

TOPAZ MOUNTAIN PROJECT

JUAB COUNTY, UTAH

LOCATION AND ACCESS: The project site is located in west-central Utah, approximately 45 miles northwest of Delta. The site is reached by paved county roads leading from State Highway 6.

LEASE POSITION: T12S, R12W, Section 31
T13S, R11W, Sections 6 and 7
T13S, R12W, Sections 4, 5, 6, 8, 9, 10,
11, 12, 13, 14 and 15
T13S, R13W, Section 1

GEOHERMAL AND GEOLOGIC DESCRIPTION: Numerous thermal gradients, ranging from 102°C/km to 195°C/km, with heat flows of 4.0 HFU to 10.4 HFU, indicate a large and intensely active geothermal anomaly. The site is located on the highly faulted southwestern flank of Topaz and Spor Mountains, which contain extensive young rhyolitic volcanics.

ENERGY MARKETING POTENTIAL: The project site is located approximately 90 miles from the major metropolitan area of Provo-Orem-Spanish Fork. The site is 45 miles from the center of extensive agriculture surrounding Delta. This agricultural area is dependent entirely on electricity for its irrigation needs.

APPENDIX G. TOPAZ MOUNTAIN

PROJECT: Topaz Mountain, Utah.

LOCATION: The property is centered on 113° 10' WLong., 39° 42' NLat. (T13S, R12W) in the Basin and Range Province of western Utah. Spor Mountain to the north and Topaz Mountain to the east are part of the Thomas Range.

LEASE POSITION: Pending:

T12S, R12W Section 31

T13S, R11W Sections 6 and 7

T13S, R12W Sections 4, 5, 6, 8, 9, 10, 11, 12, 13, 14 and 15

T13S, R13W Section 1

AVAILABLE DATA: Figure G-1: The lease position is northeast of the Confusion prospect. The anomaly is based on numerous heat flow values ranging from 4.0 to 10.4 HFUs. Very high chloride concentrations were observed in surface effluent both north and south of the lease position.

GENERALIZED GEOLOGY: The Topaz Mountains and Spor Mountain are composed of extrusive Tertiary volcanics. Numerous northwestward trending faults occur in the area. Several hundred feet of displacement have occurred along these faults. Ground water recharge from the Thomas Range acts as the convecting medium.

ASSESSMENT WORK COMPLETED: In April 1980 initial exploration was conducted which generated the data shown in Figure G-1. Preliminary work on the MX missile program has generated further data which should become available in the near future. No subsequent work has been accomplished.

PROPOSED ASSESSMENT WORK: Assessment work should be coordinated with evaluation of other Utah properties and completed as soon as possible. One geologist performing a mercury survey and doing detailed geologic mapping could complete preliminary assessment in approximately nine days. This would include flagging approximately 10-15 prospective drill sites. Boreholes drilled for the MX program since initial exploration would be logged. Available aerial coverage

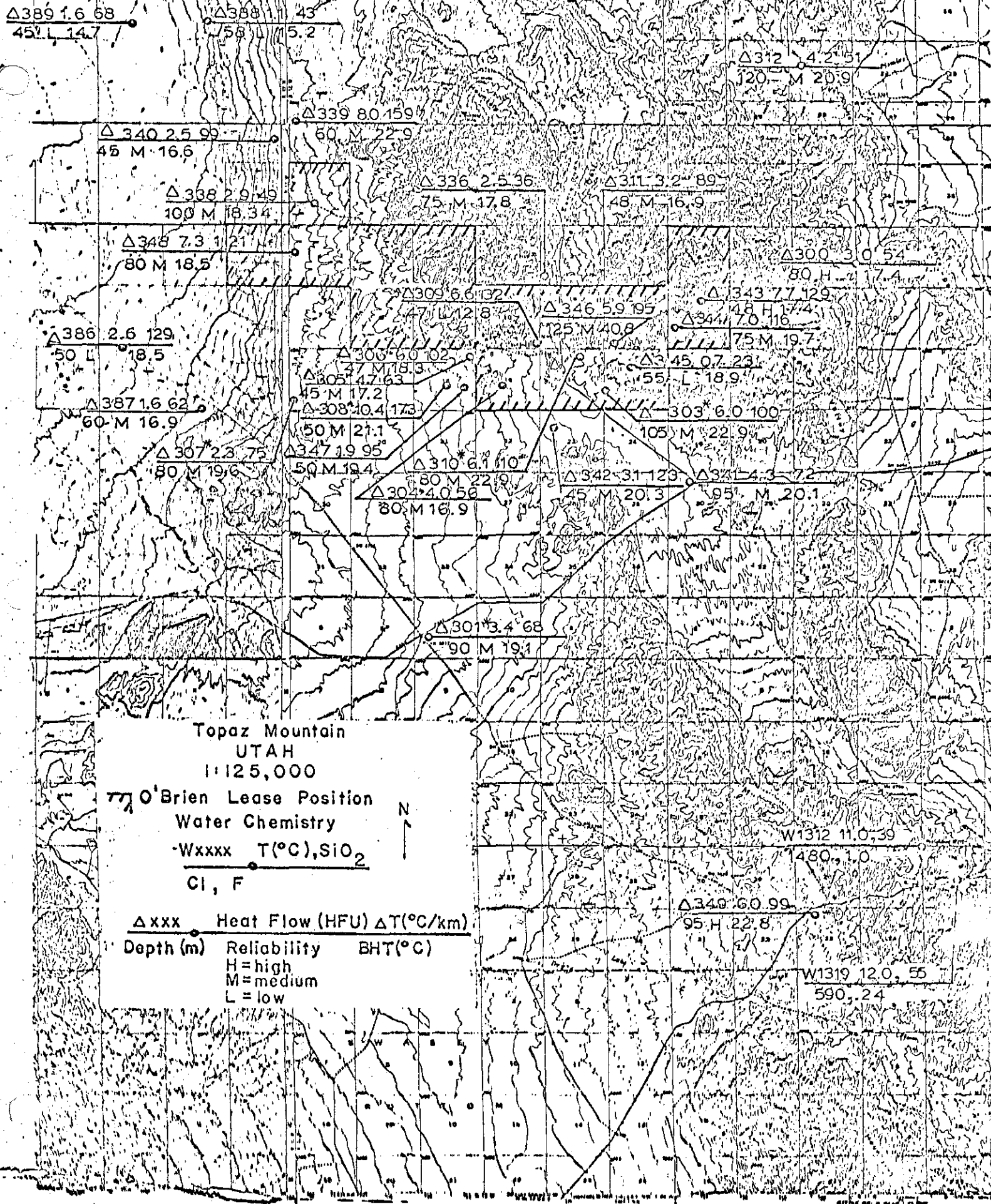
could be used in mapping, or new coverage could be obtained at higher cost.

The amount of heat flow data currently available is sufficient for preliminary assessment. Drilling additional thermal gradient holes would depend upon the results of geologic mapping and the mercury survey.

APPROXIMATE COSTS:

Geologic mapping, mercury survey and flagging
(1 geologist x 9 days):

Salary	\$ 737
Room and board	324
Fuel	110
Air photos, maps and drafting	<u>40</u>
TOTAL	\$1,211



Δ389 1.6 68
45 L 14.7

Δ388 1.4 43
75 L 15.2

Δ312 4.2 51
120 M 20.9

Δ340 2.5 99
45 M 16.6

Δ339 8.0 159
60 M 22.9

Δ338 2.9 49
100 M 18.34

Δ336 2.5 36
75 M 17.8

Δ311 3.2 89
48 M 16.9

Δ348 7.3 121
80 M 18.5

Δ300 3.0 54
80 H 17.4

Δ386 2.6 129
50 L 18.5

Δ309 6.6 32
47 L 12.8

Δ346 5.9 195
125 M 40.8

Δ343 7.7 129
48 H 17.4

Δ344 7.0 116
75 M 19.7

Δ306 6.0 102
47 M 18.3

Δ345 0.7 23
55 L 18.9

Δ387 1.6 62
60 M 16.9

Δ305 4.7 63
45 M 17.2

Δ308 10.4 173
50 M 21.1

Δ303 6.0 100
105 M 22.9

Δ307 2.3 75
80 M 19.6

Δ347 19.95
50 M 18.4

Δ310 6.1 110
80 M 22.9

Δ342 3.1 123
45 M 20.3

Δ341 4.3 72
95 M 20.1

Δ304 4.0 56
80 M 16.9

Δ301 3.4 68
90 M 19.1

Topaz Mountain
UTAH
1:125,000

O'Brien Lease Position
Water Chemistry

-Wxxxx T(°C), SiO₂
Cl, F

Δxxx Heat Flow (HFU) ΔT(°C/km)
Depth (m) Reliability BHT(°C)
H = high
M = medium
L = low

W1312 11.0 39
480 1.0

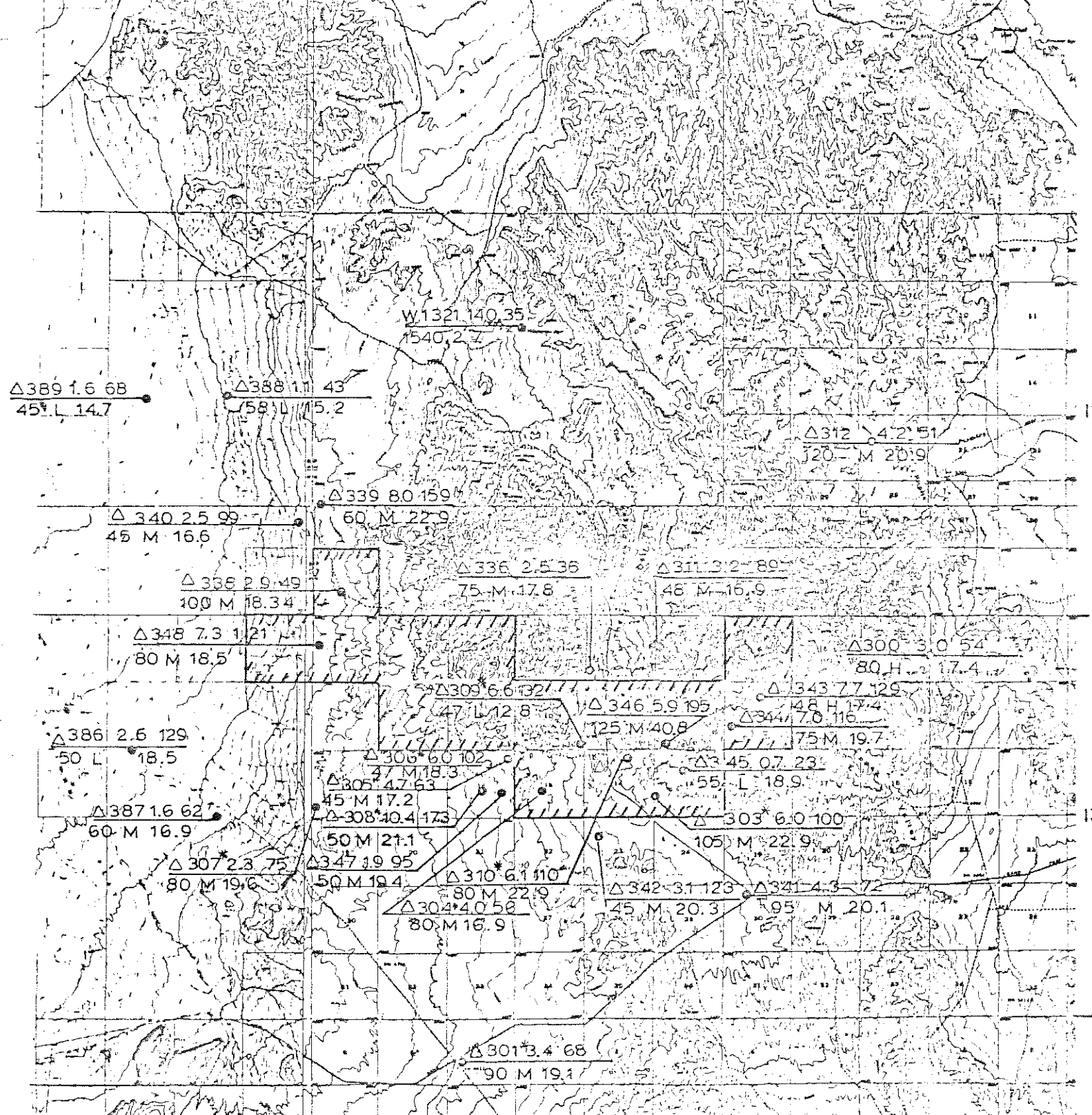
Δ340 6.0 99
95 H 22.8

W1319 12.0 55
590 2.4

43W

12W

11W



Topaz Mountain
UTAH
1:125,000

O'Brien Lease Position
Water Chemistry
Wxxxx T(°C), SiO₂
Cl, F

Δ xxx Heat Flow (HFU) ΔT(°C/km)

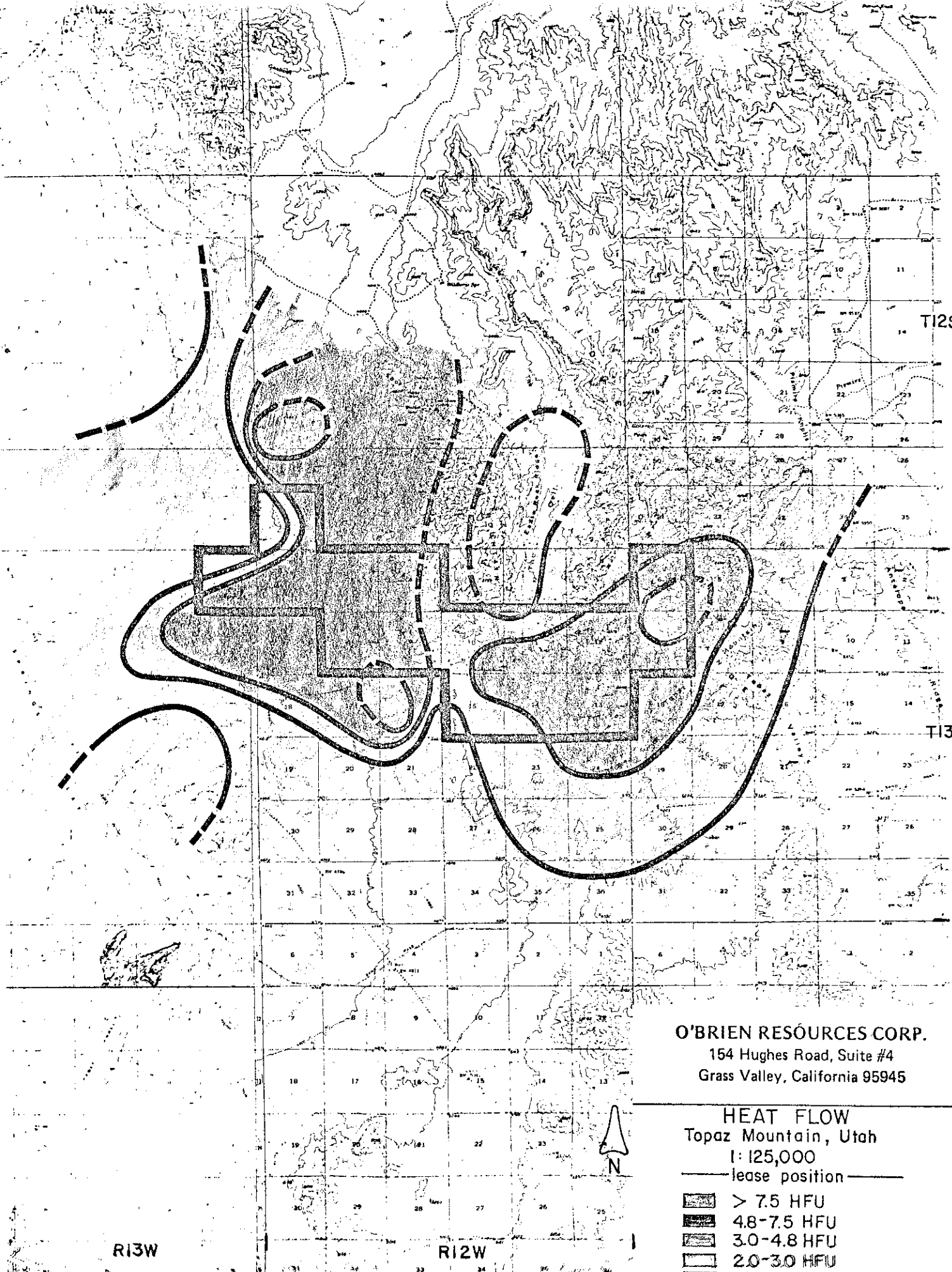
Depth (m) Reliability ΔHT(°C)

H=high
M=medium

W1312 11.0 39
1480.1.0






Δ349 6.0 99
95 H 22.8

W1319 12.0 55



O'BRIEN RESOURCES CORP.
 154 Hughes Road, Suite #4
 Grass Valley, California 95945

HEAT FLOW
 Topaz Mountain, Utah
 1:125,000
 — lease position —

-  > 7.5 HFU
-  4.8-7.5 HFU
-  3.0-4.8 HFU
-  2.0-3.0 HFU
-  < 2.0 HFU



R13W

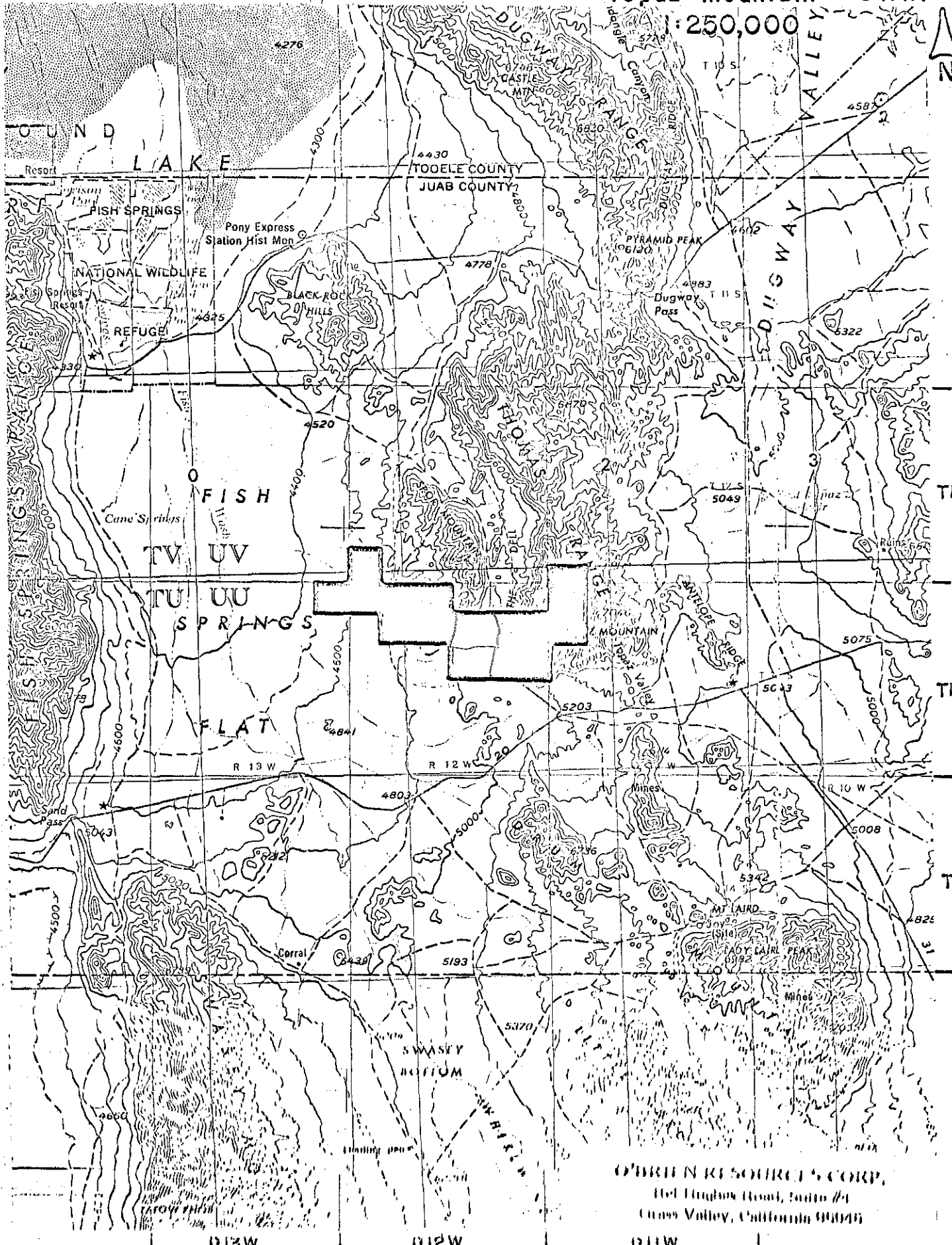
R12W

T12S

T13S

Topaz Mountain • UTAH

1:250,000



O'BRIEN RESOURCES CORP.
101 Highway Road, Suite #4
Cross Valley, California 90048

R13W

R12W

R11W

T12S

T13S

T14S

Station No. 5

BHT at Depth (m)	ΔT °C/km
Depth to 200°C (km)	T °C at 4000 ft datum plane
	HF at TCU

Data Base No.

Hole No/
Elev. - ft

Ex. a. BHT at Depth

b. AT

c. Depth km to 200°C

d. Temp °C at 4000 ft datum plane

e. HF at TCU

1
5360

a 29.51°C at 80 m

b 263 °C/km (20-50m), 161 °C/km (50-70), 55 (70-80)

c ?

d

e 5.3 HFU at 2 TCU

2
5520

a 20.45 °C at 80 m

b 100 °C/km

c

d

e 5 HFU at 5 TCU

3
5400

a 20.65 °C at 68 m

b 149 °C/km

c ~~7.4 at 5 TCU~~

d

e 7.4 at 5 TCU

4
5360

a 27.31 °C at 125 m

b 132 °C/km (50-120), 108 °C/km (50-90m)

c

d

e 5.4 at 5 TCU (50-90)

5
5320

a 20.75 °C/km at 58 m

b 82 °C/km (30-55)

c

d

e 4.1 at 5 TCU

• ✓ 6 AT 388 a 15.25 at 58m
4340 Nuke 4 b 43 °C/km
c
d
e 0.9 HFU at 2 TCU

• 7 AT 389 a 14.70 °C at 45 m
4340 Nuke 5 b 68 °C/km
c
d
e 1.4 HFU at 2 TCU.

• ✓ 8 AT 305 a 17.18 °C/km at 45 m.
5000 Topaz #4 b 63 °C/km
c
d
e 3.2 at 5 TCU

• ↓ 9 AT 306 a 18.30 at 47 m
4960 Windy #5 b 102 °C/km
c
d
e 5.1 at 5 TCU.

• ↓ 10 AT 307 a 19.62 °C at 80 m
4600 Windy b 75 °C/km
c
d
e 1.5 HFU at 2 TCU

• ↓ 11 a 33.16 at 85 m
5280 b 223 °C/km (20-85)
c
d
e ~~5.0~~^{4.5} HFU at 2 TCU

o 12 AT 386 a 18.52 at 50 m
4432 Nuke #2 b 33 °C/km
c
d
e ~~2.6~~ 2.6 at 8 HFU

• 13 a 21.82 at 150 m
4560 b 51 °C/km
c
d
e 2.6 HFU at 5 TCU

o 14 AT 387 a 16.89 at 60 m
4400 Nuke #3 b 62 °C/km
c
d
e 1.2 HFU at 2 TCU

• 15 a ^{30.65}~~29.75~~ at 70 m
5250 b 165 °C/km (50-70), 299 °C/km (20-50)
c
d
e 6.0 HFU at 2 TCU

• 16 a 19.95 at 80 m
5160 b 78 °C/km (20-60 m)
c
d
e 3.9 HFU at 5 TCU

o 17 AT 384 a 25.79 at 95 m
4521 Surprise b 137 °C/km
c
d
e 2.7 HFU at 2 TCU

- ✓ 18 AT 385
 4700 Nuke 1
 a. 16.68 at 60 m
 b. 52 °C/km
 c.
 d.
 e. 1.0 HFU at 2 TCU
19. ΔT 301
 4811 Sand Pass
 a. 19.11 at 90 m
 b. 68 °C/km
 c.
 d.
 e. 1.3 at 2 TCU
- ✓ 20 ΔT 308
~~4850~~ Windy #2
 4858
 a. 21.06 at 50 m
 b. 73 °C/km
 c.
 d.
 e. 5 HFU at 3.5 TCU
- ✓ 21 ΔT 309
 5280 Bell Hill
 a. Seasonal effect makes reliability doubtful.
 b.
 c.
 d.
 e.
- ✓ 22 ΔT 311
 5460 Eagle ΔT
 a. 16.92 at 48 m
 b. 89 °C/km
 c.
 d.
 e. 1.8 at 2 TCU
- ✓ 23 ΔT 312
 5460 Pismire Hills
 a. 20.91 at 120 m
 b. 87 °C/km
 c.
 d.
 e. 4.4 HFU at 5 TCU

• 24 ΔT 300 a. 17.36 at 80 m
5520 Thomas ΔT b. 54 °C/km
 c.
 d.
 e. ~~2.5~~ 1.1 HFU at 2 TCU

• 25. ΔT 310 a. 22.89 ~~°C/km~~ at 80 m
5200 Topaz b. 110 °C/km
 c
 d
 e. 5.5 at 5 TCU

• ✓ 26. ΔT 303 a. 22.86 at 105 m
5240 Topaz #2 b. 100 °C/km
 c
 d
 e. 5 HFU at 5 TCU

• ✓ 27 ΔT 304 a. 16.90 at 80 m
5000 Windy #3 b. 54 °C/km
 c
 d
 e. 2.7 HFU at 5 TCU

0 ✓ 28 ΔT 349 a. 22.80 at 95 m
5680 BM ΔT b. 99 °C/km ~~at~~
 c
 d
 e. 5.9 HFU at 6 TCU

• 29 ΔT 302 a. 19.44 at 75 m
5160 Antelope b. 81 °C/km
 c
 d
 e. 4.0 HFU at 5 TCU

• ✓ 30 ΔT 339
4600 Brush #2
a 22.86 at 60 m
b 159 °C/km
c
d
e 8.0 HFL at 5 TCU

• ✓ 31 ΔT 340
4500 Sand Pass AT
a 16.65 at 45 m
b 99 °C/km
c
d
e 2.0 at 2 TCU

• ✓ 32 ΔT 338
4600 Brush #1
a 18.34 at 100 m
b 49 °C/km
c
d
e 2.5 HFL at 5 TCU

• ✓ 33 ΔT 336
5400 Ridge AT
a 17.77 at 75 m
b 36 °C/km
c
d
e 1.8 HFL at 5 TCU

• ✓ 34 Δ 346
5280 Canyon #4
a 40.80 at 125 m
b 195 °C/km
c
d ~~2.8~~
e 9.8 HFL at 5 TCU

• ✓ 35 ΔT 343
5600 Canyon #1
a 17.38 °C at 48 m
b 129 °C/km
c
d
e 6.5 HFL at 5 TCU

Topaz

List of Conductivity Samples

Sample No. Sta. No.

Lithology

OBT-1

1

Tmt - Rhyolite, light gray-pink - non-porphyrific partially zeolitized? kaolinized - friable. Slight vesicularity 1-3%.

OBT-2

2

Tmt - Rhyolite, light gray, abundant very small vesicles, non porphyritic, mildly zeolitized

OBT- ~~12~~

~~12~~

Tsp - Rhyolite porphyry - light pink, abundant gray quartz phenocrysts 1-3 mm., Minor biotite phenocrysts. Occasional vugs with partial euhedral quartz filling.

OBT- 14

14

OBT- 14A

Tmt - Airfall and water lain lapilli tuff - 10-50% white zeolitized pumice fragments 0.5-3 cm. Minor lithic fragments. White volcanic ash matrix. 14A denser with less pumice, less friable.