

DRILLING REPORT
ON
HAL CLAIM
OMINECA MINING DIVISION
93N/15E
Lat. 55°56' Long. 124°42'

by
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ESSO MINERALS CANADA
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VANCOUVER, B.C.

NOVEMBER, 1978

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A. Introduction

This report deals with the diamond drilling done by Esso Resources Canada Limited on the Hal mineral claim between October 11 and 15, 1978.

The purpose of the drilling was to test lead and zinc anomalies from previous soil and silt geochemical surveys.

1. Location and Access

The Hal mineral claim is located about 16 km north of Germansen Landing and about 1 km east of Echo Lake. Access is by helicopter from Germansen Landing.

The claim covers a steep southerly facing slope ranging in elevation from 1700 meters to about 1000 meters. The drilling was done near the base of the slope at about the 1000 meter elevation.

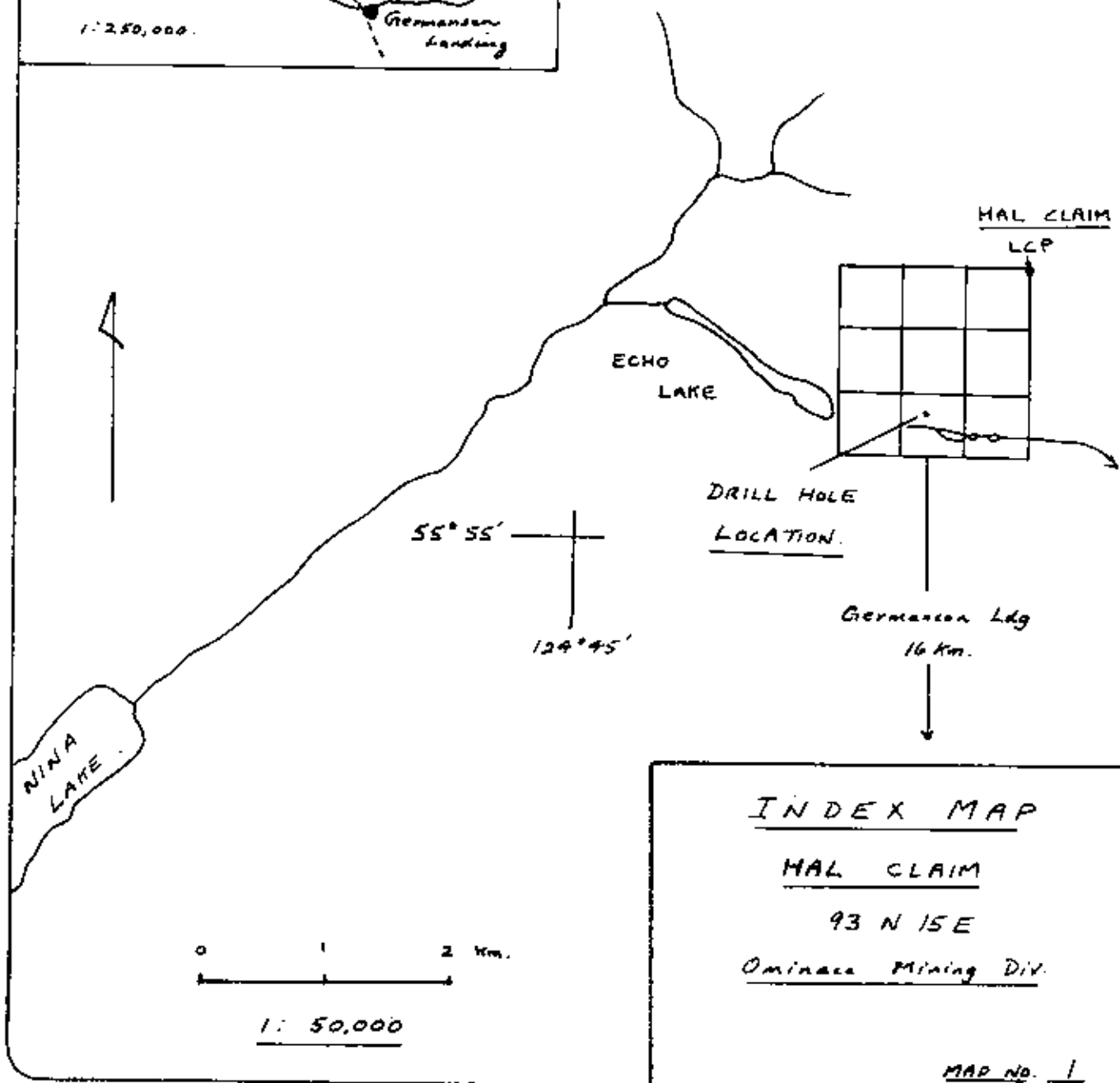
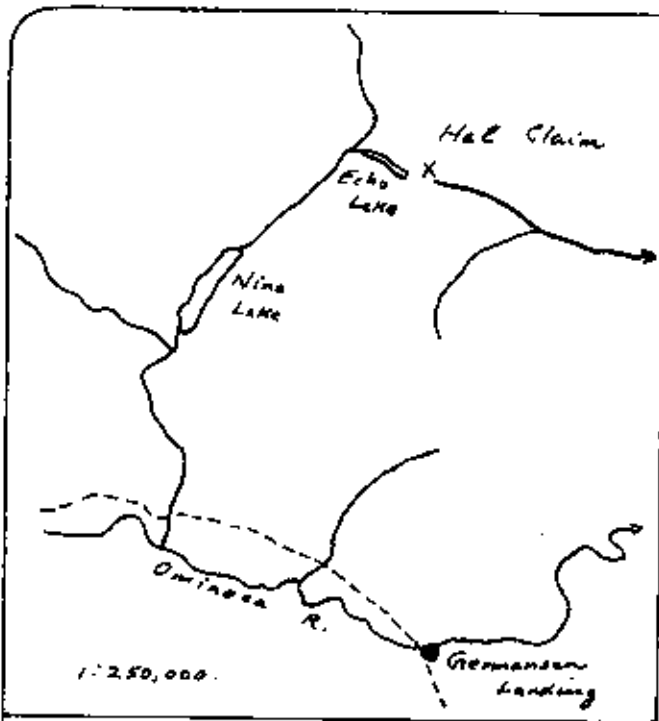
2. Property

The Hal claim consists of 9 units and was originally staked in 1975. The claim is owned by Esso Resources Canada Limited and the assessment work done in 1978 was carried out by the Esso Minerals Canada division of Esso Resources.

<u>Claim</u>	<u>Anniversary Date</u>	<u>Units</u>	<u>Record No.</u>
Hal	November 4	9	178

3. History of Property

The Hal claim was staked in October 1975 to protect the suspected source area of anomalous lead and zinc stream sediment values obtained during regional surveys in the Germansen Landing area.



INDEX MAP
HAL CLAIM
93 N 15 E
Ominaca Mining Div.

MAP NO. 1

In 1976 geological mapping and soil surveys were completed on the claim resulting in further definition of the geochemical anomalies but without locating mineralization. (See report by J. Marr, "Geological and Geochemical Report on the Hal Claim," Oct., 1976.) Mapping showed that the entire area of the claim is underlain by a bedded sequence of massive limestone, probably of mid-Devonian age. The bedded sequence dips in a southerly direction at a dip of 50-60°.

4. Work Done

The work completed in 1978 consisted of one drill hole drilled to a total depth of 108.6 m (362 feet). The hole is located at approximately 1000 meters elevation and was drilled at a -50° angle to the north (360°). (See Location Map 2.)

The drilling was done by D.J. Drilling Company Ltd. using a BBS-1 drill and BQ wireline coring. The core is stored at Germansen Landing.

B. Technical Data

The location of the drill hole is indicated on the Location Map which includes the position of the geochemical soil anomalies and a cross section of the geology. A copy of the drill log is included with this report.

The hole intersected carbonate rocks for it's entire length. The most common lithology, fine grained massive limestone, is interlayered with numerous narrow zones of brecciated limestone, and a few beds of laminated shaly limestone.

No sulphide mineralization was observed in the core that would explain the presence of lead or zinc geochemical anomalies at surface. The core, however, has not been carefully examined and tested for the presence of zinc or lead carbonates or sulphates such as smithsonite, cerussite or anglesite. The brecciated sections in particular should be re-examined in the near future with this in mind.

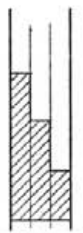


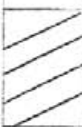

C. Conclusion and Recommendation

The drill hole did not locate sulphide mineralization that would explain the geochemical anomalies. It is probable that such mineralization does exist somewhere beneath or uphill from the anomalies but the mineralized zone or zones are likely very limited in size. A large mineralized zone would almost certainly show up as mineralized float on surface or in a drill hole beneath the talus.

The drill core should be re-examined and tested for the presence of zinc or lead carbonates or sulphates by use of a zinc testing kit and geochemical analysis of portions of the core. Otherwise no additional work can be recommended.

R. N. Adley

DRILL LOG

PROJECT <i>HAL PROPERTY (#2143)</i>	GROUND ELEV. <i>approx. 1000 meters</i>
HOLE NO. <i>D.H. #1 (78-5)</i>	BEARING <i>360°</i>
LOCATION <i>Line 0, 1+50 N.</i>	DIP <i>-50°</i>
	TOTAL LENGTH <i>108.6 meters</i>
LOGGED BY <i>Don Findlay</i>	HORIZONTAL PROJECT <i>77.4 meters</i>
DATE <i>Oct. 17, 1978</i>	VERTICAL PROJECT <i>84.0 meters</i>
CONTRACTOR <i>D.J. Drilling</i>	<p>ALTERATION SCALE</p>  <p>absent slight moderate intense</p>
CORE SIZE <i>BQ (wireline)</i>	
DATE STARTED <i>Oct. 12</i>	<p>TOTAL SULPHIDE SCALE</p>  <p>traces only < 1% 1% - 3% 3% - 10% > 10%</p>
DATE COMPLETED <i>Oct. 14</i>	
DIP TESTS <i>None.</i>	
COMMENTS <i>No mineralization observed. Nearly 100% core recovery - all limestones</i>	<p>LEGEND</p> <p><i>Massive Limestone</i> </p> <p><i>Argillaceous bedded Ls.</i> </p> <p><i>Brecciated Ls.</i> </p>

DEPTH (Meters)	% Core Recy	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACT INTENSITY
					A	B	C	D	E	
0-20'				Overburden						
20'-48'	100			Limestone - massive, light grey, < 5% vugs, calcite in vugs + veinlets, occasional dark stringers (organic?).						
48'-53'	95			Brecciated Limestone						
53'-60'	95			Massive Limestone - light grey, vugs with pink calcite rala. - slight brecciation.						
60'-63'	95			Brecciated Limestone - dark grey, angular clasts, < 4 cm slanta - 35% of rock, white matrix.						
63'-100'	95			Massive Limestone - light grey, patchy colors						
	95			- bedding more prominent, dark & light grey layers alternating						
	95			- fairly vuggy (~10% vugs)						
	100			- white massive limestone						
				- vugs - 10-15% pink calcite rala.						

DEPTH (meters)	% Core Recy	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACT INTENSITY
					A	B	C	D	E	
35	95			100'-116' <u>Massive Limestone</u> (cont.) - vuggy, up to 10% vugs - clay minerals present						
	95			116'-120' <u>Argillaceous bedded Limestone</u> - clay alteration - 1cm thick beds of argillite						
	100			120'-125' <u>Massive Limestone</u> - light grey						
40	100			125'-140' <u>Argillaceous bedded limestone</u> - 1/2 to 2cm beds of argillaceous limestone, dark grey to black.						
	95			140-143' <u>Massive Limestone</u>						
45	95			143'-150' <u>Brecciated Limestone</u> - recrystallized? no open cavities						
	100			150'-190' <u>Massive Limestone</u> - mottled grey, local brecciation, clay alteration.						
50	95			- argillaceous beds						
	95			- minor brecciation						
	95			- minor brecciation						
55	95			- minor brecciation						
	95			- minor brecciation						

DEPTH (meters)	% Core Recy	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACT INTENSITY
					A	B	C	D	E	
60	100			190'-245' Massive Limestone (cont.) - grey patchy color, massive, calcite veinlets (up to 10% in places)						
65	100			- clay alteration, vuggy, minor brecciation						
70	100			- clay alteration, pink color						
75	100			245'-252' Argillaceous bedded limestone - dark grey, thin bedded, argillite layers, beds < 1cm						
	100			252'-256' Massive Limestone						
	100			256'-261' Brecciated limestone						
80	100			261'-266' Argillaceous bedded limestone - finely bedded (1cm beds), dark grey, cut by pinkish calcite veinlets						
	100			- brecciated						

DEPTH (...eters)	% Core Recy	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACT INTENSITY
					A	B	C	D	E	
85	100			280'-291' <u>Massive limestone</u> - light grey, no bedding, cut by numerous pink & white calcite veinlets. - minor brecciation						
	100			291'-299' <u>Brecciated Limestone</u> .						
90	100			299'-307' <u>Massive Limestone</u> - white, homogen- ous, calcite veinlets < 10%.						
	100			307'-312' <u>Argillaceous bedded Limestone</u> thinly bedded (< 0.5 cm), dark.						
95	100			312'-322' <u>Massive Limestone</u> - homogeneous, white, calcite veinlets						
	100			322'-330' <u>Argillaceous bedded Limestone</u> thinly bedded (< 0.5 cm), dark grey.						
100	100			330'-362' <u>Massive Limestone</u> - homogeneous, white, fine grained. - numerous calcite veinlets - minor brecciation at 333'						
	100			- minor brecciation at 354'						
109				362' End of Hole						

ITEMIZED COST STATEMENT

Direct Drilling Costs (October 13 & 14)

0-20' overburden at \$17.50 per foot	=	\$350.00	
20-362' core drilling at \$16.50 per foot	=	5,643.00	
Mud - 1 bag at \$5.00	=	<u>5.00</u>	
			\$5,998.00

Moving, Setting Up, Clearing Drill Site & Tearing Down Costs

(October 11, 12 and 15)			
128 man-hours at \$17.50 per hour	=		2,240.00

Helicopter Costs

Drill Move (October 11 and 12)

206B - 14.8 hours at \$350.00 per hour	=	5,180.00	
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Drill Support (October 13, 14 and 15)

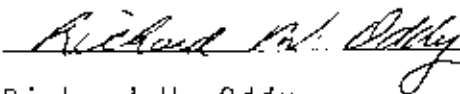
47GB1 - 4.0 hours at \$215.00 per hour	=	860.00	
206B - 1.1 hours at \$350.00 per hour	=	<u>385.00</u>	

<u>6,425.00</u>	
<u>\$14,663.00</u>	

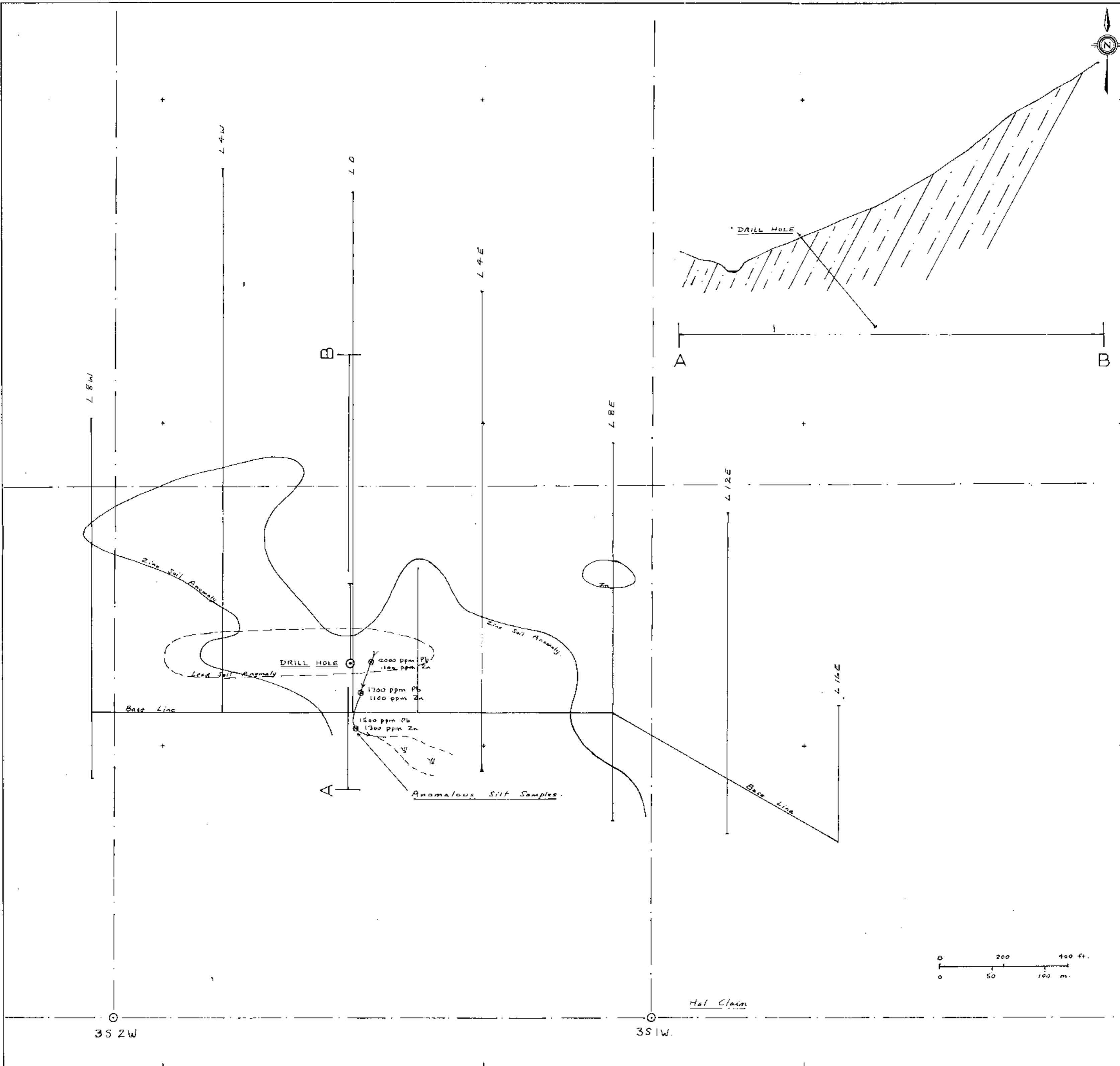
STATEMENT OF QUALIFICATIONS

I, Richard W. Oddy, of Vancouver, British Columbia, hereby certify the following qualifications:

- a) I obtained a B.Sc. degree in geology from the University of British Columbia in 1962 and a M.Sc. degree in geology from the University of Manitoba in 1966.
- b) I have been practising my profession as a geologist in Canada for sixteen years.
- c) My experience includes use of geophysical and geochemical exploration techniques in addition to geological experience.
- d) I am a fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.



Richard W. Oddy
Geologist
Esso Resources Canada Limited



- SYMBOLS**
- Drift-covered area: [stippled pattern]
 - Rock outcrop, area of outcrop, float: X (XXX), (X)
 - Geological boundary (defined, approximate interpreted): [dashed line]
 - Bedding, tops known (horizontal, inclined, vertical, overturned, dip unknown): [various line patterns]
 - Bedding, tops unknown (inclined, vertical, dip unknown): [various line patterns]
 - Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown): [various line patterns]
 - Litescation, axes of minor folds (horizontal, inclined, vertical): [various line patterns]
 - Drag-fold (arrow indicates plunge): [arrow with curve]
 - Fault (defined, approximate, interpreted): [wavy line]
 - Fault (inclined, vertical): [wavy line with arrows]
 - Fault (solid circle indicated downthrow side, arrows indicate relative movement): [wavy line with circle and arrows]
 - Thrust fault (approximate, interpreted): [wavy line with triangles]
 - Shearing and dip: [diagonal lines]
 - Joint (horizontal, inclined, vertical, dip unknown): [short parallel lines]
 - Syncline (defined, approximate): [line with inward-pointing arrows]
 - Anticline (defined, approximate): [line with outward-pointing arrows]
 - Anticline and syncline (overturned): [line with arrows]
 - Intensity (weak, moderate, strong): [various arrow patterns]

- Trench: [double line]
- Adit or tunnel: [line with cross-ticks]
- Rock dump or tailings: [stippled area]
- Quarry or mine: [star symbol]
- Shaft, raise, winze: [square with cross]
- Diamond-drill hole: [circle with crosshair]

6969

- Contours: [line with '2500 C.I.']
- Stream or creek (Perennial, intermittent): [line with arrows]
- Marsh: [wavy line]
- Lake: [circle with wavy border]
- Road: [line with cross-ticks]
- Jeep Road: [line with cross-ticks]
- Trench: [double line]
- Trees: [wavy line]

IMPERIAL OIL LIMITED - MINERALS

HAL PROPERTY

Drill Hole Location Map

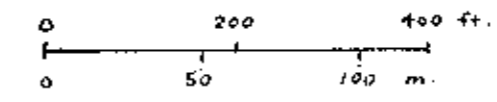
Project No. 2143 Mining Division Palmdale

Latitude 35° 56' Longitude 120° 42'

NTS 93 N 15 E Scale: 1:2400

To Accompany A Report By: R.W. Oddy

Dated: Nov. 1978 Map No. 2



R.W. Oddy