

824180

REPORT

on

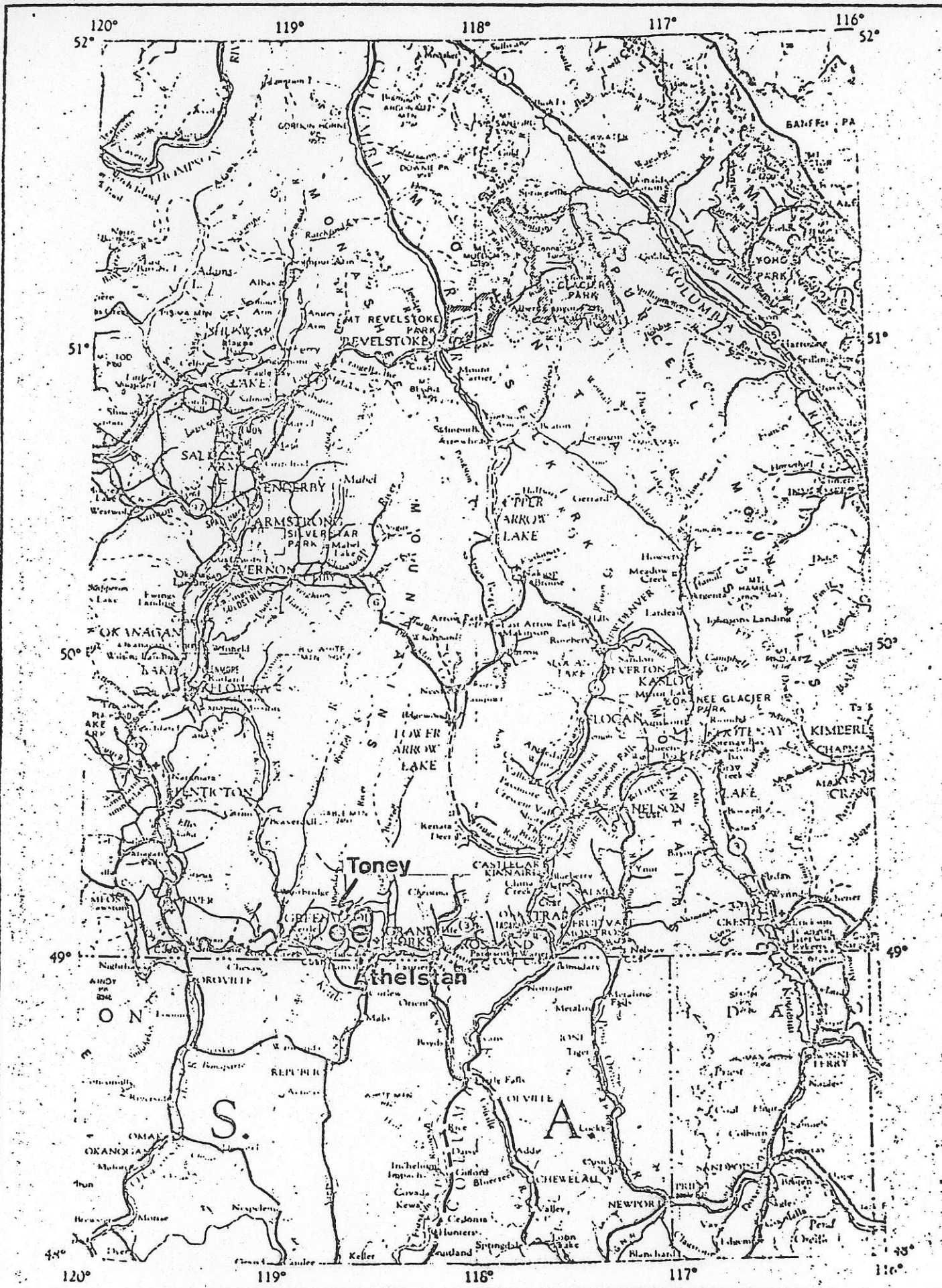
TONEY AND ATHELSTAN GROUPS

GREENWOOD MINING DIVISION
PROVINCE OF BRITISH COLUMBIA

by

Edward O. Chisholm, M.A., P.Eng.
825-602 West Hastings Street
VANCOUVER 2, B.C.

JANUARY 20TH, 1969



SCALE: 1 INCH = 30 MILES

INDEX MAP

Toney & Athelstan Groups
Greenwood Mining Division

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TONEY GROUPSUMMARY

The Toney Group encompasses widespread copper mineralization occurring in favourable host rocks. No economic deposits have yet been encountered. Significant geophysical and geochemical anomalies have been obtained but have not been investigated. The north boundary of the claim group lies within two miles of a viable open pit copper deposit.

Detailed exploration including geophysical and geochemical surveys and bulldozer trenching totalling \$30,000 is recommended. An estimate of costs is as follows:

Detailed Magnetometer Survey

Line Cutting - 20 Miles	\$ 2,000.00
Magnetometer Survey	1,500.00

Geological Work

Mapping, Sampling and Assays	2,000.00
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Diamond Drilling

Toney, Vicki Claim Block	
1,500 feet @ \$10.00	15,000.00

Bulldozer Trenching

15 Days @ \$400	<u>6,000.00</u>
Sub-Total	26,500.00

Contingencies	<u>3,500.00</u>
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TOTAL EXPENDITURE	<u>\$30,000.00</u>
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INTRODUCTION

The Toney Claim Group consists of 23 unpatented claims, fractions and crown grants located in the Greenwood Mining Division, British Columbia, two and a half miles southwest of the town of Greenwood. They are shown on reference Mineral Claim Map 82E/2E(M). They consist of the following mineral claims:

Pioneer No. 1

Pioneer No. 2

Chum No. 1

Chum Fraction

Vendela 1 to 8 inclusive

Anton 1 to 8 inclusive

Eureka

Toney Fraction

Vicki

The claims are owned by Arnold, Donald and Samuel Bombini of Box 285, Greenwood, B.C. They are under option to Zulco Explorations Ltd. (NPL) as of December 10, 1968. They form a contiguous group measuring approximately 1-1/2 miles long by 1/2 to 3/4 mile wide. Access is by gravel road 3 miles from the town of Greenwood. The immediate area of the claim group is lightly forested with fir and crossed by several lumber roads. Topography is gently rolling and elevation on the claim group is 3,000 feet.

Drift consists of fluvial clay, sand and gravel

of Pleistocene and later age and Pleistocene till. The ice movement was in general southward. On the claim group the depth of overburden is moderate, up to a few feet only and soil sampling conditions for geochemistry are generally good.

The writer is familiar with the geology of the area and made an examination of the mineralized occurrences on the claim group in November, 1968.

The claims lie approximately 2 miles south of the Woodgreen Open Pit Copper Mine which is being currently readied for production again. Considerable prospecting has been done in the area in the past. Skomac Mines optioned part of the group in 1962 but there is no record of work being done. Utah Construction and Mining Company worked on the group in 1967. They conducted geological induced polarization and geochemical surveys over part of the group and drilled two holes on an I.P. anomaly on the Vicki Group. The drilling encountered copper mineralization of sub-economic grade and the claims were dropped.

The owners carried out prospecting and some trenching with a bulldozer on the claim group and exposed several new occurrences of chalcopyrite in widely scattered locations on the claim group.

GENERAL GEOLOGY OF THE AREA

The general geology of the Greenwood-Phoenix area is described in GSC Paper 45-20 by D.A. McNaughton, 1945,

and by H.W. Little in marginal notes to GSC Map G-1957, Kettle River East Half. H.W. Little reports as follows:

"Mining activity reached its peak during the early part of the present century when some 22 million tons of copper ore containing gold and silver were mined in the Phoenix and Deadwood Camps. This ore supplied smelters at Grand Forks, Greenwood and Boundary Falls. Current activity (1955-1956) is mainly centred about the old productive copper deposits but none had reached the stage of continuous production in 1956."

These copper deposits (Oro Denoro, Motherlode and others) are large irregular replacement deposits containing chalcopyrite, pyrite and magnetite in skarn formed by the metamorphism of limestones of the Anarchist Group. This limestone is known locally as the Brooklyn Formation.

Approximately four million tons of low grade copper ore was mined at the Motherlode Mine in the Deadwood Camp two and a half miles to the north of the Toney Group. During the mid and late 1950's, the Phoenix and Deadwood Camps were re-opened and open pit operations started. The Motherlode open pit operated from 1956 to 1962 and 654,000 tons were mined. Granby Mining Co. Ltd. started an open pit operation on the original Knob Hill and Old Ironsides Crown Grants. Present production is at the rate of 2,250 tons per day grading 0.7% copper with minor amounts of gold and silver.

The Sunset Claim in the Deadwood Camp is reported to

have produced 100,000 tons of low grade copper ore from surface pits. The Greyhound Claim has a reported 600,000 tons of ore grading 0.97% copper and some gold and silver values.

San Jacinto Explorations Ltd. (NPL) are currently conducting exploration on claims immediately to the north of the Toney Fraction. The work consists of diamond drilling of induced polarization and magnetic anomalies. Low grade copper mineralization over widths of 300 feet has been intersected in an andesite breccia formation approximately a half mile northeast of the Toney Fraction.

LOCAL GEOLOGY AND SHOWINGS

The western border of the group is underlain by conglomerate overlying massive white-grey quartzite or chert on the east. The chert is underlain by interbedded siltstone and greyrocks. Intrusive diorite underlies the northeastern and eastern part of the claim group. The sediments, in general, strike northerly and dip steeply to the west.

Copper mineralization was noted in surface showings by the writer at the following locations.

1. Southwest Corner of the Toney Fraction

Disseminated chalcopyrite and pyrite occur in medium grained rusty diorite along the 200 foot length of a shallow bulldozer trench. The trench was cut to lime bedrock and a cover of rubble prevented an estimate of the

grade, A nearby trench exposed a skarn zone bordering the diorite.

Approximately 800 feet south of these trenches, a small six by six foot pit in a bulldozer trench has exposed angular boulders of skarn containing a high proportion of magnetite and up to 5% coarse chalcopyrite mineralization. The owners report an assay of 2% copper and low values in gold from this material. The location is covered with shallow overburden and the mineralized material appears to be broken bedrock or close to it. The occurrence is significant as it closely resembles the open pit ore of the Motherlode claim. It could probably be traced by detailed magnetic survey. The general area of the above occurrences encompasses a pervasive alteration zone approximately 1000 feet in diameter. All rocks exposed in trenching are affected.

2. Vicki Claim Showings

A series of bulldozer trenches has exposed a mineralized diopside skarn containing disseminated chalcopyrite over a length of 50 feet. Rubble covers the bottom of the trenching and it is not possible to obtain systematic samples. Up to 5% chalcopyrite was noted in some exposures but the average content of chalcopyrite would be less. The trenching should be deepened for sampling.

The zone strikes in an east/west direction. Dip is north at 80° . Copper mineralization is exposed in an area at least 100 feet in diameter and may extend further

under the overburden. Some fine magnetite and epidote alteration accompanies the copper mineralization.

3. Centre Line of Vendela No.3 Claim

Up to 1% disseminated chalcopyrite is exposed in shallow rock trenches. The formation is andesite and strikes north/south and dips 60° east. The mineralization appears to be confined to fractures in the host rock. It is exposed over an area approximately 300 feet in diameter. Concentrations up to 5% chalcopyrite were noted locally, but this is not representative of the average. An induced polarization and magnetometer survey should be undertaken to define the extent of the zone. A grab sample taken by the owners from this showing was reported at 1.8% copper.

4. East Boundary of Vendela No.3 Claim

Disseminated chalcopyrite in andesite host rock is exposed in a rock cut over a length of 30 feet and a width of 12 feet. The mineralization is associated with a series of narrow shear zones striking 140° and dipping east at 80° . The andesite lies in contact with a limey sedimentary phyllite. A small dump of sorted high grade mineralized rock lies at the entrance to the adit. Overall content of the dump rock is estimated at 1%.

INDUCED POLARIZATION SURVEY

An induced polarization survey was carried out over 5.8 miles of ground lines on the Toney Group by former holders of the ground. Anomalies of 2 to 4 times background

of 20 millivolts were obtained on the Chum No.1 Claim and Chum Fraction, and anomalies of 2 times background were obtained on the Toney Fraction and Anton No.3 and No.5 claims. Two diamond drill holes were put down on the anomaly encountered on the Chum No.1 Claim. Only low copper values were reported. Core recovery was very low and results appear inconclusive. The other anomalies were not tested.

GEOCHEMICAL SURVEY

A geochemical soil survey was conducted over the western portion of the claim group and several significant copper anomalies up to 3 times background were obtained on the Toney Fraction, the Pioneer Fractions and the Anton No.2 Claim. Additional work is warranted to determine their cause.

Respectfully submitted,



E.O. Chisholm, P.Eng.

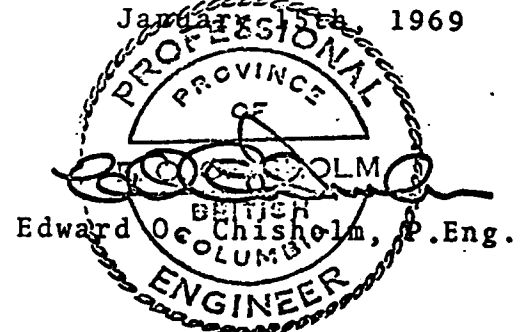
CERTIFICATE

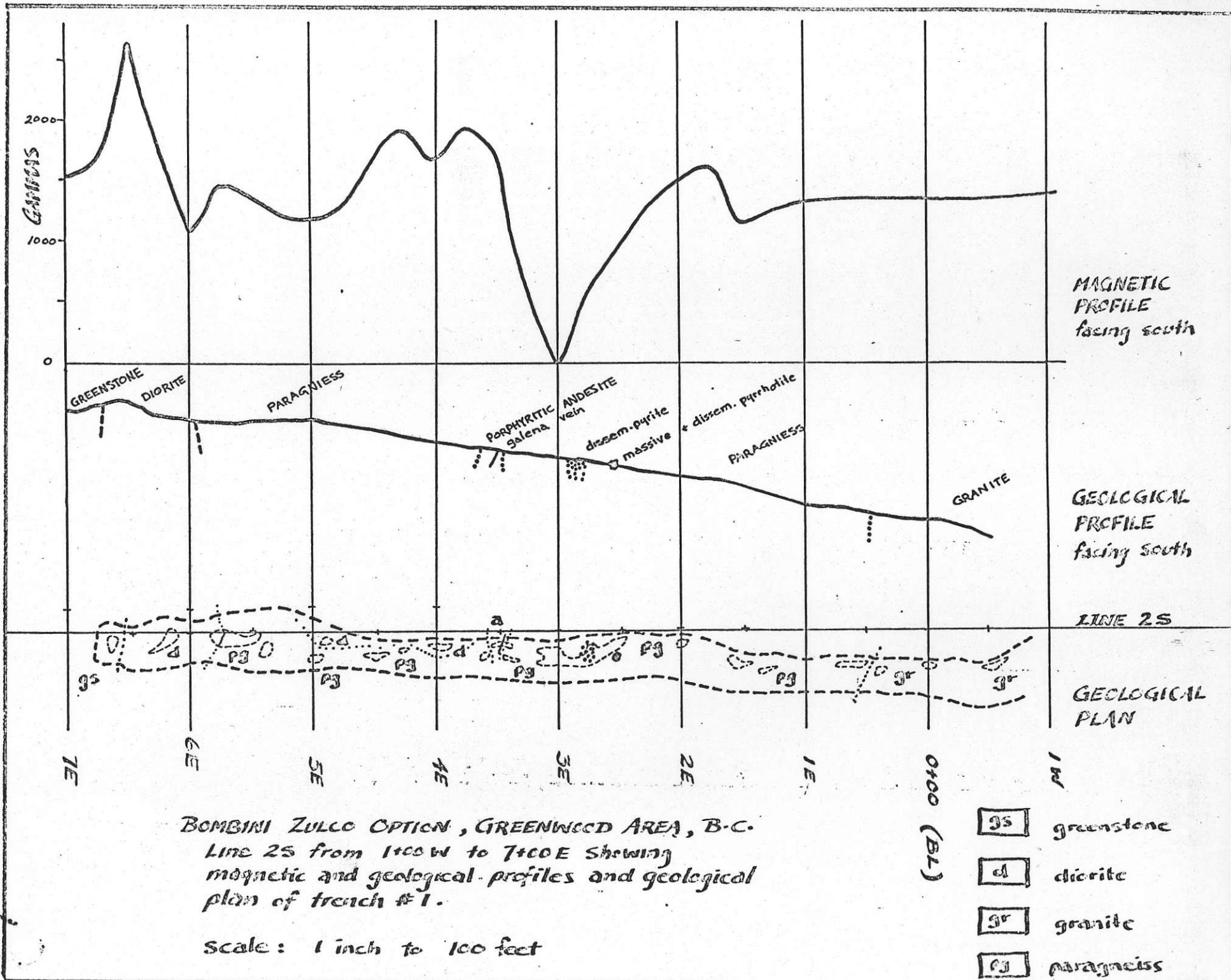
I, Edward O. Chisholm, of the City of Vancouver
in the Province of British Columbia, hereby
certify that:

- 1) I am a geologist with offices at 602 West
Hastings Street, Vancouver 2, B.C.
- 2) I am a graduate of the University of Toronto,
Master of Arts, 1945.
- 3) I am a member of the Professional Engineers
of Ontario and British Columbia.
- 4) I have no direct interest or indirect interest
in either the property or securities of the
owners of the property, nor do I expect to
receive any such interest.
- 5) This report is based on an examination of
owner's records, maps and sections, and also
on a visit to the property in October 1968.

Dated at Vancouver, British Columbia

January 15th, 1969





Project LONEY GROUP Location GREENWOOD
 Hole No. TC #1 Page No. 2 of 2
 Coordinates: 105,045 N 113,010 E
 Collar elev. 5525' Bearing West
 Inclination -30° Total Depth 115'

Contractor TRALBERG
 Date Started Sept 21, 1967
 Date Finished Sept 27, 1967
 Ref. to Claim Corner _____
 Logged by M.J.V.

Depth Interval		CORE								Depth Interval		SLUDGE									
From	To	Sample No.	Inches Rec.	% Rec.	ASSAY				From	To	Sample No.	Lbs. Rec.	% Rec.	ASSAY							
					Cu	Pb	Zn							Cu	Pb	Zn					
70.0	115.0	63655		3%	0.01	0.01	0.003														
										80.0	90.0	63656	-	-	0.01	0.03	0.003				
										90.0	100.0	63657	-	-	0.01	0.05	0.003				

SECTION	ALTERATION			FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE. CORE REC'Y/HOLE:	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% REC'Y SAMP. INT	Est. %
	CaCO ₃													
60.0							44.0-70.0 : Chert (See notes on page 1) 66.0-70.0 : Estimate < 1.0% sulphides		60.0					
70.0							70.0-90.0 : Argillite - Black, non calcareous, non-magnetic very badly broken. Contains seams of pyrite Core missing		70.0	8%		# 63654	9%	
80.0							80.0-90.0 : Estimate < 0.5% sulphides			0%				
90.0							90.0-100.0 : Chert (See notes on page 1) Core honeycombed with very narrow yellowish Ca seams.		90.0	4%				
100.0							90.0-100.0 : Estimate < 0.5% sulphides			6%		# 63655		
110.0							100.0-115.0 : Argillite (See above) Core missing		100.0	0%				
115.0							110.0-115.0 : Estimate < 0.5% sulphides		107.0	2%				
115.0							115.0 : End of hole		115.0					

Project TONEY
 Hole No. 70 #1 Page No. 1 of 2
 Coordinates: 105,045 N 113,055 E
 Collar elev. 3525' Bearing West
 Inclination -30° Total Depth 115'

Date Started Sept 21, 1967
 Date Finished Sept 27, 1967
 Ref. to Claim Corner _____
 Logged by M. J. Y.

SECTION	ALTERATION			FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE. CORE REC'Y/HOLE:	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SAMPLE INTERVAL	% RGCY SAMP. INT	Est. % Cu
0							0-2.0 : Casing stick-up 2.0-14.0 : Overburden - talus, predominantly sharpstone conglomerate							
10														
20							14.0-70.0 : Chert - white to grey, hard, non-calcareous non-magnetic, generally well fractured, grades locally into siltstone; contains few Ca seams, and disseminated and seamy pyrite.		14.0	12%		14.0	12%	<0.1%
30							14.0-57.0 : Estimate ± 5% sulphides (pyrite)		25.0			25.0		
40									38.0	14%	AX	38.0	14%	<0.1%
50														
60									56.0	11%		56.0	11%	<0.1%
									62.0	12%		62.0	9%	

Intense

Ch

Py

Py

Py

Py

Py

63651

63652

63653

Certificate of Analysis

RECEIVED
 AUG 2 11 1967

No. 390

To: Utah Construction & Mining Co.
 #718 510 W. Hastings St.
 Vancouver, B.C.

Ans'd _____
 Atten: Mr. E. Rugg, Mr. G. Noel
 Invoice No. 83

SAMPLE No.	ppm Copper
LO 30S	206
31S	605
32S	45
33S	45
34S	42
35S	26
36S	46
37S	57
38S	91
39S	87
LO 40S	59
Standard Soil # 1	54
LO 41S	54
42S	60
43S	51
44S	46
45S	62
46S	33
47S	48
48S	57
49S	45
50S	50
51S	52
52S	48
53S	80
54S	98
55S	59
56S	80
LO 57S	140
L4E 34S	57
35S	48
36S	52
37S	64
38S	45
39S	70
40S	107
41S	85
42S	60
43S	43
L4E 44S	55

Date Received Aug. 15, 1967
 Date Analysed Aug. 17, 1967

CERTIFIED BY *B. Brown*

CLEMEX LABS LTD.

Taney Group

1416 CROWN STREET — NORTH VANCOUVER, B.C. — TELEPHONE 988-6955

Certificate of Analysis

RECEIVED
AUG 2 11 1967

No. 391

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel
Invoice No. 83

Ans'd

SAMPLE No.	ppm Copper
L4E 45S	57
46S	43
47S	33
48S	22
49S	64
50S	50
51S	52
52S	57
53S	51
54S	28
55S	38
56S	93
57S	40
58S	43
59S	74
60S	67
Standard Soil #1	54
61S	60
62S	50
63S	55
64S	64
65S	50
66S	35
67S	57
68S	55
69S	109
L4E 70S	111
L8E 38S	120
39S	80
40S	62
41S	136
42S	147
43S	179
44S	129
45S	32
46S	59
47S	74
48S	52
49S	83
L8E 50S	82

Date Received Aug. 15, 1967
Date Analysed Aug. 17, 1967

CERTIFIED BY *R. Brown*

CI-EMEX LABS LTD.

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AUG 2 11 1967
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Certificate of Analysis

No. 392

TdJtah Construction & Mining Co.
 #718 510 W. Hastings St.
 Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel
 Invoice No. 83

SAMPLE No.	ppm Copper
L8E 51S	59
52S	82
53S	18
54S	30
55S	18
56S	55
57S	40
58S	23
59S	no sample
60S	no sample
61S	32
62S	20
63S	23
64S	91
65S	62
66S	122
67S	109
68S	111
69S	72
L8E 70S	57
Standard Soil #1	55
L12E 34S	35
35S	48
36S	148
37S	131
38S	115
39S	110
40S	122
41S	179
42S	76
43S	67
44S	69
45S	83
46S	57
47S	72
48S	51
49S	35
50S	62
51S	51
52S	59

Date Received Aug. 15, 1967
 Date Analysed Aug. 18, 1967

CERTIFIED BY *Bob Brown*

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AUG 15 1967

No. 393

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel

Invoice No. 83

SAMPLE No.	ppm Copper
L12E 53S	124
54S	65
55S	65
56S	26
57S	83
58S	64
59S	57
60S	62
61S	26
62S	22
63S	23
64S	83
65S	107
66S	64
67S	91
68S	83
69S	93
70S	129
71S	87
72S	55
L12E 73S	13
Standard Soil #1	55
L16E 33S	65
34S	143
35S	66
36S	67
37S	51
38S	74
39S	122
40S	98
41S	45
42S	120
43S	104
44S	72
45S	70
46 S	114
47S	145
48S	87
49S	102
L16E 50S	89

Date Received Aug. 15, 1967

Date Analysed Aug. 18, 1967

CERTIFIED BY *B. W. Brown*

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AUG 22 1967

No. 394

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel
Invoice No. 83

SAMPLE No.	ppm Copper
L16E 51S	52
52S	60
53S	91
54S	48
55S	96
56S	80
57S	76
58S	67
59S	104
60S	83
61S	96
62S	72
63S	70
64S	290
65S	114
L16E 66S	96
Standard Soil #1	59
L16E 69S	76
70S	35
71S	15
72S	40
73S	74
74S	122
L16E 75S	96
L20E 30S	114
31S	91
32S	85
33S	64
34S	100
35S	72
36S	252
37S	114
38S	104
39S	62
40S	57
41S	55
42S	74
43S	96
44S	109
L20E 45S	78

Date Received Aug. 15, 1967
Date Analysed Aug. 18, 1967

CERTIFIED BY Bob Brown

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1416 CROWN STREET — NORTH VANCOUVER, B.C. — TELEPHONE 988-6957

Certificate of Analysis **RECEIVED**
AUG 2 11967

No. 395

Ans'd _____

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel
Invoice No. 83

SAMPLE No.	ppm Copper
L20E 46S	96
47S	184
48S	163
49S	163
50S	91
51S	57
52S	100
53S	65
54S	93
55S	67
56S	100
57S	85
58S	72
59S	28
60S	96
61S	50
62S	51
63S	57
64S	23
65S	65
66S	100
67S	46
68S	64
69S	45
70S	52
71S	96
72S	64
73S	117
74S	102
75S	83
76S	74
77S	52
L20E 78S	80
Standard Soil #1	59
L32E 30S	392
31S	104
32S	78
33S	545
34S	26
L32E 35S	80

Date Received Aug. 15, 1967
Date Analysed Aug. 18, 1967

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AUG 2 11 1967

No. 396

Ans'd

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel

Invoice No. 83

SAMPLE No.	ppm Copper
L32E 36S	67
37S	74
38S	267
39S	89
40S	48
41S	124
42S	78
43S	93
44S	96
45S	140
46S	453
47S	96
48S	70
49S	15
50S	62
51S	74
52S	60
53S	89
54S	62
55S	72
56S	50
57S	206
58S	42
59S	104
60S	98
61S	102
62S	59
63S	80
Standard Soil #1	55
65S	48
66S	55
67S	46
68S	80
69S	72
70S	67
71S	54
72S	93
73S	117
74S	120
L32E 75S	96

Date Received Aug. 15, 1967
Date Analysed Aug. 18, 1967

CERTIFIED BY *B. Brown*

CI EMEX LABS LTD.

1416 CROWN STREET — NORTH VANCOUVER, B.C. — TELEPHONE 988-6955

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RECEIVED
AUG 21 1967

No. 397

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. ~~Novi~~
Invoice No. 83

SAMPLE No.	ppm Copper
L32E 76S	52
77S	83
78S	45
79S	64
80S	54
81S	76
82S	89
83S	64
L32E 84S	52
Standard Soil #1	57
L36E 31S	76
32S	74
33S	45
34S	200
35S	306
36S	72
37S	36
38S	98
39S	82
40S	80
41S	69
42S	40
43S	52
44S	65
45S	91
46S	93
47S	74
48S	143
49S	50
50S	87
51S	33
52S	133
53S	51
54S	122
55S	20
56S	83
57S	51
58S	76
59S	46
L36E 60S	62

Date Received Aug. 15, 1967
Date Analysed Aug. 18, 1967

CERTIFIED BY *B. B. Brown*

CI EMEX LABS LTD.

1416 CROWN STREET — NORTH VANCOUVER, B.C. — TELEPHONE 985-8955

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RECEIVED
AUG 2 11 1967

No. 398

Ans'd

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel
Invoice No. 83

SAMPLE No.	ppm Copper
L36E 61S	55
62S	54
63S	50
64S	64
65S	70
66S	83
67S	133
68S	91
L36E 69S	87
Standard Soil #1	55
L36E 71S	45
72S	62
73S	69
74S	72
75S	72
76S	117
77S	74
78S	117
79S	57
80S	85
81S	60
82S	59
83S	50
84S	43
85S	46
L36E 86S	40
L40E 27S	129
28S	89
29S	168
30S	133
31S	100
32S	83
33S	102
34S	69
35S	403
36S	43
37S	60
38S	55
39S	40
L40E 40S	45

Date Received Aug. 15, 1967
Date Analysed Aug. 18, 1967

CERTIFIED BY *B. Brown*

CHEMEX LABS LTD.

1416 CROWN STREET — NORTH VANCOUVER, B.C. — TELEPHONE 988-6955

Certificate of Analysis

RECEIVED
AUG 2 11967

No. 399

Ans'd _____

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel
Invoice No. 83

SAMPLE No.	ppm Copper
L40E 41S	36
42S	190
43S	117
44S	403
45S	62
46S	57
47S	83
48S	57
49S	65
50S	80
51S	33
52S	50
53S	246
54S	30
55S	32
56S	43
57S	28
58S	55
59S	220
60S	60
61S	45
62S	30
63S	60
64S	48
L40E 65S	54
Standard Soil #1	55
L40E 66S	50
67S	59
68S	57
69S	65
70S	93
71S	51
72S	36
73S	42
74S	52
75S	55
76S	51
77S	55
78S	40
L40E 79S	51

Date Received Aug. 15, 1967
Date Analysed Aug. 18, 1967

CERTIFIED BY *B. Brown*

CHEMEX LABS LTD.

1416 CROWN STREET — NORTH VANCOUVER, B.C. — TELEPHONE 988-6955

Certificate of Analysis

RECEIVED
AUG 2 11 1967

No. 400

As'd

To: Utah Construction & Mining Co.
#718 510 W. Hastings St.
Vancouver, B.C.

Atten: Mr. E. Rugg, Mr. G. Noel

Invoice No. 83

SAMPLE No.	ppm Copper
L40E 80S	42
81S	54
82S	69
83S	33
84S	50
85S	32
L40E 86S	30
Standard Soil #11	184
L44E 29S	240
30S	57
31S	35
32S	59
33S	51
34S	129
35S	40
36S	78
37S	54
38S	57
39S	52
40S	117
41S	64
42S	50
43S	62
44S	48
45S	54
46S	74
47S	72
48S	40
49S	65
50S	42
51S	38
52S	32
53S	98
54S	50
55S	30
56S	8
57S	59
58S	40
59S	33
L44E 60S	22

Date Received Aug. 15, 1967
Date Analysed Aug. 18, 1967

CERTIFIED BY

[Signature]

