DU PONT OF CANADA EXPLORATION LIMITED

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE HANDEL-RAVEL CLAIMS

LIARD MINING DIVISION

LAT. 56°40'N, LONG. 130°59'W

NTS: 104-B-10W/11E

OWNER OF CLAIMS: Du Pont of Canada Exploration Limited

OPERATOR: Du Pont of Canada Exploration Limited

ALL ALTONOMARIANTA

COSSO

Author: L. Eccles

Date Submitted: 1981 June 8

TABLE OF CONTENTS

		Page No.
ı.	INTRODUCTION	1
II.	GEOLOGY	3
III.	GEOCHEMICAL SURVEY	6
IV.	COST STATEMENT	8
v.	QUALIFICATIONS	11

Appendix A - Geochemical Analytical Procedure

LIST OF FIGURES

		Behind Page
Figure 1 Loc	ation Map	1
Figure 2 Ind	ex Map	. 1
Dwg. AR 80-185	Handel-Ravel Claims, Geology	In pocket
Dwg. AR 80-186	Handel-Ravel Claims, Geochem. Au in ppb; Ag, Pb, Zn, Cu in ppm.	п

I INTRODUCTION

(a) Location and Access

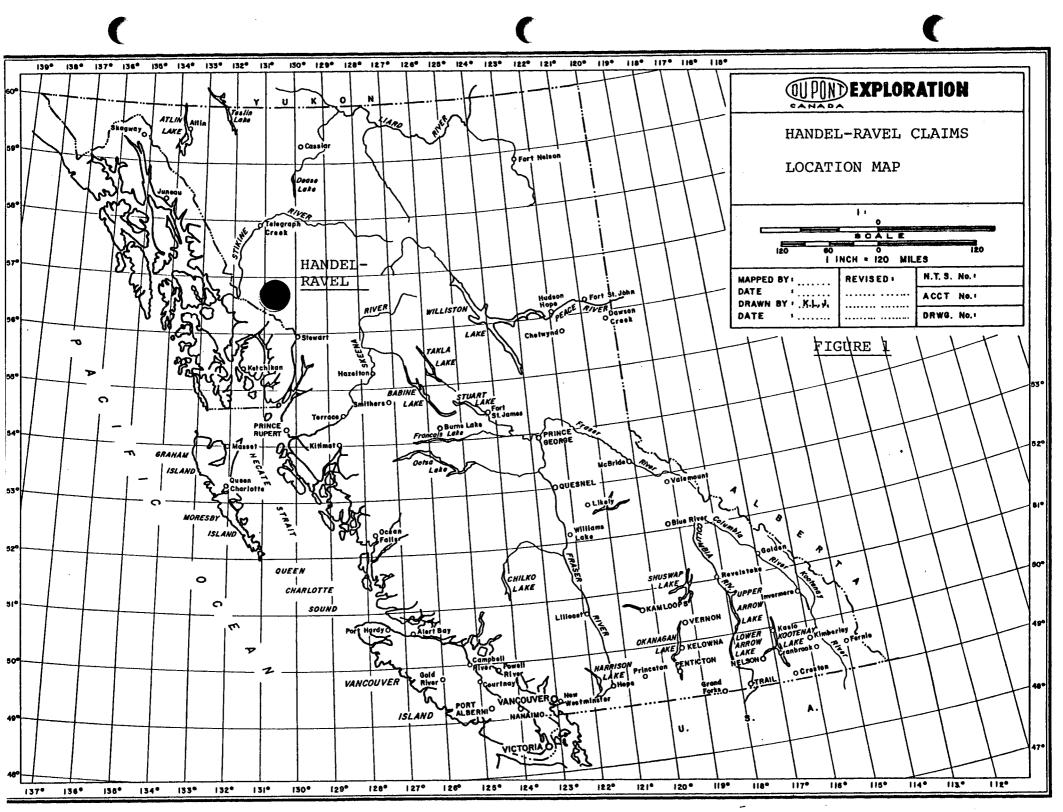
The HANDEL and RAVEL claims are located in northwestern British Columbia within the Liard Mining Division, NTS 104-B-10W and 104-B-11E. The property is situated south of the Iskut River across the northwest trending ridge and north flank of Snippaker Mountain. It is centered by latitude 56°40'N and longitude 130°59'W.

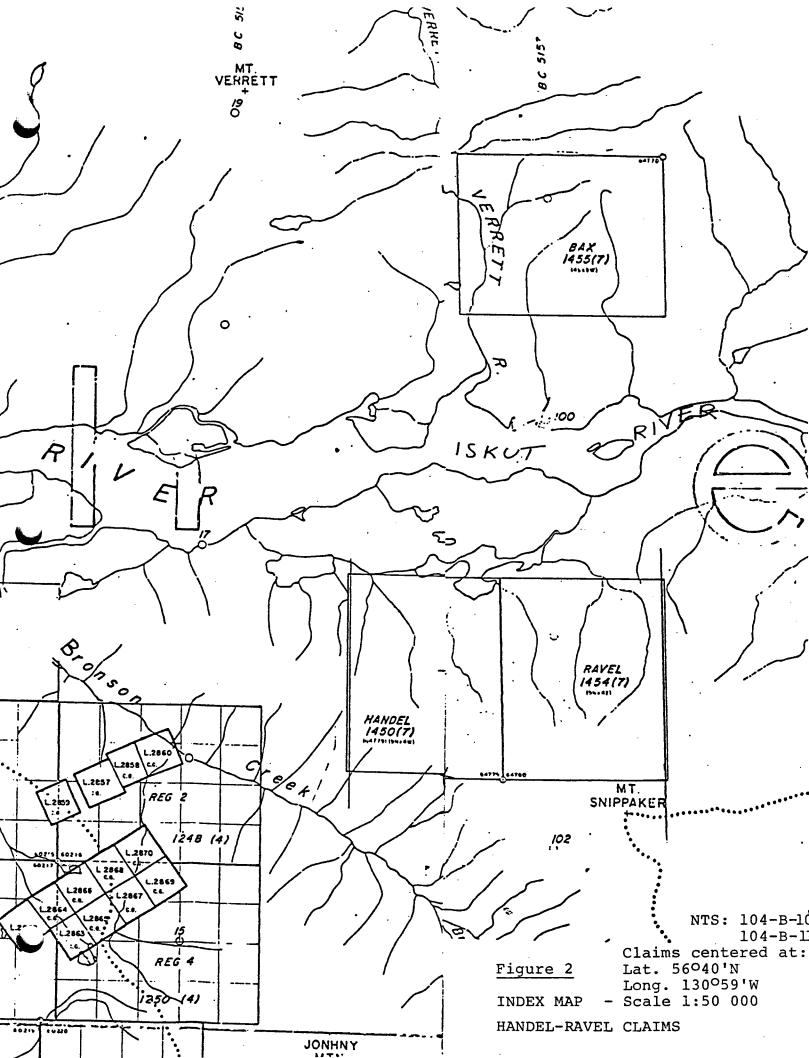
At present access into the property is via helicopter either from the Stewart-Cassiar Highway 60 km to the northeast or the town of Stewart 100 km to the southeast. Stewart represents the major (Canadian) supply centre within the region.

(b) Physiography

The HANDEL-RAVEL property is situated within the Boundary Ranges of the Coast Mountains. This geographic province consists of a mountainous and glaciated terrain that exhibits relief in excess of 2000 metres. Tree line varies from 1000-1200 metres above sea level. Below this point, particularly within the lower valleys, vegetation predominantly consists of a dense growth of conifers. Active glaciation is prevalent in the area, particularly in terrain above 1500 metres.

Relief over the HANDEL-RAVEL claims is extreme ranging from 150 metres above sea level along the Iskut River valley floor to 2010 metres at Snippaker Mountain. South of the Snippaker Mountain ridge, into the Bronson Creek valley the property exhibits a relatively uniform moderatesteep south slope. This is in contrast with the north slope which overlooks the Iskut River valley. This north slope which comprises the northern portion of





HANDEL claim and most of the RAVEL exhibits a precipitous face which has been deeply incised by approximately six stream channels. The foot of each gully is characterized by the development of extensive alluvial fans.

(c) Claim Status

The HANDEL-RAVEL property consists of two adjoining mineral claims: HANDEL and RAVEL. Each claim entails 20 units for a total of 40 units. Pertinent data for each claim is outlined below:

HANDEL Record No: 1450

Tag No: 64779

Date Recorded: July 14, 1980

RAVEL Record No: 1454

Tag No: 64780

Date Recorded: July 14, 1980

(d) History and Economic Assessment of Property

Prior to 1980 no known mineral exploration appears to have been conducted in the immediate vicinity of the HANDEL-RAVEL property.

The HANDEL-RAVEL claims were staked on the basis of a regional stream sediment survey conducted in May-June 1980.

The evaluation programme undertaken in 1980 encountered several sphalerite-galena-chalcopyrite and precious metal bearing quartz veins which are hosted by andesite and argillite. To date the mineralization has been observed at the base of the north slope of Snippaker Mountain. Partially as a result of the precipitous and relatively inaccessible nature of the north slope the extent and nature of these occurrences are presently unknown.

(e) Summary of Work

The HANDEL and RAVEL claims were staked on June 30, 1980. During the period July 18, 19, 22 and 27,

1980 several traverses that entailed soil sampling, stream sediment sampling, geological mapping and prospecting was conducted within the northern portion of the claims near the foot of Snippaker Mountain. In addition to working across the base of the cliffs, several gullies were followed up as far as was deemed possible. The geological mapping was performed at a scale of 1:10 000 (Dwg. AR 80-185). A total of 16 stream sediment, 7 soil and 27 rock samples were obtained and analyzed.

II GEOLOGY

(a) Regional Geology

The Boundary Ranges of the Coast Mountains occur along the contact of the Intermontane and Coast Crystalline geologic provinces. The latter, the bulk of which occurs across the border in the Alaskan panhandle consists of Tertiary and Cretaceous quartz monzonite and quartz diorite. The Intermontane belt within the Iskut River area consists of Carboniferous and Permian schists and Upper Triassic andesite, basalt and clastic sediments.

Intruding the Intermontane belt within this region are a number of intrusives that include Triassic diorite and monzonite, Jurassic quartz diorite and Cretaceous and Tertiary quartz monzonite.

Pliocene - Recent aerial volcanism extruded rhyolites, basalts and tuffs within the Edziza Peak, Level Mountain and to a lesser extent Iskut River areas.

(b) Property Geology

The HANDEL-RAVEL claims, as indicated on G.S.C. map 1418A (1974), are underlain by a sequence of Upper Triassic undifferentiated andesitic volcanic and clastic sedimentary rocks.

Field work during the past season has indicated that the northern sectors of the HANDEL and RAVEL claims are underlain by a sequence of argillite/mudstone and andesite. Occurring locally are carbonate altered zones. The following is a brief description of the two principal lithologies present.

i) Argillite

This unit appears to predominate along Creek 648. It is dark grey to black in colour and fine grained. Several pieces of float, both along Creek 648 and the East Creek exhibit deformed Monotis and Horn Coral fossils. In addition, argillaceous float occurrence are encountered within the East Creek.

ii) Andesite

These volcanics are green in colour and are generally fine grained although occasionally exhibit porphyritic textures. Flow-top breccias are evident within an outcrop along the East Creek. This breccia consists of purple and green andesitic fragments hosted by an andesitic and calcitic matrix. Minor dacitic occurrences have been observed along several traverses. This unit is light-dark grey in colour, siliceous and contains disseminated pyrite.

Structural data in terms of either lithology or faulting is limited. Within the East Creek, in the vicinity of the flow top breccias a strike of 065° and dip of 55°N was obtained.

(c) Mineralization

Along the north foot of Snippaker Mountain, within the HANDEL and RAVEL claims, scattered mineralization in the form of a partial assemblage of sphalerite-galena-chalcopyrite

-pyrite-precious metals has been observed in float and outcrop. The mineralization appears to principally occur within quartz veins hosted by andesite or argillite. In addition, within black argillite a massive sulphide bed consisting of pyritic bands (Rock #3477) was observed in Creek 648. The mineralization appears to be sparsely concentrated and its extent is presently unknown as is its relationship, if any, with the carbonate altered zones.

Assays from various rock samples reveal erratic, although in several instances highly anomalous values in Au, Ag, Cu, Pb. Results are shown below:

Sample Number	Claim Name	Au o/t	Ag o/t	Cu %	Pb %	Zn %
3477	Ravel	_	0.12	0.007	0.03	0.01
6253	Handel	0.029	0.01	0.013	0.01	0.01
6255	Handel	1.270	0.95	0.078	0.76	0.80
6272	Handel	0.006	0.01	0.007	0.01	0.02
6278	Handel	0.012	0.24	0.042		0.18
6279	Handel	0.029	1.49	0.040	1.58	0.87
6280	Handel	0.002	0.48	0.030	0.40	0.63
6830A	Ravel	0.002	0.11	0.014	0.02	2.06
6831A	Ravel	0.013	0.22	0.027		0.09
6833A	Ravel	0.002	0.09	0.003	0.01	0.02
6835A	Ravel	0.002	0.10	0.013	0.01	0.02
6836A	Ravel	0.001	0.09	0.010	0.01	0.01
6838A	Ravel	0.002	0.19	_	-	-
6839A	Ravel	0.006	0.18	0.038	0.01	0.02
6840A	Ravel	0.048	21.45	0.030	21.40	13.90
6841A	Ravel	0.002	0.17	_	_	-
6842A	Ravel	0.002	0.20	0.012	0.12	0.38
6843A	Ravel	0.001	0.08	-	-	_
6845A	Ravel	0.001	0.10	0.013	0.03	0.02
6846A	Ravel	0.007	0.23	0.010	0.18	0.30

(d) Conclusions

The HANDEL-RAVEL property is underlain by a sequence of andesite and argillites that host scattered sphalerite-galena-pyrite-chalcopyrite and/or precious metal bearing quartz veins. The nature, concentration and extent of this mineralization is at present unknown.

III GEOCHEMISTRY

(a) Procedure

A total of 16 stream sediment, 7 soil and 27 rock samples were obtained from the HANDEL and RAVEL claims.

The stream sediment samples were collected from three streams that drain into an unnamed lake. Samples were obtained along 150 metre intervals to a point where terrain prohibited further sampling. Each sample was placed in numbered wet-strength sample envelopes and the various locations were flagged indicating their respective numbers. Several of the samples, particularly within the upper reaches of the streams were obtained from dry stream beds.

The soil samples were collected from depths of 10 to 20 cm thereby obtaining a B or C horizon sample. As in the case of the stream sediment procedure, the sample locations were flagged and deposited in Kraft envelopes. The soil samples were obtained along several relatively short side-hill traverses with samples spaced 50-100 metres apart.

The various rock samples that were obtained were deposited in plastic bags. At the laboratory the samples were crushed, split, pulverized and sieved to -100 mesh. Twenty samples were assayed for Au (oz/ton), Ag (oz/ton), Cu (%), Pb(%), and Zn (%). The other seven samples were geochemically analyzed for Cu (ppm), Pb (ppm), Zn (ppm) and in several samples Au (ppb) and Ag (ppm).

The stream sediment, soil and rock samples were shipped to Min-En Laboratories in North Vancouver for preparation and analysis. The stream sediment and soil samples were sieved to -80 mesh and analyzed for Ag (ppm), Pb (ppm), Zn (ppm) and Cu (ppm), according to the procedure outlined in Appendix A. Two samples, #5644 and #5648 were prepared to a -40 mesh fraction and analyzed.

(b) Results

Drawing AR 80-186 denotes the various sample locations and their respective results.

Stream sediment samples were obtained from three principal creeks draining the north face of Snippaker Mountain. This was undertaken in order to define the source of the anomalous lead and silver concentrations obtained during the regional survey.

Results obtained within the East Creek returned negative results with the exception of slightly elevated lead concentrations (112-178 ppm). The centre stream: - Creek 648, exhibits strongly anomalous lead and to a lesser degree copper and silver values. Although slightly erratic, lead values range from 385-480 ppm; copper 117-410 ppm and silver 2.2-3.9 ppm. Sample #5716, obtained at most southerly accessible point on the gully, analyzed 410 ppm Cu, 480 ppm Pb, 185 ppm Zn and 3.9 ppm Ag.

The West Creek, which drains the HANDEL claims contains stream sediment concentrations of 280-380 ppm Pb with slightly elevated Ag and Cu values.

The soil sample results closely correlate with adjacent stream sediment concentrations. Lead and to a lesser degree Ag, responded with anomalous values.

To summarize, the stream sediment and soil results collaborate the presence of observed base metal mineralization. The lower or northern segment of the respective traverses are situated across well developed alluvial fans. This in conjunction with the presence of highly anomalous Pb-Ag-(Cu) (sample #5716) concentrations within the upper portion of the deeply incised ravines indicate the possible occurrence of base metal-precious metal mineralization above on the precipitous north face of Snippaker Mountain.

IV COST STATEMENT

(a) Wages

		Rate/ _day_	Spec. dates	No. days		Cost
1	. geologist	\$102.37	Jul.18,22,27/80	3	\$	307.11
]	jr. geol.	50.82	Jul.18,19,22, 27/80	3		152.46
]	field asst.	46.58	Jul.18,19,22, 27/80	3		139.74
]	jr.field asst.	46.58	Jul.18,22,27/80	3		139.74
	tech.asst.	39.18	November/80	0.5		19.59
]	. geologist	146.92	Mar.23,24,26/81	3		440.76
					\$1	.199.40

(b) Room and Board

The per diem rate of \$50.41 applies to 12 person days during July 18, 19, 22 and 27, 1980:

\$ 604.92

(c) Transportation

Costs to and from the project area during July, pertinent to the HANDEL-RAVEL claims, are split amongst claims that had work conducted upon.

A. To/From Project Area - Scheduled Carriers

Date	From-To	<u>Via</u>	No.persons	Cost
July 13 July 14	Vanc./Stewart Vanc./Stewart Whitehorse/	CP/TPA CP/TPA	2 @ \$150.10 3 @ \$150.10	\$ 300.20 450.30
July 15-16 July 16	Vanc./Stewart Vanc./Stewart	CP/TPA CP/TPA	1 @ \$301.00 1 @ \$150.10	301.00 150.10
				\$1,201.60
HANDEL-RAVE	L portion (12/34	person d	ays)	\$ 424.09
Helicopter	(Stewart-Camp-St	ewart)		
Terr-Air Ro	tary Ltd.			
July 16/80 July 28/80	\$2,013.00 3,037.80			
				\$5,050.80
Charter spl HANDEL-RAVE	\$2,525.40 \$ 891.32			
B. To/From	Claims		••	
\$366/hr		•		\$1,207.80
\$366/hr	r charter ticket			494.10
\$366/hr				863.76
Terr-Ai \$366/hr	r charter ticket)	#916 (3.	00 nrs @	1,098.00
Billed	on invoice no.59	1		\$3,663.66
Total t	ransportation ex	penses:		\$4,979.07

(d) Analytical Services

Min-En Laboratories Invoice #6862 & 7403

23	stream sed./soil - prep. (@ \$0.60 each)	\$	13.80
23	stream sed./soil - Pb (@ \$1.75 each)		40.25
23	stream sed./soil - Cu,Zn,Ag (@ \$2.25 each)		51.75
7	rock (geochem.) prep (@ \$2.00 each)		14.00
7	rock (geochem.) Cu,Pb,Zn (@ \$3.25 each)		22.75
	rock (geochem.) Ag, Au (@ \$5.00 each)		35.00
	rock - prep. (@ \$2.50 each)		50.00
	rock - Cu,Pb,Zn (@ \$17.00 each)		289.00
20	rock - Ag (@ \$6.50 each)		130.00
19	rock - Au (fire) (@ \$7.50 each)		142.50
		- -	700 05

Report Preparation (e)

	Rate/ _day	Spec. <u>dates</u>	No. days	
Drafting Typing	\$127.00 64.80	Mar.19,20/81 Mar.27/81	2 1	\$ 254.00 64.80
				\$ 318.80

(f) Miscellaneous

Cooks wages @ \$86.40/day (July 16-28)	\$1,123.20
HANDEL-RAVEL portion of expenses (12/34 per days):	396.42
Room and board - pilot and cook	
Per diem rate of \$50.41	\$1,210.66
HANDEL-RAVEL portion of expenses:	427.29

Total miscellaneous expenses:

GRAND TOTAL

823.71

\$8,714.95

V. QUALIFICATIONS

- I, Louise K. Eccles, do hereby certify that:
- I am a geologist residing at 782 West 22nd Avenue, Vancouver, British Columbia and was employed by Du Pont of Canada Exploration Limited at the time of the programme.
- 2. I am a graduate of the University of British Columbia with a B.Sc. (Honours) degree in geology.
- 3. I have practised my profession in geology continuously for the past four years in British Columbia, Ontario, the Yukon and Northwest Territories.
- 4. Between 1980 July 13 August 31, I directed/ supervised a field programme on the HANDEL-RAVEL property on behalf of Du Pont of Canada Exploration Limited.

Louise K. Eccles

10011 ACO-3014

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 HNO3 and HClO4 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.

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 ${\rm HNO_3}$ and ${\rm HC1O_4}$ 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 CH $_2$ H $_2$ -Air flame combination but the Molybdenum determination is carried out by C_2 H $_2$ -N $_2$ O 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.



