

7159

REPORT ON DIAMOND DRILLING
ON THE JAME X-1 CLAIM
SIMILKAMEEN MINING DIVISION, B.C.

by
A. I. BETMANIS, P.Eng.
for
NORTHERN LIGHTS RESOURCES LTD. (N.P.L.)

Mineral Claims:	Jame X-1 (176)
Mining Division	Similkameen
N.T.S.	92 H/10W
Co-ordinates:	120°49'W, 49°36'N
Owner & Operator:	Northern Lights Resources Ltd. (N.P.L.)

March 5, 1979

Vancouver, B. C.

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Ltd. (N.P.L.)

Figure 1: Location Map, scale 1:50,000 Following page 1

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INTRODUCTION

(a) General Statement

This report is based on data supplied to the writer by Northern Lights Resources Ltd. (N.P.L.). The writer has neither visited the property, verified the location of the drill holes, nor examined the core. However, the writer takes responsibility for the interpretation of the technical data as supplied by Northern Lights Resources.

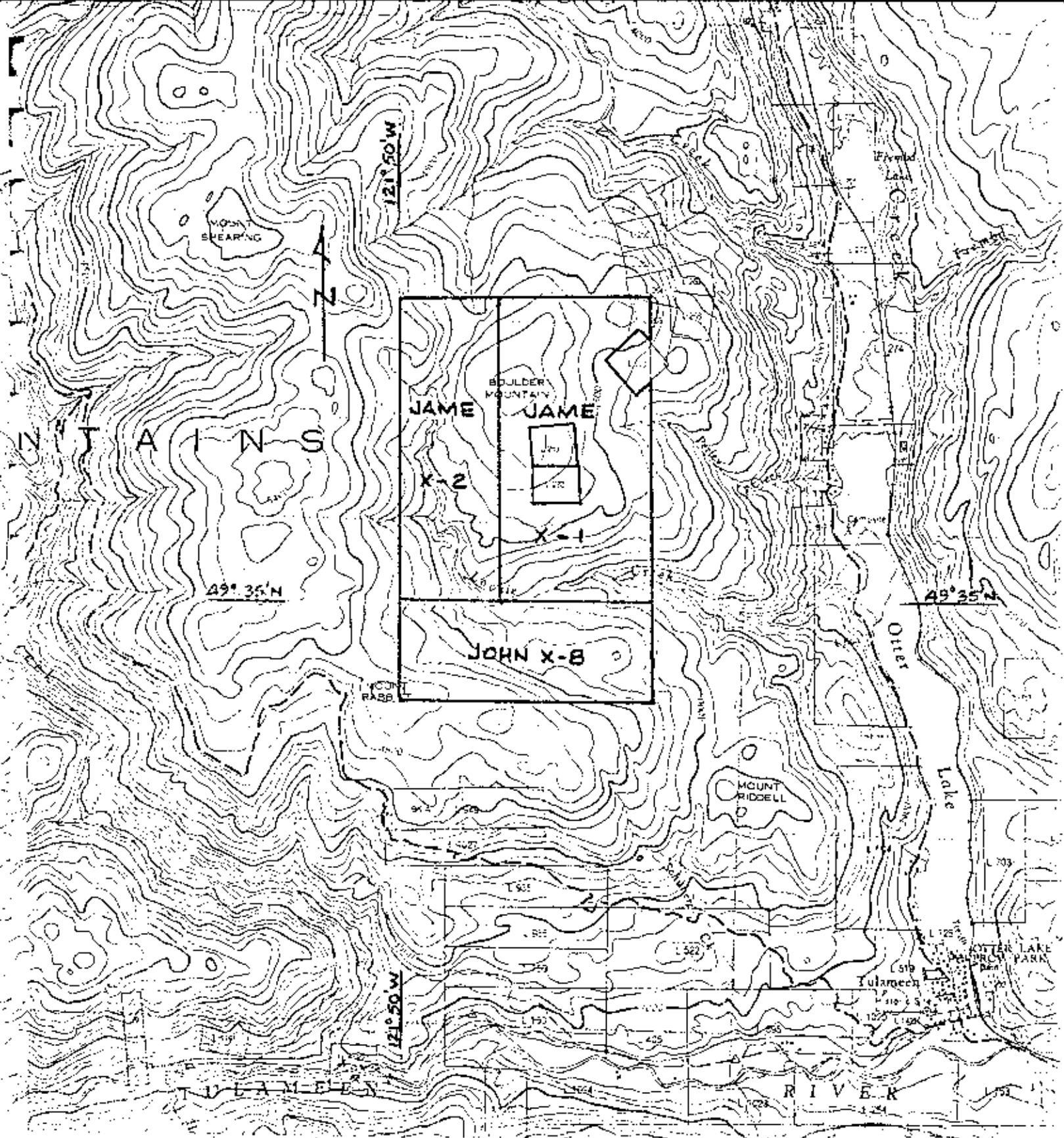
The core drilling was done by Northern Lights Resources under the supervision of R. W. Phendler, P.Eng., who also logged the drill core. Accounting of the costs of the program was the responsibility of Northern Lights. Background data on the property is based on a report of a magnetometer survey on the John X Claims by R. W. Phendler, P.Eng., dated December 18, 1978.

(b) Location and Access

The Jame X-1 claim is located on the south and east sides of Boulder Mountain, approximately 3 km east of the north end of Otter Lake and 7 km northwest of the town of Tulameen (See Figure 1).

Elevations on the property are between 3,500 and approximately 4,950 feet, as based on 1:50,000 scale maps of the area.

Access to the property from Tulameen is via 6.5 km of loose surface gravel road northerly on the west side of Otter Lake to just past the north end of Otter Lake, then westerly for approximately 6 km on a dirt road to the southeast slope of Boulder Mountain. Various dirt



TULAMEEN
 BRITISH COLUMBIA
 NTS 924/10W
 SCALE 1:50,000 ÉCHELLE

NORTHERN LIGHTS RESOURCES LTD
 JAME X-1 CLAIM

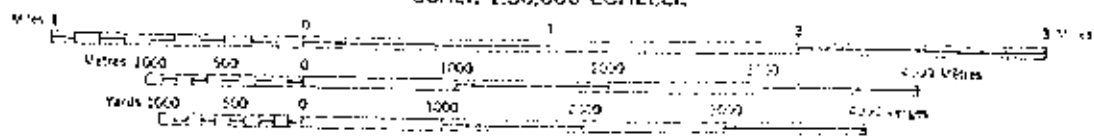


FIG. 1

roads connect parts of the claim and adjoining claims.

(c) Property

The Jame X-1 claim of 18 units surrounds the International and Constitution Crown Granted claims (lots L282, L283). It is bordered on the west by the Jame X-2 claim of 12 units and on the south by the John X-8 claim of 10 units. The record number of Jame X-1 is 176. The recorded owner of the claim is John Adams. Northern Lights Resources Ltd. (N.P.L.) are the operators.

The adjoining claims to the south surrounding Rabbitt Mountain were known as the Red Bird Group when first staked in 1913, and in 1929 were operated by Federation Copper Mines Ltd. (Phendler, 1978). Minor underground exploration work was done to trace chalcopyrite zones. In 1968 Copper Mountain Consolidated Ltd. carried out surface geophysical work in the area (Phendler, 1978). The Jame X-1 and adjoining claims are under option to Northern Lights Resources.

Surface sampling north of the Constitution Crown Grant on the Jame X-1 returned values up to 12.50% Zn and 1.60% Pb, and stringers of chalcopyrite in Nicola volcanic rocks. Two diamond drill holes were drilled by Northern Lights to test the exposed mineralization.

(d) Summary of Work

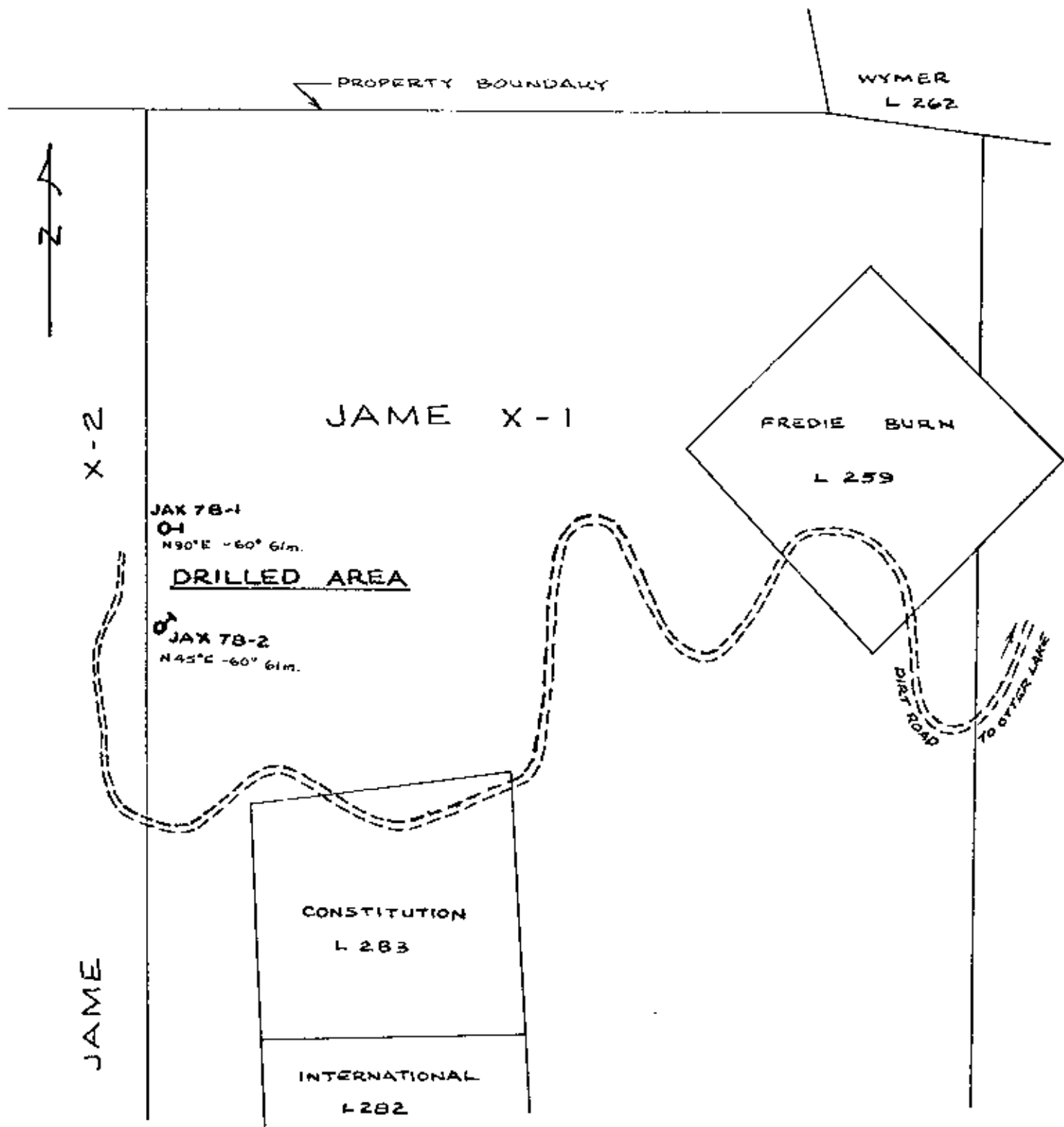
The two holes drilled are located near the western edge of the Jame X-1 claim (See Figure 2). Hole JAX 78-1 was drilled due east for 61 meters at -60° , recovering AQ core. Hole JAX 78-2, also AQ, was collared 175 meters due south of JAX 78-1 and drilled to 61 meters at -60° on azimuth of $N.45^{\circ}E$. The drilling was done intermittently during the months of October and November in 1978.

The drill used was a Boyles CBS-1 owned by Northern Lights and operated by Fern Prevost of Princeton. Geological logs were supplied by R. W. Phendler, P.Eng.

The recovered core was sent to Acme Analytical Laboratories Ltd. in Burnaby B. C. where it was assayed after splitting for Cu, MoS_2 , Pb, Zn, Au and Ag for the intervals indicated in assay certificates in Appendix II.

TECHNICAL DATA AND INTERPRETATION

The drill holes encountered andesite of the Upper Triassic Nicola volcanics. Hole JAX-2 also cut two diabase dykes of unknown age. The andesites contain frequent quartz veins and stringers and some shearing. Alteration is variable from epidote, and chlorite to bleaching or weak clay alteration. If the alteration is associated to hydrothermal solutions, it is of reasonably low grade.



MAP BASED ON DATA
 SUPPLIED BY NORTHERN
 LIGHTS RESOURCES LTD
 MARCH 1979.

NORTHERN LIGHTS RESOURCES LTD

DRILL HOLE LOCATION MAP

JAME X-1 CLAIM

SIMILKAMEEN MINING DIVISION - B.C.

100 0 500mts.

Scale 1:10,000

NTS 92H/10W

FIG. 2

Pyrite stringers and blebs mineralize the andesite. Logging of the holes by Phendler suggests that there is a possible association of pyrite with the quartz veining. The only significant mineralization was encountered in hole JAX-78-1. Between 6.1 and 6.4 meters a band of massive sulphides was intersected at 60° to the core which was logged by Phendler as 30% chalcopyrite and 20% pyrite. This zone was not encountered in hole JAX 78-2.

A possible volcanogenic origin to the massive sulphides is a possibility. However, the single narrow intersection in drilling, and lack of correlation to surface mineralization and geology make the significance of the massive sulphide intersection unknown.

Respectfully submitted



A. I. Betmanis, P.Eng.

March 5, 1979

Vancouver, B. C.

Reference:

Phendler, R. W. (1978): Report on a Magnetometer Survey on the John X Claims, Similkameen Mining Division, B.C. for Northern Lights Resources Ltd. dated December 18, 1978, submitted for assessment work on the John X claims.

APPENDIX I

DIAMOND DRILL LOGS
HOLES JAX 78-1 and JAX 78-2
by
R. W. Phendler, P.Eng.

DRILL HOLE RECORD

LEVEL SURFACE	BEARING	DIP	TYPE OF SURVEY	CORE SIZE AQ	HOLE No. JAX 78-1
LOCATION JAMEX-1 CLAIM	COLLAR Due East -60°			LENGTH 200'	SHEET No. 1 of 1
ELEVATION 4700' ±				COMPLETED Nov 1, 1978	LOGGED BY: R.W. PHEDLER
LATITUDE	N			PURPOSE EXPLORATION	
DEPARTURE	E			TOTAL RECOVERY 89%	

FOOTAGE		DESCRIPTION OF ROCK TYPES	DRILL HOLE	MINERALIZATION AND STRUCTURES	ESTIMATED % OF SULPHIDES	ASSAYS							RECOVERY						
FROM	TO					SAMPLE NO.	FROM	TO	WIDTH	% FePb	% Cu	% Zn	OTS. AU	OTS. AG	GROUPED AVERAGE	RUN	MEASURED	% REC.	
3.0	8.0	TRERBUNDEN		FRACURES AND SLIPS															
8.0	200.0	ROOF SITE - MEDIUM GRAIN FINE TO MEDIUM GRAINED - LOCALLY TOCCACEOUS		MINOR STAINING TO 16"		8.0	13.0	5.0	0.01	0.02	0.02	0.00	0.01						
		Bandings 60° TO CORE WITH SHARPED AT 47' FEW SLIP FACES WITH LIMONITE STAINING HARDNESS - 5		FEW NARROW QUARTZ STRINGERS		13.0	18.0	5.0	.01	0.02	0.02	0.01	0.02						
		IRREGULAR QUARTZ THINER VEINS THROUGHOUT		AT 19" 1/2 QUARTZ STRINGER WITH CHALCOPYRITE		18.0	23.0	5.0	.01	0.25	0.02	0.01	0.22						
		QUARTZ CORE 53-55'		20'-21' MASSIVE SULPHIDE		23.0	28.0	5.0	.01	0.27	0.02	0.01	0.08						
		NO VISIBLE ALTERATION		20'-21' MASSIVE SULPHIDE		28.0	33.0	5.0	.01	0.29	0.01	0.01	0.11						
		70'-72.6' 10% QUARTZ VEINING AT 30" TO CORE - BREAK RAMIFICATION (LEACHING) BIRDS OF PYRITE AND QUARTZ EPES THROUGHOUT		BAND 60" TO CORE	26% PYRITE	33.0	38.0	5.0	.01	0.06	0.02	0.01	0.01						
		AT 117' - SLIP AT 10° TO CORE SLIGHTLY MORE MASSIVE BY 110' SHEARING LESS PREMINENT		9-28' 12" QUARTZ VEIN AT 30" TO CORE															
		FEW 1/4" QUARTZ STRINGERS AT 130' AND A 1/4" QZ VEIN AT 132'-60" TO CORE		75' - 1" QUARTZ - 60% CORE	10% PYRITE														
		1" IRREGULAR QZ ZONE AT 168' DISSEMINATED PYRITE THROUGHOUT AT 155'-1/4" QZ WITH 5% PYRITE.																	
200.0		END OF HOLE																	
				Factor Rec'd															
				102	8-22'	24	24												
				2	32'-56'	24	24												
				3	56'-78'	24	22												
				4	78'-100'	24	22												
				5	100'-127'	24	27												
				6	127'-155'	24	30												
				7	155'-182'	24	27												
				102	182'-190'	9'	7												
						124	124												

DRILL HOLE RECORD

LEVEL <i>SURFACE</i>	BEARING	DIP	TYPE OF SURVEY	CORE SIZE <i>AØ</i>	HOLE No. <i>JAX 78-1</i>
LOCATION <i>JAMEX-1 CLAIM</i>	COLLAR <i>N45°E</i>	<i>-4</i>		LENGTH <i>200.0'</i>	SHEET No. <i>1 of 1</i>
ELEVATION <i>4700' ±</i>				COMPLETED <i>Nov 25, 1978</i>	LOGGED BY: <i>R.W. PHENDLER</i>
LATITUDE		<i>N</i>		PURPOSE <i>EXPLORATION</i>	
DEPARTURE		<i>E</i>		TOTAL RECOVERY <i>60%</i>	

FOOTAGE		DESCRIPTION OF ROCK TYPES	DRILL HOLE	MINERALIZATION AND STRUCTURES	ESTIMATED % OF SULPHIDES	ASSAYS										RECOVERY		
FROM	TO					SAMPLE NO.	FROM	TO	WIDTH	REC.	% CU	% ZN	OTS. AU	OTS. AG	GROUPED AVERAGE	RUN	MEASURED	% REC.
3.0	24.0	- OVERBURDEN																
24.0	26.0	ANORTITE - MEDIUM TO FINE GRAINED, LIGHT GREEN EPIDOTE ALTERATION WITH 1" - 1/2" QUARTZ VEINS - STREPER																
26.0	46.0	DIABASE DYKE - DARK GRAY TO BLACK - MEDIUM GRAINED MASSIVE CONTACTS NOT VISIBLE																
46.0	57.5	ANDESITE, MEDIUM GRAINED TRIPPHASE - LOCAL CHLORITE SWEARS SOME KROOK STRINGERS MUD SEAM AT 57'																
57.5	64.0	DIABASE DYKE - BLACK, FINE GRAINED MUD SEAMS AT FIRST CONTACT																
64.0	200.0	ANDESITE - FINE GRAINED, GREENISH GUSKY CHLORITIC MUD SEAMS AT 79.5, 83-86 FEW FINE BANDS - 1/16" BECOMING TRIPPHASE MEDIUM GRAINED BY 120' - BLENDED AT 60° BLEACHED, KAGINIZED 147-149		QTL VEIN - 1" AT 105' - 1/2" AT 107' - 1/2" AT 112' - 1/4" QTL AT 117' - 1/4" QTL AT 125'														
200.0		END OF HOLE																
				Box 1	24.0-57.0	25'	24'											
				2	57.0-160.0		24'											
				3	150.0-176.0		24'											
				4	126.0-150.0		24'											
					150.0-200.0		24'											

APPENDIX II

DRILL CORE ASSAYS
by
ACME ANALYTICAL LABORATORIES LTD.

ACME ANALYTICAL LABORATORIES LTD.

To Teck Corporation Ltd.,
1199 W. Hastings St.,
Vancouver, B. C. V6E 2K5

Assaying & Trace Analysis

6455 Laurel Street • Burnaby, B.C. V5B 3B4

Telephone: 299-5242

File No. 8989

Whole cores
Type of Samples

Disposition

ASSAY CERTIFICATE

Submitted by Northern Lights Resources Ltd.

No.	Sample	Total MoS ₂ %	Cu %	Pb %	Zn %	Ag oz/ton	Au oz/ton	No.
1	JAX-78-H #1 8- 13'	.001	.02	.01	.02	.01	.001	1
2	13- 18'	.002	.02	.01	.02	.02	.001	2
3	18- 23'	.001	1.25	.01	.02	.22	.001	3
4	23- 28'	.001	.27	.01	.02	.08	.001	4
5	28- 33'	.001	.39	.01	.01	.11	.001	5
6	33- 38'	.001	.06	.01	.02	.01	.001	6
7	38- 43'	.001	.01	.01	.02	.01	.001	7
8	43- 48'	.001	.01	.01	.02	.02	.001	8
9	48- 53'	.002	.01	.01	.05	.01	.001	9
10	53- 58'	.002	.01	.01	.02	.03	.001	10
11	58- 63'	.001	.01	.01	.02	.01	.001	11
12	63- 68'	.001	.01	.01	.06	.02	.001	12
13	68- 73'	.001	.01	.01	.03	.01	.001	13
14	73- 78'	.001	.01	.01	.03	.01	.001	14
15	78- 83'	.001	.01	.01	.01	.02	.001	15
16	83- 88'	.001	.01	.01	.02	.01	.001	16
17	88- 93'	.001	.01	.01	.02	.01	.001	17
18	98- 98'	.001	.01	.01	.04	.01	.002	18
19	98-103'	.001	.01	.01	.03	.01	.001	19
20	JAX-78-H #1 103-108'	.001	.01	.01	.02	.01	.002	20

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DATE SAMPLES RECEIVED Dec. 1, 1978

DATE REPORTS MAILED Dec. 8, 1978

ASSAYER

Dean Toye
DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.

To Teck Corporation Ltd.

Assaying & Trace Analysis

Telephone: 299-5242

6455 Laurel Street + Burnaby, B.C. V5B 3B4

File No. 8989

Type of Samples Whole cores

Disposition

ASSAY CERTIFICATE

Submitted by Northern Lights Res. Ltd.

2

No.	Sample	Total MoS ₂ %	Cu %	Pb %	Zn %	Ag oz/ton	Au oz/ton	No.
1	JAX-78-H #1 108-113'	.001	.02	.01	.01	.02	.001	1
2	113-118'	.001	.01	.01	.01	.03	.001	2
3	118-123'	.001	.01	.01	.02	.01	.001	3
4	123-128'	.001	.01	.01	.02	.01	.002	4
5	128-133'	.001	.01	.01	.02	.01	.001	5
6	133-138'	.001	.01	.01	.01	.01	.001	6
7	138-143'	.001	.01	.01	.06	.01	.001	7
8	143-148'	.001	.01	.01	.02	.01	.001	8
9	148-153'	.001	.01	.01	.01	.01	.001	9
10	153-158'	.001	.01	.01	.01	.01	.001	10
11	158-163'	.001	.01	.01	.01	.01	.001	11
12	163-168'	.001	.01	.01	.02	.01	.002	12
13	168-173'	.001	.01	.01	.02	.02	.002	13
14	173-178'	.001	.01	.01	.01	.02	.001	14
15	178-183'	.001	.01	.01	.02	.01	.001	15
16	JAX-78-H-#1 183-190'	.001	.01	.01	.02	.01	.001	16
17								17
18								18
19								19
20								20

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ASSAYER

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Whole cores
Type of Samples

Disposition

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No.	Sample	Total MoS ₂ %	Cu %	Pb %	Zn %	Ag oz/ton	Au oz/ton	No.
1	JAX-78-H #2 24- 29'	.001	.01	.01	.02	.01	.001	1
2	29- 34'	.001	.01	.01	.01	.02	.001	2
3	34- 39'	.001	.04	.01	.01	.01	.001	3
4	39- 44'	.001	.01	.01	.01	.01	.001	4
5	44- 49'	.001	.01	.01	.01	.01	.002	5
6	49- 54'	.001	.01	.01	.01	.01	.001	6
7	54- 59'	.001	.01	.01	.01	.01	.001	7
8	59- 64'	.001	.01	.01	.01	.01	.001	8
9	64- 69'	.001	.01	.01	.03	.01	.001	9
10	69- 74'	.001	.01	.01	.02	.01	.001	10
11	74- 79'	.001	.01	.01	.01	.01	.001	11
12	79- 84'	.001	.01	.01	.01	.02	.001	12
13	84- 89'	.001	.01	.01	.02	.01	.001	13
14	89- 94'	.001	.01	.01	.01	.01	.001	14
15	94- 99'	.001	.01	.01	.01	.01	.001	15
16	99-104'	.001	.02	.01	.01	.01	.001	16
17	104-109'	.001	.01	.01	.02	.01	.001	17
18	109-114'	.001	.01	.01	.02	.01	.001	18
19	JAX-78-H #2 114-119'	.001	.02	.01	.02	.01	.001	19
20								20

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ASSAYER

Dean Toye

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CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

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To Teck Corporation Ltd.

8989

File No. _____

Type of Samples Whole cores

Disposition _____

ASSAY CERTIFICATE

Submitted by Northern Lights Res. Ltd.

No.	Sample	Total MoS ₂ %	Cu %	Pb %	Zn %	Ag oz/ton	Au oz/ton	No.
1	JAX-78-H #2 119-124'	.001	.01	.01	.02	.01	.001	1
2	124-129'	.001	.01	.01	.01	.02	.001	2
3	129-134'	.002	.01	.01	.01	.01	.001	3
4	134-139'	.001	.01	.01	.01	.01	.001	4
5	139-144'	.002	.01	.01	.01	.01	.002	5
6	JAX-78-H #2 144-150'	.001	.01	.01	.01	.01	.001	6
7								7
8								8
9								9
10								10
11								11
12								12
13								13
14								14
15								15
16								16
17								17
18								18
19								19
20								20

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ASSAYER

Dean Toy

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

APPENDIX III

AUTHORS' CERTIFICATE

AUTHORS' CERTIFICATE

I, Andris I. Betmanis, do hereby certify that:

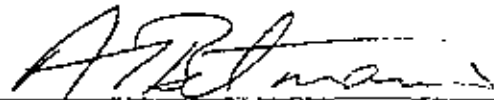
I am a geologist residing at 1988 Arroyo Court, North Vancouver, B. C.

I am a graduate of the University of Toronto with a B.A.Sc degree
in Applied Geology;

I am a registered member of the Association of Professional Engineers
of the Province of British Columbia;

I have practiced my profession in geology for the past 17 years,
and since 1970 in British Columbia;

I have examined diamond drill logs of the JAX 78-1 and JAX 78-2 holes
reported by R. W. Phendler, P.Eng. and data supplied by Northern
Lights Resources Ltd. (N.P.L.), and this report is based on that
data.



A. I. Betmanis, P.Eng.

March 5, 1979

Vancouver, B. C.

APPENDIX IV

COST STATEMENT
by
NORTHERN LIGHTS RESOURCES LTD. (N.P.L.)

NORTHERN LIGHTS RESOURCES LTD. (N.P.L.)

Statement of Work on JAME-X 1 and 2,
Similkameen Mining Division, Tulameen, B.C., by
Northern Lights Resources Ltd. (N.P.L.)

Drilling program between October 5 and
November 25, 1978

Engineering by R.W. Phendler, P.Eng. (B.C.) Examination of property - 5 days at \$150/day	\$ 750.00
J.K. Smit & Son Diamond Products Ltd. (bits and accessories)	3,080.57
Driller - wages on contract	3,200.00
Acme Analytical Lab - assays	1,300.00
Rental of cat - keeping road open	875.00
Truck rental - Cano Rentals	895.00
Texaco Bulk gasoline	483.00
	<hr/>
	\$10,583.57
	<hr/>