86-420-15014

Geochemical & Petrographic Report

on the

ECSTALL PACK BACK GROUP

Situated in the SKEENA Mining Division, B.C.
At Coordinates: 53 deg. 47'min. N, 129 deg. 07 min. W
26.1'

by: Gordon Maxwell & W. Mercer

Owner: C. Graf

Operator: NORANDA EXPLORATION COMPANY, LIMITED
(NO PERSONAL LIABILITY)

N.T.S. 103 H/14W

July 1986

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SUMMARY:

During November of 1985, the author made a brief examination of the Packsack showing and collected several samples for petrographic studies and geochemical analysis. These studies suggest the Packsack is a volcanogenic massive sulphide deposit, hosted by highly metamorphosed felsic volcanics. Results of the geochemical analysis show the deposit may contain economic grades of copper, zinc, silver and gold. The Packsack showing may have the potential for a poly metallic massive sulphide deposit similar to the Westmin H.W. on Vancouver Island.

INTRODUCTION:

The Ecstall 15 & 16 claims were staked by Chris Graf in April 1983 to cover a Cu-Zn massive sulphide occurrence known as the Packsack showing. Upon recent examination by the author, several samples were collected for petrographic studies to determine the environment of deposition and geochemical analysis for Cu, Zn, Ag, Au. Six thin sections and two polished sections were prepared for study by W. Mercer, an employee of Noranda Exploration.

This report describes the results of petrographic analysis of eight samples and the results of seven geochem analysis.

LOCATION AND ACCESS:

The claims are located approximately 50 kilometers west-southwest of the town of Kitimat, B.C. (Figure #1) The property lies in a subalpine area, 1 kilometer north of the large bend in the Ecstall River. Access to the property is via helicopter from Terrace or Prince Rupert.

CLAIM STATISTICS:

The Ecstall 15 & 16 claims were staked using the modified grid system on April 30, 1983. The claims were grouped for the purpose of assessment and are located on claim map 103 H/14W in the Skeena Mining Division. (Figure #2)

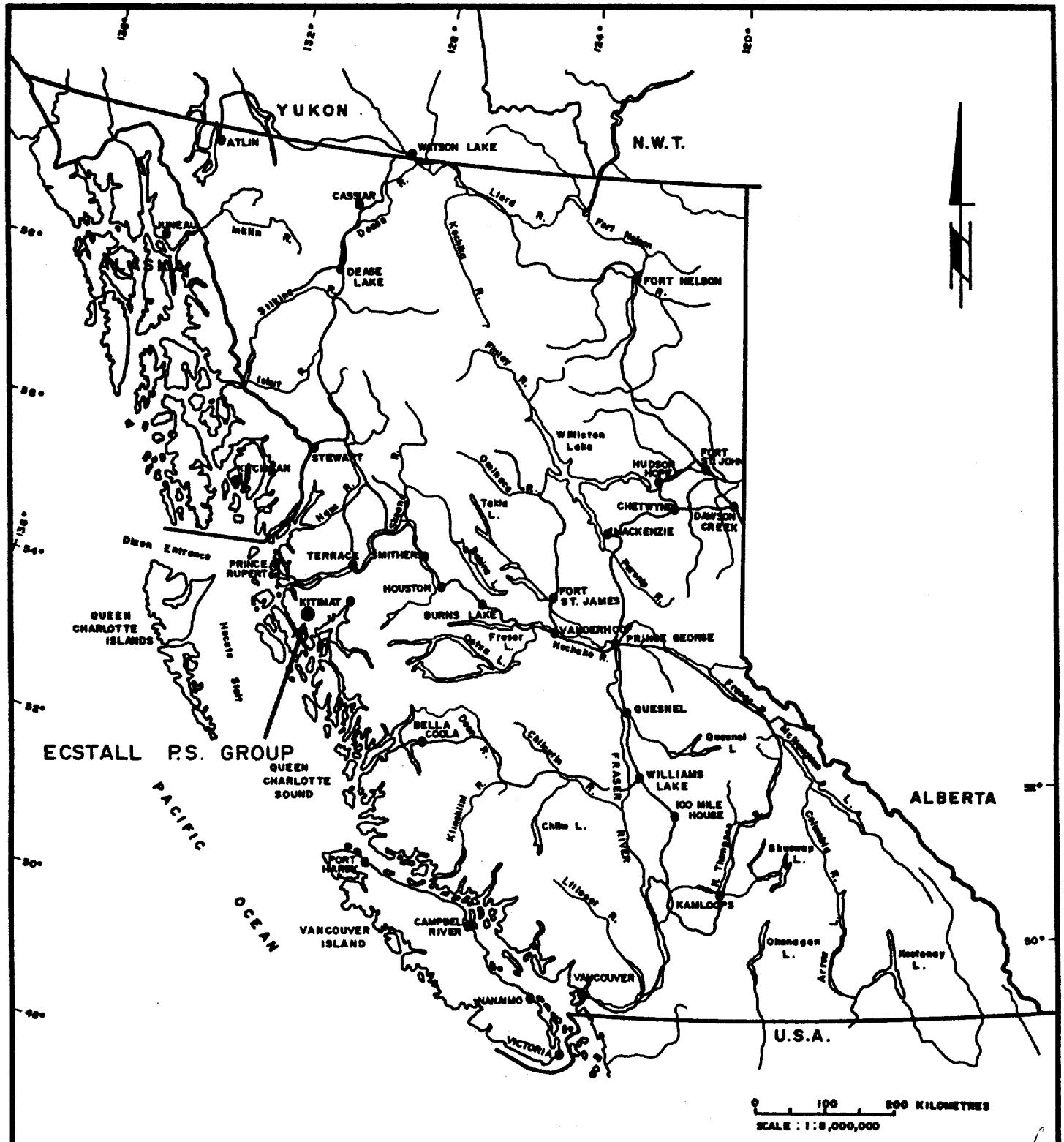
Claim Name	# Units	Record #	Record Date	Owner
ECSTALL 15	4	3866	May 6/83	C. Graf
ECSTALL 16	4	3867	May 6/83	C. Graf

PREVIOUS WORK:

The showing was discovered in 1958 during a regional exploration project initiated by Texas Gulf Inc. The sulphide zone was tested by an eleven hole drill program, totaling 2873 feet. Further surface geologic mapping and soil geochem surveys were conducted in 1973. Ten kilometers of grid line was established to facilitate a shootback EM survey in 1975. The claims were allowed to lapse and later acquired by Dimac Resources. The claims were again allowed to lapse in 1983 and were then acquired by the present owner.

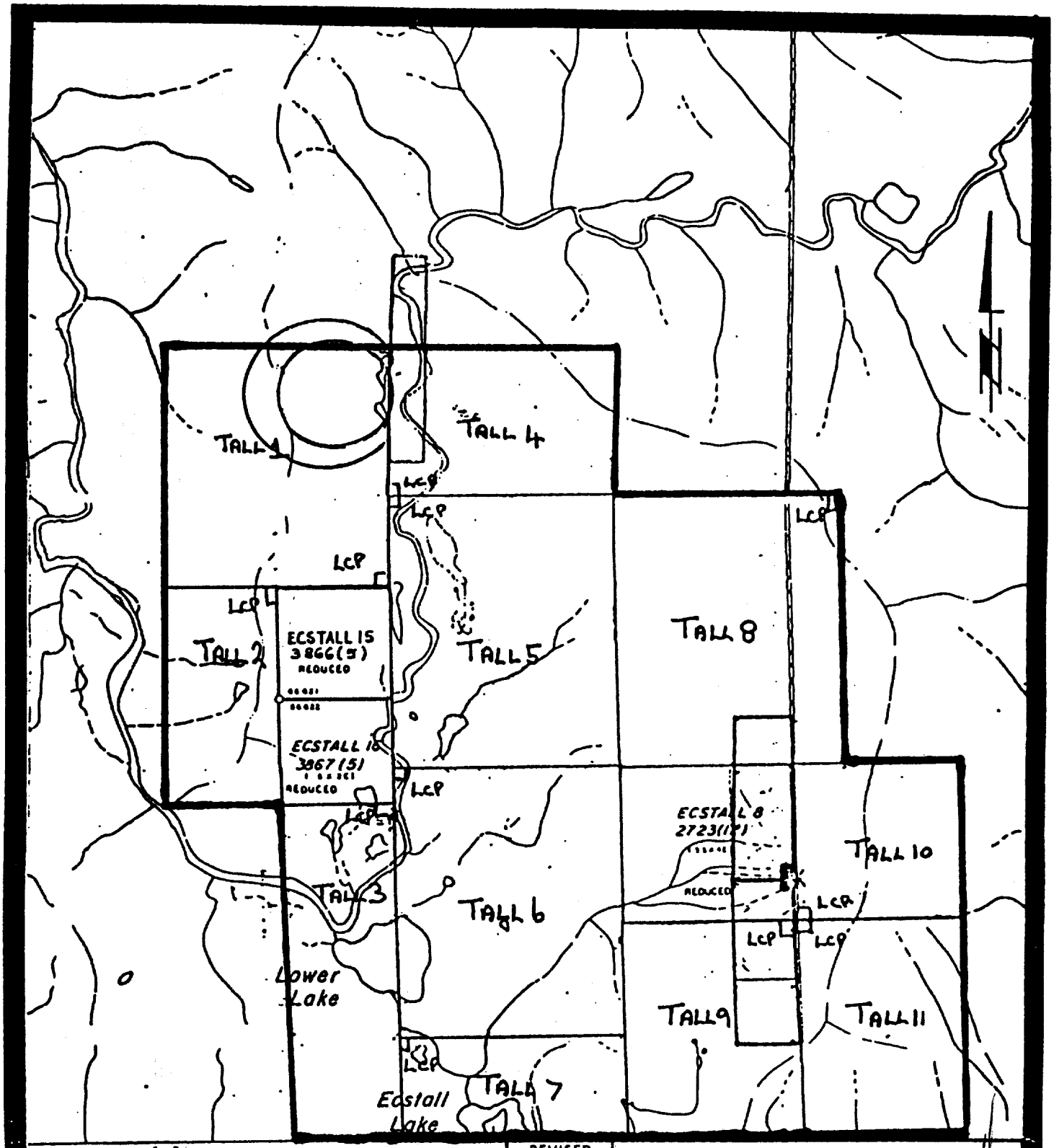
REGIONAL GEOLOGY:

The property lies witnin an Upper Paleozoic group of gneisses and schists which probably represents a highly metamorphosed volcanic/sedimentary belt. These rocks lie within the area known as the Central Gneiss complex which forms a broad northwest trending zone of gneisses, migmatite and intrusive



REVISED	ECSTALL PACKSACK GROUP
	LOCATION MAP
PROJ. No. 275	SURVEY BY: _____ DATE: Feb/86
N.T.S. 103H/14	DRAWN BY: S.K.B. SCALE: 1:8,000,000
DWG. No. 1	**NORANDA EXPLORATION**
	OFFICE: PRINCE GEORGE, B.C.

VANCAL 11927



REVISED	ECSTALL PACKSACK GROUP
	(ECSTALL 15 & 16 CLAIMS)
	CLAIM LOCATION
PROJ.No 275	SURVEY BY: _____ DATE: July/86
N.T.S. 103H/14	DRAWN BY: G.M. SCALE: 1:50,000
DWG. No. 2	NORANDA EXPLORATION
	OFFICE: Prince George

rocks. The rocks of the Ecstall River area have been described in detail by Roddick (1974) and Padgham (1958).

PETROGRAPHY:

The Ecstall 15 & 16 claims cover the Packsack showing which is believed to be a volcanogenic massive sulphide deposit in highly metamorphosed volcanic/sedimentary terrain. Eight samples were taken by the owner for petrographic analysis and seven samples were collected by the author for geocnemical analysis. (Figure #3) Six samples (9506, 9510, 9512, 9515, 9516, 9518) were cut and mounted for thin section studies. (See Appendix III)

Description of the samples were summarized by W. Mercer of Noranda Exploration, as follows:

"From six thin sections from the Packsack snowing, two main rock types can be distinguished.

1. Metamorphosed sediments
2. Metamorphosed felsic volcanics

1. Sample #9506 is an example of the metamorphosed sediments.

   In general, the mineralogy consists predominantly of quartz, sericite, alkali-feldspars and pyrite, whereas chlorite, biotite, epidote, apatite, sphalerite, are only of accessory importance.

2. The metamorphosed volcanic rocks mainly metadacites comprise the following samples: #9510, #9512, #9515, #9516, #9518.

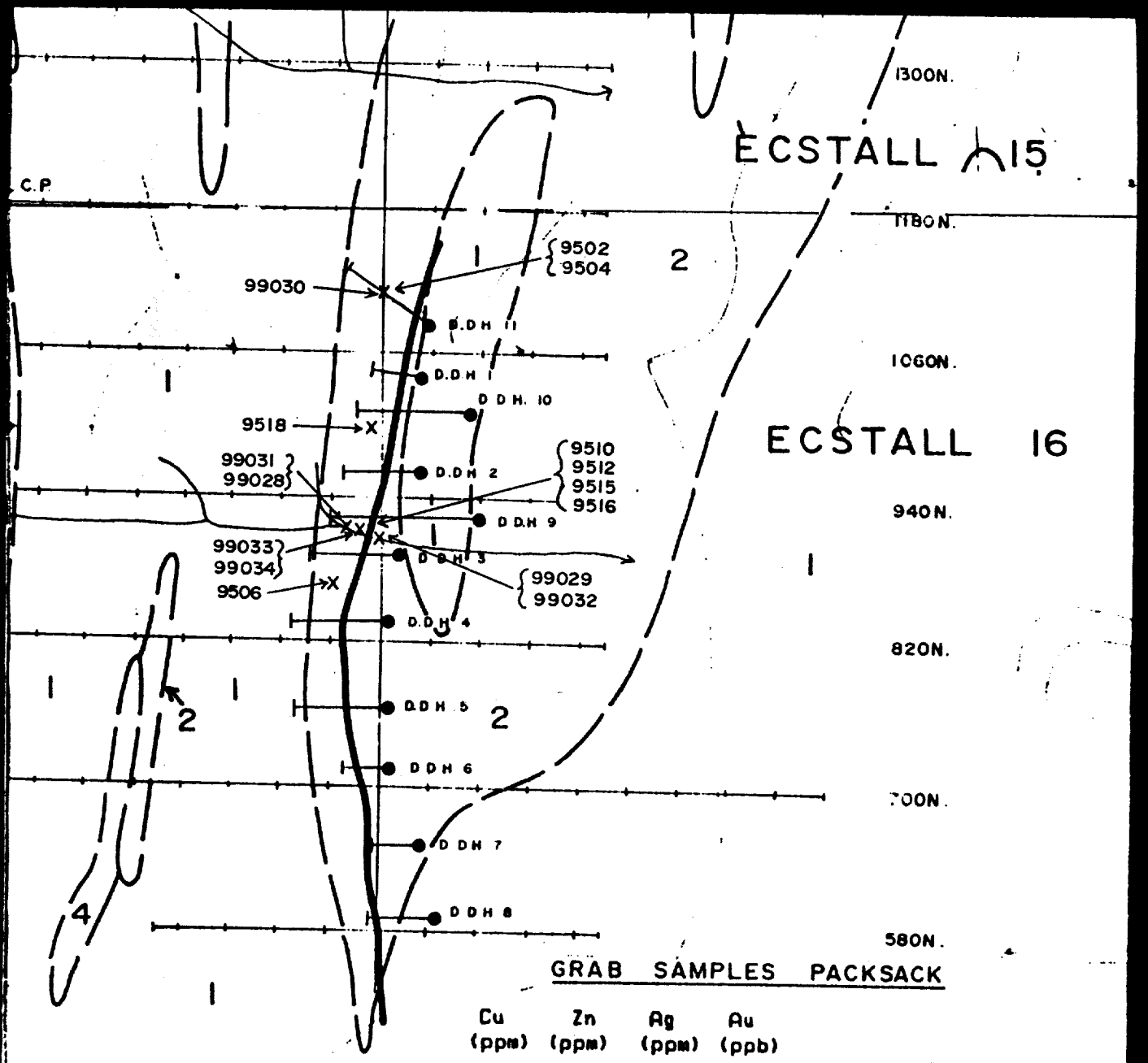
   These rocks metamorphosed to a sericite chlorite grade show euhedral phenocrysts of quartz and/or alkali feldspars which are slightly corroded in some thin sections. Some banding and/or rotation is visible in some sections."

Two massive sulphide samples (#9502, #9504) from the Packsack showing were mounted for polished section study. (See Appendix IV) The descriptions were summarized by W. Mercer as follows:

"All polished sections exhibit very similar features except as follows:

1. Pyrite-Sphalerite gangue 9502
   Pyrite-Chalcopyrite-Sphalerite 9504

2. Massive texture 9502, 9504, 9514



GRAB SAMPLES PACKSACK

	Cu (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)	
99028	381	107	1.2	35	5-10% py sericite schist
99029	5190	3160	17.0	940	massive sulphides
99030	925	7.7%	3.1	2000	massive sulphides
99031	135	505	1.7	320	massive sulphides
99032	1330	416	0.4	15	5-10% py sericite schist
99033	3370	7.95%	16.0	190	massive sulphides
99034	755	3090	0.8	15	5-10% py sericite schist

REVISED	ECSTALL PACKSACK GROUP
	SAMPLE LOCATIONS
PROJ. No. 275	SURVEY BY: G.M. DATE: July/86
N.T.S. 103H/14	DRAWN BY: G.M. SCALE: 1:5,000
DWG. No. 3	NORANDA EXPLORATION
	OFFICE: Prince George

The samples are believed to represent recrystallized massive sulphide samples as indicated by:

1. relatively uniform pyrite grain size

2. presence of mosaic textures in pyrite in places

3. apparent absence of internal textures - overgrowths, etc. - in the pyrite.

The lack of intergrowths of the various minerals and coarse grain size are favorable for metallurgy."

GEOCHEMICAL ANALYSIS:

Seven samples of massive sulphide and pyritic felsic schist were collected and analyzed for Cu, Zn, Au, Ag.

Sample 99028 - Pyritic quartz-sericite schist containing 5-10% disseminated pyrite.

Sample 99029 - Massive pyrite.

Sample 99031 - Massive pyrite.

Sample 99032 - Pyritic quartz-chlorite-sericite schist containing 5-10% disseminated pyrite.

Sample 99033 - Massive pyrite

Sample 99034 - Pyritic quartz-sericite schist containing 5-10% disseminated pyrite.

Two samples, 99030 and 99033 returned values of almost 8% zinc, while two others, 99029 and 99034 were highly anomalous in zinc. Copper values range from 135 ppm to 0.5% in sample 99029. Two samples, 99029 and 99031, had silver values greater than 16 grams/ton. Several samples showed anomalous gold values, sample 99030 returned a value of 2 grams/ton Au.

CONCLUSIONS:

The sample descriptions suggest the Packsack showing is a volcanogenic massive sulphide deposit hosted by highly metamorphosed felsic volcanics. Geochemical analysis has shown some samples may contain economic grades of copper, zinc, silver and gold. The Packsack showing may have the potential for a polymetallic massive sulphide deposit similar to Westmin's H.W. deposit.

RECOMMENDATIONS:

A grid should be established over the showing to facilitate detailed HLEM, Magnetometer, geology and soil geochemical surveys.

Five or six diamond drill holes are needed to test the strike and depth extent of the known mineralization.

REFERENCES:

DeLancey, P.R., 1973, Texasgulf Private Geological and Geochemical Report of the Packsack Claim.

Gasteiger, W.A., 1975, Texasgulf Private Geophysical Report on the Packsack Claim.

Graf, C., 1981, Ecstall River Joint Venture, Welcome North Mines Ltd., Esperanza Explorations Limited, E & B Explorations Incorporated and Active Minerals Explorations Limited.

Hutchison, W.W., 1967, Prince Rupert and Skeena Map area, B. C. Geological Survey of Canada, Paper 66-23.

Mercer, W., 1986, Petrographic Analysis of Samples Taken from the Packsack Showing., Noranda Exploration Company, Limited., Private Report.

Padgham, W.A., 1958, Geology of the Ecstall-Quaal Rivers Area, B.C.; Unpub. M.A.Sc., Thesis, University of British Columbia.

Roddick, J.A., 1970, Douglas Channel-Hecate Strait Map Area, B.C.; Geological Survey of Canada, Paper 70-41.

APPENDIX I

STATEMENT OF COSTS

PROJECT: **ECSTALL 15 & 16 CLAIMS**

a) **WAGES:**

G. Maxwell, 1 day @ $150.00/day	$ 150.00
W. Mercer, 1 day @ $200.00/day	$ 200.00

b) **FOOD & ACCOMMODATION & TRANSPORTATION:**

G. Maxwell	$ 200.00

c) Analytical Costs $ 70.00

d) **COST OF PREPARATION OF REPORT:**

Author	$ 150.00
Typing	$ 110.00
TOTAL:	**$ 880.00**

APPENDIX II

STATEMENT OF QUALIFICATIONS

I, Gordon Maxwell of Prince George, Province of British Columbia, do hereby certify that:

1. I am a Geologist residing at 5905 Rideau Drive, Prince George, British Columbia.

2. I am a graduate of the University of Manitoba with an Hons. B. Sc. (geology).

3. I am a member in good standing of the Canadian Institute of Mining and the Prospector's and Developer's Association.

4. I presently hold the position of Project Geologist with Noranda Exploration Company, Limited and have been in their employ since 1980.

G. Maxwell

APPENDIX II

STATEMENT OF QUALIFICATIONS

I, William Mercer of 9471 Ryan Crescent, City of Richmond, Province of British Columbia, do certify that:

1. I have been Assistant Manager for Noranda Exploration Company, Limited (No Personal Liability) in Vancouver from 1982 to the present.

2. I have practised my profession from 1974 to 1982 as District Geologist and Regional Manager for Mattagami Lake Mines Ltd. in Edmonton, Alberta.

3. I am a graduate of the University of Edinburgh, Scotland, with a B.Sc (Hons) in Geology in 1968 and of McMaster University, Hamilton, Ontario, with a Ph.D. in Geology in 1975.

4. I am a Fellow of the Geological Association of Canada, a Member of the Canadian Institute of Mining and Metallurgy, and an Associate of the Society of Economic Geologists.

W. Mercer
Ass't Manager
Cordillera Division.

APPENDIX III

SAMPLE #9506J

Quartz-Muscovite Plagioclase Schist

Quartz	60%
Muscovite	20%
Plagioclase	10%
Pyrite	1-2%

Quartz is present as very fine grained 0.01 to 0.05 mm equant grains with a few 0.1 to 0.2 mm grains. Muscovite shows moderately developed foliation as wispy aggregates with grain size less than 0.05 mm. Plagioclase is associated with the muscovite aggregates and strongly replaced by them. Pyrite is present as euhedral grains.

APPENDIX III

SAMPLE #9510

Quartz-Alkali-Feldspar-Porphyritic Meta Dacite

Same estimates as for #9512 except that the fine quartz feldspar matrix becomes more bimodal i.e. there are two predominant grain sizes i.e. a fine and a medium grained fraction.

The phenocrysts seem to occur preferentially in the finest fraction.

Flow banding and/or rotation seems best noticeable around the phenocrysts.

APPENDIX III

SAMPLE #9512

Quartz-Alkali-Feldspar-Porphyritic Meta Dacite

Matrix: fine grained quartz and feldspar matrix with chlorite and remnants of biotite waving throughout it. Matrix apparently consists of two different sizes.

Phenocrysts: mainly quartz and alkali feldspar phenocrysts slightly corroded at the edges by the metamorphism.

Very similar to #9516

Quartz & feldspar phenocrysts	± 20%
Matrix	± 80%
Quartz + feldspar	60%
Chlorite	10%
Pyrite	10%

APPENDIX III

SAMPLE 9515

Meta Dacite, (Very Schistose)

Matrix: Fine grained anhedral quartz-feldspar chlorite matrix. The chlorite shows parallel orientation with occasionally interlocking aggregates of flaky chlorite aggregates. The chlorite alternates in predominance with the quartz-feldspar matrix. Some epidote occurs as a minor mineral.

Phenocrysts: Phenocrysts consist mainly of quartz and feldspar corroded at edges due to metamorphism. A quartz veinlet runs through the thin section.

Quartz + feldspar phenocrysts: ± 20%
Matrix ± 80%

Consisting of 30% chlorite
30% quartz feldspar matrix
15% pyrite
15% epidote

This rock looks similar to #9516 but it also shows better foliation and definitely much more chlorite in some lenses or bands than the #9516 meta dacite.

APPENDIX III

SAMPLE #9516

Quartz-Alkali-Feldspar-Porphyritic Meta Dacite

Matrix:	very fine grained quartz-feldspar matrix interspersed by chlorite flakes showing either flow pattern or foliation. Flakes also form pressure shadow behind feldspar phenocrysts. Very minor amounts of epidote associated with chlorite.
Phenocrysts:	alkali feldspars quartz K-feldspar rotation around some phenocrysts seems evident.
Veinlets:	quartz veinlets the width of which is of same size as the phenocrysts.

This rock is very similar to #9518J

APPENDIX III

SAMPLE 9518J

Feldspar-Porphyritic Metadacite

Quartz	30%
Plagioclase	30%
?Alkali Feldspar	10%
Muscovite	10%
Chlorite	12%
Biotite	2%
Epidote	3%
Pyrite	3%

Quartz is present mainly in the very fine grained groundmass and also to a subordinate degree as phenocrysts associated with plagioclase, up to 0.5 mm long. Feldspar is present in the groundmass (alkali feldspar ?) and as plagioclase phenocrysts up to 1 mm long, occurring in clots of a few grains together. The plagioclase has ragged edges, shows albite and Carlsbad twinning, and contains numerous inclusions of chlorite.

Muscovite and chlorite occur as isolated laths and wispy aggregates, often associated together. They have very fine grain size and show weak foliation texture. Rare biotite is present within the chlorite. Epidote occurs as isolated small grains the largest seen being 0.2 mm.

The rock is probably a metamorphosed flow rather than a crystal tuff.

APPENDIX IV

SAMPLE #9502J

Massive sulphide

Pyrite	90%
Sphalerite	5%
Chalcopyrite	< 1%
Gangue (quartz)	5%

Pyrite forms rounded, subhedral, fractured grains ranging from 0.1 to 0.5 mm grain size. Chalcopyrite is present as thin veins along fractures in the pyrite. Sphalerite forms interstitial patches usually around 0.05 mm across, with a maximum size of 0.5 mm.

APPENDIX IV

SAMPLE #9504J

Massive Sulphide

Pyrite	65%
Chalcopyrite	30%
Sphalerite	1%
Gangue (quartz)	5%

Pyrite is present as rounded grains, mainly between 0.1 and 0.5 mm across, either subhedral or as mosaic of interlocking grains. Chalcopyrite forms large patches up to 0.5 mm or more across, with pyrite grains "floating" in it, or as inclusions 0.01 mm across in pyrite. Trace sphalerite is present along chalcopyrite or pyrite grain boundaries.

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SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Pb PPM	Zn PPM	Ag PPM	Au PPB	
R2 99028		381	107	1.2	35		Packsack 10SH/14W
R2 99029		5190	3160	(17.0)	940		
R2 99030		925	>20000	3.1	2000		
R2 99031		135	505	1.7	320		
R2 99032		1330	415	0.4	15		
R2 99033		3370	>20000	(6.0)	190		
R2 99034		755	3090	0.8	15		

13/11/15 PG WM DP