81-#808-9536

REPORT ON DIAMOND DRILLING
OX LAKE PROPERTY
OX GROUP

OMINECA M.D. 93 E/11E

LATITUDE 53°40.2' LONGITUDE 127°03'

ASARCO EXPLORATION COMPANY OF CANADA LIMITED
(OWNER - OPERATOR)

by

D.H. OLSON 8 OCTOBER 1981

REPORT ON

DIAMOND DRILLING

OX LAKE PROPERTY

Ox 5 (62388) & Ox 9 (62392)
Claims

Latitude 53°40.2' Longitude 127°03'

by

D. H. OLSON

8 October 1981

TABLE OF CONTENTS

SUMMARY

Two B.Q. diamond drill holes totaling 1094 feet (333.5 meters) were drilled on the Ox 5 (62388) and Ox 9 (62392) claims during the period June 21 to July 9, 1981. Virtually all drill core extracted from the holes was split and sampled and determinations made for Cu-Mo-Ag and Au. The two holes were drilled to investigate a strong induced polarization anomaly and to test for possible extensions of the Ox Lake Cu-Mo mineral zone down dip to the south and southwest. The results of the drilling program appear to rule out any possible extension of the Ox Lake Zone to the south and southwest.

LOCATION AND ACCESS

The Ox Lake Property is located at Ox Lake, a small lake 1.6 km. south of Tahtsa Reach, approximately 6.5 km. northwest of the mouth of Kasalka Creek near 53° 40.2'N, 127° 03'W in 93 E/11E (Figure 1).

Prominent hills with moderately steep slopes which are heavily forrested range from 940 to 1190 meters in elevation.

Access is via the Tahtsa Lake road to the bridge at Whiting Creek a distance of about 68 km. from Houston thence by Helicopter 7 km. southeasterly to Ox Lake or 128 km by air from Smithers, B.C.

CLAIMS - OX GROUP

(Figure 1)

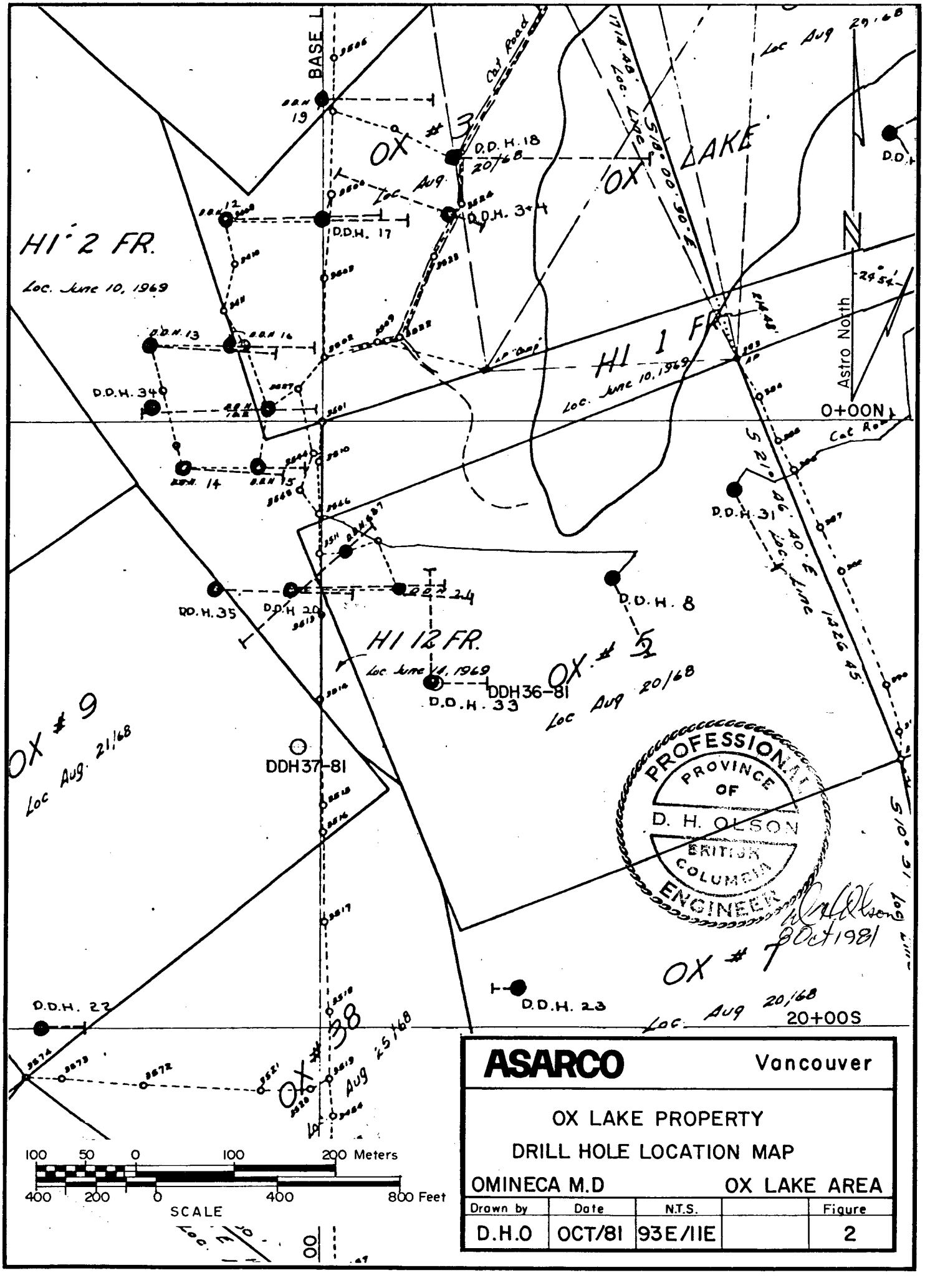
Claim	Units	Owner	Record No.	Anniversary Date
Ox 1	1	Silver Standard	62384	Aug. 29
Ox 2	1	Mines Ltd. &	62385	Aug. 29
Ox 3	1	Asarco Incorpo-	62386	Aug. 29
Ox 4	1	rated	62387	Aug. 29
Ox 5	1	"	62388	Aug. 29
Ox 6	1	"	62389	Aug. 29
Ox 7	1	"	62390	Aug. 29
Ox 8	1	"	62391	Aug. 29
Ox 9	1	"	62392	Aug. 29
Ox 10	1	"	62393	Aug. 29
Ox 11	1	"	62394	Aug. 29
Ox 12	1	"	62395	Aug. 29
Ox 13	1	"	62396	Aug. 29
Ox 17	1	"	62400	Aug. 29
Ox 18	1	"	62401	Aug. 29
Ox 37	1	"	62420	Aug. 29
Ox 38	1	"	62421	Aug. 29
Ox 52	1	"	62435	Aug. 29
Ox 53	1	"	62436	Aug. 29
Ox 54	1	"	62423	Oct. 4
Ox 55	1	"	62437	Aug. 29
Ox 56	1	"	62438	Aug. 29
Ox 57	1	"	62439	Aug. 29
Ox 58	1	"	62440	Aug. 29
Ox 59	1	"	62441	Aug. 29
Ox 60	1	"	62442	Aug. 29
Hi 1 Fr.	1	"	75545	June 23
Hi 2 Fr.	1	"	75546	June 23
Hi 3 Fr.	1	"	75547	June 23
Hi 4 Fr.	1	"	75548	June 23
Hi 7 Fr.	1	"	75551	June 23
Hi 8 Fr.	1	"	75552	June 23
Hi 9 Fr.	1	"	75553	June 23
Hi 12 Fr.	1	"	75556	June 23
TAH	20	Asarco Exploration Company of Canada Limited	3621	Feb. 23

WORK DONE

During the period June 6 to July 9, 1981 two drill sites with suitable clearing for helicopter approaches were established and two BQ diamond drill holes of 93.6 meters and 239.9 meters for a total of 333.5 meters were drilled. Determinations for Cu-Mo-Au and Ag were made on 100 samples. Expenditures in carrying out the 1981 drilling program on the Ox Claim Group is itemized in Appendix "A".

DESCRIPTION

Discovery of the Ox Lake Property by Silver Standard Mines Ltd. prospectors through regional reconnaissance and prospecting late in the summer of 1968, resulted in 1441 meters of drilling in 11 holes before the end of the year, 3386.6 meters of drilling in 24 holes in 1969 and 333.5 meters of drilling in 2 holes in the summer of 1981. Total drilling to date 5161.1 meters (16,928.4 feet). Additional work includes geological mapping, magnetometer survey (32.2 km.) bulldozer trenching (61 meters), geochemical and soil survey (600 samples) prior to 1970. Further geochemical soil surveys were carried out in 1977 (114 samples) and 1981 (129 samples). Line cutting (10.5 km.) and I.P. surveys carried out in 1977 (10.0 km.) and 1981 (4.2 km.) were in conjunction with a VLF-EM survey (2.7 km.) to investigate sulfide mineralization peripheral to the Ox Lake deposit.



ASARCO Vancouver

OX LAKE PROPERTY

DRILL HOLE LOCATION MAP

OMINECA M.D OX LAKE AREA

Drawn by	Date	N.T.S.		Figure
D.H.O	OCT/81	93E/11E		2

VanCal

GEOLOGY (Figure 3)

The Ox Group of claims is underlain by the Jurassic Hazelton Group comprised of a mixed pyroclasic sedimentary sequence which is intruded by a small granodiorite porphyry pluton that is similar in age and composition to the intrusive pluton at the Huckleberry deposit on the north side of Tahtsa Reach.

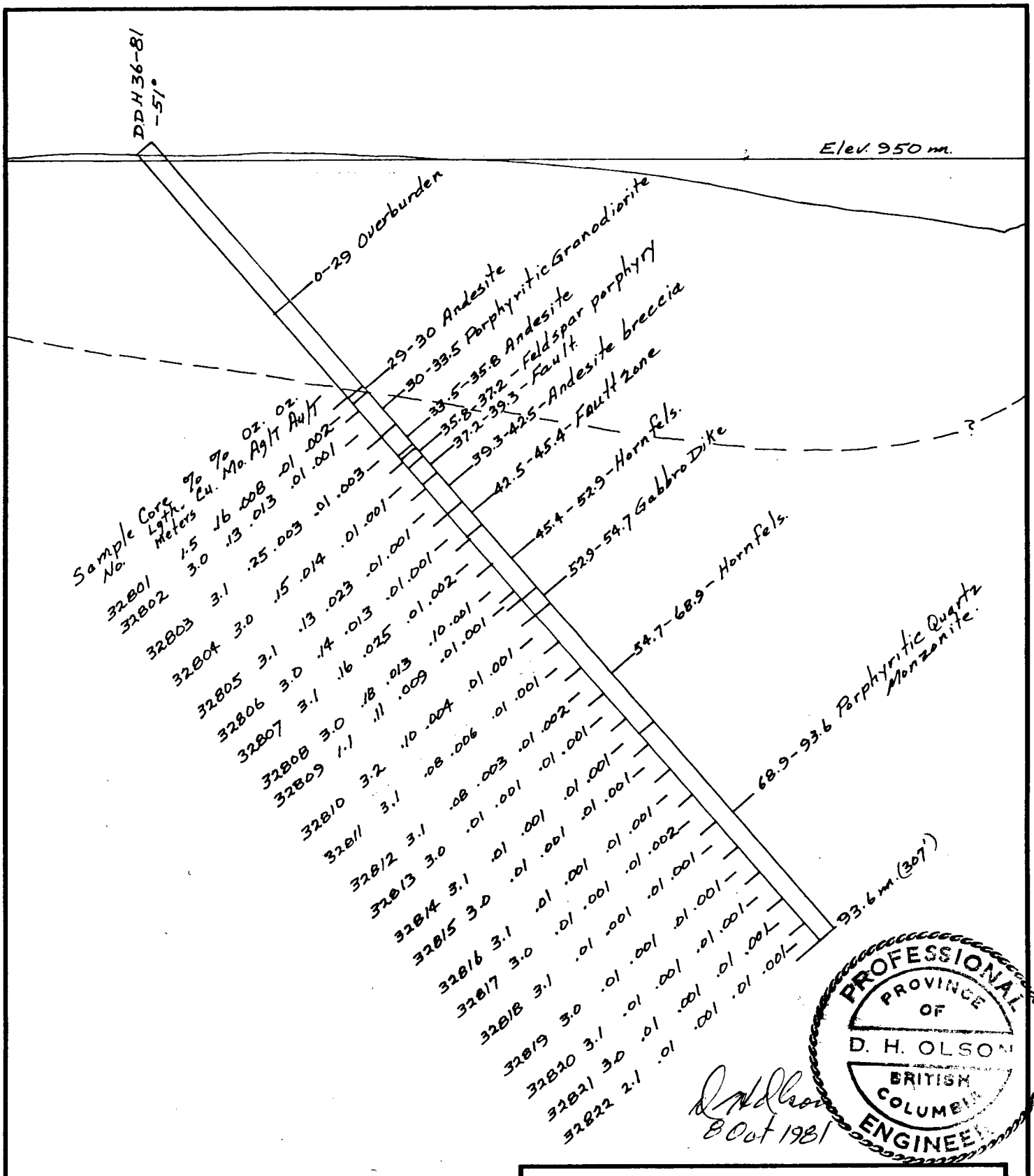
Significant Cu-Mo mineralization occurs throughout a quartz vein stockwork within the stratigraphic sequence peripheral to the west and southwest margins of the granodiorite porphyry pluton. Ore minerals include chalcopyrite, bormite, molybdenite and lesser malachite. Gangue minerals consist of pyrite quartz, calcite, biotite, chlorite and epidote. Locally strong argillic, propylitic alteration, silicification and brecciation is noted. Much of the stratigraphic sequence is strongly hornfelsed.

In the vicinity of the 1981 drilling the stratigraphic sequence has a northerly strike and a westerly dip of 40-50°. Much of the sequence is intruded by gabbro, andesite, feldspar porphyry and porphyritic granodiorite dikes and sills.

Strong north-south faulting through Ox Lake was suspected and was confirmed by the latest drilling.

DIAMOND DRILLING

Two BQ diamond drill holes (Figure 2) DDH 36-81 and DDH 37-81 totaling 1094 feet (333.5 meters) were drilled on the Ox 5 and 9 claims respectively during the period June 21 to July 9, 1981. B. Mathieu Drilling Ltd. of Merritt, B.C. carried out the drilling for Asarco Exploration Company of Canada Limited. Core extracted



D. H. Olson
8 Oct 1981

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. H. OLSON

ASARCO Vancouver

OX LAKE PROPERTY
VERTICAL X-SECTION THRU DDH 36-81,
EAST-WEST, LOOKING NORTH
OMINECA M.D. OX LAKE AREA

Drawn by	Date	N.T.S.		Figure
D.H.O	OCT./81	93E/11E		4

VanCal

from the holes was split, and sampled and determinations made for Cu-Mo-Au-Ag by Acme Analytical Laboratories Ltd., of Vancouver. The remaining half of the split core is stored at the Ox Lake Property. Analytical results of core samples from drill holes 36-81 and 37-81 are given in Appendix "B" and are plotted on the respective vertical cross sections included as Figures 5 and 6. Analytical procedures include an acid leach with the various elements Cu-Mo-Au- and Ag determined from solution by Atomic Absorption Methods.

A summary of the drill holes is as follows:

Hole #	Core Size	Inclination	Azimuth	Collar Elevation	Hole Length	Date Started	Date Completed
36-81	BQ	-51°	90°	3120'	93.6 m.	June 21 -	June 28/81
37-81	BQ	-90°	--	3190'	239.9 m.	June 30 -	July 8/81

The purpose of the drill program was to investigate a strong induced polarization anomaly peripheral to the known Ox Lake Cu-Mo mineral zone and to test for possible entensions of the Ox Lake zone to the south and southwest.

DDH 36-81 was collared near to DDH 33-69 and was drilled east at an inclination of -51° to a final depth of 93.6 meters. (Figure 4) The drill penetrated andesite, andesite breccia, porphyritic granodiorite, feldspar porphyry, gabbro, a fault zone and hornfelsed sedimentary rocks of the Hazelton Group before entering into a porphyritic Quartz Monzonite at 68.9 meters.

Weak chalcopyrite-molybdenite mineralization along with variable amounts of pyrite and rarely pyrrhotite occur as finely disseminated grains, throughout various rock types, as sulfide coatings on dry fractures and as constituents of quartz-calcite veins cons-

tituting an irregular but pervasive weakly developed vein stockwork. No Cu-Mo mineralization of economic importance was encountered in drilling the hole.

Alteration of the rocks within hole 36-81 is noted as intense argillic and moderately propylitic and chloritic. Secondary biotite is prominently developed as is silicification locally in all rocks.

Strong faulting encountered in hole 36-81 between marks 42.5 and 45.4 meters, appears to co-orelate with a strong north-south, steeply inclined fault which traverses Ox Lake.

DDH 37-81 (Figure 5) collared and drilled vertically to a depth of 239.9 meters at a location S68^{o}W from DDH 36-81 and 152 meters distant. Rocks drilled consists of hornfelsed and pyritic banded siltstones and graywackes of the Hazelton Group which overly and underly a massive feldspar porphyry sill like body between marks 130.3 and 151.8 meters. The same sill like body also was previously penetrated by hole 34.69 between marks 110.4 and 137.8 meters. Local brecciation occurs within the hornfelsed sections and intense silicification and moderate chloritization is noted locally. A weakly developed quartz vein stockwork carries sporadic amounts of chalcopyrite and or molybdenite in addition to pyrite. However, no Cu-Mo mineralization of economic importance was encountered as a result of drilling hole 37-81.

CONCLUSIONS

Drilling of holes 36-81 and 37-81 resulted in the finding of sufficient pyrite in the rocks peripheral to the south and southwest side of the Ox Lake mineral zone, to explain the strong I.P.

anomaly and to more or less dilineate the Ox Lake mineral zone on the south and southwest side. No Cu-Mo mineralization of economic importance was disclosed by the recent drilling.

D. H. Olson
8 Oct. 1981

REFERENCES

Sutherland-Brown, A. 1969 GEM, Ox Lake Property

BCDM GEM 1971, page 146; 1977, page E184

BCDM Assessment report 6506

BCDM, MMAR 1968, page 141

Annual Report, Silver Standard Mines, 1964

APPENDIX "A"

EXPENDITURES - OX LAKE PROPERTY

Drilling -	B. Mathieu Drilling, Merritt, B.C.		
	DDH 36-81, 37-81 totaling 807 feet @ $22/ft. and 287 feet @ $24/ft.	$24,642.00	
	Mobilization and demobilization - Merritt to Ox Lake to Merritt, B.C.	5,165.00	
	Supplies - Super poly mud, core boxes, lids etc.	2,606.00	
	Camp allowance	500.00	$32,913.00
Rotary Wing Charter -	Highland Helicopters Ltd., Vancouver, B.C.		
	June 21/81 - 6.2 hrs. @ $315/hr. & fuel and oil	2,049.00	
	June 24/81 - 1.5 hrs. @ $315/hr. & fuel and oil	538.50	
	July 9/81 - 5.9 hrs. @ $315/hr. & fuel and oil	2,159.10	
	Jet B Fuel - 3 drums and delivery	369.57	5,116.17
Assaying -	Acme Analytical Laboratories Ltd. - Vancouver, B.C.		
	100 BQ core samples for Cu, Mo, Au & Ag @ $17.00 each		1,700.00
Wages -	C. Robertson - June 2-4,6-8,21, & July 9/91		
	8 days @ $49.92/day	399.36	
	J. Schreiter - June 2-4,21-23,25-30 & July 1-9/81		
	21 days @ $49.92/day	1,048.32	
	D. Olson - June 2-4,6-9,20-23,25-30 & July 1-10/81		
	26 days @ $143.25/day	3,724.50	
	G. Arseneau - June 2-4,21 & July 9/81		
	5 days @ $83.20/day	416.00	5,588.18
Travel -	Air - D. Olson - Vancouver to Smithers & return		
	June 1 and July 9/81	218.15	
	Motel - C. Robertson , J. Schreiter and G. Arseneau		
	June 1 & 2, July 9/81	210.94	
	Motel - D. Olson June 2 & July 9/81	55.12	
	Travel Expense - Meals, Supplies etc.	758.00	
	Truck Rental - Cana Rentals Ltd.		
	Vancouver to Smithers	210.72	
	Redhawk - 4 days & tax	113.07	
	Mileage - 2300 km @ 10¢	230.00	
	Fuel and oil for trucks	150.00	1,946.00
Expediting -	Bema Industries Ltd. - Smithers, B.C.		971.21

Camp Subsistance (Super-Valu)	1,422.53
Supplies - Power saw gas, oil, files, hardware, flagging, sample bags etc.	607.40
Report Preparation - D. Olson	500.00
	$50,764.49

D. H. Olson
8 Oct. 1981

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. H. OLSON

APPENDIX "B"

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone:253 - 3158

To: Asarco Exploration Co. of Canada Ltd,
504 - 535 Thurlow St.,
Vancouver, B.C.
V6E 3L2

File No. 81-0706 B
Type of Samples Core
Disposition

ASSAY CERTIFICATE

No.	Sample	Mo%	Cu%	Ag oz/ton	Au oz/ton				No.
1	032801	.008	.16	.01	.002				1
2	032802	.013	.13	.01	.001				2
3	032803	.003	.25	.01	.003				3
4	032804	.014	.15	.01	.001				4
5	032805	.023	.13	.01	.001				5
6	032806	.013	.14	.01	.001				6
7	032807	.025	.16	.01	.002				7
8	032808	.013	.18	.10	.001				8
9	032809	.009	.11	.01	.001				9
10	032810	.004	.10	.01	.001				10
11	032811	.006	.08	.01	.001				11
12	032812	.003	.08	.01	.002				12
13	032813	.001	.01	.01	.001				13
14	032814	.001	.01	.01	.001				14
15	032815	.001	.01	.01	.001				15
16	032816	.001	.01	.01	.001				16
17	032817	.001	.01	.01	.002				17
18	032818	.001	.01	.01	.001				18
19									19
20									20

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ASSAYER

DEAN TOYE, B.Sc.
CHIEF CHEMIST
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852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone:253 - 3158

To: Asarco Exploration Co. of Canada Ltd.,
504 - 535 Thurlow St.,
Vancouver, B.C.
V6E 3L2

File No. 81-0745
Type of Samples DD Core
Disposition

ASSAY CERTIFICATE

Attn.: Mr. D.H. Olson

No.	Sample	Mo%	Cu%	Ag oz/ton	Au oz/ton				No.
1	032819	.001	.01	.01	.001				1
2	032820	.001	.01	.01	.001				2
3	032821	.001	.01	.01	.001				3
4	032822	.001	.01	.01	.001				4
5									5
6	032828	.001	.04	.01	.001				6
7	032829	.001	.05	.01	.001				7
8	032830	.001	.04	.01	.001				8
9	032831	.001	.04	.01	.001				9
10	032832	.001	.01	.01	.001				10
11	032833	.001	.01	.01	.001				11
12	032834	.001	.01	.01	.001				12
13	032835	.001	.03	.01	.001				13
14	032836	.001	.03	.01	.001				14
15	032837	.001	.06	.01	.001				15
16	032838	.001	.04	.01	.001				16
17	032839	.001	.03	.01	.001				17
18	032840	.001	.06	.01	.001				18
19	032841	.002	.09	.01	.001				19
20									20

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Type of Samples DD Core

Disposition

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2

No.	Sample	Mo%	Cu%	Ag oz/ton	Au oz/ton				No.
1	032842	.002	.03	.01	.001				1
2	032843	.002	.04	.01	.001				2
3	032844	.001	.02	.01	.001				3
4	032845	.001	.01	.01	.001				4
5									5
6	032847	.001	.03	.01	.001				6
7	032848	.001	.02	.01	.001				7
8	032849	.001	.01	.01	.001				8
9	032850	.001	.01	.01	.001				9
10	032851	.002	.04	.01	.001				10
11	032852	.001	.11	.01	.001				11
12	032853	.001	.05	.01	.001				12
13	032854	.002	.04	.01	.001				13
14	032855	.002	.06	.01	.001				14
15	032856	.001	.06	.01	.001				15
16	032857	.001	.03	.01	.001				16
17	032858	.001	.05	.01	.001				17
18	032859	.001	.03	.01	.001				18
19	032860	.001	.01	.01	.001				19
20	032861	.001	.02	.01	.001				20

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File No. 81-0745

Type of Samples DD Core

Disposition

ASSAY CERTIFICATE

No.	Sample	Mo%	Cu%	Ag oz/ton	Au oz/ton				No.
1	032862	.001	.04	.01	.001				1
2	032863	.002	.03	.01	.001				2
3	032864	.005	.04	.01	.001				3
4	032865	.001	.03	.01	.001				4
5	032866	.001	.02	.01	.001				5
6	032867	.001	.03	.01	.001				6
7	032868	.002	.01	.01	.001				7
8	032869	.003	.01	.01	.001				8
9	032870	.001	.01	.01	.001				9
10	032871	.003	.01	.01	.001				10
11	032872	.001	.01	.01	.001				11
12	032873	.002	.01	.01	.001				12
13	032874	.008	.01	.01	.001				13
14	032875	.001	.07	.01	.001				14
15	032876	.001	.06	.01	.001				15
16	032877	.002	.02	.01	.001				16
17	032878	.001	.05	.01	.001				17
18	032879	.002	.05	.01	.001				18
19	032880	.001	.03	.01	.001				19
20									20

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File No. 81-0745

Type of Samples DD Core

Disposition

ASSAY CERTIFICATE

4

No.	Sample	Mo%	Cu%	Ag oz/ton	Au oz/ton				No.
1	032881	.001	.02	.03	.001				1
2	032882	.005	.05	.01	.001				2
3	032883	.002	.04	.01	.001				3
4	032884	.002	.04	.02	.001				4
5	032885	.001	.02	.01	.001				5
6	032886	.001	.01	.01	.001				6
7	032887	.004	.04	.01	.001				7
8	032888	.005	.05	.02	.001				8
9	032889	.003	.06	.02	.001				9
10	032890	.001	.05	.01	.001				10
11	032891	.002	.05	.01	.001				11
12	032892	.003	.05	.01	.001				12
13	032893	.004	.04	.01	.001				13
14	032894	.001	.04	.01	.001				14
15	032895	.004	.05	.01	.001				15
16	032896	.001	.02	.01	.001				16
17	032897	.002	.03	.01	.001				17
18	032898	.001	.02	.01	.001				18
19	032899	.001	.03	.01	.001				19
20									20

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PROVINCE OF BRITISH COLUMBIA
D. H. OLSON

D H Olson
8 Oct 1981

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Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone:253 - 3158

To: Asarco Exploration Co. of Canada Ltd.,

81-0745

File No. _____

ASSAY CERTIFICATE

Type of Samples DD Core

Disposition _____

No.	Sample	Mo%	Cu%	Ag oz/ton	Au oz/ton				No.
1	032900	.001	.01	.01	.001				1
2	032901	.001	.01	.01	.001				2
3	032902	.001	.01	.02	.001				3
4	032903	.001	.01	.01	.001				4
5									5
6									6
7									7
8									8
9									9
10									10
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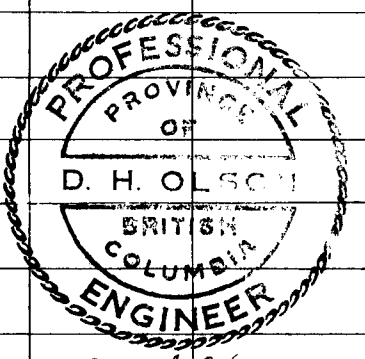
20									20



D H Olson
B C C.E. 1981

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ASSAYER _____

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

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone:253 - 3158

To: Asarco Exploration Co. of Canada Ltd.,
504 - 535 Thurlow St.,
Vancouver, B.C.
V6E 3L2

File No. 81-0747 B

Type of Samples Rocks

Disposition

ASSAY CERTIFICATE

Attn.: Mr. M. Lancaster

No.	Sample	Cu%	Ag oz/ton	Au oz/ton					No.
1	076079	.25	.10	.004					1
2	076080	.04	.01	.001					2
3	076081	.01	.01	.001					3
4	076082	.01	.01	.001					4
5	076083	.01	.01	.001					5
6	076084	.01	.02	.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

PROFESSIONAL ENGINEER
PROVINCE OF
D. H. OLSON
BRITISH COLUMBIA

8 Oct. 1981

All reports are the confidential property of clients.

DATE SAMPLES RECEIVED July 11, 1981

DATE REPORTS MAILED July 21, 1981

ASSAYER

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

CLAIM NO. Ox 5 (62388)

DIAMOND DRILL RECORD

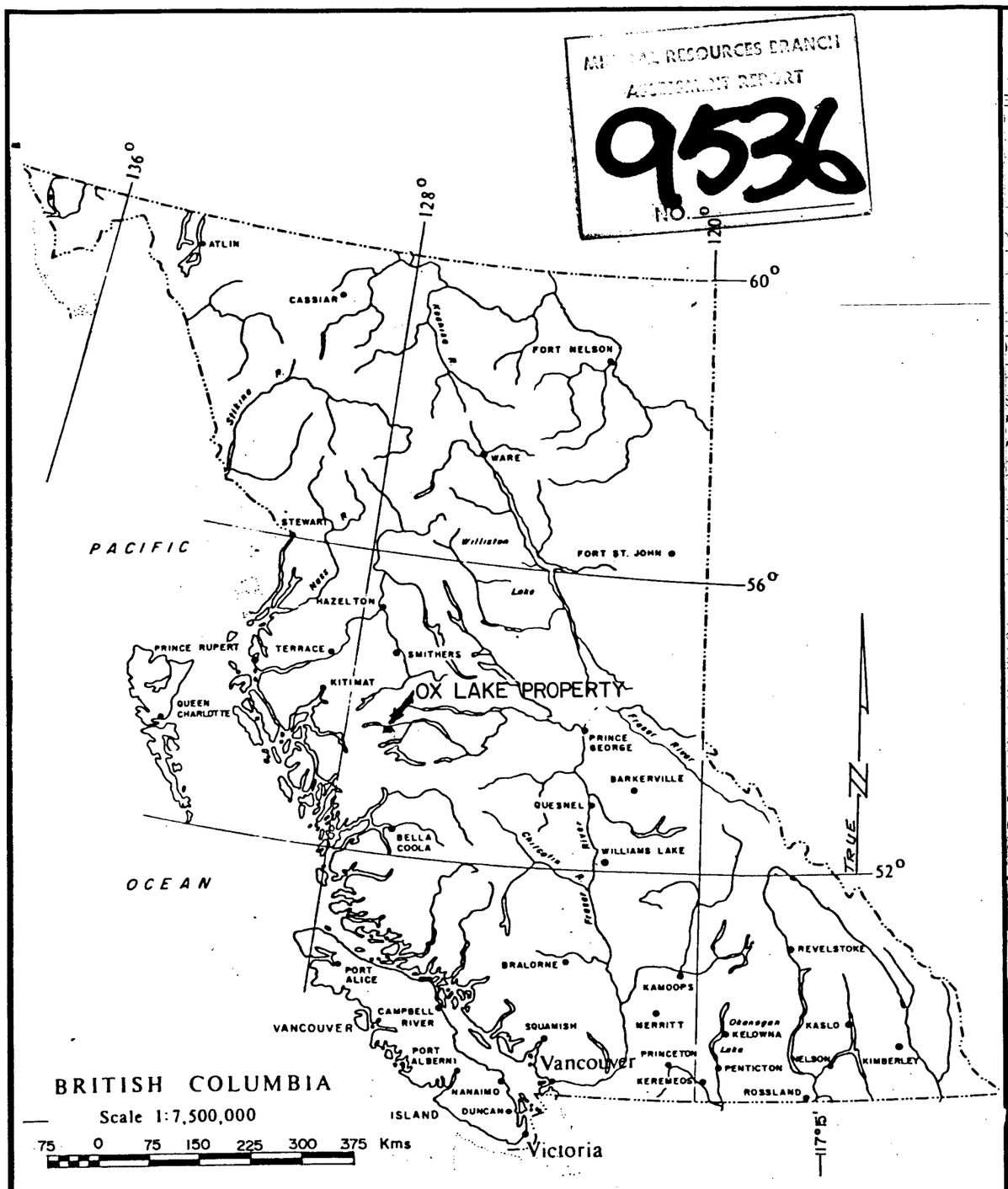
APPENDIX "C"

PROPERTY OX LAKE HOLE NO. 36-81

LATITUDE ELEVATION 951.2 m(3120') BEARING East DEPTH 93.6 m (307') STARTED June 21, 1981 COMPLETED June 28, 1981

DEPARTURE SECTION DIP -51° DRILLED BY B. Mathieu Drilling Ltd. LOGGED BY D. H. Olson

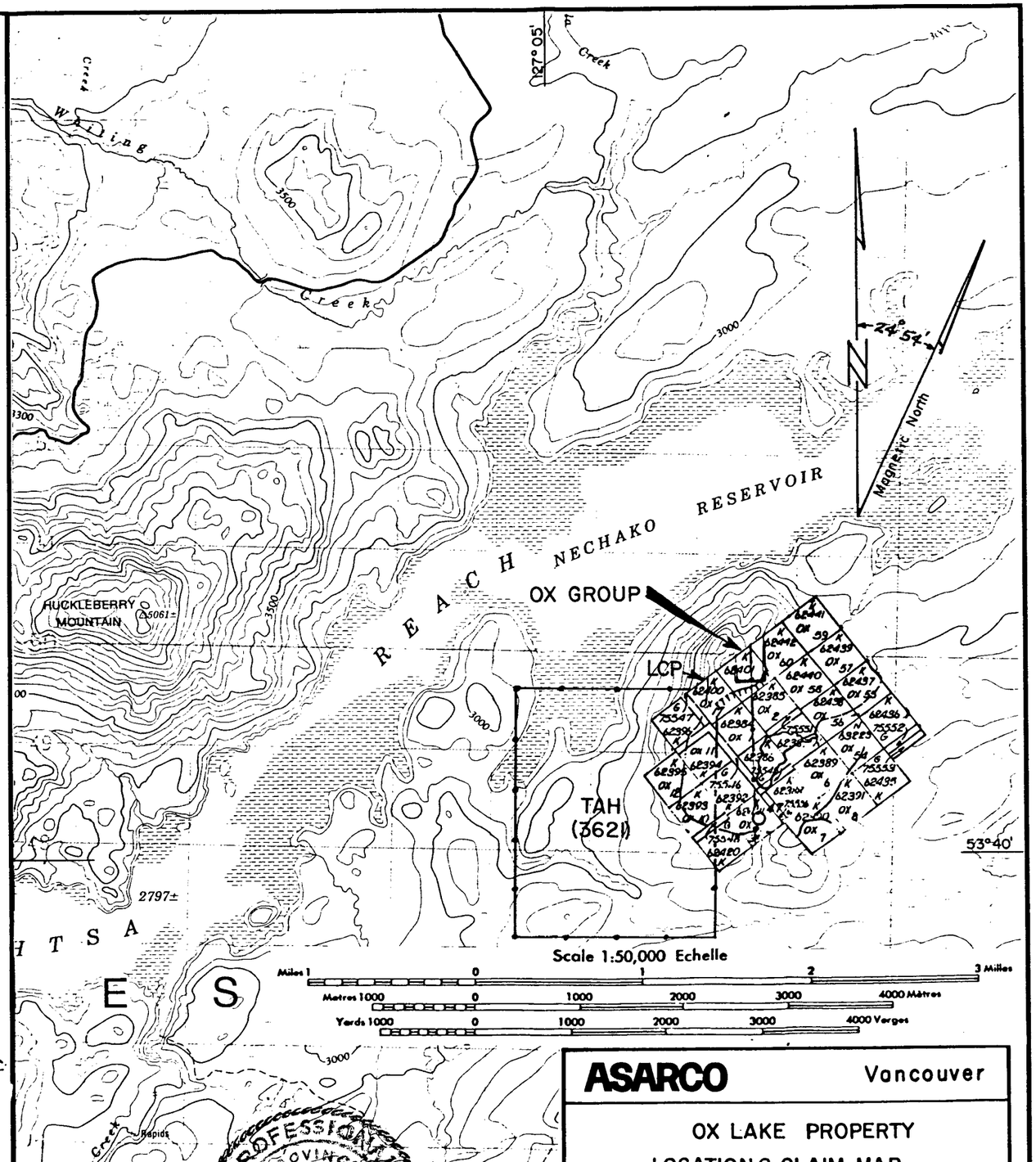
DEPTH meters	FORMATION	SAMPLE NO.	FROM meters	TO meters	WIDTH meters	ASSAYS % Cu	% Mo	oz.Ag/t	oz. Au
0 - 29	Overburden								
0 - 29	Casing for BQ rods and drill core.								
29 - 30	Andesite - medium grained, medium-grey; weakly epidotized, hornfelsed and fractured 60° and 30° to core. Pyrite as disseminated grains and fracture coatings is estimated at 1 - 2 % by volume.	32801	29.0	30.5	1.5	.16	.008	.01	.002
30 - 33.5	Porphyritic granodiorite - medium to coarse grained and biotitic. Prominent orthoclase feldspars up to 6 mm. Weak pyrite mineralization is noted (1%). Irregular upper and lower contacts 30° to 50° to the core. Hornfelsed inclusions up to 2" are noted within the granodiorite.	32802	30.5	33.5	3.0	.13	.013	.01	.001
33.5 - 35.8	Andesite - dark grey, fine grained, weakly epidotized and strongly pyritized. Strongly pyritic with trace chalcopyrite.	32803	33.5	36.6	3.1	.25	.003	.01	.003
35.8 - 36.3	Andesite dike - dark grey-green and fine grained.								
36.3 - 37.2	Feldspar porphyry dike - dark grey, medium grained with white feldspars to 4 mm. and prominent biotite phenocrysts from 2 - 4 mm. in size. Strong argillic alteration is noted. Trace of molybdenite with pyrite occurs in 0.5 mm. quartz veinlets.	32804	36.6	39.6	3.0	.15	.014	.01	.001



BRITISH COLUMBIA

Scale 1:7,500,000

75 0 75 150 225 300 375 Kms



ASARCO	Vancouver			
OX LAKE PROPERTY LOCATION & CLAIM MAP				
OMINECA M.D.			OX LAKE AREA	
Drawn by	Date	N.T.S.		Figure
D.H.O.	OCT/81	93E/11E		1

PROFESSIONAL ENGINEER
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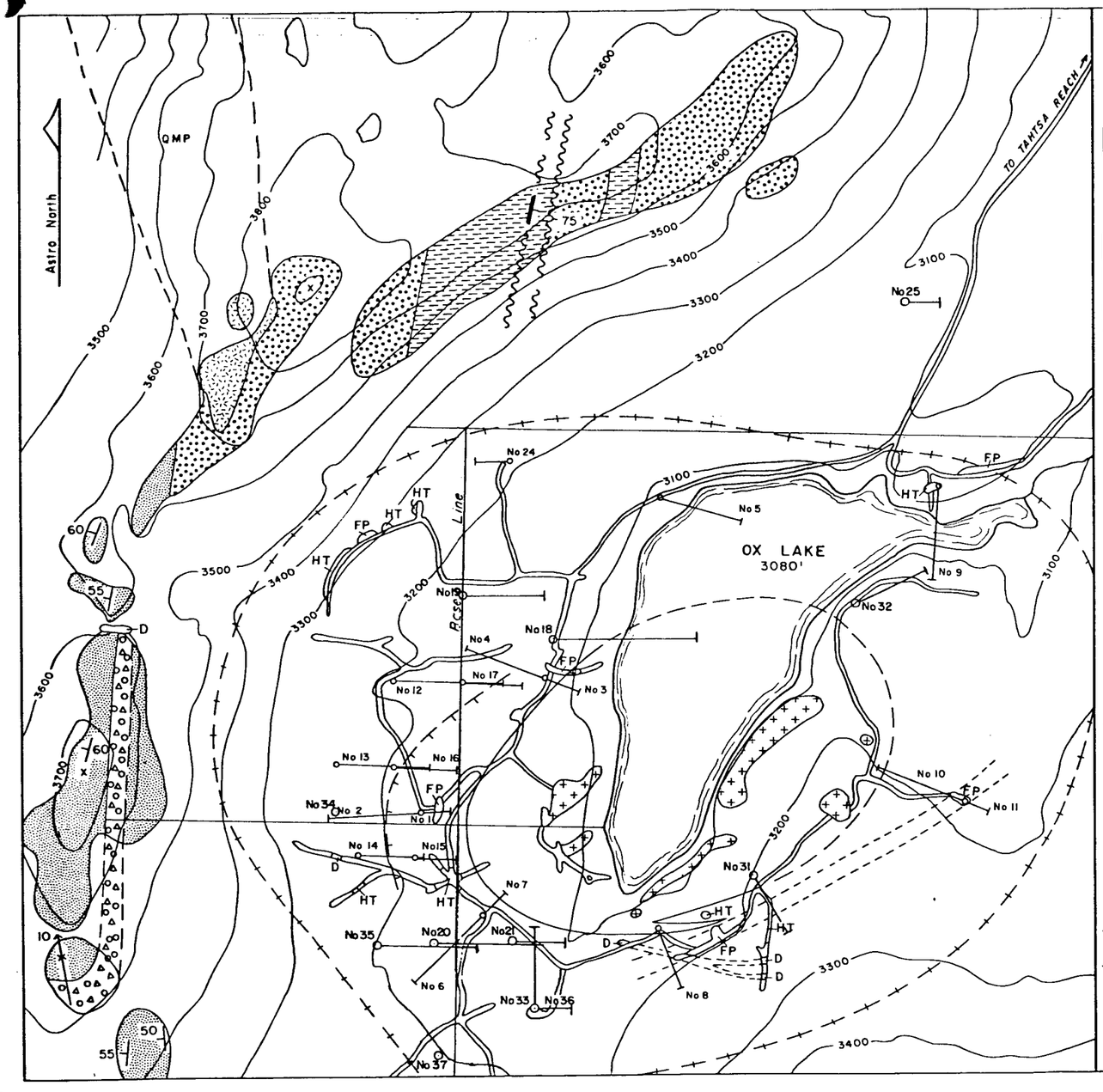
D. H. OLSON
82nd 1981

VanCal

Figure 17

OX LAKE PROPERTY



LEGEND

- D — Diabase

EARLY TERTIARY ?

OX LAKE PLUTON

- Granodiorite porphyry
- QMP — Quartz monzonite porphyry pluton
- FP — Feldspar porphyry dykes

JURASSIC

HAZELTON GROUP

- Volcanic sandstone and pebbly sandstone
- Fanglomerate
- Lapilli tuff
- Very fine tuff or siltstone
- HT — Hornfelsic equivalent

SCALE 0 500 1000 FEET
0 50 100 200 300 METERS

- Margin of intense pyrite halo
- Surface margin of main mineralized body
- Vein
- Drill holes
- Bulldozer cuts and trails
- Outcrop
- Geological contact, approximate
- 3100 — Contour interval 100 feet

8 Oct. 1981

NOTE: Map and Geology after A.Sutherland Brown, GEM-1969. Revised Oct. 1981 by D.H.Olson.

ASARCO Vancouver

OX LAKE PROPERTY
GEOLOGY

OMINECA M.D. OX LAKE AREA

Drawn by	Date	N.T.S.		Figure
D.H.O.	OCT/81	93E/11E		3

DDH 37-81
-90°

Sample No.	Core Lgth. (meters)	% Cu	% Mo	Oz. Ag/T	Oz Au/T.
032828	1.5	.04	.001	.01	.001
032829	3.1	.05	.001	.01	.001
032830	3.0	.04	.001	.01	.001
032831	3.1	.04	.001	.01	.001
032832	3.0	.01	.001	.01	.001
032833	3.1	.01	.001	.01	.001
032834	3.0	.01	.001	.01	.001
032835	3.1	.03	.001	.01	.001
032836	3.0	.03	.001	.01	.001
032837	3.1	.06	.001	.01	.001
032838	3.0	.04	.001	.01	.001
032839	3.1	.03	.001	.01	.001
032840	3.0	.06	.001	.01	.001
032841	3.1	.09	.001	.01	.001
032842	3.0	.03	.002	.01	.001
032843	3.1	.04	.002	.01	.001
032844	3.0	.02	.001	.01	.001
032845	3.1	.01	.001	.01	.001
032847	3.0	.03	.001	.01	.001
032848	3.1	.02	.001	.01	.001
032849	3.0	.01	.001	.01	.001
032850	3.1	.01	.001	.01	.001
032851	3.0	.04	.002	.01	.001
032852	3.1	.11	.001	.01	.001
032853	3.0	.05	.001	.01	.001
032854	3.1	.04	.002	.01	.001
032855	3.0	.06	.002	.01	.001
032856	3.1	.06	.001	.01	.001
032857	3.0	.03	.001	.01	.001
032858	3.1	.05	.001	.01	.001
032859	3.0	.03	.001	.01	.001
032860	3.1	.01	.001	.01	.001
032861	3.0	.01	.001	.01	.001
032862	3.1	.04	.001	.01	.001
032863	3.0	.03	.002	.01	.001
032864	3.1	.04	.005	.01	.001
032865	3.0	.03	.001	.01	.001
032866	3.1	.02	.001	.01	.001
032867	3.0	.03	.001	.01	.001
032868	3.1	.01	.002	.01	.001
032869	3.0	.01	.003	.01	.001
032870	3.1	.01	.001	.01	.001
032871	3.0	.01	.003	.01	.001
032872	3.1	.01	.001	.01	.001
032873	3.0	.01	.002	.01	.001
032874	3.1	.01	.008	.01	.001
032875	3.0	.07	.001	.01	.001
032876	3.1	.06	.001	.01	.001
032877	3.0	.02	.002	.01	.001
032878	3.1	.05	.001	.01	.001
032879	3.0	.05	.002	.01	.001
032880	3.1	.03	.001	.01	.001
032881	3.0	.02	.001	.03	.001
032882	3.1	.05	.005	.01	.001
032883	3.0	.04	.002	.01	.001
032884	3.1	.04	.002	.02	.001
032885	3.0	.02	.001	.01	.001
032886	3.1	.01	.001	.01	.001
032887	3.0	.04	.004	.01	.001
032888	3.1	.05	.005	.02	.001
032889	3.0	.06	.003	.02	.001
032890	3.1	.05	.001	.01	.001
032891	3.0	.05	.002	.01	.001
032892	3.1	.05	.003	.01	.001
032893	3.0	.04	.004	.01	.001
032894	3.1	.04	.001	.01	.001
032895	3.0	.05	.004	.01	.001
032896	3.1	.02	.001	.01	.001
032897	3.0	.03	.002	.01	.001
032898	3.1	.02	.001	.01	.001
032899	3.0	.03	.001	.01	.001
032900	3.1	.01	.001	.01	.001
032901	3.0	.01	.001	.01	.001
032902	3.1	.01	.001	.02	.001
032903	2.0	.01	.001	.01	.001

0-13.7m-Overburden.

20.4-23.5m. breeciated

Elev. 950m.

13.7-83.4m.-Horn fels.

83.4-84.7m.-breeciated horn fels.

84.7-130.3 m.-Horn fels

130.3-151.8 m-Feldspar Porphyry

Fault

151.8-219.8m-Horn fels.

219.8-238.9 m.-Fragmental greywacke or tuff.

238.9-239.9 m.-Horn fels.

239.9 m. (787')

0 5 10 20 30 Meters
0 20 40 80 120 Feet
SCALE

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. H. OLSON

8 Oct. 1981
D. H. Olson

ASARCO Vancouver

OX LAKE PROPERTY
VERTICAL X-SECTION THRU DDH 37-81,
LOOKING NORTH
OMINECA M.D. OX LAKE AREA

Drawn by	Date	N.T.S.		Figure
D.H.O.	OCT. /81	93E/11E		5

CLAIM NO. ..... **DIAMOND DRILL RECORD** PROPERTY ..... HOLE NO. 36-81

LATITUDE ..... ELEVATION ..... BEARING ..... DEPTH ..... STARTED ..... COMPLETED .....

DEPARTURE ..... SECTION ..... DIP ..... DRILLED BY ..... LOGGED BY .....

DEPTH meters	FORMATION	SAMPLE NO.	FROM meters	TO meters	WIDTH meters	ASSAYS % Cu	% Mo	oz.Ag/t	oz.Au
68.9 - 93.6	Porphyritic Quartz Monzonite - light grey, equigranular, Silicified and	32815	70.1	73.2	3.1	.01	.001	.01	.001
	hornfelsed in part (brown patches). Locally the rock is strongly shatter-	32816	73.2	76.2	3.0	.01	.001	.01	.001
	ed and brecciated eg. (73.6 - 75.3 meters.) Pyrite and pyrrhotite occur	32817	76.2	79.3	3.1	.01	.001	.01	.002
	as disseminated grains and fracture coatings to an estimated volume of	32818	79.3	82.3	3.0	.01	.001	.01	.001
	1 - 2% overall. Fractures at 30°, 45° and 50° to the core occur at 0.5	32819	82.3	85.4	3.1	.01	.001	.01	.001
	meter intervals.	32820	85.4	88.4	3.0	.01	.001	.01	.001
		32821	88.4	91.5	3.1	.01	.001	.01	.001
	END OF HOLE	32822	91.5	93.6	2.1	.01	.001	.01	.001

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. H. OLSON

D. H. Olson
8 Oct. 1981

CLAIM NO.....

DIAMOND DRILL RECORD

PROPERTY .....

HOLE NO. 36-81

LATITUDE ..... ELEVATION ..... BEARING ..... DEPTH ..... STARTED ..... COMPLETED .....

DEPARTURE ..... SECTION ..... DIP ..... DRILLED BY ..... LOGGED BY .....

DEPTH meters	FORMATION	SAMPLE NO.	FROM meters	TO meters	WIDTH meters	ASSAYS % Cu	% Mo	oz.Ag/t	oz.Au
37.2 - 39.3	Fault Zone derived from brecciated andesite, medium-grey.								
39.3 - 42.5	Andesite - brecciated and mottled. Weakly veined with quartz-calcite	32805	39.6	42.7	3.1	.13	.023	.01	.001
	veinlets carrying molybdenite. An occasional dry fracture coated with								
	molybdenite is noted.								
42.5 - 45.4	Fault Zone - Clay gouge with a few rock chips carrying molybdenite.	32806	42.7	45.7	3.0	.14	.013	.01	.001
45.4 - 52.9	Hornfels - grey-green and brown. The rock is brecciated, strongly frac-	32807	45.7	48.8	3.1	.16	.025	.01	.002
	tured and silicified. Irregular quartz veinlets carry molybdenite up to	32808	48.8	51.8	3.0	.18	.013	.10	.001
	an estimated 0.15% Mo. Color banding at mark 46.6 meters is 80° to core.	32809	51.8	52.9	1.1	.11	.009	.01	.001
	Rock very broken from 48.2 to 50.0 meters and shows visible sphalerite in								
	quartz veinlets up to 8 mm. in width.								
52.9 - 54.7	Gabbro dike - dark-grey, fine grained. Dike rock contains inclusions of								
	silicified and subrounded fragments of a dark-grey porphyritic rock up to								
	3 cm. in size. The dike rock is calcareous. Lower dike contact 50° to								
	core.	32810	54.7	57.9	3.2	.10	.004	.01	.001
54.7 - 68.9	Hornfels as from 45.4 to 52.9 meters. Pyrite with a trace of chalcopyrite	32811	57.9	61.0	3.1	.08	.006	.01	.001
	as disseminated grains and fracture coatings approaching 2 - 4 % by	32812	61.0	64.0	3.0	.08	.003	.01	.002
	volume. Throughout section rock is strongly shattered, brecciated, and	32813	64.0	67.1	3.1	.01	.001	.01	.001
	silicified. Trace molybdenite is noted.	32814	67.1	70.1	3.0	.01	.001	.01	.001

DIAMOND DRILL RECORD

CLAIM NO. Ox 9 (62392) PROPERTY Ox Lake HOLE NO. 37-81

LATITUDE ELEVATION 972.6 m.(3190') BEARING - DEPTH 239.9 m. (787') STARTED June 30, 1981 COMPLETED July 8, 1981

DEPARTURE SECTION DIP -90° DRILLED BY B. Mathieu Drilling Ltd. LOGGED BY D. H. Olson

DEPTH meters	FORMATION	SAMPLE NO.	FROM meters	TO meters	WIDTH meters	ASSAYS % Cu	% Mo	oz.Ag/t	oz.Au
0 - 13.7	Overburden								
0 - 13.7	Casing for BQ rods and drill core.								
13.7 - 83.4	Hornfels - grey green to grey and locally light-brown; distinctly banded	32828	13.7	15.2	1.5	.04	.001	.01	.001
	at 50-55° to core, fine grained and well pyritized.. Pyrite occurs as	32829	15.2	18.3	3.1	.05	.001	.01	.001
	irregular patches, dissemminated grains and irregular stringers 30 - 50°	32830	18.3	21.3	3.0	.04	.001	.01	.001
	to core. Rock is strongly fractured. Fractures are chloritic and often	32831	21.3	24.4	3.1	.04	.001	.01	.001
	accompanied by epidote. From 20.4 to 23.5 meters, rock is strongly	32832	24.4	27.4	3.0	.01	.001	.01	.001
	brecciated and pyritized. (5-6% by volume). Minor chalcopyrite at 29.9	32833	27.4	30.5	3.1	.01	.001	.01	.001
	meters and weak molybdenite mineralization at 73.2 meters is noted.	32834	30.5	33.5	3.0	.01	.001	.01	.001
	Propylitic alteration along fracture planes and local silicification is	32835	33.5	36.6	3.1	.03	.001	.01	.001
	noted.	32836	36.6	39.6	3.0	.03	.001	.01	.001
		32837	39.6	42.7	3.1	.06	.001	.01	.001
		32838	42.7	45.7	3.0	.04	.001	.01	.001
		32839	45.7	48.8	3.1	.03	.001	.01	.001
		32840	48.8	51.8	3.0	.06	.001	.01	.001
		32841	51.8	54.9	3.1	.09	.002	.01	.001
		32842	54.9	57.9	3.0	.03	.002	.01	.001
		32843	57.9	61.0	3.1	.04	.002	.01	.001
		32844	61.0	64.0	3.0	.02	.001	.01	.001
		32845	64.0	67.1	3.1	.01	.001	.01	.001

CLAIM NO. ..... **DIAMOND DRILL RECORD** PROPERTY ..... HOLE NO. 37-81

LATITUDE ELEVATION BEARING DEPTH STARTED COMPLETED

DEPARTURE SECTION DIP DRILLED BY LOGGED BY

DEPTH meters	FORMATION	SAMPLE NO.	FROM meters	TO meters	WIDTH meters	ASSAYS % Cu	% Mo	oz.Ag/t	oz.Au
		32847	67.1	70.1	3.0	.03	.001	.01	.001
		32848	70.1	73.2	3.1	.02	.001	.01	.001
		32849	73.2	76.2	3.0	.01	.001	.01	.001
		32850	76.2	79.3	3.1	.01	.001	.01	.001
		32851	79.3	82.3	3.0	.04	.002	.01	.001
		32852	82.3	85.4	3.1	.11	.001	.01	.001
83.4 - 84.7	Brecciated hornfels - medium grey-green with light tan fragments to 8 mm.	32853	85.4	88.4	3.0	.05	.001	.01	.001
	Rock heavily pyritized (20% by volume estimated). Color banding 20° to	32854	88.4	91.5	3.1	.04	.002	.01	.001
	core.	32855	91.5	94.5	3.0	.06	.002	.01	.001
84.7 -130.3	Hornfels - fine grained, light grey to tan and dark brown, well banded	32856	94.5	97.6	3.1	.06	.001	.01	.001
	60° to 70° to core, locally silicified, brecciated, and well pyritized to	32857	97.6	100.6	3.0	.03	.001	.01	.001
	5-6% by volume. Hornfels derived from siltstones, greywacke, arkose,	32858	100.6	103.7	3.1	.05	.001	.01	.001
	sandstone and fragmental tuffaceous rocks. Rock becomes more siliceous	32859	103.7	106.7	3.0	.03	.001	.01	.001
	near to the underlying feldspar porphyry contact.	32960	106.7	109.8	3.1	.01	.001	.01	.001
		32961	109.8	112.8	3.0	.01	.001	.01	.001
		32962	112.8	115.9	3.1	.04	.001	.01	.001
		32963	115.9	118.9	3.0	.03	.002	.01	.001
		32964	118.9	122.0	3.1	.04	.005	.01	.001
		32965	122.0	125.0	3.0	.03	.001	.01	.001
		32966	125.0	128.1	3.1	.02	.001	.01	.001

CLAIM NO. ..... **DIAMOND DRILL RECORD** PROPERTY ..... HOLE NO. 37-81

LATITUDE ..... ELEVATION ..... BEARING ..... DEPTH ..... STARTED ..... COMPLETED .....

DEPARTURE ..... SECTION ..... DIP ..... DRILLED BY ..... LOGGED BY .....

DEPTH meters	FORMATION	SAMPLE NO.	FROM meters	TO meters	WIDTH meters	ASSAYS % Cu	% Mo	oz.Ag/t	oz.Au
		32867	128.1	131.1	3.0	.03	.001	.01	.001
130.3-151.8	Feldspar porphyry sill, medium grained, medium grey in color, non equi-	32868	131.1	134.2	3.1	.01	.002	.01	.001
	granular with prominent white feldspar phenocrysts ranging from 1 - 5 mm.	32869	134.2	137.2	3.0	.01	.003	.01	.001
	The rock is traversed by bluish quartz veins up to 8 mm., which carry	32870	137.2	140.3	3.1	.01	.001	.01	.001
	pyrite and weak molybdenite. Indistinct upper contact more or less	32871	140.3	143.3	3.0	.01	.003	.01	.001
	parallel to color banding, 75° to core. Porphyry is moderately fractured,	32872	143.3	146.4	3.1	.01	.001	.01	.001
	silicified and chloritized.	32873	146.4	149.4	3.0	.01	.002	.01	.001
		32874	149.4	152.5	3.1	.01	.008	.01	.001
151.8-219.8	Hornfels - fine grained, greenish-grey to medium and dark brown in color.	32875	152.5	155.5	3.0	.07	.001	.01	.001
	Upper portion of section to 154 meters very siliceous and chloritic.	32876	155.5	158.6	3.1	.06	.001	.01	.001
	Contact with overlying porphyry 70° to core. Hornf locally well banded	32877	158.6	161.6	3.0	.02	.002	.01	.001
	75° - 80° to core. Very weak molybdenite and chalcopyrite is associated	32878	161.6	164.7	3.1	.05	.001	.01	.001
	with pyrite in a weakly developed quartz vein stockwork. Visible light	32879	164.7	167.7	3.0	.05	.002	.01	.001
	brown sphalerite is noted at 156.5 and 169 meters. Pyrite throughout	32880	167.7	170.8	3.1	.03	.001	.01	.001
	the section is estimated at 4 to 5% by volume.	32881	170.8	173.8	3.0	.02	.001	.03	.001
		32882	173.8	176.9	3.1	.05	.005	.01	.001
		32883	176.9	179.9	3.0	.04	.002	.01	.001
		32884	179.9	183.0	3.1	.04	.002	.02	.001
		32885	183.0	186.0	3.0	.02	.001	.01	.001
		32886	186.0	189.1	3.1	.01	.001	.01	.001

CLAIM NO. .....

DIAMOND DRILL RECORD

PROPERTY .....

HOLE NO. 37-81

LATITUDE | ELEVATION | BEARING | DEPTH | STARTED | COMPLETED

DEPARTURE | SECTION | DIP | DRILLED BY | LOGGED BY

DEPTH meters	FORMATION	SAMPLE NO.	FROM meters	TO meters	WIDTH meters	ASSAYS % Cu	% Mo	oz.Ag/t	oz.Au
		32887	189.1	192.1	3.0	.04	.004	.01	.001
		32888	192.1	195.2	3.1	.05	.005	.02	.001
		32889	195.2	198.2	3.0	.06	.003	.02	.001
		32890	198.2	201.3	3.1	.05	.001	.01	.001
		32891	201.3	204.3	3.0	.05	.002	.01	.001
		32892	204.3	207.4	3.1	.05	.003	.01	.001
		32893	207.4	210.4	3.0	.04	.004	.01	.001
		32894	210.4	213.5	3.1	.04	.001	.01	.001
		32895	213.5	216.5	3.0	.05	.004	.01	.001
		32896	216.5	219.6	3.1	.02	.001	.01	.001
219.8-238.9	Fragmental greywacke or tuff-medium grey-green with siliceous white frag-	32897	219.6	222.6	3.0	.03	.002	.01	.001
	ments to 6 mm. Rock strongly pyritized in the form of disseminated grains	32898	222.6	225.7	3.1	.02	.001	.01	.001
	and fracture filling. From 224 meters the rock is noticeably hornfelsed	32899	225.7	228.7	3.0	.03	.001	.01	.001
	and chloritized. Weak epidote mineralization is also noted.	32900	228.7	231.8	3.1	.01	.001	.01	.001
		32901	231.8	234.8	3.0	.01	.001	.01	.001
238.9-239.9	Hornfels and fault breccia in fault zone 40° to core. Rock is greenish-	32902	234.8	237.9	3.1	.01	.001	.02	.001
	grey and brown and well pyritized. Quartz and calcite is interstitial to	32903	237.9	239.9	2.0	.01	.001	.01	.001
	the breccia fragments.								
	END OF HOLE								

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. H. OLSON

D H Olson
8 Oct 1981

APPENDIX "D"

CERTIFICATE

I, D. H. Olson of 8125 Gray Avenue, Burnaby, B.C. hereby certify:

1. I am a registered Professional Engineer in the Province of British Columbia.

2. I am a university graduate with the degree B.A. - Geology, University of British Columbia, 1950.

3. I have practiced my profession for the past 29 years.

4. I am presently employed as a Geologist with Asarco Exploration Company of Canada Limited.

5. The information contained in this report was compiled by myself and that the drill program was under my direct supervision.

D. H. Olson
Geologist
8 October 1981