

MAR 23 1977



Chevron Resources Company
320 Market Street, San Francisco, CA 94111
Mail Address: P.O. Box 3722, San Francisco, CA 94119

March 18, 1977

Mr. H. D. Pilkington
Amax Exploration Inc.
4704 Harlan Street
Denver, CO 80212

Dear Mr. Pilkington:

We enclose data from our 14 drilled temperature holes at Neals-Bully Creek Area. If there are any questions, please feel free to call me. Please sign and return the attached copy.

Sincerely,

A handwritten signature in dark ink, appearing to read "E. H. Haynes", written in a cursive style.

E. H. Haynes

EHH:ab

Data received March 23, 1977

Date

H. D. Pilkington
March 24, 1977

NEC #1

Lithology

0-15' Clay - tan brown w/caliche
15-30' Dark igneous (basalt?) soft w/SiO₂ incrustacions - weathered
30-45' As above
45-60' As above
60-75' As above w/anhydrite - gypsum
75-90' As above
90-105' As above
105-120' Claystone - soft - weathered - light tan
120-135' Clay - tan brown
135-150' As above
150-165' Clay - w/numerous qtz frags and muscovite flakes
165-180' As above
180-195' Clay - light tan w frags of igneous material (weathered basalt?)

NEALS BULLY CREEK NO. 7

°F

50

60

70

80

90

50'

100'

150'

200'

FEET

250'

300'

350'

400'

450'



NEALS BULLY CREEK NO. 2

°F

50

60

70

80

90

50'

100'

150'

200'

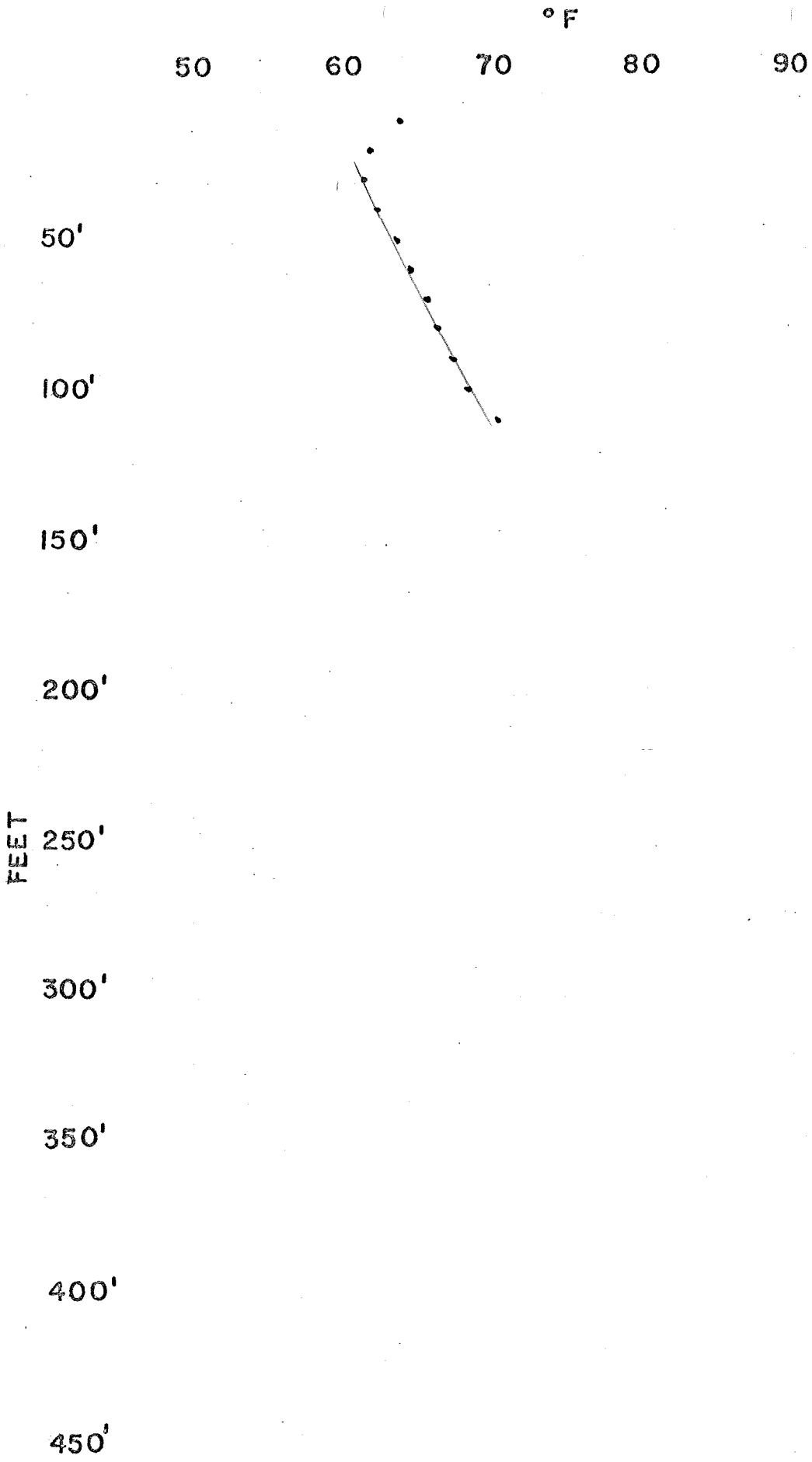
FEET
250'

300'

350'

400'

450'



NBC #3

Lithology

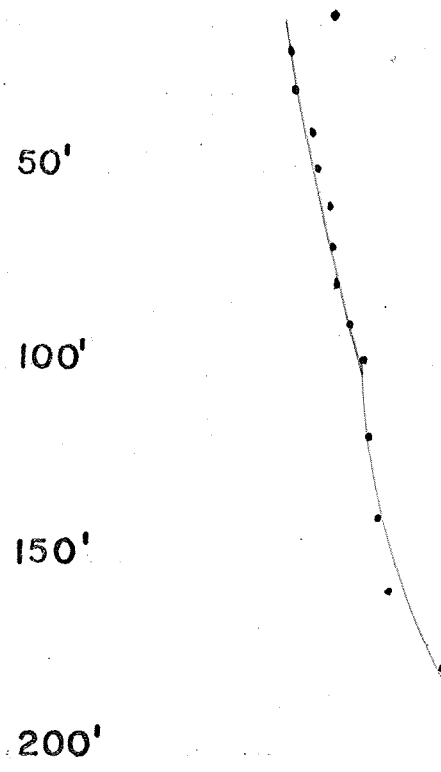
0-15'	Clay - light tan and dark igneous material (basalt?) with frags of quartz
15-30'	As above w/chalcedony
30-45'	Clay - light tan - 100%
45-60'	Vesicular basalt (blk) - w/clay
60-75'	Clay - light tan - w/igneous frags
75-90'	Clay " " " " (basalt)
90-105'	Silicified clay stone (baked?) - hard 5 - or very fine grained tuff
105-120'	As above
120-135'	Igneous - dark (basalt?) w/qtz veining
135-150'	As above
150-165'	As above w/ minor white alt. prod.
165-180'	As above
180-190'	As above

NEALS BULLY CREEK NO. 3

°F

50 60 70 80 90

50'
100'
150'
200'
250'
300'
350'
400'
450'



NBC #7

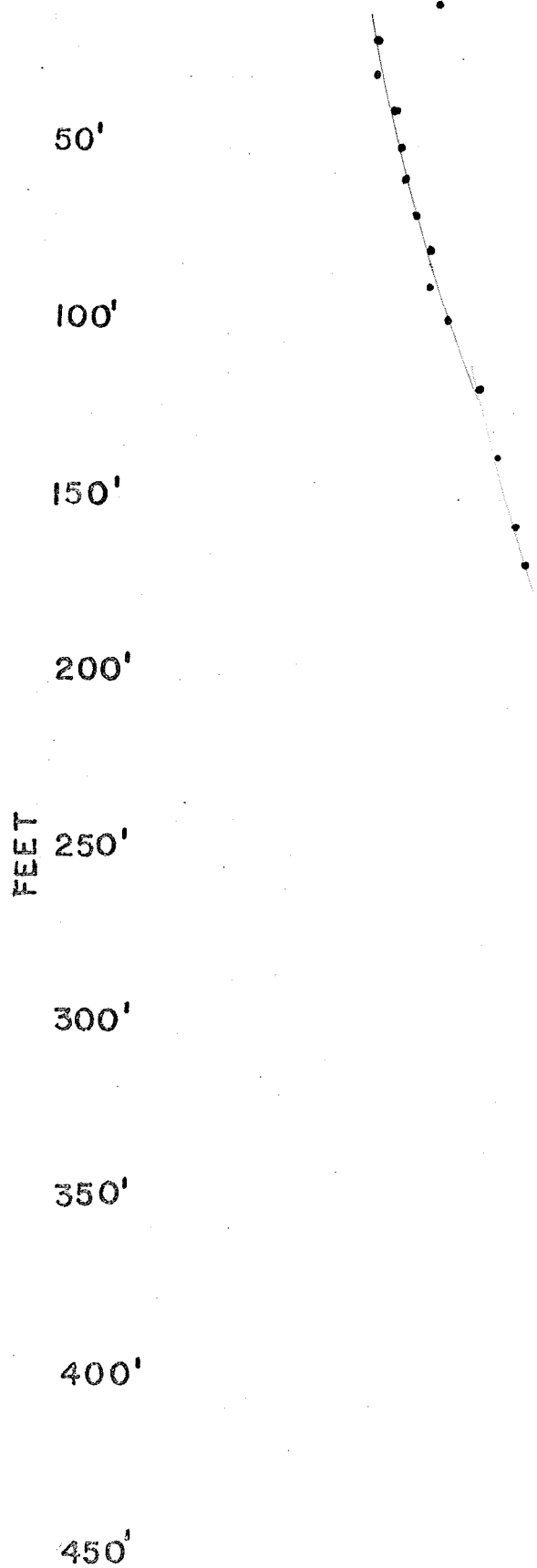
Lithology

0-15'	Clay light tan w/vol frags
15-30'	As above
30-45'	As above
45-60'	Dark - fine grained igneous w qtz frags and clay/minor
60-75'	Tuff - white w/vol frags
75-90'	Buff colored clay or weathered tuff, w/vol frags
90-105'	As above
105-120'	Clay - buff or weathered tuff, vol (basalt) and traces of pyrite or chalcopyrite
120-135'	Weathered vesicular basalt w/chalcedony and pyrite traces
135-150'	Tuff - white, w/vol frags (basalt) & traces of quartz & occasional chards
150-168'	Tuff weathered or claystone w/vesicular basaltic frags

NEALS BULLY CREEK NO. 7

°F

50 60 70 80 90



NBC #8

Lithology

0-15'	Clay - buff w/rounded vol frags
15-30'	As above
30-45'	Clay, buff w silicified vol frags (light colored)
45-60'	As above w/pyrite traces on volcanics
60-75'	Clay - buff w/pyrite traces and trace tuff
75-90'	As above
90-105'	As above
105-120'	Aphanitic volcanics (basalt) w/qtz veining & incrustations
120-130'	As above

NEALS BULLY CREEK NO. 8

°F

50

60

70

80

90

50'

100'

150'

200'

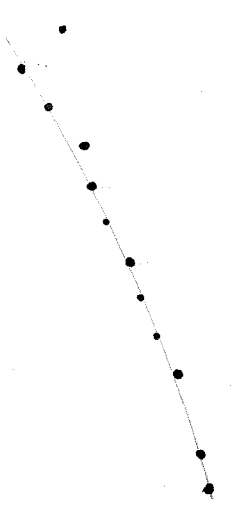
FEET
250'

300'

350'

400'

450'



NBC #10

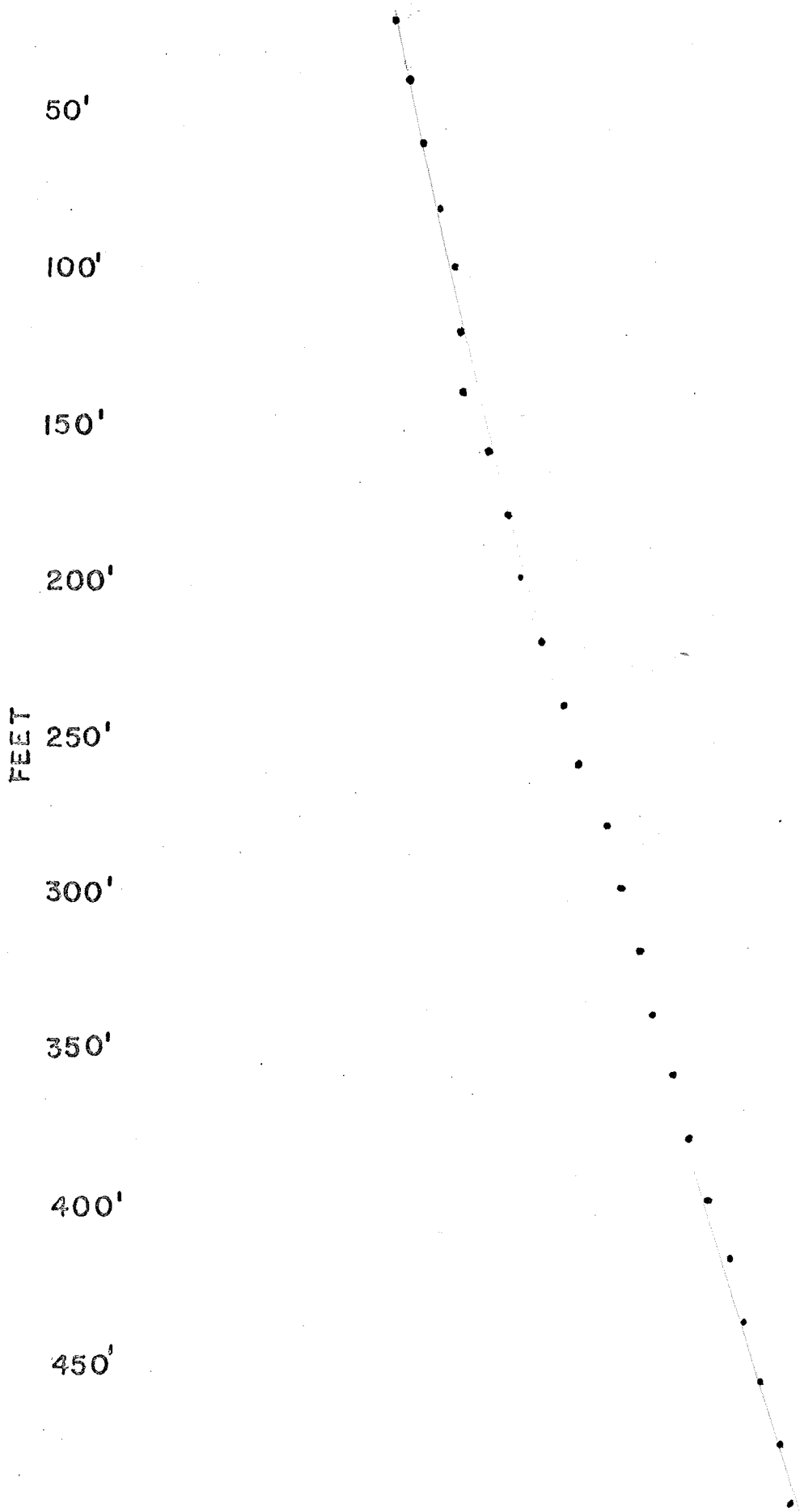
Lithology

0-15'	Pea gravel - w/basalt? well rounded
15-30'	Basalt?
30-45'	Light tan clay - w rare chards
45-60'	Clay - as above
60-75'	Clay - with 10% chards
75-90'	Ashy vol siltstone or claystone - w/rare basalt frags
90-105'	As above
105-120'	As above no basalt
120-135'	As above no basalt
135-150'	As above no basalt

NEALS BULLY CREEK NO. 10

°F

50 60 70 80 90



MBC #11
Lithology

0-15	Basalt, well rounded w/clay
15-30	As above
30-45	Clay - Buff w/igneous frags
45-60	" " "
60-75	" " "
75-90	" " "
90-105	" " "
105-120	" " "
120-135	" " "
135-150	" " "

NEALS BULLY CREEK NO. 11

°F

50

60

70

80

90

50'

100'

150'

200'

FEET

250'

300'

350'

400'

450'



NBC #20

Lithology

0-15' Buff colored clay - consolidated - 100%

15-30' Clay reddish brn w qtz frags w/minor caliche

30-45' Dark aphanitic volcanic - w pyrite incrustacions

45-60' " " " w/clay - minor amount

60-75' As above

75-90' " " w/no clay

90-105' As above w silicified tuff - white

105-120' Silicified basalt, minor clay & tuff -- trace caliche w/qtz frags

120-135' Silicified basalt w qtz frags

135-150' As above

150-165' As above w trace caliche

165-180' As above w clay traces and inclusions of red volcanic (rhyolite ?)

180-195' As above

NEALS BULLY CREEK NO. 20

°F

50

60

70

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90

50'

100'

150'

200'

FEET

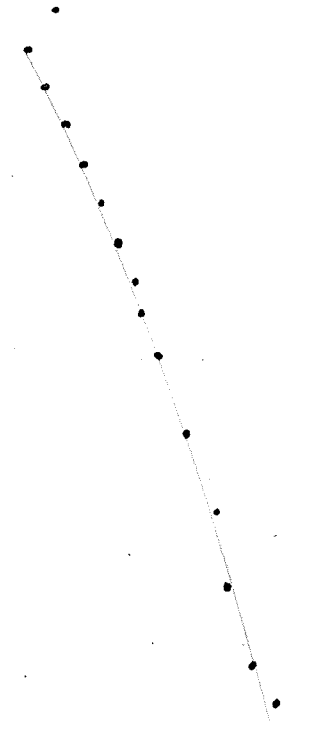
250'

300'

350'

400'

450'



NBC #21
Lithology

0-15'	Clay light tan w vesicular basalt
15-30'	Vesicular basalt w minor amount of clay
30-45'	Basalt, clay w/minor sulphur deposition
45-60'	Bi-modal - basalt w red oxidized volcanics (rhyolite?) w minor amounts of clay
60-75'	Silicified basalt - some vesicular (top of flow) - weathered
75-90'	Fine grained silicified igneous (?) - lighter than 60-75
90-105'	" " " " "
105-120'	As above
120-135'	As above
135-150'	As above, w/minor sulphur deposition
150-165'	As above w 50% clay - (transition - contact)
165-180'	Clay w vol frags
180-195'	" " "
195-210'	Clay (baked or silicified?)
210-225'	Clay - with basalt frags & traces of muscovite
225-240'	As above
240-255'	As above
255-270'	As above
270-280'	As above

NEALS BULLY CREEK NO. 21

°F

50

60

70

80

90

50'

100'

150'

200'

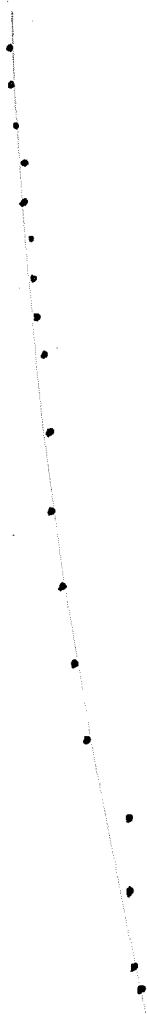
FEET
250'

300'

350'

400'

450'



NBC #22

Lithology

0-15'	Weathered silicified basalt
15-30'	As above
30-45'	As above w/trace sulphur deposition
45-60'	As above w/qtz veining (minor)
60-75'	As above
75-90'	Clay 50% light tan with vol frags
90-105'	As above
105-120'	As above
120-135'	Fine grained igneous, silicified (basalt) w/minor alt prod. & minor sulphur dep.
135-150'	Vesicular basalt w clay & great % 40% milky qtz (qtz vein?)
150-165'	Silicified basalt - weathered
165-180'	As above
180 -	As above

NEALS BULLY CREEK NO. 22

°F

50

60

70

80

90

50'

100'

150'

200'

FEET

250'

300'

350'

400'

450'



NBC #23

Lithology

0-15'	Vesicular basalt weathered w/clay - tan & caliche
15-30'	Silicified basalt
30-45'	" " w/trace sulphur deposition
45-60'	As above
60-75'	As above
75-90'	As above
90-105'	As above
105-120'	As above
120-135'	As above
135-150'	As above
150-165'	As above
165-180'	As above

NEALS BULLY CREEK NO. 23

°F

50

60

70

80

90

50'

100'

150'

200'

FEET

250'

300'

350'

400'

450'



NBC #24

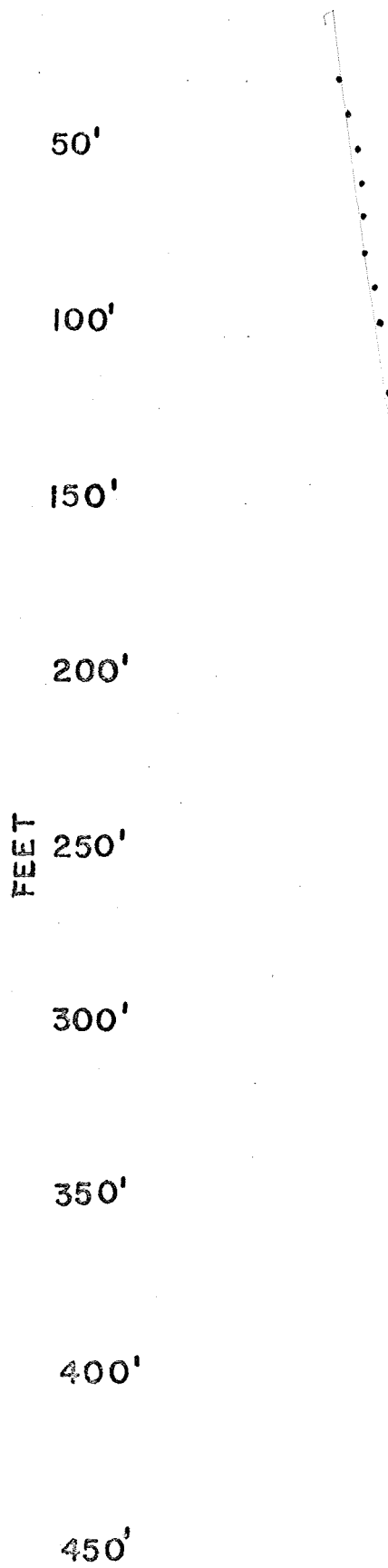
Lithology

- 0-15' Buff colored clay w/CaCO₃ (caliche)
- 15-30' Qtz sand, coarse, moderately rounded 95% - many grains
possibly were subject hydrothermal dissolution - w/trace caliche
- 30-45' Clay, buff colored (or weathered tuff) w qtz frags (from up hole?)
- 45-60' As above w muscovite and biotite chips
- 60-75' As above
- 75-90' As above
- 90-105' As above
- 105-120' As above
- 120-135 Coarse grained qtz sand, moderately rounded - 100%

NEALS BULLY CREEK NO. 24

°F

50 60 70 80 90



NBC #33

Lithology

0-15'	Clay - buff, vol frags & qtz frags
15-30'	Clay - buff w pink weathered vol (rhyolite?)
30-45'	Tuff - white
45-60'	Tuff & clay mixed
60-75'	Weathered tuff w chards - light buff w rare muscovite flakes & clay
75-90'	As above
90-105'	As above
105-120'	As above
120-135'	As above w/greater amount of clay
135-150'	As above
150-165'	Clay w vol chards
165-180'	As above
180-190'	As above

NEALS BULLY CREEK NO. 33

°F

50

60

70

80

90

50'

100'

150'

200'

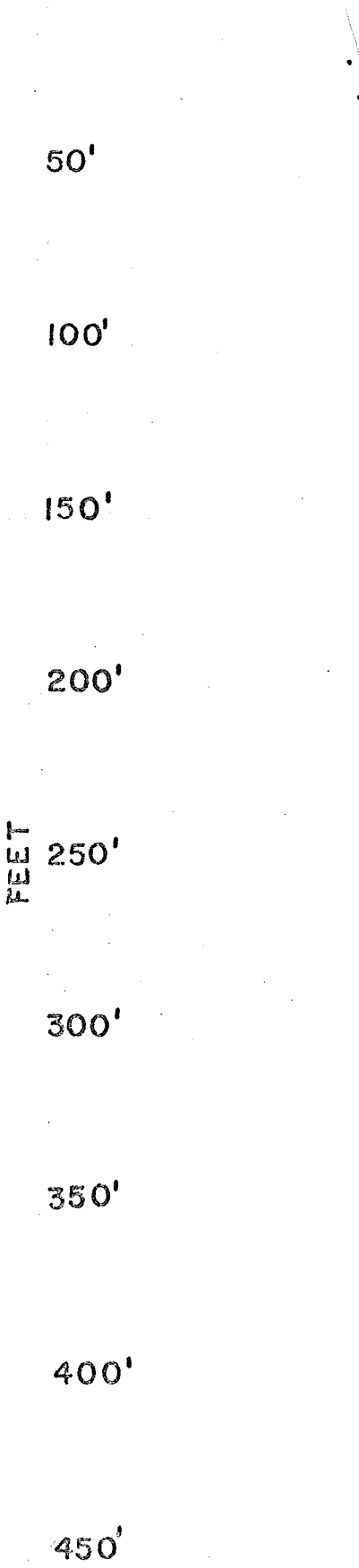
FEET
250'

300'

350'

400'

450'



NBC #35

Lithology

- 0-15' Clay - light tan - possibly 5% v. fine grain sand.
- 15-30' V. fine light tan sand composed dominantly of SiO₂ volcanic chards? Chard size is fairly uniform, all angular - w/small amount of clay present.
- 30-45' As above - with more clay.
- 45-60' As above - 50% clay and v. fine sand.
- 60-75' As above - w/rare basalt? (dark igneous frags).
- 75-90' Grey-grn-clay - ~ 10% igneous chips - less amount of fine light sand ~ 20%.
- 90-105' Grey-grn clay - 70% - SiO₂ chips (chards?)
- 105-120' Light tan-grn-volcanic decop - clay - soft - white streak - 75% w/some basalt? 15% trace of pyrite - some in small qtz vein.
- 120-135' Tan-grn-clay 70% w/volcanic decop sand ash flow 20%.
- 135-150' Clay - as above 80% w/smaller % of chards.
- 150-165' Dark 90% aphanitic volcanic (basalt?) 10% - clay - trace chalcedony.
- 165-180' As above (basalt?) pyrite frags xls w/ash
- 180-195' As above - w/qtz filling some depressions (rare)
- 195-210' Basalt (?) 95% covered with ash and clay
- 210-225' Basalt ? Gabbro? 99% - small amount chalcedony & pyrite
- 225-240' Dark igneous - ? - with small amount of trace mineral - malochite? dark green w/pyrite
- 240-255' As above
- 255-270' As above
- 270-285' As above ~ 5% pyrite
- 285-300' As above
- 300-315' As above with clay (grey-grn)
- 315-330' As above
- 330-345' Dark basalt 80% - with small amount chards

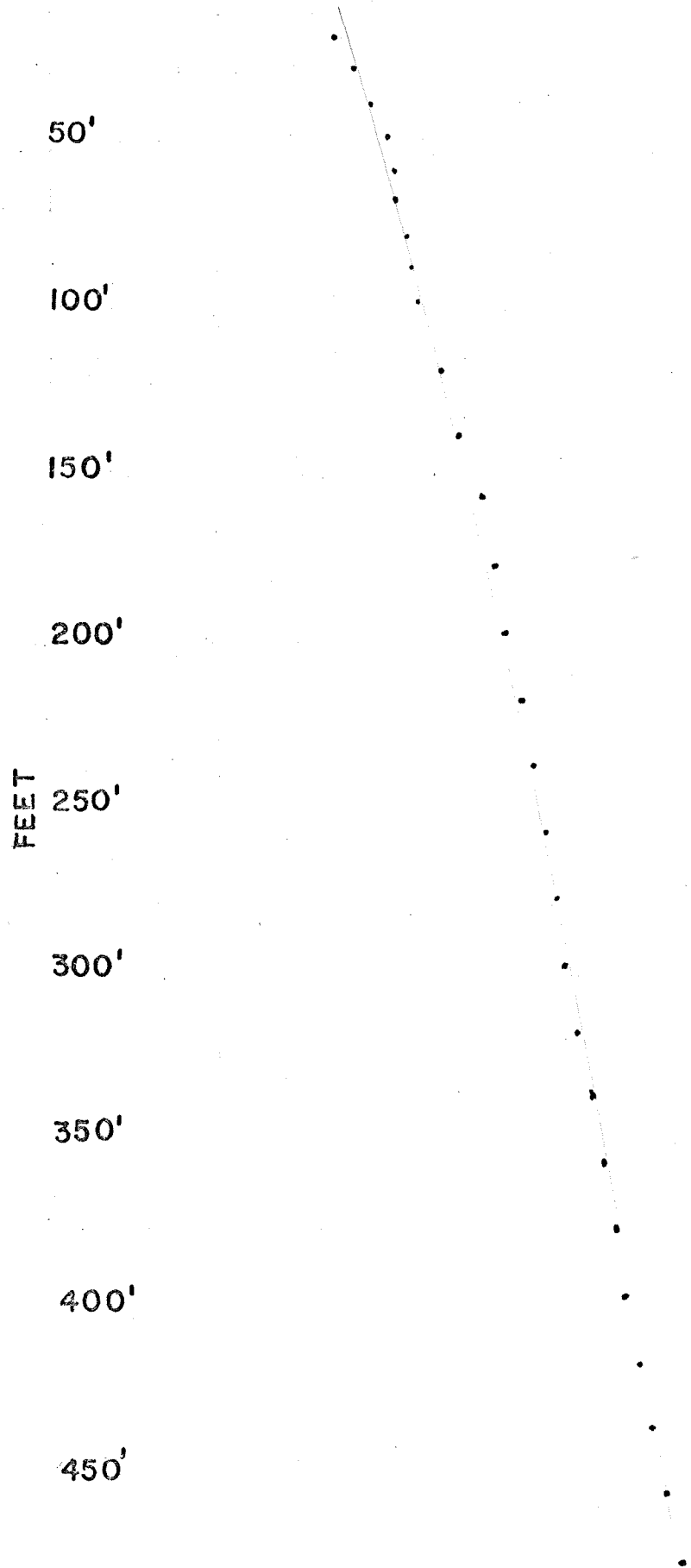
NBC #35 (continued)

345-360' Basalt? 80% clay & chards
360-375' Clay now missing sieved - 50% w/basalt? 40%
with traces of pyrite & weathered andesite?
375-390' As above
390-405' Clay - 60% - chards & basalt? 10%
clay - 80% - w/glass chards
405-420' Trace of basalt?
420-435' As above
435-450' 90% clay & chards
450-465' " "
465-480' " "
480-495 Clay - as above
495-500 " "

NEALS BULLY CREEK NO. 35

°F

50 60 70 80 90



NEALS-BULLY CREEK

TEMPERATURE LOGS

Hole #1 = 190=T.D. 6.1°F/100'

10'	=17.88 ^{OC}	-	64.18 ^{OF}
20	-20.16.08-		60.94
30	=17.14	-	62.85
40	=17.70	-	63.86
50	=18.04	-	64.47
60	=18.69	-	65.64
70	=19.23	-	66.61
80	=19.73	-	67.51
90	=20.20	-	68.36
100	=20.63	-	69.13
120	=21.26	-	70.27
140	=21.76	-	71.17
160	=22.24	-	72.03
180	=22.67	-	72.81
190	=22.78	-	73.00

Hole #2 = 110=TD 6.3°F/100'

10'	-17.70 ^{OC}	=	63.86 ^{OF}
20	-16.33	=	61.39
30	-16.27	=	61.29
40	-17.01	=	62.62
50	-17.60	=	63.68
60	-18.15	=	64.67
70	-18.69	=	65.64
80	-19.16	=	66.49
90	-19.63	=	67.33
100	-20.38	=	68.68
110	-21.12	=	70.12

Hole #3 = 189=TD 5.3°F/100'

10	=13.65	-	56.57
20	=12.31	-	54.16
30	=12.54	-	54.57
40	=12.86	-	55.15
50	=13.04	-	55.47
60	=13.36	-	56.05
70	=13.58	-	56.44
80	=13.77	-	56.79
90	=14.01	-	57.22
100	=14.32	-	57.78
120	=14.59	-	58.26
140	=14.95	-	58.91
160	=15.33	-	59.59
180	=16.66	-	61.99
189	=17.10	-	62.78

Hole #7 = 167'=TD 6.3°F/100'

10	=17.32 ^{OC}	-	63.18 ^{OF}
20	=14.65	-	58.37

(cont'd)

Hole #7 = 167' = TD

30=14.54	-	58.17
40=15.18	-	59.32
50=15.23	-	59.41
60=15.44	-	59.79
70=15.71	-	60.28
80=16.16	-	61.09
90=16.52	-	61.34
100=16.87	-	62.37
120=17.70	-	63.86
140=18.33	-	64.99
160=19.06	-	66.31
167=19.34	-	66.81

Hole #8 = 131' = TD

GEONOMICS

10=14.08	-	57.34 ^{°F}
20=13.48	-	56.26 F
30=14.30	-	57.74 F
40=14.93	-	58.87
50=15.33	-	59.59
60=15.88	-	60.58
70=16.39	-	61.50
80=16.91	-	62.44
90=17.33	-	63.19
100=17.82	-	64.08
120=18.44	-	65.19
131=18.69	-	65.64

7.9° F/100'

Hole #10 - Redrill

20=16.70 ^{°C}	-	62.1
40=17.03	-	62.7
60=17.80	-	64.0
80=18.31	-	65.0
100=18.90	-	66.0
120=19.25	-	66.7
140=19.46	-	67.0
160=20.25	-	68.5
180=20.78	-	69.4
200=21.47	-	70.6
220=22.26	-	72.1
240=22.90	-	73.2
260=23.60	-	74.5
280=24.32	-	75.8
300=24.95	-	76.9
320=25.60	-	78.1
340=26.21	-	79.2
360=26.86	-	80.3
380=27.56	-	81.6
400=28.20	-	82.8
420=28.84 ^{°C}	-	83.9
440=29.45	-	85.0
460=30.08	-	86.1
480=30.67	-	87.2
500=31.15	-	88.1

5.5° F/100'

Hole #11=148=TD

10=15.43 ^{oC}	- 59.77 ^{oF}	4.4 ^{oF} /100'
20=13.36	- 56.05 ^o	
30=13.12	- 55.62	
40=13.27	- 55.87	
50=13.50	- 56.30	
60=13.79	- 56.82	
70=14.06	- 57.31	
80=14.25	- 57.65	
90=14.46	- 58.03	
100=14.66	- 58.39	
120=15.14	- 59.25	
140=15.51	- 59.92	
148=15.73	- 60.31	

Hole #20=190=TD

10=15.00 ^{oC}	- 59.0 ^{oF}	7.6 ^{oF} /100'
20=14.08	- 57.34	
30=14.76	- 58.57	
40=15.36	- 59.65	
50=15.90	- 60.62	
60=16.47	- 61.65	
70=16.76	- 62.17	
80=17.24	- 63.03	
90=17.52	- 63.54	
100=18.16	- 64.69	
120=18.84	- 65.91	
140=19.70	- 67.46	
160=20.64	- 68.43	
180=21.29	- 70.32	
190=21.82	- 71.28	

Hole #21=271'=TD

10=14.24 ^{oC}	- 57.63 ^{oF}	2.8 ^{oF} /100'
20=12.56	- 54.61	
30=12.56	- 54.61	
40=12.66	- 54.79	
50=12.84	- 55.11	
60=12.96	- 55.33	
70=13.04	- 55.47	
80=13.12	- 55.62	
90=13.25	- 55.85	
100=13.54	- 56.37	
120=13.66	- 56.59	
140=13.77	- 56.79	
160=14.13	- 57.43	
180=14.41	- 57.94	
200=14.76	- 58.57	
220=15.68	- 60.22	
240=15.80	- 60.44	
260=16.06	- 60.91	
271=16.29	- 61.32	

Hole #22=190' = T.D.

10=14.49 ^{oC}	-	58.08 ^{oF}	2.5 ^{oF} /100'
20=12.50	-	54.50	
30=12.33	-	54.19	
40=12.56	-	54.61	
50=12.69	-	54.84	
60=12.83	-	55.09	
70=12.94	-	55.29	
80=13.04	-	55.47	
90=13.11	-	55.60	
100=13.21	-	55.78	
120=14.21	-	57.58	
140=14.04	-	57.27	
160=14.27	-	57.69	
180=14.41	-	57.94	
190=14.61	-	58.30	

Hole #23=185=T.D.

10=14.86 ^{oC}	-	58.75 ^{oF}	2.5 ^{oF} /100'
20=12.57	-	54.63	
30=12.60	-	54.68	
40=12.99	-	55.38	
50=13.10	-	55.58	
60=13.36	-	56.05	
70=13.46	-	56.23	
80=13.64	-	56.55	
90=13.73	-	56.71	
100=13.85	-	56.93	
120=14.06	-	57.31	
140=14.38	-	57.88	
160=14.61	-	58.30	
180=14.79	-	58.62	
185=14.86	-	58.75	

Hole #24=119 = T.D.

10=15.29 ^{oC}	-	59.52 ^{oF}	2.2 ^{oF} /100'
20=13.33	-	59.99	
30=13.35	-	56.03	
40=13.84	-	56.91	
50=14.03	-	57.25	
60=14.12	-	57.42	
70=14.22	-	57.60	
80=14.32	-	57.78	
90=14.59	-	58.26	
100=14.82	-	58.68	
119=15.00	-	59.00	

Hole #33=190 = T.D.

10=15.08 ^{oC}	-	59.14 ^{oF}	6.7 ^{oF} /100'
20=15.94	-	57.09	
30=14.31	-	57.56	
40=14.90	-	58.82	
50=15.68	-	60.22	
60=15.97	-	60.75	
70=16.37	-	61.47	
80=16.66	-	61.99	

Hole #33 = 190 - T.D. (cont'd)

90=16.95	- 62.51
100=17.08	- 62.74
120=17.66	- 63.79
140=18.76	- 65.77
160=19.51	- 67.12
180=20.55	- 89.99
190=20.85	- 69.53

Hole #35 = 509' = T.D.

10=air	14.85 ^{oc}	58.73 ^{oF}	4.2 ^{oF} /100'
20 "	13.84	56.91	
30 "	14.39	57.90	
40 "	15.21	59.38	
50 "	15.48	59.86	
60 water	15.90	60.62	
70	16.06	60.91	
80	16.34	61.41	
90	16.64	61.95	
100	16.94	62.49	
120	17.61	63.70	
140	18.22	64.80	
160	18.74	65.73	
180	19.40	66.92	
200	19.67	67.41	
220	20.09	68.16	
240	20.49	68.88	
260	20.92	69.66	
280	21.19	70.14	
300	21.58	70.84	
320	22.26	72.07	
340	22.52	72.54	
360	22.96	73.33	
380	23.33	73.99	
400	23.74	74.73	
420	24.24 ^{oc}	75.63 ^{oF}	
440	24.58	76.24	
460	25.13	77.23	
480	25.55	77.99	
500	26.00	78.80	
509	26.09	78.96	