A00021

TEC-20

Alum Nevada

Thermal Data Field Sheets

County: Esmeralda, Nevada

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 16 = 1186-1

Property-Project Alum — Depth Logged 35m

Map Silver Peak — Scale 15' — Date: Drilled ? — Logged Nov 1980

State Nevada County Esmeralda, ___ of ___ of SE of SW of Sec 29 T 1N R 38½E

Instrument 104 (O'Brien) — Operator O'Brien — Elevation 5022 ft (m)

Comments measured in open mineral exploration hole

Card A

RT JUSTIFY — Date Logged: Proj No | Well No | DA | MO | YR

1 2 3 4	5 6 7 8 9 10	11 12	13 14 15	16 17 18	19 20 *
1186	1		11	80	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description | Operator | Editor | Drilled DA | MO | YR

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	51 52 53 54 55	56 57 58 59 60	61 62	63 64 65	66 67 68
10 Km WSW of Weepah	OB	/ DP			

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
21 22 23 24 25	26 27 28 29 30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50
Fr	15.	37.	45.	117.	45.

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,−)(E,+)

Northing	Easting	Elev	
51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75	76 77 78 79 80
28.0	11.7	5022	F

Use decimals ← Write M if if meters

Segment 1 = Depths

Start	End	Conductivity K	ΔK
21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45	46 47 48 49 50
20.0	30.0		

Best cond. (-K)

Downward extrapolations (- ΔK)

Segment 2 — Start → 30.0 | End 35.0 | K −5.0 | ΔK −0.5

Segment 3 — .999

Segment 4 — Start →

Segment 5

Segment 6 — Start →

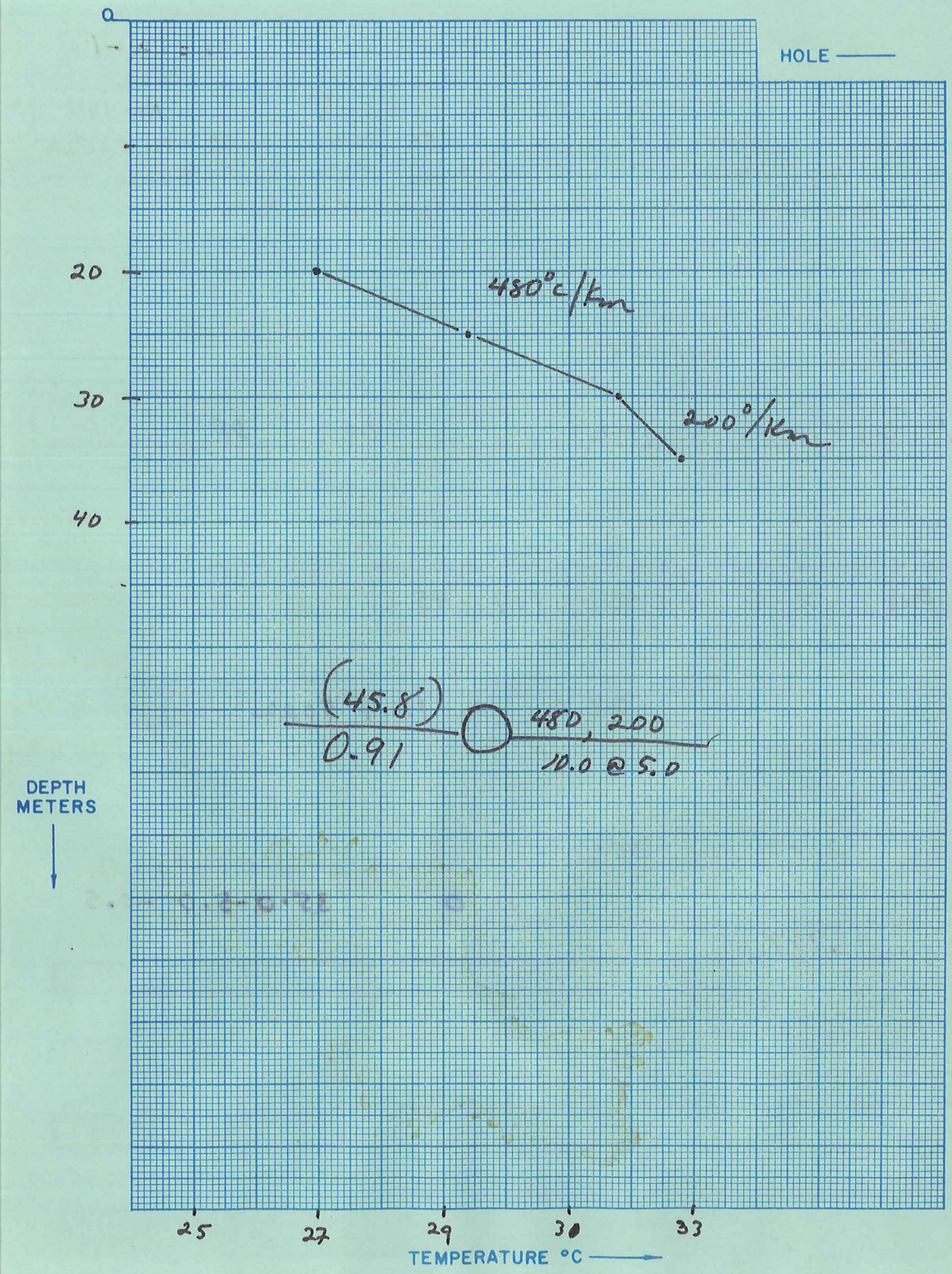
Segment 7

Segment 8 — Start →

Segment 9

Segment 10 — Start →

After final segment Start = .999


0
HOLE
20
30
40
480°c/km
200°/km
(45.8)
0.91
480, 200
10.0 @ 5.0
DEPTH METERS
25
27
29
31
33
TEMPERATURE °C

Date Logged: Nov 1980

ΔT Well No. 1186 - 1

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
20		27.0					
25		29.4					
30		31.8					
35		32.8					
99999							

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(1a)

ΔT Well No. 1186-2

Property-Project Alum — Depth Logged 48m

Map Silver Peak — Scale 15" — Date: Drilled 12-80 — Logged 8-2-81

State Nv — County Esmeralda, ___ of ___ of NE of SE of Sec 30 T 1N R 38½E

Instrument #46 — Operator JED — Elevation 4970 (Ft)

Comments 3/4" H2O Filled PVC

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186		20	02	81	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
10.5 KM WSW OF WEEPAH	JED	DP	—	12	80

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.	37.	45.	117.	45.

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
28.5	10.554970.		F

Use decimals

← Write M if if meters

Segment 1 = Depths

Start	End
10.0	36.0

Conductivity

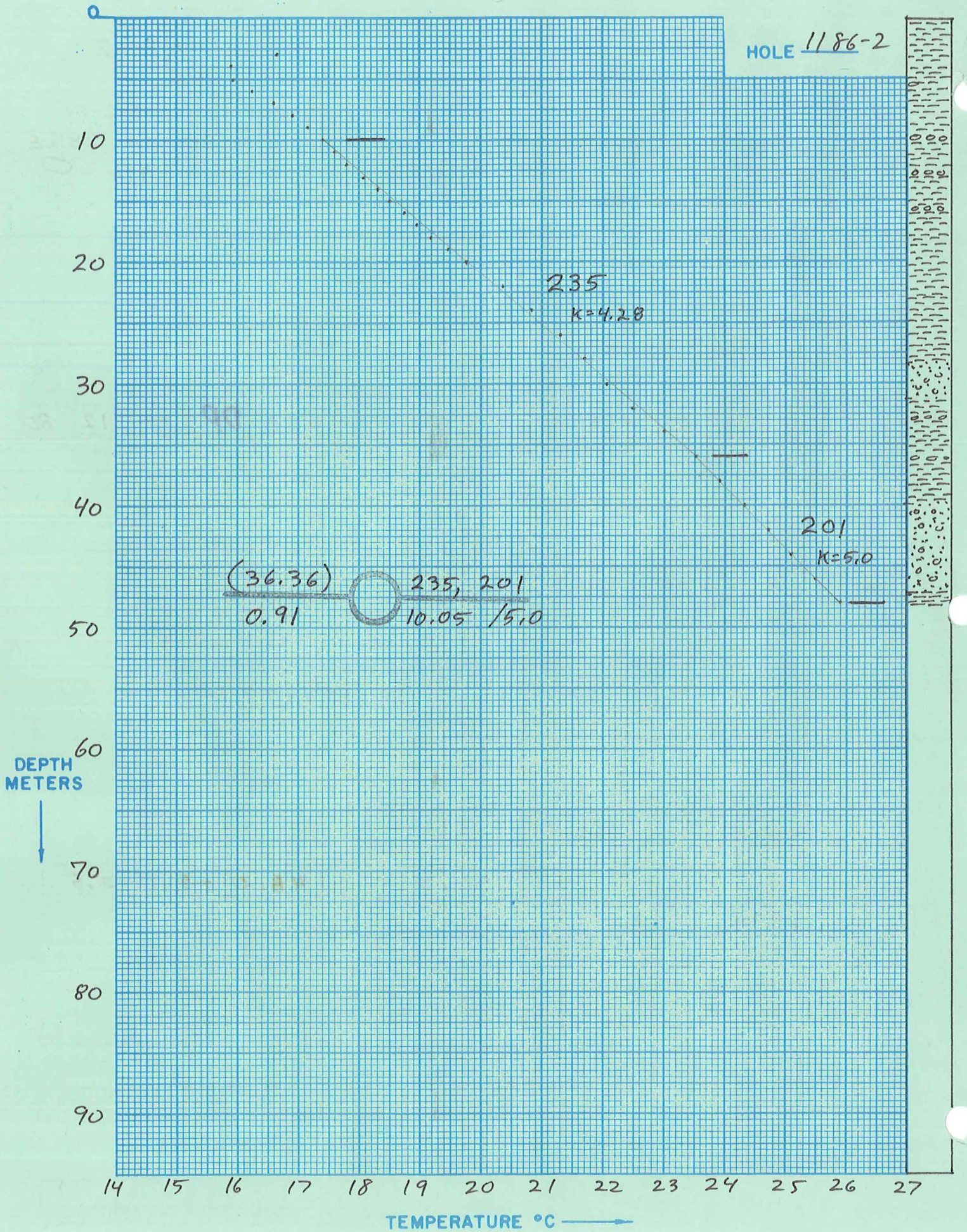
K	ΔK

Best cond. (-K)

Downward extrapolations (-ΔK)

	Start	End	K	ΔK
Segment 2	36.0	48.0	-5.0	-0.5
Segment 3	.999			
Segment 4				
Segment 5				
Segment 6				
Segment 7				
Segment 8				
Segment 9				
Segment 10				

After final segment Start = .999


HOLE 1186-2
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
235
K=4.28
201
K=5.0
(36.36)
0.91
235, 201
10.05 /5.0
14
15
16
17
18
19
20
21
22
23
24
25
26
27
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. 1186-2

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	93.60 ↑	23.58				Air	Cable in .1290
2	110.41 ↑	18.92				↓	" at .1293
3	119.37	16.67				↓	
4	122.59	15.89				H_2O	
5	122.37	15.94	0.05	50		↓	
6	121.05	16.26	0.12	120		↓	
7	119.68	16.59	0.33	330			
8	118.43	16.90	0.31	310			
9	117.38	17.16	0.26	260			
10	116.44	17.39	0.23	230			
11	115.60	17.60	0.21	210			
12	114.75	17.81	0.21	210			
13	113.68	18.08	0.27	270			
14	112.88	18.29	0.21	210			
15	112.02	18.51	0.22	220			
16	111.17	18.73	0.22	220			
17	110.36	18.94	0.21	210			
18	109.39	19.19	0.25	250			
19	108.26	19.48	0.29	290			
20	107.13	19.78	0.30	300			
22	105.01	20.35	0.57	285			
24	103.30	20.82	0.47	235			
26	101.57	21.29	0.47	235			
28	100.16	21.69	0.40	200			
30	98.80	22.07	0.38	190			
32	97.31	22.50	0.43	215			
34	95.57	23.00	0.50	250			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186-2

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36	93.89	23.50	0.50	250			
38	92.47	23.92	0.42	210			
40	91.14	24.32	0.40	200			
42	89.80	24.73	0.39	195			
44	88.61	25.10	0.37	185			
46	87.35	25.50	0.40	200			
48	86.05	25.91	0.41	205			
		.9999					

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG (2a)

ΔT Well No. 1186-3

Property-Project ALUM Depth Logged 49m

Map Silver Peak Scale 15" Date: Drilled 12-80 Logged 8-1-81

State NV County Esmeralda, ___ of ___ of SW of NE of Sec 29 T 1N R 38½E

Instrument #46 Operator JED Elevation 5040 (ft) (m)

Comments 3/4" H2O Filled PVC

Card A

JUSTIFY | Proj No | Well No | Date Logged: DA | MO | YR | *

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	8	6					3	0	1		0	8			8	1	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description | Operator | Editor | Drilled: DA | MO | YR

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
9	.	5	K	M		W	S	W		O	F		W	E	E	P	A	H												J	E	D		/	D	P		—		1	2		8	0			

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *: Scale Unit IN CM | Map Size (7.5, 15., 60.) | N Lat: Degree | Min | W Long: Degree | Min **

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
		C	M			1	5	.				3	7	.		4	5	.				1	1	7	.		4	5	.

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing | Easting | Elev

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
					2	9	.	0							1	2	.	2		5	0	4	0	.					F

Use decimals

← Write M if if meters

Segment ! = Depths: Start | End | Conductivity: K | ΔK | Best cond. (-K) | Downward extrapolations (-ΔK): End | K | ΔK

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
						1	1	.	0						4	0	.	0												

Segment 2 Start →

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
							4	0	.	0										4	9	.	0	-	5	.	0		-	0	.	5

Segment 3

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

Segment 4 Start →

Segment 5

Segment 6 Start →

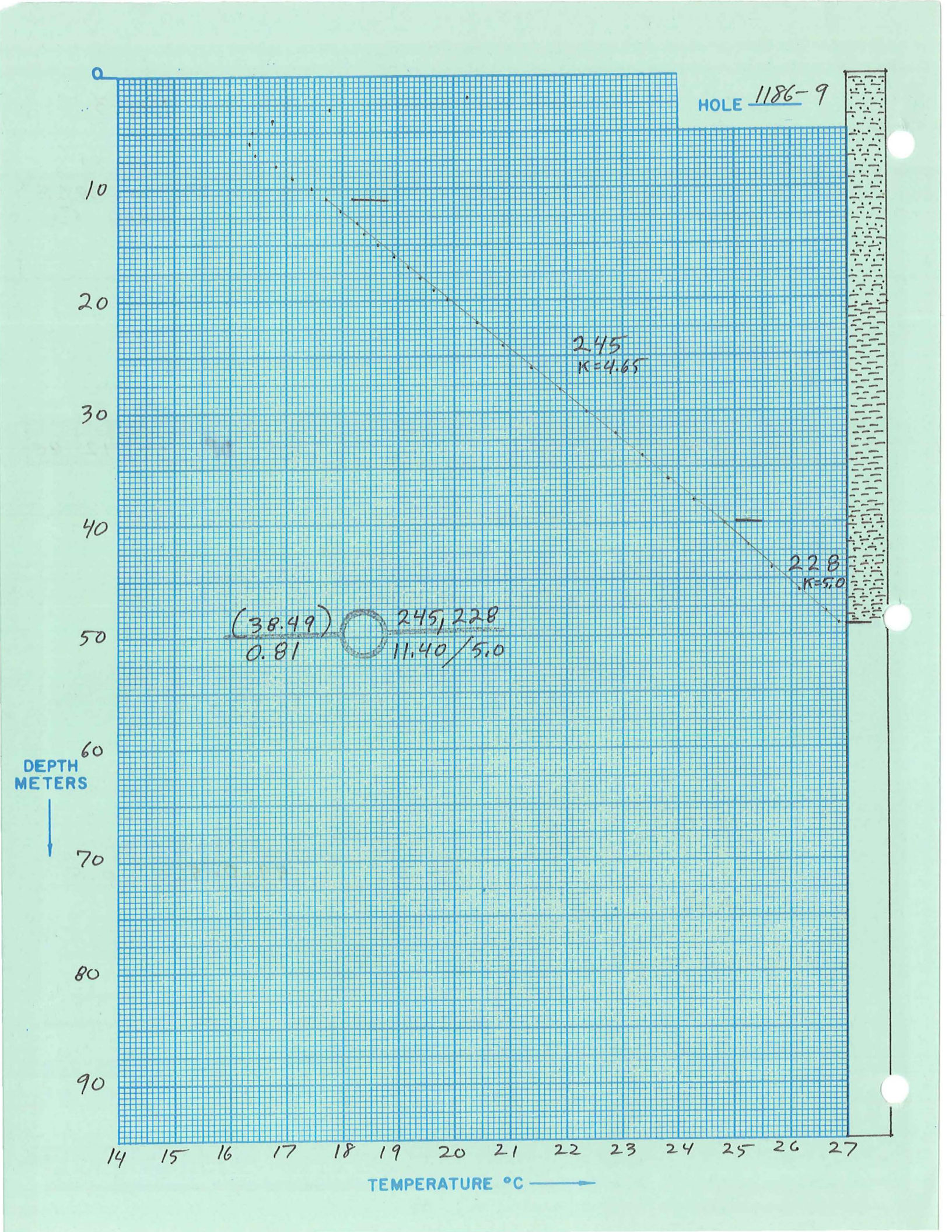
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 1186-9
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
14
15
16
17
18
19
20
21
22
23
24
25
26
27
TEMPERATURE °C
245
K=4.65
228
K=5.0
(38.49)
0.81
245, 228
11.40/5.0

Date Logged: 8-1-81 ΔT Well No. 1186-3

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	93.38	23.65				Air	Cable in .1348
2	105.40	20.25				H_2O	" out
3	114.91	17.77					
4	119.02	16.76					
5	120.46	16.40					
6	120.59	16.37					
7	119.80	16.56	0.19	190			
8	118.78	16.81	0.25	250			
9	117.61	17.10	0.29	290			
10	116.22	17.45	0.35	350			
11	115.17	17.71	0.26	260			
12	114.16	17.96	0.25	250			
13	113.34	18.17	0.21	210			
14	112.48	18.39	0.22	220			
15	111.43	18.66	0.27	270			
16	110.38	18.93	0.27	270			
17	109.38	19.19	0.26	260			
18	108.53	19.41	0.22	220			
19	107.61	19.66	0.25	250			
20	106.69	19.90	0.24	240			
22	104.77	20.42	0.52	260			
24	103.07	20.88	0.46	230			
26	101.29	21.37	0.49	245			
28	99.45	21.89	0.52	260			
30	97.78	22.36	0.49	245			
32	96.00	22.88	0.52	260			
34	94.35	23.36	0.48	240			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186-3

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36	92.85	23.81	0.45	225			
38	91.31	24.27	0.46	230			
40	89.55	24.81	0.55	275			
42	88.16	25.24	0.43	215			
44	86.82	25.66	0.42	210			
46	85.34	26.14	0.48	240			
48	83.88	26.61	0.47	235			
49	83.13	26.86	0.25	250			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(2)

ΔT Well No. 1186-4

Property-Project ALUM Depth Logged 72m

Map Silver Pk Scale 15" Date: Drilled 4-4-81 Logged 8-1-81

State Nv County Esmeralda, ___ of ___ of SE of NW of Sec 28 T 1N R 38½ E

Instrument #46 Operator JED Elevation 5158 (ft) (m)

Comments ¾" H2O Filled PVC

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186		01	08	81	CM

*19-Write F if Fahrenheit, 20-Write F if Feet

Date Logged

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
8.5 KM WSW OF WEEPAH	JED	DP	04	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.	37.	45.	117.	45.

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
28.85	13.6	5158.	F

Use decimals

Write M if if meters

Segment ! = Depths

Start	End
14.0	36.0

Conductivity

K	ΔK

Best cond. (-K)

Downward extrapolations (- Δ K)

End	K	ΔK
58.0		

Segment 2 Start → 36.0

Segment 3: 58.0 | 72.0 | -8.0 | -0.5

Segment 4 Start → .999

Segment 5:

Segment 6 Start →

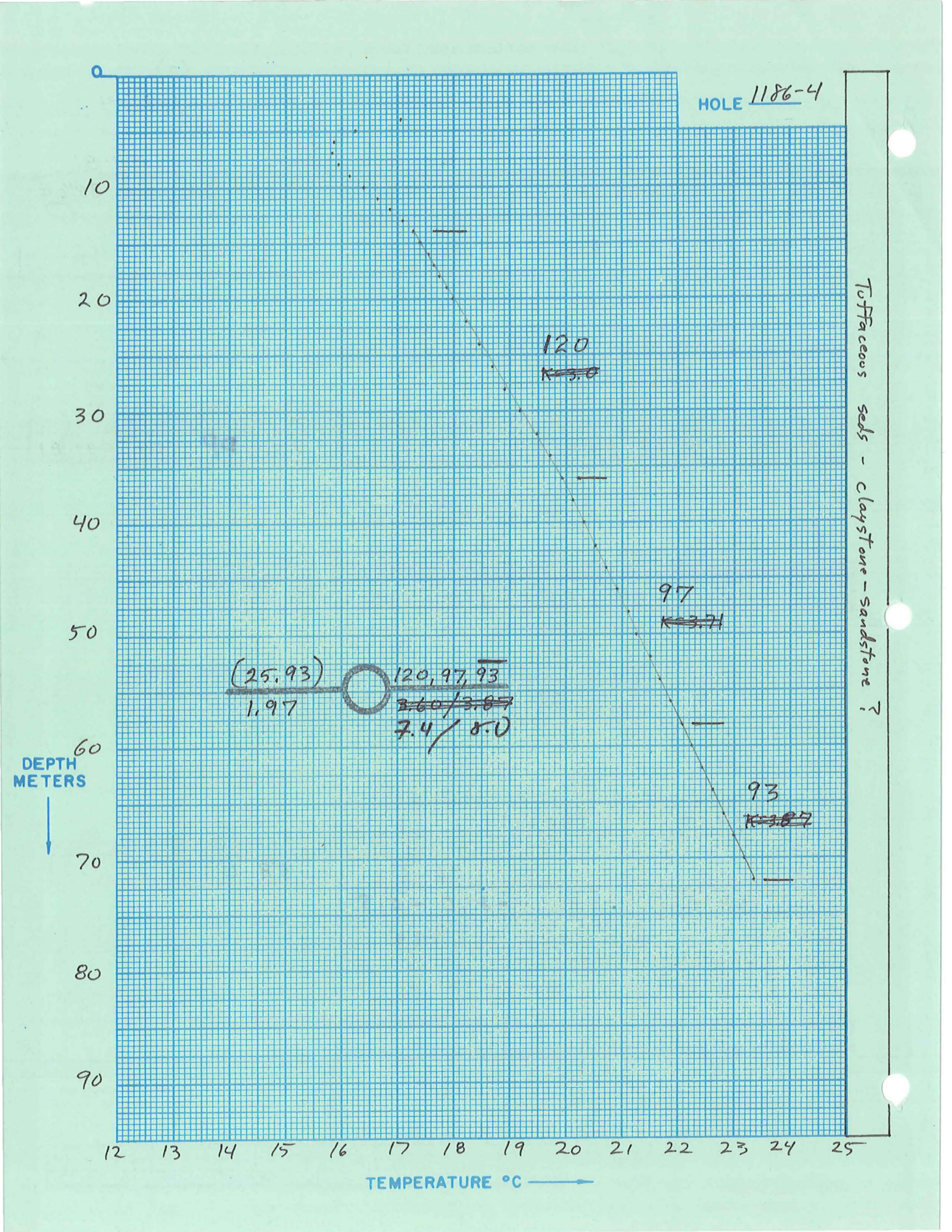
Segment 7:

Segment 8 Start →

Segment 9:

Segment 10 Start →

After final segment Start = .999


HOLE 1186-4
Tuffaceous sed's - claystone - sandstone ?
120
~~K=3.0~~
97
~~K=3.71~~
93
~~K=3.85~~
(25.93)
1.97
120, 97, 93
~~3.60 / 3.85~~
7.4 / 8.0
DEPTH METERS
0
10
20
30
40
50
60
70
80
90
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-1-81

ΔT Well No. 1186-4

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
3.5	114.57	17.86				H_2O	Cable in .1330
4.0	117.80	17.05				↓	" out .1350
4.5	119.91	16.54					
5.0	121.14	16.24					
5.5	121.90	16.06					
5.6	122.22	15.98					
5.7	122.24	15.98					
5.8	122.37	15.94					
5.9	122.49	15.92					
6.0	122.59	15.89					
6.1	122.66	15.87					
6.2	122.71	15.86					
6.3	122.77	15.85					
6.4	122.81	15.84					
6.5	122.83	15.83					
6.6	122.84	15.83					
6.7	122.86	15.83					
6.8	122.85	15.83					
6.9	122.84	15.83					
7.0	122.83	15.83					
7.1	122.80	15.84					
7.2	122.78	15.85					
7.3	122.75	15.85					
7.4	122.69	15.87					
7.5	122.66	15.87					
8.0	122.35	15.95					
8.5	121.94	16.05					

K=Conductivity

Date Logged: _____ ΔT Well No. 1186-4

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
9.0	121.54	16.14					
9.5	121.07	16.26					
10.0	120.54	16.39					
11	119.43	16.66					
12	118.53	16.88	0.22	220			
13	117.62	17.10	0.22	220			
14	116.89	17.28	0.18	180			
15	116.41	17.40	0.12	120			
16	115.85	17.54	0.14	140			
17	115.42	17.65	0.11	110			
18	114.96	17.76	0.11	110			
19	114.50	17.88	0.12	120			
20	114.06	17.99	0.11	110			
22	113.13	18.22	0.23	115			
24	112.24	18.45	0.23	115			
26	111.32	18.69	0.24	120			
28	110.43	18.92	0.23	115			
30	109.44	19.18	0.26	130			
32	108.28	19.48	0.30	150			
34	107.41	19.71	0.23	115			
36	106.61	19.92	0.21	105			
38	105.86	20.12	0.20	100			
40	105.15	20.31	0.19	95			
42	104.42	20.51	0.20	100			
44	103.68	20.71	0.20	100			
46	102.95	20.91	0.20	100			
48	102.28	21.10	0.19	95			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186-4

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
50	101.68	21.26	0.16	80			
52	100.83	21.50	0.24	120			
54	100.18	21.68	0.18	90			
56	99.50	21.87	0.19	95			
58	98.85	22.06	0.19	95			
60	98.21	22.24	0.18	90			
62	97.56	22.42	0.18	90			
64	96.93	22.61	0.19	95			
66	96.30	22.79	0.18	90			
68	95.65	22.98	0.19	95			
70	94.99	23.17	0.19	95			
72 ?	94.45	23.33	0.16	80 ?			

K=Conductivity

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(3a)

ΔT Well No. 1186-5

Property-Project ALUM Depth Logged 100m

Map Silver Pk Scale 15 Date: Drilled 12-80 Logged 8-4-81

State NV County Esmeralda, ___ of ___ of SW of SE of Sec 29 T 1N R 38½E

Instrument #46 Operator JED Elevation 5040 (Ft m)

Comments 3/4" PVC, Air 0-66 H2O 66-100m

Card A

JUSTIFY | Proj No | Well No | DA | MO | YR | *

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	8	6						5	0	4		0	8		8	1	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description | Operator | Editor | Drilled DA | MO | YR

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
9	.	5	K	M	W	S	W		O	F		W	E	E	P	A	H													J	E	D	/	D	P								1	2		8	0

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *

Scale Unit IN CM | Map Size (7.5, 15., 60.) | N Lat Degree | Min | W Long Degree | Min **

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
C	M				1	5	.	0			3	7	.		4	5	.				1	1	7	.		4	5	.	

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing | Easting | Elev

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
					2	8	.	0							1	2	.	1		5	0	4	0	.					F

← Write M if if meters

Use decimals

Segment ! = Depths Start | End | Conductivity K | ΔK | Best cond. (-K) Downward extrapolations (-ΔK) End | K | ΔK

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
					7	4	.	0							9	6	.	0		5	0	.	0		-0.5				

Segment 2 Start → .999

Segment 3

Segment 4 Start →

Segment 5

Segment 6 Start →

Segment 7

Segment 8 Start →

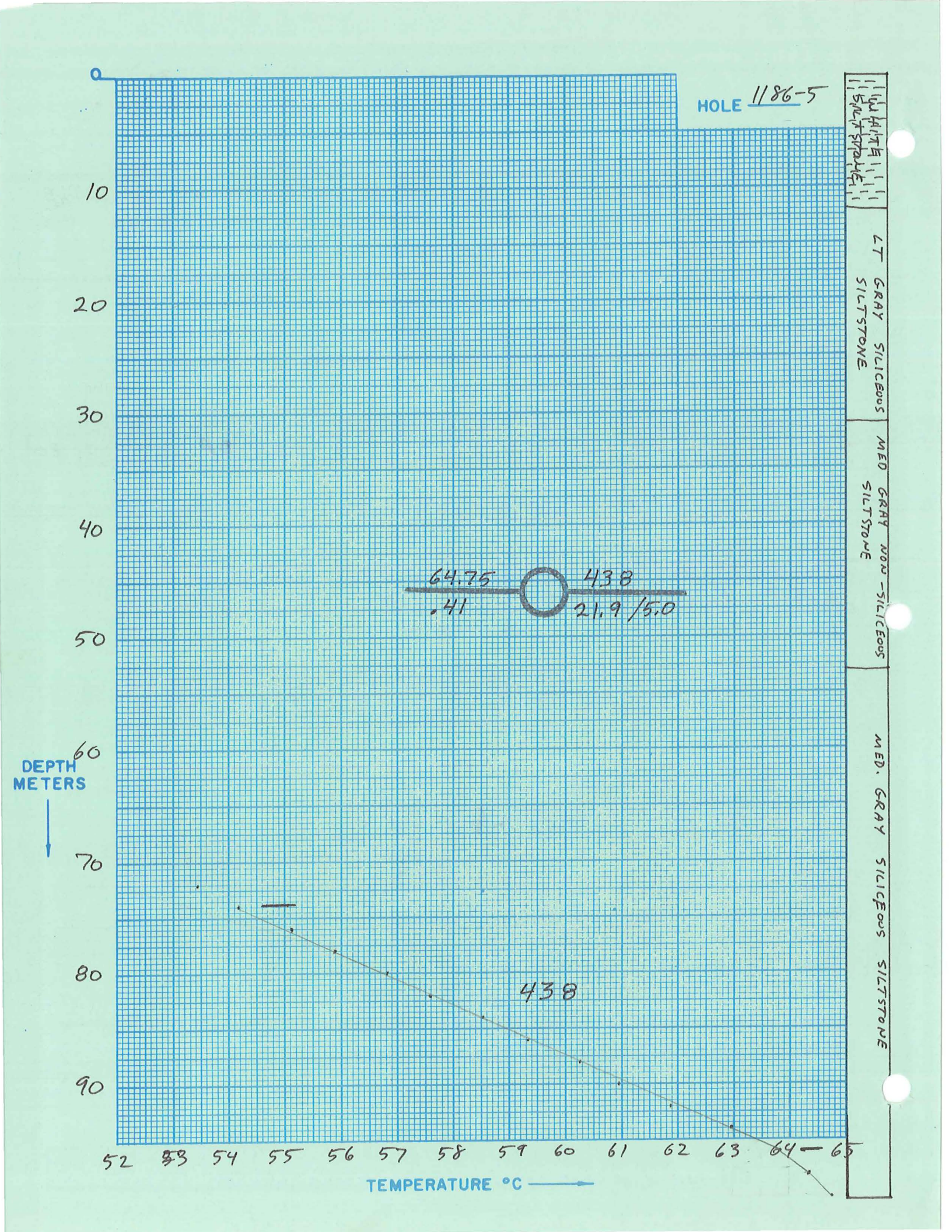
Segment 9

Segment 10 Start →

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

After final segment Start = .999

HOLE 1186-5


0
10
20
30
40
50
60
70
80
90
DEPTH METERS
52
53
54
55
56
57
58
59
60
61
62
63
64
65
TEMPERATURE °C
LT GRAY SILICEOUS SILTSTONE
MED GRAY NON-SILICEOUS SILTSTONE
MED. GRAY SILICEOUS SILTSTONE
64.75
.41
438
21.9/5.0
438

Date Logged: 8-4-81

ΔT Well No. 1186-5

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
						Air	
						↓	
						↓	
64						↓	
66	31.86	52.81				H_2O	
68	31.44	53.17				↓	
70	31.35	53.25				↓	
72	31.11	53.46				↓	
74	30.29	54.19				↓	
76	29.27	55.13				↓	
78	28.48	55.88				↓	
80	27.54	56.81				↓	
82	26.79	57.57				↓	
84	25.90	58.51				↓	
86	25.13	59.35				↓	
88	24.31	60.27				↓	
90	23.73	60.95				↓	
92	22.95	61.88					
94	22.09	62.95					
96	21.42	63.82					
98	20.99	64.39					
100	20.73	64.75					

K=Conductivity

Date Logged: ____________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

page ____ of ____

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(4a)

ΔT Well No. 1186-6

Property-Project Alum Depth Logged 49m

Map Silver Pk. Scale 15'' Date: Drilled 12-80 Logged 8-2-81

State Nv County Esmeralda, ___ of ___ of SE of SE of Sec 29 T 1N R 38½E

Instrument #46 Operator JED Elevation 5090 (ft) (m)

Comments 3/4" H2O Filled PVC

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	602	08	81	CM	

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
9.0 KM WSW OF WEEPAH	JED	DP	—	12	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.	37.	45.	117.	45.

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
28.1	12.955090.		F

Use decimals

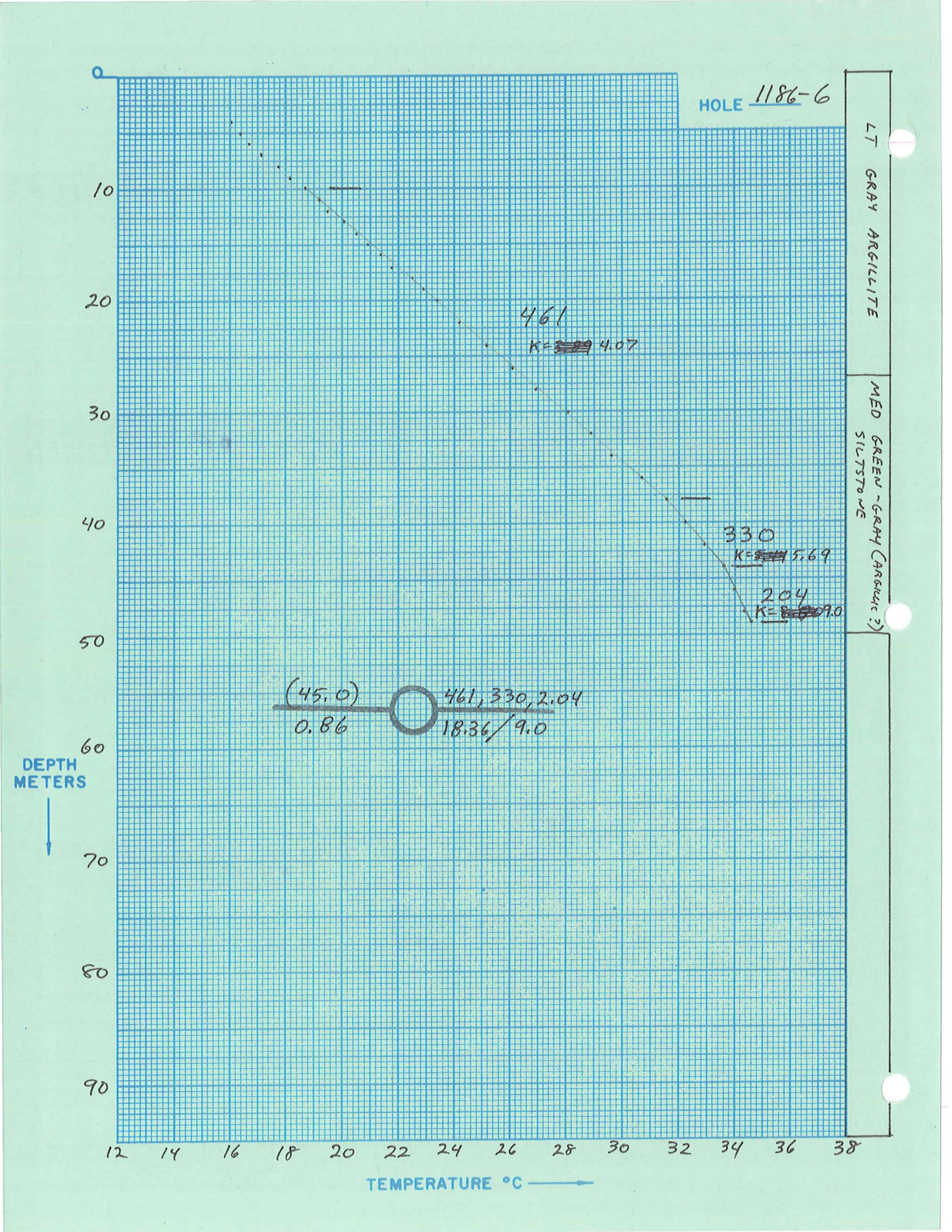
← Write M if if meters

Segment ! = Depths Start	End	Conductivity K	ΔK
10.0	38.0		

Best cond. (-K)
Downward extrapolations
(-ΔK)

	Start	End	K	ΔK
Segment 2	38.0	44.0		
Segment 3	44.0	49.0	-9.0	-0.5
Segment 4	.999			
Segment 5				
Segment 6				
Segment 7				
Segment 8				
Segment 9				
Segment 10				

After final segment Start = .999


HOLE 1186-6
LT GRAY ARGILLITE
MED GREEN-GRAY (ARGILLIC?) SILTSTONE
461
K= 4.07
330
K= 5.69
204
K= 9.0
(45.0)
0.86
461, 330, 2.04
18.36/9.0
DEPTH METERS
0
10
20
30
40
50
60
70
80
90
12
14
16
18
20
22
24
26
28
30
32
34
36
38
TEMPERATURE °C

Date Logged: 8-2-81 ΔT Well No. 1186-6

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	98.26↑	22.22				Air	Cable Top .1311
2	111.65↑	18.60				↓	" bottom .1316
3	119.20↑	16.71				↓	
4	121.96	16.04				H_2O	
5	120.49	16.40	0.36	360		↓	
6	119.18	16.72	0.32	320		↓	
7	117.48	17.13	0.41	410		↓	
8	115.06	17.74	0.61	610		↓	
9	113.38	18.16	0.42	420			
10	111.31	18.69	0.53	530			
11	109.34	19.20	0.51	510			
12	108.22	19.50	0.30	300			
13	106.02	20.08	0.58	580			
14	104.47	20.50	0.42	420			
15	102.82	20.95	0.45	450			
16	101.14	21.41	0.46	460			
17	99.50	21.87	0.46	460			
18	97.32	22.49	0.52	520			
19	95.93	22.90	0.41	410			
20	94.23	23.39	0.51	510			
22	91.60	24.18	0.79	395			
24	88.40	25.17	0.99	495			
26	85.56	26.07	0.90	450			
28	82.87	26.94	0.87	435			
30	79.61	28.04	1.10	550			
32	77.14	28.90	0.86	430			
34	75.00	29.67	0.77	385			

K=Conductivity

ogged: _____ ΔT Well No. 1186 — 6

pth meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36	72.26	30.68	1.01	505			
38	69.84	31.60	0.92	460			
40	68.28	32.22	0.62	310			
42	66.62	32.88	0.66	330			
44	64.92	33.58	0.70	350			
46	63.96	33.98	0.40	200			
48	63.06	34.36	0.38	190			
49	62.51	34.60	0.24	240			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(4)

ΔT Well No. 1186-7

Property-Project Alum Depth Logged 66m

Map Silver Pk Scale _____ Date: Drilled 4-14-81 Logged ~~4-21-81~~ 8-2-81

State Nv County Esmeralda, ___ of ___ of SE of NW of Sec 20 T 1N R 38½E

Instrument Enviro labs Operator JED Elevation 4960 (ft) (m)

Comments ½" H2O Filled PVC.

Card A

RT JUSTIFY

Proj No	Well No	DA	MO	YR	*
1186		02	08	81	CM

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	DA Drilled	MO	YR
9.4 KM W OF WEEPAH	JED	DP	14	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.	37.	45.0	117.	45.0

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Use decimals

Northing	Easting	Elev	
31.9	11.9	4960.	F

← Write M if if meters

Use decimals

Segment 1 = Depths

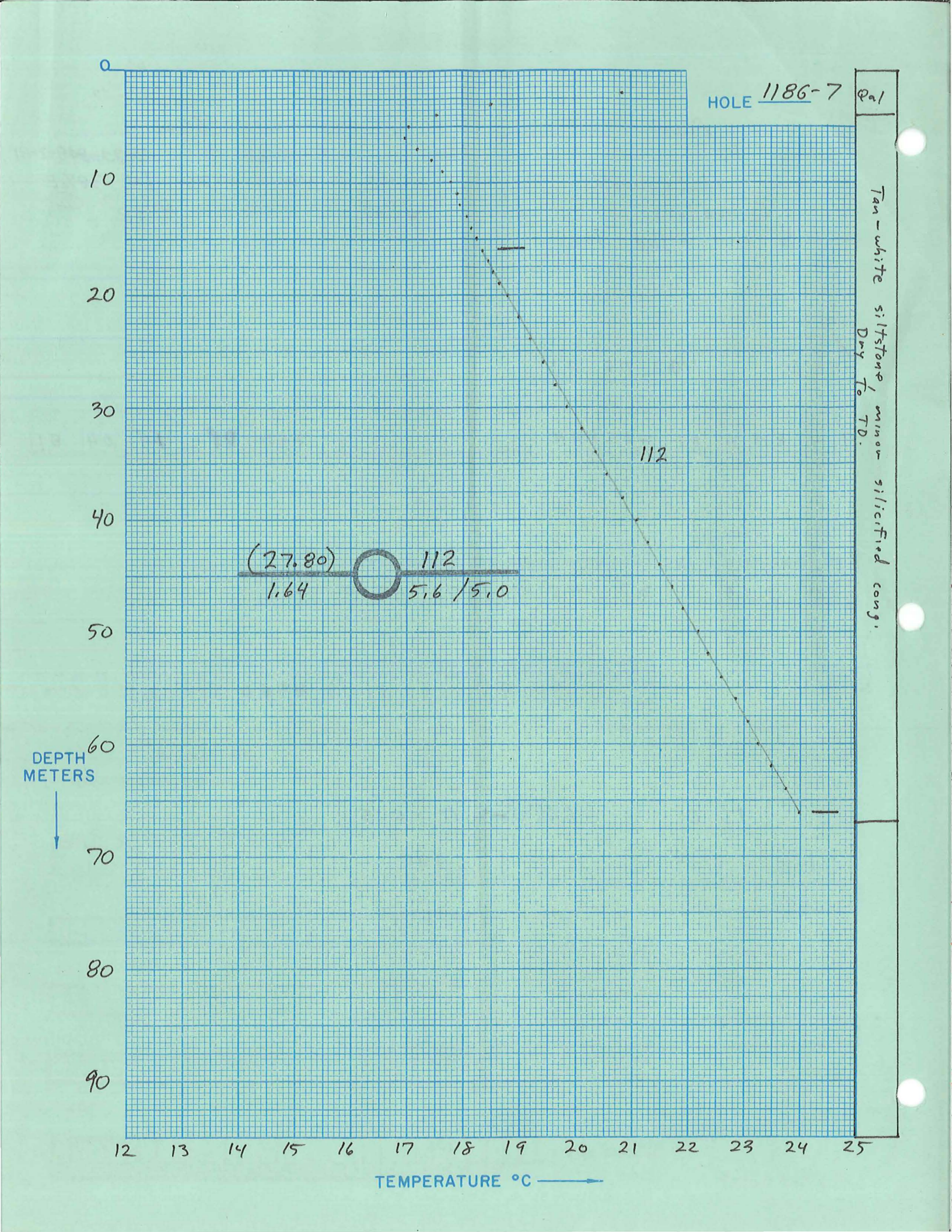
Start	End	Conductivity K	ΔK
16.0	66.0	-5.0	-0.5

Best cond. (-K)

Downward extrapolations (-ΔK)

	End	K	ΔK
Segment 2 Start →	.999		
Segment 3			
Segment 4 Start →			
Segment 5			
Segment 6 Start →			
Segment 7			
Segment 8 Start →			
Segment 9			
Segment 10 Start →			

After final segment Start = .999


HOLE 1186-7
Qal
Tan-white siltstone, minor silicified cong. Dry To TD.
112
(27.80)
1.64
112
5.6 / 5.0
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. 1186 — 7

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1		24.79				H_2O	
2		20.85				↓	
3		18.50					
4		17.52					
5		17.05					
6		17.00					
7		17.20	0.20	200			
8		17.44	0.24	240			
9		17.63	0.19	190			
10		17.80	0.17	170			
11		17.90	0.10	100			
12		17.96	0.06	60			
13		18.07	0.11	110			
14		18.16	0.09	90			
15		18.25	0.09	90			
16		18.37	0.12	120			
17		18.44	0.07	70			
18		18.53	0.09	90			
19		18.65	0.12	120			
20		18.80	0.15	150			
22		19.00	0.20	100			
24		19.20	0.20	100			
26		19.43	0.23	115			
28		19.64	0.21	105			
30		19.86	0.22	110			
32		20.11	0.25	125			
34		20.34	0.23	115			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186 – 7

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36		20.64	0.30	150			
38		20.85	0.21	105			
40		21.10	0.25	125			
42		21.27	0.17	85			
44		21.50	0.23	115			
46		21.71	0.21	105			
48		21.90	0.19	95			
50		22.17	0.27	135			
52		22.35	0.18	90			
54		22.60	0.25	125			
56		22.85	0.25	125			
58		23.06	0.21	105			
60		23.25	0.19	95			
62		23.50	0.25	125			
64		23.74	0.24	120			
66		23.99	0.24	120			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(5)

ΔT Well No. 1186-8

Property-Project Alum   Depth Logged 53 m

Map Silver Pk   Scale 15"   Date: Drilled 4-14-81   Logged 8-2-81

State Nv   County Esmeralda, ____ of ____ of NE of NW of Sec 17 T 1 N R 38½ E

Instrument Envirolabs   Operator JED   Elevation 4895 (ft) (m)

Comments ½" H_2O Filled PVC

Card A

Date Logged

RT JUSTIFY

Proj No (1-4)	Well No (5-10)	DA (11-12)	MO (14-15)	YR (17-18)	* 19	20
1186	8	02	08	81	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description (21-50)	Operator (51-55)	Editor (56-60)	Drilled DA (61-62)	MO (64-65)	YR (67-68)
9.7 KM WNW OF WEEPAH	JED	DP	14	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location **

Scale Unit IN CM (21-25)	Map Size (7.5, 15., 60.) (26-30)	N Lat Degree (31-35)	N Lat Min (36-40)	W Long Degree (41-45)	W Long Min (46-50)
CM	15.	37.	45.0	117.	45.

Use decimals

** Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,−)(E,+)

Northing (51-60)	Easting (61-70)	Elev (71-75)	76-79	80
34.6	11.5	4895.		F

Use decimals

Write M if if meters

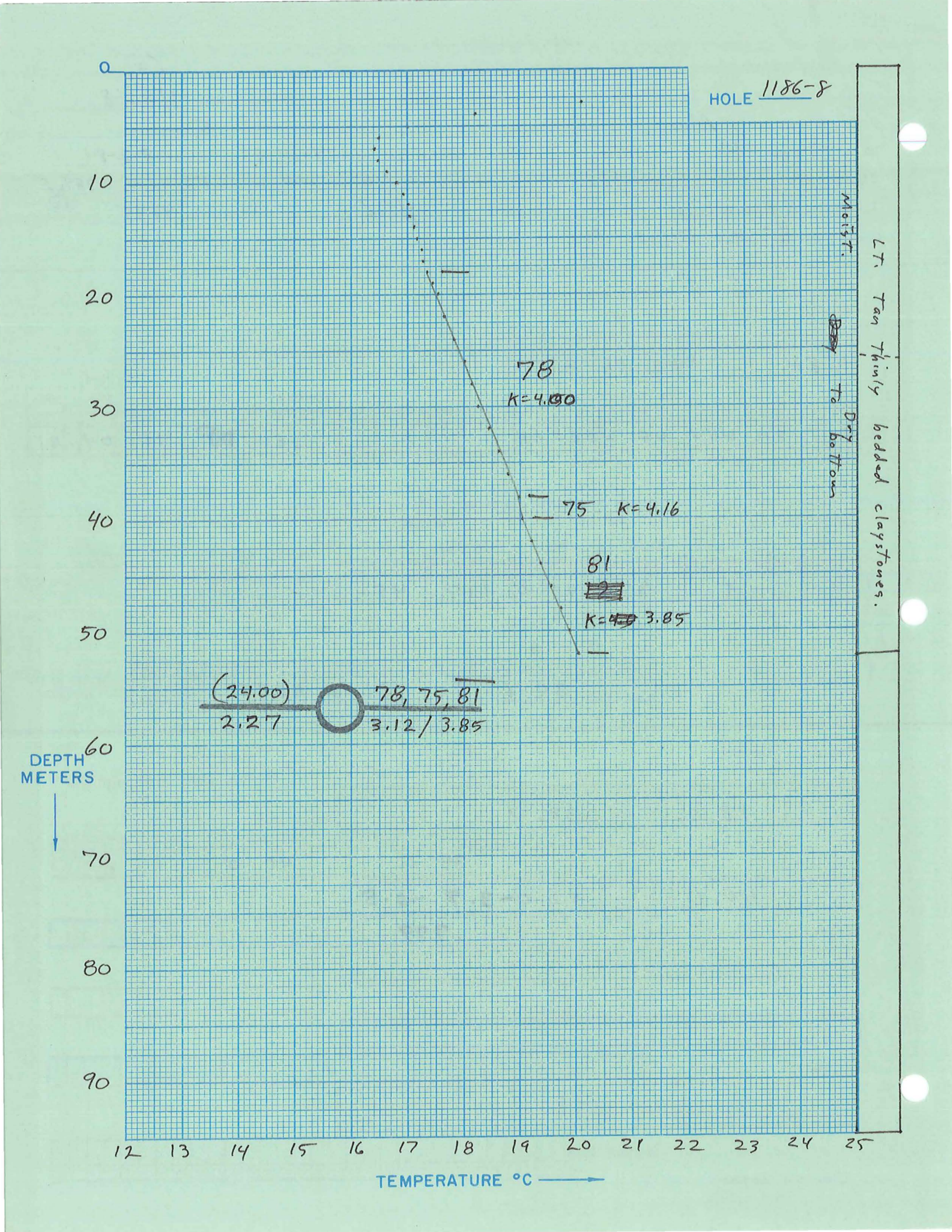
Segment 1 = Depths

Best cond. (−K)

Downward extrapolations (−ΔK)

Segment	Start	End	K	ΔK
Segment 1	18.0	38.0		
Segment 2	38.0	40.0		
Segment 3	40.0	52.0	−3.9	−0.5
Segment 4	.999			
Segment 5				
Segment 6				
Segment 7				
Segment 8				
Segment 9				
Segment 10				

After final segment Start = .999


HOLE 1186-8
Lt. Tan Thinly bedded claystones.
Moist.
To Dry bottom
78
K=4.00
75 K=4.16
81
K= 3.85
(24.00)
2.27
78, 75, 81
3.12 / 3.85
DEPTH METERS
TEMPERATURE °C
0
10
20
30
40
50
60
70
80
90
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Date Logged: 8-2-81

ΔT Well No. A1186-8 B

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1		27.20				H_2O	
2		23.15					
3		20.10					
4		18.20					
5		17.01					
6		16.49					
7		16.42					
8		16.48	0.06	60			
9		16.66	0.18	180			
10		16.83	0.17	170			
11		16.95	0.12	120			
12		17.02	0.07	70			
13		17.06	0.04	40			
14		17.12	0.06	60			
15		17.18	0.06	60			
16		17.24	0.06	60			
17		17.28	0.04	40			
18		17.36	0.08	80			
19		17.44	0.08	80			
20		17.53	0.09	90			
22		17.66	0.13	65			
24		17.83	0.17	85			
26		18.02	0.19	95			
28		18.16	0.14	70			
30		18.27	0.11	55			
32		18.45	0.18	90			
34		18.61	0.16	80			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186-8

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36		18.79	0.18	90			
38		18.91	0.12	60			
40		19.06	0.15	75			
42		19.22	0.16	80			
44		19.37	0.15	75			
46		19.56	0.19	95			
48		19.73	0.17	85			
50		19.89	0.16	80			
52		20.03	0.14	70			
53		20.19					

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(8)

ΔT Well No. 1186-9

Property-Project Alum Depth Logged 50 m

Map Silver Pk Scale 15" Date: Drilled 4-15-81 Logged 8-1-81

State Nv County Esmeralda, ___ of ___ of SE of SW of Sec 14 T 1N R 38 E

Instrument #46 Operator YCD Elevation 4822 (F m)

Comments 3/4" H2O filled PVC

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	901	08	81	C	M

Date Logged

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
14.3 KM W OF WEEPAH	JED	DP	15	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.	117.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
32.9	4.0	4822.	F

Use decimals

← Write M if if meters

Segment ! = Depths

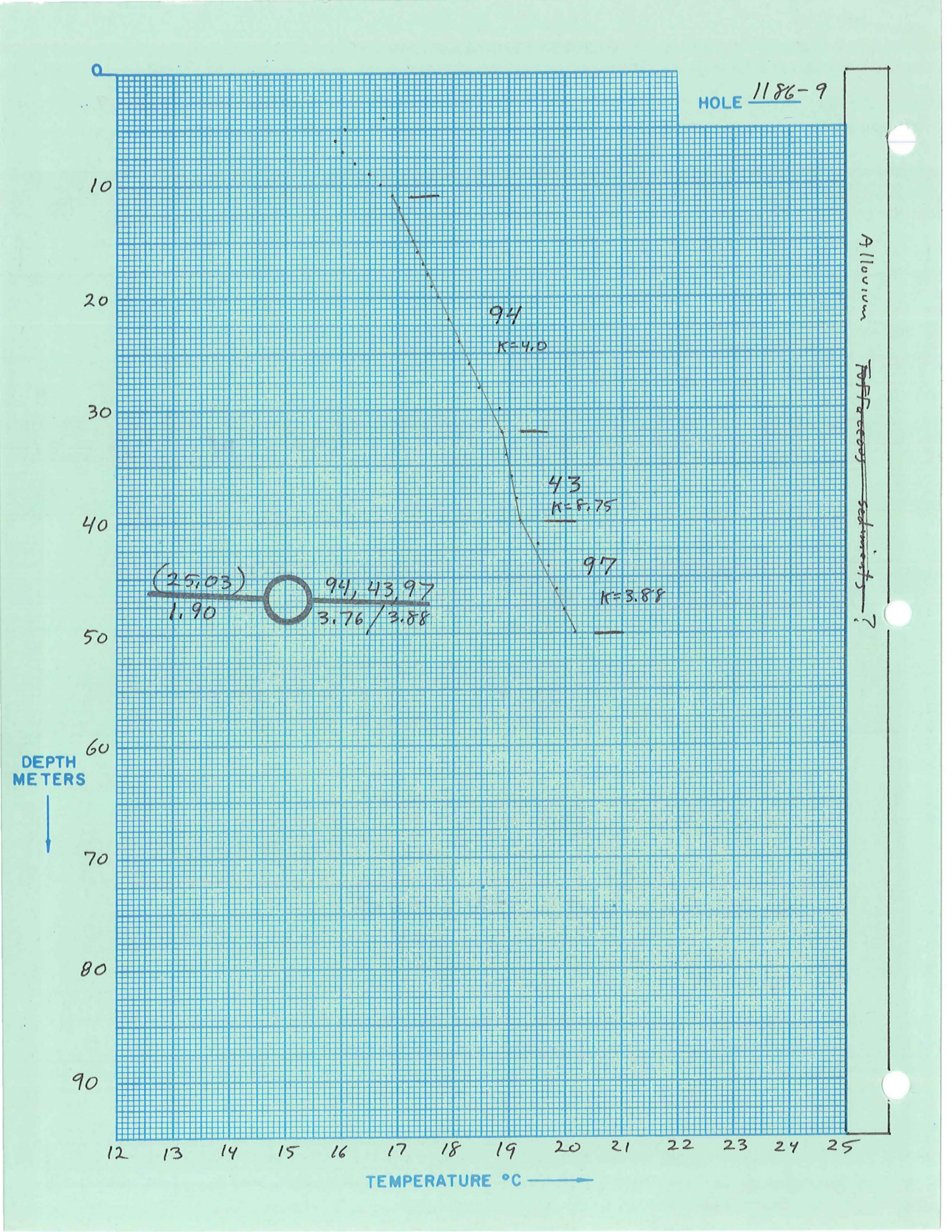
Start	End	Conductivity K	ΔK
11.0	32.0		

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment	Start	End	K	ΔK
2	32.0	40.0		
3	40.0	50.0	-3.9	-0.5
4	.999			
5				
6				
7				
8				
9				
10				

After final segment Start = .999


HOLE 1186-9
Alluvium
Turbidites, sediments ?
94
K=4.0
43
K=8.75
97
K=3.88
(25.03)
1.90
94, 43, 97
3.76 / 3.88
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-1-81 ΔT Well No. 1186-9

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
2	102.30 ↑	21.09				Air	Cable in .1345
3	112.99 ↑	18.26				↓	" out .1342
4	119.13	16.73				H_2O	
5	121.86	16.07				↓	
6	122.54	15.90					
7	122.05	16.02	0.12	120			
8	121.09	16.25	0.23	230			
9	120.04	16.51	0.26	260			
10	119.21	16.71	0.20	200			
11	118.44	16.90	0.19	190			
12	117.94	17.02	0.12	120			
13	117.57	17.11	0.09	90			
14	117.27	17.19	0.08	80			
15	116.95	17.27	0.08	80			
16	116.58	17.36	0.09	90			
17	116.21	17.45	0.09	90			
18	115.87	17.53	0.08	80			
19	115.51	17.62	0.09	90			
20	115.11	17.72	0.10	100			
22	114.36	17.91	0.19	95			
24	113.65	18.09	0.18	90			
26	112.96	18.27	0.18	90			
28	112.19	18.46	0.19	95			
30	110.80	18.82	0.36	180			
32	110.63	18.87	0.25	125			
34	110.27	18.96	0.09	45			
36	109.86	19.06	0.10	50			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186-9

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
38	109.50	19.16	0.10	50			
			0.05	25			
40	109.29	19.21					
			0.31	155			
42	108.11	19.52					
			0.18	90			
44	107.43	19.70					
			0.16	80			
46	106.86	19.86					
			0.14	70			
48	106.31	20.00					
			0.18	90			
50	105.65	20.18					

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(9)

ΔT Well No. 1186-10

Property-Project Alum Depth Logged 62 m

Map Silver Pk Scale 15" Date: Drilled 4-10-81 Logged 8-1-81

State Nv County Esmeralda, ___ of ___ of SE of SW of Sec 24 T 1N R 38E

Instrument Envirolabs Operator JED Elevation 4860 (ft) (m)

Comments ½" H2O Filled PVC

Card A

JUSTIFY	Proj No	Well No	Date Logged DA	MO	YR	*
	1186	10	01	08	81	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	MO	YR
13 KM WSW OF WEEPAH	JED	DP	10	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	Min	W Long Degree	Min **
CM	15.	37.	45.0	117.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
30.4	6.4	4860.	

Use decimals

← Write M if if meters

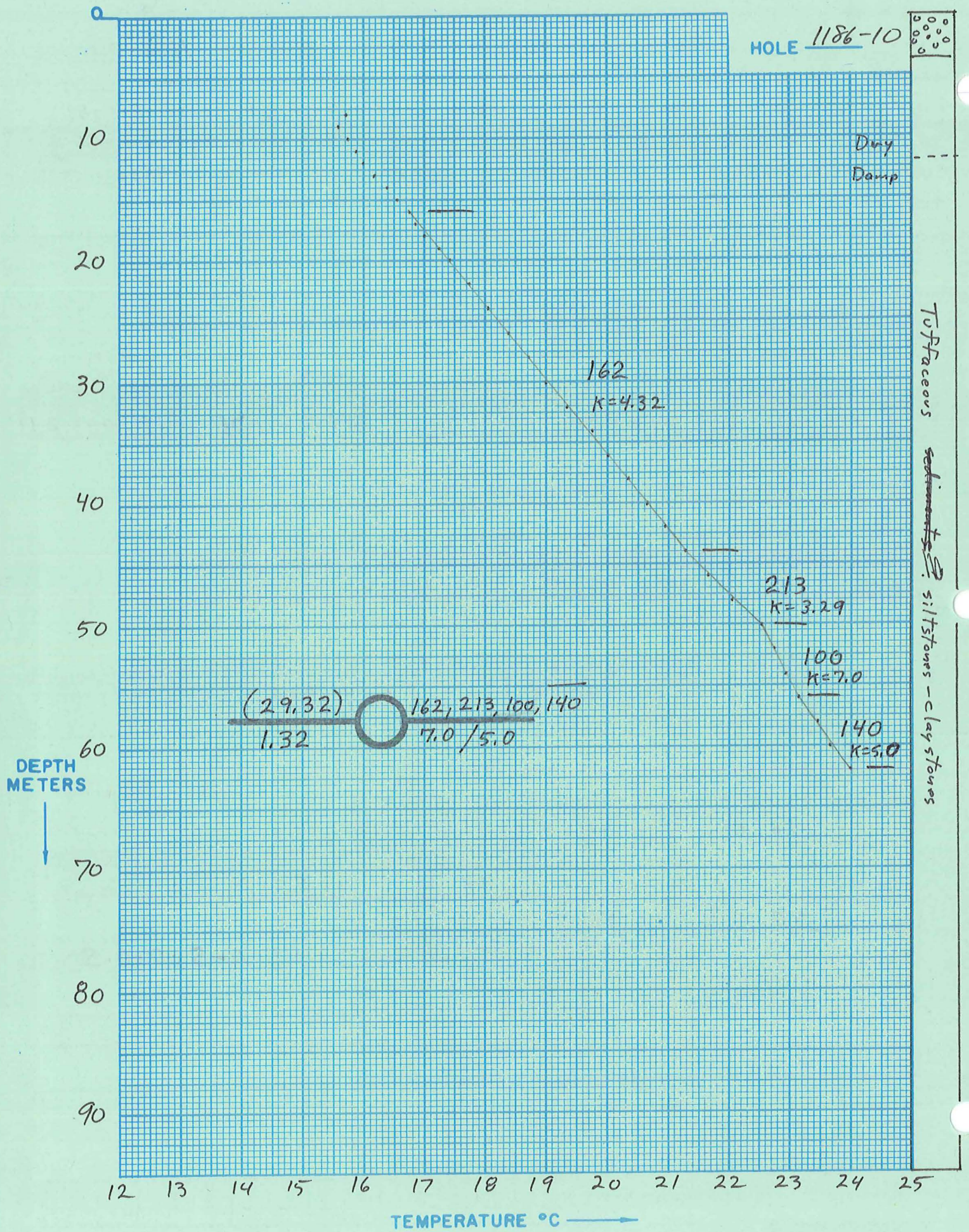
Segment	Start	End	K	ΔK
1	16.0	44.0		
2	44.0	50.0		
3	50.0	56.0		
4	56.0	62.0	-5.0	-0.5
5	.999			
6				
7				
8				
9				
10				

Conductivity

Best cond. (-K)

Downward extrapolations (-ΔK)

After final segment Start = .999


HOLE 1186-10
Dry
Damp
Tuffaceous sediments ⇒ siltstones - clay stones
162
K=4.32
213
K=3.29
100
K=7.0
140
K=5.0
(29,32)
1.32
162, 213, 100, 140
7.0 / 5.0
DEPTH METERS
0
10
20
30
40
50
60
70
80
90
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-1-81

ΔT Well No. 1186-10

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
8		15.71				H_2O	
9		15.59					
10		15.75	0.16	160			
11		15.88	0.13	130			
12		16.00	0.12	120			
13		16.17	0.17	170			
14		16.39	0.23	230			
15		16.56	0.17	170			
16		16.75	0.19	190			
17		16.85	0.10	100			
18		17.02	0.17	170			
19		17.25	0.23	230			
20		17.42	0.17	170			
22		17.75	0.33	165			
24		18.05	0.30	150			
26		18.38	0.33	165			
28		18.72	0.34	170			
30		19.00	0.28	140			
32		19.36	0.36	180			
34		19.74	0.38	190			
36		20.01	0.27	135			
38		20.35	0.34	170			
40		20.66	0.31	155			
42		20.94	0.28	140			
44		21.28	0.34	170			
46		21.66	0.38	180			
48		22.06	0.40	200			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186-10

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
50		22.56	0.50	250			
52		22.75	0.19	95			
54		22.96	0.21	105			
56		23.16	0.20	100			
58		23.45	0.29	145			
60		23.65	0.20	100			
62		24.00	0.35	175			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(10)

ΔT Well No. 1186 – 11

Property-Project Alum Depth Logged 49m

Map Silver Pk Scale 15" Date: Drilled 4-14-81 Logged 8-2-81

State Nv County Esmeralda, ___ of ___ of NW of SE of Sec 25 T 1N R 38E

Instrument #46 Operator JED Elevation 4895 (ft) (m)

Comments 3/4" H2O Filled PVC

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	11	02	08	81	CM

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
12.5 KM WSW OF WEEPAH	JED	DP	14	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.0	117.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
28.3	7.3	4895.	F

Use decimals

← Write M if if meters

Segment 1 = Depths

Start	End	Conductivity K	ΔK
14.0	38.0		

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment 2 Start	End	K	ΔK
38.0	49.0	-5.0	-0.5

Segment 3: .999

Segment 4 Start →

Segment 5

Segment 6 Start →

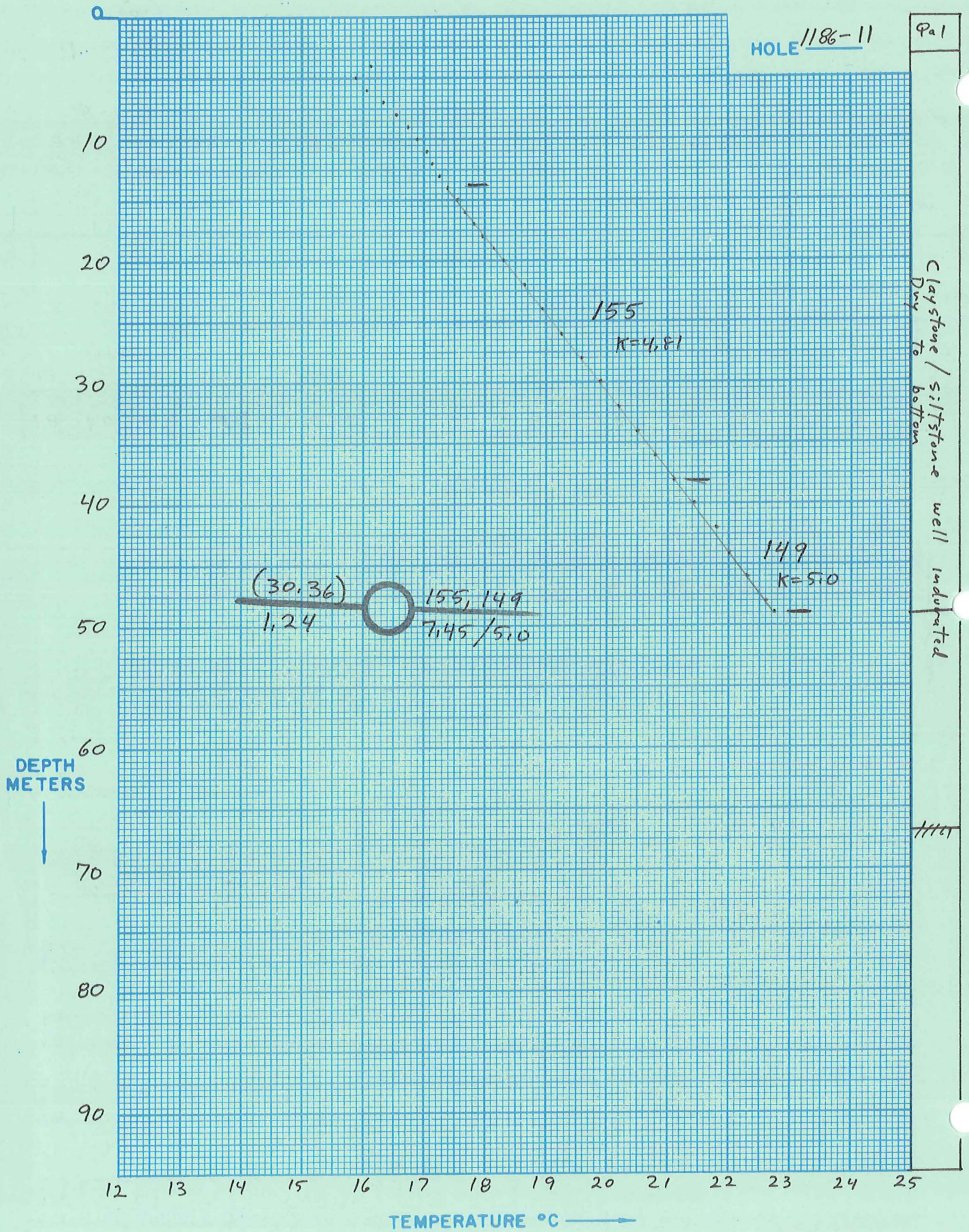
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 1186-11
Qal
Claystone / siltstone well indurated
Dry To bottom
155
K=4.81
149
K=5.10
(30.36)
1.24
155, 149
7.45/5.10
DEPTH METERS
0
10
20
30
40
50
60
70
80
90
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No: ~~#~~ 1186 – 11

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	104.50 ↓	20.49				Air	Cable in .1281
2	104.75 ↑	20.42				↓	" out .1284
3	105.99 ↑	20.09				↓	
4	121.65	16.12				H_2O	
5	122.54	15.90				↓	
6	121.84	16.07	0.17	170		↓	
7	120.77	16.33	0.26	260		↓	
8	119.82	16.56	0.23	230		↓	
9	119.02	16.76	0.20	200		↓	
10	118.43	16.90	0.14	140		↓	
11	117.86	17.04	0.14	140			
12	117.41	17.15	0.11	110			
13	116.87	17.28	0.13	130			
14	116.40	17.40	0.12	120			
15	115.85	17.54	0.14	140			
16	115.26	17.69	0.15	150			
17	114.69	17.83	0.14	140			
18	114.06	17.99	0.16	160			
19	113.44	18.15	0.16	160			
20	112.78	18.31	0.16	160			
22	111.51	18.64	0.33	165			
24	110.29	18.95	0.31	155			
26	109.06	19.27	0.32	160			
28	107.82	19.60	0.33	165			
30	106.62	19.92	0.32	160			
32	105.54	20.21	0.29	145			
34	104.43	20.51	0.30	150			

K=Conductivity

Date Logged: _____

ΔT Well No. ~~#~~ 1186 - 11

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36	103.36	20.80	0.29	145			
38	102.19	21.12	0.32	160			
40	101.05	21.44	0.32	160			
42	100.07	21.71	0.27	135			
44	99.01	22.01	0.30	150			
46	97.95	22.31	0.30	150			
48	96.90	22.61	0.30	150			
49	96.38	22.76	0.15	150			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(12)

ΔT Well No. 1186-12

Property-Project Alum Depth Logged 64m

Map Silver Pk Scale 15" Date: Drilled 4-10-81 Logged 8-2-81

State Nv County Esmeralda, ___ of ___ of SW of SE of Sec 31 T 1N R 38½E

Instrument Enviro labs Operator JED Elevation 4973 (ft m)

Comments ½" H2O Filled PVC

Card A

RT JUSTIFY

Proj No	Well No	DA	MO	YR	*
1186	1202	08	81	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Date Logged

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
11.5 KM SW OF WEEPAH	JED	DP	10	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.	117.	45.0

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Use decimals

Northing	Easting	Elev	
24.4	9.8	4973.	F

Write M if if meters

Use decimals

Segment 1 = Depths

Start	End	Conductivity K	ΔK
14.0	54.0		

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment 2

Start	End	K	ΔK
54.0	64.0	-4.07	-0.5

Segment 3: .999

Segment 4 Start →

Segment 5

Segment 6 Start →

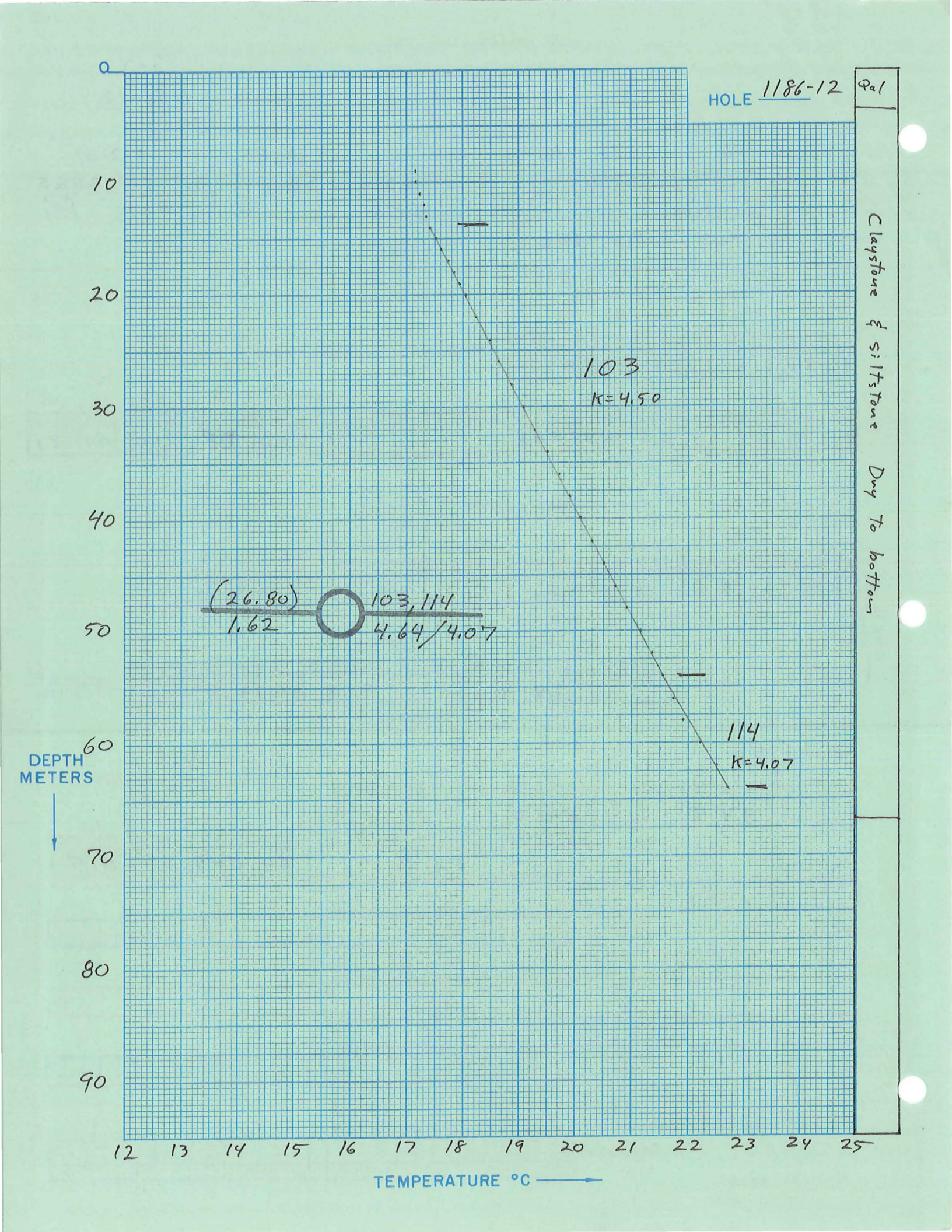
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 1186-12
Qal
Claystone & siltstone Dry To bottom
103
K=4.50
114
K=4.07
(26.80)
1.62
103, 114
4.64/4.07
DEPTH METERS
TEMPERATURE °C
0
10
20
30
40
50
60
70
80
90
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Date Logged: 8-2-81

ΔT Well No. #1186-12

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
6		26.80 ↓				Air	
7		25.00 ↓				↓	
8		18.05 ↓				↓	
9		17.17				H_2O	
10		17.17	0.00			↓	
11		17.23	0.06	60		↓	
12		17.31	0.08	80		↓	
13		17.35	0.04	40			
14		17.43	0.08	80			
15		17.53	0.10	100			
16		17.62	0.09	90			
17		17.74	0.12	120			
18		17.84	0.10	100			
19		17.94	0.10	100			
20		18.05	0.11	110			
22		18.25	0.20	100			
24		18.50	0.25	125			
26		18.65	0.15	75			
28		18.87	0.22	110			
30		19.09	0.22	110			
32		19.28	0.19	95			
34		19.52	0.24	120			
36		19.72	0.20	100			
38		19.92	0.20	100			
40		20.10	0.18	90			
42		20.30	0.20	100			
44		20.52	0.22	110			

K=Conductivity

Date Logged: _____ ΔT Well No. ~~3~~ 1186 – 12

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
46		20.71	0.19	95			
48		20.92	0.21	105			
50		21.14	0.22	110			
52		21.35	0.21	105			
54		21.56	0.21	105			
56		21.75	0.19	95			
58		21.92	0.17	85			
60		22.21	0.29	145			
62		22.50	0.29	145			
64		22.70	0.20	100			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-13

Property-Project Alum Depth Logged 44m

Map Silver Pk Scale _____ Date: Drilled 4-5-81 Logged 8-2-81

State Nv County Esmeralda, ____ of ____ of SE of NW of Sec 5 T 15 R 39E

Instrument #46 Operator JED Elevation 4925 (ft / m)

Comments 3/4" H2O Filled PVC

Card A

RT JUSTIFY	Proj No	Well No	Date Logged DA	MO	YR	*
	1186	1302	08	01	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	MO	YR
11.2 KM SW OF WEEPAH	JED/DP		05	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	Min	W Long Degree	Min **
CM	15.0	37.	45.0	117.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,−)(E,+)

Northing	Easting	Elev	
23.1	9.954925.		F

Use decimals

← Write M if if meters

Segment 1 = Depths

Start	End	Conductivity K	ΔK
17.0	44.0	-5.0	-0.5

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment 2 Start → .999 (End / K / ΔK)

Segment 3

Segment 4 Start →

Segment 5

Segment 6 Start →

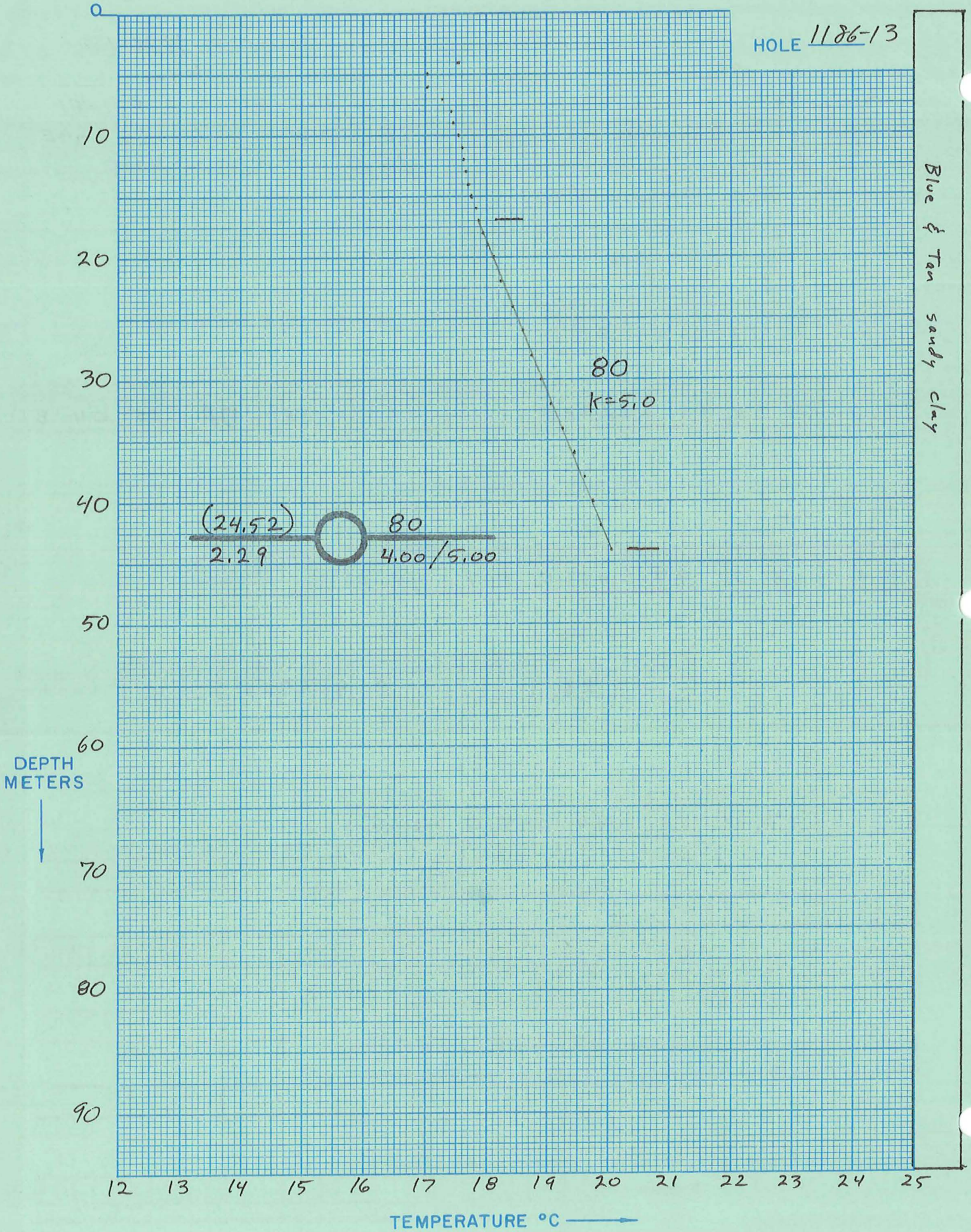
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 1186-13
Blue & Tan sandy clay
80
k=5.0
(24.52)
2.29
80
4.00/5.00
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. 1186-13

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
2	82.50↑	27.07				Air	Cable in .1347
3	84.98↑	26.25				↓	" out .1345
4	115.79	17.55				H_2O	
5	117.96	17.02				↓	
6	117.81	17.06	0.04	40		↓	
7	116.84	17.29	0.23	230		↓	
8	116.31	17.42	0.13	130			
9	116.07	17.48	0.06	60			
10	115.82	17.55	0.07	70			
11	115.53	17.62	0.07	70			
12	115.47	17.63	0.01	10			
13	115.29	17.68	0.05	50			
14	115.18	17.71	0.03	30			
15	114.93	17.77	0.06	60			
16	114.70	17.83	0.06	60			
17	114.44	17.89	0.06	60			
18	114.19	17.96	0.07	70			
19	113.93	18.02	0.06	60			
20	113.61	18.10	0.08	80			
22	112.98	18.26	0.16	80			
24	112.33	18.43	0.17	85			
26	111.71	18.59	0.16	80			
28	111.15	18.73	0.14	70			
30	110.51	18.90	0.17	85			
32	109.87	19.06	0.16	80			
34	109.13	19.26	0.20	100			
36	108.44	19.44	0.18	90			

K=Conductivity

Date Logged: _____

ΔT Well No. 1186 – 13

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
38	107.84	19.60	0.16	80			
40	107.31	19.74	0.14	70			
42	106.76	19.88	0.14	70			
44	106.16	20.04	0.16	80			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(14)

ΔT Well No. 1186-14

Property-Project Alum Depth Logged 71.5 m

Map Silver Pk Scale 15" Date: Drilled 4-5-81 Logged 8-2-81

State Nv County Esmeralda, ___ of ___ of SW of NW of Sec 32 T 1N R 38½ E

Instrument # 46 Operator JED Elevation 5040 (ft) (m)

Comments ¾" H20 Filled PVC

Card A

RT JUSTIFY

Proj No	Well No	DA	MO	YR	*
1186	14	02	08	81	CM

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
10.2 KM SW OF WEEPAH	JED/DP		05	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.0	117.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
26.0	11.5	5040.	F

Use decimals

← Write M if if meters

Segment 1 = Depths

Start	End	Conductivity K	ΔK
16.0	26.0		

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment 2

Start	End	K	ΔK
26.0	58.0		

Segment 3

Start	End	K	ΔK
58.0	70.0	-6.51	-0.5

Segment 4

Start
.999

Segment 5

Segment 6

Start →

Segment 7

Segment 8

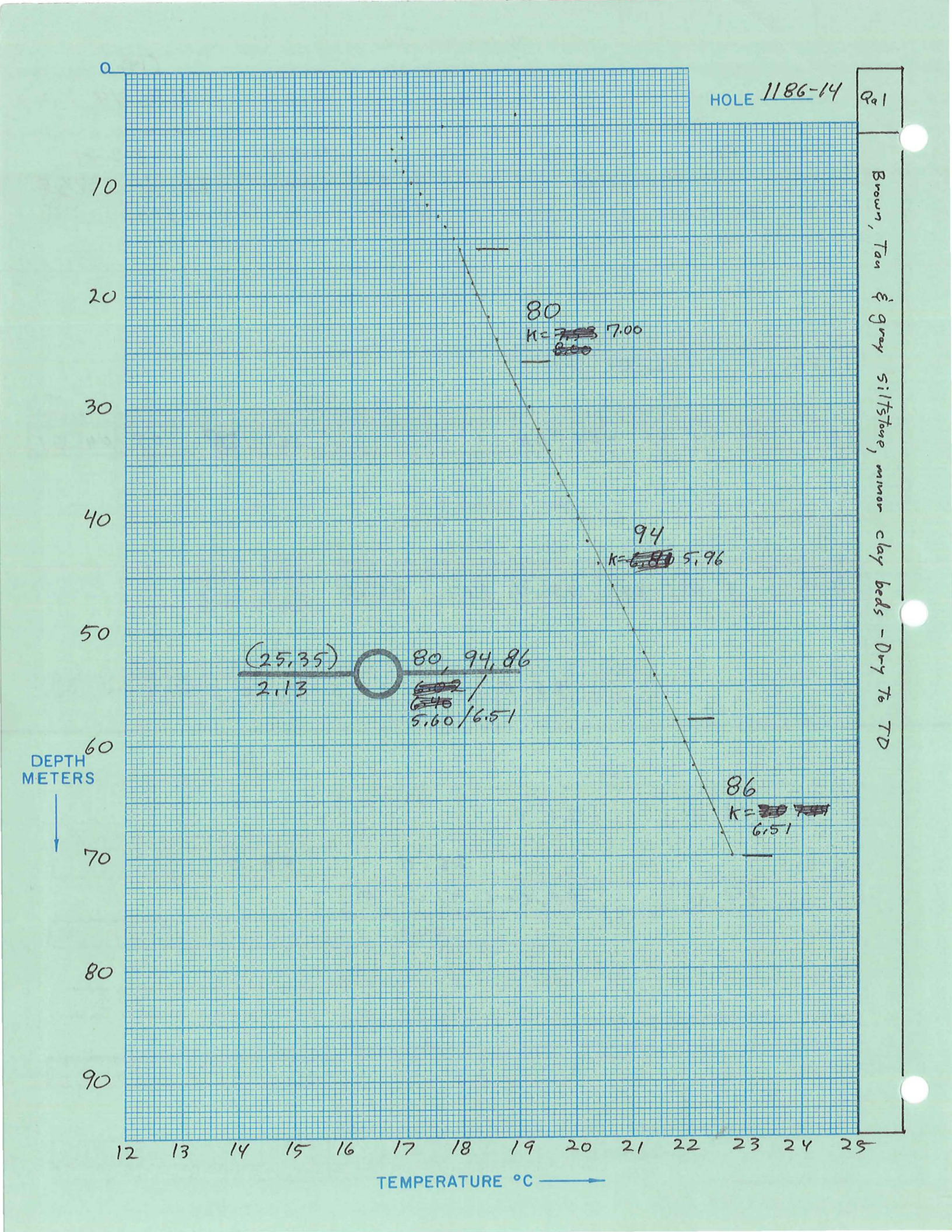
Start →

Segment 9

Segment 10

Start →

After final segment Start = .999


HOLE 1186-14
Qal
Brown, Tan & gray siltstone, minor clay beds - Dry To TD
80
K= 7.00
94
K= 5.96
(25,35)
2.13
80, 94, 86
5.60/6.51
86
K= 6.51
DEPTH METERS
0
10
20
30
40
50
60
70
80
90
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. 1186 – 14

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	72.50 ↑	30.59				Air	Cable in .1389
2	76.25 ↑	29.22				↓	" out
3	78.60 ↑	28.39				↓	
4	110.43	18.92				H_2O	
5	115.57	17.61				↓	
6	118.49	16.89				↓	
7	119.11	16.73					
8	118.91	16.78					
9	118.39	16.91					
10	117.76	17.06	0.15	150			
11	117.14	17.22	0.16	160			
12	116.56	17.36	0.14	140			
13	115.88	17.53	0.17	170			
14	115.34	17.67	0.14	148			
15	114.75	17.81	0.14	140			
16	114.30	17.93	0.12	120			
17	114.01	18.00	0.07	70			
18	113.71	18.08	0.08	80			
19	113.44	18.15	0.07	70			
20	113.16	18.22	0.07	70			
22	112.32	18.43	0.21	105			
24	111.72	18.58	0.15	75			
26	111.14	18.73	0.15	75			
28	110.50	18.90	0.17	85			
30	109.59	19.14	0.24	120			
32	108.87	19.32	0.18	90			
34	108.21	19.50	0.18	90			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186 – 14

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36	107.58	19.66	0.16	80			
38	106.90	19.84	0.18	90			
40	106.28	20.01	0.17	85			
42	105.63	20.18	0.17	85			
44	104.95	20.37	0.19	95			
46	104.04	20.61	0.24	120			
48	103.34	20.81	0.20	100			
50	102.66	20.99	0.18	90			
52	101.93	21.19	0.20	100			
54	101.30	21.37	0.18	90			
56	100.56	21.57	0.20	100			
58	99.96	21.74	0.17	85			
60	99.36	21.91	0.17	85			
62	98.76	22.08	0.17	85			
64	98.16	22.25	0.17	85			
66	97.57	22.42	0.17	85			
68	96.99	22.59	0.17	85			
70	96.35	22.77	0.18	90			
~~72~~	~~95.82~~						
71.5	95.98	22.88					

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-15

Property-Project Alum Depth Logged 18m

Map Silver Pk Scale 15" Date: Drilled 4-11-81 Logged 8-2-81

State Nv County Esmeralda, ___ of ___ of NE of SW of Sec 30 T 1N R 38½E

Instrument Enviro lab Operator JED Elevation 4920 (ft / m)

Comments ½" H20 Filled PVC - plugged at 18 m.

Card A

JUSTIFY | Proj No | Well No | Date Logged: DA | MO | YR | *

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	8	6					1	5	0	2		0	8		8	1	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description | Operator | Editor | Drilled: DA | MO | YR

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
1	1	.	2		K	M		W	S	W		O	F		W	E	E	P	A	H												J	E	D		D	P		1	1		0	4		8	1

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *: Scale Unit IN CM | Map Size (7.5, 15., 60.) | N Lat: Degree | Min | W Long: Degree | Min **

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
C	M				1	5	.	0			3	7	.		4	5	.	0		1	1	7	.		4	5	.	0	

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing | Easting | Elev

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
					2	8	.	6								8	.	9		4	9	2	0	.				F	

Use decimals

← Write M if if meters

Segment ! = Depths: Start | End | Conductivity: K | ΔK | Best cond. (-K) Downward extrapolations (-ΔK)

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
					1	3	.	0							1	8	.	0	-	5	.	0		-	0	.	5		

Segment 2 Start → .999 (End | K | ΔK)

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
							.	9	9	9																			

Segment 3

Segment 4 Start →

Segment 5

Segment 6 Start →

Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

After final segment Start = .999

HOLE 1186-15

Tan siltstone & hard silicified cong. Dry To TD

156

(30,47)
1,19

156
7.8/5.0

DEPTH METERS

0
10
20
30
40
50
60
70
80
90

12 13 14 15 16 17 18 19 20 21 22 23 24 25

TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. 1186-15

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
8		15.95				H_2O	
9		16.10	0.05	50			
10		16.35	0.25	250			
11		16.51	0.16	160			
12		16.72	0.21	210			
13		16.90	0.18	180			
14		17.04	0.14	140			
15		17.20	0.16	160			
16		17.36	0.16	160			
17		17.52	0.16	160			
18		17.68	0.16	160			

K=Conductivity

Date Logged: ____________________ ΔT Well No. _____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-16

Property-Project Alum Depth Logged 54 m

Map Silver Pk Scale 15'' Date: Drilled 4-14-81 Logged 8-2-81

State Nv County Esmeralda , ___ of ___ of NE of SW of Sec 18 T 1N R 38½ E

Instrument Envirolabs Operator JED Elevation 4840 (ft) (m)

Comments ½" H_2O Filled PVC

Card A

RT JUSTIFY

Proj No (1-4)	Well No (5-10)	Date Logged DA (11-12)	MO (14-15)	YR (17-18)	* (19-20)
1186	16	02	08	81	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description (21-50)	Operator (51-55)	Editor (56-60)	Drilled DA (61-62)	MO (64-65)	YR (67-68)
11.1 KM WNW OF WEEPAH	JED	DP	14	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location **

Scale Unit IN CM (21-25)	Map Size (7.5, 15., 60.) (26-30)	N Lat Degree (31-35)	N Lat Min (36-40)	W Long Degree (41-45)	W Long Min (46-50)
CM	15.0	37.	45.0	117.	45.0

Use decimals

** Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing (51-60)	Easting (61-70)	Elev (71-79)	(80)
33.7	9.1	4840.	F

Use decimals

Write M if if meters

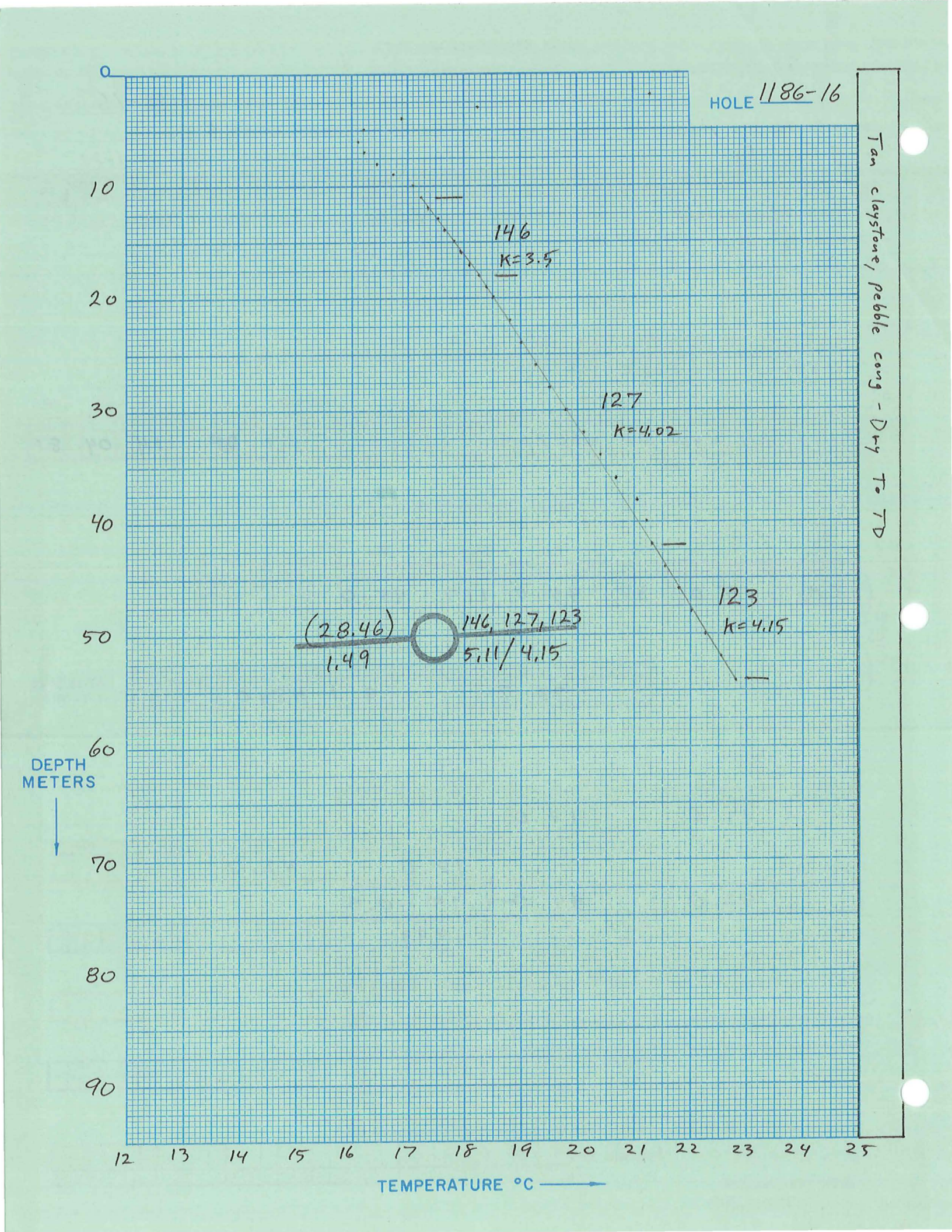
Segment	Start	End	K	ΔK
Segment 1 = Depths	11.0	18.0		
Segment 2	18.0	42.0		
Segment 3	42.0	54.0	4.15	-0.5
Segment 4	.999			
Segment 5				
Segment 6				
Segment 7				
Segment 8				
Segment 9				
Segment 10				

Conductivity

Best cond. (-K)

Downward extrapolations (-ΔK)

After final segment Start = .999


HOLE 1186-16
Tan claystone, pebble cong - Dry To TD
146
K=3.5
127
K=4.02
123
K=4.15
(28.46)
1.49
146, 127, 123
5.11/4.15
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. 1186 — 16

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1		24.91				H_2O	
2		21.30					
3		18.25					
4		16.89					
5		16.20					
6		16.11					
7		16.20	0.09	90			
8		16.44	0.24	240			
9		16.75	0.31	310			
10		17.11	0.36	360			
11		17.25	0.14	140			
12		17.37	0.12	120			
13		17.53	0.16	160			
14		17.66	0.13	130			
15		17.82	0.16	160			
16		17.95	0.13	130			
17		18.11	0.16	160			
18		18.27	0.16	160			
19		18.38	0.11	110			
20		18.51	0.13	130			
22		18.81	0.30	150			
24		19.00	0.19	95			
26		19.26	0.26	130			
28		19.52	0.26	130			
30		19.82	0.30	150			
32		20.11	0.29	145			
34		20.40	0.29	145			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186 – 16

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36		20.67	0.27	135			
38		21.04	0.37	185			
40		21.22	0.18	90			
42		21.32	0.10	50			
44		21.54	0.22	110			
46		21.80	0.26	130			
48		22.01	0.21	105			
50		22.28	0.27	135			
52		22.56	0.28	140			
54		22.80	0.24	120			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

(21)

ΔT Well No. 1186-17

Property-Project Alum Depth Logged 66m

Map Silver Pk Scale 15" Date: Drilled 4-3-81 Logged 8-2-81

State NV County Esmeralda, ___ of ___ of NE of NE of Sec 18 T 1N R 39E

Instrument # 46 Operator JEO Elevation 5185 (ft) (m)

Comments 3/4" H20 Filled PVC

Card A

RT JUSTIFY | Proj No | Well No | DA | MO | YR | Date Logged | *

1 2 3 4	5 6 7 8 9 10	11 12	13 14 15	16 17 18	19 20
1186		17	02	08	81 C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62	63 64 65	66 67 68	
6.5 KM WNW OF WEEPAH	JED	DP	03	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	N Lat Min	W Long Degree	W Long Min **
21 22 23 24 25	26 27 28 29 30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50
CM	15.0	37.	45.0	117.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75	76 77 78 79 80
34.7	16.5	5185.	F

Use decimals ← Write M if if meters

Segment 1 = Depths

Start	End	Conductivity K	ΔK
21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45	46 47 48 49 50
18.0	66.0	-5.0	-0.5

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment 2 Start → .999

End	K	ΔK
51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75	76 77 78 79 80

Segment 3

Segment 4 Start →

Segment 5

Segment 6 Start →

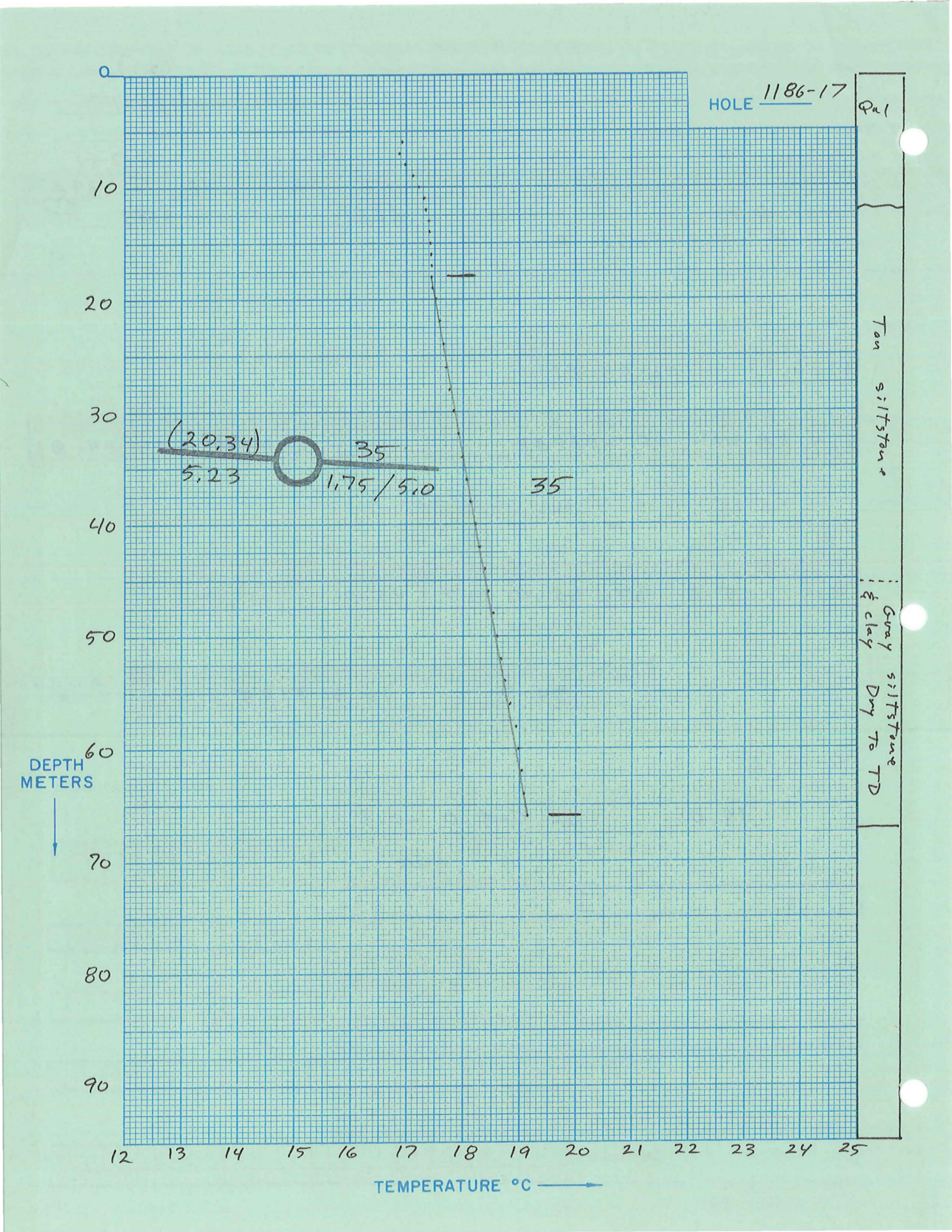
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 1186-17
Qal
Tan siltstone
Gray siltstone & clay
Dry To TD
(20,34)
5.23
35
1.75/5.0
35
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. ~~A~~ 1186 17

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	64.88 ↑	33.60				Air	Cable in .1361
2	67.95 ↑	32.35					" out .1351
3	72.05 ↑	30.76					
4	74.55 ↑	29.83					
5	116.60 ↑	17.35					
6	118.31	16.93				H_2O	
7	118.45	16.89					
8	118.02	17.00	0.11	110			
9	117.51	17.13	0.13	130			
10	117.08	17.23	0.10	100			
11	116.74	17.32	0.09	90			
12	116.51	17.37	0.05	50			
13	116.40	17.40	0.03	30			
14	116.32	17.42	0.02	20			
15	116.27	17.43	0.01	10			
16	116.22	17.45	0.02	20			
17	116.17	17.46	0.01	10			
18	116.11	17.47	0.01	10			
19	116.03	17.49	0.02	20			
20	115.94	17.52	0.03	30			
22	115.70	17.58	0.06	30			
24	115.42	17.65	0.07	35			
26	115.16	17.71	0.06	30			
28	114.89	17.78	0.07	35			
30	114.63	17.84	0.06	30			
32	114.34	17.92	0.08	40			
34	114.03	18.00	0.08	40			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186 - 17

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36	113.71	18.08	0.08	40			
38	113.40	18.16	0.08	40			
40	113.09	18.23	0.07	35			
42	112.82	18.30	0.07	35			
44	112.52	18.38	0.08	40			
46	112.21	18.46	0.08	40			
48	111.94	18.53	0.07	35			
50	111.65	18.60	0.07	35			
52	111.33	18.69	0.09	45			
54	111.04	18.76	0.07	35			
56	110.77	18.83	0.07	35			
58	110.31	18.95	0.08	40			
60	110.12	19.00	0.05	25			
62	109.95	19.04	0.04	20			
64	109.77	19.09	0.05	25			
66	109.55	19.15	0.06	30			
~~67~~	~~109.~~						

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-18

Property-Project Alum Depth Logged 71 m

Map Silver Pk Scale 15" Date: Drilled 4-2-81 Logged 8-2-81

State Nv County Esmeralda, ___ of ___ of NW of NW of Sec 29 T 1N R 39E

Instrument # 46 Operator JED Elevation 5400 (ft) (m)

Comments 3/4" H20 Filled PVC

Card A — RT JUSTIFY

Proj No	Well No	Date Logged DA	MO	YR	*
1186		18	02	08	81	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	MO	YR
6 KM WSW OF WEEPAH	JED	DP	02	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	Min	W Long Degree	Min	**
CM	15.0	37.	45.0	117.	45.0	

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
29.2	17.6	5400.	F

Use decimals

← Write M if if meters

Segment 1 = Depths

Start	End	Conductivity K	ΔK
20.0	34.0		

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment 2

Start	End	K	ΔK
34.0	71.0	-5.0	-0.5

Segment 3: .999

Segment 4 Start →

Segment 5

Segment 6 Start →

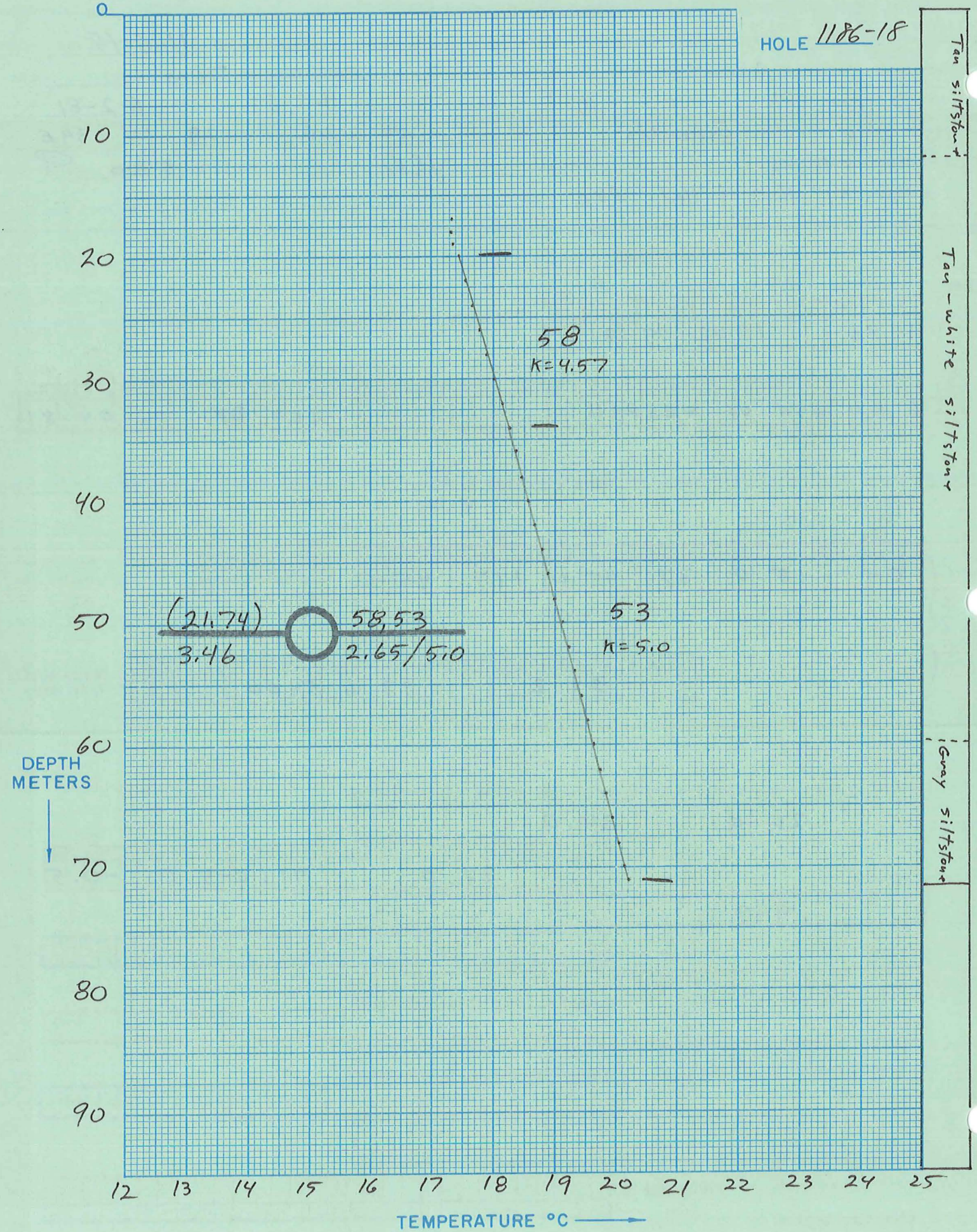
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 1186-18
Tan siltstone
Tan-white siltstone
Gray siltstone
58
K=4.57
53
K=5.0
(21.74)
3.46
58,53
2.65/5.0
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. 1186-18

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	82.50 ↑	27.07				Air	Cable in .1240
2	84.50 ↑	26.41					" out .0915
3	85.95 ↑	25.94					
4	89.90 ↑	24.70					
5	92.80 ↑	23.82					
6	94.45 ↑	23.33					
7	96.45 ↑	22.74					
8	98.90 ↑	22.04					
9	100.78 ↑	21.51					
10	102.30 ↑	21.09					
11	103.85 ↑	20.67					
12	104.95 ↑	20.37					
13	105.99 ↑	20.09					
14	106.95 ↑	19.83					
15	107.89 ↑	19.58					
16	108.75 ↑	19.36					
17	116.71	17.32				H_2O	
18	116.70	17.33					
19	116.49	17.38	0.05	50			
20	116.25	17.44	0.06	60			
22	115.81	17.55	0.11	55			
24	115.32	17.67	0.12	60			
26	114.84	17.79	0.12	60			
28	114.40	17.90	0.11	55			
30	113.93	18.02	0.12	60			
32	113.47	18.14	0.12	60			
34	113.04	18.25	0.11	55			

K=Conductivity

Date Logged: _____ ΔT Well No. 1186-18

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36	112.63	18.35	0.10	50			
38	112.18	18.47	0.12	60			
40	111.77	18.57	0.10	50			
42	111.35	18.68	0.11	55			
44	110.94	18.79	0.11	55			
46	110.54	18.89	0.10	50			
48	110.11	19.00	0.11	55			
50	109.66	19.12	0.12	60			
52	109.24	19.23	0.11	55			
54	108.84	19.33	0.10	50			
56	108.45	19.43	0.10	50			
58	108.08	19.53	0.10	50			
60	107.69	19.64	0.11	55			
62	107.29	19.74	0.10	50			
64	106.92	19.84	0.10	50			
66	106.52	19.95	0.11	55			
68	106.12	20.05	0.10	50			
70	105.76	20.15	0.10	50			
71	105.57	20.20	0.05	50			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-19

Property-Project Alum Depth Logged 71m

Map Silver Pk Scale 15'' Date: Drilled 4-2-81 Logged 8-2-81

State Nv County Esmeralda, ___ of ___ of SW of SW of Sec 32 T 1N R 39E

Instrument # 46 Operator JED Elevation 5134 (ft) (m)

Comments 3/4" H20 Filled PVC

Card A

RT JUSTIFY

Proj No	Well No	DA	MO	YR	*
1186	19	02	08	81	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
7 KM SW OF WEEPAH	JED/DP		02	04	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.0	117.	45.0

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,−)(E,+)

Use decimals

Northing	Easting	Elev	
24.9	17.7	5134.	F ← Write M if if meters

Use decimals

Segment 1 = Depths

Start	End	Conductivity K	ΔK
13.0	26.0		

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment 2 Start → 26.0

End	K	ΔK
71.0	-5.0	-0.5

Segment 3: .999

Segment 4 Start →

Segment 5

Segment 6 Start →

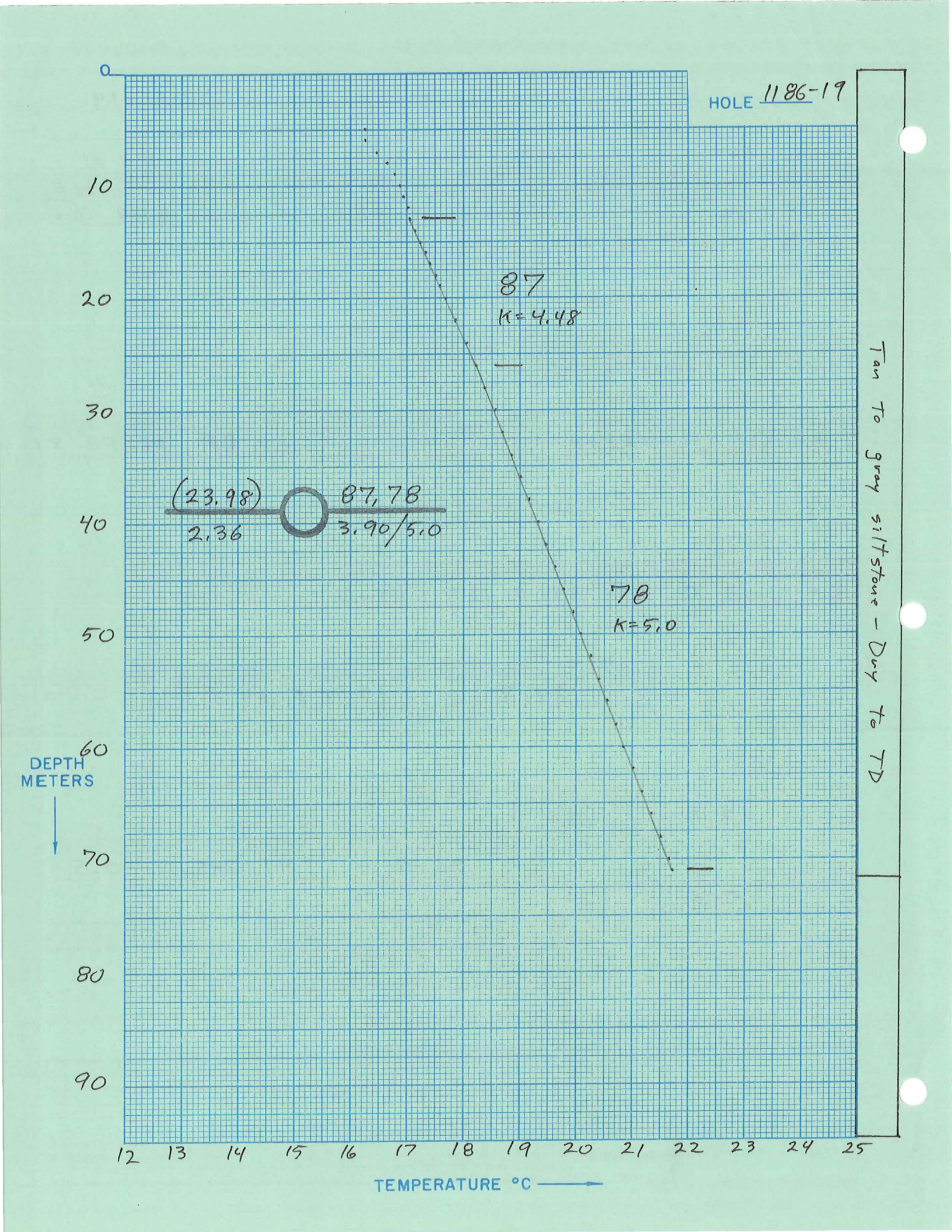
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 1186-19
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
87
K=4.48
(23.98)
87, 78
2.36
3.90/5.0
78
K=5.0
Tan To gray siltstone - Dry to TD
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C

Date Logged: 8-2-81

ΔT Well No. ~~#~~ 1186-19

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	90.50↑	24.52				Air	Cable in 0.0912
2	91.90↑	24.09					" out .0905
3	93.45↑	23.63					
4	95.30↑	23.08					
5	120.99	16.28				H_2O	
6	121.00	16.27					
7	120.09	16.49	0.22	220			
8	119.36	16.67	0.18	180			
9	118.83	16.80	0.13	130			
10	118.49	16.89	0.09	90			
11	118.22	16.95	0.06	60			
12	117.95	17.02	0.07	70			
13	117.70	17.08	0.06	60			
14	117.40	17.15	0.07	70			
15	117.03	17.25	0.10	100			
16	116.70	17.33	0.08	80			
17	116.31	17.42	0.09	90			
18	115.96	17.51	0.09	90			
19	115.63	17.59	0.08	80			
20	115.24	17.69	0.10	100			
22	114.56	17.86	0.17	85			
24	113.86	18.04	0.18	90			
26	113.19	18.21	0.17	85			
28	112.50	18.38	0.17	85			
30	111.87	18.55	0.17	85			
32	111.27	18.70	0.15	75			
34	110.65	18.86	0.16	80			

K=Conductivity

Date Logged: _____ ΔT Well No. ~~E~~ 1186 - 19

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
36	110.03	19.02	0.16	80			
38	109.46	19.17	0.15	75			
40	108.86	19.33	0.16	80			
42	108.30	19.47	0.14	70			
44	107.70	19.63	0.16	80			
46	107.14	19.78	0.15	75			
48	106.53	19.94	0.16	80			
50	105.97	20.09	0.15	75			
52	105.37	20.25	0.16	80			
54	104.82	20.40	0.15	75			
56	104.27	20.55	0.15	75			
58	103.69	20.71	0.16	80			
60	103.14	20.86	0.15	75			
62	102.54	21.02	0.16	80			
64	101.93	21.19	0.17	85			
66	101.37	21.35	0.16	80			
68	100.83	21.50	0.15	75			
70	100.30	21.65	0.15	75			
71	100.03	21.72	0.07	70			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-20

Property-Project Alum Depth Logged 72m

Map Silver Pk Scale 15" Date: Drilled 4-4-81 Logged 8-3-81

State Nv County Esmeralda, ___ of ___ of SE of NW of Sec 33 T 1N R 38½ E

Instrument #46 Operator JED Elevation 5100 (ft) (m)

Comments 3/4" H2O Filled PVC

Card A

RT JUSTIFY | Proj No | Well No | Date Logged: DA | MO | YR | * | | *19-Write F if Fahrenheit, 20-Write F if Feet

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	8	6					2	0	0	3	0	8		8	1		C	M

Site Description | Operator | Editor | Drilled: DA | MO | YR

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
9		K	M		S	W		O	F	W	E	E	P	A	H															J	E	D	/	D	P			0	4		0	4		8	1

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *: Scale Unit IN CM | Map Size (7.5, 15., 60.) | N Lat: Degree | Min | W Long: Degree | Min | **

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
	C	M			1	5	.	0			3	7	.		4	5	.	0		1	1	7	.		4	5	.	0	

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,−)(E,+)

Northing | Easting | Elev

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
					2	6	.	0					1	3	.	3		5	1	0	0	.							F

← Write M if if meters

Use decimals

Segment 1 = Depths: Start | End | Conductivity: K | ΔK | Best cond. (-K) Downward extrapolations (-ΔK)

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
					1	2	.	0							7	2	.	0		-	9	.	0		-	0	.	5	

Segment 2 Start → .999

Segment 3

Segment 4 Start →

Segment 5

Segment 6 Start →

Segment 7

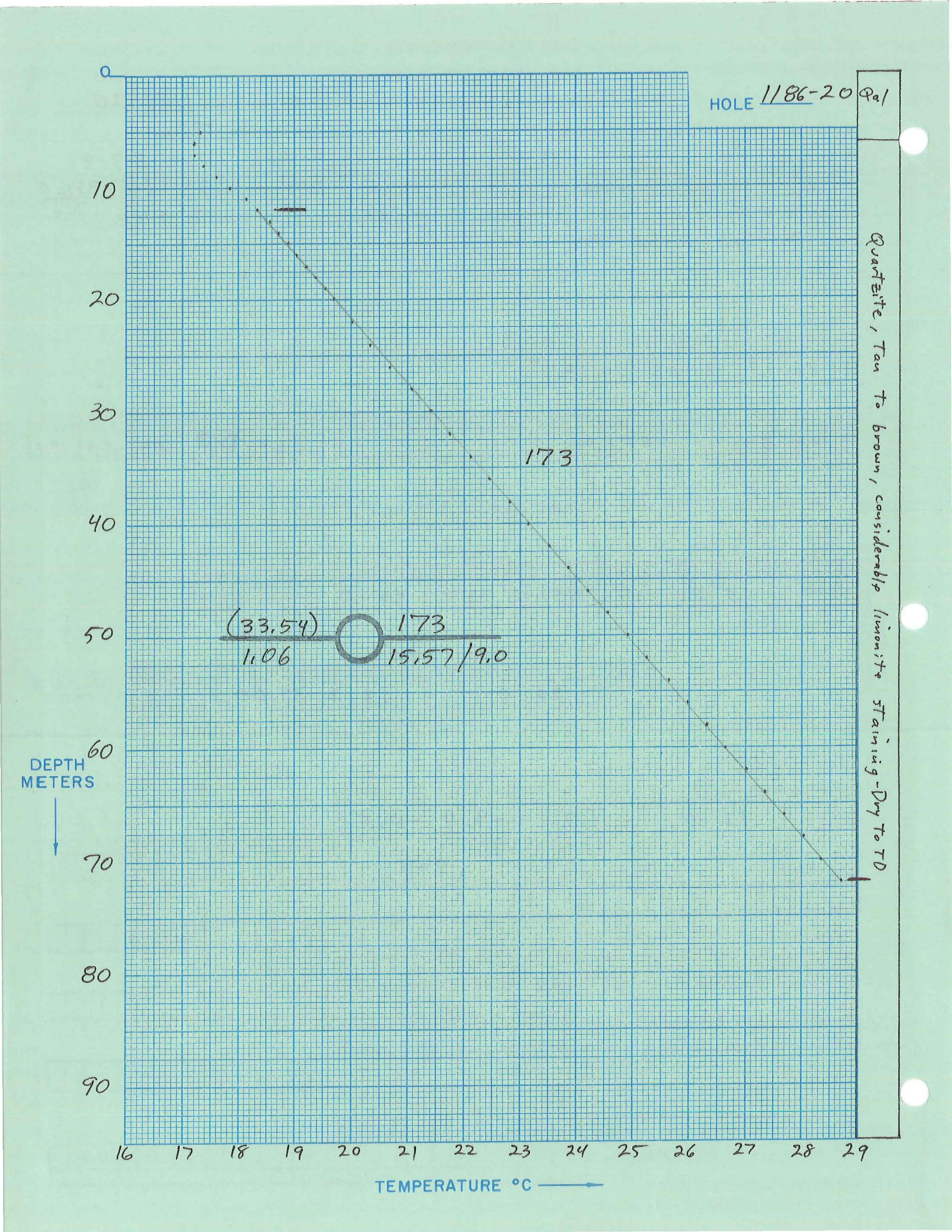
Segment 8 Start →

Segment 9

Segment 10 Start →

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

After final segment Start = .999


HOLE 1186-20
Qal
Quartzite, Tan to brown, considerable limonite staining-Dry to TD
173
(33.54)
1.06
173
15.57/9.0
DEPTH METERS
TEMPERATURE °C
0
10
20
30
40
50
60
70
80
90
16
17
18
19
20
21
22
23
24
25
26
27
28
29

Date Logged: 8-3-81

ΔT Well No. ~~B~~ 1186-20

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
1	—					Air	Cable in .0878
2	86.30↑					↓	" out .0884
3	87.99↑					↓	
4	89.69↑					↓	
5	116.74	17.32				H_2O	
6	117.13	17.22				↓	
7	117.14	17.22				↓	
8	116.43	17.39	0.17	170		↓	
9	115.51	17.62	0.23	230		↓	
10	114.56	17.86	0.24	240		↓	
11	113.46	18.14	0.28	280			
12	112.63	18.35	0.21	210			
13	111.79	18.57	0.22	220			
14	111.21	18.72	0.15	150			
15	110.52	18.89	0.17	170			
16	109.87	19.06	0.17	170			
17	109.25	19.22	0.16	160			
18	108.65	19.38	0.16	160			
19	108.05	19.54	0.16	160			
20	107.48	19.69	0.15	150			
22	106.25	20.02	0.33	165			
24	105.02	20.34	0.32	160			
26	103.72	20.70	0.36	180			
28	102.46	21.05	0.35	175			
30	101.15	21.41	0.36	180			
32	99.92	21.75	0.34	170			
34	98.64	22.12	0.37	185			

K=Conductivity

Date Logged: _____ ΔT Well No. #1186 20

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
~~34~~	~~98.67~~	~~22.11~~					
36	97.41	22.47	0.35	175			
38	96.21	22.81	0.34	170			
40	95.02	23.16	0.35	175			
42	93.82	23.52	0.36	180			
44	92.64	23.87	0.35	175			
46	91.49	24.21	0.34	170			
48	90.35	24.56	0.35	175			
50	89.21	24.91	0.35	175			
52	88.10	25.26	0.35	175			
54	86.92	25.63	0.37	185			
56	85.82	25.98	0.36	180			
58	84.77	26.32	0.34	170			
60	83.73	26.66	0.34	170			
62	82.64	27.02	0.36	180			
64	81.68	27.34	0.32	160			
66	80.64	27.69	0.35	175			
68	79.65	28.03	0.34	170			
70	78.68	28.36	0.33	165			
72	77.71	28.70	0.34	170			

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 449 = 1186-21

Property-Project Alum — Depth Logged 80m

Map Silver Peak — Scale 15 — Date: Drilled — — Logged 28/6/78

State Nevada — County Esmeralda — of — of NE of NE of Sec 34 T 1N R 38E

Instrument DT 101 — Operator WDM — Elevation 4982 (ft) (m)

Comments windmill - pump recently removed

Card A

RT JUSTIFY

Proj No	Well No	DA	MO	YR	*
1186		21	28	6	78 C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	MO	YR
15.7 km WSW of Weepah	WDM	DP	—	—	—

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	Min	W Long Degree	Min **
Cm	15.	37.	45.	117.	45.

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Use decimals

Northing	Easting	Elev	
27.0	2.254982.		F

Write M if if meters

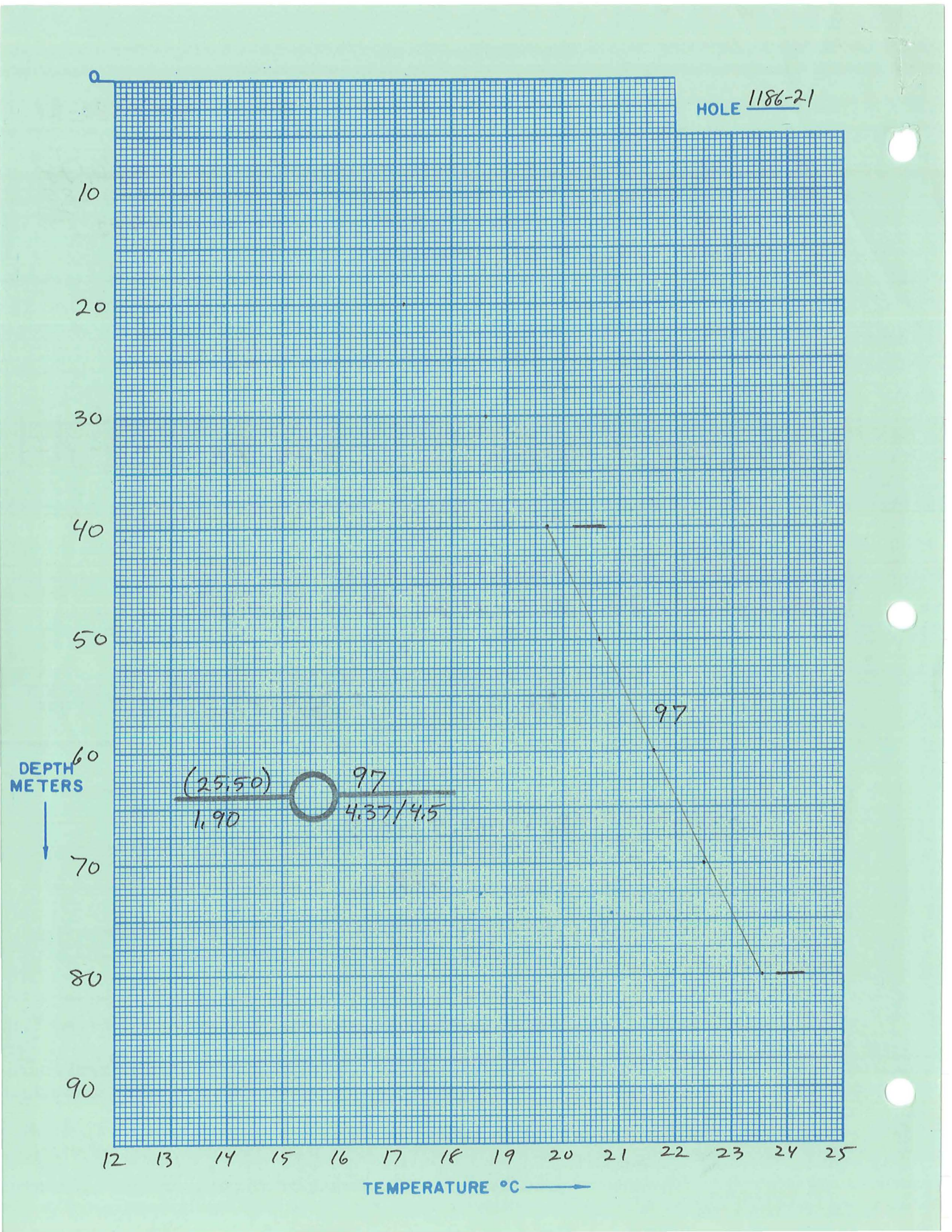
Use decimals

Segment 1 = Depths

Start	End	Conductivity K	ΔK	Best cond. (-K) Downward extrapolations (-ΔK)
20.0	80.0	-4.5	-0.5	

	End	K	ΔK
Segment 2 Start →	.999		
Segment 3			
Segment 4 Start →			
Segment 5			
Segment 6 Start →			
Segment 7			
Segment 8 Start →			
Segment 9			
Segment 10 Start →			

After final segment Start = .999


HOLE 1186-21
0
10
20
30
40
50
60
70
80
90
DEPTH METERS
12
13
14
15
16
17
18
19
20
21
22
23
24
25
TEMPERATURE °C
97
(25,50)
1,90
97
4.37/4.5

Date Logged: 28/6/78

ΔT Well No. 449 = 1186 - 21

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
20		17.15					
30		18.61					
40		19.70					
50		20.64					
60		21.60					
70		22.50					
80		23.56					

K=Conductivity

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

1186-33

ΔT Well No. 21-30

Property-Project ALUM Depth Logged 605 m

Map SILVER PK Scale 15 Date: Drilled 11-16-82 Logged 4-14-83

State NV County ESM, ___ of ___ of NW of NW of Sec 30 T 1 N R 38½ E

Instrument SPA-103 Operator JED Elevation 4960 (ft) (m)

Comments 2" H_2O FILLED STEEL PIPE — FINAL LOG - 149 DAYS AFTER COMPLETION

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	33	14	04	83	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
1.5 MI W-NW OF ALUM MINE	JED	JED	16	11	82

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	117.	45.0	137.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
29.85	8.35	4960.	F

Use decimals

← Write M if if meters

Segment ! = Depths

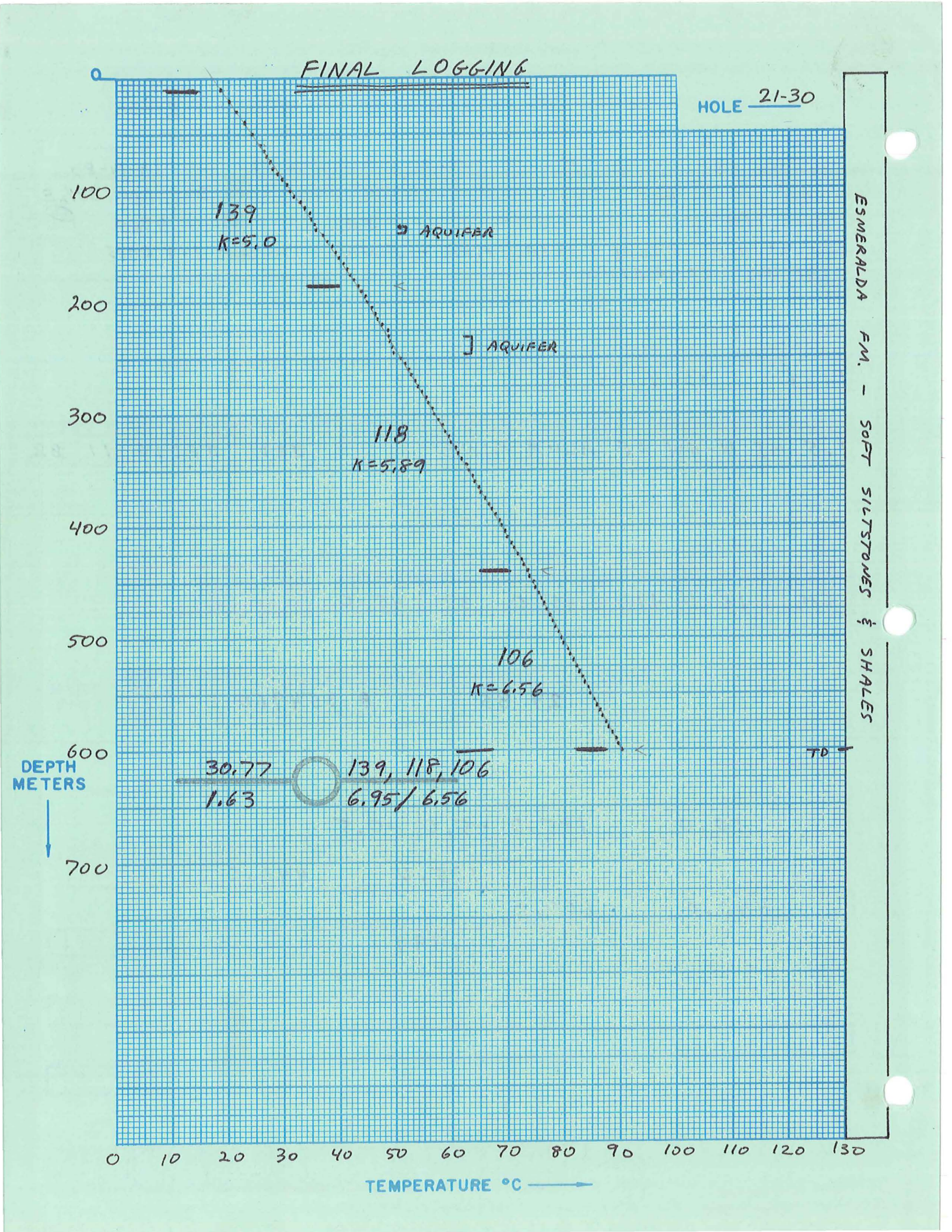
Start	End	Conductivity K	ΔK
10.0	185.0	-5.0	-0.5

Best cond. (-K)

Downward extrapolations (-ΔK)

	End	K	ΔK
Segment 2 Start →	185.0	440.0	
Segment 3	440.0	600.0	
Segment 4 Start →	.999		
Segment 5			
Segment 6 Start →			
Segment 7			
Segment 8 Start →			
Segment 9			
Segment 10 Start →			

After final segment Start = .999


FINAL LOGGING
HOLE 21-30
139
K=5.0
AQUIFER
AQUIFER
118
K=5.89
106
K=6.56
TD
30.77
1.63
139, 118, 106
6.95/ 6.56
ESMERALDA FM. - SOFT SILTSTONES & SHALES
DEPTH METERS
0
100
200
300
400
500
600
700
0
10
20
30
40
50
60
70
80
90
100
110
120
130
TEMPERATURE °C

Date Logged: 4-14-83

ΔT Well No. 21-30

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
10	110.32	18.70				AIR	
			1.32				
20	105.31	20.02					
			1.30				
30	100.53	21.32					
			1.60				
40	94.91	22.92					
			1.21				
50	90.85	24.13					
			1.56				
60	85.80	25.69				H_2O	
			0.40				FIRST H_2O IN PIPE AT 60 m
65	84.56	26.09					CABLE .0980
			0.74				LEAK —
70	82.30	26.83					
			0.60				
75	80.50	27.43					
			0.55				
80	78.87	27.98					
			0.72				
85	76.81	28.70					
			0.78				
90	74.61	29.48					
			0.63				
95	72.89	30.11					
			0.66				CABLE .0983
100	71.13	30.77					LEAK —
			0.99				
105	68.55	31.76					
			0.88				
110	65.74	32.88					
			0.61				
115	64.26	33.49					
			0.82				
120	62.32	34.31					
			0.40				
125	61.41	34.71					
			0.35				
130	60.59	35.06					
			0.43				
135	59.63	35.49					
			1.48				
140	56.42	36.97					
			0.68				
145	54.98	37.65					
			0.67				
150	53.62	38.32					
			0.68				
155	52.27	39.00					
			0.70				
160	50.92	39.70					
			0.69				
165	49.62	40.39					

K=Conductivity

Date Logged: 4-14-83 ΔT Well No. 21-30

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
170	48.43	41.03	0.64				
175	47.22	41.71	0.68				
180	46.10	42.35	0.64				
185	44.95	43.02	0.67				
190	43.87	43.67	0.65				
195	42.87	44.29	0.62				
200	41.92	44.88	0.59				CABLE .0998 LEAK —
205	41.00	45.48	0.60				
210	40.18	46.02	0.54				
215	39.32	46.60	0.58				
220	38.40	47.24	0.64				
225	36.72	48.44	1.20				
230	36.43	48.65	0.21				
235	36.05	48.93	0.28				
240	35.78	49.14	0.21				
245	35.42	49.41	0.27				
250	33.63	50.81	1.40				
255	32.90	51.40	0.59				
260	32.16	52.01	0.61				
265	31.45	52.62	0.61				
270	30.79	53.20	0.58				
275	30.10	53.81	0.61				
280	29.42	54.43	0.62				
285	28.79	55.02	0.59				
290	28.16	55.63	0.61				
295	27.57	56.21	0.58				
300	27.01	56.77	0.56				CABLE .1018 LEAK —

K=Conductivity

Date Logged: 4-14-83 ΔT Well No. 21-30

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
305	26.43	57.37	0.60				
310	25.82	58.01	0.64				
315	25.29	58.58	0.57				
320	24.75	59.17	0.59				
325	24.25	59.74	0.57				
330	23.73	60.34	0.60				
335	23.24	60.92	0.58				
340	22.76	61.50	0.58				
345	22.21	62.18	0.68				
350	21.72	62.81	0.63				
355	21.26	63.40	0.59				
360	20.90	63.88	0.48				
365	20.33	64.66	0.78				
370	20.10	64.98	0.32				
375	19.547	65.77	0.79				
380	19.222	66.24	0.47				
385	18.771	66.91	0.67				
390	18.423	67.44	0.53				
395	17.976	68.14	0.70				
400	17.636	68.69	0.55				CABLE .1046 LEAK —
405	17.260	69.31	0.62				
410	16.924	69.87	0.56				
415	16.620	70.39	0.52				
420	16.302	70.94	0.55				
425	16.010	71.47	0.53				
430	15.699	72.03	0.56				
435	15.401	72.59	0.56				

K=Conductivity

Date Logged: 4-14-83 ΔT Well No. 21-30

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
<440	15.124	73.11	0.52				
445	14.830	73.69	0.68				
450	14.561	74.22	0.53				
455	14.307	74.73	0.51				
460	14.070	75.22	0.49				
465	13.825	75.74	0.52				
470	13.570	76.29	0.55				
475	13.328	76.82	0.53				
480	13.111	77.30	0.48				
485	12.852	77.89	0.59				
490	12.674	78.31	0.42				
495	12.420	78.91	0.60				
500	12.222	79.39	0.40				CABLE .1078 LEAK
505	12.021	79.88	0.49				
510	11.814	80.40	0.52				
515	11.600	80.95	0.55				
520	11.393	81.49	0.54				
525	11.194	82.03	0.54				
530	11.009	82.53	0.50				
535	10.815	83.07	0.54				
540	10.630	83.59	0.52				
545	10.430	84.17	0.58				
550	10.256	84.68	0.51				
555	10.074	85.23	0.55				
560	9.907	85.74	0.51				
565	9.727	86.31	0.57				
570	9.559	86.84	0.53				

K=Conductivity

Date Logged: 4-14-83

ΔT Well No. 21-30

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
575	9.375	87.44	0.60				
580	9.216	87.97	0.53				
585	9.056	88.52	0.55				
590	8.905	89.04	0.52				
595	8.748	89.60	0.56				
600	8.596	90.14	0.54				CABLE -1115 LEAK —
605 ?	8.477	90.58	0.44				

K=Conductivity

Date Logged: ____________________ ΔT Well No. ______________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 21-30 1186-33

Elevation: 4960 Date Drilled: 11/16/82

Location: NE 1/4 NW 1/4 NW 1/4 S30T1NR38 1/2E MDBM Method: rotary air/mud

Geologist: Deymonaz Gamma: N/A

Depth (XX) (ft)	Description
0-1295 (0-395)	Siltstones and Shales - Esmeralda Formation, light tan, yellow and pale green thinly bedded siltstone and sandy siltstones with lesser amounts of light colored shales and sandy shales. At surface beds dip 8-12° south and contain numerous veins of gypsum, generally following bedding planes and to a lesser extent following small fractures. The rock type remains very uniform from the surface. A few small hard zones (less than 2 feet thick) may have been thin silicified sandstone lenses but no cuttings were recovered. Considerable water encountered from 850-920 feet (259-280m) although no large fractures were identified. Drilling continued with high viscosity mud and L.C.M. below 920 feet (280m) and very few cuttings were recovered below that depth. Resistivity 2-12 m.
1295-1446 (395-441)	Shale and Siltstone - Esmeralda Formation, dark gray shale, thinly laminated shales and sandy shales, rare pyrite. Very poor sample recovery. Drill rate slowed to 30-40 feet/hour, resistivity dropped to about 1 m, borehole wall holding up well.
1446-1720 (441-524)	Shale - Esmeralda Formation, dark gray thinly laminated shales and sandy shales with minor thin yellow-brown siltstones. Similar to above interval except much softer, drilling rate 2-5 ft/hour, quickly increases mud viscosity and forms clay rings above bit. Caliper log shows this interval washed out to 7-8 inches with numerous small blocks of rock which have dislodged from borehole wall. Resistivity 1-6 m.
1720-2006 (524-612)	Shale and Siltstone - Esmeralda Formation, dark gray shale as above except harder with 10-15% interbedded yellow-brown sandy siltstone. Resistivity 1-2 m.

LITHOLOGIC LOG

Project: (1186) Alum 33026

Hole: 31-32 (1186-39)

Elevation: 5030'

Date Drilled: 3/27/83

Location: NWNE S32 T1N R 38 1/2 E

Method: rotary and diamond drill

Geologist: Deymonaz/Huntsman

Gamma:

Depth (m)	Description
0- 20 (0- 6.1)	Assorted volcanic gravels and sands - Unconsolidated with surface oxidation.
20- 150 (6.1-45.7)	Siltstone and clay - Light orange brown, moderate amounts of limonite, formation is soft and slightly sticky.
150- 180 (45.7-54.8)	Siltstone - As above, minor thin green beds of silt, most silts are soft, minor clay.
180- 220 (54.8-67.1)	Siltstone - Medium gray, slightly hard, no clays, with 40% cuttings A/A.
220- 250 (67.1-76.2)	Siltstone - Light gray, argillic alteration, minor kaolinite, small black fragments-possibly glass shards (core).
250- 260 (76.2-79.2)	Siltstone - Medium gray, fractured at 256' (78m) with abundant pyrite, silt beds dipping 45^{0}.
260- 310 (79.2-94.5)	Siltstone - Dark gray, trace pyrite, minor kaolinite.
310- 320 (94.5-97.5)	Siltstone - Dark gray green silt and clay, waxey, minor shiny pyrite growing in veins along fractures.
320- 340 (97.5-103.6)	Siltstone - Dark gray green, less clays than above, beds dipping 20^{0}, platy pyrite or marcasite on fractures.
340- 350 (103.6-106.7)	Siltstone - Gray, interbedded silts, highly fractured, pyrite and quartz in fractures, ash fall sediments.
350- 360 (106.7-109.7)	Siltstone - Gray, waxey, very fine silts with pyrite in fractures.
360- 370 (109.7-112.8)	Siltstone - Medium gray, pyrite and quartz along fractures, quartz vein thicker and crystalized.
370- 400 (112.8-121.9)	Siltstone - As above, soft green clay 1mm thick around pyrite, abundant pyrite along fractures, also black stain such as magnesium.

LITHOLOGIC LOG

Project: Alum

Hole: 31-32

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
400- 410 (121.9-125)	Siltstone - Gray green, abundant platy pyrite, minor kaolinite with pyrite, minor quartz.
410- 420 (125-128)	Siltstone - As abvove, very fine, cemented fractures with up to 1cm offset, trace pyrite.
420- 430 (128-131.1)	Siltstone - Green gray, minor biotite flakes, moderate amounts clear white sanidine crystals, crystal lithic ash fall tuff.
430- 480 (131.1-146.3)	Siltstone - As above, minor limonite staining, minor pyrite and sanidine, minor kaolinite.
480- 500 (146.3-152.4)	Siltstone - Medium gray, trace pyrite, trace sanidine, trace kaolite.
500- 510 (152.4-155.5)	Siltstone - Light gray, crystal lithic ash fall tuff, beds dipping 35°, abundant sanidine crystals, minor kaolinite, minor pyrite in small fractures.
510- 520 (155.5-158.5)	Siltstones - Light gray to medium green gray, layered, pyrite in fractures, minor kaolinte in one zone.
520- 540 (158.5-164.6)	Siltsone - Light gray, minor disseminated pyrite, abundant sanidine.
540- 550 (164.6-167.6)	Siltstone - Gray green, waxey silt, mostly clay, vertical vein of pyrite and abroundary black mineral around pyrite.
550- 560 (167.6-170.7)	Siltstone - Dark gray green, aboundant sanidine turning to redish yellow. No pyrite in sample.
560- 580 (170.7-176.8)	Siltstone - Medium gray, no pyrite, no sanidine, moderate amounts of clay.
580- 614 (176.8-187.2)	Siltstone - Gray green and dark gray, layered, - abundant sanidine marcasite along bedding plains, slightly tarnished.

LITHOLOGIC LOG

Project: Alum

Hole: 31-32

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
614- 628 (187.2-191.4)	Conglomerate - Dark argilite highly pyritized, hard unit minor calcite.
628- 640 (191.4-195.1)	Siltstone - Medium gray, fine grained, trace sanidine, no pyrite.
640- 660 (195.1-201.2)	Siltstone - As above - with thin unit of breccia as above without pyrite.
660- 670 (201.2-204.3)	Conglomerate - Small fragment of volcanic ash, limonite staining along fractures.
670- 710 (204.3-216.5)	Siltstone - Medium to dark gray green, minor pyrite along fractures.
710- 720 (216.5-219.5)	Siltstone & Conglomerate - Thin beds interbedded. Breccia unit has been pyritized, also minor pyrite in silt. Paleo erosion surface on sample collect.
720- 730 (219.5-222.5)	Siltstone - Light gray, abundant shiny pyrite cubes.
730- 740 (222.3-225.6)	Siltstone & Conglomerate - Layered as above, abundant pyrite zoning in breccia on dark silts.
740- 760 (225.6-231.7)	Siltstone - Layered, light to medium brown gray, conglomerate starts again at 742 with large fragments.
760- 780 (231.7-237.8)	Siltstone - Layered, no conglomerates, minor pyrite.
780- 790 (237.8-240.8)	Siltstone - Gray brown green. Very fine silts, minor argillic alteration, minor sanidine crystals moderatly altered.
790- 800 (240.8-243.9)	Conglomerate unit - Abundant pyrite.
800- 830 (243.9-253)	Silts & Conglomerates - Sample highly fractured and filled with shiny pyrite and quartz.

LITHOLOGIC LOG

Project: Alum

Hole: 31-32

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
830- 850 (253-259)	Siltstone - Light brown gray, very fine, trace pyrite, trace sanidine altered moderate hematite stain on sanidine.
850- 874 (259-266.5)	Silts & Conglomerate - As above - moderate pyrite.
874- 880 (266.5-268.3)	Silt & Conglomerate - As above - with strong hematite stain, quartz and pyrite growing in vug.
880- 890 (268.3-271.3)	Silts & Conglomerate - Conglomerate has been pyritized.
890- 900 (271.2-274.3)	Silty Clay - Gray green, slightly hard.
900- 910 (274.3-277.4)	Silt & Conglomerate - Gray, slightly hard, minor pyrite.
910- 920 (277.4-280.4)	Silts - Gray-layered, some layers up to 1.5 cm of pyrite, beds dipping 45°.
920- 930 (280.4-283.5)	Conglomerate - As above - minor pyrite, minor pumice.
930- 940 (283.5-286.5)	Silts - Layered as above.
940- 950 (286.5-289.6)	Siltstone - Gray green - course, abundant clays, abundant massive pyrite and cubes, minor tarnish on some pyrite, also black soft clay type deposit around pyrite - probably organic
950- 960 (289.6-292.7)	Siltstone - Medium gray, minor pyrite, weak hematite stains.
960-1000 (292.7-304.8)	Silt & Conglomerate - As above with moderate amounts of talc on fractures.

LITHOLOGIC LOG

Project: Alum

Hole: 31-32

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
1000-1010 (304.8-307.9)	Silts & Conglomerates - Clays and talc along fractures, slightly soft, trace pyrite.
1010-1040 (307.9-317)	Conglomerate - Mostly unconsolidated, soft, strong argillic alteration, minor talc, abundant clays.
1040-1060 (317-323.1)	Silts & Conglomerates - Harder, fractures with quartz and minor talc, abundant kaolinite.
1060-1100 (323.1-335.4)	Harder, moderate pyrite in silts, minor argillic alteration, quartz and clays along fractures.
1100-1120 (335.4-341.4)	Silts & Conglomerates - Long vertical fracture filled with talc. Very little pyrite, no quartz along fracture.
1120-1130 (341.4-344.5)	Conglomerate - As above talc along fractures, soft, almost unconsolidated.
1130-1250 (344.5-381)	Conglomerate & Silts - As Above - minor hematite staining on white fault gauge mineral (talc). Minor to moderate argillic alteration. Slightly harder, almost unconsolidated.
1250-1260 (381-384)	Conglomerate - Med. gray - slickenslide along fracture, moderate amounts of talc, conglomerate consists mostly of hard green clay.
1260-1270 (384-387.1)	Conglomerate - As above - slightly softer, slightly fractured, trace talc along fractures.
1270-1290 (387.1-393.3)	Conglomerate & Silts - As above - no talc, no fractures.
1290-1340 (393.3-408.5)	Conglomerate - As above - minor fractures, trace talc, weak argillic alteration.
1340-1390 (408.5-423.7)	Conglomerate - As above, small fractures with quartz fillings.
1390-1409 (423.7-429.5)	Conglomerate - As above, two feet hard siliceous dark gray siltstone, highly fractured with quartz fillings.

LITHOLOGIC LOG

Project: ~~Alum~~

Hole: 31-32

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
1409-1430 (429.5-435.9)	Siltstone - Medium to dark gray, very fine, siliceous and very hard. Minor hematite stain, small quartz veins.
1430-1450 (435.9-442)	Conglomerate & Silts - As above but conglomerate is harder, no talc, no argillic alteration.
1450-1480 (442-451.2)	Conglomerate - Large fragments of siltstone fractured and loaded with small quartz veins pior to being deposited in present unit.
1480-1510 (451.2-460.3)	Conglomerate - As above, minor talc on fractures, more argillic alteration. Hard clay & siltstone.
1510-1518 (460.3-462.8)	Silt - Black, hard clays, no alterations.
1518-1534 (462.8-467.7)	Argillite - Light to medium gray - very hard, very abrasive highly fracture, minor pyrite, minor quartz and talc along fractures. Some zones show strong argillic alteration.
1534-1550 (467.7-472.5)	Argillite - Dark gray black, vuggy, minor pyrite throughout. Less argillic alteration, very very hard unit, slow penetration 2 feet/hour, highly siliceous.
1550-1560 (472.5-475.6)	Argillite - Soft, strong argillic alteration, moderate clays, large quartz vein, minor shiny pyrite cubes.
1560-1570 (475.6-478.6)	Argillite - Hard, highly siliceous, weak argillic alteration, minor pyrite.
1570-1620 (478.6-493.9)	Dolomite - Dark gray with white swirls, (marbled), abundant dissemminated pyrite, slightly vuggy at 1590 some clear quartz crystals.
1620-1658 (493.9-505.5)	Granite - Light gray to white, aboundant muscovite, quartz and feldspar, trace chlorite, trace talc on fractures.

LITHOLOGIC LOG

Project: Alum

Hole: 31-32

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
1650-1675 (505.5-510.6)	Siltstone - Dark gray green with fractures, fillings and abundant sulfides.
1675-1720 (510.6-524.4)	Granite - Light gray to white, abundant dissemminated pyrite, abundant talc, minor mica, trace chlorite, moderate feldspar and quartz. Trace rose red translucent crystals. Moderate argillic alteration fractured and sheared at 1718.
1720-1776 (524.4-541-5)	Dolomite - Dark gray and black, vuggy, course granular texture, minor pyrite, minor small silica filled fractures, minor hematite staining around some pyrite.
1776-1967 (541.5-599.6)	Dolomite - Medium to dark green gray marbled. Calcite fillings in most fractures with a trace of pyrite, minor micas at 1789, lateral shear at 1825' dipping 70° cross core.
1967-1981 (599.6-603.9)	Dolomite - Dark gray, vuggy with loss circulation zone.
1981-1986(TD) (603.9-605.5-TD)	Granite - Light gray, quartz, mica and feldspar.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

0215

1186 -39

ΔT Well No. 31 -32

Property-Project ALUM Depth Logged 605 m

Map Silver Pk Scale 1" Date: Drilled 3/27/83 Logged 6/6/83

State NV County ESM, ___ of ___ of NW of NE of Sec 29 T 1N R 38½E

Instrument SPA 29 Operator Huntsman Elevation 5030 (ft / m)

Comments 1½' tubing Final log

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	39	6	6	83	CM

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	MO	YR
1 KW SOUTH OF ALUM MINE	BH	/DP	27	3	83

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	Min	W Long Degree	Min **
CM	15.	37.	45.	117.	45.

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Use decimals

Northing	Easting	Elev	
27.	11.5	5030.	F

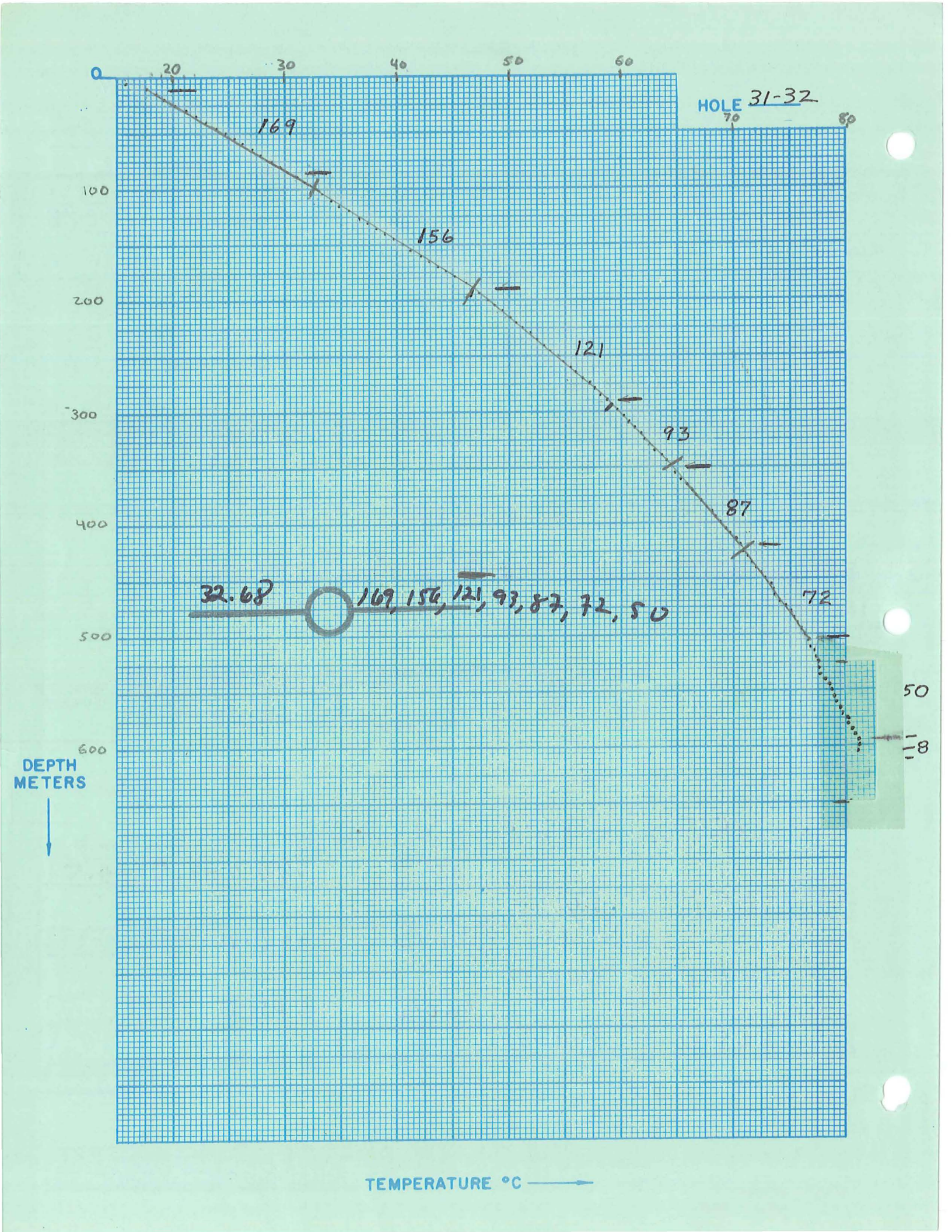
Write M if if meters

Use decimals

Segment 1 = Depths Start	End	Conductivity K	ΔK	Best cond. (-K) Downward extrapolations (-ΔK)
10.0	85.0			

	Start	End	K	ΔK
Segment 2	85.0	190.0	-3.5	-0.5
Segment 3	190.0	290.0		
Segment 4	290.0	350.0		
Segment 5	350.0	420.0		
Segment 6	420.0	505.0		
Segment 7	505.0	595.0		
Segment 8	,999			
Segment 9				
Segment 10				

After final segment Start = .999


HOLE 31-32
0
20
30
40
50
60
70
80
100
200
300
400
500
600
169
156
121
93
87
72
50
8
32.68
169, 156, 121, 93, 87, 72, 50
DEPTH METERS
TEMPERATURE °C

Date Logged: 6/6/83 ΔT Well No. 32-32

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
5	120.53	15.87					
< 10	113.40	17.63	1.76			W	
15	110.26	18.44	.81	162		↓	
20	106.96	19.30	.86	172			
25	103.48	20.24	96	192			
30	99.92	21.22	98	196			
35	96.54	22.18	96	192			
40	93.62	23.04	86	172			
45	90.66	23.92	88	176			
50	87.73	24.83	91	182			C .0952
55	85.33	25.59	76	152			
60	82.94	26.37	78	156			
65	80.54	27.17	80	160			
70	78.39	27.91	74	148			
75	75.93	28.77	86	172			< .0952
80	73.76	29.55	78	156			
< 85	71.67	30.33	78	156			
90	69.70	31.08	75	150			
95	67.63	31.89	81	162			
100	65.69	32.68	79	158			C .0953
105	63.91	33.42	74	148			
110	62.15	34.17	75	150			
115	60.31	34.97	80	160			
120	58.59	35.75	78	156			
125	56.77	36.60	85	170			C .0955
130	55.02	37.43	83	166			
135	53.46	38.20	77	154			

K=Conductivity

Date Logged: _____ ΔT Well No. _____

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
140	51.93	38.98					
			.90	180			
145	50.21	39.88					
			.70	140			
150	48.91	40.58					< .0957
			.79	158			
155	47.48	41.37					
			.76	152			
160	46.16	42.13					
			.73	146			
165	44.92	42.86					
			.85	170			
170	43.53	43.71					
			.73	146			< .0960
175	42.35	44.44					
			.74	148			
180	41.19	45.18					
			.98	196			
185	39.72	46.16					
			.59	118			
< 190	38.86	46.75					
			.54	108			
195	38.09	47.29					
			.72	142			
200	37.09	48.01					< .0962
			.79	158			
205	36.02	48.80					
			.57	114			
210	35.27	49.37					
			.73	146			
215	34.33	50.10					
			.59	118			
220	33.59	50.69					
			.67	134			
225	32.77	51.36					< .0965
			.70	140			
230	31.93	52.06					
			.55	110			
235	31.29	52.61					
			.56	112			
240	30.66	53.17					
			.62	124			
245	29.97	53.79					
			.67	134			
250	29.24	54.46					< .0968
			.43	86			
255	28.78	54.89					
			.62	124			
260	28.14	55.51					
			.49	98			
265	27.64	56.00					
			.63	126			
270	27.01	56.63					

K=Conductivity

Date Logged: 6/6/83

ΔT Well No. 32-32

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
275	26.42	57.24	41	82			c .0971
280	26.03	57.65	52	104			
285	25.54	58.17	59	118			
< 290	24.91	58.86	41	82			
295	24.55	59.27	46	92			
300	24.14	59.73	52	104			c .0975
305	23.68	60.27	34	68			
310	23.39	60.61	63	126			
315	22.87	61.24	49	98			
320	22.47	61.73	34	68			
325	22.19	62.07	50	100			c .0980
330	21.80	62.57	39	78			
335	21.50	62.96	55	110			
340	21.08	63.51	44	88			
345	20.75	63.95	48	96			
< 350	20.40	64.43	43	86			c
355	20.09	64.86	48	96			
360	19.75	65.34	43	86			
365	19.45	65.77	42	84			
370	19.16	66.19	45	90			
375	18.85	66.66	48	96			c .0990
380	18.53	67.14	40	80			
385	18.27	67.54	46	92			
390	17.98	68.00	44	88			
395	17.70	68.44	38	76			
400	17.47	68.82	52	104			c .0995
405	17.15	69.34					

K=Conductivity

Date Logged: _____ ΔT Well No. _____

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
410	16.94	69.70					
			46	92			
415	16.67	70.16					
			38	76			
< 420	16.45	70.54					
			35	70			< .1001
425	16.25	70.89					
			43	86			
430	16.01	71.32					
			28	56			
435	15.85	71.60					
			48	96			
440	15.59	72.08					
			40	80			
445	15.38	72.48					
			37	74			<
450	15.18	72.85					
			45	90			
455	14.95	73.30					
			29	58			
460	14.80	73.59					
			18	36			
465	14.71	73.77					
			49	98			
470	14.46	74.26					
			53	106			< .1014
475	14.20	74.79					
			33	66			
480	14.04	75.12					
			32	64			
485	13.89	75.44					
			36	72			
490	13.72	75.80					
			19	38			
495	13.63	75.99					
			37	74			< .1020
500	13.46	76.36					
			36	72			
< 505	13.34	76.62					
			29	58			
510	13.21	76.91					
			29	58			
515	13.08	77.20					
			22	44			
520	12.98	77.42					
			9	18			< .1027
525	12.94	77.51					
			7	14			
530	12.91	77.58					
			27	54			
535	12.79	77.85					
			35	70			
540	12.64	78.20					

K=Conductivity

Date Logged: 6/6/83

ΔT Well No. 32-32

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
545	12.51	78.50					
550	12.42	78.72	22	44			C .1034
555	12.31	78.99	18	36			
560	12.21	79.23	24	48			
565	12.09	79.52	29	58			
570	11.98	79.80	28	56			
575	11.87	80.07	27	54			C .1041
580	11.76	80.35	28	56			
585	11.64	80.64	29	58			
590	11.53	80.93	29	58			
595	11.45	81.14	21	42			
600	11.43	81.19	5	10			
605	11.48	81.06	-.13	-26			

K=Conductivity

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 1186-39 (31-32)

Elevation: 5030 ft.

Date Drilled: 27/3/83

Location: NE NW S32TINR30½E

Method: Rotary and Diamond Drill

Geologist: Deymonaz/Huntsman/Pilkington

Gamma:

Depth (m)	Description
0 - 190	Lower Esmeralda Fm (Unit F)
	0- 55 Light orange to yellow brown, fine-grained tuffaceous siltstones.
	55- 91 Gray fine-grained tuffaceous siltstones, abundant clays developed by devitrification of the volcanic ash - some carbonate fracture fillings.
	91-122 Gray-brown fine-grained laminated tuffaceous siltstone, abundant clay mineral development from devitrification of ash - bedding inclined about 45°. Sulfides either pyrite or marcasite common as fracture fillings, some sulfides disseminated parallel with bedding.
	122-152 Gray-brown tuffaceous siltstone with abundant euhedral calcite crystals, which resemble phenocrysts, parallel to laminations. Fine-grained disseminated pyrite cubes.
	152-190 Gray-green fine-grained tuffaceous siltstone with some coarser sandy layers composed of volcaniclastic debris, mostly subhedral crystal fragments of feldspar and quartz. Minor amounts of euhedral calcite and/or siderite crystals along some of the laminations.
190 - 464	Lower Esmeralda Fm (Unit E)
	190-280 Alternating layers of gray-green conglomerate composed of angular to subrounded clasts of black siltstone, gray-geen siltstone from Paleozoic (?) section and gray-green tuffaceous siltstones from the older Esmeralda Fm set in a

LITHOLOGIC LOG

Project: Alum

Hole:

Elevation: Date Drilled:

Location: Method:

Geologist: Gamma:

Depth (m)	Description
	matrix of volcaniclastic debris. Pyrite common as fracture fillings but also present a disseminations along the rock fragment boundaries.
	Intercolated with the conglomerates are layers of gray-brown very fine-grained tuffaceous siltstones - minor calcite filled fractures, abundant euhedral calcite crystals give the rock the appearance of an ash flow tuff.
280-464	Intercolated gray-green conglomerates and tuffaceous sediments. However, the whole section becomes much more dense as the relative proportions of Paleozoic (?) and/or Precambrian (?) clasts increases at 287 meters. The rock contains fracture coating of a shiny black bitumen.
	424-427 The conglomerate in this interval is a gray limestone breccia with large clasts of gray limestone held together with calcite cement.
	Pyrite occurs as disseminated grains within the Paleozoic clasts and also as fracture fillings and along grain boundaries as a late stage mineralization.
464 - 493	Paleozoic (?) and/or Precambrain (?) Carbonate
464-472	Gray to dark gray medium-grained dolomite or dolomitic limestone. Below 470m the rock has solution cavities and considerable sulfides.

LITHOLOGIC LOG

Project: Alum

Hole:

Elevation: Date Drilled:

Location: Method:

Geologist: Gamma:

Depth (m)	Description
	472-473 Fault gouge.
	473-493 Rock show considerable recrystallization with large blebs of calcite - shows some silica replacement and development of a clear micaceous mineral.
493 - 499	Granitic Pegmatite (Jurassic?)
	Light gray coarse-grained pegmatitic granite composed of quartz, feldspar and muscovite which is probably a border phase of the Weepah pluton.
499 - 511	Paleozoic (?) and/or Precambrian (?) Carbonates
	Gray-green to dark green calcsilicate skarn rock with some cross-cutting calcite veinlets. The rock consists of quartz, epidote, diopside, grossularite, phlogopite and feldspar typical of the pyroxene hornfels assemblage of contact metamorphism.
511 - 525	Granitic Pegmatite (Jurassic?)
	Light gray, coarse-grained pegmatitic granite composed of quartz, feldspar and muscovite cut by quartz fracture fillings and/or veinlets. From 512-512.5 a strong shear zone with abundant gouge.
525 - 604	Paleozoic (?) and/or Precambrian (?) Carbonate
	Dark gray to black, fine-grained, dense banded dolomite with varying amounts of silica replacement. The more argillaceous layers show the development of muscovite and/or phlogopite. From 600-604m the rock contain extensive solution cavities lined with botryoidal silica. The rock contains considerable disseminated pyrite.

LITHOLOGIC LOG

Project: Alum

Hole:

Elevation: Date Drilled:

Location: Method:

Geologist: Gamma:

Depth (m)	Description
604 - 606	Granitic Pegmatite (Jurassic?) Light gray, coarse-grained pegmatitic granite developed by replacement of a calcsilicate skarn.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-40 (24-33)

Property-Project Alum Depth Logged 396.8 m

Map Silver Peak Scale 15' Date: Drilled 25/6/82 Logged 20/7/82

State Nevada County Esmeralda, ___ of ___ of SW of NW of Sec 33 T 1N R 38½ E

Instrument Spafford Operator Huntsman/Pilkington Elevation 5100 ft (m)

Comments 2" iron pipe

Card A

RT JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	4020	7	82	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Date Logged

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
9 km SW of WEEPAH	BHCDP	DP	25	6	82

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	N Lat Min	W Long Degree	W Long Min **
cm	15.	37.	45.	117.	45.

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,−)(E,+)

Use decimals

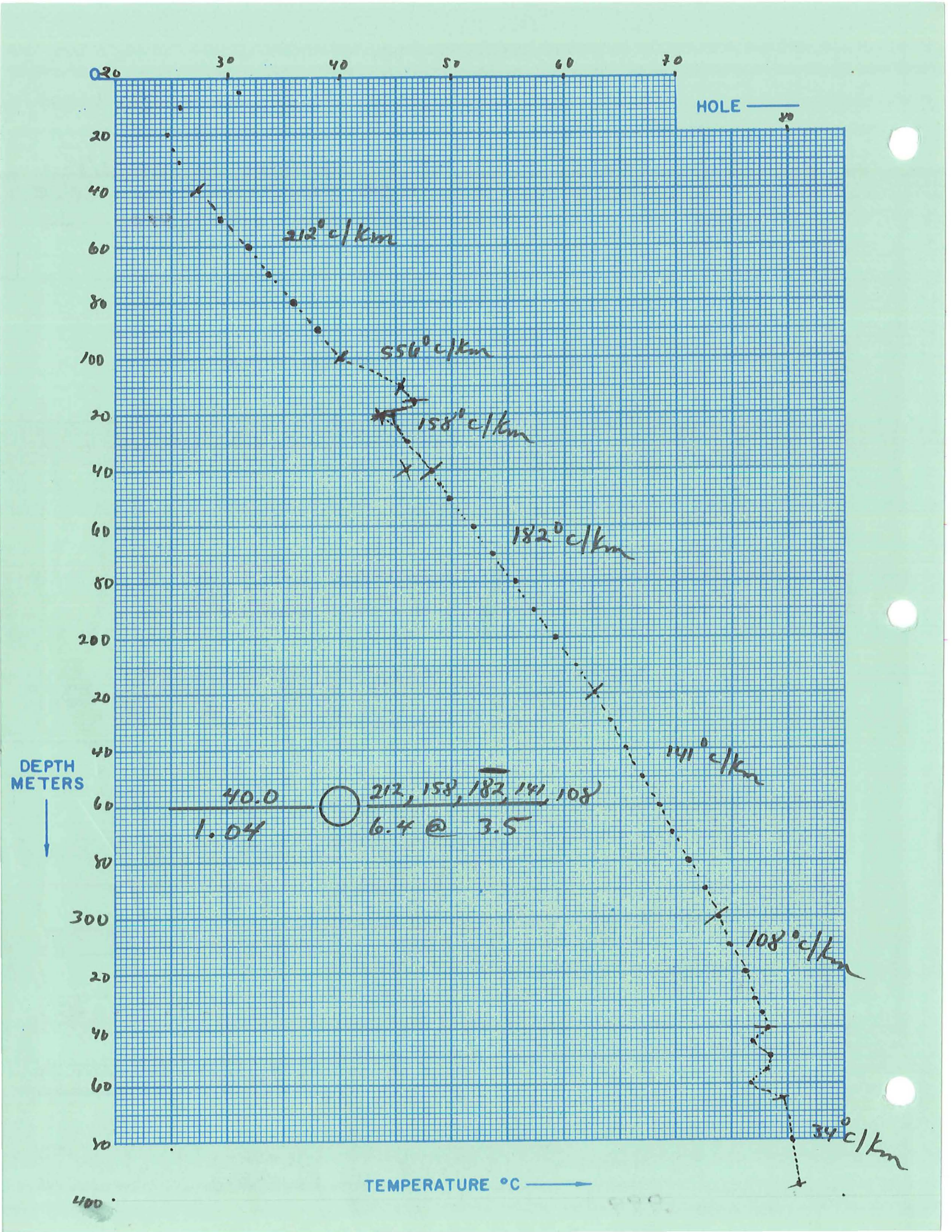
Northing	Easting	Elev	
26.6	13.9	5100.	F

Write M if if meters

Use decimals

Segment	Start	End	Conductivity K	ΔK	Best cond. (-K) Downward extrapolations (-ΔK) End
1	40.0	100.0			
2	100.0	110.0			
3	110.0	115.0			
4	115.0	120.0			
5	120.0	140.0			
6	140.0	220.0	-3.5	-0.5	
7	220.0	300.0			
8	300.0	340.0			
9	340.0	365.0			
10	365.0	395.0			

After final segment Start = .999 .999


HOLE
DEPTH METERS
TEMPERATURE °C
212° c/km
556° c/km
158° c/km
182° c/km
141° c/km
108° c/km
34° c/km
40.0
1.04
212, 158, 182, 141, 108
6.4 @ 3.5

1186-4D

Date Logged: 20/7/82

ΔT Well No. 24-33

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
5	70.00	30.97					
10	84.30	25.92					
15	88.38	24.62					
20	87.68	24.85					
25	87.12	25.02					
30	85.10	25.67				↑ Air	
35	83.06	26.33				↓ H_2O	
40	80.15	27.30					
45	76.84	28.45					
50	73.96	29.48					
55	69.81	31.04					
60	67.16	32.08					
65	65.37	32.81					
70	62.84	33.87					
75	60.50	34.89					
80	58.24	35.91					
85	55.74	37.08					
90	53.78	38.04					
95	51.85	39.02					
100	49.97	40.00					
105	47.95	41.11					
110	40.62	45.56					H_2O Entry
115	39.11	46.58					
120	42.10	44.90					
125	41.30	45.11					
130	39.90	46.04					
135	38.52	46.99					

K=Conductivity

Date Logged: _____ ΔT Well No. _____

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
140	37.03	48.05					
145	35.12	49.48					
150	34.52	49.95					
155	33.99	50.37					
160	32.00	52.00					
165	31.11	52.77					
170	30.03	53.73					
175	29.06	54.63					
180	27.94	55.71					
185	26.97	56.68					
190	26.26	57.41					
195	25.30	58.43					
200	24.49	59.34					
205	23.73	60.21					
210	23.05	61.01					
215	22.43	61.78					
220	21.76	62.62					
225	20.93	63.71					
230	20.66	64.07					
235	20.39	64.44					
240	19.61	65.53					
245	18.94	66.52					
250	18.62	67.00					
255	18.06	67.87					
260	17.72	68.41					
265	17.39	68.95					
270	16.97	69.64					

K=Conductivity

Date Logged: _____ ΔT Well No. _____

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
275	16.55	70.36					
280	16.09	71.17					
285	15.66	71.95					
290	15.25	72.72					
295	14.94	73.31					
300	14.63	73.92					
305	14.41	74.36					
310	14.22	74.74					
315	13.81	75.60					
320	13.53	76.20					
325	13.28	76.75					
330	13.07	77.23					
335	12.78	77.87					
338.4	12.58	78.35					
340	12.63	78.25					
345	13.22	76.88					
350	12.50	78.52					
353	12.42	78.71					
355	12.61	78.26					
358	13.76	75.70					
360	13.31	76.68					
365	12.05	79.61					
370	11.87	80.05					
375	11.81	80.22					
380	11.76	80.33					
385	11.71	80.45					
390	11.68	80.54					

K=Conductivity

Date Logged: ____________

ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
- 395	11.65	80.63					
TD 396.8	11.64	80.65					

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

1186-40

ΔT Well No. 24-33

Property-Project ALUM final log Depth Logged 405

Map Silver Peak Scale 15' Date: Drilled 25/6/82 Logged 6/6/83

State NEV County Esmeralda, ___ of ___ of SW of NW of Sec 33 T 1 N R 38½ E

Instrument #29 Operator Huntsman Elevation 5100 (ft / m)

Comments 405 meters total depth, 2" iron Pipe

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	40	6	6	83	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
9 km SW of WEEPAH	BH	DP	25	6	82

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min	**
cm	15.	37.	45.	117.	45.	

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
26.6	13.9	5100.	F

Use decimals

← Write M if if meters

Segment ! = Depths

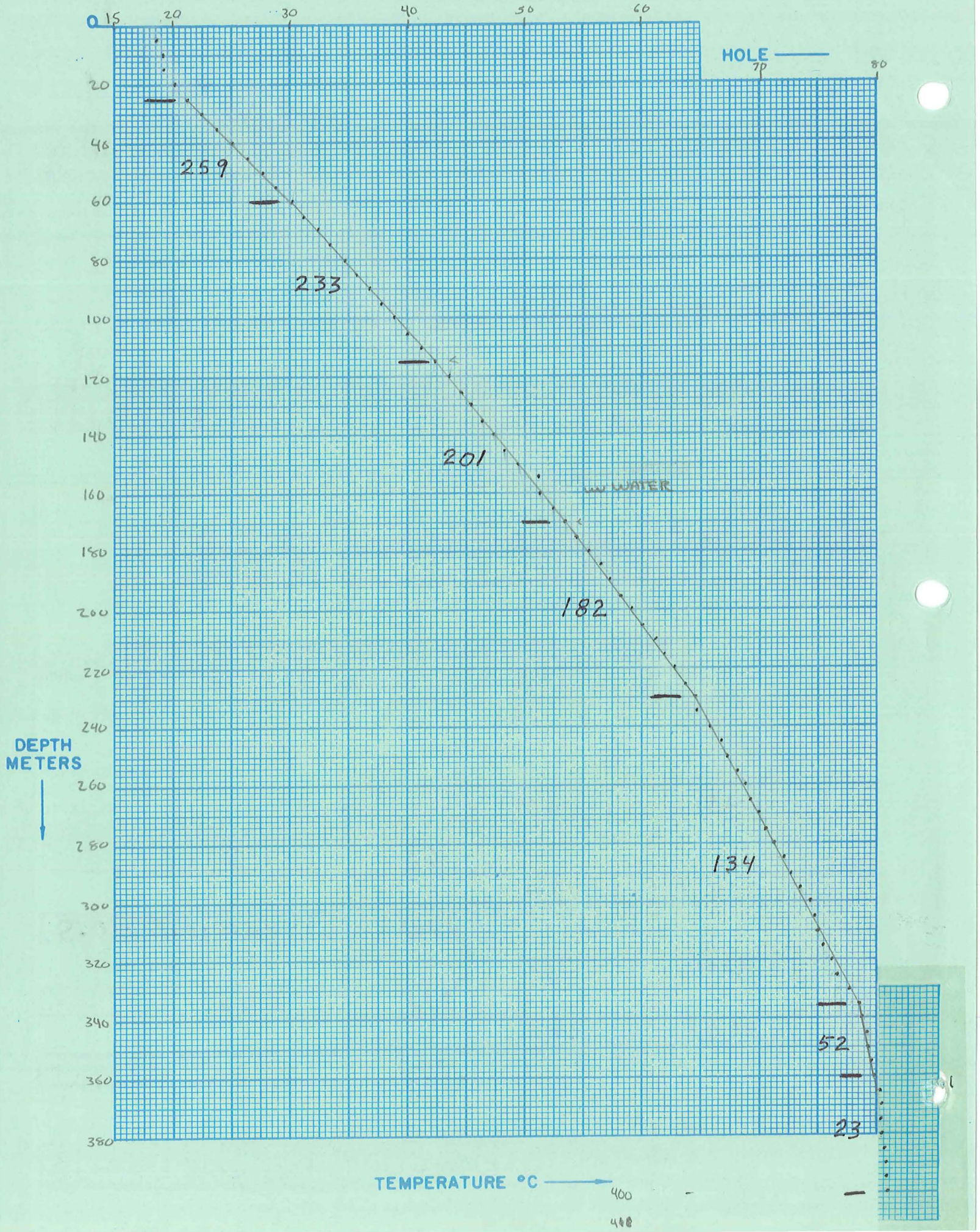
Start	End	Conductivity K	Conductivity ΔK
25	60		

Best cond. (-K)

Downward extrapolations (-ΔK)

	Start	End	K	ΔK
Segment 2	60	115		
Segment 3	115	170		
Segment 4	170	230	-3.5	-0.5
Segment 5	230	335		
Segment 6	335	360		
Segment 7	360	405		
Segment 8	.999			
Segment 9				
Segment 10				

After final segment Start = .999


HOLE
259
233
201
182
134
52
23
WATER
DEPTH METERS
TEMPERATURE °C
0
15
20
30
40
50
60
70
80
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400

250 130'
50 492
75 1010

Date Logged: 6/6/83

ΔT Well No. 24-33

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
5	108.74	18.84					
			.29	58			
10	107.62	19.13					
			.10	20			
15	107.24	19.23					
			.96	192			
20	103.66	20.19					
			.88	186			c .0943
< 25	100.44	21.07					
			1.40	280			
30	95.55	22.47					
			1.31	262			
35	91.15	23.78					
			1.32	264			
40	86.85	25.10					
			1.34	268			
45	82.72	26.44					
			1.27	254			c .0944
50	78.95	27.71					
			1.23	248			
55	75.45	28.94					
			1.21	242			
< 60	72.15	30.15					
			1.17	234			
65	69.09	31.32					
			1.11	222			
70	66.29	32.43					
			1.09	218			c .0946
75	63.67	33.52					
			1.12	224			
80	61.05	34.64					
			1.16	232			
85	58.48	35.80					
			1.08	216			
90	56.18	36.88					
			1.09	218			
95	53.92	37.97					
			1.12	224			c .0948
100	51.72	39.09					
			1.07	214			
105	49.70	40.16					
			1.24	248			
110	47.45	41.40					
			1.03	206			
< 115	45.66	42.43					
			1.01	202			
120	43.96	43.44					
			1.01	202			c .0950
125	42.33	44.45					
			.95	190			
130	40.86	45.40					
			.96	192			
135	39.44	46.36					

K=Conductivity

Date Logged: 6/6/83

ΔT Well No. 24-33

Depth (meters)	Instr. Reading	Temp. 46.6°C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
140	37.95	47.39	1.03	206			
145	36.46	48.47	1.08	216			
150	35.05	49.54	1.07	214			C .0953
155	33.10	51.08	1.54	308		↑ Air	
160	32.79	51.34	.26	52		WATER ↓	
165	31.43	52.50	1.16	232			
170	30.31	53.48	.98	196			
175	29.27	54.43	.95	190			C .0957
180	28.15	55.50	1.07	214			
185	27.15	56.49	.99	198			
190	26.33	57.34	.85	170			
195	25.41	58.32	.98	196			
200	24.57	59.25	.93	186			C .0961
205	23.76	60.17	.92	184			
210	22.96	61.12	.95	190			
215	22.23	62.03	.91	182			
220	21.59	62.84	.81	162			
225	20.74	63.96	1.12	224			C .0966
230	20.41	64.41	.45	90			
235	20.20	64.70	.29	58			
240	19.44	65.78	1.08	216			
245	18.77	66.78	1.00	200			
250	18.37	67.39	.61	122			C .0971
255	17.83	68.23	.84	168			
260	17.44	68.87	.64	128			
265	17.16	69.33	.46	92			
270	16.80	69.93	.60	120			

K=Conductivity

Date Logged: 6/6/83

ΔT Well No. 24-33

Depth (meters)	Instr. Reading	Temp. 69°C 93	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
275	16.41	70.61	.68	136			C 0976
280	16.04	71.26	.65	130			
285	15.59	72.08	.82	164			
290	15.22	72.78	.70	140			
295	14.81	73.57	.79	158			
300	14.49	74.20	.63	126			C 0983
305	14.18	74.83	.63	126			
310	13.86	75.50	.67	134			
315	13.62	76.00	.50	100			
320	13.45	76.38	.38	76			
325	13.23	76.86	.48	96			C .0989
330	12.77	77.90	1.04	208			
< 335	12.53	78.46	.56	112			
340	12.36	78.87	.41	82			
345	12.24	79.16	.29	58			
350	12.15	79.38	.22	44			C .0995
355	12.08	79.55	.17	34			
< 360	12.00	79.75	.20	40			
365	11.93	79.92	.17	34			
370	11.85	80.12	.20	40			
375	11.78	80.30	.18	36			C .1003
380	11.72	80.45	.15	30			
385	11.67	80.58	.13	26			
390	11.64	80.66	.08	16			
395	11.62	80.70	.04	8			
400	11.60	80.76	.06	12			C .1010
< 405	11.59	80.78 Total Depth	.02	4			

K=Conductivity

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 1186-40 (24-33)

Elevation: 5100 feet

Date Drilled: 25/6/82

Location: SENW Sec 33 T1N R38 1/2E

Method: rotary/air and/or mud

Geologist: Bill Huntsman/D. Pilkington

Gamma:

Depth (m)	Description
	Lower Esmeralda Fm (upper part Unit F)
0 - 137	Interbedded yellow to orange siltstones, sandstones and claystones with abundant gray vitric tuffs. Kaolinitic and/or montmorillonite alteration of vitric materials common. Disseminated pyrite common in the argillic tuffs. Water entry at 110 meters.
137-161	Layer of light gray lithic-vitric-crystal tuff. Rocks are weakly altered to clays and contain 1-2 percent disseminated pyrite.
161-198	Interbedded claystone, siltstone, sandstone and vitric tuff. Rocks all display weak alteration to clays as a result of devitrification of the contained volcanic glasses.
198-223	Layer of light gray lithic-vitric-crystal tuff with abundant clay alteration and minor disseminated pyrite.
223-271	Interbedded claystone, tuffaceous siltstones and/or fall tuffs. Abundant gray green to brown clay formed by devitirification of volcanic glass.
271-280	Light gray lithic-vitric-crystal tuff - partially altered to clays. Minor disseminated pyrite.
280-344	Interbedded claystone, siltstone and tuffaceous shale with considerable carbonaceous material. Devitrification of volcanic glass common and results in gray-green to brown montmorillonitic clays. Disseminated pyrite in the 1-3 percent range.

LITHOLOGIC LOG

Project: Alum

Hole: 1186-40 (24-33)

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
344-354	Light gray crystal-lithic-vitric tuff, fractured hot water entry at 345 & 350m with some cacite fracture fillings. Some signs of oxidation of the disseminated pyrite.
	Lower Esmeralda Fm (lower part Unit F)
354-415	Light gray to medium gray siltstones, some interbedded tuffs which are altered to clays. Abundant dissiminated pyrite 3-5 percent - probably related to the geothermal fluids. Some evidence of oxidation along the fractures, especially at 360, 411 and 415 m.

LITHOLOGIC LOG

Project: Alum

Hole: 24-33

Elevation: 5100 Date Drilled: 6/25/82

Location: SENW Sec 33 T1N R38 1/2E Method: rotary air and/or mud

Geologist: Huntsman Gamma:

Depth (m)	Description
0- 37	Alluvium - Consisting of argillic tuff and claystones, light yellow, slightly hard, minor pyrolusite, hematite and other primary oxidation minerals. Hematite and pyrolusite increasing with depth.
37- 52	Alluvium - Claystone and sandstone rock fragments. Claystone has hematite and pyrolusite staining. Sandstone is very fine, silty, very good sorting with abundant kaolinite; hematite and minor pyrolusite and biotite.
52- 64	Alluvium - Sand siltstone, light orange, with abundant clays, hematite staining, minor pyrolusite and biotite. Also some argillic tuffs.
64- 67	Argillic Tuffs - 100% altered to light yellow clays with minor limonite, trace hematite, silty sandstone as above. Some minor blue-gray clays. Base of surface oxidation.
67- 70	Rhyolite Fragments - Light purple gray, weathered, minor clays from above.
70- 79	Argillic Tuffs - Rusty to medium brown. Soft good drilling, trace pyrite.
79- 82	Clays - Light green gray and tan. Argillic tuffs, the green appears to be weakly reduced.
82-128	Argillic Tuffs - Medium gray, minor shinny pyrite soft, good drilling.
128-131	Clay - Light to medium gray silty clays, harder than above unit, argillic tuffs.
131-137	Clay - Medium brown, soft, slightly sticky.
137-140	Ash Fall Tuffs - Light gray, slightly hard, weakly altered to clays, dissiminated pyrite, shinny, minor gray clays.

LITHOLOGIC LOG

Project: Alum

Hole: 24-33

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
140-143	As above, more altered to clays, softer.
143-161	As above, abundant kaolinite, moderate shinny pyrite. Minor blue-gray clays.
161-171	Clays - Light blue-gray, trace pyrite, silty, soft.
171-186	Clays - As above with increasing silt and hardness.
186-192	Siltstone - Light blue-gray, trace pyrite, slightly hard.
192-195	Clays - Gray, soft, sticky.
195-198	Clay - Light gray, silty, trace pyrite, argillic tuff, minor kaolinite, some very soft clays, some slightly hard and waxy.
198-216	Ash Fall Tuffs - Light gray, trace pyrite, minor black minerals, slightly hard, mostly alterated to clays.
216-223	Ash Fall Tuffs - As above with hard fragments of rhyolite.
223-226	Clay - Light brown, soft, slightly sticky, minor fragments from above.
226-253	Tuffs - Medium gray, abundant shinny pyrite, hard stringers of black fragments, minor alteration to clay.
253-256	Clay - Light gray silty clay, same unit as above but highly altered to clays.
256-271	Clay - As above with some brown green and gray clays. Green is very hard and waxy.
271-280	Ash Fall Tuffs - Abundnt black fragments, hard gray-green stringers of a ash fall, trace pyrite.
280-283	Clay - Stringer of brown waxy clay.

LITHOLOGIC LOG

Project: Alum

Hole: 24-33

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
283-338	Siltstone - Light blue-gray-green as above (same unit) harder, minor pyrite, minor alteration.
338-341	Siltstone - As above, abundant shinny pyrite, very hard, slow drilling, minor chalcedony, minor clays.
341-344	Clays and Siltstone - Light gray brown, moderate shinny pyrite, slightly hard.
344-350	Ash Fall Tuff - Light brown gray, hard, moderate pyrite.
350-354	Ash Fall Tuff - As above with trace hematite, weak to moderate 2ox in a few zones (possible fractures for hot waters) trace calcite.
354-375	Siltstone - Light gray, hard, abundant shinny pyrite.
375-384	Siltstone - Light to medium gray, abundant sulfides including marcacite, and shinny pyrite. Very hard lenses of green shale, minor brown clays.
384-405	Siltstone - As above.
405-411	Siltstone - Light gray, moderate brown clays, abundant shinny pyrite, moderate amounts of calcite.
411-415	Siltstone - As above with weak hematite staining, possible fractures. Siltstone and clay interbedded.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-43 (56-29)

Property-Project Alum Depth Logged 450 m

Map Silver Peak Scale 15 Date: Drilled 21/12/82 Logged 3/4/83

State Nevada County Esmeralda, ___ of ___ of NW of SE of Sec 29 T 1N R 38½E

Instrument Spafford #29 Operator JED Elevation 5040 (ft / m)

Comments 2 3/8" tubing H₂O @ 115 meters

Card A

RT JUSTIFY	Proj No	Well No	DA	MO	YR	*
1 2 3 4	5 6 7 8 9 10	11 12 13	14 15 16	17 18	19	20
1186		43	3	4	82	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Date Logged

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	51 52 53 54 55	56 57 58 59 60	61 62	64 65	67 68
9.5 Km WSW OF WEEPAH	JED	DP	21	12	81

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	N Lat Min	W Long Degree	W Long Min **
21 22 23 24 25	26 27 28 29 30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50
Km	15.	37.	45.	117.	45.

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75	80
28.1	12.2	5040.	F

Use decimals

← Write M if if meters

Segment != Depths

Segment	Start	End	Conductivity K	Conductivity ΔK
	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45	46 47 48 49 50
	30.0	100.0		

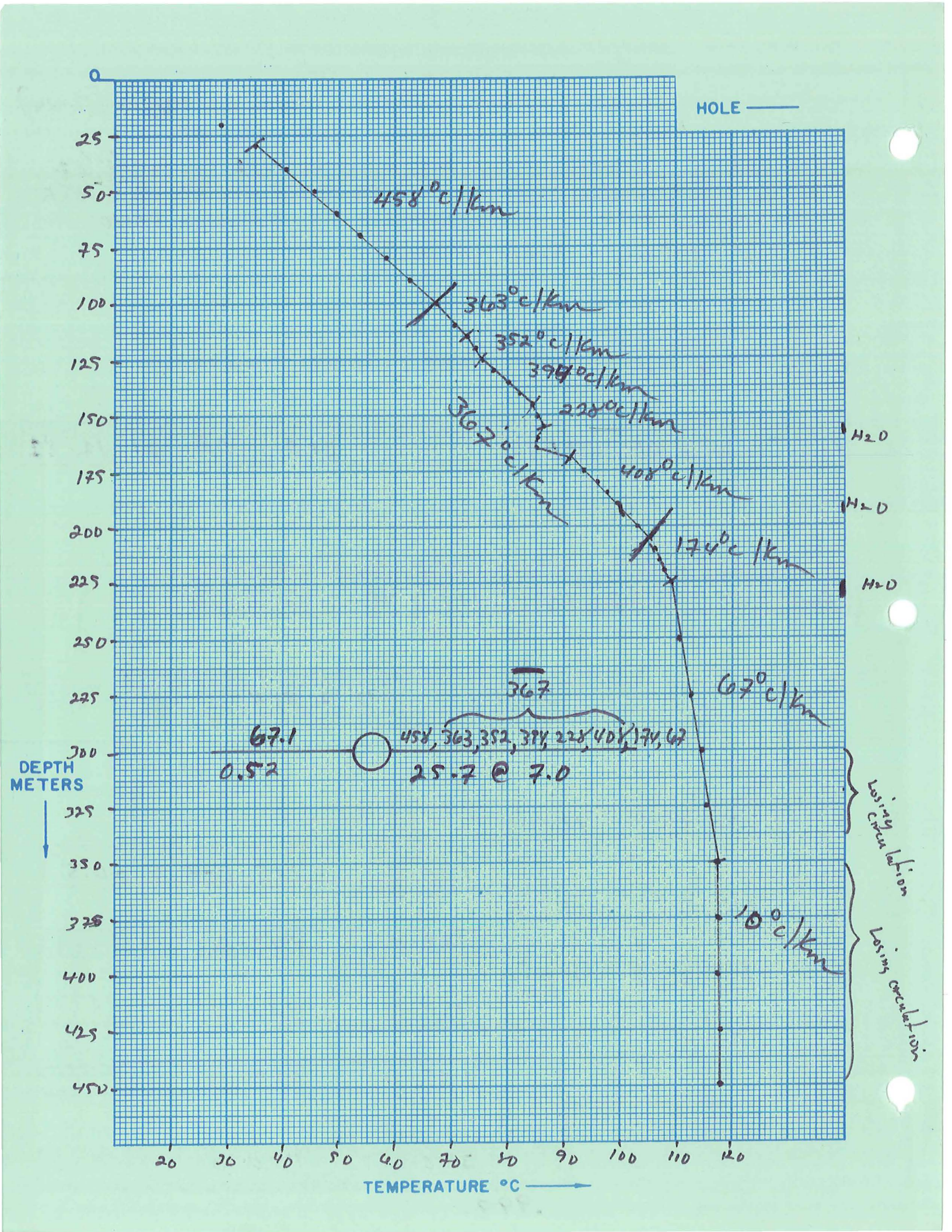
Best cond. (-K)

Downward extrapolations (-ΔK)

Segment	Start	End	K	ΔK
	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75	76 77 78 79 80
Segment 2	100.0	115.0	-7.0	-0.5
Segment 3	115.0	125.0		
Segment 4	125.0	145.0		
Segment 5	145.0	155.0		
Segment 6	155.0	170.0		
Segment 7	170.0	205.0		
Segment 8	205.0	225.0		
Segment 9	225.0	350.0		
Segment 10	350.	450.0		

After final segment Start = .999

.999


HOLE
458°c/km
363°c/km
352°c/km
394°c/km
228°c/km
367°c/km
408°c/km
174°c/km
67°c/km
10°c/km
H2O
H2O
H2O
367
458, 363, 352, 394, 228, 401, 174, 67
67.1
0.52
25.7 @ 7.0
losing circulation
losing circulation
DEPTH METERS
TEMPERATURE °C
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
20
30
40
50
60
70
80
90
100
110
120

Date Logged: 3/4/82

ΔT Well No. 1186-43 (56-29)

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
20	74.55	29.27					
30	60.20	35.02					
40	49.25	40.40					
50	40.95	45.34					
60	34.75	49.77					
70	30.09	53.68					
80	25.45	58.27					
90	21.80	62.57					
100	18.558	67.10					
110	16.483	70.48					
115	15.347	72.54					
120	14.464	74.25					
125	13.594	76.06					
130	12.755	77.94					
135	11.889	80.02					
140	11.072	82.14					
145	10.434	83.93					
150	9.932	85.42					
155	9.676	86.21					
160	9.846	85.68					
165	9.953	85.35					
170	8.194	91.33					
175	7.652	93.47					
180	7.049	96.05					
185	6.675	97.80					
190	6.107	99.52					
195	6.075	100.66					

K=Conductivity

Date Logged: _____ ΔT Well No. _____

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
200	5.537	103.47					
205	5.148	105.60					
210	4.919	106.19					
215	4.856	107.12					
220	4.826	108.45					
225	4.736	109.08					
230	4.679	109.49					
235	4.619	109.92					
240	4.573	110.26					
245	4.526	110.61					
250	4.490	110.88					
255	4.703	111.10					
260	4.431	111.33					
265	4.378	111.74					
270	4.325	112.15					
275	4.272	112.57					
280	4.212	113.06					
285	4.147	113.59					
290	4.090	114.06					
295	4.037	114.51					
300	3.990	114.92					
305	3.944	115.32					
310	3.903	115.68					
315	3.865	116.00					
320	3.829	116.37					
325	3.793	116.70					
330	3.759	117.01					
335	3.727	117.31					

K=Conductivity

Date Logged: _____ ΔT Well No. _____

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
340	3.726	117.32					
345	3.723	117.35					
350	3.719	117.39					
355	3.718	117.40					
360	3.719	117.39					
365	3.717	117.41					
370	3.712	117.45					
375	3.709	117.48					
380	3.704	117.53					
385	3.700	117.57					
390	3.696	117.60					
395	3.689	117.67					
400	3.683	117.73					
405	3.678	117.77					
410	3.671	117.84					
415	3.664	117.91					
420	3.658	117.96					
425	3.652	118.02					
430	3.646	118.08					
435	3.640	118.14					
440	3.634	118.28					
450	3.617	118.36					
450+	TD						

K=Conductivity

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 56-29 (1186 -43)

Elevation: 5020' Date Drilled: Completed: 12/21/81

Location: NW 1/4 SE 1/4 Sec 29 T1N R38 1/2E Method: air/foam and mud

Geologist: John Deymonaz Gamma:

Depth (m)	Description
0- 41	Esmeralda Fm - Siltstones and Sandstones - Firm to hard, predominantly light green and gray siltstones with minor fine sandstones. Intermittent zones of silicification. Minor iron staining along fractures and minor pyrite along small tight fractures.
41-111	Esmeralda Fm Siltstone - Med. to dark gray siltstones and soft shales. Some swelling in clays at 41m. Minor calcite along rare fractures. Rare pyrite.
111-454	Siltstone - Paleozoic ? section, hard, abrasive dark gray siltstones and shales. Bedding and laminations visible in larger chips. Intermittent fine grained argillaceous sandstones. Pyrite 5-20%, highest amount in upper portions of section. Large (up to 3 cm) pyrite crystals in white mylonite (?) from fault zone from 200m to unknown depth. Significant amounts of 80°C water encountered at 200-205m. Formation appears pervasively fractured.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-45

Property-Project Alum Depth Logged 95m

Map Rhyolite Ridge Scale 15" Date: Drilled — Logged 8-5-81

State NV County Esmeralda, ___ of ___ of NE of NE of Sec 1 T 1N R 37E

Instrument Enviro labs Operator JED Elevation 4895 (ft) (m)

Comments 8" cased water well with disconnected submersible pump, 3/4" hole cut in Top plate

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	45	05	08	81	CM

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
8.8 KM NE OF EMIGRANT PASS	JED				

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.	37.	45.0	118.	00.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
39.88	27.454895.		F

Use decimals ← Write M if if meters

Segment 1 = Depths

Start	End
25.0	35.0

Conductivity

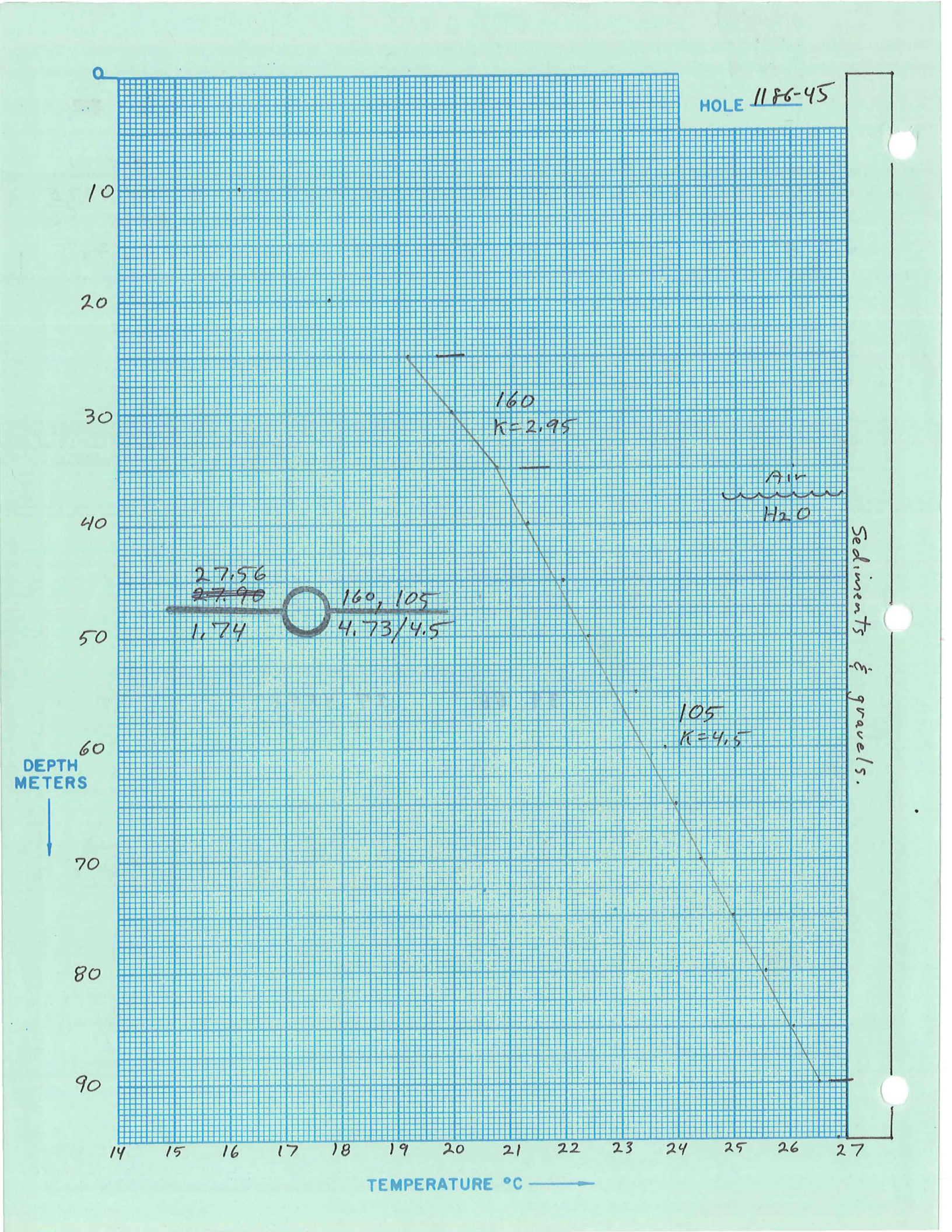
K	ΔK

Best cond. (-K)

Downward extrapolations (-ΔK)

	End	K	ΔK
Segment 2 Start →	35.0	90.0	-4.5 -0.5
Segment 3	.999		
Segment 4 Start →			
Segment 5			
Segment 6 Start →			
Segment 7			
Segment 8 Start →			
Segment 9			
Segment 10 Start →			

After final segment Start = .999


HOLE 1186-45
10
20
30
40
50
60
70
80
90
DEPTH METERS
160
K=2.95
Air
H2O
27.56
~~27.90~~
1.74
160, 105
4.73/4.5
105
K=4.5
Sediments & gravels.
14
15
16
17
18
19
20
21
22
23
24
25
26
27
TEMPERATURE °C

Windmill - Alum
NE-NE 1 T1N R37E
Rhyolite Ridge Quad
8" cased w.m.

Date Logged: _____

ΔT Well No. 1186-45

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
5						Air	
10		16.15					
			1.60	160			
15		—					
20		17.75					
			1.00	200			
25		19.15					
			0.81	162			
30		19.96					
			0.79	158			
35		20.75					
			0.55	110			
40		21.30				H_2O	
			0.63	126			
45		21.93					
			0.47	94			
50		22.40					
			0.83	166			
55		23.23					
			0.52	104			
60		23.74					
			0.20	40			
65		23.94					
			0.46	92			
70		24.40					
			0.59	118			
75		24.99					
			0.57	114			
80		25.56					
			0.48	96			
85		26.04					
			0.47	94			
90		26.51					
			0.34	68			
95		26.85					

K=Conductivity

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-46

Property-Project ALUM Depth Logged 195m

Map Rhyolite Ridge Scale 15" Date: Drilled _____ Logged 11/5/82

State NV County ESM, ____ of ____ of NW of SE of Sec 15 T 1N R 37E

Instrument SPA-29 Operator JED Elevation 5260 (ft) (m)

Comments 8" Cased abdn water well, 2.2 miles E. of Emigrant Pass. Listed as "warm" well in state thermal report.

Card A

JUSTIFY | Proj No | Well No | Date Logged DA | MO | YR | *

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	8	6				4	6		0	5		1	1		8	2	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description | Operator | Editor | Drilled DA | MO | YR

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
2.	2	M.		NE	OF		EMIGRANT		PASS																						J	E	D	/	J	E	D											

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM | Map Size (7.5, 15., 60.) | Map Location ** N Lat Degree | Min | W Long Degree | Min **

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
C	M				1	5	.	0			3	7	.		4	5	.	0		1	1	8	.			0	.	0	

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing | Easting | Elev

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
					3	3	.	8	5						2	1	.	8	5	5	2	6	0	.					F

Use decimals

← Write M if if meters

Segment ! = Depths Start | End | Conductivity K | ΔK | Best cond. (-K) Downward extrapolations (-ΔK)

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
						2	0	.	0						1	6	5	.	0		-	3	.	5		-	0	.	5	

Segment 2 Start → End | K | ΔK

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
								1	6	5	.	0						1	9	5	.	0							

Segment 3

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

Segment 4 Start →

Segment 5

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

Segment 6 Start →

Segment 7

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

Segment 8 Start →

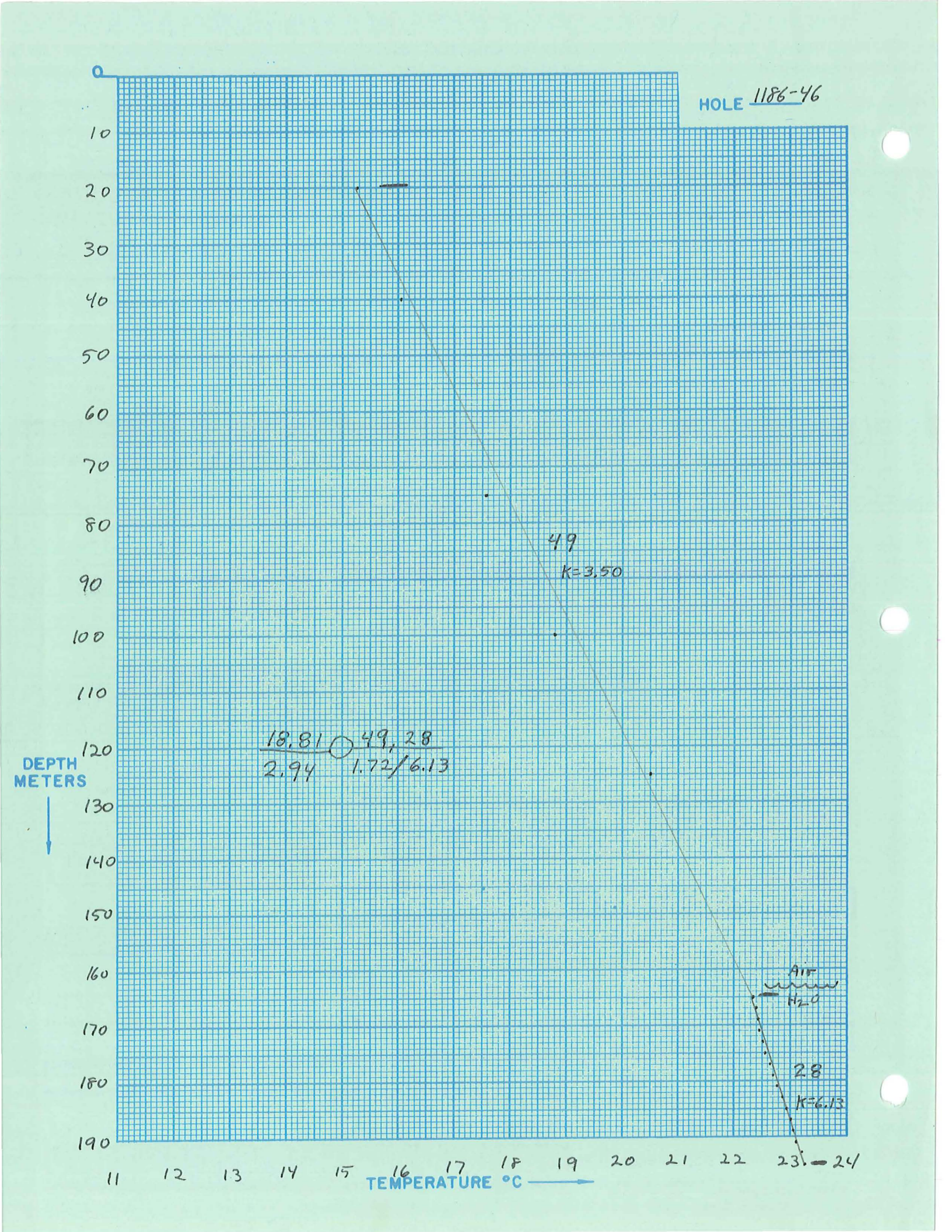
Segment 9

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

Segment 10 Start →

51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

After final segment Start = .999


HOLE 1186-46
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
DEPTH METERS
49
K=3.50
18.81
2.94
49.28
1.72/6.13
AIF
H2O
28
K=6.13
11
12
13
14
15
16
17
18
19
20
21
22
23
24
TEMPERATURE °C

CABLE .0912
LEAK —

Date Logged: 11/5/82 ΔT Well No. 1186-46

8" cased abdn water well 2.2 miles E. of Emigrant Pass S. side of Rd,

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
20	123.10	15.26				Air	
40	119.86	16.04	1.53				
75	113.65	17.57	1.14				
100	108.82	18.81	1.70				
125	102.50	20.51	~~1.83~~			↓	
165	95.99	22.34				H_2O	Water at 163m
167	95.74	22.41	0.02	10			
169	95.70	22.43	0.03	15			
171	95.59	22.46	0.05	25			
173	95.41	22.51	0.06	30			
175	95.21	22.57	0.07	35			
177	94.97	22.64	0.07	35			
179	94.71	22.71	0.07	35			
181	94.48	22.78	0.09	45			
183	94.19	22.87	0.06	30			
185	93.97	22.93	0.07	35			
189	93.74	23.00	0.05	25			
189	93.58	23.05	0.04	20			
191	93.45	23.09	0.03	15			
193	93.35	23.12	0.05	25			
195	93.18	23.17					

K=Conductivity

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

page ____ of ____

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

1186-47

ΔT Well No. 51-29

Property-Project ALUM — Depth Logged 580m

Map Silverpeak — Scale 1Sm — Date: Drilled 3-21-83 Logged 6-3-83

State Nev — County Esm, ____ of ____ of NW of NE of Sec 29 T 1N R 38½E

Instrument # 29 — Operator DEYMONAZ — Elevation 5044 (ft / m)

Comments No fluids above 180 meters

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	47	3	6	83	CM

*19-Write F if Fahrenheit, 20-Write F if Feet

Date Logged

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
1 Km NORTH of ALUM MINE	DEMON	JED	21	3	83

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	N Lat Min	W Long Degree	W Long Min **
cm	15.	37.	43.	117.	45.

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
30.1	12.3	5044.	F

Use decimals

← Write M if if meters

Segment 1 = Depths

Start	End	Conductivity K	Conductivity ΔK	Best cond. (-K) Downward extrapolations (-ΔK)
185.0	255.0	-3.5	-0.5	

Segment 2 Start → 255.0 — End 345.0 — K — ΔK

Segment 3: 345.0 — 425.0

Segment 4 Start → 425.0 — End 465.0 — K — ΔK

Segment 5: 465.0 — 580.0

Segment 6 Start → .999

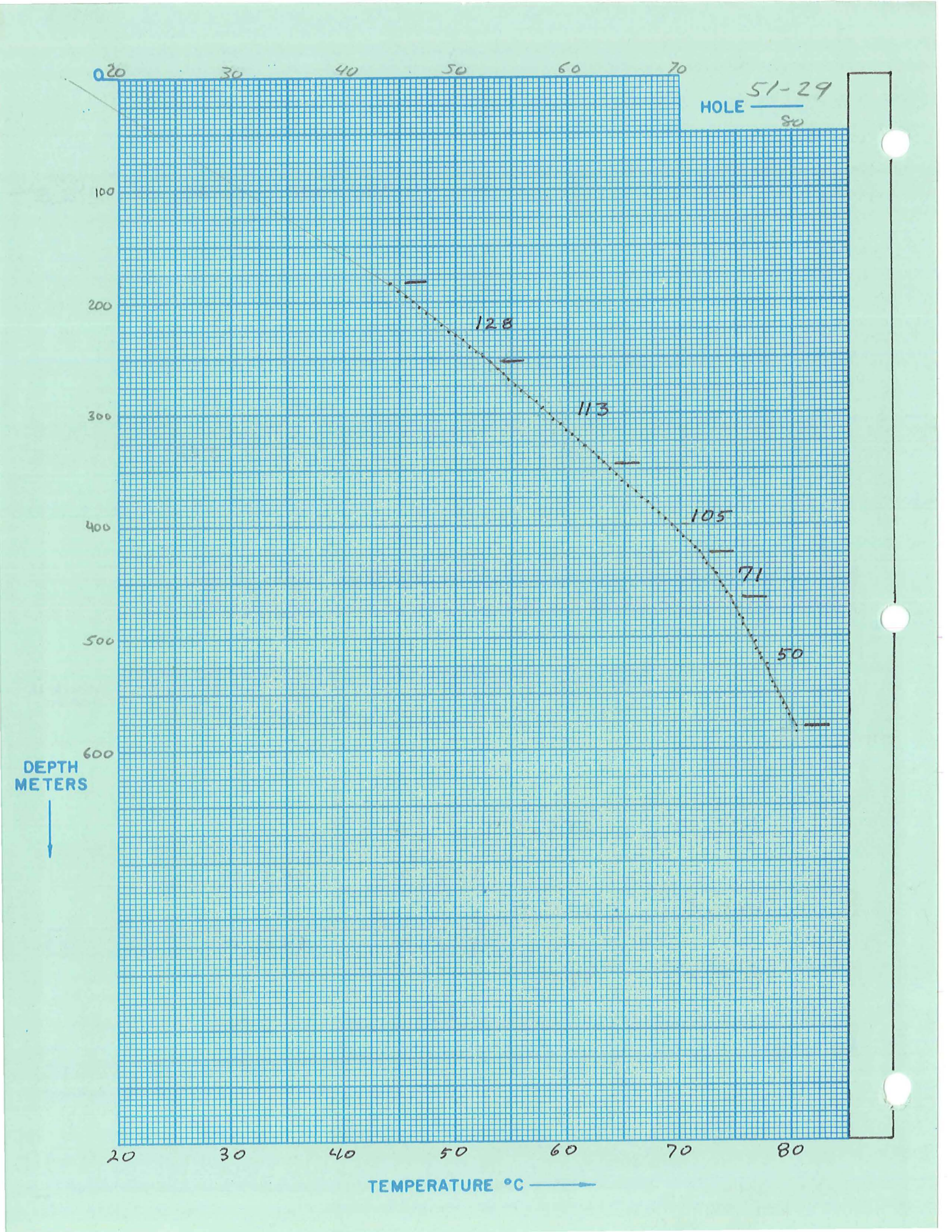
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 51-29
20
30
40
50
60
70
80
100
200
300
400
500
600
128
113
105
71
50
DEPTH METERS
TEMPERATURE °C

Date Logged: 6-3-83 ΔT Well No. 51-29

PROBE-29

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
SURFACE						AIR	C. .0920 L.
25							
40							
55							
70							
85							
100							
115							
130							
145							
160							
175							
185	42.80	44.15			~~~	H_2O	C .0934 L.
190	41.62	44.91	.76	152			
195	40.54	45.61	.70	140			
200	39.57	46.26	.65	130			
205	38.64	46.91	.65	130			
210	37.70	47.57	.66	132			
215	36.85	48.18	.61	122			
220	35.98	48.83	.65	130			
225	35.20	49.42	.59	118			
230	34.41	50.03	.61	122			
235	33.63	50.66	.63	126			
240	32.91	51.24	.42	84			
245	32.12	51.90	.66	132			
250	31.41	52.51	.61	122			
255	30.75	53.09	.58	116			

K=Conductivity

Date Logged: 6-3-83 ΔT Well No. 51-29

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
260	30.08	53.71					
			.52	104			
265	29.48	54.23					
			.60	120			
270	28.85	54.83					
			.58	116			
275	28.24	55.41					
			.58	116			
280	27.65	55.99					
			61	122			
285	27.04	56.60					
			60	120			
290	26.46	57.20					
			54	108			
295	25.95	57.74					
			58	116			
300	25.41	58.32					C .0955
			54	108			L
305	24.91	58.86					
			63	126			
310	24.41	59.49					
			49	98			
315	23.93	59.98					
			53	106			
320	23.47	60.51					
			56	112			
325	23.00	61.07					
			60	120			
330	22.52	61.67					
			50	100			
335	22.11	62.17					
			53	106			
340	21.70	62.70					
			53	106			
345	21.29	63.23					
			54	108			
350	20.89	63.77					
			53	106			
355	20.49	64.30					
			50	100			
360	20.13	64.80					
			61	122			
365	19.706	65.41					
			56	112			
370	19.316	65.97					
			53	106			
375	18.959	66.50					
			52	104			
380	18.614	67.02					
			52	104			
385	18.274	67.54					
			53	106			
390	17.937	68.07					

K=Conductivity

Date Logged: 6-3-83

ΔT Well No. 51-29

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
395	17.599	68.62					
			53	106			
400	17.271	69.15					C .0980
			53	106			L
405	16.955	69.68					
			57	114			
410	16.645	70.21					
			50	100			
415	16.353	70.71					
			54	108			
420	16.051	71.25					
			37	74			
425	15.840	71.62					
			37	74			
430	15.640	71.99					
			36	72			
435	15.449	72.35					
			42	84			
440	15.229	72.77					
			39	78			
445	15.022	73.16					
			32	64			
450	14.856	73.48					
			34	68			
455	14.689	73.82					
			32	64			
460	14.524	74.14					
			30	60			
465	14.374	74.44					
			29	58			
470	14.233	74.73					
			29	58			
475	14.092	75.02					
			28	56			
480	13.957	75.30					
			29	58			
485	13.820	75.59					
			25	50			
490	13.699	75.84					
			27	54			
495	13.578	76.11					
			26	52			
500	13.457	76.37					C .1009
			25	50			L
505	13.340	76.62					
			25	50			
510	13.229	76.87					
			26	52			
515	13.113	77.13					
			25	50			
520	13.000	77.38					
			24	45			
525	12.894	77.62					

K=Conductivity

Date Logged: 6-3-83

ΔT Well No. 51-29

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
530	12.798	77.84					
			.26	52			
535	12.688	78.10					
			.22	44			
540	12.592	78.32					
			.24	48			
545	12.492	78.56					
			.23	46			
550	12.395	78.79					
			.25	50			
555	12.290	79.04					
			.23	46			
560	12.195	79.27					
			.26	52			
565	12.089	79.53					
			.25	50			
570	11.989	79.78					
			.23	46			
575	11.893	80.01					
			.21	42			
< 580	11.812	80.22					
			.02	4			
TD ~~580~~	11,804	80.24					< .1034 L

K=Conductivity

page ____ of ____

LITHOLOGIC LOG

Project: Alum

Hole: 51-29 (1186-47)

Elevation: 5020 Date Drilled: 3/21/83

Location: NW NW S29TINR38½E Method: Rotary/air/mud

Geologist: Huntsman/Pilkington Gamma:

Depth (m)	Description
0 - 1	Alluvium Assorted volcanic and Paleozoic gravels.
1 - 418	Lower Esmeralda Fm (Unit F) 1- 43 Light orange, fine-grained tuffaceous siltstone, considerable iron staining as limonite, some clay minerals developed from devitrification of the ash component. 43-207 Medium gray to greenish gray fine-grained tuffaceous siltstone, minor quartz fracture fillings, trace of pyrite. Strong clay layer at 113m and 204m. 207-225 Dark gray fine-grained laminated tuffaceous siltstone, considerable clay mineral development. 225-418 Medium gray to greenish gray tuffaceous siltstones with increasing siliceous layers. From 311 meters increasingly clayey with strong clay layers at 314m, 352m and 418m.
418 - 581	Lower Esmeralda Fm (unit E) Dark gray edgewise conglomerate (breccia) with angular clasts up to 20mm long of black siltstone, gray phyllitic siltstone and cherts cemented with calcite. Considerable pyrite as dissmentions and fracture fillings.

LITHOLOGIC LOG

Project: Alum

Hole: ~~Alum~~ 51-29 1186-47

Elevation: 5020'

Date Drilled: 3/21/83

Location: NWNWS29T1NR381/2E

Method: air/mud/rotary

Geologist: Bill Huntsman

Gamma:

Depth (m)	Description
0- 40 0-12.1	Assorted volcanic gravels
40- 140 12.1-42.6	Siltstone - Light yellow, soft, moderate secondary oxidation in the form of limonite, moderate amounts of clays that are slightly sticky.
140- 350 42.6-106.7	Siltstone - Medium to dark gray, layered with hard and soft stringers causing bit to gum up.
350- 440 106.7-134.1	Siltstone - Medium gray, very fine, minor clays, trace weak limonite staining, soft formation.
440- 540 134.1-164.6	Siltstone - Layered, medium to dark gray, very fine, minor clays, good drilling, soft formation.
540- 560 164.6-170.7	Siltstone - Dark green gray, very fine, slightly waxey, soft with minor clays, layered silts with trace small quartz vein.
560- 640 170.7-195.1	Siltstone - As above with trace hemitite staining in one zone, a little thicker quartz vein than the above, trace pyrite.
640- 660 195.1-201.2	Siltstone - Medium to dark gray and some dark green gray, trace of weak hemitite staining, trace pyrite, no quartz.
660- 680 201.2-207.3	Siltstone - As above with trace of chalcedony.
680- 740 207.3-225.6	Siltstone - Dark gray, slightly soft and plattie.
740- 780 225.6-237.8	Siltstone - Dark green gray clay silt and dark gray silt, trace pyrite.
780- 860 237.8-262.2	Siltstone - As above with minor quartz grains, minor small volcanic gravels.
860- 880 262.2-268.3	Siltstone - As above with small quartz vein.

LITHOLOGIC LOG

Project: Alum

Hole: 51-29

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
880-1000 268.3-304.8	Clay - Medium gray, very soft and sticky, minor silts from above, also minor quartz and limonite.
1000-1020 304.8-311	Clay - As above with some siliceous siltstones, trace pyrite, trace very small quartz gravels.
1020-1100 311-335.4	Siltstone - Medium gray, very soft, mostly altered to a very soft sticky clay, minor siliceous zones.
1100-1200 335.4-366	Siltstone - Medium green gray siliceous, slightly hard, minor clays, trace limonite, minor quartz.
1200-1280 366-390.2	Clay and siltstone - Medium gray, soft, sticky, minor quartz fragments.
1280-1380 390.2-420.7	Clay and siltstone - As above with some very hard dark gray silts, possibly entering breccia unit.
1380-1530 420.7-466.5	Breccia - Black siliceous shale fragments or argilite, minor pyrite.
1530-1570 466.5-478.6	Breccia - As above with dark siliceous siltstone, very slow drilling, lots of clays in sample from ground mass.
1570-1640 478.6-500	Breccia - As above with small pieces of talc, minor argillic altevation, lots of clay from drilling, still hard formation with slow drilling rate.
1640-1850 500-557.9	Breccia - Black siliceous shales and argilite, very hard very slow drilling, minor quartz.
1850-1906 557.9-581	Breccia - As above, gray and black, very siliceous shales and argilite, very hard, fractures filled with chalcedony, minor to moderate pyrite, minor kaolinite, moderate to abundant calcite, 3' core pulled at 1850'.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

ΔT Well No. 1186-48

Property-Project ALUM Depth Logged 229 m

Map SILVER PK Scale 15" Date: Drilled 1982 Logged 3-28-83

State NV County ESM, ___ of ___ of SW of NW of Sec 32 T 1N R 38½ E

Instrument SPA-103 Operator JED Elevation 5240 (ft/m)

Comments 6" MINERAL HOLE 0.45 MILE S. OF 32-32. ALONG E. SIDE OF ROAD. DRILLED IN ESMERALDA. H_2O AT 180 m.

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	4828	03	83	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Date Logged

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
0.8 MI S. OF ALUM MINE	JED	JED			

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.0	117.	45.0

Use decimals

** Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
26.05	10.655240.		F

Use decimals

← Write M if if meters

Segment 1 = Depths

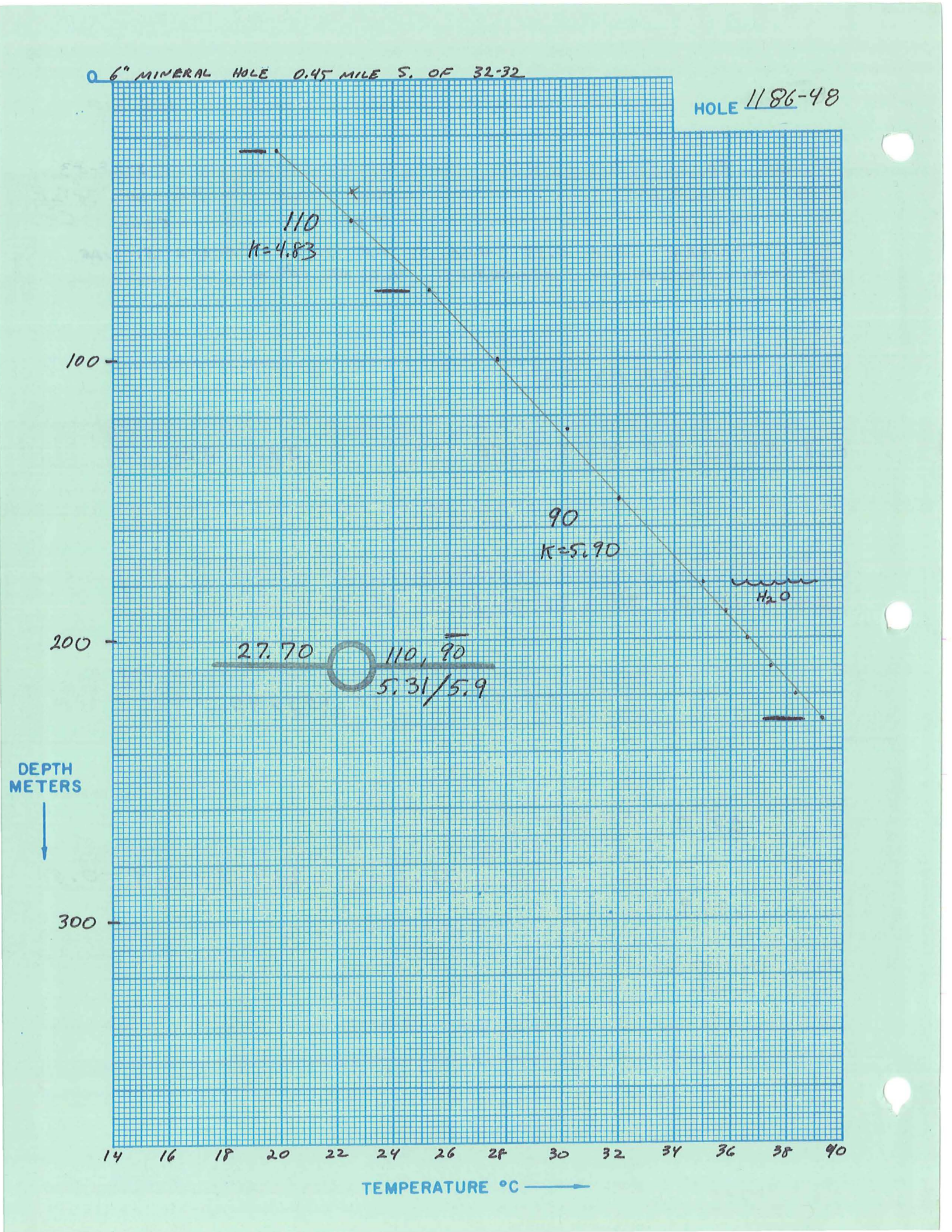
Start	End	Conductivity K	ΔK
25.0	75.0		

Best cond. (-K)

Downward extrapolations (-ΔK)

	Start	End	K	ΔK
Segment 2	75.0	229.0	-5.9	-0.5
Segment 3	.999			
Segment 4				
Segment 5				
Segment 6				
Segment 7				
Segment 8				
Segment 9				
Segment 10				

After final segment Start = .999


6" MINERAL HOLE 0.45 MILE S. OF 32-32
HOLE 1186-48
110
K=4.83
90
K=5.90
H2O
27.70
110, 90
5.31/5.9
100
200
300
DEPTH METERS
14
16
18
20
22
24
26
28
30
32
34
36
38
40
TEMPERATURE °C

Date Logged: 3-28-83

ΔT Well No. 1186-48

6" MINERAL HOLE 0.45 MILE SOUTH OF 32-32

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
25	105.99	19.84					
			2.72	109			
50	96.15	22.56					CABLE .1993
			2.77	111			
75	86.95	25.33					
			2.37	95			
100	79.70	27.70					
			2.50	100			
125	72.66	30.20					
			1.82	73			
150	67.90	32.02					
			3.05	102			
180	60.57	35.07				AIR	
			0.78	78		H_2O	
190	58.83	35.85					
			0.75	75			
200	57.21	36.60					
			0.84	84			
210	55.43	37.44					
			0.89	89			
220	53.60	38.33					
			0.91	101			
229	51.81	39.24					CABLE .2027

K=Conductivity

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

1186-49

ΔT Well No. 83-30

Property-Project ALUM Depth Logged 294m

Map SILVER PK Scale 15" Date: Drilled 8-30-83 Logged 12-7-83

State NV County ESM , of of SE of NE of Sec 30 T 1N R 38½E

Instrument SPA-29 Operator JED Elevation 4960 (ft) (m)

Comments FINAL LOG

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	4907	12	83	C	M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
(Approx. location, water well?, oil test?, etc.)	JED	JED	30	08	83

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.0	117.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
29.20	10.30	4960.	F

Use decimals

← Write M if if meters

Segment 1 = Depths

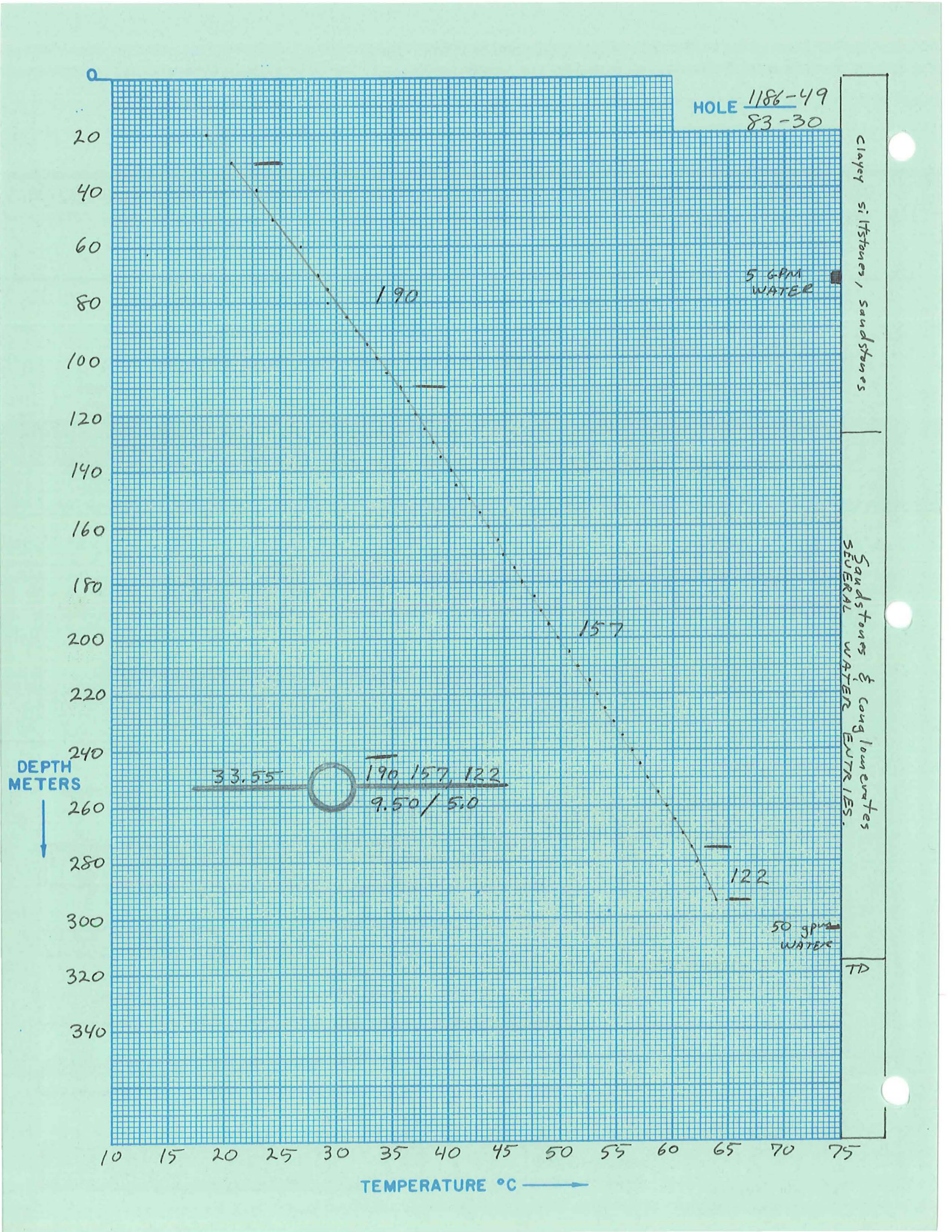
Start	End	Conductivity K	ΔK
30.0	110.0		

Best cond. (-K)

Downward extrapolations (-ΔK)

	Start	End	K	ΔK
Segment 2	110.0	275.0		
Segment 3	275.0	294.0		
Segment 4	.999			
Segment 5				
Segment 6				
Segment 7				
Segment 8				
Segment 9				
Segment 10				

After final segment Start = .999


HOLE 1186-49
83-30
clayey siltstones, sandstones
Sandstones & conglomerates
SEVERAL WATER ENTRIES.
TD
5 GPM WATER
50 gpm WATER
190
157
122
33.55
190, 157, 122
9.50 / 5.0
DEPTH METERS
TEMPERATURE °C
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
10
15
20
25
30
35
40
45
50
55
60
65
70
75

Date Logged: 12-7-83

ΔT Well No. 1186-49
83-36

ALUM #1

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
10						AIR	C_L .0855
20	110.21	18.45					
< 30	102.31	20.56	2.11	211			
40	94.08	22.90	2.34	234			
50	89.09	24.41	1.51	151			
60	81.67	26.79	2.38	238			
70	76.85	28.44	1.65	165			
75	74.83	29.17	0.73	146		H_2O	
80	72.61	29.25	0.08	16			
85	70.34	30.84	1.59	795			
90	67.96	31.77	0.93	465			
95	65.74	32.66	0.89	445			
100	63.61	33.55	0.89	445			
105	61.48	34.46	0.91	455			
< 110	58.60	35.75	1.29	645			
115	57.13	36.43	0.68	340			
120	55.91	37.00	0.57	285			
125	54.39	37.74	0.74	370			
130	52.69	38.59	0.85	425			
135	51.26	39.33	0.74	370			
140	49.61	40.20	0.87	435			
145	48.77	40.66	0.46	230			
150	46.49	41.94	1.28	640			
155	45.11	42.75	0.81	405			
160	43.78	43.55	0.80	400			
165	42.33	44.46	0.91	455			
170	41.57	44.94	0.48	240			

K=Conductivity

Date Logged: 12-7-83

ΔT Well No. 1186-49
83-30

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
175	40,23	45,82	0.88	440			
180	38.91	46.72	0.90	450			
185	37.72	47.56	0.84	440			
190	36.68	48,31	0.75	375			
195	35.79	48.97	0.66	330			
200	34.82	49.72	0.75	375			
205	33.53	50,74	1.02	510			
210	32.61	51.49	0.75	375			
215	31.36	52.55	1.06	530			
220	30.62	53.20	0.65	325			
225	29.77	53,97	0.77	385			
230	28.96	54,72	0,75	375			
235	28.15	55,50	0,78	390			
240	27.27	56.37	0.87	435			
245	26.60	57.05	0.68	340			
250	25,83	57,86	0,81	405			
255	25.14	58.61	0,75	375			
260	24,39	59.45	0.84	420			
265	23.82	60,10	0.65	325			
270	23.17	60.87	0.77	385			
< 275	22.55	61.63	0.76	380			
280	22.08	62.22	0.59	295			
285	21.52	62.93	0.71	355			
290	21.17	63.39	0.46	230			
< 294	20,76	63,94					C 0.0918 L

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 83-30 (33026-49)

Elevation: 4940'

Date Drilled: 8/30/83

Location: SENE Sec 30 T1N R 38 1/2E

Method: rotary/air

Geologist: Pilkington

Gamma:

Depth (m)	Description
0 - 3	Alluvium - Recent gravels in dry wash.
3 - 128	Lower Esmeralda Fm (Unit F)
	3-40 Light tan to light yellow brown, fine-grained tuffaceous siltstone and fine-grained tuffaceous sandstone.
	40-43 Red brown, hematite stained, clayey, very fine-grained tuffaceous sandstone.
	43-52 Light yellow brown, limonite stained, very fine-grained tuffaceous sandstone.
	52-55 Blue-gray, clayey altered tuffaceous siltstone. Ash has altered to montmorillonite to give the rock a uniform gray color.
	55-67 Light brown, very fine-grained tuffaceous sandstone - considerable iron stain clays.
	67-73 Blue-gray to green-gray, fine-grained tuffaceous siltstone strongly altered to montmorillonite. Starts making water at about 5 gpm at 40°C measured at flow line. Water flow was dried up/air.
	73-95 Light brown, weakly iron-stained tuffaceous siltstone - considerable clay.
	95-98 Gray-green to blue-gray montmorillonite zone. Strong alteration. Hole making 5-7 gpm water at 41°C measured at flow line. Water flow dried up/air.
	98-110 Gray-brown, fine-grained, tuffaceous siltstone.
	110-128 Gray to blue-gray, fine-grained tuffaceous sandstone with abundant montmorillonite.

LITHOLOGIC LOG

Project: Alum

Hole: ~~83-30~~

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
128-316	Lower Esmeralda Fm (Unit E) Gray-green to blue-gray intercolated volcaniclastic sanstones, conglomerate and crystal lithic ash flow tuff. The volcaniclastic rocks have crystal fragments of feldspar and quartz dispersed through ashy matrix. The volcaniclastic conglomerates contain clasts of gray limestone, gray quartzite, some black argillite and some ash flow tuff. Ash matrix strongly altered to montmorillonite. Water was encountered at several intervals in this zone. The strongest flow occurred at 305 meters where it started to flow at about 50 gpm with air lift water temperature 56°C at the flow line.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

1186-50

ΔT Well No. 87-29

Property-Project ALUM Depth Logged 306m

Map SILVER PK Scale 15" Date: Drilled 8-28-83 Logged 12-7-83

State NV County ESM , of of SE of SE of Sec 29 T 1N R 38½E

Instrument SPA-29 Operator JED Elevation 5100 (ft) (m)

Comments FINAL LOG.

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	5007	12	83	CM	

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
	JED	JED	28	08	83

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	Map Location ** N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.0	117.	45.0

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Use decimals

Northing	Easting	Elev	
27.95	13.135100.	~~5100~~	F

← Write M if if meters

Use decimals

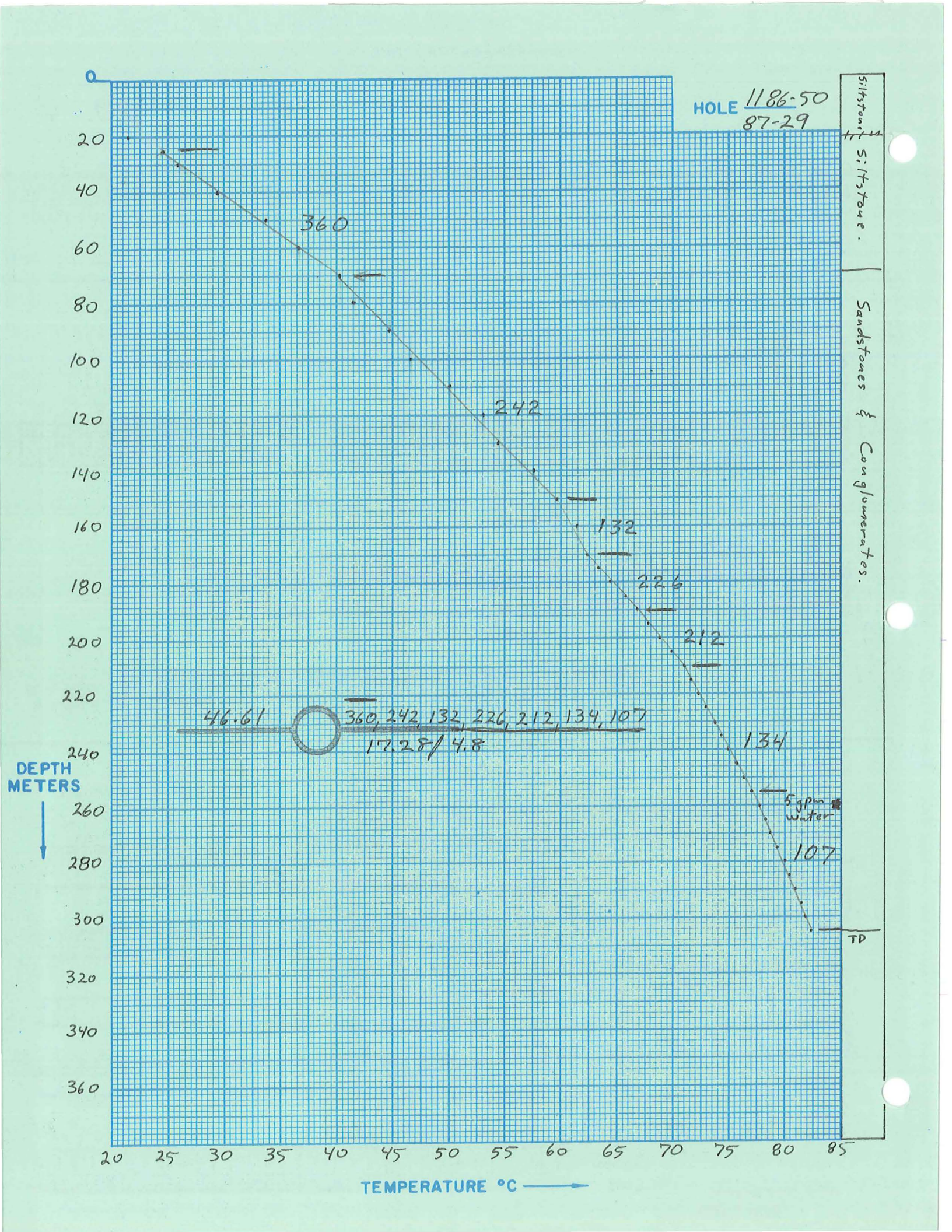
Segment	Depths Start	Depths End	Conductivity K	Conductivity ΔK
1	30.0	70.0	-4.8	-0.5

Best cond. (-K)

Downward extrapolations (-ΔK)

	Start	End	K	ΔK
Segment 2	70.0	150.0		
Segment 3	150.0	170.0		
Segment 4	170.0	190.0		
Segment 5	190.0	210.0		
Segment 6	210.0	255.0		
Segment 7	255.0	305.0		
Segment 8	.999			
Segment 9				
Segment 10				

After final segment Start = .999


HOLE 1186-50
87-29
Siltstone.
Sandstones & Conglomerates.
360
242
132
226
212
134
107
46.61
360, 242, 132, 226, 212, 134, 107
17.28/4.8
5 gpm water
TD
DEPTH METERS
TEMPERATURE °C
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
20
25
30
35
40
45
50
55
60
65
70
75
80
85

Date Logged: 12-7-83

ΔT Well No. 1186-50
87-29

ALUM #2

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
10						AIR	C .0908 L —
20	98.91	21.50					
30	84.50	25.86					
40	74.10	29.43					
50	63.14	33.74					
60	56.71	36.62					
70	49.49	40.26					
80	47.23	41.51					
90	41.91	44.72					
100	39.06	46.61					
110	34.39	50.05					
120	30.78	53.06					
130	29.26	54.44					
140	26.10	57.58					
150	24.26	59.60					
160	22.72	61.42					
170	22.07	62.23				H_2O	
175	21.20	63.35	1.12	224			
180	20.42	64.40	1.05	210			
185	19.575	65.59	1.19	238			
190	18.797	66.74	1.15	230			
195	18.148	67.74	1.00	200			
200	17.503	68.77	1.03	206			
205	16.851	69.85	1.08	216			
210	16.208	70.97	1.12	224			
215	15.899	71.52	0.55	110			
220	15.492	72.27	0.75	150			

K=Conductivity

Date Logged: 12-7-83

ΔT Well No. 1186-50

87-29

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
225	15.181	72.86	0.59	118			
230	14.792	73.61	0.75	150			
235	14.481	74.23	0.62	124			
240	14.189	74.82	0.59	118			
245	13.863	75.50	0.68	136			
250	13.541	76.19	0.69	138			
< 255	13.171	77.00	0.81	162			
260	12.915	77.58	0.58	116			
265	12.694	78.08	0.50	100			
270	12.424	78.72	0.64	128			
275	12.188	79.29	0.57	114			
280	11.904	79.99	0.70	140			
285	11.721	80.45	0.46	92			
290	11.527	80.95	0.50	100			
295	11.350	81.41	0.46	92			
300	11.200	81.81	0.40	80			
< 305	11.005	82.34	0.53	106			
306.5	10.924	82.56	0.22				C 0.0955 L

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 87-29 (33026-50)

Elevation: 5,100'

Date Drilled: 8/28/83

Location: SESE Sec 29 T1N R38 1/2E

Method: rotary/air

Geologist: Pilkington

Gamma:

Depth (m)	Description
0 - 0.6	Alluvium - Recent gravels in dry wash.
0.6 - 70	Lower Esmeralda Fm (Unit F)
	0.6 - 15 Gray-green, fine-grained tuffaceous siltstone, minor limonite staining, very minor manganese stains along a few fractures.
	15 - 21 Yellow-brown, limonite stained, fine-grained tuffaceous siltstone.
	21 - 24 Red-brown hematite stained fine-grained tuffaceous siltstone.
	24 - 37 Blue-gray, altered, fine-grained tuffaceous siltstone, minor disseminated sulfides. Abundant montmorillonite.
	37 - 70 Blue-gray to gray-green fine-grained tuffaceous siltstone and tuffaceous sandstones interbedded. Color due to alteration of volcanic ash to montmorillonite. Minor fracture fillings of calcite, some siderite.
70 - 307	Lower Esmeralda Fm (Unit E)
	70 - 122 Dark gray-green to blue-gray volcaniclastic conglomerate with clasts of gray limestone, black argillite, ash flow tuff and some quartzite in a volcaniclastaic matrix composed of crystal fragments of feldspar and quartz surrounded by volcanic ash. Clay alteration of the ash gives the rock a distinct gray color.
	122 - 198 Gray green to blue gray, clayey, fine-grained tuffaceous siltstone and interbedded fine-grained tuffaceous sandstones. Minor chalcedony fracture fillings, minor disseminated pyrite.

LITHOLOGIC LOG

Project: Alum

Hole: 87-29

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
198 - 256	Gray-green to blue-green volcaniclastic conglomerate with clasts of gray limestone, black argillite and ash flow tuff in a volcaniclastic matrix composed of crystals of feldspar and quartz surrounded by volcanic ash. The ash has been conveyed to montmorillonite which gives the rock a uniform gray color. Abundant white chalcedony @ 201 meters. Minor disseminated pyrite.
256 - 262	Very strong clay alteration. First water entry 40°C at about 5 gpm. Was able to dry water.
262 - 307	Intercolated volcaniclastic sandstones and conglomerates. Rock is denser, and harder than uphole - appears to be similar to the lower part of Esmeralda seen in 31-32. Made about 10 gpm at 300 meters.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

1186-51

ΔT Well No. 29-31

Property-Project ALUM Depth Logged 217m

Map SILVER PK Scale 15" Date: Drilled 9-8-83 Logged 12-7-83

State NV County ESM, ___ of ___ of SW of SW of Sec 31 T 1N R 38½E

Instrument SPA-29 Operator JED Elevation 5020 (ft) (m)

Comments FINAL LOG

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	51	07	12	83	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
	JED	JED	08	09	83

(Approx. location, water well?, oil test?, etc.)

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.0	117.	45.0

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
23.90	15.225020.		F

Use decimals

← Write M if if meters

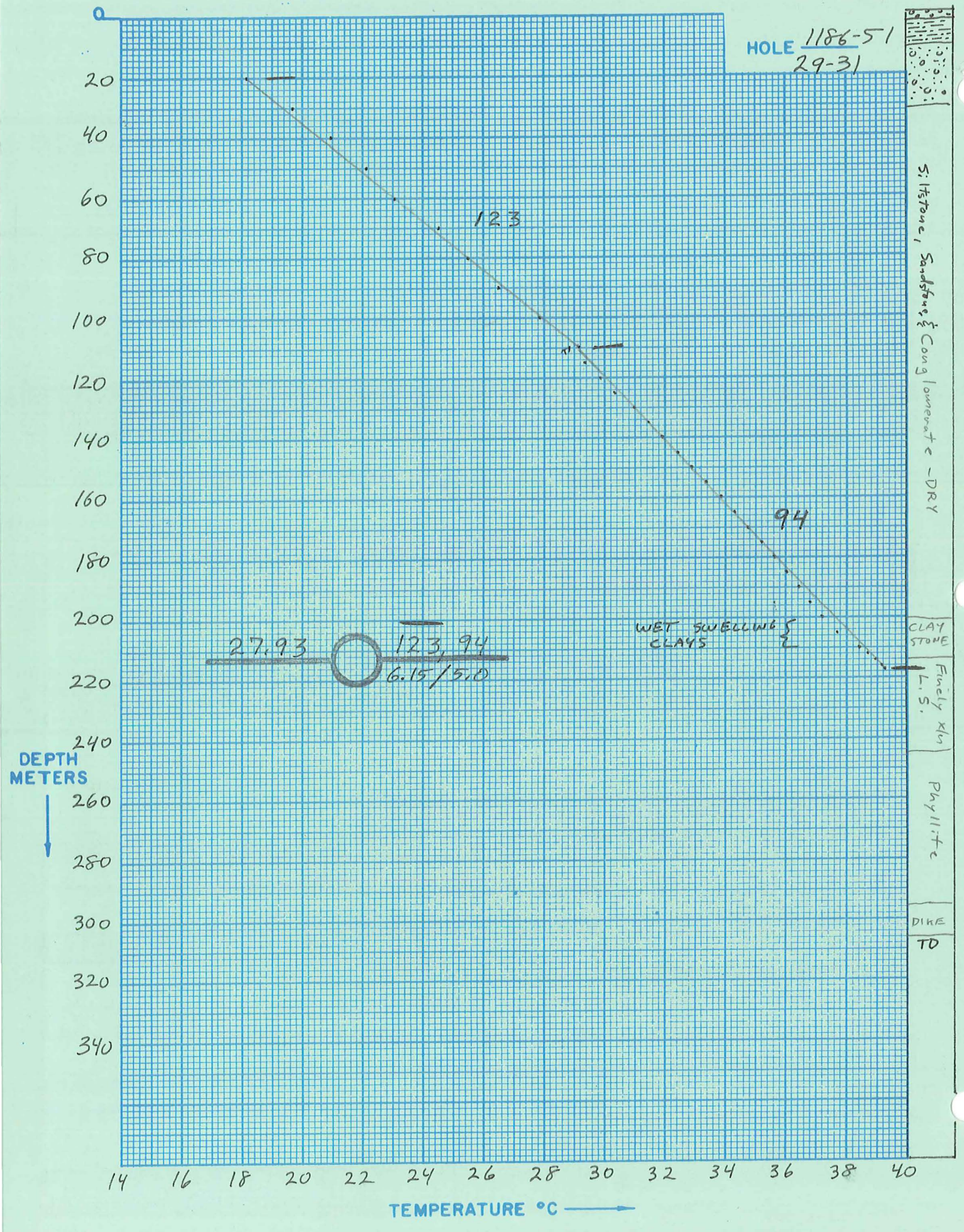
Segment	Start	End	K	ΔK
1	20.0	110.0	-5.0	-0.5
2	110.0	217.0		
3	.999			
4				
5				
6				
7				
8				
9				
10				

Conductivity

Best cond. (-K)

Downward extrapolations (-ΔK)

After final segment Start = .999


HOLE 1186-51
29-31
123
94
27.93
123, 94
6.15/5.0
WET SWELLING CLAYS
Si. Itstone, Sandstone & Conglomerate - DRY
CLAY STONE
Finely x'ln L.S.
Phyllite
DIKE
TD
DEPTH METERS
TEMPERATURE °C
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
14
16
18
20
22
24
26
28
30
32
34
36
38
40

Date Logged: 12-7-83

ΔT Well No. 1186-51
29-31

Alum #3

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
10						Air	C .0896 C —
20	111.41	18.14					
30	105.43	19.71	1.57	157			
40	100.90	20.95	1.24	124			
50	96.63	22.16	1.21	121			
60	93.56	23.05	0.89	89			
70	88.69	24.53	1.48	148			
80	85.63	25.50	0.97	97			
90	82.47	26.52	1.02	102			
100	78.32	27.93	1.41	141			
110	74.80	29.18	1.25	125			
115	74.50	29.29	0.11	11		H_2O	
120	72.96	29.85	0.56	112			
125	71.61	30.36	0.51	102			
130	70.06	30.95	0.59	118			
135	68.71	31.47	0.52	104			
140	67.56	31.93	0.46	92			
145	66.31	32.43	0.50	100			
150	65.12	32.91	0.48	96			
155	64.04	33.37	0.46	92			
160	62.87	33.86	0.49	98			
165	61.79	34.33	0.47	94			
170	60.80	34.76	0.43	86			
175	59.76	35.22	0.46	92			
180	58.79	35.66	0.44	88			
185	57.91	36.06	0.40	80			
190	57.09	36.45	0.39	78			

K=Conductivity

Date Logged: 12-7-83

ΔT Well No. 1186-51

29-31

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
195	56.30	36.82	0.37	74			
200	55.49	37.21	0.39	78			
205	54.46	37.71	0.50	100			
210	53.05	38.41	0.70	140			
212	52.42	38.73	0.32	160			
214	51.97	38.96	0.23	115			
216	51.57	39.17	0.21	105			
217	51.42	39.25	0.08	80			⊂ .0909 ⊂

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 29-31 (33026-51)

Elevation: 5,020'

Date Drilled:

Location: SWSW Sec 31 T1N R39E

Method: rotary/air

Geologist: Pilkington/Deymoanz

Gamma:

Depth (m)	Description
0 - 3	Alluvium - Recent gravels in dry wash.
3 - 12	Older Alluvium (Qtg) - Pleistocene or older alluvium, boulders and gravels in a matrix of volcaniclastic debris. The rocks appear to have been involved one period of deformation with the underlying Esmeralda Formation. Boulders and clasts of limestone, quartzite, quartz and siliceous siltstone in a sandy matrix.
12 -	Lower Esmeralda Fm (Unit F)
12- 15	Weathered Lower Esmeralda Formation, reddish-brown, oxidized, iron-stained weathered tuffaceous siltstone. Considerable clay development.
15- 37	Gray-green to brown-green tuffaceous siltstone and sandstones.
37-104	Gray-green, volcaniclastic sandstones and conglomerates. The conglomerate contains clasts of gray limestone, black shale or argillite, some gray quartzite in a volcaniclastic matrix. The matrix contains crystals of feldspar and quartz surrouned by volcanic ash. The ashy matrix has been partially altered to montmorillonite.
104-107	Brown to reddish-brown, oxidized, iron stained tuffaceous siltstone.
107-113	Gray-green to blue-gray, fine-grained tuffaceous siltstones and sandstones.
113-119	Brown, fine-grained, oxidized, iron stained tuffaceous siltstone.

LITHOLOGIC LOG

Project: Alum

Hole: 29-31

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
119-201	Gray-green to blue-gray volcaniclastic sandstones and conglomerates. Clastic fragments of gray limestone, black siltstone, gray-green siltstone and gray quartzite in a matrix of feldspar and quartz crystals surrounded by volcanic ash. Quartz and calcite veins in siltstone common. 10-20% green, mod. hard siltstone, common reddish brown iron staining. 10% tuffaceous material, altered to clays. Much of clay material lost in sample collection.
201-216	Claystone - Med. brown, bedded, soft, dry, commonly sandy. 1-3mm angular dark gray and green siltstone increasing with depth from a trace at 660 to 20% at 710'. This section got wet and swelled up overnight, had to ream section several times. Produced no water.
216-296	Paleozoic
216-245	Limestone - Finely crystaline to aphanitic gray, bedded. Thin coatings of pyrite common along fractures, thin calcite veins also common. Calcite gives rock a mottled appearance. Med. light gray to pale green predominates below 740'. Phyllitic sheen common along crude bedding planes. Began injecting water and foam at 785 feet. Below this point much of sample contaminated with softer uphole material. Most material appears calcareous, but primarily phylittic below 810'.
245-256	Phyllite - (Wyman or upper Campito Fm.) - Pale green to olive green, most of cuttings are irregular flakes. Abundant mica, and quartz in irregular blebs and thin veins along cleavage planes. Overall texture green mottled.

LITHOLOGIC LOG

Project: Alum

Hole: 29-31

Elevation: _____ Date Drilled: _____

Location: _____ Method: _____

Geologist: _____ Gamma: _____

Depth (m)	Description
256-262	Phyllitic Siltstone - Med. gray to green as above. Siltstone with abundant phyllitic surfaces and trace of pyrite.
262-274	Phyllite - As in 805-840' except minor pistacio green siltstone.
274-296	Phyllitic Siltstone - As in 840-860'
296-306	Dike (?) - Mottled dark gray, friable. Cuttings very fine, appears to be altered Feldspars in dark gray devitrified matrix. Drillers noted definite "softening" in formation.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

1186-52

ΔT Well No. 45-4

Property-Project ALUM Depth Logged 308 m

Map SILVER Pk Scale 15'' Date: Drilled 9-13-83 Logged 1-10-84

State NV County ESM, ___ of ___ of SE of SW of Sec 4 T 15 R 39E

Instrument SPA-29 Operator JED Elevation 4900 (Ft / m)

Comments FINAL LOG after cementing annulus. No change From previous log before cementing

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	52	10	01	84	C M

*19-Write F if Fahrenheit, 20-Write F if Feet

Date Logged

Site Description	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
	JED	JED	13	9	83

(Approx. location, water well?, oil test?, etc.)

Card B

Map Location * *

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.	117.	45.0

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Use decimals

Northing	Easting	Elev	
21.92	12.88	4900.	F

Write M if if meters

Use decimals

Segment ! = Depths

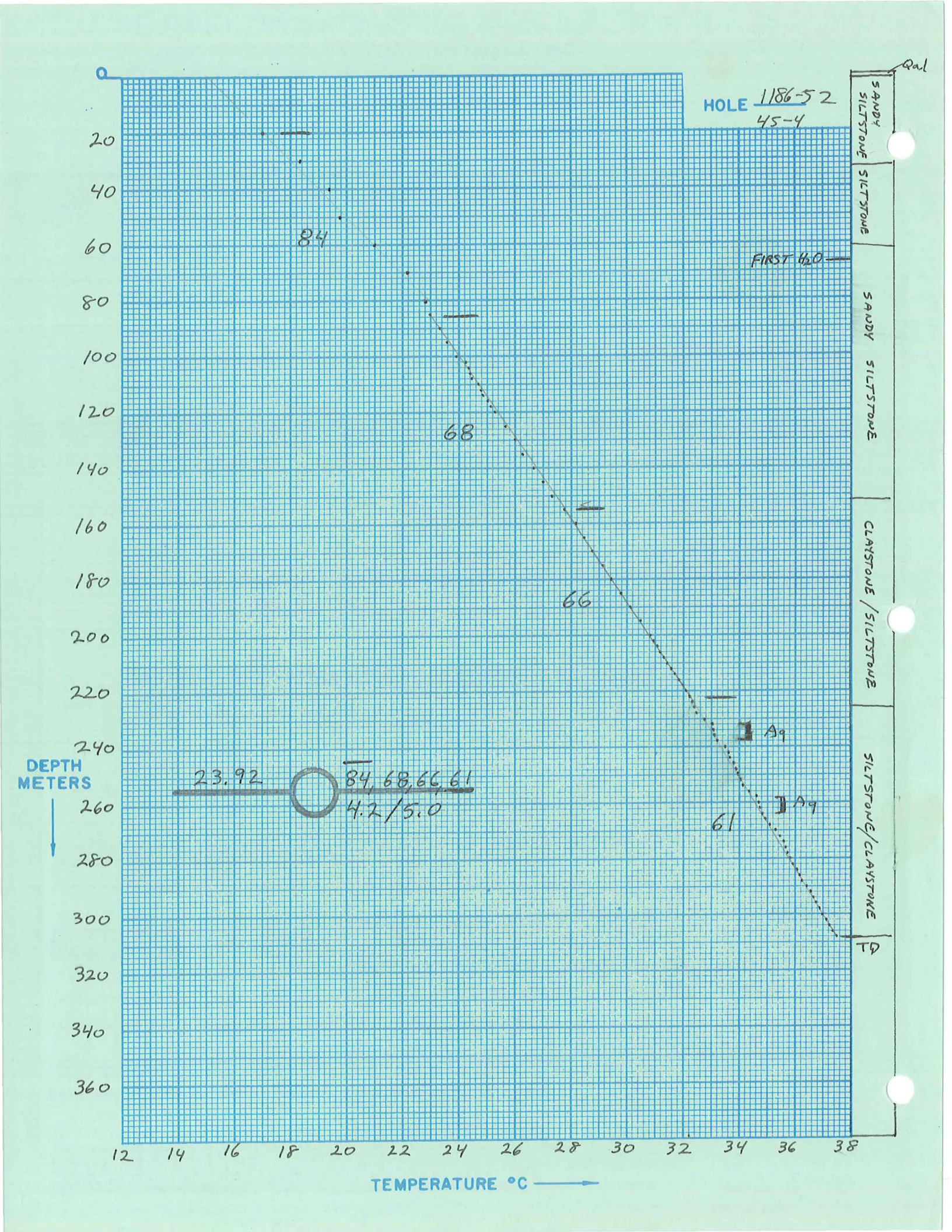
Start	End	Conductivity K	ΔK
30.0	85.0	-5.0	-0.5

Best cond. (-K)

Downward extrapolations (-ΔK)

Segment	Start	End	K	ΔK
Segment 2	85.0	155.0		
Segment 3	155.0	222.0		
Segment 4	222.0	308.0		
Segment 5	.999			
Segment 6				
Segment 7				
Segment 8				
Segment 9				
Segment 10				

After final segment Start = .999


HOLE 1186-52
45-4
Qal
SANDY SILTSTONE
SILTSTONE
SANDY SILTSTONE
CLAYSTONE / SILTSTONE
SILTSTONE / CLAYSTONE
FIRST 6.0
84
68
66
61
Ag
Ag
23.92
84, 68, 66, 61
4.2/5.0
TD
DEPTH METERS
TEMPERATURE °C
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
12
14
16
18
20
22
24
26
28
30
32
34
36
38

Date Logged: 1-10-84

ΔT Well No. 1186-52

45-4

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
20	115.86	17.02				AIR	
			1.33	133			
30	110.61	18.35					
			1.03	103			
40	106.66	19.38					
			0.39	39			
50	105.21	19.77					
			1.22	122			
60	100.76	20.99					
			1.18	118			
70	96.57	22.17					
			0.63	63			
80	94.43	22.80					
			0.19	38			
85	93.76	22.99				H_2O	C_L .0899
			0.35	70			
90	92.61	23.34					
			0.24	48			
95	91.79	23.58					
			0.34	68			
100	90.67	23.92					
			0.30	60			
102	89.70	24.22					
			0.12	60			
104	89.31	24.34					
			0.06	30			
106	89.11	24.40					
			0.05	25			
108	88.96	24.45					
			0.26	130			
110	88.10	24.71					
			0.08	40			
112	87.87	24.79					
			0.06	30			
114	87.67	24.85					
			0.16	80			
116	87.16	25.01					
			0.16	80			
118	86.66	25.17					
			0.15	75			
120	86.18	25.32					
			0.31	62			
125	85.20	25.63					
			0.39	78			
130	84.01	26.02					
			0.24	48			
135	83.28	26.26					
			0.39	78			
140	82.08	26.65					
			0.35	70			
145	81.04	27.00					
			0.36	72			
150	79.97	27.36					

K=Conductivity

Date Logged: 1-10-84

ΔT Well No. 1186-52
45-4

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
155	78.78	27.77	0.41	82			
160	77.70	28.15	0.38	76			
165	76.86	28.44	0.29	58			
170	75.92	28.77	0.33	66			
175	74.86	29.16	0.39	78			
180	74.00	29.47	0.31	62			
185	73.12	29.79	0.32	64			
190	72.12	30.16	0.37	74			
195	71.26	30.49	0.33	66			
200	70.40	30.82	0.33	66			
202	70.06	30.95	0.07	35			
204	69.74	31.07	0.12	60			
206	69.43	31.19	0.12	60			
208	69.07	31.33	0.14	70			
210	68.74	31.46	0.13	65			
212	68.41	31.59	0.14	70			
214	68.07	31.72	0.13	65			
216	67.78	31.84	0.12	60			
218	67.46	31.97	0.13	65			
220	67.16	32.09	0.12	60			
222	66.86	32.21	0.12	60			
224	66.59	32.32	0.11	55			
226	66.40	32.39	0.07	35			
228	66.23	32.46	0.07	35			
230	65.50	32.76	0.30	150			
232	64.84	33.03	0.29	145			
234	64.72	33.08	0.05	25			

K=Conductivity

Date Logged: 1-10-84

ΔT Well No. 1186-52
45-4

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
236	64.57	33.14	0.06	30			
238	64.42	33.21	0.07	35			
240	63.69	33.51	0.30	150			
242	63.45	33.61	0.10	50			
244	63.26	33.69	0.08	40			
246	63.01	33.80	0.11	55			
248	62.77	33.90	0.10	50			
250	62.60	33.97	0.07	35			
252	62.45	34.04	0.07	35			
254	62.19	34.15	0.11	55			
256	61.66	34.38	0.23	115			
258	61.13	34.61	0.23	115			
260	60.89	34.72	0.11	55			
262	60.77	34.77	0.05	25			
264	60.63	34.83	0.06	30			
266	60.38	34.94	0.11	55			
268	59.98	35.12	0.18	90			
270	59.59	35.30	0.28	140			
272	59.18	35.48	0.18	90			
274	58.90	35.61	0.13	65			
276	58.76	35.67	0.06	30			
278	58.59	35.75	0.08	40			
280	58.41	35.83	0.08	40			
282	58.20	35.93	0.10	50			
284	57.87	36.08	0.15	75			
286	57.74	36.14	0.06	30			
288	57.46	36.27	0.13	65			

K=Conductivity

Date Logged: 1-10-84

ΔT Well No. 1186-52
45-4

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
290	57.15	36.42	0.15	75			
292	56.87	36.55	0.13	65			
294	56.64	36.66	0.11	55			
296	56.37	36.79	0.13	65			
298	56.10	36.91	0.12	60			
300	55.87	37.02	0.11	55			
302	55.64	37.13	0.11	55			
304	55.39	37.26	0.13	65			
306	55.15	37.37	0.11	55			
< 308	54.93	37.48	0.11	55			$\frac{C}{C}$ .092/

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 45-4 1186-52

Elevation: 4,900'

Date Drilled: 9/14/83

Location: SESW Sec 4 T1S R39E

Method: rotary/air/foam

Geologist: Deymonaz

Gamma: NA

Depth (m)	Description
0 - 5 (0-1.5)	Alluvium - Poorly consolidated tan sand, silt and angular lith fragments of green siltstone, sandstone and limestone.
5 - 15 (1.5-4.5)	Siltstone - Sandy, tan, bedded, with common dk. gray lith fragments. A few clear gypsum crystals. Common yellow to rust red iron stainings. Damp, altered to montmorillonite. Same as surface outcrops near drill site.
15 - 110 (4.5-34)	Siltstone - As above, except less sand, less iron staining, primarily montmorillonite clays. Some light gray beds of siltstone 1% small gypsum.
110 - 200 (34-61)	Siltstone - Med. brownish gray, some sandy material. Minor thin beds of brown siltstone. Absorbs water readily.
200 - 500	Sandy Siltstone - Light medium gray (cuttings are fine sandy powder). Water at 220', change to foam injection. Most of clay material washed out of cuttings below 220'. Minor tan and pale red siltstone. Absorb water readily.
500 - 740	Claystone, Siltstone - Medium brownish gray, predominantly with 10-40% tan to brown colored material. Much of interval appears thinly bedded. Minor orange hematite. Darker brown color along some crude cleavage planes. Absorbs water moderately. L.C. in fracture at 675', moderately well indurated.
740 - 830 (226-253)	Claystone, Siltstone - As above, except 20-30% pale green and tan claystones with a few angular lithic fragments, Some thinly laminated claystone with tan, gray and brown laminations. Rare pyrite along small fractures. Moderately well indurated.
830 - 1010 (253-308)	Siltstone, Claystone - Well indurated, thinly laminated tan, light brown and medium gray. Does not part along laminations Minor micas and much harder than above units.

AMAX EXPLORATION, INC.

TEMPERATURE/DEPTH LOG

1186-53

ΔT Well No. 55-2

Property-Project ALUM Depth Logged 304m

Map SILVER PK Scale 1:5 Date: Drilled 9-11-83 Logged 1-10-84

State NV County ESM, ___ of ___ of SW of SE of Sec 2 T 15 R 39E

Instrument SPA-29 Operator JED Elevation 5020 (ft) (m)

Comments FINAL LOG - after cementing annulus

Card A

JUSTIFY	Proj No	Well No	DA	MO	YR	*
	1186	53	10	01	84	CM

*19-Write F if Fahrenheit, 20-Write F if Feet

Site Description (Approx. location, water well?, oil test?, etc.)	Operator	Editor	Drilled DA	Drilled MO	Drilled YR
	JED	JED	11	09	83

Card B

Scale Unit IN CM	Map Size (7.5, 15., 60.)	N Lat Degree	N Lat Min	W Long Degree	W Long Min **
CM	15.0	37.	45.0	117.	45.0

Map Location * *

Use decimals

Measure from SW corner of map; except AMS sheets measure from bottom center degree mark (W,-)(E,+)

Northing	Easting	Elev	
22.07	18.355020.		F

Use decimals

Write M if if meters

Segment ! = Depths

Start	End	Conductivity K	Conductivity ΔK	Best cond. (-K) Downward extrapolations (-ΔK)
20.0	100.0	-4.0	-0.5	

Segment 2 Start → 100.0 End 200.0 K ΔK

Segment 3 200.0 268.0

Segment 4 Start → 268.0 304.0

Segment 5 ,999

Segment 6 Start →

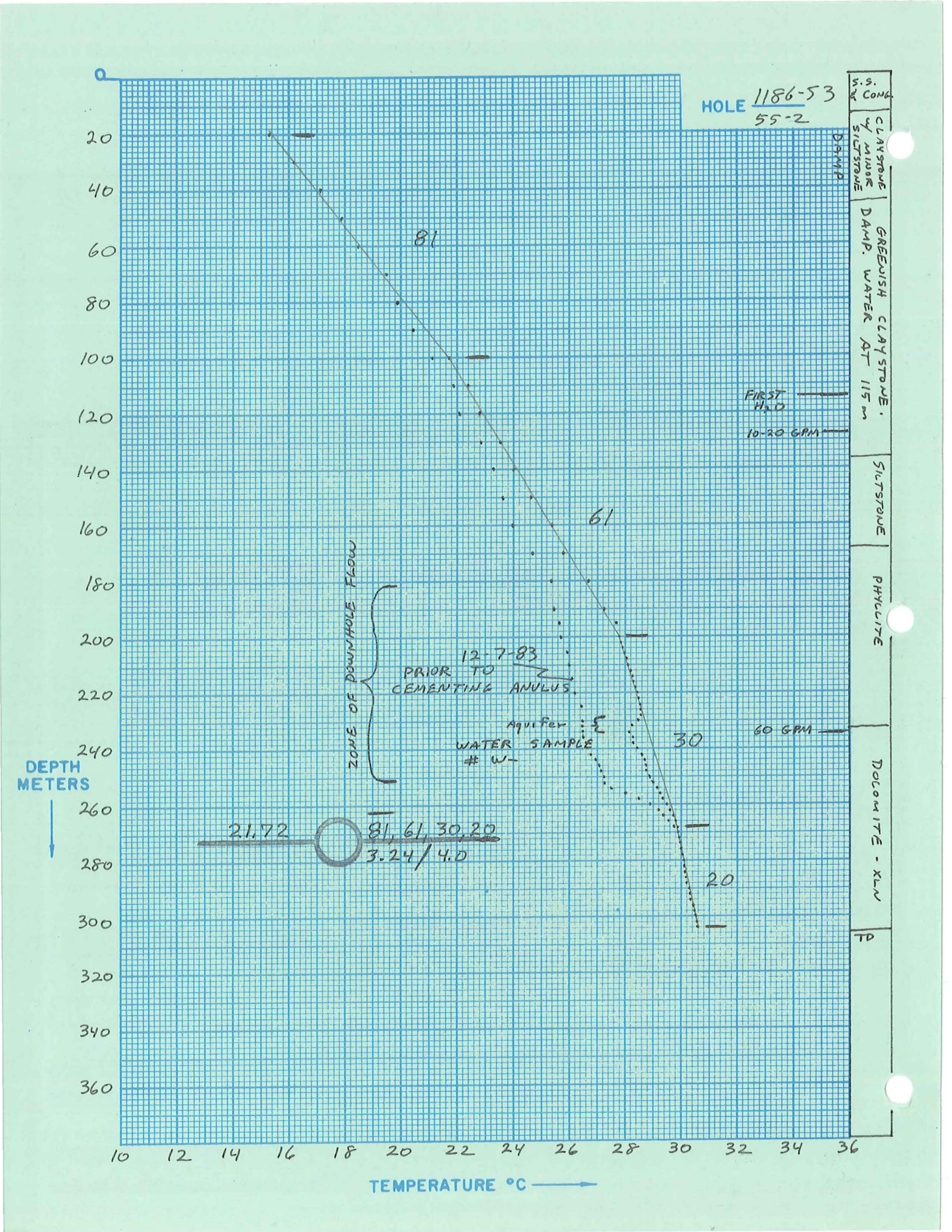
Segment 7

Segment 8 Start →

Segment 9

Segment 10 Start →

After final segment Start = .999


HOLE 1186-53
55-2
DAMP
CLAYSTONE W/ MINOR SILTSTONE
GREENISH CLAYSTONE. DAMP. WATER AT 115 m
SILTSTONE
PHYLLITE
DOLOMITE - XLN
TD
FIRST H2O
10-20 GPM
60 GPM
81
61
30
20
12-7-83
PRIOR TO CEMENTING ANULUS.
ZONE OF DOWNHOLE FLOW
Aquifer
WATER SAMPLE # W-
21.72
81, 61, 30, 20
3.24 / 4.0
DEPTH METERS
TEMPERATURE °C
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
10
12
14
16
18
20
22
24
26
28
30
32
34
36

Date Logged: 1-10-84

ΔT Well No. 1186-53

55-2

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
20	123.01	15.28				AIR	
			0.90	90			
30	119.26	16.18					
			0.92	92			
40	115.54	17.10					
			0.81	81			
50	112.31	17.91					
			0.56	56			
60	110.14	18.47					
			0.98	98			
70	106.41	19.45					
			0.43	43			
80	104.81	19.88					
			0.54	54			
90	102.82	20.42					
			1.30	130			
100	98.14	21.72					
			0.65	65			
110	95.89	22.37					
			0.43	43			
120	94.41	22.80					
			0.76	76			
130	91.87	23.56					
			0.42	42			
140	90.49	23.98					
			0.63	63			
150	88.43	24.61					
			0.79	79			
160	85.92	25.40					
			0.38	38			
170	84.73	25.78					
			0.92	92			
180	81.93	26.70					
			0.55	55			
190	80.31	27.25					
			0.40	40			
195	79.13	27.65				H_2O	C_L .0909
			0.15	30			
200	78.69	27.80					
			0.05	25			
202	78.54	27.85					
			0.06	30			
204	78.37	27.91					
			0.07	35			
206	78.17	27.98					
			0.07	35			
208	77.98	28.05					
			0.06	30			
210	77.80	28.11					
			0.08	40			
212	77.58	28.19					
			0.07	35			
214	77.38	28.26					

K=Conductivity

Date Logged: 1-10-84

ΔT Well No. 1186-53
55-2

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
216	77.25	28.30	0.04	20			
218	77.06	28.37	0.07	35			
220	76.89	28.43	0.06	30			
222	76.69	28.50	0.07	35			
224	76.56	28.55	0.05	25			
226	76.46	28.58	0.03	15			
228	76.46	28.58	0.00	0			
230	76.78	28.47	-0.11	-55			
232	77.36	28.27	-0.20	-100			
234	77.60	28.18	-0.09	-45			
236	77.35	28.27	0.09	45			
238	77.19	28.32	0.05	25			
240	76.90	28.43	0.11	55			
242	76.44	28.59	0.16	80			
244	76.11	28.71	0.12	60			
246	75.93	28.77	0.06	30			
248	75.87	28.79	0.02	10			
250	75.61	28.89	0.10	50			
252	75.32	28.99	0.10	50			
254	74.81	29.17	0.18	90			
256	74.64	29.24	0.07	35			
258	74.31	29.36	0.12	60			
260	73.88	29.51	0.15	75			
262	73.61	29.61	0.10	50			
264	73.29	29.73	0.12	60			
266	73.08	29.81	0.08	40			
268	72.92	29.87	0.06	30			

K=Conductivity

Date Logged: 1-10-84

ΔT Well No. 1186-53

55-2

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.
270	72.77	29.92	0.05	25			
272	72.66	29.96	0.04	20			
274	72.57	30.00	0.04	20			
276	72.47	30.03	0.03	15			
278	72.38	30.07	0.04	20			
280	72.28	30.10	0.03	15			
282	72.20	30.13	0.13	15			
284	72.13	30.16	0.03	15			
286	72.04	30.19	0.03	15			
288	71.96	30.22	0.03	15			
290	71.79	30.29	0.07	35			
292	71.74	30.31	0.02	10			
294	71.67	30.33	0.02	10			
296	71.37	30.45	0.12	60			
298	71.24	30.50	0.05	25			
300	71.15	30.53	0.03	15			
302	71.08	30.56	0.03	15			
304	7099	30.59	0.03	15			C .0919 L

K=Conductivity

page ____ of ____

Date Logged: ____________________ ΔT Well No. ____________

Depth (meters)	Instr. Reading	Temp. °C	ΔT	Grad. °C/km	K (Est.)	H_2O Air	Lithology, etc.

K=Conductivity

LITHOLOGIC LOG

Project: Alum

Hole: 55-2 1186-53

Elevation: 5,020'

Date Drilled: 9/11/83

Location: SWSE Sec 2 T1S R39E

Method: rotary air 0-395', foam inj. 395-1005'

Geologist: Deymonaz

Gamma: NA

Depth (m)	Description
	Surface outcrop 30 feet south of hole composed of lt. colored sandstones and angular conglomerates. Altitude N75°E, 19°S.
0 - 50 (0-15)	Sandstone and Conglomerate - As in surface outcrop with minor med. gray soft shales and thin beds of light tan siltstone.
50 - 148 (15-45)	Claystone - Lt. brown silty claystone, poorly consolidated, damp, with minor siltstone and sandstone.
148 - 450 (45-137)	Claystone - Med. greenish-gray, massive, very uniform, damp, primarily kaolinitic. Moderately well indurated. First water encountered at 380', no flow, just mixes with clay to form tacky slop. At 420'-430' water increases to 10-20 gpm.
450 - 555 (137-169)	Siltstone - Dk. gray, light grayish green and pale green, hard, common bedding planes. Dark gray appears more massive. Trace of pyrite and thin quartz veins. Minor yellow limonite staining in some quartz veins. 1-5% dark green siltstone with slight phyllitic shear.
555 - 580 (169-177)	Phyllite - Med. gray with common white calcite along foliation planes. Often has mottled appearance. 1-3% pyrite along foliation and fractures.
580 - 765 (177-233)	Phyllite - Similar to above except medium greenish gray and veining mostly quartz. White quartz veins 2-3mm thick common. Some smaller veins of calcite.
765 - 865	Dolomite (Reed Domomite) - V. white to very pale gray, finely crystalline. Small (0.1-0.5mm) pyrite dissiminated but 1% total. Increase in water to 60 gpm at 765'.
865 - 965 (264-294)	Dolomite - As above except pale pinkish gray.
965 - 985 (294-300)	Dolomite and Phyllite - Tan, green and pale pinkish gray 30-50% phyllite as in 580-765, dolomite as above.
985 - 990 (300-302)	Dolomite - As 865-965'.
990 - 1005 (302-306)	Dolomite - As above with 50% light gray montmorillonitic claystone and minor phyllite.