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STAN REAMSBOTTOM  
and Associates Limited

Geological and Engineering Consultants

TELECOPIER TRANSMISSION

DATE: JANUARY 19, 1989

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COMPANY:

AURORA MINE

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STAN REAMSBOTTOM

NUMBER OF PAGES, INCLUDING COVER SHEET:

4

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TABLE 1 (b)  
1980 DRILLING

SUMMARY OF SIGNIFICANT MINERALIZED INTERCEPTS  
PERCUSSION DRILL HOLES 1-33

HOLE	INTERVAL (ft.)	LENGTH (ft.)	Au (oz/ton)	Ag (oz/ton)
1	190-210	20	0.166	0.28
2		Lost Air Return		
3		Lost Air Return		
4	40- 60	20	0.037	0.09
	160-228	68	0.150	0.35
5	10- 20	10	0.028	0.10
6		Lost Air Return		
7	60-120	60	0.017	0.11
	130-168	38	0.188	0.32
8	40- 60	20	0.040	0.09
9	140-243	103	0.051	0.11
10		Lost Air Return		
11		Lost Air Return		
12		Lost Air Return		
13	80-262	182	0.223	0.66
14	60- 80	20	0.047	0.10
15	50- 90	40	0.072	0.18
16	100-120	20	0.032	0.05
17	100-140	40	0.026	0.09
18	90-160	70	0.184	0.35
19	50- 90	40	0.041	0.01
	140-226	86	0.123	0.42
20	0- 20	20	0.050	0.26
21		Lost Air Return		
22	60-100	40	0.062	0.12
23		Lost Air Return		
24	110-168	58	0.225	0.51
25	70- 90	20	0.100	0.10
26	60- 70	10	0.060	0.04
27	70-128	58	0.043	0.02
28	110-123	13	0.049	0.27
29	30-100	70	0.060	0.07
30	60- 80	20	0.108	0.10
31	100-130	30	0.045	0.04
32	20- 40	20	0.037	0.04
	60- 80	20	0.066	0.02
33	40- 70	30	0.263	0.40

NB: All the percussion holes are drilled in the direction of 135° azimuth (E45°S).



TABLE 1 (a)  
1981 DRILLING

SUMMARY OF SIGNIFICANT MINERALIZED INTERCEPTS

<u>HOLE</u>	<u>INTERVAL (ft.)</u>	<u>LENGTH (ft.)</u>	<u>Au (oz/ton)</u>	<u>Ag (oz/ton)</u>
DDH 81-1	87-306	219	0.135	0.48
DDH 81-2	50- 87	37	0.125	0.15
	112.5-142	29.5	0.225	0.25
DDH 81-3	150-222	72	0.188	0.39
DDH 81-4	178-276.5	98.5	0.178	0.58
DDH 81-5	294-354	60	0.076	0.16
DDH 81-6	177-277	100	0.173	0.37
PH 39	20- 45	25	0.021	0.04
	45- 90	45	0.120	0.18
PH 40	20- 55	35	0.070	0.22
PH 41	70- 90	20	0.005	0.69
PH 42	No significant mineralization			
PH 43	50- 65	15	0.062	0.07
PH 44	5- 45	40	0.06	0.12
PH 45	40-115	75	0.141	0.10
PH 46	No significant mineralization			
PH 47	0- 70	70	0.035	0.064
PH 48	5- 30	25	0.041	0.11
PH 49	15- 20	5	0.042	0.00
PH 50	5- 10	5	0.024	0.04
PH 51	40-120	80	0.241	0.26
PH 52	5- 60	55	0.103	0.16
PH 53	45- 90	45	0.106	0.19
PH 54	No significant mineralization			
PH 55	No significant mineralization			
PH 56	20- 25	5	0.123	0.16
PH 57	No significant mineralization			
PH 58	40- 70	30	0.144	0.10
PH 59	60- 70	10	0.11	0.05
PH 60	45- 70	25	0.23	0.82
PH 61	No significant mineralization			

TABLE 2

CHECK ASSAYS - AURORA PROPERTY

<u>ASSAYER</u>	<u>NO. SAMPLES</u>	<u>TOTAL Au</u>	<u>MEAN Au</u>	<u>RANGE Au</u>	<u>STANDARD DEVIATION</u>
<u>CHECK A</u>					
LEGEND	33	4.72	0.142	0-0.902	0.19
HUNTER	33	4.63	0.140	0-0.82	0.18
<u>CHECK B</u>					
MIN-EN	109	8.72	.08	.002-.657	0.11
LEGEND	109	9.76	.09	0-0.902	0.13



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REPORT ON THE  
AURORA PROJECT  
MINERAL COUNTY, NEVADA U.S.A.  
FOR  
ELECTRA NORTH WEST RESOURCES LTD.

BY  
S.B. REAMSBOTTOM, Ph.D. P. Eng.

AND  
L.E. THORSTAD, M. Sc.

August 25, 1984

QUESTORE CONSULTANTS LTD.  
Geological and Engineering Consulting



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SUMMARY

The Aurora property of Electra North West Resources is located in the historic mining district of Aurora, in Mineral County, Nevada, U.S.A.

Exploration and definition drilling on the Humboldt gold quartz fissure vein has defined approximately 950,000 tons of geologic drill indicated proven and probable mineralization averaging 0.11 oz./ton gold. A preliminary pit design in this mineralized zone gives a waste:ore stripping ratio of 6:1. Potential to develop 1.5 to 2 million tons of gold quartz mineralization on the property is good.

Production on the Humboldt vein in 1983-84 totals 73,065 tons averaging 0.11 oz./ton gold and 0.121 oz./ton silver with a waste:ore stripping ratio of 6.3:1. In the order of 2,540 ounces of gold and 2,112 ounces of silver have been recovered from the ore by cyanide heap leaching and carbon adsorption. The recent addition of ion exchange resin columns has improved the extraction of gold from pregnant solutions.

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INTRODUCTION

At the request of Mr. D. Stelling, President of Electra North West Resources Ltd., the following report, summarizing the history and development of the Aurora property, has been compiled.

The report summarizes the development of the Aurora district from its discovery in 1860 to the present and in particular highlights the development of Electra's Humboldt East gold deposit.

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LOCATION AND ACCESS

The Aurora property is located in the Aurora Mining District, Section 17 T5N, R28E, of Mineral County, Nevada, U.S.A. (Figure 1).

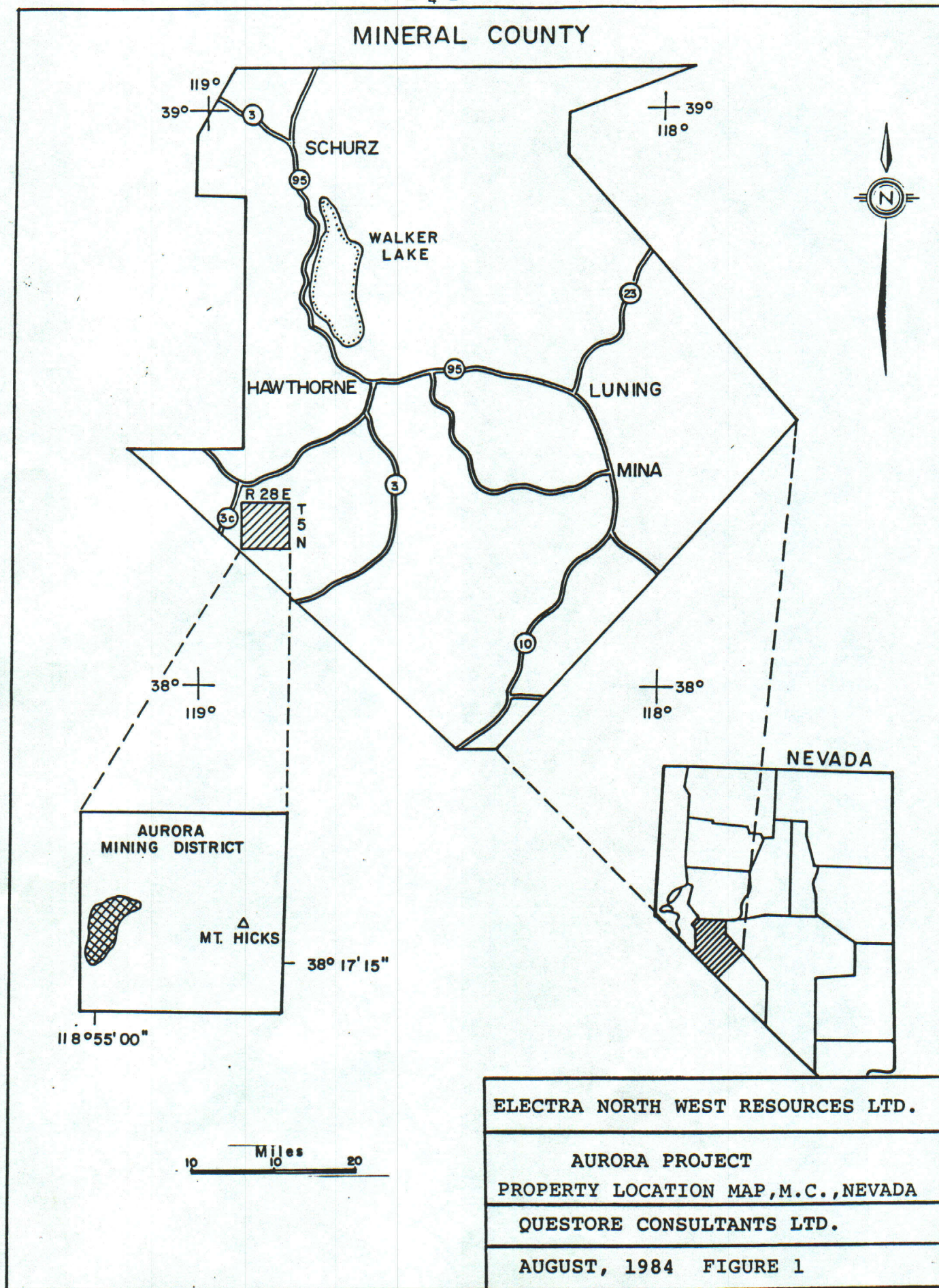
Access to the claims from Hawthorne, the Mineral County seat, is via the highway over Lucky Boy Pass, a distance of 23 miles, then south for six miles on State Highway 3C to the Aurora turnoff, then an additional four miles by gravel road. Roads are usually closed during the winter months due to heavy snowfall.

The claims are on a low, rounded knob known as Humboldt Hill. Elevations range between 7,200 - 7,500 feet. Vegetation ranges from sparse to thick, consisting mainly of piñon pine trees. A major power-line between Yerington and Lee Vining passes two miles east of the claim area. Water is available from several springs in the area, or from Bodie Creek, two miles west of Aurora camp. A water filled glory hile on the Prospectus vein supplies water for the present leach operation.

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PROPERTY INFORMATION

Patented Claims

<u>Claim Name</u>	<u>Survey No.</u>	<u>Office/ BLM No.</u>	<u>Sections</u>	<u>Township</u>	<u>Range</u>
Mida	73	1184	17	5N	28E
Humboldt East	74	1185	17	5N	28E
Curry	75	1186	17	5N	28E
Humboldt	59			5N	28E
Humboldt West	50			5N	28E
Humboldt Fr.	4271			5N	28E
Astor	4310			5N	28E
Alice C Denis Fr.	4310A			5N	28E
Interprice NE $\frac{1}{2}$ Fr.	4310B			5N	28E

Unpatented Claims

Doug 1 - 6, 9 - 64, 75, 76	25, 26, 27 34, 35 & 36	4N	27E
Marcia Fractions 1 - 3, 4 - 9, 14 - 43 and 47	8, 9, 16 & 17	4N	27E

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## HISTORY

### Early Period

Ore was first discovered in the Aurora Mining district by J.M. Braley, J.M. Cory, and E.R. Hicks in 1860. The three prospectors, on the morning of August 22, 1860, discovered their "Eureka" towards the end of a long, dry summer when they found ore near the summit of Silver Hill. They excitedly staked four claims on the Esmeralda Lode and hurriedly took samples of the ore to Virginia City for assay. Subsequent results precipitated a gold rush to the Esmeralda district. By October 25, 1860, a total of 375 claims had been staked (Wasson, 1878).

The ore extracted in this early period came from rich pockets on the surface or from very shallow depths and contained higher gold than silver values (Hill, 1915). Ore from the Wide West vein assayed by G.N. Shaw and Company of Virginia City, was reported in the "Mining and Scientific Press" of November 3, 1860 to contain 485 ounces of silver and 220 ounces of gold with a contained value of \$5,445.00 per ton. Ore from the Esmeralda lode was reported by the same source on January 18, 1861 to contain \$10,331.00 per ton. The price of gold and silver at this time was \$20.67 and \$1.33 per troy ounce respectively. The first ore shipped from the district to Virginia City by pack mules on November 10, 1860, was produced from the Esmeralda claim (M&SP, No.30, 1860). As the rush continued and Aurora grew into a bustling

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LEGEND

— Claim boundary

- - - Section boundary

F-2 Fraction



LEGEND

ELECTRA NORTH WEST RESOURCES

HUMBOLDT WEST

HUMBOLDT EAST

HANNA

OTHERS

AURORA AREA

MINERAL COUNTY, NEVADA

CLAIM MAP

FEET 0 1000 2000 3000 4000 FEET

MARCIA CLAIMS

DOUG CLAIMS

SCALE:

3000 0 3000 FEET

ELECTRA NORTH WEST RESOURCES LTD.

AURORA PROJECT

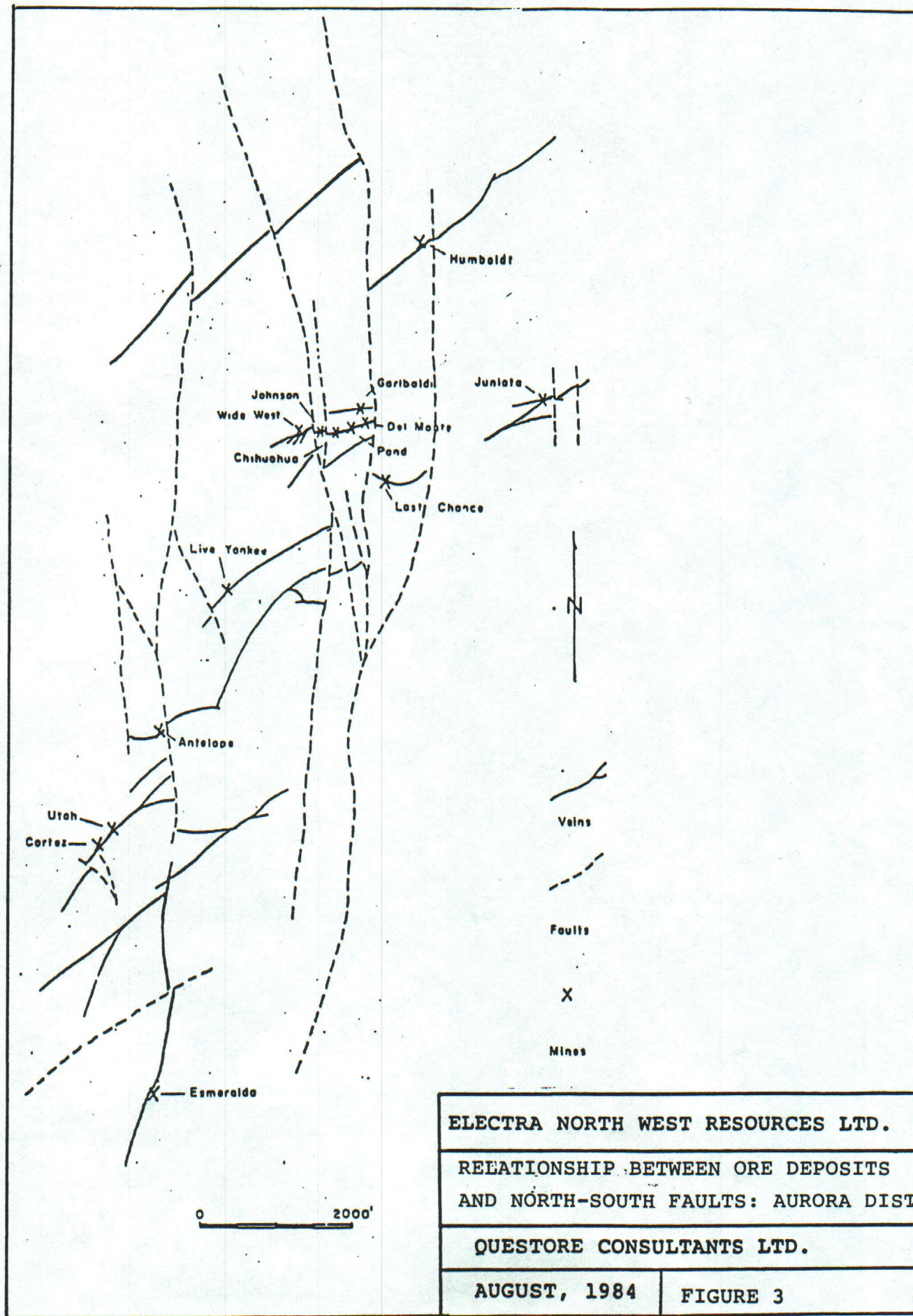
CLAIM MAP

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AUGUST, 1984

FIGURE 2







mining town a question arose as to the towns exact location. Both California and Nevada claimed it as theirs. On March 24, 1861, Aurora became the county seat of Mono County, California, and on November 25, 1861, it also became the county seat of Esmeralda County, Nevada. The controversy over the town's location was not resolved until September 16, 1863 when Aurora was found to be three miles east of the California - Nevada State boundary (Wasson, 1878).

In 1862, after nearly two years of unsystematic mining of outcrops, the first major ore shoot, the Wide West bonanza, was found on Last Chance Hill (Fig. 3) at a depth of 60 feet (Wasson, 1878). This development gave new impetus to mining activity in the district and led to the discovery of other rich ore shoots adjacent to the Wide West, including the Real Del Monte, Pond, and Chihuahua. The Utah and Antelope mines on Silver Hill also proved to be significant gold deposits. Most of the ore produced during this period averaged \$150 per ton, while some ran as high as \$300 per ton (M&SP, Sept. 7, 1863).

The first pan amalgamation mill in the district was erected in June, 1861 and by 1864 there were 17 such mills in the area (Wasson, 1878). Production from all mills in the district amounted to just under two hundred thousand dollars per month (M&SP, Nov. 30, 1863). The thriving town of Aurora boasted a telegraph service, many brick buildings, and an estimated population of ten thousand.

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Near the end of 1864, the district began to decline. The rich deposits within 200 feet of the surface were becoming depleted, and shallow exploratory shafts yielded little encouragement. Litigation involving most of the important producers, together with a depression in the mining stocks, hastened the closing of most mines. Ore continued to be produced in the district for some time, however, as lessees salvaged the ore remaining in the underground workings. Inferior mining methods employed by these operators left the workings in irreparable condition.

Periodic attempts were made in the late 1800's to revive the district by deep exploration programs. In 1877, a group of business men, including John Mackay and J.G. Fair (Wasson, 1878) started the Real Del Monte shaft on Last Chance Hill. The shaft reached a depth of nearly 900 feet in 1881, but attempts to keep it free of water failed and the project was abandoned.

Later an English company acquired most of the claims on Last Chance Hill. This company, which also failed to hold the water below the 800-foot level, confined its work to drifting on the 400-foot level to connect with Durant shaft of Middle Hill, and to sinking the Humboldt shaft to a depth of 400 feet (Farrel, 1934). However, efforts to discover ore at depth were unsuccessful, and operations were suspended in 1892.

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Later Period

Between 1906 and 1911, Cain Consolidated Mining Company of Aurora, which then owned most of the claims in the district, produced some bullion by cyaniding old dumps and mill tailings (Vanderburg, 1937).

In 1912, Cain Consolidated sold its interests to Aurora Consolidated Mines Company. This company drove a long adit to connect with the 400-foot level of the Humboldt shaft. Development work in the Humboldt and Prospectus areas resulted in blocking out nearly one million tons of ore that averaged \$5.00 per ton (Mining & Eng. World, 1914). A 500-ton per day mill was erected and an underground electric haulage system was installed.

In 1914, Goldfield Consolidated Mines Company gained control of Aurora Consolidated and started production. Operations were profitable for several years, but began to show a loss in 1917. Efforts were made to develop more ore reserves by extending the main haulage tunnel under the old workings of the Juniata (Hutchinson, 1917) and (Julian, 1918). Although some ore was produced from this area, apparently sufficient reserves were not developed and Aurora Consolidated closed its operations at the end of 1918.

Since that time, the only underground mining in the district was done by the Chessco Mining Company, which had some production from the Juniata mine in 1949 and 1950.

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Production records for the district are incomplete. During the early days, much of the ore was shipped from Aurora to Virginia City and included in the production records of the camp. However, production from Aurora between 1860 and 1869 has been reported as nearly thirty million dollars (Hill, 1915). During the next forty years, intermittent mining of old dumps and tailings yielded an estimated several hundred thousand dollars (Couch and Carpenter, 1943). Production between 1910 and 1920 amounted to nearly two million dollars (Vanderburg, 1937).

Using the above figures as a guide, it is reasonable to assume that the Aurora mining district has had a past production of between thirty and forty million dollars.

The Summa Corporation acquired the Humbolt East, Mida and Curry claims in 1969. They were briefly examined in 1976 and subsequently sold to Houston Oil and Minerals Corporation in 1977. In 1980, Electra Resources Corporation optioned the above claims from Houston. Electra (now Electra North West Resources Ltd.) carried out programs of percussion and diamond drilling in 1980 to 1983. In 1982, Electra also obtained a lease to mine ore on the Humbolt West claim between the 400-foot level and surface. The Company entered into a joint venture agreement to place the property in production with Centennial Minerals Ltd. of Vancouver in 1983.

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## GEOLOGY

### Regional

The Aurora district is predominantly underlain by a series of Tertiary volcanic and sub volcanic rocks. Cretaceous granitic basement rocks of the Sierra Nevada batholithic complex include roof-pendants of green altered andesites correlated with the middle Triassic Excelsior formation.

Pre-Esmeralda Aurora volcanics, which host the gold lodes, are composed of a sequence of flows and pyroclastics of andesitic to latitic composition. Adjacent to quartz-gold veins these volcanics have been variably altered.

Overlying the Aurora volcanics, with pronounced erosional unconformity, are a sequence of flow-banded rhyolites with intercalated lapilli tuffs and lesser andesites. This sequence of post-Esmeralda rocks is known as the Bodie Canyon volcanics.

A sequence of black vesicular Quaternary basalts, which emanated from Aurora Crater, a small non-eroded volcanic vent north of the mining district, unconformably overlie the Tertiary rocks.

Quartz-gold mineralization was deposited within a series of north-east-trending, faults related to mid-Tertiary deformation. (Fig. 3)

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Quartz breccia zones on the margins of the lodes are indicative of continued post mineralization movement on the fault planes.

These mineralized fissure veins have been offset, in a right-lateral sense, by a series of northeasterly trending shear zones best exemplified by the Prospectus fault which displaces the Humboldt West vein 1400 feet to the north where it is known as the Prospectus vein. Intermittent movement on these faults took place before, during and after mineralizing events. These north trending faults, apart from the Esmeralda on Silver Hill, are non-mineralized.

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GEOLOGY (continued)

Property

The northeast-trending gold-bearing Humboldt quartz fissure vein cuts the Aurora volcanics on the property. The vein extends for a distance of twenty four hundred feet across the Humboldt East and West claims. It bifurcates in the area of the glory-holes on the Humboldt West claim (Fig. 4). A north-trending quartz-filled fault locally offsets the vein in the southwest area of the Humboldt West claim.

The vein, which pinches and swells from a few to 60 feet in width weathers to conspicuous bluffs which project locally 20 feet above the eroded volcanic surface.

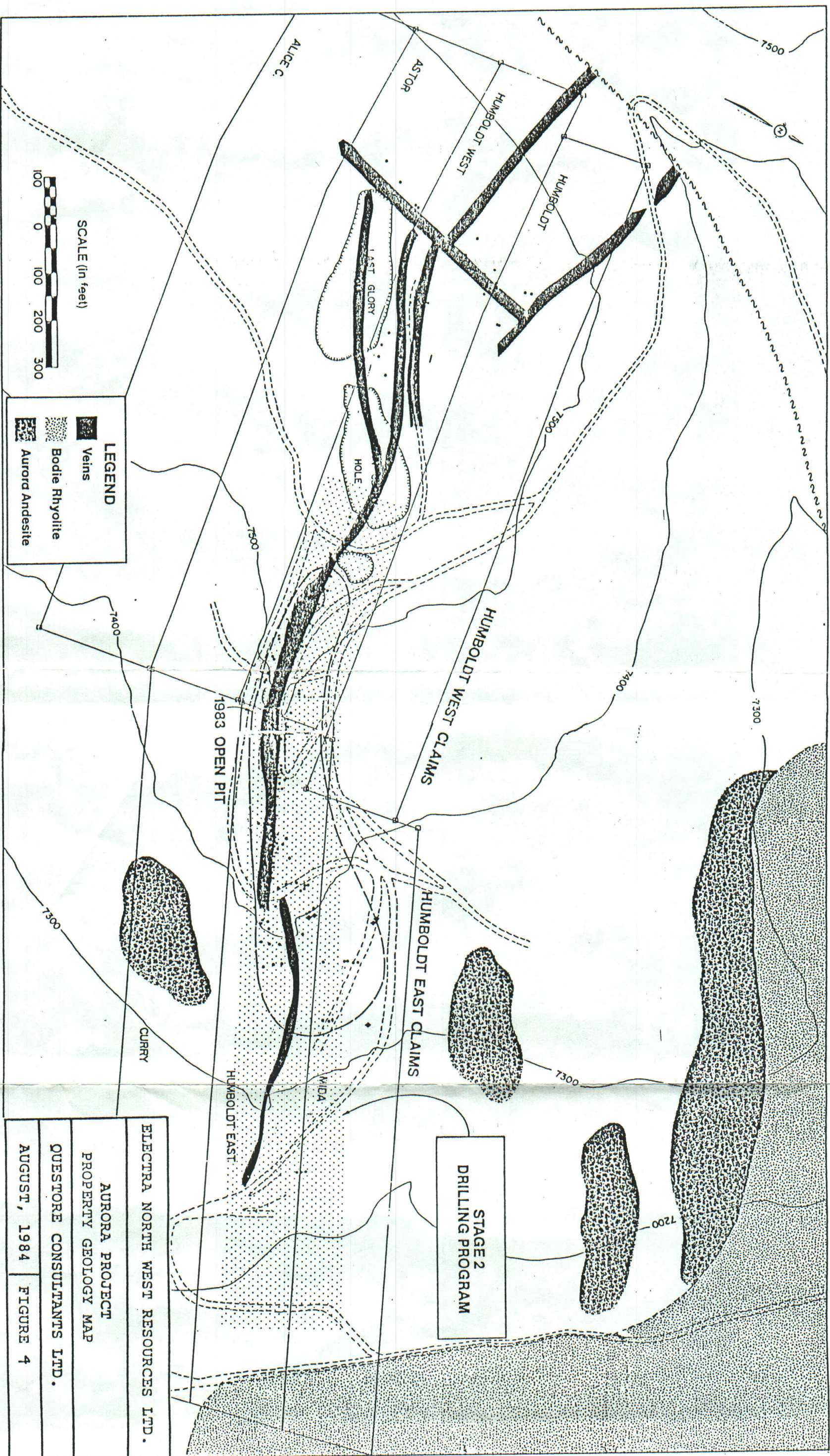
Volcanic rocks have been hydrothermally altered up to 100 feet on either side of the fissure vein. Intense silicification is common at vein contacts and alteration gradually decreases through zones of argillic-quartz to propylitic.

The quartz vein consists of two main types: a fine-grained white "barren" quartz and highly contorted banded quartz. The fine-grained barren quartz has a porcelaneous aspect, abundant drusy quartz-filled cavities and relict fragments of silicified wallrock. This type of mineralization is probably the result of wallrock replacement by vein material. The

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contorted banded zone has less vugs , no wallrock fragments, higher gold content and probably represents the fissure filled vein type.

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### MINERALIZATION

Rich ore in the Aurora district was usually confined to the banded and contorted zone which is characterized by irregular wavy streaks of chalcedonic quartz, adularia, argentiferous tetrahedrite, small amounts of pyrite and chalcopryrite and a soft bluish-grey mineral supposed to be a combination of gold and possibly silver with selenium. (Hill 1915). Free gold was found in the richer ore and was particularly abundant in some of the older stopes. In general the Aurora ore was low-grade with an average tenor of \$6 - \$8 per ton. Some of the richest shoots ran as high as \$1,000 per ton. The gold-silver ratio is in the order of 1:14. (Ross, 1961). Other ratios cited vary between 1:2, and 1:5. The near surface zone of Humboldt East is about 1:3. Production to date indicates Au:Ag closer to 1:1.

There was no apparent secondary enrichment and primary-sulphide mineralization was known to a depth of 900 feet. Ferguson (1929) believes that the lack of supergene enrichment in the Aurora and Tonopah veins may be due to low pyrite content and low degree of permeability in the finer-grained veins.

Mined ore shoots within veins varied from localized sheets, pockets and pipelike bodies of high grade to large, low grade deposits which were minable over the entire vein width. Persistent shoots were mined to 400-500 feet in depth on the Humboldt and Juniata veins. The richest and largest shoots mined in the past occurred along a 1000 foot segment

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of a vein on Last Chance Hill. This segment contained the Wide West, Johnson, Chihuahua, Pond, and Del Monte Mines (Fig. 3). These shoots were found between 60 and 120 feet below surface and had strike lengths of between 100 and 200 feet. Extensions of these shoots to depth has never been explored.



## EXPLORATION AND DEVELOPMENT

### Drill Evaluation

Programmes of exploration and development drilling were undertaken by Electra between 1980 and 1983. They drilled a total of 1805 feet of diamond drilling and approximately 6,000 feet of percussion drilling. Under the direction of Centennial Minerals Ltd., an additional 2,000 feet of percussion drilling was completed on the property in 1983. Several thousand feet of shallow airtrack drill sampling was also conducted on the vein in 1982-83.

A summary of significant mineralized intercepts encountered in the drill holes is given in Table 1. Drill hole locations are shown in Fig.5 - 18.

### Sampling and Assay Procedure

Rock chip samples from percussion drill holes were collected over five foot intervals, split in a Jones type riffle splitter and submitted for assay to Legend Testing Laboratories, Reno. Check assays were conducted by Hunter Mining Laboratory, Sparks, Nevada. The results of the check assays are shown in Table 2. The results compare favourably within the limits of analytical error.

Core samples were split and assayed by Min-En Laboratories Ltd., North Vancouver.

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TABLE 1 (a)

1980 DRILLING

SUMMARY OF SIGNIFICANT MINERALIZED INTERCEPTS

PERCUSSION DRILL HOLES 1-33

<u>HOLE</u>	<u>INTERVAL (ft.)</u>	<u>LENGTH (ft.)</u>	<u>Au (oz/ton)</u>	<u>Ag (oz/ton)</u>
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21		Lost Air Return		
22	60-100	40	0.062	0.12
23		Lost Air Return		
24	110-168	58	0.225	0.51
25	70- 90	20	0.100	0.10
26	60- 70	10	0.060	0.04
27	70-128	58	0.043	0.02
28	110-123	13	0.049	0.27
29	30-100	70	0.060	0.07
30	60- 80	20	0.108	0.10
31	100-130	30	0.045	0.04
32	20- 40	20	0.037	0.04
	60- 80	20	0.066	0.02
33	40- 70	30	0.263	0.40

NB: All the percussion holes are drilled in the direction of 135° azimuth (E45°S).

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Telephone: Office: (604) 683-5747



TABLE 1 (b)  
1981 DRILLING

SUMMARY OF SIGNIFICANT MINERALIZED INTERCEPTS

HOLE	INTERVAL (ft.)	LENGTH (ft.)	Au (oz/ton)	Ag (oz/ton)
DDH 81-1	87-306	219	0.135	0.48
DDH 81-2	50- 87	37	0.125	0.15
	112.5-142	29.5	0.225	0.25
DDH 81-3	150-222	72	0.188	0.39
DDH 81-4	178-276.5	98.5	0.178	0.58
DDH 81-5	294-354	60	0.076	0.16
DDH 81-6	177-277	100	0.173	0.37
PH 39	20- 45	25	0.021	0.04
	45- 90	45	0.120	0.18
PH 40	20- 55	35	0.070	0.22
PH 41	70- 90	20	0.005	0.69
PH 42	No significant mineralization			
PH 43	50- 65	15	0.062	0.07
PH 44	5- 45	40	0.06	0.12
PH 45	40-115	75	0.141	0.10
PH 46	No significant mineralization			
PH 47	0- 70	70	0.035	0.064
PH 48	5- 30	25	0.041	0.11
PH 49	15- 20	5	0.042	0.00
PH 50	5- 10	5	0.024	0.04
PH 51	40-120	80	0.241	0.26
PH 52	5- 60	55	0.103	0.16
PH 53	45- 90	45	0.106	0.19
PH 54	No significant mineralization			
PH 55	No significant mineralization			
PH 56	20- 25	5	0.123	0.16
PH 57	No significant mineralization			
PH 58	40- 70	30	0.144	0.10
PH 59	60- 70	10	0.11	0.05
PH 60	45- 70	25	0.23	0.82
PH 61	No significant mineralization			

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TABLE 1 (c)

SUMMARY OF SIGNIFICANT DRILL INTERCEPTS-1983 PROGRAMME

<u>HOLE</u>	<u>INTERVAL (ft.)</u>	<u>LENGTH (ft.)</u>	<u>Au (oz./ton)</u>	<u>Ag (oz./ton)</u>
PH 83-1	no significant intersection			
PH 83-2	115 - 160	45	0.130	0.22
PH 83-3	130 - 185	55	0.123	0.19
PH 83-4	155-185	30	0.207	0.60
	200-225	25	0.173	0.27
PH 83-5	40- 55	15	0.053	0.07
	85- 95	10	0.076	0.25
	105-135	30	0.211	0.34
	195-205	10	0.102	0.36
PH 83-6	115-165	50	0.185	0.48
PH 83-7	125-205	80	0.263	0.49
PH 83-8	175-200	25	0.087	0.14
	210-225	15	0.037	0.05
PH 83-9	220-245	25	0.081	0.09
PH 83-10	110-165	55	0.156	0.24

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TABLE 2

CHECK ASSAYS - AURORA PROPERTY

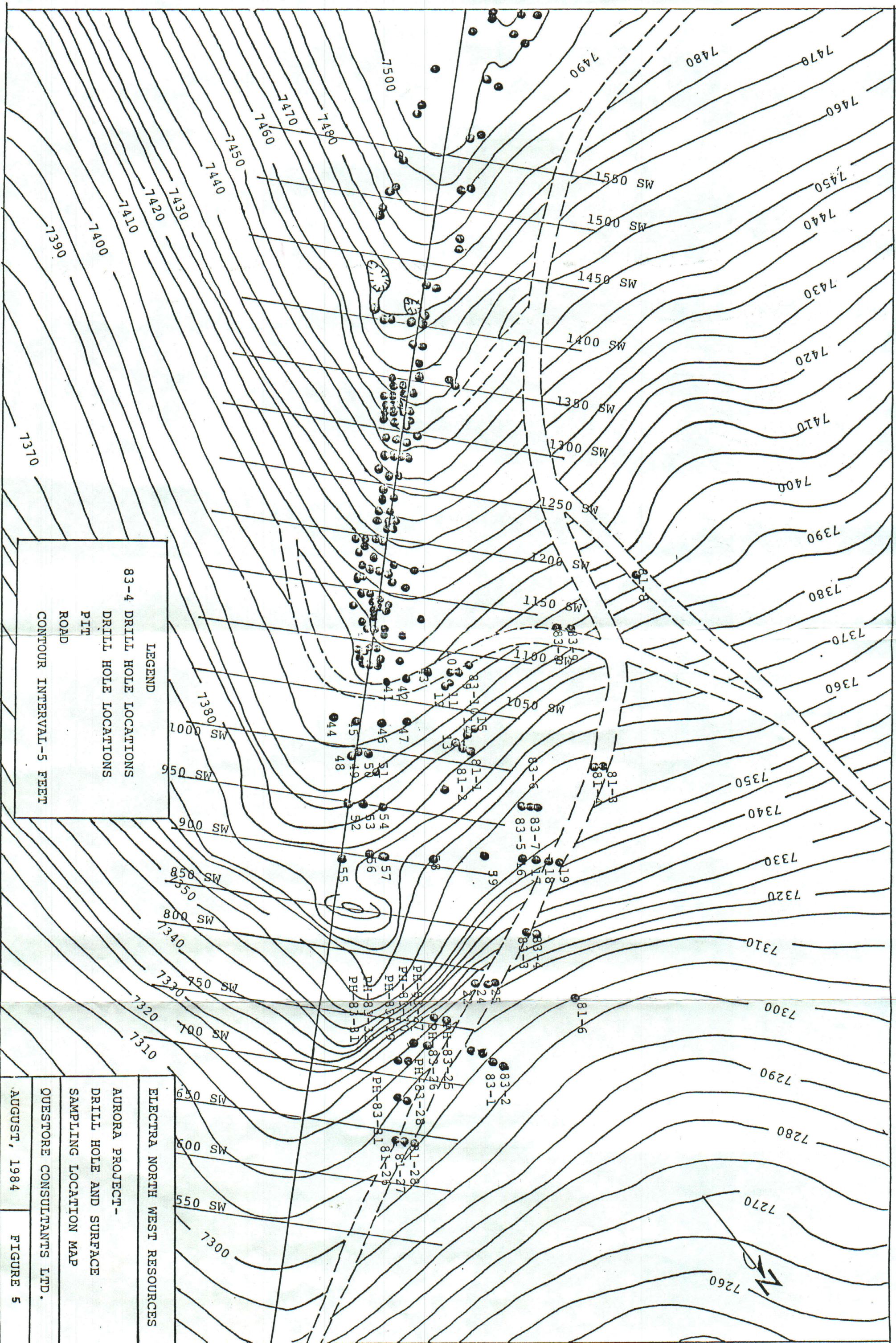
1981

<u>ASSAYER</u>	<u>NO. SAMPLES</u>	<u>TOTAL Au</u>	<u>MEAN Au</u>	<u>RANGE Au</u>	<u>STANDARD DEVIATION</u>
<u>CHECK A</u>					
LEGEND	33	4.72	0.142	0-0.902	0.19
HUNTER	33	4.63	0.140	0-0.82	0.18
<u>CHECK B</u>					
MIN-EN	109	8.72	.08	.002-.657	0.11
LEGEND	109	9.76	.09	0-0.902	0.13

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LEGEND

83-4 DRILL HOLE LOCATIONS

DRILL HOLE LOCATIONS

PIT

ROAD

CONTOUR INTERVAL-5 FEET

ELECTRA NORTH WEST RESOURCES

AURORA PROJECT-

DRILL HOLE AND SURFACE

SAMPLING LOCATION MAP

QUESTORE CONSULTANTS LTD.

AUGUST, 1984

FIGURE 5



EXPLORATION AND DEVELOPMENT

Presentation and Discussion of Results

A series of cross-sections S30 NE to S330 NE/1375 SW - 380 SW (Figures 6 - 18) were drawn across the gold-quartz vein system. Drill holes with their mineralized intercepts have been plotted on these.

From the sections, the geometric outline of the gold-quartz veins can be readily mapped.

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TONNAGE AND GRADE ESTIMATE

Drill results to date have indicated the presence on the Humbolt East claim of one main gold-quartz vein system at least 1,100 feet long which persists downdip for at least 260 feet and which pinches and swells in thickness along strike between 25 and 80 feet (average 50). An additional near surface gold-quartz vein may be an additional off-shoot of the deeper vein or a separate vein.

On each of the cross-sections, S30 NE to S330 NE/ 1375SW - 380 SW the writers have outlined blocks which have been defined by the 1980-83 drill programmes and have made an estimate of their tonnage and average grade.

Tonnage estimates are prepared by calculating the area of cross-section of the various blocks A,B,C etc...., multiplying this area by half of the distance to the immediately adjacent cross-sections, then dividing this volume by 12. (The density of quartz is 2.6 gm/cc which is equivalent to 12 cubic feet per ton).

In the application of assay data to the blocks the average assay of the block was obtained by calculating the length-weighted average assay of all the available assay intercepts. The average assay so obtained was then applied to the block.



The cut-off grade to be used in an operating gold property is going to be extremely sensitive to variations in metal prices and operating costs and critically dependent on metallurgical recovery and mining technique. For the purposes of this tonnage and grade estimate mineralized intercepts which averaged greater than 0.03 ounces of gold per ton were included in the calculation. Based on the density of the drill programme, the writers have classified ore in the open-pit area as drill-proven, and drill probable.

A section by section summary of geologic mineral reserve estimates is given in Table 3. In addition to these a calculated 49,503 tons grading 0.105 oz./ton gold were defined in a near surface area which was designed to be mined in the initial development programme in 1983. Updated geologic estimates are therefore as follows:

<u>CLASS</u>	<u>TONS</u>	<u>GRADE OZ./TON GOLD</u>
Open Pit (Proven) 1983	49,503	0.105
Proven	491,035	0.140
Probable	403,162	0.070
<hr/>		
TOTAL	943,700	0.110
<hr/>		

Mineral reserves in the Humboldt West claim Group have not been systemically drill sampled. Several near-surface (0-50) air track drill samples were collected on the vein system in 1982. It was

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estimated that this portion of the vein system may contain 375,000 tons of ore remaining between ore shoots which were mined between surface and 400 level. (Sierra Engineering 1982). A systematic drill sampling programme is required to test this hypothesis.

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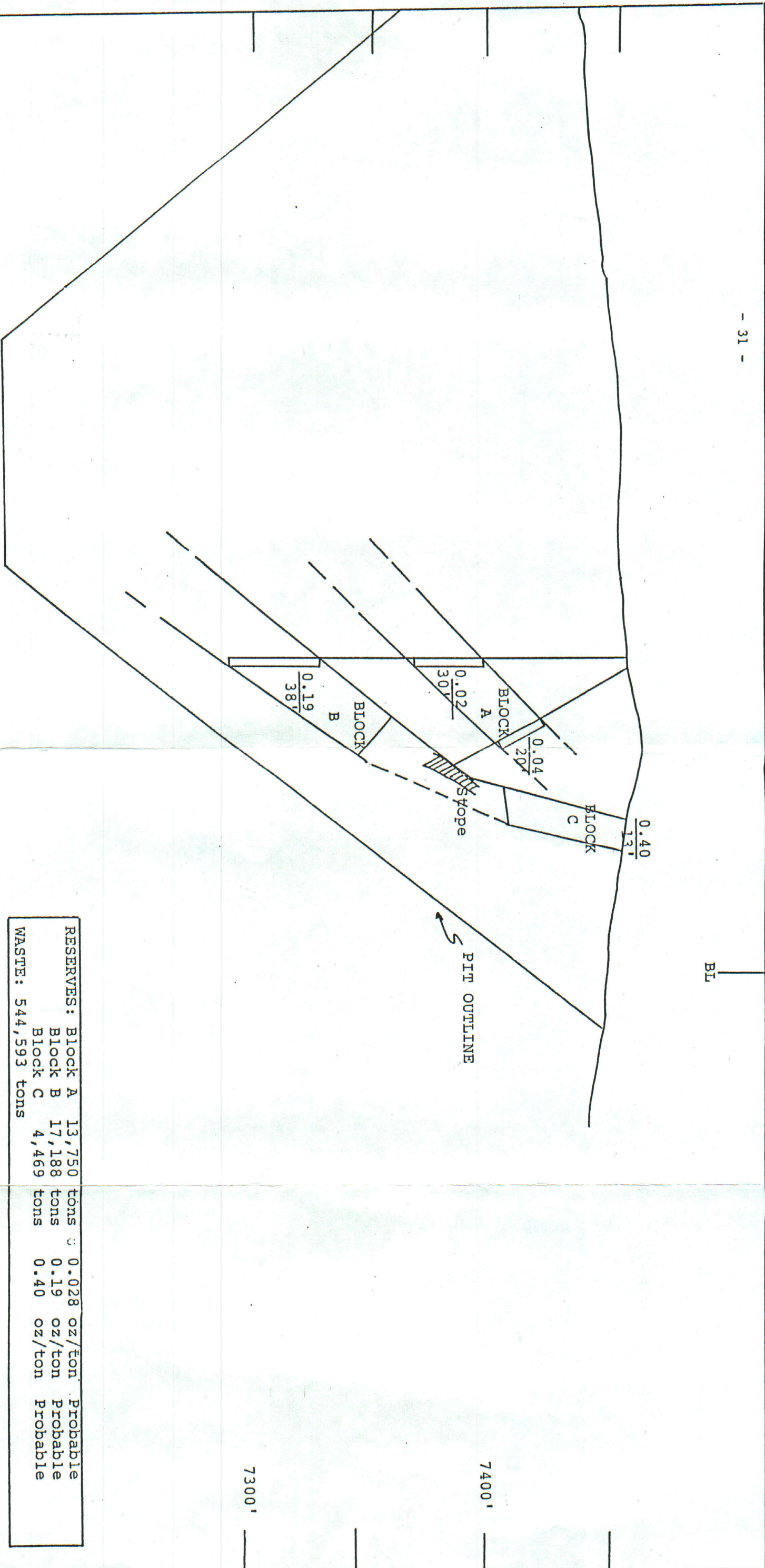
TABLE 3  
SECTION BY SECTION SUMMARY OF MINERAL  
RESERVE ESTIMATE: AURORA PROPERTY 1984

<u>SECTION</u>	<u>BLOCK</u>	<u>TONS</u>	<u>Au OZ/TON</u>	<u>CATEGORY</u>
1375 SW/ 30 NE	A	13750	0.028	Probable
	B	17188	0.19	Probable
	C	4469	0.40	Probable
1300 SW/ 55 NE	A	119316	0.114	Probable
	B	6882	0.037	Probable
	C	6703	0.36	Probable
1160 SW/ 95 NE	A	80438	0.09	Probable
	B	13375	0.056	Probable
1140 SW/135 NE	A	53333	0.06	Proven
1090 SW/120 NE	A	37333	0.104	Proven
1010 SW/140 NE	A	130070	0.177	Proven
970 SW/155 NE	A	34667	0.196	Proven
930 SW/170 NE	A	55460	0.154	Proven
	B	22775	0.042	Proven
850 SW/195 NE	A	32229	0.157	Proven
810 SW/210 NE	A	67125	0.165	Proven
	B	2043	0.075	Proven
725 SW/235 NE	A	56000	0.110	Proven
640 SW/260 NE		45478	0.042	Probable
480 SW/315 NE		74113	0.060	Probable
380 SW/330 NE		21450	0.113	Probable
TOTAL		491035	0.14	Proven
		403162	0.07	Probable

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RESERVES:	Block A	13,750	tons	0.028	oz/ton	Probable
	Block B	17,188	tons	0.19	oz/ton	Probable
	Block C	4,469	tons	0.40	oz/ton	Probable
WASTE:	544,593 tons					

ELECTRA NORTH WEST RESOURCES LTD.
AURORA PROJECT
SECTION 1375 SW
QUESTORE CONSULTANTS LTD.
AUGUST, 1984      FIGURE 6



- 32 -

DDH 81-5 (projected)

PDH 5  
PDH 4 PDH 6

Block A

Block C

PIT OUTLINE

7400'

7300'

0.068  
29.5'

0.076  
60'

0.143  
68'

0.037  
20'

0.037  
20'

Possible

Possible

17'

RESERVES:			
Block A	119,316 tons	0.114 oz/ton	Probable
Block B	6,882 tons	0.037 oz/ton	Probable
Block C	6,703 tons	0.36 oz/ton	Probable
WASTE: 919,703 tons			

ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

DDH 81-5 (projected)

PDH 5  
PDH 4 PDH 6

Block A

Block C

PIT OUTLINE

7400'

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29.5'

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ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

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ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

DDH 81-5 (projected)

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ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

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PDH 4 PDH 6

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ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

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ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

DDH 81-5 (projected)

PDH 5  
PDH 4 PDH 6

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ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

DDH 81-5 (projected)

PDH 5  
PDH 4 PDH 6

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ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

DDH 81-5 (projected)

PDH 5  
PDH 4 PDH 6

Block A

Block C

PIT OUTLINE

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20'

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20'

Possible

Possible

17'

RESERVES:			
Block A	119,316 tons	0.114 oz/ton	Probable
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Block C	6,703 tons	0.36 oz/ton	Probable
WASTE: 919,703 tons			

ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

The figure is a geological map of the Aurora Project, showing the layout of Blocks A, B, and C, and the location of a pit. The map includes a north arrow and a scale bar. The map is divided into several areas, with Block A, Block B, and Block C labeled. The map also shows the location of a pit, labeled 'PIT OUTLINE'. The map includes a table of reserves and waste for Blocks A, B, and C, and a table of data for the Aurora Project.

Block	Reserves (tons)	Waste (tons)	Grade (oz/ton)	Probable (oz/ton)
Block A	119,316	6,882	0.114	0.037
Block B	6,882	6,703	0.037	0.36
Block C	6,703			

RESERVES: Block A 119,316 tons 0.114 oz/ton Probable  
 Block B 6,882 tons 0.037 oz/ton Probable  
 Block C 6,703 tons 0.36 oz/ton Probable  
 WASTE: 919,703 tons

Table 1: AURORA PROJECT SECTION 1300 SW

Table 2: QUESTORE CONSULTANTS LTD.

Table 3: AUGUST, 1984 FIGURE 7

- 32 -

DDH 81-5 (projected)

PDH 5  
PDH 4 PDH 6

Block A

Block C

PIT OUTLINE

7400'

7300'

0.068  
29.5'

0.076  
60'

0.143  
68'

0.037  
20'

0.037  
20'

Possible

Possible

17'

RESERVES:			
Block A	119,316 tons	0.114 oz/ton	Probable
Block B	6,882 tons	0.037 oz/ton	Probable
Block C	6,703 tons	0.36 oz/ton	Probable
WASTE: 919,703 tons			

ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

DDH 81-5 (projected)

PDH 5  
PDH 4 PDH 6

Block A

Block C

PIT OUTLINE

7400'

7300'

0.068  
29.5'

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0.143  
68'

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20'

Possible

Possible

17'

RESERVES:			
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Block C	6,703 tons	0.36 oz/ton	Probable
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ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	

- 32 -

DDH 81-5 (projected)

PDH 5  
PDH 4 PDH 6

Block A

Block C

PIT OUTLINE

7400'

7300'

0.068  
29.5'

0.076  
60'

0.143  
68'

0.037  
20'

0.037  
20'

Possible

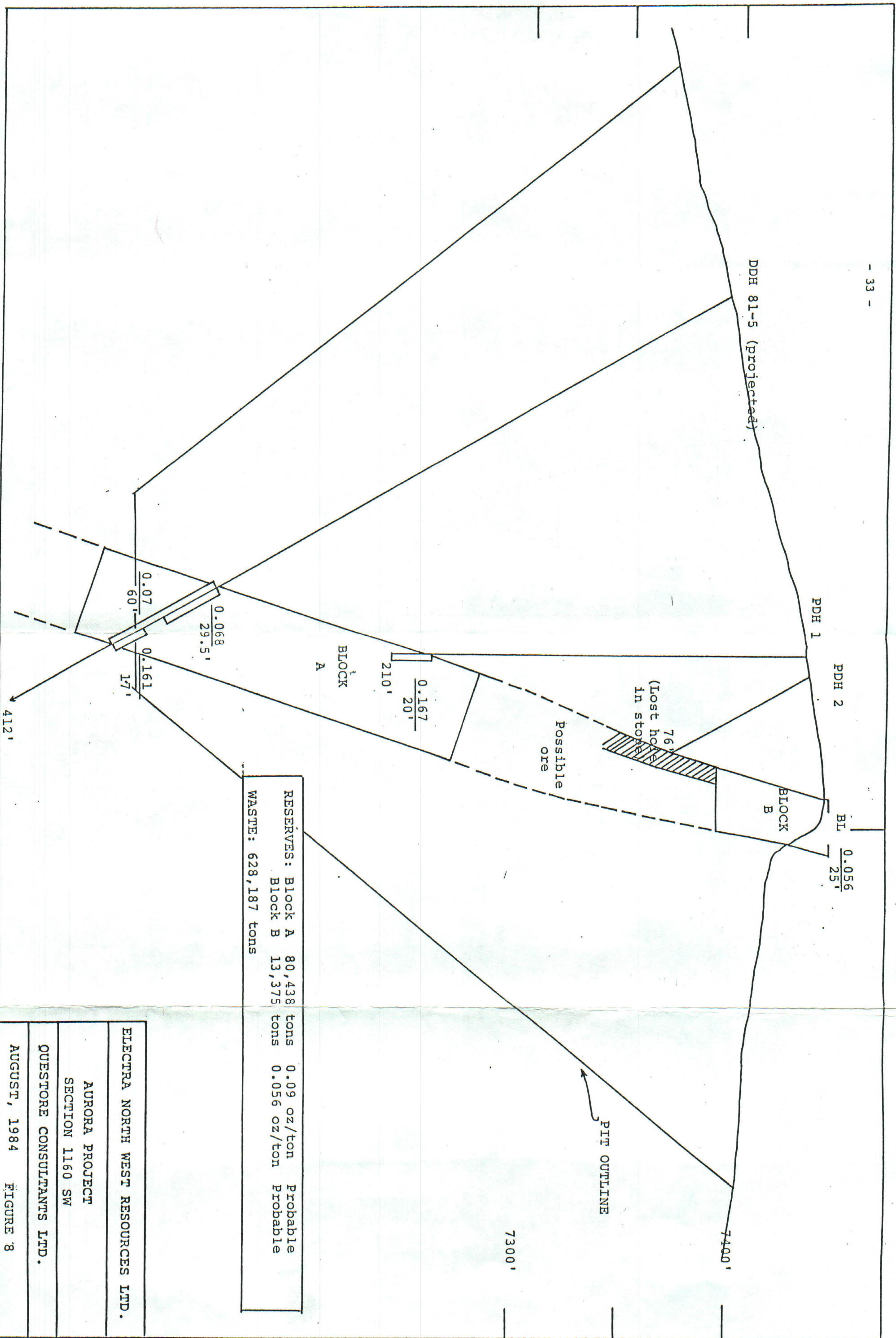
Possible

17'

RESERVES:			
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Block C	6,703 tons	0.36 oz/ton	Probable
WASTE: 919,703 tons			

ELECTRA NORTH WEST RESOURCES LTD.	
AURORA PROJECT	
SECTION 1300 SW	
QUESTORE CONSULTANTS LTD.	
AUGUST, 1984	
FIGURE 7	





ELECTRA NORTH WEST RESOURCES LTD.

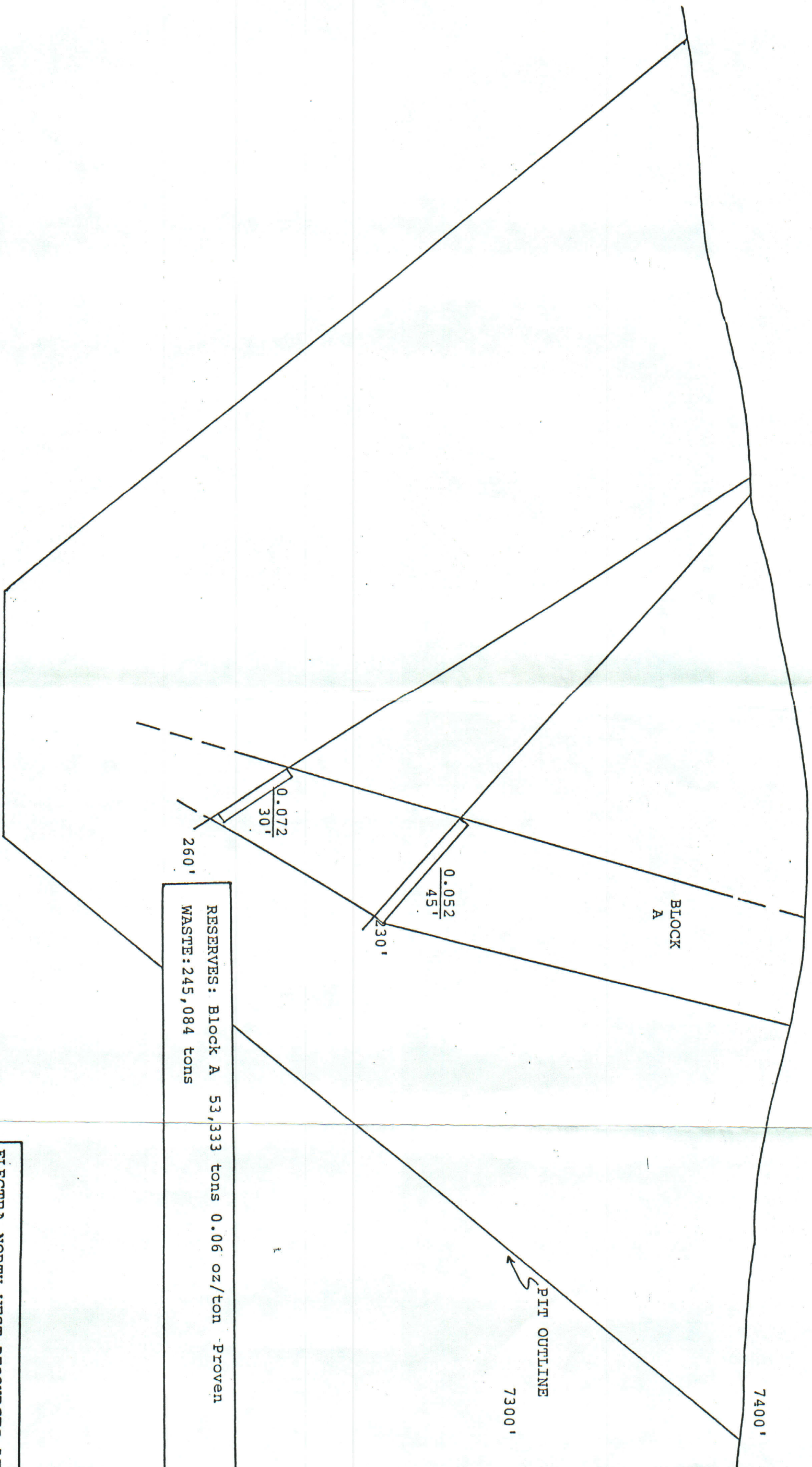
AURORA PROJECT

SECTION 1160 SW

QUESTORE CONSULTANTS LTD.

AUGUST, 1984 FIGURE 8





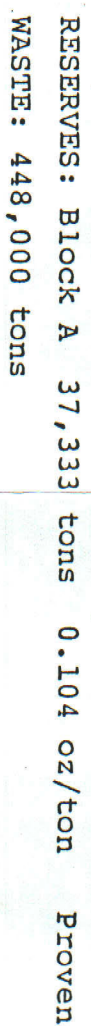
ELECTRA NORTH WEST RESOURCES LTD.

AURORA PROJECT  
SECTION 1140 SW

QUESTORE CONSULTANTS LTD.

AUGUST, 1984      FIGURE 9





ELECTRA NORTH WEST RESOURCES LTD.

AURORA PROJECT  
SECTION 1090 SW

QUESTORE CONSULTANTS LTD.

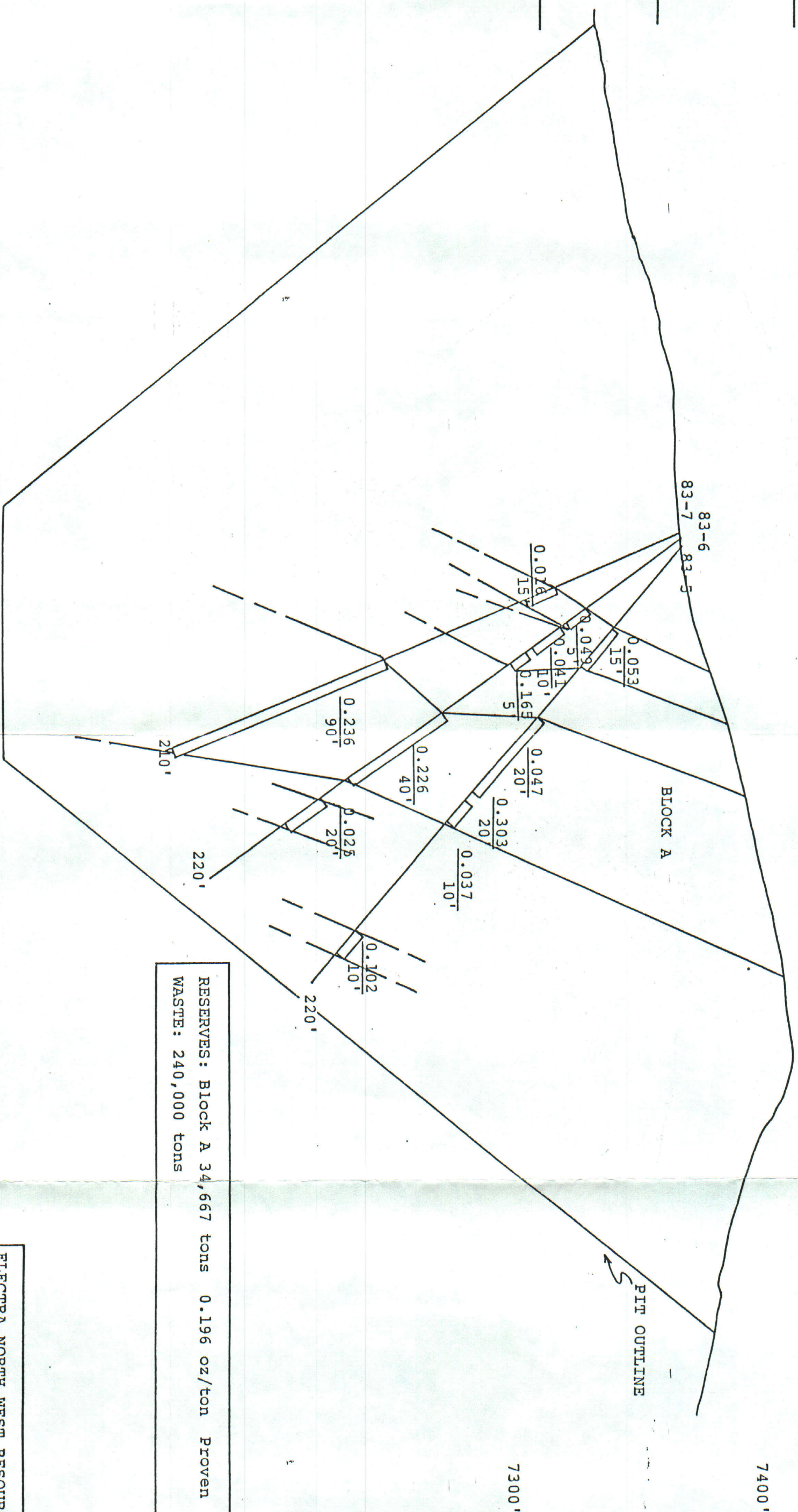
AUGUST, 1984 FIGURE 10







BL



RESERVES: Block A 34,667 tons 0.196 oz/ton Proven  
WASTE: 240,000 tons

ELECTRA NORTH WEST RESOURCES LTD.

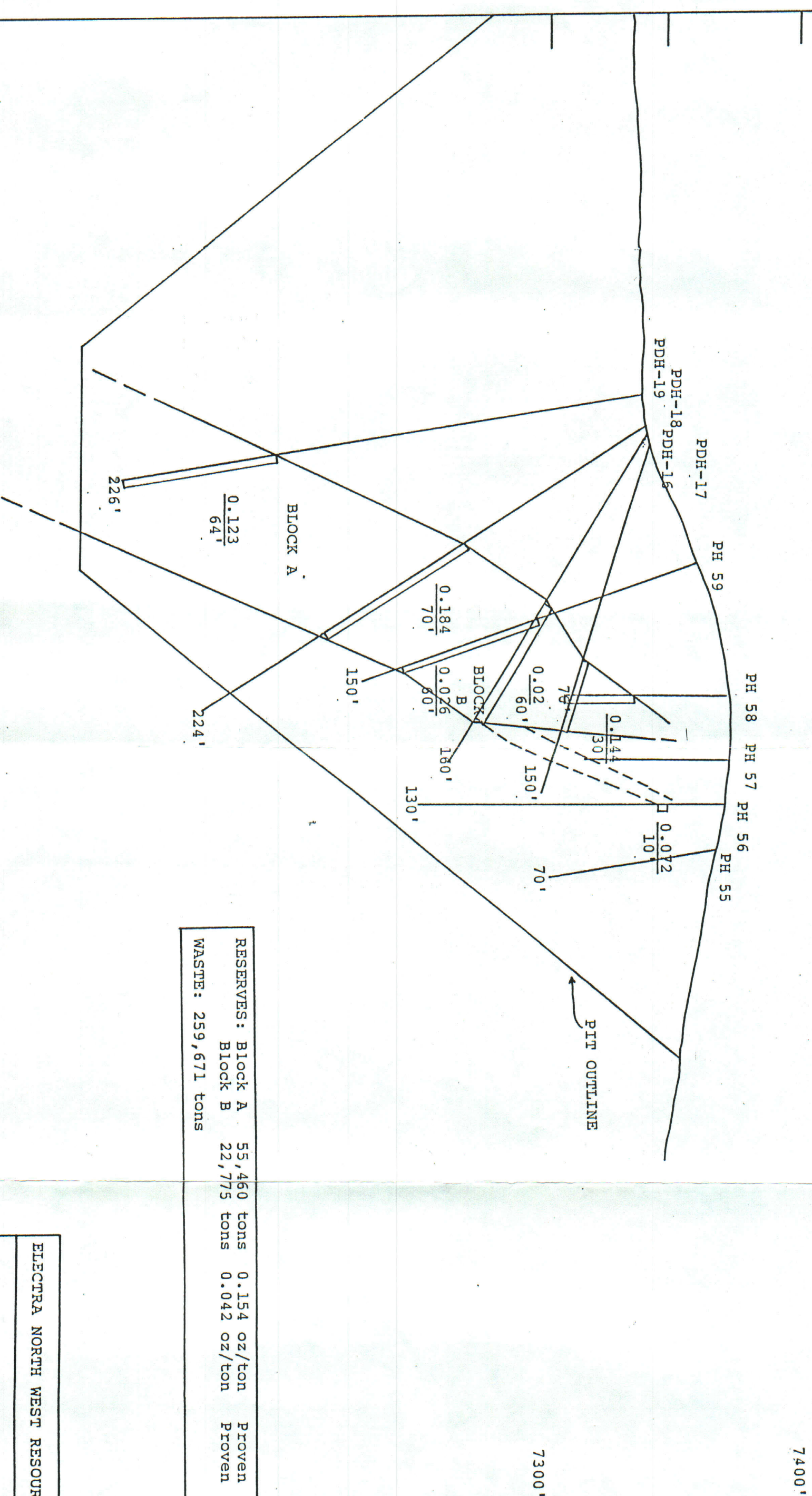
AURORA PROJECT  
SECTION 970 SW

QUESTORE CONSULTANTS LTD.

AUGUST, 1984 FIGURE 12



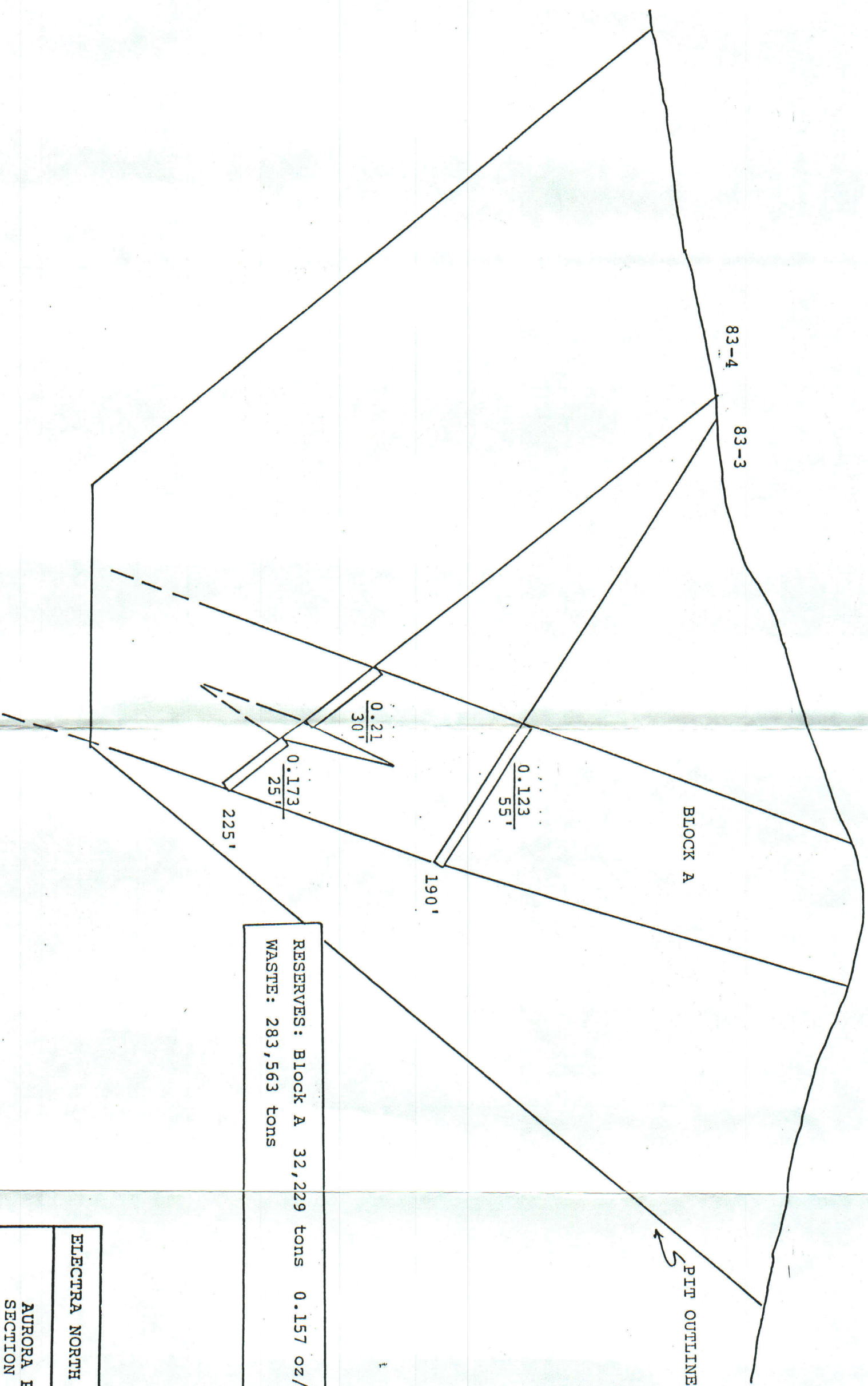
BL



RESERVES: Block A	55,460 tons	0.154 oz/ton	Proven
Block B	22,775 tons	0.042 oz/ton	Proven
WASTE:	259,671 tons		

ELECTRA NORTH WEST RESOURCES LTD.  
 AURORA PROJECT  
 SECTION 930 SW  
 QUESTORE CONSULTANTS LTD.  
 AUGUST, 1984      FIGURE 13





RESERVES: Block A 32,229 tons 0.157 oz/ton Proven  
WASTE: 283,563 tons

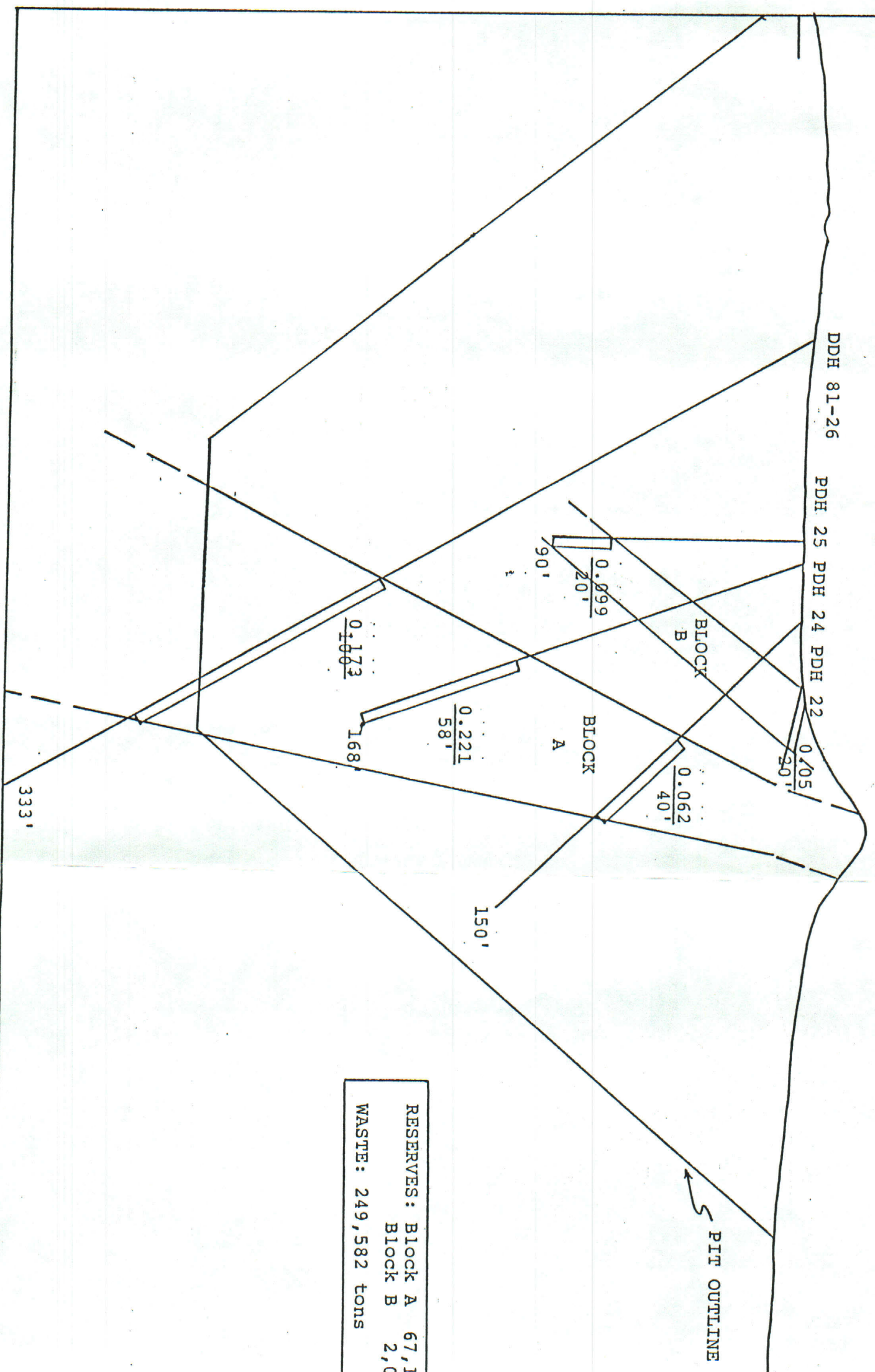
ELECTRA NORTH WEST RESOURCES LTD.
AURORA PROJECT
SECTION 850 SW
QUESTORE CONSULTANTS LTD.
AUGUST, 1984      FIGURE 14



BL

7400'

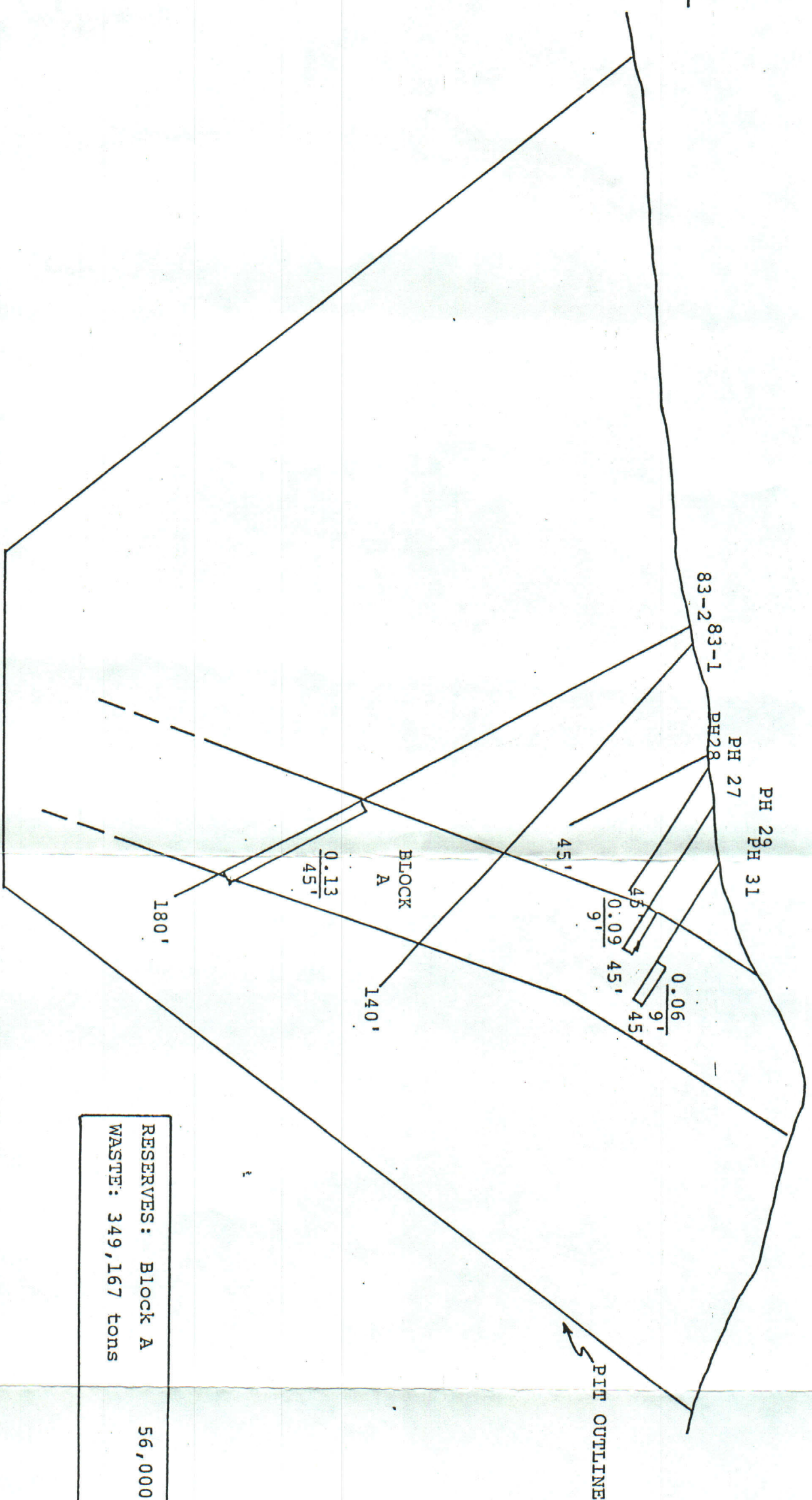
7300'



RESERVES: Block A	67,125 tons	0.165 oz/ton	Proven
Block B	2,043 tons	0.075 oz/ton	Proven
WASTE:	249,582 tons		

ELECTRA NORTH WEST RESOURCES LTD.
AURORA PROJECT
SECTION 810 SW
QUESTORE CONSULTANTS LTD.
AUGUST, 1984 FIGURE 15





BL

7400'

7300'

ELECTRA NORTH WEST RESOURCES LTD.

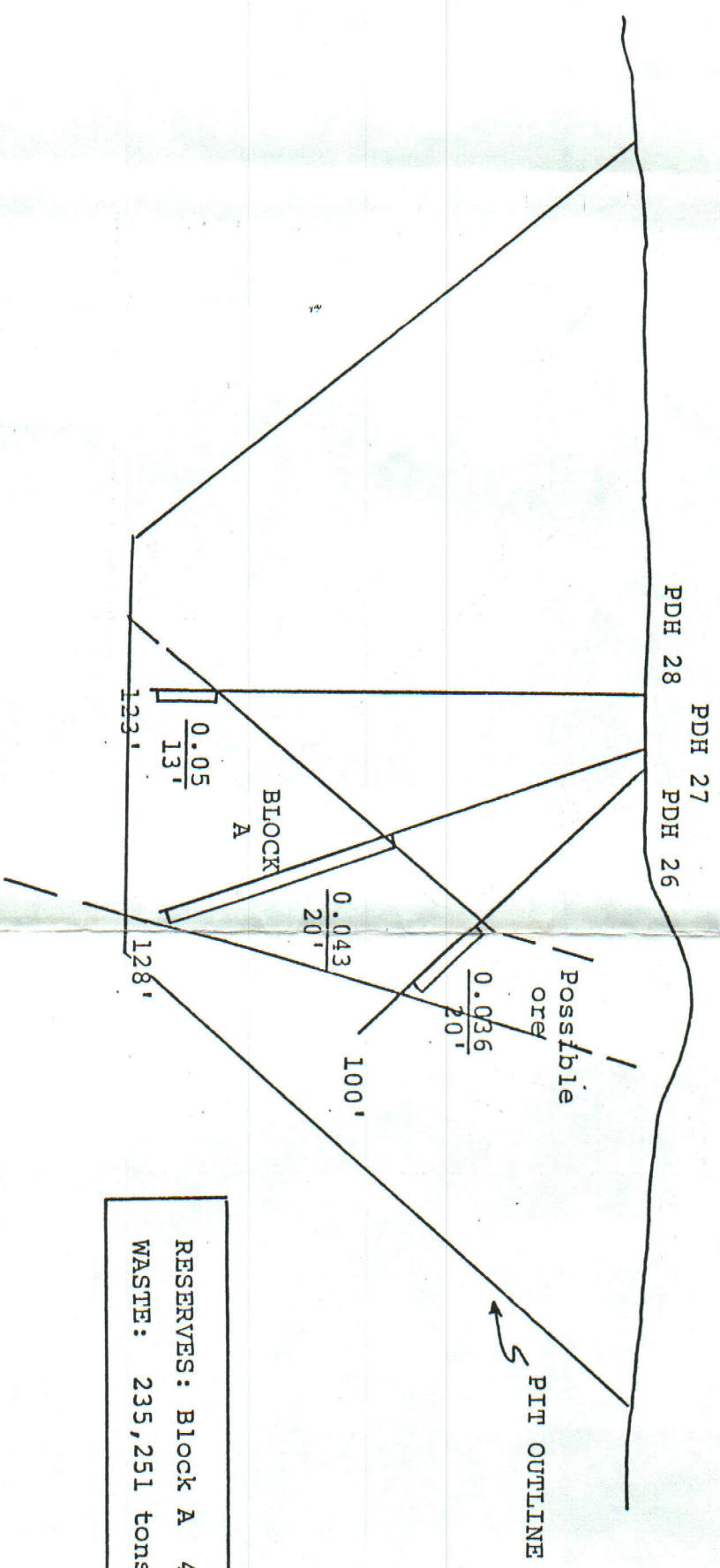
AURORA PROJECT  
SECTION 725 SW

QUESTORE CONSULTANTS LTD.

AUGUST, 1984 FIGURE 16



BL

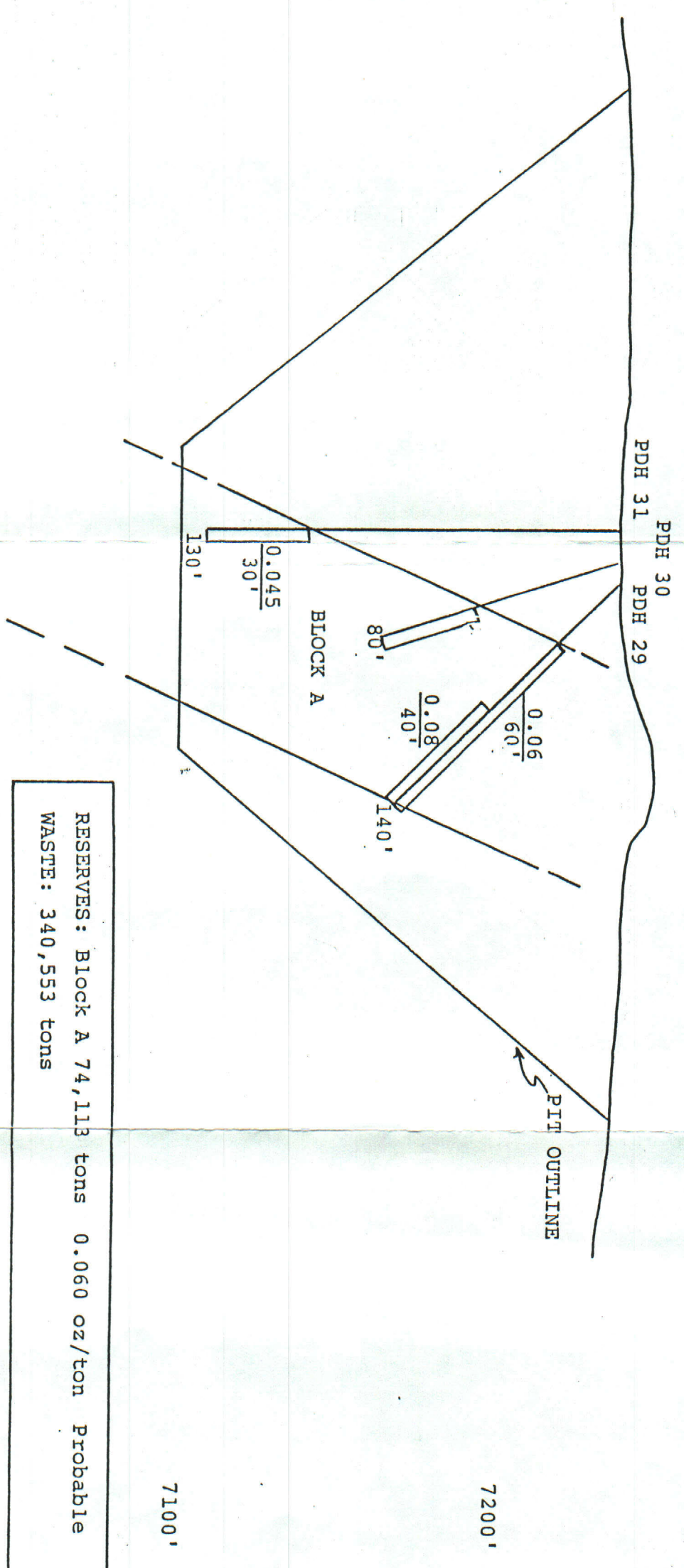


RESERVES: Block A 45,478 tons 0.042 oz/ton Probable  
WASTE: 235,251 tons

ELECTRA NORTH WEST RESOURCES LTD.
AURORA PROJECT
SECTION 640 SW
QUESTORE CONSULTANTS LTD.
AUGUST, 1984    FIGURE 17



BL



RESERVES: Block A 74,113 tons 0.060 oz/ton Probable  
WASTE: 340,553 tons

ELECTRA NORTH WEST RESOURCES LTD.

AURORA PROJECT  
SECTION 480 SW

QUESTORE CONSULTANTS LTD.

AUGUST, 1984 FIGURE 18



PRELIMINARY ORE WASTE CALCULATIONS

Between sections 480SW - 1375 SW, between the 7100 foot elevation and surface preliminary open pit outlines have been drawn on figures 6 - 18. Total waste in this volume of rock is estimated to be 5,099,284 tons. Total ore is estimated at 872,747 tons. Waste to ore stripping ratio in this preliminary pit is therefore 6:1.



### MINING DEVELOPMENT

Following a joint venture agreement between Electra and Centennial Minerals Ltd. in 1983 a programme to mine and heap leach Aurora gold ore was initiated in the summer of 1983.

In the first year of operation 21,500 tons of ore grading 0.076 oz./ton gold was mined, crushed and heap leached. A carbon plant recovered 538 ounces of gold for an overall estimated recovery of 33%.

The operation is continuing at present. As of July 31, 1984, a total of 49,900 tons of ore had been mined, and a total of 406,000 tons waste removed. The ore is estimated to contain 6,500 ounces of gold and 5,500 ounces of silver. This material is currently under leach and to date 2,000 ounces of gold and 1,800 ounces of silver have been recovered. Recoveries range between 60 to 70%.

A summary of mining activities in 1983, 1984 is outlined below. Figures are for July 31, 1984.

<u>YEAR</u>	<u>TONS MINED</u>	<u>Au</u> <u>oz./ton</u>	<u>Ag</u> <u>oz./ton</u>	<u>WASTE</u> <u>MINED</u>
1983	22,165	0.078	0.15	52,600
1984	49,900	0.13	0.11	406,000
TOTAL	73,065	0.11	0.121	458,600

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### CONCLUSIONS

Drill sampling programmes on the Humboldt East gold-quartz fissure vein have defined geologic, proven and probable mineral reserves of 943,700 tons averaging 0.11 oz./ton gold or approximately 100,000 ounces of gold. The vein has been drill sampled between the 7,500 and 7,100 elevations. The lower elevation equates approximately with the 400 level of past development on the Humboldt vein. The gold values in drill holes at the lower elevation remain significant so that the down dip projection of the vein remains to be explored. Historically production from quartz veins in the district was between surface and 500 feet in depth though a 900 foot-deep shaft sunk on the Real del Monte vein on Last Chance Hill demonstrated that mineralization persists to this depth. Deep exploration of the Humboldt vein is therefore warranted.

The Humboldt West claims may contain 350,000 tons of minable ore. A programme to define mineralization between surface and 400 level is also warranted.

The Aurora property may contain 1.5 to 2 million tons of minable gold ore.

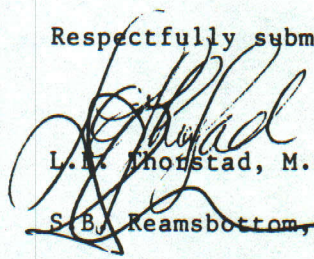
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Production at the Aurora deposit in 1983 - 84 totals 73,065 tons averaging 0.11 oz./ton gold and 0.121 oz./ton silver. (This represents 8,037 ounces of gold and 8,841 ounces of silver). Ore: waste stripping ratios are 1:6.3. This may decrease as the pit evolves. Gold recovered to date from the crushed and heap leached ore amounts to 2,540 ounces and 2,112 ounces of silver. Continued production is projected to be 10,000 ounces of gold of which 6,000 - 7,000 ounces may be recovered in the leaching facility.

Respectfully submitted,



L.M. Thorstad, M.Sc.

~~S.B. Reamsbottom, Ph.D., P. Eng.~~



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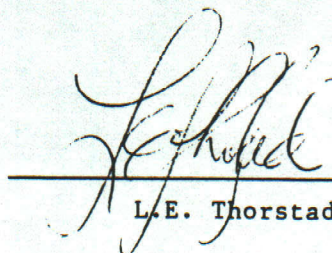


CERTIFICATE

I, LINDA E. THORSTAD, DO HEREBY CERTIFY:

1. THAT I am a consulting geologist with office at #1202 - 789 West Pender Street, Vancouver, British Columbia, V6C 1H2.
2. THAT I am a graduate of the University of British Columbia, Vancouver, B.C. 1978.
3. THAT I am a member of the Geological Association of Canada, Canadian Institute of Mine and Metallurgy and Northwest Mining Association.
4. THAT I have practised my profession for ten years in Canada and the United States.
5. THAT I have no direct, indirect, or contingent interest in the mineral claims held by Electra North West Resources Ltd., nor in the securities of Electra North West Resources Ltd., nor do I intend to receive any such interest.
6. THAT this report, dated August 25, 1984, is based on personal examination of the Aurora Project and review of in-house reports.

DATED at Vancouver, British Columbia, this 25th day of August, 1984.

  
\_\_\_\_\_  
L.E. Thorstad, M.Sc.

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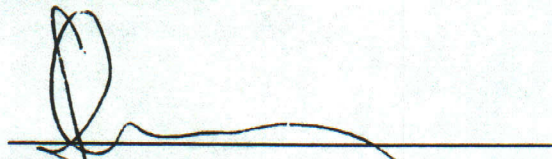


CERTIFICATE

I, STANLEY B. REAMSBOTTOM, DO HEREBY CERTIFY:

1. THAT I am a consulting geologist with office at #1202 - 789 West Pender Street, Vancouver, British Columbia, V6C 1H2
2. THAT I am a graduate of the University of Aberdeen, Scotland, 1968, with a B.Sc., Geology (1st Class Honours) degree.
3. THAT I am a graduate of the University of British Columbia, Vancouver, B.C., with M. Sc., Geology, 1971, and Ph.D., Geology, 1974, degrees.
4. THAT I am a registered member of the Association of Professional Engineers of British Columbia.
5. THAT I have practised my profession for 16 years.
6. THAT I have a direct interest in the mineral claims held by Electra North West Resources Ltd. and in the securities of Electra North west Resources Ltd.
7. THAT this report, dated August 25, 1984, is based on my personal examination of the Aurora Project on data collected under my supervision, on data collected by other operators, and review of in-house reports.

DATED AT Vancouver, British Columbia, this 25th day of August, 1984.

  
Stanley B. Reamsbottom, Ph.D., P. Eng.

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