DU PONT OF CANADA EXPLORATION LIMITED

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE DOC 1-4 CLAIMS

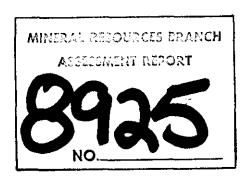
SKEENA MINING DIVISION

NTS: 104B/8W

56° 16' N 130° 29' W

OWNER OF CLAIMS: DU PONT OF CANADA EXPLORATION LIMITED

OPERATOR : DU PONT OF CANADA EXPLORATION LIMITED



Author:

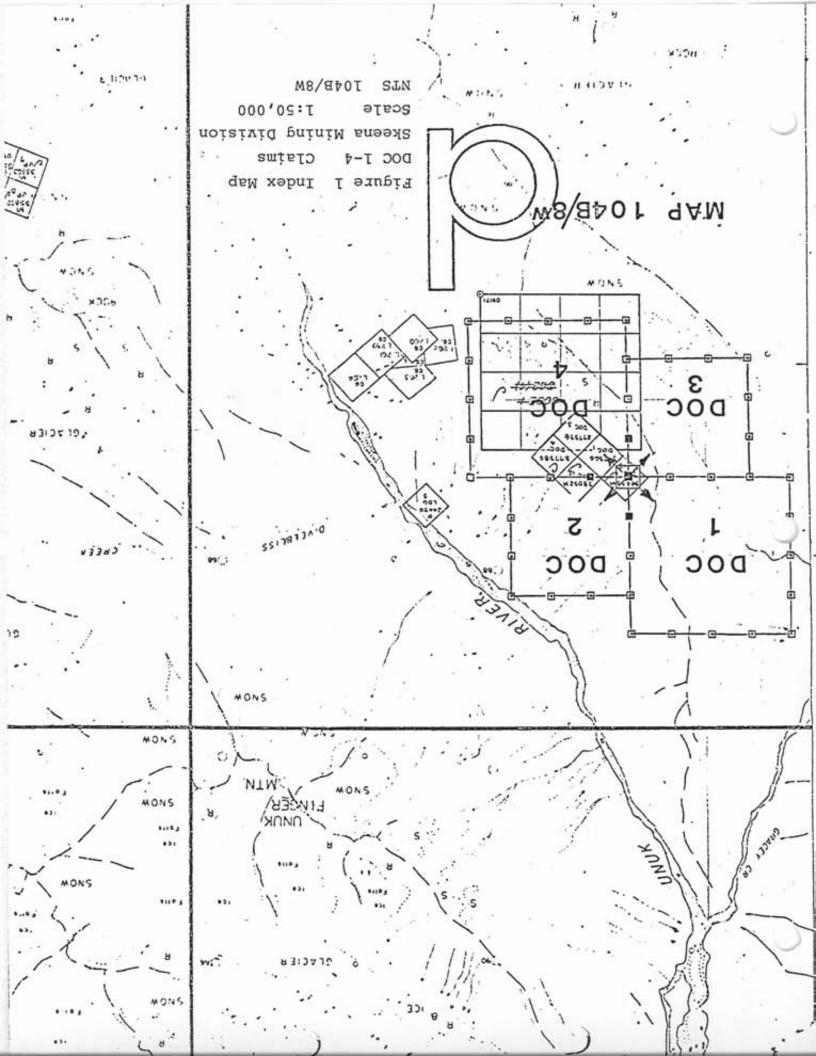
G. A Harron

Date Submitted: FEB 17 81

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I. INTRODUCTION

(a) Location

The DOC 1-4 claim group is located 55 km northwest of Stewart, B.C., between Gracey Creek and the South Unuk River. Elevations range from 457 m along the northeast and southwest sides to 1,433 m in the central part of the property. The common legal post of all four claims is at an elevation of 1,295 m.

The claims are bounded on the northeast and the west by the deeply incised valleys of the South Unuk River and Gracey Creek.

Above 1,219 m, the property is generally glaciated; is about 70% free of vegetation. The vegetation present is alpine mosses and low shrubs. Below 1,219 m, Black Spruce and Balsam occupy the valley floors.

(b) Access

Rotary-wing aircraft provide the most convenient type of transport to the property, from Stewart, B.C.; a distance of 55 km to the southeast.

(c) Claim Definition

The DOC 1-4 claim group is comprised of the following:

Contiguous Claims and Units:

	<u>C1</u>	<u>aim</u>		Record No.	Tag No.
DOC	1	(16	units)	2136	49719
DOC	2	(9	units)	2137	49720
DOC	3	(9	units)	2138	49721
DOC	4	(16	units)	2139	49722

The record date of all 4 claims is March 4, 1980. The current owner and operator is Du Pont of Canada Exploration Limited. The claims were staked to facilitate work on a gold-silver prospect found by Mr. T.J. McQuillan in 1946.

(d) Economic Assessment of the Property

Previous work by Mr. T.J. McQuillan in 1946 and Halport Mines Ltd., in 1947-1949, consisted of trenching and drilling. Total footage drilled on the property amounted to 6,277 feet (1,913.2 m) in 29 holes.

(d) This work was stated to indicate an auriferous quartz cont. vein for a length of 1,250 feet (381 m) and to a depth of 250 feet (76.2 m). In 1974 New Minex Resources Ltd., conducted a magnetometer survey over 6.7 miles (10.7 km) of line and chip sampled 260 feet (79.3 m) of the main vein. This work indicated the mineralization over an average width of 8.1 feet (2.4 m) with an average grade of 0.309 oz/t Au, and 0.99 oz/t Ag.

(e) Summary of Work Performed

A grid was established in the central part of the DOC 1-4 claim group. This grid covered 207 hectares, whereas the entire claim group covers 1,250 hectares. A total of 447 soil samples were collected at 50 m station spacing on lines either 50 m or 100 m apart. Geological mapping was at a scale of 1:2500 and covers the entire grid area. Nineteen rock samples were assayed for gold, silver, copper, lead and zinc.

II. PHYSICAL WORK

Physical work consisted of establishing a grid with stations at 50 m intervals and a line spacing of 50 m or 100 m as shown on the accompanying maps, (Dwg. Nos. DOC. 80-2,3,4,5). The base line is oriented at 1230 (astronomic) with cross lines at 330 (astronomic). The base line and the cross lines were positioned by chain and compass methods. The length of the baseline is 2,300 m and the aggregate length of the cross lines is 21.95 km.

III. GEOLOGY

(a) Introduction

The claims are located in the Intermontane belt adjacent to the Coast Plutonic Complex. Interbedded felsic and mafic volcanic rocks of upper Triassic age are unconformably overlain by a carbonate detritus breccia, and intruded by quartz feldspar porphyry, diabase, and diorite of Tertiary age. The rocks are folded about a northwest trend of probable lower Jurassic age. Quartz veins contain base and precious metal values. The distribution of rock types is shown on Dwg. No. DOC 80-2.

(b) Lithology

(i) Felsic Tuff-Agglomerate

These rocks are light grey to buff in colour,

(b) Lithology (cont.)

reflecting the sericite content, and about 10% of 1 mm felspar phenocrysts. Texturally the rocks range from very fine grained to agglomerates with 8 cm clasts, and are schistose.

(ii) Chert

Interlayered with the felsic tuff-agglomerate are several beds of thinly bedded light grey chert. Characteristically, the chert contains 5-10% disseminated pyrrhotite, and layers of dolomite. The chert beds have sharp contacts with the other rock units.

(iii) Mafic Tuff Agglomerate

This unit is the most common rock type in the grid area. The textures range from very fine grained to agglomeritic with 4 cm clasts. The rock is commonly dark green and reflecting a high (30%) chlorite content and is occasionally feldspar porphyritic (10%). In several area, 1-2 cm layers of 50% magnetite were noted. All outcrops display a well developed schistosity.

(iv) Massive Mafic Volcanic Rock

This unit is dark green to black, fine grained and commonly massive. Schistosity is poorly developed.

(v) Clastic Limestone

Light gray limestone and dolomite clasts averaging 15 cm comprise 50-60% of this unit, with a fine grained light gray limestone matrix. The unit appears to unconformably overlie the volcanic rocks.

(vi) Granite-Quartz Feldspar Porphyry

Dykes are numerous and a stock intrudes the west end of the grid. Carbonate alteration pervades the host rocks for a distance of 1 m from the contacts of the intrusions. The rock is light tan to pink in colour, fine grained, and composed of 45% quartz, 45% orthoclase and albite, and 30% sericite. Up to 2% hematite may be present. Age relations with other intrusives were not observed.

(vii) Diabase

Two diabase dykes were noted in the eastern part of the grid. They are fine grained, black, and contain 15-20% plagioclase phenocrysts. Chilled margins are about 4 cm wide in the dykes.

(b) Lithology (cont.)

(viii) Diorite

A mass of dark grey medium grained diorite is present in the southwestern part of the grid area. A well developed contact metamorphic aureole about 3 m wide is present in the host rocks. The rock consists of 50% hornblende, 45% plagioclase and 5% bluish guartz.

(c) Structure

In general, the volcanic rocks trend northwest and dip both northeast and southwest, implying northwest trending fold axes, however the axial positions of these folds were not mapped. A northwest trending synclinal structure exists in the carbonate breccia, a small cross fold was mapped in the extreme southeastern end of the grid area.

A small northwest trending, normal fault with a 2 m dextral offset was located between lines 4E and 6E.

Dykes of quartz feldspar porphyry and diabase generally are vertical and trend northeast.

(d) Mineralization

The main vein is composed of milky white quartz and up to 5% sulphides, (pyrite, pyrrhotite, galena, chalcopyrite, and sphalerite), and 5% specular hematite. The vein is about 2m wide and was traced for a distance of 270 m.

Previous sampling indicated a grade of 0.309 oz/t Au and 0.99 oz/t Ag over a 260 foot (79.2 m) length of this vein at L4E, $2\pm5^{\circ}$ N.

Other veins were noted during the mapping and were sampled. The assays of these samples and their locations are shown on Dwg. No. DOC 80-2.

All of the veins noted are discordant to the lithology and are not confined to any specific rock type, except the diabase and the clastic limestone.

(e) Conclusions

The mapping indicated that the grid area is underlain by interbedded felsic and mafic volcanic rocks striking northwest and folded about northwest trending fold axes. Quartz feldspar porphyry, diabase and diorite intrude the volcanic rocks. A small unconformable outline of clastic limestone rests on top of the volcanic rocks.

(e) (cont.)

Quartz veins discordantly cut the volcanic rocks and are known to be auriferous.

IV. GEOCHEMICAL SURVEY

(a) Sample Collecting, Preparation and Analyses

Soil samples were collected from depths of about 10 to 20 cm below surface using a mattock with an 8 cm x 13 cm blade to dig through the LH and Ao horizon (where present) to the C detritus or rock grit horizon.

All samples were collected in pre-numbered, wet-strength soil sample envelopes with special information tags stapled to them. At each station (50 m intervals), the specific information about the sample was recorded on the tag, which was then removed and filed. A flag bearing the sample number was placed at all stations.

A total of 447 soil samples were collected and sent to Min-En Laboratories in North Vancouver for preparation and analyses. A total of 415 samples were oven dried and sieved to -80 mesh. The -80 mesh fraction was analyzed for Au and Ag according to the procedures outlined in Appendix A.

Thirteen rock samples were sent to Min-En Laboratories and assayed for Cu, Pb, Zu, Au and Ag, following standard assay procedures.

(b) Results and Interpretation

Drawings DOC 80-3, 4, 5, show the sample numbers, locations and values obtained for Au and Aq.

Statistical analyses, assuming a lognormal distribution indicate:

Element	N	Mean (\bar{X})	Std. Dev.(s)
Au	412	13.5 ppb	4.3 ppb
Ag	412	1.1 ppm	1.7 ppm

Thus, values of 22 ppb for Au, and 4.5 ppm for Ag are considered anomalous (\bar{x} + 2s).

As indicated on Dwg. DOC 80-3, anomalous gold values were detected over approximately one-half of the grid area. Anomalous silver values are erratically distributed (Dwg. DOC. 80-4) and do not correlate with the areas of anomalous gold geochemistry.

(b) (cont.)

Correlation of the Au x + 2s values with the geology suggest that most anomalous values relate to previous trenching debris, downhill creep of auriferous vein material, or meltwater runoff channels. Gold values in excess of 100 ppb form a coherent pattern in the area of the trenched main vein and other trenches, but do not suggest the presence of yet undiscovered veins.

Silver values $(\bar{x} + 2s)$ reflect only known veins and argentiferous glacial debris, and do not suggest the presence of undiscovered veins.

V COST STATEMENT

(a) Wages

Geologists	Daily Rate	Dates	No. of days	Cost
1	\$185.00	May 12-16, June 21-23/80	8	\$1,480.00
1	\$172.00	June 23, 26/80	2	344.00
1	\$102.00	Mar.7, July 17, 19, 23/80	4	408.00
1	\$171.00	July 4, 15-30, Oct.6-11, Nov.6-7 Feb.10-11/81	7/80 26	4,446.00
Geol. Assts.		·		
1	\$ 57.88	July 17, 23/80	2	103.76
1	50.82	July 17, 23/80	2	101.64
Field Assts.				
1	\$ 39.18	June 21, 23, July July 17, 23/80	y 1-4,	352.62
1	46.58	June 21, 23, July July 17, 19, 23-	_	512.38
1	46.58	June 21, 23/80	2	93.16
1	51.88	June 21, 23/80	2	103.76
1	46.58	July 17, 23/80	2	93.16
1	39.18	July 23, 24, Nov	.5/80 3	117.54
			107 days	\$8,156.02

(b) Room and Board

Room and board charges apply to dates listed above for June and July 1980, (field days only). This represents a total 91 man days @ \$50.41 per man day.

\$4,587.31

(c) Consultants

	Rate	<u>Dates</u>	No.days	
W.G. Smitheringale	\$300/day +	July 1-8	8	\$2,400.00
& Associates	expenses			1,091.21
				\$3,491.21

(d) <u>Transportation</u>

(i) From Stewart to claims

				Flying Hours	<u>Rate</u>	<u>Fuel</u>	
3	loads -	June	21	4.5	\$325/hr	113 gal. @\$2.00	\$1,688.50
4	loads -	July	15	6.0	\$365/hr	115 gal. @\$2.00	2,490.00
							\$4.178.50

(ii) In support of assessment work.

Date	Flying Hrs.	Rate	<u>Fuel</u>	
June 21		\$325	12.5	187.50
23		325	12.5	187.50
July 1	1.0	325	25.0	375.00
	2 0.5	325	12.5	187.50
3	3 0.5	325	12.5	187.50
17	7 1.0	365	25.0	415.00
18	3 0.5	365	12.5	207.50
19	0.5	365	12.5	207.50
20	0.5	365	12.5	207.50
2	1 0.5	365	12.5	207.50
22	2 0.5	365	12.5	207.50
2:	3 1.0 °	365	25.0	415.00
2	4 0.5	365	12.5	207.50
2	5 0.5	365	12.5	207.50
20	6 0.5	365	12.5	207.50
2		365	12.5	207.50
	9.5		237.5	\$3,822.50

(e) Analytical Services

Min-En Laboratories

Sample Type	No.of Samples	Elements	<u>Rate</u>	
Soil	416	Au	\$4.25	\$1,768.00
Soil	415	Ag	\$1.75	726.25
Soil	1	Cu,Pb,Zn	\$3.25	3.25
Soil	417	Prep.	\$0.60	250.20
Rock	1.9	Cu,Pb,Zn,		
		Au, Ag	\$30.50	579.50
Rock	19	Prep.	\$2.50	47.50
				\$3,374.70

(f) Report Preparation

	Rate/Day	<u>Dates</u>	No.of days	
Typing	\$62	Dec.17,18/80 Feb.11,12/81	4	\$248.00
Drafting	\$127	Oct.22-29, Nov.12-14/80	6	762.00
				\$1,010.00

GRAND TOTAL \$28,620.24

VI QUALIFICATIONS

- I, Gerald A. Harron, do hereby certify that:
- 1. I am a geologist residing at 2810 Sechelt Drive, North Vancouver, British Columbia and employed by Du Pont of Canada Exploration Limited.
- 2. I am a graduate of the University of Western Ontario with a M.Sc. degree in geology.
- 3. I am a registered Professional Engineer in the Province of Ontario.
- 4. I am practised my profession in geology continuously for the past 11 years in various provincial jurisdictions in Canada.
- 5. Between March 4, 1980 and February 11, 1981, I supervised/directed a field programme on the DOC 1-4 claims on behalf of Du Pont of Canada Exploration Limited.

G. A. Harron

SA Harron

February 11, 1981

APPENDIX A

MIN-EN Laboratories Ltd.

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

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURE FOR GOLD GEOCHEMICAL ANALYSIS.

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 ${\rm HNO_3}$ and ${\rm HC1O_4}$ 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.

At this stage of the procedure copper, silver and zinc can be analysed from suitable aliquote by Atomic Absorption Spectrophotometric procedure.

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 5 ppb.

APPENDIX A

MIN-EN Laboratories Ltd.

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

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURES FOR Mo, Cu, Cd, Pb, Mn, Ni, Ag, Zn, As, F

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 a jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with HNO_3 and $\mathrm{HC1O}_4$ mixture.

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

Copper, Lead, Zinc, Silver, Cadmium, Cobalt, Nickel and Manganese are analysed using the CH₂H₂-Air flame combination but the Molybdenum determination is carried out by $C_2H_2-N_2O$ gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

For Arsenic analysis a suitable aliquote is taken from the above 1 gram sample solution and the test is carried out by Gutzit method using Ag CS₂N (C₂H₅)₂ as a reagent. The detection limit obtained is 1. ppm.

Fluorine analysis is carried out on a 200 milligram sample. After fusion and suitable dilutions the fluoride ion concentration in rocks or soil samples are measured quantitatively by using fluorine specific ion electrode. Detection limit of this test is 10 ppm F.

<u>ti</u>

APPENDIX A

MIN-EN Laboratories Ltd.

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

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURE FOR GOLD GEOCHEMICAL ANALYSIS.

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.

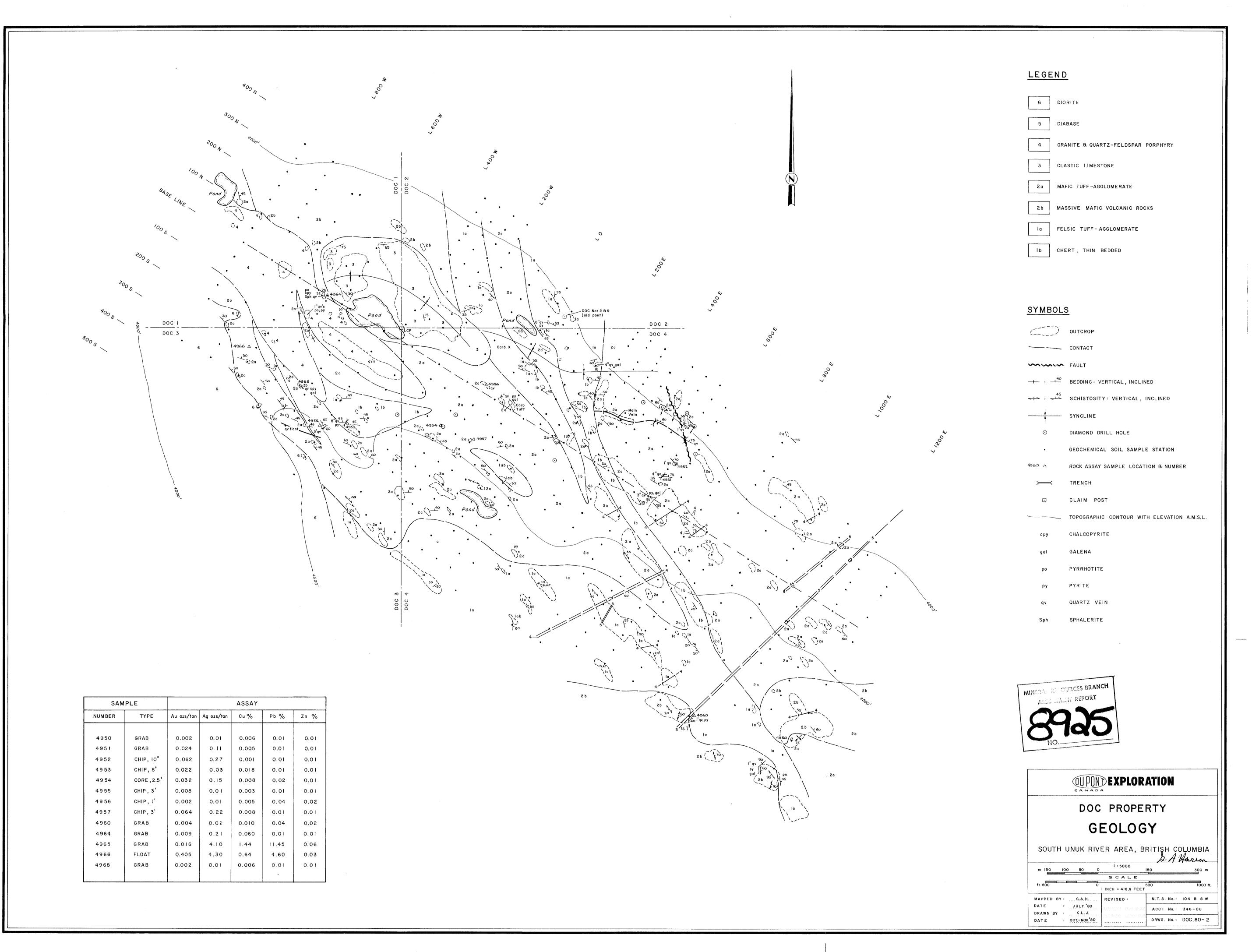
A suitable sample weight 5.0 or 10.0 grams are pretreated with ${\rm HNO_3}$ and ${\rm HC1O_4}$ mixture.

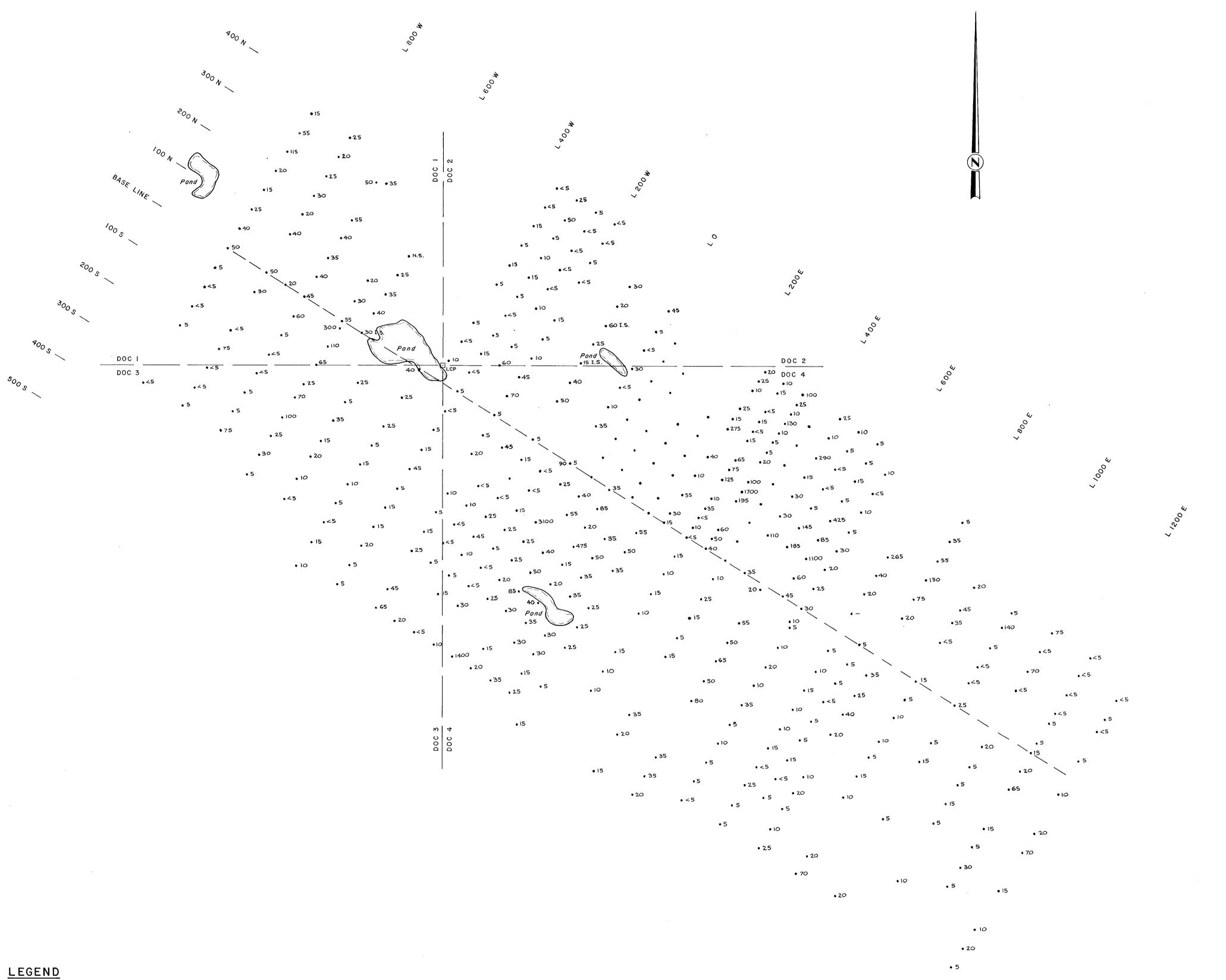
After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

At this stage of the procedure copper, silver and zinc can be analysed from suitable aliquote by Atomic Absorption Spectrophotometric procedure.

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 5 ppb.

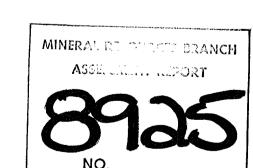




SOIL SAMPLE STATION WITH VALUE FOR Au IN P.P.B.

I.S. INSUFFICIENT SAMPLE TO ANALYZE AT -80 MESH. THEREFORE ANALYZED AT -20 OR -40 MESH.

NO SAMPLE



EXPLORATION EXPLORATION

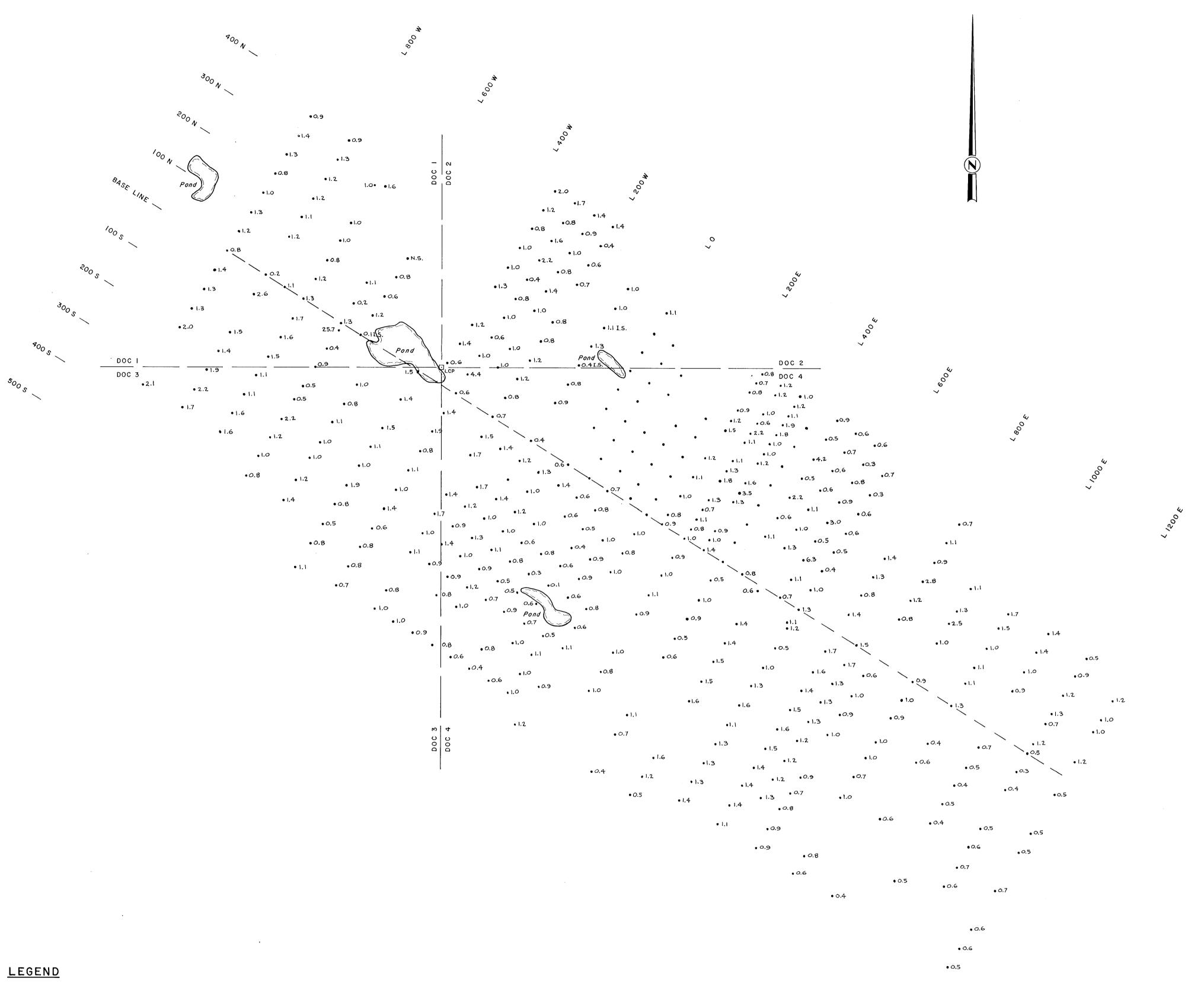
DOC PROPERTY SOIL GEOCHEMISTRY

GOLD IN P.P.B.

SOUTH UNUK RIVER AREA, BRITISH COLUMBIA

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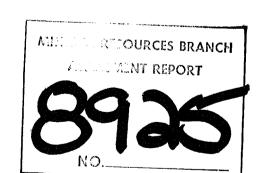
DATE JULY '80 ACCT No.: 346-00 DRAWN BY K.L.J. DATE OCT.-NOV. 80 DRWG. No.: DOC.80-3



• 6.3 SOIL SAMPLE STATION WITH VALUE FOR Ag IN P.P.M.

I.S. INSUFFICIENT SAMPLE TO ANALYZE AT -80 MESH.
THEREFORE ANALYZED AT -20 OR -40 MESH.

N.S. NO SAMPLE



DATE : OCT.-NOV. 80

EXPLORATION EXPLORATION

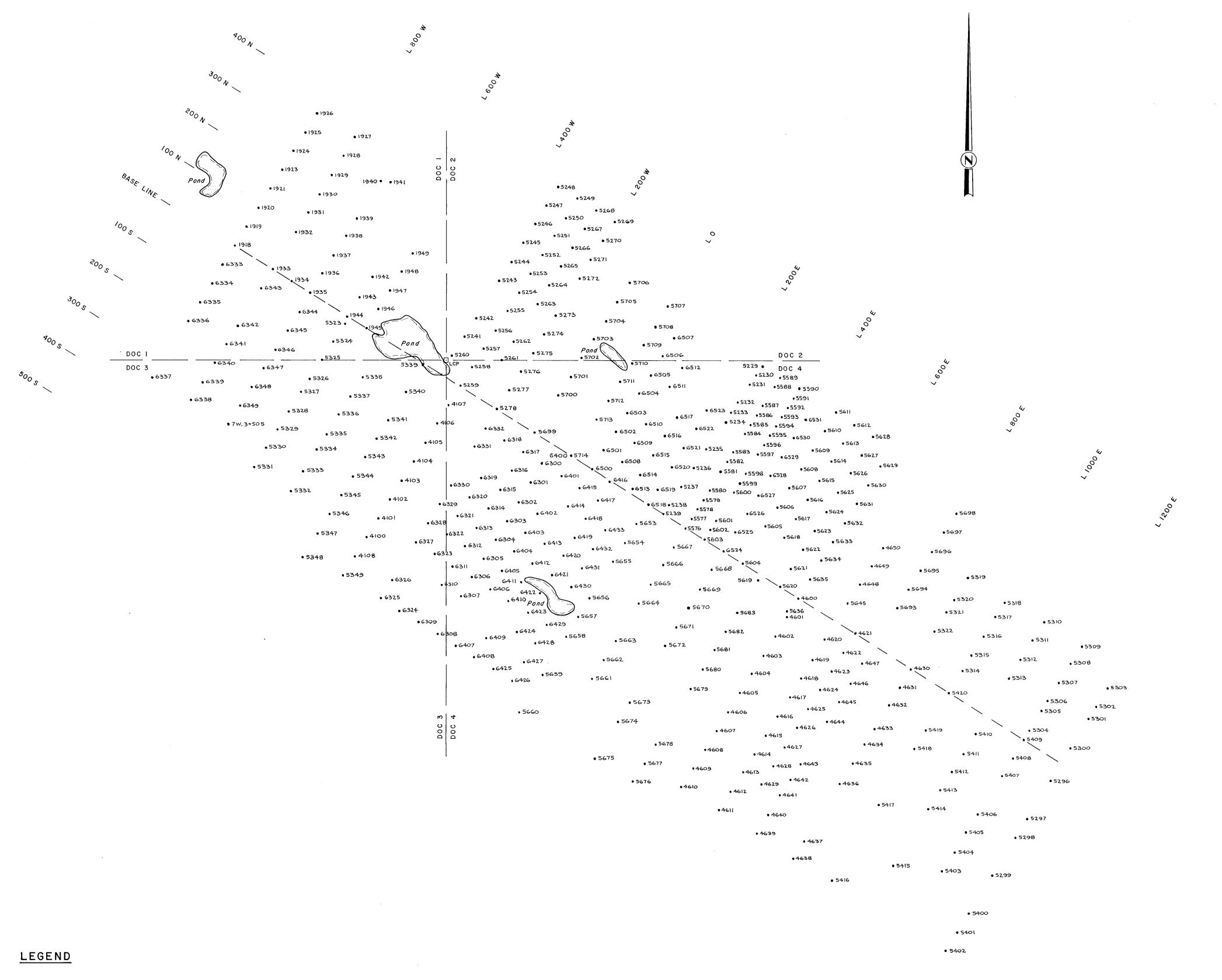
DOC PROPERTY SOIL GEOCHEMISTRY

SILVER IN P.P.M.

SOUTH UNUK RIVER AREA, BRITISH COLUMBIA

DRWG. No.: DOC.80-4

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DATE : JUL		ACCT No. :	346-00



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO.

EXPLORATION EXPLORATION

DOC PROPERTY
SOIL SAMPLE
LOCATION & NUMBERS

SOUTH UNUK RIVER AREA, BRITISH COLUMBIA

			NUM
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ft. 500 O	I INCH = 416,6 FEE	500 T	1000 f
MAPPED BY: G.A.H.	REVISED	N.T.S. No.: 10	4 B 8 W
DATE : JULY '80 DRAWN BY : K.L.J.		ACCT No.: 34	16-00
DATE : OCTNOV. 80		DRWG. No. 1 DO	OC.80-5

• 6505 SOIL SAMPLE STATION AND NUMBER ('D' SERIES)