S-11-80, $S-14-80, S-16-80, S-17-80$ and $S-20-81$. The results were of no significant value to permit interpretation for the continuation of iron sulphide mineralization.


1984 DRILL PROGRAM:

## General

The 1984 drill program was conducted on the Scotia claim group between August 5th and September 24th. A Bell Jetranger was contracted as required from Glacier Heliocopters, that are based in Smithers. The camp equipment was mobilized to the property on August 5 and erected by August 7. The campsite was located on a ridge at an elevation of 1,158 metres and 305 metres vertically above the lowest drillsite. All of the camp gear, drill equipment, and fuels were transported by truck from Smithers to a road cut on Highway \#16, three kms east of Telegraph Point on the Skeena River. The Jetranger heliocopter transported the equipment to the campsite or drill area by use of a 6 metre "longline" attached to a sling net or a cable assembly on awkward size loads. The heliocopter was used between Smithers and the property to service the campsite and to transport a drillsite blasting crew into and out of the drill area.

The drill contractor, Core Enterprises Ltd. of Clinton, B.C., arrived at the staging area on the Skeena River August 14. A Boyles BBS-1 diamond drill, BQ size rods, crew and all related equipment were mobilized 16 kilometres to the first drillsite on the property. The drill moves, between six drillsites, were completed by Kirk Zutter, the Jetranger pilot, who used a longline to sling the drill and gear. After the drill was mobilized to the first drillsite, the drill moves required one-half hour of Jetranger flying time to the next drillsite in adverse, cloudy, rainy weather conditions. The twoman drill crew and heliocopter pilot worked at peak efficiency but with extreme caution. The BBS-1 diamond drill commenced drilling BQ size core on August 15 th at hole AR-84-1 and completed drilling on September 19th at hole AR-84-11. The driller and helper worked a day-time 12 -hour shift that included about one hour walking time on the steep trail between the camp and drillsite. The drill equipment and crew were mobilized from the property to the Skeena River staging area on Highway \#16 on September 21st. The camp equipment, cook and geologists were demobilized from the property to Smithers on September 24 th.

A total of 772 metres of $B Q$ size diamond drill holes was completed at six drillsites in eleven holes during 36 days.

## Scotia Property Personnel

1) Heather L. Blomgren - Cook (Contract)

July 25 - August 5, project preparation Smithers
August 5 - September 24, Scotia property
September 24 - September 31, project demobilization
2) D. C. Pleacash - Geologist (Contract)

July 15 - August 5, project preparation Smithers
August 5 - September 24, Scotia property
September 24 - October 31, log drill core and sections
3) R. G. Hilker - Geologist (Contract)

July 1 - August 5, project preparation
August 5 - September 24, Scotia property
September 24 - October 31, data processing and assays
4) Core Enterprises Ltd. - Clinton, B.C.
A. Allen Harvie - Driller (Contract)

August 14 - September 21, diamond drilling
B. John Harvie - Helper (Contract)

August 14 - September 21, drill helper
5) Glacier Heliocopter - Smithers, B.C.

Dirk Zutter - Pilot and Operations Manager
July 11, Aug. 5-7-11-14-16-20-22-25-31
September 6-8-10-14-16-21-24
6) Dieter Development Ltd. - Smithers, B.C.

Two-man Blasting Crew for drillsites
Aug. 8-9-10 (six mandays)
September 8 (two mandays)
September 16 (one manday)
7) Casual Labour - Campsite and Transportation

August 5-6-7 (seven mandays)
August - September (expediting, 6 mandays)
August 14 (two mandays)
September 24-25-26 (10 mandays)

## Assay Laboratory

The mineralized sections of drill core were visually inspected and split at the drillsite. The sphalerite, minor galena and bornite mineralized samples were bagged and assay number assigned to each section. The samples were transported to Smithers by heliocopter, crated in wooden boxes and sent by airfreight to Calgary. Loring Laboratories Ltd. at 629 Beaverdam Road N.E., Calgary, Alberta conducted gold-silver, lead and zinc assays on the split drill core mineralized samples. Nine samples were determined for cadmium on samples previously assayed for $\mathrm{Au} / \mathrm{Ag}-\mathrm{Pb}$ and Zn .

Loring Laboratories Ltd. conducted the following types of assay procedures on the Scotia drill core sample.

1) Gold/Silver - fire assay.
2) Zinc/Lead - by multi acid dissolution and Atomic Absorption (AA) for low values of zinc and lead.
3) High Zinc Values - high zinc values were determined by "titration" with potassium ferrocyanide (Cominco Method).

## TABLE \#1

1984 Drill Hole Locations

| D.D.H. No. | Co-Ordinates Location | Elevation Collar | Dip | Length | D.D.H. Azimuth | Section Azimuth |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AR-84-1 | $\begin{array}{r} 117+47 N \\ 49+88 W \end{array}$ | 847.3 m | $-45^{\circ}$ | 49.99 m | $070^{\circ}$ | $340^{\circ}$ |
| AR-84-2 | $\begin{array}{r} 117+47 \mathrm{~N} \\ 49+88 \mathrm{~W} \end{array}$ | 847.3 m | $-45^{\circ}$ | 81.08 m | $050{ }^{\circ}$ | $320^{\circ}$ |
| AR-84-3 | $\begin{array}{r} 118+93 \mathrm{~N} \\ 49+88 \mathrm{~W} \end{array}$ | 870.5 m | $-61 \frac{1}{2}^{\circ}$ | 61.87 m | $105^{\circ}$ | $015^{\circ}$ |
| AR-84-4 | $\begin{array}{r} 118+93 N \\ 49+88 W \end{array}$ | 870.5 m | $-60^{\circ}$ | 60.05 m | $075^{\circ}$ | $345{ }^{\circ}$ |
| AR-84-5 | $\begin{array}{r} 119+78 \mathrm{~N} \\ 50+72 \mathrm{~W} \end{array}$ | 886.4 m | $-45^{\circ}$ | 84.43 m | $090^{\circ}$ | $360^{\circ}$ |
| AR-84-6 | $\begin{array}{r} 119+78 \mathrm{~N} \\ 50+72 \mathrm{~W} \end{array}$ | 886.4 m | $-65^{\circ}$ | 92.35 m | $090^{\circ}$ | $360^{\circ}$ |
| AR-84-7 | $\begin{array}{r} 122+04 \mathrm{~N} \\ 50+70 \mathrm{~W} \end{array}$ | 918.1 m | $-60^{\circ}$ | 93.57 m | $090^{\circ}$ | $360^{\circ}$ |
| AR-84-8 | $\begin{array}{r} 120+96 \mathrm{~N} \\ 50+09 \mathrm{~W} \end{array}$ | 905.9 m | $-60^{\circ}$ | 78.33 m | $090^{\circ}$ | $360^{\circ}$ |
| AR-84-9 | $\begin{array}{r} 120+96 \mathrm{~N} \\ 50+09 \mathrm{~W} \end{array}$ | 905.9 m | $-45^{\circ}$ | 78.33 m | $070^{\circ}$ | $340^{\circ}$ |
| AR-84-10 | $\begin{array}{r} 118+20 \mathrm{~N} \\ 50+00 \mathrm{~W} \end{array}$ | 860.2 m | $-45^{\circ}$ | 45.72 m | $090^{\circ}$ | $360^{\circ}$ |
| AR-84-11 | $\begin{array}{r} 118+20 \mathrm{~N} \\ 50+00 \mathrm{~W} \end{array}$ | 860.2 m | $-45^{\circ}$ | 45.72 m | $070^{\circ}$ | $340^{\circ}$ |

1960/1980 Drill Hole Locations

| D.D.H. No. | Co-Ordinates Location | Elevation Collar | Dip | Length | D.D.H. Azimuth | Section <br> Azimuth |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S-6-60 | $\begin{array}{r} 118+93 N \\ 49+88 W \end{array}$ | 870.5 m | $-60^{\circ}$ | 76.8 m | $060^{\circ}$ | $330^{\circ}$ |
| S-7-60 | $\begin{array}{r} 118+93 N \\ 49+88 W \end{array}$ | 870.5 m | $-85^{\circ}$ | 48.3 m | $060^{\circ}$ | $330^{\circ}$ |
| S-9-60 | $\begin{array}{r} 119+77 \mathrm{~N} \\ 50+72 \mathrm{~W} \end{array}$ | 886.4 m | $-45^{\circ}$ | 69.2 m | $065{ }^{\circ}$ | $335^{\circ}$ |
| S-10-60 | $\begin{array}{r} 119+77 \mathrm{~N} \\ 50+72 \mathrm{~W} \end{array}$ | 886.4 m | $-75^{\circ}$ | 83.2 m | $065{ }^{\circ}$ | $335{ }^{\circ}$ |


| D.D.H. No. | Co-Ordinates Location | Elevation Collar | Dip | Length | D.D.H. Azimuth | Section <br> Azimuth |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S-11-80 | $\begin{array}{r} 122+04 \mathrm{~N} \\ 50+70 \mathrm{~W} \end{array}$ | 917 m | $-70^{\circ}$ | 98.2 m | $068{ }^{\circ}$ | $322^{\circ}$ |
| S-12-80 | $\begin{array}{r} 122+04 \mathrm{~N} \\ 50+70 \mathrm{~W} \end{array}$ | 917 m | $-90^{\circ}$ | 137.2 m | $068{ }^{\circ}$ | $322^{\circ}$ |
| S-15-80 | $\begin{array}{r} 120+57 \mathrm{~N} \\ 51+91 \mathrm{~W} \end{array}$ | 885 m | $-90^{\circ}$ | 130.1 m | $035^{\circ}$ | $333^{\circ}$ |
| S-16-80 | $\begin{array}{r} 120+57 N \\ 51+91 W \end{array}$ | 885 m | $-50^{\circ}$ | 87.2 m | $063{ }^{\circ}$ | $333^{\circ}$ |

## Drill Core Processing

The drill core from each of the 1984 holes was placed in a wooden 7 metre capacity, core box. The drilling length and core recovered was referred to in metres and an inventory of the core boxes for each hole was recorded. The core from all mineralized intersects was split at the drillsite, onehalf of the split core replaced and the other half was bagged for assaying. After each box of core was inspected and core split where required, a plywood lid was nailed on each core box. Each core box lid was marked with the box number and core interval in metres. The core boxes were heliocopter transported from the drillsite to the Skeena River staging site and truck transported to Smithers. The drill core was re-inspected for mineralization and logged by D. C. Plecash - geologist, during October, 1984. After the core logging was completed the core boxes, from drill holes AR-84-1 to AR-84-11, were transported to Revelstoke, B.C. and placed in the Andaurex Resources Inc. warehouse.

Claim Location of 1984 Drill Holes
The 1984 drill holes AR-84-1 through AR-84-11 were all collared and located on claim ALBERE \#2 - Record Number 19319, NTS Sheet 103-I-4E.

## GENERAL GEOLOGY

## General

The Scotia massive sulphides property is located on the east side of the Ecstall Pluton. Two units of plutonic rocks have been identified by W. W. Hutchison in G.S.C. - Memoir 394, that are within the Ecstall Pluton and have been designated Unit $D$ - diorite and minor quartz diorite and Unit E - quartz diorite and minor diorite, granodiorite. The Pluton intrusions are Mesozoic in age and are possibly in Period Cretaceous to Early Triassic. The Ecstall Pluton Units - D and E, contacts on the east * boundary with Unit-1c of the Central Gneiss Complex. The Central Gneiss Complex is tentatively dated as Late Mesozoic through Paleozoic and possibly - Precambrian in Age. W. W. Hutchison dates the gneiss complex as possibly Late Triassic to Precambrian. The Central Gneiss Complex probably dates to the Period of Mississipian through Ordovician in age. The Central Gneiss Complex consists of Units la, 1b-1c-1d, and le. The gneiss is a complex. metamorphic assemblage of flesic and mafic rock types, within a fold deformed structure. The Scotia massive sulphide occurrence is situated in Unit-lc of the Central Gneiss Complex and on the east flank of Units $D$ and $E$ of the Ecstall Pluton.

## Central Gneiss Complex

The Central Gneiss Complex underlies a northwest trending belt of plutonic rocks along the Coastal Mountain Range, that includes the Scotia property area. The Younger plutonic - rocks have intruded the older gneissic unit. The gneiss complex has been subjected to heat and pressure associated with the intrusive plutons and deformation by regional structural changes. The Central Gneiss Complex Unit - 1 is difficult to map or establish continuous lithological subunits. The subunits in Unit - 1 are difficult to trace in outcrops because of the major structural folding deformation and the intrusive emplacement of plutonic rocks.

The Central Gneiss Complex was subdivided into four major subunits by W. W. Hutchison:


Figure 67. Map of the 'head of Ecstall pluton. This pluton is inferred to have punched into the metasediments, deforming them and their isograds and forming the concentric domal structure (centred 4 miles ( 6.4 km ) north of pluton) which was partly overridden by continued movement within the pluton. From Hutchison (1970).

Pluton sketch by W. W. Hutchison, G.S.C. Memoir 394, Page 71.

Unit la - leucogneiss and migmatite
Units $1 \mathrm{~b}-1 \mathrm{c}-1 \mathrm{~d}$ - 1 b is grey biotite-hornblende gneiss, amphibolite, minor sillimonite and/or garnet gneiss.
1c - Work Channel amphibolite .
1d - biotite hornblende gneiss, amphibolite and minor migmatite, rare biotite-garnet-kyanite schist and gneiss.
Unit le - migmatitic plutonic rocks
Scotia River Area:
Unit 2-2b occurs in the Scotia River area and east of the Scotia massive sulphide occurrence. 2b - rusty weathering, grey feldspathic schist with muscovite-biotite-garnet; dark hornblende-biotite schists.

Table 1. Comparison of leucogneiss (unit la) of the northern Central Gneiss complex with bigtite-hornblende gneiss (unit (b) of the southern and western Central Gneiss complex.

| Attribute of principal lithologies | Leucogneiss <br> (la) | Biotite-hornblende gneiss (lb) |
| :---: | :---: | :---: |
| Colour | Dominantly pale buff | Dominantly grey; locally rusty weathering zones |
| Wineralogy | Feldspar $\pm$ quartz $\pm$ biotite. Hornblende uncommon | Feldspar hornblende $\pm$ quart\% $\pm$ biotite $\pm$ garnet |
| Total mafic content | 0 to 15\% | Commonly 15-60\% |
| Potash feldspar content | Commonly 5-30\% | Commonly 0-5\% |
| Specific gravity | Ranges 2.59-2.71 | Ranges 2.66-2.85 |
| Composition of associated plutonic rock (in migmatite) | Granodiorite, quartz monzonite | Diorite, quartz diorite |



BIBLIOGRAPHY REFERENCE TO GEOLOGY AND DATA:

1) G.S.C. Memoir 394 - Geology of the Prince Rupert - Skeena Map Area, British Columbia by W. W. Hutchison - 1982.
2) Texasgulf Inc. - Report on The West Scotia Property in 1977 - by P. R. DeLancey, Vancouver, B.C. - February 1977, Completed October 1978. (Report included the drill hole data conducted by Texasgulf Inc. 1960 drill program).
3) Texasgulf Inc. - Report on West Scotia Drilling Program 1980 - NTS 103-I-4E by P. R. DeLancey, Vancouver, B.C. - December 1980.
4) Kidd Creek Mines Ltd. - Final Report 1981 Geology, Geophysics and Diamond Drilling Program - West Scotia Property 103-I-4E, by R. E. Meyers and E. P. Moreton - Vancouver, B.C. - March 1982.
5) Report on West Scotia Property, Skeena River, British Columbia NTS 104-I-4, Lat. $54^{\circ} 05^{\prime} \mathrm{N}$ and Long. $129^{\circ} 40^{\prime} \mathrm{W}$, for Andaurex Resources Inc. by J. W. MacLeod, P. Eng., Vancouver, British Columbia, April 17, 1984.

SCOTIA PROPERTY GEOLOGY:

## Central Gneiss Complex

The Scotia massive sulphide property is located in the Central Gneiss Complex subunit lc - Work Channel Amphibolite, that is possibly middle Paleozoic in age. The subunits lb-lc-ld were identified by W. W. Hutchison in Memoir 394 and noted that there are no sharp boundaries between the subunits of Unit - 1 . Previously, several geologists have observed the gneissic rock types that occur on the property. From the descriptions of rock types reported by geologists during the 1960-1977 - 1980 and 1981 field programs and the writers observations, the subunits lb-lc-1d best describes the Scotia property rock types. There are no sharp boundaries between the several rock types that occur on the property. The rock types do not repeat in any sequence and appear to be gneissic, banded, schistose, massive and in places foliated. There is no geological correlation to suggest that the massive sulphide mineralization is controlled by rock type. The most general assumption is that the mineralization is most often contained in a felsic gneiss. The massive sphalerite mineralized zones are controlled by structural features.

The three mineralized zones that have been delineated on the Scotia property trend in an undulating structure $N 20^{\circ} \mathrm{W}$ for 228 metres, dips $-40^{\circ}$ southwest and rakes or plunges $-9^{\circ}$ south. The massive sulphide mineralization has the characteristics of volcanogenic type of deposit and is severally deformed.

## Lithology Subunits

Work Channel Amphibolite - mainly coarse grained amphibolite that has slight layered characteristics, grades into zones of foliated diorite; occasionally grades into biotite-hornblende schist, or layered quartz-feldspar-biotitegarnet schist, or layered quartz-feldspar-biotite-garnet-schist and hornblende schist.

South of the Skeena River, in subunits 1b-1c-1d, plagioclase in massive diorite occurs as porphyroblasts or as augen in foliated diorite. The units contain three lithologies in about equal quantities and are in zones from 3-30 metres wide. The lithologies are classified by W. W. Hutchison.

1) amphibolite that is massive or slightly layered.
2) biotite-hornblende gneiss that is layered.
3) diorite gneiss with plagioclase augen and amphibolite.


Figure 17. Diorite gneiss in which most layers are indistinct and discontinuous os a result of rearystallization and movement (ftow?.). Finis is on example of fluidal gneiss. Sketch from polaroid. Iacotion west shore of kimizeymateen Intet on point 2 mites $(3 \mathrm{~km})$ southeast of its entrance. Station 30.516-1965

## Scotia Property Lithology

## DIKES:

a) Pegmatite
b) Diorite

## CENTRAL GNEISS COMPLEX - Work Channel Amphibolite

 FELSIC GNEISS/TUFFa) Quartz-Feldspar-Sericite Gneiss
b) Quartz-Sericite Schist
c) Pyritic Quartz-Sericite Gneiss
d) Amphibolite

FELSIC GNEISS
a) Massive Sulphides-Sphalerite $85-95 \%$
b) Semi-Massive Sulphides-Sphalerite $30-50 \%$

FELSIC/MAFIC GNEISS:
a) Mixed Felsic and Mafic Gneiss

MAFIC GNEISS:
a) Hornblende-Biotite Gneiss
b) Biotite-Garnet-Hornblende Gneiss
c) Sillimanite Gneiss
d) Grey Hornblende-Biotite-Quartz-Gneiss

PLUTONIC INTRUSIVES:

MIGMATITE PLUTONIC ROCKS:
a) Diorite
b) Quartz Diorite
c) Gneissic Diorite or Quartz Diorite

MESOZOIC or PALAEOZOIC
CORDILLERAN COAST CRYSTALLINE COMPLEX -
Ecstall Belt and Central Gneiss Complex.
PRE-PERMIAN (?) TO CAMBRIAN

7 - Pegmatite Dikes: potassium feldspar, granitic, quartz, mnr. muscovite; Diorite Dikes: pre-pegmatite, plagioclase, amphibole and quartz.

6 - Pyritic Felsic Tuff: or pyrite quartz-sericite gneiss; 5-20\% pyrite, mnr. sphalerite-galena or bornite, banded; quartzsericite schist and in parts biotite; rusty weathering gossan rock type.

5 - Massive/Semi-Massive Sulphides; up to $85 \%$ sphalerite with mnr. quartz-feldspar gangue, in parts garnet within sphalerite; semi-massive sulphides from $30-50 \%$ sphalerite in felsic gneiss gangue.

4 - Felsic Gneiss/Tuff: quartz-feldspar-sericite gneiss; quartz, feldspar, biotite or sericite, in parts pyrite, pyrrhotite or bornite: quartz-sericite schist; schistosity, mainly sericite, minor quartz and plagioclase feldspar; amphibolite.

3 - Felsic/Mafic Gneiss: mixed felsic and mafic gneiss; alternating bands of quartz-feldspar-sericite gneiss or quartz-sericite schist with amphibolite or migmatite rocks of foliated and/or massive diorite or quartz diorite.
[2] - Mafic Gneiss: discontinuous zones of massive or banded layers of amphibolite mafic gneiss; hornblende, plagioclase feldspar, biotite, quartz, chlorite: hornblende-biotite gneiss; biotite-garnethornblende gneiss; in parts sillimanite gneiss; grey hornblende-biotite-quartz gneiss.
[1] - Migmatite Plutonic Rocks: massive or foliated diorite or quartz diorite, in parts gneissic.

ECONOMIC GEOLOGY:

## Mineralized Structure

The 1984 dril. holes located Upper, Middle and Lower Zones of sphalerite mineralization that contained silver values and minor lead sulphides. The three zones plotted on plan indicate a trend or strike direction of $\mathrm{N} 20^{\circ} \mathrm{W}$ or azimuth of $340^{\circ}$. The strike length of the ore zones has been established from sphalerite/silver/lead mineralization intersected in drill holes from the 1960-1980-1984 drilling programs. A 228 metre strike length is indicated between the 1980 drill holes S-13/14-80 on the north end to the 1984 drillsite at AR-84-1/2 on the south end. The ore zones are consistent along the strike length within an undulating lateral structure. The assayed sulphide intersections and geology was plotted on the 1984 drill hole sections. The sphalerite/silver and minor lead intersects, plotted on the geology sections, were interpreted to occur within a folded or drag fold structure. The folded structure dips $-40^{\circ}$ southwest then pinches and swells downdip. The true widths of the ore zones probably vary, as the structure plunges downdip. The sphalerite specific gravity is 3.91-4.1 and the biotite-hornblende-gneiss host rock specific gravity is 2.66-2.85. During deposition the heavy sphalerite bearing solutions would tend to accumulate in the lower and broad part of a structure. In a drag fold structure sphalerite mineralization would be expected to occur at a greater thickness in the broad roll base of the fold. Sphalerite would tend to be squeezed into the narrow neck of a fold below the next upper roll base.

The ore zones are interpreted to be contained within an overturned fold with related drag folding caused by shearing. The drag folds possibly plunge south within the overturned fold structure. There are indications that the fold structure is on the west flank of an anticline. The ore mineralization is enclosed within a complicated structural feature but consistent in continuity along the strike and dip of the zones.

Note Figure \#5 that shows an overturned fold in relation to drag folds.

By: M. P. Billings - 1958


Struchure section of symmetrical folds showing relation uf dray folds and direction of sheariog.


Structure xeclims wi overturnal fokls shoving rotation of drag folds and dircelion of shearing.


Genlogical map of drag folds. The large folds, as well as the drag folds. plunge north. Horizontal component of shear is shown by arrows.


Diae folds in three dimensions. The small blocks no the Inft sule of diagrams $A$ and $C$ show the appearance of the drag folds on a map and on a vertical section that strikes perpendicular to the axial plane of the fold.

## TABLE \#2

| HOLE NO. | ELEVATION METRES UPPER ZONE | ELEVATION METRES $\qquad$ | ELEVATION METRES LOWER ZONE $\qquad$ |
| :---: | :---: | :---: | :---: |
| AR-84-1 | 843.4-841.9 | 834.5-833.6 | $\emptyset$ |
| AR-84-2 | $843.7-841.3$ | 834.8-832.7 | $\emptyset$ |
| AR-84-10 | 849.2-846.1 | 843.4-838.2 | 837.6-837.0 |
| AR-84-11 | $\emptyset$ | $843.1-837.0$ | 833.3-832.7 |
| AR-84-3 | 855.3-849.8 | 848.3-839.1 | $829.7-830.3$ |
| AR-84-4 | 856.8-853.1 | 848.0-840.0 | 834.5-833.0 |
| AR-84-5 | 855.3-854.0 | 845.8-842.5 | 841.3-840.6 |
| AR-84-6 | $\emptyset$ | **(Down Dip) | $\emptyset$ |
|  |  | 830.3-827.8 |  |
| AR-84-8 | (Uplifted) | 857.7-857.1 | 844.9-844.3 |
|  | 876.6-874.8 |  |  |
| AR-84-9 | $\emptyset$ | *(Offset East) | *(Offset East) |
|  |  | 859.2-858.9 | 856.5-855.9 |
| AR-84-7 | 863.8-859.5 | 854.4-851.6 | 849.2-844.9 |
| Sulphide Mineralization |  |  |  |

The sulphide mineralization consists of the following listed minerals with an approximate percentage of occurrence when present in the felsic to mafic gneiss host rocks.

Sphalerite - ZnS , dark brown color, resinous to adamantine lustre, conchoidal fracture, S.G. 3.9-4.1, often contains iron and manganese and sometimes cadmium. Occurs 85 - $95 \%$ massive, $30-50 \%$ semi-massive and $3-5 \%$ scattered crystals with galena, pyrite or pyrrhotite. In parts of the massive to semi-massive sphalerite rich zones, scattered garnets and garnet clusters occurred with the zinc sulphide. The garnet was creamy white in color and possibly "grossalarite", as distorted dodecahedron or trapezohedron crystals. Sphalerite is non-electrical conductive.

Galena - PbS, metalic, color lead-gray, S.G. 7.4-7.6, often contains silver and occasionally cadmium. Occurs as coarse or fine granular crystals at $0.5-2 \%$ and rarely to $5 \%$ with pyrite, pyrrhotite and bornite. Galena is never present with massive sphalerite and only occasionally in minor quantities with semi-massive sphalerite.

Bornite $-\mathrm{Cu}_{5} \mathrm{FeS}_{4}$, peacock ore, color is copper-red and brownish on fresh non-oxidized face and irridescent color when tarnished. Noted to occur in scattered parts of the 1984 drill hole core, also the peacock blue color was observed in several sections of the 1980 drill core. Probably a partial source of copper in the Scotia ore zones.

Chalcopyrite - CuFeS, color brass-yellow, in parts of the core occurs as less than $1 \%$ with pyrite, pyrrhotite and galena, sometimes contains silver and/or gold.

Pyrite $-\mathrm{FeS}_{2}$, pale brass-yellow color, disseminated in mafix gneiss or within quartz-sericite schist bands from $3-10 \%$ and up to $20 \%$ pyrite, occurs as zones on the hanging and footwall sides of the Upper, Middle and Lower sphalerite zones. Is associated with galena, pyrrhotite, bornite and chalcopyrite.

Pyrrhotite - $\mathrm{Fe}_{5} \mathrm{~S}_{6}$ to $\mathrm{Fe}_{16} \mathrm{~S}_{17}$, magnetic pyrite, color between bronze-yellow and copper red. Occurs $1 \%$ or less with pyrite, galena, chalcopyrite and bornite in fringe zones to the massive sphalerite.

## Cadmium Values

Nine of the split core samples were assayed for cadmium, that indicate good cadmium values occur with sphalerite. The source of the cadmium is associated with semi-massive to massive sphalerite that contains $20 \%$ - $30 \%$ zinc. The $0.05 \%$ cadmium content indicates one pound per ton of ore and is a byproduct mineral that is recovered in the refinery smelting process of zinc. During the roasting and sintering of zinc concentrates cadmium is volatilized. The resultant cadmium fumes and dust are collected as flue dust, that contains about $10 \%$ of the mineral. The cadmium smelter residues are often stockpiled during times of low demand and price.

Cadmium Assays:

| Hole No. | Sample No. | Cd\% | Zn\% | Pb\% | Ag 0z./T |
| :---: | :---: | :---: | :---: | :---: | :---: |
| AR-84-5 | 3445 | 0.05 | 19.27 | 3.21 | 1.24 |
|  | 3448 | 0.04 | 15.98 | 5.64 | 2.10 |
|  | 3449 | 0.05 | 20.27 | 5.82 | 1.62 |
| AR-84-6 | 4654 | 0.01 | 3.22 | 2.50 | 2.78 |
|  | 4659 | 0.01 | 1.41 | 1.65 | 2.22 |
| AR-84-7 | 4670 | 0.05 | 24.44 | 3.30 | 1.06 |
|  | 4671 | 0.06 | 29.01 | 10.84 | 2.60 |
|  | 4673 | 0.04 | 17.83 | 2.60 | 1.32 |
| AR-84-8 | 4678 | 0.02 | 9.69 | 8.82 | 3.62 |
| AR-84-9 | 4679 | 0.02 | 5.63 | 2.09 | 1.18 |

## Rake Of Ore Zones

The elevations of the Upper, Middle and Lower ore intersects change between drill holes AR-84-7, on the north end, to AR-84-1 on the south end. The difference in elevations suggests a south rake, to the $-40^{\circ}$ southwest dip of the three ore zones.

1) Upper Zone - between drill holes AR-84-5 and AR-84-1

AR-84-5 elevation ---------------------- 854.7 metres
AR-84-1 elevation ---------------------- 842.7 metres
difference elevation ------------------- 12.0 metres
horizontal distance between holes ------ 59.1 metres
$\tan \emptyset=\frac{12.0}{59.1}=0.20103=11^{\circ} 24^{\prime}$
Middle Zone - between drill holes AR-84-5 and AR-84-1
AR-84-5 elevation ---------------------- 844.3 metres
AR-84-1 elevation ---------------------- 833.9 metres
difference elevation ------------------- 10.4 metres
horizontal distance between holes ----- 56.1 metres
$\tan \emptyset=\frac{10.4}{56.1}=0.18478=10^{\circ} 30^{\prime}$
2) Upper Zone - between drill holes AR-84-7 and AR-84-1

AR-84-7 elevation ----------------------- 862.0 metres
AR-84-1 elevation ---------------------- 842.8 metres
difference elevation ------------------- 19.2 metres
horizontal distance between holes ------ 127.4 metres

$$
\tan \emptyset=\frac{19.2}{127.4}=0.15071=8^{\circ} 36^{\prime}
$$

Middle Zone - between drill holes AR-84-7 and AR-84-1
AR-84-7 elevation..$-----------------\quad 853.1$ metres
AR-84-1 elevation ---------------------- 833.9 metres
difference elevation ------------------- 19.2 metres
horizontal distance between holes ------ 126.2 metres

$$
\tan \emptyset=\frac{19.2}{126.2}=0.15217=8^{\circ} 42^{\prime}
$$

Lower Zone - between drill holes AR-84-7 and AR-84-1

AR-84-1 elevation -------------------- 833.3 metres
difference elevation ---------------- 13.7 metres
horizontal distance between holes ---- 103.6 metres

$$
\tan \emptyset=\frac{13.7}{103.6}=0.13235=7^{\circ} 33^{\prime}
$$

Therefore - The average rake of the three ore zones are $-9^{0}$ south within a folded structure that dips $-40^{\circ}$ southwest.

## TABLE \#3

Summary of Significant 1984, Silver-Zinc, Assays of BQ Drill Core.

| D.D.H. No. | Azimuth | Dip | From | To | Interval <br> (Metres) | Zn. \% | $\begin{gathered} \mathrm{Ag} . \\ (0 \mathrm{z} . / \mathrm{Ton}) \\ \hline \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AR-84-1 | $070^{\circ}$ | $-45^{\circ}$ | 5.64 | 7.83 | 1.89 | 11.25 | 0.69 |
|  |  |  | 18.17 | 19.45 | 2.38 | 20.81 | 1.16 |
| AR-84-2 | $050{ }^{\circ}$ | $-45^{\circ}$ | 5.67 | 8.47 | 2.80 | 17.74 | 0.67 |
|  |  |  | 17.62 | 20.85 | 3.23 | 22.75 | 0.40 |
|  |  |  | 31.30 | 31.67 | 0.37 | 38.83 | 0.02 |
| AR-84-3 | $105^{\circ}$ | $-61 \frac{1}{2}{ }^{\circ}$ | 20.67 | 23.71 | 3.08 | 12.38 | 1.07 |
|  |  |  | 25.73 | 36.88 | 11.13 | 25.84 | 0.94 |
|  |  |  | 47.18 | 47.73 | 0.55 | 17.24 | 1.44 |
| AR-84-4 | $075^{\circ}$ | $-60^{\circ}$ | 15.82 | 20.06 | 4.24 | 16.21 | 0.80 |
|  |  |  | 26.24 | 35.57 | 9.02 | 20.55 | 1.30 |
| AR-84-5 | $090^{\circ}$ | $-45^{0}$ | 43.80 | 45.63 | 1.83 | 8.11 | 1.06 |
|  |  |  | 57.24 | 62.00 | 4.75 | 21.41 | 1.16 |
|  |  |  | 63.64 | 64.47 | 0.82 | 20.27 | 1.62 |
| AR-84-6 | $090^{\circ}$ | $-65^{\circ}$ | 41.73 | 46.50 | 4.77 | 2.52 | 2.08 |
|  |  |  | 61.48 | 64.13 | 2.65 | 21.38 | 0.64 |
| AR-84-7 | $090^{\circ}$ | $-60^{\circ}$ | 62.61 | 63.09 | 0.38 | 13.88 | 0.62 |
|  |  |  | 63.09 | 64.31 | 1.22 | Dike |  |
|  |  |  | 64.31 | 67.48 | 3.17 | 32.03 | 0.50 |
|  |  |  | 75.29 | 76.41 | 1.12 | 24.44 | 1.06 |
|  |  |  | 79.43 | 80.19 | 0.76 | 29.01 | 2.60 |
|  |  |  | 82.78 | 84.19 | 1.41 | 17.63 | 1.32 |
| AR-84-8 | $090^{\circ}$ | $-60^{\circ}$ | 33.71 | 36.12 | 2.41 | 18.84 | 0.49 |
|  |  |  | 55.32 | 55.65 | 0.34 | 32.19 | 0.28 |
|  |  |  | 69.59 | 70.13 | 0.55 | 9.69 | 3.62 |
| AR-84-9 | $070^{\circ}$ | $-45^{\circ}$ |  | 66.08 | 0.34 | 5.63 | 1.18 |
|  |  |  | $69.65$ | 70.01 | 0.37 | 11.55 | 0.76 |
| AR-84-10 | $090^{\circ}$ | $-45^{\circ}$ | 16.09 | 19.69 | 3.60 | 14.72 | 0.64 |
|  |  |  | 24.08 | 30.94 | 6.86 | 22.86 | 0.37 |
|  |  |  | 32.49 | 33.13 | 0.64 | 17.04 | 0.74 |
| AR-84-11 | $070^{\circ}$ | $-45^{\circ}$ | 21.18 | 22.22 | 1.04 | 8.49 | 1.40 |
|  |  |  | 24.17 | 31.61 | 8.44 | 18.27 | 0.47 |
|  |  |  | 37.89 | 38.71 | 0.82 | 9.02 | 0.98 |

TABLE \#4
1984 Gold-Silver-Lead-Zinc Weighted Assay Averages of BQ Drill Core.

| D.D.H. No. | From | To | Interval Mēters | $\begin{gathered} \mathrm{Ag} \\ 0 \mathrm{z} \cdot / \mathrm{T} \\ \hline \end{gathered}$ | $\begin{gathered} \mathrm{Au} \\ 0 \mathrm{z} . / \mathrm{T} \end{gathered}$ | Pb \% | Zn\% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AR-84-1 | 5.64 | 7.83 | 1.89 | 0.69 | 0.03 | 1.85 | 11.25 |
|  | 17.07 | 19.45 | 2.38 | 0.77 | 0.005 | 0.28 | 11.91 |
| AR-84-2 | 5.67 | 8.47 | 2.80 | 0.78 | 0.014 | 2.19 | 17.74 |
|  | 17.62 | 20.85 | 3.23 | 0.40 | 0.007 | 0.47 | 22.75 |
|  | 31.30 | 31.67 | 0.37 | 0.20 | 0.004 | 0.19 | 38.83 |
| AR-84-3 | 17.68 | 20.67 | 2.99 | 0.57 | 0.012 | 1.07 | 1.49 |
|  | 20.67 | 23.71 | 3.08 | 1.07 | 0.011 | 2.38 | 12.38 |
|  | 25.73 | 36.88 | 11.13 | 0.96 | 0.010 | 0.92 | 25.97 |
|  | 47.18 | 49.41 | 1.77 | 0.65 | 0.009 | 0.83 | 6.47 |
| AR-84-4 | 15.82 | 20.06 | 4.24 | 0.80 | 0.014 | 0.78 | 16.21 |
|  | 26.24 | 35.57 | 9.02 | 1.21 | 0.017 | 2.70 | 20.55 |
|  | 41.76 | 43.74 | 1.98 | 0.84 | 0.006 | 1.19 | 3.56 |
| AR-84-5 | 43.80 | 45.63 | 1.83 | 1.06 | 0.006 | 1.07 | 8.11 |
|  | 57.24 | 62.00 | 4.75 | 1.16 | 0.003 | 3.02 | 21.42 |
|  | 63.64 | 64.47 | 0.82 | 1.62 | 0.006 | 5.82 | 20.27 |
|  | 71.35 | 72.02 | 0.67 | 0.52 | Tr. | 0.79 | 3.60 |
|  | 73.55 | 74.16 | 0.61 | 0.60 | 0.002 | 0.43 | 1.98 |
| AR-84-6 | 41.73 | 45.05 | 3.32 | 1.87 | 0.025 | 1.76 | 2.75 |
|  | 49.87 | 53.61 | 3.75 | 1.28 | 0.027 | 0.94 | 1.81 |
|  | 61.48 | 64.13 | 2.65 | 0.64 | 0.001 | 1.38 | 21.38 |
| AR-84-7 | 62.61 | 67.48 | 4.88 | 0.39 | 0.005 | 0.89 | 22.23 |
|  | 73.58 | 76.41 | 2.83 | 0.79 | 0.003 | 2.42 | 12.63 |
|  | 79.43 | 84.73 | 5.30 | 0.94 | 0.003 | 2.69 | 9.97 |
| AR-84-8 | 33.71 | 36.12 | 2.41 | 0.49 | 0.025 | 0.80 | 18.84 |
|  | 55.32 | 55.66 | 0.34 | 0.28 | 0.022 | 0.02 | 32.19 |
|  | 69.59 | 70.13 | 0.55 | 3.68 | 0.018 | 8.82 | 9.69 |
| AR-84-9 | 65.75 | 66.08 | 0.34 | 1.18 | 0.006 | 2.09 | 5.63 |
|  | 69.65 | 70.01 | 0.37 | 0.76 | 0.004 | 2.02 | 11.55 |
| AR-84-10 | 16.09 | 19.69 | 3.60 | 0.64 | 0.009 | 1.72 | 14.72 |
|  | 20.76 | 23.16 | 2.41 | 0.52 | 0.002 | 1.12 | 1.59 |
|  | 24.08 | 30.94 | 6.86 | 0.37 | 0.005 | 0.82 | 22.86 |
|  | 32.49 | 33.13 | 0.64 | 0.74 | 0.008 | 1.07 | 17.04 |
|  | 38.47 | 39.62 | 1.16 | 1.12 | 0.004 | 1.41 | 2.06 |
| AR-84-11 | 16.70 | 18.20 | 1.49 | 0.32 | Tr. | 0.82 | 4.64 |
|  | 21.18 | 22.22 | 1.04 | 1.40 | 0.008 | 1.63 | 8.49 |
|  | 24.17 | 31.61 | 8.44 | 0.47 | 0.007 | 1.46 | 18.27 |
|  | 37.89 | 38.71 | 0.82 | 0.98 | 0.004 | 0.55 | 9.02 |

CONCLUSIONS/RECOMMENDATIONS:

## Conclusions

The Scotia massive sulphide mineralization is located, at the West Ridge, on a $-31^{\circ}$ mountain slope. The mountain slope terrain is situated in a north-south direction and the massive sphalerite zone strikes $N 20^{\circ} \mathrm{W}$ unslope, from the 847 metre elevation. It is difficult to locate drill sites on the upslope terrain of the West Ridge to intersect the 853 metre level of sphalerite mineralization. The property is located on the windward side of the Kitimat Range of the Coastal Mountains and is indulated with abundant rainfall. The most favorable weather conditions, suitable for heliocopter flying, occur in September and October.

## 1. Geology Scotia Property:

a) The Scotia property is situated on the east side of the Ecstall Pluton and overlays the Central Gneiss Complex gneissic assemblage of rocks that are PALEOZOIC (?) in age.
b) The Central Gneiss Complex Unit-1 lithology has been identified by W. W. Hutchison to contain Subunits 1b-1c-1d. The Scotia property overlays subunit $1 c$, however drill core and field mapping suggest the rock types are similar to subunits lb-lc-1d. The Central Gneiss Complex rock types that occur in the drill core logged in 1980 1981 and 1984 are within the following listed classification.

## CENTRAL GNEISS COMPLEX - Work Channel Amphibolite FELSIC GNEISS/TUFF:

a) Quartz-Feldspar-Sericite Gneiss
b) Quartz-Sericite Schist
c) Pyritic Quartz-Sericite Gneiss
d) Amphibolite

FELSIC GNEISS:
a) Massive Sulphides-Sphalerite $85-95 \%$
b) Semi-Massive Sulphides-Sphalerite $30-50 \%$

FELSIC/MAFIC GNEISS:
a) Mixed Felsic and Mafic Gneiss

MAFIC GNEISS:
a) Hornblende-Biotite Gneiss
b) Biotite-Garnet-Hornblende Gneiss
c) Sillimanite Gneiss
d) Grey Hornblende-Biotite-Quartz Gneiss

PLUTONIC INTRUSIVES
MIGMATITE:
a) Diorite
b) Quartz Diorite
c) Gneissic Diorite or Quartz Diorite
c) The rock types have no sharp boundaries, do not repeat in any sequence and appear to be gneissic, banded, schistose, massive or foliated. There is no geological correlation to suggest that the massive sulphide mineralization is controlled by rock type. The most general observation is that the mineralization is most often contained in a felsic gneiss.
2. Structure Scotia Property:
a) The zinc and silver mineralization occurs within a drag fold structure. The drag folds noted on the property at the gossan outcrop and areas adjacent to drill holes AR-84-3 and 4 indicated a possible $30-35^{\circ}$ south plunge. The drag folds suggests shearing between incompetent and competent beds in a possible overturned fold structure. The shearing probably has occurred between beds of gneissic rock types. W. W. Hutchison reports banded gneiss, irregular layered gneiss veined gneiss and fluidal gneiss deposition in the Central Gneiss Complex: The Central Gneiss Complex subunits lb-lc-ld strikes northwest on the Scotia property. The West Ridge mineralized zone is reported to be situated on the west limb of an anticline structure
that dips westerly. The drill indicated mineralization trends $\mathrm{N} 20^{\circ} \mathrm{W}$ and occurs laterally within the northwest strike direction of the Central Gneiss Complex rock types. Note Figure \#5 that shows an overturned fold in relation to the structural deformed drag folding.
3. Mineralization Scotia Property:
a) The zinc, silver, lead and gold mineralization, occurs within an Upper-Middle-Lower zone. The mineralized zones strike $\mathrm{N} 20^{\circ} \mathrm{W}$, dip $-40^{\circ}$ southwest and rake $-9^{\circ}$ south. The mineralized zones undulate along a 228 metre length structure or are slightly offset by minor cross faults perpendicular to the structure.
b) The zinc mineral sphalerite has a specific gravity of 3.9-4.1 and is non electrical conductive. During deposition the heavy sphalerite bearing solutions would tend to accumulate in the lower part of a broad structure. Within a drag fold structure sphalerite mineralization would be expected to occur at a greater thickness in the broad roll base of the fold. Sphalerite would tend to be squeezed into the narrow neck of the upper part of the drag fold.
c) The ore zones are interpreted to be contained within an overturned fold, with related drag folding caused by shearing at the outer sides of layered or fluid gneissic flows.
d) The ore mineralization are enclosed within a complicated deformed structural feature but is consistent in continuity along the strike and dip of the zones.
e) The writer postulates that the ore zones are within an overturned drag fold structure that is sinuous in shape when plunging at depth. The reader is referred to Figure \#6 - Hypothetical Ore Zone. The 1984 drill holes with $-45^{\circ},-60^{\circ}$ and $-65^{\circ}$ dips that intersected the Upper-Middle-Lower ore zones, are possibly zinc intersects on the same overturned fold. The 1980 drill holes that dip $-90^{\circ}$ were possibly located to the west of the ore zone that were near vertical
in dip as the zinc mineralization overturned and folded toward the east. The Scotia ore zones are required to be visualized in a vector dimension with $X-Y-Z$ axis.
f) The Scotia ore zones are within a folded structure and to further delineate the zinc mineralization close spaced "vertical" drill holes are required along a $070^{\circ}$ azimuth surface section line.
4. Mineralization Scotia Property:
a) The massive to semi-massive sphalerite mineralization contains features of a volcanogenic massive sulphide deposit.
b) The Scotia ore zone mineralization contains the following listed sulphide minerals:

- Sphalerite: occurs $85-95 \%$ massive, $30-50 \%$ semi-massive and minor $3-5 \%$ scattered crystals with galena, pyrite or pyrrhotite.
- Galena: occurs as coarse or fine granular crystals at $0.5-2 \%$ and rarely to $5 \%$ with pyrite, pyrrhotite, bornite and sphalerite.
- Bornite: noted to occur in scattered places in the 1984 drill hole core, probably a partial source of copper in the ore zones.
- Chalcopyrite: occurs in parts of the core as less than $1 \%$ with pyrite, pyrrhotite and galena. Probably contains silver and gold.
- Pyrite: disseminated in gneiss and schist bands, from $3-10 \%$ and up to $20 \%$ in zones adjacent to sphalerite rich ore zones. Is associated with galena, pyrrhotite, bornite and chalcopyrite.
- Pyrrhotite: occurs $1 \%$ or less with pyrite, galena, chalcopyrite and bornite in fringe zones to the massive sphalerite.


NOTE - Previous drilling possibly missed ore zone due to structure contiguration by folding.


Recommendations - Underground Development
The Scotia property 1984 drill program confirmed an Upper-Middle-Lower sulphide mineral zone, that was partly delineated in the 1960 and 1980 drill programs. The three zones undulate in a $N 20^{\circ} \mathrm{W}$ strike direction along a 228 metre length. The zinc mineralization dips $-40^{\circ}$ southwest and rakes $-9^{\circ}$ to the south within a folded and flow-like structure. The $-31^{\circ}$ West Ridge mountain slope hinders diamond drill programs because of the terrain. The three zinc mineralize zones are extremely consistent along the 228 metre strike length and only vary in elevation from the north to the south end by $-9^{\circ}$ rake within the structure.

Therefore, the writer recommends that the zinc mineralize ore zones be further developed by underground methods. A portal at the 838 metre elevation would be required to the west of drillsite AR-84-1 and approximately 305 metres of cross-drift and development drifts mined along the mineralize structure. It would be necessary to construct 6.44 kilometres of access road from the southern end of the existing logging road located on Scotia Creek. The reader is referred to the Topography Plan of the Existing and Proposed Roads - Scale 1:25,000.

## Estimated Underground Development Costs

1) 6 kilometres road construction © $\$ 15,000 / \mathrm{km}$. --------- $\$ 100,000$

- Backhoe method sidehill road building


3) 30 metre equivalent drifts for drill stations ( $\$ 985 / \mathrm{m}$.

30,000

5) 4,575 metres of underground drilling © $\$ 39 / \mathrm{m} . \ldots-\cdots \quad 180,000$
 Total Program Costs -------------- \$714,000

R. G. Milker, P. Eng. May 14, 1985

## Recommendations - Surface Drill Program

The Scotia property has been drilled in 1960-1980-1981 and 1984, that indicated an Upper-Middle-Lower ore zone. The ore zones were delineated along a 228 metre strike length within a continuous structure. The massive sphalerite mineralization occurs in drag folds within a folded structure.

A surface diamond drill program is recommended on the Scotia property, should it not be possible to conduct underground development and exploration at this time period. Further drilling should be conducted along surface lines at an azimuth of $070^{\circ}$. A combination of vertical and inclined holes should be located to acquire maximum ore zone data along the 228 metre structure.

## Estimated Drill Program Costs

| 1) | Contract Drill - 1,067 m. © \$72/m. ----------------- | \$ 77,000 |
| :---: | :---: | :---: |
| 2) | Heliocopter Flying | 35,000 |
| 3) | Linecutting and Transit Baseline -------------------- | 10,000 |
| 4) | Camp Costs --------------------------------------------- | 25,000 |
| 5) | Drillsite Construction and Powder ------------------ | 8,000 |
| 6) | Assaying | 10,000 |
| 7) | Radio Communications | 2,500 |
| 8) | Transportation Vehicle Expenses ------------------- | 7,000 |
| 9) |  | 5,000 |
| 10) |  | 16,000 |
| 11) |  | 7,500 |
| 12) | Supervision Geologist ---------------------------------- | 35,000 |
|  | Total Cost Drill Program ----------------------- | \$238,000 |
| : | Contingency ---------------------------------------- | 37,000 |
|  |  | \$275,000 |

## QUALIFICATIONS

I, ROBERT G. HILKER, of 324 Silver Valley Rise, N.W., in the City of Calgary in the Province of Alberta, DO HEREBY CERTIFY;

1. THAT I am a Consulting Geologist, with an office located at 324 Silver Valley Rise, N.W., in the City of Calgary, in the Province of Alberta.
2. THAT I am a graduate of the Michigan Technological University located at Houghton, Michigan, U.S.A., where I obtained a Bachelor of Science Degree in Geological Engineering (Exploration Option) in 1962.
3. THAT I am a registered Professional Geological Engineer; in the Association of Professional Engineers, Geologists and Geophysicists of Alberta - \#38356; The Association of Professional Engineers of the Yukon Territory; The Association of Professional Engineers of British Columbia (non-residence license); a Fellow of the Geological Association of Canada; and a Member of the Society of Mining Engineers of AIME \#1436600.
4. THAT I have practised my profession as an engineer and geologist for the past twenty-three years.
5. THAT I have personally supervised the 1984 Diamond Drill Program on the Scotia property that is located on NTS Sheet 103-I-4E, in the Skeena Mining Division; the claims centered at approximately Lat. $54^{\circ} 05^{\prime} \mathrm{N}$ and Long. $129^{\circ} 40^{\prime} \mathrm{W}$; prepared drill sections and hole plans; reviewed previous exploration data on the Scotia property; prepared this report from available property data, G.S.C. Memoir 394 and observations of the drill core; processed assay data and acknowledge that D. C. Plecash assisted in the drill program and logged the core from eleven holes completed in 1984.

DATED this 14 th day of May, 1985 at the City of Calgary in the Province of Alberta.

R. G. Milker, P. Eng.

## ＂APPENDIX＂

## Scotia Zinc Property

 1984 Exploration Drill Program Geological Evaluation Report May 14， 1985R．G．Hilker，P．Eng．

Andaurex Resources Inc., 1984 Scotia Property Drill Program

## Re - Valuation of Work - Section (2)

A total of 771.49 metres of $B Q$ size diamond drilling was conducted at drill sites AR-84-1 through AR-84-11 on the ALBERE \#2 - 19319 claim, between the dates of August 5th through September 24th, 1984.
(a) Personnel Employed:

Casual Labour:

| Aug. 3 \& 4 - R. Rolls- 3 days @ \$70/d | \$ 140.00 |
| :---: | :---: |
| Aug. 5, 6, 7 - K. Mellisen - 3 days @ \$150/day ------ | 450.00 |
| Aug. 5 - 8. Muir - 1 day @ \$125/day ---------- | 125.00 |
| Aug. 5, 6, 7 - D. Barnett - 3 days @ \$125/day ------- | 375.00 |
| Sept. 1 - D. L. McConaghy - 1 day @ \$150/day --- | 150.00 |
| Sept. 3 \& 7 - K. Mellisen - 2 days 0 \$ $150 /$ day ------ | 300.00 |
|  | 200.00 |
| Sept. $24-\mathrm{Bob}$ Swift - 1 day 0 \$150/day | 150.00 |
| Sept. 24 - J. Maskiewich - 1 day @ \$125/day ----- | 125.00 |
| Sept. 25 \& 26- ------ 2 days @ \$100/day -------.--- | 200.00 |
| Sept. 25 \& 26- K. Maskiewich - 2 days @ \$100/day ---- | 200.00 |
| Sub-Total | \$2,415.00 |

Field Crew:
Heather L. Blomgren - Contract Cook © $\$ 2,500$ /month July through September 30, 1984
$\$ 5,625.00$
D. C. Pleacash - Contract Geologist (Professional) @
$\$ 4,000 /$ month - July 15 through October 31, $1984 \cdots$

> R. G. Hilker, P. Eng. - Tron Duik Consultants Ltd. contracted professional fees June 1st - October 31 , 1984 - total fees $\$ 36,000$ (Engineering' \& Geology). --- $\$ 36,000.00$

Drill Crew:
Contract drill crew August 14 through September 21, 1984, Core Enterprises Ltd. employed Alan Harvie driller and John Harvie - drill helper (total drill contract costs $\$ 47,258.00$ ).

Total Costs Personnel Employed:
$\$ 58,040.00$
(b) Field Camp Costs:

- Casual Labourer - 19 mandays in August and September
- Field Crew (Blomgren/Pleacash/Hilker), August 5 - September 24, 1984 ( 51 days) or 153 mandays.
- Drill Crew (A. Harvie \& J. Harvie) August 14 - September 21, 1984 ( 39 days) or 78 mandays.

Total 250 mandays in campsite at cost of $\$ 24,434.20$.
(c) Field Costs - Related to Drill Project:

Total Field Costs ------------------------------- \$15,701.21
Geological Equipment -------------------------------1, 1,800.00
Radio Communications -------------------------------10 $1,613.10$
Field Travel Expenses ------------------------------- $3,887.94$
Vehicle Expenses - Pick-up Truck \& Ryder Rental --- 4,303.56

Sub-Total Costs $\quad \$ 28,630.81$
(d) Diamond Drill Contract Costs:

Sub-Total --------- \$50,701.27
(e) Assaying \& Freight Costs:

- Airfreight for samples from Smithers to Calgary
- 98 samples assayed for $\mathrm{Au} / \mathrm{Ag}$. Zn , Pb @ $\$ 28.50 /$ sample
- 10 samples assayed for Cd @ $\$ 12.00 /$ sample

Total Assay Costs -----------------------------------
$\$ 3,887.94$
(f) Helicopter Flying:

Glacier Heliocopter - Smithers, B.C. - 60.7 hours of contract flying plus fuel -----------------------
$\$ 26,750.17$
(g) Core Storage:

- Freight for boxes of core from Smithers to Revelstoke warehouse
\$ 1,400.00
- Warehouse storage
$\$ 2,000.00$
(h) Report Preparation - Drill Sections/PlansAll costs for 1984 drill report on the Scotia Property,drill sections, drill location plans, report locationsketches, topography plans, all related drafting andreproduction costs, typing and related report costs.
- Total Costs Drill Report/Assessment Report ..... $\$ 14,420.09$
(i) Miscellaneous Office and Field Expenses:
Miscellaneous related office, accounting, directfield expenses, field travel and expenditures forthe 1984 drill program.
- Total Documented Office and Field Costs ..... $\$ 27,800.54$
Summary of Valuation Costs

1) Casual Labour ..... \$ 2,415.00
2) Engineering/Geology \& Field Crew ..... 55,625.00
3) Field Camp Costs ..... 28,630.81
4) Field Costs/Drill Project ..... 50,701.27
5) Assaying \& Freight Costs ..... 3,887.94
6) Heliocopter Flying ..... 26,750.17
7) Core Storage \& Freight ..... 2,000.00
8) Report Preparation ..... 14,420.09
9) Miscellaneous Related Office and Field Costs ..... 27,800.54
Total Drill Program Costs ..... $\$ 236,665.02$

R. G. Milker

May 15, 1985
Agent for Andaurex Resources Inc.

# Andaurex Resources Inc. <br> P.O. BOX 173. 1 FIRST CANAOIAN PLACE <br> TORONTO. CANADA <br> CANADA MSX IC7 

SUITE 4800

Flying and Transportation
Assaying
Diamond Drilling
Camp Operations
Engineering, Geology, Field Costs
\$ 26,750.17
3,887.94
50,701.27
24,434.20
130,891.44
$\$ 236,665.02$

| Claim | Units | Record No. | Recorded | Anniversary Date |
| :---: | :---: | :---: | :---: | :---: |
| Scotia \#1 | 20 | 1418 | July 17, 1979 | July 17, 1992 |
| Scotia \#2 | 6 | 1419 | July 17, 1979 | July 17, 1992 |
| Albere \#1 | -- | 19318 | Aug. 3, 1960 | Aug. 3, 1992 |
| Albere \#2 | -- | 19319 | Aug. 3, 1960 | Aug. 3, 1992 |
| Albere \#3 | -- | 19320 | Aug. 3, 1960 | Aug. 3, 1992 |
| Albere\#4 | -- | 19321 | Aug. 3, 1960 | Aug. 3, 1592 |
| April 9, 1 |  |  | Certified ANDAUREX | orrect: <br> SOURCES INC. <br> d, P.Eng.. |



TO: TRON DUIK CONSULTANTS [ clo Glacier Heleicopters
 $[$ P. O. Box 3548 cc: Andaurex Resources



File No. 26800
Date $\qquad$ September 7, 1984

Samples Core
PROJECT: SCOTIA

## Page \#2



TO: TRON DUNK CONSULTANTS
c/o Glacier Helicopters
P.O. Box 3548

Smither, B.C., VOJ 2NO $\therefore$


File No. 26811
Date ..... September 7, 1984
Samples Core
PROJECT: SCOTIA

Attn: R.G. Milker
[ cc: W.P. Hammond
$\underbrace{e^{+i f i r a t e s s a y}}$ ASSAY
LUring LABORATORIES LTD.

Page \#1


| .008 | .50 | .74 | 2.58 |
| :--- | ---: | ---: | ---: |
| .014 | .62 | 1.29 | .74 |
| .010 | .88 | 1.91 | 13.11 |
| .016 | 1.88 | 4.42 | 9.25 |
| .012 | .98 | .71 | 20.91 |
| .014 | 1.18 | 1.65 | 17.29 |
| .004 | 2.04 | 2.06 | 29.01 |
| Trace | .64 | .29 | 13.70 |
| .018 | .42 | .06 | 40.44 |
| .010 | .56 | .32 | 42.77 |
| .016 | .94 | .97 | 23.65 |
| .008 | .98 | 2.06 | 19.77 |
| .004 | .68 | 1.44 | 17.24 |
| .012 | .64 | .56 | 1.62 |

## 3) TGirechg Certify that the above results are those

 assays made by me upon the herein described samples, . . . .?ejects Retained one month.
Pulps Retained one month ines specific arrangements


- TO: TRON DUNK CONSULTANTS $\qquad$ coo Glacier Helicopters P.O. Box 3548
[ Smither, B.C., VOJ 2NO


File No. . 26811
Date ........September 7, 1984
Samples Core
PROJECT: SCOTIA
Attn: R.G. Milker
$c^{+i f i c a t}$ ASSAY or Luring Laboratories Ltd.

Page \# 2


Rejects Retained one month.
Pulps Retained one month unless specific arrangements


TO：IRON DUNK CONSULTANTS LTD 324 Silver Valley Rise N．W．， Calgary．Alberta T3B 4B2 cc：Andaurex W．P．Hammond


File No．．．． 26834
Date $\qquad$ September 13， 1984 Samples Core $\qquad$ SCOTIA PROJECT

# ifirate ASSAY $0_{\alpha}$ Luring Laboratories Ltd． 

Page \＃ 1


TO: TRON DUNK CONSULTANTS INC 324 Silver Valley Rise N.W., Calgary, Alberta T3B 4B2
[ cc: Andaurex W.P. Hammond

> Nifirate ASSAY Luring Laboratories Ltd.

Page \# 2

| .018 | 1.18 | 1.19 | 2.40 |
| :---: | ---: | ---: | ---: |
| .034 | 2.78 | 2.50 | 3.22 |
| .016 | 2.56 | .41 | .43 |
| .004 | .56 | .23 | .51 |
| .004 | .80 | .23 | .16 |
| .004 | .36 | .24 | 2.20 |
| .050 | 2.22 | 1.65 | 1.41 |
| .010 | .36 | .37 | .51 |
| Trace | .14 | .10 | 1.15 |
| Trace | .34 | .17 | 16.66 |
| .002 | .90 | 2.41 | 25.39 |
| Trace | .32 | .09 | .43 |
| .002 | .12 | .08 | .11 |

## 9] Thereby Certify that the above results are those

 assays made by me upon the herein described samples . . . .
## 

Pulps Retained one month niles specific arrangements lade in advance.

TO: TRON DUIK CONSULTANTS LTD c/o Glacier Helicopters
P.O. Box 3548

Smitherst.B.C., VOG 2NO cc: Andaurex Resources Inc

W.P. Hammond


File No. 26877
Date
September 25, 1984
Samples Core
PROJECT: SCOTIA
Hole AR-84-7,8.9
cifirate ASSAY Or
Loring Laboratories Ltd.
Page \#1

$\int_{\text {Rejects }}$ Retained one month.
Pulps Retained one month unless specific arrangements made in advance.


TO: TRON DUIK CONSULTANTS LTD c/o Glacier Helicopters P.O. Box 3548

Smithers, B.C., VOG 2NO cc: Andaurex Resources Inc W.P. Hammond

File No. 2687.7
Date . September-25, 1984
Samples Core
PROJECT: SCOTIA
Hole AR-84-7,8,9

## Loring Laboratories Lid.

Page \#2


## Rejects Retained one month.

 unless specific arrangements made in advance.


TO: TRON DUIK CONSULTANTS LTD
c/o Glacier Helicopters P.0. Box 3548

Smithers,B.C., VOG 2NO cc: Andaurex Resources Inc


Page \# 3


Pulps Retained one month unless specific arrangements made in advance.


TO: TRON DUIK CONSULTANTS LTD 324 Silver Valley Rise N.W. Calgary, Alberta T3B 4B2
[. Attn: R.G. Hilker cc: Andaurex
 Luring Laboratories Ltd.

Page \#1


## Dejects Retained one month.



TO: TRON DUSK CONSULTANTS LTD 324 Silver Valley Rise N.W., Calgary, Alberta T3B 4B2 Attn: R.G. Hilker
cc: Andaurex

File No. 26908
Date October 5, 1984
Samples Core
PROJECT: SCOTIA
tifirate ASSAY ${ }^{\circ}$
Luring Laboratories Ltd.
Page \# 2
 lade in advance.

## Assayer




| FOOTAGE |  |  | ROCK Classification <br> epio Diof. Gann. Semp. otxish. Actino tremo Chlo. <br> chystalline. sheaming veims factuming. foliation gmain size. texture | MINERALIZATION |  |  |  | ASSAY DATA |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| From | To |  |  | TYPE | ${ }_{7}$ | Sample No. | wiotm | recov. | ${ }^{\mathrm{KN}} \mathrm{Zn}$ |  | Ag ${ }^{\text {Naxk }}$ | Ausic | $\mathrm{Fe}^{1+t+x}$ |
| 17.95 | 23.5 |  | Mixed Felsic Gneiss and Quartz Diorite |  |  |  |  |  |  |  |  |  |  |
|  |  |  | $13.41-13.73$ | Pyr: Cpy | 10-15 |  |  |  |  |  |  |  |  |
|  |  | , | 13.78-15.18 |  |  |  |  |  |  |  |  |  |  |
|  |  | - | 15.18-15.70 | Pyr; Gl | 3-5 |  |  |  |  |  |  |  |  |
|  |  |  | 15.70-17.07 |  |  |  |  |  |  |  |  |  |  |
|  |  |  | $17.07-18.17$ | Pyr; Sph | 5-10 | 3409 | 1.10 | 100\% | 1.53 | 0.21 | 0.32 | 0.004 | 6.48 |
|  |  |  | Massive Sph. and FeS. 18.17-19.45 | Sph; Pyr | 35-40 | 3410 | 1.38 | " | 20.81 | 0.34 | 1.16 | 0.006 | 14.43 |
|  |  |  | Darker Felsic Gneiss 19.45-23.5n | Pyr | 1-2 |  |  |  |  |  |  |  |  |
|  |  |  | $23.35-23.50$ | GL ; Cpy | 3-5 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23.5 | 24.69 |  | Diorite Dike with Abundant Mafic Minerals, |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Medium to Dark Grey in Colour, Black on Fresh |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Face ( $80 \%$ Pyroxene - 20\% Plagioclase and Felsite) |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24.69 | 25.76 |  | Quartz Diorite - Predominately Quartz |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25.76 | 34.81 |  | Quartz Vein - Milky White to Glassy Opaque. |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Small impurities of light green Chlorite. |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 31.42-31.61 Minor Pyr, Cpy, Gl | Pyr;Cpy;G1 | 1-2 |  |  |  |  |  |  |  |  |
|  |  |  | 32.61-33.22. Mafic Gneiss |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 34.38-34.69 Interbedded Mafic Gneiss |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| FOOTAGE |  | bock classification <br> epio dior. garn, Serp. atr/'sil. actino themo. chlo. <br> Crystalline. sheabing. veimb. Fractuming. foliatiom gmain size, texture | MINERALIZATION |  |  |  | ASSAY DATA |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Fram | To |  | TYPE | \% | Sample No. | WIOTM | recov. |  | P\%** | AGOXX Ag. | What Aus. | Aneex |
| 37.7 | 67.51 | Felsic Gneiss Medium Grey to Creamy White with Little |  |  |  |  |  |  |  |  |  |  |
|  |  | Brown Biotite Throughout |  |  |  |  |  |  |  |  |  |  |
|  |  | 38.40 Some Folding |  |  |  |  |  |  |  |  |  |  |
|  |  | 41.09-41.27 Quartz Diorite |  |  |  |  |  |  |  |  |  |  |
|  |  | $41.27-41.73$ | Pyr. | 1-3 |  |  |  |  |  |  |  |  |
|  |  | $41.73-43.62$ | Sph,Gl, Pyr | 3-5 | 4653 | 1.89 | 100\% | 2.40 | 1.19 | 1.18 | 0.018 |  |
|  |  | 43.62 - 45.05 | Sph,Gl, Pyr | 5-8 | 4654 | 1.43 | 100\% | 3.22 | 2.50 | 2.78 | 0.034 |  |
|  |  | $45.05-46.51$ | Sph,Gl, Pyr | 1-3 | 4655 | 1.46 | 100\% | 0.43 | 0.41 | 2.56 | 0.016 |  |
|  |  | $45.26-45.45$ | Sph,Gl, Pyr | 10-15 |  | 0.18 |  |  |  |  |  |  |
|  |  | $46.51-48.31$ | Pyr |  | 4656 | 1.8 | 100\% | 0.51 | 0.23 | 0.56 | 0.004 |  |
|  |  | $48.31-49.26$ |  |  | 4657 | 0.94 | 100\% | 0.16 | 0.23 | 0.80 | 0.004 |  |
|  |  | 49.26-5n.38 Much Sericite Schist and a |  |  |  |  |  |  |  |  |  |  |
|  |  | little Biotite Schist |  |  |  |  |  |  |  |  |  |  |
|  |  | 49.87 - 51.76 | Sph,Gl, Pyr | 2-5 | 4658 | 1.89 | 100\% | 2.20 | 0.24 | 0.36 | 0.004 |  |
|  |  | $51.76-53.61$ | Sph, G1, Pyr | 2-5 | 4659 | 1.86 | 100\% | 1.41 | 1.65 | 2.22 | 0.050 |  |
|  |  | 53.52-55.11 Felsic Gneiss |  |  |  |  |  |  |  |  |  |  |
|  |  | 54.19-54.28 Little Sph. E Gl. | Sph, Gl | 3-5 |  |  |  |  |  |  |  |  |
|  |  | 55.11-58.37 Felsic Gneiss with Much Sericite |  |  |  |  |  |  |  |  |  |  |
|  |  | Schist and a little Pyrite | Pyr. | 1-3 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | $58.37-59.8$ | Pyr. | 1-2 | 4660 | 1.43 | 100\% | 0.51 | 0.37 | 0.36 | 0.010 |  |
|  |  | $59.8-61.48$ | Sph, Pyr | 5-10 | 4661 | 1.68 | 100\% | 1.15 | 0.10 | 0.14 | Tr. |  |
|  |  | $61.48-62.7$ | Sph. | 20-25 | 4662 | 1.22 | 100\% | 16.66 | 0.17 | 0.34 | Tr. |  |
|  |  | $62.7-64.13$ | Sph. | 25-30 | 4663 | 1.43 | 100\% | 25.39 | 2.41 | 0.90 | 0.002 |  |

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PROPERTY SCOTIA
Dote September 18 $-19$ 84

Loggod By D.C. Plecash /R. G. Hilker

| Claim No. | Strike Due East |
| :---: | :---: |
| Section No. | Dip $-45^{\circ}$ |
| Plan No. | Leval |


Iov. $\frac{860.2 \mathrm{~m}}{\text { ASSAY }}$

Hole No. AR-84-10
Total Despth 45.72 m
Page Me. 2
$\qquad$

LASSIFICAYION


R.G. HILKER



| PROPERTY SCOTIA | Claim No. $\qquad$ <br> Section No. $\qquad$ <br> Plan No. $\qquad$ | $\left\{\begin{array}{l} \text { Serike } \frac{N 70^{\circ} \mathrm{E}}{-45^{\circ}} \\ \text { Dip } \\ \hline \end{array}\right.$ |  | Hol. No. $\qquad$ AR-84-11 <br> Total Depth $\qquad$ 45.72 m |
| :---: | :---: | :---: | :---: | :---: |
| Dote September $2019 \quad 84$ |  |  |  |  |
| Logged By D.C. Plecash/R. G. Hilker |  |  |  |  |


| FOOTAGE |  | rock classification <br> Epio. Diop. gamm. Sieff. otz/sil. Actino themo. Chlo. <br> cuystalline. sheaning. veine. fracturing. foliation gmain stze. terture | MINERALIZATION |  |  |  | ASSAY DATA |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| From | To |  | TYPE | \% | SAMPLE No. | WIDTM | Recor. | \% | \%FE | Molr | Au/AG | insol |
| 38.71 | 40.93 | Mafic Gneiss |  |  |  |  |  |  |  |  |  | - |
|  |  | $39.35-39.38$ Quartz Diorite |  |  |  |  |  |  |  |  |  |  |
|  |  | 39.47-39.62 Quartz Diorite |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40.93 | 45.72 | Mixed Mafic Gneiss and Felsic Gneiss |  |  |  |  |  |  |  |  |  |  |
|  |  | 44.68-45.48 Quartz Diorite with Pyrrhotite | Pyra | 1-4 |  |  |  |  |  |  |  |  |
|  |  | $45.48-45.72$ Felsic Gneiss with 5 cm Band Pycite from- |  |  |  |  |  |  |  |  |  |  |
|  |  | 45.48 to 45.54 | Pyr. | 20 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | End of Hole at 45.72 |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Hole Started September 18/84 |  |  |  |  |  |  |  |  |  |  |
|  |  | Hole Finished September 19/84 |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Dip Test at 42.67 is $46^{\circ}$ |  |  |  |  |  |  |  |  |  |  |
|  |  | Box No. Core Length (Meters) |  |  |  |  |  |  |  |  |  |  |
|  |  | $1 \quad 0-11.09$ | ,h] |  | \% H |  |  |  |  |  |  |  |
|  |  | 2 -11.09-18.38 | $\sqrt{1+}$ |  |  |  |  |  |  |  |  |  |
|  |  | $318.38-25.69$ |  |  | $15$ |  |  |  |  |  |  |  |
|  |  | $4-25.69-33.01$ |  |  |  | $1 / 1$ |  |  |  |  |  |  |
|  |  | $5-33.01-40.54$ |  |  | $9 y$ |  |  |  |  |  |  |  |
|  |  | 6 - $40.54-45.72$ |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |














