

GEOPHYSICAL REPORT

On

NASTY CLAIM GROUP  
(62° 15'N , 132° 50'W)

At

BLIND CREEK, YUKON

For

ANVIL MINING CORP. LTD.

By

EXPLORATION GEOPHYSICS (YUKON) LTD  
WHITEHORSE, YUKON

OCTOBER 1966



REPORT BY:

R.S. Adamson, B.A.Sc., P. Eng.  
Chief of Exploration for  
ANVIL MINING CORP LTD.

PROPERTY SURVEYED: August 17th to 25th, 1966

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**GEOPHYSICAL SURVEY**

**NASTY CLAIM GROUP**

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**Electromagnetic Profiles**

	BETA 110	BETA 112	BETA 114	BETA 118	BETA 120	BETA 122	BETA 124	BETA 128	BETA 132	BETA 136	BETA 140	38	40	42	44	46	50	5
90873	NASTY 140	NASTY 139	NASTY 130	NASTY 129	NASTY 112	NASTY 111	B 12	B 8	B 6	B 4	B 2	B 53	B 55	B 57	B 59	B 61	B 63	B 65
90898	NASTY 138	NASTY 137	NASTY 128	NASTY 127	NASTY 110	NASTY 109	B 11	B 9	B 7	B 5	B 3	B 54	B 56	B 58	B 60	B 62	B 64	B 66
90897	NASTY 136	NASTY 135	NASTY 126	NASTY 125	NASTY 108	NASTY 107	B 25	B 27	B 29	B 31	B 33	B 35	B 69	B 71	B 73	B 75	B 77	B 79
94508	NASTY 134	NASTY 133	NASTY 122	NASTY 123	NASTY 106	NASTY 105	B 26	B 28	B 30	B 32	B 34	B 36	B 70	B 72	B 74	B 76	B 78	B 80
94509	NASTY 132	NASTY 131	NASTY 122	NASTY 121	NASTY 104	NASTY 103	B 24	B 25	B 26	B 27	B 28	B 29	B 30	B 31	B 32	B 33	B 34	B 35
94498	ABEL 4	ABEL 3	NASTY 120	NASTY 119	NASTY 102	NASTY 101	NASTY 92	NASTY 93	NASTY 84	NASTY 85	WEST 16	WEST 14	WEST 12	WEST 10	WEST 17	WEST 19	WEST 21	WEST 23
99555	ABEL 17	ABEL 6	NASTY 118	NASTY 117	NASTY 100	NASTY 99	NASTY 90	NASTY 91	NASTY 82	NASTY 83	WEST 15	WEST 13	WEST 11	WEST 9	WEST 18	WEST 20	WEST 22	WEST 24
99557	ABEL 19	ABEL 8	NASTY 116	NASTY 115	NASTY 98	NASTY 97	NASTY 88	NASTY 89	NASTY 80	NASTY 81	WEST 19	WEST 17	WEST 15	WEST 13	WEST 22	WEST 25	WEST 27	WEST 29
99559	ABEL 21	ABEL 9	NASTY 114	NASTY 113	NASTY 96	NASTY 28	NASTY 39	NASTY 40	NASTY 51	NASTY 52	WEST 5	WEST 3	WEST 1	WEST 8	WEST 34	WEST 36	WEST 38	WEST 40
99561	ABEL 23	ABEL 11	NASTY 24	NASTY 25	NASTY 26	NASTY 27	NASTY 37	NASTY 38	NASTY 49	NASTY 50	WEST 6	WEST 4	WEST 2	WEST 33	WEST 35	WEST 37	WEST 39	WEST 41
99550	ABEL 12	ABEL 11	NASTY 24	NASTY 25	NASTY 26	NASTY 27	NASTY 37	NASTY 38	NASTY 49	NASTY 50	WEST 9	WEST 7	WEST 5	WEST 33	WEST 35	WEST 37	WEST 39	WEST 41
99552	ABEL 13	NASTY 23	NASTY 7	NASTY 8	NASTY 15	NASTY 16	NASTY 35	NASTY 36	NASTY 47	NASTY 48	WEST 9	WEST 7	WEST 5	WEST 33	WEST 35	WEST 37	WEST 39	WEST 41
99553	NASTY 21	NASTY 22	NASTY 3	NASTY 4	NASTY 11	NASTY 12	NASTY 31	NASTY 32	NASTY 43	NASTY 44	WEST 16	WEST 14	WEST 12	WEST 10	WEST 17	WEST 19	WEST 21	WEST 23
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93246	NASTY 27	NASTY 28	NASTY 9	NASTY 10	NASTY 17	NASTY 18	NASTY 37	NASTY 38	NASTY 49	NASTY 50	WEST 16	WEST 14	WEST 12	WEST 10	WEST 17	WEST 19	WEST 21	WEST 23
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93255	NASTY 45	NASTY 46	NASTY 27	NASTY 28	NASTY 35	NASTY 36	NASTY 55	NASTY 56	NASTY 67	NASTY 68	WEST 16	WEST 14	WEST 12	WEST 10	WEST 17	WEST 19	WEST 21	WEST 23
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93273	NASTY 81	NASTY 82	NASTY 63	NASTY 64	NASTY 71	NASTY 72	NASTY 91	NASTY 92	NASTY 103	NASTY 104	WEST 16	WEST 14	WEST 12	WEST 10	WEST 17	WEST 19	WEST 21	WEST 23
93274	NASTY 83	NASTY 84	NASTY 65	NASTY 66	NASTY 73	NASTY 74	NASTY 93	NASTY 94	NASTY 105	NASTY 106	WEST 16	WEST 14	WEST 12	WEST 10	WEST 17	WEST 19	WEST 21	WEST 23
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93282	NASTY 99	NASTY 100	NASTY 81	NASTY 82	NASTY 89	NASTY 90	NASTY 109	NASTY 110	NASTY 121	NASTY 122	WEST 16	WEST 14	WEST 12	WEST 10	WEST 17	WEST 19	WEST 21	WEST 23
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93285	NASTY 105	NASTY 106	NASTY 87	NASTY 88	NASTY 95	NASTY 96	NASTY 115	NASTY 116	NASTY 127	NASTY 128	WEST 16	WEST 14</						

INTRODUCTION

A combined magnetic and electromagnetic geophysical survey was carried out by Exploration Geophysics (Yukon) Ltd. for Anvil Mining Corp. Ltd. on the central part of the NASTY claim group during the period August 17th to 25th, 1966.

Preparatory linecutting was done by contract linecutters of White, Hosford and Impey Ltd. of Whitehorse. All of the linecutting costs are submitted herewith the geophysical survey report.

Access to the property by all people involved with the property was by helicopter, usually from the FARC base camp.

The object of the ground survey was to follow up anomalies, both magnetic and electromagnetic, detected from an airborne geophysical survey done in September of 1965. In the case of the NASTY property, two very strong electromagnetic conductors with no magnetic reflection were detected from the air. These two airborne conductors were subsequently located by the present ground geophysical survey.

All geophysical data is presented in the form of profiles, using a distance scale of 1 inch to 400 feet. Vertical scales are 1 inch to 40 degrees and 1 inch to 250 gammas for electromagnetics and magnetics respectively.

The only available published data of the Anvil Range area is a preliminary 4 mile to the inch map of the regional

geology of the TAY RIVER map sheet done by Dr. J.A. Reddick and Dr. L.H. Green of the Canadian Geological Survey. Rocks in the immediate area of the NASTY Group are recorded on this map as largely metamorphic schists and granulites of probably Mississippian age. Known potential ore bodies in the Anvil Range area lies in these metamorphosed sediments.

## SURVEY SPECIFICATIONS

### Grid System

A baseline was laid out with a transit and picket lines turned off at 400 foot intervals along the base line by transit. Stations were established along the picket lines at 100 foot intervals by line of picket site and chainage.

### Magnetometer Survey

A Sharpe's MF-1 Fluxgate type vertical component magnetometer was used during the entire magnetic survey. This instrument is hand held and needs only coarse levelling and no orientation. The magnetometer has a maximum sensitivity of 20 gammas per scale division on 1000 gamma range and a readability of 5 gammas per scale division.

Readings were taken at 400 foot intervals along the base line and 100 foot intervals along picket lines. Prior to the actual survey, readings were taken at the intersection points of each picket line with the base line. These stations were

looped and reread every two hours as a means of controlling drift and diurnal variations.

### Electromagnetic Survey

For the electromagnetic survey a CRONE JEM unit (18 volt) was employed. The instrument is a modification of the original JEM unit designed by Crone in 1963; the power supply has been increased thus increasing effective depth penetration to approximately 300 feet under normal operating conditions using the horizontal loop method. The CRONE measures resultant dip angles of the primary and secondary field, is dual frequency (480 and 1800 c.p.s.) and may be used either as a vertical or horizontal loop system.

In contrast to the magnetometer survey which was run along the baseline as well as the picket lines, only the picket lines were run with the EM. A 400 foot separation of the coils was used and readings were taken at 100 foot station intervals.

## RESULTS and INTERPRETATION

### Magnetometer Survey

After each gamma value was corrected for diurnal variation, they were plotted on a plan of the survey grid (1 inch = 400 ft.) Profiles of each line were drawn to a standard scale (see map in folder).

Upon plotting the values, as was suspected by the previous

airborne survey nothing of magnetic interest was revealed. Profiles, with the exception of line 76 north were singularly flat. A local anomaly of about 400 and occurs at 1000 west. Its character is not considered to be indicative of a flat lying sulphide body. ?

#### Electromagnetic Survey

Both high and low frequency electromagnetic readings were plotted on a plan of the survey grid (1 inch - 400 ft).

Both of the airborne conductors were located on the ground; one on the north end of the surveyed area, the other on the eastern part of the survey grid. These two conductors are essentially flat lying. The eastern conductor appears to plunge to the southeast. This is indicated by the positive readings along line 128 North.

There is a suggestion that in reality the eastern anomaly is the faulted extension of the northern anomaly. The northern anomaly is still open to the north while the eastern one remains open to the east.

#### CONCLUSIONS and RECOMMENDATIONS

No outcrop occurs on the property so that the geophysical results cannot readily be related to geology.

However, the geophysical results can be related to some

extent to geochemical values that were secured subsequent to the geophysical survey. It may be possible to suspect some metallic indication with respect to one or both anomalies, if the overburden is not too deep to obtain anomalous geochemical values.

If the electromagnetic anomalies do indeed reflect underlying sulphides then it can safely be postulated that associated mineralization is pyritic in preference to magnetite or pyrrhotite; this in view of the lack of related magnetic anomalies.

Of singular interest is the northerly strike of these anomalous trends. This is in marked contrast to the northwestern trends of most other electromagnetic conductors in the Anvil Range district. If these are graphitic conductors as opposed to mineralized conductors, then lithologically controlled graphite in all probability does not underly these two areas.

On this basis, a follow up geophysical program over the conductors is recommended. Either an IP survey or a gravity survey would reveal whether a sulphide body underlies one or both of these conductors.

R.S. Adamson, P. Eng.  
Exploration Chief for  
ANVIL MINING CORP. LTD.

APPENDIX I (1)

STATEMENT OF COSTS

Geophysical Survey NASTY

(A) Linecutting (Invoice Submitted)		<del>\$4,623.50</del>
Baseline 6.67 miles <i>4.4 + 2.27</i>	\$1,667.50 ✓	
Ticket lines 30.40 miles	<u>2,356.00</u>	
Contract	4,023.50	
Transportation, helicopter	<u>600.00</u>	
	<u>\$4,623.50</u> ✓	
(B) Contract Geophysics (Invoice Submitted)		\$3,543.75 ✓
Exploration Geophysics (Yukon) Ltd.	32,543.75 ✓	
Maintenance 50 man days @ 8.	400.00 ✓	
Transportation, helicopter	<u>600.00</u> ✓	
	<u>\$3,543.75</u>	
(C) Compilation of Report		100.00
(D) Supervision		<u>100.00</u>
	Total:	<u>\$8,367.25</u> ✓

APPENDIX I (ii)

PERSONNEL

(A) Linecutting - White, Hosford and Impey Ltd.  
Contract

(B) Geophysics - Exploration Geophysics (Yukon) Ltd.  
Contract

W. Cannon	Party Chief	Box 1188, Whitehorse, Y.T.		
V. Lund	EM & Magnetometer	" "	" "	" "
F. Walsh	" "	" "	" "	" "
J. Gehring	" "	" "	" "	" "
D. Gamble	" "	" "	" "	" "

(C) Compilation of Report  
R.S. Adamson Exploration Chief Box 2470, Whitehorse, Y.T.

(D) Supervision  
R.S. Adamson Exploration Chief " " " "  
D. Mayes Geologist " " " "

APPENDIX I (iii)

A F F I D A V I T

SUPPORTING STATEMENT OF COSTS  
Geophysical Report

August 17th to 25th, 1966

I, Robert S. Adamson, Chief of Exploration for ANVIL MINING CORPORATION LIMITED, have compiled the statement of costs as presented in this report "Geophysical Survey of NASTY Claim Group", DO MAKE OATH AND SAY AS FOLLOWS:

That to the best of my knowledge and belief, the statement of costs as presented is true and an accurate representation of expenditures to be applied as representative work on the NASTY mineral claims.



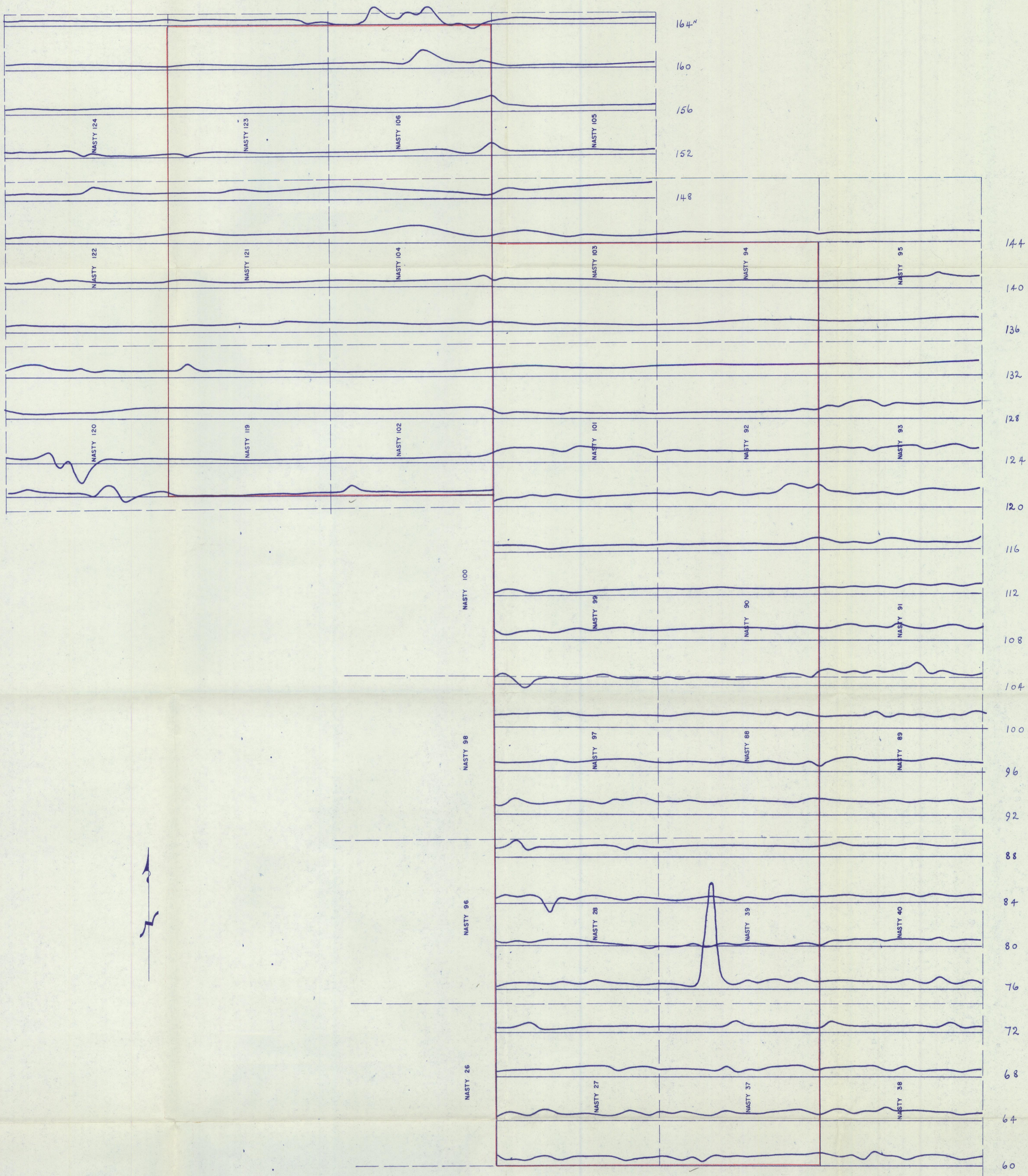
*R. S. Adamson*

Robert S. Adamson, B.A.Sc., P.Eng  
Chief of Exploration for  
ANVIL MINING CORP LTD

DATED this... OCT. 27. 1966 .....day of.....1966,

in the City of Whitehorse in the Yukon Territory.

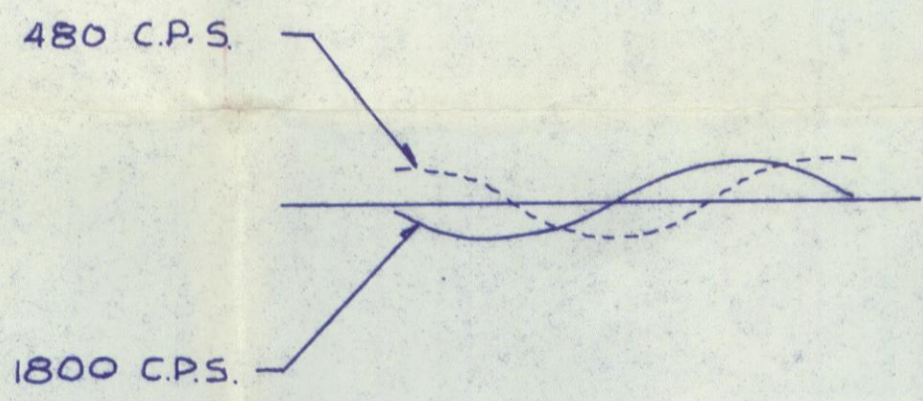
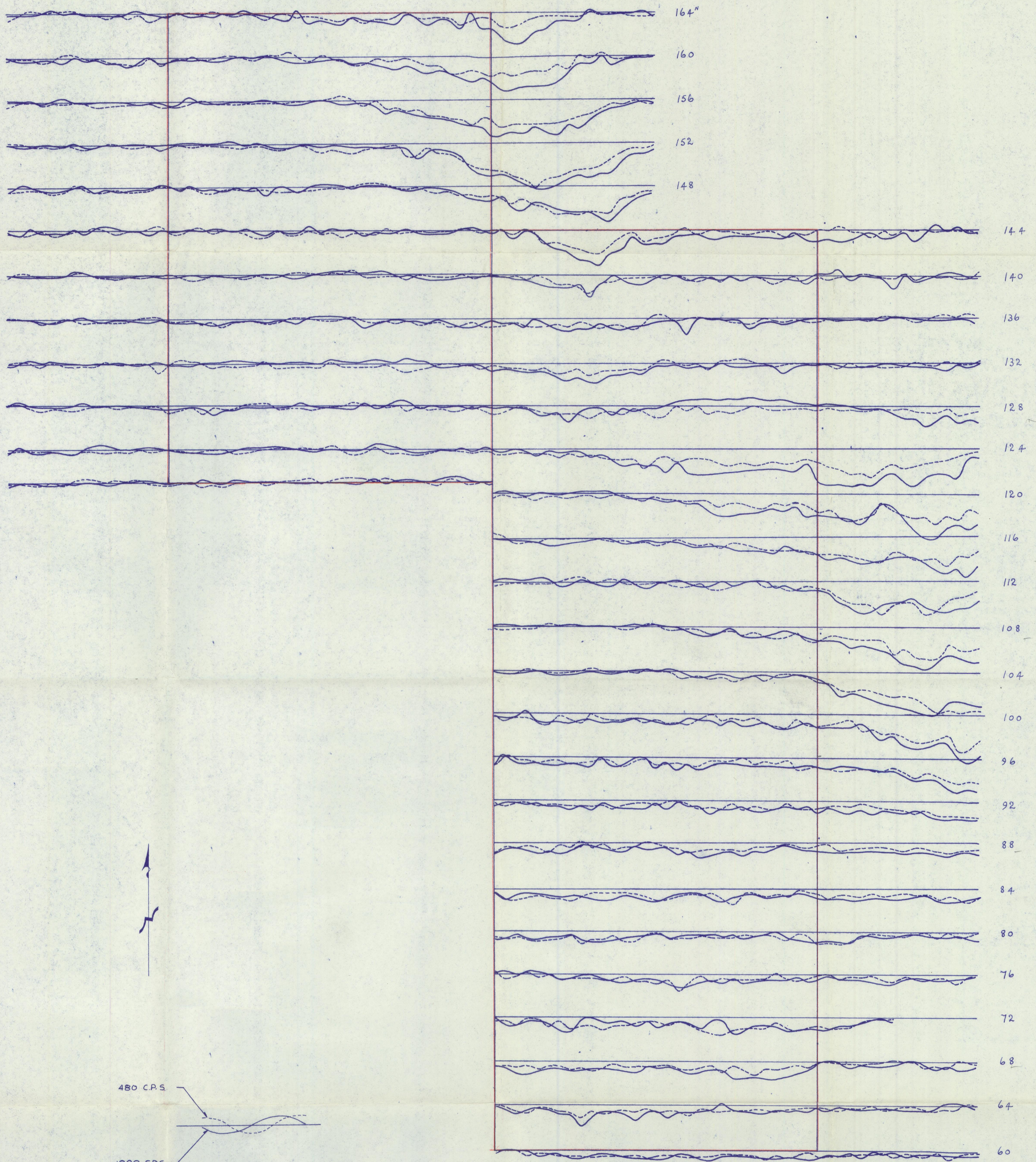
*M. McLean*  
A Commissioner for taking Affidavits  
in and for the Yukon Territory.



2 1/2  
 2 1/2  
 2 1/2  
 2 1/2  
 20 x 400  
 = 12000  
 = 2.2741

TRANSIT TAPE BASE (TIE LINES)

ANVIL MINING CORP.	
- WHITEHORSE -	
NASTY GROUP	
MAGNETIC	SURVEY
EXPLORATION	BY GEOPHYSICS (YUKON) LTD.
SURVEY DATE: AUG 17 - AUG 25 1966	
OPERATORS: LUND, WALSH, GEHRING, GAMBLE	
PROFILE SCALE: 400' = 1"	
RDG INTERVAL: 100'	
MAG. DATUM LEVEL: 500 (+) f	
DATE: SEPT 20 1966	
SCALE: 1" = 400'	
DRN: W. CANNON.	



— TRANSIT TAPE BASE OF THE LINES.

ANVIL MINING CORP. - WHITEHORSE -	
NASTY GROUP ELECTROMAGNETIC SURVEY EXPLORATION BY GEOPHYSICS (YUKON) LTD.	
SURVEY DATE : AUG 17 - AUG 25 1966 OPERATORS : LUND, WALSH, GEHRING, GAMBLE PROFILE SCALE : 1" = 40' DIP. RDG INTERVAL : 100' INST. SPACING : 400'	
DATE : SEPT 22 1966 SCALE : 1" = 400' CRONE HORIZONTAL LOOP SURVEY DR'N : W CANNON	

WHITEHORSE TEL.: 667-4343, 667-7114  
AREA CODE: 403, TELEX: 049-834  
CABLE ADDRESS: ANVLMINE

VANCOUVER TEL.: 683-9304  
AREA CODE: 604, TELEX: 04-50237  
CABLE ADDRESS: ANVLZINC

**ANVIL MINING CORPORATION LIMITED**

P.O. BOX 2470  
103 POLARIS BLOCK  
WHITEHORSE, YUKON TERRITORY  
CANADA

VANCOUVER OFFICE:  
510 WEST HASTINGS STREET  
VANCOUVER 2, B.C.  
CANADA

October 27th, 1966

Mr. G. McIntyre  
Chief Mining Recorder  
Federal Building  
Whitehorse, Yukon Territory

Dear Mr. McIntyre:

The accompanying report is submitted to  
apply as assessment work on the NASTY Claim Group.

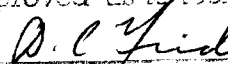
The area covered is on claim map sheet  
105 K/2 and 7.

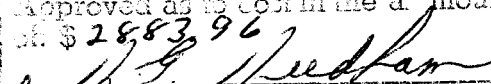
Yours truly,



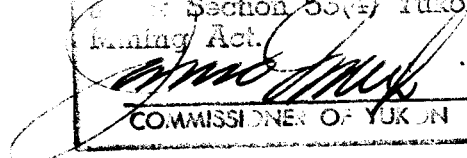
R.S. Adamson, P. Eng.,  
Chief of Exploration for  
ANVIL MINING CORP LTD

This report has been examined by  
the Geological Evaluation Unit.  
Approved as to technical worth by:

  
RESIDENT GEOLOGIST

Approved as to cost in the amount  
of \$2883.96  
  
CHIEF OF EXPLORATION

Accepted as representation work  
under Section 53(4) Yukon Quarries  
Act.

  
COMMISSIONER OF YUKON

GEOCHEMICAL REPORT

on

NASTY CLAIM GROUP

at

BLIND CREEK, YUKON

for

ANVIL MINING CORP LTD

October, 1966

Report By: R.S. Adamson, P. Eng.  
Chief of Exploration for  
ANVIL MINING CORP. LTD.



Property Survey: September 2nd to 12th, 1966

GEOCHEMICAL SURVEY

NASTY CLAIM GROUP

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## INTRODUCTION

A geochemical survey was carried out on mineral claims NASTY 27-28, 37-40, 88-95, 97, 99, 101-106, 119-124 during the period Sept. 2nd to Sept. 12th, 1966. These claims are owned by ANVIL MINING CORP. LTD. and the work was carried out by company personnel except for the preparatory linecutting.

Linecutting was done by contract linecutters of White, Hosford and Impey Ltd. of Whitehorse, The linecutting costs are submitted with geophysical survey and are not included in this geochemical report. Samples were taken on these geophysical lines which are at 400 foot intervals at station intervals along the lines of 200 feet.

Access to the property by all people involved with the property was by helicopter.

The object of the survey was to establish relatively large and generally defined areas of possible valuable metal content (Cu, Pb, Zn) with a view to following up on geochemically anomalous areas with geophysical techniques. Any geophysical anomalies located within a larger general geochemical anomaly would provide the necessary finer definition for diamond drilling.

Further, the geochemical survey is a method to establish whether airborne magnetic and electromagnetic anomalies, which often in the Vangorda area are caused by basic flows and intrusives and graphitic sediments respectively, could be

massive sulphides carrying copper, lead or zinc.

#### SOIL SAMPLING SURVEY TECHNIQUES

A baseline was laid out with a transit and picket lines turned off at 400 foot intervals along the base line by transit. Stations were established along the picket lines at 100 foot intervals.

Soil sampling was done at 200 foot intervals along the picket lines. Where possible the B horizon was sampled. However no time was wasted obtaining the B horizon in the event permafrost prevailed or an organic soil was thicker than one foot. In the latter case the organic soil would be analyzed in the lab when possible. In that the target was a large near surface sulphide deposit it was felt that a generally defined as opposed to a well defined geochemical anomaly was sufficient.

#### LABORATORY ANALYSIS

Test methods used involved a hotaqua regia extraction of heavy metal ions from the soil sample, followed by reaction with dithizone or biquinoline to give coloured products. The coloured reaction products were then matched with solutions of known metal content, which had been reacted with dithizone or biquinoline, to determine the metal content of the soil sample.

Separate and specific tests for each of the three

metals, copper, lead, and zinc were carried out on each soil sample.

#### RESULTS and INTERPRETATION

Of the three metals analyzed for, only copper values above 60 parts per million might be considered anomalous. No significant lead or zinc was revealed.

In general, the copper values are erratic to the extent that contouring of the results is not considered justified. Two local areas of anomalous copper occur; one on Line 100 North on NASTY mineral claim 89, the other on Line 84 North on NASTY mineral claim 28.

However, there is little indication of these local anomalies being related to any of the geophysical anomalies which occur on the NASTY ground. In addition not enough copper values occur within each of these local geochemical anomalies to suggest any potential a real extent of mineralization.

Soil conditions were for the most part quite good in comparison to most other parts of the ANVIL RANGE district where permafrost and high organic material combined to make sampling and analysis procedures difficult.

#### CONCLUSIONS and RECOMMENDATIONS

By and large the NASTY claim group is devoid of outcrop

so that the underlying geology is essentially unknown. The only available published data of the ANVIL area is a preliminary 4 mile to the inch map of the regional geology of the TAY RIVER map sheet by Drs. J.A. Roddick and L.H. Green of the Canadian Geological Survey. This map indicates that the NASTY area is underlain by the favourable metamorphosed sedimentary terrain of probable Mississippian age.

In that geophysical anomalous trends are northerly striking as opposed to northwestern regional trends in the district, further geophysical follow-up and definition is in order.

However from a geochemical standpoint, little has been revealed of any significance. On this basis no further geochemical work is recommended for the NASTY Group.

R.S. Adamson, P. Eng.  
Exploration Chief for  
ANVIL MINING CORP LTD

APPENDIX I (i)

STATEMENT OF COSTS

Geochemical Survey NASTY Group

(A) Soil Sampling (806 Samples)		\$1,196.00
Wages 39 man days @ \$15.	\$	584.00
Maintenance 39 man days @ \$8..		312.00
Transportation, helicopter		300.00
		<u>\$1,196.00</u>
 (B) Laboratory Analysis		
806 Samples @ \$1.66 = \$1,337.96		\$1,337.96
 (C) Compilation of Report		200.00
 (D) Supervision		<u>150.00</u>
	Total:	\$2,883.96

APPENDIX I (ii)

PERSONNEL

(A)	Soil Sampling						
	R. Beaumont	Soil Sampler	Box 2470,	Whitehorse,	Yukon		
	D. Hanson	" "	" "	" "	" "		
	G. Behren	" "	" "	" "	" "		
(B)	Laboratory Analysis						
	J. Kirkland	Geochemist	" "	" "	" "		
	L. Olsen	Lab Assistant	" "	" "	" "		
	R. Pringle	Lab Assistant	" "	" "	" "		
	W. Rundle	Sample Preparation	" "	" "	" "		
(C)	Compilation of Report						
	R.S. Adamson	Exploration Chief	" "	" "	" "		
	P. Byers	Draughtsman	" "	" "	" "		
(D)	Supervision						
	R.S. Adamson	Exploration Chief	" "	" "	" "		
	M.O. Hampton	Geologist	" "	" "	" "		
	P. Byers	Lead Soil Sampler	" "	" "	" "		

APPENDIX I (iii)

A F F I D A V I T

Supporting Statement of Costs  
Geochemical Survey

Sept. 2nd - 12th, 1966

I, Robert S. Adamson, Chief of Exploration for ANVIL MINING CORPORATION, Limited, have compiled the statement of costs as presented in this report "Geochemical Survey of NASTY Claim Group", DO MAKE OATH AND SAY AS FOLLOWS:

That to the best of my knowledge and belief, the statement of costs as presented is true and an accurate representation of expenditures to be applied as representative work on the NASTY Claim Group.



Robert S. Adamson, B.A.Sc., P.Eng.  
Chief of Exploration for  
ANVIL MINING CORP LTD

DATED this...OCT.2.7.1966.....day of.....,1966,

in the City of Whitehorse, in the Yukon Territory.

A Commissioner for taking Affidavits  
in and for the Yukon Territory.

# White, Hosford & Impey Limited

LEGAL SURVEYS :: ENGINEERING

Whitehorse, Yukon

Paul S. White, P.Eng., A.L.S., D.L.S.  
A. Denis Hosford, A.L.S.  
Hugh E. Impey, A.L.S., S.L.S., M.L.S., D.L.S.

29 June, 1966

## INVOICE FOR LINE CUTTING CONTRACT

### DY, RICH, BOB LINECUTTING

(1) Baseline: 0+00-92+00W = 1.74 miles @ \$250.00-----\$ 435.00

(2) Picket Line: 3000N to 4000S(0+00 to 32+00W)=7000 x 9=63000'  
2000N to 4000S(3600 to 7600W) =6000 x 11=66000'  
0+0N to 4000S(8000 to 9200W) =~~1600~~ x 4=16000'  
4000 x 4

145,000'

27.46/m @ \$77.50-----\$2128.15

TOTAL----- \$2563.15

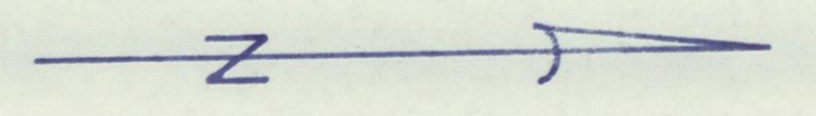
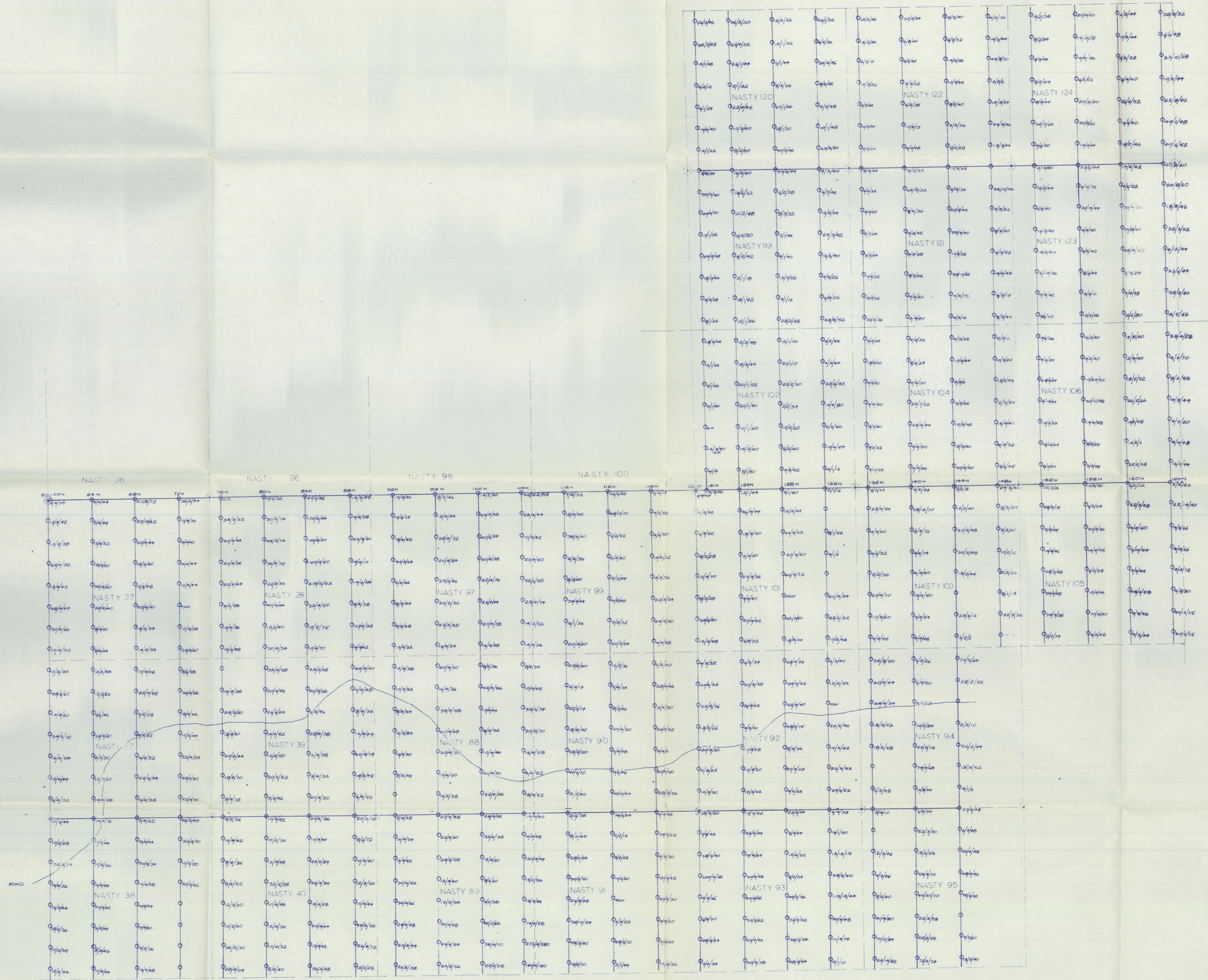
### EXTRA ON ACE LINECUTTING

128+00W to 156+00W(0N to 2500N)=2500 x 8=20,000'

3.79/m @ \$77.50----- \$ 293.73

TOTAL THIS INVOICE----- \$2,856.88

*Copy for R.S. Adamson*



LEGEND  
 Q SAMPLE LOCATION  
 O CLAIM POST  
 PF PERMAFROST  
 THD SAMPLE NOT ANALYZED  
 1/3 SAMPLE ANALYSIS, C/P/F  
 ASH VOLCANIC ASH  
 HO HIGH ORGANIC

ANVIL MINING CORP.
FARO
NASTY GEOCHEMISTRY
SCALE 1:400'
SAMPLES TAKEN 806
SAMPLES ANALYZED 806
SAMPLED BY: BEAUMONT, HANSON, BEHREN
DATE SAMPLED: SEPTEMBER 2-12, 1966
DRAWN BY: BCB