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Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST
Geology, Diamond Drilling	\$119,772-

AUTHOR(S) Paul J. McGuigan SIGNATURE(S)

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED August 30, 1985 YEAR OF WORK 85

PROPERTY NAME(S) Indian Property Boundary: Payroll, Silver Coin

COMMODITIES PRESENT Gold, Silver, Lead, Zinc

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN 104 B -49,50,95

MINING DIVISION Skeena NTS 10.4 B/1E

LATITUDE 56° 05' N LONGITUDE 130° 01' W OR'W

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:

Payroll No. 3 (L5524) Payroll No. 4 (L5525) O'Brien (L4441)

Morn (L4064) part of Salmon 85 group

OWNER(S)

(1) Azure Resources Ltd. (2)

MAILING ADDRESS

100-661 W. Cordova Vancouver, B.C. V6B 1G1

OPERATOR(S) (that is, Company paying for the work)

(1) Esso Resources Canada Limited (2)

MAILING ADDRESS

1600-409 Granville Street Vancouver, B.C. V6C 1T2

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

Lower Jurassic Hazelton group andesites are cut by granodiorite porphyry sills. Associated sericite-chlorite-pyrite alteration is pervasive in the sills and andesites. Within the alteration assemblage is disseminated pyrite (2-15%) with minor sphalerite, galena and chalcopyrite. Strong time-domain induced polarization anomalies occur coincident with Ag Au Pb Zn As Sb soil anomalies.

REFERENCES TO PREVIOUS WORK 8540, 8602, 9627, 9629, 11491, 11492, 13073, 1411

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	COST REPORT
<input checked="" type="checkbox"/> GEOLOGICAL (scale, area) Ground Photo	1:2500	as below	
<input type="checkbox"/> GEOPHYSICAL (line-kilometres) Ground Magnetic Electromagnetic Induced Polarization Radiometric Seismic Other Airborne			
<input type="checkbox"/> GEOCHEMICAL (number of samples analysed for ....) Soil Silt Rock Other	15 element ICP plus As 30 <del>Ag, As, Cu, Hg, Pb, Sb, Zn, As, Ba, Fe, Mn, Ni, Se, U, V, W, Zn, Mo, Ni, Sn, Tl</del> Drift Core - Au, Ag - 78 15 element ICP		
<input checked="" type="checkbox"/> DRILLING (total metres; number of holes, etc.) Core <u>DIAD</u> Non-core	456.6 m 4 holes BQ	Payroll No.3 (L5524) Payroll No.4 (L5525) O'Brien (L4441) Morn. (L4064)	116,839
<input checked="" type="checkbox"/> RELATED TECHNICAL Sampling/assaying Petrographic Mineralogic Metallurgic	80, Au, Ag of above hole	same as above	2,933
<input type="checkbox"/> PROSPECTING (scale, area)			
<input type="checkbox"/> PREPARATORY/PHYSICAL Legal surveys (scale, area) Topographic (scale, area) Photogrammetric (scale, area) Line/grid (kilometres) Road, local access (kilometres) Trench (metres) Underground (metres)			
TOTAL COST			\$ 119,772

FOR MINISTRY USE ONLY	NAME OF PAC ACCOUNT	DEBIT	CREDIT	REMARKS:
Value work done (from report) 119,772.00				
Value of work approved	Esso Resources Canada Ltd			qualifications of core logger D. Hamson reg'd.
Value claimed (from statement) 82,400.00				sampled bedrock must be identified
Value credited to PAC account 37,372.00			37,372.00	otherwise complete report.
Value debited to PAC account	85-883 - 14111			Information Class 3
Accepted <u>NEK</u> Date 28 Feb 86	Rept. No.			

SUMMARY REPORT  
1985 EXPLORATION PROGRAM

on the  
INDIAN PROPERTY  
(Salmon 85 Group)

Skeena M.D.

NTS: 104 B/1E

Lat: 56°05'N  
Long: 130°01'W

by

Paul J. McGuigan

FILMED

Operator: Esso Resources Canada Limited  
Owner: Azure Resources Ltd.

November 25, 1985

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**14,111**

0882B/  
0016B

## SUMMARY

The Indian Property is located approximately 25 kilometres (15 miles) northeast of Stewart, B.C. and is accessible by the Granduc Road. The property consists of 54 crown granted claims which are held under agreement between Esso Minerals Canada, Houston International Minerals Corporation and Azure Resources Ltd.

Lower Jurassic Hazelton Group rocks crop out on the property and include siltstone, argillite, and andesite pyroclastics, with minor volcanic wacke and conglomerate. These rocks are intruded by the early Jurassic Texas Creek granodiorite stock and by small Tertiary andesite dykes.

Alteration is mainly propylitic with patchy sericite, quartz and pyrite alteration. Intense potassium feldspar-altered and quartz-veined Texas Creek granodiorite sills are present. The large areas of strong quartz, sericite and pyrite alteration seen in other areas of the Salmon River Valley do not crop out on the Indian.

Mineralization found to date consists of late-stage quartz, calcite and sulphide infilled fault zones. The main Indian Mine vein is the best example of this mineralization. However, grades are low, widths small and continuity low along the vein. Stockwork-style, epithermal precious metal mineralization similar to that exhibited at the Silver Butte, Big Missouri and Premier properties has not been found to date on the Indian.

The 1985 diamond drill program tested two target areas with four drill holes (456.6 m). The drilling was done on the Payroll No. 3 (L5524), Payroll No. 4 (L5525), O'Brien (L4441) and Morn (L4064) crown granted claims. Drilling indicated that IP anomalies IP 1,4,5 and multi-element soil geochemistry anomalies B-C-D and H were caused by 'high background' concentrations of sulphides in andesites. The sulphides were mostly pyrite with traces of sphalerite, galena and chalcopyrite. They occur as 5-15% disseminations in an extensive, moderate to strong, pervasive sericite-chlorite alteration suite, within Unit 2 and 3 andesite lapilli tuff. The alteration is strongest next to altered sanadine-plagioclase-hornblende(-quartz) porphyry sills. However, no significant epithermal stockwork type of mineralization was intersected; and no significant grades of gold or silver were found this year.



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MAPS

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Map 10 " " DDH I-15

A. RECOMMENDATIONS

Precious metal mineralization of the target grades and width have not been found on the claims of the Indian property. It is recommended that no further exploration work be carried out on the property in 1986.

## B. INTRODUCTION

### B.1 Target

The target on the Indian property is high grade epithermal gold-silver mineralization. A minimum of 400,000 tonnes of 15 g/tonne gold equivalent is required, depending on the results of Silver Butte drill testing, and availability of custom milling in the area.

### B.2 Location & Access

The Indian property is located 25 kilometres (15 miles) by road northwest of Stewart, B.C. See Fig. 1. The property straddles the Big Missouri ridge with the Salmon River and Cascade Creek valleys on either side. Access is by the gravel Granduc Road which crosses the property from mile 15 to approximately mile 13. From mile 14 1/2 a good trail leads to the 1985 Esso Camp, the Indian Mine, and the Indian-Woodier and Indian One Grids.

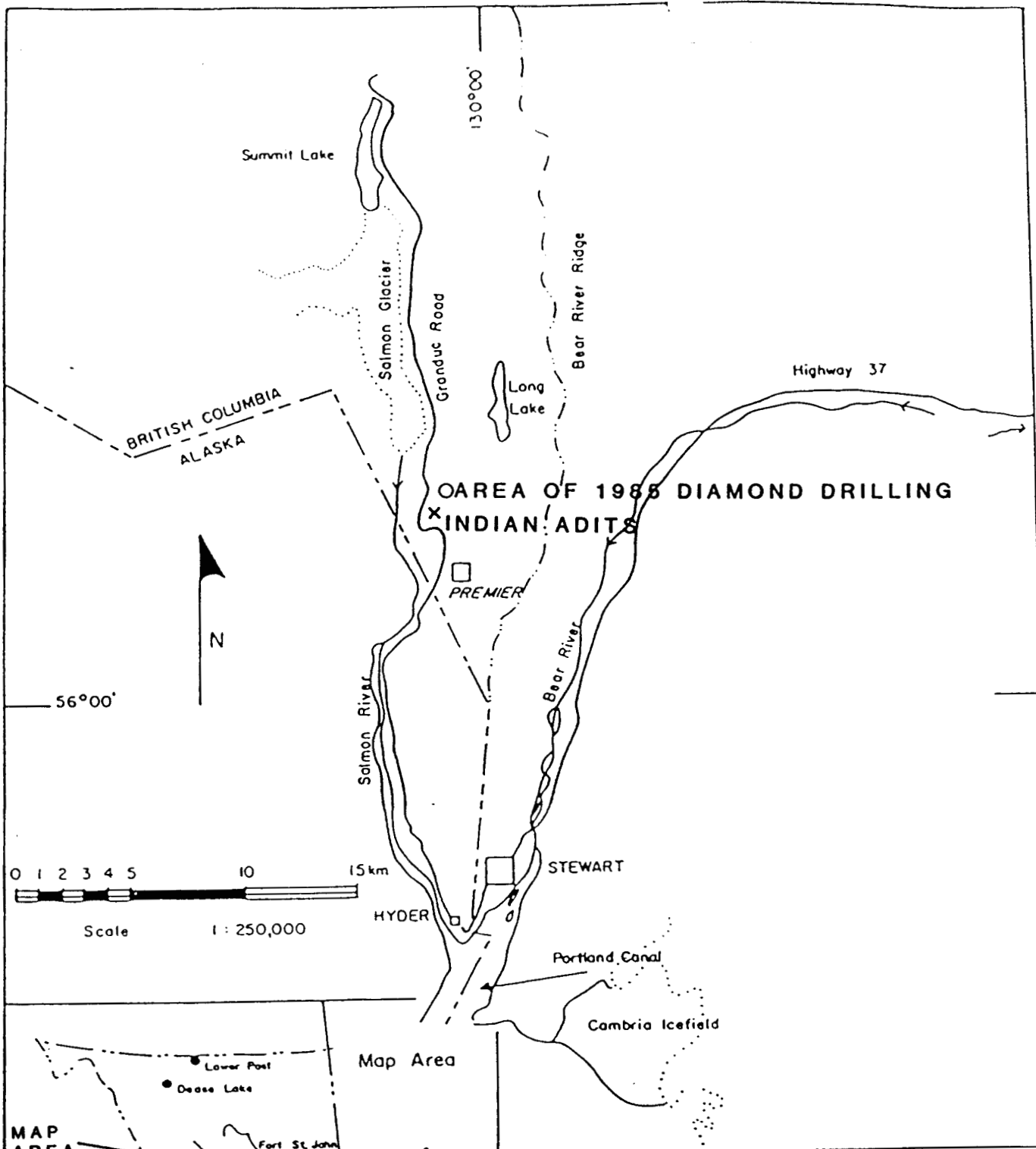
### B.3 Land

The Indian property consists of 54 Crown granted claims owned by Azure Resources Ltd. The property is presently being worked by Esso Minerals Canada under an agreement with Houston International Minerals Corporation (HIMCO) and Azure Resources Ltd. See Appendix One for claim names. Map 1 shows the claim distribution.

### B.4 History

The Indian property was first discovered in 1910. By 1925, the property was developed with 6000 ft. of underground workings on three levels and approximately 9000 ft. of diamond drilling. During 1925, 37 tonnes of ore were shipped grading 0.12 oz/t Au, 13 oz/t Ag, 33% Pb, 18% Zn.

The property saw little further work until 1952 when 14,113 tonnes of ore were shipped grading 0.09 oz/t Au, 3.4 oz/t Ag, 4.3% Pb, 5.4% Zn. The property was worked again in 1962 when R.V. Best mapped the property at 1:6000 for New Indian Mines Ltd.



<b>ESSO MINERALS CANADA</b> A DIVISION OF ESSO RESOURCES CANADA LIMITED	
<b>INDIAN PROJECT</b> <b>LOCATION OF 1985</b> <b>DIAMOND DRILLING</b>	
SCALE: 1: 250,000	NTS: 104 B/1E
DATE: Nov. 25/85	MINING DIV: Skeena
DRAWN BY: P J M	FIGURE NO: 1

In the period 1978 to 1981 Windy Point Minerals, (a Canadian subsidiary of HIMCO) in a joint venture with Azure Resources Ltd., conducted an exploration program over a portion of the claim group centered on the Indian Mine. The Indian-Woodier Grid (I-W) was established using imperial measurements along the Indian Mine workings to Myrtle Creek and west of the Big Missouri Ridge to the Granduc Road. Their work included mapping, soil geochemical survey, magnetic surveys, sampling, assaying and diamond drilling. This work traced the Indian Vein System for approximately 120 metres.

In 1982, Esso Minerals Canada entered into an agreement with Windy Point - HIMCO and Azure Resources Ltd. The metric Indian One (I-1) and Indian Two (I-2) grids were established east of the I-W grid to cover the remainder of the claim group. The Indian One grid covers the Big Missouri ridge east from the I-W grid to Cascade Creek. Line spacing is 50 metres with stations at every 25 metres. The I-2 grid east of Cascade Creek to Slate Mountain was abandoned after the base and tie lines were mapped and sampled.

A program of mapping, soil geochemistry, trenching and sampling were conducted over the I-1 and I-2 grids. The Windy Point data was compiled at a common scale of 1:2500. The results of the 1982 program were:

1. The area east of the Indian Fault system centered on the Big Missouri Ridge was anomalous in soil geochemistry. The area also contained favourable geology and alteration.
2. The I-2 grid was abandoned after initial mapping and soil sampling because of unfavourable geology, alteration and soil geochemistry.
3. The Indian Mine showing was interpreted to be a "hydrothermal quartz and sulphide infilled fault zone" and not a "stratabound exhalative type" showing as was reported earlier. Further work was discontinued along this zone.

The 1983 exploration program included a detailed soil survey over the I-W grid from 4W to 5E. The Indian Vein was covered for orientation purposes. Samples were collected at 25 ft. intervals along lines spaced 200 ft. apart. A test IP survey east of the I-W baseline along lines 0N, 2N and 4N was conducted to test zones indicated by geochemistry. Two diamond drill holes were sited on a combined geochemistry geophysical anomaly. The results of the 1983 program were:

1. Geochemical anomalies "A" and "E" were a result of the Indian vein system. The orientation survey showed the metals were dispersed approximately 10 to 50 metres downhill from the sub-crop of the Indian vein.
2. Geochemical anomaly "B", "C" and "D" were unexplained due to overburden cover.

3. Geochemical anomaly "F" and "G" covered a broad area along the Big Missouri Ridge. The area was not sampled in detail because of poor soil development.
4. Geochemical anomaly "H" occurs along a northwest gully on the west side of the I-1 grid.
5. Diamond drilling intersected strongly propylitically altered lapilli tuff containing 2 to 5% disseminated and fracture coated pyrite with minor sphalerite and galena. No significant assays were obtained.

The 1984 exploration program was small. Soil sampling was done to define soil geochemical anomalies "C" and "D" of 1983. Soil geochemical anomalies "B", "C", "D" "G" were surveyed with 3 km of IP. Hand trenching to bedrock was conducted to test soil anomalies. Results included:

1. Eight anomalous IP zones were found (IP-1 to IP-8). Anomalies IP-3,5,7,8 were coincident with late-stage, fault-hosted vein mineralization of the Indian vein set. Anomalies IP-1,2,4,6 were coincident with geochemical anomaly B-C-D and propylitic-sericite-altered lapilli tuff.
2. Hand trenching of the combined IP-soil anomaly was inconclusive, due to overburden thickness.
3. The strongest IP-soil anomaly occurred at Line 14N, 2+50E to 5+00E. Results up to 11,000 ppm As, 400 ppb Au, 18.8 ppm Ag were found in the 'B' Horizon soils.
4. Detailed mapping identified a set of thin, north-striking granodiorite porphyry sills at the base of Unit 3. They contained moderate to strong sericite alteration and strong K-feldspar alteration.

#### B.5 Work Done in 1985

Work on the property commenced July 4. The diamond drill was mobilized July 22. 456.6 m of BQ diamond drilling was done during the period July 23-Aug 3. The contractor was Fern Boisvenu Diamond Drilling of Surrey B.C., and the equipment used was a modified JKS 300 diamond drill.

All of the diamond drilling and most of the geological mapping was done on the Payroll No.3 (L5524), Payroll No.4 (L5525), O'Brien (L4441) and Morn (L4064) crown granted claims. The cost of the diamond drill program is given in Appendix Two.

All camp sites on the Indian property were reclaimed: tent structures were dismantled and burned and all equipment removed.

## C. 1985 EXPLORATION PROGRAM

### C.1 Property Geology

#### C.1a Surficial Geology

The Indian Property is covered with an almost continuous veneer of glacial till and colluvium. Average depth to bedrock is about 1-2 m but locally might exceed 10 m. Outcrop density is less than 2%.

Soil development is erratic on the property. A podzolic soil profile is developed in the heavily treed areas of the property. Ridge top areas are characterized by ribs of near-outcropping rock with thin 'A' Horizon soils resting on bedrock and by swampy, organic-rich soils in the gullies.

#### C.1b General Geology

The southern Salmon River valley is mostly underlain by Lower Jurassic Hazelton Group volcanic and sedimentary rocks, which have been intruded by an epizonal, sub-volcanic granodiorite intrusion (Texas Creek stock). The intrusion is probably co-eval with the lowermost andesitic volcanics of the area.

The geology of the area is described in Galley (1982), McGuigan (1984) and Alldrick (1985). Claims of the Indian property cover only a portion of the volcanic stratigraphy described by Alldrick (1985). Figure 2 describes the correlation between maps units currently used on the Silver Butte and Indian properties, and those of Alldrick (1985).

The main units of economic interest are the Unit 2-3 andesite lapilli tuffs (Alldrick: Unit 1e Upper Andesite tuff) and the Texas Creek granodiorite porphyry sills and dykes (Alldrick: Premier porphyry in part). In the Big Missouri-Silver Butte-Indian-Premier area, all of the economically significant precious metal mineralization is hosted by the Unit 3 andesite lapilli tuff. At Premier, much of the mineralization occurs within the altered contact area between 'Premier porphyry' dykes (and plugs) and the Unit 3 andesite.

#### C.1c Unit One: Siltstone, Argillite, Tuff

The lowest unit in the stratigraphy of the Indian mine area is well-bedded, grey, black and green-coloured argillite, siltstone and minor dacite tuff. Texas Creek granodiorite porphyry has extensively intruded this section. To the west of the area of detailed 1:500 EMC mapping, the distribution of this unit is from mapping by HIMCO.

On the Indian-Woodier (I-W) grid, the Unit One rocks are moderately propylitic, and show a mottled, bleached white to green colour. Approximately 2% pyrite is disseminated throughout.



Figure 2

Correlation of Map Units

Alldrick (1985)

hqm  
pc  
tcg, coarse grained

pp

lc - Upper Andesite Tuffs

ld - Upper Siltstone

McGuigan (1985)

Unit 6 Hyder Quartz Monzonite  
Unit 5 Andesite dykes, microdiorite  
Not mapped

Unit 4 Texas Creek granodiorite porphyry

Unit 3 Andesite Lapilli tuffs  
Unit 2 Sericite altered Unit 3

Unit 1 - Siltstone, argillite, dacite tuff

C.1d Unit Two: Altered Andesite Lapilli Tuff

Unit Two is composed of subaerial andesite lapilli tuff with lesser tuff breccia and minor tuff (?). Fragments are sub-angular, 1-5 cm in average diameter and monolithic. Fragments comprise 30 to 50% of rock volume, locally the tuff breccias are fragment supported.

Andesite lapilli tuff is light green to grey and strongly propylitically altered. Fragments and matrix are chloritized, with disseminated pyrite. Zones of strong sericite-py alteration are present, with alteration preferential to the matrix. The field term for Unit 2 rocks was 'dacite', but the Unit is probably the strongly altered base of the Unit 3 andesite section.

C.1e Unit Three: Andesite Lapilli Tuff

Unit Three on the property consists of mostly subaerial green andesite tuff and lapilli tuff with minor tuff breccia and maroon and green wacke. Lapilli are sub-angular to angular, 1-4 cm average diameter and heterolithic.

Bedding was measured from crude banding and lapilli alignment, as observed in some of the trenches. Strikes were northeasterly, dips were steeply eastward. Unit Three rocks underlie most of the Indian One (I-1) grid.

C.1f Intrusive Rocks

The main intrusive rock on the Indian Property is porphyry related to the Texas Creek pluton. In the legend of Foye (1982) the rocks were termed Premier porphyry, but that term was used to include dykes, sills, stocks and also extrusive feldspar crystal tuffs and porphyritic flows at Premier and Indian. The term Texas Creek granodiorite porphyry is used to restrict the usage to porphyry intrusions. This usage is similar to that of Alldrick (1985), for his 'Premier porphyry'.

The Texas Creek granodiorite occurs as two 'end members' which grade into each other:

1. Sanidine - hornblende - plagioclase (-quartz) granodiorite porphyry.
2. Sanidine porphyritic fine-grained granodiorite.

Granodiorite porphyries are bi-modal in phenocryst size. Coarse phenocrysts of sanidine (0.5 - 3 cm diameter) and hornblende (0.5 - 1 cm in length) comprise generally 1 - 10% of volume. Smaller phenocrysts include mostly plagioclase (0.2 - 0.4 cm diameter), lesser hornblende (0.2 - 0.4 cm length) and minor quartz (0.1 - 0.2 cm). The smaller phenocrysts range between 20% to 60% of volume. At 60% of rock volume, the phenocrysts form a 'crowded' porphyry set in an aphanitic groundmass. No interlocking textures are seen between the phenocrysts.

Sanidine porphyritic granodiorite has a fine-grained granodiorite groundmass with large, 0.5 to 2.0 cm sanidine phenocrysts. Sanidine phenocrysts comprise less than 5% (commonly much less than 1%). Where chlorite-altered, the rock is difficult to distinguish from andesite volcanics. Recognition in the field is dependent on the massiveness of the outcrop and by the presence of sanidine phenocrysts.

Texas Creek granodiorite extensively intrudes Unit 1 siltstones, with both end members present. In Unit 2-3 andesites, most outcrops are of granodiorite porphyry. The Texas Creek intrusions are chlorite altered and contain about 1 - 2% disseminated, fine-grained pyrite. In Unit 2-3 rocks, several of the granodiorite porphyry sills are sericite-py or K-feldspar altered and quartz-veined.

The Texas Creek pluton has been dated by K-Ar on hornblende and biotite, yielding a minimum age of 210 Ma, based on revised decay constants (Alldrick, 1985).

Minor amounts of Eocene Hyder quartz monzonite occur on the property as dykes. The intrusions are massive, unaltered, medium-grained and hornblende-biotite bearing.

Numerous Eocene or younger andesite dykes are erratically emplaced in older fault zones. They are massive, aphanitic to fine-grained and usually less than 5 m thick (widths up to 20 m mapped). They are generally NNW trending, with steep westward dips. The term 'microdiorite' was used for some of these dykes in the past. The andesite is usually fresh, but chlorite-epidote-altered dykes are present on the property.

### C.1g Structure

Unit 1 siltstones and argillites consistently strike north to northwest and dip moderately to steeply east. The Unit 1-2 contact strikes northward. Bedding measurement might not be reliable in the Unit 3 rocks, because they are mostly taken from lapilli alignments. Deformation has flattened lapilli at right angles to bedding on Bear Ridge (Derek Brown, pers. comm.).

Top determinations on Unit One siltstone have not been made on the Indian Property, but graded bedding in the Unit is seen at both the Silver Butte Property (McGuigan, 1983) and the Bow Claims near Summit Lake (McGuigan, 1985). Both areas show the section to be facing stratigraphically upwards towards the east.

Two main fault trends are present on the property. The Indian vein system was emplaced in a fault zone which is probably much younger than the andesites/Texas Creek intrusions. The fault dips steeply east and strikes approximately 10° west of north. Fault gouge and breccia is only partly filled by quartz-carbonate-K-feldspar and sulphides. A later fault set strikes northwesterly and dips moderately to the west. The fault set is commonly a host to magnetically anomalous andesite dykes and can be traced on the magnetic survey of HIMCO (Foye, 1982). The survey data were plotted in profile in 1985 and fault trends were re-interpreted on Maps 2, 5 and 6

### C.1h Alteration, Veining and Mineralization

Three types of alteration veining and mineralization are most commonly observed on the Indian property:

1. Late stage fault hosted quartz-carbonate-potassium feldspar-sulphide mineralization of the Indian vein and others. See McGuigan (1984).
2. Late-early stage sericite-pyrite (-black chlorite) pervasive alteration, near and within high level granodiorite porphyry sills. Includes some potassium feldspar alteration of granodiorite porphyry sills.
3. Early stage propylitic alteration, including pervasive chlorite (-epidote-sericite) and sulphides. Also present are quartz-calcite veinlets which comprise less than 1% of rock volume.

The 'early stage' propylitic alteration is probably due to the emplacement of the main Texas Creek granodiorite stock because the strength of the alteration decreases 'up section', away from the stock. The propylitic alteration and associated quartz-calcite veinlets show no preferred orientation or local structural control. Sulphides are mainly pyrite, with traces of very fine-grained sphalerite, galena and arsenopyrite. They occur mostly as disseminations and fracture coatings, but some sphalerite and galena is present in quartz-carbonate veinlets.

The 'late-early' stage pervasive sericite-pyrite alteration is related to the intrusion of the granodiorite porphyry sills and dykes. The contacts of the sills are most strongly altered and pyritic. Partly associated with this stage of alteration are 'shear-veinlets' of black chlorite with black chlorite altered vein walls. The veinlets contain the assemblage chlorite-pyrite-chalcopryrite-sphalerite-galena (-arsenopyrite) and have sheared sulphide textures. Assays from these veinlet intervals indicate minor precious metal contents. One plagioclase-hornblende(?)-quartz granodiorite porphyry sill at the top of diamond drill hole I-12 of 1985 is pervasively potassium feldspar-sericite altered.

Propylitic and sericite-py alteration suites are found in close association to strongly gold-silver mineralized alteration assemblages in other properties in the Salmon River Valley. The favourable alteration/gold-silver bearing suites were sought on the Indian property but not found. These included:

1. Quartz-chalcedony-dolomite (-pyrite-sphalerite-galena) stockworks with intense sericite-pyrite pervasive alteration.
2. Potassium feldspar-sericite altered volcanics.
3. Chalcedony(-dolomite)-pyrite-sphalerite-galena-chalcopryrite infilled stockworks with strong silicification and chlorite alteration.

## C.2 Target Evaluation

### C.2a 1985 Diamond Drill Program

Limited outcrops and difficult trenching conditions precluded full evaluation of the geochemical and geophysical anomalies during the 1983-4 seasons. Especially, sericite-altered contact zones near resistive weathering granodiorite porphyry sills are poorly exposed.

Two diamond drill target areas were identified in 1984. (See Map 3):

1. Target 85-A: Geochemical anomaly B-C-D, Induced Polarization anomaly IP-1,-4,-b and sericite-pyrite altered andesite lapilli tuff. These coincide in a band striking northward on the east margin of the I-W grid. Line 14N, 2+50E to 5+00 E had the strongest IP and soil response.
2. Target 85-B: 'High level' granodiorite porphyry sills with sericite pyrite alteration and some potassium feldspar alteration. Soils are poorly developed over the area, but geochemical anomaly 'H' is coincident with one porphyry-andesite lapilli tuff contact in the target area. A grab sample from Anomaly 'H' assayed 8.57 g/t gold, 527.3 g/t silver.

A total of 456.6 m of diamond drilling was done in 1985. Target 85-A was drilled with diamond drill hole I-14 (120.7 m). Target 85-B was drilled with three diamond drill holes I-12 (120.1 m), I-13 (100.0 m) and I-15 (115.2 m).

### C.2b Evaluation of Target 85-A

Target 85-A was tested with DDH I-14 ( $-45^{\circ}$ , Azimuth  $255^{\circ}$ , Length 120.7 m). The hole is shown on Maps 4 and 5. The section is shown on Map 9, which gives the position of the hole in relation to the geochemistry and IP targets. DDH I-14 intersected andesite lapilli tuff and several hornblende-plagioclase granodiorite porphyry sills. The main sill is 30 m thick and chlorite-sericite altered.

Approximately 15 m of the hanging wall and 30 m of the footwall are strongly sericite-chlorite-pyrite altered. The hanging wall contains 10-15% disseminated pyrite and trace sphalerite, galena and chalcopyrite. Sulphides were preferential for dark chlorite altered 'clots'. One assay at 18.15 m returned 1.35 m of 7.20 g/t gold and 28.5 g/t silver. The high sulphide hanging wall to the porphyry sill was not detected by the IP survey because it lies just off the end of the survey line.

The footwall to the porphyry sill contains approximately 5% pyrite with trace sphalerite, galena and chalcopyrite. This represents a 2 to 3 times background sulphide content. No significant gold-silver results were obtained, but sulphide contents and rock geochemical analyses on assay pulps explain the strong I.P. and soil geochemical results. For instance, the high sulphide footwall andesite dips eastward, consistent with the IP chargeability results which suggested a similar dip (Dawson, 1985). Similarly, the anomalous soil geochemistry is explained by rock geochemical results from assay pulps which averaged 495 ppm arsenic, 101 ppm copper, 11 ppm molybdenum, 149 ppm lead, 26 ppm antimony and 1349 ppm zinc. These high geochemical results correspond to average assays for gold of 0.1 g/t and silver of approximately 6 g/t.

Drilling of Target 85-A established a direct correlation between IP chargeability anomalies and sulphide contents in the 5-15% range. Sericite-chlorite-pyrite altered contacts with the 30 m thick porphyry sill are strongly anomalous in rock geochemistry and fully explain the soil geochemical anomaly B-C-D, in conjunction with previous drilling and trenching results. Nowhere along the zone has the target gold grade or stockwork mineralization been found.

#### C.2c Evaluation of Target 85-B

Target 85-B is the centre of the outcrop area of the granodiorite porphyry sills within the Unit 3 andesites. DDH I-12 (-45°, Azimuth 255°, Length 120.1 m) was drilled to test the contacts of a strongly potassium feldspar altered porphyry sill (which also contained fine-grained quartz veinlets.) DDH I-13 (-45°, Azimuth 255°, 115.2 m) were drilled to test a porphyry sill which was coincident with geochemical anomaly 'H' from 1983.

Results from drilling Target 85-B were similar to those from Target 85-A. The three diamond drill holes intersected east-dipping plagioclase-hornblende (-sanidine-quartz) porphyry sills with sericite-chlorite alteration. Andesite lapilli tuff in contact with the sills is moderately to strongly sericite-chlorite-pyrite altered. The only mineralogic association which contains above background amounts of gold or silver are minor sheared veinlets of black chlorite which contain pyrite and minor sphalerite galena and chalcopyrite. The areas of strongest alteration and sulphides were assayed. In general, gold was present in the 0.05 to 0.1 g/t range and silver 5 to 9 g/t range.

D. CONCLUSIONS

1. The Indian property is underlain by Hazelton group andesitic volcanics and sediments which are intruded by early Jurassic age porphyry stocks and sills.
2. Sanidine-plagioclase-hornblende(-quartz) porphyry sills which are intruded into Unit 3 andesite lapilli tuffs have the strongest pervasive alteration and mineralization.
3. Pervasive sericite-chlorite-pyrite alteration adjacent to the porphyry sills at the Unit 2-3 contact contains 5-15% pyrite and disseminated sphalerite galena, and chalcopyrite. Coincident IP anomalies (IP-1,4,6) and soil geochemical anomalies (B-C-D) are explained by the background levels of disseminated sulphides. Mineralization of the target grade or target alteration assemblage was not intersected in drilling Target 85-A.
4. Drill testing of Target 85-B showed similar alteration, sulphides and intrusions as in Target 85-A, but alteration and sulphide mineralization were less strong.
5. The high chargeability responses in the IP surveys and the generally very high soil geochemistry are fully explained by the results of the 1985 diamond drilling, when past drilling and trenching results are considered. No promising anomalies remain untested.

*Paul J. McGuigan*

Paul J. McGuigan  
Senior Project Geologist  
Esso Minerals Canada

E. REFERENCES

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- Dawson, G.L. (1985) 1984 Summary Report, Indian Project. Company Report, Esso Minerals Canada
- Foye, G. (1982) Salmon River Project, 1981 Exploration Summary. Windy Point Ltd. Company Report
- McGuigan, P.J. & Wilson L. (1983) Geochemical and Geophysical Report on a Soil Survey and Test I.P. Survey, Indian Group. Assessment Report.
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INDIAN PROPERTY CROWN GRANTED CLAIMS

APPENDIX 1

<u>CLAIM</u>	<u>LOT NUMBER</u>	<u>RECORD DATE</u>	<u>EXPIRY DATE</u>
Acc	L4423	July 02/82	1986/07/02
Atl. Fr.	L4440	July 02/82	1986/07/02
Big Dick	L1981	July 02/82	1986/07/02
Bluebird	L4277	July 02/82	1986/07/02
Bluejay Fr.	L4426	July 02/82	1986/07/02
Border	L4165	July 02/82	1986/07/02
Boundary No.2	<u>L2315</u>	July 02/82	1986/07/02
Brookland	L511	July 02/82	1986/07/02
Cabin	L3922	July 02/82	1986/07/02
Club Fr.	L4278	July 02/82	1986/07/02
Cobalt	L4053	July 02/82	1986/07/02
Cobalt No.2	L4054	July 02/82	1986/07/02
Exchange Fr.	L1848	July 02/82	1986/07/02
Exchange No.1	L1843	July 02/82	1986/07/02
Exchange No.2	L1844	July 02/82	1986/07/02
Exchange No.3	L1845	July 02/82	1986/07/02
Exchange No.4	L1846	July 02/82	1986/07/02
Exchange No.5	L1847	July 02/82	1986/07/02
Extra	L5193	July 02/82	1986/07/02
Five Fr.	L5192	July 02/82	1986/07/02
Forty Five	L512	July 02/82	1986/07/02
Four Fr.	L5191	July 02/82	1986/07/02
Fritz	L1982	July 02/82	1986/07/02
Glacier No.7	L4421	July 02/82	1986/07/02
International Fr	L3923	July 02/82	1986/07/02
Lucky Fr.	L4281	July 02/82	1986/07/02
ML Fr.	L4452	July 02/82	1986/07/02
Maggie Jiggs Fr.	L4442	July 02/82	1986/07/02
Maple Leaf No.1	L4451	July 02/82	1986/07/02
Maple Leaf No.2	L4450	July 02/82	1986/07/02
Maple Leaf No.3	L4449	July 02/82	1986/07/02
Maple Leaf No.5	L4447	July 02/82	1986/07/02
Missing Link Fr.	L2316	July 02/82	1986/07/02
Morn	L4064	July 02/82	1986/07/02
One Fr.	L5190	July 02/82	1986/07/02
Orbrien Fr.	L4441	July 02/82	1986/07/02
Pay Roll No.3	L5524	July 02/82	1986/07/02
Pay Roll No.4	L5525	July 02/82	1986/07/02
Portland No.1	L1980	July 02/82	1986/07/02
Portland No.2	L1979	July 02/82	1986/07/02
Ruby Silver	L4123	July 02/82	1986/07/02
Ruby Silver No.1	L4119	July 02/82	1986/07/02
Ruby Silver No.2	L4120	July 02/82	1986/07/02
Sunshine	L4194	July 02/82	1986/07/02

<u>CLAIM</u>	<u>LOT NUMBER</u>	<u>RECORD DATE</u>	<u>EXPIRY DATE</u>
Three	L5188	July 02/82	1986/07/02
Three Fr.	L5189	July 02/82	1986/07/02
Winner	L4116	July 02/82	1986/07/02
XIOU8	L5180	July 02/82	1986/07/02
XIOU8 Fr.	L5195	July 02/82	1986/07/02
XIOU8 No.2	L5181	July 02/82	1986/07/02
XIOU8 No.3	L5182	July 02/82	1986/07/02
XIOU8 No.4	L5183	July 02/82	1986/07/02
XIOU8 No.5	L5184	July 02/82	1986/07/02
XIOU8 No.6	L5185	July 02/82	1986/07/02

APPENDIX 2

COST STATEMENT

The following direct costs were incurred in support of the 1985 diamond drilling program at the Indian property:

1.	Geological work, reporting, supervision	\$ 31,960
2.	Transportation, accommodation, camp supplies fuel, camp personnel	19,030
3.	Helicopter rental; camp, drill mobilization	24,892
4.	Sampling, assay costs	2,933
5.	Diamond drilling, site preparation (456.6m, four drill sites)	40,957
	TOTAL	\$ <u>119,772</u> =====

These costs represent the total direct costs of the drilling program, of which \$85,000 is to be applied for assessment work to the Salmon 85 claim group.

*Paul J. McGuigan*

Paul J. McGuigan  
Senior Project Geologist  
Esso Minerals Canada

APPENDIX 3

# ESSO MINERALS CANADA DRILL LOG

HOLE NO. I-12  
 PAGE 1 OF 9  
 PROJECT INDIAN 2184  
 LOGGED BY: PAUL J. MCGUGAN  
E DON HARRISON

COLLAR COORDINATES \_\_\_\_\_

AZIMUTH 255° DIP -45°

HORIZONTAL PROJECTION \_\_\_\_\_

COLLAR ELEVATION \_\_\_\_\_

TOTAL LENGTH 120.09 metres.

VERTICAL PROJECTION \_\_\_\_\_

CONTRACTOR F. Boisvenu Diamond Drilling CORE SIZE BQ

DATE STARTED July 24/85 DATE COMPLETED July 26/85

AVERAGE CORE RECOVERY 98%+

PURPOSE: To test altered, qtz-veined plagioclase-k-spar porphyry.

COMMENTS: Collared in bedrock, hole capped with timber.

### ALTERATION SCALE



absent  
slight  
moderate  
intense

### TOTAL SULPHIDE SCALE



traces only  
< 1%  
1% - 3%  
3% - 10%  
> 10%

### SUMMARY LOG

conversion factor used  
for oz/ton to gram/tonne is:  
 $1 \text{ oz/ton} = 34.286 \text{ g/tonne.}$

### DIP TESTS

DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
No Dip Tests taken, BQ Holder lost during mobilization.					

### LEGEND

Blocks recorded in imperial measure,  
converted by core logger to metric.

Core stored in Esso warehouse,  
Stewart BC

DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	metres.		GEOLOGICAL DESCRIPTION
				FROM	TO	
10	55	92		0.0	8.90	<p>DARK GREEN ANDESITE LAPILLI TUFF: Lapilli, angular partly feldspar porphyritic 2-30 mm in size, matrix supported. Matrix slightly calcareous</p> <p>Alteration: Early stage propylitic containing mostly pervasive dark green chlorite (lesser epidote, sericite) and minor calcite veinlets (&lt;2mm wide, discontinuous)</p> <p>Minor, late stage sericite alteration</p> <p>Sulphides: Pyrite, disseminated and blebby, total 1%.</p> <p>@ 5.28m 3mm calcite v'let w. 60° angle to core</p> <p>@ 5.33m Shear 30° to core, slickensides 60° rake.</p> <p>8.50-8.90m Sericite alteration, calcite (hematite) v'lets adjacent to porphyry contact.</p> <p>Late, open, unmineralized fractures, average 1 per 20cm core, 45° core angles.</p>
	44	91				
	61	81				
	33	100				
	30	63				
	69	80				
	66	92				
	20	20	52			
	67	97				
	75	100				
30	70	100				
	84	100				
	40	100				
	48	94				
40	52	100				
	56	100				
	97	100				
50	92	100				
	88	100	8.90	17.90	<p>LIGHT GREY, K-FELSPAR ALTERED(?) PLAGIOCLASE HORNBLENDER QUARTZ PORPHYRY SILL(?).</p> <p>PLAG: 20% (2mm) stubby, sericite altered</p> <p>HORNBLEND: 5% (1-2mm) as faint relicts, totally chlorite ← sericite altered.</p> <p>QTZ: 3% (1-2mm) as rounded 'eyes'</p> <p>ALL set in an aphanitic, K-spar? sericite altered matrix.</p> <p>Cut by &lt; .5mm fracture veinlets of sericite (early)</p> <p>Cut by late qtz veinlets with calcite, dark green chlorite</p> <p>Total veinlets 2% by volume, range 40-60° to core</p> <p>Minor f.g. py, hematite on fracture surfaces</p> <p>9.9-11.6m weathered, coarsely crystalline qtz vein, badly broken core, including .5m lost core.</p> <p>Lost circulation at 10.4m.</p>	
	100	100				
92	100					
60	96	100				
	90	100				
	82	100				
70	92	100				
	46	100				
	90	100				
	62	96				
80	82	100				
	90	100				
	64	100				
	100	100				
90	95	100				
	70	100				
	53	100	17.90	38.80	<p>PLAGIOCLASE - HORNBLENDER - K-FELSPAR - QTZ PORPHYRY</p> <p>Mottled, dark to light green colour. Highly variable in phenocryst proportions. Groundmass is aphanitic.</p> <p>Phenocrysts:</p> <p>Plag: 10-30% (2-4mm) Fresh to 100% sericite altered</p> <p>Hrb: 5-10% (1-10mm) All are chl altered, sparsely replaced by py.</p> <p>K-spar: Trace (5-25mm) 1 phenocryst per 30cm</p>	
49	100					
45	100					
96	100					
94	100					
53	100					
110	53	100				



PAGE 4 OF 9		PROJECT: INDIAN 2184				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
110				17.90	38.80	of core. In part, megacrysts are intergrown with hrb. Qtz: Trace (2mm) as rounded 'eyes'.
	79	100				cont.
	73	100				
120	100	100				Alteration: Early stage, moderately strong pervasive chlorite; Hrb almost completely chloritized, ground-mass is partly chloritized. Associated with minor qtz-calcite veinlets.
130						Later, moderate sericite alteration of 50% of the core interval
						Sulphides: Average 2% py, trace cp, trace gn.
						22.40 - 22.56m Sheared sulphide fracture veinlet 5% py 10% cp 8% sp @ 65° to core
						22.79 - 22.93m Sheared fracture veinlet 5% py 5% cp 10% sp
						@ 32.50m Traces of disseminated gn.
						Late, limonite coated fractures & shears: 17.90 - 20.00 1.5m core lost, shears 20° to core axis. 32.50 - 34.00 No core lost, many shears, 10° to core Slickensides 30° rake
						@ 34.80 Fracture 50° to core
				38.80	70.50	GREYISH GREEN MODERATELY PROPYLITIC ANDESITE LAPILLI TUFF (abbreviation mod. prop. Alt) Lapilli are angular, monolithic, finely (.5mm) felspar-hrb porphyritic, up to 4cm in size; matrix supported. Matrix slightly calcareous. Alteration: uniform, moderate pervasive propylitic alteration. Associated with <1% irregular, hairline (<1-3mm) qtz-calcite veinlets. Sulphides: Py, mostly as 1% even disseminations with lesser blebs in qtz-calcite-py veinlets and py fracture veinlets. 51.50-51.90 30% py, trace cp, infilling shear Late fractures are widely spaced, core recovery 10-15%





PAGE 6 OF 9		PROJECT: INDIAN 2184				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
				70.50	92.35	<p>PROPYLITIC QTZ-CALCITE VEINED ANDESITE LAPILLI TUFF WITH DISSEMINATED PYRITE.</p> <p>Andesite lapilli tuff is similar to above core interval. Contains short intervals of andesite crystal tuff. Cut by qtz-calcite and qtz-chalcedony-calcite veinlets, 5% by volume, some with lepidate-sericite alteration in walls.</p> <p>Sulphides: in general, py 2 to 5% as very f.g. to f.g (1.5-2mm) grains and blebs heaviest in sericitic alteration. Some fracture veinlets, py.</p> <p>Trace sph, gr as v.f.g. disseminations and vilet fillings. Sph is reddish brown.</p> <p>Details of sections for assay:</p> <p>70.50-71.60m Qtz-chalcedony-calcite vilet, epidote alteration Py 2%</p> <p>76.80-77.66 v.f.g. qtz vilet, 10% py; Qtz is almost chalcedonic. Minor calcite. Weakly sericite altered.</p> <p>77.66-79.85 Prop. Alt with minor qtz-calcite chalcedony vilet, Py 8% fracture/gash band fillings of black chlorite.</p> <p>79.85-81.40 Dark grey chalcedony vilet, chl-ep (serc) altered Alt. Very f.g. tot q py 7%; veinlets 10% by volume.</p> <p>87.17-88.92 Very f.g. qtz-chalcedony-calcite veinlet chl-serc-ep altered Alt with py, minor gr, sp as blebs and fine diss. in chalcedony.</p>
				92.35	94.83	<p>PLAGIOCLASE - HORNBLENDE K-FELSPAR PORPHYRY</p> <p>Light greyish green colour</p> <p>Phenocrysts:</p> <p>Plag 35% (1-3mm) Completely sericite altered</p> <p>Hrs 4% (1-5mm) All chl altered</p> <p>K-felspar 1% (2-20mm) Megacrysts in part; intergrown with hrs.</p> <p>Qtz Rare (1mm) As rounded 'eyes'.</p> <p>All set in an aphanitic groundmass, chlorite altered.</p> <p>@ 92.90m 8mm qtz-chl-calc-sph-py veinlet 20% core axis.</p> <p>Cut by irregular 1-3mm calcite vilet &lt; 1% by vol.</p>



DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG			GEOLOGICAL DESCRIPTION
				FROM	TO	
				94.83	96.50	<p>CHLORITIC ANDESITE LAPILLI TUFF WITH QTZ-CALCITE-SPHALERITE-PYRITE (CHALCOPYRITE) VEINS.</p> <p>94.83-95.08 Qtz-calc-chl-sph-py(-cp) sheared sulphides. Grey and reddish brown sph ~20%.</p> <p>95.08-96.02 Chloritic Alt with qtz-chl-calc v'lets and py v'lets. Minor v'lets + fracture coating sph. Alt is cracked.</p> <p>96.02-96.50 Qtz-chl(-py-sph) sheared sulphides</p>
				96.50	107.10	<p>CALCITE-Qtz VEINLETED, PLAS.-HRIS-K-FELSPAR PORPHYRY.</p> <p>Light greyish green coloured</p> <p>Phenocrysts:</p> <p>Plag: 40% (1-3mm) stubby, partly to completely sericite altered.</p> <p>Hrs: 4% (1-5mm) euhedral, partly ch' altered.</p> <p>K-felspar: 2% (1-20mm) partly megacrystic</p> <p>In an aphanitic groundmass, moderately chlorite altered.</p> <p>Cut by late fractures partly infilled with late calcite(-qtz) 3% by volume</p> <p>@ 97.00 - 35° calcite-qtz .5cm</p> <p>@ 101.70 - 20° " " 1cm.</p>
				107.10	107.80	<p>MEDIUM GREEN COLOURED, FINE GRAINED ANDESITE DYKE</p> <p>Weakly chlorite altered, only minor late fractures and calcite veinlets.</p> <p>@ 107.10 50° to core, contact with Alt</p> <p>@ 107.80 50° to core, contact with qtz vein/breccia</p>
				107.80	120.09	<p>PROPYLITIC ANDESITE LAPILLI TUFF</p> <p>Angular, dark green f.g. lapilli (fine hrs, felspars are visible), lapilli .5-3cm in size, matrix supported</p> <p>Matrix contrasts with lapilli, colour is light green.</p> <p>Alteration: Weak propylitic alteration and minor, randomly oriented qtz-calcite veinlets &lt;1%.</p> <p>Sulphides: Py, as 1% diss., and blebs.</p> <p>107.80-108.60 Qtz vein + Qtz vein breccia. Minor py.</p>
				120.09		<p>End of Hole.</p> <p>Paul J. H. Seargeant.</p>

PAGE 9 OF 9

PROJECT: INDIAN 2184

HOLE NO. I-12

ALTERATION						TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
							FROM (m)	TO (m)	WIDTH		oz/t Au	oz/t Ag	g/tonne Au	g/tonne Ag
						94.83	95.08	.25	19761	.004	51			
						95.08	96.02	.94	19762	.003	14			
						96.02	96.50	.48	19763	.006	1.04			
						94.83	96.50	1.67	AVE.	.0043	0.563	0.149	19.31	



# ESSO MINERALS CANADA DRILL LOG

HOLE NO. I-13  
PAGE 1 OF 2  
PROJECT INDIAN # 2184  
LOGGED BY: D. HARRISON  
P. MCGUIGAN

COLLAR COORDINATES \_\_\_\_\_

COLLAR ELEVATION \_\_\_\_\_

AZIMUTH [255] DIP -45°

TOTAL LENGTH 99.96 metres

HORIZONTAL PROJECTION \_\_\_\_\_

VERTICAL PROJECTION \_\_\_\_\_

CONTRACTOR F. BOISVEU DIAMOND DRILLING CORE SIZE BQ

DATE STARTED July 26/85 DATE COMPLETED July 30/85

AVERAGE CORE RECOVERY 95% +

PURPOSE - to test altered, qtz-veined plaq.-hbld-kspgr porphyry along drill fence, westward from I-12.

COMMENTS: Casing left in hole

### ALTERATION SCALE



absent  
slight  
moderate  
intense

### TOTAL SULPHIDE SCALE



traces only  
< 1%  
1% - 3%  
3% - 10%  
> 10%

### SUMMARY LOG

*factor used to convert  
oz/ton to grams/tonne:  
1oz/ton = 34.286 g/tonne*

### DIP TESTS

DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
99.96 m	-45° correct'd	[255]			

### LEGEND

*Blocks recorded by driller in imperial measure  
Converted to S.I. by core logger's helper.*

*Alt = Andesite lapilli tuff.  
Core stored in Esso Warehouse,  
Stewart BC*

PAGE 2		OF 7		PROJECT: INDIAN 2184		
DEPTH (m) 1:5000	RQD	% CORE REC	GRAPHIC LOG	Metres		GEOLOGICAL DESCRIPTION
				FROM	TO	
	16.2	51		0	13.24	FINE-GRAINED PLAGIOCLASE-HORNBLÉNDE ANDESITE TUFF. - dark green colour, plagioclase weakly epidote/calcite altered. - hornblende fresh to weakly chlorite altered (black) - minor, fine grain flocks of buff coloured sericite - < 1% finely disseminated pyrite; ~ 1% veinletted by thin quartz/calcite
10	21.0	68				
	24.0	73				
	27.0	100				
	34.4	91				
	32.5	94				
	38.0	97				
20	42.5	98				@ 0 → 7.1 : RQD ~ 10 - broken, fractured rock with moderate limonite on fractures; trace dendritic Mn stain ~ 2% plag. altered to epidote which weathers away leaving pitted texture.
	51.0	88				
	56.0	100				
	62.7	90				@ 11.80 → 13.25 - andesite brecciated and locally sheared by quartz/carbonate (white/grey) vein. & to core contact 35°
30	66.0	100				- exhibits local mottled texture of strong chlorite and sericite altered dyke fragments in vein matrix
	69.0	100				
	80.0	70				
40	94.0	98				@ 12.44 → 12.6: - 10% (1mm dia) dis. pyrite oriented parallel to shear
	66.5	92				@ 12.5 m : & to core : 25° - fabric of shear - qtz, chlor. minor sericite, trace chalcidony.
	27.0	715				@ 12.6 → 13.25 : - 90% whitish quartz, calcite, trace diss. pyrite
	89.0	975				- lower contact is sheared and indistinct - finely sheared pale grey/green sericite, dark greyish chalcidony & to core contact 20°
50	84.0	91		13.25	32.8	QUARTZ-CALCITE VEINLETED DARK GREEN ANDESITE LAPILLI TUFF
	92.0	98				- matrix supported, rounded to sub-angular lapilli from 0.2 → 16 cm
	82.0	96				- some lapilli show 2% feldspar phenocrysts (~2mm); lapilli are propylitically altered (dominantly chlorite, lesser epidote, trace carbonate)
60	92.0	100				- matrix is moderately chlorite altered, slightly calcareous and generally lighter green than lapilli (local sericite altered)
	77.0	98				- ~ 1% dissem. pyrite throughout, as 5mm → 2mm grains and clots
	85.0	102				- trace pyrite occurs as 1mm veinlets or masses in qtz/calc. veins.
70	75.0	95				- quartz/calcite veinlets of irregular orientations ~ up to 2cm wide & exhibit local small scale brecciation.
	69.0	99				
	85.0	107				
80	82.5	99				@ 18.95 → 21.64m : zone of weak shearing, minor brecciation
	78.5	94				- chlorite, sericite alteration is weak to locally moderate
	80	98				- 10% quartz-carbonate with trace chalcidony; hematite frags?
	48.3	933				- pyrite within sheared zones up to 5% as mod. dissem. (1mm)
90	71	100		32.80	45.3	@ 29.5 → 29.7 m : 10% quartz calcite veined with ~ 8% dissem. pyrite in andesite and as veins - trace galena, 1% dark sphaler.
	40	100				SERICITIC QUARTZ-CALCITE VEINLETED ANDESITE LAPILLI TUFF
	88	98				- similar rock type as previous section however generally lighter grey green in colour; lapilli texture still obvious
100	33	47				- sericite/epidote altered zones are pale greyish green but have hardness of ~ 4 → 5; weak carbonate reaction of matrix
						- quartz-calcite veinlets cut Alt. at variable orientations in irregular patterns. veinlets range in width from 1mm to 10 cm.
110						- wide veinlets exhibit coarse angular texture of Alt.
						- pyrite occurs generally as coarse blebs or clots (~1mm to 15mm)

cont.





PAGE 4 OF 7		PROJECT: INDIAN 2184				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	metres		GEOLOGICAL DESCRIPTION
				FROM	TO	
				32.80 continued.	45.30	<ul style="list-style-type: none"> <li>or as thin clotted veinlets (~5mm wide) - total pyrite - 3%</li> <li>- rock has generally high RQD</li> <li>- from 43.7 m to end of section (45.35m) has RQD of 0</li> <li>- all fractures (late, limonite coated) are at high angles (70-90°) to core</li> </ul>
				45.28	52.86	<p>ALTERED PLAGIOCLASE-HORNBLLENDE-K-SPAR PORPHYRY SILL (?)</p> <ul style="list-style-type: none"> <li>- orientation of upper contact unobtainable due to indistinct contact and rock is in fragments</li> <li>- 30% plagioclase phenocrysts 0.3 mm to 6mm subhedral, randomly oriented - all are totally altered, dominantly to greenish chlorite, lesser altered to buff green sericite;</li> <li>- 10% hornblende phenocrysts 1mm to 7mm sub to euhedral dominantly as elongate laths, or less common as irregular masses</li> <li>- all hornblende altered to dark green chlorite (fine sheathed mats)</li> <li>- K-spar occurs as med.-grained anhedral blebs (grains) ~1-3 mm milky white colour with indistinct grain boundaries</li> <li>- density range from trace to 10% locally - concentrations fringing fractures may be K-spar altered plagioclase</li> <li>- megacrysts of K-spar (sanidine?) range from 5 to 45 mm dia. constitute ~1% - large Xls show poikilitic texture with b'd.</li> <li>- pyrite occurs in trace amounts as very fine cubic Xls or as ~1mm blebs, uniformly disseminated throughout.</li> <li>- unit shows no structural deformation and is cut by rare qtz/calcite filled fractures (~1mm) and veinlets (~2mm)</li> <li>- lower contact is very sharp. <math>\angle</math> to core: 70°</li> </ul>
				52.86	99.96	<p>QUARTZ-CALCITE VEINLETED DARK GREEN ANDESITE LAPILLI TUFF</p> <ul style="list-style-type: none"> <li>- similar to section I-13: 13.24m to 32.8m</li> <li>- contrast between lapilli and matrix is less distinct possibly due to increased alteration (alterat<sup>n</sup> still moderate)</li> <li>- rare sheared zones localized over 5cm to 10cm widths</li> <li>- pyrite ~1%, locally abundant (up to 5%) as 1mm round disseminated grains over ~10cm widths</li> <li>@ 56.10 → 57.0 m - breccia vein through andesite lapilli tuff contains few (~10%?) fragments of chalcedonic quartz mineralized with pyrite galena chalcocite dark brown sphalerite (total: 3% sulphides, dissem.) 2% pyrite, 1% gal, - traces chalcocite, sphal.</li> <li><math>\angle</math> to core of breccia zone <math>\approx 3^\circ</math></li> <li>- fragments are silicic, chlor. (sericite, epidote?) altered, 2-3 cm dia.</li> <li>@ 57.4 → 59.3 m gradual change in texture at top of zone into fine-grained andesite (dark green) chlorite altered with 2% dark chlorite altered phenocrysts (plagioclase)</li> </ul>

cont. →

PAGE		OF		PROJECT:		HOLE NO.								
5	7	INDIAN 2184				I-13								
ALTERATION						TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
							FROM (m)	TO (m)	WIDTH		oz/t Au	oz/t Ag.	g/tonne Au	g/tonne Ag.
						56.01	57.0	0.99	19780	.002	.82	.068	28.11	

PAGE 6 OF 7		PROJECT: INDIAN 2184			
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION	
				FROM	TO
				continued.	<ul style="list-style-type: none"> <li>- pyrite in trace amounts ; very fine-grained</li> <li>- calcite/qtz veinlets rare to 1% , very thin (~.5mm)</li> <li>- RQD of section is high (80-90)</li> <li>- unit is possibly andesite dyke, yet contacts are indistinct, possibly andesite tuff, gradational with lapilli tuff</li> </ul>
				@ 68.71 m → 68.80 m	shear through andesite lapilli tuff, - chlorite, sericite, qtz, calcite strung out in lenses, $\angle$ to core 42° ~ 2% pyrite
				@ 69.52 m → 69.62 m	pale buff grey green sericite - epidote altered andesite lapilli tuff ; trace pyrite $\angle$ to core 50°
				@ 70.67 → 70.80 m	cracked andesite lapilli tuff with sericite - chlorite alteration - qtz/calcite veining (whitish) ; minor black chlorite ~ 2% coarse dissem (~8mm) galena along veinlets ~ 1% dissem. pyrite ; trace sphal ?
				@ 72.6 - 73.04 m	minor sheared, minor bx zone with ~ 30% dark green chlorite, 30% buff green sericite - epidote altered Alt with ~ 20% qtz calcite. ~ 3% dissem. pyrite as 1-3 mm grains, trace sphal.
				@ 84.5 - 85.0 m	very fine-grained andesite dyke - weakly chlorite altered, pale green uniform - cut by calcite/qtz veinlets (~1mm) every 10 cm. $\angle$ to core of veinlets - 70° ; $\angle$ to core of contact - 72°
				@ 85.0 - 99.96 m	calcite/qtz veined ~ 1% irregular, varying orientations, widths from 0.5 mm to 15 mm - to end of hole.
				99.96	END OF HOLE

Don J. Harrison  
 Paul J. McGeunin





# ESSO MINERALS CANADA DRILL LOG

HOLE NO. DDH I-14  
PAGE 1 OF 13  
PROJECT INDIAN  
LOGGED BY: D.J. HARRISON

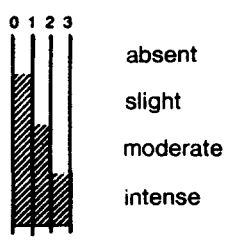
COLLAR COORDINATES (not presently tied into survey grid.)  
AZIMUTH [255] DIP -48°  
HORIZONTAL PROJECTION \_\_\_\_\_

COLLAR ELEVATION \_\_\_\_\_  
TOTAL LENGTH 120.69 m  
VERTICAL PROJECTION \_\_\_\_\_

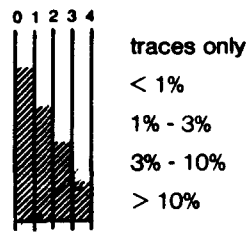
CONTRACTOR F. BOISVENU DIAMOND DRILLING CORE SIZE BQ  
DATE STARTED July 30/85 DATE COMPLETED Aug-2/85  
AVERAGE CORE RECOVERY 95% +

PURPOSE - to test multi-element geochem soil anomaly and high IP anomaly  
COMMENTS: Casing left in hole.

### ALTERATION SCALE



### TOTAL SULPHIDE SCALE



### SUMMARY LOG

*factor used for converting  
oz/ton to g/tonne is -  
1 oz/ton = 34.286 g/tonne.*

### DIP TESTS

DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
120.9 m	-48°	[255]			

*Note. dip of collar measured to be -48°*


### LEGEND

*Blocks recorded in imperial units, converted to metric units by core-logger's helper.*  
*Alt = Andesite Lapilli tuff.*  
*Core stored in Esso warehouse, Stewart BC*

RQD	% CORE REC	GRAPHIC LOG			GEOLOGICAL DESCRIPTION
			FROM	TO	
			0	2.4	OVERBURDEN
31	48		2.4	13.23	DARK GREEN, ALTERED ANDESITE LAPILLI TUFF. - moderate propylitic alteration suite (chlorite, epidote, calcite) - lapilli are darker green than matrix; 0.5 to 4 cm dia. - matrix supported; matrix slightly calcareous - 2% pyrite occurs as very fine disseminations (~2mm) or as clots up to ~1 cm dia. - calcite/quartz microveinlets & veinlets irregularly cut Alt at various orientations; 0.5 cm calcite veinlets cut Alt at ~45 to 50°
91	100				
76	100				
75	95				
67	99				
76	100				
79	100				
92	100				
83	100				@ 2.4 - 2.8 m - bleached grey Alt at soil/bedrock interface @ 8.62 m veinlet (calcite) & to core +7°; slickensides: 60° rake @ 9.41 - 9.7 m white calcite/quartz vein with .5-3 cm angular chlorite altered fragments.
70	100				
39	99				
62	100				
60	100		13.23	18.15	ALTERED PLAGIOCLASE HORNBLLENDE-KSPAR PORPHYRY SILL. - 25% altered plagioclase phenocrysts; ~2mm - 8mm subhedral - all altered, from v. fine-grained chlorite to pale green semi-translucent sericite (1% of plag. may be higher, much of groundmass indistinct). - 15% hornblende, altered to dark green fine sheaths of chlorite - range in size from sub- to euhedral xls 0.5mm - 12mm, also sheaths of similar chlorite as irregular masses (~10mm). - 10% K-spar phenocrysts, locally down to ~2%, generally as sub- to anhedral white xls ~5mm - 1cm with indistinct boundaries. - trace grey rounded quartz eyes. - pyrite (~1%) as very fine, uniform disseminations - trace galena (2 observations, very fine grains ~2mm) - sill cut by ~2% quartz/calcite veinlets, irregular, dominant orientation is at 55° to core, < 2 cm wide @ 17.87 8mm wide fine-grained qtz veinlet contains 2-4 mm blobs of pyrite and galena (~10% total SX) @ 18.07 5mm wide qtz veinlet contains blobs of pyrite galena; trace chalcocite along selvage (~10% total SX)
64	100				
47	99				
62	100				
43	98				
77	100				
68	100				
70	100				
26	100				
23	100				
51	100				
90	100				
86	95				
100	100				
67	100				
81	100				
69	95		18.15	21.3	ALTERED, PYRITIC, (DARK GREEN) ANDESITE LAPILLI TUFF - contact with overlying sill is indistinct. - moderately altered by chlorite, sericite/epidote, quartz, calcite - lapilli (dominantly chlorite altered) groundmass is pale green sericite/epidote altered, cut by later quartz/calcite veinlets; Alt has weak carbonate reaction; 2% sericite flecks - pyrite (10%) is locally concentrated in dark chlorite altered zones - only traces in sericite/epidote. - occurs finely disseminated in local concentrations; as anhedral clots or as euhedral cubes (~10%); trace galena, cpy, sphal.
74	100				
55	100				
47	100				
81	100				
82	100				
65	100				
48	95				





PAGE 4 OF 13		PROJECT: INDIAN # 2184				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
118				21.3	22.77	<p>FINE-GRAINED ANDESITE DYKE</p> <ul style="list-style-type: none"> <li>- upper contact at 65° to core (angle). - sharp.</li> <li>- weakly altered, uniform grey green colour; ~ 60% plagioclase</li> <li>- ~ 20% weak chlorite altered hornblende. - no pyrite observed.</li> <li>- 2 cm chilled margin - lower contact at high angle to core.</li> </ul>
	56	100				
	64	100				
120	52	100				
				22.77	27.84	<p>ALTERED, PYRITIC DARK GREEN ANDESITE LAPILLI TUFF</p> <ul style="list-style-type: none"> <li>- chlorite, sericite, epidote, quartz, calcite altered</li> <li>- lapilli are subrounded from 0.3 cm to 4 cm dia. generally chlorite darker green than matrix, some brownish buff, matrix supported.</li> <li>- matrix moderate to strongly sericite/epidote-qtz-calcite altered.</li> <li>- pyrite concentrated in chloritic zones up to 15%; ~ 1% in sericite/epidote altered zones.</li> <li>- section shows local small scale shearing; no wide, distinct qtz/carbonate veinlets are present; only fine irregular fractures infilled with chlorite/calcite/qtz</li> <li>- XRD samples at 23.15 m, 24.90 m, 25.75 m.</li> </ul>
				27.84	30.3	<p>FINE-GRAINED ANDESITE DYKE</p> <ul style="list-style-type: none"> <li>- top + bottom contacts are not clear due to broken core.</li> <li>- 1 to 2 cm fine-grained chilled margin - dyke is dark green weakly chlorite altered, similar to above dyke at 21.3 to 27.77</li> <li>- approx. middle 1.5 m of dyke is lighter green and grain size is slightly coarser (twice grain size?) - contains darker green xenoliths.</li> </ul>
				30.3	33.15	<p>ALTERED PLAGIOCLASE-HORNBLÉNDE-KSPAR PORPHYRY SILL</p> <ul style="list-style-type: none"> <li>- 20% sericite (epidote, calcite?) altered plagioclase phenocrysts</li> <li>- are roundish to euhedral, 1 mm → 6 mm size; trace qtz eyes</li> <li>- 10% dark green to black chlorite altered hornblende locally replaced by pyrite blebs, wh'd xls occur as cross-sectional prisms (ie ) or as elongate laths. (2 mm → 12 mm)</li> <li>- 5% white k-spar phenocrysts with "cloudy" grain boundaries</li> <li>- locally concentrated to ~ 10%, generally sub-rounded; (~ 4 mm)</li> <li>- trace megacrysts of k-spar with euhedral, poikilitic (rare) xls.</li> <li>- all cut by grey, white qtz-calcite veinlets (~ 1 → 2 mm) and fine microveinlets (&lt; 1%). - coarse grained calcite forms irregular blebs + masses ~ 1-3 cm; has maroon grey colour (hematite rich)</li> <li>- XRD sample of maroon grey calcite at 32.40 m.</li> <li>- only traces of pyrite in the unit (sill), mostly in hornblende phenocrysts.</li> </ul>
				33.15	36.58	<p>DARK GREEN FINE-GRAINED ANDESITE DYKE</p> <ul style="list-style-type: none"> <li>- 3 cm wide white calcite bleb at contact - core is broken into fragments - hornblende grains as fine (~ 5 mm) black specks; plagioclase weakly altered (chlor./ser/epidote?)</li> <li>- occurs as ~ 1% phenocrysts ~ 1 mm in size cont. →</li> </ul>



PAGE 6 OF 13		PROJECT: Indian				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
				continued	<ul style="list-style-type: none"> <li>- dyke is weakly altered (chloritic)</li> <li>@ 33.8 - 34.07 m dyke is moderately altered to apple green epidote (XRD sample taken at 34.0 m)</li> <li>- dyke is generally uniform in texture, chilled lower margin (2 cm wide) - trace of very fine carbonate veinlets    to core axis</li> <li>@ 33.33 m - xenolith of intrusive porphyry sill incorporated into dyke - 160 cm long (dia.)</li> <li>- no pyrite observed in dyke</li> </ul>	
				36.58	47.2	<p>ALTERED PLAGIOCLASE-HORNBLÉNDE-KSPAR PORPHYRY SILL</p> <ul style="list-style-type: none"> <li>- compositionally &amp; texturally similar to porphyry sill previously described. - plagioclase xls slightly more distinct and darker colour (up to 40% in places)</li> <li>- zones of qtz carbonate lumps are larger (~10 cm) and also contain dark green chlorite</li> <li>- trace yellow/green epidote on fractures</li> <li>- groundmass of sill gradually coarsens in grain size towards middle of unit (approaches granodiorite)</li> <li>- alteration is similar to previously described sill.</li> <li>@ 38.02 - 38.13 m : irregular mass of qtz/calcite/ch<sup>white</sup>rite</li> <li>@ 41.08 - 41.16 m : " " " "</li> <li>@ 42.59 - 42.68 m : " " " "</li> <li>@ 43.90 - sample of middle of sill (granodiorite) for thin section</li> <li>@ 47.02 - 2 cm wide coarse grained (5 mm) black/dark grey calcite veinlet &amp; to core 55°</li> </ul>
				47.2	49.36	<p>DARK GREEN FINE-GRAINED ANDESITE DYKE</p> <ul style="list-style-type: none"> <li>- dark green, weakly chlorite altered, uniform colour and texture (trace plag. phenocrysts (1-2 mm))</li> <li>- has very high RQD (~90) and cut by trace microveinlets.</li> <li>- lower contact is very sharp and has ~2 cm cooled margin, &amp; to core of contact: 53°</li> </ul>
				49.36	58.88	<p>ALTERED PLAGIOCLASE-HORNBLÉNDE-KSPAR PORPHYRY SILL</p> <ul style="list-style-type: none"> <li>- sill is similar to previously described sill at 36.58-47.2 m.</li> <li>- plagioclase xls vary from very fine-grained dark green chlorite altered to pale buff green translucent sericite (?)</li> <li>- milky white k-spar grains<sup>(?)</sup> (2-4 mm) locally concentrated along fractures, may be k-spar altered plag.</li> <li>@ 56.8 - 56.9 - 10% coarse pyrite clots in pale grey green qtz rich section of porphyry</li> <li>@ 57.8 - 58.35 - pale green epidote altered porphyry with qtz-carbonate</li> </ul>



PAGE 7 OF 13		PROJECT: INDIAN # 2184				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
				58.88	59.21	<p>DARK GREEN FINE-GRAINED ANDESITE DYKE</p> <ul style="list-style-type: none"> <li>- uniform colour and texture; trace chloritic patches 1-3mm possibly altered hornblende phenocrysts (chlorite is fine mat-like sheaths); traces of 1mm euhedral pyrite cubes</li> <li>- cut by 1% calcite veinlets (0.5mm → 2mm wide) at intermediate angles to core (~50 → 55°)</li> <li>- dyke is generally weakly chlorite altered.</li> </ul>
				59.21	89.95	<p>DARK GREEN ANDESITE LAPILLI TUFF</p> <ul style="list-style-type: none"> <li>- lapilli are matrix supported, darker than matrix, range in size from ~1cm to ~8cm., mostly chlorite altered</li> <li>- matrix is fine-grained and is invariably chlorite/sericite/epidote/qtz/calcite altered. - weak to moderate carbonate reaction; pyrite occurs as fine disseminations (2 → 1mm) evenly throughout; locally concentrated within lapilli up to ~20%; some lapilli are almost 80% replaced by pyrite;</li> <li>- section is locally sheared in zones &lt; 10cm wide.</li> <li>- breccia and crackle zones occur due to qtz/calcite veining</li> </ul> <p>@ 63.1 → 65.5 - moderate altered ACT, however lapilli texture is very indistinct - difficult to differentiate from matrix</p> <p>@ 66.02 → 66.30 - fine grained dark green andesite dyke with trace carbonate microveinlets (.1mm; planar)</p> <p>@ 66.3 → 68.5m - rock consists of 40% subrounded lapilli fragments that are lighter coloured than matrix; appear sericite/epidote altered.</p> <p>@ 68.54 - 68.8 - white quartz/carbonate vein with ~10% included green chlorite &amp; to core ~45°</p> <p>@ 69.6 - 69.67 - crackle breccia with qtz/carbonate matrix</p> <p>@ 69.95 - approx 5% clots of brown/red sphalerite.</p> <p>from 66.3 - 89.95 matrix is dominantly pale greyish green sericite/chlorite altered</p> <p>@ 76.3 - 76.38 - minor shear at v. high angle to core (~85°)</p> <ul style="list-style-type: none"> <li>- qtz/calcite with wavy lenses of chlorite, ~5% pyrite in chlorite lenses - ~2% sphalerite?</li> </ul> <p>@ 81.45 - 82.29m - strong sericite alteration, possibly epidote (to give hardness) - colour is pale yellow green to grey. - calcite veinlets are buff yellow and are irregular (~.5mm) patterned through strong alteration</p> <p>XRD sample taken at 81.82</p> <ul style="list-style-type: none"> <li>- pyrite in trace amounts to ~2%</li> </ul> <p>- Thin section sample taken at 79.24m (not labelled in photograph) (lapilli replaced ~80% by fine pyrite)</p>

PAGE 7		OF 13		PROJECT: INDIAN # 2184					HOLE NO. I-14					
ALTERATION						TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
							FROM	TO	WIDTH		oz/t Au	oz/t Ag	g/tonne Au	g/tonne Ag
						59.92	61.94	2.02	19787	.003	.34	.103	11.66	
						66.3	68.5	2.20	19788	.001	.16	.034	5.44	
						68.5	69.85	1.35	19789	.002	.13	.068	4.42	
						69.85	70.88	1.03	19790	.001	.28	.034	9.52	
						66.3	70.88	4.58	AVE	.0013	.19	.045	6.51	
						76.3	77.55	1.25	19791	.003	.22	.102	7.48	
						77.55	79.54	1.99	19792	.002	.20	.068	6.80	
						79.54	80.91	1.37	19793	.001	.13	.034	4.42	
						80.91	81.45	0.54	19894	.002	.27	.068	9.18	
						81.45	82.45	1.00	19795	.001	.14	.034	4.76	
						82.45	84.45	2.00	19796	.003	.15	.102	5.10	
						84.45	85.90	1.45	19797	.001	.21	.103	7.14	
						85.9	87.2	1.30	19798	.001	.13	.034	4.42	
						76.3	87.2	10.9	AVE.	.002	.18	.060	6.21	

PAGE 10 OF 13		PROJECT: INDIAN # 2184				
DEPTH (m)	R Q D	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
				89.95	94.18	<p>ALTERED PLAGIOCLASE-HORNBLÉNDE-K-SPAR PORPHYRY SILL</p> <ul style="list-style-type: none"> <li>- porphyritic texture is almost masked by alteration</li> <li>- 40% subhedral plag. phenocrysts, ~2mm are chlorite altered with minor sericite; in places exhibits a crude directional pattern with xls aligned ~70° to core</li> <li>- hornblende is chlorite altered, occasionally replaced by pyrite - xls are elongate laths up to 12mm long.</li> <li>- white locally 10%, average ~3%</li> <li>- k-spar up to 20%, occur as 5mm rounded "cloudy" milky-white grains, locally only traces of k-spar</li> <li>- only traces (1 every ~20cm) of white megacrysts.</li> <li>- thin section taken at 90.32m - k-spar porphyritic</li> <li>- thin section taken at 92.60m - plag. porphyritic</li> <li>- trace grey rounded quartz eyes ~4mm.</li> <li>- trace → 1% evenly disseminated pyrite cubes or rounded grains &lt; 1mm.</li> <li>@ 92.01 - mass of very fine-grained pyrite - 80% over approx 3cm</li> </ul>
				94.18	107.6	<p>QUARTZ-CALCITE VEINLETED DARK GREEN ANDESITE LAPILLI - *F</p> <ul style="list-style-type: none"> <li>- similar andesite lapilli tuff as previously described</li> <li>- lapilli are matrix supported however moderate chlorite alteration of unit makes lapilli difficult to distinguish.</li> <li>- section has overall dark green colour; minor sericite alt.</li> <li>- pyrite - 1%; however up to 3% in dark chloritized sections</li> <li>- XRD sample taken at 94.68m, of grey/green chlorite/sericite/pyrite alteration.</li> <li>@ 96.52 → 97.92 - quartz/calcite veinleted and brecciated Alt.; qtz/calcite, white grey colour, no sx - breccia fragments carry ~1% pyrite</li> <li>@ 97.02 - 99.3 dark green fine grained Andesite lapilli tuff - ~10% lapilli; &lt; 2cm, 90% is matrix of fine Andesite tuff, uniform texture weak → moder. chlorite alteration</li> </ul>
				107.6	110.14	<p>ALTERED PLAGIOCLASE-HORNBLÉNDE-K-SPAR PORPHYRY SILL</p> <ul style="list-style-type: none"> <li>- porphyritic texture is not distinct, unit is uniform greenish grey colour, except for pale grey phenocrysts (plag?); groundmass is very fine to affonitic along margins, however grain size coarsens to apparently granodiorite texture</li> <li>Thin section samples taken at 108.9m and 110.11m</li> <li>- &lt;5% hornblende, no k-spar megacrysts.</li> </ul>





PAGE 12 OF 13		PROJECT: INDIAN 2184			
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION	
				FROM	TO
			110.14	113.94	QUARTZ/CALCITE VEINLETED ANDESITE LAPILLI TUFF - dark green chlorite altered Alt. - lapilli ore matrix supported + darker - size range from .5 cm to 6 cm - matrix is lighter coloured grey green dominantly chlorite altered, minor sericite/epidote - weakly calcareous - traces to 1% disseminated pyrite as very fine grains - 5% qtz-calcite veinlets are irregular with varying orientations and thicknesses (.2 mm → 1.5 cm)
			113.94	120.69	ALTERED PLAGIOCLASE-HORNBLLENDE-K-SPAR PORPHYRY SILL - grain boundaries are "fuzzy" due to moderate alteration - 20-30% plag. phenocrysts very fine chlorite altered (dark green); few buff green sericite alt. d. - hornblende dark green chlorite altered (med. grained) - K-spars - locally - 10% rounded grains - often more concentrated adjacent fractures → possibly K-spar flooded plagioclase - trace K-spar mega crystals (1 → 2 cm) - trace disseminated pyrite cubes + grains (-1mm) - trace qtz-carbonate fracturing - rare rounded (-2mm) qtz-eyes
				120.69	- end of hole Wor J. Harrison

PAGE 13 OF 13				PROJECT: INDIAN # 2184					HOLE NO. I-14				
ALTERATION					TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
						FROM	TO	WIDTH		02/t Au	02/t Ag	g/tonne Au	g/tonne Ag
						110.14	112.04	1.90	18351	.004	.39		
						112.04	113.94	1.90	18352	.002	.25		
						110.14	113.94	3.80	Ave.	.003	.32	.103	21.94

PAGE		OF		PROJECT:	
DEPTH (m)	R Q D	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION	
				FROM	TO
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# ESSO MINERALS CANADA DRILL LOG

HOLE NO. I-15  
 PAGE 1 OF 13  
 PROJECT INDIAN # 2184  
 LOGGED BY: D. HARRISON

COLLAR COORDINATES (not presently  
 tied into survey grid)  
 AZIMUTH [255] DIP -45°  
 HORIZONTAL PROJECTION \_\_\_\_\_

COLLAR ELEVATION \_\_\_\_\_  
 TOTAL LENGTH 115.2 m  
 VERTICAL PROJECTION \_\_\_\_\_

CONTRACTOR F. BOISJEU DIAMOND DRILLING CORE SIZE BQ  
 DATE STARTED Aug. 2/85 DATE COMPLETED Aug. 3/85  
 AVERAGE CORE RECOVERY 95% +

PURPOSE - to test ground beneath grab sample (1985 trench  
 that assayed 527.3 g/t Au; 257 g/t Au.  
 COMMENTS: Casing left in hole

## ALTERATION SCALE



absent  
 slight  
 moderate  
 intense

## TOTAL SULPHIDE SCALE



traces only  
 < 1%  
 1% - 3%  
 3% - 10%  
 > 10%

## SUMMARY LOG

*factor used to convert  
 oz/ton to grams/tonne  
 is 1 oz/t = 34.286 g/tonne.*

## DIP TESTS

DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
115.2 m	-45° corrected	[255]			

## LEGEND

*Blocks recorded in Imperial units,  
 converted to metric units by  
 core-logger's helper.*

*Alt = Andesite lapilli tuff.*

*Core Stored in Esso warehouse,  
 Stewart BC*

PAGE 2 OF 13		PROJECT: INDIAN # 2184				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
0				-0?	2.48	ALTERED PLAG.-HLBD-K-SAR PORPHYRY - first 0.45m of core is broken into fragments (RQD=0) with weak limonite along fracture surfaces. - texture of unit is "washed out" as phenocrysts appear "cloudy" - plagioclase XLS are rounded to subhedral, 3 to 8 mm altered to soft buff green sericite (minor chlorite); relative abundance ~ 30%. - stand out best when core is dry, dark XLS against grey core - 5% hornblende, dark green chlorite altered, chlorite grains visible, XLS are rare, most common as rounded or irreg masses. - 5% k-spar occurs as pale buff cream coloured, rounded "cloudy" XLS, very soft, sericite altered, in areas concentrated to ~10%. - no k-spar megacrysts present (chlorite) - groundmass is very fine grained grey green and hard (5-6) - possibly minor epidote alteration - carbonate reaction is weak but distinct.
53	72					
	82	100				
10	95	100				
	98	100				
	75	100				
20	65	100				
	44	99				
	54	100				
	74	100				
30	62	100				
	50	100				
	68	100				
40	72	100		2.48	24.87	ALTERED, DARK GREEN ANDESITE LAPILLI TUFF - locally quartz/calcite veined with minor bx zones, locally pyritic. - lapilli are dark green, moderate → strongly chlorite altered - size range: 4mm to 11mm, matrix supported, rounded to angular - locally replaced by pyrite (up to 10%) - matrix is v. fine grained, lighter green than lapilli, slightly calcareous, chlorite (sericite/epidote?) altered; Thin Section at 5.98) @ 2.48 - 6.67 m - lapilli have plagioclase phenocrysts 5 → 1.5 mm light grey colour, vary from ~5% to 25%; pyrite occurs mainly along 1 → 2mm wide veinlets, or dissem. in qtz/calcite veinlets. (trace pyrite, < 2% qtz/calcite veinlets). @ 6.67 - 7.02 m - qtz/calcite has cracked Alt, textures are not distinct. - qtz/calcite is pale yellow/orange colour (limonitic), Alt is sericitic. @ 8.75 - 9.0 m - qtz/calcite brecciated Alt; ~ 25% qtz/calcite vein. - white in colour, carries no SX; trace pyrite in altered Alt fragments @ 10.33 - 10.5 m - red/brown sphalerite in qtz/carbonate mass as v. fine dissem. or as blebs up to 8mm. (~1%) - trace pyrite. @ 13.23 - 13.45 - pale grey bleached andesite lapilli tuff; sericite/silicaously altered; XRD sample at 13.33 @ 13.45 - 20.72 - ~ 2% qtz/calcite veined Alt, veinlets are generally less than 10cm, many are very thin (~1.2mm) and are planar; wider veinlets show minor brecciation or cracking - 1% pyrite is disseminated throughout, locally concentrated to ~ 5%. @ 20.72 - 22.67 m - ~ 15% qtz/calcite veined, bx, cracked Alt, creates mottled green + white texture, chlorite alt" is strong - dark green. ; strong sericite alt" produces buff grey clay-like Alt. XRD sample at 21.12
	74	100				
	65	100				
50	100	100				
	91	100				
	90	100				
	83	100				
60	86	100				
	27	100				
	87	100				
70	67	100				
	64	100				
	82	99				
80	63	98				
	56	99				
	75	100				
90	75	100				
	79	100				
	88	100				
	78	100				
100	55	100				
	50	100				
	81	100				
110	90	100				



PAGE 4 OF 13

PROJECT: INDIAN # 2184

DEPTH (m)	R Q D	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
110				24.87	40.82	<p>ALTERED PLAG-HBLD-KSPAR PORPHYRY SILL</p> <p>- 30% chlorite/sericite altered plag. phenocrysts 0.5mm to 2mm most commonly as rectangular subhedral XLS - most distinct against groundmass when core is dry. ; 5-10% hld as rounded or lath-like XLS from 2mm to 8mm - totally chlorite altered (dark green) (mod. grain chlorite).</p> <p>- 2% milky white, round k-spar grains, occasional megacrysts.</p> <p>- rare, round (2mm-5mm) greyish quartz eyes.</p> <p>@ 32.9m - appears to be a gradual change in alteration of plag phenocrysts. → increase to ~40% and are pale buff grey above, very soft sericite altered.</p> <p>@ 35.5 - 35.7m - moderate sericite (k-spar)? altered; textures are barely visible, zone is gradational; qtz/carbonate veinlet (8cm) cuts zone, is buff cream-yellow colour; 4 to core 31°</p> <p>@ 38.74 - 38.73 weakly developed shear zone; contains ~2% sulphides: 2% pyrite, 1% combined, very fine grained galena, sphal.</p> <p>50% qtz/calcite (white) infilled. shear: 8 to core: 55°</p> <p>@ 40.09 - 40.15 - white qtz/calcite vein, 90° to core.</p> <p>- thin section at: 31.40 - chlorite alt. plag. porphyry</p> <p>- thin section at: 37.72m - sericite alt. plag. porphyry</p> <p>XRD sample at: 35.63m - sericite (qtz) alt. porphyry</p>
115.2	82	100				
120						
130						
140						
150						
				40.82	62.22	<p>DARK GREEN (LOCAL QTZ/CARB. VEINLETED) ANDESITE LAPILLI TUFF.</p> <p>similar to Alt described earlier</p> <p>- lapilli are rounded to sub-angular, from 2mm to -8mm</p> <p>- matrix supported and, darker than matrix due to strong chlorite alteration, - locally, some lapilli replaced 60% by v. fine pyrite.</p> <p>- matrix is very fine-grained andesite, moderate chlorite, sericite, carbonate altered; pyrite occurs throughout - 2% but concentrated more within lapilli; pyrite veinlets (&lt; 1mm) are rare.</p> <p>@ 42.35 - 42.43 m - pale white/grey calcite veinlet 45° &amp; to core</p> <p>@ 41.22 - 44.72 m - ~ 5% calcite veinleted (very minor qtz).</p> <p>veins are irregular and at varying orientations; matrix of Alt is greyish green colour, sericite/epidote/chlorite altered</p> <p>- pyrite replaces most lapilli (up to 60% on some lapilli).</p> <p>@ 50.23m - 50.33m - grey calcite veinlet; 4 to core 98°</p> <p>@ 55.90m - 58.70m - 10% calcite/qtz veinleted, brecciated &amp; weakly sheared Alt. - vein material is grey/white.</p> <p>host rock is chlor, ser., (k-spar?) altered grey green</p> <p>pyrite occurs dissem. (trace) in host rock; ~2% pyrite along vein selvage.</p>

cont. ↓





PAGE 6 OF 13		PROJECT: INDIAN # 2184				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
					<p>@ 58.70-61.77 m weakly altered andesite lapilli tuff with trace calcite/quartz fracturing - only ~ 5-10% lapilli present.</p> <p>@ 61.77-62.22 - Alt is fractured + weakly brecciated by calcite/qtz vein. - 5% pyrite as irregular clots.</p>	
				62.22	63.70	<p>FINE-GRAINED DARK GREEN ANDESITE DYKE</p> <ul style="list-style-type: none"> <li>- chilled margins are lighter, pale green, extend 5 cm inward.</li> <li>- dyke is approx. 60% grey plagioclase groundmass, very fine grained (indistinguishable grain boundaries) - 30% fine (-.5 to 1 mm) chlorite grains, - probably altered hornblende xls</li> <li>- rare pyrite grains, as ~ 1mm rounded clots or blebs</li> <li>- trace planar calcite/qtz veinlets (1 to 3 mm wide); at high angles to core.</li> <li>- lower contact very sharp: <math>\perp</math> to core: <math>58^\circ</math></li> </ul>
				63.70	75.33	<p>ALTERED DARK GREEN ANDESITE LAPILLI TUFF</p> <p>@ 63.70-66.34 m. - similar to section 58.70-61.77 m</p> <ul style="list-style-type: none"> <li>- Alt is weakly altered and lapilli fragments are few (~30%); very little contrast with matrix</li> <li>- colour is dark green to greyish green; 1% pyrite</li> </ul> <p>@ 66.34-69.44 m - andesite lapilli tuff is moderately sericite altered to a pale buff green colour, lapilli fragments barely distinguishable; planar calcite veinlets are cream coloured, from .5 mm to 2 mm wide, are at varying angles to core, occur ~ 1 every 5 cm; XRD sample at 67.04 m; 2% pyrite</p> <p>@ 66.97-67.0 - thin dyke (3 cm) of andesite; very fine-grained chilled texture, central core of .4 cm is darker coloured.</p> <ul style="list-style-type: none"> <li>- very fine, thin needle-like xls (-.1 mm x 1 mm) are darker, possibly fine hbl phenocrysts. - no pyrite observed.</li> </ul> <p>@ 69.44-75.33 m - Andesite lapilli tuff is weakly chlorite altered, with localized zones - 8-12 mm that are pale buff green sericite altered, pyrite - 1 to 2%, weak carbonate reaction. - section cut by 2 to 5% irregular calcite/qtz veinlets. 5 mm to 15 mm; trace brecciation along rare veinlets</p>
				75.33	92.7	<p>ALTERED PLAG.-HBLD-K-SPAR PORPHYRY SILL</p> <p>@ 75.33-82.90 - plagioclase phenocrysts (20-40%) are sub-angular and totally replaced by greenish v. fine-grained chlorite.</p> <ul style="list-style-type: none"> <li>- more altered xls are pale buff green with minor sericite?</li> <li>- xls range from .2 mm to 6 mm; 10% hbl, altered + med-grained chlorite sheaths, irregular masses 1 to 4 mm</li> <li>- white k-spar xls vary from 25% to 5% over metres, occur as sub-rounded grains generally 3 mm dia.; grain boundaries are cloudy</li> <li>- trace white (sometimes poikilitic hbl) megacrysts (1 every ~ 10 cm)</li> </ul>



PAGE 8 OF 13		PROJECT: INDIAN # 2184				
DEPTH (m)	R Q D	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
					<ul style="list-style-type: none"> <li>- trace gray round quartz eyes - 2 mm dia (up to 5 mm)</li> <li>- 1-2% fine dissem. pyrite as cubes; lesser clots, up to 3 mm</li> </ul>	
					<p>@ 82.90 - 86.17 m - altered zones more prominent; moderate sericite/chlorite/epidote/carbonate alteration over .5 m (or less) widths - colour is a pale buff green.</p> <ul style="list-style-type: none"> <li>- cross cutting calcite veinlets (2 mm; planar) etc at a high angle to core.</li> </ul> <p>XRD sample taken at 85.1 m</p>	
					<p>@ 86.17 m - 92.90 - moderate chlorite altered, weak sericite/epidote alteration; 30% plagioclase Xls are dark green, soft, subhedral, randomly oriented.</p> <ul style="list-style-type: none"> <li>- 5% green + black chlorite altered hornblende, as euhedral lath-like Xls (~8 mm long) or irregular masses &lt; 1 cm.</li> <li>- 1% white K-spar phenocrysts as sub-rounded, milky white grains with indistinct grain boundaries, size varies from 3 → 8 mm; trace → 1% pyrite grains (~1 mm)</li> <li>- trace white K-spar megacrysts up to 2.7 cm, euhedral.</li> <li>- trace → 1% grey, rounded quartz eyes, 4 → 6 mm</li> </ul>	
				92.97	93.91	<p>- strongly altered zone, indistinguishable between porphyry sill or Andesite (appilli) tuff - no noticeable contacts, chlorite alteration is strong - dark green colour, strong sericite is pale green to white.</p> <ul style="list-style-type: none"> <li>- calcite/qtz veining(?) (flooding) as a white matrix (25%)</li> <li>- section has overall green/white mottled texture.</li> <li>- due to brecciation, crackling, minor shearing</li> <li>- 10% pyrite as irregular masses up to 3 cm, within chloritic host rock, or as selvage along calcite/qtz.</li> <li>- 1% black chlorite</li> </ul> <p>@ 93.36 - 3 cm sheared white calcite @ 85° to core</p> <p>@ 93.89 - fracture with slickensides @ to core 63°; rake 72°</p>
				93.91	95.66	<p>ALTERED, PLAG HBLD - K-SPAR PORPHYRY SILL</p> <ul style="list-style-type: none"> <li>- very similar to section 86.17 - 92.90</li> <li>- plag. Xls are not as distinct; chlorite alteration is moderately stronger, XL grain boundaries are much more "fuzzier"</li> <li>- trace pyrite (1 mm or less)</li> </ul> <p>- lower contact with Andesite (appilli) tuff is obscured by calcite/qtz veined crackle zone.</p> <ul style="list-style-type: none"> <li>- section cut by thin (.5 → 1 mm) planar calcite veinlets (2%) and by wider (2 cm) irregular veinlets? (masses) of calcite/qtz.</li> </ul>
						<p>- lower contact indistinguishable due to fracturing, veining.</p>



PAGE 10 OF 13		PROJECT: INDIAN * 2184				
DEPTH (m)	RQD	% CORE REC	GRAPHIC LOG	GEOLOGICAL DESCRIPTION		
				FROM	TO	
				95.66	95.8	strongly altered zone much similar to section 92.7-93.91; ~20% calcite/qtz veining, bx, crackling with strong chlorite alt, moderate sericite (epidote <sup>?</sup> ); pyrite ~1% as fine disseminations or veinlets.
				95.8	115.2	ALTERED, CALCITE/QTZ VEINLETED ANDESITE LAPILLI TUFF - locally dark green, moderately chlorite altered andesite lapilli tuff; - gradational with greenish grey sericite/chlorite zones with strong alteration (moderate epidote <sup>?</sup> alteration - gives hardness ~4-5); zones are up to 1.5 m long - calcite (buff-cream colour)/qtz (white) veinlets occur as thin (1-2mm) planar fracture fillings, or as wider zones (<1.5m) of bx + crackling. - generally <2% pyrite in these zones. @ 95.8-97.66 - dark green alt, chlor, altered, lapilli matrix supported + ~20% replaced by pyrite - pyrite ~3% throughout section. @ 97.66-98.03 - strong chlor, sericite, epidote altered Alt in calcite/qtz bx + fract, weak shear zone at high $\alpha$ to core (80-85°) ~30% calcite/qtz. - ~2% pyrite. @ 98.03-102.09 - strong sericite, chlorite (epidote <sup>?</sup> ) altered zones, pale buff grey green colour. - zones are uniform + fine grained. - trace → 1% pyrite chlorite, @ 102.09-102.14 - clay, altered (black chlorite) fine gouge shear zone at 90° to core 102.14 - 107.77m - dark grey green moderately chlorite altered Alt.; - minor (~2%) thin (1-3mm) weak shear zones with calc/qtz infill. - lapilli are not clearly distinct; local patches of weak crackling. @ 107.77-109.34 - 70% strongly sericite/chlorite/epidote <sup>?</sup> altered, very fine-grained, pale buff grey green colour, gradational with greenish Alt. - post alteral fractures "dry", are re-healed (trace) XRD sample at 108.67











APPENDIX 4

PHONE 980-5814

*MIN-EN Laboratories Ltd.*

*Specialists in Mineral Environments*

Corner 15th Street and Bewicke  
705 WEST 15TH STREET  
NORTH VANCOUVER, B.C.  
CANADA V7M 1T2

ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT  
WORK - 26 ELEMENT ICP

Ag, Al, As, B, Bi, Ca, Cd, Co, Cu, Fe, K, Mg, Mn, Mo,  
Na, Ni, P, Pb, Sb, Sr, Th, U, V, Zn

Samples are processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with HNO<sub>3</sub> and HClO<sub>4</sub> mixture.

After cooling samples are diluted to standard volume. The solutions are analysed by Computer operated Jarrell Ash 9000 ICP. Inductively coupled Plasma Analyser. Reports are formatted by routing computer dotline print out.

PHONE 980-5814

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705 WEST 15TH STREET  
NORTH VANCOUVER, B.C.  
CANADA V7M 1T2

### GOLD GEOCHEMICAL ANALYSIS BY MIN-EN LABORATORIES LTD.

Geochemical samples for Gold processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 5.0 or 10.0 grams are pretreated with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 0.005 ppm (5ppb).

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Corner 15th Street and Bewicke  
705 WEST 15TH STREET  
NORTH VANCOUVER, B.C.  
CANADA V7M 1T2

ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK

PROCEDURE FOR ARSENIC:

Samples are processed by Min-En Laboratories Ltd., at 705 West 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with HNO<sub>3</sub> and HClO<sub>4</sub> mixture.

After cooling samples are diluted to standard volume. A suitable aliquote is taken from the above 1 gram sample solution and the test is carried out by Gutzeit method using Ag CS<sub>2</sub>N (C<sub>2</sub>H<sub>5</sub>)<sub>2</sub> as a reagent. The detection limit obtained is 1. ppm.

*MIN-EN Laboratories Ltd.*

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Corner 15th Street and Bewicke  
705 WEST 15th STREET  
NORTH VANCOUVER, B.C.  
CANADA

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK.

PROCEDURES FOR, Cu, Mo, Cd, Pb, Mn, Ni, Ag, Zn.

Samples are processed by Min-En Laboratories Ltd. at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with HNO<sub>3</sub> and HClO<sub>4</sub> mixture.

After cooling samples are diluted to standard volume. The solutions are analysed by Atomic Absorption Spectrophotometers.

Copper, lead, zinc, silver, cadmium, cobalt, nickel and manganese are analysed using the CH<sub>2</sub>H<sub>2</sub>-Air flame combination but the molybdenum determination is carried out by C<sub>2</sub>H<sub>2</sub>-N<sub>2</sub>O gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

Background corrections for Pb, Ag, Cd upon request are completed.

RECOMMENDED PROCEDURE FOR FIRE ASSAY GOLD AND SILVER

Samples are dried at 120<sup>o</sup>F and after being crushed on a primary crusher to 1/2 inch size they are crushed on a secondary crusher to minus 10 mesh before being split on Jone's riffle. (In accordance with Gy's statistical rules).

At the splitting a 500 gram subsample is obtained which is pulverized to minus 100 mesh. After that the sample is mixed, rolled and quartered.

The assay is carried out on a one half assay ton sample, fire assayed at 1750<sup>o</sup>C with appropriate fluxes.

The lead bottom is than cupeled. (The silver bid can be weighed and the amount calculated, but it's accuracy is questionable.) Than the small bid is dissolved in aqua regia and analysed on the atomic absorption instrument for gold.

Results can be reported either in oz/ton 0.001 sensitivity or gram per metric ton upon request.

In every batch of 20 samples we have one in house natural standard.

For silver a completely separate assay is preferred on a 5.000 gram of subsample, where the sample is dissolved in aqua regia with a chemical separation and filtering. The amount of silver is determined by Atomic Absorption instrumentation.



RECORDED  
 ESSO MINERALS  
 AUG 28. 85  
 VANCOUVER

MINE-EN LABORATORIES LTD.  
 705 WEST 15TH STREET, NORTH VANCOUVER, B.C. V7M 1T2  
 PHONE: (604) 980-5814 OR (604) 988-4524

NJB. (2184-905)

MINERALS CHRONO  
 1.7

Certificate of Assay

TO: PAUL McGUIGAN  
ESSO MINERALS CANADA

PROJECT No. 2184

DATE: \_\_\_\_\_

File No. EP1

SAMPLE No.	Au	Ag				
	oz/ton	oz/ton				
19751	.003	.19				
19752	.010	2.93				
19753	.001	.12				
19754	.005	1.96				
19755	.002	.11				
19756	.005	.11				
19757	.035	.13				
19758	.005	.09				
19759	.004	.08				
19760	.002	.12				
19761	.004	.51				
19762	.003	.14				
19763	.006	1.04				
19764	.002	.10				
19765	.013	.11				
19766	.004	.10				
19767	.002	.12				
19768	.003	.15				
19769	.006	.17				
19770	.005	.12				
19771	.006	.20				
19772	.012	.21				
19773	.005	.13				
19774	.007	.11				
19775	.001	.15				
19776	.001	.10				
19777	.002	.14				
19778	.003	.15				
19779	.002	.10				
19780	.002	.82				

MINE-EN Laboratories Ltd.

CERTIFIED BY: .....

MIN-EN LABORATORIES LTD.  
 705 WEST 15TH STREET, NORTH VANCOUVER, B.C. V1M 1T2  
 PHONE: (604) 980-5814 OR (604) 988-4524  
 AUG 28 1985

**Certificate of Assay**

TO: PAUL M<sup>c</sup>GUIGAN  
ESSO RESOURCES

PROJECT No. 2184  
 DATE: 16 Aug '85  
 File No. EP 2

SAMPLE No.	Au	Ag			
	oz/ton	oz/ton			
18351	.004	.39			
18352	.002	.25			
18353	.003	.13			
18354	.003	.27			
18355	.003	.43			
18356	.002	.24			
18357	.001	.15			
18358	.003	.31			
18359	.001	.24			
18360	.003	.21			
18361	.001	.20			
18362	.003	.24			
18363	.005	.19			
18364	.002	.21			
18365	.004	.16			
18366	.003	.23			
18367	.004	.12			
18368	.002	.06			
18369	.003	.09			
18370	.001	.09			
18371	.002	.13			
18372	.001	.11			
18373	.003	.09			
18374	.004	.24			
18375	.002	.19			
18376	.012	.23			
18377	.002	.10			
18378	.003	.12			
18379	.001	.13			
18380	.001	.12			
18381	.002	.15			

MINE-EN Laboratories Ltd.

*M. Archibald, Westmin Resources,*

CERTIFIED BY: .....



~~MA 84~~ → MA 84 . C. 500

# MIN-EN Laboratories Ltd.

705 WEST 15th STREET,  
NORTH VANCOUVER, B.C., CANADA V7M 1T2  
TELEPHONE (604) 980-5814

AUG 29.

## ANALYTICAL REPORT

Project 2184 Date of report August 28/85.

File No. 5-520 Date samples received August 19/85.

Samples submitted by: P. McGuigan

Company: Esso Minerals Canada

Report on: 30 rocks Geochem samples

Assay samples

### Copies sent to:

1. Esso Minerals Canada, Vancouver, B.C.
2. Esso Minerals Canada, Stewart, B.C.
- 3.

Samples: Sieved to mesh Ground to mesh -80

Prepared samples stored  discarded

rejects stored  discarded

Methods of analysis: ICP-R Package. As-Spectrophotometric.

Remarks:

SPECIALISTS IN MINERAL ENVIRONMENTS

(VALUES IN PPM)	AG	AS	CU	MO	PR	SB	ZN	AS-PPM
EP19751	3.4	28	60	6	2273	7	2039	25
EP19752	77.1	75	6002	26	3187	28	59281	85
EP19753	2.1	1	104	6	448	6	3034	1
EP19754	53.0	50	4185	20	1254	19	48517	53
EP19755	2.8	60	64	6	156	11	1198	61
EP19756	1.6	389	34	15	55	15	236	410
EP19757	2.6	75	34	7	26	10	88	75
EP19758	.8	816	15	6	37	12	105	1000
EP19759	.8	242	28	8	34	14	117	233
EP19760	1.8	118	18	7	140	10	158	111
EP19761	14.0	101	1585	23	66	19	54338	127
EP19762	2.4	41	209	15	33	14	9903	46
EP19763	28.2	115	3753	27	231	20	87260	101
EP19764	1.1	220	27	7	34	11	419	228
EP19765	1.7	248	23	6	63	11	339	293
EP19766	2.7	48	9	3	50	5	121	54
EP19767	2.9	156	25	10	44	9	121	147
EP19768	2.3	432	26	7	64	14	285	500
EP19769	3.9	237	93	7	50	11	153	200
EP19770	3.5	252	31	7	51	10	68	247
EP19771	3.1	142	42	10	63	11	129	145
EP19772	4.9	835	54	10	155	17	445	1000
EP19773	2.8	698	44	9	49	16	155	800
EP19774	2.6	974	31	8	36	16	81	1100
EP19775	2.8	245	50	12	32	14	66	223
EP19776	2.2	52	56	11	43	14	103	43
EP19777	1.8	60	56	9	50	12	174	63
EP19778	2.5	225	43	8	120	12	436	217
EP19779	2.2	232	40	9	146	9	455	218
EP19780	22.8	2177	1409	13	4465	58	8471	3000

AUG 29 85  
 VANCOUVER

COMPANY: ESSO MINERALS CANADA

MIN-EN LABS ICP REPORT

(ACT:LI26) PAGE 1 OF 1

PROJECT NO: 2184

705 WES, 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2

FILE NO: 5-520

ATTENTION: PAUL MCGUIGAN

(604)980-5814 OR (604)988-4524

\* TYPE ROCK GEOCHEM \*

DATE: AUGUST 28, 1985

(VALUES IN % )	BA	FE2O3	K2O	NA2O	RB	SR
EP19751	.330	4.41	5.05	.26	.03	.02
EP19752	.184	11.03	4.37	.13	.02	.02
EP19753	.505	4.86	6.08	.13	.03	.02
EP19754	.265	7.34	4.59	.10	.03	.01
EP19755	.411	6.23	4.09	.27	.03	.02
EP19756	.220	9.44	5.11	.02	.03	.02
EP19757	.306	6.98	3.29	.02	.03	.03
EP19758	.120	6.31	3.03	.01	.01	.02
EP19759	.164	9.38	4.85	.01	.03	.02
EP19760	.194	7.75	4.13	.01	.03	.02
EP19761	.173	10.53	4.14	.02	.03	.02
EP19762	.279	10.60	4.59	1.89	.02	.03
EP19763	.176	6.94	3.77	.01	.01	.02
EP19764	.098	6.72	2.02	.01	.01	.01
EP19765	.050	6.70	.66	.01	.02	.01
EP19766	.034	1.93	1.92	.01	.01	.04
EP19767	.106	5.74	5.80	.02	.01	.02
EP19768	.109	6.27	4.23	.01	.02	.01
EP19769	.080	5.02	3.10	.01	.01	.01
EP19770	.042	3.19	1.02	.01	.02	.01
EP19771	.116	6.93	2.14	.01	.01	.01
EP19772	.095	7.11	1.47	.01	.01	.01
EP19773	.174	9.82	1.43	.01	.04	.02
EP19774	.106	6.63	5.38	.01	.03	.02
EP19775	.090	7.42	5.19	.01	.02	.01
EP19776	.099	7.85	6.56	.01	.03	.02
EP19777	.121	8.05	7.48	.02	.02	.02
EP19778	.114	5.69	6.92	.01	.02	.02
EP19779	.123	4.45	7.72	.03	.02	.02
EP19780	.126	7.16	6.38	.02	.03	.02

St. → 11/11/84, C. 500

# MIN-EN Laboratories Ltd.

705 WEST 15th STREET,  
NORTH VANCOUVER, B.C., CANADA V7M 1T2  
TELEPHONE (604) 980-5814

EC  
SEPT 12.

## ANALYTICAL REPORT

Project ..... 2184 ..... Date of report ..... Sept. 10/85.

File No. .... 5-571 ..... Date samples received ..... August 29/85.

Samples submitted by: P. McGuigan

Company: ..... Esso Minerals Canada

Report on: ..... 51 pulps ..... Geochem samples

..... Assay samples

### Copies sent to:

1. Esso Minerals Canada, Vancouver, B.C.
2. Esso Minerals Canada, Stewart, B.C.
3. ....

Samples: Sieved to mesh ..... Ground to mesh .....

Prepared samples stored  discarded

rejects stored  discarded

Methods of analysis: ..... ICP-R Analysis. As-Spectrop hotometric.

Remarks: .....

PROJECT NO: 2184

705 COURT, 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2

FILE NO: 5-571/P1+2

ATTENTION: P. MCGUIGAN

(604)980-5814 OR (604)988-4524

\* TYPE PULP ASSAYS \*

DATE: SEPT 10, 1985

(VALUES IN PPM)	AG	AS	CU	MO	PB	SB	ZN
19781	23.4	155	240	10	4548	22	2643
19782	2.5	32	43	8	120	16	164
19783	2.1	16	12	5	54	9	96
19784	3.0	54	25	10	89	21	132
19785	2.2	37	9	4	54	7	67
19786	2.9	110	17	9	68	14	165
19787	8.0	53	329	14	416	24	6015
19788	2.6	36	101	11	99	20	188
19789	3.0	603	22	12	89	23	645
19790	6.8	1669	129	15	365	42	6801
19791	4.7	75	51	12	131	24	262
19792	3.6	563	63	11	57	27	125
19793	3.4	902	64	12	60	31	81
19794	6.6	4186	138	11	384	65	3181
19795	3.2	615	60	11	73	22	135
19796	3.8	209	65	10	77	19	183
19797	5.0	64	74	10	127	22	95
19798	2.8	90	51	8	62	17	89
19799	7.2	50	280	23	133	20	2608
19800	5.2	18	108	16	71	20	209
18351	9.9	125	315	17	260	21	8429
18352	5.9	35	151	19	159	17	1735
18353	3.6	102	32	9	140	18	393
18354	11.3	111	277	12	426	22	9262
18355	15.0	63	41	7	802	16	558
18356	5.3	158	90	9	252	19	3919
18357	3.0	192	44	7	101	16	432
18358	9.4	55	266	11	131	20	9699
18359	7.1	29	211	9	482	16	5311
18360	5.7	38	62	8	129	20	264
18361	4.8	38	58	8	67	16	123
18362	5.4	58	50	7	59	12	105
18363	3.7	770	72	7	112	17	314
18364	4.5	76	53	7	64	17	95
18365	2.9	701	66	8	78	19	191
18366	4.3	94	29	8	60	13	99
18367	2.3	105	24	9	56	14	174
18368	1.7	45	45	7	43	14	87
18369	2.1	63	50	8	55	15	88
18370	1.7	46	54	8	37	15	74
18371	2.2	40	50	7	70	15	176
18372	1.0	8	6	6	35	9	55
18373	.9	6	3	5	24	7	44
18374	6.5	391	25	18	51	29	282
18375	2.9	7	7	9	28	11	198
18376	5.1	79	18	7	58	14	102
18377	2.3	59	6	6	33	13	86
18378	2.1	58	6	4	40	10	74
18379	1.5	15	17	5	34	8	79
18380	2.5	23	106	6	64	12	355
18381	3.7	58	41	7	82	14	103



(VALUES IN %)	BA	FE203	NA2O	RB	SR
19781	.262	9.90	.09	.01	.02
19782	.196	8.44	1.17	.01	.02
19783	.216	5.60	.72	.01	.02
19784	.147	10.83	.26	.01	.02
19785	.134	3.33	.25	.01	.02
19786	.153	7.64	.13	.01	.02
19787	.314	11.41	.05	.01	.02
19788	.255	8.44	.71	.01	.03
19789	.096	8.93	.02	.01	.04
19790	.173	10.03	.03	.01	.03
19791	.115	9.24	.03	.01	.02
19792	.132	8.77	.02	.01	.02
19793	.148	7.20	.02	.01	.02
19794	.203	7.55	.03	.01	.03
19795	.130	7.28	.02	.01	.02
19796	.141	7.50	.02	.01	.03
19797	.123	7.75	.02	.01	.04
19798	.095	6.08	.01	.01	.03
19799	.202	8.33	.03	.01	.02
19800	.116	6.63	.03	.01	.04
18351	.195	8.11	.11	.01	.03
18352	.228	7.18	.07	.01	.03
18353	.161	7.89	.01	.01	.03
18354	.163	9.44	.03	.01	.02
18355	.151	5.81	.17	.01	.02
18356	.214	8.46	.91	.01	.02
18357	.204	6.85	.03	.03	.02
18358	.220	8.60	.03	.01	.03
18359	.308	6.47	.43	.01	.04
18360	.165	8.92	1.75	.01	.03
18361	.148	9.56	1.78	.02	.03
18362	.131	6.79	.17	.01	.04
18363	.196	7.84	.08	.01	.03
18364	.155	8.47	.64	.02	.02
18365	.101	6.40	.04	.01	.02
18366	.107	6.70	.84	.01	.06
18367	.235	7.99	.26	.02	.04
18368	.138	7.22	3.30	.02	.03
18369	.154	7.89	2.59	.01	.03
18370	.158	8.18	3.17	.01	.03
18371	.152	7.51	3.00	.02	.03
18372	.263	4.75	1.37	.01	.03
18373	.253	4.34	2.62	.01	.04
18374	.137	9.20	.30	.01	.08
18375	.075	5.07	.57	.01	.10
18376	.125	6.93	.71	.02	.05
18377	.159	6.17	1.46	.01	.03
18378	.182	5.02	.83	.02	.02
18379	.170	4.83	.47	.02	.03
18380	.186	6.33	.94	.02	.03
18381	.235	7.43	.39	.01	.04

**MIN-ER Laboratories Ltd.**

*Specialists in Mineral Environments*

705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE: (604) 980-5814 OR (604) 988-4524

TELEX: 04-352828

GEOCHEMICAL ANALYSIS CERTIFICATE

COMPANY: ESSO MINERALS CANADA  
PROJECT: 2184  
ATTENTION: P. MCGUIGAN

FILE: 5-571/P1  
DATE: SEPT. 10/85.  
TYPE: PULP GEOCHEM

*We hereby certify that the following are the results of the geochemical analysis made on 30 samples submitted.*

SAMPLE NUMBER	AS PPM
19781	187
82	50
83	31
84	60
85	60
86	120
87	29
88	35
89	710
90	2200
91	87
92	640
93	1000
94	5200
95	730
96	230
97	67
98	96
99	43
19800	15
18351	127
52	42
53	111
54	111
55	66
56	198
57	238
58	57
59	23
18360	33

Certified by



**MIN-EM Laboratories Ltd.**  
*Specialists in Mineral Environment*  
705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE: (604)986-5814 OR (604)988-4524

TELEX: 04-352828

GEOCHEMICAL ANALYSIS CERTIFICATE

COMPANY: ESSO MINERLS CANADA  
PROJECT: 2184  
ATTENTION: P. MCGUIGAN

FILE: 5-571/P2  
DATE: SEPT.10/85.  
TYPE: PULP GEOCHEM

*We hereby certify that the following are the results of the geochemical analysis made on 21 samples submitted.*

SAMPLE NUMBER	AS PPM
18361	38
62	57
63	800
64	76
65	780
66	113
67	126
68	43
69	68
70	26
71	30
72	<1
73	6
74	500
75	15
76	78
77	43
78	50
79	16
80	19
18381	51

Certified by



MIN-EN Laboratories Ltd.

Specialists in Mineral Environments

705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1J2

PHONE: (604) 980-5814 OR (604) 988-4524

TELETYPE: 04-352828

GEOCHEMICAL ANALYSIS CERTIFICATE

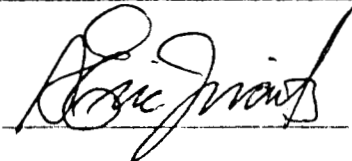
COMPANY: ESSO MINERALS CANADA  
PROJECT: 2184  
ATTENTION: P. MCGUIGAN

FILE: 5-571/P1  
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19781	187
82	50
83	31
84	60
85	60
86	120
87	29
88	35
89	710
90	2200
91	87
92	640
93	1000
94	5200
95	730
96	230
97	67
98	96
99	43
19800	15
18351	127
52	42
53	111
54	111
55	66
56	198
57	238
58	57
59	23
18360	33

Certified by



MIN-EN Laboratories Ltd.

Specialists in Mineral Environments

705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE: (604)980-5814 OR (604)988-4524

TELEX: 04-352828

GEOCHEMICAL ANALYSIS CERTIFICATE

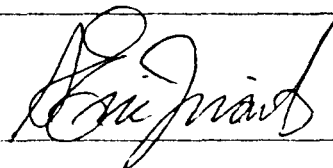
COMPANY: ESSO MINERALS CANADA  
PROJECT: 2184  
ATTENTION: P. MCGUIGAN

FILE: 5-571/P2  
DATE: SEPT. 10/85.  
TYPE: PULP GEOCHEM

We hereby certify that the following are the results of the geochemical analysis made on 21 samples submitted.

SAMPLE NUMBER	AS PPM
18361	38
62	57
63	800
64	76
65	780
66	113
67	126
68	43
69	68
70	26
71	30
72	41
73	6
74	500
75	15
76	78
77	43
78	50
79	16
80	19
18381	51

Certified by

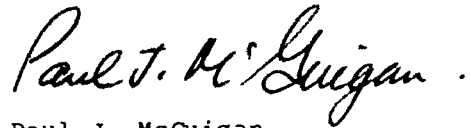


Appendix 5

STATEMENT OF QUALIFICATIONS

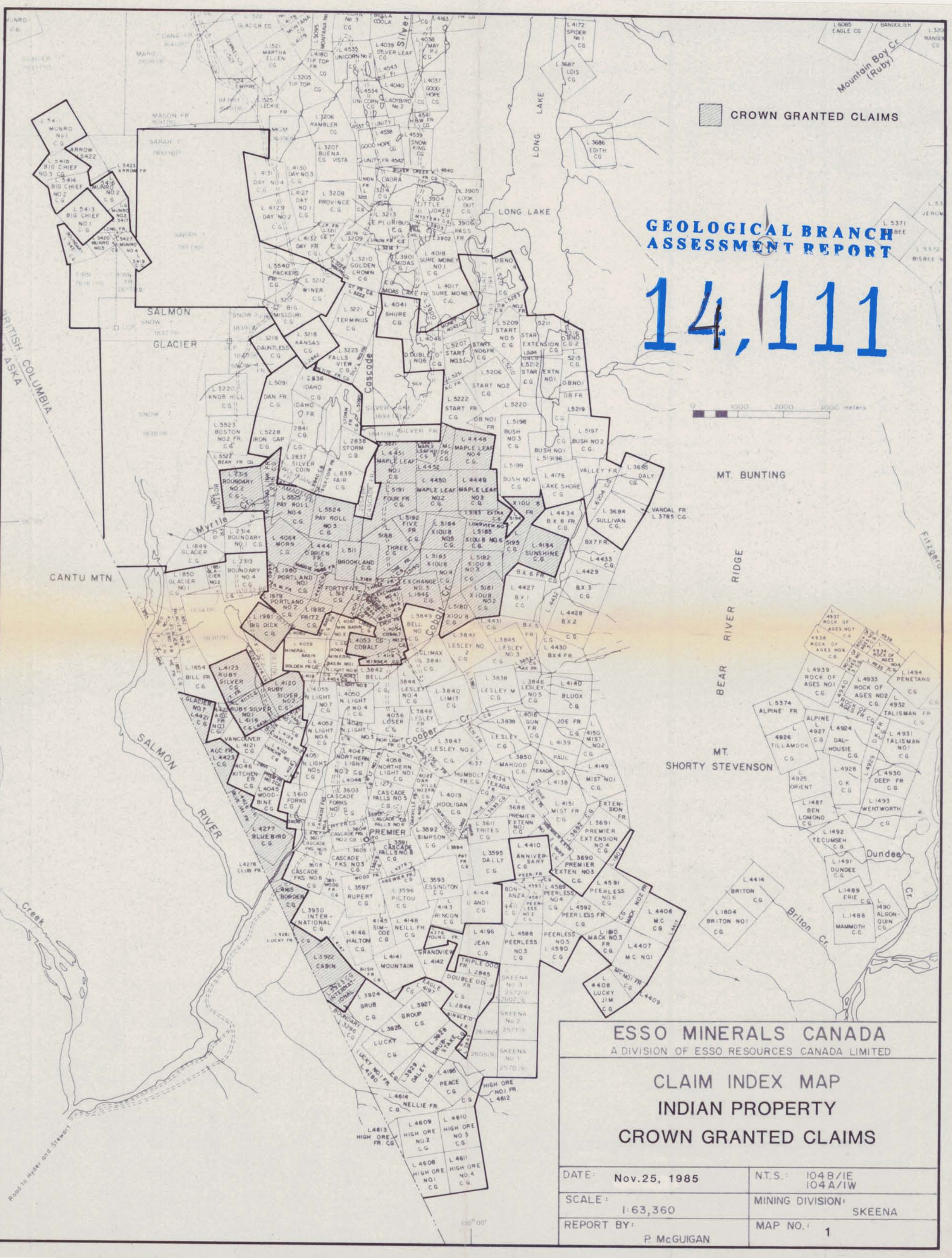
I, Paul J. McGuigan, resident of N. Vancouver, B.C. do hereby certify that:

- 1) I graduated with a Bachelor of Science (Honours) Degree in Geology from the University of British Columbia in 1974.
- 2) I have been employed as an exploration geologist, in minerals exploration, since 1974. Since 1976, I have been employed by Esso Resources Canada Limited, mostly in British Columbia.



Paul J. McGuigan  
Sr. Project Geologist  
Esso Minerals Canada





**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**14,111**

CROWN GRANTED CLAIMS

0 1000 2000 3000 meters

**ESSO MINERALS CANADA**  
A DIVISION OF ESSO RESOURCES CANADA LIMITED

**CLAIM INDEX MAP  
INDIAN PROPERTY  
CROWN GRANTED CLAIMS**

DATE:	Nov. 25, 1985	N.T.S.:	104 B/IE 104 A/IW
SCALE:	1:63,360	MINING DIVISION:	SKEENA
REPORT BY:	P. McGUIGAN	MAP NO.:	1





- LEGEND
- INTRUSIVE ROCKS  
 TERTIARY
- 6 Inlier: Quartz Monzonite, (Granodiorite); massive unaltered biotite-hornblende rich mafic quartz monzonite
  - 5 Andesite dikes; massive unaltered andesite dikes and "microiorite"
- Intrusive Contact -  
 LOWER JURASSIC OR OLDER
- INTRUSIVE ROCKS  
 4 Texas Creek Granodiorite, massive felspar and amphibole porphyry including variable phenocrysts such as: some quartz-feldspar altered zones.
- Intrusive Contact -  
 TINES JURASSIC OR OLDER
- METAFORM TUFFS  
 3 Green Andesite, Phonodiorite, andesite tuff, lapilli tuff, glass tuff breccia and various other, containing quartz, sericite, pyrite altered zones.
- 2 Lewis Creek Andesite, lapilli tuff, minor tuff breccia, and other altered, containing 2-15 percent, trace sphalerite, galena.
- 1 Interbedded Green-Gray-Black Siltsstone, Argillite and minor siltstone tuff.

Abbreviations & Symbols Used

Sediments		Volcanics		Metals		Volcanic Classification		Alteration		Mineralization		Other Abbreviations			
Argillite	Arg	Phylite	P	Granodiorite	gd	Alteration	Alteration	Silification	sil	3g Au	Green	gm	Sphalerite	sp	
Wacke	W	Phyodolite	P	Quartz monzonite	qm	Sericitization	ser	X-feldspar	x-fsp	3-cg Au	Gray	gr	Galena	ga	
Limestone	LS	Dacite	D	Diabase	d	Chlorite	chl	Chlorite	chl	1-cg Au	Margaron	m	Chalcopyrite	cp	
Chert	C	Andesite	A	Basalt	B	Carbonization	cb	Carbonization	cb	1-cg Au	Maroon	ma	Pyrite	py	

Multielement geochemical soil anomalies:

- from detailed survey:
- from 1982,83 survey:

IP Anomaly

B-horizon soil, Gold > 150 ppb

ESSO MINERALS CANADA  
 A DIVISION OF ESSO RESOURCES CANADA LIMITED

INDIAN-SALMON PROJECT  
 TARGET AREAS,  
 GEOCHEMICAL AND GEOPHYSICAL  
 ANOMALIES

To Accompany A Report By P. McGuigan Dated Nov. 25, 1985  
 (Claim boundaries from enlargement of 1:50000 map by E. Gröve, 1971, Bulletin 58)

SCALE	1:2500	N.T.S.	104B/IE
DATE	NOV. 1984	UPDATED	OCT. 22/85
DRAWN BY		MINING DIVISION	
G Dawson D. HARRISON		Skene	
MAP NO		3	

**14,111**  
 GEOLOGICAL BRANCH  
 ASSESSMENT REPORT





LEGEND

TERTIARY

**Intrusive Rocks**

6 Hydr. Quartz Monzonite, (Granodiorite); massive unaltered biotite-hornblende rich mg-cpx quartz monzonite

5 Andesite dykes; massive unaltered (a-andesite dykes, and 'microdiorite')

- Intrusive Contact -  
LOWER JURASSIC OR OLDER

**Intrusive Rocks**

4 Texas Creek Granodiorite, massive feldspar and amphibole porphyry including sandstone phenocryst rich phases; some quartz-feldspar altered zones

- Intrusive Contact -  
LOWER JURASSIC OR OLDER

**Hazelton Volcanics**

3 Green Andesite Phonolite; andesite tuff, lapilli tuff, minor tuff breccias and wackes. Contains quartz-sericite-pyrite altered zones.

2 Greyish Green Andesite Lapilli tuff, minor tuff breccias, sericite altered zones, calc-silicates, trace sphalerite, kaolin.

1 Interbedded Green-Grey-Black siltstone, Argillite and minor dacite tuff.

Abbreviations & Symbols Used

<b>Sediments</b>	Argillite	Arg
	Wacke	W
	Limestone	Ls
	Chert	C
<b>Volcanics</b>	Rhyolite	R
	Rhyodacite	RD
	Dacite	D
	Andesite	A
	Basalt	B
<b>Intrusions</b>	Granodiorite	gd
	Quartz monzonite	qm
	Diorite	tr
	Alaskite	a
	etc.	
<b>Volcanic Classification</b>	Pyroclastic	
	Tuff	tt
	Lapilli tuff	lt
	Lapilli stone	l
	Tuff breccia	tbx
	Breccia	bx
	Autoclastics and Flow	
	Flow breccia	fbx
	Flow breccia	fbx
<b>Alteration</b>	Silicification	sil
	Sericitization	ser
	K-feldspar	k-spar
	Chlorite	chl
	Carbonitization	cb
<b>Mineralization</b>	1-3g/t Au	
	3-10g/t Au	
	10g/t Au	
<b>Other Abbreviations</b>	Green	gm
	Black	bl
	Grey	gr
	Morron	m
	Hornblende	h
	Feldspar	f
	Chalcidony	chalc
	Quartz	qtz, q
	Calcite	calc
	Epidote	ep
	Limonite	lim
	Manganese	Mn
<b>Structure</b>	Foliation	
	Bedding	
	Fault	
	defined	
	approximate	
	assumed	
	slickensides	
	attitude	
	Joint	
	Fracture	
	Broken core	

0 50 100 150 200  
METERS

**ESSO MINERALS CANADA**  
A DIVISION OF ESSO RESOURCES CANADA LIMITED

INDIAN-SALMON PROJECT  
GEOLOGY

**14,111**  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

To Accompany A Report by P. McGuigan Dated Nov. 26, 1985  
(Claim boundaries from enlargement of 1:50000 map by E. Grove, 1971, Bulletin 58)

SCALE: 1:2500	N.T.S. 104B/IE
DATE: NOV. 1984	UPDATED: OCT. 22/83
DRAWN BY: G. Dawson D. HARRISON	MINING DIVISION: SKIBERG
	MAP NO. 2





Abbreviations & Symbols Used

Sediments			
Argillite	Arg		
Wacke	W		
Limestone	Ls		
Chert	C		
Volcanics			
Rhyolite	R		
Rhyodacite	RD		
Dacite	D		
Andesite	A		
Basalt	B		
Intrusions			
Gneiss	gd		
Quartz monzonite	qm		
Diorite	d		
Alaskite	a		
etc.....			
Volcanic Classification			
<b>Pyroclastic</b>			
Tuff	tf		
Lapilli tuff	lt		
Lacilli stone	l		
Tuff breccia	tbx		
Breccia	bx		
<b>Autoclastics and Flow</b>			
Flow	fl		
Flow breccia	fbx		
Alteration			
Silicification	sil		
Sericitization	ser		
K-feldspar	k-spar		
Chlorite	chl		
Carbonitization	cb		
Mineralization			
1-3 g/t Au			
3-10 g/t Au			
>10 g/t Au			
Other Abbreviations			
Green	grn	Sphalerite	sp
Black	bl	Galena	gn
Grey	gr	Chalcopyrite	cp
Maroon	m	Pyrite	py
Hornblende	h	Trace	tr
Feldspar	f	Vein	v
Chalcedony	chalc	Glacial Hill	g
Quartz	qtz	Floot	x
Calcite	calc		
Epidote	ep		
Limonite	lim		
Manganese	Mn		

FOR GEOLOGICAL UNIT LEGEND SEE MAP 2

SHEET INDEX

3	4
2	1

Sheet 500-B-3

SCALE 1:500

0 5 10 20 30 meters

ESSO MINERALS CANADA  
A DIVISION OF ESSO RESOURCES CANADA LIMITED

INDIAN PROJECT

I-W Grid North Area

GEOLOGY & ASSAY SUMMARY

**14,111**  
 GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

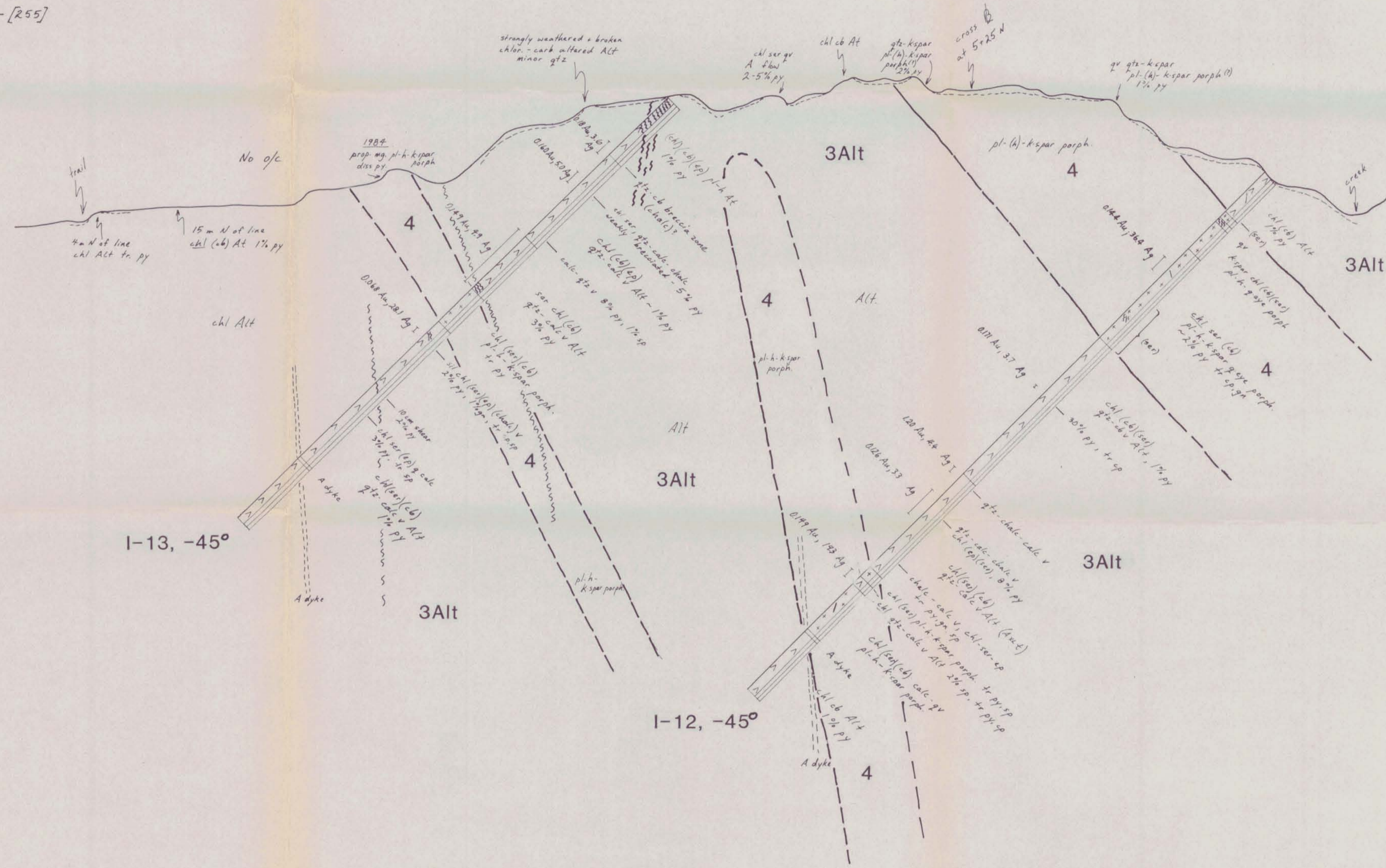
To Accompany A Report By P. McGuigan Dated Nov. 25, 1985  
(Claim boundaries from enlargement of 1:50000 map by E.Grove, 1971, Bulletin 58)

SCALE: 1:500	N.T.S. 104B/1E
DATE: NOV. 1984	UPDATED: OCT. 22/85
BY: G. Dawson D. Harrison	MINING DIVISION: Skeena
	MAP NO.: 6



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[075]



Abbreviations & Symbols Used

<b>Sediments</b>			
Argillite	Arg		
Wacke	W		
Limestone	Ls		
Chert	C		
<b>Volcanics</b>			
Rhyolite	R		
Rhyodacite	RD		
Dacite	D		
Andesite	A		
Basalt	B		
<b>Intrusions</b>			
Granodiorite	gd		
Quartz monzonite	qm		
Diorite	d		
Ataskite	a		
etc			
<b>Volcanic Classification</b>			
Pyroclastic			
Tuff	tf		
Lapilli tuff	lt		
Lapilli stone	l		
Tuff breccia	tbx		
Breccia	bx		
Autoclastics and Flow	fl		
Flow breccia	fbx		
<b>Alteration</b>			
Siilicification	Weak	(sil)	
	Moderate	sil	
	Strong	sil	
Sericitization	*	(ser)	
	*	ser	
	*	ser	
K-feldspar	*	(k-spar)	
	*	k-spar	
	*	k-spar	
Chlorite	*	(chl)	
	*	chl	
	*	chl	
Carbonitization	*	(cb)	
	*	cb	
	*	cb	
<b>Mineralization</b>			
1-3g/t Au			
3-10g/t Au			
>10g/t Au			
<b>Other Abbreviations</b>			
Green	grn	Sphalerite	sp
Black	bl	Galena	gn
Grey	gr	Chalcopyrite	cp
Marron	m	Pyrite	py
Hornblende	h	Trace	tr
Feldspar	f	Vein	v
Chalcedony	chalc	Plagioclase	pl
Quartz	qtz, q	Porphyry	porph
Calcite	calc	Shear	sh
Epidote	ep		
Limonite	lim		
Manganese	Mn		
<b>Structure</b>			
Foliation			
Bedding			
Fault			
defined			
approximate			
assumed			
slip-sides			
attitude			
Joint			
Fracture			
Broken core			
Cu, Pb, Zn reported in %			
Ag, Au reported in gram/tonne			
0 5 10 20 30 meters			

FOR GEOLOGICAL UNIT LEGEND SEE MAP 2

ESSO MINERALS CANADA  
A DIVISION OF ESSO RESOURCES CANADA LIMITED

INDIAN PROJECT

SECTION

Looking Towards Az. 345°

DDH I-12,13

To accompany a report by P. McGUGAN dated Nov. 25, 1985

SCALE: 1:500 N.T.S.: 104 B/1 E

DATE: OCT. 21/85 MINING DIVISION SKEENA

BY: D. HARRISON, P. MCGUGAN MAP NO: 8

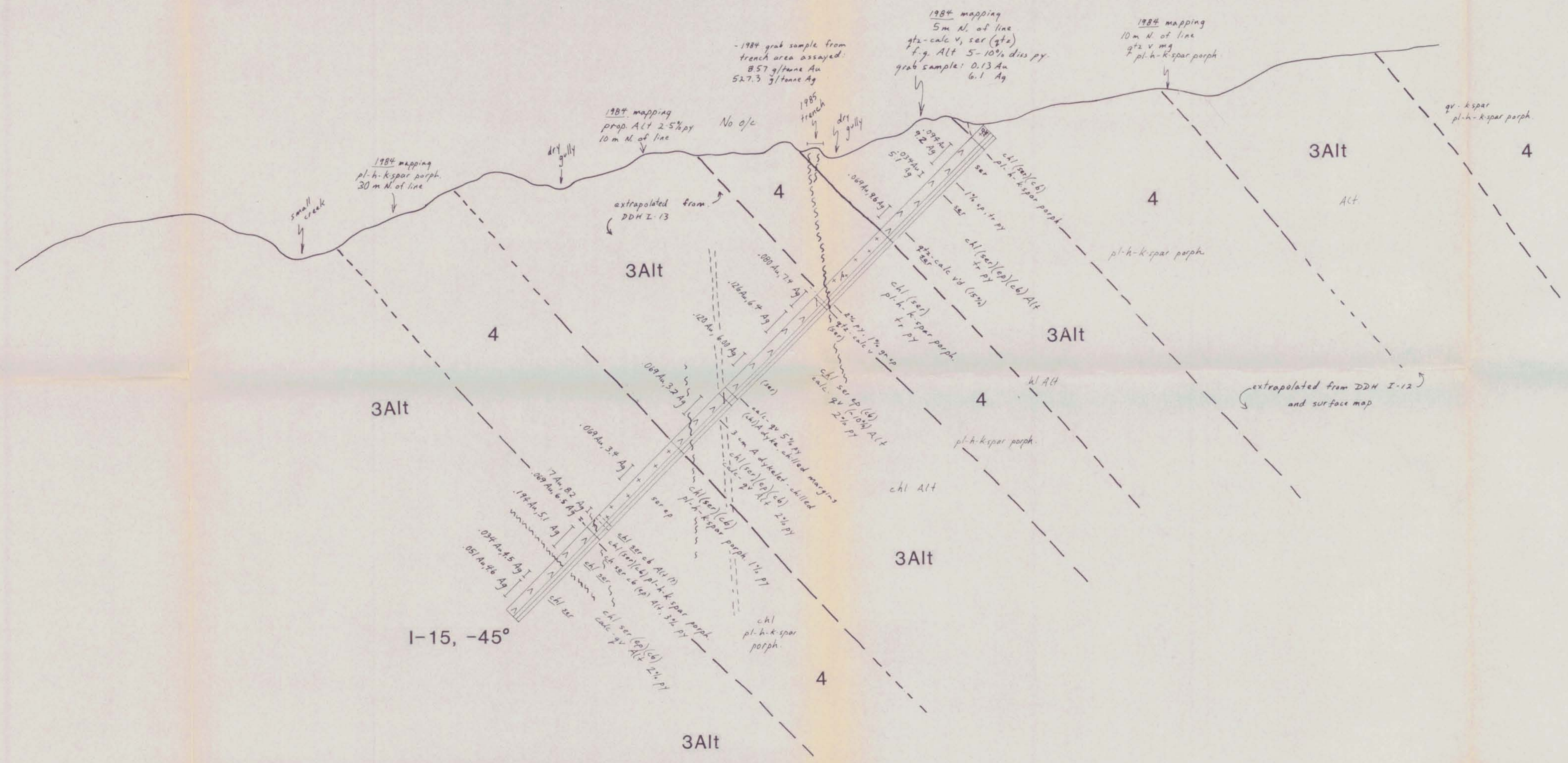
14,111

GEOLOGICAL BRANCH  
ASSESSMENT REPORT



[255]

[075]



Abbreviations & Symbols Used			
<b>Sediments</b>			
Argillite	Arg		
Wacke	W		
Limestone	LS		
Chert	C		
<b>Volcanics</b>			
Rhyolite	R		
Rhyodacite	RD		
Dacite	D		
Andesite	A		
Basalt	B		
<b>Intrusions</b>			
Granodiorite	gd		
Quartz monzonite	qm		
Diorite	d		
Alaskite	a		
etc			
<b>Volcanic Classification</b>			
Pyroclastic			
Tuff	tf		
Lapilli tuff	lt		
Lapilli stone	l		
Tuff breccia	tbx		
Breccia	bx		
Autoclastics and Flow	fi		
Flow	f		
Flow breccia	fbx		
<b>Alteration</b>			
Silicification	Weak (sil)		
	Moderate sil		
	Strong sil		
Sericitization	" (ser)		
	" ser		
	" ser		
K-feldspar	" (k-spar)		
	" k-spar		
	" k-spar		
Chlorite	" (chl)		
	" chl		
	" chl		
Carbonitization	" (cb)		
	" cb		
	" cb		
<b>Mineralization</b>			
1-3 g/t Au			
3-10 g/t Au			
>10 g/t Au			
<b>Other Abbreviations</b>			
Green	grn	Sphalerite	sp
Black	bl	Galena	gn
Grey	gr	Chalcocopyrite	cp
Maroon	m	Pyrite	py
Hornblende	h	Trace	tr
Feldspar	f	Vein	v
Chalcedony	chal	Plagioclase	pl
Quartz	qtz, q	Porphyry	porph
Calcite	calc	Shear	sh
Epidote	ep		
Limonite	lim		
Manganese	Mn		
<b>Structure</b>			
Foliation			
Bedding			
Fault			
defined			
approximate			
assumed			
slip-sides			
attitude			
Joint			
Fracture			
Broken core			
Cu, Pb, Zn reported in %			
Ag, Au reported in gram/tonne			
SCALE 0 5 10 20 30			
meters			

FOR GEOLOGICAL UNIT LEGEND SEE MAP 2  
**ESSO MINERALS CANADA**  
 A DIVISION OF ESSO RESOURCES CANADA LIMITED

**14,111**  
 GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

**INDIAN PROJECT**

SECTION  
 Looking Towards Az. 345°  
 DDH I-15

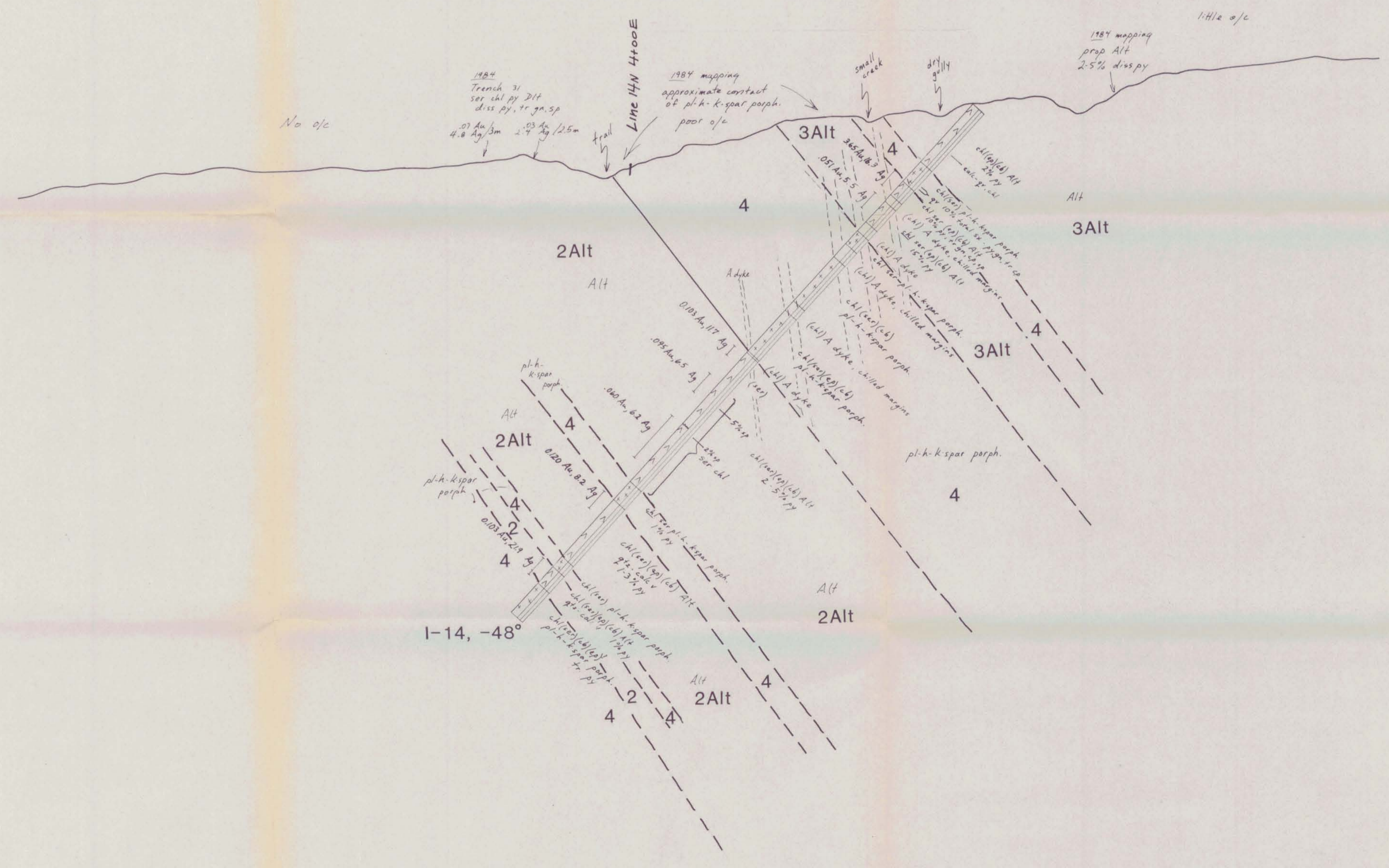
To accompany a report by P. McGuigan dated Nov. 25, 1985

SCALE: 1:500	N.T.S. 104 B/IE
DATE: OCT. 21/85	MINING DIVISION SKEENA
BY: D. HARRISON, P. MCGUIGAN	MAP NO. 10



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[075]



<b>Sediments</b>			
Argillite	Arg		
Wacke	W		
Limestone	Ls		
Chert	C		
<b>Volcanics</b>			
Rhyolite	R		
Rhyodacite	RD		
Dacite	D		
Andesite	A		
Basalt	B		
<b>Intrusions</b>			
Granodiorite	gd		
Quartz monzonite	qm		
Diorite	d		
Alaskite	a		
etc			
<b>Volcanic Classification</b>			
Pyroclastic			
Tuff	tf		
Lapilli tuff	lt		
Lapilli stone	l		
Tuff breccia	tbx		
Breccia	bx		
Autoclastics and Flow			
Flow	fl		
Flow breccia	fbx		
<b>Alteration</b>			
Silicification	Weak	(sil)	
	Moderate	sil	
	Strong	sil	
Sericitization	"	(ser)	
	"	ser	
	"	ser	
K-feldspar	"	(k-spar)	
	"	k-spar	
	"	k-spar	
Chlorite	"	(chl)	
	"	chl	
	"	chl	
Carbonitization	"	(cb)	
	"	cb	
	"	cb	
<b>Mineralization</b>			
		1-3g/t Au	
		3-10g/t Au	
		>10g/t Au	
<b>Other Abbreviations</b>			
Green	gm	Sphalerite	sp
Black	bl	Galena	gn
Grey	gr	Chalcopyrite	cp
Maroon	m	Pyrite	py
Hornblende	h	Trace	tr
Feldspar	f	Vein	v
Chalcedony	chalc	Plagioclase	pl
Quartz	qtz, q	Porphyry	porph
Calcite	calc	Shear	sh
Epidote	ep		
Limonite	lim		
Manganese	Mn		
<b>Structure</b>			
Foliation			
Bedding			
Fault			
	defined		
	approximate		
	assumed		
	slickensides		
	attitude		
Joint			
Fracture			
Broken core			
Cu, Pb, Zn reported in % Ag, Au reported in gram/tonne			
SCALE 0 5 10 20 30 meters			

FOR GEOLOGICAL UNIT LEGEND SEE MAP 2

**ESSO MINERALS CANADA**  
A DIVISION OF ESSO RESOURCES CANADA LIMITED

**INDIAN PROJECT**

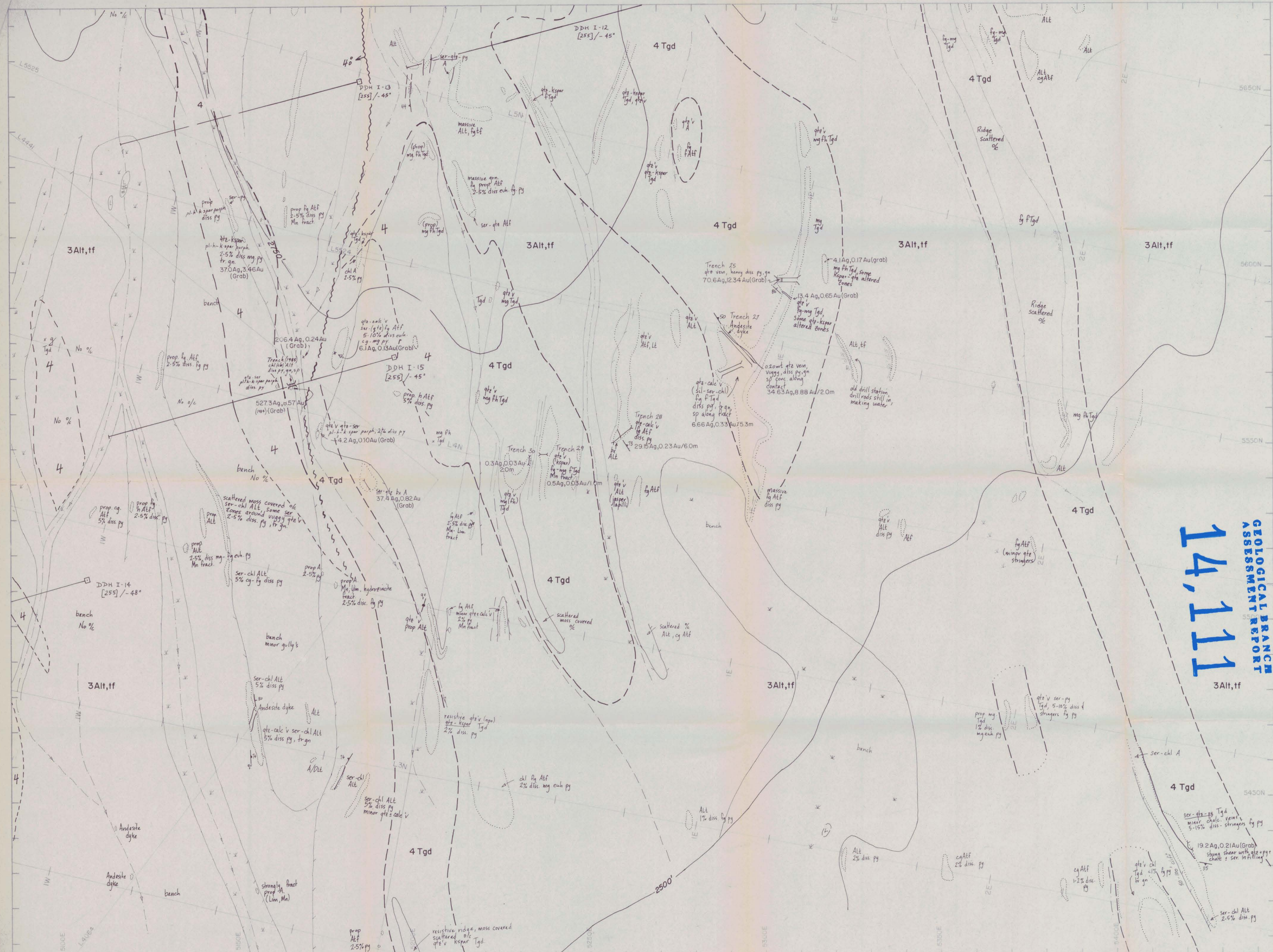
SECTION  
Looking Towards Az. 345°  
DDH I-14

To accompany a report by P. McGuigan dated Nov. 25, 1985

SCALE:	1:500	N.T.S.:	104 B / 1E
DATE:	OCT. 21 / 85	MINING DIVISION:	SKEENA
BY:	D. HARRISON, P. MCGUIGAN	MAP NO.:	9

**14,111**  
 GEOLOGICAL BRANCH  
 ASSESSMENT REPORT





Abbreviations & Symbols Used

Sediments			
Argillite	Arg		
Wacke	W		
Limestone	Ls		
Chert	C		
Volcanics			
Rhyolite	R		
Rhyodacite	RD		
Dacite	D		
Andesite	A		
Basalt	B		
Intrusions			
Granodiorite	gd		
Quartz monzonite	qm		
Diorite	d		
Alaskite	a		
etc.			
Volcanic Classification			
Pyroclastic			
Tuff	tf		
Lapilli tuff	lt		
Lapilli stone	l		
Tuff breccia	tbx		
Breccia	bx		
Autoclastics and Flow			
Flow	fl		
Flow breccia	fbx		
Alteration			
Silicification	sil		
Sericitization	ser		
K-feldspar	k-spar		
Chlorite	chl		
Carbonitization	cb		
Mineralization			
1-3g/t Au			
3-10g/t Au			
>10g/t Au			
Other Abbreviations			
Green	grn	Sphalerite	sp
Black	bl	Galena	gn
Grey	gr	Chalcopyrite	cp
Marron	mr	Pyrite	py
Hornblende	h	Trace	tr
Feldspar	f	Vein	v
Chalcedony	chal	Glacial till	g
Quartz	qtz, q	Float	x
Calcite	calc		
Epidote	ep		
Limonite	lim		
Manganese	Mn		
Structure			
Foliation			
Bedding			
Fault			
defined			
approximate			
assumed			
slickensides			
attitude			
Joint			
Fracture			
Broken core			

Ag, Au assays reported in grams/tonne  
Cu, Pb, Zn reported in %

FOR GEOLOGICAL UNIT LEGEND SEE MAP 2

**14,111**  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

SHEET INDEX

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2	1
3	4
2	1

Sheet 500-B-4

0 5 10 SCALE 20 30  
meters

ESSO MINERALS CANADA  
A DIVISION OF ESSO RESOURCES CANADA LIMITED

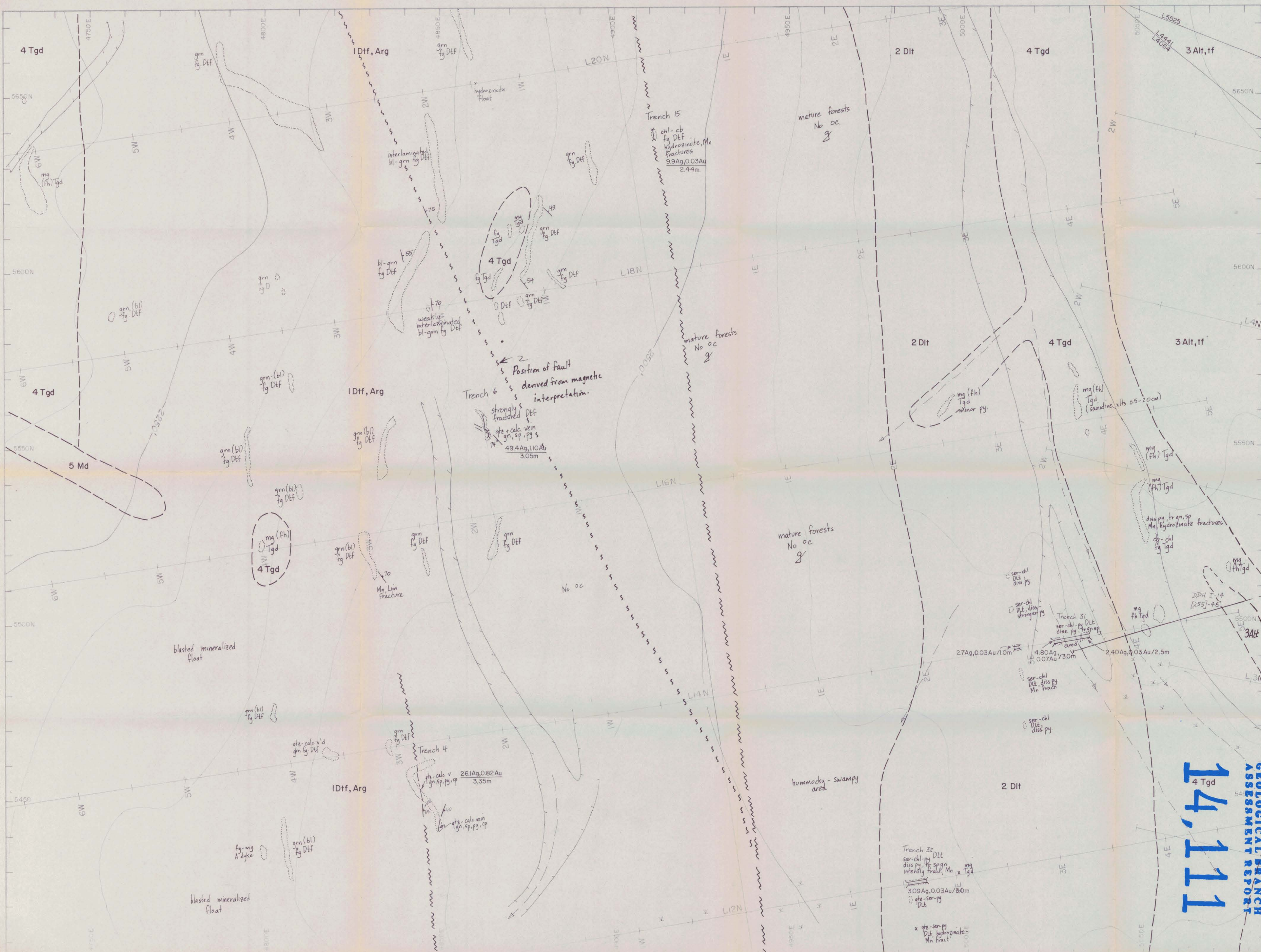
INDIAN PROJECT  
Indian One Grid

**GEOLOGY & ASSAY SUMMARY**

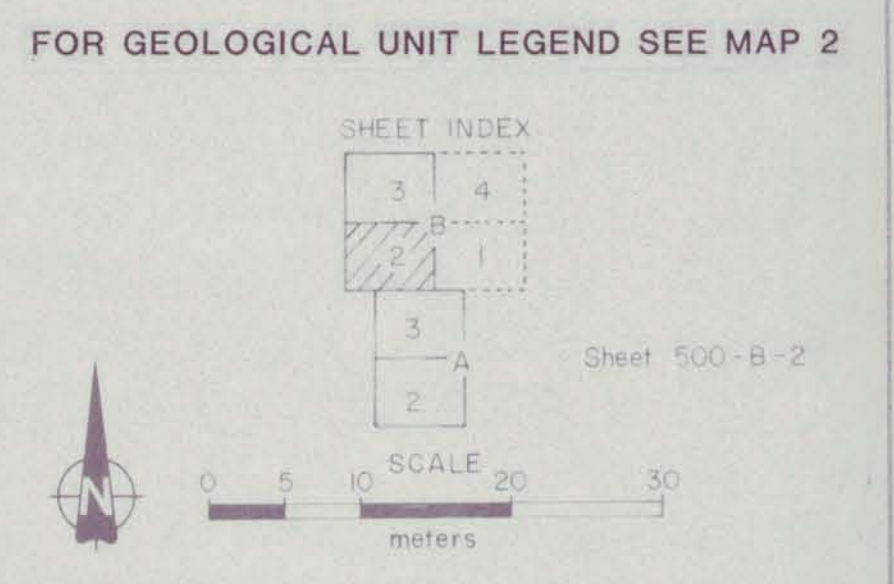
To Accompany A Report By P. McGuigan Dated Nov. 25, 1985  
(Claim boundaries from enlargement of 1:50,000 map by E. Grove, 1971, Bulletin 58)

SCALE: 1:500	N.T.S. 104B/E
DATE: Nov. 13, 1984	Updated Oct. 22/85
BY: G. Dawson D. HARRISON	MINING DIVISION Skinning
	MAP NO. 4





Abbreviations & Symbols Used			
<b>Sediments</b>			
Argillite	Arg		
Wacke	W		
Limestone	Ls		
Chert	C		
<b>Volcanics</b>			
Rhyolite	R		
Rhyodacite	RD		
Dacite	D		
Andesite	A		
Basalt	B		
<b>Intrusions</b>			
Granodiorite	gd		
Quartz monzonite	gm		
Diorite	d		
Alaskite	a		
etc.....			
<b>Volcanic Classification</b>			
Pyroclastic			
Tuff	tf		
Lapilli tuff	lt		
Lapilli stone	l		
Tuff breccia	tbx		
Breccia	bx		
<b>Autoclastics and Flow</b>			
Flow	fl		
Flow breccia	fbx		
<b>Alteration</b>			
Silicification	sil		
Sericitization	ser		
K-feldspar	k-spar		
Chlorite	chl		
Carbonitization	cb		
<b>Mineralization</b>			
1-3g/t Au			
3-10g/t Au			
10g/t Au			
<b>Other Abbreviations</b>			
Green	gn	Sphalerite	sp
Black	bl	Galena	gn
Grey	gr	Chalcocopyrite	cp
Maroon	m	Pyrite	py
Hornblende	h	Trace	tr
Feldspar	f	Vein	v
Chalcedony	chalc	Glacial till	g
Quartz	qtz,q	Float	x
Calcite	calc		
Epidote	ep		
Limonite	lim		
Manganese	Mn		
<b>Structure</b>			
Foliation			
Bedding			
Fault			
defined			
approximate			
assumed			
slip-sense			
attitude			
Joint			
Fracture			
Broken core			



ESSO MINERALS CANADA  
A DIVISION OF ESSO RESOURCES CANADA LIMITED

INDIAN PROJECT

I-W Grid North Area

GEOLOGY & ASSAY SUMMARY

14111  
 GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

To accompany A Report by P. McGuigan Dated Nov. 25, 1985  
 (Claim boundaries from enlargement of 1:50000 map by E. Grove, 1971, Bulletin 58)

SCALE: 1:500 N.T.S.: 104B/1E

DATE: NOV. 1984 UPDATED: OCT. 22/85 MINING DIVISION: Skeena

BY: G. Dawson D. HARRISON MAP NO.: 5





Abbreviations & Symbols Used

Sediments			
Argillite	Arg		
Wacke	W		
Limestone	Ls		
Chert	C		
Volcanics			
Rhyolite	R		
Rhyodacite	RD		
Dacite	D		
Andesite	A		
Basalt	B		
Intrusions			
Granodiorite	gd		
Quartz monzonite	qm		
Diorite	d		
Alaskite	a		
etc.....			
Volcanic Classification			
Pyroclastic			
Tuff	tf		
Lapilli tuff	lt		
Lapilli stone	l		
Tuff breccia	tbx		
Breccia	bx		
Autoclastics and Flow			
Flow	fl		
Flow breccia	fbx		
Alteration			
Silicification	sil		
Sericitization	ser		
K-feldspar	k-spar		
Chlorite	chl		
Carbonitization	cb		
Mineralization			
1-3g/t Au			
3-10g/t Au			
10g/t Au			
Other Abbreviations			
Green	grn	Sphalerite	sp
Black	bl	Galena	gn
Grey	gr	Chalcopyrite	cp
Maroon	m	Pyrite	py
Hornblende	h	Trace	tr
Feldspar	f	Vein	v
Chalcedony	chalc	Glacial till	g
Quartz	qtz, q	Floot	x
Calcite	calc		
Epidote	ep		
Limonite	lim		
Manganese	Mn		
Structure			
Foliation			
Bedding			
Fault			
defined			
approximate			
assumed			
slickensides			
altitude			
Joint			
Fracture			
Broken core			

Ag, Au assays reported in grams/tonne  
Cu, Pb, Zn reported in %

FOR GEOLOGICAL UNIT LEGEND SEE MAP 2

SHEET INDEX

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3	A
2	

Sheet 500-B-4

SCALE 20 30  
meters

ESSO MINERALS CANADA  
A DIVISION OF ESSO RESOURCES CANADA LIMITED

INDIAN PROJECT  
Indian One Grid

**14,111**  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

GEOLOGY & ASSAY SUMMARY

To Accompany A Report By P. McGuigan Dated Nov. 25, 1985  
(Claim boundaries from enlargement of 1:50000 map by E. Grove, 1971, Bulletin 58)

SCALE: 1:500	N.T.S.: 104B/1E
DATE: NOV. 1984	UPDATED: OCT. 22/85
BY: G Dawson D. HARRISON	MINING DIVISION: Skeena
	MAP NO.: 7