Distribution January 7, 1982

Hugh Murphy, Donald Brown, Michio Kuriyagawa 981/7-4318

ESS-4

EXPERIMENT 2003 - FIRST PRESSURIZATION OF EE-2

Summary

Water was pumped into EE-2 at a nominal rate of 9 gpm, to a final pressure of 2070 psi. The wellbore was exceptionally tight - we might just have well pumped into a steel pressure vessel - not only was there no evidence of breakdown, but only a total of about 30 gallons of water permeated the rock during the 2-1/2 hour-long pressurization.

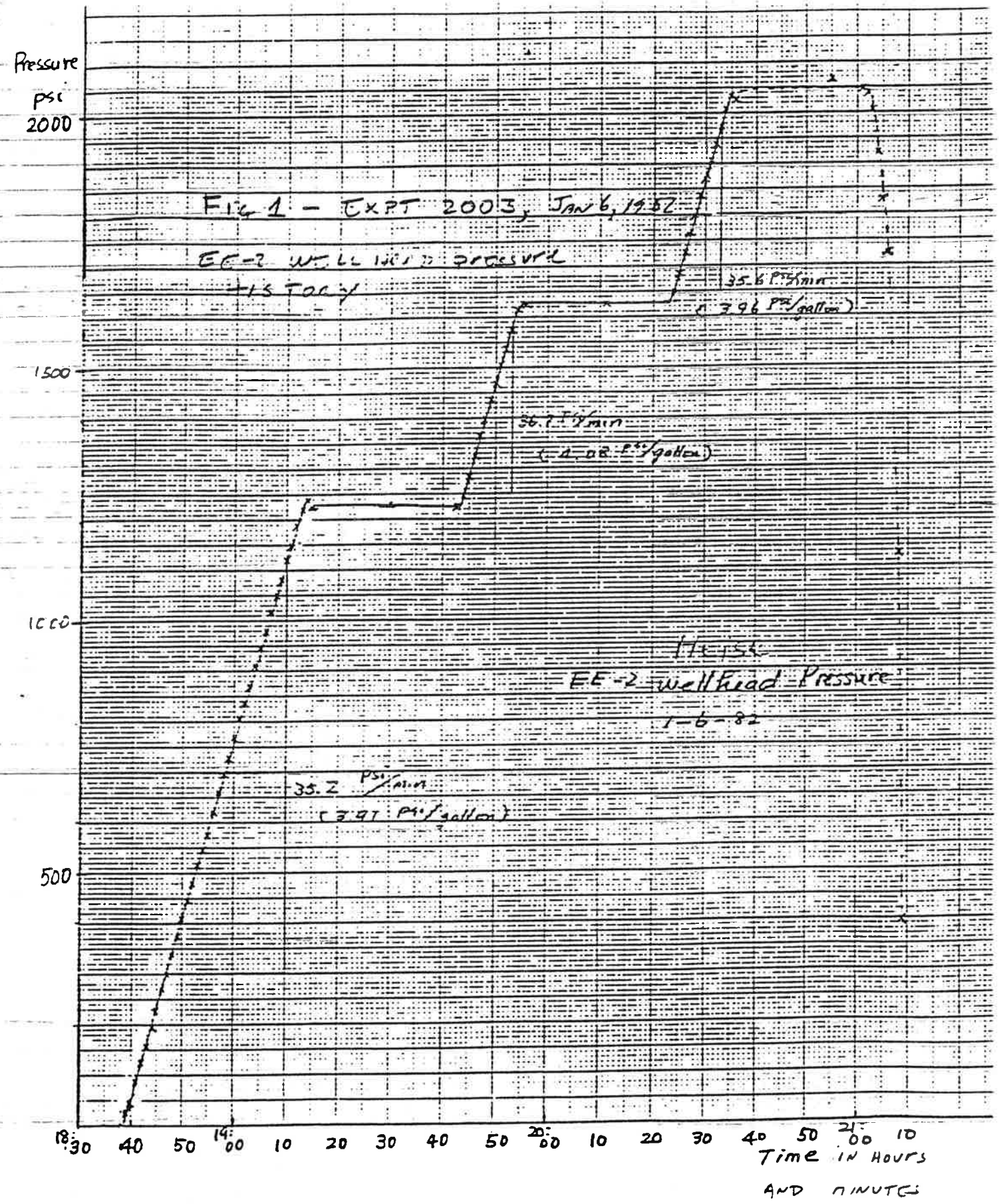
Pre-Pumping Operations

Jim Miller has already described test operations in reference 1, so only the highlights are summarized here. Background temperature surveys were run in EE-2 on January 5, 1982, and are reproduced in reference 1. The pressurization test was conducted on January 6, 1982. A water sample was obtained from a depth of 12,000 ft in EE-2 at 12:22. Visual appearances indicated dark gray to black water with easily filterable particulate matter. Pat Trujillo reports that these particles amount to only 240 mg per liter of the sampled water, when filtered through 0.45 μm filter paper. Based upon preliminary x-ray diffraction analysis George Cocks and Dave Bish have tentatively identified these solids as mica, magnetite and smectite clay. The magnetite stems from oxidation of the casing. Additional analysis details will be reported by Cocks later.

The temperature tool looked clean when it was retrieved from the well. At about 15:00 we were prepared to pump, but the geophone package in EE-1 indicated considerable noise, so 2-1/2 hours were provided for improving the surface circuitry as much as possible.

Pumping

Pumping with the small 9 gpm KOBE pump began at 18:40. Figure 1 presents the EE-2 wellhead pressure history. As intended, 30 minute pressure holds were maintained at 1200, 1600 and 2000 psi. Each of the ramps between the holds followed a linear compressibility rise, with absolutely no indication of breakdown, and in fact, little evidence of any formation permeation whatsoever. During the constant pressure holds we could maintain pressure with almost no pumping. Actual typical values were 0.0 to 0.5 gpm, and as mentioned in the summary, the total integrated flow for the three holds amounted to only about 30 gallons. Venting began at 21:04 and ended at 21:11, so total duration of pumping was only 2-1/2 hours. Considering the small amount of water that permeated the rock, a temperature log would not have revealed any intake zones, and so was scrubbed. As indicated on Figure 1, the slope of each of the three ramps is nearly constant, 35.9 ± 0.8 psi per minute. For an average injection rate of 8.85 gpm and a well


Pressure
psi
2000
1500
1000
500
Fig 1 - Expt 2003, Jan 6, 1982
EE-2 Wellhead Pressure
History
35.6 psi/min
(3.96 psi/gallon)
36.7 psi/min
(4.08 psi/gallon)
Hersh
EE-2 Wellhead Pressure
1-6-82
35.2 psi/min
(3.91 psi/gallon)
18:30
40
50
14:00
10
20
30
40
50
20:00
10
20
30
40
50
21:00
10
Time in Hours
and minutes

volume of 47,830 gallons one can compute a measured compressibility of 5.16 x 10^{-6} per psi. This is compared to the predicted compressibility below.

Predicted EE-2 Wellbore Compressibility

A six-node, axial model of the wellbore was used to calculate the compressibility of the water column in EE-2. The density as a function of both temperature and pressure was obtained from the tables by Keenan and Keyes, reference 2. Table I summarizes the input data for the end points of these six volume segments. The parameters P and ρ are pressure and water density.

Table I

Water Properties

Depth along Wellbore (ft)	Temp. (°C)	Mean Press. (psi)	Density lb/ft^3	$\frac{\partial \rho}{\partial P}$ x 10^3 (lb/ft^3/psi)	$\frac{1}{\rho}\frac{\partial \rho}{\partial P}$ x 10^6 (psi^{-1})
0	10	500	62.51	0.2032	3.25
2331	83.2	1500	60.78	0.1905	3.13
4725	122.2	2500	59.28	0.2053	3.46
7175	150.8	3500	58.00	0.2253	3.88
9718	196.5	4500	55.50	0.2735	4.92
12815	262	5500	51.05	0.4054	7.94
15140	320	6340	46.61	0.6472	13.89

The mean predicted compressibility of the six nodes is 5.32 x 10^{-6}, 3% larger than the value measured.

Prognosis

The first two writers are still of the opinion that, based upon Phase I data, the minimum earth stress S_3 in the Phase II reservoir is in the range 1800 to 2200 psi. The actual breakdown pressure is S_3 times the effective stress concentration factor plus the strength of the rock. When the intermediate stress S_2 and S_3 are nearly the same, as they were in the Phase I reservoir then the theoretical stress concentration factor is 2. However the concentration factor applies at the surface of the rock - it declines to 1 a distance of several well radii into the rock. Thus, if the water could permeate the rock via open natural points, the effective concentration factor approaches one.

The present test indicates the contrary, however - the rock is extremely tight, so that we may be confronted with an actual concentration factor of two. Furthermore, if the rock is that tight, perhaps we will also have to deal with finite strength of the rock. Consequently even if S_3 is about 2000 psi we may be faced with an actual breakdown pressure of

about 4000 psi or more. We emphasize again however, that this large value of breakdown pressure pertains only for a perfectly non-penetrating fluid. In reality we feel that the fluid must eventually penetrate the formation so that a new test, even one limited to 3000 psi, as is the present pressure limitation in EE-3, is highly desirable. To sort out these possibilities we must now pressurize EE-3 (because of pressure limitations on the EE-2 casing) twice: first, to find the actual breakdown pressure and propagate a fracture a few wellbore radii, and secondly, to re-pressurize to obtain S_3. A procedure to accomplish this is being prepared by Lee Aamodt.

References

1. J. R. Miller "Daily Completion Report" 1-7-82

2. Keenan, J. H, et al Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid and Solid Phases, John Wiley & Sons, Inc. 1969.

Distribution

J. Whetten/570
B. Killian/570
J. Hill/978
M. Smith/978
R. Spence/980
B. Dennis/980
R. Lawton/980
J. Kolar/980
R. Butler/980
M. Wickham/980
M. Echave/980
G. Cocks/981
P. Trujillo/978
ESS-4 Staff
ESS-4 File (2)

Appendix A

PDP Completion Reports

LOS ALAMOS NATIONAL LABORATORY

HOT DRY ROCK GEOTHERMAL ENERGY PROJECT

DAILY COMPLETION REPORT

Well Name: EE-2 Day Number: 1 Exp. 2003

Report time: 0800 Date: 1-6-82

Activity:

Activity Summary for:

From	To	Activity:
0840	0930	Rigging up logging van to run temperature tool and collar locator tool.
0930	1130	Problems reading depth in CDA trailer. Gave up and used HP Computer in van.
1145	1333	Logging down hole at 150 feet per min. Stopped at 12,000. Backed up and located casing shoe at 11,597.18 Ft.
1333	1400	Logging down hole at 77 feet per min. Tool stopped at 13,150'. Finally decided due to drag.
1500	1520	Backed up and logged down at100 Ft. per min.
1520	1735	TD at 15,234 Ft.and 315℉ Comming out of hole.

Addition Data and Explanation

The day was overcast with 4 to 6" new snow and windy. Snow conditions delayed arrival of ESS-6 till 0840. Data gathering problems delayed the logging till 1130. The drag in the hole is considerable, (i.e., approx. 3,000# going in and approx. 6700# pulling out at TD, total line + drag weight.)

The fluid level in EE-2 was down by approx. 700 Feet. This was filled with cold well water before logging and shows up on the temperature log. About 2200 gallons were used to fill the hole. Present level after logging 32.66 Feet. No change overnight.
The Fluid level in EE-3 has been on the rise at about 0.03 to 0.04 Feet per hr.
20,000 gallons of water were stored in the black tank.
The temperatre tool came out of the hole clean.

J. R. Miller

LOS ALAMOS NATIONAL LABORATORY

HOT DRY ROCK GEOTHERMAL ENERGY PROJECT

DAILY COMPLETION REPORT

Well Name: EE-2.

Report time: 8:30 Date: 1-7-82

Activity: Experiment 2003

Activity Summary for: 1/6/82

From	To	
09:00	10:17	Repair wireline head and lay Kobe lines. Cold and windy.
10:17	11:00	Hookup and check out water sampler.
11:00	12:22	Running in hole with water sampler, CDA and surface system ready and waiting. Rigging up and checking out geophone.
12:22	12:23	Water sample taken at 12,000 ft in EE-2.
12:23	13:34	Retrieving water sample, working on geophone.
13:34	13:51	Geophone going in hole.
13:51	14:30	Water sample out of hole and geophone on station. 60 Hz noise on geophone line.
14:30	17:45	Working on noise on geophone line. Gave up.
17:45	18:30	Filling lines, checking out flow, temperature and pressure transducers. Heize pressure meter froze, moved nearer heater.
18:30	19:15	First pressure ramp to 1200 psig. All pumping done at 9 gpm.
19:15	19:45	Hold at 1200 psig .
19:45	19:56	Second pressure ramp, 1600 psig.
19:56	20:25	Second hold, 1600 psig.
20:25	20:35	Third pressure ramp, 2000 psig.
20:35	21:00	Third hold, 2070 psig. Geophone off.
21:04	21:15	Vent, geophone coming out of hole.
21:15	--	Rigging down surface system, geophone, etc.

Additional Data and Explanations:

Note: The scientific advisor and associates advised that the 30 min. shut-in and the follow-up temperature log be cancelled due to the fact that the well did not accept any water.

James R. Miller

Morning Report

Distribution:

R. Olwin, EP/AES, MS 981
L. Germain, EP/AES, MS 682
J. Whetten, ESS-DO, MS 570
B. Killian, ESS-DO, MS 570
M. C. Smith, ESS-DOT, MS 978
R. Spence, ESS-DOT, MS 980
R. Hendron, ESS-4, MS 978
G. Nunz, ESS-4, MS 978
J. Hill, ESS-DOT, MS 978
B. Dennis, ESS-6, MS 980
R. Pettitt, ESS-4, MS 978
J. Rowley, ESS-4, MS 978
D. Dreesen, ESS-4, MS 978
J. Miller, ESS-4, MS 978
J. Sims, ESS-4, MS 978
D. Miles, ESS-1, MS 978
G. Cocks, ESS-2, MS 981
G. Bennett, ESS-4, MS 981
P. Martinez, MS 978
R. Sims, MAT-9, MS 274
S. Saitoh
M. Kadowaki
J. Skalski, ESS-4, MS 978
File

Appendix B

1. Equipment Manager Log Book

~~3. [illegible] Log Book~~

~~2. [illegible]~~

~~4. [illegible] Log Book~~

EXP. 2003
Day 1

1/5/82

8:20 17.5' to water in EE-3. Welder started to thaw water line under road.

8:40 Crew arrived.

Bert Dennis	Marion Wickham
Bob Lawton	Jim Stelzer
Steve Koczan	Don Huem
Pete Chavez	Joe Skalski
Pablo Gutierrez	Pete Sanford
Billy Todd	Mike Maes
Jerry Kolar	Anna
Richard Maestas	Jerry Vasilik
Berta	and others

9:10 Logging van started.
Moving water line from pond to EE-2 area.
Attempting to start dozer.

9:30 Logging line threaded through tower. Temperature tool being installed.
Crane meter in pump house 04022860 gal.
Crane meter in tank house 21726640 gal.
Water line under road still frozen, running a line across road.
CDA depth counter given problem.

10:00 Still working on depth counter.
Wellhead flange cover off.
Turbine flowmeter plumbed in on east side of EE-2 wellhead to measure vent flow.
Removed depth counter circuit board from offshore rig.

10:30 Still working on depth counter.

10:54 Filling EE-2 casing with water from water well at about 100 gpm.

11:30 Well full!

Crane meter reading at end.	21728906 gal.
Crane meter reading at start.	21736640 gal.
	2266 gallons

2266 gallons at 3.18 gal/ft (8.835" I.D.) gives water level at start of pumping down by about 700 ft. This is due to the water displced by the cleaning rig work string.

11:35 Depth to water in EE-3 17.32 ft.
Snowing.

11:38 Temperature tool at zero point, (i.e., top of wellhead flange.) Dozer and small Bobcat grading snow.

11:45 Started in hole. Depth and temperature will be measured in Logging Van. Amplifier too weak to transmit to CDA trailer. Pablo Gutierrez operating van.
Filling Black Tank with water.

12:00 Lunch

12:30 Depth to water in EE-3 17.29 ft and rising at about .03 ft/hr.

12:45 Running temperature tool in hole at 150 ft/min. Depth = 9290 ft, line weight = 2850 #, temp = 187°C. Will run to 12,000 ft then log back up to locate bottom of casing.
Casing should be at 11,578 ft depth measured from the Kelly bushing (i.e., 27 ft above ground level.)

13:03 Logging in stopped at 12,000 ft. Logging out to 11,000 ft to locate bottom of casing. Line weight out minus line weight in, about 2000 #.

13:16 Stopped at 11,000 ft.

13:17 Logging in (down) hole, collars located at following depths:

11,043	11,806	11,354	11,550
11,088	11,254	11,429	11,597
11,131	11,294	11,470	
11,161	11,332	11,510	

13:23 11,597.18 = bottom of casing.

13:25 Gold tank spotted next to EE-2 tower using dozer.

13:30 Depth to water in EE-3 = 17.16 ft.

13:33 Logging down hole from 12,000 ft.

14:00 Logging in at about 77 ft/min, lost weight from 3250 to 3130 at 14,150 ft. Stopped at 14,182 ft. Pull out weight at 14,150 ft = 4800 #, 288.64°C.

Pulling out (gages read while standing inside door of van).
14,174 ft, 4000 #
14,134 ft, 4980 #
14,126 ft, 5000 #
14,106 ft, 5150 #
14,095 ft, 5200 #
Hold

Release to 14,180 ft and pull up.

14,180 ft, 3075 #
14,174 ft, 4200 #
14,150 ft, 4860 #
14,140 ft, 4940 #
14,130 ft, 4970 #
14,120 ft, 5120 #
14,100 ft, 5180 #
14,093 ft, 5200 #

Hold

15:00 Conclusion, above numbers due to hole drag. 77 ft/min too slow, run in at 100 ft/min.

15:20 TD contacted at 15,234 ft, 314.95°C.
Pull out weight about 6700 #.

15:35 14,500 ft and 6,000 # pull weight. Pulling out at 100 ft/min. 150 ft/min causes too high of a line load.
Power flicker caused logging computer to go down.

16:00 Industrial water supply Crane meter reading 21759288
previous Crane meter reading 21738906

Water pumped to black tank = 20383

16:30 Depth to water in EE-3 17.15 ft.

16:35 Temperature tool coming out of the hole at 150 to 160 ft/min. 8600 ft and 3150 # line weight.

17:00 4700 ft, 1900 # and 160 ft/min.

17:30 300 ft. Hooking up portable light in EE-2 tower.

17:40 Temperature tool out clean and wet. Depth to water in EE-2 after logging is about 32.5 ft.

Experiment 2003
Day 2

1/6/82

07:18 Arrived

07:30 Depth to water in EE-2 32.66 ft
Depth to water in EE-3 16.65 ft = .037 ft/hr

07:59 Sunshine?

08:30 Crew arrived

Mike Maes	Bob Lawton	Pablo Gutierrez
Joe Skalski	Steve Koczan	Pete Chavez
Pete Sanford	Joe Catanach	Richard Maestas
Berta	Don Hewn	Jerry Kolar
Anna	Marion Wickham	and others

09:00 Started laying Kobe lines, starting logging units.

09:30 Temperature tool disassembled, damp but not wet.

10:17 Cable head on logging van repaired. Hooking up to water sampler. Cold and windy.

11:00 Water sampler starting down hole. (EE-2)
Pablo Gutierraz logging, Jerry Kolar instrumentation.

11:45 Depth of water sampler about 7000 ft.

12:00 Surface and CDA ready for pumping. Water sampler at 9600 ft.

12:20 Water sampler on station at 12,000 ft in EE-2.

12:22 Sample taken.

13:15 Calibrating geophone tool, changing polarity of wires.

13:30 Depth to water in EE-3 = 16.46 ft.

13:34 Geophone starting down hole in EE-1.

13:51 Water sample out of hole.

14:15 Geophone at 9,000 ft in EE-1.

14:30 Depth to water in EE-2 33.9 ft.
Depth to water in EE-3 16.43 ft.
Cable head connector for logging van cable slightly wet again. Not as bad as last time.

15:00 Geophone package having 60 hz ground loop problems.

17:45 Gave up on geophone problem. Ordered the lines filled with water.

17:53 Kobe supply Crane meter reading 111937.6 gallons.

18:14 Kobe supply Crane meter reading 112050.6 gallons.
Start of pumping meter reading 112071.0 gallons.
Kobe hour meter reading 270 hrs.
Kobe event meter reading 0:00 min.
Heise pressure gauge at wellhead plugged.

18:40 Pumping

	Meter Reading	Pressure	Minutes	Event
	112270		21:30	Pumping
19:10	112357		30:	Pumping
19:15	112391.0	1200	35:	Pumping
19:30	112538.0	1200	50:	Holding
19:40	112617.0	1200	60:	Holding
19:45	112662	1200	65:	End Hold
19:50	112718	≈ 1400	70:	Pumping
19:55	112752	1575 psig	75:	Pumping
19:56	112762	1616	76:	End pumping
20:00	112797	1616	80:	Holding
	Gave up on Hydrazene at 19:55			
20:10	112886	1615	90:	Holding
20:15	112930	1614	95:	Holding
	EE-2 annulus pressure holding steady.			
	EE-3 fluid holding at ≈16.35 ft.			
20:20	112975	1614	100:	Holding
20:25	113020	1614	105:	End of hold
20:30	113067	1805	110:	Pumping
20:35	113122	2033	115:	End pumping
20:45	113216	2070	125:	Holding
20:51	113269	2070	131:	Holding
20:56	113314	2070	136:	Holding
21:00	113332	2070	140:	Shut in
21:04				Vent

Vent to Gold Tank 14.95 ft deep
13.48 ft to water

1.47 ft

94" dia. gives 530 gallons of water vented.

21:50 Depth to water in EE-2 after pumping it down to prevent freezing, 21.48 ft. Geophone coming out of the hole. Surface system rigged down.

22:05 Departed site.

Experiment 2003
Day 3

1/7/82

EE-2 water level	1/6/82	21:50 hrs	21.48 ft
	1/7/82	11:00 hrs	17:75 ft
			3.73 ft or 11.88 gal.

The level of the water in EE-2 came up by ≈11.88 gallons during the night.

Gallons pumped during test:

First ramp	320 gallons	First Hold	271 gallons
Second ramp	100 gallons	Second hold	258 gallons
Third ramp	102 gallons	Third hold	210 gallons
Total	522 gallons		739 gallons

Gallons pumped down hole, 522 gallons plus some fraction of the 739 gallons.

Vent measured 530 gallons immediately plus about 12 gallons overnight for 542 gallons total.

James R Miller

Appendix C

[illegible] Personnel Assignment Sheets C-1

[illegible] Plots of [illegible] versus EE-3 C-3

[illegible] Pressure gage readings, EE-2 wellhead pressure, [illegible] C-4

[illegible] gages

[illegible] Total volume, daily [illegible] versus [illegible] C-7

[illegible] Total [illegible] volume versus meter readings C-8

EXPERIMENT 2003

~~EXPERIMENT 2003~~

KOBE PRESSURE TEST OF EE-2

PERSONNEL ASSIGNMENT SHEET

Date: 11/6/82

	ITEM	LOCATION	PERSON
1.	Experiment Manager	Varied	J. R. Miller
2.	Scientific Advisor	Varied	Hugh Murphy
3.	Kobe Operator	Kobe Trailer	Mike Maes
4.	Kobe Operator	Kobe Shed	—
5.	Wire line Operator	EE-2 Temp.	Pablo Gutierrez
6.	Wire line Operator	EE-1 Geophone	Richard Maestas
7.	CDA Operator	CDA Trailer	Bob Lowton
8.	Log Book	Kobe Trailer	—
9.	Log Book	Temp. & Collar Locator	Jerry Kolor
		Wire Line Unit EE-2	& Pablo Gutierrez
10.	Log Book	Geophone	Richard Maestas
		Wire Line Unit EE-1	& Joe Catanach
11.	Turbine Flow Meter	CDA	Bob Lowton
12.	Pressure Transducer	CDA	"
13.	Fluid Temperature	CDA	"
14.	Heise Pressure Gage	Wellhead	M. Kadowiki M. Kuriyagawa
15.	Kobe Hour Meter	Kobe Shed	—
16.	Kobe Hour Meter	Kobe Trailer	J. R. Miller
17.	Supply Crane Meter	Kobe Trailer	J. R. Miller
18.	Supply Crane Meter	Kobe ~~Trailer~~ shed	—
19.	Gold Tank dipstick reading	Near EE-2	S. Saito M. Kadowiki
20.	EE-3 Fluid level	EE-3	Kadowiki, Saito Nishizawa, Kuriyagawa
21.	EE-2 Backside casing pressure	EE-2	M. Kurigagawa M. Kadowiki
22.	Hydrogene Pump	Kobe area	Pete Sa[illegible]

EXPERIMMENT 2003
KOBE PRESSURE TEST OF EE-2
PERSONNEL ASSIGNMENT SHEET

Date: 1/5/82

ITEM	LOCATION	PERSON
1. Experiment Manager	Varied	J. R. Miller
2. Scientific Advisor	Varied	None
3. Kobe Operator	Kobe Trailer	None
4. Kobe Operator	Kobe Shed	None
5. Wire line Operator	EE-2 Temp.	Pablo Gutierrez
6. Wire line Operator	EE-1 Geophone	none
7. CDA Operator	CDA Trailer	none
8. Log Book	Kobe Trailer	None
9. Log Book	Temp. & Collar Locator	
	Wire Line Unit EE-2	Jerry Kolar
10. Log Book	Geophone	
	Wire Line Unit EE-1	none
11. Scribe	Varied	None
12. Turbine Flow Meter	CDA	none
13. Pressure Transducer	CDA	none
14. Fluid Temperature	CDA	none
15. Heise Pressure Gage	Kobe Trailer	None
16. Dowhole Crane Meter	Kobe Trailer	None
17. Supply Crane Meter	Kobe Trailer	None
18. Supply Crane Meter	Kobe Shed	None
19. Gold Tank dipstick reading	Near EE-2	None
20. EE-3 Fluid level	EE-3	J.R. Miller
21. EE-2 Backside casing pressure	EE-2	None

EXPERIMENT 2003
KOBE PRESSURE TEST OF EE-2
DEPTH TO SURFACE OF WATER
EE-3, MEASURED FROM WELLHEAD FLANGE

Recorded by: J. Mi[illegible], M. Kuriyagawa, M. Kadowaki, O. Nishizawa, S. Saito. Date: 1/4/82 - 1/6/82

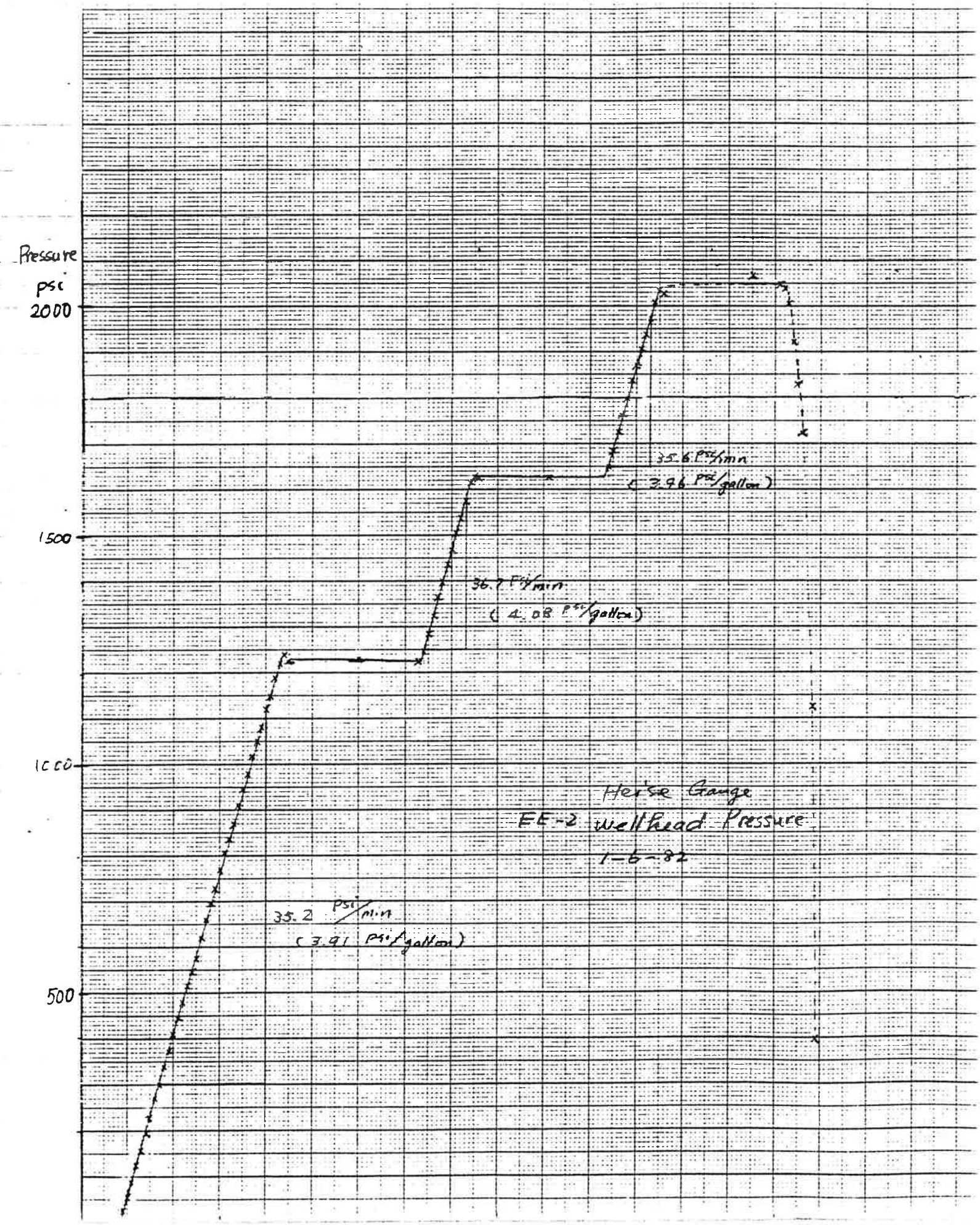
12/30/81	23'5"	Ft	1500	MST	~~13.50~~ 16.36	Ft	18:30	MST
1/4/82	18'	Ft	1300	MST	16.34	Ft	19:00	MST
1/5/82	17.50	Ft	8:20	MST	16.29	Ft	19:30	MST
	17.32	Ft	11:35	MST	16.30	Ft	20:00	MST
	17.29	Ft	12:30	MST	~~17.00~~ 16.30	Ft	20:30	MST
	~~17.16~~ 17.26	Ft	13:30	MST	16:30	Ft	21:00	MST
	17.22	Ft	14:30	MST		Ft		MST
	17.20	Ft	15:30	MST	1/7/82	Ft		MST
	17.15	Ft	16:30	MST	16.0	Ft	11:00	MST
	17.12	Ft	17:30	MST		Ft		MST
	Last Reading of the day	Ft		MST		Ft		MST
1/6/82		Ft		MST		Ft		MST
	16.65	Ft	7:30	MST		Ft		MST
	16.55	Ft	10:30	MST		Ft		MST
	16.46	Ft	13:30	MST		Ft		MST
	16.43	Ft	14:30	MST		Ft		MST
	16.41	Ft	15:00	MST		Ft		MST
	16.30	Ft	15:30	MST		Ft		MST
	16.43	Ft	16:00	MST		Ft		MST
	16.39	Ft	16.30	MST		Ft		MST
	16.37	Ft	17:10	MST		Ft		MST
	16.35	Ft	17:35	MST		Ft		MST
	16.36	Ft	18:00	MST		Ft		MST

EXPERIMENT 2003
KOBE PRESSURE TEST OF EE-2
HEISE PRESSURE GUAGE READINGS
EE-2 WELLBORE PRESSURE

Recorded by: M. Kuriyagawa & M. Kadowaki Date: 1-6-82

18:38 start!

25 PSIG	6:39 MST	835 PSIG	7:02 MST	1470 PSIG	7:50 MST
55 PSIG	6:40 MST	870 PSIG	7:03 MST	1505 PSIG	7:51 MST
~~90~~ 85 PSIG	6:41 MST	910 PSIG	7:04 MST	1540 PSIG	7:52 MST
125 PSIG	6:42 MST	945 PSIG	7:05 MST	1575 PSIG	7:53 MST
155 PSIG	6:43 MST	980 PSIG	7:06 MST	1615 PSIG	7:54 MST
195 PSIG	6:44 MST	*1000 PSIG	7:06:30 MST	1630 PSIG	7:55 MST
230 PSIG	6:45 MST	1015 PSIG	7:07 MST	1625 PSIG	7:56 MST
270 PSIG	6:46 MST	1050 PSIG	7:08 MST	1625 PSIG	~~9~~ 8:11 MST
300 PSIG	6:47 MST	1080 PSIG	7:09 MST	1650 PSIG	8:24 MST
~~285~~ 340 PSIG	6:48 MST	1120 PSIG	7:10 MST	1685 PSIG	25 MST
375 PSIG	6:49 MST	1150 PSIG	7:11 MST	1725 PSIG	26 MST
410 PSIG	6:50 MST	1190 PSIG	7:12 MST	1765 PSIG	27 MST
445 PSIG	6:51 MST	1220 PSIG	7:13 MST	1800 PSIG	28 MST
480 PSIG	6:52 MST	1240 PSIG	7:14 MST	1835 PSIG	29 MST
I 515 PSIG	6:53 MST	1225 PSIG	7:15 MST	1870 PSIG	30 MST
Vibration 545 PSIG	6:54 MST	1230 PSIG	7:30 MST	1905 PSIG	31 MST
575 PSIG	6:55 MST	1235 PSIG	7:43 MST	1940 PSIG	32 MST
I 620 PSIG	6:56 MST	1250 PSIG	7:44 MST	1975 PSIG	33 MST
660 PSIG	6:57 MST	1285 PSIG	7:45 MST	2010 PSIG	34 MST
695 PSIG	6:58 MST	1325 PSIG	7:46 MST	2035 PSIG	35 MST
730 PSIG	6:59 MST	1365 PSIG	7:47 MST	2025 PSIG	36 MST
770 PSIG	7:00 MST	1400 PSIG	7:48 MST	2070 PSIG	55 MST
805 PSIG	7:01 MST	1435 PSIG	7:49 MST	PSIG	MST


Pressure
psi
2000
1500
1000
500
35.6 psi/min
(3.96 psi/gallon)
36.7 psi/min
(4.08 psi/gallon)
35.2 psi/min
(3.91 psi/gallon)
Hersee Gauge
EE-2 Wellhead Pressure
1-6-82

EXPERIMENT 2003
KOBE PRESSURE TEST OF EE-2
HEISE PRESSURE GUAGE READINGS
EE-2 WELLBORE PRESSURE

Recorded by: M. Kuriyagawa & M. Kadowaki Date: 1-6-82

2050 PSIG	1901 MST	PSIG	MST	PSIG	MST
2040 PSIG	02 MST	PSIG	MST	PSIG	MST
2005 PSIG	03 MST	PSIG	MST	PSIG	MST
1920 PSIG	04 MST	PSIG	MST	PSIG	MST
1830 PSIG	05 MST	PSIG	MST	PSIG	MST
1725 PSIG	06 MST	PSIG	MST	PSIG	MST
PSIG	07 MST	PSIG	MST	PSIG	MST
1125 PSIG	08 MST	PSIG	MST	PSIG	MST
400 PSIG	09 MST	PSIG	MST	PSIG	MST
PSIG	10 MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST
PSIG	MST	PSIG	MST	PSIG	MST

EXPERIMENT 2003
KOBE PRESSURE TEST OF EE-2
DEPTH TO SURFACE OF WATER IN
GOLD TANK MEASURED FROM TOP OF TANK
VENT VOLUME

Recorded by: Masa Kadowaki & S. Saito Date: 1/6/82

14.25	Ft	9:07:15	MST pm		Ft		MST		Ft		MST
14.22	Ft	9:[illegible]	MST pm		Ft		MST		Ft		MST
14.14	Ft	9:09:[illegible]	MST pm		Ft		MST		Ft		MST
13.89	Ft	9:[illegible]	MST pm		Ft		MST		Ft		MST
13.49	Ft	9:10:3[illegible]	MST pm		Ft		MST		Ft		MST
13.48	Ft	21:15	MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST
	Ft		MST		Ft		MST		Ft		MST

Note gold tank measures 14.95 ft tall by 7.83 ft in diameter

EXPERIMENT 2003
KOBE PRESSURE TEST OF EE-2
CRANE METER READINGS
SUPPLY TO SMALL KOBE PUMP

Recorded by: J.R. Miller Date: 1/6/82

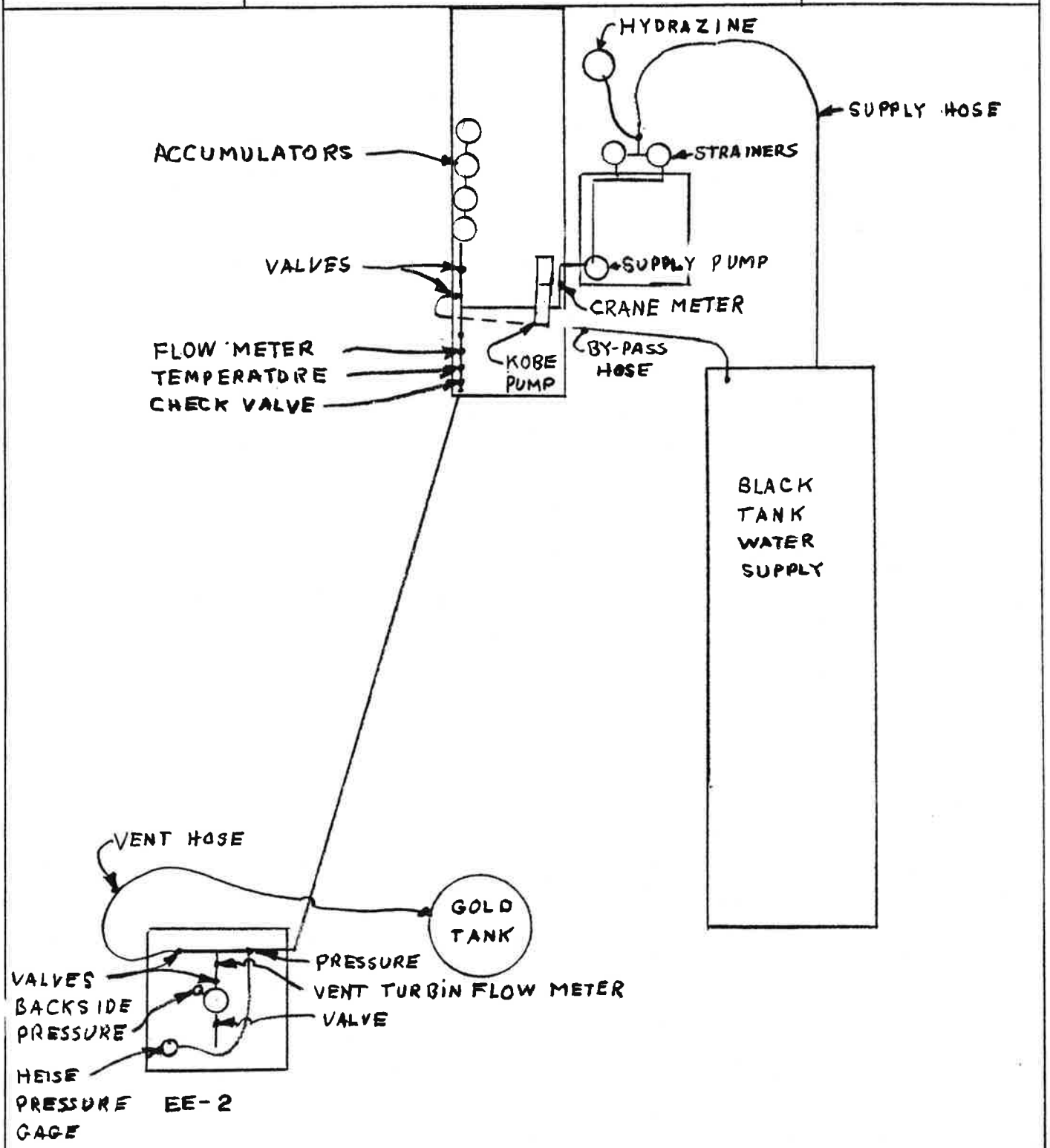
	112071 Gal	18:30 MST	Gal	MST	Gal	MST	Gal	MST
	112270 Gal	19:01:30 MST	Gal	MST	Gal	MST	Gal	MST
	112301 Gal	19:05 MST	Gal	MST	Gal	MST	Gal	MST
	112357 Gal	19:10 MST	Gal	MST	Gal	MST	Gal	MST
1200 psi –	112391 Gal	19:15 MST	Gal	MST	Gal	MST	Gal	MST
	112538 Gal	19:30 MST	Gal	MST	Gal	MST	Gal	MST
	112617 Gal	19:40 MST	Gal	MST	Gal	MST	Gal	MST
end hold	112662 Gal	19:45 MST	Gal	MST	Gal	MST	Gal	MST
	112718 Gal	19:50 MST	Gal	MST	Gal	MST	Gal	MST
	112752 Gal	19:55 MST	Gal	MST	Gal	MST	Gal	MST
1600 psi	112762 Gal	19:56 MST	Gal	MST	Gal	MST	Gal	MST
	112797 Gal	20:00 MST	Gal	MST	Gal	MST	Gal	MST
	112886 Gal	20:10 MST	Gal	MST	Gal	MST	Gal	MST
	112930 Gal	20:15 MST	Gal	MST	Gal	MST	Gal	MST
	112975 Gal	20:20 MST	Gal	MST	Gal	MST	Gal	MST
end hold	113020 Gal	20:25 MST	Gal	MST	Gal	MST	Gal	MST
	113067 Gal	20:30 MST	Gal	MST	Gal	MST	Gal	MST
– end pump 2000 psi	113122 Gal	20:35 MST	Gal	MST	Gal	MST	Gal	MST
	113216 Gal	20:45 MST	Gal	MST	Gal	MST	Gal	MST
	113269 Gal	20:51 MST	Gal	MST	Gal	MST	Gal	MST
	113314 Gal	20:56 MST	Gal	MST	Gal	MST	Gal	MST
end hold	113332 Gal	21:00 MST	Gal	MST	Gal	MST	Gal	MST
Vent	Gal	MST	Gal	MST	Gal	MST	Gal	MST

Appendix D

1. [illegible], sketch.

SF 5302-AB (5-64) SKETCH SHEET—10 X 10

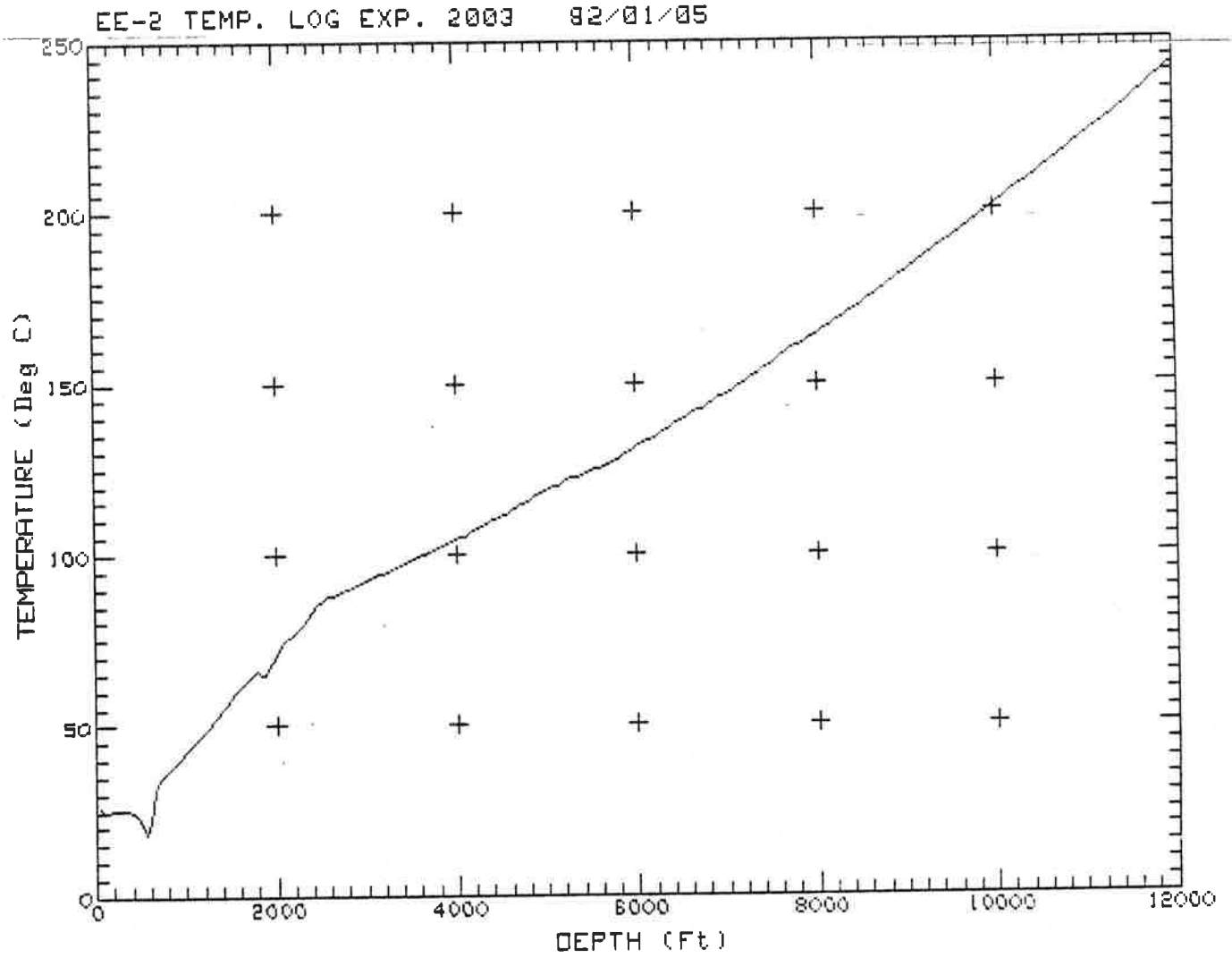
PREPARED BY:	DWG CLASSIFICATION LEVEL (If class., also show category of information. If not line through this block)	PAGE NO. OF
CHECKED BY:	SKETCH EXP. 2003 PLUMBING	REPORT NO.
DATE:		MODEL NO.

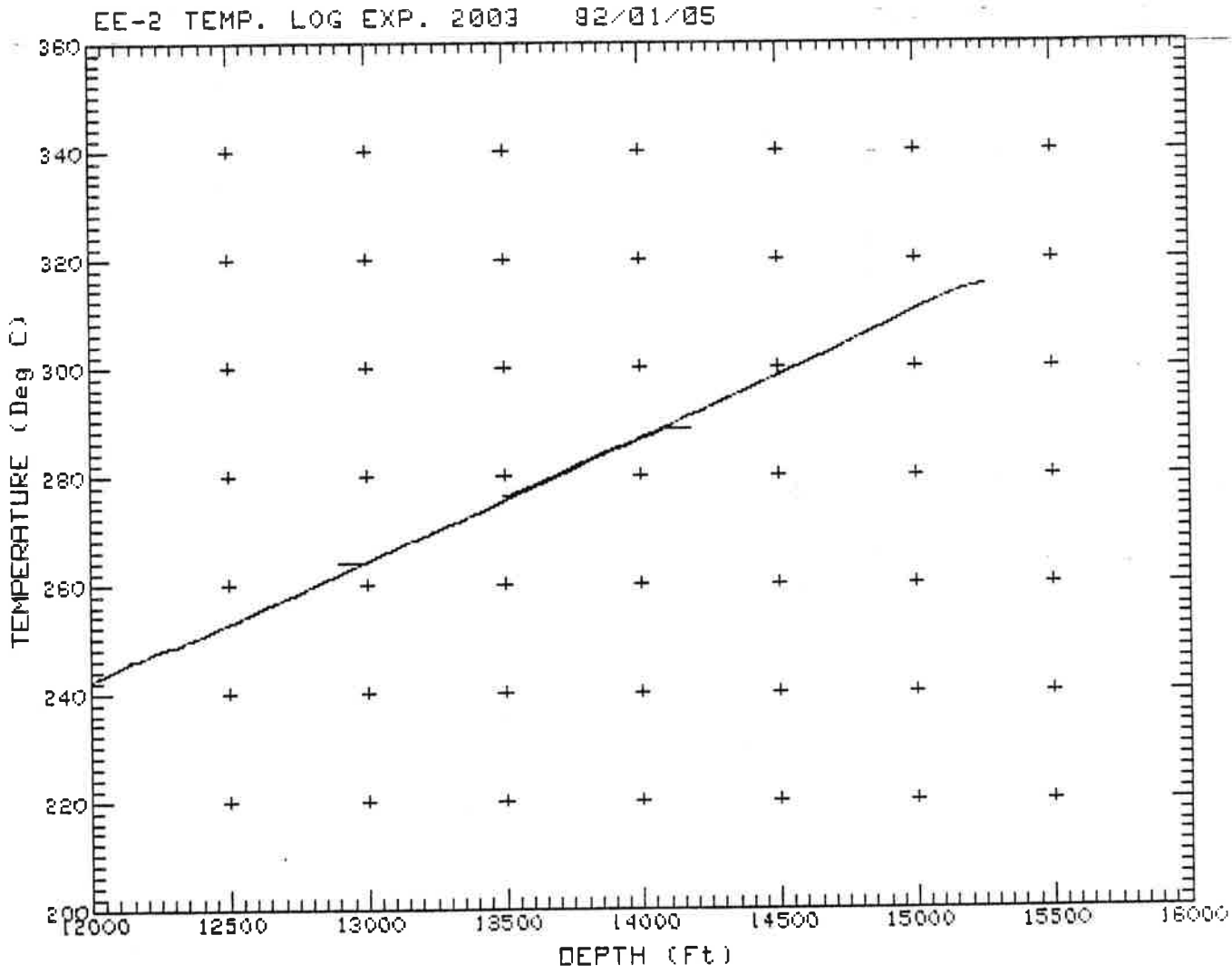


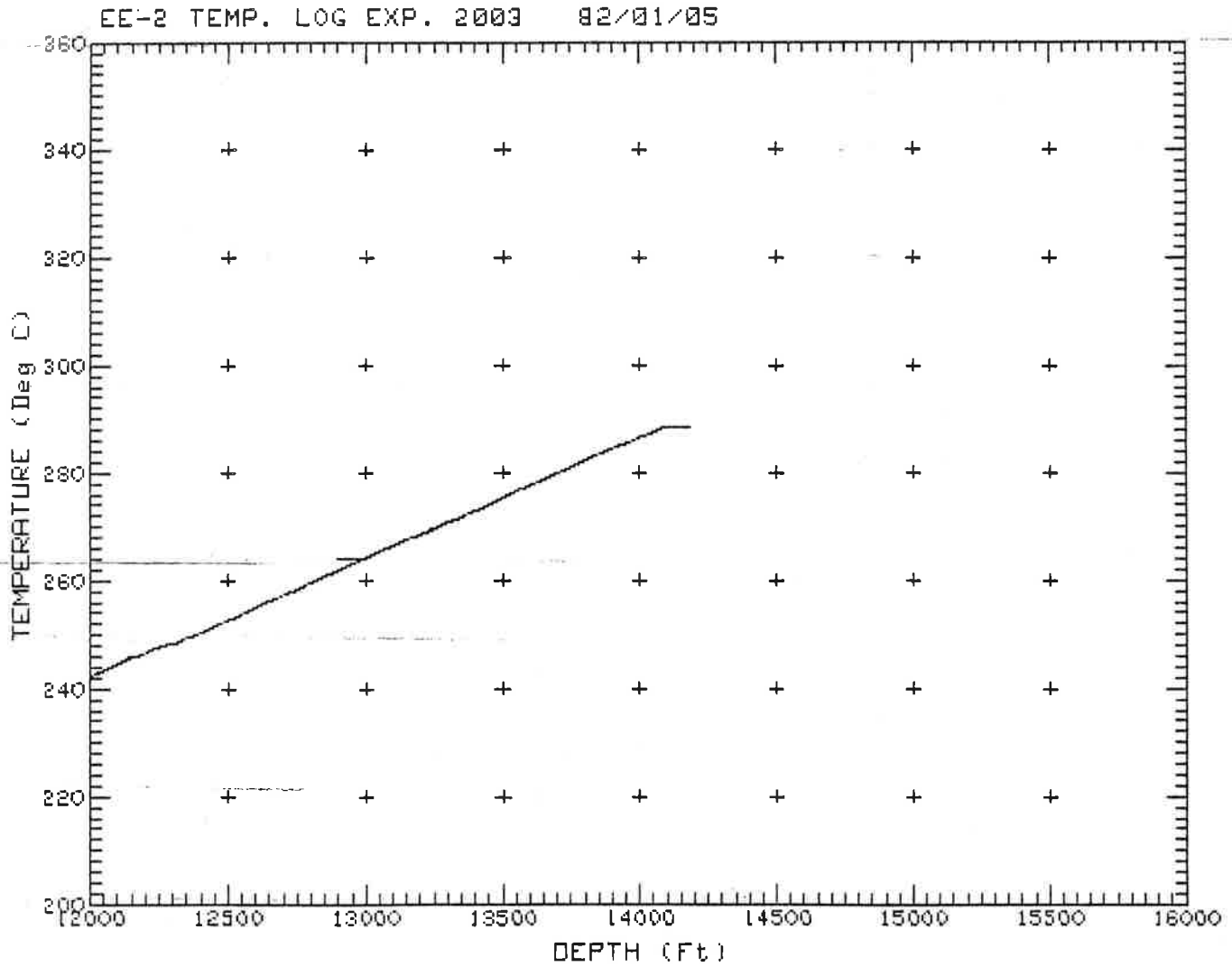
DWG CLASSIFICATION LEVEL

Appendix E

1. Temperature graphs
2. Temperature logs


EE-2 TEMP. LOG EXP. 2003 92/01/05
TEMPERATURE (Deg C)
DEPTH (Ft)
0
50
100
150
200
250
0
2000
4000
6000
8000
10000
12000


EE-2 TEMP. LOG EXP. 2003 92/01/05
TEMPERATURE (Deg C)
360
340
320
300
280
260
240
220
200
12000
12500
13000
13500
14000
14500
15000
15500
16000
DEPTH (Ft)


EE-2 TEMP. LOG EXP. 2003 82/01/05
TEMPERATURE (Deg C)
360
340
320
300
280
260
240
220
200
12000
12500
13000
13500
14000
14500
15000
15500
16000
DEPTH (Ft)

1	11:43:23.952	50.00	25.87	11:43:52.298	100.00	24.81
2	11:44:19.940	150.00	24.74	11:44:46.549	200.00	25.64
3	11:45:11.316	250.00	25.59	11:45:35.783	300.00	25.37
4	11:45:59.825	350.00	25.28	11:46:23.357	400.00	24.84
5	11:46:45.580	450.00	23.30	11:47:05.373	500.00	20.60
6	11:47:25.130	550.00	18.21	11:47:44.873	600.00	22.07
7	11:48:04.526	650.00	31.08	11:48:23.666	700.00	34.05
8	11:48:41.990	750.00	35.46	11:49:00.534	800.00	36.84
9	11:49:19.248	850.00	38.23	11:49:38.723	900.00	39.60
10	11:49:58.317	950.00	40.98	11:50:18.453	1000.00	42.32
11	11:50:38.110	1050.00	43.65	11:50:57.141	1100.00	45.12
12	11:51:16.341	1150.00	46.67	11:51:35.184	1200.00	48.27
13	11:51:53.670	1250.00	49.87	11:52:12.368	1300.00	51.42
14	11:52:31.324	1350.00	52.89	11:52:49.758	1400.00	54.49
15	11:53:08.239	1450.00	56.13	11:53:26.169	1500.00	57.82
16	11:53:44.286	1550.00	59.50	11:54:04.747	1600.00	61.10
17	11:54:25.076	1650.00	62.53	11:54:45.817	1700.00	63.70
18	11:55:06.711	1750.00	64.97	11:55:27.633	1800.00	66.24
19	11:55:50.190	1850.00	64.68	11:56:11.819	1900.00	64.66
20	11:56:33.953	1950.00	67.92	11:56:55.731	2000.00	70.81
21	11:57:17.932	2050.00	73.97	11:57:39.829	2100.00	74.96
22	11:58:02.342	2150.00	75.56	11:58:24.707	2200.00	77.19
23	11:58:46.788	2250.00	78.59	11:59:08.542	2300.00	79.85
24	11:59:30.032	2350.00	81.60	11:59:51.272	2400.00	83.71
25	12:00:12.225	2450.00	85.26	12:00:32.999	2500.00	86.17
26	12:00:53.466	2550.00	87.03	12:01:13.833	2600.00	87.63
27	12:01:33.992	2650.00	88.13	12:01:54.002	2700.00	88.78
28	12:02:14.476	2750.00	89.34	12:02:34.699	2800.00	89.96
29	12:02:54.614	2850.00	90.50	12:03:14.332	2900.00	91.05
30	12:03:33.796	2950.00	91.69	12:03:52.963	3000.00	92.31
31	12:04:11.917	3050.00	92.72	12:04:30.652	3100.00	93.42
32	12:04:49.234	3150.00	93.99	12:05:07.954	3200.00	94.52
33	12:05:27.254	3250.00	95.10	12:05:46.586	3300.00	95.72
34	12:06:06.032	3350.00	96.38	12:06:25.321	3400.00	96.96
35	12:06:44.574	3450.00	97.54	12:07:03.561	3500.00	98.15
36	12:07:22.444	3550.00	98.83	12:07:41.201	3600.00	99.32
37	12:07:59.835	3650.00	100.09	12:08:18.499	3700.00	100.72
38	12:08:37.157	3750.00	101.36	12:08:56.121	3800.00	101.91
39	12:09:15.144	3850.00	102.57	12:09:34.068	3900.00	103.14
40	12:09:52.523	3950.00	103.58	12:10:11.729	4000.00	104.49
41	12:10:30.483	4050.00	104.82	12:10:49.276	4100.00	105.36
42	12:11:08.034	4150.00	106.21	12:11:26.568	4200.00	106.98
43	12:11:45.333	4250.00	107.75	12:12:03.978	4300.00	108.41
44	12:12:22.564	4350.00	109.20	12:12:40.958	4400.00	109.96
45	12:12:59.312	4450.00	110.40	12:13:17.635	4500.00	111.35
46	12:13:36.057	4550.00	111.77	12:13:56.123	4600.00	112.57
47	12:14:16.287	4650.00	113.53	12:14:36.279	4700.00	114.37
48	12:14:56.288	4750.00	114.82	12:15:16.456	4800.00	115.29
49	12:15:36.991	4850.00	116.63	12:15:57.508	4900.00	117.33
50	12:16:17.945	4950.00	117.61	12:16:38.133	5000.00	118.42
51	12:16:58.316	5050.00	119.00	12:17:18.412	5100.00	119.58
52	12:17:38.495	5150.00	120.06	12:17:58.517	5200.00	120.86
53	12:18:18.540	5250.00	121.57	12:18:38.498	5300.00	122.08
54	12:18:58.430	5350.00	122.57	12:19:18.401	5400.00	123.16
55	12:19:38.228	5450.00	123.68	12:19:57.752	5500.00	124.14
56	12:20:17.225	5550.00	124.55	12:20:36.827	5600.00	125.17
57	12:20:56.116	5650.00	125.51	12:21:15.545	5700.00	125.96
58	12:21:34.883	5750.00	126.57	12:21:54.017	5800.00	127.61
59	12:22:13.621	5850.00	128.54	12:22:33.219	5900.00	129.26
60	12:22:52.753	5950.00	130.17	12:23:12.265	6000.00	131.04

 EE-2 TEMP. LOG EXP. 2003 82/01/05

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	12:23:31.992	6050.00	132.13	12:23:51.590	6100.00	132.72
2	12:24:10.825	6150.00	133.22	12:24:30.105	6200.00	133.63
3	12:24:49.315	6250.00	134.76	12:25:08.477	6300.00	135.68
4	12:25:28.131	6350.00	136.58	12:25:48.138	6400.00	137.35
5	12:26:08.068	6450.00	138.09	12:26:27.287	6500.00	138.85
6	12:26:46.307	6550.00	139.60	12:27:05.368	6600.00	140.56
7	12:27:24.215	6650.00	141.26	12:27:43.100	6700.00	141.81
8	12:28:03.019	6750.00	142.28	12:28:23.425	6800.00	143.35
9	12:28:44.154	6850.00	144.30	12:29:04.838	6900.00	145.06
10	12:29:25.368	6950.00	145.74	12:29:45.909	7000.00	146.63
11	12:30:06.510	7050.00	147.48	12:30:26.989	7100.00	148.55
12	12:30:47.504	7150.00	149.31	12:31:07.828	7200.00	149.96
13	12:31:28.271	7250.00	150.83	12:31:48.638	7300.00	151.80
14	12:32:08.803	7350.00	152.51	12:32:28.996	7400.00	153.41
15	12:32:49.217	7450.00	154.22	12:33:09.355	7500.00	155.13
16	12:33:29.383	7550.00	156.05	12:33:49.330	7600.00	157.13
17	12:34:09.381	7650.00	158.15	12:34:29.461	7700.00	158.99
18	12:34:49.576	7750.00	159.83	12:35:09.921	7800.00	160.59
19	12:35:30.574	7850.00	161.38	12:35:51.246	7900.00	162.51
20	12:36:11.671	7950.00	163.43	12:36:32.077	8000.00	164.01
21	12:36:52.445	8050.00	164.80	12:37:12.735	8100.00	165.63
22	12:37:32.929	8150.00	166.45	12:37:53.191	8200.00	167.33
23	12:38:13.464	8250.00	168.17	12:38:33.791	8300.00	169.11
24	12:38:53.878	8350.00	169.91	12:39:14.038	8400.00	170.65
25	12:39:34.212	8450.00	171.40	12:39:54.195	8500.00	172.12
26	12:40:14.346	8550.00	173.40	12:40:34.110	8600.00	174.39
27	12:40:53.993	8650.00	175.40	12:41:13.873	8700.00	176.39
28	12:41:34.177	8750.00	177.33	12:41:54.709	8800.00	178.27
29	12:42:15.108	8850.00	179.17	12:42:35.507	8900.00	180.07
30	12:42:55.822	8950.00	180.96	12:43:15.953	9000.00	181.87
31	12:43:36.282	9050.00	182.79	12:43:56.597	9100.00	183.72
32	12:44:16.666	9150.00	184.66	12:44:36.569	9200.00	185.61
33	12:44:56.456	9250.00	186.53	12:45:16.522	9300.00	187.48
34	12:45:36.553	9350.00	188.41	12:45:56.484	9400.00	189.32
35	12:46:16.379	9450.00	190.28	12:46:36.156	9500.00	191.22
36	12:46:55.428	9550.00	192.16	12:47:15.376	9600.00	193.11
37	12:47:35.206	9650.00	194.10	12:47:55.434	9700.00	195.08
38	12:48:15.726	9750.00	196.05	12:48:35.910	9800.00	197.01
39	12:48:56.026	9850.00	198.01	12:49:16.060	9900.00	199.00
40	12:49:36.003	9950.00	199.96	12:49:56.021	10000.00	200.98
41	12:50:15.841	10050.00	201.97	12:50:35.837	10100.00	202.98
42	12:50:55.783	10150.00	203.95	12:51:15.648	10200.00	204.92
43	12:51:35.473	10250.00	205.91	12:51:55.448	10300.00	206.91
44	12:52:15.119	10350.00	207.90	12:52:34.868	10400.00	208.91
45	12:52:54.562	10450.00	209.92	12:53:14.033	10500.00	210.92
46	12:53:33.653	10550.00	211.94	12:53:53.775	10600.00	212.95
47	12:54:13.828	10650.00	213.93	12:54:34.079	10700.00	214.97
48	12:54:54.274	10750.00	215.97	12:55:14.359	10800.00	216.97
49	12:55:34.325	10850.00	217.99	12:55:54.406	10900.00	219.03
50	12:56:14.545	10950.00	220.06	12:56:34.644	11000.00	221.08
51	12:56:54.715	11050.00	222.10	12:57:14.793	11100.00	223.08
52	12:57:34.774	11150.00	224.11	12:57:54.659	11200.00	225.15
53	12:58:14.563	11250.00	226.18	12:58:34.215	11300.00	227.22
54	12:58:53.893	11350.00	228.30	12:59:13.674	11400.00	229.35
55	12:59:33.443	11450.00	230.39	12:59:53.860	11500.00	231.46
56	13:00:14.168	11550.00	232.60	13:00:34.411	11600.00	234.00
57	13:00:54.900	11650.00	234.71	13:01:15.455	11700.00	235.83
58	13:01:35.902	11750.00	236.97	13:01:56.318	11800.00	238.12
59	13:02:16.772	11850.00	239.23	13:02:37.221	11900.00	240.32
60	13:02:57.569	11950.00	241.33	13:03:39.776	12000.00	242.54

Time	Depth Ft	Temp C	Time	Depth Ft	Temp C

Page 1 EE-2 TEMP. LOG EXP. 2003 82/01/05

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:33:07.146	12002.00	242.36	13:33:09.929	12004.00	242.46
2	13:33:12.536	12006.00	242.49	13:33:14.084	12008.00	242.50
3	13:33:15.426	12010.00	242.56	13:33:16.822	12012.00	242.61
4	13:33:18.303	12014.00	242.64	13:33:19.728	12016.00	242.67
5	13:33:21.172	12018.00	242.73	13:33:22.679	12020.00	242.79
6	13:33:24.110	12022.00	242.85	13:33:25.571	12024.00	242.89
7	13:33:26.997	12026.00	242.93	13:33:28.489	12028.00	242.97
8	13:33:29.935	12020.00	242.99	13:33:30.504	12030.00	242.99
9	13:33:31.371	12032.00	243.04	13:33:32.854	12034.00	243.10
10	13:33:34.327	12036.00	243.13	13:33:35.795	12038.00	243.17
11	13:33:37.278	12040.00	243.20	13:33:38.767	12042.00	243.25
12	13:33:40.209	12044.00	243.30	13:33:41.675	12046.00	243.34
13	13:33:43.143	12048.00	243.38	13:33:44.607	12050.00	243.41
14	13:33:46.137	12052.00	243.46	13:33:47.590	12054.00	243.52
15	13:33:49.032	12056.00	243.56	13:33:50.516	12058.00	243.62
16	13:33:52.028	12060.00	243.67	13:33:53.497	12062.00	243.72
17	13:33:54.936	12064.00	243.78	13:33:56.352	12066.00	243.84
18	13:33:57.880	12068.00	243.88	13:33:59.325	12070.00	243.92
19	13:34:00.814	12072.00	243.97	13:34:02.299	12074.00	244.01
20	13:34:03.744	12076.00	244.06	13:34:05.218	12078.00	244.11
21	13:34:06.637	12080.00	244.16	13:34:08.119	12082.00	244.19
22	13:34:09.604	12084.00	244.24	13:34:11.051	12086.00	244.30
23	13:34:12.539	12088.00	244.36	13:34:13.982	12090.00	244.41
24	13:34:15.487	12092.00	244.45	13:34:16.891	12094.00	244.49
25	13:34:18.377	12096.00	244.54	13:34:19.830	12098.00	244.59
26	13:34:21.317	12100.00	244.65	13:34:22.788	12102.00	244.70
27	13:34:24.232	12104.00	244.74	13:34:25.677	12106.00	244.80
28	13:34:27.158	12108.00	244.86	13:34:28.602	12110.00	244.90
29	13:34:30.048	12112.00	244.95	13:34:31.529	12114.00	245.00
30	13:34:33.009	12116.00	245.06	13:34:34.462	12118.00	245.12
31	13:34:35.904	12120.00	245.16	13:34:37.384	12122.00	245.22
32	13:34:38.869	12124.00	245.27	13:34:40.312	12126.00	245.30
33	13:34:41.798	12128.00	245.36	13:34:43.285	12130.00	245.41
34	13:34:44.730	12132.00	245.45	13:34:46.174	12134.00	245.51
35	13:34:47.620	12136.00	245.58	13:34:49.106	12138.00	245.63
36	13:34:50.592	12140.00	245.67	13:34:52.042	12142.00	245.72
37	13:34:53.496	12144.00	245.75	13:34:54.982	12146.00	245.78
38	13:34:56.468	12148.00	245.85	13:34:57.910	12140.00	245.90
39	13:34:58.450	12150.00	245.91	13:34:59.394	12152.00	245.91
40	13:35:00.878	12154.00	245.92	13:35:02.375	12156.00	245.94
41	13:35:03.822	12158.00	246.00	13:35:05.266	12160.00	246.06
42	13:35:06.747	12162.00	246.09	13:35:08.189	12164.00	246.11
43	13:35:09.675	12166.00	246.13	13:35:11.162	12168.00	246.13
44	13:35:12.621	12170.00	246.17	13:35:14.055	12172.00	246.19
45	13:35:15.535	12174.00	246.21	13:35:17.021	12176.00	246.24
46	13:35:18.426	12178.00	246.31	13:35:19.912	12180.00	246.36
47	13:35:21.360	12182.00	246.37	13:35:22.807	12184.00	246.43
48	13:35:24.294	12186.00	246.49	13:35:25.742	12188.00	246.56
49	13:35:27.229	12190.00	246.58	13:35:28.674	12192.00	246.59
50	13:35:30.206	12194.00	246.59	13:35:31.612	12196.00	246.63
51	13:35:33.089	12198.00	246.69	13:35:34.534	12200.00	246.76
52	13:35:36.023	12202.00	246.83	13:35:37.463	12204.00	246.89
53	13:35:38.913	12206.00	246.93	13:35:40.400	12208.00	247.03
54	13:35:41.836	12210.00	247.07	13:35:43.282	12212.00	247.11
55	13:35:44.729	12214.00	247.19	13:35:46.208	12216.00	247.24
56	13:35:47.616	12218.00	247.29	13:35:49.089	12220.00	247.38
57	13:35:50.533	12222.00	247.45	13:35:51.968	12224.00	247.49
58	13:35:53.404	12226.00	247.51	13:35:54.852	12228.00	247.50
59	13:35:56.339	12230.00	247.50	13:35:57.783	12232.00	247.52
60	13:35:59.205	12234.00	247.55	13:36:00.688	12236.00	247.57

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:36:02.136	12238.00	247.60	13:36:03.583	12240.00	247.64
2	13:36:05.028	12242.00	247.69	13:36:06.503	12244.00	247.73
3	13:36:07.912	12246.00	247.77	13:36:09.400	12248.00	247.79
4	13:36:10.848	12250.00	247.82	13:36:12.293	12252.00	247.86
5	13:36:13.736	12254.00	247.89	13:36:15.218	12256.00	247.90
6	13:36:16.660	12258.00	247.96	13:36:18.083	12260.00	247.99
7	13:36:19.573	12262.00	248.02	13:36:21.004	12264.00	248.05
8	13:36:22.452	12266.00	248.09	13:36:23.895	12268.00	248.12
9	13:36:25.337	12270.00	248.20	13:36:26.784	12272.00	248.24
10	13:36:28.270	12274.00	248.27	13:36:29.716	12276.00	248.30
11	13:36:31.159	12278.00	248.36	13:36:32.601	12280.00	248.37
12	13:36:34.044	12282.00	248.38	13:36:35.486	12284.00	248.40
13	13:36:36.977	12286.00	248.41	13:36:38.408	12288.00	248.45
14	13:36:39.852	12290.00	248.45	13:36:41.296	12292.00	248.47
15	13:36:42.744	12294.00	248.50	13:36:44.225	12296.00	248.51
16	13:36:45.663	12298.00	248.52	13:36:47.141	12300.00	248.55
17	13:36:48.584	12302.00	248.54	13:36:50.069	12304.00	248.55
18	13:36:51.561	12306.00	248.55	13:36:52.994	12308.00	248.59
19	13:36:54.441	12310.00	248.62	13:36:55.902	12312.00	248.66
20	13:36:57.391	12314.00	248.69	13:36:58.833	12316.00	248.71
21	13:37:00.358	12318.00	248.71	13:37:01.883	12320.00	248.80
22	13:37:03.370	12322.00	248.90	13:37:04.890	12324.00	248.96
23	13:37:06.377	12326.00	248.99	13:37:07.864	12328.00	249.05
24	13:37:09.352	12330.00	249.14	13:37:10.877	12332.00	249.21
25	13:37:12.366	12334.00	249.26	13:37:13.846	12336.00	249.32
26	13:37:15.371	12338.00	249.40	13:37:16.855	12340.00	249.48
27	13:37:18.340	12342.00	249.50	13:37:19.859	12344.00	249.54
28	13:37:21.345	12346.00	249.55	13:37:22.867	12348.00	249.58
29	13:37:24.354	12350.00	249.62	13:37:25.843	12352.00	249.65
30	13:37:27.369	12354.00	249.66	13:37:28.888	12356.00	249.71
31	13:37:30.377	12358.00	249.79	13:37:31.861	12360.00	249.84
32	13:37:33.360	12362.00	249.85	13:37:34.885	12364.00	249.87
33	13:37:36.370	12366.00	249.90	13:37:37.894	12368.00	249.87
34	13:37:39.421	12370.00	249.95	13:37:40.906	12372.00	250.03
35	13:37:42.410	12374.00	250.04	13:37:43.936	12376.00	250.07
36	13:37:45.424	12378.00	250.12	13:37:46.995	12380.00	250.14
37	13:37:48.482	12382.00	250.20	13:37:50.010	12384.00	250.27
38	13:37:51.540	12386.00	250.30	13:37:53.027	12388.00	250.30
39	13:37:54.553	12390.00	250.32	13:37:56.079	12392.00	250.35
40	13:37:57.605	12394.00	250.40	13:37:59.091	12396.00	250.46
41	13:38:00.620	12398.00	250.49	13:38:02.190	12400.00	250.54
42	13:38:03.675	12402.00	250.57	13:38:05.227	12404.00	250.56
43	13:38:06.715	12406.00	250.62	13:38:08.280	12408.00	250.66
44	13:38:09.805	12410.00	250.65	13:38:11.291	12412.00	250.72
45	13:38:12.856	12414.00	250.80	13:38:14.380	12416.00	250.80
46	13:38:15.871	12418.00	250.85	13:38:17.436	12420.00	250.92
47	13:38:18.918	12422.00	250.92	13:38:20.487	12424.00	251.01
48	13:38:21.967	12426.00	251.08	13:38:23.479	12428.00	251.12
49	13:38:25.049	12430.00	251.15	13:38:26.533	12432.00	251.19
50	13:38:28.058	12434.00	251.22	13:38:29.591	12436.00	251.27
51	13:38:31.113	12438.00	251.35	13:38:32.633	12440.00	251.38
52	13:38:34.157	12442.00	251.42	13:38:35.668	12444.00	251.50
53	13:38:37.190	12446.00	251.55	13:38:38.719	12448.00	251.58
54	13:38:40.206	12450.00	251.62	13:38:41.729	12452.00	251.71
55	13:38:43.255	12454.00	251.73	13:38:44.739	12456.00	251.76
56	13:38:46.264	12458.00	251.81	13:38:47.798	12460.00	251.89
57	13:38:49.284	12462.00	251.98	13:38:50.803	12464.00	252.05
58	13:38:52.286	12466.00	252.09	13:38:53.806	12468.00	252.10
59	13:38:55.331	12470.00	252.10	13:38:56.813	12472.00	252.16
60	13:38:58.316	12474.00	252.21	13:38:59.832	12476.00	252.26

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:39:01.329	12478.00	252.28	13:39:02.813	12480.00	252.33
2	13:39:04.298	12482.00	252.37	13:39:05.821	12484.00	252.44
3	13:39:07.403	12486.00	252.44	13:39:08.806	12488.00	252.49
4	13:39:10.328	12490.00	252.52	13:39:11.811	12492.00	252.56
5	13:39:13.295	12494.00	252.57	13:39:14.818	12496.00	252.61
6	13:39:16.303	12498.00	252.67	13:39:17.800	12500.00	252.74
7	13:39:19.327	12502.00	252.78	13:39:20.814	12504.00	252.82
8	13:39:22.301	12506.00	252.85	13:39:23.786	12508.00	252.89
9	13:39:25.307	12510.00	252.92	13:39:26.797	12512.00	252.98
10	13:39:28.282	12514.00	253.01	13:39:29.767	12516.00	253.05
11	13:39:31.298	12518.00	253.08	13:39:32.779	12520.00	253.13
12	13:39:34.266	12522.00	253.17	13:39:35.823	12524.00	253.21
13	13:39:37.266	12526.00	253.27	13:39:38.749	12528.00	253.29
14	13:39:40.242	12530.00	253.32	13:39:41.768	12532.00	253.35
15	13:39:43.255	12534.00	253.42	13:39:44.780	12536.00	253.48
16	13:39:46.270	12538.00	253.54	13:39:47.754	12540.00	253.60
17	13:39:49.239	12542.00	253.64	13:39:50.768	12544.00	253.69
18	13:39:52.255	12546.00	253.75	13:39:53.738	12548.00	253.81
19	13:39:55.241	12550.00	253.87	13:39:56.727	12552.00	253.93
20	13:39:58.253	12554.00	254.01	13:39:59.735	12556.00	254.06
21	13:40:01.259	12558.00	254.11	13:40:02.744	12560.00	254.17
22	13:40:04.236	12562.00	254.22	13:40:05.741	12564.00	254.26
23	13:40:07.266	12566.00	254.30	13:40:08.752	12568.00	254.35
24	13:40:10.239	12570.00	254.39	13:40:11.683	12572.00	254.44
25	13:40:13.257	12574.00	254.50	13:40:14.735	12576.00	254.55
26	13:40:16.259	12578.00	254.59	13:40:17.740	12580.00	254.62
27	13:40:19.264	12582.00	254.67	13:40:20.789	12584.00	254.73
28	13:40:22.274	12586.00	254.79	13:40:23.844	12588.00	254.85
29	13:40:25.287	12590.00	254.89	13:40:26.768	12592.00	254.94
30	13:40:28.293	12594.00	254.99	13:40:29.778	12596.00	255.04
31	13:40:31.306	12598.00	255.08	13:40:32.790	12600.00	255.16
32	13:40:34.284	12602.00	255.20	13:40:35.801	12604.00	255.25
33	13:40:37.285	12606.00	255.29	13:40:38.772	12608.00	255.35
34	13:40:40.259	12610.00	255.40	13:40:41.779	12612.00	255.44
35	13:40:43.273	12614.00	255.48	13:40:44.797	12616.00	255.52
36	13:40:46.285	12618.00	255.55	13:40:47.767	12620.00	255.61
37	13:40:49.253	12622.00	255.66	13:40:50.773	12624.00	255.71
38	13:40:52.193	12626.00	255.75	13:40:53.756	12628.00	255.79
39	13:40:55.240	12630.00	255.82	13:40:56.765	12632.00	255.87
40	13:40:58.289	12634.00	255.91	13:40:59.773	12636.00	255.94
41	13:41:01.261	12638.00	255.97	13:41:02.758	12640.00	256.02
42	13:41:04.278	12642.00	256.06	13:41:05.755	12644.00	256.10
43	13:41:07.275	12646.00	256.13	13:41:08.754	12648.00	256.17
44	13:41:10.276	12650.00	256.21	13:41:11.779	12652.00	256.23
45	13:41:13.265	12654.00	256.26	13:41:14.789	12656.00	256.32
46	13:41:16.315	12658.00	256.35	13:41:17.796	12660.00	256.37
47	13:41:19.321	12662.00	256.41	13:41:20.816	12664.00	256.44
48	13:41:22.337	12666.00	256.46	13:41:23.858	12668.00	256.48
49	13:41:25.341	12670.00	256.52	13:41:26.900	12672.00	256.56
50	13:41:28.384	12674.00	256.58	13:41:29.952	12676.00	256.64
51	13:41:31.395	12678.00	256.71	13:41:32.914	12680.00	256.74
52	13:41:34.397	12682.00	256.80	13:41:35.920	12684.00	256.86
53	13:41:37.448	12686.00	256.91	13:41:38.931	12688.00	256.96
54	13:41:40.465	12690.00	257.01	13:41:41.950	12692.00	257.06
55	13:41:43.478	12694.00	257.10	13:41:45.003	12696.00	257.16
56	13:41:46.530	12698.00	257.21	13:41:48.012	12700.00	257.26
57	13:41:49.543	12702.00	257.31	13:41:51.067	12704.00	257.33
58	13:41:52.589	12706.00	257.38	13:41:54.120	12708.00	257.43
59	13:41:55.606	12710.00	257.46	13:41:57.123	12712.00	257.49
60	13:41:58.650	12714.00	257.53	13:42:00.172	12716.00	257.59

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:42:01.704	12718.00	257.66	13:42:03.225	12720.00	257.71
2	13:42:04.710	12722.00	257.76	13:42:06.232	12724.00	257.82
3	13:42:07.720	12726.00	257.85	13:42:09.260	12728.00	257.87
4	13:42:10.709	12730.00	257.90	13:42:12.272	12732.00	257.92
5	13:42:13.797	12734.00	257.97	13:42:15.323	12736.00	258.03
6	13:42:16.813	12738.00	258.06	13:42:18.317	12740.00	258.06
7	13:42:19.843	12742.00	258.10	13:42:21.371	12744.00	258.15
8	13:42:22.899	12746.00	258.20	13:42:24.423	12748.00	258.25
9	13:42:25.903	12750.00	258.30	13:42:27.485	12752.00	258.36
10	13:42:28.927	12754.00	258.41	13:42:30.450	12756.00	258.47
11	13:42:31.974	12758.00	258.51	13:42:33.498	12760.00	258.56
12	13:42:34.981	12762.00	258.62	13:42:36.510	12764.00	258.67
13	13:42:38.009	12766.00	258.71	13:42:39.536	12768.00	258.75
14	13:42:41.020	12770.00	258.79	13:42:42.541	12772.00	258.83
15	13:42:44.028	12774.00	258.88	13:42:45.552	12776.00	258.93
16	13:42:47.036	12778.00	258.98	13:42:48.563	12780.00	259.03
17	13:42:50.046	12782.00	259.07	13:42:51.569	12784.00	259.12
18	13:42:53.100	12786.00	259.20	13:42:54.582	12788.00	259.25
19	13:42:56.165	12780.00	259.30	13:42:56.699	12790.00	259.31
20	13:42:57.612	12792.00	259.33	13:42:59.095	12794.00	259.38
21	13:43:00.621	12796.00	259.43	13:43:02.104	12798.00	259.46
22	13:43:03.628	12800.00	259.51	13:43:05.112	12802.00	259.56
23	13:43:06.627	12804.00	259.61	13:43:08.115	12806.00	259.65
24	13:43:09.641	12808.00	259.70	13:43:11.124	12810.00	259.74
25	13:43:12.613	12812.00	259.80	13:43:14.136	12814.00	259.85
26	13:43:15.613	12816.00	259.90	13:43:17.137	12818.00	259.94
27	13:43:18.621	12820.00	259.99	13:43:20.104	12822.00	260.04
28	13:43:21.593	12824.00	260.07	13:43:23.116	12826.00	260.13
29	13:43:24.630	12828.00	260.17	13:43:26.111	12830.00	260.23
30	13:43:27.596	12832.00	260.28	13:43:29.081	12834.00	260.32
31	13:43:30.597	12836.00	260.35	13:43:32.086	12838.00	260.38
32	13:43:33.577	12840.00	260.43	13:43:35.072	12842.00	260.50
33	13:43:36.563	12844.00	260.55	13:43:38.051	12846.00	260.59
34	13:43:39.584	12848.00	260.64	13:43:41.078	12850.00	260.69
35	13:43:42.569	12852.00	260.73	13:43:44.037	12854.00	260.79
36	13:43:45.568	12856.00	260.84	13:43:47.046	12858.00	260.88
37	13:43:48.538	12860.00	260.93	13:43:50.032	12862.00	260.97
38	13:43:51.563	12864.00	261.02	13:43:53.107	12866.00	261.06
39	13:43:54.516	12868.00	261.11	13:43:56.041	12860.00	261.15
40	13:43:56.585	12870.00	261.17	13:43:57.541	12872.00	261.21
41	13:43:59.034	12874.00	261.24	13:44:00.521	12876.00	261.28
42	13:44:02.010	12878.00	261.31	13:44:03.519	12880.00	261.36
43	13:44:05.009	12882.00	261.42	13:44:06.534	12884.00	261.47
44	13:44:08.021	12886.00	261.52	13:44:09.547	12888.00	261.57
45	13:44:11.031	12890.00	261.63	13:44:12.536	12892.00	261.68
46	13:44:14.025	12894.00	261.72	13:44:15.552	12896.00	261.76
47	13:44:17.030	12898.00	261.80	13:44:18.517	12900.00	261.85
48	13:44:20.008	12902.00	261.90	13:44:21.541	12904.00	261.95
49	13:44:23.028	12906.00	261.99	13:44:24.556	12908.00	262.05
50	13:44:26.045	12910.00	262.12	13:44:27.537	12912.00	262.16
51	13:44:29.070	12914.00	262.22	13:44:30.559	12916.00	262.27
52	13:44:32.069	12918.00	262.32	13:44:33.587	12920.00	262.36
53	13:44:35.118	12922.00	262.40	13:44:36.602	12924.00	262.45
54	13:44:38.094	12926.00	262.49	13:44:39.619	12928.00	262.53
55	13:44:41.097	12930.00	262.58	13:44:42.583	12932.00	262.62
56	13:44:44.112	12934.00	262.67	13:44:45.598	12936.00	262.71
57	13:44:47.049	12938.00	262.76	13:44:48.617	12940.00	262.80
58	13:44:50.138	12942.00	262.85	13:44:51.627	12944.00	262.91
59	13:44:53.117	12946.00	262.96	13:44:54.612	12948.00	263.00
60	13:44:56.102	12950.00	263.06	13:44:57.589	12952.00	263.11

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	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:44:59.134	12954.00	263.14	13:45:00.598	12956.00	263.18
2	13:45:02.091	12958.00	263.23	13:45:03.583	12960.00	263.27
3	13:45:05.063	12962.00	263.30	13:45:06.592	12964.00	263.35
4	13:45:08.084	12966.00	263.40	13:45:09.618	12968.00	263.44
5	13:45:11.108	12970.00	263.50	13:45:12.597	12972.00	263.54
6	13:45:14.127	12974.00	263.58	13:45:15.611	12976.00	263.62
7	13:45:17.102	12978.00	263.66	13:45:18.548	12980.00	263.70
8	13:45:20.130	12982.00	263.76	13:45:21.615	12984.00	263.81
9	13:45:23.106	12986.00	263.86	13:45:24.631	12988.00	263.92
10	13:45:26.120	12990.00	263.97	13:45:27.653	12992.00	264.01
11	13:45:29.149	12994.00	264.06	13:45:30.681	12996.00	264.10
12	13:45:32.174	12998.00	264.15	13:45:33.663	12900.00	264.19
13	13:45:34.203	13000.00	264.20	13:45:35.160	13002.00	264.23
14	13:45:36.648	13004.00	264.28	13:45:38.224	13006.00	264.34
15	13:45:39.667	13008.00	264.38	13:45:41.157	13010.00	264.45
16	13:45:42.644	13012.00	264.50	13:45:44.177	13014.00	264.55
17	13:45:45.668	13016.00	264.58	13:45:47.157	13018.00	264.63
18	13:45:48.666	13020.00	264.67	13:45:50.158	13022.00	264.72
19	13:45:51.651	13024.00	264.77	13:45:53.141	13026.00	264.83
20	13:45:54.621	13028.00	264.89	13:45:56.107	13030.00	264.94
21	13:45:57.614	13032.00	264.99	13:45:59.144	13034.00	265.03
22	13:46:00.636	13036.00	265.05	13:46:02.127	13038.00	265.12
23	13:46:03.662	13040.00	265.18	13:46:05.153	13042.00	265.23
24	13:46:06.687	13044.00	265.28	13:46:08.163	13046.00	265.33
25	13:46:09.696	13048.00	265.38	13:46:11.182	13050.00	265.42
26	13:46:12.675	13052.00	265.47	13:46:14.206	13054.00	265.52
27	13:46:15.700	13056.00	265.57	13:46:17.210	13058.00	265.61
28	13:46:18.730	13060.00	265.67	13:46:20.218	13062.00	265.73
29	13:46:21.752	13064.00	265.77	13:46:23.242	13066.00	265.81
30	13:46:24.744	13068.00	265.87	13:46:26.249	13070.00	265.90
31	13:46:27.784	13072.00	265.93	13:46:29.277	13074.00	265.95
32	13:46:30.771	13076.00	265.96	13:46:32.298	13078.00	265.98
33	13:46:33.831	13080.00	266.04	13:46:35.320	13082.00	266.07
34	13:46:36.827	13084.00	266.10	13:46:38.319	13086.00	266.14
35	13:46:39.852	13088.00	266.20	13:46:41.345	13090.00	266.24
36	13:46:42.840	13092.00	266.28	13:46:44.328	13094.00	266.33
37	13:46:45.879	13096.00	266.39	13:46:47.329	13098.00	266.44
38	13:46:48.823	13100.00	266.49	13:46:50.322	13102.00	266.54
39	13:46:51.853	13104.00	266.59	13:46:53.342	13106.00	266.64
40	13:46:54.894	13108.00	266.67	13:46:56.341	13110.00	266.70
41	13:46:57.831	13112.00	266.73	13:46:59.326	13114.00	266.76
42	13:47:00.818	13116.00	266.80	13:47:02.303	13118.00	266.89
43	13:47:03.834	13120.00	266.95	13:47:05.332	13122.00	267.00
44	13:47:06.787	13124.00	267.06	13:47:08.315	13126.00	267.08
45	13:47:09.805	13128.00	267.13	13:47:11.333	13130.00	267.17
46	13:47:12.784	13132.00	267.21	13:47:14.327	13134.00	267.26
47	13:47:15.822	13136.00	267.31	13:47:17.309	13138.00	267.39
48	13:47:18.799	13140.00	267.44	13:47:20.283	13142.00	267.48
49	13:47:21.811	13144.00	267.52	13:47:23.342	13146.00	267.57
50	13:47:24.827	13148.00	267.64	13:47:26.313	13150.00	267.70
51	13:47:27.801	13152.00	267.77	13:47:29.327	13154.00	267.80
52	13:47:30.777	13156.00	267.84	13:47:32.271	13158.00	267.84
53	13:47:33.803	13160.00	267.87	13:47:35.292	13162.00	267.92
54	13:47:36.780	13164.00	267.93	13:47:38.304	13166.00	267.94
55	13:47:39.840	13168.00	267.97	13:47:41.331	13170.00	267.99
56	13:47:42.921	13172.00	268.03	13:47:44.451	13174.00	268.05
57	13:47:45.981	13176.00	268.10	13:47:47.549	13178.00	268.12
58	13:47:49.085	13180.00	268.14	13:47:50.653	13182.00	268.16
59	13:47:52.229	13184.00	268.20	13:47:53.758	13186.00	268.23
60	13:47:55.290	13188.00	268.29	13:47:56.857	13190.00	268.32

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:47:58.395	13192.00	268.36	13:47:59.960	13194.00	268.40
2	13:48:01.534	13196.00	268.44	13:48:03.055	13198.00	268.45
3	13:48:04.627	13200.00	268.51	13:48:06.198	13202.00	268.56
4	13:48:07.725	13204.00	268.59	13:48:09.295	13206.00	268.65
5	13:48:10.823	13208.00	268.72	13:48:12.367	13210.00	268.78
6	13:48:13.902	13212.00	268.80	13:48:15.474	13214.00	268.82
7	13:48:17.007	13216.00	268.85	13:48:18.576	13218.00	268.89
8	13:48:20.145	13220.00	268.93	13:48:21.677	13222.00	268.98
9	13:48:23.211	13224.00	269.03	13:48:24.781	13226.00	269.08
10	13:48:26.316	13228.00	269.09	13:48:27.844	13230.00	269.12
11	13:48:29.419	13232.00	269.15	13:48:30.925	13234.00	269.18
12	13:48:32.501	13236.00	269.23	13:48:34.031	13238.00	269.29
13	13:48:35.604	13240.00	269.36	13:48:37.129	13242.00	269.41
14	13:48:38.660	13244.00	269.45	13:48:40.194	13246.00	269.49
15	13:48:41.767	13248.00	269.58	13:48:43.294	13240.00	269.63
16	13:48:43.834	13250.00	269.65	13:48:44.832	13252.00	269.69
17	13:48:46.367	13254.00	269.76	13:48:47.939	13256.00	269.82
18	13:48:49.486	13258.00	269.89	13:48:51.016	13260.00	269.95
19	13:48:52.549	13262.00	269.99	13:48:54.081	13264.00	270.05
20	13:48:55.651	13266.00	270.10	13:48:57.226	13268.00	270.13
21	13:48:58.731	13270.00	270.16	13:49:00.303	13272.00	270.19
22	13:49:01.835	13274.00	270.23	13:49:03.408	13276.00	270.27
23	13:49:04.946	13278.00	270.31	13:49:06.517	13280.00	270.34
24	13:49:08.107	13282.00	270.35	13:49:09.600	13284.00	270.41
25	13:49:11.170	13286.00	270.44	13:49:12.701	13288.00	270.50
26	13:49:14.233	13290.00	270.55	13:49:15.804	13292.00	270.60
27	13:49:17.369	13294.00	270.64	13:49:18.902	13296.00	270.71
28	13:49:20.435	13298.00	270.75	13:49:22.009	13290.00	270.81
29	13:49:22.552	13300.00	270.83	13:49:23.550	13302.00	270.86
30	13:49:25.125	13304.00	270.89	13:49:26.656	13306.00	270.93
31	13:49:28.204	13308.00	270.97	13:49:29.737	13310.00	271.00
32	13:49:31.311	13312.00	271.05	13:49:32.839	13314.00	271.09
33	13:49:34.414	13316.00	271.12	13:49:35.908	13318.00	271.14
34	13:49:37.516	13320.00	271.17	13:49:39.092	13322.00	271.18
35	13:49:40.630	13324.00	271.22	13:49:42.205	13326.00	271.29
36	13:49:43.738	13328.00	271.35	13:49:45.268	13330.00	271.39
37	13:49:46.832	13332.00	271.41	13:49:48.403	13334.00	271.43
38	13:49:49.980	13336.00	271.45	13:49:51.510	13338.00	271.48
39	13:49:53.083	13340.00	271.53	13:49:54.614	13342.00	271.56
40	13:49:56.187	13344.00	271.61	13:49:57.717	13346.00	271.64
41	13:49:59.290	13348.00	271.68	13:50:00.822	13350.00	271.72
42	13:50:02.394	13352.00	271.78	13:50:03.926	13354.00	271.86
43	13:50:05.515	13356.00	271.92	13:50:07.048	13358.00	271.97
44	13:50:08.583	13360.00	272.04	13:50:10.114	13362.00	272.09
45	13:50:11.606	13364.00	272.15	13:50:13.217	13366.00	272.21
46	13:50:14.742	13368.00	272.28	13:50:16.312	13370.00	272.35
47	13:50:17.849	13372.00	272.38	13:50:19.382	13374.00	272.42
48	13:50:20.914	13376.00	272.46	13:50:22.479	13378.00	272.52
49	13:50:24.010	13380.00	272.55	13:50:25.536	13382.00	272.59
50	13:50:27.104	13384.00	272.63	13:50:28.631	13386.00	272.68
51	13:50:30.162	13388.00	272.73	13:50:31.722	13390.00	272.77
52	13:50:33.259	13392.00	272.81	13:50:34.787	13394.00	272.85
53	13:50:36.321	13396.00	272.87	13:50:37.896	13398.00	272.90
54	13:50:39.424	13400.00	272.93	13:50:40.953	13402.00	272.97
55	13:50:42.528	13404.00	273.02	13:50:44.044	13406.00	273.06
56	13:50:45.613	13408.00	273.10	13:50:47.144	13410.00	273.12
57	13:50:48.675	13412.00	273.15	13:50:50.243	13414.00	273.18
58	13:50:51.771	13416.00	273.22	13:50:53.303	13418.00	273.28
59	13:50:54.839	13420.00	273.34	13:50:56.407	13422.00	273.38
60	13:50:57.940	13424.00	273.42	13:50:59.469	13426.00	273.48

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:51:01.085	13428.00	273.51	13:51:02.570	13430.00	273.58
2	13:51:04.142	13432.00	273.62	13:51:05.670	13434.00	273.67
3	13:51:07.201	13436.00	273.71	13:51:08.769	13438.00	273.76
4	13:51:10.298	13440.00	273.81	13:51:11.842	13442.00	273.86
5	13:51:13.371	13444.00	273.92	13:51:14.940	13446.00	273.96
6	13:51:16.468	13448.00	274.02	13:51:17.998	13450.00	274.07
7	13:51:19.570	13452.00	274.12	13:51:21.113	13454.00	274.17
8	13:51:22.646	13456.00	274.23	13:51:24.276	13458.00	274.27
9	13:51:25.829	13460.00	274.32	13:51:27.379	13462.00	274.36
10	13:51:28.934	13464.00	274.42	13:51:30.448	13466.00	274.46
11	13:51:32.026	13468.00	274.50	13:51:33.501	13470.00	274.56
12	13:51:35.098	13472.00	274.61	13:51:36.654	13474.00	274.65
13	13:51:38.213	13476.00	274.69	13:51:39.767	13478.00	274.76
14	13:51:41.325	13480.00	274.80	13:51:42.836	13482.00	274.85
15	13:51:44.392	13484.00	274.91	13:51:45.948	13486.00	274.96
16	13:51:47.465	13488.00	275.00	13:51:49.018	13490.00	275.05
17	13:51:50.577	13492.00	275.10	13:51:52.172	13494.00	275.16
18	13:51:53.649	13496.00	275.21	13:51:55.207	13498.00	275.26
19	13:51:56.764	13500.00	275.30	13:51:58.321	13502.00	275.36
20	13:51:59.847	13504.00	275.42	13:52:01.402	13506.00	275.46
21	13:52:02.885	13508.00	275.51	13:52:04.531	13510.00	275.56
22	13:52:06.097	13512.00	275.61	13:52:07.570	13514.00	275.65
23	13:52:09.137	13516.00	275.70	13:52:10.692	13518.00	275.75
24	13:52:12.212	13520.00	275.81	13:52:13.775	13522.00	275.86
25	13:52:15.336	13524.00	275.91	13:52:16.885	13526.00	275.96
26	13:52:18.443	13528.00	276.02	13:52:19.998	13530.00	276.08
27	13:52:21.557	13532.00	276.15	13:52:23.112	13534.00	276.20
28	13:52:24.589	13536.00	276.26	13:52:26.147	13538.00	276.32
29	13:52:27.733	13540.00	276.36	13:52:29.248	13542.00	276.40
30	13:52:30.809	13544.00	276.45	13:52:32.361	13546.00	276.48
31	13:52:33.918	13548.00	276.52	13:52:35.435	13550.00	276.58
32	13:52:36.996	13552.00	276.63	13:52:38.553	13554.00	276.67
33	13:52:40.140	13556.00	276.71	13:52:41.656	13558.00	276.74
34	13:52:43.214	13560.00	276.77	13:52:44.733	13562.00	276.81
35	13:52:46.331	13564.00	276.88	13:52:47.857	13566.00	276.93
36	13:52:49.415	13568.00	276.97	13:52:50.980	13570.00	277.00
37	13:52:52.507	13572.00	277.04	13:52:54.107	13574.00	277.08
38	13:52:55.628	13576.00	277.14	13:52:57.191	13578.00	277.20
39	13:52:58.751	13580.00	277.23	13:53:00.392	13582.00	277.26
40	13:53:01.909	13584.00	277.31	13:53:03.424	13586.00	277.34
41	13:53:04.986	13588.00	277.37	13:53:06.506	13590.00	277.42
42	13:53:08.104	13592.00	277.46	13:53:09.621	13594.00	277.51
43	13:53:11.178	13596.00	277.54	13:53:12.801	13598.00	277.61
44	13:53:14.286	13600.00	277.65	13:53:15.843	13602.00	277.68
45	13:53:17.405	13604.00	277.72	13:53:18.966	13606.00	277.76
46	13:53:20.568	13608.00	277.83	13:53:22.126	13610.00	277.86
47	13:53:23.631	13612.00	277.90	13:53:25.187	13614.00	277.93
48	13:53:26.747	13616.00	277.97	13:53:28.306	13618.00	278.02
49	13:53:29.867	13620.00	278.05	13:53:31.389	13622.00	278.09
50	13:53:32.947	13624.00	278.14	13:53:34.565	13626.00	278.20
51	13:53:36.121	13628.00	278.25	13:53:37.675	13630.00	278.28
52	13:53:39.159	13632.00	278.32	13:53:40.714	13634.00	278.36
53	13:53:42.310	13636.00	278.40	13:53:43.824	13638.00	278.45
54	13:53:45.420	13640.00	278.51	13:53:46.934	13642.00	278.58
55	13:53:48.498	13644.00	278.62	13:53:50.053	13646.00	278.68
56	13:53:51.570	13648.00	278.72	13:53:53.130	13650.00	278.76
57	13:53:54.681	13652.00	278.81	13:53:56.237	13654.00	278.86
58	13:53:57.771	13656.00	278.91	13:53:59.322	13658.00	278.95
59	13:54:00.879	13660.00	278.99	13:54:02.399	13662.00	279.02
60	13:54:03.955	13664.00	279.07	13:54:05.516	13666.00	279.09

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:54:07.115	13668.00	279.14	13:54:08.629	13670.00	279.18
2	13:54:10.155	13672.00	279.24	13:54:11.668	13674.00	279.29
3	13:54:13.226	13676.00	279.34	13:54:14.741	13678.00	279.39
4	13:54:16.294	13680.00	279.42	13:54:17.849	13682.00	279.46
5	13:54:19.403	13684.00	279.49	13:54:20.903	13686.00	279.53
6	13:54:22.460	13688.00	279.57	13:54:24.013	13690.00	279.62
7	13:54:25.528	13692.00	279.67	13:54:27.079	13694.00	279.72
8	13:54:28.674	13696.00	279.76	13:54:30.147	13698.00	279.82
9	13:54:31.695	13700.00	279.86	13:54:33.247	13702.00	279.90
10	13:54:34.725	13704.00	279.94	13:54:36.322	13706.00	279.98
11	13:54:37.878	13708.00	280.02	13:54:39.392	13710.00	280.07
12	13:54:40.945	13712.00	280.12	13:54:42.560	13714.00	280.18
13	13:54:44.034	13716.00	280.22	13:54:45.588	13718.00	280.27
14	13:54:47.185	13720.00	280.32	13:54:48.662	13722.00	280.36
15	13:54:50.216	13724.00	280.41	13:54:51.811	13726.00	280.44
16	13:54:53.294	13728.00	280.49	13:54:54.838	13730.00	280.56
17	13:54:56.360	13732.00	280.60	13:54:57.956	13734.00	280.66
18	13:54:59.510	13736.00	280.71	13:55:01.024	13738.00	280.75
19	13:55:02.621	13740.00	280.78	13:55:04.103	13742.00	280.82
20	13:55:05.674	13744.00	280.87	13:55:07.190	13746.00	280.91
21	13:55:08.748	13748.00	280.96	13:55:10.302	13750.00	281.01
22	13:55:11.859	13752.00	281.07	13:55:13.385	13754.00	281.13
23	13:55:14.943	13756.00	281.17	13:55:16.484	13758.00	281.22
24	13:55:18.081	13760.00	281.29	13:55:19.636	13762.00	281.34
25	13:55:21.115	13764.00	281.39	13:55:22.679	13766.00	281.45
26	13:55:24.238	13768.00	281.49	13:55:25.761	13770.00	281.54
27	13:55:27.318	13772.00	281.59	13:55:28.873	13774.00	281.63
28	13:55:30.431	13776.00	281.68	13:55:31.953	13778.00	281.74
29	13:55:33.513	13780.00	281.78	13:55:35.035	13782.00	281.83
30	13:55:36.597	13784.00	281.89	13:55:38.193	13786.00	281.93
31	13:55:39.666	13788.00	281.97	13:55:41.219	13780.00	282.01
32	13:55:41.821	13790.00	282.02	13:55:42.748	13792.00	282.04
33	13:55:44.307	13794.00	282.07	13:55:45.861	13796.00	282.12
34	13:55:47.375	13798.00	282.17	13:55:48.891	13800.00	282.23
35	13:55:50.437	13802.00	282.29	13:55:51.996	13804.00	282.33
36	13:55:53.520	13806.00	282.39	13:55:55.122	13808.00	282.44
37	13:55:56.638	13810.00	282.48	13:55:58.153	13812.00	282.54
38	13:55:59.668	13814.00	282.59	13:56:01.221	13816.00	282.63
39	13:56:02.735	13818.00	282.68	13:56:04.296	13820.00	282.73
40	13:56:05.811	13822.00	282.78	13:56:07.368	13824.00	282.84
41	13:56:08.887	13826.00	282.89	13:56:10.444	13828.00	282.95
42	13:56:12.018	13830.00	283.01	13:56:13.501	13832.00	283.07
43	13:56:15.025	13834.00	283.10	13:56:16.621	13836.00	283.15
44	13:56:18.134	13838.00	283.21	13:56:19.646	13840.00	283.26
45	13:56:21.210	13842.00	283.32	13:56:22.783	13844.00	283.36
46	13:56:24.259	13846.00	283.38	13:56:25.815	13848.00	283.41
47	13:56:27.338	13850.00	283.44	13:56:28.895	13852.00	283.47
48	13:56:30.423	13854.00	283.51	13:56:31.945	13856.00	283.58
49	13:56:33.598	13858.00	283.62	13:56:35.072	13860.00	283.66
50	13:56:36.591	13862.00	283.71	13:56:38.115	13864.00	283.73
51	13:56:39.675	13866.00	283.77	13:56:41.190	13868.00	283.83
52	13:56:42.750	13870.00	283.86	13:56:44.340	13872.00	283.87
53	13:56:45.814	13874.00	283.91	13:56:47.343	13876.00	283.94
54	13:56:48.903	13878.00	284.00	13:56:50.495	13880.00	284.07
55	13:56:52.049	13882.00	284.11	13:56:53.530	13884.00	284.12
56	13:56:55.121	13886.00	284.19	13:56:56.633	13888.00	284.25
57	13:56:58.187	13890.00	284.28	13:56:59.782	13892.00	284.32
58	13:57:01.297	13894.00	284.38	13:57:02.853	13896.00	284.42
59	13:57:04.418	13898.00	284.45	13:57:05.972	13900.00	284.50
60	13:57:07.556	13902.00	284.55	13:57:09.073	13904.00	284.60

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	13:57:10.670	13906.00	284.64	13:57:12.185	13908.00	284.67
2	13:57:13.706	13910.00	284.72	13:57:15.300	13912.00	284.78
3	13:57:16.860	13914.00	284.82	13:57:18.376	13916.00	284.85
4	13:57:19.998	13918.00	284.89	13:57:21.480	13920.00	284.94
5	13:57:22.998	13922.00	284.97	13:57:24.591	13924.00	284.98
6	13:57:26.151	13926.00	285.02	13:57:27.749	13928.00	285.04
7	13:57:29.308	13930.00	285.06	13:57:30.879	13932.00	285.08
8	13:57:32.364	13934.00	285.13	13:57:33.920	13936.00	285.16
9	13:57:35.477	13938.00	285.17	13:57:37.033	13940.00	285.22
10	13:57:38.565	13942.00	285.21	13:57:40.117	13944.00	285.26
11	13:57:41.659	13946.00	285.30	13:57:43.251	13948.00	285.35
12	13:57:44.774	13950.00	285.38	13:57:46.328	13952.00	285.44
13	13:57:47.933	13954.00	285.49	13:57:49.405	13956.00	285.50
14	13:57:50.961	13958.00	285.55	13:57:52.577	13960.00	285.62
15	13:57:54.092	13962.00	285.66	13:57:55.606	13964.00	285.72
16	13:57:57.206	13966.00	285.75	13:57:58.761	13968.00	285.79
17	13:58:00.277	13970.00	285.84	13:58:01.835	13972.00	285.88
18	13:58:03.486	13974.00	285.95	13:58:04.971	13976.00	286.00
19	13:58:06.492	13978.00	286.06	13:58:08.043	13980.00	286.15
20	13:58:09.559	13982.00	286.19	13:58:11.120	13984.00	286.23
21	13:58:12.717	13986.00	286.31	13:58:14.244	13988.00	286.39
22	13:58:15.807	13990.00	286.44	13:58:17.320	13992.00	286.49
23	13:58:18.876	13994.00	286.55	13:58:20.438	13996.00	286.61
24	13:58:22.040	13998.00	286.64	13:58:23.563	14000.00	286.67
25	13:58:25.115	14002.00	286.69	13:58:26.709	14004.00	286.70
26	13:58:28.347	14006.00	286.76	13:58:29.903	14008.00	286.81
27	13:58:31.500	14010.00	286.83	13:58:33.094	14012.00	286.87
28	13:58:34.693	14014.00	286.90	13:58:36.290	14016.00	286.93
29	13:58:37.927	14018.00	286.96	13:58:39.487	14020.00	286.99
30	13:58:41.086	14022.00	287.03	13:58:42.690	14024.00	287.05
31	13:58:44.324	14026.00	287.12	13:58:45.913	14028.00	287.15
32	13:58:47.510	14030.00	287.20	13:58:49.070	14032.00	287.25
33	13:58:50.675	14034.00	287.29	13:58:52.310	14036.00	287.33
34	13:58:53.835	14038.00	287.37	13:58:55.471	14040.00	287.41
35	13:58:57.009	14042.00	287.41	13:58:58.603	14044.00	287.46
36	13:59:00.201	14046.00	287.49	13:59:01.793	14048.00	287.51
37	13:59:03.391	14050.00	287.57	13:59:04.957	14052.00	287.62
38	13:59:06.561	14054.00	287.66	13:59:08.130	14056.00	287.71
39	13:59:09.764	14058.00	287.74	13:59:11.360	14060.00	287.76
40	13:59:12.913	14062.00	287.81	13:59:14.509	14064.00	287.86
41	13:59:16.104	14066.00	287.92	13:59:17.699	14068.00	287.98
42	13:59:19.322	14070.00	288.03	13:59:20.882	14072.00	288.09
43	13:59:22.523	14074.00	288.15	13:59:24.084	14076.00	288.20
44	13:59:25.681	14078.00	288.25	13:59:27.275	14080.00	288.30
45	13:59:28.910	14082.00	288.35	13:59:30.464	14084.00	288.40
46	13:59:32.026	14086.00	288.44	13:59:33.622	14088.00	288.49
47	13:59:35.217	14090.00	288.52	13:59:36.812	14092.00	288.56
48	13:59:38.419	14094.00	288.59	13:59:39.972	14096.00	288.62
49	13:59:41.577	14098.00	288.65	13:59:43.216	14100.00	288.65
50	13:59:44.777	14102.00	288.66	13:59:46.378	14104.00	288.64
51	13:59:47.936	14106.00	288.60	13:59:49.530	14108.00	288.60
52	13:59:51.120	14110.00	288.60	13:59:52.715	14112.00	288.59
53	13:59:54.273	14114.00	288.59	13:59:55.877	14116.00	288.59
54	13:59:57.477	14118.00	288.57	13:59:59.074	14120.00	288.55
55	14:00:00.630	14122.00	288.54	14:00:02.223	14124.00	288.52
56	14:00:03.815	14126.00	288.49	14:00:05.410	14128.00	288.50
57	14:00:07.004	14130.00	288.50	14:00:08.601	14132.00	288.49
58	14:00:10.199	14134.00	288.49	14:00:11.791	14136.00	288.47
59	14:00:13.407	14138.00	288.47	14:00:14.960	14140.00	288.47
60	14:00:16.560	14142.00	288.47	14:00:18.163	14144.00	288.47

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	14:00:19.762	14146.00	288.45	14:00:21.354	14148.00	288.46
2	14:00:22.950	14150.00	288.46	14:00:24.533	14152.00	288.46
3	14:00:26.128	14154.00	288.48	14:00:27.731	14156.00	288.48
4	14:00:29.333	14158.00	288.49	14:00:30.923	14160.00	288.49
5	14:00:32.557	14162.00	288.50	14:00:34.092	14164.00	288.50
6	14:00:35.689	14166.00	288.52	14:02:35.765	14168.00	288.56
7	14:02:43.339	14170.00	288.55	14:02:48.108	14172.00	288.56
8	14:02:51.176	14174.00	288.56	14:02:53.772	14176.00	288.57
9	14:02:56.250	14178.00	288.57	14:02:58.563	14180.00	288.57
10	14:03:00.893	14182.00	288.56	14:03:02.963	14184.00	288.57
11	14:03:04.935	14186.00	288.56	14:03:55.176	14184.00	288.59
12	14:04:07.270	14182.00	288.58	14:04:18.994	14180.00	288.59
13	14:04:27.568	14178.00	288.58	14:04:36.154	14176.00	288.60
14	14:04:44.460	14174.00	288.60	14:04:52.999	14172.00	288.60
15	14:05:01.892	14170.00	288.61	14:05:10.343	14168.00	288.60
16	14:05:18.712	14166.00	288.61	14:05:27.701	14164.00	288.61
17	14:05:34.976	14162.00	288.61	14:05:42.791	14160.00	288.61
18	14:05:49.059	14158.00	288.61	14:05:54.966	14156.00	288.62
19	14:06:01.244	14154.00	288.61	14:06:06.827	14152.00	288.61
20	14:06:12.356	14150.00	288.61	14:06:17.118	14148.00	288.62
21	14:06:22.049	14146.00	288.61	14:06:26.338	14144.00	288.62
22	14:06:30.438	14142.00	288.61	14:06:34.855	14140.00	288.61
23	14:06:39.070	14138.00	288.61	14:06:43.213	14136.00	288.61
24	14:06:47.465	14134.00	288.61	14:06:51.631	14132.00	288.62
25	14:06:55.852	14130.00	288.63	14:07:00.492	14128.00	288.62
26	14:07:04.269	14126.00	288.62	14:07:08.412	14124.00	288.63
27	14:07:12.530	14122.00	288.64	14:07:16.271	14120.00	288.64
28	14:07:20.100	14118.00	288.64	14:07:23.965	14116.00	288.63
29	14:07:28.233	14114.00	288.63	14:07:31.704	14112.00	288.63
30	14:07:35.844	14110.00	288.62	14:07:39.748	14108.00	288.64
31	14:07:43.492	14106.00	288.63	14:07:47.685	14104.00	288.64
32	14:07:51.713	14102.00	288.65	14:07:55.264	14100.00	288.64
33	14:07:59.404	14098.00	288.64	14:08:03.321	14096.00	288.64
34	14:08:06.980	14094.00	288.63	14:08:11.244	14092.00	288.64
35	14:08:14.667	14090.00	288.63	14:08:18.756	14088.00	288.63
36	14:08:22.455	14086.00	288.64	14:08:26.601	14084.00	288.64
37	14:08:30.431	14082.00	288.63			

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	15:00:03.469	13498.00	276.16	15:00:23.409	13500.00	276.17
2	15:00:25.127	13502.00	276.16	15:00:26.719	13504.00	276.17
3	15:00:28.297	13506.00	276.17	15:00:29.890	13508.00	276.17
4	15:00:31.364	13510.00	276.17	15:00:32.802	13512.00	276.17
5	15:00:34.201	13514.00	276.18	15:00:35.560	13516.00	276.18
6	15:00:36.923	13518.00	276.18	15:00:38.234	13520.00	276.22
7	15:00:39.473	13522.00	276.25	15:00:40.750	13524.00	276.29
8	15:00:41.993	13526.00	276.33	15:00:43.268	13528.00	276.39
9	15:00:44.547	13530.00	276.41	15:00:45.823	13532.00	276.45
10	15:00:47.064	13534.00	276.52	15:00:48.370	13536.00	276.56
11	15:00:49.613	13538.00	276.58	15:00:50.892	13540.00	276.65
12	15:00:52.172	13542.00	276.74	15:00:53.449	13544.00	276.75
13	15:00:54.732	13546.00	276.77	15:00:55.974	13548.00	276.88
14	15:00:57.251	13550.00	276.94	15:00:58.562	13552.00	276.93
15	15:00:59.773	13554.00	276.99	15:01:01.051	13556.00	277.06
16	15:01:02.330	13558.00	277.07	15:01:03.568	13560.00	277.07
17	15:01:04.851	13562.00	277.16	15:01:06.130	13564.00	277.22
18	15:01:07.374	13566.00	277.22	15:01:08.707	13568.00	277.26
19	15:01:09.912	13570.00	277.33	15:01:11.188	13572.00	277.36
20	15:01:12.468	13574.00	277.36	15:01:13.702	13576.00	277.42
21	15:01:14.983	13578.00	277.51	15:01:16.263	13580.00	277.53
22	15:01:17.511	13582.00	277.54	15:01:18.846	13584.00	277.62
23	15:01:20.058	13586.00	277.68	15:01:21.296	13588.00	277.69
24	15:01:22.577	13590.00	277.72	15:01:23.857	13592.00	277.81
25	15:01:25.101	13594.00	277.85	15:01:26.377	13596.00	277.85
26	15:01:27.660	13598.00	277.90	15:01:28.907	13600.00	277.96
27	15:01:30.186	13602.00	277.99	15:01:31.468	13604.00	277.98
28	15:01:32.709	13606.00	278.07	15:01:33.988	13608.00	278.14
29	15:01:35.269	13610.00	278.14	15:01:36.509	13612.00	278.16
30	15:01:37.787	13614.00	278.24	15:01:39.043	13616.00	278.29
31	15:01:40.323	13618.00	278.29	15:01:41.559	13620.00	278.35
32	15:01:42.797	13622.00	278.42	15:01:44.033	13624.00	278.47
33	15:01:45.316	13626.00	278.49	15:01:46.555	13628.00	278.54
34	15:01:47.793	13630.00	278.62	15:01:49.031	13632.00	278.65
35	15:01:50.299	13634.00	278.68	15:01:51.537	13636.00	278.74
36	15:01:52.783	13638.00	278.79	15:01:54.016	13640.00	278.80
37	15:01:55.255	13642.00	278.84	15:01:56.490	13644.00	278.92
38	15:01:57.726	13646.00	278.98	15:01:59.007	13648.00	278.99
39	15:02:00.230	13650.00	279.05	15:02:01.467	13652.00	279.12
40	15:02:02.704	13654.00	279.16	15:02:03.940	13656.00	279.15
41	15:02:05.220	13658.00	279.23	15:02:06.426	13660.00	279.32
42	15:02:07.664	13662.00	279.35	15:02:08.938	13664.00	279.32
43	15:02:10.155	13666.00	279.39	15:02:11.345	13668.00	279.46
44	15:02:12.622	13670.00	279.48	15:02:13.902	13672.00	279.50
45	15:02:15.136	13674.00	279.60	15:02:16.337	13676.00	279.66
46	15:02:17.618	13678.00	279.66	15:02:18.852	13680.00	279.69
47	15:02:20.081	13682.00	279.75	15:02:21.318	13684.00	279.80
48	15:02:22.591	13686.00	279.79	15:02:23.828	13688.00	279.86
49	15:02:25.067	13690.00	279.94	15:02:26.302	13692.00	279.97
50	15:02:27.542	13694.00	279.97	15:02:28.778	13696.00	280.06
51	15:02:30.029	13698.00	280.14	15:02:31.265	13700.00	280.15
52	15:02:32.501	13702.00	280.17	15:02:33.739	13704.00	280.25
53	15:02:34.976	13706.00	280.31	15:02:36.210	13708.00	280.31
54	15:02:37.447	13710.00	280.36	15:02:38.682	13712.00	280.44
55	15:02:39.879	13714.00	280.51	15:02:41.132	13716.00	280.50
56	15:02:42.411	13718.00	280.55	15:02:43.645	13720.00	280.65
57	15:02:44.883	13722.00	280.71	15:02:46.118	13724.00	280.72
58	15:02:47.359	13726.00	280.77	15:02:48.598	13728.00	280.83
59	15:02:49.836	13730.00	280.87	15:02:51.104	13732.00	280.88
60	15:02:52.344	13734.00	280.97	15:02:53.539	13736.00	281.03

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	15:02:54.849	13738.00	281.05	15:02:56.133	13740.00	281.08
2	15:02:57.306	13742.00	281.16	15:02:58.517	13744.00	281.22
3	15:02:59.756	13746.00	281.24	15:03:00.920	13748.00	281.28
4	15:03:02.206	13750.00	281.37	15:03:03.444	13752.00	281.41
5	15:03:04.682	13754.00	281.41	15:03:05.918	13756.00	281.47
6	15:03:07.157	13758.00	281.56	15:03:08.393	13760.00	281.61
7	15:03:09.633	13762.00	281.61	15:03:10.870	13764.00	281.69
8	15:03:12.082	13766.00	281.78	15:03:13.320	13768.00	281.81
9	15:03:14.560	13770.00	281.81	15:03:15.800	13772.00	281.90
10	15:03:17.012	13774.00	281.97	15:03:18.212	13776.00	281.97
11	15:03:19.452	13778.00	282.00	15:03:20.722	13780.00	282.11
12	15:03:21.896	13782.00	282.19	15:03:23.132	13784.00	282.17
13	15:03:24.373	13786.00	282.21	15:03:25.611	13788.00	282.27
14	15:03:26.853	13790.00	282.31	15:03:28.057	13792.00	282.30
15	15:03:29.300	13794.00	282.38	15:03:30.537	13796.00	282.45
16	15:03:31.723	13798.00	282.48	15:03:32.962	13800.00	282.50
17	15:03:34.206	13802.00	282.59	15:03:35.443	13804.00	282.68
18	15:03:36.655	13806.00	282.68	15:03:37.890	13808.00	282.71
19	15:03:39.128	13810.00	282.80	15:03:40.300	13812.00	282.87
20	15:03:41.540	13814.00	282.87	15:03:42.742	13816.00	282.92
21	15:03:43.982	13818.00	283.01	15:03:45.177	13820.00	283.07
22	15:03:46.411	13822.00	283.08	15:03:47.649	13824.00	283.14
23	15:03:48.846	13826.00	283.23	15:03:50.082	13828.00	283.27
24	15:03:51.269	13830.00	283.28	15:03:52.509	13832.00	283.35
25	15:03:53.751	13834.00	283.42	15:03:54.988	13836.00	283.44
26	15:03:56.208	13838.00	283.44	15:03:57.446	13840.00	283.56
27	15:03:58.660	13842.00	283.64	15:03:59.260	13844.00	283.66
28	15:04:01.096	13846.00	283.67	15:04:02.308	13848.00	283.71
29	15:04:03.515	13850.00	283.76	15:04:04.750	13852.00	283.75
30	15:04:05.992	13854.00	283.80	15:04:07.196	13856.00	283.90
31	15:04:08.395	13858.00	283.95	15:04:09.638	13860.00	283.94
32	15:04:10.843	13862.00	284.00	15:04:12.039	13864.00	284.07
33	15:04:13.278	13866.00	284.13	15:04:14.488	13868.00	284.13
34	15:04:15.727	13870.00	284.18	15:04:16.933	13872.00	284.23
35	15:04:18.174	13874.00	284.24	15:04:19.260	13876.00	284.22
36	15:04:20.619	13878.00	284.32	15:04:21.778	13880.00	284.38
37	15:04:23.066	13882.00	284.38	15:04:24.278	13884.00	284.38
38	15:04:25.491	13886.00	284.49	15:04:26.693	13888.00	284.55
39	15:04:27.934	13890.00	284.56	15:04:29.172	13892.00	284.60
40	15:04:30.354	13894.00	284.67	15:04:31.586	13896.00	284.72
41	15:04:32.825	13898.00	284.71	15:04:34.061	13900.00	284.74
42	15:04:35.273	13902.00	284.81	15:04:36.479	13904.00	284.89
43	15:04:37.719	13906.00	284.86	15:04:38.982	13908.00	284.91
44	15:04:39.583	13910.00	284.97	15:04:41.419	13912.00	285.08
45	15:04:42.660	13914.00	285.08	15:04:43.861	13916.00	285.11
46	15:04:45.102	13918.00	285.19	15:04:46.337	13920.00	285.21
47	15:04:47.575	13922.00	285.21	15:04:48.772	13924.00	285.26
48	15:04:50.019	13926.00	285.30	15:04:51.263	13928.00	285.30
49	15:04:52.503	13930.00	285.28	15:04:53.696	13932.00	285.34
50	15:04:54.934	13934.00	285.39	15:04:56.167	13936.00	285.40
51	15:04:57.413	13938.00	285.44	15:04:58.614	13940.00	285.50
52	15:04:59.882	13942.00	285.52	15:05:01.093	13944.00	285.51
53	15:05:02.308	13946.00	285.55	15:05:03.505	13948.00	285.63
54	15:05:05.058	13950.00	285.68	15:05:05.983	13952.00	285.67
55	15:05:07.222	13954.00	285.75	15:05:08.336	13956.00	285.79
56	15:05:09.733	13958.00	285.85	15:05:10.944	13960.00	285.86
57	15:05:12.151	13962.00	285.92	15:05:13.389	13964.00	285.99
58	15:05:14.625	13966.00	286.00	15:05:15.860	13968.00	286.02
59	15:05:17.071	13970.00	286.07	15:05:18.273	13972.00	286.16
60	15:05:19.512	13974.00	286.17	15:05:20.787	13976.00	286.20

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	15:05:22.087	13978.00	286.34	15:05:23.218	13980.00	286.45
2	15:05:24.427	13982.00	286.44	15:05:25.666	13984.00	286.48
3	15:05:26.908	13986.00	286.61	15:05:28.118	13988.00	286.70
4	15:05:29.356	13990.00	286.68	15:05:30.578	13992.00	286.76
5	15:05:31.818	13994.00	286.86	15:05:33.053	13996.00	286.90
6	15:05:34.292	13998.00	286.89	15:05:35.527	14000.00	286.94
7	15:05:36.806	14002.00	286.98	15:05:38.082	14004.00	286.98
8	15:05:39.405	14006.00	287.00	15:05:40.648	14008.00	287.08
9	15:05:41.924	14010.00	287.13	15:05:43.198	14012.00	287.13
10	15:05:44.480	14014.00	287.15	15:05:45.722	14016.00	287.22
11	15:05:46.999	14018.00	287.26	15:05:48.273	14020.00	287.24
12	15:05:49.576	14022.00	287.29	15:05:50.812	14024.00	287.35
13	15:05:52.088	14026.00	287.36	15:05:53.364	14028.00	287.36
14	15:05:54.643	14030.00	287.46	15:05:55.920	14032.00	287.53
15	15:05:57.201	14034.00	287.53	15:05:58.478	14036.00	287.59
16	15:05:59.753	14038.00	287.65	15:06:00.990	14040.00	287.67
17	15:06:02.307	14042.00	287.59	15:06:03.582	14044.00	287.70
18	15:06:04.816	14046.00	287.75	15:06:06.093	14048.00	287.76
19	15:06:07.410	14050.00	287.78	15:06:08.645	14052.00	287.88
20	15:06:09.922	14054.00	287.94	15:06:11.200	14056.00	287.94
21	15:06:12.481	14058.00	287.97	15:06:13.717	14060.00	288.04
22	15:06:14.993	14062.00	288.07	15:06:16.267	14064.00	288.06
23	15:06:17.547	14066.00	288.15	15:06:18.823	14068.00	288.23
24	15:06:20.063	14070.00	288.25	15:06:21.344	14072.00	288.27
25	15:06:22.625	14074.00	288.38	15:06:23.899	14076.00	288.47
26	15:06:25.179	14078.00	288.46	15:06:26.451	14080.00	288.54
27	15:06:27.728	14082.00	288.64	15:06:28.964	14084.00	288.67
28	15:06:30.287	14086.00	288.66	15:06:31.523	14088.00	288.72
29	15:06:32.802	14090.00	288.79	15:06:34.077	14092.00	288.80
30	15:06:35.324	14094.00	288.68	15:06:36.602	14096.00	288.87
31	15:06:37.880	14098.00	288.89	15:06:39.156	14100.00	288.88
32	15:06:40.476	14102.00	288.91	15:06:41.685	14104.00	288.98
33	15:06:42.926	14106.00	289.05	15:06:44.245	14108.00	289.04
34	15:06:45.526	14110.00	289.13	15:06:46.766	14112.00	289.23
35	15:06:48.049	14114.00	289.27	15:06:49.333	14116.00	289.29
36	15:06:50.587	14118.00	289.39	15:06:51.867	14120.00	289.46
37	15:06:53.106	14122.00	289.46	15:06:54.384	14124.00	289.51
38	15:06:55.621	14126.00	289.61	15:06:56.942	14128.00	289.68
39	15:06:58.218	14130.00	289.67	15:06:59.498	14132.00	289.72
40	15:07:00.752	14134.00	289.80	15:07:01.991	14136.00	289.83
41	15:07:03.275	14138.00	289.83	15:07:04.593	14140.00	289.93
42	15:07:05.827	14142.00	290.04	15:07:07.103	14144.00	290.05
43	15:07:08.382	14146.00	290.06	15:07:09.617	14148.00	290.19
44	15:07:10.916	14150.00	290.28	15:07:12.153	14152.00	290.29
45	15:07:13.431	14154.00	290.36	15:07:14.706	14156.00	290.46
46	15:07:15.945	14158.00	290.53	15:07:17.228	14160.00	290.53
47	15:07:18.505	14162.00	290.62	15:07:19.782	14164.00	290.69
48	15:07:21.005	14166.00	290.71	15:07:22.280	14168.00	290.72
49	15:07:23.557	14170.00	290.78	15:07:24.796	14172.00	290.83
50	15:07:26.036	14174.00	290.82	15:07:27.315	14176.00	290.87
51	15:07:28.552	14178.00	290.95	15:07:29.832	14180.00	291.00
52	15:07:31.086	14182.00	291.00	15:07:32.367	14184.00	290.96
53	15:07:33.649	14186.00	291.09	15:07:34.886	14188.00	291.12
54	15:07:36.164	14190.00	291.13	15:07:37.401	14192.00	291.18
55	15:07:38.685	14194.00	291.23	15:07:39.964	14196.00	291.22
56	15:07:41.298	14198.00	291.18	15:07:42.506	14200.00	291.28
57	15:07:43.741	14202.00	291.32	15:07:45.015	14204.00	291.31
58	15:07:46.296	14206.00	291.37	15:07:47.569	14208.00	291.47
59	15:07:48.808	14210.00	291.51	15:07:50.086	14212.00	291.50
60	15:07:51.299	14214.00	291.58	15:07:52.619	14216.00	291.69

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	15:07:53.918	14218.00	291.71	15:07:55.126	14220.00	291.74
2	15:07:56.403	14222.00	291.84	15:07:57.676	14224.00	291.91
3	15:07:58.953	14226.00	291.92	15:08:00.230	14228.00	291.94
4	15:08:01.515	14230.00	292.04	15:08:02.724	14232.00	292.09
5	15:08:04.003	14234.00	292.08	15:08:05.281	14236.00	292.16
6	15:08:06.524	14238.00	292.23	15:08:07.798	14240.00	292.25
7	15:08:09.075	14242.00	292.22	15:08:10.308	14244.00	292.34
8	15:08:11.596	14246.00	292.42	15:08:12.871	14248.00	292.44
9	15:08:14.154	14250.00	292.44	15:08:15.427	14252.00	292.49
10	15:08:16.663	14254.00	292.53	15:08:17.940	14256.00	292.54
11	15:08:19.220	14258.00	292.53	15:08:20.497	14260.00	292.64
12	15:08:21.670	14262.00	292.69	15:08:23.027	14264.00	292.68
13	15:08:24.305	14266.00	292.74	15:08:25.541	14268.00	292.81
14	15:08:26.824	14270.00	292.86	15:08:28.066	14272.00	292.86
15	15:08:29.343	14274.00	292.93	15:08:30.619	14276.00	293.02
16	15:08:31.871	14278.00	293.04	15:08:33.145	14280.00	293.04
17	15:08:34.425	14282.00	293.09	15:08:35.662	14284.00	293.19
18	15:08:36.942	14286.00	293.20	15:08:38.216	14288.00	293.22
19	15:08:39.493	14290.00	293.34	15:08:40.770	14292.00	293.40
20	15:08:42.060	14294.00	293.40	15:08:43.302	14296.00	293.46
21	15:08:44.538	14298.00	293.54	15:08:45.812	14300.00	293.60
22	15:08:47.090	14302.00	293.59	15:08:48.363	14304.00	293.67
23	15:08:49.604	14306.00	293.76	15:08:50.878	14308.00	293.80
24	15:08:52.154	14310.00	293.79	15:08:53.430	14312.00	293.88
25	15:08:54.668	14314.00	293.98	15:08:55.949	14316.00	294.03
26	15:08:57.230	14318.00	294.05	15:08:58.466	14320.00	294.12
27	15:08:59.743	14322.00	294.18	15:09:01.019	14324.00	294.21
28	15:09:02.298	14326.00	294.25	15:09:03.536	14328.00	294.33
29	15:09:04.810	14330.00	294.38	15:09:06.083	14332.00	294.39
30	15:09:07.361	14334.00	294.45	15:09:08.636	14336.00	294.52
31	15:09:09.880	14338.00	294.55	15:09:11.157	14340.00	294.53
32	15:09:12.436	14342.00	294.62	15:09:13.675	14344.00	294.70
33	15:09:14.953	14346.00	294.74	15:09:16.232	14348.00	294.75
34	15:09:17.513	14350.00	294.82	15:09:18.748	14352.00	294.88
35	15:09:20.027	14354.00	294.91	15:09:21.304	14356.00	294.90
36	15:09:22.580	14358.00	294.98	15:09:23.813	14360.00	295.05
37	15:09:25.103	14362.00	295.06	15:09:26.378	14364.00	295.14
38	15:09:27.614	14366.00	295.15	15:09:28.891	14368.00	295.23
39	15:09:30.174	14370.00	295.26	15:09:31.415	14372.00	295.28
40	15:09:32.614	14374.00	295.34	15:09:33.929	14376.00	295.41
41	15:09:35.204	14378.00	295.44	15:09:36.483	14380.00	295.46
42	15:09:37.719	14382.00	295.52	15:09:38.997	14384.00	295.56
43	15:09:40.234	14386.00	295.60	15:09:41.509	14388.00	295.66
44	15:09:42.814	14390.00	295.73	15:09:44.025	14392.00	295.78
45	15:09:45.307	14394.00	295.79	15:09:46.547	14396.00	295.84
46	15:09:47.826	14398.00	295.91	15:09:49.102	14400.00	295.96
47	15:09:50.340	14402.00	296.01	15:09:51.613	14404.00	296.05
48	15:09:52.944	14406.00	296.11	15:09:54.227	14408.00	296.16
49	15:09:55.394	14400.00	296.17	15:09:55.992	14410.00	296.18
50	15:09:56.676	14412.00	296.21	15:09:57.909	14414.00	296.28
51	15:09:59.182	14416.00	296.34	15:10:00.457	14418.00	296.39
52	15:10:01.734	14420.00	296.44	15:10:02.981	14422.00	296.50
53	15:10:04.224	14424.00	296.54	15:10:05.504	14426.00	296.57
54	15:10:06.738	14428.00	296.62	15:10:08.013	14430.00	296.68
55	15:10:09.289	14432.00	296.73	15:10:10.523	14434.00	296.76
56	15:10:11.800	14436.00	296.80	15:10:13.132	14438.00	296.88
57	15:10:14.335	14440.00	296.92	15:10:15.610	14442.00	296.93
58	15:10:16.848	14444.00	296.99	15:10:18.122	14446.00	297.07
59	15:10:19.399	14448.00	297.11	15:10:20.675	14450.00	297.12
60	15:10:21.914	14452.00	297.19	15:10:23.182	14454.00	297.25

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	15:10:24.483	14456.00	297.29	15:10:25.691	14458.00	297.32
2	15:10:26.972	14460.00	297.40	15:10:28.206	14462.00	297.46
3	15:10:29.477	14464.00	297.47	15:10:30.750	14466.00	297.51
4	15:10:32.025	14468.00	297.60	15:10:33.300	14470.00	297.66
5	15:10:34.523	14472.00	297.68	15:10:35.797	14474.00	297.72
6	15:10:37.073	14476.00	297.79	15:10:38.346	14478.00	297.85
7	15:10:39.621	14480.00	297.85	15:10:40.861	14482.00	297.91
8	15:10:42.137	14484.00	298.00	15:10:43.408	14486.00	298.05
9	15:10:44.643	14488.00	298.06	15:10:45.915	14490.00	298.12
10	15:10:47.198	14492.00	298.17	15:10:48.433	14494.00	298.19
11	15:10:49.707	14496.00	298.21	15:10:50.980	14498.00	298.31
12	15:10:52.218	14500.00	298.39	15:10:53.521	14502.00	298.41
13	15:10:54.762	14504.00	298.43	15:10:56.035	14506.00	298.51
14	15:10:57.275	14508.00	298.59	15:10:58.548	14500.00	298.62
15	15:10:59.150	14510.00	298.61	15:10:59.828	14512.00	298.63
16	15:11:01.073	14514.00	298.71	15:11:02.349	14516.00	298.77
17	15:11:03.587	14518.00	298.78	15:11:04.845	14520.00	298.80
18	15:11:06.123	14522.00	298.89	15:11:07.363	14524.00	298.96
19	15:11:08.600	14526.00	298.97	15:11:09.916	14528.00	299.00
20	15:11:11.192	14530.00	299.07	15:11:12.426	14532.00	299.11
21	15:11:13.695	14534.00	299.13	15:11:14.931	14536.00	299.19
22	15:11:16.208	14538.00	299.27	15:11:17.443	14540.00	299.31
23	15:11:18.720	14542.00	299.33	15:11:19.996	14544.00	299.39
24	15:11:21.237	14546.00	299.47	15:11:22.471	14548.00	299.50
25	15:11:23.712	14550.00	299.50	15:11:25.008	14552.00	299.58
26	15:11:26.246	14554.00	299.67	15:11:27.480	14556.00	299.73
27	15:11:28.722	14558.00	299.74	15:11:29.996	14560.00	299.80
28	15:11:31.237	14562.00	299.85	15:11:32.516	14564.00	299.88
29	15:11:33.795	14566.00	299.89	15:11:35.034	14568.00	299.94
30	15:11:36.312	14570.00	300.00	15:11:37.547	14572.00	300.03
31	15:11:38.826	14574.00	300.03	15:11:40.106	14576.00	300.05
32	15:11:41.310	14578.00	300.11	15:11:42.591	14580.00	300.15
33	15:11:43.866	14582.00	300.14	15:11:45.132	14584.00	300.22
34	15:11:46.370	14586.00	300.26	15:11:47.649	14588.00	300.27
35	15:11:48.930	14590.00	300.28	15:11:50.163	14592.00	300.34
36	15:11:51.400	14594.00	300.42	15:11:52.678	14596.00	300.46
37	15:11:53.960	14598.00	300.48	15:11:55.209	14600.00	300.56
38	15:11:56.454	14602.00	300.63	15:11:57.728	14604.00	300.64
39	15:11:59.009	14606.00	300.66	15:12:00.247	14608.00	300.75
40	15:12:01.527	14610.00	300.84	15:12:02.763	14612.00	300.86
41	15:12:04.044	14614.00	300.90	15:12:05.251	14616.00	300.98
42	15:12:06.573	14618.00	301.06	15:12:07.846	14620.00	301.09
43	15:12:09.124	14622.00	301.13	15:12:10.366	14624.00	301.21
44	15:12:11.602	14626.00	301.27	15:12:12.878	14628.00	301.29
45	15:12:14.157	14630.00	301.34	15:12:15.447	14632.00	301.41
46	15:12:16.651	14634.00	301.48	15:12:17.934	14636.00	301.52
47	15:12:19.175	14638.00	301.57	15:12:20.449	14640.00	301.62
48	15:12:21.726	14642.00	301.66	15:12:22.998	14644.00	301.68
49	15:12:24.240	14646.00	301.74	15:12:25.515	14648.00	301.78
50	15:12:26.753	14650.00	301.79	15:12:28.031	14652.00	301.78
51	15:12:29.308	14654.00	301.80	15:12:30.546	14656.00	301.87
52	15:12:31.826	14658.00	301.90	15:12:33.102	14660.00	301.89
53	15:12:34.379	14662.00	301.99	15:12:35.653	14664.00	302.08
54	15:12:36.867	14666.00	302.13	15:12:38.148	14668.00	302.14
55	15:12:39.383	14670.00	302.20	15:12:40.657	14672.00	302.28
56	15:12:41.937	14674.00	302.30	15:12:43.209	14676.00	302.35
57	15:12:44.445	14678.00	302.42	15:12:45.729	14680.00	302.49
58	15:12:46.966	14682.00	302.54	15:12:48.243	14684.00	302.56
59	15:12:49.522	14686.00	302.63	15:12:50.761	14688.00	302.71
60	15:12:52.042	14690.00	302.73	15:12:53.288	14692.00	302.78

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	15:12:54.588	14694.00	302.86	15:12:55.829	14696.00	302.92
2	15:12:57.067	14698.00	302.94	15:12:58.345	14700.00	302.99
3	15:12:59.588	14702.00	303.07	15:13:00.863	14704.00	303.12
4	15:13:02.102	14706.00	303.16	15:13:03.379	14708.00	303.22
5	15:13:04.619	14710.00	303.28	15:13:05.897	14712.00	303.32
6	15:13:07.155	14714.00	303.33	15:13:08.431	14716.00	303.39
7	15:13:09.672	14718.00	303.46	15:13:10.950	14720.00	303.50
8	15:13:12.189	14722.00	303.51	15:13:13.469	14724.00	303.60
9	15:13:14.706	14726.00	303.69	15:13:15.982	14728.00	303.75
10	15:13:17.216	14730.00	303.77	15:13:18.495	14732.00	303.83
11	15:13:19.732	14734.00	303.91	15:13:21.015	14736.00	303.96
12	15:13:22.253	14738.00	303.99	15:13:23.488	14740.00	304.06
13	15:13:24.769	14742.00	304.14	15:13:26.046	14744.00	304.18
14	15:13:27.288	14746.00	304.21	15:13:28.564	14748.00	304.27
15	15:13:29.804	14750.00	304.34	15:13:31.080	14752.00	304.39
16	15:13:32.317	14754.00	304.43	15:13:33.594	14756.00	304.48
17	15:13:34.831	14758.00	304.54	15:13:36.067	14760.00	304.57
18	15:13:37.317	14762.00	304.60	15:13:38.593	14764.00	304.68
19	15:13:39.873	14766.00	304.74	15:13:41.108	14768.00	304.78
20	15:13:42.350	14770.00	304.82	15:13:43.585	14772.00	304.89
21	15:13:44.868	14774.00	304.94	15:13:46.105	14776.00	304.95
22	15:13:47.400	14778.00	305.01	15:13:48.633	14780.00	305.08
23	15:13:49.871	14782.00	305.13	15:13:51.147	14784.00	305.13
24	15:13:52.426	14786.00	305.19	15:13:53.661	14788.00	305.24
25	15:13:54.899	14790.00	305.32	15:13:56.180	14792.00	305.33
26	15:13:57.451	14794.00	305.39	15:13:58.684	14796.00	305.46
27	15:13:59.924	14798.00	305.51	15:14:01.197	14800.00	305.50
28	15:14:02.474	14802.00	305.55	15:14:03.710	14804.00	305.63
29	15:14:04.948	14806.00	305.68	15:14:06.224	14808.00	305.68
30	15:14:07.380	14810.00	305.68	15:14:08.755	14812.00	305.80
31	15:14:09.998	14814.00	305.84	15:14:11.316	14816.00	305.84
32	15:14:12.635	14818.00	305.91	15:14:13.911	14820.00	305.98
33	15:14:15.228	14822.00	306.02	15:14:16.543	14824.00	306.06
34	15:14:17.874	14826.00	306.14	15:14:19.108	14828.00	306.21
35	15:14:20.425	14830.00	306.23	15:14:21.743	14832.00	306.28
36	15:14:23.022	14834.00	306.34	15:14:24.305	14836.00	306.41
37	15:14:25.622	14838.00	306.42	15:14:26.941	14840.00	306.46
38	15:14:28.230	14842.00	306.55	15:14:29.503	14844.00	306.60
39	15:14:30.823	14846.00	306.60	15:14:32.142	14848.00	306.67
40	15:14:33.417	14850.00	306.74	15:14:34.694	14852.00	306.78
41	15:14:36.012	14854.00	306.79	15:14:37.329	14856.00	306.83
42	15:14:38.580	14858.00	306.93	15:14:39.894	14860.00	306.96
43	15:14:41.210	14862.00	306.96	15:14:42.527	14864.00	307.08
44	15:14:43.806	14866.00	307.16	15:14:45.125	14868.00	307.20
45	15:14:46.445	14870.00	307.21	15:14:47.720	14872.00	307.29
46	15:14:49.037	14874.00	307.32	15:14:50.315	14876.00	307.33
47	15:14:51.633	14878.00	307.34	15:14:52.952	14880.00	307.41
48	15:14:54.264	14882.00	307.46	15:14:55.581	14884.00	307.46
49	15:14:56.859	14886.00	307.50	15:14:58.146	14888.00	307.59
50	15:14:59.466	14890.00	307.64	15:15:00.788	14892.00	307.63
51	15:15:02.065	14894.00	307.69	15:15:03.385	14896.00	307.79
52	15:15:04.663	14898.00	307.85	15:15:05.979	14900.00	307.85
53	15:15:07.298	14902.00	307.91	15:15:08.604	14904.00	308.00
54	15:15:09.880	14906.00	308.03	15:15:11.198	14908.00	308.06
55	15:15:12.477	14910.00	308.13	15:15:13.792	14912.00	308.20
56	15:15:15.074	14914.00	308.22	15:15:16.393	14916.00	308.25
57	15:15:17.713	14918.00	308.32	15:15:19.000	14920.00	308.38
58	15:15:20.279	14922.00	308.39	15:15:21.600	14924.00	308.39
59	15:15:22.919	14926.00	308.48	15:15:24.194	14928.00	308.52
60	15:15:25.514	14930.00	308.53	15:15:26.830	14932.00	308.56

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	15:15:28.449	14934.00	308.67	15:15:29.379	14936.00	308.71
2	15:15:30.698	14938.00	308.70	15:15:32.014	14940.00	308.77
3	15:15:33.294	14942.00	308.85	15:15:34.568	14944.00	308.88
4	15:15:35.886	14946.00	308.88	15:15:37.207	14948.00	308.97
5	15:15:38.499	14950.00	309.07	15:15:39.776	14952.00	309.11
6	15:15:41.055	14954.00	309.11	15:15:42.412	14956.00	309.20
7	15:15:43.692	14958.00	309.28	15:15:44.965	14960.00	309.31
8	15:15:46.287	14962.00	309.35	15:15:47.602	14964.00	309.42
9	15:15:48.870	14966.00	309.49	15:15:50.187	14968.00	309.52
10	15:15:51.472	14970.00	309.56	15:15:52.791	14972.00	309.63
11	15:15:54.068	14974.00	309.69	15:15:55.388	14976.00	309.71
12	15:15:56.667	14978.00	309.76	15:15:57.985	14980.00	309.84
13	15:15:59.251	14982.00	309.90	15:16:00.568	14984.00	309.91
14	15:16:01.847	14986.00	309.96	15:16:03.164	14988.00	310.04
15	15:16:04.445	14990.00	310.08	15:16:05.767	14992.00	310.09
16	15:16:07.046	14994.00	310.16	15:16:08.373	14996.00	310.24
17	15:16:09.650	14998.00	310.28	15:16:10.962	15000.00	310.30
18	15:16:12.240	15002.00	310.36	15:16:13.554	15004.00	310.43
19	15:16:14.830	15006.00	310.45	15:16:16.149	15008.00	310.49
20	15:16:17.426	15010.00	310.56	15:16:18.739	15012.00	310.61
21	15:16:20.064	15014.00	310.63	15:16:21.338	15016.00	310.68
22	15:16:22.659	15018.00	310.76	15:16:23.933	15020.00	310.80
23	15:16:25.250	15022.00	310.80	15:16:26.525	15024.00	310.87
24	15:16:27.879	15026.00	310.94	15:16:29.110	15028.00	310.95
25	15:16:30.425	15030.00	310.97	15:16:31.741	15032.00	311.03
26	15:16:33.021	15034.00	311.12	15:16:34.302	15036.00	311.15
27	15:16:35.620	15038.00	311.16	15:16:36.897	15040.00	311.24
28	15:16:38.227	15042.00	311.30	15:16:39.501	15044.00	311.30
29	15:16:40.781	15046.00	311.34	15:16:42.100	15048.00	311.43
30	15:16:43.377	15050.00	311.48	15:16:44.693	15052.00	311.48
31	15:16:46.010	15054.00	311.53	15:16:47.287	15056.00	311.60
32	15:16:48.582	15058.00	311.65	15:16:49.897	15060.00	311.65
33	15:16:51.175	15062.00	311.70	15:16:52.490	15064.00	311.78
34	15:16:53.769	15066.00	311.81	15:16:55.085	15068.00	311.82
35	15:16:56.363	15070.00	311.89	15:16:57.680	15072.00	311.96
36	15:16:58.958	15074.00	311.98	15:17:00.235	15076.00	311.99
37	15:17:01.557	15078.00	312.07	15:17:02.838	15080.00	312.13
38	15:17:04.159	15082.00	312.14	15:17:05.436	15084.00	312.19
39	15:17:06.757	15086.00	312.26	15:17:08.066	15088.00	312.31
40	15:17:09.343	15090.00	312.31	15:17:10.619	15092.00	312.36
41	15:17:11.896	15094.00	312.42	15:17:13.172	15096.00	312.47
42	15:17:14.486	15098.00	312.50	15:17:15.804	15100.00	312.55
43	15:17:17.083	15102.00	312.62	15:17:18.411	15104.00	312.67
44	15:17:19.654	15106.00	312.68	15:17:20.928	15108.00	312.72
45	15:17:22.207	15110.00	312.79	15:17:23.526	15112.00	312.83
46	15:17:24.808	15114.00	312.86	15:17:26.125	15116.00	312.91
47	15:17:27.404	15118.00	312.97	15:17:28.695	15120.00	312.99
48	15:17:29.973	15122.00	313.03	15:17:31.289	15124.00	313.09
49	15:17:32.571	15126.00	313.11	15:17:33.888	15128.00	313.12
50	15:17:35.211	15130.00	313.19	15:17:36.487	15132.00	313.26
51	15:17:37.768	15134.00	313.29	15:17:39.078	15136.00	313.33
52	15:17:40.395	15138.00	313.37	15:17:41.669	15140.00	313.42
53	15:17:42.946	15142.00	313.46	15:17:44.263	15144.00	313.49
54	15:17:45.543	15146.00	313.54	15:17:46.869	15148.00	313.56
55	15:17:48.145	15150.00	313.58	15:17:49.429	15152.00	313.64
56	15:17:50.749	15154.00	313.71	15:17:52.025	15156.00	313.74
57	15:17:53.350	15158.00	313.77	15:17:54.666	15160.00	313.81
58	15:17:55.865	15162.00	313.85	15:17:57.226	15164.00	313.90
59	15:17:58.559	15166.00	313.92	15:17:59.835	15168.00	313.97
60	15:18:01.119	15170.00	314.00	15:18:02.396	15172.00	314.03

	Time	Depth Ft	Temp C	Time	Depth Ft	Temp C
1	15:18:04.006	15174.00	314.07	15:18:05.014	15176.00	314.10
2	15:18:06.294	15178.00	314.13	15:18:07.574	15180.00	314.15
3	15:18:08.940	15182.00	314.19	15:18:10.174	15184.00	314.22
4	15:18:11.498	15186.00	314.23	15:18:12.776	15188.00	314.25
5	15:18:14.098	15190.00	314.28	15:18:15.383	15192.00	314.30
6	15:18:16.664	15194.00	314.31	15:18:17.979	15196.00	314.32
7	15:18:19.296	15198.00	314.37	15:18:20.573	15200.00	314.52
8	15:18:21.852	15202.00	314.59	15:18:23.170	15204.00	314.62
9	15:18:24.491	15206.00	314.64	15:18:25.770	15208.00	314.65
10	15:18:27.090	15210.00	314.66	15:18:28.366	15212.00	314.66
11	15:18:29.662	15214.00	314.68	15:18:30.979	15216.00	314.68
12	15:18:32.302	15218.00	314.69	15:18:33.582	15220.00	314.71
13	15:18:34.862	15222.00	314.71	15:18:36.182	15224.00	314.72
14	15:18:37.504	15226.00	314.74	15:18:38.783	15228.00	314.76
15	15:18:40.105	15230.00	314.76	15:18:41.384	15232.00	314.78
16	15:18:42.707	15234.00	314.80	15:18:44.029	15236.00	314.81
17	15:18:45.312	15238.00	314.82	15:18:46.591	15240.00	314.83
18	15:18:47.912	15242.00	314.85	15:18:49.222	15244.00	314.86
19	15:18:50.502	15246.00	314.87	15:18:51.820	15248.00	314.88
20	15:18:53.142	15250.00	314.89	15:18:54.461	15252.00	314.90
21	15:18:55.743	15254.00	314.91	15:18:57.061	15256.00	314.92
22	15:18:58.385	15258.00	314.93	15:18:59.717	15260.00	314.94
23	15:19:01.478	15262.00	314.95			

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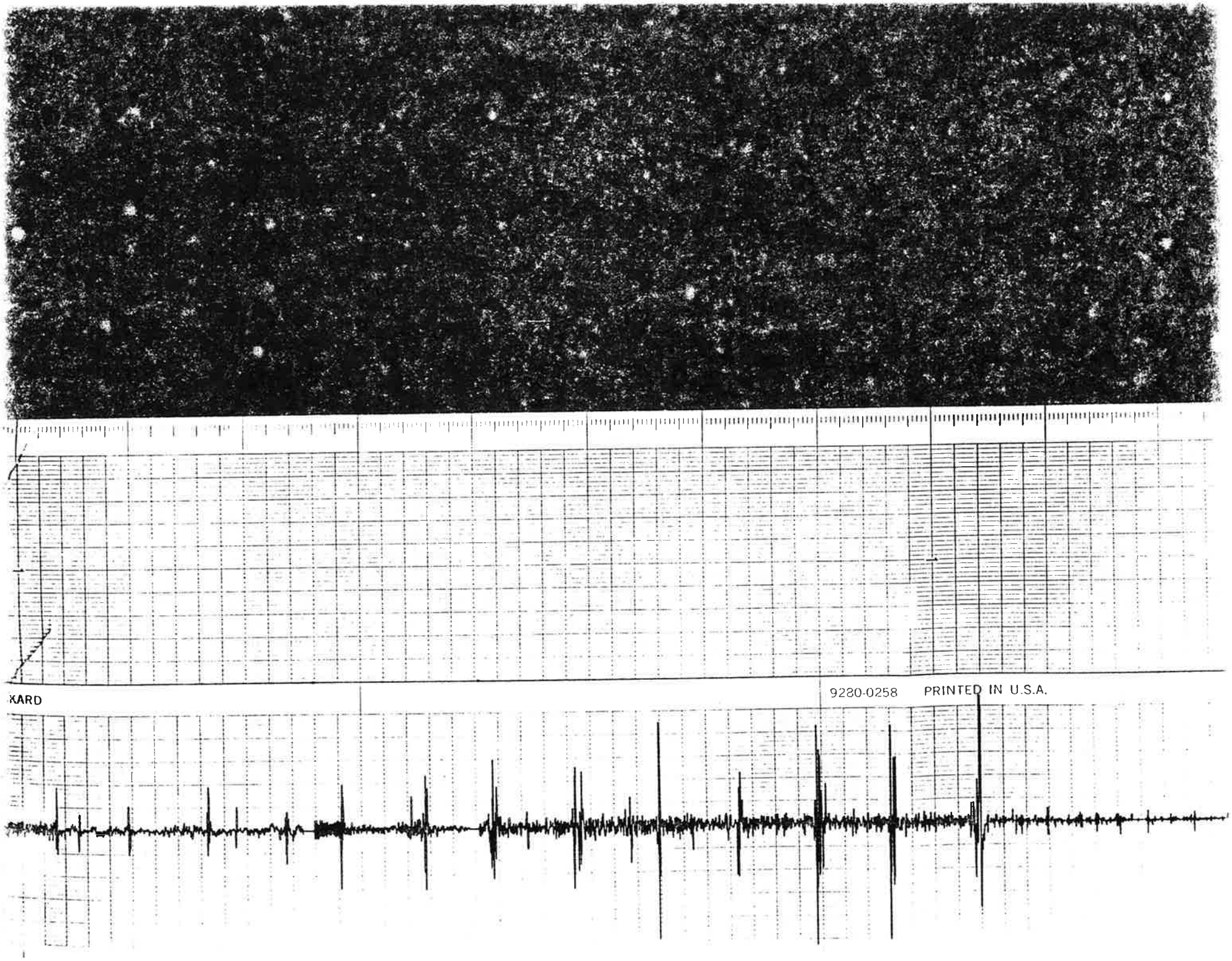
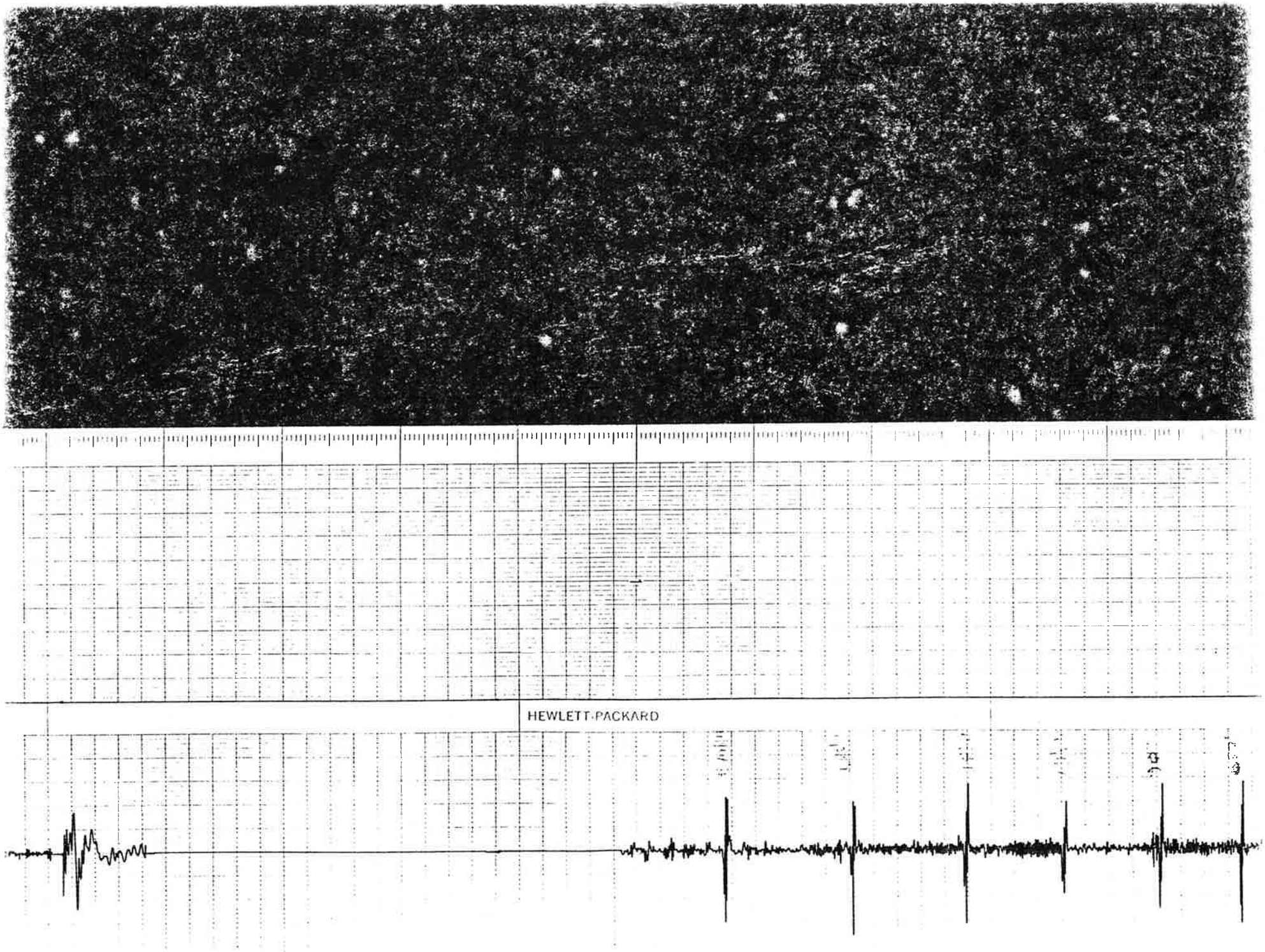
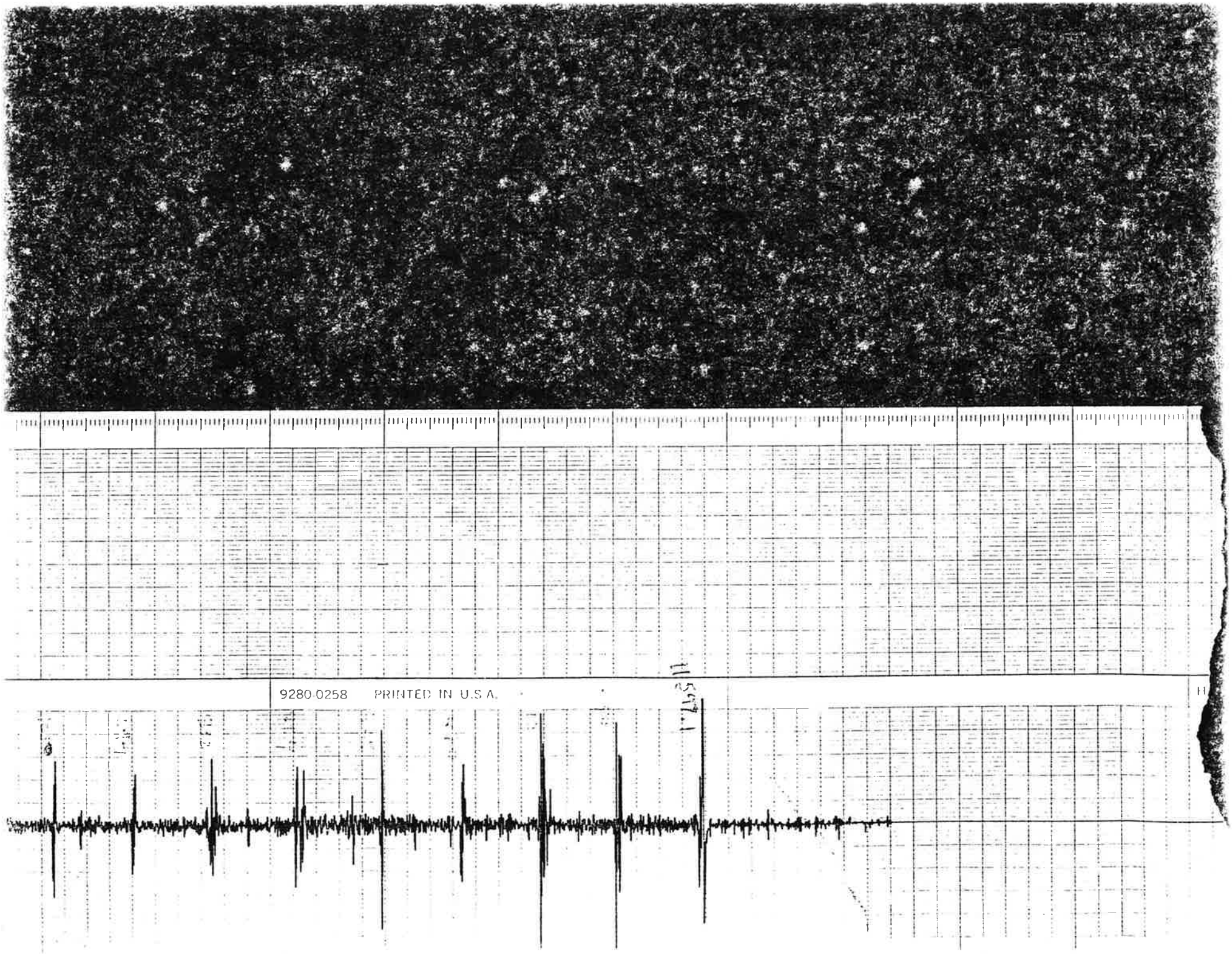
EVENT	TIME	DEPTH	EVENT	TIME	DEPTH
1	13:17:39	11041.09	2	13:18:31	11128.75
3	13:19:12	11207.78	4	13:19:29	11249.66
5	13:19:47	11293.30	6	13:20:03	11334.55
7	13:20:22	11380.20	8	13:20:23	11383.63
9	13:20:40	11426.22	10	13:20:58	11469.82
11	13:21:15	11510.52	12	13:21:31	11550.79
13	13:21:50	11597.18			

Appendix F

[illegible] Weather Locator strip chart


KARD
9280-0258 PRINTED IN U.S.A.


HEWLETT-PACKARD


9280-0258 PRINTED IN U.S.A.

Appendix G

1. [illegible] Bounce and Flat [illegible]
2. [illegible] Flat [illegible]

	TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS			TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS			TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS
1	18:40:00	1.9	1.2	7.3	4			18:40:10	4.6	1.5	8.9	5			18:40:20	7.7	2.4	8.9	5
2	18:40:30	11.6	5.6	8.9	8.9 5	4.5		18:40:40	15.8	6.9	8.9	4			18:40:50	19.9	7.5	8.9	5
3	18:41:00	24.6	7.6	8.9	8.9 5	8.9		18:41:10	29.9	7.5	8.9	5			18:41:20	35.1	7.3	8.9	5
4	18:41:30	40.7	7.1	8.9	8.97 5	13.4		18:41:40	46.2	6.8	9.0	5			18:41:50	51.6	6.6	9.0	5
5	18:42:00	57.2	6.3	9.0	9.0 5	17.9		18:42:10	62.9	6.1	9.0	4			18:42:20	67.3	5.9	9.0	5
6	18:42:30	73.4	5.8	8.9	9.0 5	22.3		18:42:40	79.9	5.8	9.1	5			18:42:50	85.2	5.9	9.0	5
7	18:43:00	90.9	6.1	8.9	8.97 5	26.8		18:43:10	97.5	6.3	9.0	5			18:43:20	102.5	6.5	8.9	5
8	18:43:30	107.8	6.7	9.1	8.9 5	31.3		18:43:40	114.6	6.9	8.8	4			18:43:50	120.3	7.0	8.8	5
9	18:44:00	124.2	7.2	9.2	9.03 5	35.9		18:44:10	131.5	7.3	8.8	5			18:44:20	135.7	7.4	9.1	5
10	18:44:30	142.3	7.5	9.1	9.07 5	40.5		18:44:40	148.4	7.6	9.1	5			18:44:50	153.9	7.6	9.0	5
11	18:45:00	160.5	7.6	8.9	8.9 5	44.9		18:45:10	166.3	7.7	8.9	5			18:45:20	171.6	7.7	8.9	5
12	18:45:30	176.8	7.8	8.9	8.9 5	49.4		18:45:40	183.2	7.8	8.9	5			18:45:50	188.3	7.8	8.9	4
13	18:46:00	194.5	7.8	8.9	8.93 5	53.8		18:46:10	200.7	7.8	8.9	5			18:46:20	206.0	7.8	9.0	5
14	18:46:30	212.0	7.9	8.9	8.93 5	58.3		18:46:40	218.2	7.9	9.0	5			18:46:50	224.1	7.9	8.9	5
15	18:47:00	230.0	7.9	8.9	8.9 5	62.7		18:47:10	235.4	7.9	8.9	4			18:47:20	241.0	7.9	8.9	5
16	18:47:30	246.1	7.9	8.9	8.9 5	67.2		18:47:40	252.4	8.0	8.9	5			18:47:50	257.5	8.0	8.9	5
17	18:48:00	263.8	8.0	8.9	8.93 6	71.6		18:48:10	269.8	8.1	8.9	4			18:48:20	275.1	8.0	9.0	5
18	18:48:30	281.0	8.1	8.9	8.9 5	76.1		18:48:40	287.6	8.1	8.9	5			18:48:50	293.0	8.1	8.9	5
19	18:49:00	299.1	8.1	8.9	8.97 5	80.5		18:49:10	304.8	8.1	9.0	5			18:49:20	310.1	8.1	9.0	4
20	18:49:30	315.3	8.1	9.0	9.0 5	85.0		18:49:40	321.4	8.1	9.0	5			18:49:50	327.9	8.1	9.0	5
21	18:50:00	333.4	8.2	8.9	8.97 5	89.5		18:50:10	339.9	8.2	9.0	5			18:50:20	345.8	8.2	9.0	5
22	18:50:30	350.9	8.2	9.0	8.97 5	94.0		18:50:40	357.6	8.2	8.9	5			18:50:50	363.3	8.2	9.0	5
23	18:51:00	368.4	8.2	9.0	9.00 5	98.5		18:51:10	374.6	8.2	9.0	5			18:51:20	380.9	8.2	9.0	5
24	18:51:30	386.6	8.2	9.0	9.0 5	103.0		18:51:40	391.9	8.2	9.0	4			18:51:50	398.0	8.1	9.0	5
25	18:52:00	403.6	8.1	9.1	9.07 5	107.5		18:52:10	409.5	8.1	9.1	5			18:52:20	414.6	8.1	9.0	5
26	18:52:30	421.0	8.1	9.1	9.03 5	112.1		18:52:40	426.6	8.1	9.0	4			18:52:50	432.4	8.1	9.0	5
27	18:53:00	438.3	8.1	9.0	9.03 5	116.6		18:53:10	444.7	8.1	9.1	5			18:53:20	450.6	8.0	9.0	5
28	18:53:30	456.4	8.0	9.0	9.07 5	121.1		18:53:40	462.2	8.0	9.1	5			18:53:50	467.5	8.0	9.1	5
29	18:54:00	474.6	7.9	8.9	8.97 5	125.5		18:54:10	478.9	7.9	9.0	5			18:54:20	485.3	7.9	9.0	4
30	18:54:30	490.1	7.9	8.9	8.97 5	130.0		18:54:40	497.8	7.9	9.0	5			18:54:50	503.4	7.9	9.0	5
31	18:55:00	508.2	7.9	9.1	9.0 5	134.5		18:55:10	514.4	7.9	9.0	5			18:55:20	520.6	7.9	8.9	5
32	18:55:30	526.3	7.9	9.0	8.97 5	139.0		18:55:40	532.4	7.9	9.0	4			18:55:50	538.5	7.9	8.9	5
33	18:56:00	542.9	7.9	9.1	9.07 5	143.6		18:56:10	549.6	7.9	9.1	5			18:56:20	554.5	7.9	9.0	5
34	18:56:30	562.0	7.9	8.8	8.9 5	148.0		18:56:40	567.5	7.9	9.1	5			18:56:50	573.1	8.0	8.8	5
35	18:57:00	579.7	8.0	8.8	5	152.4 (.55)		18:57:10	586.0	8.0	8.8	4			18:57:20	591.7	8.0	9.0	5
36	18:57:40	601.1	8.0	8.9	10	158.3 (.28)		18:58:00	611.4	8.0	8.9	11			18:58:20	623.1	8.0	8.8	10
37	18:58:40	634.7	8.0	8.8	11	167.1		18:59:00	646.7	8.1	8.8	11			18:59:20	658.3	8.1	8.8	10
38	18:59:40	669.8	8.1	8.8	11	175.9		19:00:00	681.5	8.1	8.8	10			19:00:20	692.8	8.1	8.8	11
39	19:00:40	704.8	8.2	8.9	11	184.8		19:01:00	716.6	8.2	8.8	10			19:01:20	728.0	8.2	8.8	11
40	19:01:40	740.0	8.2	8.8	11	193.6		19:02:00	752.1	8.3	8.8	11			19:02:20	763.4	8.2	8.8	10
41	19:02:40	774.9	8.2	8.8	11	202.4		19:03:00	787.2	8.3	8.8	11			19:03:20	798.7	8.3	8.8	10
42	19:03:40	810.1	8.3	8.8	11	211.2		19:04:00	822.0	8.3	8.8	10			19:04:20	833.3	8.2	8.8	11
43	19:04:40	845.4	8.3	8.8	11	220.0		19:05:00	857.2	8.2	8.8	10			19:05:20	868.6	8.2	8.8	11
44	19:05:40	880.7	8.2	8.8	11	228.8		19:06:00	892.3	8.1	8.8	10			19:06:20	903.8	8.1	8.8	11
45	19:06:40	915.8	8.1	8.8	11	237.6		19:07:00	927.7	8.1	8.8	10			19:07:20	939.1	8.1	8.8	11
46	19:07:40	951.0	8.1	8.8	11	246.4		19:08:00	963.3	8.1	8.8	11			19:08:20	974.8	8.1	8.7	10
47	19:08:40	986.1	8.1	8.4	11	254.8		19:09:00	997.1	8.1	8.2	10			19:09:20	1008.0	8.1	8.6	11
48	19:09:40	1020.0	8.1	8.8	11	263.6		19:10:00	1032.0	8.2	8.8	10			19:10:20	1043.5	8.2	8.8	11
49	19:10:40	1055.5	8.2	8.8	11	272.4		19:11:00	1067.3	8.2	8.8	10			19:11:20	1079.1	8.1	8.8	11
50	19:11:40	1091.1	8.2	8.8	11	281.2		19:12:00	1103.0	8.2	8.8	10			19:12:20	1114.5	8.2	8.8	11

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	TIME	PRESS PSI	TEMP 'C	FLOW GPM	PTS		TIME	PRESS PSI	TEMP 'C	FLOW GPM	PTS	TIME	PRESS PSI	TEMP 'C	FLOW GPM	PTS
1	19:12:40	1127.8	8.1	8.8	8	290.0	19:13:00	1138.1	8.1	8.8	10	19:13:20	1149.6	8.1	8.8	11
2	19:13:40	1161.6	8.1	8.8	11	298.8	19:14:00	1173.8	8.1	8.8	10	19:14:20	1185.3	8.1	8.8	11
3	19:14:40	1196.8	8.1	8.8	10	307.6	19:15:00	1208.6	8.0	8.6	11	19:15:20	1218.1	8.0	5.1	11
4	19:15:40	1223.0	7.9	3.0	10		19:16:00	1225.5	7.8	1.1	11	19:16:20	1223.7	7.8	2.8	10
5	19:16:40	1216.7	8.0	4.6	11		19:17:00	1211.3	8.0	1.0	10	19:17:20	1209.3	8.0	0.6	11
6	19:17:40	1208.0	7.9	0.1	11		19:18:00	1207.0	7.9	0.1	10	19:18:20	1206.7	7.8	0.5	11
7	19:18:40	1207.3	7.6	0.5	11		19:19:00	1207.8	7.4	0.6	10	19:20:00	1208.2	7.2	0.6	6
8	19:20:00	1209.1	6.9	0.6	26		19:21:00	1210.8	6.5	0.8	33	19:22:00	1214.3	6.1	1.1	34
9	19:23:00	1216.1	6.0	0.1	34		19:24:00	1214.6	6.0	0.2	34	19:25:00	1211.3	7.6	0.2	33
10	19:26:00	1207.9	7.7	0.3	34		19:27:00	1204.5	7.7	0.3	34	19:28:00	1204.2	6.7	1.4	34
11	19:29:00	1210.9	4.6	1.7	33		19:30:00	1217.8	4.3	1.5	34	19:31:00	1219.7	4.8	0.6	33
12	19:32:00	1214.0	6.7	0.8	34		19:33:00	1209.6	7.0	0.6	33	19:34:00	1205.7	6.9	0.3	34
13	19:35:00	1205.0	6.5	0.0	34		19:36:00	1205.1	6.1	0.1	33	19:37:00	1205.2	5.7	0.1	34
14	19:38:00	1205.3	5.3	0.1	34		19:39:00	1205.5	4.8	0.0	34	19:40:00	1205.7	4.4	0.0	33
15	19:41:00	1205.9	4.0	0.0	34		19:42:00	1206.1	3.7	0.0	34	19:43:00	1206.3	3.4	0.0	34
16	19:44:00	1206.5	3.2	0.1	33		19:45:00	1206.8	3.0	0.0	33	19:45:10	1210.7	2.2	8.8	5
17	19:45:20	1216.5	2.6	8.8	5		19:45:30	1222.9	4.2	8.8	4	19:45:40	1228.4	5.7	8.8	5
18	19:45:50	1234.5	6.6	8.8	5		19:46:00	1241.0	7.1	8.8	5	19:46:10	1247.1	7.5	8.8	5
19	19:46:20	1253.1	7.6	8.8	5		19:46:30	1259.8	7.7	8.8	5	19:46:40	1265.9	7.8	8.8	5
20	19:46:50	1271.8	7.8	8.8	5		19:47:00	1278.4	7.9	8.8	5	19:47:10	1284.1	7.9	8.8	5
21	19:47:20	1289.9	7.9	8.8	4		19:47:30	1295.6	7.9	8.8	5	19:47:40	1301.7	7.9	8.8	5
22	19:47:50	1307.7	7.9	8.8	5		19:48:00	1314.4	7.9	8.8	5	19:48:10	1320.2	7.9	8.8	5
23	19:48:20	1326.6	7.9	8.8	5		19:48:30	1332.9	7.9	8.8	5	19:48:40	1338.8	7.9	8.8	4
24	19:48:50	1344.2	7.9	8.8	5		19:49:00	1350.9	7.9	8.8	5	19:49:10	1356.8	7.9	8.8	5
25	19:49:20	1363.0	7.9	8.8	5		19:49:30	1369.3	7.9	8.8	5	19:49:40	1375.3	7.9	8.8	5
26	19:49:50	1381.4	7.9	8.8	5		19:50:00	1387.3	7.9	8.8	4	19:50:10	1393.1	7.9	8.8	5
27	19:50:20	1399.1	7.9	8.8	5		19:50:30	1405.3	7.9	8.8	5	19:50:40	1411.3	7.9	8.8	5
28	19:50:50	1417.5	7.9	8.8	5		19:51:00	1423.8	7.9	8.8	5	19:51:10	1429.8	7.9	8.8	5
29	19:51:20	1435.8	7.9	8.8	5		19:51:30	1441.9	7.9	8.8	4	19:51:40	1447.6	7.8	8.8	5
30	19:51:50	1453.7	7.9	8.8	5		19:52:00	1460.1	7.9	8.8	5	19:52:10	1466.2	7.9	8.8	5
31	19:52:20	1472.1	7.9	8.8	5		19:52:30	1478.5	7.9	8.8	5	19:52:40	1484.3	7.9	8.8	5
32	19:52:50	1490.4	7.9	8.8	5		19:53:00	1496.5	7.9	8.8	4	19:53:10	1502.0	7.9	8.8	5
33	19:53:20	1507.9	7.9	8.8	5		19:53:30	1514.3	7.9	8.8	5	19:53:40	1520.5	8.0	8.8	5
34	19:53:50	1526.4	8.0	8.8	5		19:54:00	1532.6	8.0	8.8	5	19:54:10	1538.6	8.0	8.8	5
35	19:54:20	1543.9	8.0	8.8	4		19:54:30	1549.8	8.0	8.8	5	19:54:40	1555.9	8.0	8.8	5
36	19:54:50	1562.3	8.1	8.8	5		19:55:00	1568.5	8.0	8.8	5	19:55:10	1574.7	8.0	8.8	5
37	19:55:20	1580.9	8.1	8.8	5		19:55:30	1586.7	8.0	8.8	4	19:55:40	1592.3	8.0	8.8	5
38	19:55:50	1598.6	8.0	8.7	5		19:56:00	1604.9	8.0	8.7	5	19:56:10	1610.2	8.0	6.9	5
39	19:56:20	1614.7	8.0	6.3	5		19:56:30	1618.8	8.0	4.8	5	19:56:40	1621.1	7.9	2.5	5
40	19:56:50	1622.0	7.9	0.5	5		19:57:00	1621.4	7.9	1.3	4	19:58:00	1617.1	7.9	0.7	33
41	19:59:00	1615.6	7.7	0.1	34		20:00:00	1615.0	7.5	0.1	33	20:01:00	1614.4	7.2	0.1	34
42	20:02:00	1614.0	6.9	0.1	34		20:03:00	1613.6	6.5	0.0	33	20:04:00	1613.3	6.3	0.1	34
43	20:05:00	1613.0	6.0	0.0	34		20:06:00	1613.0	5.7	0.1	33	20:07:00	1613.3	5.3	0.2	34
44	20:08:00	1613.7	5.0	0.2	33		20:09:00	1614.0	4.8	0.1	34	20:10:00	1614.0	4.6	0.1	34
45	20:11:00	1613.9	4.5	0.1	33		20:12:00	1613.8	4.3	0.0	34	20:13:00	1613.7	4.1	0.1	34
46	20:14:00	1613.9	3.9	0.1	34		20:15:00	1614.2	3.7	0.1	33	20:16:00	1614.4	3.5	0.1	34
47	20:17:00	1614.6	3.4	0.1	34		20:18:00	1614.7	3.2	0.0	33	20:19:00	1614.7	3.1	0.0	34
48	20:20:00	1614.7	3.0	0.1	34		20:21:00	1614.7	2.9	0.0	33	20:22:00	1614.7	2.7	0.1	34
49	20:23:00	1614.6	2.6	0.1	34		20:24:00	1614.6	2.5	0.0	33	20:25:10	1614.6	2.4	0.0	34
50	20:25:10	1617.9	2.2	8.7	4		20:25:20	1624.0	3.5	8.7	5	20:25:30	1630.3	5.0	8.7	5

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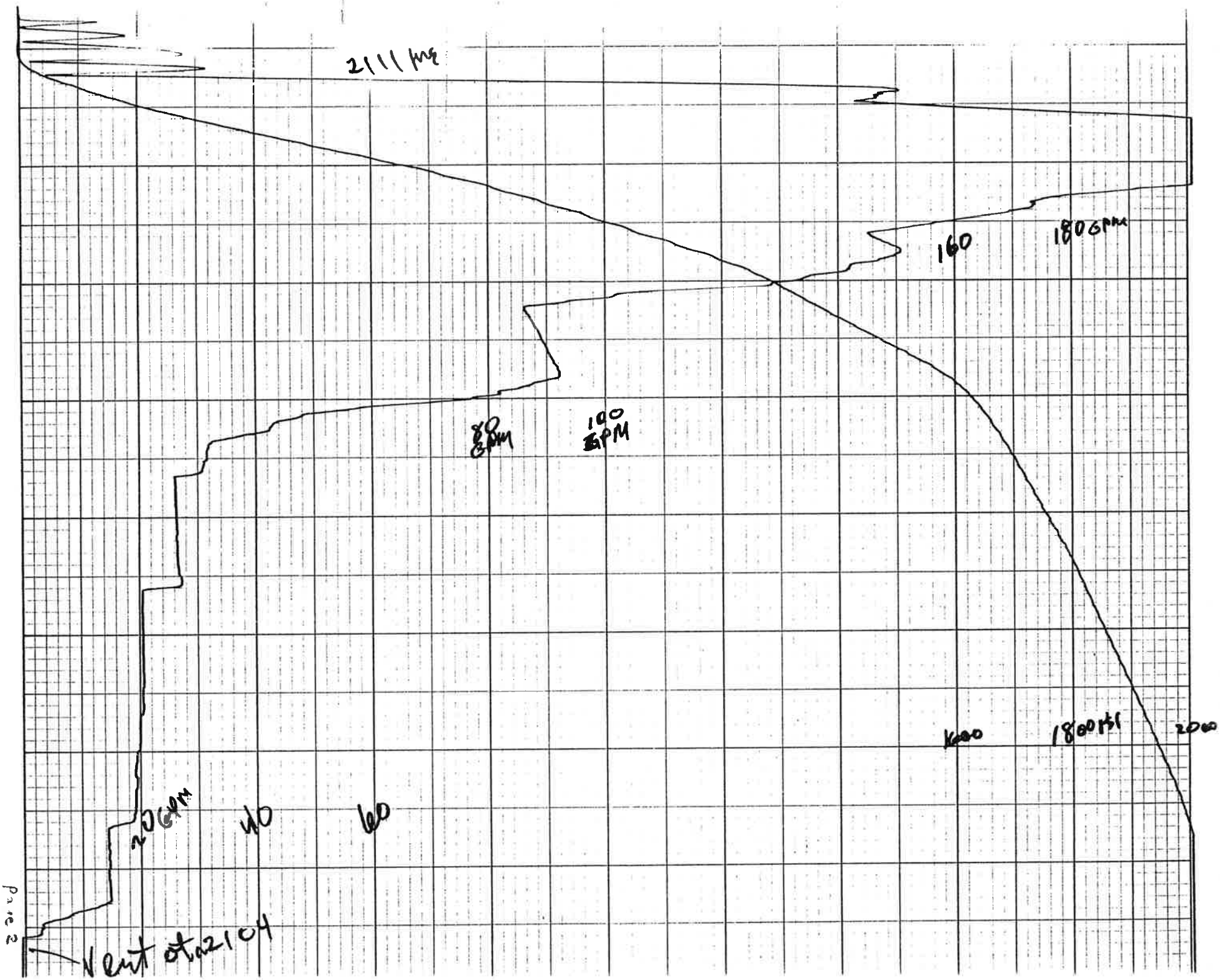
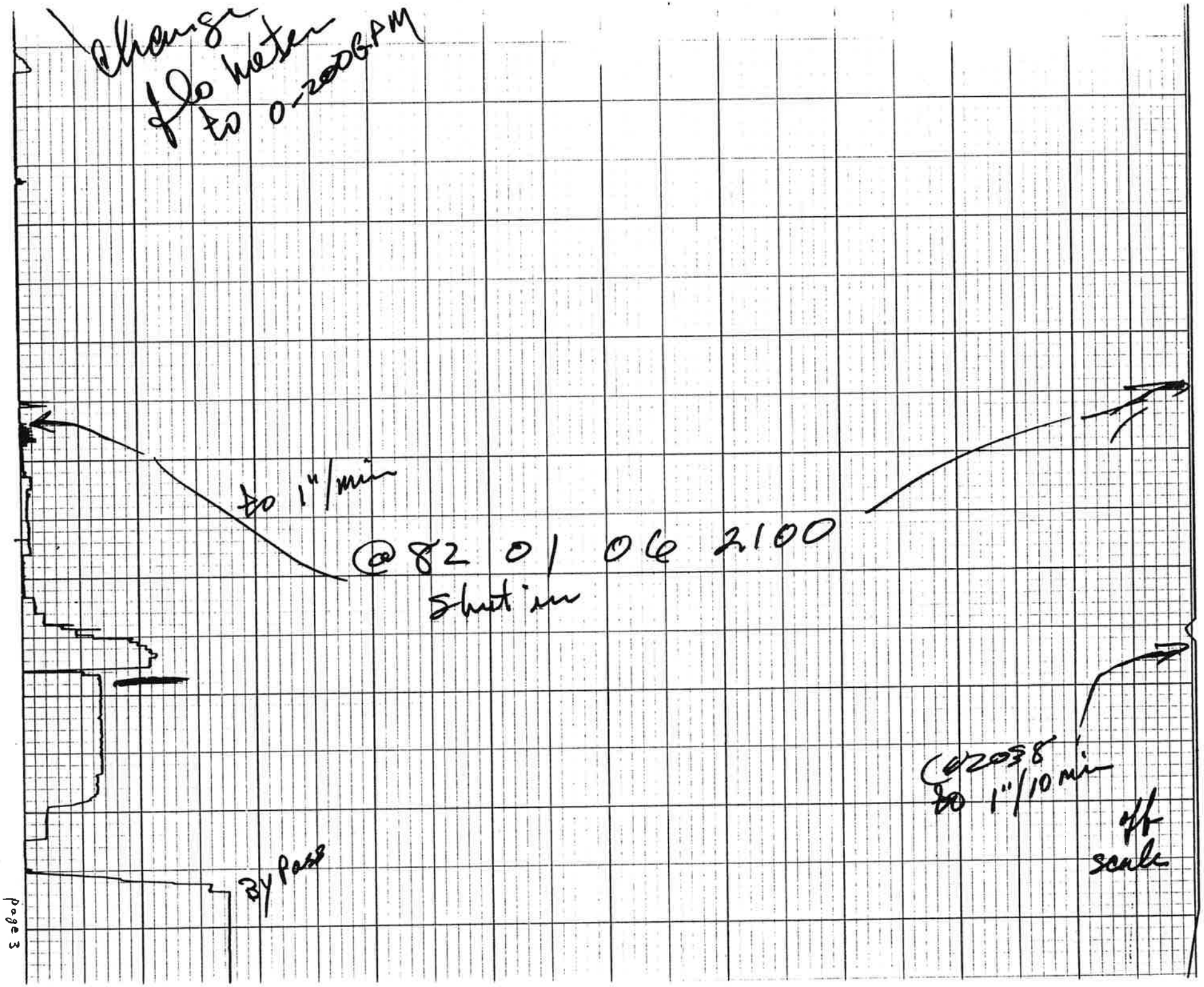
	TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS	TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS	TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS
1	20:25:40	1638.5	6.5	8.7	3	20:25:50	1642.9	7.0	8.6	4	20:26:00	1648.4	7.4	8.7	5
2	20:26:10	1655.1	7.7	8.7	5	20:26:20	1661.1	7.8	8.7	5	20:26:30	1667.8	7.9	8.7	5
3	20:26:40	1673.9	8.0	8.7	5	20:26:50	1680.4	8.0	8.7	5	20:27:00	1686.1	8.0	8.7	4
4	20:27:10	1692.0	8.0	8.7	5	20:27:20	1698.3	8.0	8.7	5	20:27:30	1704.8	8.0	8.7	5
5	20:27:40	1711.1	8.0	8.7	5	20:27:50	1717.1	8.1	8.7	4	20:28:00	1722.8	8.1	8.7	5
6	20:28:10	1728.8	8.1	8.7	5	20:28:20	1735.5	8.1	8.7	5	20:28:30	1741.6	8.1	8.7	5
7	20:28:40	1747.6	8.1	8.7	5	20:28:50	1754.2	8.1	8.7	5	20:29:00	1760.2	8.1	8.7	5
8	20:29:10	1766.3	8.1	8.6	5	20:29:20	1772.2	8.1	8.6	4	20:29:30	1777.7	8.1	8.7	5
9	20:29:40	1784.0	8.1	8.7	5	20:29:50	1790.6	8.1	8.6	5	20:30:00	1796.7	8.1	8.6	5
10	20:30:10	1802.9	8.1	8.7	5	20:30:20	1809.2	8.1	8.7	5	20:30:30	1815.2	8.1	8.6	4
11	20:30:40	1820.7	8.1	8.6	5	20:30:50	1827.0	8.1	8.6	5	20:31:00	1833.2	8.1	8.6	5
12	20:31:10	1839.5	8.1	8.6	5	20:31:20	1845.8	8.1	8.6	5	20:31:30	1851.9	8.1	8.6	5
13	20:31:40	1858.0	8.1	8.6	5	20:31:50	1864.2	8.1	8.7	5	20:32:00	1870.0	8.1	8.6	4
14	20:32:10	1875.5	8.1	8.7	5	20:32:20	1881.8	8.1	8.6	5	20:32:30	1887.9	8.2	8.6	5
15	20:32:40	1894.3	8.2	8.7	5	20:32:50	1900.6	8.2	8.7	5	20:33:00	1906.7	8.2	8.7	5
16	20:33:10	1913.1	8.2	8.6	5	20:33:20	1919.2	8.2	8.6	4	20:33:30	1924.7	8.2	8.6	5
17	20:33:40	1930.7	8.2	8.6	5	20:33:50	1937.0	8.2	8.6	5	20:34:00	1943.0	8.3	8.6	5
18	20:34:10	1949.0	8.3	8.7	5	20:34:20	1955.5	8.3	8.6	5	20:34:30	1961.4	8.3	8.6	5
19	20:34:40	1967.4	8.3	8.6	5	20:34:50	1973.5	8.3	8.6	4	20:35:00	1978.9	8.3	8.6	5
20	20:35:10	1984.9	8.3	8.6	5	20:35:20	1991.1	8.3	8.6	5	20:35:30	1997.4	8.3	8.6	5
21	20:35:40	2003.4	8.3	8.6	5	20:35:50	2009.9	8.3	8.6	5	20:36:00	2016.0	8.3	8.6	5
22	20:36:10	2021.8	8.3	8.6	4	20:36:20	2027.7	8.3	8.6	5	20:36:30	2033.7	8.3	8.4	5
23	20:36:40	2038.6	8.3	4.5	5	20:36:50	2039.4	8.3	-.0	5	20:37:00	2038.9	8.3	0.4	5
24	20:37:10	2038.0	8.3	1.0	5	20:37:20	2036.2	8.2	2.2	4	20:37:30	2034.0	8.2	3.1	5
25	20:37:40	2030.6	8.2	3.3	5	20:37:50	2027.3	8.2	3.3	5	20:38:00	2024.3	8.2	3.3	5
26	20:38:10	2021.3	8.2	3.3	5	20:38:20	2018.1	8.2	3.3	4	20:39:00	2010.4	8.2	3.2	22
27	20:40:00	2004.7	8.0	3.8	34	20:41:00	2024.6	7.8	5.5	33	20:42:00	2046.5	8.0	4.9	34
28	20:43:00	2061.4	8.0	2.5	33	20:44:00	2067.8	7.8	1.2	34	20:45:00	2070.1	7.7	0.6	34
29	20:46:00	2070.9	7.5	0.3	33	20:47:00	2070.4	7.4	0.1	34	20:48:00	2069.7	7.3	0.1	34
30	20:49:00	2069.2	7.1	0.1	33	20:50:00	2069.1	6.9	0.3	34	20:51:00	2069.6	6.6	0.3	33
31	20:52:00	2070.0	6.5	0.4	34	20:53:00	2070.4	6.4	0.3	34	20:54:00	2070.5	6.3	0.4	33
32	20:55:00	2070.7	6.2	0.3	34	20:56:00	2071.5	6.0	0.4	33	20:57:00	2071.7	5.9	0.2	34
33	20:58:00	2071.4	5.8	0.1	34	20:59:00	2071.0	5.7	0.2	33	21:00:00	2070.4	5.6	0.0	33
34	21:00:10	2070.0	5.6	-.0	4	21:00:20	2069.6	5.6	0.0	5	21:00:30	2062.7	7.8	-.0	5
35	21:00:40	2056.8	7.8	-.0	5	21:00:50	2056.4	7.8	-.0	5	21:01:00	2055.6	7.9	-.0	5
36	21:01:10	2055.8	8.0	-.0	5	21:01:20	2055.5	7.9	-.0	4	21:01:30	2055.3	8.0	-.0	5
37	21:01:40	2055.2	7.9	-.0	5	21:01:50	2054.8	7.9	-.0	5	21:02:00	2054.6	7.9	-.0	5
38	21:02:10	2054.4	7.9	-.0	5	21:02:20	2054.2	7.8	-.0	4	21:02:30	2054.0	7.8	-.0	5
39	21:02:40	2053.8	7.8	-.0	5	21:02:50	2053.5	7.8	-.0	5	21:03:00	2053.3	7.7	-.0	5
40	21:03:10	2053.0	7.7	0.4	5	21:03:20	2052.8	7.6	-.0	4	21:03:30	2052.7	7.7	-.0	5
41	21:03:40	2052.4	7.6	-.0	5	21:03:50	2052.1	7.6	-.0	4	21:04:00	2051.9	7.6	-.0	0
42	21:04:10	2050.9	7.6	0.1	5	21:04:20	2046.8	8.0	5.5	5	21:04:30	2038.2	8.1	14.2	5
43	21:04:40	2027.0	8.1	14.2	5	21:04:50	2015.4	8.1	14.6	4	21:05:00	2004.9	8.1	13.9	5
44	21:05:10	1993.0	8.1	16.2	5	21:05:20	1978.5	8.1	19.3	5	21:05:30	1963.7	8.2	19.7	5
45	21:05:40	1949.2	8.2	19.4	5	21:05:50	1933.6	8.2	19.6	5	21:06:00	1918.3	8.2	20.3	5
46	21:06:10	1903.3	8.2	20.5	5	21:06:20	1887.8	8.2	20.7	4	21:06:30	1873.6	8.2	20.9	5
47	21:06:40	1858.4	8.2	20.8	5	21:06:50	1842.0	8.2	20.4	5	21:07:00	1827.6	8.2	20.1	4
48	21:07:10	1813.4	8.1	21.9	5	21:07:20	1794.4	8.2	26.7	5	21:07:30	1775.5	8.1	26.7	5
49	21:07:40	1755.3	8.1	26.1	5	21:07:50	1735.5	8.0	26.3	5	21:08:00	1716.7	8.0	25.7	5
50	21:08:10	1696.8	8.0	29.0	5	21:08:20	1673.5	7.9	31.7	5	21:08:30	1647.8	7.9	40.0	5

Page No. 4 82/01/06

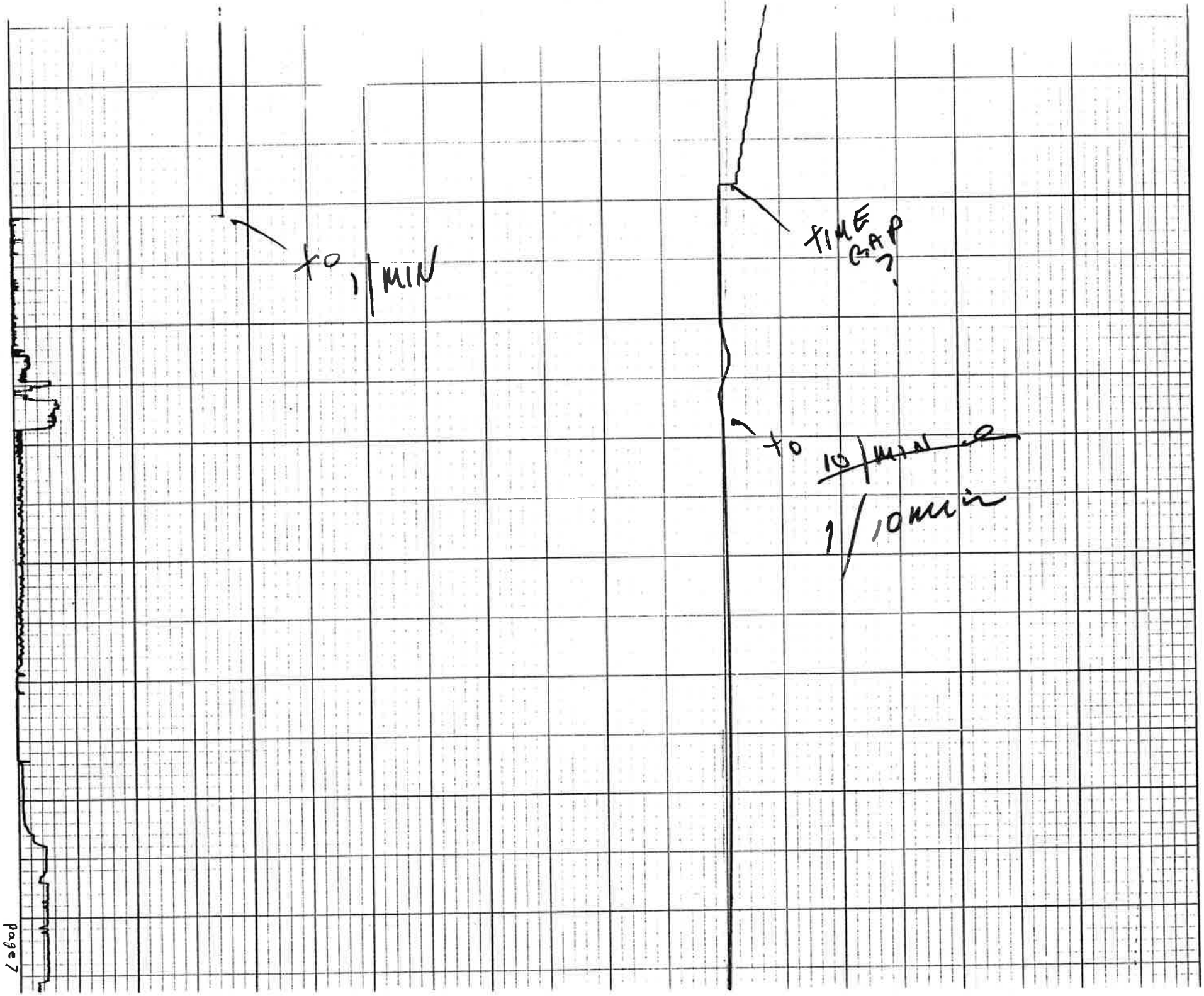
	TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS	TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS	TIME	PRESS PSI	TEMP ´C	FLOW GPM	PTS
1	21:08:40	1608.9	7.9	58.0	2	21:08:50	1568.1	8.0	82.6	5	21:09:00	1506.2	8.1	91.6	5
2	21:09:10	1439.8	8.2	90.2	5	21:09:20	1379.3	8.2	88.6	4	21:09:30	1322.3	8.3	86.7	5
3	21:09:40	1253.4	8.3	107.7	5	21:09:50	1162.8	8.4	138.8	4	21:10:00	1071.1	8.5	148.9	5
4	21:10:10	968.0	8.7	147.6	5	21:10:20	855.7	8.9	167.9	5	21:10:30	728.7	8.9	190.3	5
5	21:10:40	588.6	9.0	221.4	5	21:10:50	432.8	9.1	229.2	5	21:11:00	285.3	9.3	219.2	5
6	21:11:10	158.7	9.5	178.6	5	21:11:20	59.0	9.6	147.0	4	21:11:30	7.1	9.7	66.8	5
7	21:11:40	1.7	9.7	21.1	5	21:11:50	1.2	9.6	13.9	5	21:12:00	2.0	9.6	3.8	5
8	21:12:10	2.3	9.6	-.2	5	21:12:20	3.7	9.6	-.2	4	21:12:30	3.9	9.6	-.2	5
9	21:12:40	4.4	9.6	-.2	5	21:12:50	4.3	9.6	-.2	4	21:13:00	5.1	9.6	-.2	5

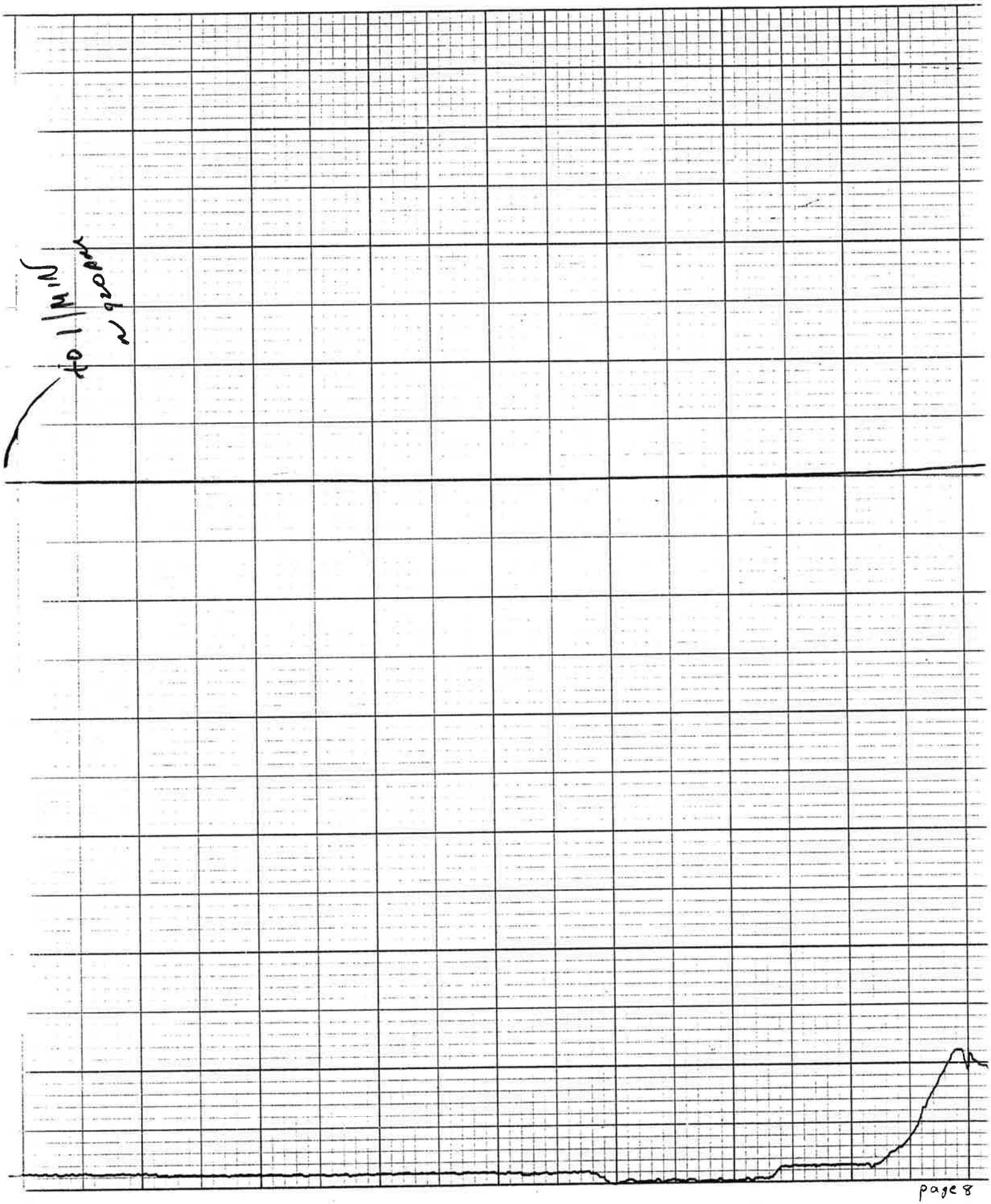
Exp 2003
Pressure & flow

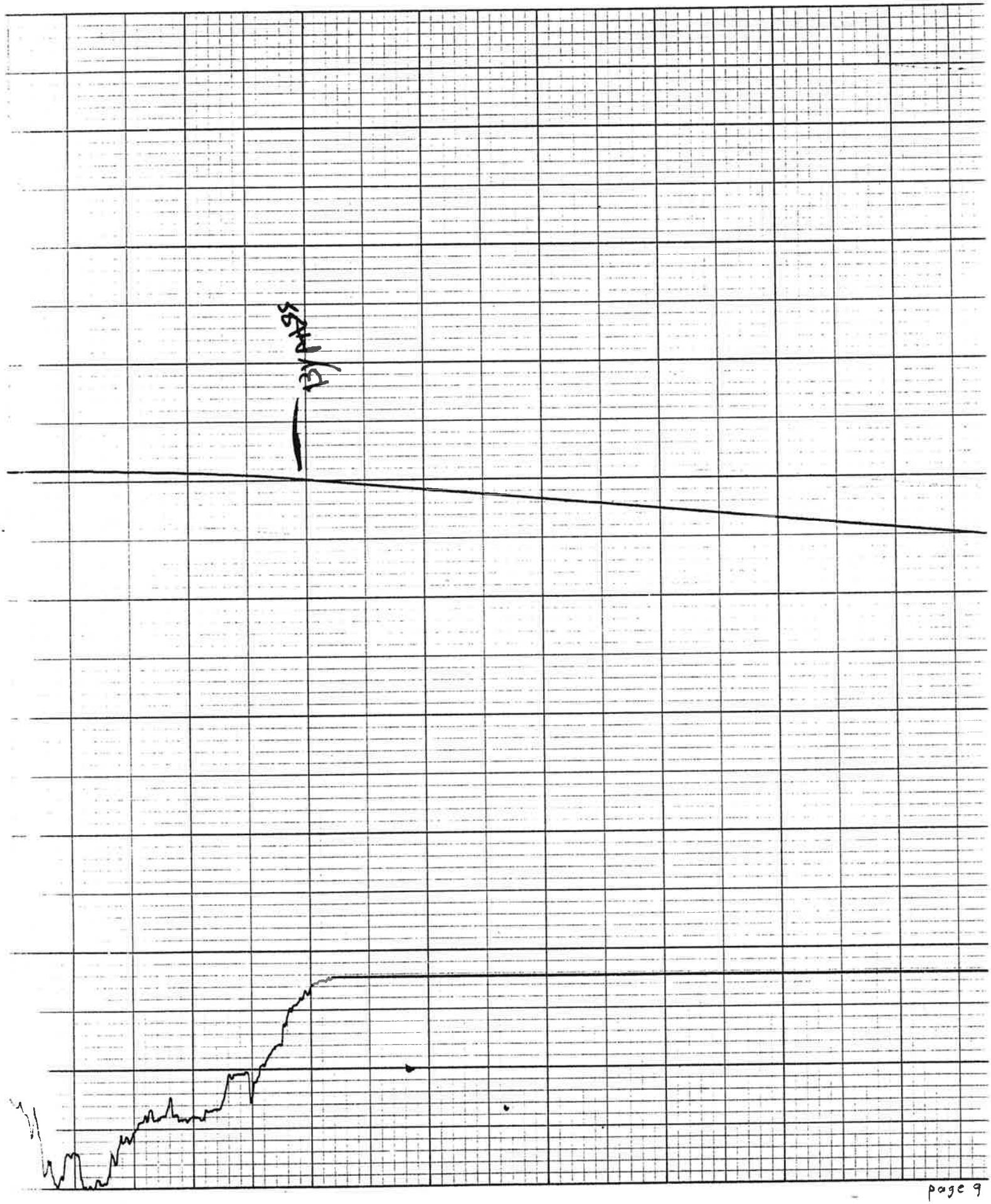

2111 psi
160
1800 GPM
80 GPM
100 GPM
1800 psi
2000
20 GPM
40
60
Vent at 2104

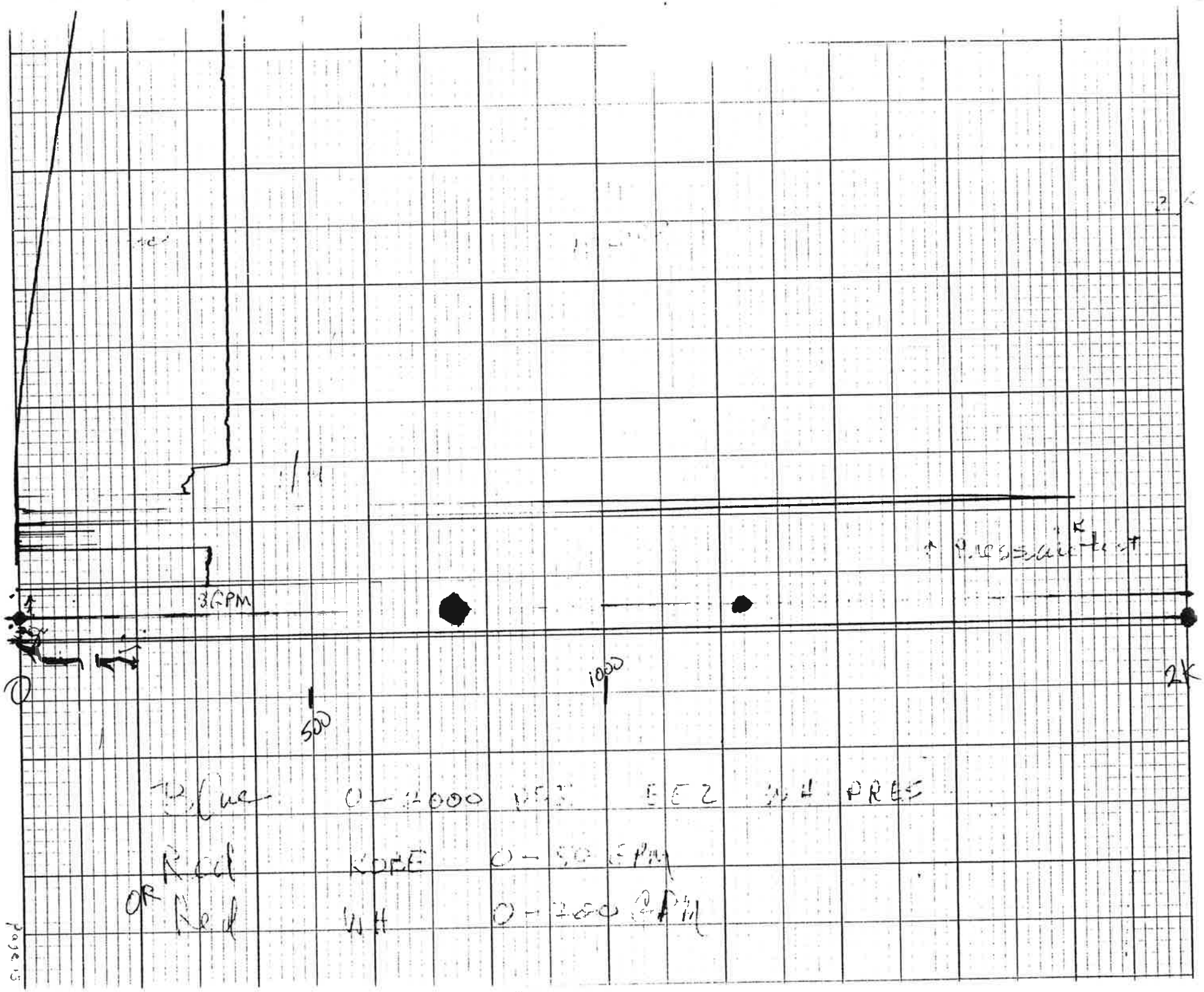

change flo meter to 0-2000GPM
to 1"/min
@82 01 06 2100
shut in
@2038
to 1"/10 min
off scale
By Pass

@ 2000 psi
1/10 min
@ 2025 psi
1/1 min


to 1/MIN
TIME GAP ?
to ~~10/MIN~~
1/10min


to 1/min
speed


Bypass


3GPM
500
1000
2K
0
Blue 0-1000 PSI EE2 WH PRES
Red KORE 0-50 GPM
OR Red WH 0-100 GPM

Appendix H

1. Summary Items
2. Strip Chart Records

Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: ESS-4 Staff

DATE: January 8, 1982

FROM: Chris Pearson CP

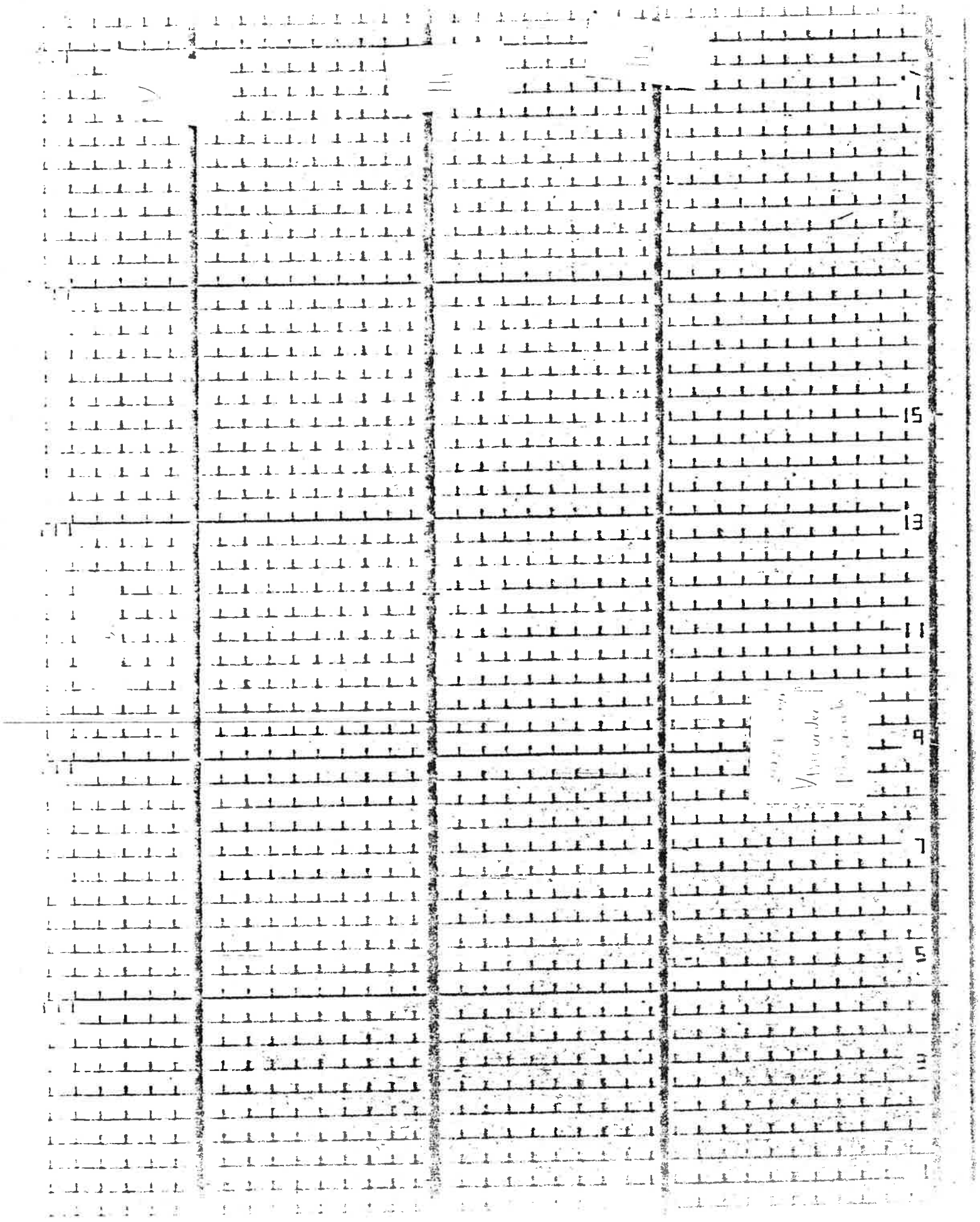
MAIL STOP/TELEPHONE: 989/1115

SYMBOL: ESS-3

SUBJECT: SEISMIC MONITORING DURING EXP. 2003

During Exp. 2003, the geophone package was placed at a depth of 9660 ft in EE-1. The geophone remained on station until the initial pressurization of EE-2 was completed at 2059 MST. During the experiment we were plagued by 60 cycle noise on the geophone signals that prevented us from identifying events during the night of the experiment. Fortunately, when we got the tapes back to TA-33 we could remove the 60 cycle noise using analogue filters. We saw no seismic events during the pressurization. The only seismic noise bursts were package movements, and even these were quite infrequent. Figure 1 shows the end of the ramp to 2000 psi. No events or noise bursts are seen in this sample. In a typical hydrofrac such as Exp. 195 or 203, 20 or 30 events would be seen in this time period.

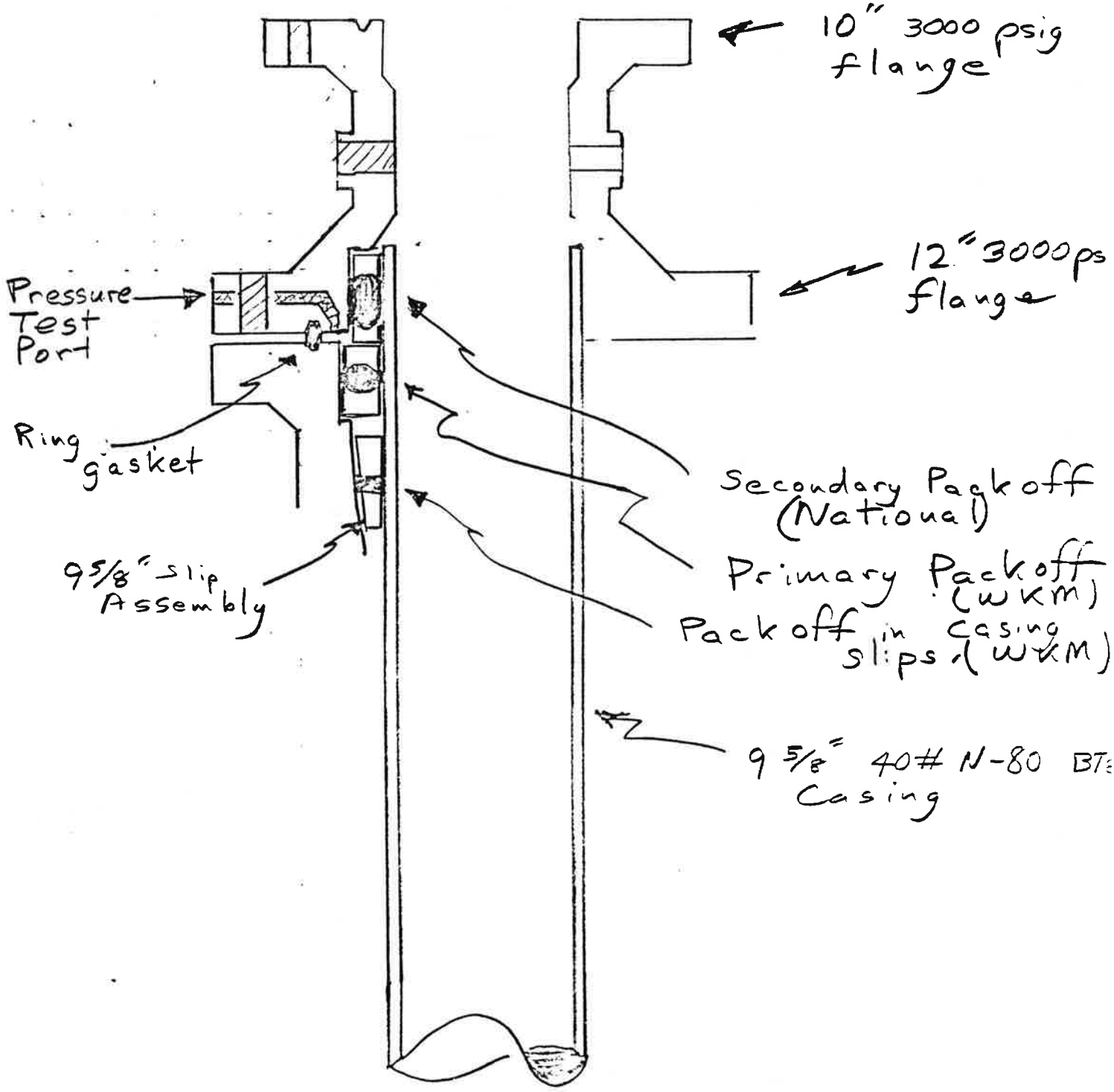
CP/de
Attach.

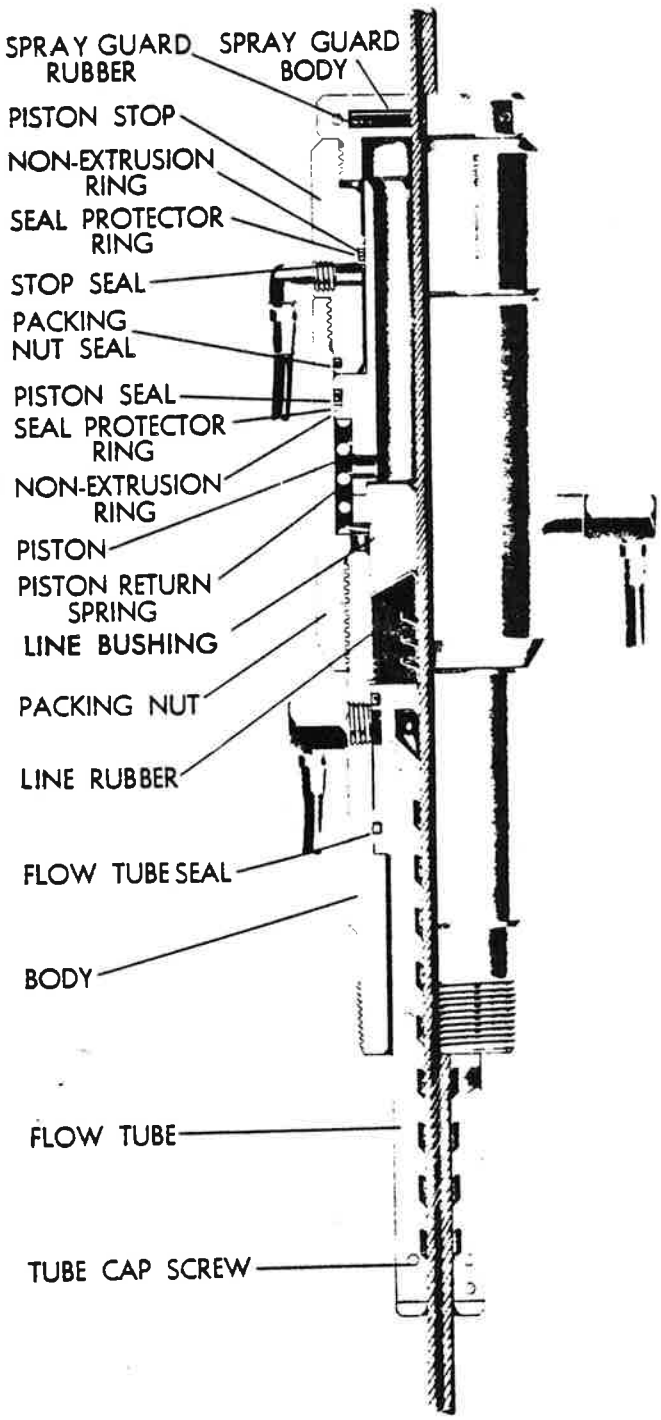


Appendix I

1. Sketch of EE-2 wellhead packing.
2. Sketch of operating procedure for Brown Control Valve.
   Allow the Pressure in EE-2 casing, Maine

Pressure Test on EE-2 Casing Head





BOWEN CONTROL HEAD
With Hydraulic Packing Nut Assembly

the Flow Hose is normally left fully open while operating, only being closed when it is used as a braking element, such as when coming out of the hole. The flow of fluid through the Flow Hose will have a pressure and volume of great variation, depending on the pressure and type of fluid flowing from the well. The fluid is usually fed to a pit, barrel or flow line. The Bowen Control Head is designed to control flow; not prevent it. It will produce a drop in pressure only so long as there is flow of fluid. Therefore, the valve should not be completely closed unless the well is to be completely shut in.

The Pressure versus Sinker Bar Weight chart on page 6 may be used as a guide to determine the required weight to overcome well pressures, when operating the Bowen Control Head. An average allowance for friction has been included. Varying conditions of different wells will cause some variation from the required weights indicated.

The wire line used should be clean and free from kinks, birdcages or wickers for safe and effective operation with the Bowen Control Head.

When operating under high gas pressure, the top of the lubricator, the Control Head and the Packing Nut will become very cold. The greater the flow and the greater the pressure drop between the well head and the Flow Hose, the colder the surrounding parts will become.

As the wire line is withdrawn from the well, the Line Rubbers should be tightened enough to prevent spray of the well fluid. When going into the hole, the Line Rubbers must be as relaxed as possible, to keep friction to a minimum. This is done by removing all pressure exerted by the Packing Nut.

Where the Hydraulic Packing Nut Assembly is used, it is used as follows.

1. Apply pressure by closing the small valve at the front side of the Hydraulic Hand Pump. Actuate the Pump until any spray subsides.

2. To remove pressure from the Line Rubbers; open the small valve at the front side of the Hydraulic Hand Pump.

3. If it is desired to relieve only part of the pressure, open the valve only slightly. When the pressure reduces to that desired, shut the valve. This will retain any pressure already in the Hydraulic Hose.

CAUTION *Avoid too much pressure on the Line Rubbers.* Too much pressure causes undue wear of the Line Rubbers. The presence of a small amount of spray at the Packing Nut does not indicate that the Line Rubbers are not sealing; they may be properly sealing and spray still produced by migration of pressure up through the inside sheath of the wire line. Therefore, under high pressure operating conditions, it may be impossible to eliminate all spray. This is the reason for having the Spray Guard Rubber and Drain Hose.

LOS ALAMOS SCIENTIFIC LABORATORY
UNIVERSITY OF CALIFORNIA
LOS ALAMOS, NEW MEXICO 87545
Telephone Ext:

OFFICE MEMORANDUM

TO : Distribution

DATE: December 4, 1981

FROM : H. Murphy/G. Bennett H.D.M

SUBJECT : ALLOWABLE PRESSURE IN EE-2 CASING

SYMBOL : ESS-4

MAIL STOP: 978

A 64-arm caliper log of the EE-2 casing was run by DIALOG on April 3, 1980, prior to drilling and milling operations, and later again on May 9, 1980, subsequent to these operations. By analyzing these two logs it is possible to determine the wear of the casing caused by drilling operations. This determination is subject to the assumption that the casing was perfectly round and uniformly thick before wear. Two log analyses were made, one by Bob Potter, and one by DIALOG, the latter being relayed by Dan Miles. Both writers found that the maximum wear occurred in Joint 16, at a depth of 674 feet, and that the next-to-worse case was in Joint 153, at a depth of 6487 ft. Table I summarizes the information.

TABLE I - Maximum Wear of EE-2 Casing

Joint	Depth	Wear Reported By Miles	Wear By Potter
16	674 ft	0.188 in.	0.175 in.
153	6487 ft	0.156 in.	0.125 in.

In both localities the wear reported by Miles, i.e., DIALOG, is worst. According to reference 1 the EE-2 casing is 9 5/8 inch outer diam, 40 lb, N-80. From the Halliburton tables,[2] the inner diam of this casing is 8.835 in., so the thickness is 0.395". Again using the Halliburton tables, the nominal yield pressure is 5750 psi. However, this pressure reflects the fact that, by API standards, the casing may have had thin spots amounting to 12.5% (0.049 in.) simply as a consequence of fabrication. For fully thick casing the ideal yield pressure would be 14% higher, that is

$$\left(\frac{1}{1-0.125}\right) ,$$

or 6570 psi. This value implies that the casing yield stress is 74,000 psi. Because the caliper survey results in Table I reflect the total thinning, fabrication plus drilling-related wear, it would be unrealistic to penalize ourselves twice—to reduce the thickness, and then still use a yield pressure based upon a built-in 12.5% fabrication wear. We instead use the true yield stress, multiplied by the percent of pipe thickness remaining to derive allowable working pressures. As described below the stresses due to pressure are combined with thermal and casing stretch

stresses, in conjunction with safety factors, to derive the actual allowable working pressures. To be conservative the larger amounts of wear reported by Miles were used to compute the thickness remaining and the allowable pressures. Table II summarizes these thicknesses.

TABLE II - Casing Thicknesses Per Miles/DIALOG

Joint	Depth (Ft)	Minimum Thickness Remaining (in.)	%Thickness Remaining
16	674	0.207	52%
153	6487	0.239	61%

Hoop Stresses

Because Joint 16 has the worst wear, we use its remaining thickness in the following calculation. The hoop stress, σ_θ, is calculated as

$$\sigma_\theta = \frac{PD}{2t}, \qquad (1)$$

where P is pressure, D is inner diameter and t is the minimum thickness remaining, 0.207". Note that in Eq. (1), it was assumed that no transfer of load to adjoining, thicker sections of the casing occurred, but on the other hand, no account of potential stress concentrations was incorporated. The wear spots are believed to be groove-like, with the grooves running in the longitudinal, or drilling direction; but the abruptness of the thickness changes would not be expected to be severe, so that stress concentrations are also expected to be small. Confirmation should, of course, be sought with other caliper logs or the SANDIA televiewer log.

Longitudinal Stresses

Stresses in the longitudinal direction are due to initial casing tension, thermal stresses, and pressurization. The initial casing tension is believed to have been 100,000 lbs,* so that this stress was 9100 psi. Because the wear spots were groove-like, we did not reduce the net area effective for longitudinal stress as we did for the hoop stresses. The thermal stress is

$$\sigma = E\alpha\Delta T \qquad (2)$$

---

*Don Dreesen - Personal communication.

where E is elastic modulus, 30 x 10^6 psi, α is thermal expansion coefficient, 10^{-5} per °C, and ΔT is the temperature change, in °C, of the casing induced by water injection. The longitudinal pressure stress is one-half the hoop stress, but again with no reduction of thickness because the wear is believed to be longitudinal grooves.

Allowable Pressure

To compute the allowable pressure in the casing we use a biaxial yield criterion, to which we will apply a safety factor, so that the casing will be stressed only to 0.8 of the yield stress. Because the stresses are biaxial we use the von Mises yield criterion, which is equivalent to the maximum octahedral shearing stress theory. It is also known as the stress ellipse. Denoting the hoop, longitudinal, and allowable stresses as σ_θ, σ_L, and σ_A, respectively, the criterion is

$$\sigma_\theta^2 + \sigma_L^2 - \sigma_\theta \sigma_L = \sigma_A^2 \qquad (3)$$

As mentioned above, we take σ_A = 59,200 psi, 0.8 times the yield stress; σ_θ was evaluated per Eq. (10; and σ_L was taken as the sum of the initial casing stretch stress, 9,100 psi, half the hoop stress, and the thermal stress per Eq. (2). We evaluated Eq. (3) for a range of assumed casing temperature changes, solving for permissible values of σ_θ, and, from σ_θ, permissible values of the pressure P. It was found that P was insensitive to temperature; for temperature changes varying from 0 to 100°C, P varied only from 3,250 to 3,500 psi.

George Zyvolski, ESS-4, has supplied Fig. 1, which indicates how the casing temperature varies with time due to KOBE pumping at 34 gpm. After as much as three days the casing temperature declines from an initial value of 134°C to 70°C, a change of 64°C. Detailed calculations show that for this case the allowable pressure is 3400 psi. If we pump less than three days the allowable pressure could be slightly higher, but we take 3400 psi for this discussion.

Comparison with Maximum Principal Stress Theory. For those of you who distrust biaxial stress failure theories, we also computed the allowable pressure by allowing σ_θ to equal 0.8 times the yield stress, i.e., a uniaxial yield criteria; then we found that the allowable pressure was 2750 psi.

Final Adjustment for Water Column Weights. The previous computations were for the worn spot at 674 ft. There probably is no water behind the casing, so that if the casing is filled internally, a static pressure of 292 psi, equivalent to the pressure of 674 ft of water, is exerted. Subtracting this pressure from the allowable pressures derived above, the allowable wellhead pressure is about 3100 psi, using the biaxial failure criterion, and 2460 psi using the uniaxial criterion.

Turning now to the worn spot at 6487 ft, the static pressure due to the water column is 780 psi, assuming that the water table is at 1800 ft depth, as it was for the Phase I reservoir. The remaining casing thickness at 6487 ft is somewhat greater, so that according to the biaxial criterion the net wellhead pressure allowed is 3200 psi, and 2450 psi if the uniaxial criterion is used.

Conclusions

We should be able to safely pressurize the EE-2 casing to 2450 psi without exceeding, in hoop stress alone, 80% of the yield stress. If a biaxial yield criterion is used, we could go as high as 3100 psi. These computations are conservative in that we assumed no load re-distribution due to sharing of the load with adjacent, thicker parts of the casing, or local yielding. We did however, assume that the spatial variation of the thinning is gradual, not abrupt, so that stress concentrations are negligible. While one would not expect abrupt wear patterns due to drilling operations, it would be desirable to confirm the lack of stress concentration with the SANDIA televiewer or other caliper logs.

REFERENCES

1. S. P. Koczan, "Phase II Systems - Fenton Hill Activities for 24 Hour Period Ending Midnight April 22, 1980 - 385 Days Since Spud", G-2 memo, April 24, 1980.

2. Halliburton Cementing Tables, section 200, p. 12, Halliburton Services, Duncan, Oklahoma, 1969.

EE-2 34 GPM, 10C bar (145 psi) surface pressure

$\rho = \rho(P, T)$

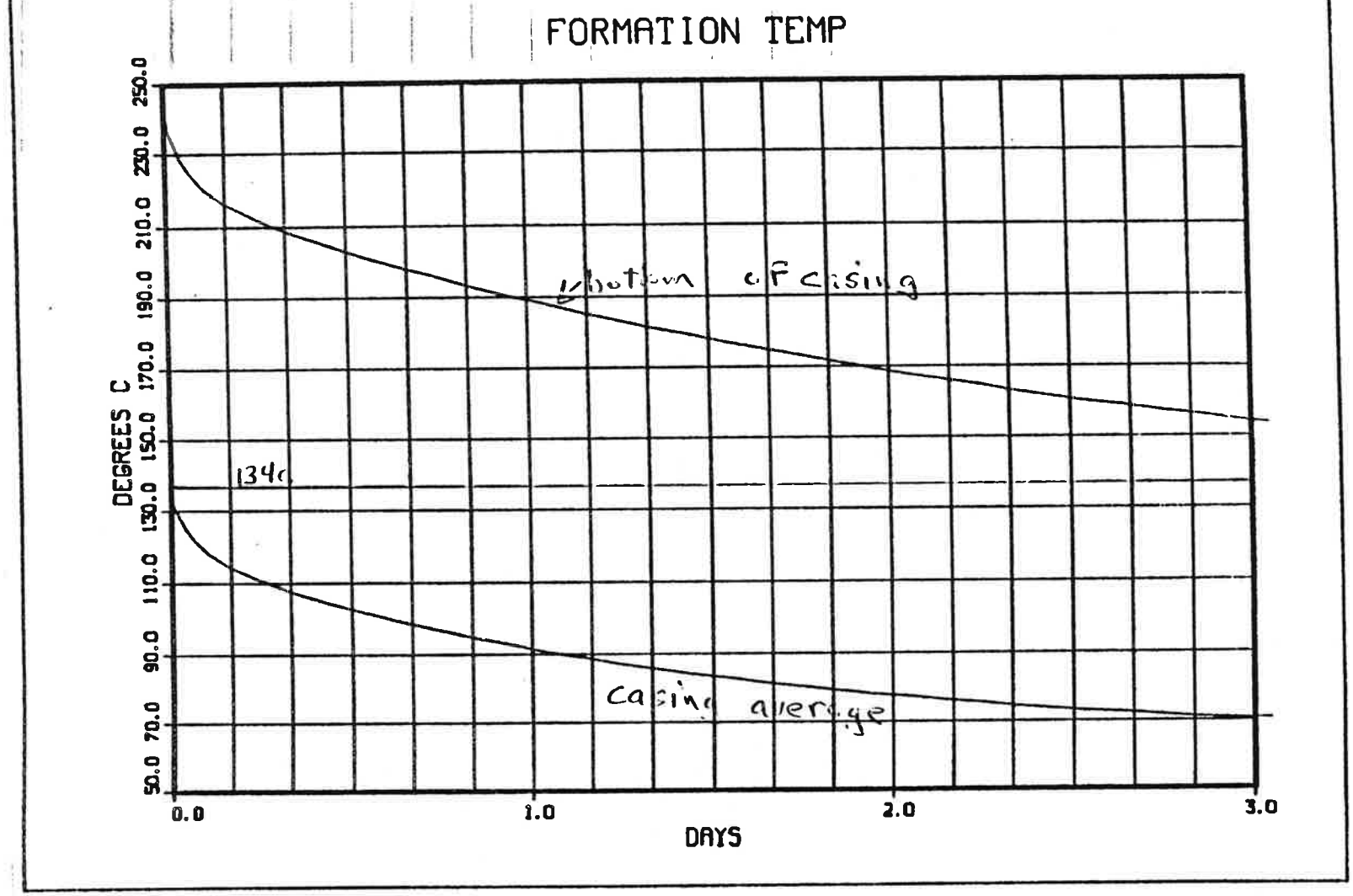
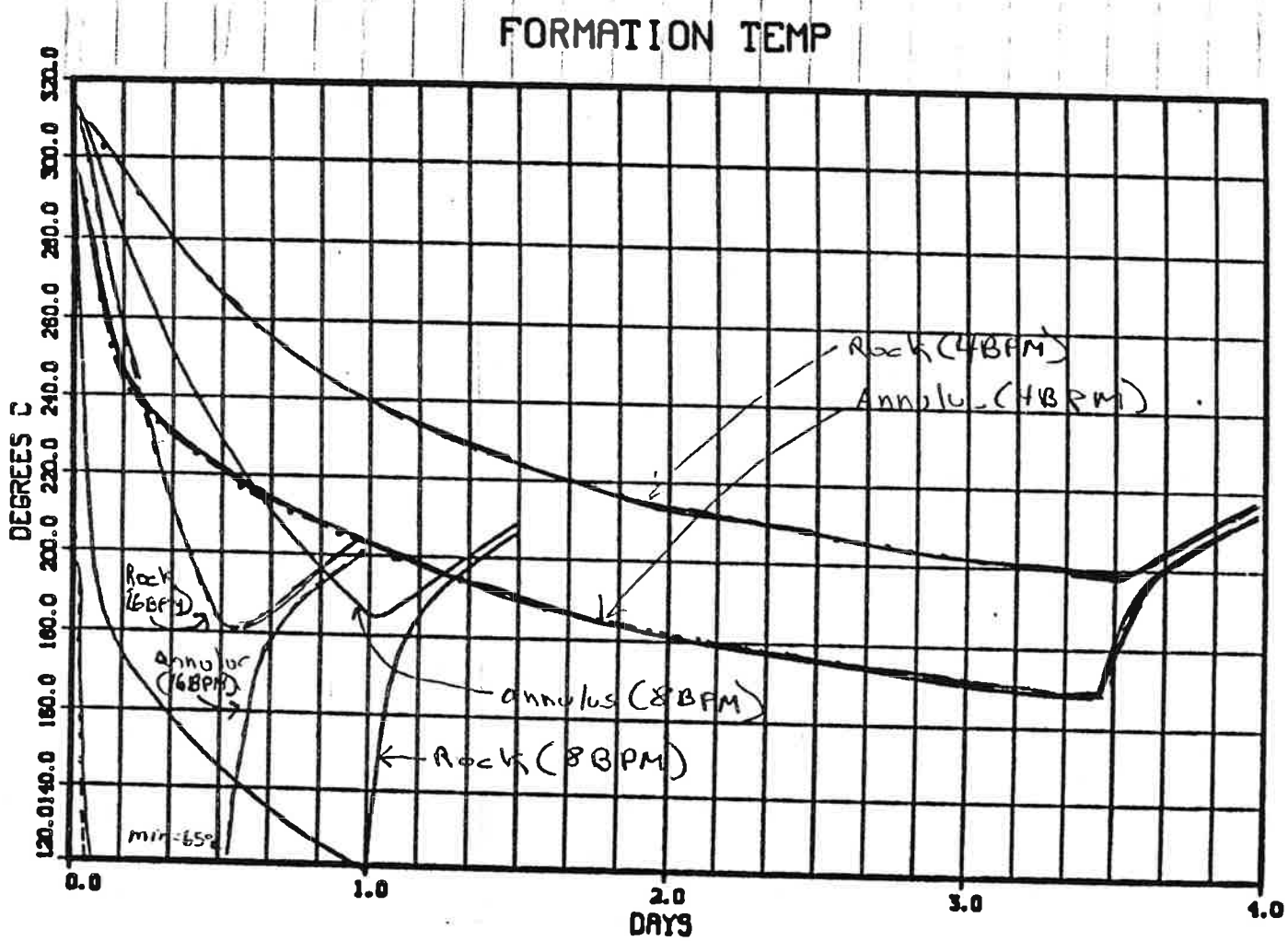


Figure 1, CASING TEMPERATURE CHANGES DUE TO KOBE PUMPING

for the cement experiment
tube wall ≤ 400°F, 204°C
rock temp ≤ 525°F

Cool down + Recovery curves for EE-2
4½ in drillpipe and annulus
4 BPM
8 BPM
16 BPM

the rock temperature is 4 inches from wellbore