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GL03870

Open-File Report # NM/Baca- 19a

#19a

TEMPERATURE AND PRESSURE SURVEYS

BACA WELL NO. 4

EXTRA

716

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B4568T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 13 3/8 AT 1441' ELEV. 9318' DATE: 10-11-76
 LINER DESCRIPTION: 9 5/8" AT 3182' ZERO POINT RK B
7" - SURFACE TO 3031 DEPTH. 2057'

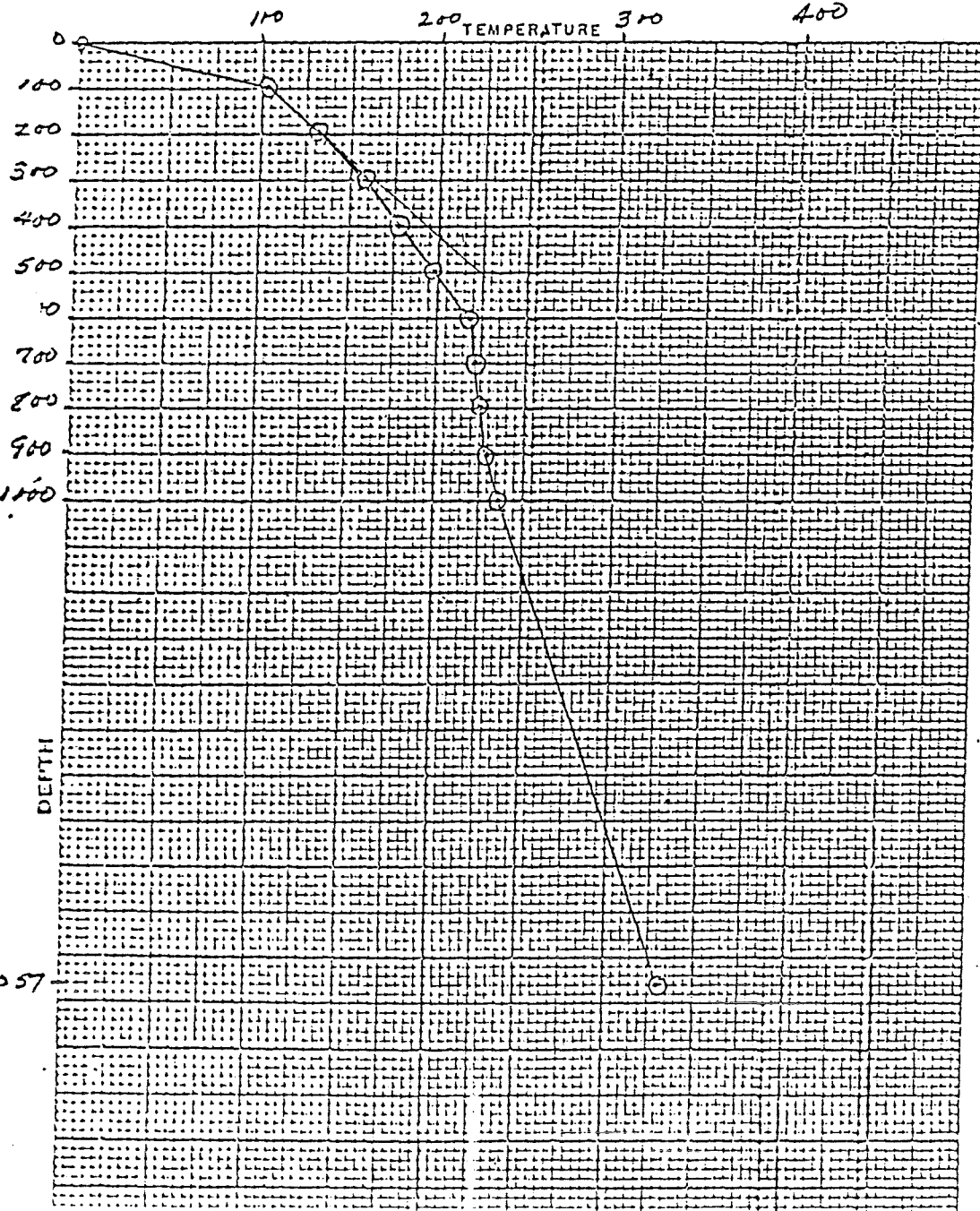
HOLE DESCRIPTION:

INSTRUMENT 100-792 FAN
 SERIAL NO 10098

PURPOSE

MAX TEMP. 331 °F @ 2057

REMARKS:



STABILIZATION PERIOD

DEPTH	TEMP.	DEPTH	TEMP.
0	0		
100	103		
200	132.7		
300	159.6		
400	176.3		
500	196.6		
600	217.3		
700	222.5		
800	226.5		
900	230.0		
1000	237.3		
2057	331.0		

JS

2057

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

8+4-S-68 T

OWNER UNION oil of cal. FIELD Valle Grande WELL NAME RACA #4

CASING 7" ELEV. 9318' DATE: 10-11-76

LINER DESCRIPTION: 13 3/8" AT 1441' ZERO POINT

4 5/8" AT 3182' DEPTH 2057

TUBING DETAIL: 7" SURFMCG TO 3031'

PURPOSE Find TOP OF CEMENT

REMARKS:

ELEMENT 100°E 792° SERIAL NO. 10098 CLOCK 12 hr 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS 1754 hc DISENGAGE STYLUS 2051 hc

WELL HEAD

PICKUP @ 2057' TIME ON BOTTOM 2025-2040 MAX. °F 331.0

WELL STATUS

SHUT IN: ON PRODUCTION:

RATE

TEMPERATURE

DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
					1829	0	0	0								
					1840	100	.008	103								
					1851	200	.078	133.7								
					1902	300	.145	159.6								
					1913	400	.188	176.3								
					1924	500	.240	196.6								
					1935	600	.293	217.3								
					1946	700	.307	222.5								
					1957	800	.318	226.5								
					2008	900	.328	230.0								
					2019	1000	.348	237.3								
					2040	2057	.603	331.0								

COMMENTS:

76

union

GEO THERMAL DIVISION DEL PYLE

SUBSURFACE SURVEY
Field Work Sheet

DEC 9 1976

B4-566-P/T

OWNER UNION OIL CO. CALIF FIELD VALLE GRANDE WELL NAME BPA#4
 CASING 13 3/8" @ 1441' ELEV. 9318' DATE: 9/26/76
 LINER DESCRIPTION: 9 5/8" @ 3152' ZERO POINT GLT 12'
 7" - 3031' - T.O. DEPTH 4100'

TUBING DETAIL:

PURPOSE

REMARKS:

P-O-4700 - 13012 12/12 15
 ELEMENT T-30-6449 SERIAL NO. 10052 CLOCK 12/12 15 TURN STABILIZATION PERIOD
 ENGAGE SYLUS P-1347 T-1345 DISENGAGE SYLUS P-1700 T-1701
 WELL HEAD 392
 PICKUP @ 4000 TIME ON BOTTOM 16:05-16:15 MAX. °F 514
 WELL STATUS SHUT IN.
 SHUT IN: ON PRODUCTION:
 RATE

7516

TEMP

TIME	DEPTH	DEFL.	P-T	GRAD.	DEFL.	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	10	460	395		0	1519	100	0.020	86								
	1100	459	397		-1004	1532	1000	0.514	240								
	2100	465	410		0	1546	2000	1.216	444								
	3100	470	533		0	1600	3000	1.364	484								
	4100	474	901		0	1615	4000	1.478	514								

COMMENTS:

76



GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B4 565 P/P

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACH #4
 CASING 13 5/8 AT 1441 ELEV. 9318 DATE: 7/8/76
 LINER DESCRIPTION: 9 5/8 AT 3182 ZERO POINT 6' + 7'
 3031 = 7" DEPTH 4000

TUBING DETAIL:

PURPOSE FANCLAM PSI RUNS

REMARKS:

ELEMENT P₁ - 0-4700 PSI SN 13012 CL 12 hr 15 T
 ELEMENT P₂ 0-2950 SERIAL NO. 9235 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P₁ 1023; P₂ 1022 DISENGAGE STYLUS P₁ 1247; P₂ 1248
 WELL HEAD 377 PSI
 PICKUP @ 4000 TIME ON BOTTOM 1155-1225 MAX. F 506
 WELL STATUS
 SHUT IN: ON PRODUCTION:
 RATE

P ₁ - 0-4700 PSI						P ₂ 0-2950 PSI					
TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
11	100	152	380		-0.007	1115	100	255	406		-012
112	1000	159	396		-0.004	1127	1000	265	419		007
1140	2000	161	401		-0.001	1140	2000	273	431		0
1152	3000	235	576		0	1152	5000	396	615		+001
1155	4000	374	905		0	1155	4000	616	943		+001
1225	4000	374	905		0	1225	4000	616	943		+001
	0-4700						0-2950				
CALIBRATION CHECK WITH DWT @ 75°F DEF: 1.013 PSIG: 34.77						CALIBRATION CHECK WITH DWT @ 75°F DEF: 1.690 PSIG: 25.25					

COMMENTS: TEMPERATURE FROM B4 564 WERE USED FOR COLLECTIONS

GEOHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B4 564 P/T

76

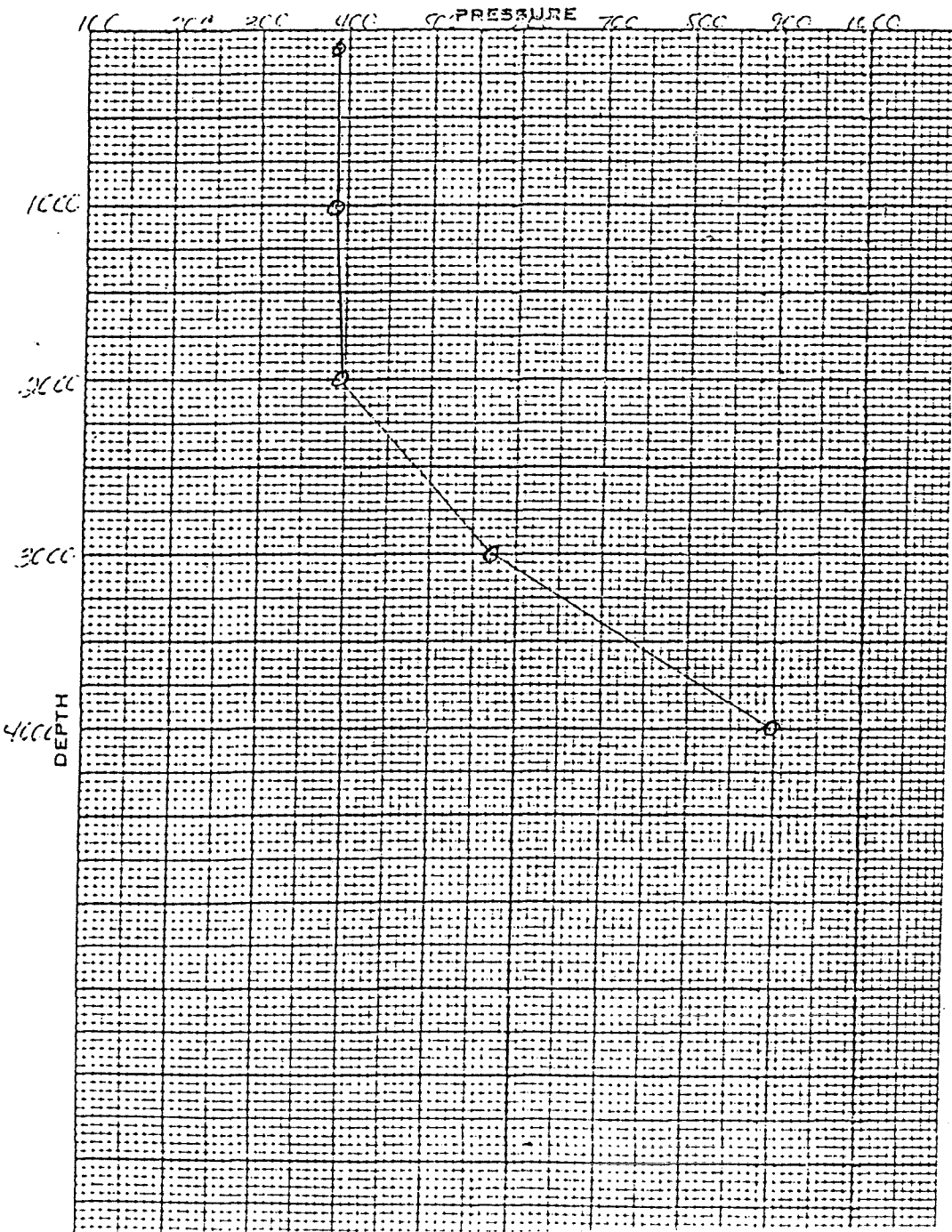
OWNER _____ FIELD VALLE GRANDE WELL NAME BACA #4
 CASING _____ ELEV 7318 DATE 7-2-76
 LINER DESCRIPTION: _____ ZERO POINT GL + 7'
 _____ DEPTH 4000'

HOLE DESCRIPTION: _____

 _____ INSTRUMENT _____ PSIC
 SERIAL NO 10052

PURPOSE _____ MAX TEMP 50.6 °F @ 4000
 REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
100	388	
1000	389	
2000	391	
3000	571	
4000	897	

76

UNION

DEPT

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

L4
84 565 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 1 3/8" AT 1441; 9 5/8" AT 3182 ELEV. 9318 DATE: 7/2/76
 LINER DESCRIPTION: 7" AT 3031' ZERO POINT CLT 7'
 DEPTH 4000'

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT 0-4700 PSI SN 13012 CL 12 HR 15 T
 ELEMENT 80-646 F SERIAL NO. 10052 CLOCK 12 HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P1035 ; T1036 DISENGAGE STYLUS P1500 ; T1500
 WELL HEAD 377
 PICKUP @ 4000 TIME ON BOTTOM 1113-1318 MAX. P 506
 WELL STATUS SHUT IN.
 SHUT IN: ON PRODUCTION:
 RATE

PSI					TEMP											
DEPTH	DEFL.	P-T	GRAD.	TO CIR	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
100	.154	388		-	100		.204	93								
1000	.156	389		-.004	1000		.531	245								
2000	.157	391		-.001	2000		1.205	441								
3000	.233	571		0	3000		1.348	480								
4000	.370	897		0	4000		1.446	506								

COMMENTS:

76

(UJ1211)
GEO THERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

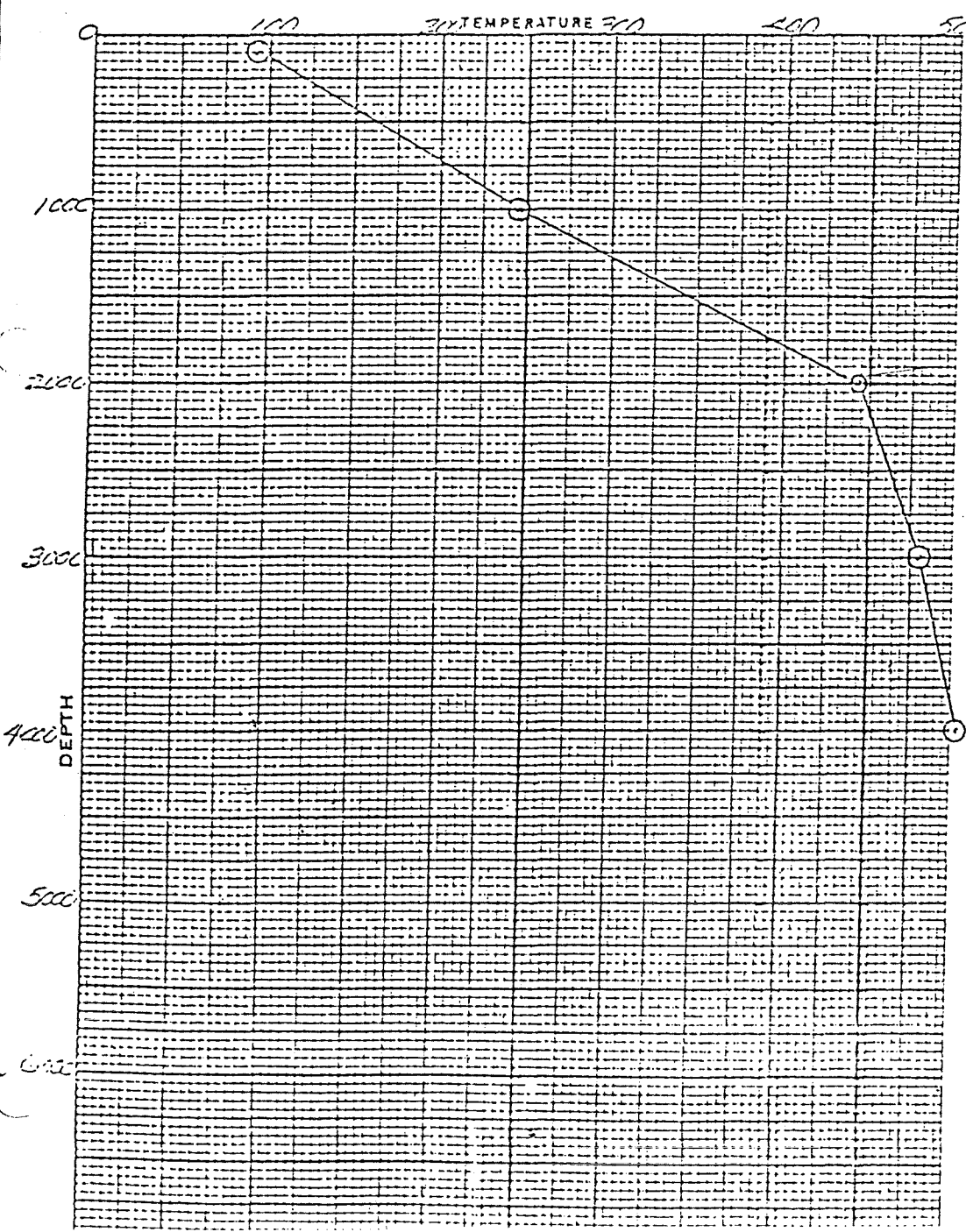
OWNER _____ FIELD Valle Grande WELL NAME BALPA #4
 CASING _____ ELEV 9312' DATE 6/29/76
 LINER DESCRIPTION _____ ZERO POINT GL + 7'
 _____ DEPTH 4000'

HOLE DESCRIPTION: _____

 _____ INSTRUMENT _____ FAH
 SERIAL NO 10052

PURPOSE _____ MAX TEMP 506 °F @ 4000'
 REMARKS _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOYS
CASING PSI		

DEPTH	TEMP.	DEPTH	TEMP.
100	93		
1000	295		
2000	442		
3000	480		
4000	506		

76

UNION

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

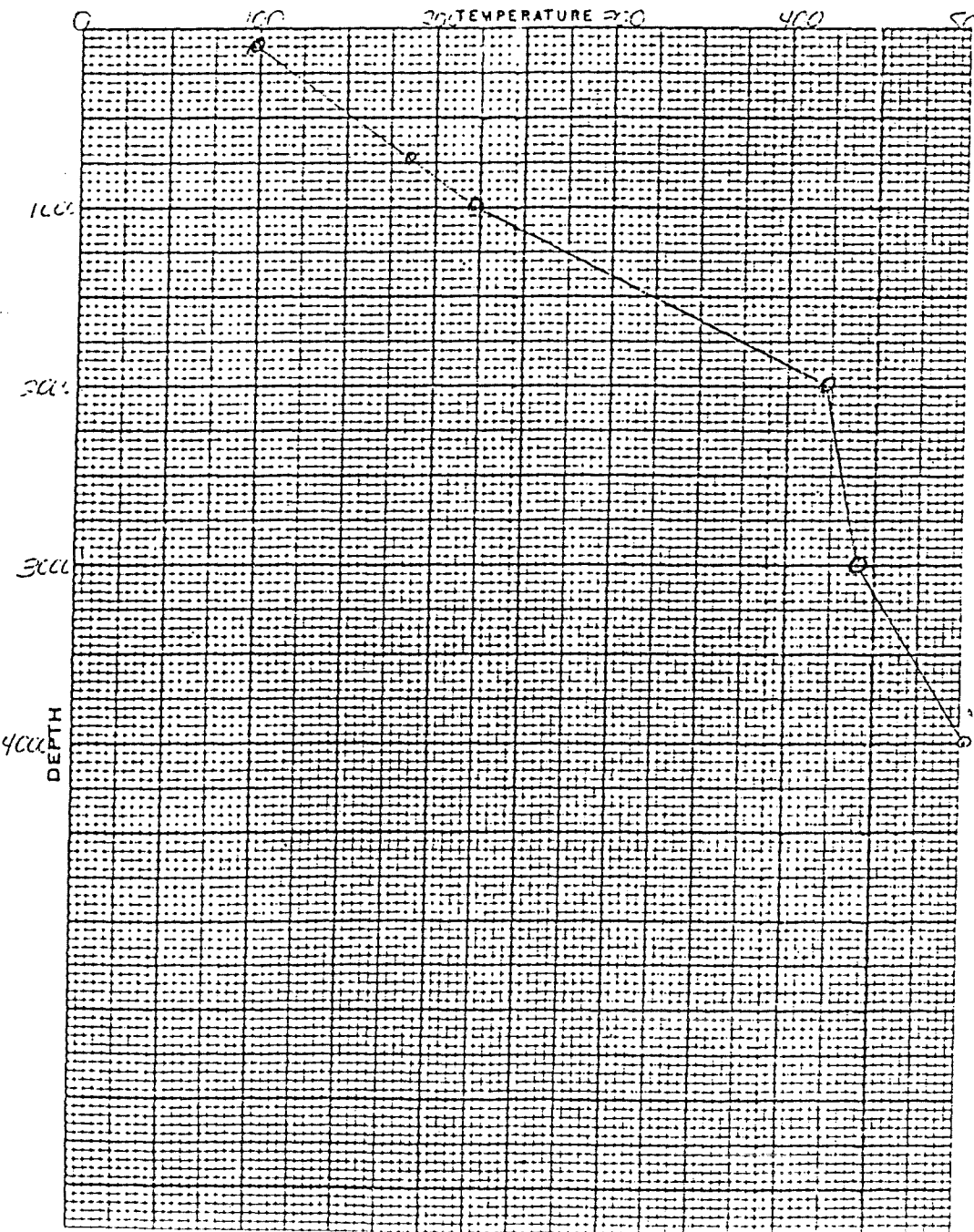
B4 564 P/T

OWNER _____ FIELD VALLE GRANDE WELL NAME PACA #4
 CASING _____ ELEV 9318' DATE 7-2-76
 LINER DESCRIPTION _____ ZERO POINT G.L. + 7'
 _____ DEPTH 4000'

HOLE DESCRIPTION: _____ INSTRUMENT _____ FAH
 _____ SERIAL NO 10052

PURPOSE _____ MAX TEMP 506 °F @ 4000'
 REMARKS _____

STABILIZATION PERIOD _____



PRESSURED.	GAUGE	BOMB	
CASING PSI			
DEPTH	TEMP.	DEPTH	TEMP.
100	93		
1000	245		
3000	441		
3000	480		
4000	506		

76

UNION
GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B4-563-DT

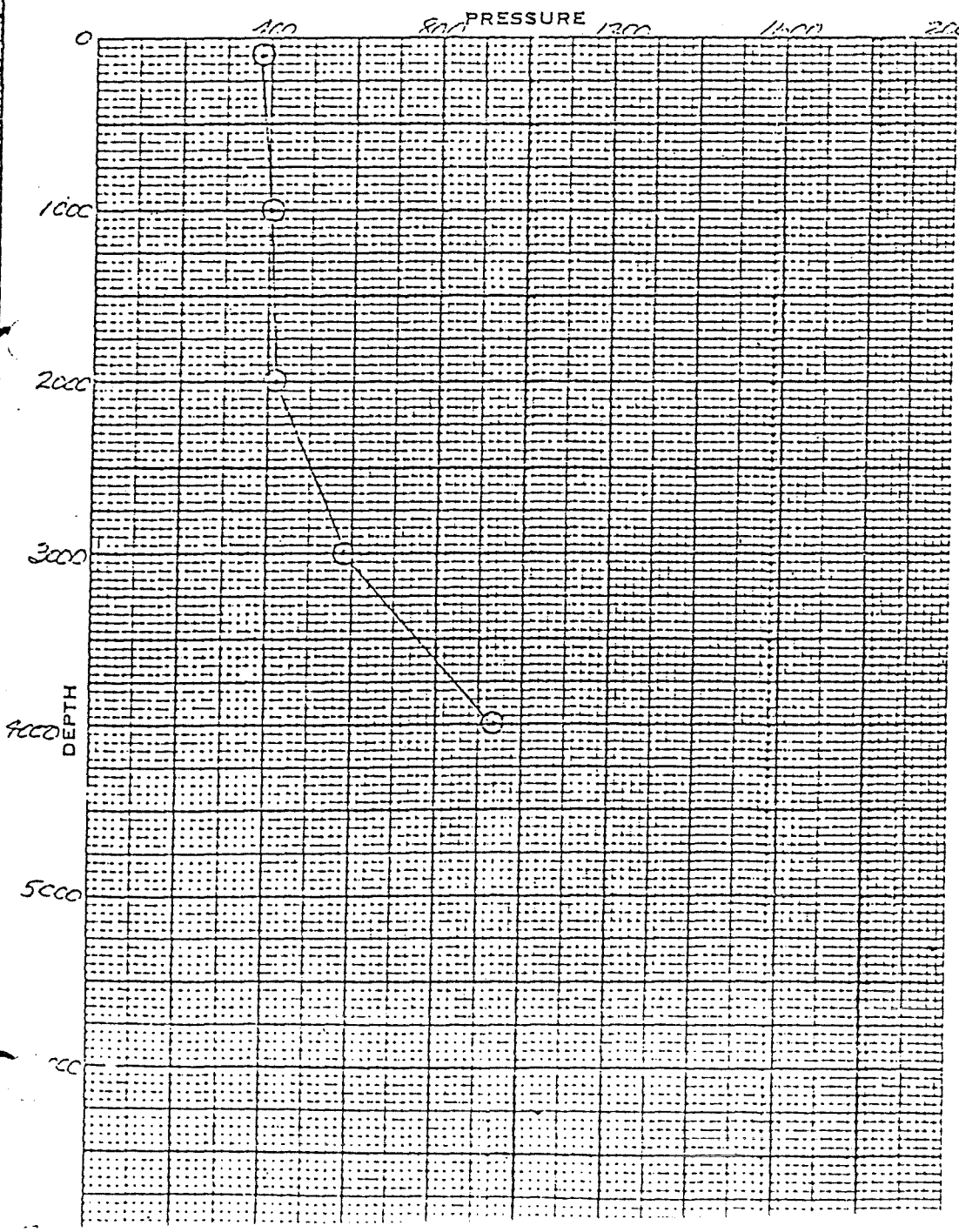
OWNER _____ FIELD Valle Grande WELL NAME BAPA #4
 CASING _____ ELEV 9318' DATE 6/27/76
 LINER DESCRIPTION: _____ ZERO POINT GL +7'
 _____ DEPTH 4000'

HOLE DESCRIPTION: _____

 INSTRUMENT _____ PSIG
 SERIAL NO 9235

PURPOSE _____ MAX TEMP 506 °F @ 4000'
 REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES.	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
100	383	
1000	406	
2000	418	
3000	579	
4000	928	

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UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

BH-563-P/T

OWNER UNION OIL CO CALIF FIELD VALLE GRANDE WELL NAME BACA 4
 CASING 1: 7 1/2" @ 1111'; 9 5/8" @ 2518' ELEV. 9318' DATE: 6/29/76
 LINEH DESCRIPTION: 7" @ 5031' ZERO POINT 61+7'
 DEPTH 4000'

TUBING DETAIL:

PURPOSE

REMARKS:

P-C-2950 9255 1211R 15
 ELEMENT T-80-6416 SERIAL NO. 10052 CLOCK 1211R 15TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1014 T-1016 DISENGAGE STYLUS P-1755 T-1756
 WELL HEAD 333 FBG
 PICKUP @ 4000' TIME ON BOTTOM 1155-1225 MAX. °F 566
 WELL STATUS SHUT IN
 SHUT IN: ON PRODUCTION:
 RATE

P.S.I.C

TEMP

T	DEPTH	DEFL.	P-T	GRAD.	A ₁ TO ₂	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
115	100	241	243		-012	1115	100	045	93								
1175	1000	259	400		-003	1128	1000	524	245								
1141	2000	261	418		0	1141	2000	1400	442								
1153	3000	285	579		+001	1153	3000	1545	486								
1225	4000	600	928		+002	1225	4000	1416	506								

COMMENTS:

76

UNION
GEO THERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

C-4-S&2-DT

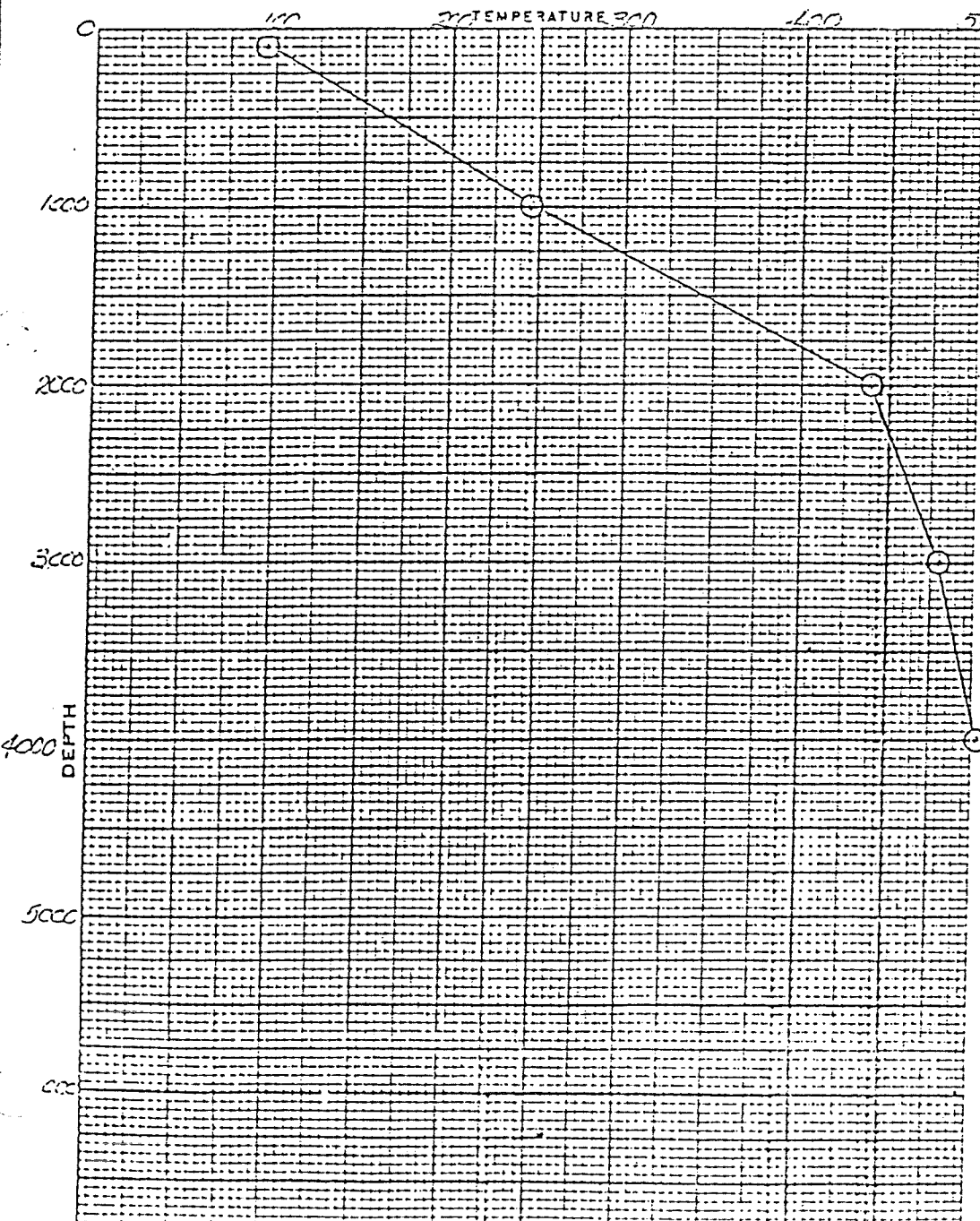
OWNER _____ FIELD La Vie Grande WELL NAME 3000 #4
 CASING _____ ELEV 9312' DATE 6/22/76
 LINER DESCRIPTION _____ ZERO POINT GL +7'
 _____ DEPTH 4000'

HOLE DESCRIPTION: _____

 _____ INSTRUMENT _____ FAN _____
 SERIAL NO 10052

PURPOSE _____ MAX TEMP 506 °F @ 4000'
 REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOWJ
CASING PSI		

DEPTH	TEMP.	DEPTH	TEM
100	95		
1000	244		
2000	441		
3000	480		
4000	506		

76

UNION

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

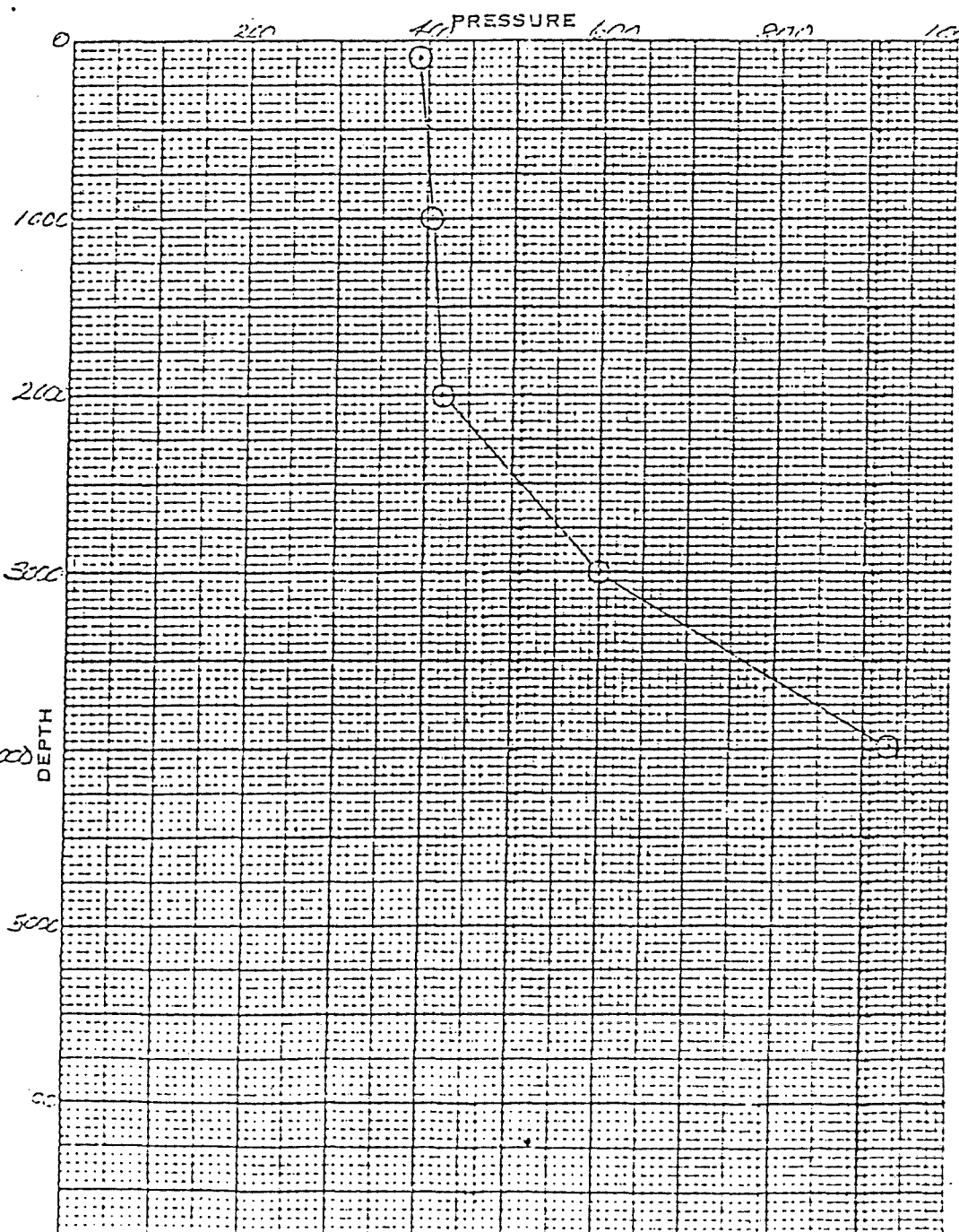
B4-S62-PT

OWNER _____ FIELD Valle Grande WELL NAME BACA #4
 CASING _____ ELEV 9318' DATE 6/22/76
 LINER DESCRIPTION: _____ ZERO POINT GL + 7'
 _____ DEPTH 4000'

HOLE DESCRIPTION: _____ INSTRUMENT _____ PSIG
 _____ SERIAL NO 9235

PURPOSE _____ MAX TEMP 506 °F @ 4000'

REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES.	GAUGE	BONS
CASING. PSI		

DEPTH	PRESSURE	GRADIENT
100	391	
1000	406	
2000	421	
3000	599	
4000	928	

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B4 562 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE

WELL NAME BACA #4

CASING 1 3/8" AT 1441' 9 5/8" AT 3182' ELEV. 9318'

DATE: 6/22/76

LINER DESCRIPTION: 7" AT 3031'

ZERO POINT CL + 7'

DEPTH 4000'

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT: 0-2950 PSI SN 9235 CL-12 1/2. 15 TURN

ELEMENT 50°-64° F SERIAL NO. 10052 CLOCK 12 1/2 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P 1250 T 1450 DISENGAGE STYLUS P 1251 T 145

WELL HEAD 378 PSI

PICKUP @ 4050 TIME ON BOTTOM 1407-1422 MAX. °F 506

WELL STATUS

SHUT IN: ON PRODUCTION:

RATE

PRESSURE

TEMPERATURE

PRESSURE					TEMPERATURE											
DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
100	.246	391		-012	1328	100	.048	95								
340	.256	406		-008	1340	1000	.525	244								
552	.266	421		0	1352	2000	1.205	441								
1000	.335	599		+001	1404	3000	1.348	480								
22	.106	928		+002	1422	4000	1.446	506								

COMMENTS:

76

UNION

GEO THERMAL DIVISION

DEL PYLE
JUN 7 1976

SUBSURFACE SURVEY
Field Work Sheet

BH-SC1-P/T

OWNER UNION OIL CO CALIF FIELD WALLE GRANDE WELL NAME BH-11
 CASING 7" @ 1111' 93/32" 515' ELEV. 9315' DATE: 5/20/76
 LINER DESCRIPTION: 7" @ 5031' - T.L. ZERO POINT 61+7'
 DEPTH 1160'

TUBING DETAIL:

PURPOSE

REMARKS:

T-11112510-7195 12/1R 15
 ELEMENT T-11112510 SERIAL NO. 16057 CLOCK 12/1R 15 TURN 15 STABILIZATION PERIOD
 ENGAGE STYLUS P-121 T-1025 DISENGAGE STYLUS P-1205-T-1205
 WELL HEAD 371
 PICKUP @ 1160 TIME ON BOTTOM 1157-1227 MAX. 'F 506
 WELL STATUS 3317 111
 SHUT IN: ON PRODUCTION:
 RATE

TEMP

TIME	DEPTH	DEFL.	P-T	GRAD.	TD	TIME	DEPTH	DEFL.	P-T	GRAD.	TD	TIME	DEPTH	DEFL.	P-T	GRAD.	TD
1157	1160	1177	378	-1.11	1157	1160	1177	378	93								
1159	1160	1177	401	-1.01	1159	1160	1177	401	245								
1159	1160	1177	401	-1.01	1159	1160	1177	401	442								
1154	1160	1177	585	-1.04	1154	1160	1177	585	480								
1227	1160	1177	923	0	1227	1160	1177	923	506								

COMMENTS:

56

GEO THERMAL DIVISION

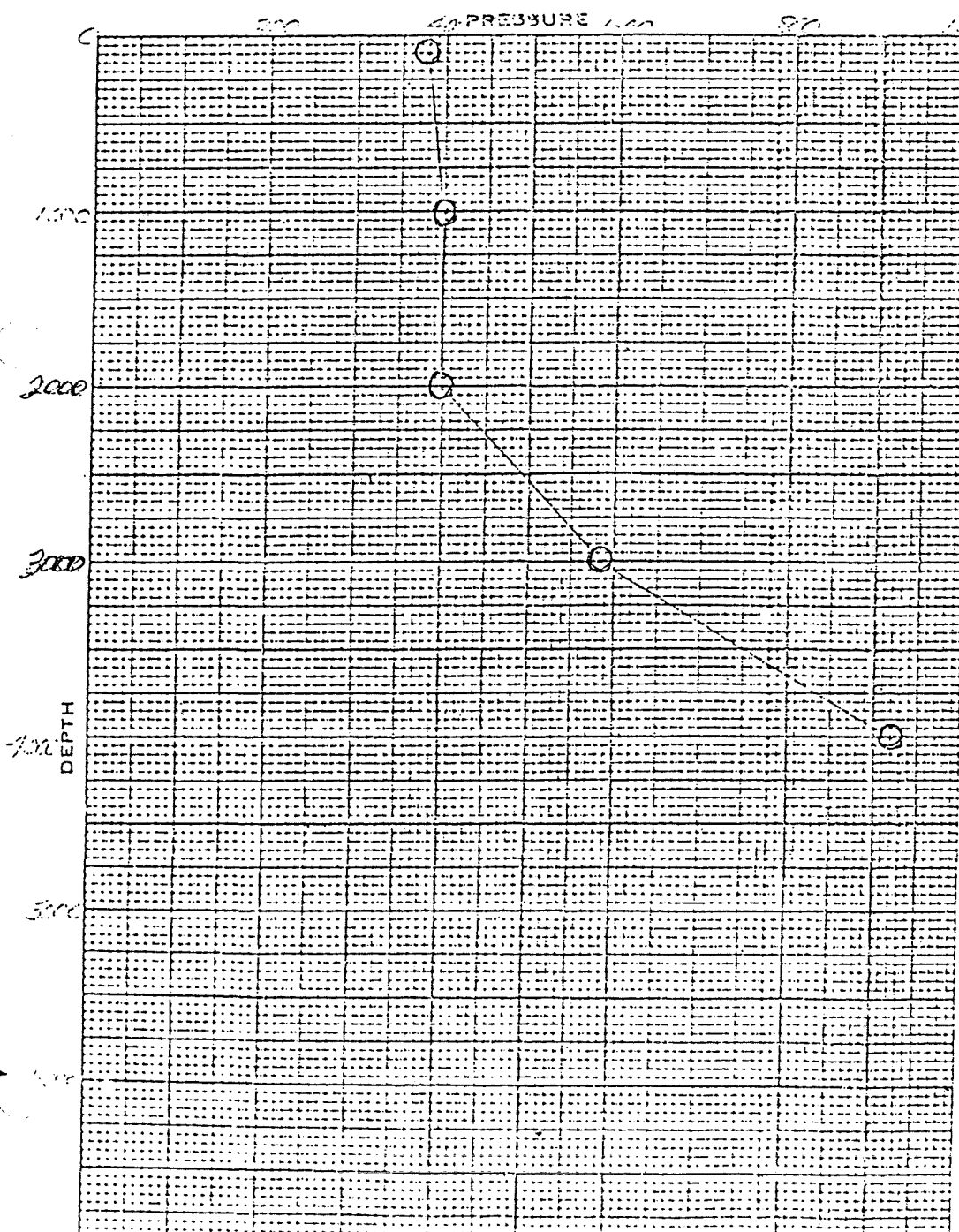
SUBSURFACE PRESSURE SURVEY

B4-3-1-PT

OWNER _____ FIELD Call-Goodie WELL NAME PCO #4
 CASING _____ ELEV 9421 DATE 5/12/76
 LINER DESCRIPTION _____ ZERO POINT GL 371
 _____ DEPTH 4000

HOLE DESCRIPTION: _____ INSTRUMENT _____
 _____ SERIAL NO 7198

PURPOSE _____ MAX TEMP 506 F @ 4000'
 REMARKS: _____



STABILIZATION PERIOD		
PRESSURE	GAUGE	DEPTH
CASING PSI		

DEPTH	PRESSURE	GRADIENT
100	378	
1000	401	
3000	401	
3000	585	
4000	923	

76

UNION
GEOHERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

34-511-PT

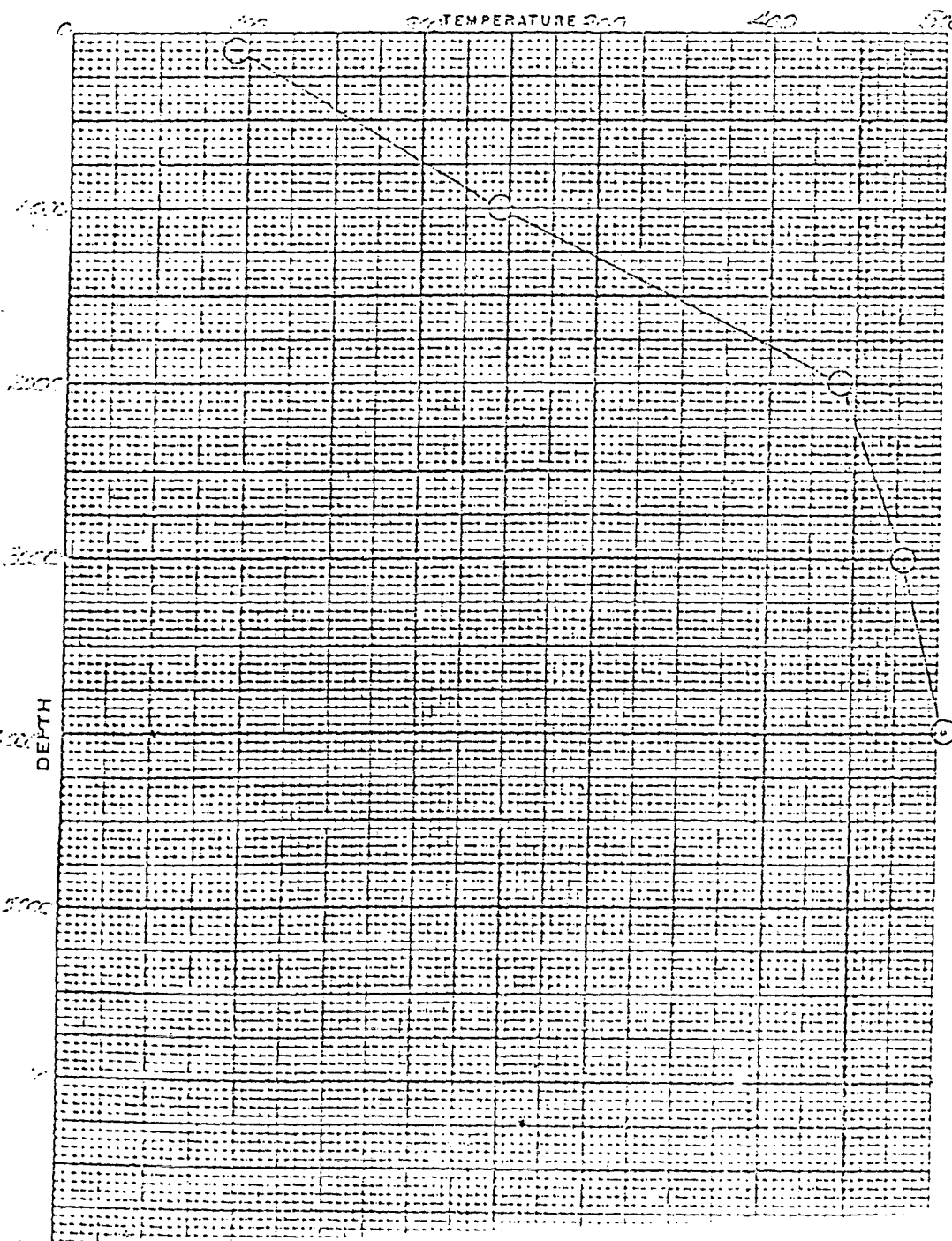
OWNER _____ FIELD W. H. Woods WELL NAME D-20 #1
CASING _____ ELEV 9315' DATE 5/29/76
LINER DESCRIPTION _____ ZERO POINT 51 2 2'
DEPTH 4000'

HOLE DESCRIPTION: _____
INSTRUMENT _____
SERIAL NO 100512

PURPOSE _____ MAX TEMP 506 @ 4000'

REMARKS: _____

STABILIZATION PERIOD _____



PRESSURE	GAUGE	DEPTH

DEPTH	TEMP.	DEPTH	TEMP.
100	93		
1000	245		
2000	442		
3000	480		
4000	506		

76

UNION

GEOTHERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

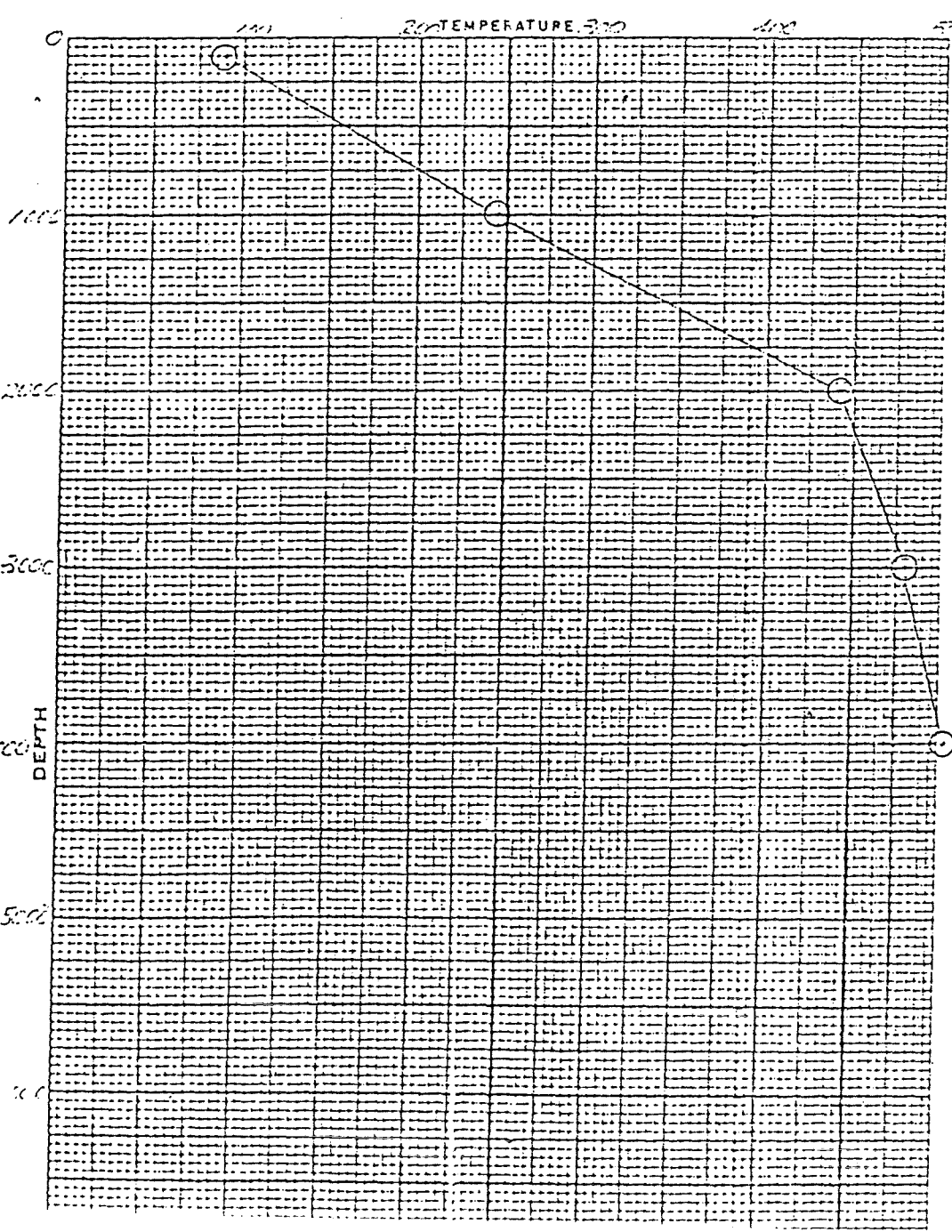
B4-S10-PT

OWNER _____ FIELD North Georgia WELL NAME B4-S10 #2
 CASING _____ ELEV 9518' DATE 5/27/76
 LINER DESCRIPTION _____ ZERO POINT GL 17'
 _____ DEPTH _____

HOLE DESCRIPTION: _____

 INSTRUMENT SD-646 ° FAH
 SERIAL NO 10252

PURPOSE _____ MAX TEMP 506 °F @ 4000
 REMARKS _____



STABILIZATION PERIOD

PRESSURES	GAUGE	BOYS
CASING PSI		

DEPTH	TEMP.	DEPTH	TEMP.
100	90.4		
1000	244.7		
2000	441.9		
3000	480.2		
4000	506.0		

76

UNION

GEO THERMAL DIVISION DEEP WYLL

SUBSURFACE SURVEY

MAY 23 1976

Field Work Sheet

B4560 PIT

OWNER LINCOLN OIL COMPANY FIELD VALLE GRANDE WELL NAME BICA #4
 CASING 15 3/8 AT 1441 95/8 3152 ELEV. 9318 DATE: 5/17/76
 LINER DESCRIPTION: 7" AT 3031 ZERO POINT CL + 7
 DEPTH 6340 OR 6331

TUBING DETAIL:

PURPOSE

REMARKS:

Element - 0-4000 Prg SIV-7198 Clock 12 hr 15 Turn
 ELEMENT 90° - 646° E SERIAL NO. 10352 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0921 ; T-0937 DISENGAGE STYLUS P-1212 ; T-1212
 WELL HEAD -374 Prg
 PICKUP @ 4000' TIME ON BOTTOM 1105 - 1140 MAX. 'F 506.0°F
 WELL STATUS Shut in
 SHUT IN: ON PRODUCTION:
 RATE

Pressure

Temp

TIME	DEPTH	DEFL.	P-O	GRAD.	Temp	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
7-1	100	.116	373.2		-0.11	1027	100	.033	90.4								
9-1	1000	.177	406.5		-0.06	1039	1000	.509	344.7								
1-103	2000	.177	400.2		-0.04	1051	2000	1.207	411.9								
3-1103	3000	.26	535.1		-0.04	1103	3000	1.349	480.2								
5-1140	4000	.420	923		-0-	1140	4000	1.446	506.0								

COMMENTS:

76

GEO THERMAL DIVISION

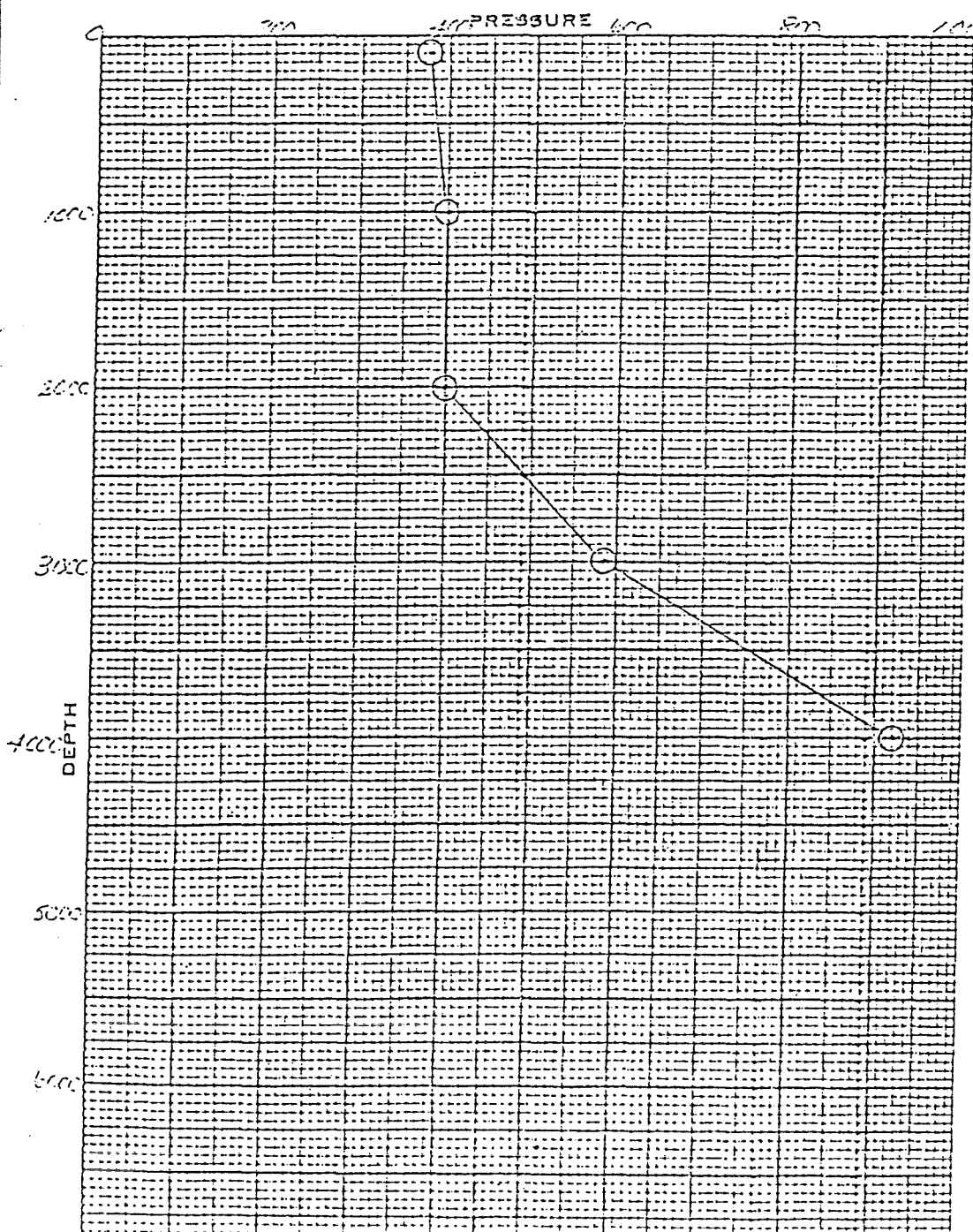
SUBSURFACE PRESSURE SURVEY

B4-560-PT

OWNER _____ FIELD Halls Gorge WELL NAME BACN #1
 CASING _____ ELEV 931.8' DATE 5/27/02
 LITER DESCRIPTION: _____ ZERO POINT SEA LEVEL
 _____ DEPTH _____

HOLE DESCRIPTION: _____ INSTRUMENT 0-4000 PSI
 _____ SERIAL NO 7128

PURPOSE _____ MAX TEMP 506 F @ 4000 -
 REMARKS: _____



STABILIZATION PERIOD

PRESSURES	GAUGE	BOMB
CASING PSI		

DEPTH	PRESSURE	GRADIENT
100	378.2	
1000	400.8	
2000	400.8	
3000	585.1	
4000	923	

76

UNION

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B4-359-PT

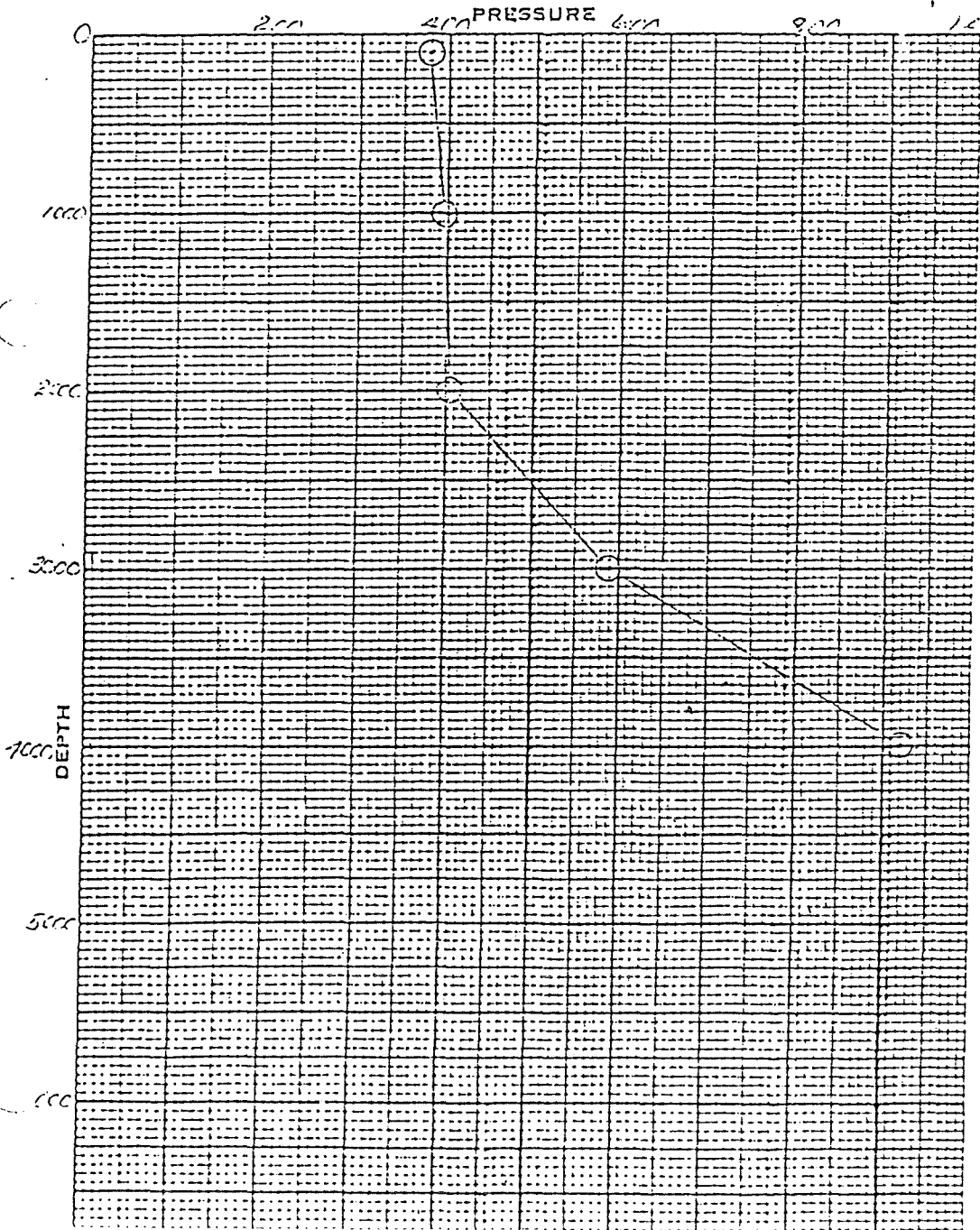
OWNER _____ FIELD W. W. Gandy WELL NAME 2101 F-1
 CASING _____ ELEV 0312' DATE 5/1/52
 LINER DESCRIPTION: _____ ZERO POINT 12.4'
 _____ DEPTH _____

HOLE DESCRIPTION: _____ INSTRUMENT _____ PSIG
 _____ SERIAL NO _____

PURPOSE _____ MAX TEMP 573.2°F @ 4000'

REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
100	380	
1000	398	
2000	405	
3000	591	
4000	919	

76

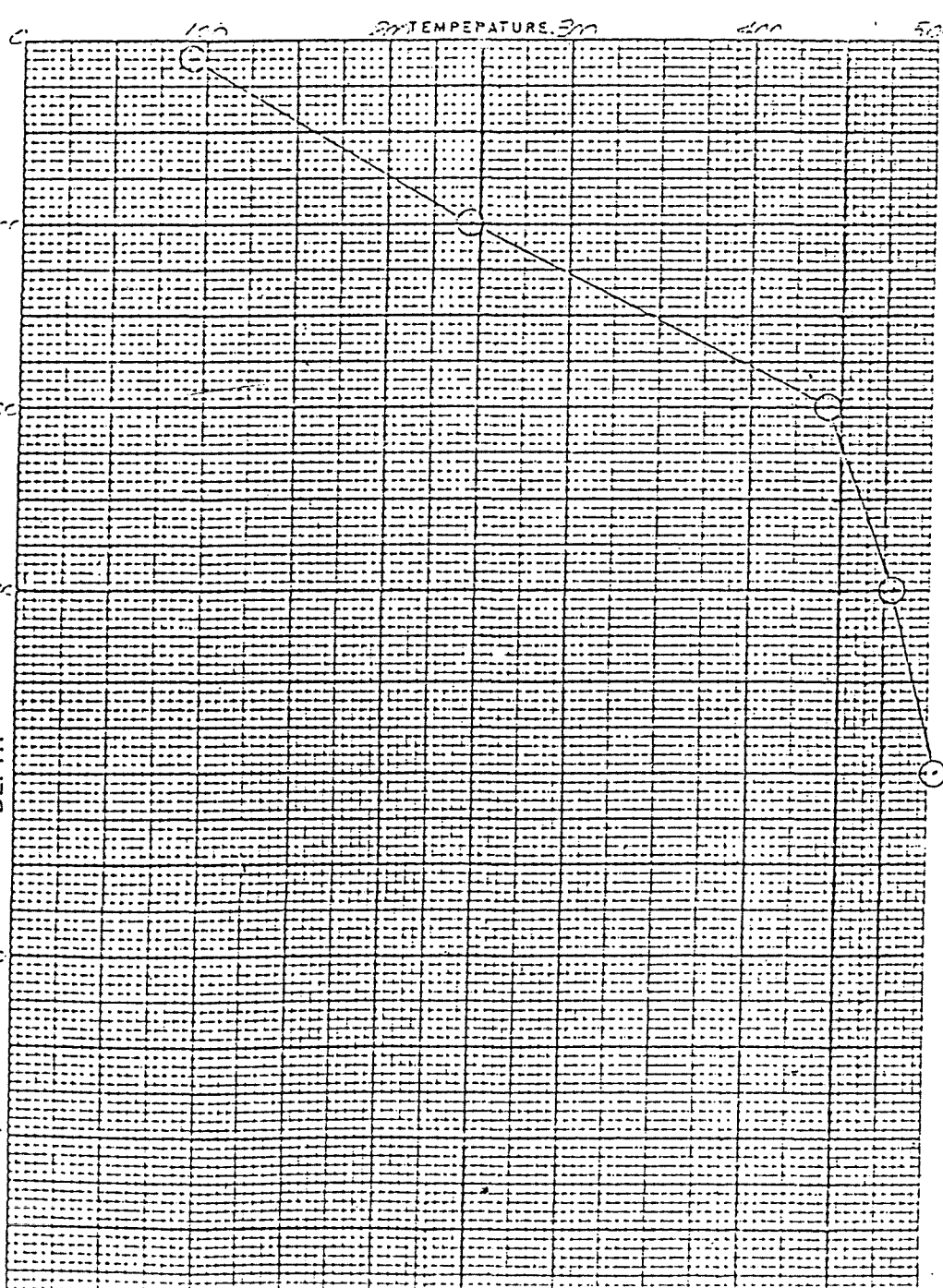
UNION
 GEOTHERMAL DIVISION
 SUBSURFACE TEMPERATURE SURVEY

34-557-05

OWNER _____ FIELD White Granite WELL NAME BPC7-4
 CASING _____ ELEV 9219' DATE 5/1/76
 LINER DESCRIPTION _____ ZERO POINT GL
 _____ DEPTH _____

HOLE DESCRIPTION: _____ INSTRUMENT _____
 _____ SERIAL NO _____

PURPOSE _____ MAX TEMP 506.2°F @ 4000'
 REMARKS _____



STABILIZATION PERIOD			
PRESSURE	GAUGE	BOXES	
CASING PSI			
DEPTH	TEMP.	DEPTH	TEMP.
100	92.4		
1000	245.6		
2000	443		
3000	480.8		
4000	506.2		

76

UNION

GEO THERMAL DIVISION DEL PYLE

SUBSURFACE SURVEY

MAY 23 1976

Field Work Sheet

54-559-PT

OWNER: UNION OIL CO. CHLIF FIELD: VALLE GRANDE WELL NAME: 54-559-PT
 CASING: 13 3/4" @ 1441' 9 3/4" @ 3152' ELEV.: 9318 DATE: 5/11/76
 LINER DESCRIPTION: 7" @ 3031' ZERO POINT: 61.47'

TUBING DETAIL:

PURPOSE: _____

REMARKS: _____

ELEMENT: T-80-646 SERIAL NO. 10052 CLOCK _____ TURN _____ STABILIZATION PERIOD _____

ENGAGE STYLUS: P-1100 T 1105 DISENGAGE STYLUS: P-1422-T1422

WELL HEAD: 374

PICKUP @ 1100 TIME ON BOTTOM: 1246-1331 MAX. °F _____

WELL STATUS: SAUT 1H

SHUT IN: _____ ON PRODUCTION: _____

RATE: _____

P510 TEMP

TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	100	168	580		-011	1200	100	1038	92.7								
13:10	1200	170	598		-016	1220	1200	1532	248.6								
2:32	2000	171	465		-004	1232	2000	1211	447								
12:44	3000	264	591		-3	1244	3000	1557	480.8								
3:31	4000	418	919		-	1331	4000	1447	566.2								

COMMENTS:

WJLJL

GEOHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

84-5553-PT

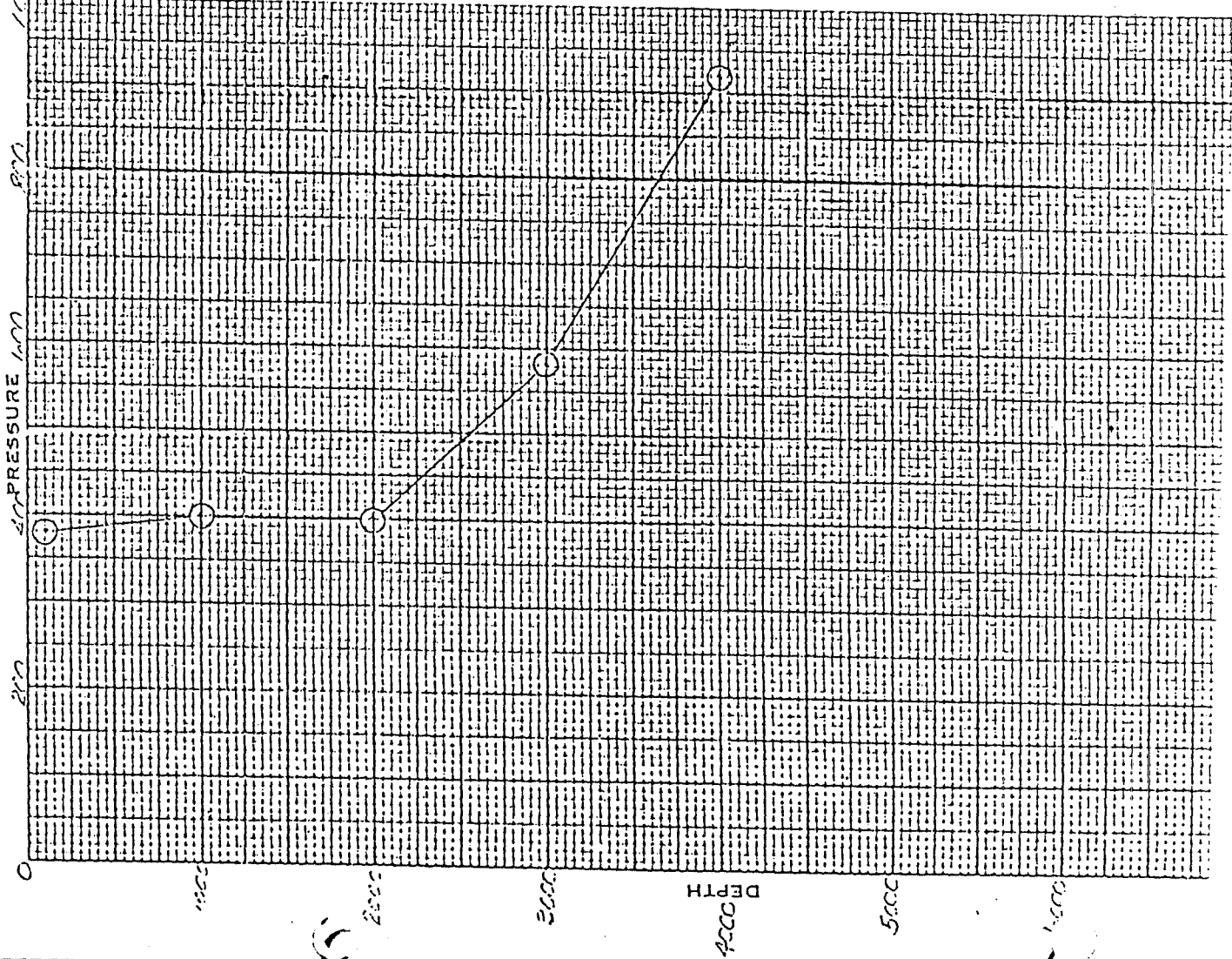
76

OWNER _____ FIELD Little Grande WELL NAME LPWA #4
 CASING _____ ELEV 4318' DATE 5/31/76
 LINER DESCRIPTION: _____ ZERO POINT GL 7.1'
 DEPTH _____

HOLE DESCRIPTION: _____ INSTRUMENT 0-1000
 SERIAL NO 7192

PURPOSE _____ MAX TEMP 50.5 °F @ 4000

REMARKS: _____ STABILIZATION PERIOD _____



PRESSURES, CASING, PSI	GAUGE	BOU
100	280	
1000	399	
2000	399	
3000	583	
4000	919	

BY: _____

76

GEOTHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

84-558-PT

OWNER _____ FIELD Little Grande WELL NAME ERRA #4
 CASING _____ ELEV 431.8' DATE 5/3/76
 LINER DESCRIPTION: _____ ZERO POINT GL + 7'
 _____ DEPTH _____

HOLE DESCRIPTION: _____

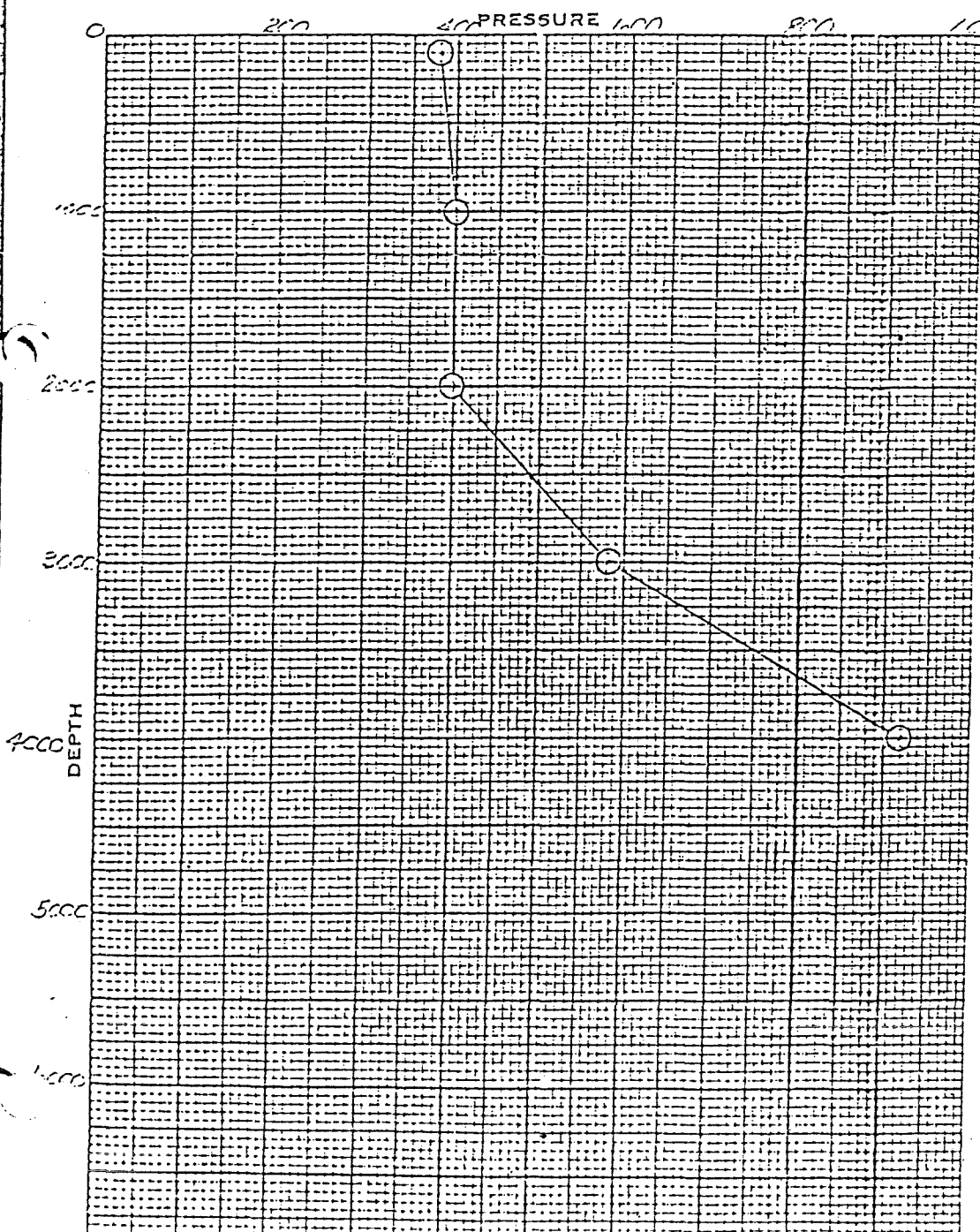
 INSTRUMENT 0-4000 PSI
 SERIAL NO 7193

PURPOSE _____ MAX TEMP 505 °F @ 4000'
 REMARKS: _____

STABILIZATION PERIOD

PRESSURE	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
100	380	
1000	399	
2000	399	
3000	583	
4000	919	



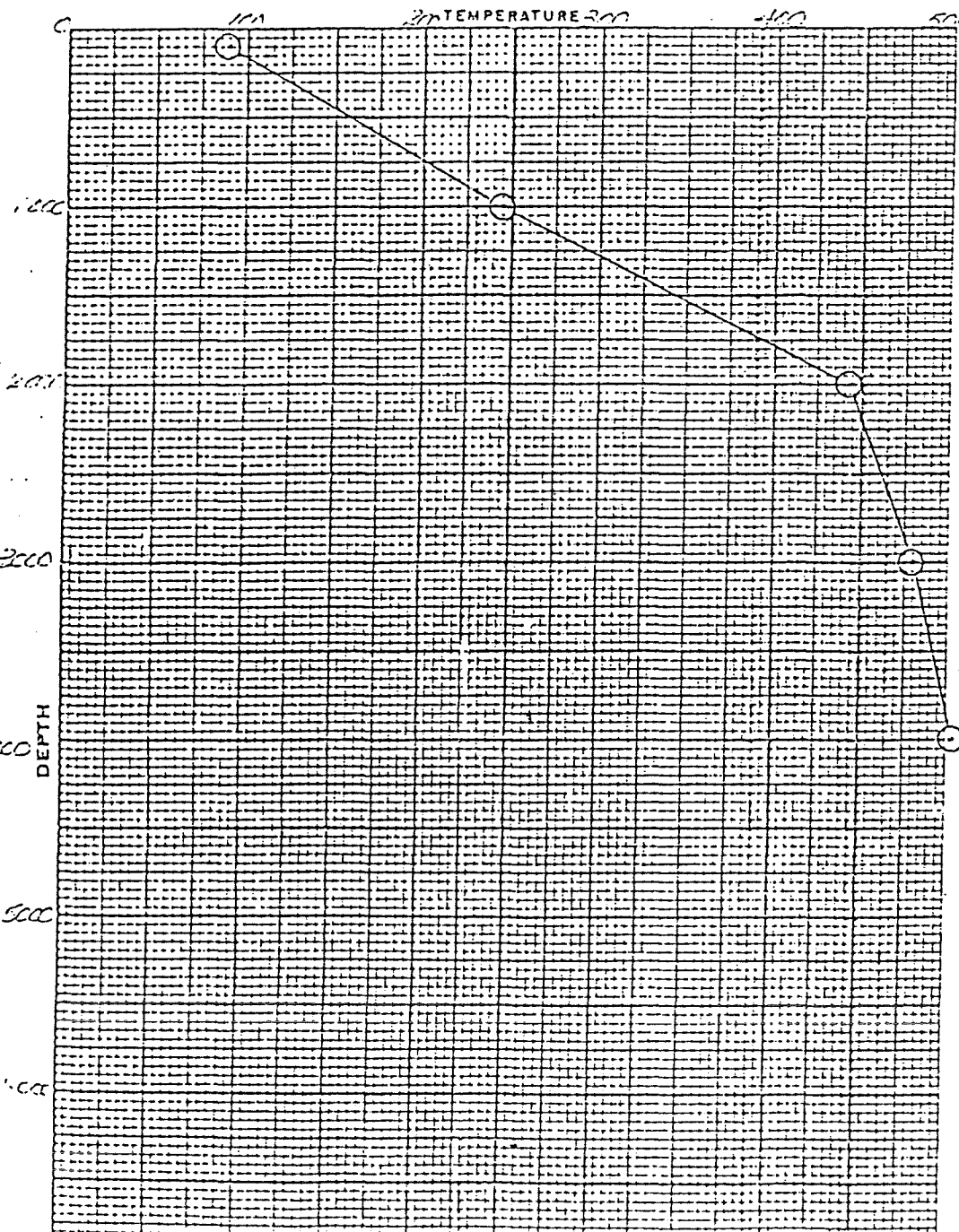
76

GEOTHERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

B4-558-DT

OWNER _____ FIELD White Granite WELL NAME B-21 #1
 CASING _____ ELEV 0318' DATE 5/31/76
 LINER DESCRIPTION: _____ ZERO POINT GL ± 7'
 _____ DEPTH _____
 HOLE DESCRIPTION: _____
 _____ INSTRUMENT SD-646 FAN
 _____ SERIAL NO 10052
 PURPOSE _____ MAX TEMP 505 °F @ 4000'
 REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOYS
CASING PSI		

DEPTH	TEMP.	DEPTH	TEMP.
100	89		
1000	246		
2000	442		
3000	481		
4000	505		

76

UNION

DEL RYLE

GEO THERMAL DIVISION

MAY 13 1976

SUBSURFACE SURVEY

Field Work Sheet

B4-558-P/T

OWNER UNION OIL CO, CALLE FIELD VALLE GRANDE WELL NAME B-11
 CASING 13 7/8" @ 1441'; 9 5/8" @ 3182' ELEV. 9318' DATE: 5/3/76
 LINER DESCRIPTION: 7" @ 3031' ZERO POINT 64+7'
 DEPTH

TUBING DETAIL:

PURPOSE
 REMARKS:

P-0-1160 PSIG 7195
 ELEMENT T-80 - 6.116°E SERIAL NO. 10052 CLOCK TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0932 T 0925 DISENGAGE STYLUS P-1206 T 1205
 WELL HEAD 375
 PICKUP @ 4100' TIME ON BOTTOM 1110-1215 MAX. 'F 525
 WELL STATUS SHUT IN
 SHUT IN: ON PRODUCTION:
 RATE

PSIG					TEMP												
TIME	DEPTH	DEFL.	P-T	GRAD.	CORR	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	100	.119	390		-.011	1032	100	.028	89								
	122	.176	399		-.066	1044	1000	.534	246								
	150	.176	399		-.064	1056	2000	1.209	442								
	115	.260	583		-.003	1109	3000	1.350	431								
	110	.418	919		-	1110	4100	1.444	505								
	115	.418	919		-	1215	4000	1.444	505								

COMMENTS:

PRUETT WIRELINE SERVICE

2800 De Ette Ave., Bakersfield, Ca. 93309

(05) 832-2230

SUB-SURFACE
TEMPERATURE SURVEY

Sea Oil Co.
Sawley, California

WELL NAME

KABEL
CROZER #1

K-1-Si-T

DATE 5/3 2 4000 3:14 DATE 4/6/76

WELL IDENTIFICATION 3288-5759 ZONE POINT 16

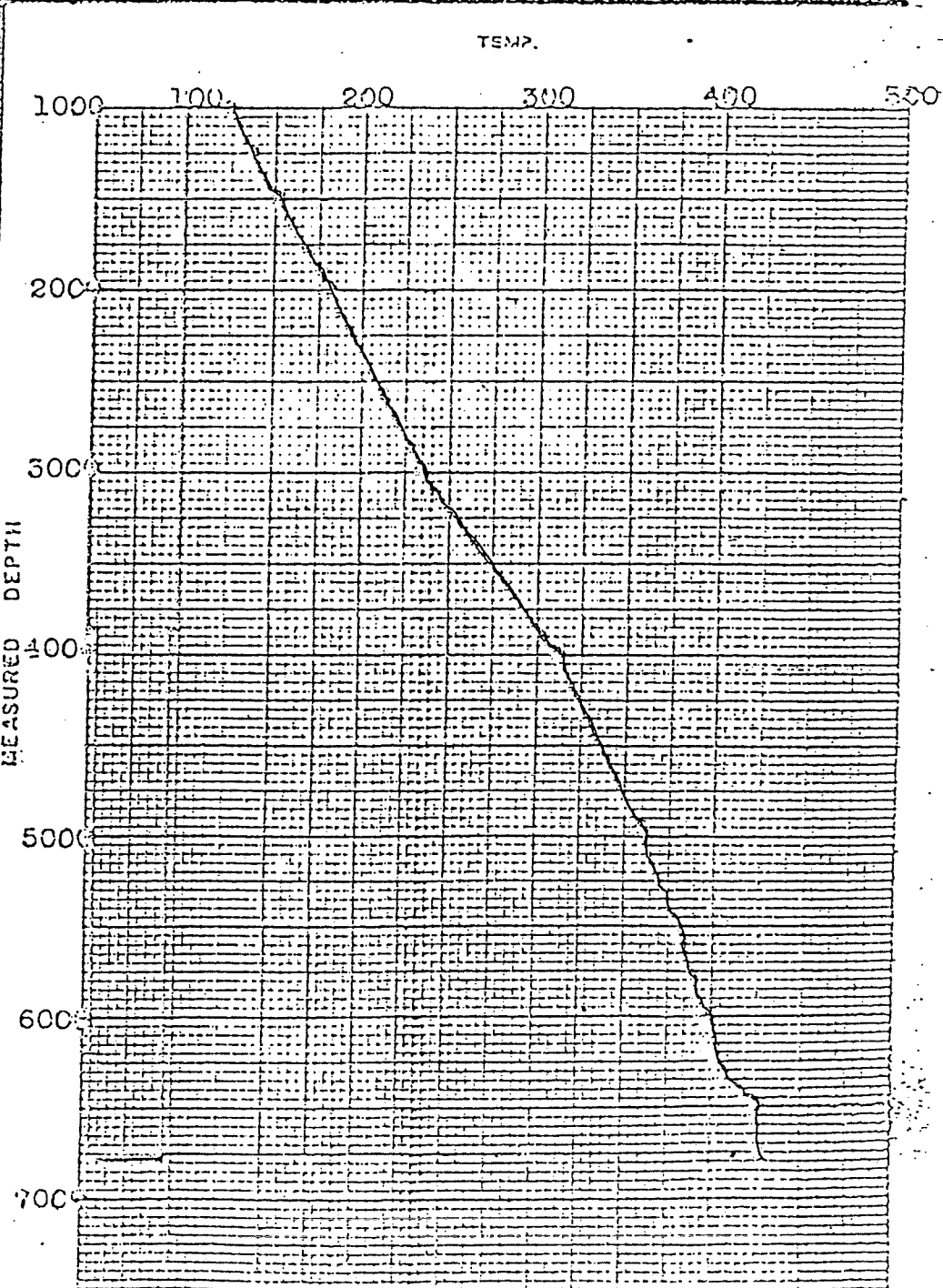
DESCRIPTION 5759 ZONE TOTAL DEPTH 6759

DEPTH 50-171' SURVEY MADE IN THE TUBING ANNULUS

DEPTH 5759 TIME ON BOTTOM 3:25 PM MAX. P. 425.5

WELL TYPE Open Hole TIME OFF BOTTOM 3:35 PM

DEPTH	TEMP.	GRADIENT
0	82.4	
100	123.8	
200	136.2	
300	151.0	
400	179.5	
500	233.5	
600	309.9	
700	358.6	
800	378.1	
900	387.3	
1000	395.2	
1100	398.3	
1200	399.9	
1300	403.0	
1400	422.3	
5759	425.5	



76

UNION

DEL PYLE

GEO THERMAL DIVISION MAY 7 1976

SUBSURFACE SURVEY

Field Work Sheet

B#4 5-57 P1

OWNER Union Oil Co of Calif. FIELD Valle Grande WELL NAME W-174
 CASING 1 1/2" ID 141' 4 1/2" O.D. 5120' ELEV. 9318' DATE: 4/27/76
 LINER DESCRIPTION: 7" @ 3031' ZERO POINT GL + 7'
 DEPTH 6351'

TUBING DETAIL:

PURPOSE

REMARKS:

Element - 800F - 696°F 5M - 10652 Clock 12 hr 15 Turn
 ELEMENT - G-1000 Pig SERIAL NO. 7198 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0939 ; T-0655 DISENGAGE STYLUS P-0938 ; T-0939
 WELL HEAD 3.75 Pig
 PICKUP @ 4000' TIME ON BOTTOM 0830-0900 MAX. T 504.9°F
 WELL STATUS Shut-in
 SHUT IN: ON PRODUCTION:
 PATE

Pressure					Temp											
TIME	DEPTH	DEFL.	P-T	GRAD.	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
0750	100	1.12	83.6													
0800	1000	1.533	75.9													
0815	2000	1.908	74.7													
0827	3000	1.319	780.2													
0830	4000	1.442	504.9													
0840	4000	1.440	504.9													
0850	4000	1.442	504.9													
0900	4000	1.442	504.9													

COMMENTS:

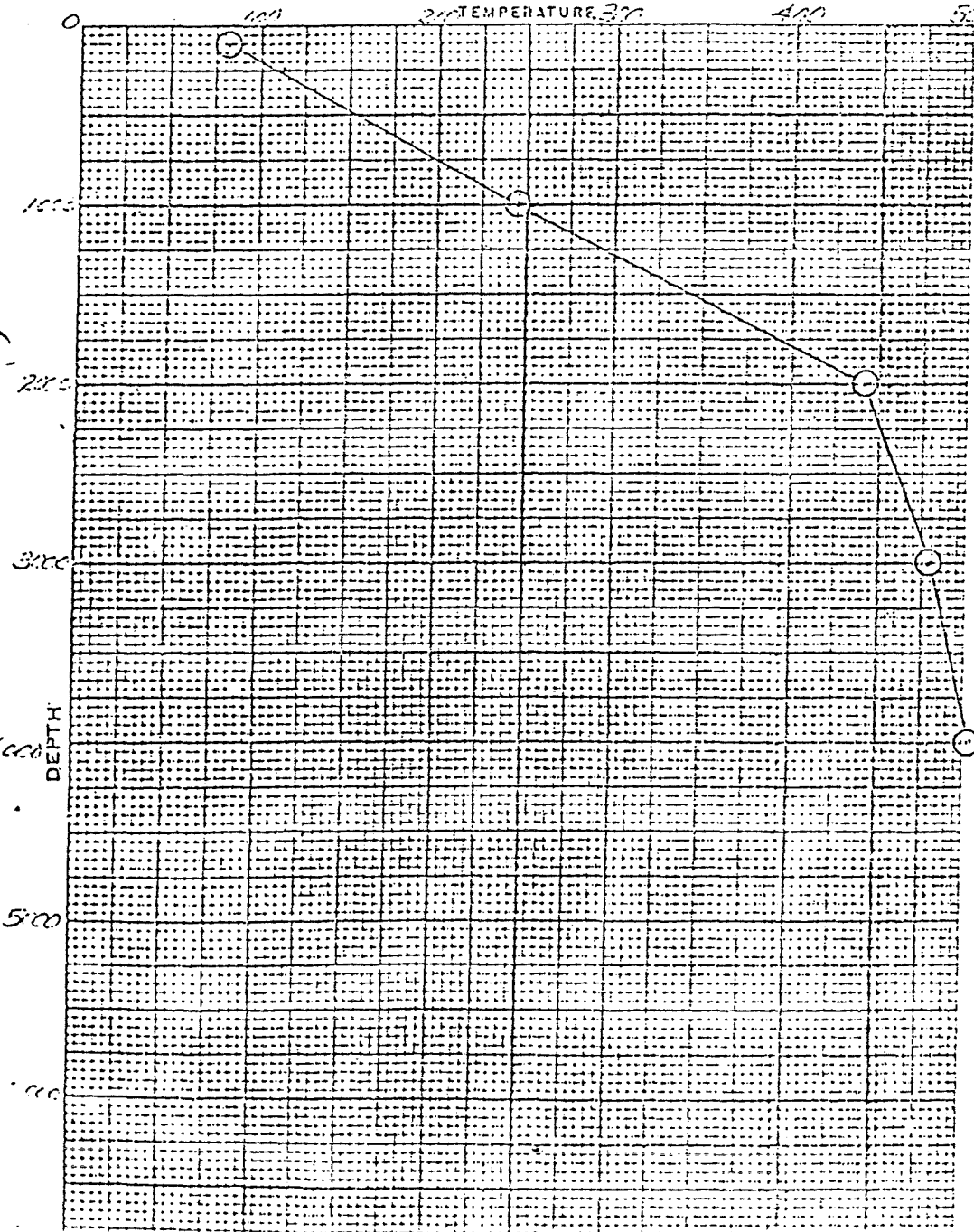
76

UNION
GEOHERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

B4-557-PT

OWNER _____ FIELD Valle Grande WELL NAME B-201-F-1
 CASING _____ ELEV 9318' DATE 4/27/76
 LINER DESCRIPTION _____ TENG POINT 32 + 2'
 _____ DEPTH 6331'
 HOLE DESCRIPTION: _____ INSTRUMENT 80°-646° FAH
 _____ SERIAL NO 10052
 PURPOSE _____ MAX TEMP 504.9° & 400.0°
 REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOHS	
CASING PSI			
DEPTH	TEMP.	DEPTH	TEMP.
100	83.6		
1000	245.9		
2000	442.2		
3000	480.2		
4000	504.9		

76

UNION

DEB PYLE

1976

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B#4 356 47

OWNER Union Oil Co. of Calif. FIELD Valle Grande

WELL NAME Prig #4

CASING 1 3/4" @ 141' 4 7/8" @ 318' ELEV. 9318

DATE: 9/22/76

LINER DESCRIPTION: 7" @ 3031'

ZERO POINT CL + 7'

DEPTH 6331'

TUBING DETAIL:

PURPOSE

REMARKS:

T- 309-1765 SN 10052 12 hr 75 Turn

ELEMENT C-4000 Prig SERIAL NO. 7198 CLOCK 12 hr 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS T-1714; P-1911 DISENGAGE STYLUS T-1705; P-1765

WELL HEAD 375' Prig

PICKUP @ 4000' TIME ON BOTTOM 1548'-1618' MAX. T 309.9°F

WELL STATUS Shut-in

SHUT IN:

ON PRODUCTION:

RATE

Pres.					Temp.				
TIME	DEPTH	DEFL.	P-T	GRAD.	TIME	DEPTH	DEFL.	P-T	GRAD.
1510	100	.052	96.1						
1522	1000	.531	743.3						
1534	2000	1.205	441.3						
1546	5000	1.343	478.1						
1618	4000	1.442	504.9						

COMMENTS:

76

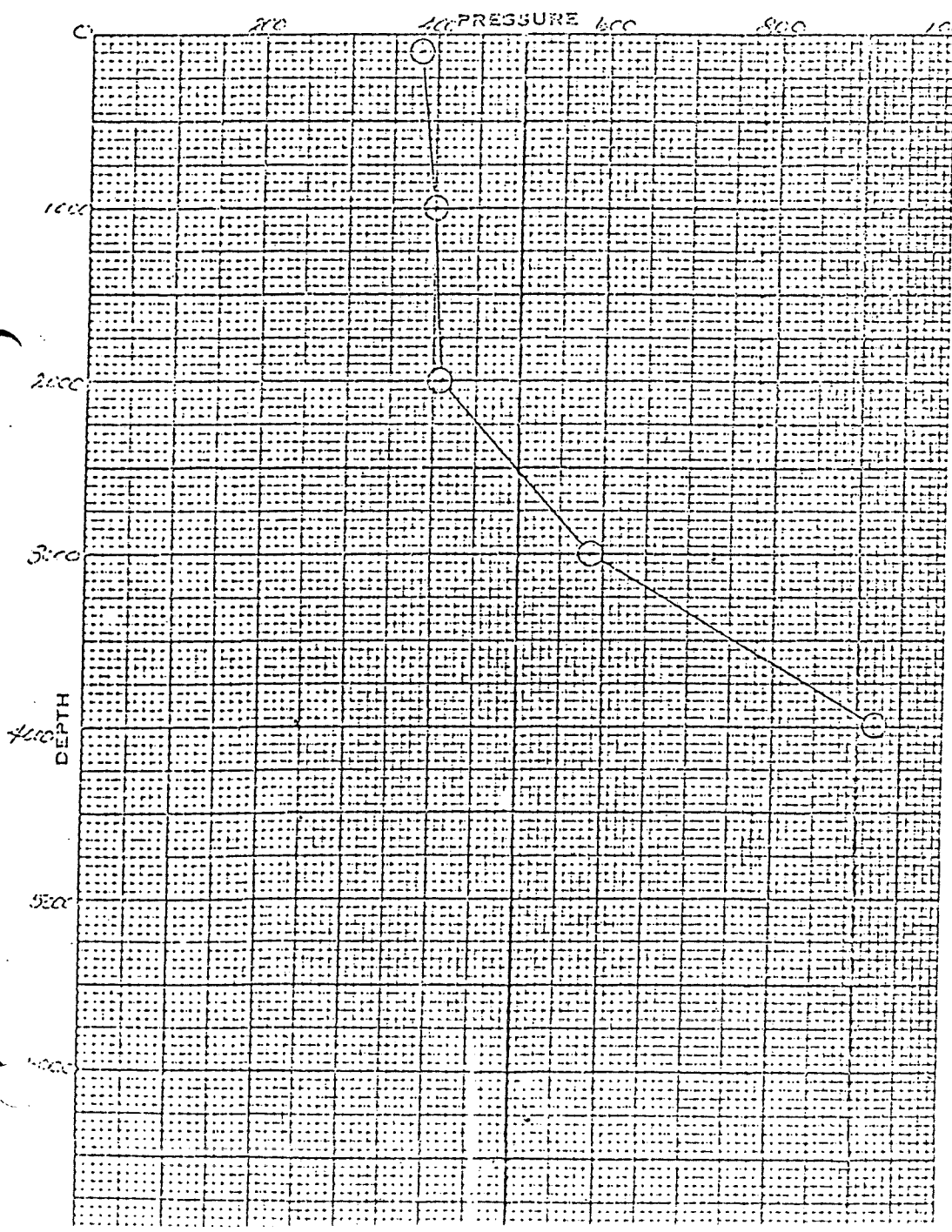
GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B4-554-PT

OWNER _____	FIELD _____	WELL NAME <u>BACP #4</u>
CASING _____	ELEV _____	DATE <u>2/22/76</u>
LINER DESCRIPTION _____		ZERO POINT <u>GL + 7'</u>
		DEPTH <u>6331'</u>
HOLE DESCRIPTION: _____		
		INSTRUMENT _____ PSI
		SERIAL NO <u>7178</u>
PURPOSE _____		MAX TEMP <u>50.5</u> @ <u>4000'</u>
REMARKS: _____		

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOUND
CASING PSI		

DEPTH	PRESSURE	GRADIENT
100	382.7	
1000	400.5	
2000	407.3	
3000	527.2	
4000	919.1	

76

UNION
GEO THERMAL DIVISION
SUBSURFACE PRESSURE SURVEY

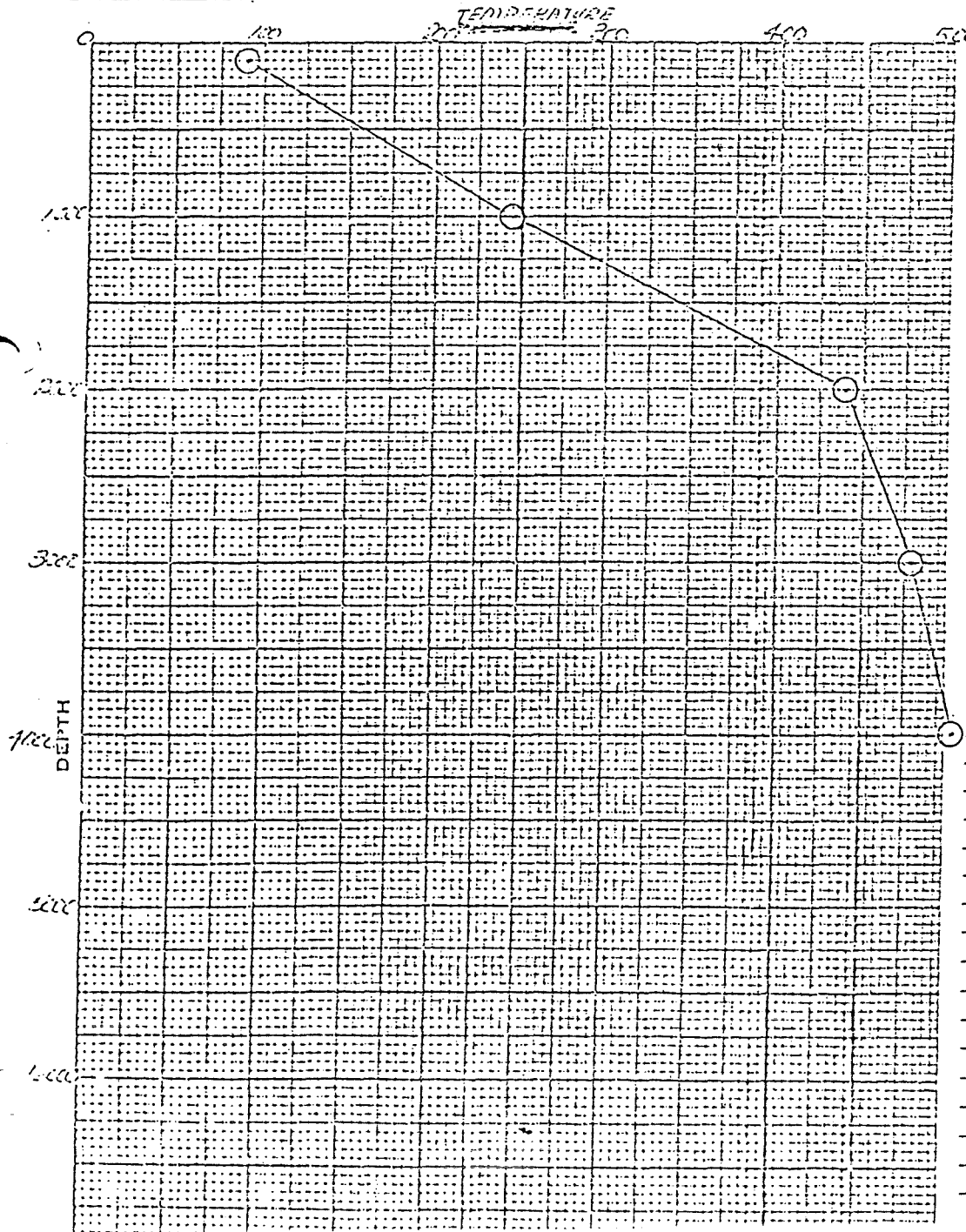
B4-553-PT

OWNER _____ FIELD _____ WELL NAME BACA #4
 CASING _____ ELEV _____ DATE 4/22/76
 LINER DESCRIPTION: _____ ZERO POINT GL 11'
 _____ DEPTH 493'

HOLE DESCRIPTION: _____ INSTRUMENT _____
 _____ SERIAL NO 10052

PURPOSE _____ MAX TEMP 50.5 IF @ 4000'
 REMARKS: _____

STABILIZATION PERIOD _____



PRESSURE	GAUGE	BOW
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
100	98.1	
1000	246.3	
2000	441.3	
3000	478.4	
4000	505.9	

76

CENTRAL BANK OF NEW YORK

COAST AND GEODESIC SURVEY
 FIELD BOOK

DEPT FILE

NOV 2 1950
 24 305 217

DATE: 11/2/50
 TIME: 10:00 AM
 LOCATION: 7" AT 3051'

NAME OF VESSEL: *Albatross*

NAME OF COMMANDER: *W. H. Smith*

NAME OF SURVEYOR: *W. H. Smith*

NAME OF ASSISTANT SURVEYOR: *W. H. Smith*

NAME OF WATCHMAN: *W. H. Smith*

NAME OF TENDER: *W. H. Smith*

NAME OF ASSISTANT TENDER: *W. H. Smith*

NAME OF OBSERVER: *W. H. Smith*

NAME OF ASSISTANT OBSERVER: *W. H. Smith*

NAME OF RECORDER: *W. H. Smith*

NAME OF ASSISTANT RECORDER: *W. H. Smith*

NAME OF CHECKER: *W. H. Smith*

NAME OF ASSISTANT CHECKER: *W. H. Smith*

NAME OF CORRECTOR: *W. H. Smith*

NAME OF ASSISTANT CORRECTOR: *W. H. Smith*

NAME OF REVISOR: *W. H. Smith*

NAME OF ASSISTANT REVISOR: *W. H. Smith*

NAME OF APPROVER: *W. H. Smith*

NAME OF ASSISTANT APPROVER: *W. H. Smith*

NAME OF SUPERVISOR: *W. H. Smith*

NAME OF ASSISTANT SUPERVISOR: *W. H. Smith*

NAME OF DIRECTOR: *W. H. Smith*

NAME OF ASSISTANT DIRECTOR: *W. H. Smith*

NAME OF CHIEF OF BUREAU: *W. H. Smith*

NAME OF ASSISTANT CHIEF OF BUREAU: *W. H. Smith*

COMMENTS:

76

UNITED STATES
GEOLOGICAL DIVISION

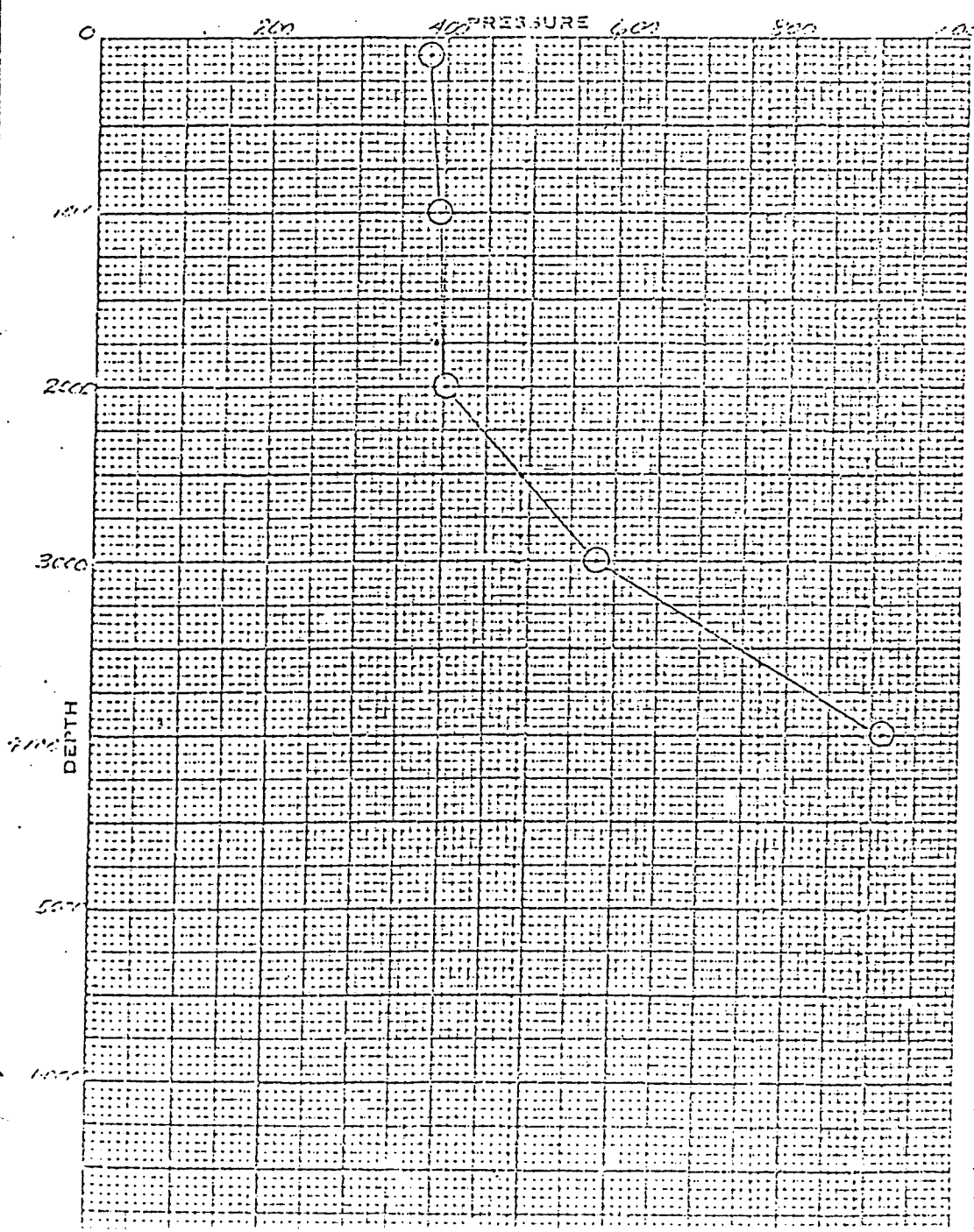
SUBSURFACE PRESSURE SURVEY

64-555 PT

OWNER _____ FIELD Valle Grande WELL NAME BACA #7
CASING _____ ELEV 9318' DATE 7/12/76
LINAR DESCRIPTION _____ ZERO POINT GL + 7'
DEPTH 6331'

HOLE DESCRIPTION: _____
INSTRUMENT _____
SERIAL NO 7198

PURPOSE _____ MAX TEMP 508 °F @ 4000'
REMARKS: _____



STABILIZATION PERIOD _____

PRESSURE	GAUGE	BOMB
CASING PSI		

DEPTH	PRESSURE	GRADIENT
100	38.1	
1000	39.4	
2000	40.3	
3000	55.1	
4000	91.3	

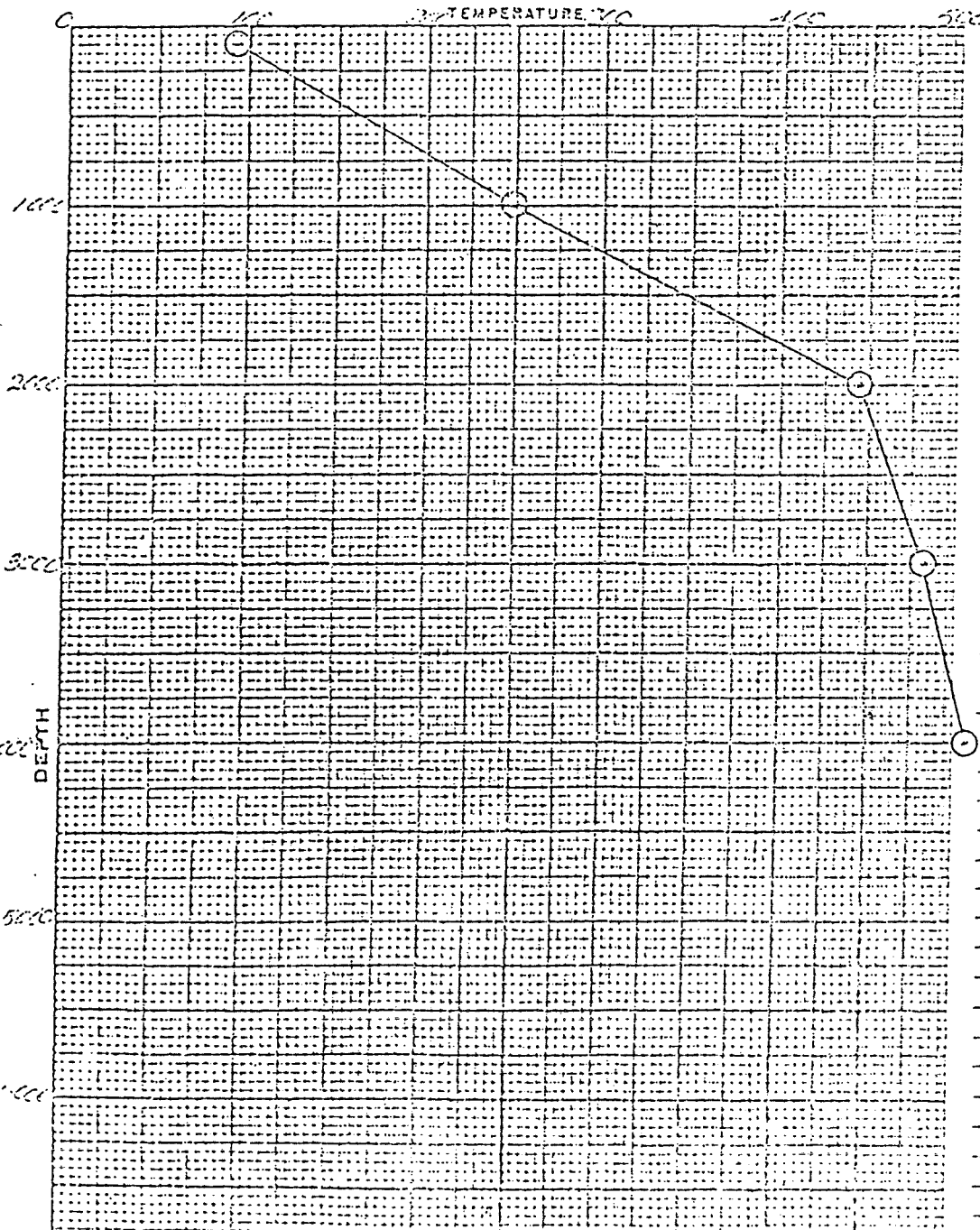
76

UTAH GEOHERMAL DIVISION SUBSURFACE TEMPERATURE SURVEY

B4-555-PT

OWNER _____ FIELD Utah Grade WELL NAME B4-555-PT
 CASING _____ ELEV 9312' DATE 3/12/76
 LINER DESCRIPTION _____ ZERO POINT 62.47'
 _____ DEPTH 6.33'
 HOLE DESCRIPTION: _____ INSTRUMENT _____
 _____ SERIAL NO 70050
 PURPOSE _____ MAX TEMP 508 F @ 4000'
 REMARKS _____

STABILIZATION PERIOD _____



PRESSURES	GUAGE	ROW
CASING PSI		
DEPTH	TEMP.	DEPTH
100	93.7	
1000	249	
2000	444	
3000	483	
4000	508.2	

576



GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

DEI FILE

B#H-554-7/T

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACH #11
 CASING 13 3/8" @ 1441'; 9 5/8" @ 3182' ELEV. 9318' DATE: 3/19/76
 LINER DESCRIPTION: 7" @ 3031'; 70-6331' ZERO POINT 66' 7"
 DEPTH 6331'

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT - P-O-HOOD PSIC. 7195 12889-L 15
 ELEMENT - T-ROOF-646°F SERIAL NO. 10052 CLOCK 1337H-L 15° TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1330 T-1331 DISENGAGE STYLUS P-1630 T-1637
 WELL HEAD 375
 PICKUP @ 6331 TIME ON BOTTOM 1515-1545 MAX. °F 584
 WELL STATUS SHUT IN.
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

PSIC

TEMP

DEPTH	DEFL.	P-O	GRAD.	TEMP	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
100	.169	383		-1011	1400	100	.017	8.5								
112	.181	410		-1066	1412	100	.510	9.18								
124	.183	1114		-1063	1424	2000	1.204	4.41								
137	.264	592		-1002	1437	3000	1.350	4.90								
149	.419	921		-	1449	4000	1.484	5.76								
161	.565	1229		-	1501	5000	1.653	5.60								
173	.711	1535		+1.001	1513	6000	1.727	5.78								
185	.763	1644		+1.001	1515	6331	1.743	5.81								
197	.757	1631		+1.001	1530	6331	1.743	5.84								
209	.759	1635		+1.001	1545	6331	1.743	5.84								

COMMENTS:

76

UNION

GEOHERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

B4-554-PT

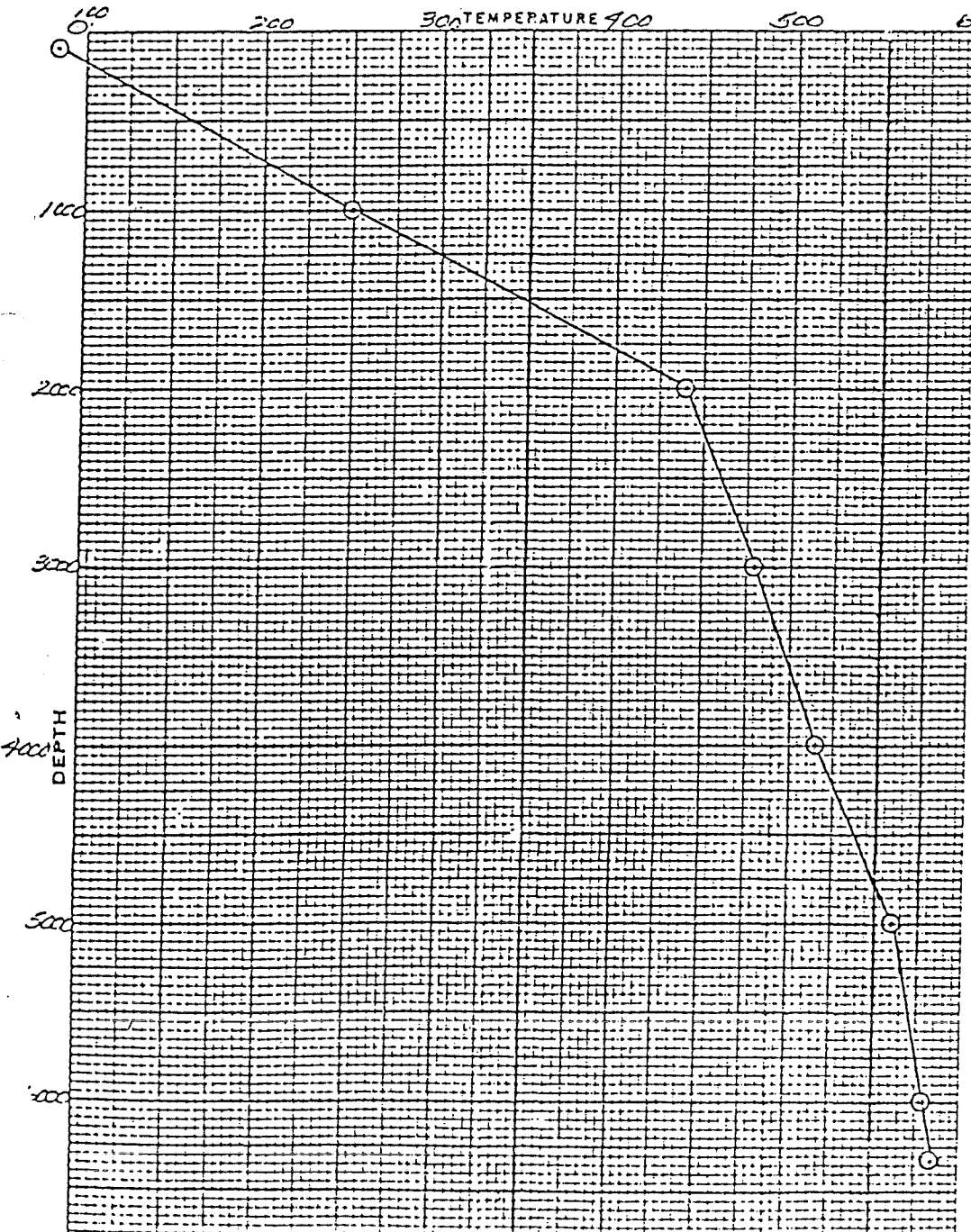
OWNER _____ FIELD _____ WELL NAME BACA #4
 CASING _____ ELEV _____ DATE 3/19/76
 LINER DESCRIPTION _____ ZERO POINT GL + 7'
 DEPTH 6331'

HOLE DESCRIPTION: _____ INSTRUMENT _____ FAH?
 SERIAL NO 10052

PURPOSE _____ MAX TEMP 584 °F @ 6331'

REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES.	GAUGE	BOWS	
CASING, PSI			
DEPTH	TEMP.	DEPTH	TEMP.
1000	85		
1000	248		
2000	441		
3000	480		
4000	516		
5000	560		
6000	578		
6331	584		

76

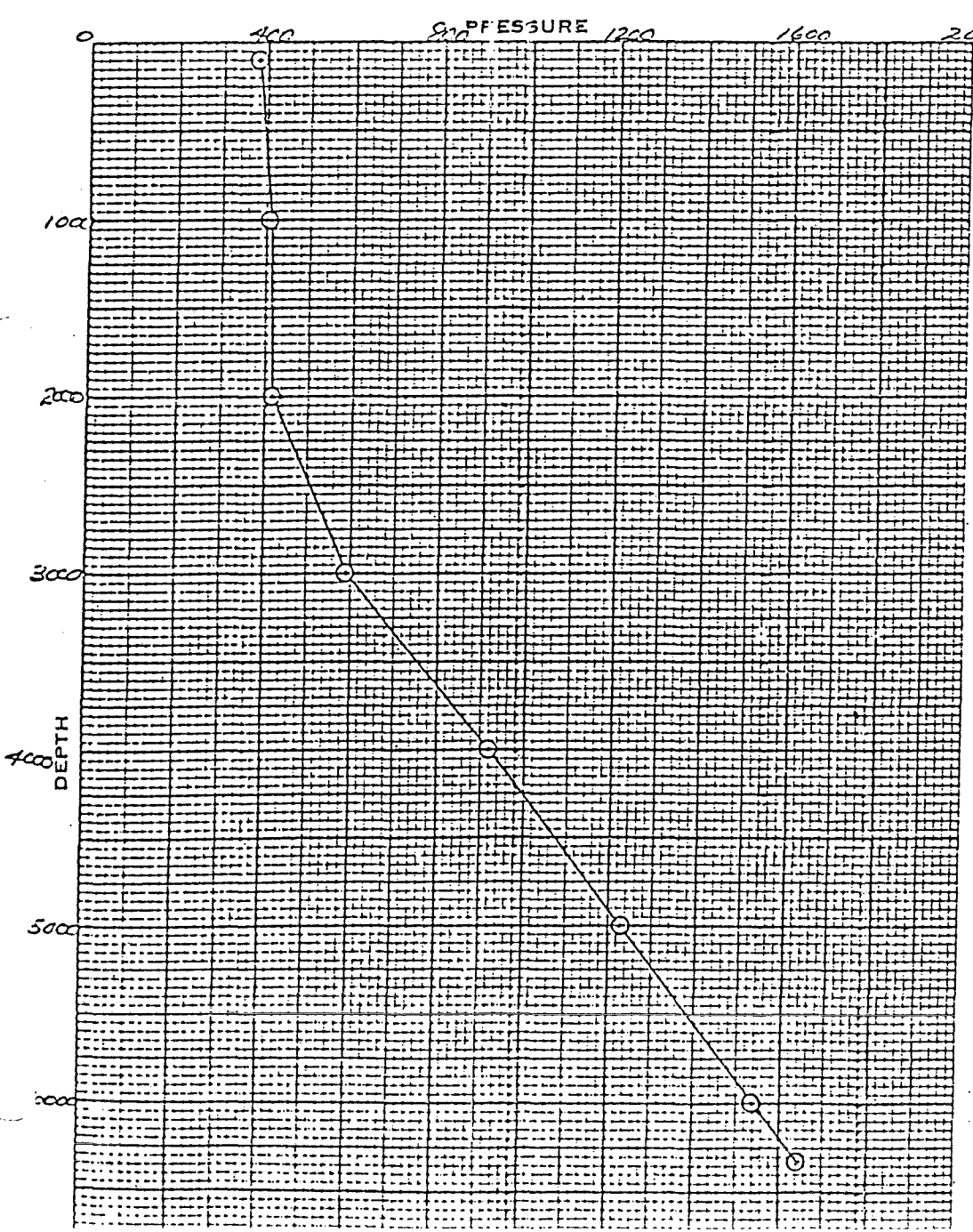
UNION

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B4-554-DT

OWNER _____ FIELD _____ WELL NAME BACA #4
 CASING _____ ELEV _____ DATE 3/19/76
 LINER DESCRIPTION: _____ ZERO POINT 64.77'
 _____ DEPTH 6331'
 HOLE DESCRIPTION: _____
 _____ INSTRUMENT _____ PSI
 _____ SERIAL NO 7128
 PURPOSE _____ MAX TEMP 584 °F @ 6331'
 REMARKS: _____



STABILIZATION PERIOD

PRESSURE	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
100	383	
1000	410	
2000	414	
3000	592	
4000	921	
5000	1229	
6000	1535	
6331	1644	

76

UNION GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

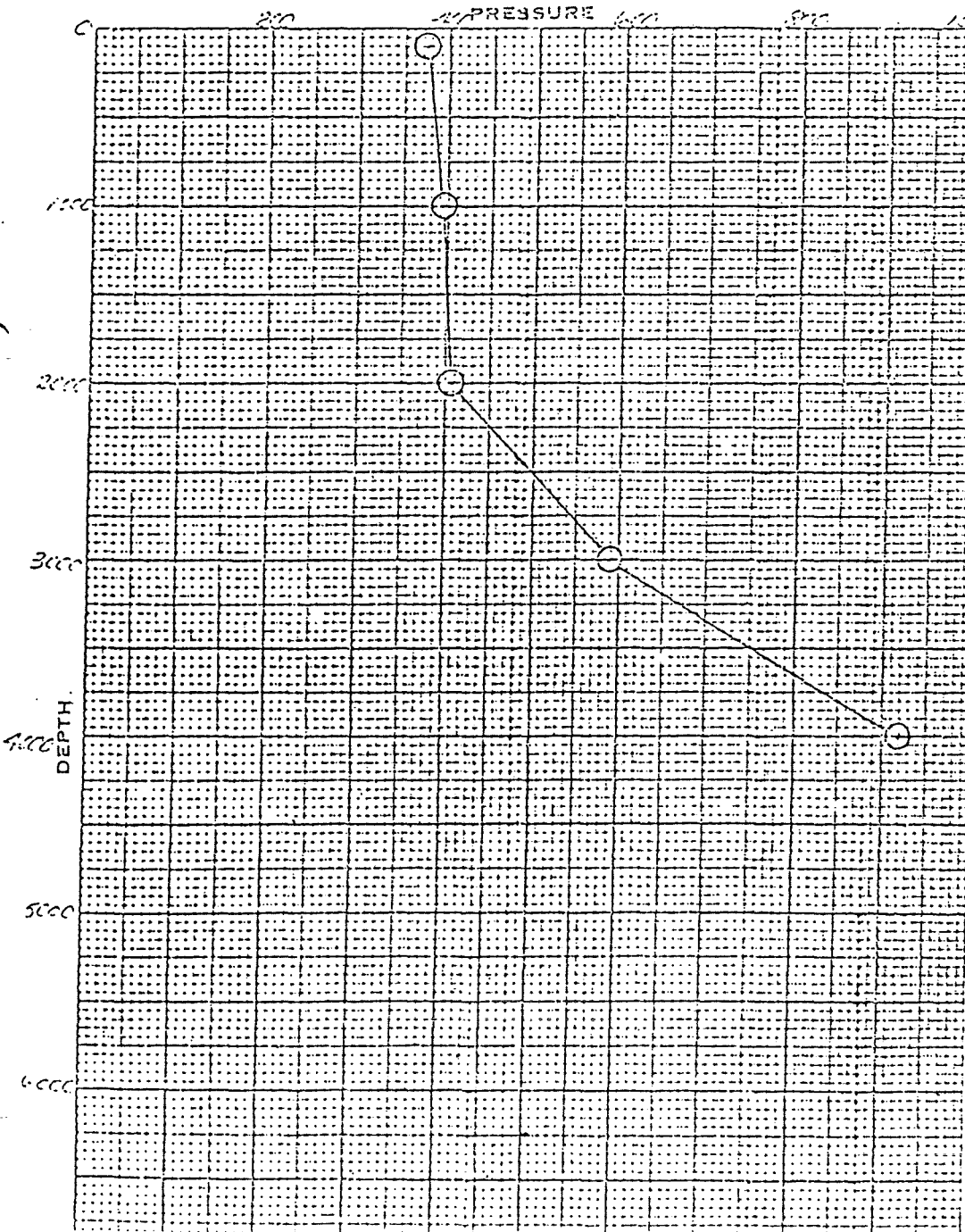
B4-S-PT

OWNER _____ FIELD 1311 GRADLE WELL NAME SPR #4
 CASING _____ ELEV 9318' DATE 4/27/76
 LINER DESCRIPTION _____ ZERO POINT GL 42'
 _____ DEPTH 6331'

HOLE DESCRIPTION: _____ INSTRUMENT C-4100
 _____ SERIAL NO 7148

PURPOSE _____ MAX TEMP 504.9 °F @ 4000'
 REMARKS _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	90%
CASING PSI		

DEPTH	PRESSURE	GRADIENT
100	326.2	
1000	386.2	
2000	407.5	
3000	559.4	
4000	917.1	

76



GEO THERMAL DIVISION

DATE TIME
MAR 7 1976

SUBSURFACE SURVEY
Field Work Sheet

B4-549-PT

OWNER UNION oil of CAL FIELD Valle Grande WELL NAME BACH # 4
 CASING 1 3/8" @ 1441' 9/8" @ 3182' ELEV. 9318' DATE: 2-3-76
 LINER DESCRIPTION: 7" @ 3031' ZERO POINT DEPTH 6331'

TUBING DETAIL:

PURPOSE Interference Test
 REMARKS:
 Element 87°F - 686°F SN 10055 12 hr 15T
 ELEMENT 0-4000 PSI SERIAL NO. 7198 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P 1008 T 1050 DISENGAGE STYLUS P1552 T1553
 WELL HEAD 382
 PICKUP @ 6331 TIME ON BOTTOM 1306 - 1406 MAX. P 589.6
 WELL STATUS Shut in
 SHUT IN: 11-13-73 OIL PRODUCTION:
 RATE

Pressure						Temperature											
TIME	DEPTH	DEFL.	P-T	GRAD.	GRAD.	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
114	100	.173	339.5		-0.11	1146	100	.051	48.2								
11	1000	.184	416.5		0	1152	1000	1.522	253.0								
1205	3000	.185	418.8		0	1205	3000	1.152	451.4								
1218	3000	.270	604.3		0	1218	3000	1.281	481.9								
1237	4000	.418	919.1		0	1237	4000	1.389	521.8								
1250	5000	.562	1233.2		0	1250	5000	1.553	568.6								
1304	6000	.711	1534.6		0	1304	6000	1.613	585.6								
1306	6331	.709	1530.4		0	1306	6331	1.628	589.6								
1336	6331	.757	1631.0		0	1336	6331	1.628	589.6								
1406	6331	.755	1636.5		0	1406	6331	1.628	589.6								

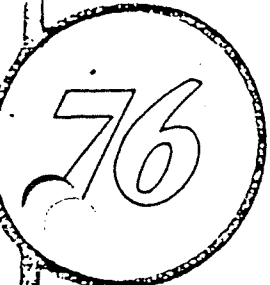
COMMENTS:

UNION 76

GEOHERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

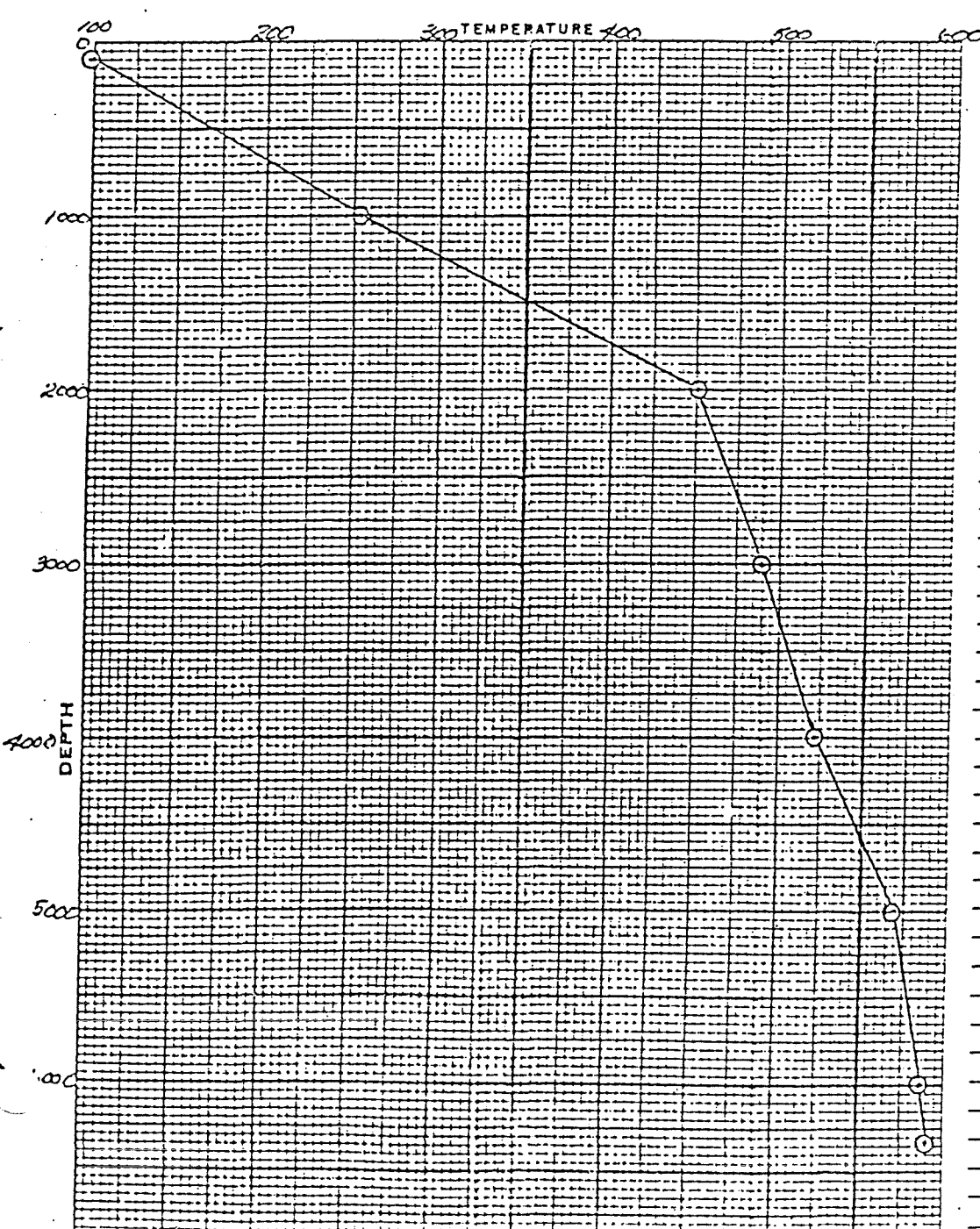
B4-S49-PT



OWNER _____ FIELD _____ WELL NAME SIXA #4
 CASING _____ ELEV _____ DATE 2/3/76
 LINER DESCRIPTION: _____ ZERO POINT _____
 _____ DEPTH 6331'

HOLE DESCRIPTION: _____
 _____ INSTRUMENT _____ FAH
 _____ SERIAL NO _____

PURPOSE _____ MAX TEMP 589.6 °F @ 6331'
 REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES.	GAUGE	BOMB
CASING PSI		

DEPTH	TEMP.	DEPTH	TEMP.
100	98.2		
1000	253.0		
2000	451.4		
3000	489.9		
4000	521.8		
5000	568.6		
6000	585.6		
6331	589.6		

76

UNION
GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

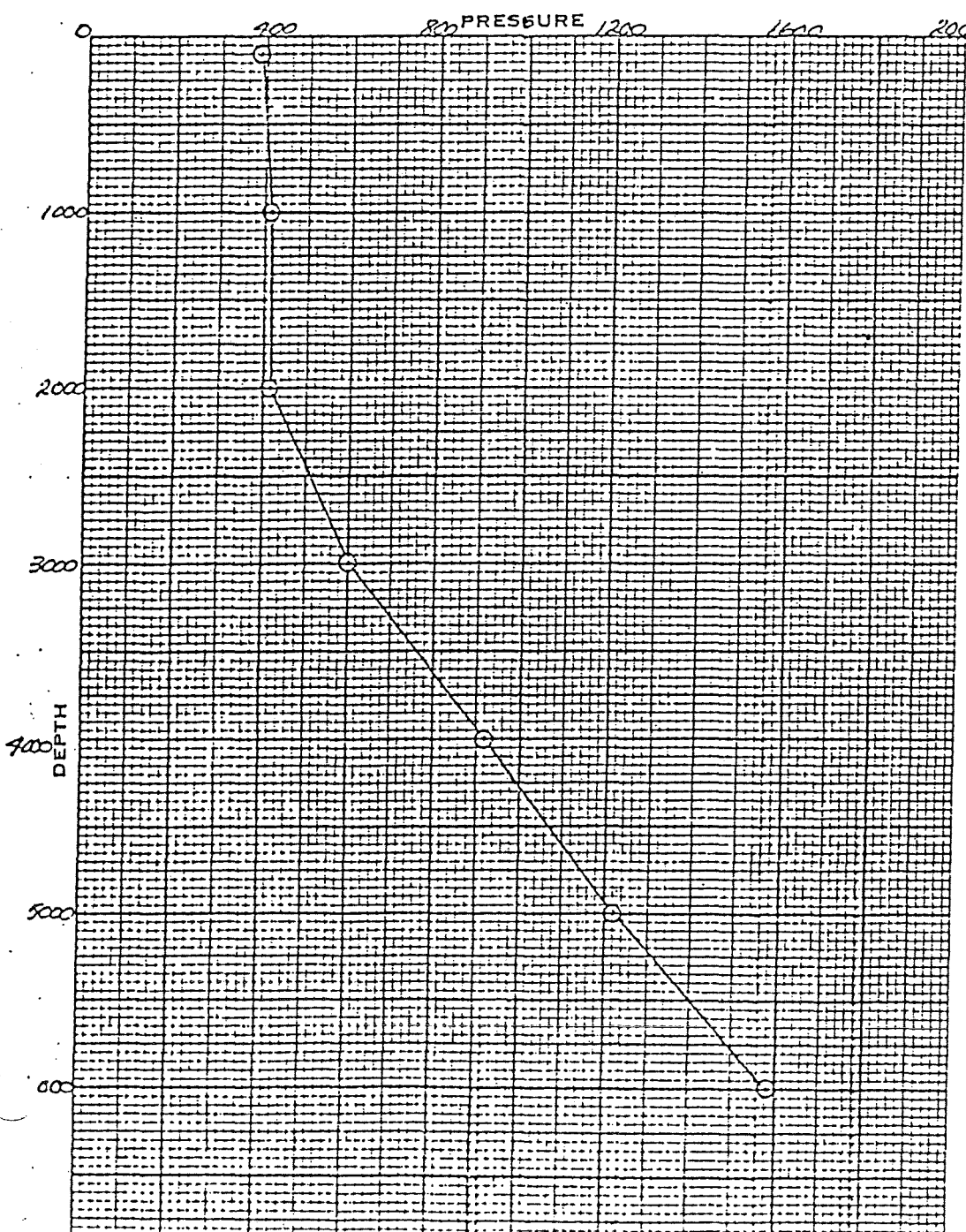
B4-549-PT

OWNER _____ FIELD _____ WELL NAME BACH #4
 CASING _____ ELEV _____ DATE 2/3/76
 LINER DESCRIPTION: _____ ZERO POINT _____
 _____ DEPTH 6331'

HOLE DESCRIPTION: _____ INSTRUMENT _____ PSI:
 _____ SERIAL NO _____

PURPOSE _____ MAX TEMP 589.6 °F @ 6331'
 REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
100	389.5	
1000	416.5	
2000	418.8	
3000	604.3	
4000	919.1	
5000	1222.2	
6000	1584.6	
6331	1530.4	
6331	1631.0	
6331	1626.8	

76

UNION GEO THERMAL DIVISION

SUBSURFACE SURVEY Field Work Sheet

B-4 543

OWNER: UNION OIL COMPANY FIELD: VALLE GRANDE WELL: 3404-4
 CASING: 1 3/8" AT 1001; 9 5/8" 3152 ELEV: 9315' DATE: 11/25/73
 LINER DESCRIPTION: 7" AT 5031' ZERO POINT: 6.47
 DEPTH: 6.47

TUBING DETAIL:

PURPOSE: INTERFERENC TEST

REMARKS:
ELEMENT - 0-9000 PSI SN 7198 CLOCK - 12 hr 15T
ELEMENT 32" - 6.76' SERIAL NO. 10055 CLOCK 12 hr 10T TURN STABILIZATION PERIOD
ENGAGE STYLUS P-1401 T-1404 DISENGAGE STYLUS P-1406 T-1406
WELL HEAD 3.55 PSIG 0-400 T/E
PICKUP @ 6.331 TIME ON BOTTOM 1207-1327 MAX. 588.7
 WELL STATUS
 SHUT IN: 11/15/73 ON PRODUCTION:
 RATE

PRESSURE					TEMPERATURE												
TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
1054	150	.174	394.0		7.011	1054	150	.045	96.2								
1106	6000	.713	1523.3		0	1106	6000	1.611	535.0								
1156	6000	.711	1521.6		0	1156	6000	1.611	535.0								
1206	6000	.710	1522.5		0	1206	6000	1.611	535.0								
1257	6331	.760	1657.3		0	1207	6331	1.625	538.7								
1257	6331	.757	1653.1		0	1237	6331	1.625	538.7								
1327	6331	.757	1651.0		0	1327	6331	1.626	538.7								

COMMENTS: CALIBRATION CHECK WITH DWI AT 70°F
 DWI ΔGf = .925
 COR. = 7.011

76

UNION

GEO THERMAL DIVISION NOV 20 1976

DEL PYLE

SUBSURFACE SURVEY
Field Work Sheet

B4-547-PT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 1 5/8" AT 1491; 9 5/8" AT 3182' ELEV. 9318' DATE: 1/6/76
 LINER DESCRIPTION: 7" 3031' - TD ZERO POINT: GL + 7
 DEPTH: 6331'

TUBING DETAIL:

PURPOSE INTERFERENCE TEST

REMARKS:

ELEMENT 0-4000 PSIG SN 7198 CLOCK - 12 hr 15 TURN
 ELEMENT 82-686°F SERIAL NO. 10055 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1007 T 1003 DISENGAGE STYLUS P 1425 T 1424
 WELL HEAD 389 PSIG 0-400 PSIG
 PICKUP @ 6331 TIME ON BOTTOM 1208-1318 MAX. IF 588.5
 WELL STATUS
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

PRESSURE TEMPERATURE

PRESSURE					TEMPERATURE												
TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
100	100	.175	396.2		7.011	1057	100	.043	96.6								
1107	6000	.713	1533.5			1107	6000	1.611	585.0								
1137	6000	.708	1528.3			1137	6000	1.611	585.0								
1207	6000	.710	1532.5			1207	6000	1.611	585.0								
1208	6331	.761	1639.1			1208	6331	1.624	588.5								
1238	6331	.757	1631.0			1238	6331	1.624	588.5								
1318	6331	.759	1635.2			1318	6331	1.624	588.5								

COMMENTS:

76

UNION

DEL PYLE
JAN 22 1976

GEOHERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

1344-SAL-717

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BAGA 714
 CASING 1.3 3/8" @ 1441', 9 5/8" @ 3182' ELEV. 9.318' DATE: 12/22/75
 LINER DESCRIPTION: 7" @ 3031' - T.D. ZERO POINT 6LT 7'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE

REMARKS:

0-4100PSIG - 7195 12112-12589 615
 ELEMENT 8.2 OF - 68.6 OF SERIAL NO. 10655 CLOCK 133752 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1245 T-1630 DISENGAGE STYLUS P-1250 T-1630
 WELL HEAD 391- ANNULUS .351
 PICKUP @ 6.331' TIME ON BOTTOM 1450-1550 MAX. T 588.5
 WELL STATUS SHUT IN.
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

TIME	PSIG					TEMP					ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	
	DEPTH	DEFL.	P-T	GRAD.	CORR.	DEPTH	DEFL.	P-T	GRAD.									
	100	.172	.390	-	-.011	1333	100	.145	96									
344	1000	.183	.1114	.027	-.067	1344	1000	.576	257									
356	2060	.139	.428	.014	-.003	1356	2000	1.156	453									
125	3000	.272	.609	.181	-.007	1408	3000	1.285	491									
421	4000	.418	.719	.310	-	1421	4000	1.390	522									
133	5000	.560	.1218	.299	-	1433	5000	1.551	568									
447	6000	.718	.1528	.310	-	1447	6000	1.610	585									
1470	6331	.757	.1631	.311	-	1470	6331	1.621	588.5									
1520	6331	.755	.1627	-	-	1520	6331	1.621	588.5									
1550	6331	.752	.1621	-	-	1550	6331	1.621	588.5									

COMMENTS:

76

GEO THERMAL DIVISION

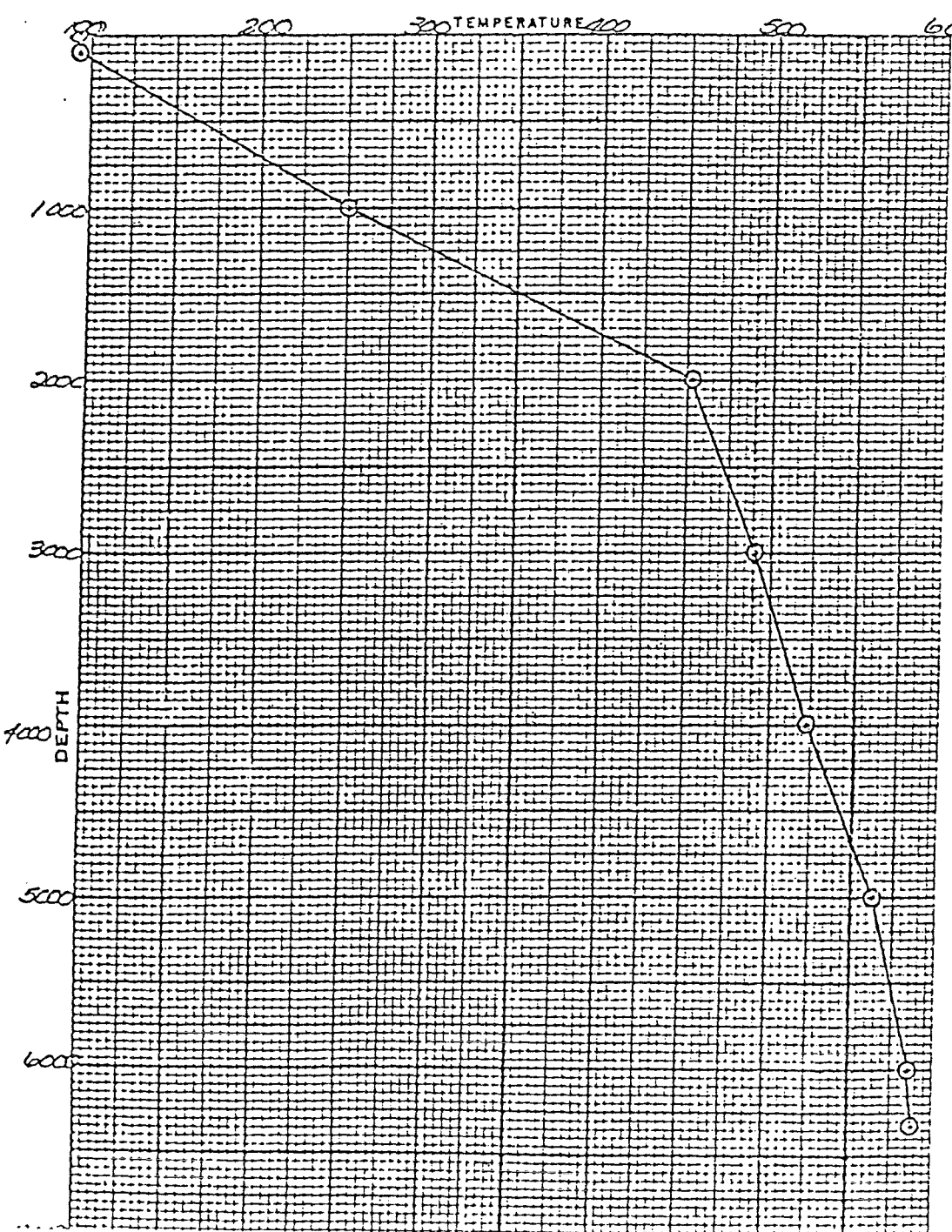
SUBSURFACE TEMPERATURE SURVEY

84-546-PT

OWNER Union Oil FIELD Utile Grande WELL NAME BACA #4
 CASING _____ ELEV 9318' DATE 12/22/75
 LINER DESCRIPTION: _____ ZERO POINT G.L. + 7'
 _____ DEPTH 6331'

HOLE DESCRIPTION: _____ INSTRUMENT 82°-686° FA _____
 _____ SERIAL NO 10055

PURPOSE _____ MAX TEMP 588.5° F @ 6331'
 REMARKS: _____



STABILIZATION PERIOD

PRESSURES	GAUGE	BOYS
CASING, PSI		

DEPTH	TEMP.	DEPTH	TEMP.
100	96		
1000	251		
2000	453		
3000	491		
4000	522		
5000	568		
6000	585		
6331	588.5		

BY: _____

UNION

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B4-546-PT

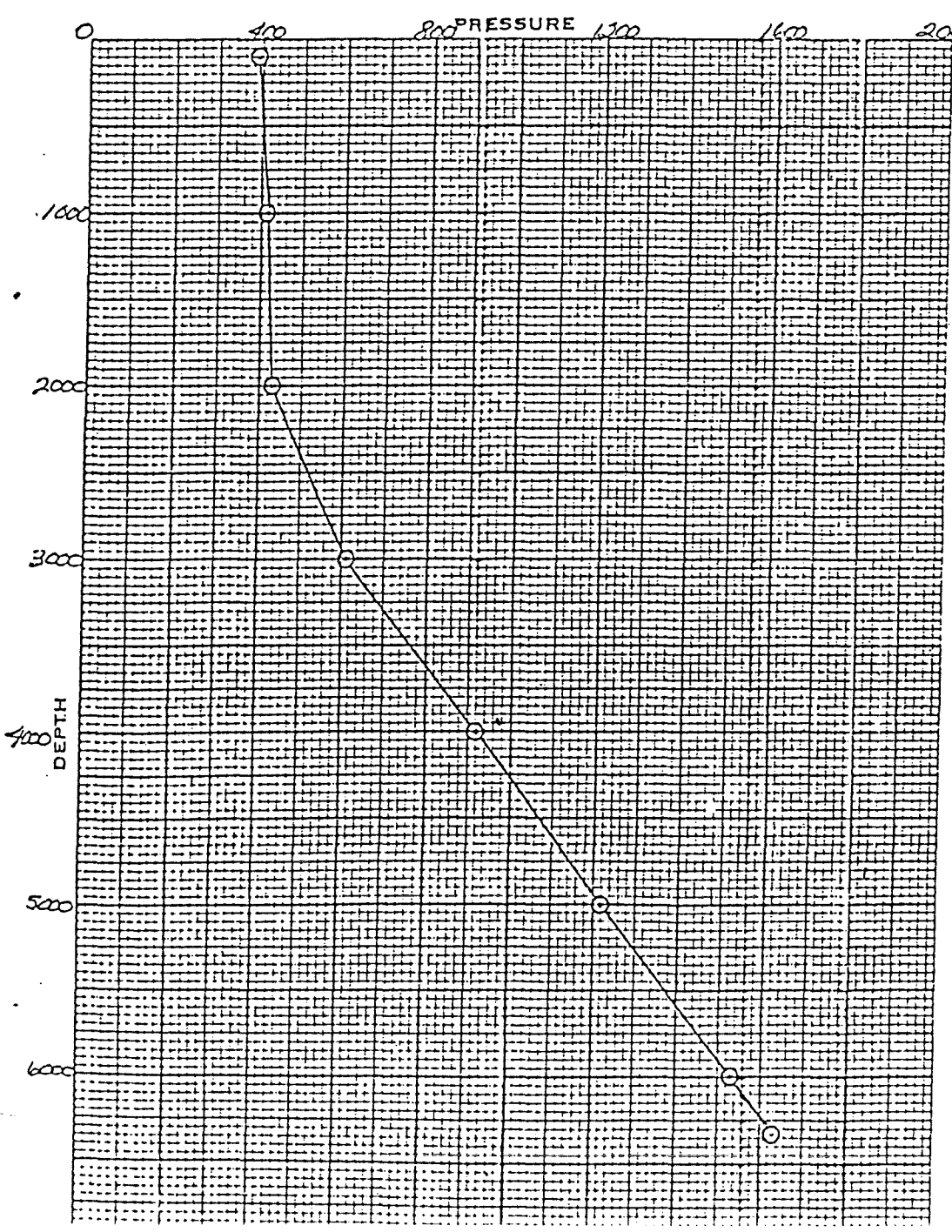
76

OWNER Union Oil Co. FIELD Valle Grande WELL NAME B.A.C.A #4
 CASING _____ ELEV _____ DATE _____
 LINER DESCRIPTION: _____ ZERO POINT _____
 _____ DEPTH _____

HOLE DESCRIPTION: _____

 INSTRUMENT 0-4000 PSI
 SERIAL NO 7198

PURPOSE _____ MAX TEMP 588.5°F @ 6331'
 REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES.	GAUGE	BONS
CASING. PSI		

DEPTH	PRESSURE	GRADIENT
100	390	
1000	414	
2000	428	
3000	609	
4000	919	
5000	1218	
6000	1528	
6331	1631	
6331	1627	
6331	1621	

76



DEL PYLE

GEO THERMAL DIVISION JAN 6 1976

SUBSURFACE SURVEY

Field Work Sheet

B4-545 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 13 3/8" AT 1441' 9 5/8" AT 5162 ELEV. 9318' DATE: 12/17/75
 LINER DESCRIPTION: 7" 3031 - TD ZERO POINT 647'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE INTERFERENCE SURVEY

REMARKS:

ELEMENT - 0-4000 PSI SN 7198 CLOCK - 12hr 15 TURN
 ELEMENT 82°-686° SERIAL NO. 10055 CLOCK 12hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1002 T 1007 DISENGAGE STYLUS P-1454 T 1454
 WELL HEAD 393 PSIC ANN - 582 PSIC
 PICKUP @ 6:33 TIME ON BOTTOM 1258 - 1358 MAX. °F 588.5
 WELL STATUS 11/13/73 WELL SHUT IN
 SHUT IN: ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

PRESSURE					TEMPERATURE													
TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	IL	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	
11	100	.173	341.7		-0.01	1144	110	96.2										
13	6000	.713	1538.8		0	1156	6000	584.4										
226	6000	.710	1532.5		0	1226	6000	584.4										
256	6000	.712	1536.7		0	1256	6000	584.4										
258	6331	.760	1657.3		0	1258	6331	588.5										
328	6331	.757	1631.0		0	1328	6331	588.5										
358	6331	.759	1635.2		0	1358	6331	588.5										

COMMENTS:

76

UNION

DEL PYLE

DEC 29 1975

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B44-S44-P/T

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME B44-S44
 CASING 1 3/8" @ 11' 11"; 9/8" @ 3182' ELEV. 9313' DATE: 12-13-75
 LINER DESCRIPTION: 7" @ 3051' TO 6331' ZERO POINT 6477'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT - P-0-4000-5812 7198 12HR - 14091-4 107
 ELEMENT - T-8202-65612 SERIAL NO. 10055 CLOCK 12HR 72889-6 RETURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1131 T-1134 DISENGAGE STYLUS P-1435 T-1435
 WELL HEAD 396 PSIG ANNULUS - 386 PSIG
 PICKUP @ 6331' TIME ON BOTTOM 1245-1313 hrs MAX. T. 588.5°F
 WELL STATUS SHUT IN
 SHUT IN: 11/13/75 ON PRODUCTION:

PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	COEFF	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	100	.176	395		-.011	1255-1255	100	.240	9.5								
1215	1600	.706	1534		-	1212	6000	1.210	588.5								
1221	6600	.708	1538		-	1227	6000	1.210	588.5								
1224	6600	.711	1535		-	1242	6000	1.214	588.5								
1225	6331	.755	1627		-	1243	6331	1.624	588.5								
1228	6331	.757	1635		-	1258	6331	1.624	588.5								
1315	6331	.757	1631		-	1313	6331	1.624	588.5								

COMMENTS:

GEOTHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

216

B1-543-71

OWNER UNITED OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BH00-4
 CASING 13 3/8" @ 1441', 9 5/8" @ 5153', ELEV. 9318 DATE: 12-1-75
 LINER DESCRIPTION: 7' @ 5231' ZERO POINT GL + 71
 DEPTH 6531'

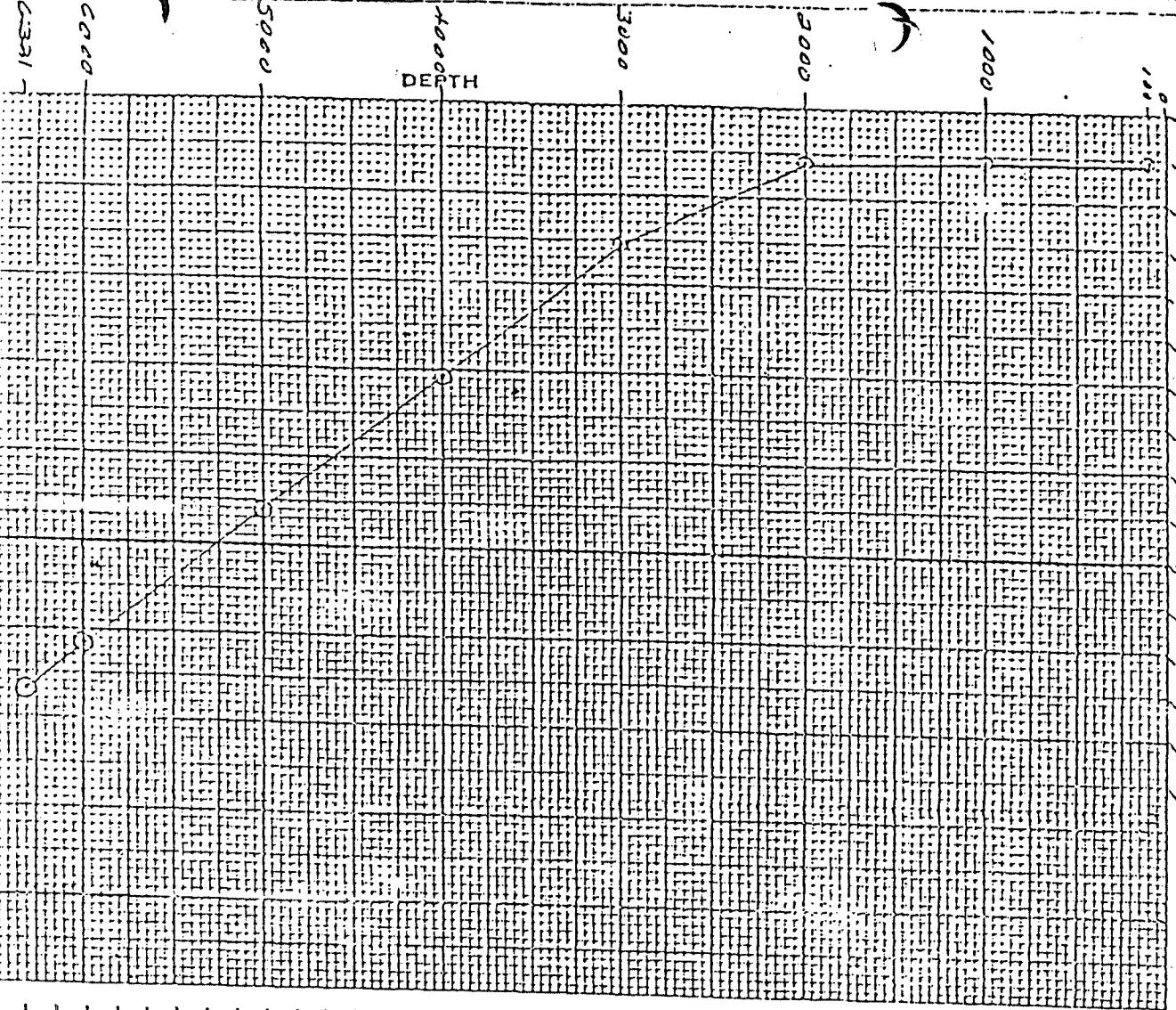
HOLE DESCRIPTION:

INSTRUMENT 0-1000 PSI
 SERIAL NO. 7198

PURPOSE _____ MAX TEMP 589.5 °F @ 6531

REMARKS: _____
 _____ PRESSURE _____

STABILIZATION PERIOD _____



DEPTH	PRESSURE	GRADIENT:
1000	412	
2000	421	
3000	611	
4000	915	
5000	1310	
6000	1576	
6531	1817	

6531' MAXIMUM PSIA

6531
6000
5000
40000
DEPTH

76

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B11-543-71T

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA-H
 CASING 1 3/8" @ 1111', 9 5/8" @ 515.2' ELEV. 9315' DATE: 12-11-75
 LINER DESCRIPTION: 7" @ 5031' ZERO POINT 6677'
 DEPTH. 6331'

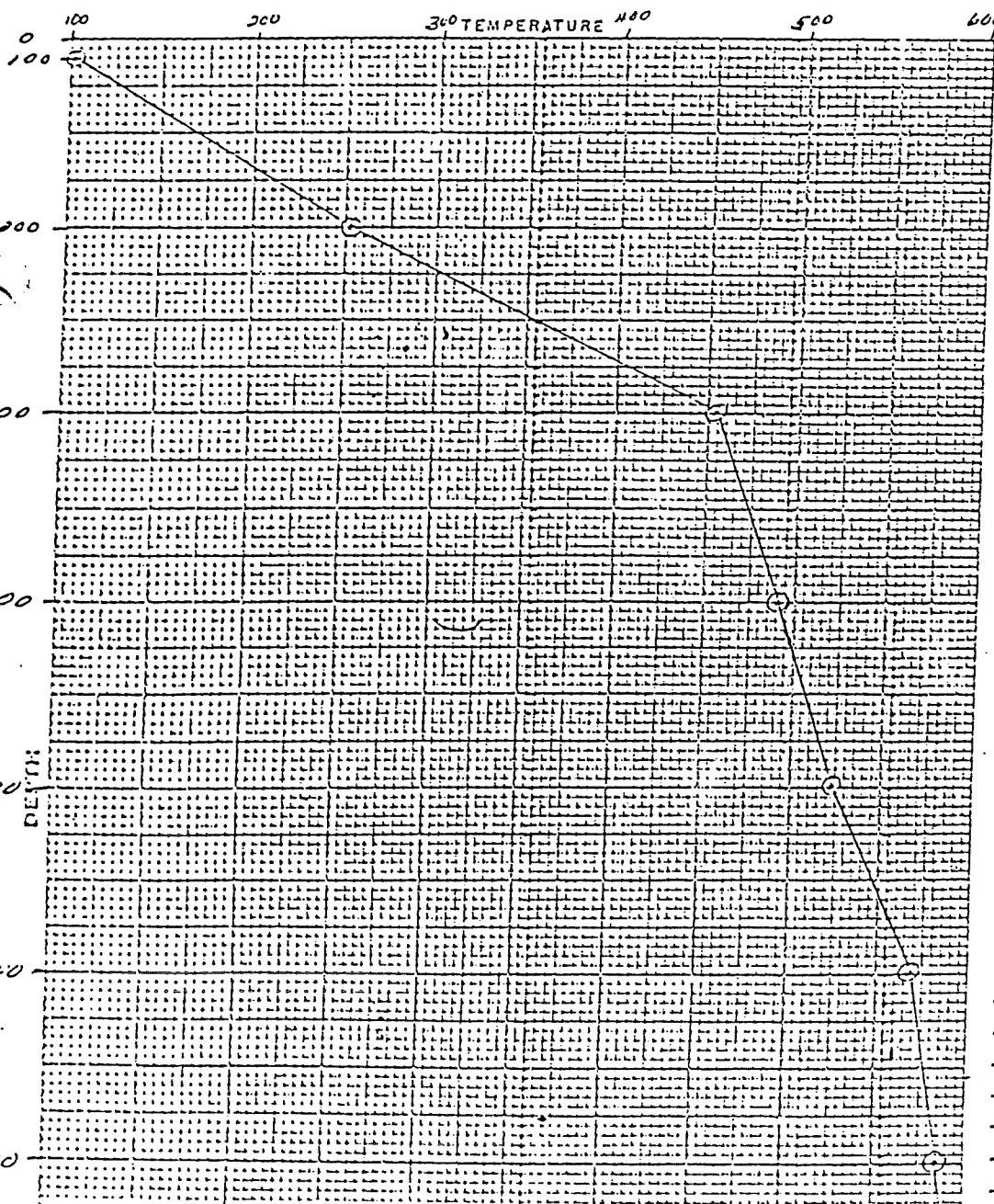
HOLE DESCRIPTION:

INSTRUMENT 821E-6860
 SERIAL NO 10655

PURPOSE

MAX TEMP. 585.5 °F @ 6331'

REMARKS:



STAGLIZATION PERIOD

DEPTH	TEMP.	DEPTH	TEMP.
100	102		
1000	253		
2000	454		
3000	491		
4000	523		
5000	568		
6000	585		
6331'	585.5		

6331' MAXIMUM TEMP.

76



GEO THERMAL DIVISION

DEL PYLE

DEC 15 1975

SUBSURFACE SURVEY

Field Work Sheet

57-513-7/T

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 13 3/8" @ 1441', 9 5/8" @ 3182' ELEV. 9318' DATE: 12-1-75
 LINER DESCRIPTION: 7" @ 3031' ZERO POINT GL+7'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE INTERFERENCE TEST

REMARKS:

ELEMENT - 7-0-14607516 7198 CLOCK - 1212-1239-2 15

ELEMENT - 7-827-6864 SERIAL NO. 10050 CLOCK 1212 14091-2 TURN 15 STABILIZATION PERIOD

ENGAGE STYLUS P-1003 T-1002 DISENGAGE STYLUS P-1425 T-1426

WELL HEAD 460 PS13

PICKUP @ 6331' TIME ON BOTTOM 1239-1339 MAX. P 588.5

WELL STATUS SHUT IN.

SHUT IN: 11/13/73. ON PRODUCTION:

RATE

PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	IS	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
1125	100	.180	408		-0.011	1125	100	.061	102								
1127	1000	.182	412		-0.005	1127	1000	.521	253								
1128	2000	.186	421		-0.003	1128	2000	1.159	454								
1150	3000	.273	611		-0.002	1150	3000	1.256	491								
1202	4000	.416	915		-	1202	4000	1.392	523								
1214	5000	.561	1200		-	1214	5000	1.551	568								
1227	6000	.707	1526		-	1227	6000	1.610	585								
1239	6331	.755	1627		-	1239	6331	1.624	588.5								
1309	6331	.760	1637		-	1309	6331	1.624	588.5								
1339	6331	.755	1627		-	1339	6331	1.624	588.5								

COMMENTS:

76

UNION

DEC PYLE
DEC 8 1975

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B4 542 PIT

OWNER UNION OIL COMPANY FIELD VALLÉE GRANDE WELL NAME BACA #4
 CASING 13 3/8 AT 1441; 9 5/8 AT 3182 ELEV. 9318' DATE: 11/25/75
 LINER DESCRIPTION: 7" AT 3021 ZERO POINT CL + 7'
 DEPTH 6331

TUBING DETAIL:

PURPOSE _____

REMARKS:

ELEMENT - 0-4002 PSI SN 7198 CLOCK - 12hr 15TURN
 ELEMENT 82°-4.96°F SERIAL NO. 10055 CLOCK 12hr 15 TURN STABILIZATION PERIOD
 ENGAGE SYLUS P-0954 0950 DIS-ENGAGE SYLUS P-1240 1340
 WELL HEAD 402 PSIG ANNULUS 392 PSIG 6-402716
 PICKUP @ 6331 TIME ON BOTTOM 11.50-12.50 MAX. 537.9

WELL STATUS: _____

SHUT IN: 11/13/73 ON PRODUCTION: _____

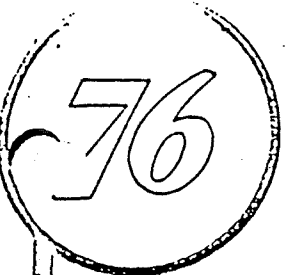
RATE _____

PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	146	1.78	105.0		011	140	140	1.059	108.7								
048	6000	1.110	1532.5		0	6000	6000	1.611	584.9								
118	6000	1.713	1538.8		0	6000	6000	1.611	584.9								
148	6000	1.710	1532.5		0	6000	6000	1.611	584.9								
150	6331	1.756	1628.9		0	6331	6331	1.622	587.9								
220	6331	1.759	1635.2		0	6331	6331	1.622	587.9								
250	6331	1.756	1628.9		0	6331	6331	1.622	587.9								

COMMENTS:



UNION

DEL PYLE

JAN 6 1976

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B4 542 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACD #4
 CASING 13 3/8 AT 1441' 9 5/8 AT 3182' ELEV. 9318' DATE: 11/25/75
 LINER DESCRIPTION: 7" AT 3031' ZERO POINT GL + 7'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT - 0-4000 PSI SN 7198 CLOCK - 12hr 15TURN
 ELEMENT 82°-686°F SERIAL NO. 10055 CLOCK 12hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0954 T 0950 DISENGAGE STYLUS P-1340 T 1340
 WELL HEAD 402 PSIG ANNULUS 352 PSIG 0-402716
 PICKUP @ 6331 TIME ON BOTTOM 1150-1250 MAX. F 587.9

WELL STATUS

SHUT IN: 11/13/73 ON PRODUCTION:

RATE

PRESSURE

TEMPERATURE

PRESSURE					TEMPERATURE												
TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	100	1.78	105.0		7011	100	100	1.054	100.7								
1048	6000	1.710	1532.5		0	6000	6000	1.611	584.9								
1118	6000	1.713	1538.8		0	6000	6000	1.611	584.9								
1148	6000	1.710	1532.5		0	6000	6000	1.611	584.9								
1150	6331	1.756	1628.9		0	6331	6331	1.622	587.9								
1220	6331	1.759	1635.2		0	6331	6331	1.622	587.9								
1250	6331	1.756	1628.9		0	6331	6331	1.622	587.9								

COMMENTS:

76

UNION

DEE PYLE

GEO THERMAL DIVISION

DEC 5 1975

SUBSURFACE SURVEY

Field Work Sheet

B4 541 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACH #4
 CASING 15 3/8" AT 1441' 9 5/8" AT 3153' ELEV. 9318' DATE: 11/18/75
 LINER DESCRIPTION: 7" AT 3031' - TD ZERO POINT GLT 7'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE INTER FLEXURE TEST

REMARKS:
ELEMENT - 0-4000 PSI SN 7199 CLOCK 12 HR 15 TURN
ELEMENT 82°-686°F SERIAL NO. 10055 CLOCK 12 HR 15 TURN STABILIZATION PERIOD
ENGAGE STYLUS P-1006 T-1001 DISENGAGE STYLUS P-1406 T-1406
WELL HEAD 400 PSIG
PICKUP @ 6331' TIME ON BOTTOM 12:10 - 13:10 MAX. F 587.7
 WELL STATUS
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

PRESSURE					TEMPERATURE												
TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
10	110	.177	400.8		-0.11	1051	110	.061	101.4								
1105	6000	.710	1532.5	*	0	1105	6000	1.606	583.6								
1135	6000	.713	1533.8	*	0	1135	6000	1.606	583.6								
1205	6000	.710	1532.5	*	0	1205	6000	1.606	583.6								
1210	6331	.756	1628.9	*	0	1210	6331	1.621	587.7								
1240	6331	.759	1635.2	*	0	1240	6331	1.621	587.7								
1310	6331	.756	1628.9	*	0	1310	6331	1.621	587.7								

COMMENTS: TD + 6000' cycle between highs + lows approx. 12 min.

GEOTHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

76

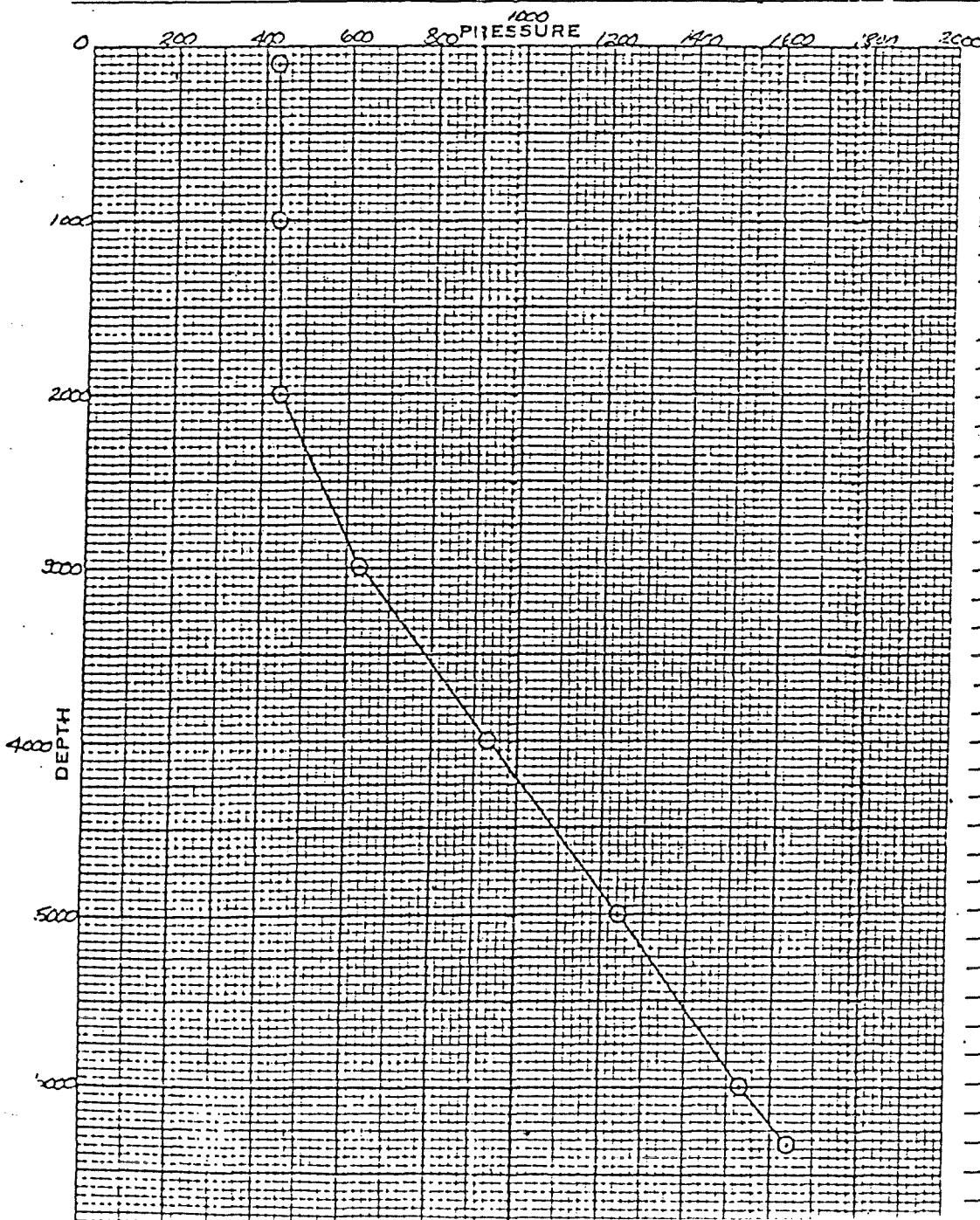
OWNER Union Oil Company FIELD Valle Grande WELL NAME Baca #4
 CASING _____ ELEV _____ DATE 11/8/75
 LINER DESCRIPTION: _____ ZERO POINT G.L. +7'
 _____ DEPTH 6331'

HOLE DESCRIPTION: _____ INSTRUMENT 0 - 4000 PS
 _____ SERIAL NO 7198

PURPOSE _____ MAX TEMP 586 °F @ 6331'

REMARKS:

STABILIZATION PERIOD



PRESSURE	GAUGE	BONS
CASING PSI		

DEPTH	PRESSURE	GRADIENT
100	430	
1000	437	
2000	446	
3000	628	
4000	930	
5000	1239	
6000	1541	
6331	1642	

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

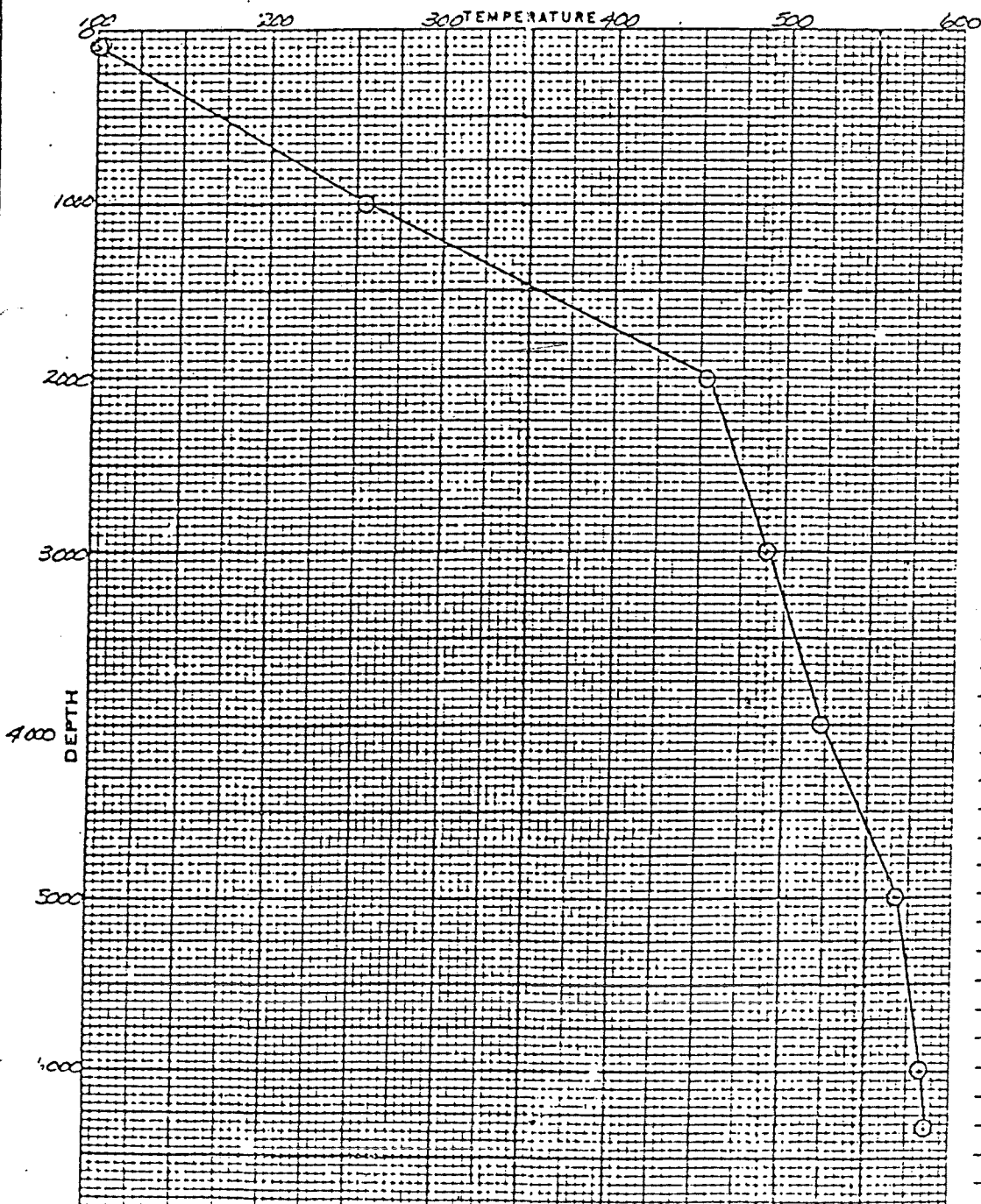
76

OWNER Union Oil Company FIELD Valle Grande WELL NAME Baca #4
CASING _____ ELEV _____ DATE 11/8/75
LINER DESCRIPTION: _____ ZERO POINT G.L. +7'
DEPTH 6331'
HOLE DESCRIPTION: _____ INSTRUMENT 82 - 686 FAH
SERIAL NO 10055
PURPOSE _____ MAX TEMP 586 °F @ 6331'
REMARKS: _____

STABILIZATION PERIOD

PRESSURES	GAUGE	BOYS
CASING PSI		

DEPTH	TEMP.	DEPTH	TEMP.
100	101		
1000	256		
2000	454		
3000	490		
4000	523		
5000	567		
6000	583		
6331	586		



76

union

JOHN DEB. MARTZ

NOV 18 1975

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B#1-540

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACA#4
 CASING 13 3/8" @ 1441', 9 5/8" @ 3180' ELEV. 9318' DATE: 11/8/75
 LINER DESCRIPTION: 7" @ 3031' - T.D. ZERO POINT 66+7'
 DEPTH 633'

TUBING DETAIL:

PURPOSE

REMARKS:

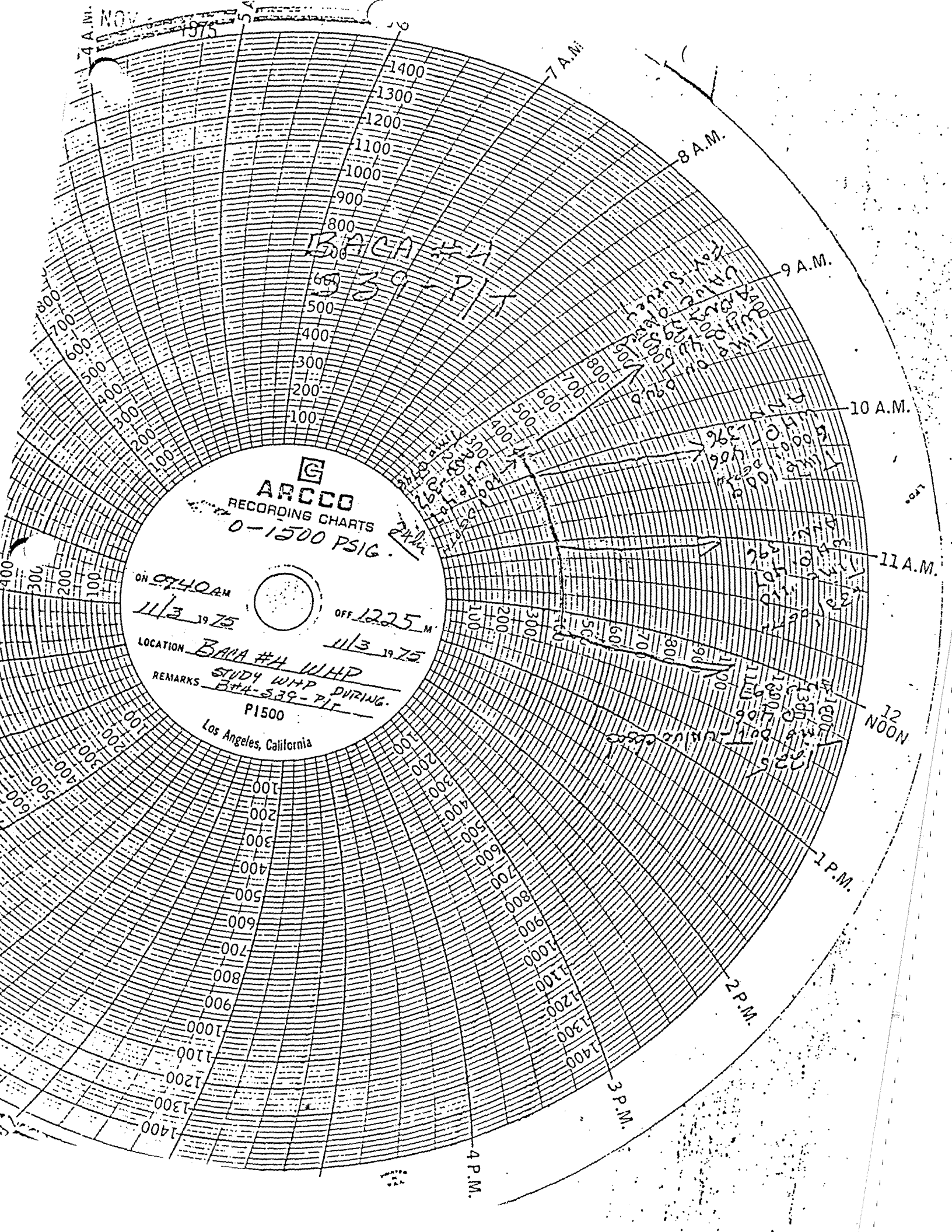
P-0-4000 PSIG. 7198 12/12 12589-2 15
 ELEMENT T-82°F-626° SERIAL NO. 10055 CLOCK 12/12-14091L TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1020, T-1406 DISENGAGE STYLUS P-1022, T-1406.
 WELL HEAD 406, BRUNNLS-397.
 PICKUP @ 6331' TIME ON BOTTOM 1218-1318 MAX. F 586°F
 WELL STATUS SHUT IN.
 SHUT IN: 11/13/73. ON PRODUCTION:
 RATE


PSIG. TEMP

TD	DEPTH	DEFL.	P-T	GRAD.	GRAD.	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.
	100	.190	430		-1.001	1055	100	.061	101							
1107	1000	.193	437		-1.005	1107	1000	.533	256							
1120	2000	.197	446		-1.003	1120	2000	1.159	454							
1133	3000	.281	628		-1.002	1133	3000	1.280	490							
1147	4000	.403	930		-	1147	4000	1.392	523							
1201	5000	.570	1239		-	1201	5000	1.546	567							
1213	6000	.714	1541		-	1213	6000	1.605	583							
1218	6331	.762	1642		-	1218	6331	1.616	586							
1248	6331	.760	1637		-	1248	6331	1.616	586							
1318	6331	.762	1642		-	1318	6331	1.616	586							

COMMENTS:

NOV 1975




ARCCO
 RECORDING CHARTS
 0-1500 PSIG.
 ON 0740 AM
 11/3 1975
 OFF 1225 M
 11/3 1975
 LOCATION BARA #4 WHP
 REMARKS STUDY WHP DURING
PH-539-717
 P1500
 Los Angeles, California

BARA #4
 PH-539-717

1100
 1000
 900
 800
 700
 600
 500
 400
 300
 200
 100

1100
 1000
 900
 800
 700
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1100
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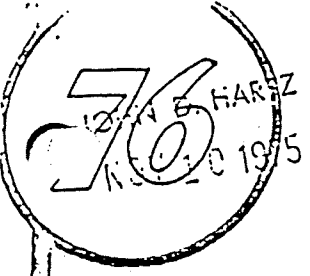
1100
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1100
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 300
 200
 100



UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY Field Work Sheet

B#4-539-P17

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA#4
 CASING 13 3/8" @ 1441'; 9 5/8" @ 3183' ELEV. 9318' DATE: 11/3/75
 LINER DESCRIPTION: 7" @ 3031' - T.D. ZERO POINT GL+7'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE:

REMARKS:

ELEMENT - 0-4000 PSIG - 7198 12hr - 12885-L 15
 ELEMENT - 82° - 686°F SERIAL NO. 10055 CLOCK 12hr 14091-L TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0905 T-0905 DISENGAGE STYLUS P-1620 T-1620
 WELL HEAD 405 PSIG -
 PICKUP @ 6331 TIME ON BOTTOM 1110-1210 hrs MAX. °F 589
 WELL STATUS SHUT IN.
 SHUT IN: 11/3/75 ON PRODUCTION:

PRESSURE

TEMPERATURE

TIME	PRESSURE					TEMPERATURE					ID	TIME	TEMPERATURE					ID
	DEPTH	DEFL.	P-T	GRAD.	CORR.	DEPTH	DEFL.	P-T	GRAD.	DEPTH			DEFL.	P-T	GRAD.			
0957	100	.180	1108	-	-.011	100	1.065	103										
1009	6000	.707	1526		-	6000	1.610	585										
1039	6000	.712	1537		-	6000	1.610	585										
1109	6000	.710	1533		-	6000	1.610	585										
1110	6331	.758	1633		-	6331	1.625	589										
1140	6331	.760	1637	*	-	6331	1.625	589										
1210	6331	.759	1635		-	6331	1.625	589										

* MAXIMUM PRESS DURING HOUR ON BOTTOM

COMMENTS: TIME WHP ANNULIS DEPTH
 0947 405 395 100
 1009 406 396 6000
 1110 407 397 6331

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UNION

DEL PYLE

NOV 7 1975

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B4-538 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 13 3/8 AT 1441; 9 5/8 AT 3122' ELEV. 9318' DATE: 10/28/75
 LINER DESCRIPTION: 9" AT 3231 - TD ZERO POINT CL + 7'
 DEPTH 6331

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT - 0-4000 PSI SN 7198 CLOCK - 12 hr 15 TURN
 ELEMENT 82° - 686° SERIAL NO. 10055 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0924 T 0928 DISENGAGE STYLUS P-1421 T-H21
 WELL HEAD 455 PSIG AT 1030 hrs
 PICKUP @ 6331 TIME ON BOTTOM 1122 - 1222 MAX. T 589.6
 WELL STATUS
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

TIME	PRESSURE				ID	PRESSURE				ID	TEMPERATURE				ID	
	DEPTH	DEFL.	P-F	GRAD.		DEPTH	DEFL.	P-F	GRAD.		DEPTH	DEFL.	B-T	GRAD.		
10:00	110	.206	466		-0.012	1202	6331	.762	1642		1010	110	.065	102.0		
10:00	6000	.703	1518			1204	6331	.760	1637		1020	6000	1.614	585.8		
22	6000	.705	1522			1212	6331	.766	1650		1050	6000	1.614	585.8		
24	6000	.707	1526			1215	6331	.760	1637		1120	6000	1.614	585.8		
26	6000	.712	1537			1223	6331	.765	1648		1122	6331	1.623	589.6		
28	6000	.716	1545			1231	6000	.710	1533		1152	6331	1.622	589.6		
30	6000	.710	1533			1242	5000	.570	1239		1223	6331	1.628	589.6		
40	6000	.710	1533			1256	4000	.425	934		1231	6000	1.616	586.0	SUSPECT	
42	6000	.717	1547			1300	3000	.278	621		-0.002	1242	5000	1.556	569.5	OF SLIGHTLY
44	6000	.711	1535			1304	3000	.283	632		-0.002	1256	4000	1.405	526.4	HIGH due
54	6000	.710	1533			1307	3000	.280	626		-0.002	1307	3000	1.300	495.2	TO SLOW
56	6000	.716	1545			1317	2000	.212	480		-0.003	1317	2000	1.205	467.5	COOLING
58	6000	.715	1543			1328	1000	.205	464		-0.006	1328	1000	NO READING	EFFECT	
1:00	6000	.711	1535			1336	100	.193	457		-0.012	1336	100			
10	6000	.710	1533													
12	6000	.717	1547													
14	6000	.712	1537													
20	6000	.710	1533													
22	6331	.766	1650													
24	6331	.762	1642													
33	6331	.760	1637													
35	6331	.765	1648													
37	6331	.762	1642													
46	6331	.760	1637													
48	6331	.766	1650													
	331	.763	1644													
	331	.768	1637													
1:00	6331	.766	1650													

WELL HEAD PRESSURE DURING GRADIENT

TIME	DEPTH	WHP
1231	6000	442 PSI
1243	5000	441 PSI
1256	4000	440 PSI
1307	3000	440 PSI
1317	2000	440 PSI
1328	1000	459 PSI
1336	100	439 PSI

COMMENTS: CALIBRATION CHECK WITH DWI AT 2000 PSI AT 75°F

GRADIENT SURVEY RUN COMING OUT OF THE HOLE

DEF = .920
 COR = +.010
 COR PSI = 1994

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UNION

O.K. DELAPYLE

GEO THERMAL DIVISION NOV 7 1975

SUBSURFACE SURVEY

Field Work Sheet

BRANN-537-P/T

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BRANN
 CASING 1 3/8" @ 1441'; 9 5/8" @ 3182' ELEV. 9318' DATE: 10/20/75
 LINER DESCRIPTION: 7" @ 3031' ZERO POINT GL+5'
 DEPTH 5959'

TUBING DETAIL:

PURPOSE

REMARKS:

P-0-4860 PSIG 7198 12hr-13375-L 15
 ELEMENT T-829F-6869F SERIAL NO. 10055 CLOCK 12hr-14091-L TURN'S STABILIZATION PERIOD
 ENGAGE STYLUS P-1517 T-1519 DISENGAGE STYLUS P-1758 T-1758
 WELL HEAD 384 PSIG
 PICKUP @ 6330' TIME ON BOTTOM 1700-1730 MAX. T 588
 WELL STATUS STATIC
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	TEMP.	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
15	100	.173	359	-	+1.009	1548	100	.063	102	-							
1600	1000	.174	391	-	+1.007	1600	1000	.520	352								
1611	2000	.170	382	-	+1.002	1611	2000	1.152	457								
1623	3000	.250	571		+1.002	1623	3000	1.280	490								
1631	4000	.352	582		+1.002	1631	4000	1.375	518								
1646	5000	.511	1135		+1.001	1646	5000	1.548	567								
1658	6000	.641	1459		+1.001	1658	6000	1.602	583								
1730	6330	.683	1587		+1.001	1730	6330	1.623	588								

COMMENTS:

BOMB # 13012 IS NOT STABLE AND PRESSURES ARE NOT CORRECT. JD# 11/3/75

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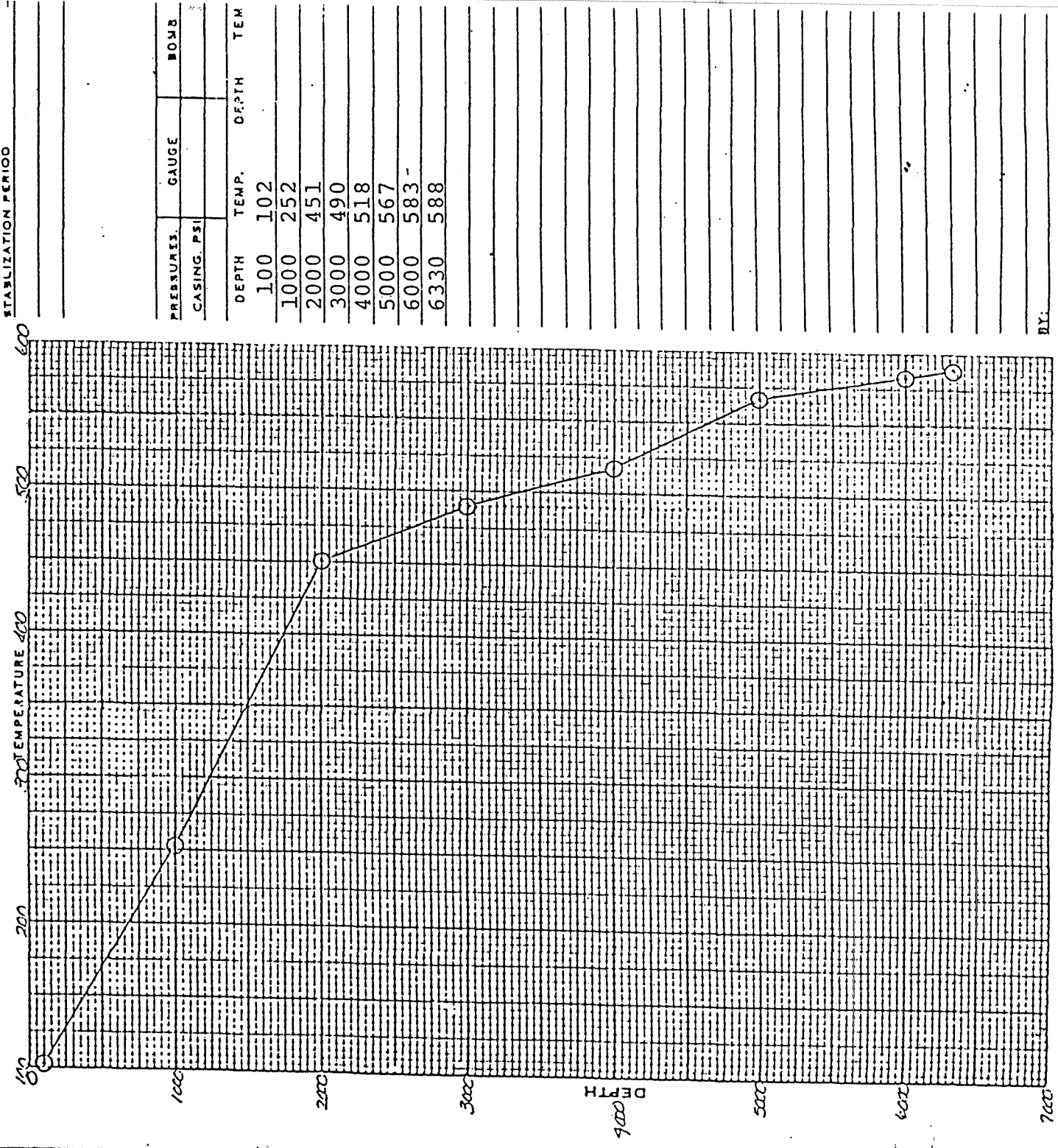
GEOHERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY 84-S37-PT

OWNER Union Oil Company FIELD Valle Grande WELL NAME Baca #4
 CABING _____ DATE 10/20/75
 LINER DESCRIPTION _____ ZERO POINT G.L. +5'
 _____ DEPTH 5959'

HOLE DESCRIPTION: _____ INSTRUMENT _____ FAH _____
 _____ SERIAL NO 10055

PURPOSE _____ MAX TEMP _____ °F @ _____
 REMARKS: _____



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	TEMP.	DEPTH	TEMP.
100	102		
1000	252		
2000	451		
3000	490		
4000	518		
5000	567		
6000	583		
6330	588		

STABILIZATION PERIOD

BY:

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GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

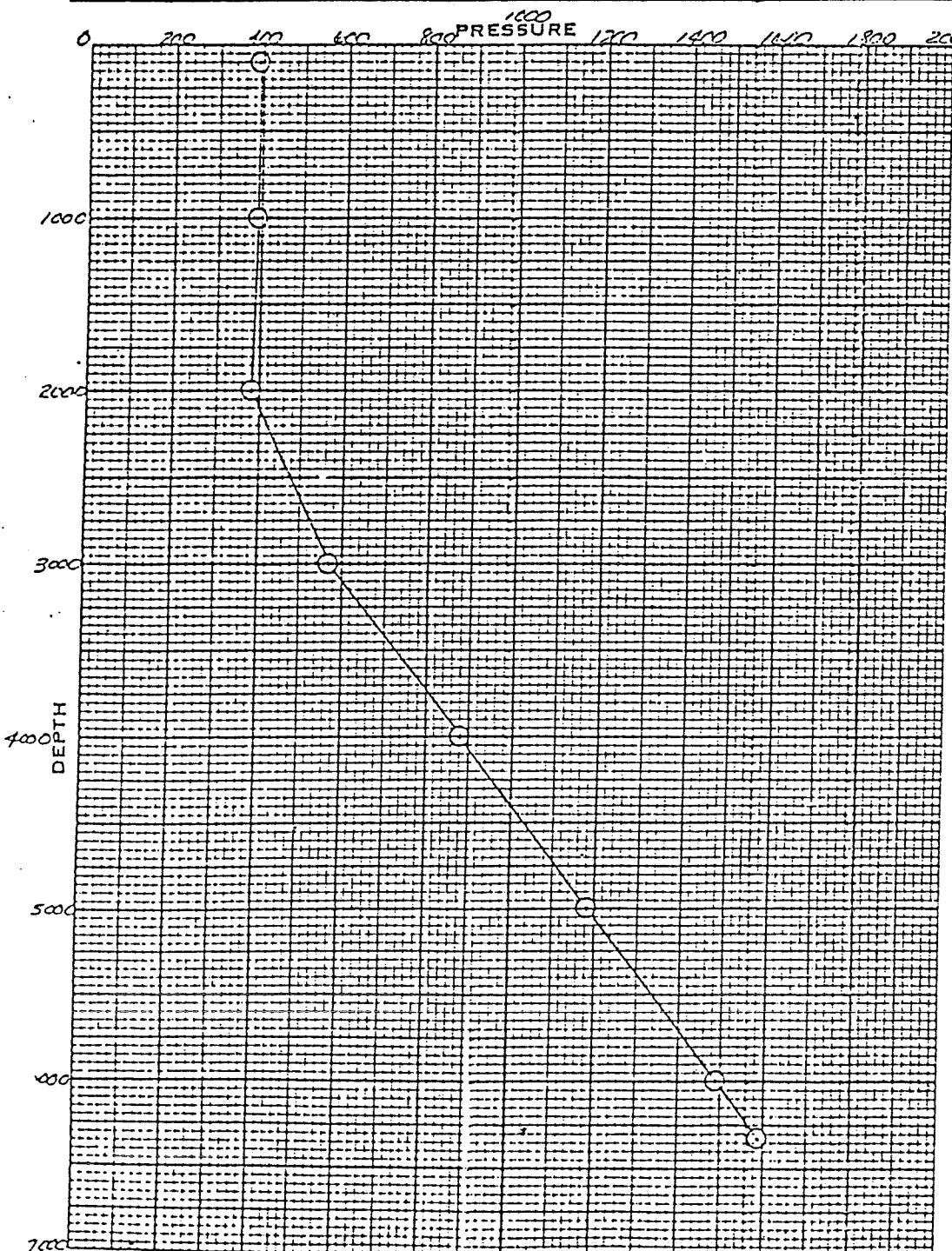
B4-S37-PT

OWNER Union Oil Company FIELD Valle Grande WELL NAME Baca #4
 CASING _____ ELEV _____ DATE 10/20/75
 LINER DESCRIPTION: _____ ZERO POINT G.L. +5'
 _____ DEPTH 5959'

HOLE DESCRIPTION: _____
 _____ INSTRUMENT 0 - 4800 PS
 _____ SERIAL NO 7198

PURPOSE _____ MAX TEMP 588 °F @ 6330

REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES.	GAUGE	BOMB
CASING. PSI		

DEPTH	PRESSURE	GRADIENT
100	389	
1000	391	
2000	382	
3000	571	
4000	882	
5000	1185	
6000	1489	
6330	1587	

BY: _____

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UNION

DEL PYLE

GEOTHERMAL DIVISION NOV 7 1975

SUBSURFACE SURVEY
Field Work Sheet

B# 536 P/P

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 13 3/8" AT 1441; 9 5/8" AT 3187' ELRV. 9318' DATE: 10/20/75
 LINER DESCRIPTION: 7" AT 3031 - TD ZERO POINT CL +5'
 DE' H 6331

TUBING DETAIL:

PURPOSE:

 REMARKS:
 ELEMENT P₁ = 0 - 9000 PSI SN 7198 CLOCK 12 7/8 15 TURN
 ELEMENT P₂ = 2950 PSI SERIAL NO. 10055 CLOCK 12 7/8 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P₁ 1027 P₂ 1031 DISENGAGE STYLUS P₁ 1421 P₂ 1422
 WELL HEAD 385 PSIG 0-600 1/4; ANNULUS - 376 PSIG 0-600 1/4
 PICKUP 0 6331 TIME ON BOTTOM 1510 - 1345 MAX. °F
 WELL STATUS:
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

P₁ - # 7198 P₂ - # 9235

TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
11	150	.171	387.0		-1.001	1130	150	.250	393.0		-1.008						
1143	1500	.184	417.0		-1.006	1143	1500	.258	405.0		-1.006						
1155	2000	.187	423.0		-1.003	1155	2000	.263	412.0		-1.003						
1207	3000	.271	606.0		-1.002	1207	3000	.390	599.0		0						
1220	4000	.420	923.0		0	1220	4000	.605	916.0		+1.002						
1230	5000	.567	1233.0		0	1230	5000	.815	1220.0		+1.002						
1305	6000	.717	1547.0		0	1305	6000	1.029	1531.0		+1.002						
1345	6331	.764	1646.0		0	1345	6331	1.097	1631.0		+1.001						

COMMENTS: PRESSURES WERE COLLECTED USING TEMPERATURES FROM B# 537 P/P

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GEO THERMAL DIVISION

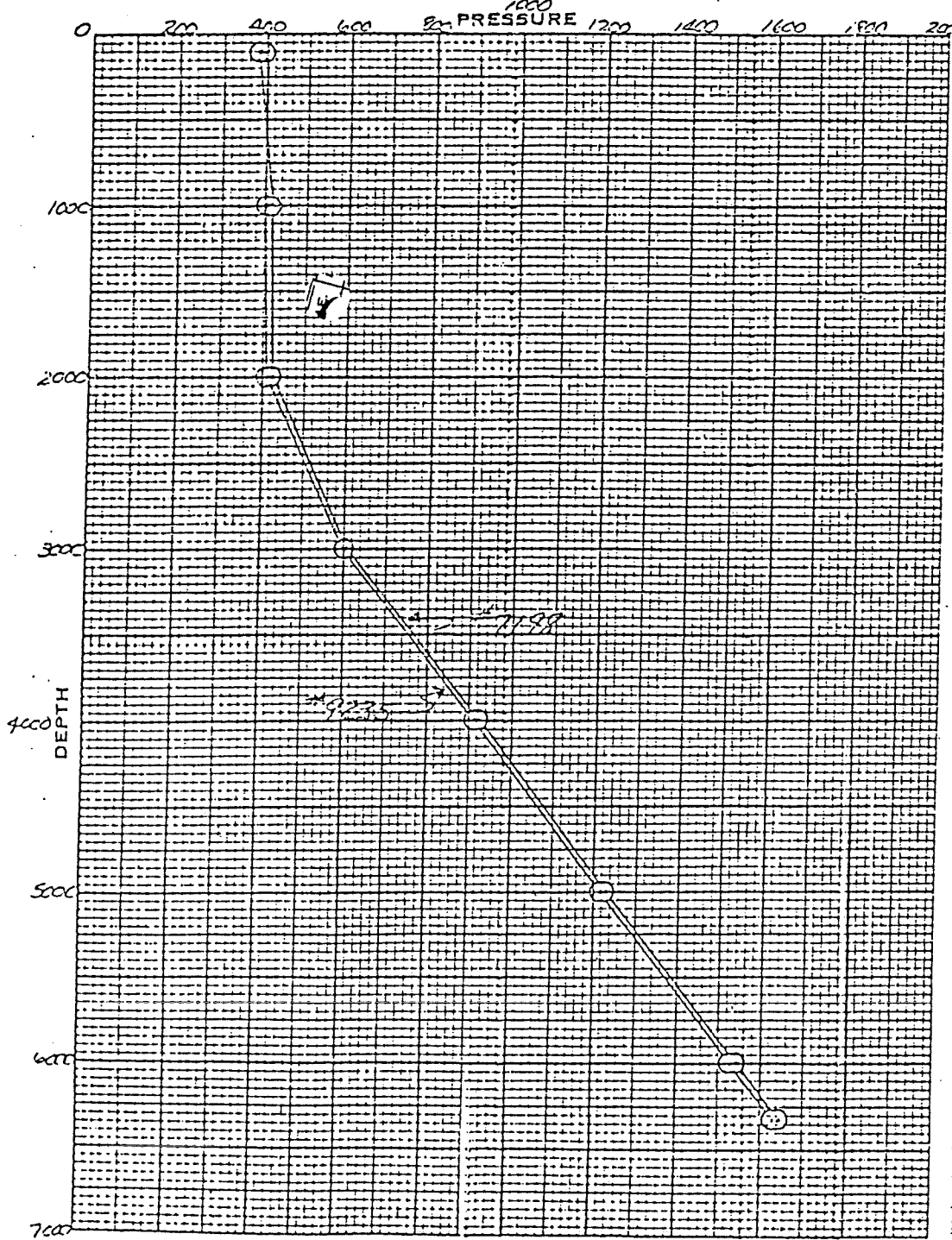
SUBSURFACE PRESSURE SURVEY

B4-536-PP

OWNER Union Oil Company FIELD Valle Grande WELL NAME Baca #4
 CASING _____ ELEV _____ DATE 10/20/75
 LINER DESCRIPTION: _____ ZERO POINT G.L. +5'
 _____ DEPTH 6331'

HOLE DESCRIPTION: _____ INSTRUMENT _____ PS
 _____ SERIAL NO #7198 and #9235

PURPOSE _____ MAX TEMP _____ °F @ _____
 REMARKS Pressures were corrected using temp. from B4-537-PT survey.



STABILIZATION PERIOD _____

PRESSURES	GAUGE	BONS
CASING, PSI		

DEPTH	PRESSURE	CORR.
#7198		
100	387.0	-.00
1000	417.0	-.00
2000	423.0	-.00
3000	606.0	-.00
4000	923.0	0
5000	1233.0	0
6000	1547.0	0
6331	1646.0	0

DEPTH	PRESSURE	CORR.
#9235		
100	393.0	-.00
1000	405.0	-.00
2000	412.0	-.00
3000	599.0	0
4000	915.0	+.00
5000	1220.0	+.00
6000	1531.0	+.00
6331	1631.0	+.00

BY: J.M. and J.B.

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Union

GEO THERMAL DIVISION

DEL PYLE
NOV 7 1975

SUBSURFACE SURVEY
Field Work Sheet

BA 535 P/P

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 1 3/8" AT 1441'; 9/8" AT 510' ELEV. 9318' DATE: 10/13/75
 LINER DESCRIPTION: 7" AT 303' ZERO POINT 6445'
 DEPTH 6332'

TUBING DETAIL:

PURPOSE INTERFERENCE TEST CONFIRMATION SURVEY

REMARKS:

ELEMENT - O-4250 PSIG SN 7198 CLOCK - 12 HR 15 TURN
 ELEMENT O-2950 PSIG SERIAL NO. 9235 CLOCK 1 HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P₁ P₂ DISENGAGE STYLUS P₁ P₂
 WELL HEAD 582 PSIG
 PICKUP @ 6332 TIME ON BOTTOM 1845-1855 MAX. °F
 WELL STATUS
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

P₁ # 7198

P₂ # 9235

TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
17	00	.182	409.9		0	170	1731	.272	423.7	0							
174	1000	.187	421.2		0	1740	1749	.281	437.7	0							
1757	2000	.185	416.7		0	1750	1757	.278	433.0	0							
1809	3000	.274	610.1		0	1800	1809	.400	617.6	0							
1820	4000	.424	928.0		+0.01	1810	1820	.607	926.6	+0.01							
1832	5000	.579	1254.2		+0.01	1820	1832	.820	1240.4	+0.01							
1844	6000	.730	1572.0		+0.01	1830	1844	1.026	1544.4	+0.01							
1855	6332	.779	1645.8		+0.01	1832	1855	1.072	1642.0	+0.01							

COMMENTS:

BY:

76

UNION
GEO THERMAL DIVISION

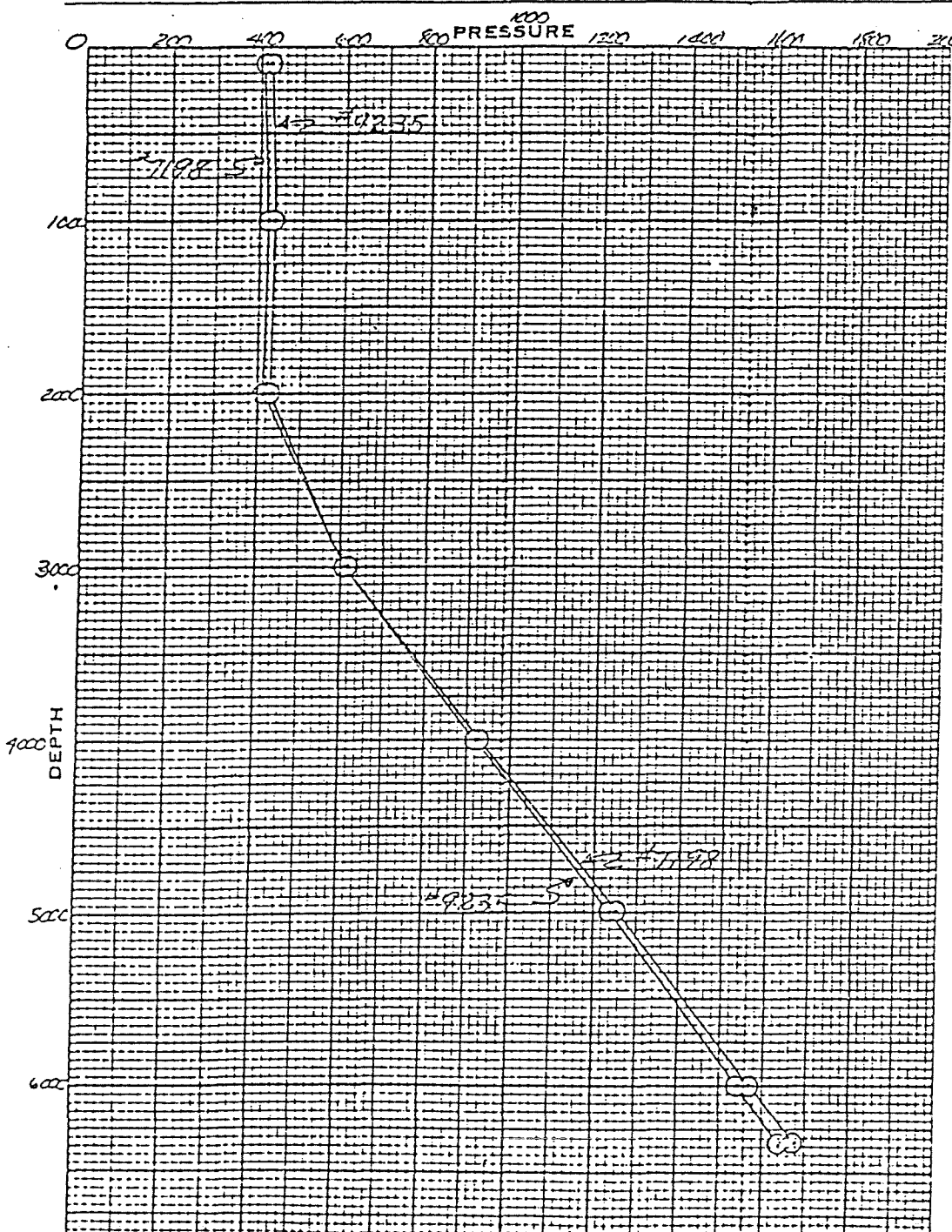
SUBSURFACE PRESSURE SURVEY 34-535-PP

OWNER Union Oil Company FIELD Valle Grande WELL NAME Baca #4
 CASING 13-3/8" @ 1441'; 9-5/8" @ 5182' ELEV 9318' DATE 10/13/75
 LINER DESCRIPTION: 7" at 3031' ZERO POINT G.L. +5'
 DEPTH 6332'

MOLE DESCRIPTION: _____
 INSTRUMENT _____
 SERIAL NO #9235 and #7198

PURPOSE Interference test confirmation survey. MAX TEMP _____ °F @ _____

REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES,	GAUGE	BOWE
CASING, PSI		

DEPTH	PRESSURE	BOWE
	#7198	
100	409.9	0
1000	421.2	0
2000	416.7	0
3000	610.1	0
4000	928.0	+0.00
5000	1254.2	+0.00
6000	1572.0	+0.00
6332	1675.8	+0.00

DEPTH	PRESSURE	BOWE
	#9235	
100	423.7	0
1000	437.7	0
2000	433.0	0
3000	617.6	0
4000	925.6	+0.00
5000	1240.4	+0.00
6000	1544.4	+0.00
6332	1642.0	+0.00

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UNION

DEL PYCE

OCT 22 1975

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

BA 535 P/P

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 1 3/8" AT 1441'; 9 5/8" AT 518' ELEV. 9318' DATE: 10/13/75
 LINER DESCRIPTION: 7" AT 3031 ZERO POINT 644.5'
 DEPTH 6332'

TUBING DETAIL:

PURPOSE INTERFERENCE TEST CONFIRMATION SURVEY.

REMARKS:

ELEMENT 1 - 0-4250 PSIG SN 7198 CLOCK - 12 hr 15 TURN

ELEMENT 2 - 0-2950 PSIG SERIAL NO. 9235 CLOCK 12 hr 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P₁ P₂ DISENGAGE STYLUS P₁ P₂

WELL HEAD 592 PSIG

PICKUP @ 6332 TIME ON BOTTOM 1845-1855 MAX. °F

WELL STATUS

SHUT IN: 11/13/73 ON PRODUCTION:

RATE

P₁ # 7198

P₂ # 9235

DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
1731	160	.182	409.9	0	110	1731	.272	423.7	0							
744	1600	.187	421.2	0	1600	1744	.281	437.7	0							
1757	2600	.185	416.7	0	2100	1757	.278	433.0	0							
1809	3100	.274	610.1	0	3100	1809	.400	617.6	0							
1820	4600	.424	928.0	1.001	4100	1820	.607	926.6	1.001							
1832	5000	.579	1254.2	1.001	5000	1832	.820	1240.4	1.001							
1844	6000	.730	1572.0	1.001	6000	1844	1.026	1544.4	1.001							
1856	6332	.779	1656.8	1.001	6332	1855	1.092	1642.0	1.001							

COMMENTS:

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UNION

DEL PYLE

OCT 22 1975

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

BWH-534-P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACH #4
 CASING 15 3/4" AT 1441' 9 5/8" AT 3183' ELEV. 9319' DATE: 10/13/75
 LINER DESCRIPTION: 1" AT 3031' ZERO POINT CL+5'
 DEPTH 6332'

TUBING DETAIL:

PURPOSE INTERFERENCE TEST

REMARKS:

ELEMENT: 0-4250 PSIG SN 7198 CLOCK: 12 H 15 T
 ELEMENT: 82-680°F SERIAL NO. 10055 CLOCK 12 H 15 T TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0806 T 0916 DISENGAGE STYLUS P 1310 T 1300
 WELL HEAD 582.6 PSIG 0-600 T/C
 PICKUP @ 6332' TIME ON BOTTOM 1020-1220 MAX. P 589.6
 WELL STATUS
 SHUT IN: 11/13/73 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

PRESSURE					TEMPERATURE											
DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
0915	6000	.727	1565.7	1.001	0915	6000	1.591	579.4								
0945	6000	.727	1565.7	1.001	0945	6000	1.615	586.1								
1015	6000	.727	1565.7	1.001	1015	6000	1.615	586.1								
1020	6332	.776	1669.5	1.001	1020	6332	1.628	589.6								
1050	6332	.776	1669.5	1.001	1050	6332	1.628	589.6								
1120	6332	.776	1669.5	1.001	1120	6332	1.628	589.6								
1150	6332	.776	1669.5	1.001	1150	6332	1.628	589.6								
1220	6332	.776	1669.5	1.001	1220	6332	1.628	589.6								

COMMENTS: TD = 6332'

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UNION

DEL PYLE

GEO THERMAL DIVISION

OCT 22 1975

SUBSURFACE SURVEY
Field Work Sheet

34 533 F/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BH24 #4
 CASING 13 7/8" AT 1441' 9 5/8" AT 3152' ELEV. 9318' DATE: 10/6/75
 LINER DESCRIPTION: 7" AT 3031 ZERO POINT 6645
 DEPTH 6345

TUBING DETAIL:

PURPOSE

REMARKS:

0-4350 PSI SN 7198 CLOCK 12 HR 15 TURN

ELEMENT 87° - 6.96° SERIAL NO. 10055 CLOCK 12 HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P0931 T 0929 DISENGAGE STYLUS P1305 T 1305
 WELL HEAD 382 PSIG 0-400 T/G
 PICKUP @ 6320 TIME ON BOTTOM 1036 - 1236 MAX. IF 587.4
 WELL STATUS SHUT IN 11/13/73
 SHUT IN: ON PRODUCTION:
 RATE

PRESSURE TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
1036	6320	.748	1610.2		1.001	1036	6320	1.620	587.4								
1106	6320	.748	1610.2		1.001	1106	6320	1.620	587.4								
1136	6320	.748	1610.2		1.001	1136	6320	1.620	587.4								
1206	6320	.748	1610.2		1.001	1206	6320	1.620	587.4								
1236	6320	.748	1610.2		1.001	1236	6320	1.620	587.4								

COMMENTS: NOTE: NEW TD 6320'

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GEO THERMAL DIVISION DEL PYLE

SUBSURFACE SURVEY
Field Work Sheet

SEP 22 1975
B-4 5-32 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 13 7/8" AT 1441' ELEV. 9318' DATE: 9/15/75
 LINER DESCRIPTION: 9 5/8" AT 3182' ZERO POINT 6245'
 7" AT 3031' - 6376' DEPTH 6345'

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT - 0-0250 PSIG SN 7198 CLOCK 12 hr 15'

ELEMENT 82°-6.86° SERIAL NO. 10255 CLOCK 12 hr 15' TURN STABILIZATION PERIOD

ENGAGE STYLUS P-1029T-1031 DISENGAGE STYLUS P1501T-1507

WELL HEAD 582 PSIG 0-4007/6

PICKUP @ 6345' TIME ON BOTTOM 1357-1357 MAX. 587.7

WELL STATUS SHUT

SHUT IN: 1222 hrs 11/13/73 ON PRODUCTION:

RATE

PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	100	.176	396.4		0	1140	100	.068	103.7								
	1100	.479	405.2		0	1152	1000	.522	253.0								
04	2000	.177	598.6		0	1204	2000	1.145	449.2								
16	3000	.265	591.1		0	1216	3000	1.280	489.6								
28	4000	.414	906.8		+0.01	1228	4000	1.377	518.2								
41	5000	.562	1218.5		+0.01	1241	5000	1.547	566.9								
56	6000	.708	1525.4		+0.01	1256	6000	1.607	585.9								
57	6345	.756	1627.1		+0.01	1257	6345	1.619	587.1								
57	6345	.758	1631.4		+0.01	1327	6345	1.621	587.7								
7	6345	.758	1631.4		+0.01	1357	6345	1.621	587.7								

COMMENTS:

BY: JMM JB

716

GEOTHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B#4-533-P

OWNER UNION OIL CO. DE OILE FIELD WALLE GRANDE WELL NAME RACH#4
 CASING 1 3/8" @ 1441'; 2 3/8" @ 3183' ELEV. 9318' DATE: 9/15/75
 LINER DESCRIPTION: 7" SLOTTED LINER- 3031'-6376' ZERO POINT ALT 5'
SLOT INTERVALS - 3036' - 6375' DEPTH 6345'

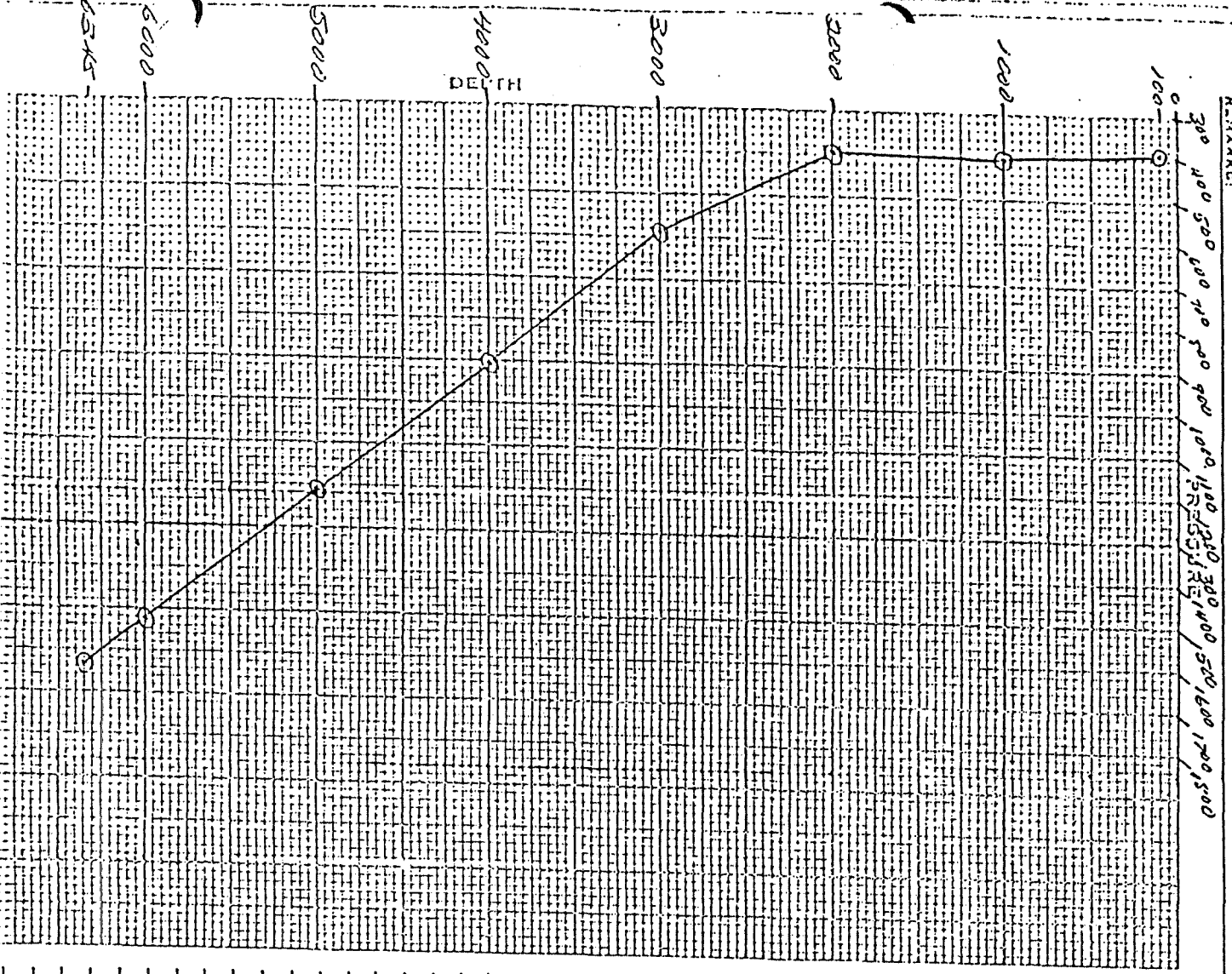
HOLE DESCRIPTION:

INSTRUMENT 0-4950
 SERIAL NO 7198

MAX TEMP 537.7 OF @ 6345'

REMARKS:

STABILIZATION PERIOD



DEPTH	PRESSURE	GRADIENT
100	396.4	
200	403.2	
300	398.6	
3000	591.1	
4000	906.8	
5000	1218.5	
6000	1525.4	
6345	1631.4	

PRESSURES	GAUGE	DEPTH
CASING PSI	382	396.4

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

BACA#4-532-T

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA#4
 CASING 13 3/8" @ 1441'; 9 5/8" @ 3152' ELEV. 9318' DATE: 9/15/75
 LINER DESCRIPTION: 7" SLOTTED LINER- 3058' - 6375' ZERO POINT GLT5'
SLOT INTERNALS- 3036 - 6375' DEPTH 6345'

HOLE DESCRIPTION: _____

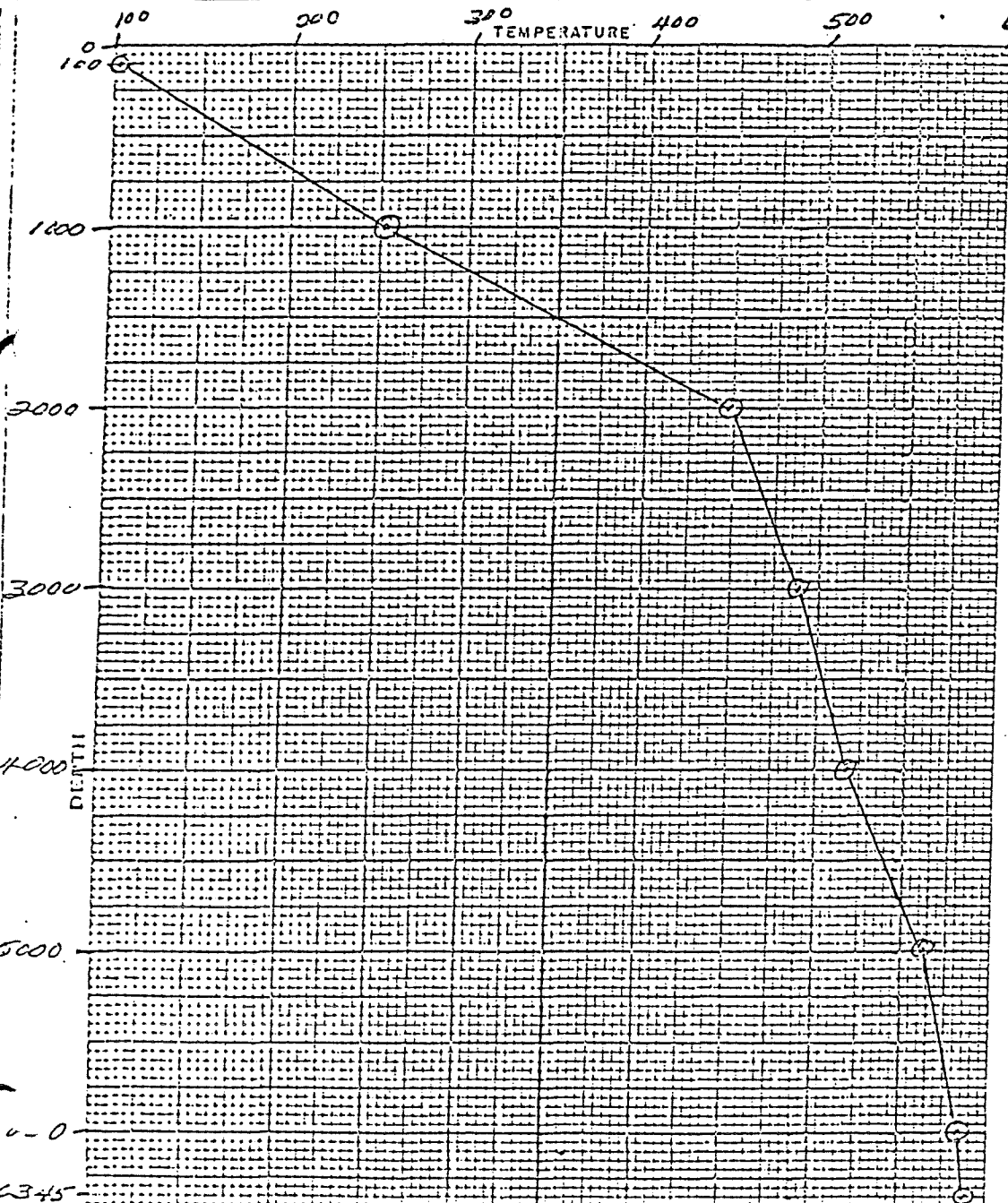
INSTRUMENT 82°F - 686° F

SERIAL NO 10055

PURPOSE _____

MAX TEMP. 587.7 °F @ 6345'

REMARKS: _____



PRESSURE	GAUGE	30" @
CASING, PSI	382	396 @ 10'

DEPTH	TEMP.	DEPTH	TEMP.
100	103.7		
1000	25.3		
2000	449.2		
3000	489.6		
4000	518.2		
5000	567		
6000	584		
6345	587.7		

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UNION

JH.

DEL PYLE ✓

GEO THERMAL DIVISION SEP 22 1975

SUBSURFACE SURVEY
Field Work Sheet

BACA#4-S31-P/T

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACA#4
 CASING 13 7/8" @ 1441' ELEV. 9318' DATE: 9/10/75
 LINER DESCRIPTION: 9 5/8" @ 5132 ZERO POINT GL+5'
 7" - 3031' - 6376' SLOTS - 3036' - 6375' DEPTH 6345'

TUBING DETAIL:

PURPOSE INITIAL SURVEY FOR DRAWDOWN TEST.

REMARKS:

P-C-4250 PSIG 7198 12hr 1.375-L 1.5
 ELEMENT 3-20F-681°F SERIAL NO. 10055 CLOCK 12hr 14091-L TURN 15 STABILIZATION PERIOD
 ENGAGE STYLUS P-0658, T-0654 DISENGAGE STYLUS P-1104, T-1100
 WELL HEAD (379) ANNULUS-368
 PICKUP @ 6345 TIME ON BOTTOM 0730-1030 MAX. P 587
 WELL STATUS STAB.
 SHUT IN: 1220 hrs on 11/3/73. ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	COEFF.	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
0730	6345	16.34	16.34	-	+0.01	0730	6345	16.20	587								
0800	"	16.34	16.34	-	+0.01	0800	"	16.20	587								
0830	"	16.34	16.34	-	+0.01	0830	"	16.20	587								
0900	"	16.34	16.34	-	+0.01	0900	"	16.20	587								
0930	"	16.34	16.34	-	+0.01	0930	"	16.20	587								
1000	"	16.34	16.34	-	+0.01	1000	"	16.20	587								
1030	"	16.34	16.34	-	+0.01	1030	"	16.20	587								

COMMENTS:

BY: A. J. ...

76

Union

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

BACA#4-S30-P/T

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA#4
 CASING 13 7/8" @ 1441'; 9 5/8" @ 3182' ELEV. 9318' DATE: 5/6/75
 LINER DESCRIPTION: 7" - 3031' - 6376' SLOTS - 3036' - 6375' ZERO POINT GLT5'
 DEPTH 6345'

TUBING DETAIL:

PURPOSE

REMARKS:

P-O-4250 PSIG 7198 12hr-13375-L 15
 ELEMENT T-329 -686°F SERIAL NO. 10055 CLOCK 12hr-13375-L 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1040 T-1045 DISENGAGE STYLUS P-1320 T-1320
 WELL HEAD 370 PSIG - 0-400 7/8
 PICKUP @ 6345' TIME ON BOTTOM 1232-1247 MAX. 'F 586.1
 WELL STATUS STATIC ON PRODUCTION:
 SHUT IN: RATE

PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-S	GRAD.	CORR	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
03	0	.165	371.6	-	-	-	0	0	0								
1027	100	.169	380.6	-	-	-	100	.034	92.7								
1035	200	.170	383	-	-	-	200	.1143	128								
1043	300	.171	385	-	-	-	300	.258	166								
1051	400	.171	385	-	-	-	400	.363	201								
1059	500	.171	385	-	-	-	500	.440	226								
1107	600	.172	387.4	-	-	-	600	.507	248								
1115	700	.172	387.4	-	-	-	700	.527	255								
1123	800	.172	387.4	-	-	-	800	.535	257								
1131	900	.172	387.4	-	-	-	900	.537	258								
1139	1000	.173	389.6	-	-	-	1000	.542	259								
1147	1100	.173	389.6	-	-	-	1100	.580	272								
1155	1200	.173	389.6	-	-	-	1200	.613	282								
1203	1300	.173	389.6	-	-	-	1300	.625	287								
1211	1400	.175	394.1	-	-	-	1400	.638	290								
1223	1500	.176	396.4	-	-	-	1500	.646	293								
1247	2000	.172	387.4	-	-	-	2000	1.124	443								
	6345	.763	1642	-	7.002	-	6345	1.615	586.1								

COMMENTS:

BY: A.B. O.M.

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GEOHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B-4 5-30 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 1 3/8" AT 1441' 9 5/8" AT 3192' ELEV. 9318' DATE 5/6/75
 LINER DESCRIPTION: 7" 3051-6575' ZERO POINT GL + 5'
 DEPTH 6345'

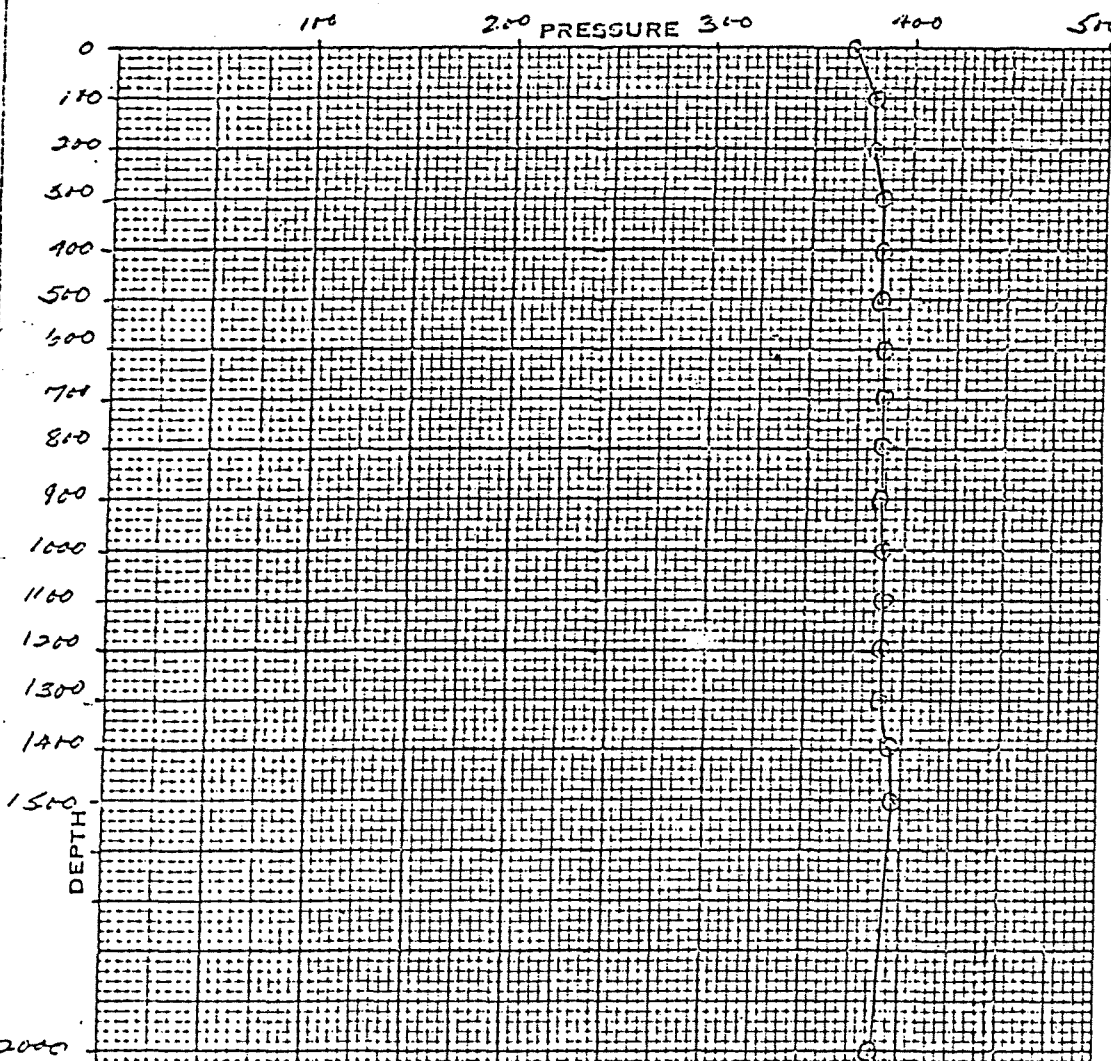
HOLE DESCRIPTION:

INSTRUMENT 0-4250 P:
 SERIAL NO 7198

PURPOSE

MAX TEMP 580.1 °F @ 6345'

REMARKS:



STABILIZATION PERIOD

PRESSURES	GAUGE	BOI:3
CASING, PSI	370	371.6

DEPTH	PRESSURE	GRADIENT
0	371.6	
100	380.6	
200	382.9	
300	385.1	
400	385.1	
500	385.1	
600	387.4	
700	387.4	
800	387.4	
900	387.4	
1000	389.6	
1100	389.6	
1200	389.6	
1300	389.6	
1400	394.1	
1500	396.4	
2000	387.4	
6345	1641.9	

1641.9

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GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

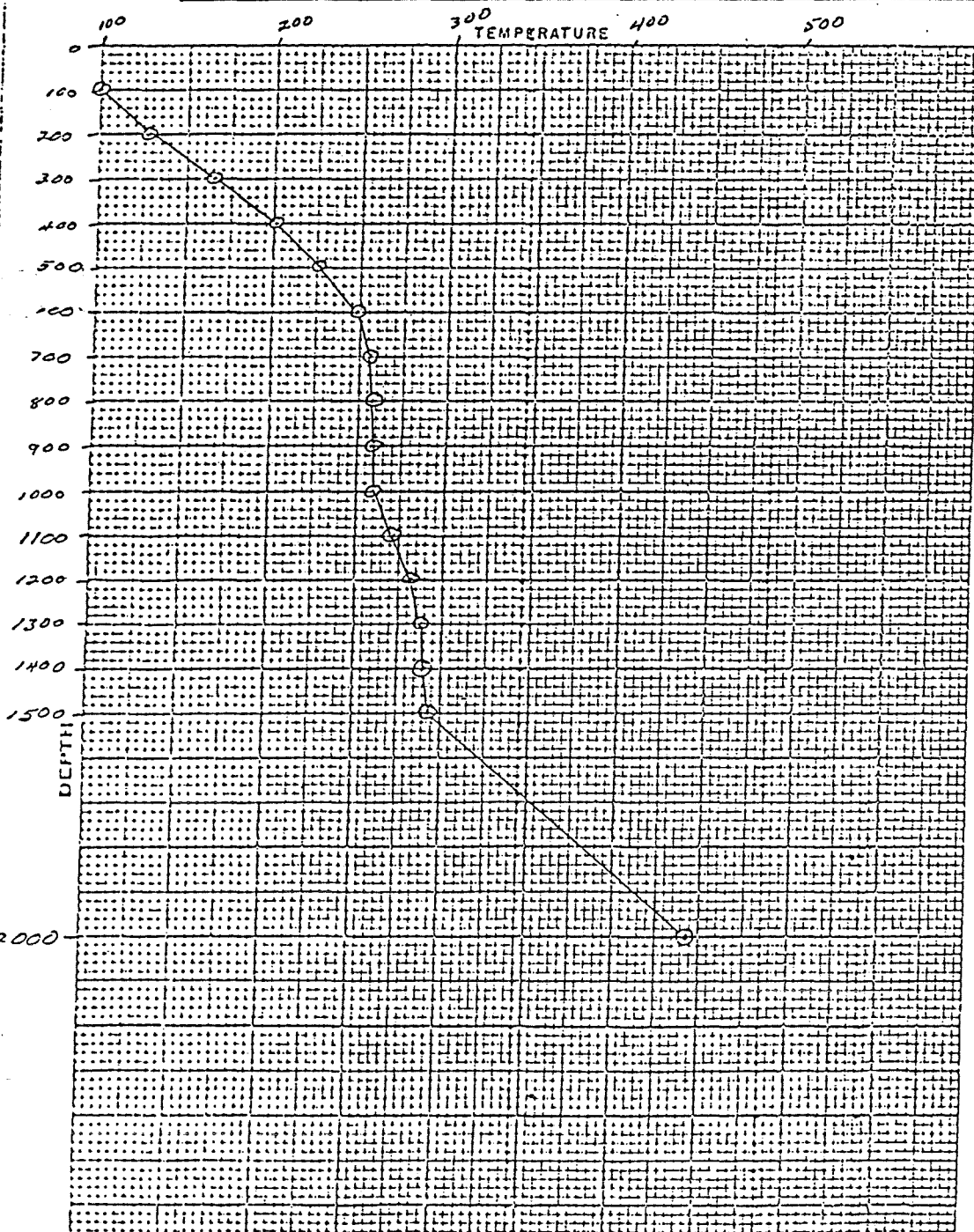
B#4-530-P11

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA #11
 CASING 13 7/8" @ 1411', 9 5/8" @ 3182' ELEV. 9318' DATE: 5/6/75
 LINER DESCRIPTION: 7" - 3031' - 6376' ZERO POINT 645'
SLOTS - 3036' - 6375' DEPTH 6345'

HOLE DESCRIPTION: _____ INSTRUMENT 82°F - 686°F
 SERIAL NO 10055

PURPOSE _____ MAX TEMP. 586.1 °F @ 6345'

REMARKS: _____



WELL STABILIZATION PERIOD _____

PRESSURES	GAUGE	CORR.
CASING, PSI	370	371.6

DEPTH	TEMP.	DEPTH	TEMP.
0	0		
100	92.7		
200	128		
300	166		
400	201		
500	226		
600	248		
700	255		
800	257		
900	258		
1000	259		
1100	272		
1200	282		
1300	287		
1400	290		
1500	293		
2000	443		
6345	586		

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1.12 Lead 1



GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B-4-S-29 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACH #4
 CASING 1 3/8" AT 1441; 9/8" AT 3182 ELEV. 9318' DATE: 3/5/75
 LINER DESCRIPTION: 7" - 3031' - 6376'; SLOTS 3036' - 6375 ZERO POINT GL + 5'
 DEPTH 6345'

TUBING DETAIL:

PURPOSE

REMARKS:

0-4350 PSIG SAN 7198 CLOCK 13375.2 IST
ELEMENT 80° - 646° SERIAL NO. 10052 CLOCK - 13790-613 TURN STABILIZATION PERIOD
ENGAGE STYLUS P-1144 T-1141 DISENGAGE STYLUS P-1654 T-1658
WELL HEAD 346 PSIG; ANNULUS - 336 PSIG
PICKUP @ 6345' TIME ON BOTTOM 1330 - 1530 MAX. T 577.5
 WELL STATUS SHUT IN
 SHUT IN: ON PRODUCTION:

PRESSURE TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	1000	.166	373.9	0	0	1312-26	1000	.552	251.6	0	-						
	2200	.166	364.4	0	0	1329-39	2200	1.188	436.6	.185	-						
0-2	5000	.259	578.4	1.209	7.001	1342-52	5000	1.355	481.8	.045	-						
0-4	4000	.416	911.0	.333	7.002	1354-04	4000	1.450	507.0	.025	-						
0-17	5000	.563	1220.6	.310	"	1301-17	5000	1.652	559.0	.052	-						
0-29	6000	.710	1524.7	.309	"	1314-29	6000	1.710	573.5	.014	-						
330	6345	.761	1635.6	.306	"	1330	6345	1.723	576.7	.009	-						
45	"	.761	1637.7	-	"	45	"	1.726	577.5	-	-						
45	"	.761	1637.7	-	"	1400	"	1.726	577.5	-	-						
15	"	.761	1637.7	-	"	15	"	1.726	577.5	-	-						
30	"	.761	1637.7	-	"	30	"	1.726	577.5	-	-						
45	"	.761	1637.7	-	"	45	"	1.726	577.5	-	-						
150	"	.761	1637.7	-	"	150	"	1.726	577.5	-	-						
15	"	.761	1637.7	-	"	15	"	1.726	577.5	-	-						
30	"	.761	1637.7	-	"	30	"	1.726	577.5	-	-						

COMMENTS:

BY: JTB

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GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

OWNER Union Oil Co. of California FIELD Valle Grande WELL NAME BACA #4
 CASING 13-3/8" @ 1441'; 9-5/8" @ 3182' ELEV 9318 DATE 3/5/75
 LINER DESCRIPTION 7" - 3031' - 6376'; Slots 3036' - 6375' ZERO POINT G.L. +5'
 DEPTH 6345'

HOLE DESCRIPTION:

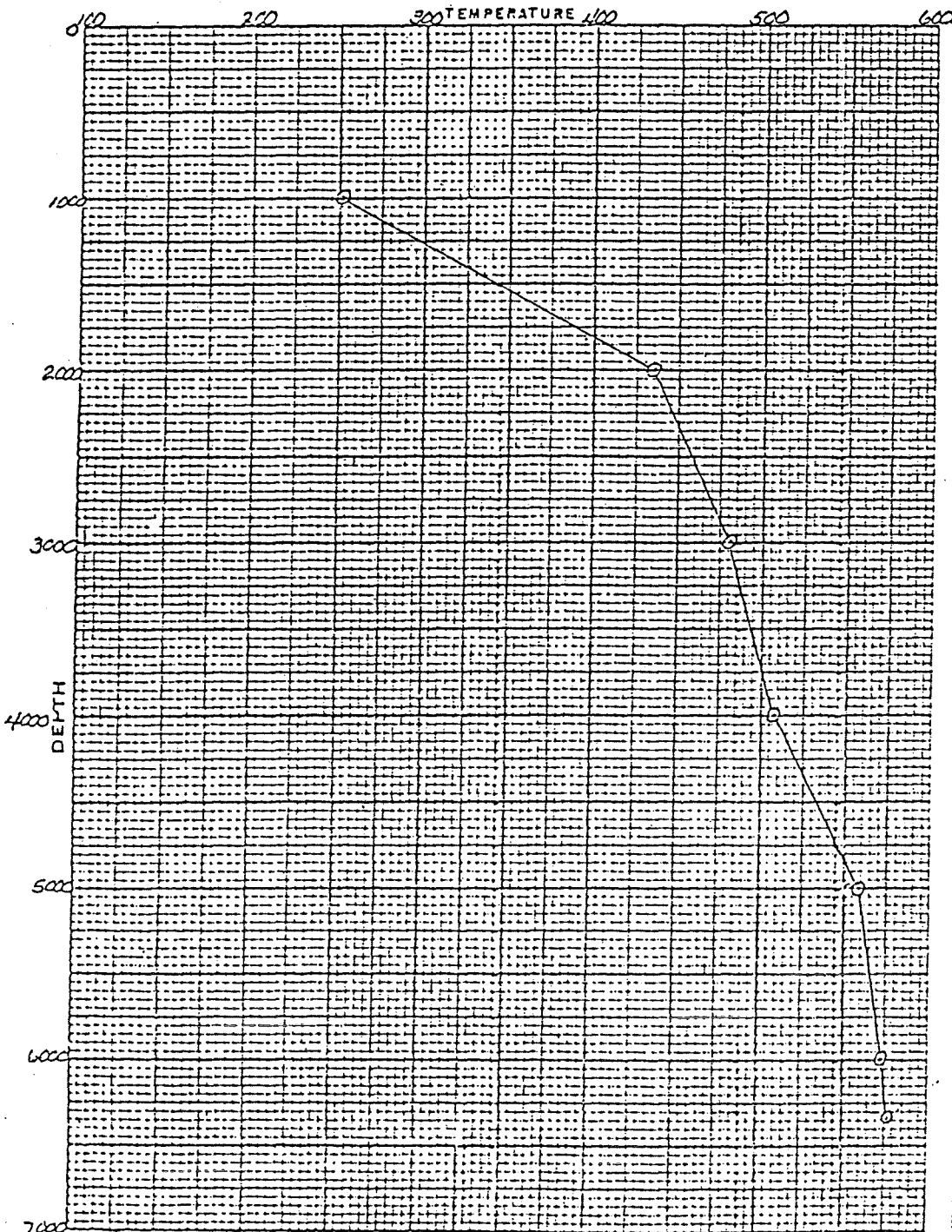
INSTRUMENT 80° - 646° FAI
 SERIAL NO 10052

PURPOSE

MAX TEMP 577.5°F @ 6345'

REMARKS:

STABILIZATION PERIOD



PRESSURES	GAUGE	ROMB
CASING PSI		

DEPTH	TEMP.	DEPTH	TEMP.
1000	251.6		
2000	436.6		
3000	481.8		
4000	507.0		
5000	559.0		
6000	573.5		
6345	576.7		
6345	577.5		

BY:

76

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

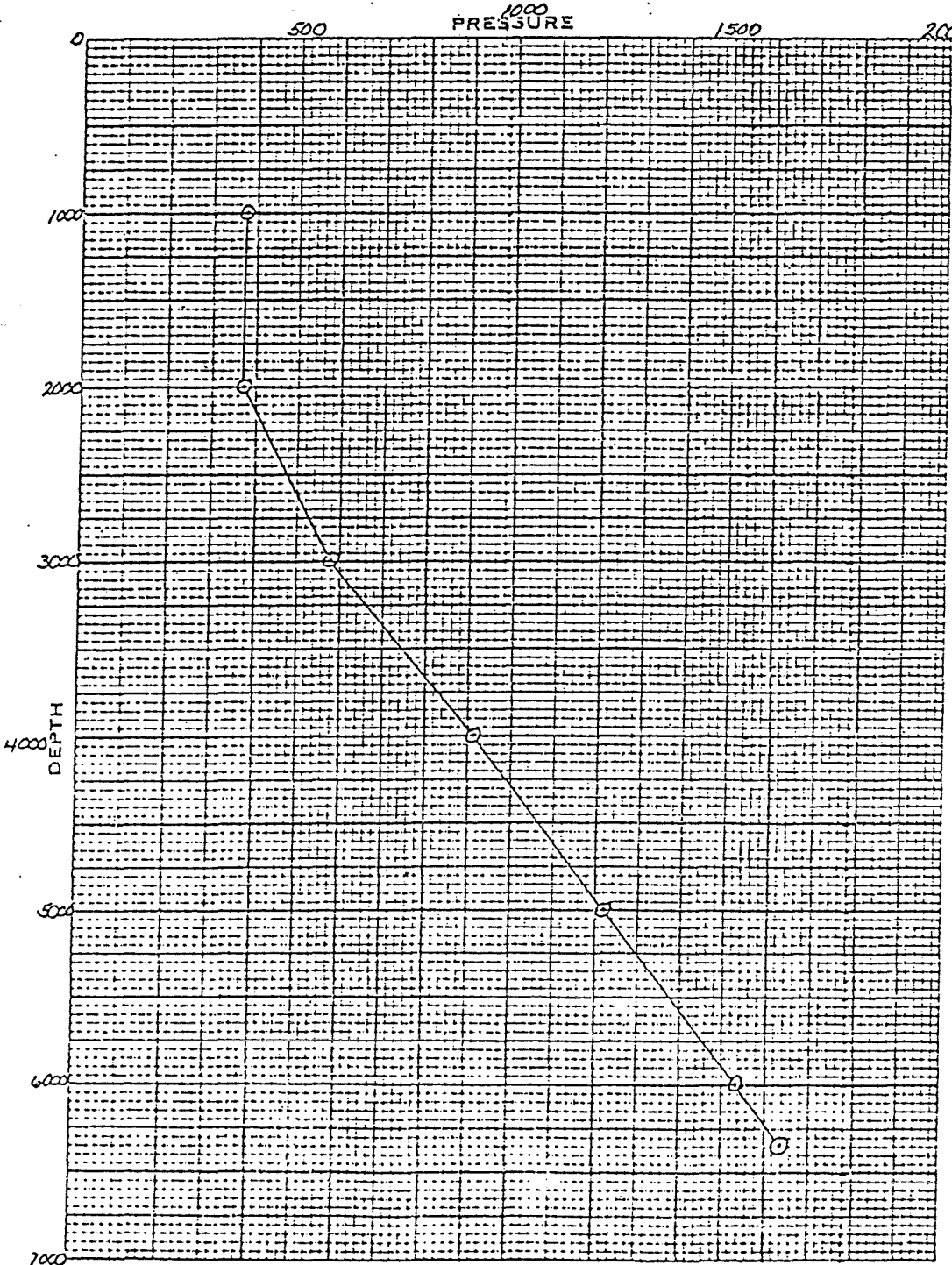
OWNER Union Oil Co. of California FIELD Valle Grande WELL NAME BACA #4
 CASING _____ ELEV _____ DATE 3/5/75
 LINER DESCRIPTION: _____ ZERO POINT G.L. +5'
 _____ DEPTH 6345'

HOLE DESCRIPTION: _____ INSTRUMENT 0 - 4250 PS
 _____ SERIAL NO 7198

PURPOSE _____ MAX TEMP 577.5 °F @ 6345'

REMARKS: _____

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
1000	373.9	
2000	369.4	
3000	578.4	
4000	911.0	
5000	1220.6	
6000	1529.7	
6345	1635.6	
6345	1637.7	

BY: JB

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

BACA#4-5-28-PIT

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 1 3/8" @ 1441' 9 7/8" @ 3182' ELEV. 9318' DATE: 2/12/75
 LINER DESCRIPTION: 7" HUNG-3031-6376' SLOTS-3036'-6375' ZERO POINT 6345'
 DEPTH 6345'

TUBING DETAIL:
 PURPOSE:
 REMARKS:

2-0-4250 PSIG - 7198 12HR-133756 15"
 ELEMENT 88F-698°F SERIAL NO. 10055 CLOCK 12HR-137906 15TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1341hrs T-1339hrs DISENGAGE STYLUS P-1722hrs T-1723hrs
 WELL HEAD 357 PSIG - 0-400Lb T/G
 PICKUP @ 6345' (TIME ON BOTTOM) 6345' = MAX. IF 590.8
 1630hrs - 1700
 WELL STATUS SHUT IN. ON PRODUCTION:
 SHUT IN: RATE

PRESSURE						TEMPERATURE											
TIME	DEPTH	DEFL.	P-•	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	100	.160	360.4	0	0	"	100	.063	109.7	0	-						
	1000	.160	360.4	0	0	"	1000	.536	269.5	.178	-						
9-1157	2000	.160	360.4	0	0	"	2000	1.112	448.5	.179	-						
1-1311	3000	.259	578.4	.218	0	"	3000	1.269	493.7	.045	-						
2-1523	3500	.336	741.5	.326	+001	"	3500	1.319	507.3	.027	-						
3-1544	4000	.412	902.5	.322	+002	"	4000	1.359	519.3	.024	-						
4-1555	4500	.488	1063.0	.321	+003	"	4500	1.499	558.7	.078	-						
7-1427	5000	.564	1222.7	.319	+004	"	5000	1.549	572.7	.028	-						
8-1618	5500	.637	1376.1	.306	+005	"	5500	1.589	583.9	.022	-						
9-1629	6000	.712	1533.9	.316	+006	"	6000	1.599	586.7	.006	-						
10-1700	6345	.763	1641.9	.313	+006	"	6345	1.614	590.8	.01	-						

COMMENTS: WHP-357 PSIG } 0-400Lb T/G
 ANNULUS-344 PSIG }

BY: -S.M.-S.B.-

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

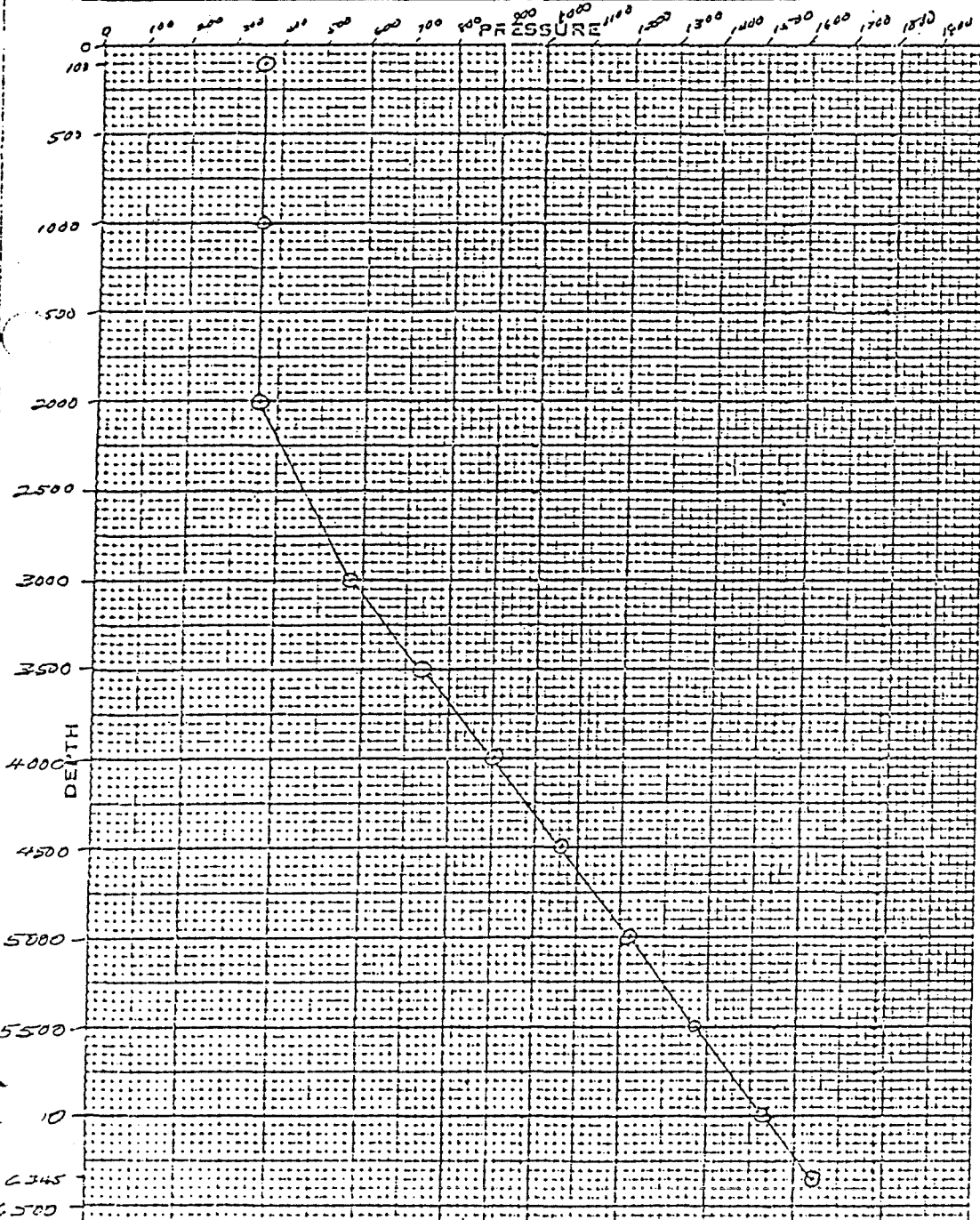
GPH-528-P17

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BAWA#4
 CASING 13 1/8" @ 1441' 9 5/8" @ 1382' ELEV. 9318 DATE: 2/12/75
 LINER DESCRIPTION: 7" HUNC-3031'-6374' ZERO POINT GL+5'
SLOTS-3036'-T.O. DEPTH 6345'

HOLE DESCRIPTION: _____ INSTRUMENT 0-4250 PS.
 SERIAL NO 7198

PURPOSE _____ MAX TEMP 590.8 °F @ 6345'

REMARKS:



STABILIZATION PERIOD _____

PRESSURE	GAUGE	BOI:9
CASING. PSI	357	368 @ 100

DEPTH	PRESSURE	GRADIENT
100	360.4	.0
1000	360.4	.0
2000	360.4	.0
3000	578.4	.218
3500	741.5	.326
4000	902.5	.322
4500	1063.0	.321
5000	1222.7	.319
5500	1376.1	.306
6000	1533.9	.316
6345	1641.9	.313

BY: L. M. J. S.

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GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

BACA #4-5-28-P/T

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 13 3/8" @ 144' 9 3/8" - 2319' ELEV. 9315 DATE: 2/12/75
 LINCER DESCRIPTION: 7" HOLE - 3031' - 6376' ZERO POINT GL+5'
SCOTS - 3036' - T.D. DEPTH 6345'

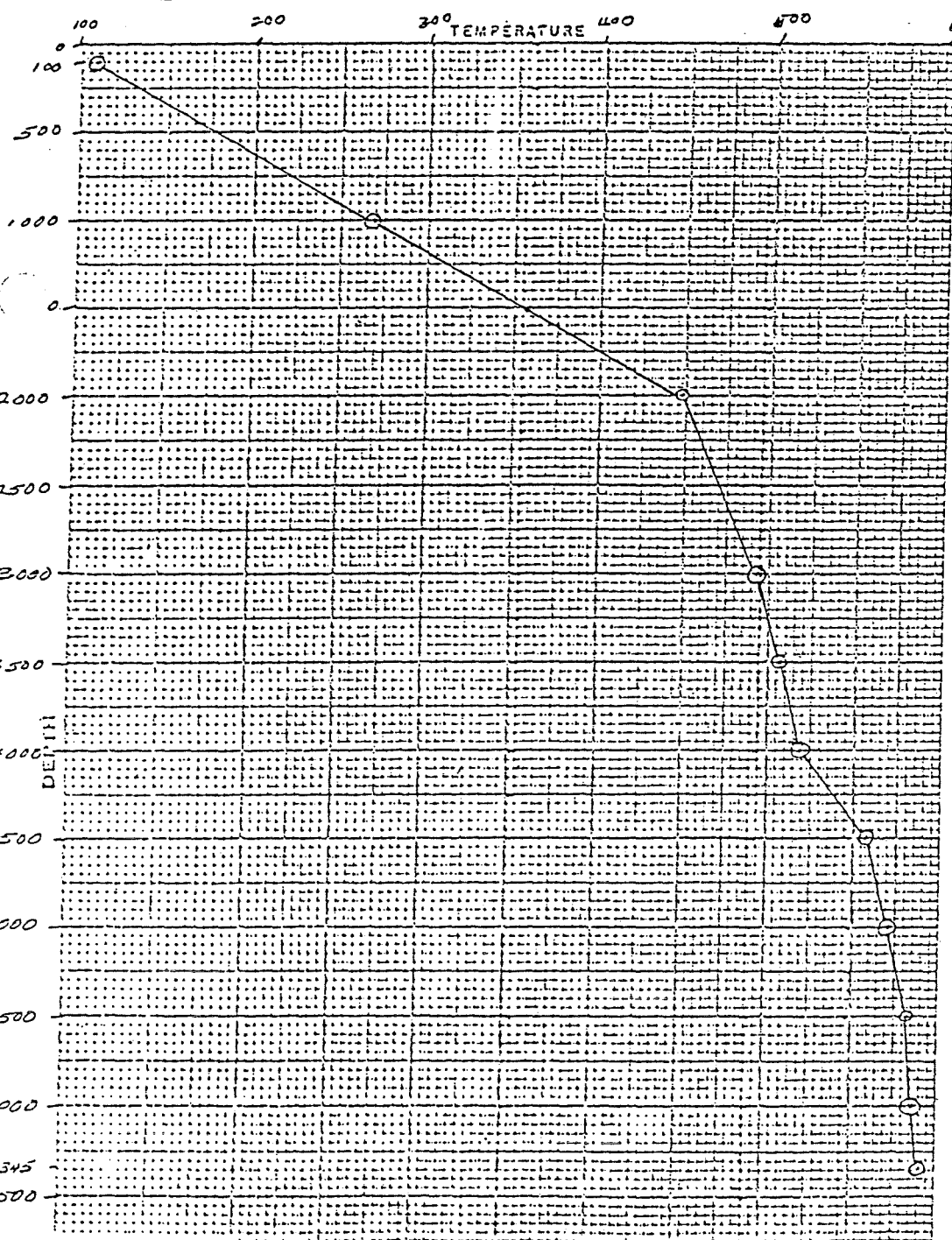
HOLE DESCRIPTION:

INSTRUMENT 88° - 698° FAH.
 SERIAL NO 10055

PURPOSE

MAX TEMP. 590.8 °F @ 6345'

REMARKS:



STABILIZATION PERIOD

PRESSURES	GAUGE	BOND
CASING, PSI	357	250 @ 100'

DEPTH	TEMP.	DEPTH	TEMP.
100	109.7		
1000	269.5		
2000	448.5		
3000	493.7		
3500	507.3		
4000	519.3		
4500	558.7		
5000	572.7		
5500	583.9		
6000	586.7		
6345	590.8		

J.M.

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GEO THERMAL DIVISION.

SUBSURFACE SURVEY

Field Work Sheet

B-4-S-27 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 1 3/8" AT 1441'; 1 1/2" AT 3182 ELEV. 9519' DATE: 1-10-75
 LINER DESCRIPTION: 7" HUNG 3031'-6376' ZERO POINT CLTS
SLOTS: 3036'-6375' DEPTH 6345'

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT 0-4250 PSIC SERIAL NO. 7192 CLOCK-12829 12hr 15 TURN
 ELEMENT 890-698 SERIAL NO. 10055 CLOCK-12890 12hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1112-T-1116 DISENGAGE STYLUS P-1719 T-1721
 WELL HEAD-346 PSIC ANNULUS-336 PSIC
 PICKUP @ 6345' TIME ON BOTTOM 1155-1610 HRS MAX. 588.9°
 WELL STATUS SHUT IN
 SHUT IN: ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-S	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
-14	6345	.761	1637.7	1.006	-	1155-1610	6345	1.607	588.9	-	-						
PRESSURE ELEMENT + TEMPERATURE ELEMENT READ													1637.7	PSIC	+	588.9	°F
FOR ENTIRE TIME AT 6345'																	

COMMENTS:

BY: J. Brown

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UNION

B#4-5-26-P1T

GEOHERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

OWNER UNION OIL CO OF CALIF FIELD VALLE GRANDE WELL NAME BGR#4
 CASING 1 3/8" HC 441' 9 7/8" AC 3187 ELEV. 9318 DATE: 11/11/74
 LINER DESCRIPTION: 7" HUND 3031'-6376 ZERO POINT GL+5
SLOTS 3031'-6375' DEPTH 6345

TUBING DETAIL:

PURPOSE CHECK ACCURACY OF PRESS/TEMP ELEMENTS.

REMARKS:

ELEMENT C-4500PSIG 7784N 12HR 14139 .75
 ELEMENT 85-695°F SERIAL NO. 10055 CLOCK 12HR-13790L TURN 7/2 STABILIZATION PERIOD
 ENGAGE STYLUS P-1052 T-1100 DISENGAGE STYLUS P-1444 T-1445
 WELL HEAD
 PICKUP @ 6345' TIME ON BOTTOM 1346-1353 MAX. P. 586.4
 WELL STATUS STATIC
 SHUT IN: ON PRODUCTION:

DEPTH	PRESS		CORR.		TIME	TEMP		P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	DEFL.	P-T	GRAD.	ID		DEPTH	DEFL.									
100	137	331.7		0	"	180	1.58	107.9	0							
1229	140	334.9		0	"	180	1.58	770.2	180							
1245	145	351.1		0	"	2000	1.095	443.5	173							
1253	147	355.9		0	"	3200	1.255	439.7	1046							
1265	157	373.9		0	"	3500	1.307	503.4	1027							
1318	130	321.4		0	"	4000	1.345	515.3	024							
1325	157	355.9		0	"	4500	1.471	551	076							
1331	157	355.9		0	"	5000	1.532	568.0	030							
1345	148	327.3		0	"	5500	1.576	582.3	025							
1346	148	327.3		0	"	6000	1.580	581.4	002							
6345	140	334.9		0	"	6345	1.593	586.4	015							

THIS ELEMENT HAS ALWAYS READ HIGHER THAN THE 80-646°F - S/N 10055

THERE ARE NO CORRECTIONS FOR THIS ELEMENT.

* THIS SPOT WAS HARD TO DETECT ON CHART. DUE TO SCRATCHES I DID NOT TRY TO GUESS AT IT.

THE 0-4500 ELEMENT IS A RENTAL FROM KISTER THAT I SUSPECT AS FAR AS ACCURACY IS CONCERNED. KISTER CLAIMS THAT IT IS INACCURATE AT HIGH TEMPS AND DID NOT PROVIDE ANY CORRECTION TABLE WITH THE ELEMENT. J.M.

COMMENTS: WAD- 335 }
 ANNEX'S 325 } 0-600 T/G

76

GEOHERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B4-5-26-T

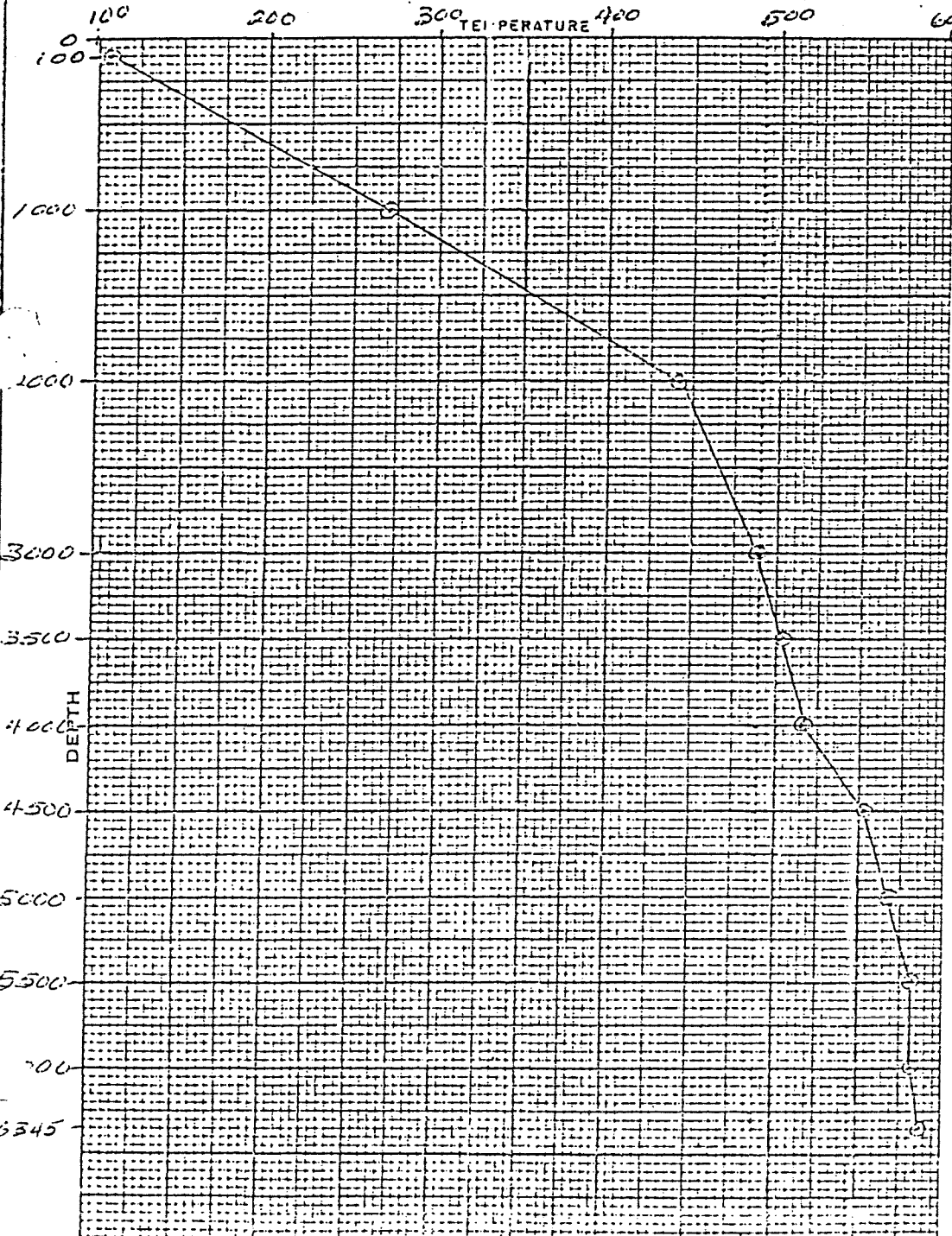
OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME BACH #4
 CASING 13 3/8" AT 1441' 9 3/8" AT 3182' ELEV 9315' DATE 11/11/74
 LINER DESCRIPTION: 7" HVNG 3031'-6376' ZERO POINT GL+5'
SLOTS - 3036'-6375' DEPTH 6345'

HOLE DESCRIPTION: _____

INSTRUMENT 88-698' FAH.
 SERIAL NO 10055

PURPOSE CHECK ACCURACY OF TEMP ELEMENT MAX TEMP 556 °F @ 6345'

REMARKS: _____



STABILIZATION PERIOD _____

	GF	BOHB
PRESSURES.	GAUGE	BOHB
CASING PSI	335	332

DEPTH	TEMP.	DEPTH	TEMP.
100	107.9		
1000	270.2		
2000	443.5		
3000	489.7		
3500	503.4		
4000	515.3		
4500	553.1		
5000	568.		
5500	580.3		
6000	581.7		
6345	556.4		

311 J.M.

76

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B4-5-26-P

OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME BIRTH 4
 CASING 1 3/8" AC 1441'; 9 7/8" AT 3152' ELEV 9315' DATE 11/11/74
 LINER DESCRIPTION 7" HUNG 3031' - 6376' ZERO POINT 647.5'
SLOTS - 3036' - 6377' DEPTH 6345'

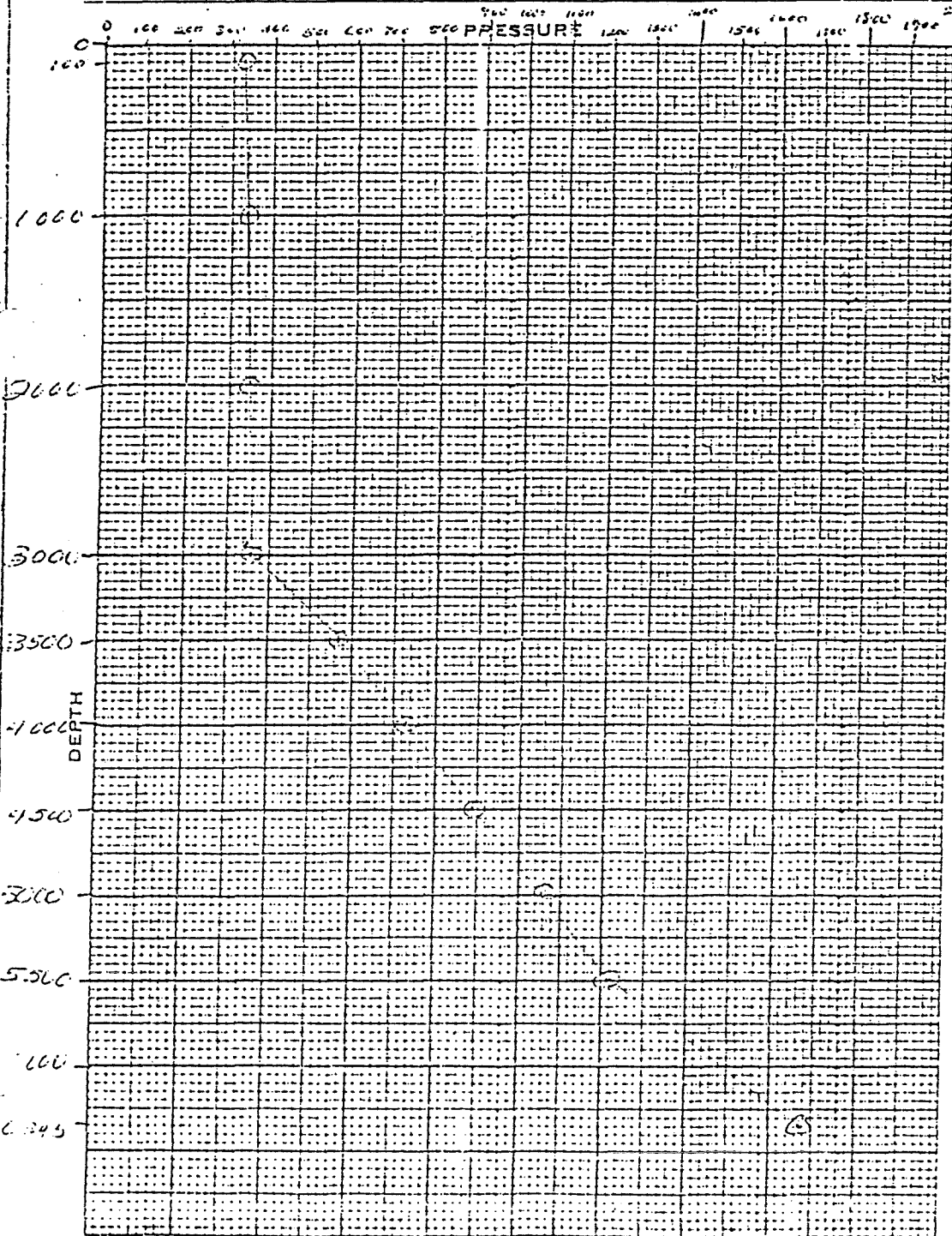
MOLE DESCRIPTION:

INSTRUMENT 0-4800
 SERIAL NO 7754N

PURPOSE CHECK ACCURACY OF PRESS ELEMENT

MAX TEMP 586 °F @ 6345'

REMARKS:



STABILIZATION PERIOD

	OFT	100 FT
PRESSURES		
CASING PSI	33.5	33.1

DEPTH	PRESSURE	GRAD.
100	331.7	0
1800	339.9	.008
2000	351.1	.012
3000	355.9	.005
3500	573.9	.436
4000	726.4	.305
4500	875.9	.339
5000	1058.5	.325
5500	1207.3	.298
6000	0	0
6345	1675.6	.554

BY:

76



DEE PYLE

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B#H-S50-P/T

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE
 CASING 13 1/2" @ 1441'; 9 5/8" @ 3152' ELEV. 9318'
 LINER DESCRIPTION: 7" @ 3231'

WELL NAME BICA #4
 DATE: 2/13/76
 ZERO POINT 6647'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE

REMARKS:

ELOGMENT - 0-4000 PSIG. 7195 C.C.R. 1337A-L 15
 ELEMENT - 87°F-686°F SERIAL NO. 70055 CLOCK 12059-L 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1245 T 1241 DISENGAGE STYLUS P-1019 T 1524
 WELL HEAD 379 -
 PICKUP @ 6331' TIME ON BOTTOM 1402, 1432. MAX. T 590
 WELL STATUS SHUT IN.
 SHUT IN: 11/13/73. ON PRODUCTION:
 RATE

PSIG.						TEMP.											
TIME	DEPTH	DEFL.	P-T	GRAD.	corz.	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
	00	.172	3595		-7.011	1334	100	.065	103								
230	600	.710	1533		-	1330	600	1.615	586								
245	6000	.715	1543		-	1345	6000	1.615	586								
400	6000	.712	1537		-	1400	6000	1.615	586								
402	6331	.755	1627		-	1402	6331	1.630	590								
417	6331	.760	1637		-	1417	6331	1.630	590								
432	6331	.757	1631		-	1432	6331	1.630	590								

COMMENTS:



GEOHERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

MAR 24 1976

87 553 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE

WELL NAME BHCA #4

CASING 1 3/4" AT 1441 9 3/8 AT 3182 ELEV. 9318

DATE: 3-12-76

LINE DESCRIPTION: 7" AT 5031

ZERO POINT

DEPTH

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT 0-4000 PSI SN 719 CLOCK 12HR 15 TURN

ELEMENT 80°-646° SERIAL NO. 1052 CLOCK 12HR 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P-1009 T-1010 DISENGAGE STYLUS P-1333 T-1333

WELL HEAD 575

PICKUP 6531 TIME ON BOTTOM 1158-1238 MAX. 581.0

WELL STATUS SHUT IN

SHUT IN: 11/13/73

PRODUCTION:

RATE

PRESSURE

TEMPERATURE

PRESSURE					TEMPERATURE						
TIME	DEPTH	DEFL.	P.T.	GRAD.	ID	TIME	DEPTH	DEFL.	P.T.	GRAD.	ID
	150	0.17	585		7.012	1116	150	0.17	585.0		
11:55	6000	1.725	577.0		7.001	1123	6000	1.725	577.0		
11:40	6000	.713	539		7.001	1140	6000	1.725	577.0		
11:50	6000	.711	535		7.001	1158	6000	1.725	577.0		
11:53	6531	.762	542		7.001	11:58	6531	1.754	581.0		
12:13	6531	.756	539		7.001	12:15	6531	1.739	581.0		
12:33	6531	.757	539		7.001	12:35	6531	1.739	581.0		

REMARKS: NEW TEMPERATURE ELEMENT (SERIAL # 10052; RANGE 80°-646°)

76

union

GEOTHERMAL DIVISION DEL PYLE

SUBSURFACE SURVEY
Field Work Sheet

MAR 17 1975

B4 552 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #4
 CASING 1 3/8" AT 1441' 9 5/8" AT 3182' ELEV. 9318' DATE: 5/6/76
 LINER DESCRIPTION: 7" AT 3031' ZERO POINT GL 17'
 DEPTH 6331'

TUBING DETAIL:

PURPOSE INTERFERENCE TEST

REMARKS:

ELEMENT 0-9000 PSI SN 7193 CLOCK-12 hr 15 TURN

ELEMENT 82° - 686° SERIAL NO. 10055 CLOCK 12 hr 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P-1104; T 1402 DISENGAGE STYLUS E-1058 T-1408

WELL HEAD 380 PSIG 0-600 T/C

PICKUP # 6531 TIME ON BOTTOM 1242 - 1312 MAX. °F 590.4

WELL STATUS SHUT IN

SHUT IN: 11/13/73 ON PRODUCTION:

RATE

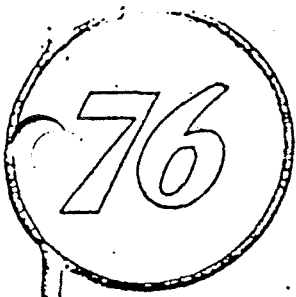
PRESSURE

TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
1201	100	.170	385.0		7.011	1201	100	.061	101.4								
	1000	.708	1528.3		0	1210	600	1.616	586.3								
1225	6000	.710	1632.5		0	1225	600	1.616	586.3								
1240	6000	.712	1536.7		0	1240	600	1.616	586.5								
1242	6331	.756	1628.9		0	1242	6331	1.631	590.4								
1257	6331	.754	1624.7		0	1257	6331	1.631	590.4								
1312	6331	.758	1653.1		0	1312	6331	1.631	590.4								

COMMENTS:

BY: CPLD-3



UNION

DEL PYLE

MAR 10 1976

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

BH-55-P/P

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE

WELL NAME BERA#4

CASING 13 7/8" @ 1441'; 9 5/8" @ 3182' ELEV. 9315'

DATE: 2/26/76

LINER DESCRIPTION: 7" @ 3051'

ZERO POINT GL+7'

DEPTH 6331'

TUBING DETAIL:

PURPOSE

REMARKS:

R-0-4000 7510. 7198 12889-6 15

ELEMENT P2-0-2950 SERIAL NO. 9239 CLOCK 1337H-6 TURN STABILIZATION PERIOD

ENGAGE SYLUS P1-0945, P2-0953 DISENGAGE SYLUS P1-1348, P2-1348

WELL HEAD 38.0

PICKUP @ 6331 TIME ON BOTTOM 1222-1252 MAX. °F -

WELL STATUS SHUT IN.

SHUT IN: 11/13/73 ON PRODUCTION:

RATE

R-7198

P-9235

TEMP f/s 49

DEPTH	DEFL.	P-P	GRAD.	GRAD.	TIME	DEPTH	DEFL.	P-P	GRAD.	GRAD.	TIME	DEPTH	DEFL.	P-P	GRAD.	ID
1101	100	.172	390	✓	-0.011	1101	100	.248	394		-0.012			98		
1114	1200	.187	455	410	0.002	1114	1200	.253	402		-0.007			253		
1126	2000	.185	479	412	0.003	1126	2000	.363	416		-			451		
1138	3000	.269	509		0.002	1138	3000	.387	472		+0.001			490		
1151	4000	.420	923		0.003	1151	4000	.597	915		+0.001			522		
1207	5000	.563	1224		+0.001	1207	5000	.806	1223		+0.001			522		
1220	6000	.708	1528	←	0.002	1220	6000	1.016	1231		+0.001			590		
1222	6331	.759	1635	←	0.002	1222	6331	1.087	1636		+0.001			590		
1237	6331	.755	1627		0.002	1237	6331	1.089	1639		+0.001			590		
1252	6331	.758	1633		0.002	1252	6331	1.086	1634		+0.001			590		

COMMENTS:

76

GEOHERMAL DIVISION

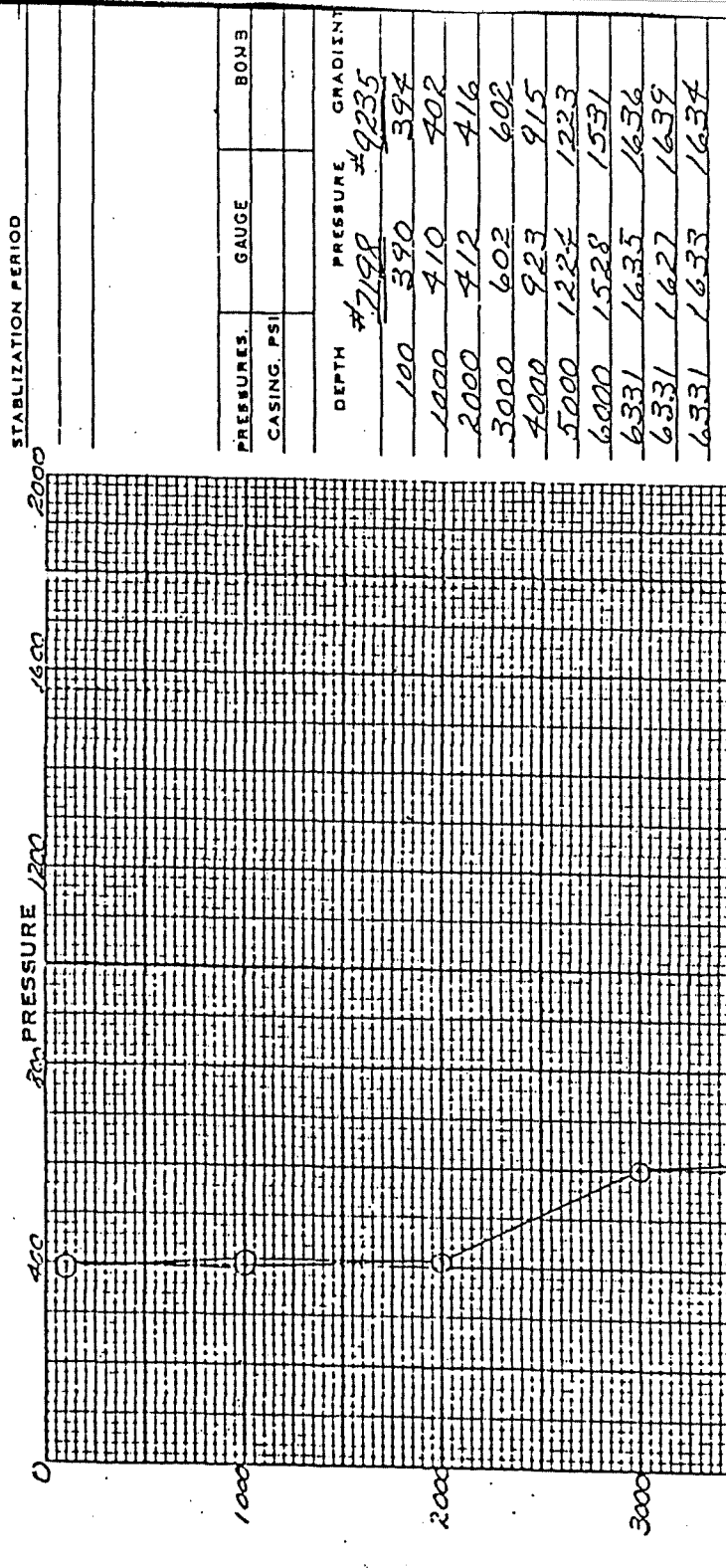
SUBSURFACE PRESSURE SURVEY

BA-551-PP

OWNER Union Oil Co. FIELD Wells Grande WELL NAME BPCA #4
 CASING Elev 2318' DATE 2/26/76
 LINER DESCRIPTION: SL-17' ZERO POINT 6.331' DEPTH 6.331'

HOLE DESCRIPTION: _____ INSTRUMENT _____ SERIAL NO 7198 # 9235 PSI
 MAX TEMP _____ ° F @ _____

PURPOSE Pressure gauge check STABILIZATION PERIOD _____
 REMARKS: _____



PRESSURES.	Gauge	BOMB
100		
1000		
2000		
3000		
4000		
5000		
6000		
6331		
6331		
6331		

BY: _____

76

UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B-4 S-25 P/T

OWNER: UNION OIL OF CALIFORNIA FIELD VALLE GRANDE WELL NAME: BACH #4
 CASING: 13 3/8" AT 441'; 4 3/8" AT 5182' ELEV. 9316' DATE: 11-7-74
 LINER DESCRIPTION: 7" HUNG 3031' - 6376' ZERO POINT: GL + 5
SLATS: 3036' - 6375' DEPTH: 6345'

TUBING DETAIL:

PURPOSE: CHECK ACCURACY OF PRESS./TEMP GAUGES

REMARKS:

MEASUREMENT - KPL - 2950 PSI; SN - 9235 CLOCK - 12 HR - 14139; 15 TURN
 ELEMENT - KTB - 40 - 646; SERIAL NO. 10052 CLOCK - 13 HR - 13796; 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1320 HAS; T-1326 HAS DISENGAGE STYLUS P-1640 HAS; T-1625 HAS
 WELL HEAD 344 PSIG
 PICKUP @ 1345' TIME ON BOTTOM 1554 - 1529 HRS MAX. 573 °F
 WELL STATUS STATIC
 SHUT IN: ON PRODUCTION:
 RATE:

PRESSURE CORRECTIONS TEMPERATURE

TIME	DEPTH	DEFL.	P-T	GRAD.	±B	TIME	DEPTH	DEFL.	P-T	GRAD.	ID	TIME	DEPTH	DEFL.	P-T	GRAD.	ID
15:00	100	.252	361.4	0	0	"	100	.035	491.1	0							
15:00	1000	.239	372.3	.012	0	"	1000	.545	249.5	.176							
15:00	2000	.240	373.8	.002	0	"	2000	1.148	425.2	.176							
15:00	3000	.385	594.7	.223	+001	"	3000	1.340	477.8	.053							
15:00	3500	.494	757.4	.321	+002	"	3500	1.339	491.0	.026							
15:00	4000	.606	924.1	.333	+002	"	4000	1.437	503.6	.029							
15:00	4500	.715	1085.6	.323	+003	"	4500	1.585	542.1	.077							
15:00	5000	.820	1246.4	.310	+004	"	5000	1.641	556.2	.028							
15:00	5500	.927	1399.2	.316	+006	"	5500	1.688	568.0	.024							
15:00	6000	1.034	1556.2	.316	+007	"	6000	1.692	569.0	.002							
15:00	6345	1.127	1693.8	.399	+008	"	6345	1.709	573.2	.012							

COMMENTS: WHP - 344 PSIG
ANNULUS - 334 PSIG } 0-400 T/G

BY: [Signature]

76

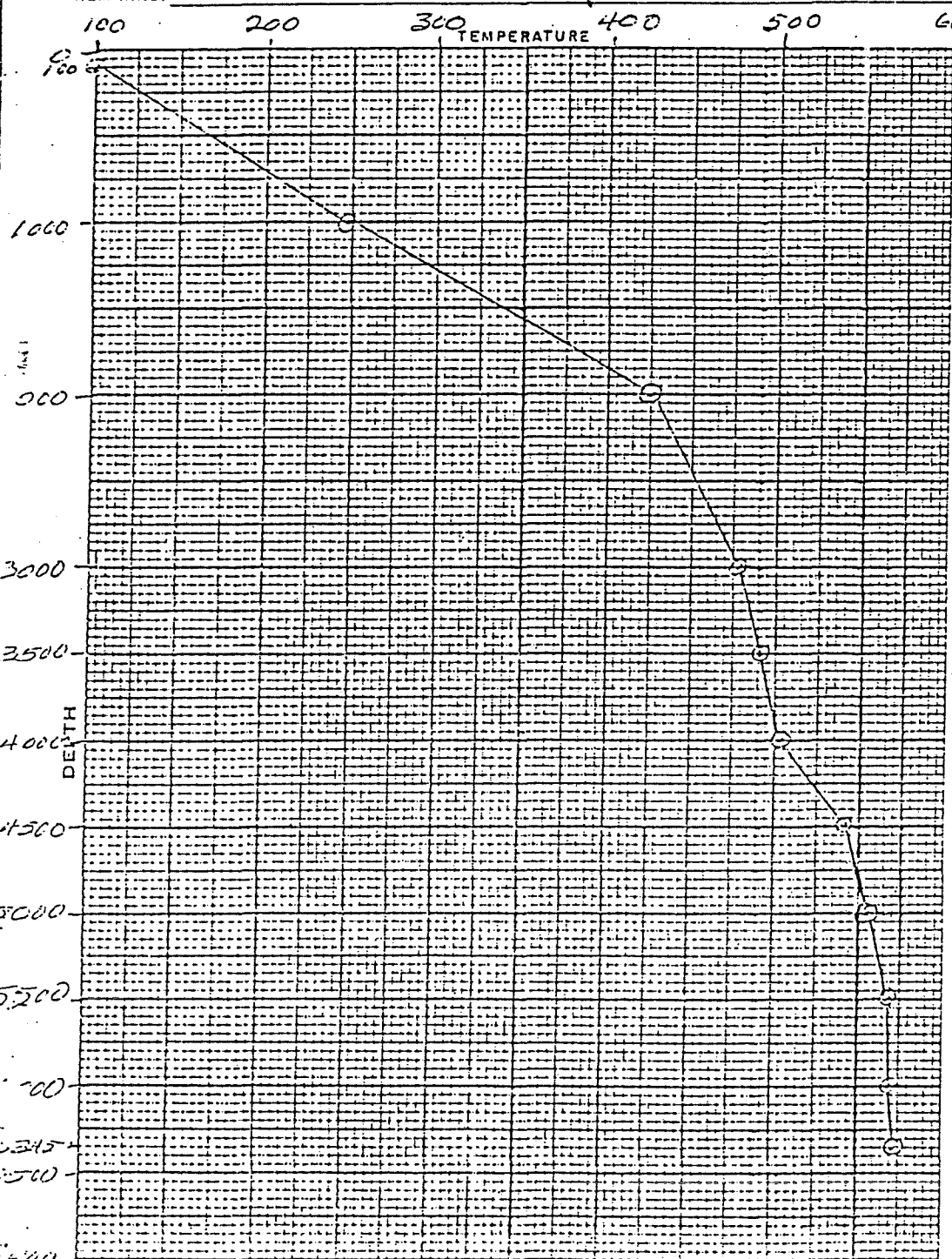
GEO THERMAL DIVISION SUBSURFACE TEMPERATURE SURVEY

B-4 S-25 T

OWNER UNION OIL OF CALIFORNIA FIELD VALLE GRANDE WELL NAME BALH # 4
 CASING 13 3/8" AT 1441' 9 5/8" AT 3182' ELEV 9158' DATE 11-7-74
 LINER DESCRIPTION: 7" HUNG 3031' - 6370' ZERO POINT CL 1.5
 DEPTH 6345'

HOLE DESCRIPTION: _____ INSTRUMENT KTB 20" - 640° FAH.
 SERIAL NO 10052

PURPOSE _____ MAX TEMP 573 °F @ 6345'
 REMARKS: _____



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	TEMP.	DEPTH GRAD.	TEMP.
100	91.1	0	
1000	249.5	.176	
2000	425.2	.176	
3000	477.8	.053	
3500	491.0	.026	
4000	503.6	.025	
4500	542.1	.077	
5000	556.2	.028	
5500	568.0	.024	
6000	569.0	.002	
6345	573.2	.012	

BY: *[Signature]*

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GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B-9 S-25 P

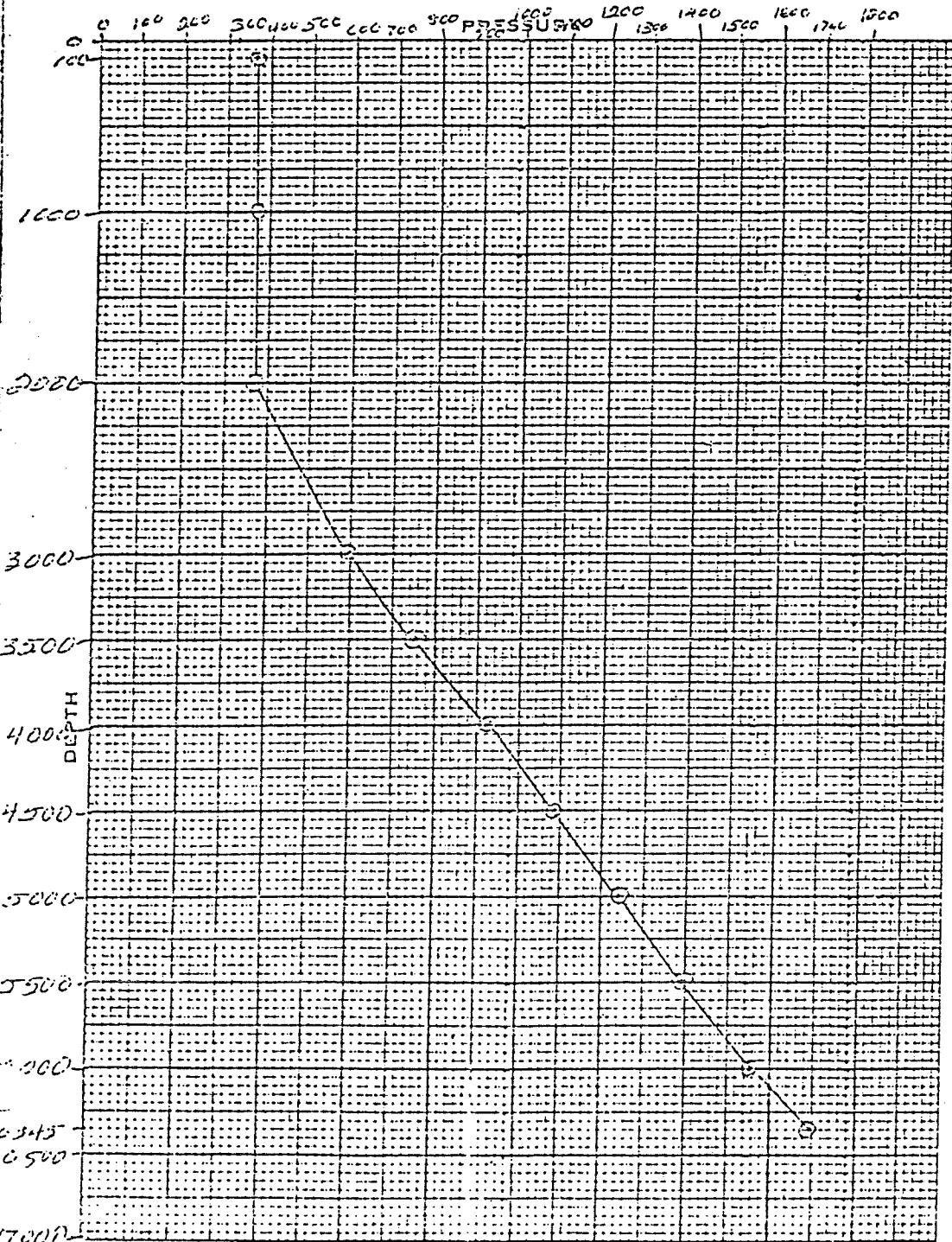
OWNER UNION OIL OF CALIFORNIA FIELD VALLE GRANDE WELL NAME BACH #4
 CASING 13 7/8" AT 1441'; 9 7/8" AT 3192' ELEV 9318' DATE 11-7-74
 LINER DESCRIPTION 7" HUNG 3031'-6376' ZERO POINT C.L. + 5'
 DEPTH 6345'

HOLE DESCRIPTION: _____ INSTRUMENT KPC - 2950 P.S. _____
 SERIAL NO _____

PURPOSE _____ MAX TEMP 573 AT 6345'

REMARKS:

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOND
CASING, PSI	344	

DEPTH	PRESSURE	GRADIENT
100	361.4	0
1000	372.3	0.012
2000	373.8	0.002
3000	576.7	0.273
3500	757.4	0.321
4000	924.1	0.333
4500	1085.6	0.323
5000	1240.4	0.310
5500	1398.2	0.316
6000	1556.2	0.316
6345	1693.8	0.399

BY: _____

76

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

84-524-P

OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME BACA#4
 CASING 13 3/8" AT 1441', 9 7/8" AT 3182 ELEV 9218 DATE: 10/17/74
 LINER DESCRIPTION: 7" SLOTTED HUNG-3031'-6376' ZERO POINT GLT 5'
INTERVALS-3036'-6375 DEPTH 6345'

HOLE DESCRIPTION:

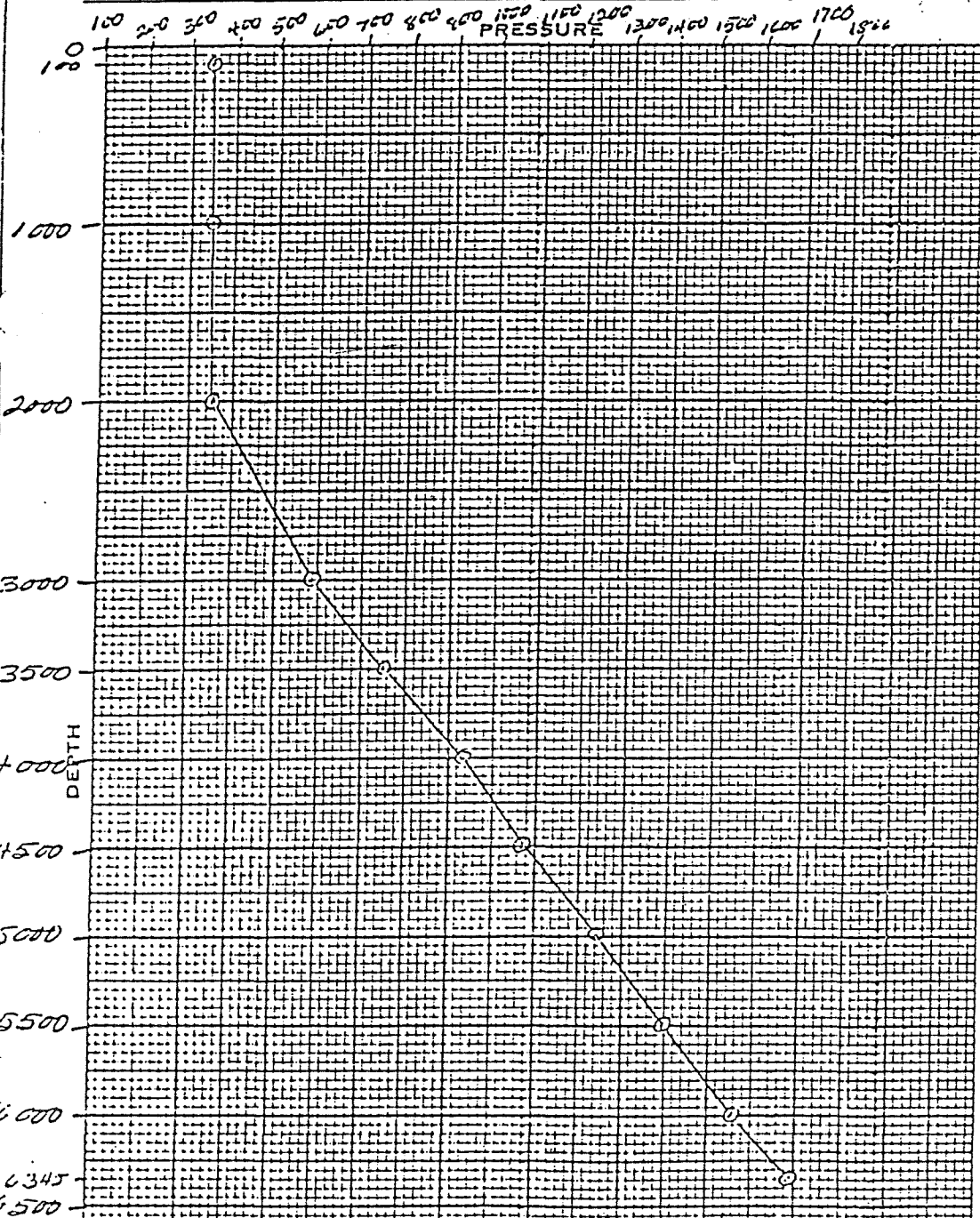
INSTRUMENT 0-2950 PS
 SERIAL NO 9235

PURPOSE

MAX TEMP 573.5 °F @ 6345'

REMARKS:

STABILIZATION PERIOD



PRESSURES.	GAUGE	BONS
CASING, PSI	330	334

DEPTH	PRESSURE	GRADIENT
100	345.8	0
1000	350.5	0
2000	358.5	.01
3000	586.3	.228
3500	752.9	.333
4000	918.2	.330
4500	1076.7	.317
5000	1240.4	.327
5500	1396.8	.313
6000	1554.7	.316
6345	1689.4	.390

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

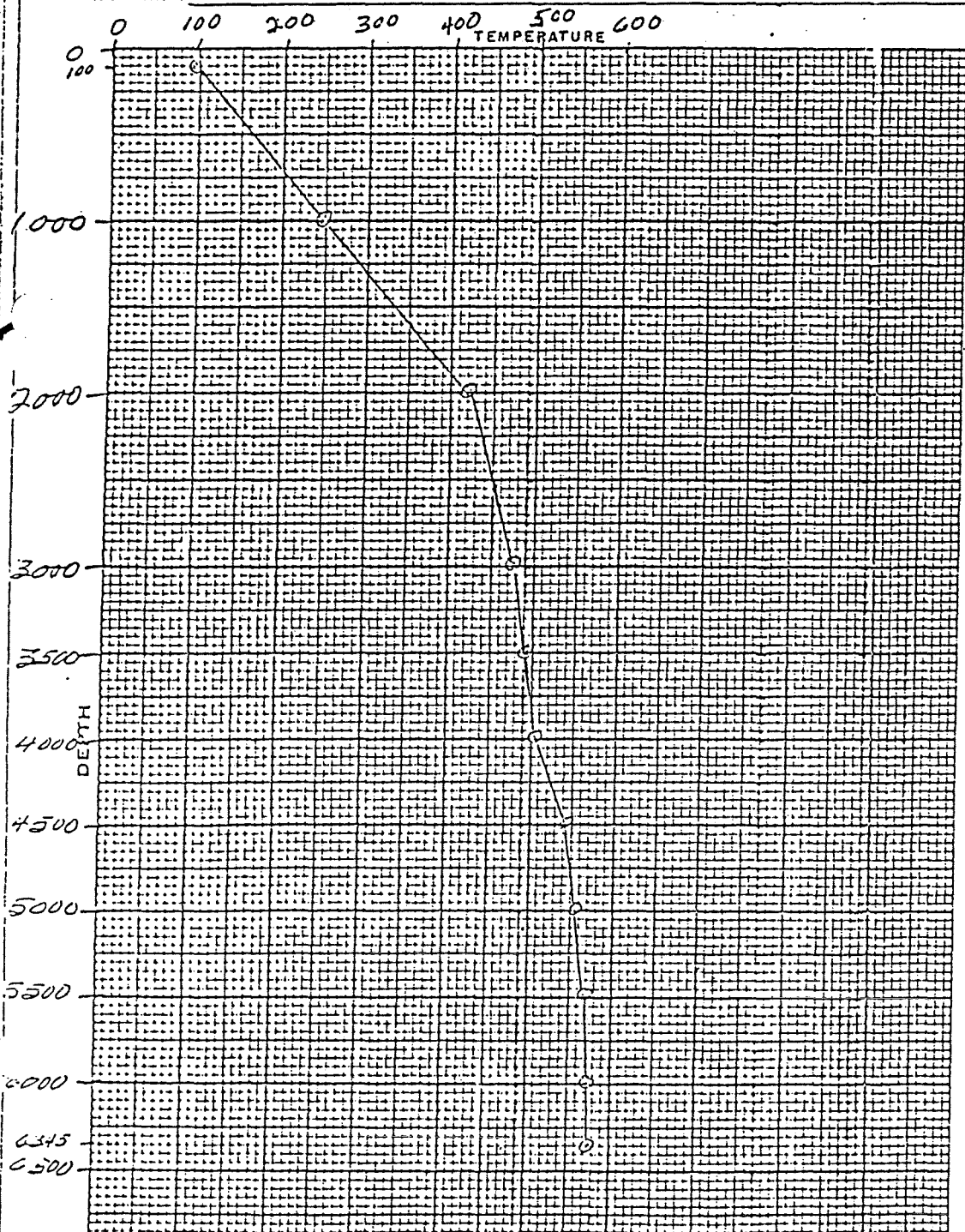
B#4-524-T

716

OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME BACA#4
 CASING 1 3/8" AT 1441' 9 7/8" AT 3152' ELEV. 9318' DATE: 10/17/74
 LINER DESCRIPTION: 7" SLOTTED AT 3031' - 6376' ZERO POINT 6645'
INTERVALS - 5026' - 6375' DEPTH 6345'

HOLE DESCRIPTION: _____ INSTRUMENT 80-646°F FAH
 SERIAL NO 10052

PURPOSE _____ MAX TEMP 573.5 °F @ 6345'
 REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES,	GAUGE	BOMB
CASING, PSI	<u>330</u>	<u>334</u>

DEPTH	TEMP.	DEPTH	TEM
<u>100</u>	<u>95.3</u>		
<u>1000</u>	<u>248</u>		
<u>2000</u>	<u>422.3</u>		
<u>3000</u>	<u>477.8</u>		
<u>3500</u>	<u>492.6</u>		
<u>4000</u>	<u>504.1</u>		
<u>4500</u>	<u>541.3</u>		
<u>5000</u>	<u>556.2</u>		
<u>5500</u>	<u>568.5</u>		
<u>6000</u>	<u>571.0</u>		
<u>6345</u>	<u>573.5</u>		

1/10

GEO THERMAL DIVISION

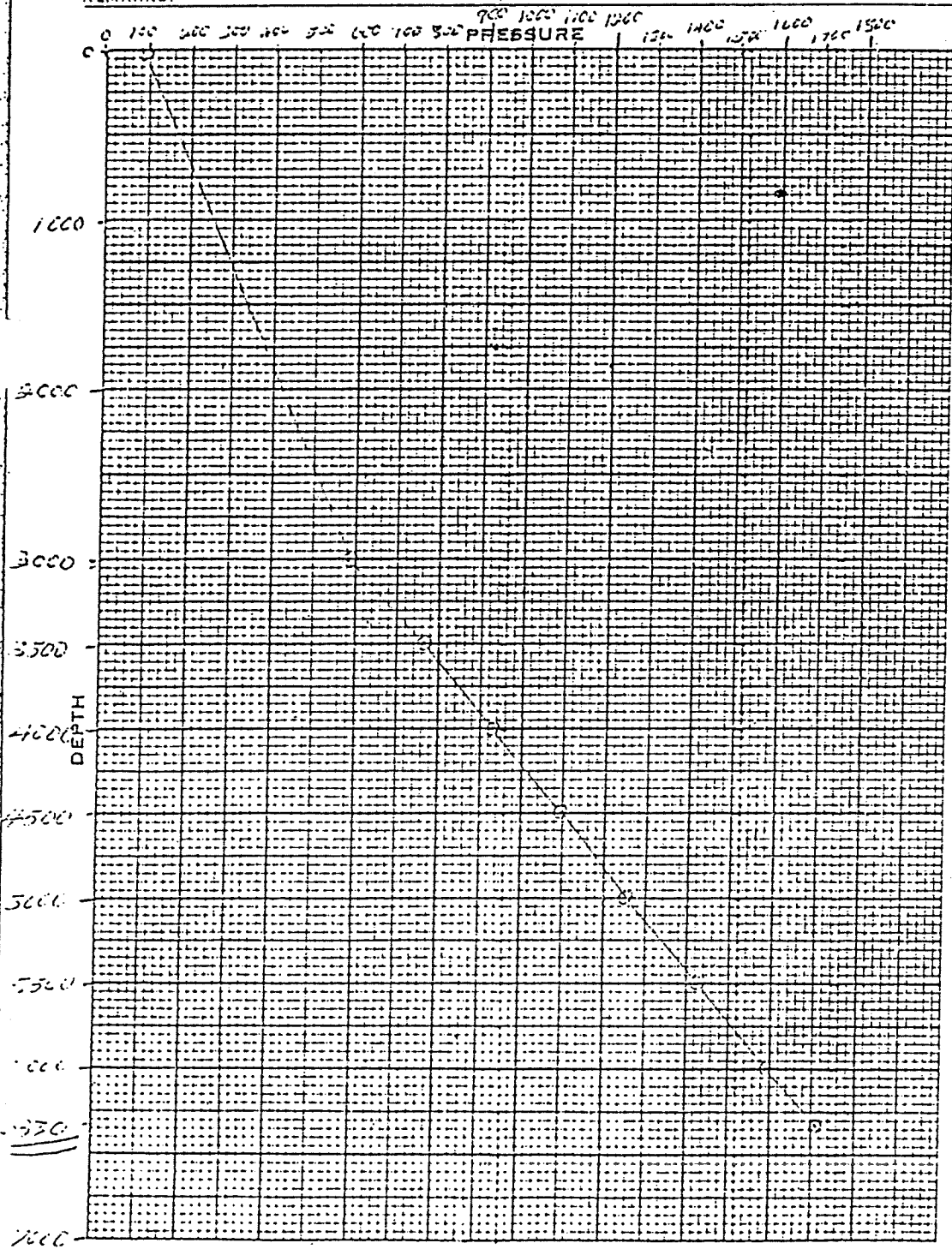
SUBSURFACE PRESSURE SURVEY

76

OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME BACH #4
 CASING 13 3/8 TO 14 1/4 9 5/8 TO 3 1/2 ELEV 9300' DATE 7/23/74
 LINER DESCRIPTION: 7" SLOTTED LINER FROM 3031-6376 ZERO POINT GL + 4'
SLOTS - 3034-6375 DEPTH 6335'

HOLE DESCRIPTION: _____ INSTRUMENT KPC-4250
 SERIAL NO 7193

PURPOSE INTERFERENCE TEST WITH B#11 TEST #5 MAX TEMP 571.9°F @
 REMARKS: _____



STABILIZATION PERIOD

PRESSURE	GAUGE	BOX
CASING, PSI	198	199.5

DEPTH	PRESSURE	GRADIENT
0	199.5	0
3000	534.4	0.325
3500	761.6	0.335
4000	930.4	0.33
4500	1099.6	0.33
5000	1256.4	0.315
5500	1423.7	0.33
6000	1593.2	0.33
6330	1716.8	0.35

BY: C.M.

GLOUTHERMA SUBSURFACE TEM

110

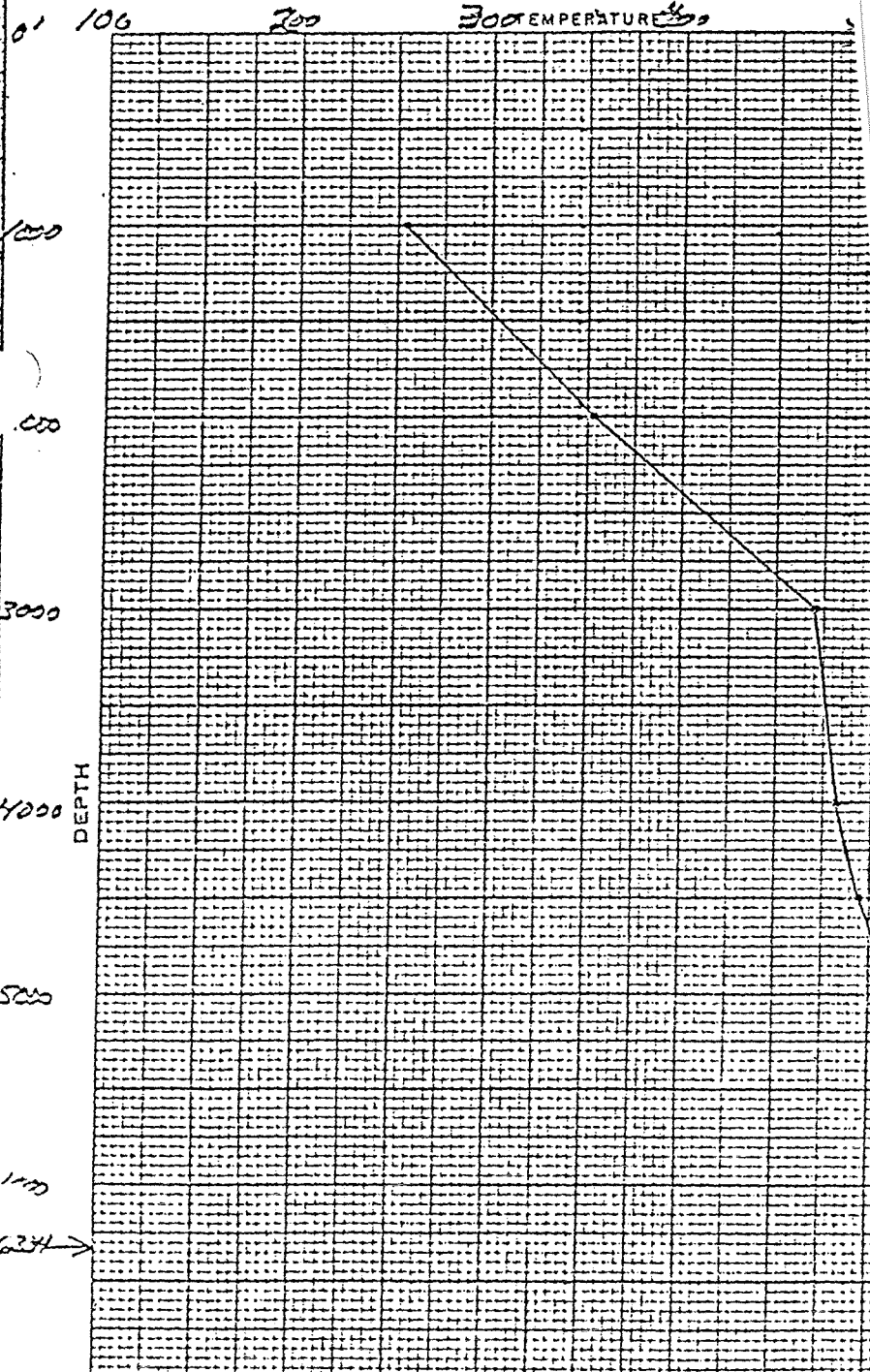
OWNER Union Oil Co of Cali FIELD 1
CASING _____ ELEV 6

LINER DESCRIPTION: _____

HOLE DESCRIPTION: _____

PURPOSE _____

REMARKS: _____



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GEO THERMAL DIVISION

DT-37-17

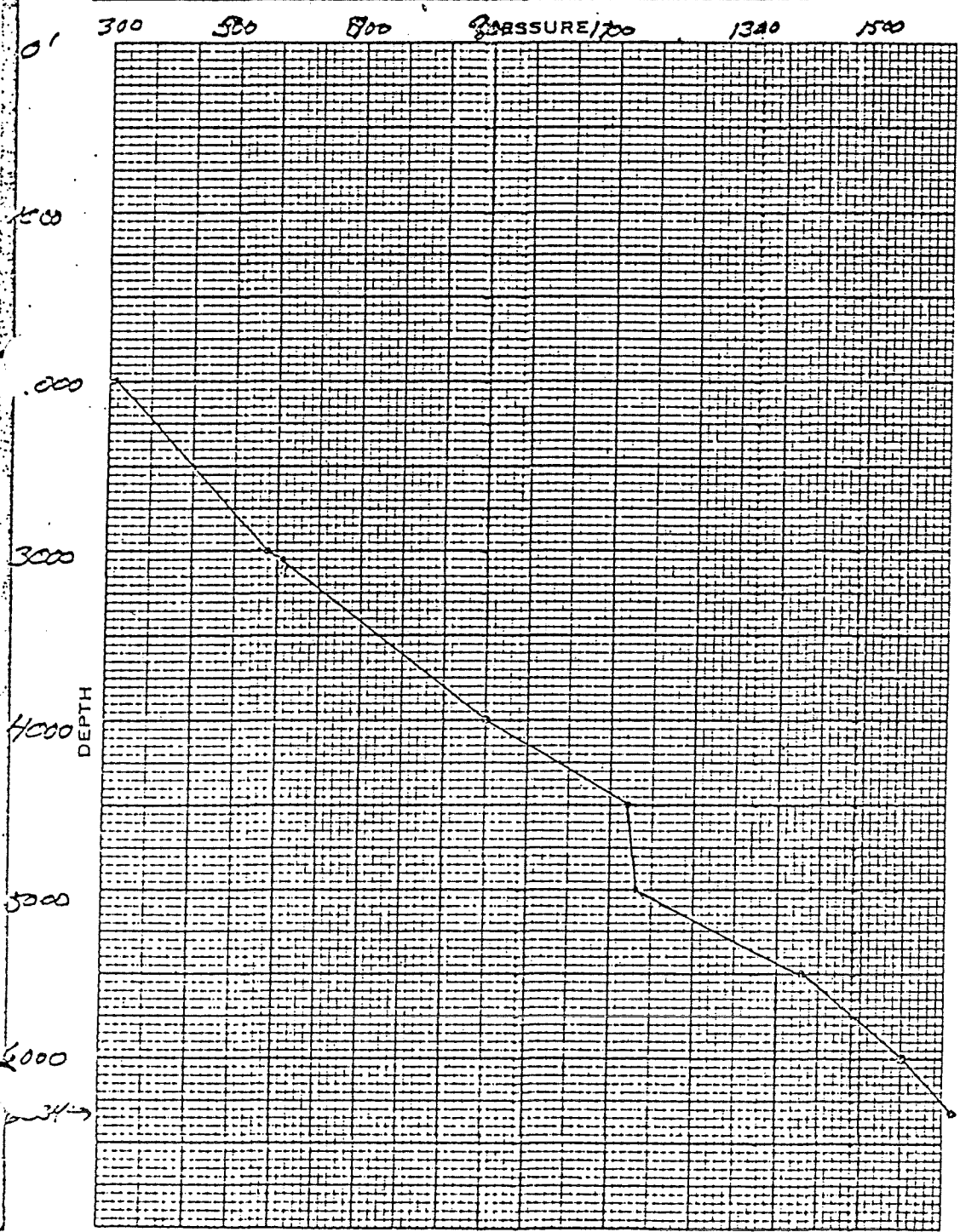
SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Co. of Calif. FIELD Valle Grande WELL NAME Race #4
 CASING _____ ELEV 9500 DATE 3/8/74
 LINER DESCRIPTION: _____ ZERO POINT 1' below g.l.
 _____ DEPTH 6344.5-6334

HOLE DESCRIPTION: _____

INSTRUMENT 4250 PS
 SERIAL NO 7198

PURPOSE Temperature Gradient Survey MAX TEMP _____ °F @ _____
 REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
0'	0	-
1000	0	-
2000	309.21	-
3000	552.74	.24
4000	900.94	.34
4500	1124.47	.22
5000	1139.41	.01
5500	1402.90	.26
6000	1567.80	.15
6344	1675.95	.10

1 LINE = 13.65 PSIG

BY: JS

76

GLO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

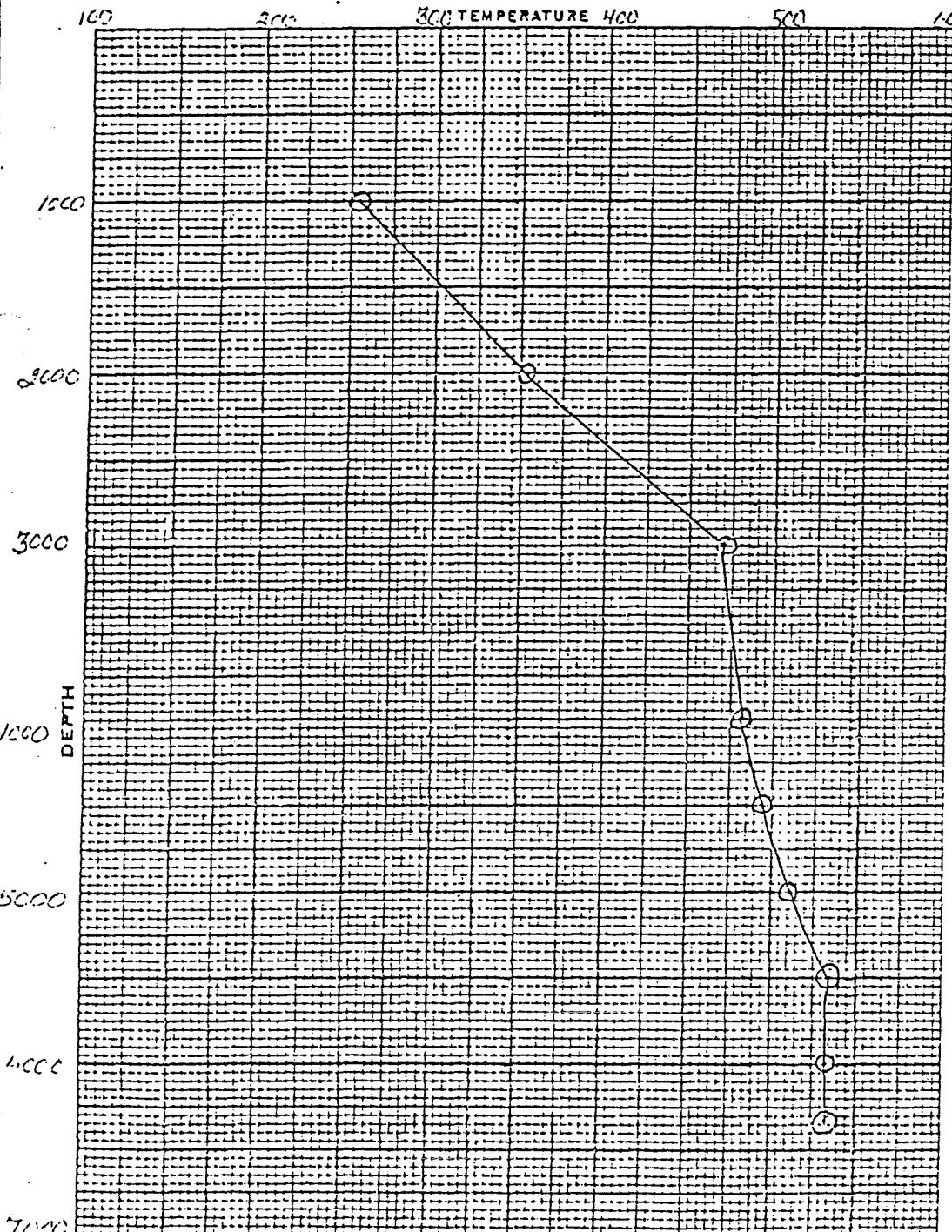
B4-522 PT.

OWNER Union Oil Company of Calif FIELD Valle Grande WELL NAME BACA #4
 CASING _____ ELEV 9318' DATE 3/8/74
 LINER DESCRIPTION _____ ZERO POINT GL + 1
 _____ DEPTH 6334' Survey

HOLE DESCRIPTION: _____ INSTRUMENT _____ FAULT _____
 SERIAL NO KPG-10052

PURPOSE Static Gradient Survey MAX TEMP 533 °F @ 6334'
 REMARKS: WHP = 274

STABILIZATION PERIOD _____



PRESSURES	GAUGE	BOYS
CASING, PSI		

DEPTH	TEMP.	DEPTH	TEMP.
1000	255.2		
2000	353.7		
3000	470.0		
4000	491.8		
4500	494.5		
5000	511.2		
5500	533.0		
6000	533.0		
6334	533.0		

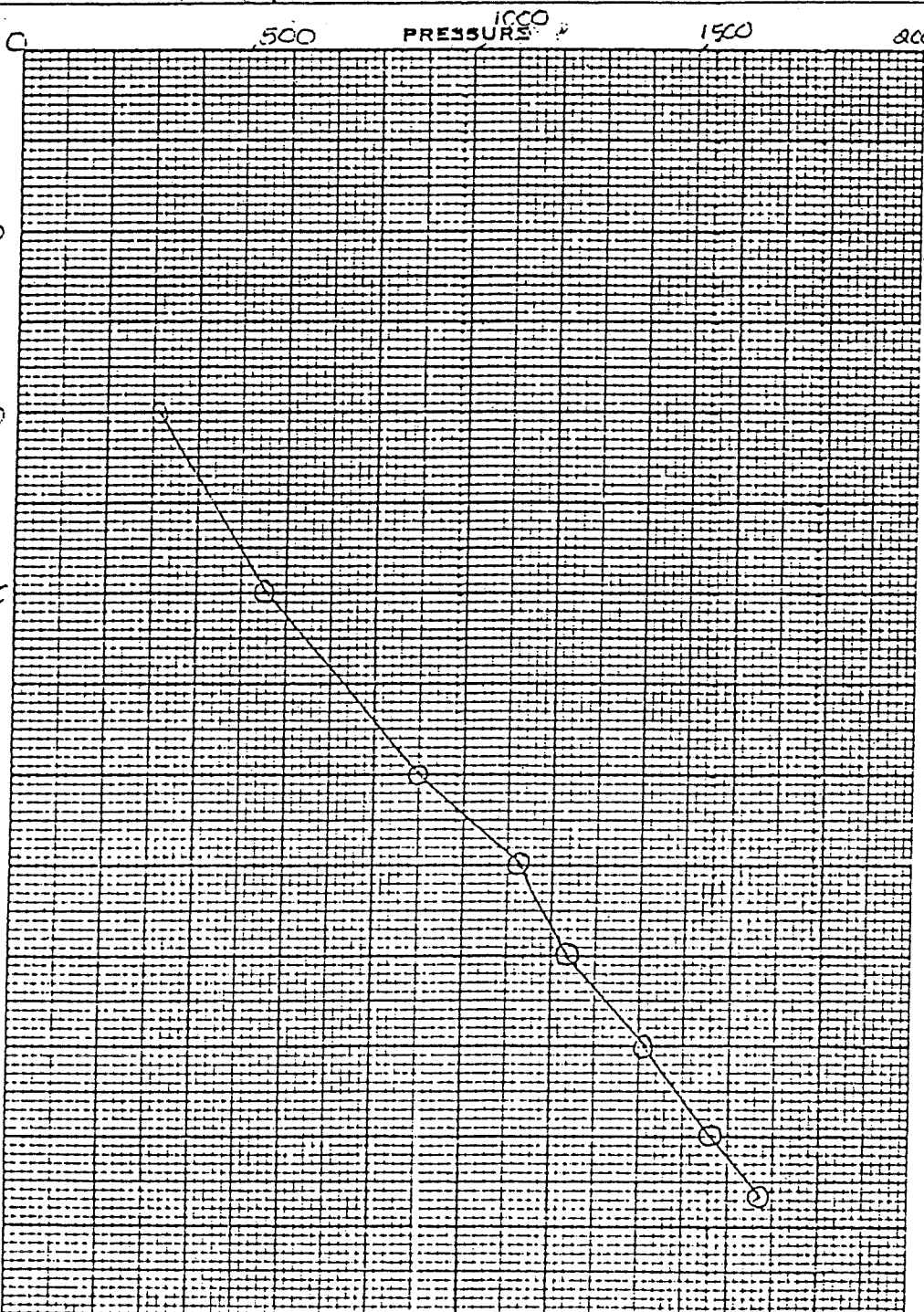
BY: TK.

76

G. OTHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Company FIELD Valle Grande WELL NAME BACA #4
 CASING _____ ELEV 9318' DATE 3/8/74
 LINER DESCRIPTION: _____ ZERO POINT GL+1
 _____ DEPTH 6334' Survey
 HOLE DESCRIPTION: _____
 _____ INSTRUMENT _____ PSI
 _____ SERIAL NO KPG-7198
 PURPOSE Static Gradient Survey MAX TEMP 53.5 °F @ 6334'
 REMARKS: WHP = 274



STABILIZATION PERIOD		
PRESSURES.	GAUGE	BOMB
CASING, PSI		
DEPTH	PRESSURE	GRADIENT
0	-	
1000	-	
2000	309.21	.309
3000	552.74	.244
4000	900.84	.348
4500	1124.47	.447
5000	1239.41	.230
5500	1408.90	.339
6000	1567.80	.318
6334	1675.85	.323

BY: TK

76

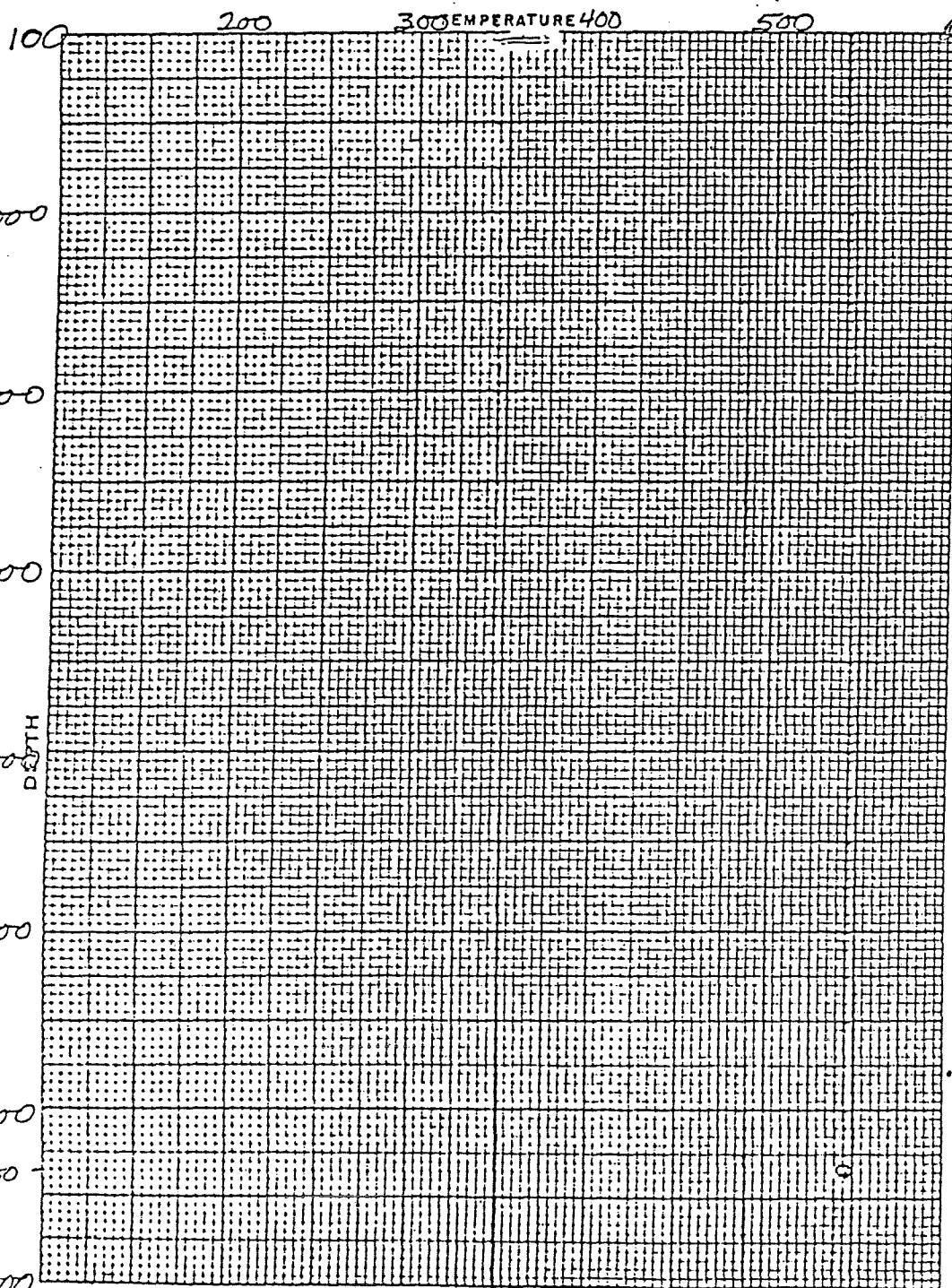
GEOHERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

24-241-PIT
BH

OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME B-4
 CASING _____ ELEV 9300 DATE: 12/17/73
 LINER DESCRIPTION: _____ ZERO POINT 14' Above GROUND
 _____ DEPTH 6350'
 HOLE DESCRIPTION: _____

 INSTRUMENT 300° - 736° F
 SERIAL NO KT3-10036
 PURPOSE _____ MAX TEMP 545.1 °F @
 REMARKS: _____



STABILIZATION PERIOD
600 ST. SINCE 11-13-73
@ 1222 hrs - ST - B1 @ hrs.

PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	TEMP.	DEPTH	TE
0 FT	0 F		
6350	545.1		

BY:

76

GEO THERMAL DIVISION

B4-521-p/H
BH

SUBSURFACE PRESSURE SURVEY

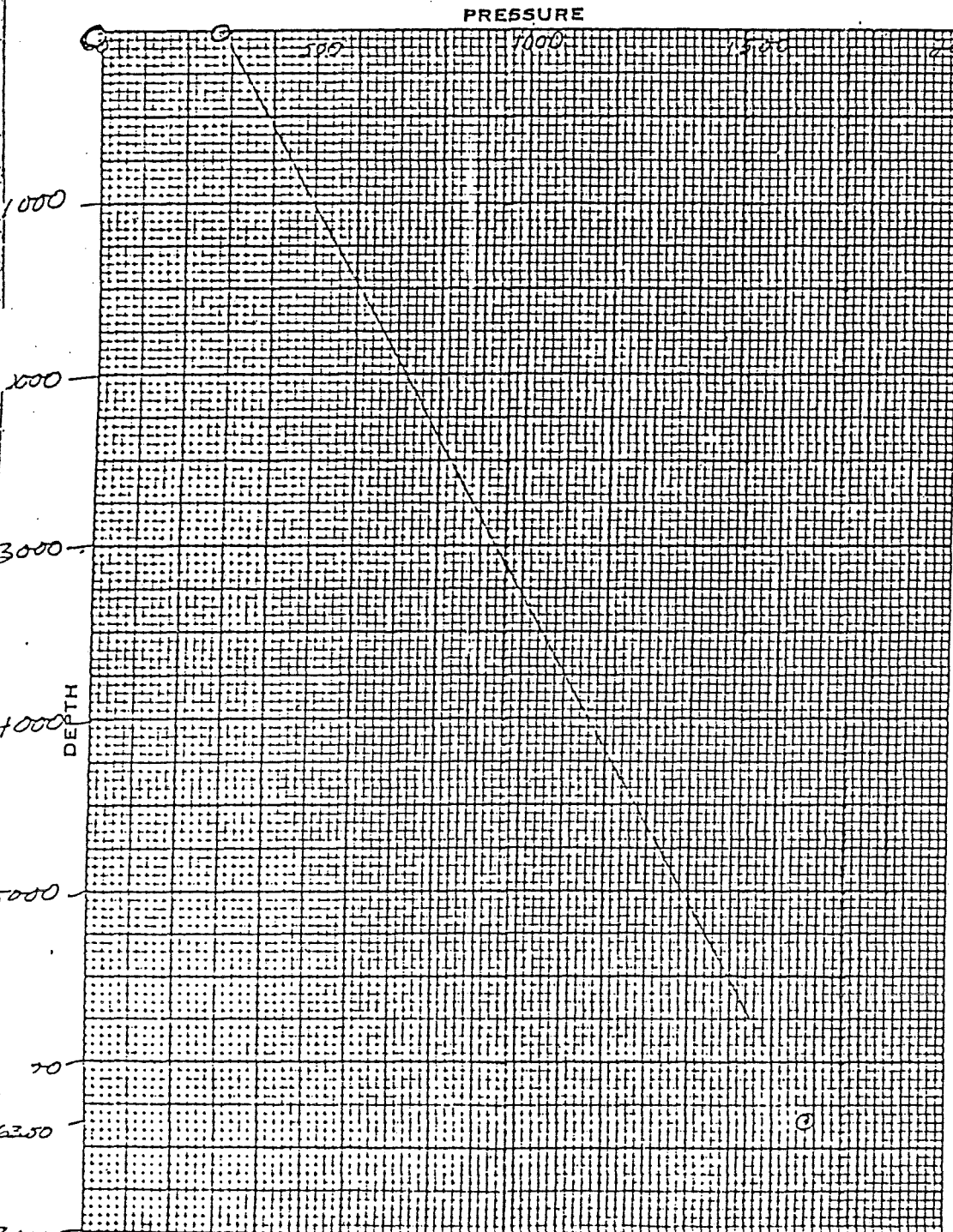
OWNER UNION OIL OF CALIF FIELD Valle Grande WELL NAME B4
 CASING _____ ELEV 9300 DATE 12/17/73
 LINER DESCRIPTION: _____ ZERO POINT 1' Above 9200
 _____ DEPTH 6350

HOLE DESCRIPTION: _____

 INSTRUMENT 2400
 SERIAL NO KPB-6604N

PURPOSE _____ MAX TEMP 545.1 °F @
 REMARKS: _____

STABILIZATION PERIOD _____
SI. SINGH 11/13/73
1222 hrs. 816 lbs



PRESSURES.	GAUGE	BOL
CASING, PSI		

DEPTH	PRESSURE	GRADI
0	293.54	
6350	1686.17	

GLOTTHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

76

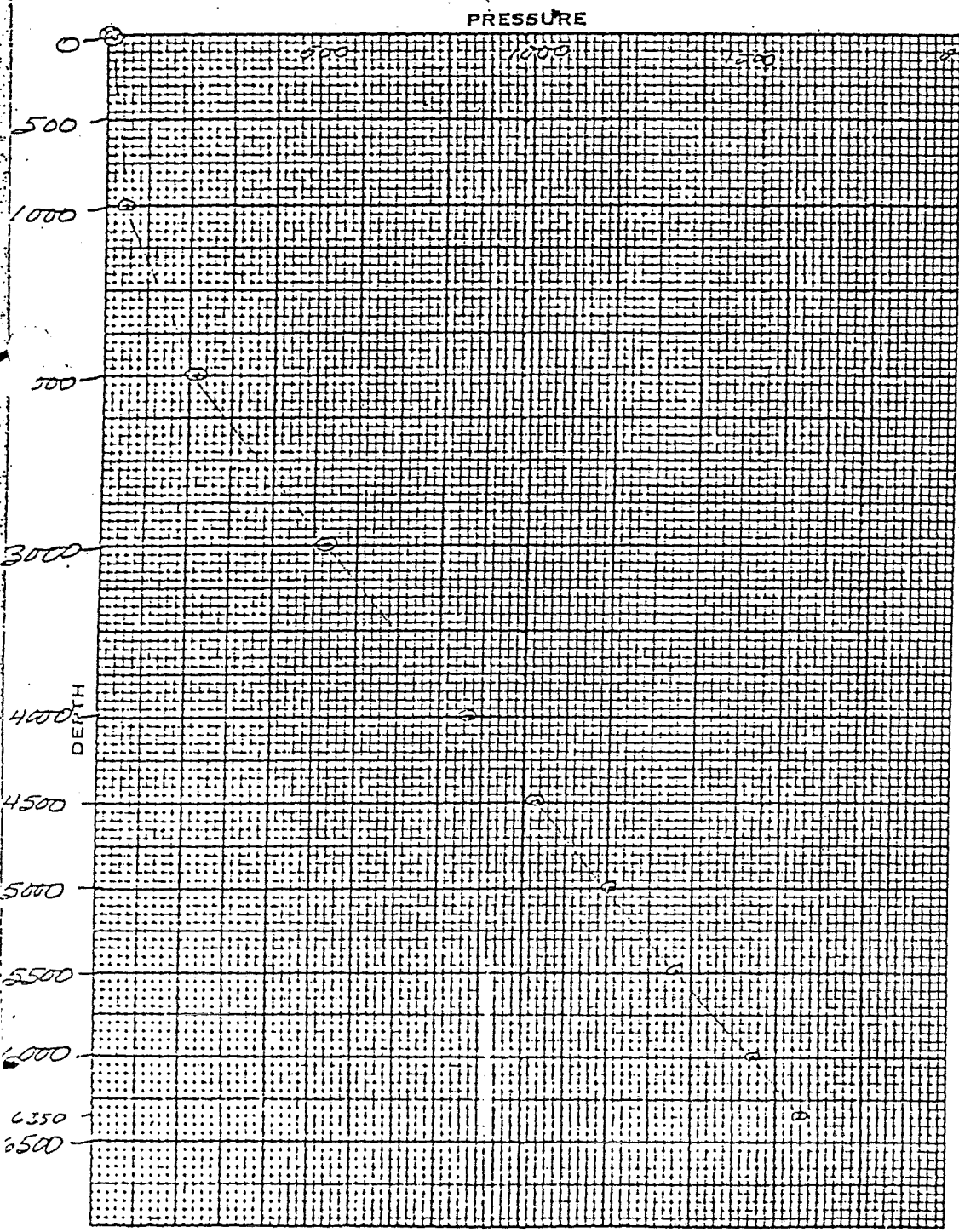
OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME B-4
 CASING _____ ELEV. 9300 ± 9313 DATE: 12/13/73
 LINER DESCRIPTION: _____ ZERO POINT 1 1/2' ABOVE GROUND
 _____ DEPTH 6358'

HOLE DESCRIPTION: _____ INSTRUMENT 4250
 _____ SERIAL NO KPG 7198

PURPOSE _____ MAX TEMP 537.3 °F @

REMARKS:

STABILIZATION PERIOD 40 MINUTES
SI 11-13-73
@ 1222



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
0	7	0
1000	24	0.017
2000	209	0.024
3000	517	0.308
4000	865	0.348
4500	1035	0.340
5000	1201	0.342
5500	1372	0.342
6000	1544	0.334
6350	1655	0.317

BY:

GEO THERMAL DIVISION

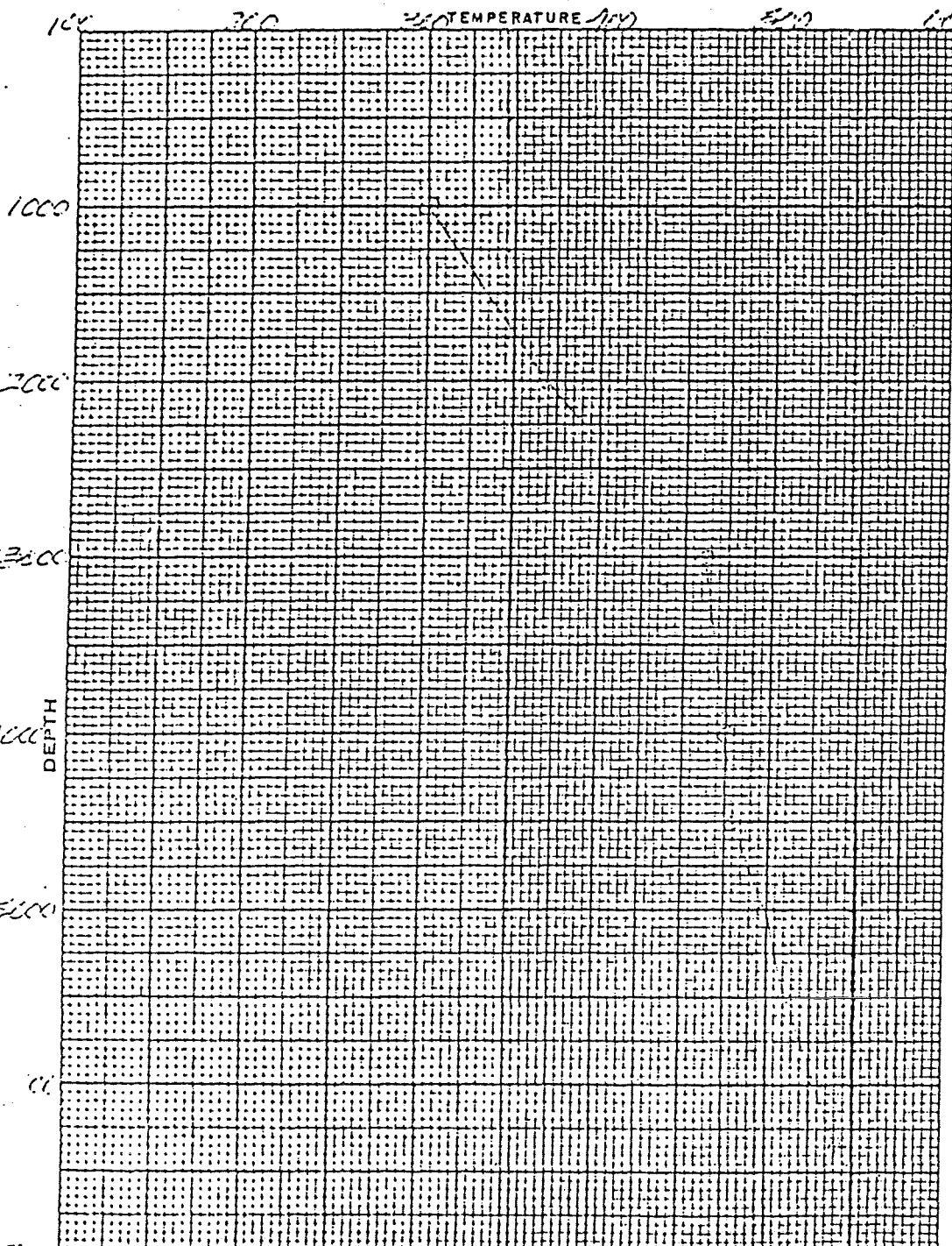
SUBSURFACE TEMPERATURE SURVEY

B4-52077

76

OWNER Western Oil Co FIELD _____ WELL NAME Boca No 9
 CASING _____ ELEV 9318 DATE 12-3-73
 LINER DESCRIPTION: _____ ZERO POINT GL + 1'
 _____ DEPTH 6350
 HOLE DESCRIPTION: _____ INSTRUMENT 300-736 FA
 _____ SERIAL NO KTB-10036
 PURPOSE _____ MAX TEMP 540.9 °F @ 6350
 REMARKS: _____

STABILIZATION PERIOD
SI 11-13-73 @
1222



PRESSURES	GAUGE	BOMB
CASING, PSI		
DEPTH	TEMP.	DEPTH
0		
1000	320	
2000	348.5	
3000	462.5	
4000	474.7	
4500	480.2	
5000	498.5	
5500-5550	510.7	
6000	527.5	
6350	540.9	

GEOHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

76

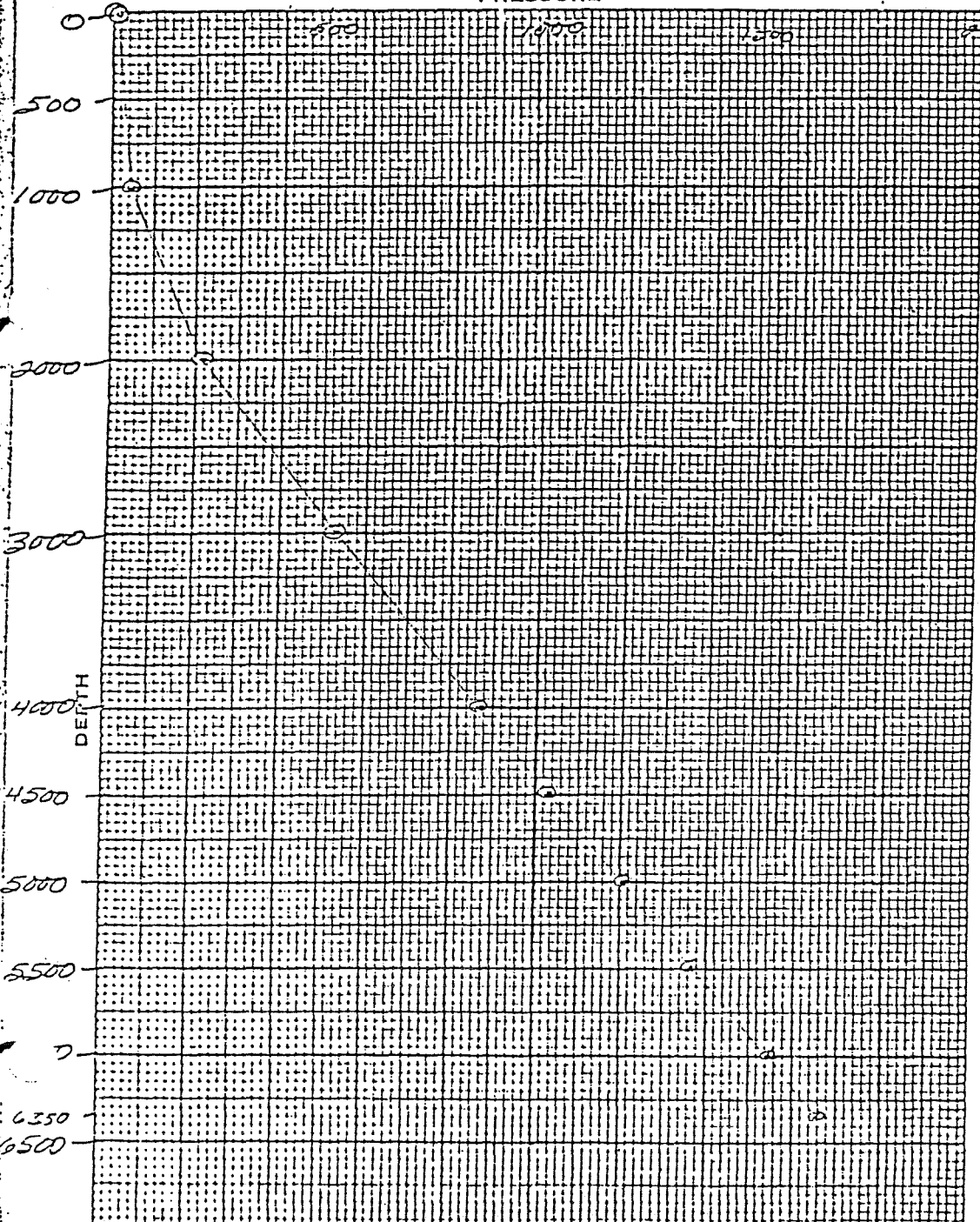
OWNER UNION OF CALIF FIELD VALLE GRANDE WELL NAME B-4
 CASING _____ ELEV. 9318 DATE 12/3/73
 LINER DESCRIPTION: _____ ZERO POINT 1" ABOVE GROUND
 _____ DEPTH 6358'

HOLE DESCRIPTION: _____ INSTRUMENT 4250
 _____ SERIAL NO KPG 7198

PURPOSE _____ MAX TEMP 537.3 °F @ _____
 REMARKS: _____

PRESSURE

STABILIZATION PERIOD
SL 11-13-73
C 1272



PRESSURES.	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADE
0	7	0
1000	24	0017
2000	209	0024
3000	517	0308
4000	865	0348
4500	1035	0346
5000	1201	0342
5500	1372	0342
6000	1544	0334
6350	1655	0317

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B4 - 519 PT

76

OWNER Lincoln Co of Calif FIELD WELL NAME Bacon No. 4
 CASING ELEV 9318.68 DATE: 11-19-73

LINER DESCRIPTION: ZERO POINT Sumb tube 684
 DEPTH 6 SWAGE AS

HOLE DESCRIPTION:

INSTRUMENT 300-736 ° FA:
 SERIAL NO KTB-10036

PURPOSE BHP and BHT Building Following B4-2 MAX TEMP 529.7 °F @ 6350

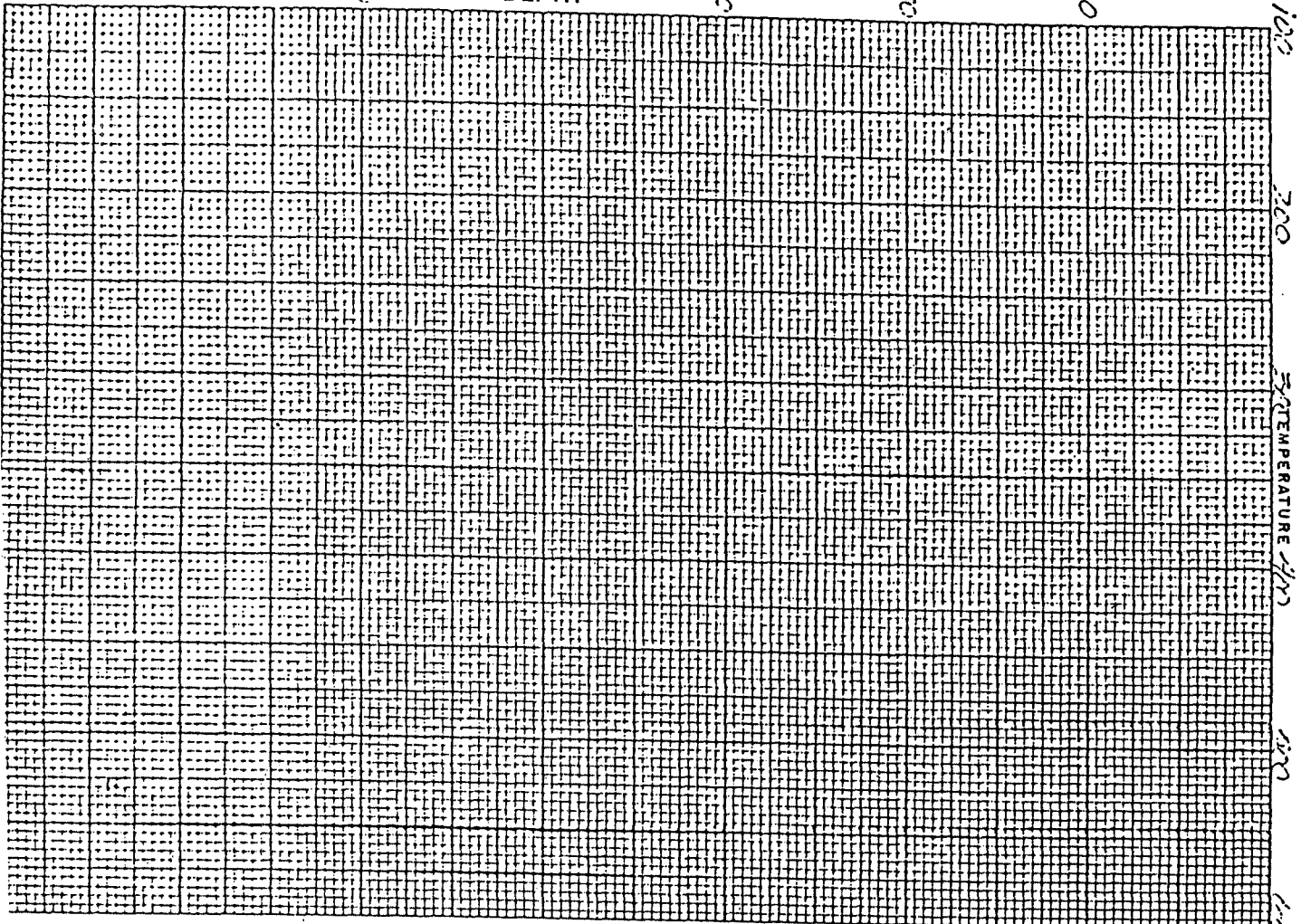
REMARKS:

STABILIZATION PERIOD SI 1322 11-13-73
15192 hrs since SI

PRESSURES, CASING, PSI	GAUGE	BOND

DEPTH	TEMP.	DEPTH	TEM
6350	529.7 °F		

15192 hrs since

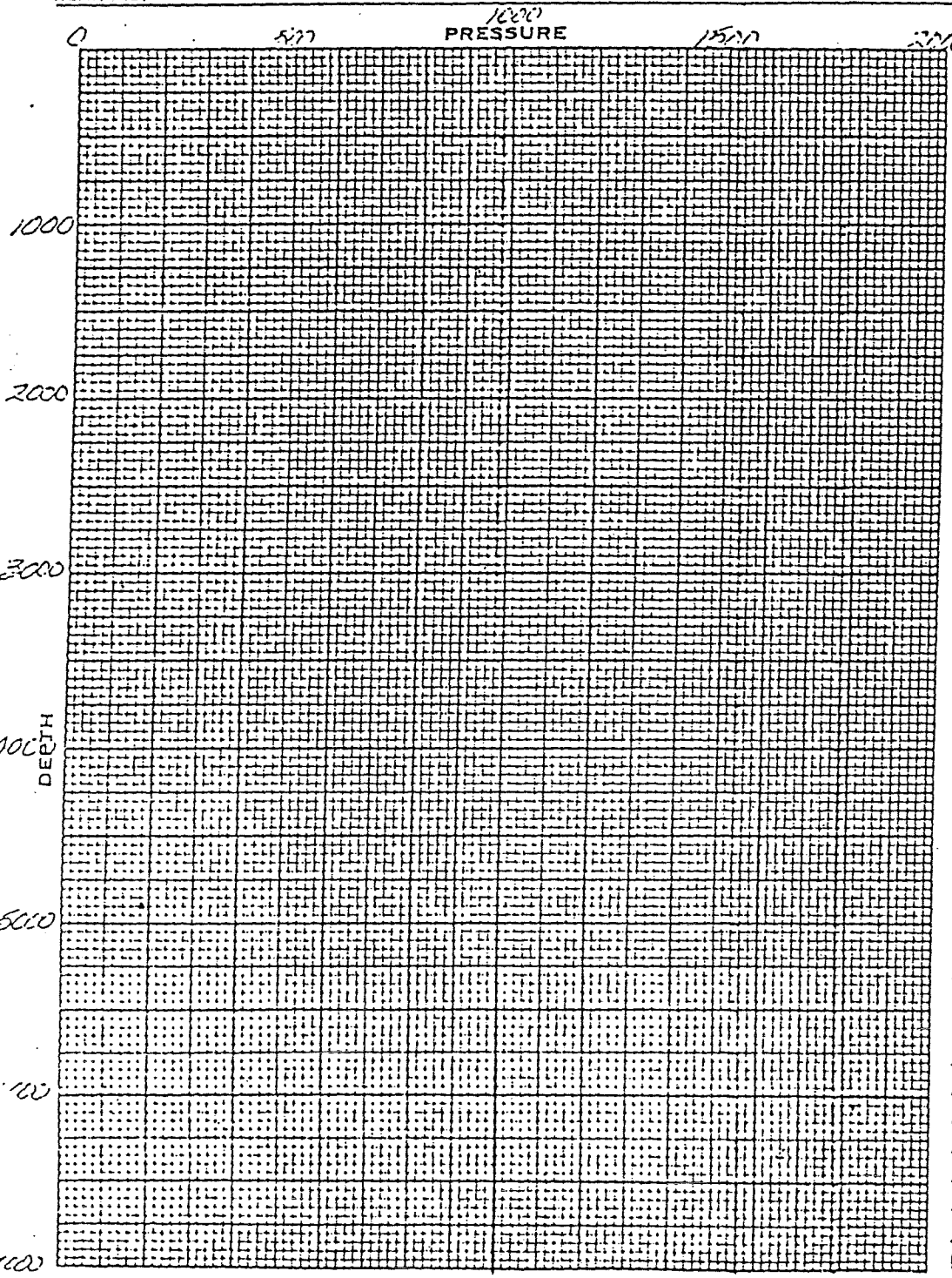


76

GEO THERMAL DIVISION B4-S 19 PT

SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Co of Cal FIELD _____ WELL NAME BACP No. 9
 CASING _____ ELEV 9313 GL DATE 11-19-73
 LINER DESCRIPTION: _____ ZERO POINT Substrate GLT
 _____ DEPTH _____
 HOLE DESCRIPTION: _____
 _____ INSTRUMENT 4250 PS
 _____ SERIAL NO KPG 7198
 PURPOSE BHP AND BHT Buildup following B4-2 MAX TEMP 529.7 °F @ 6350
 REMARKS: _____



STABILIZATION PERIOD
SI 1227 11-13-73

PRESSURES.	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRAB
<u>6350</u>	<u>1663.14</u>	
<u>at</u>	<u>2017</u>	<u>11-19-73</u>

BY: W. K. ...

716

GEO THERMAL DIVISION

B4-318PT

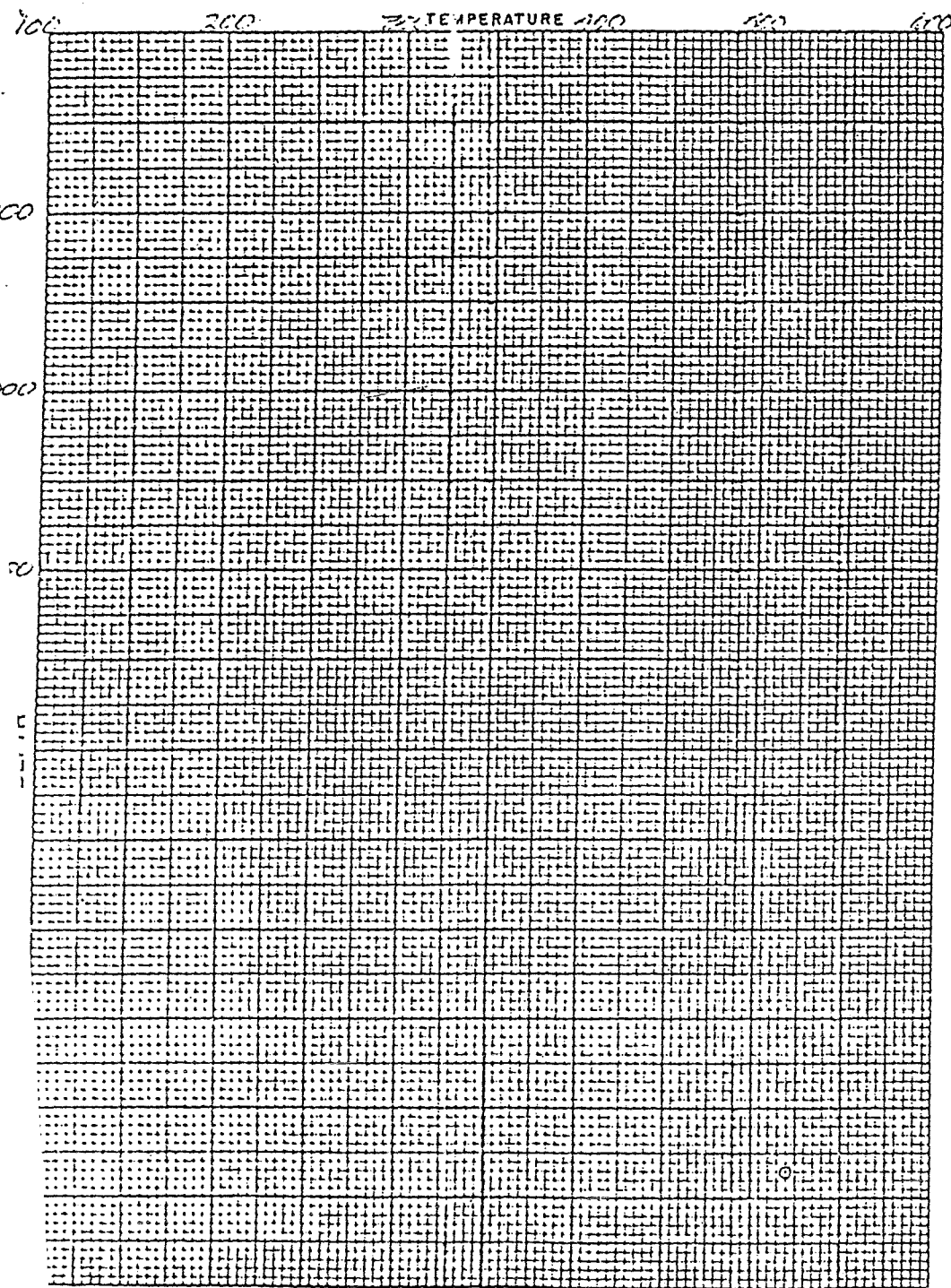
SUBSURFACE TEMPERATURE SURVEY

OWNER Union Oil Co of Calif. FIELD _____ WELL NAME BACP No. 4
 CASING _____ ELEV. 9318 GL DATE: 11-17-73
 LINER DESCRIPTION: _____ ZERO POINT Swamp Gate: GL + 9
 DEPTH TD 6378 Swamp: 637

HOLE DESCRIPTION: _____ INSTRUMENT 300-736°F FA
 SERIAL NO KTB-10036

PURPOSE BHT AND BHP Buildup following B4-2 MAX TEMP 520.3 °F @ 6380
 REMARKS: Temp. clock stopped 21 min. on bottom

STABILIZATION PERIOD
SI 1222 11-13-73



PRESSURE	GAUGE	BOMB
CASING, PSI	<u>2.30</u>	

DEPTH	TEMP.	DEPTH	TEM
<u>6380</u>	<u>520.3</u>	<u>@ 1751</u>	<u>Time</u>

BY: T.N.M. Jr.

76

GLOTTHERMAL DIVISION B1-318PT

SUBSURFACE PRESSURE SURVEY

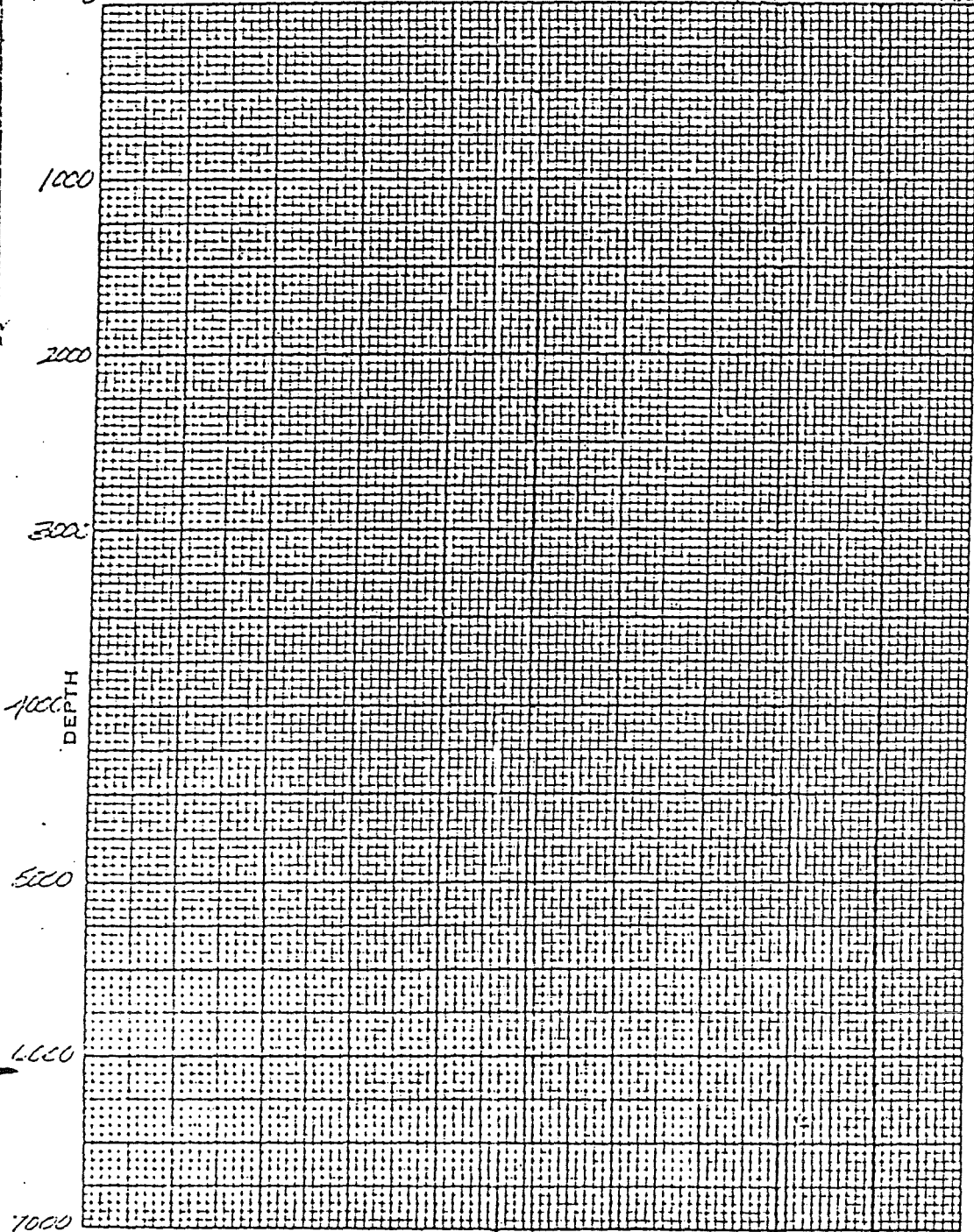
OWNER Union Oil Co of Calif FIELD _____ WELL NAME BACA No. 4
 CASING _____ ELEV. 9318 GL DATE: 11-17-73
 LINER DESCRIPTION: _____ ZERO POINT Swab Curb GL + 9
 DEPTH TD 6378 Survey

HOLE DESCRIPTION: _____ INSTRUMENT A250 PS
 SERIAL NO 300-736 °F

PURPOSE RHT AND BHP Buildup following B1-2 MAX TEMP 520.3 °F @ 6350
 REMARKS: Temperature Clock stopped 21 mins on bottom

0 500 1000 1500 2000 2500 3000
 PRESSURE

STABILIZATION PERIOD
 SI 1222 11-13-73



PRESSURES	GAUGE	BOMB
CASING, PSI	230	

DEPTH	TIME PRESSURE	GRADIENT
3650	1211	16.41
	1232	
	1241	16.52
	1311	16.53
	1411	16.45
	1511	16.41
	1611	16.44
	1751	16.36

BY: T. W. Whitwell

76

GEO THERMAL DIVISION

BA-317PT

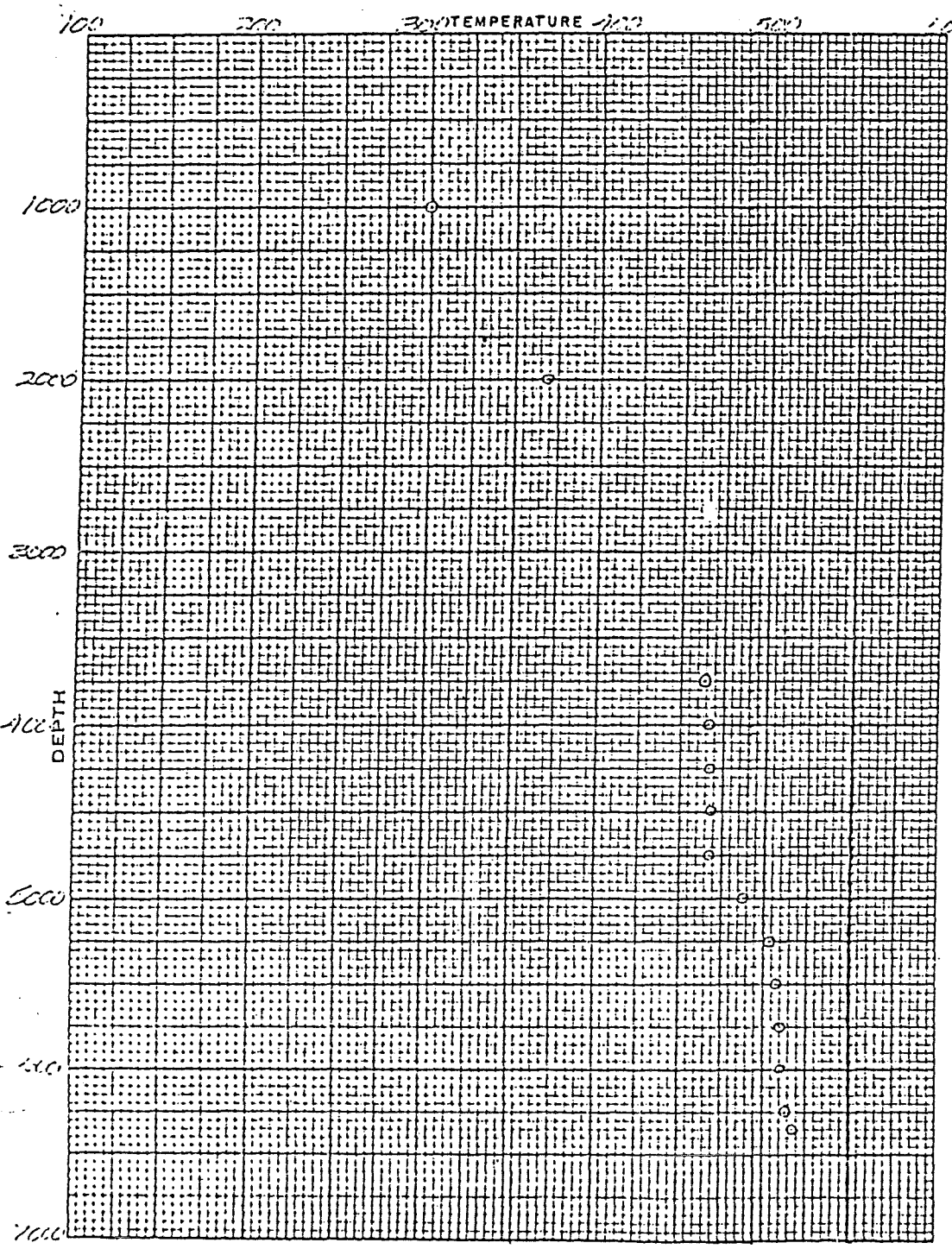
SUBSURFACE TEMPERATURE SURVEY

OWNER Union Oil Co. of Calif FIELD _____ WELL NAME Baco No. 4
 CASING _____ ELEV. 9318 GL DATE: 11-16-73
 LINER DESCRIPTION: _____ ZERO POINT Swab hole GL
 DEPTH TD 6378' Survey G.

HOLE DESCRIPTION: _____ INSTRUMENT 310-736 FA
 SERIAL NO KTB-10036

PURPOSE BHT/BHP Gradient and BT following BA-2 MAX TEMP. 518.8 °F @ 6350'
 REMARKS: BHP SURVEY WAS INTERRUPTED

STABILIZATION PERIOD
5T 1222 11-13-73



PRESSURE	GAUGE	BOMB
CASING, PSI	<u>21.5</u>	

DEPTH	TEMP	DEPTH	TEMP
	Time	Temp	
1000	<u>1517</u>	370	
2000	<u>110.5</u>	<u>527.6</u>	
3300	<u>1126</u>	chart stuck	
3750	<u>1149</u>	463	
4000	<u>1230</u>	<u>466.3</u>	
4250	<u>1251</u>	<u>466.6</u>	
4500	<u>1317</u>	<u>468.9</u>	
4750	<u>1337</u>	<u>467.9</u>	
5000	<u>1351</u>	<u>468.5</u>	
5250	<u>1415</u>	<u>503</u>	
5500	<u>1430</u>	<u>502.1</u>	
5750	<u>1457</u>	<u>509.6</u>	
6000	<u>1518</u>	<u>510.1</u>	
6250	<u>1537</u>	<u>513.1</u>	
6350	<u>1540</u>	chart stuck	
	<u>1640</u>	chart stuck	
	<u>1740</u>	chart stuck	
	<u>1840</u>	<u>517.3</u>	
	<u>1940</u>	<u>517.5</u>	
	<u>2030</u>	<u>518.8</u>	

BY: T.M. M... ..

76

GEOHERMAL DIVISION BA-310PT

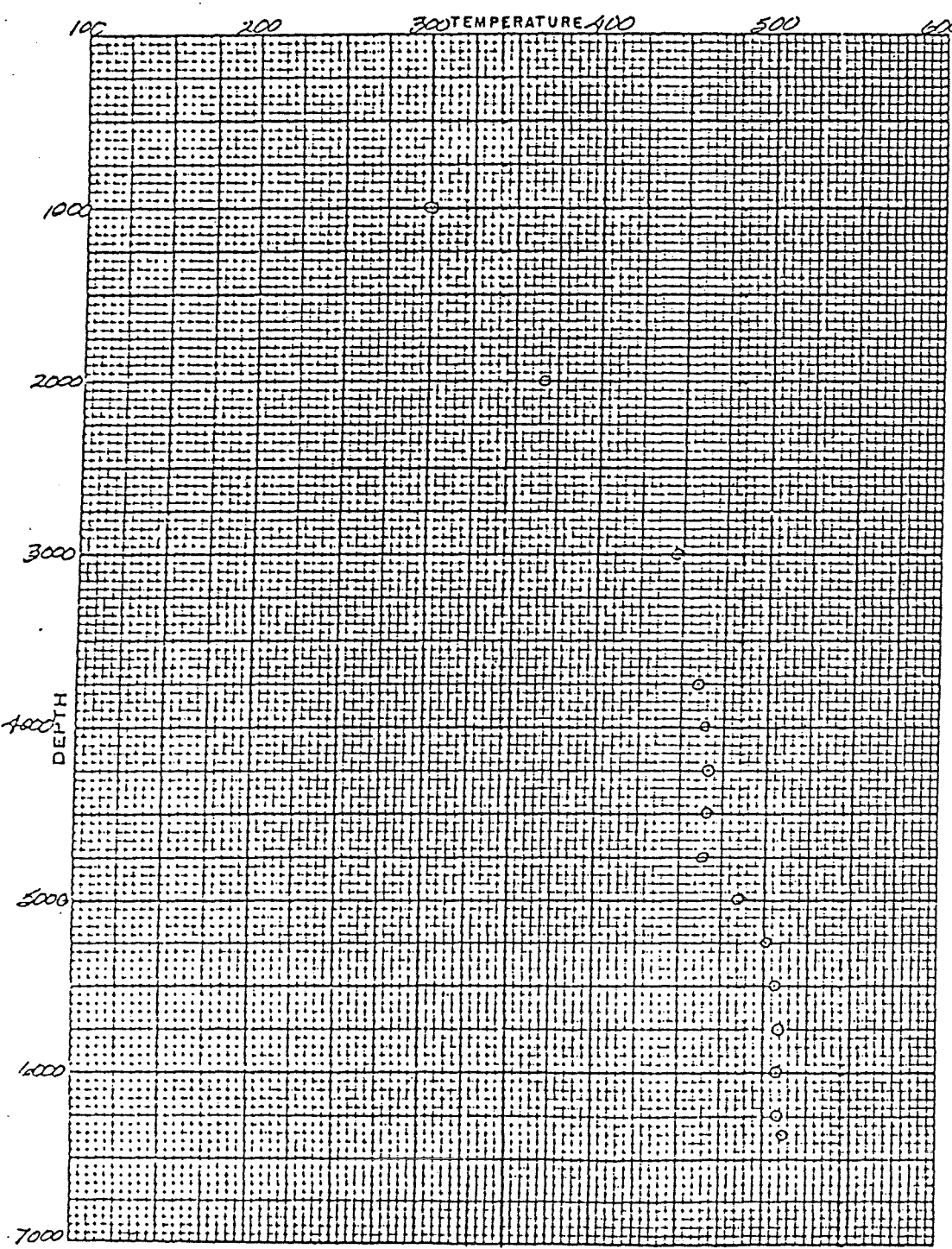
SUBSURFACE TEMPERATURE SURVEY

OWNER Union Oil Co of Calif FIELD _____ WELL NAME Boca No. 1
 CASING _____ ELEV 9318 CL DATE 11-15-73
 LINEAR DESCRIPTION: _____ ZERO POINT Swab Gate CL to
 _____ DEPTH 6378 SURVEY: 6

HOLE DESCRIPTION: _____ INSTRUMENT 300-736 F
 _____ SERIAL NO KTB-10036

PURPOSE BHT/BHP BU AND GRADIENT Following BA-2 MAX TEMP. 513.6 °F @ 6335
 REMARKS: _____

STABILIZATION PERIOD _____
ST 1222 11-13-73



PRESSURES	GAUGE	BOMB
CASING, PSI	193	

DEPTH	TEMP.	DEPTH	TE
		Time	
1000	300	1020	
2000	367.9	1040	
3000	446	1020	
3750	460.1	1120	
4000	463.8	1140	
4250	466	1200	
4500	466.4	1310	
4750	463.9	1330	
5000	482.9	1350	
5250	500.6	1410	
5500	500.8	1430	
5750	508.1	1450	
6000	508.2	1510	
6250	508.6	1530	
6378	511.5	1531	
	512.4	1631	
	512.7	1731	
	512.9	1831	
	512.8	1931	
	513.1	2031	
	513.1	2131	
	513.6	2230	

BY: T. N. M. 11/27/73

76

GEO THERMAL DIVISION B4-516 PT

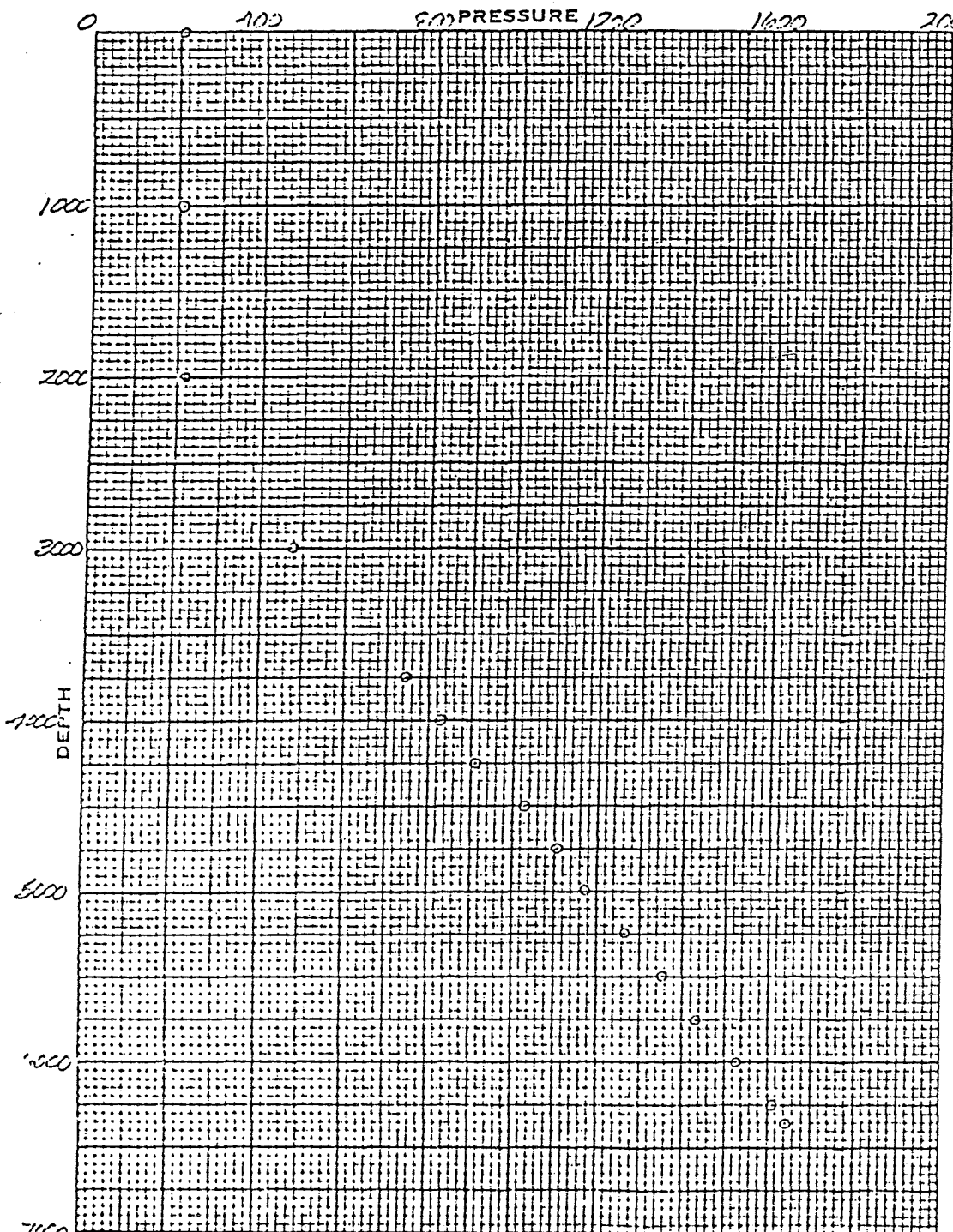
SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Co of Calif FIELD _____ WELL NAME BACD No. 4
 CASING _____ ELEV 9318 Ch DATE 11-15-73
 LINER DESCRIPTION: _____ ZERO POINT Swab Ckts G114
 DEPTH 6328 SURVEY 633

HOLE DESCRIPTION: _____ INSTRUMENT A250
 SERIAL NO KPG 7198

PURPOSE RHT/BHP Buildup and Gradient following B-1-2 MAX TEMP 513.6 °F @ 6350
 REMARKS: Press from 3750-5250 D.F. to zero due to chart hanging up.

STABILIZATION PERIOD
31 1722 11-13-73



PRESSURE	GAUGE	BOND
CASING, PSI	19.3	

DEPTH	TIME	PRESSURE	GRADIENT
0	1000	208	-
1000	1000	208	-
2000	1040	213	.005
3000	1100	218	.005
3750	1120	219	.005
4000	1140	227	.005
4250	1200	241	.005
4500	1310	250	.005
4750	1330	262	.005
5000	1350	276	.005
5250	1410	287	.005
5500	1450	299	.005
5750	1450	297	.005
6000	1510	298	.005
6250	1530	290	.005
6350	1531	290	.005
	1631	294	
	1731	291	
	1831	294	
	1931	295	
	2031	297	
	2115	297	
	2131		

Note:
 Zero line waves.

BY: T.N. Mollie

76

GEO THERMAL DIVISION B-1-315 PT

SUBSURFACE PRESSURE SURVEY

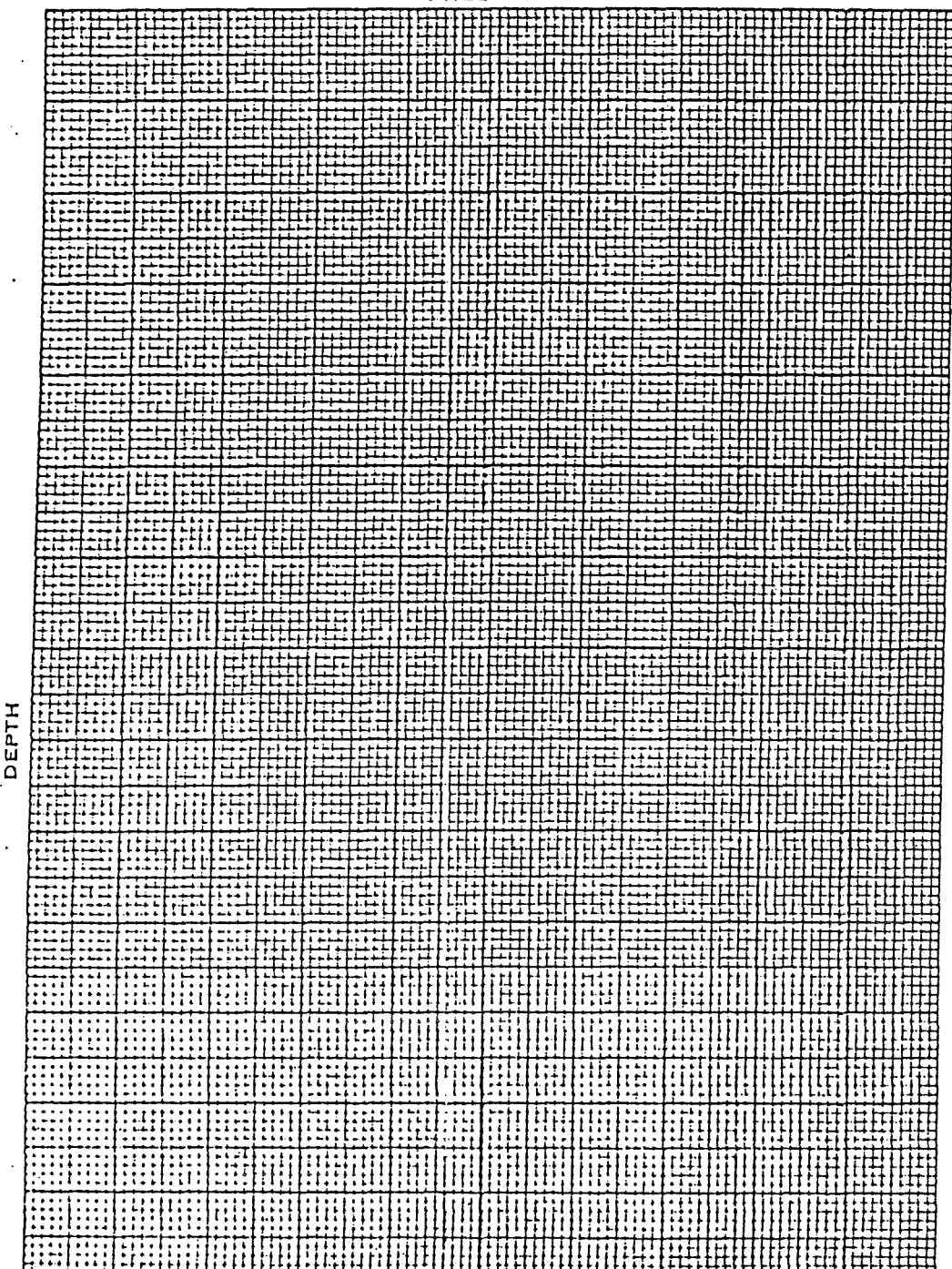
OWNER Union Oil Co of Calif FIELD _____ WELL NAME BACU No. 1
 CASING _____ ELEV. 9318 CL DATE: 11-14/11-15-73
 LINER DESCRIPTION: _____ ZERO POINT Surface Gate G.H. 1
 _____ DEPTH 6378 Survey G.H.

HOLE DESCRIPTION: _____ INSTRUMENT KPS 7198
 _____ SERIAL NO 4250psi

PURPOSE BHP AND BHT Buildup following Test B-1-2 MAX TEMP _____ °F @ _____
 REMARKS: Temp probe failed running in hole below 1000'

PRESSURE

STABILIZATION PERIOD
ST 1222 11-13-73



PRESSURES	GAUGE	BOMB
IN CASING, PSI	175	
Out	193	

DEPTH	PRESSURE	GRADIENT
6300	16300	16350
Time	Pressure	Pressure
1751	1602	1615
1821	1601	1620
1951	1604	1620
1951	1604	1620
2051	1602	1618
2151	1601	1617
2251	1602	1618
2351	1601	1617
0051	1599	1615
0151	1598	1615
0251	1597	1615
0351	1601	1617
0451	1600	1616
0507	1599	1615

Temp at 1000'
 174.3 hr 300°

Pressure at 1000'
 174.3 hr 15.2 psig

Note: Pressure at 6300'
 RDD is psi for
 16350'

BY: T. N. Mittle

76

GEO THERMAL DIVISION B1-319 PT

SUBSURFACE PRESSURE SURVEY

OWNER UNION OIL CO OF CALIF. FIELD _____ WELL NAME BACA No. 1
 CASING _____ ELEV. 9318 GL DATE 11-14-73
 LINER DESCRIPTION: _____ ZERO POINT Swab Gate - Ch. 1.
 _____ DEPTH 6378 Survey 63.

HOLE DESCRIPTION: _____ INSTRUMENT 4250
 _____ SERIAL NO KPC 7198

PURPOSE BHT AND BHP Buildup following B1-2 TEST MAX TEMP _____ °F @ _____
 REMARKS: TEMP. scriber failed and trip in hole

STABILIZATION PERIOD
SI 1222 11-13-73

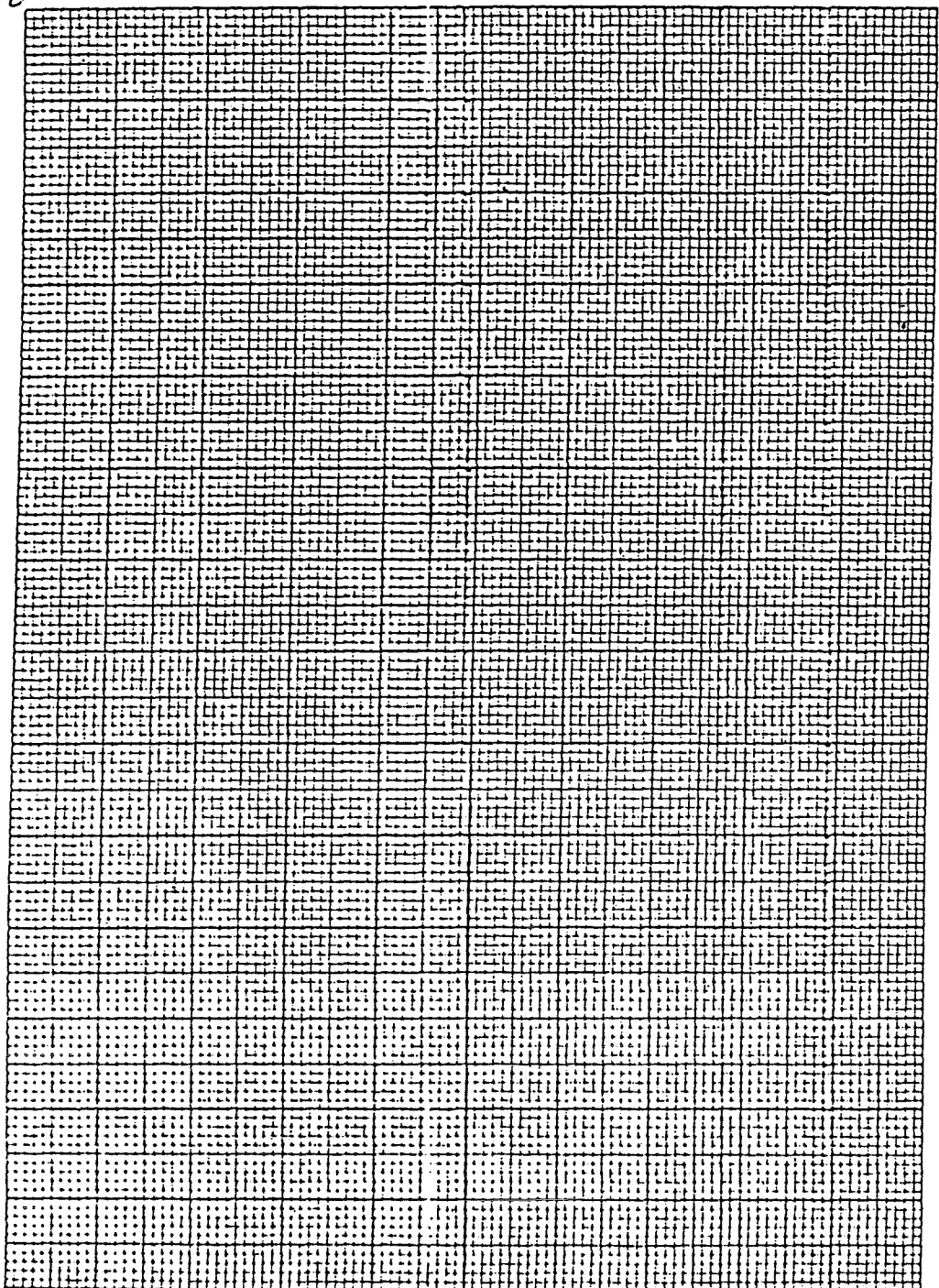
PRESSURE

PRESSURE	GAUGE	BONI
CASING, PSI		

DEPTH	PRESSURE	GRADE
<u>36350</u>		
<u>Time</u>	<u>Press</u>	
<u>0917</u>	<u>1606</u>	
<u>0947</u>	<u>1611</u>	
<u>1017</u>	<u>1609</u>	
<u>1117</u>	<u>1605</u>	
<u>1217</u>	<u>1602</u>	
<u>1317</u>	<u>1595</u>	
<u>1410</u>	<u>1597</u>	

Temperature
1000' 307.6

DEPTH



BY: T. Blumstein

76

GEO THERMAL DIVISION B4-513 PT

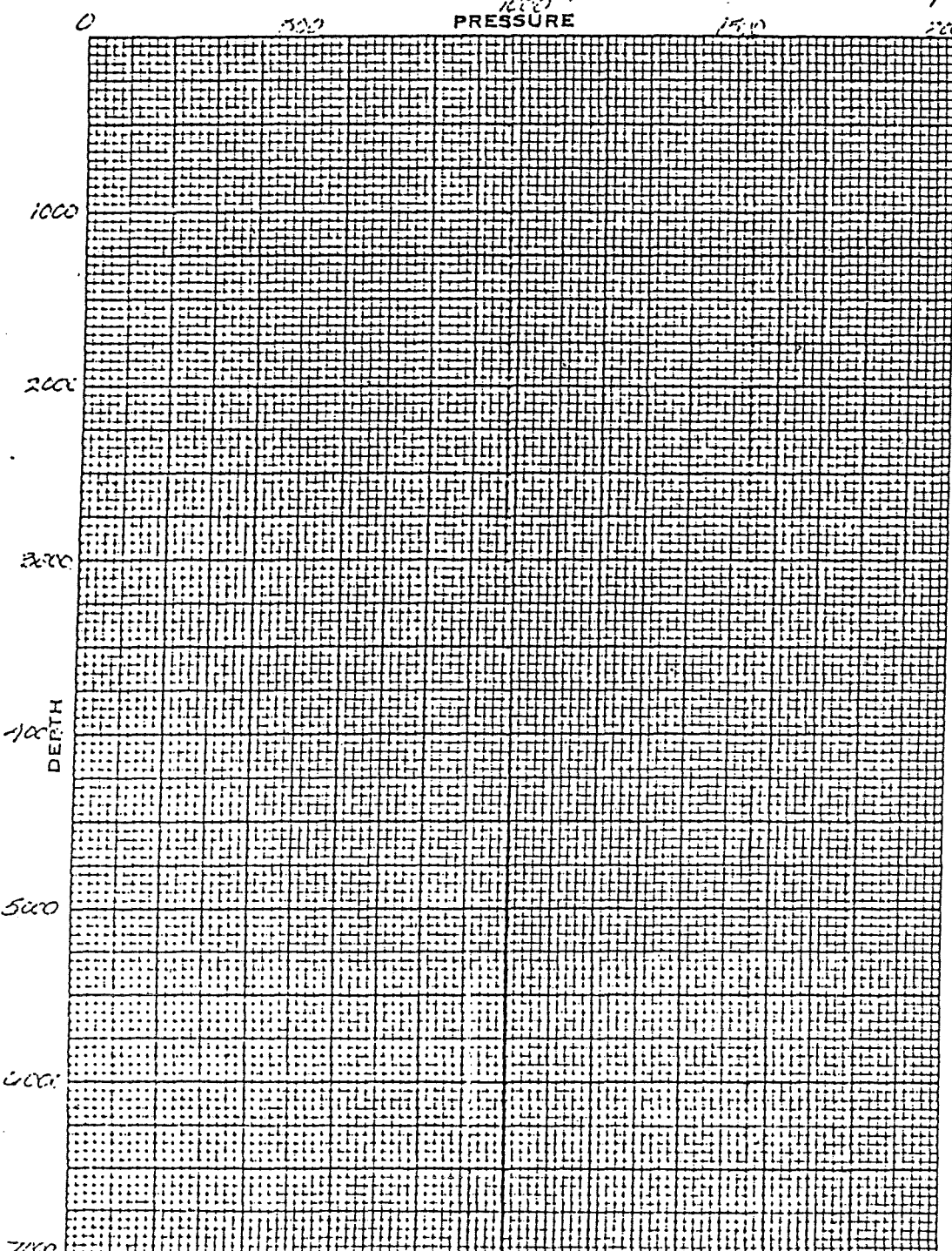
SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Co of Calif FIELD _____ WELL NAME BRCO No. 4
 CASING _____ ELEV. 9313 GL DATE 11-13-73 / 11-14-73
 LINER DESCRIPTION: _____ ZERO POINT Swath Gate
 _____ DEPTH 6378 Swath Gate

HOLE DESCRIPTION: _____ INSTRUMENT 7250 P: _____
 SERIAL NO KPG 7198

PURPOSE BHT AND BHP Buildup following B4-2 MAX TEMP _____ °F @ _____
 REMARKS: Press. Clock stopped. Temp scribe failed running IN.

STABILIZATION PERIOD
SI 1222 11-13-73



PRESSURE,	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
<u>6350</u>		
<u>Time</u>	<u>Press</u>	
<u>0735</u>	<u>1100</u>	

CLOCKED appeared to start running immediately before pickup

No Temp. Recorded. MISRUN

BY: J.N. Minette

76

GEO THERMAL DIVISION

B1-512PT

SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Co of Calif. FIELD _____ WELL NAME BACA No. 4
 CASING _____ ELEV. 9313 GL DATE: 11-13-73
 LINER DESCRIPTION: _____ ZERO POINT Swab Gate
 _____ DEPTH 6378 SURV. 6

HOLE DESCRIPTION: _____ INSTRUMENT 4250
 _____ SERIAL NO KPG 7198

PURPOSE BHT-BHP Buildup following Test B4-2 MAX TEMP 456.2°F @ 6350
 REMARKS: _____

PRESSURE

STABILIZATION PERIOD

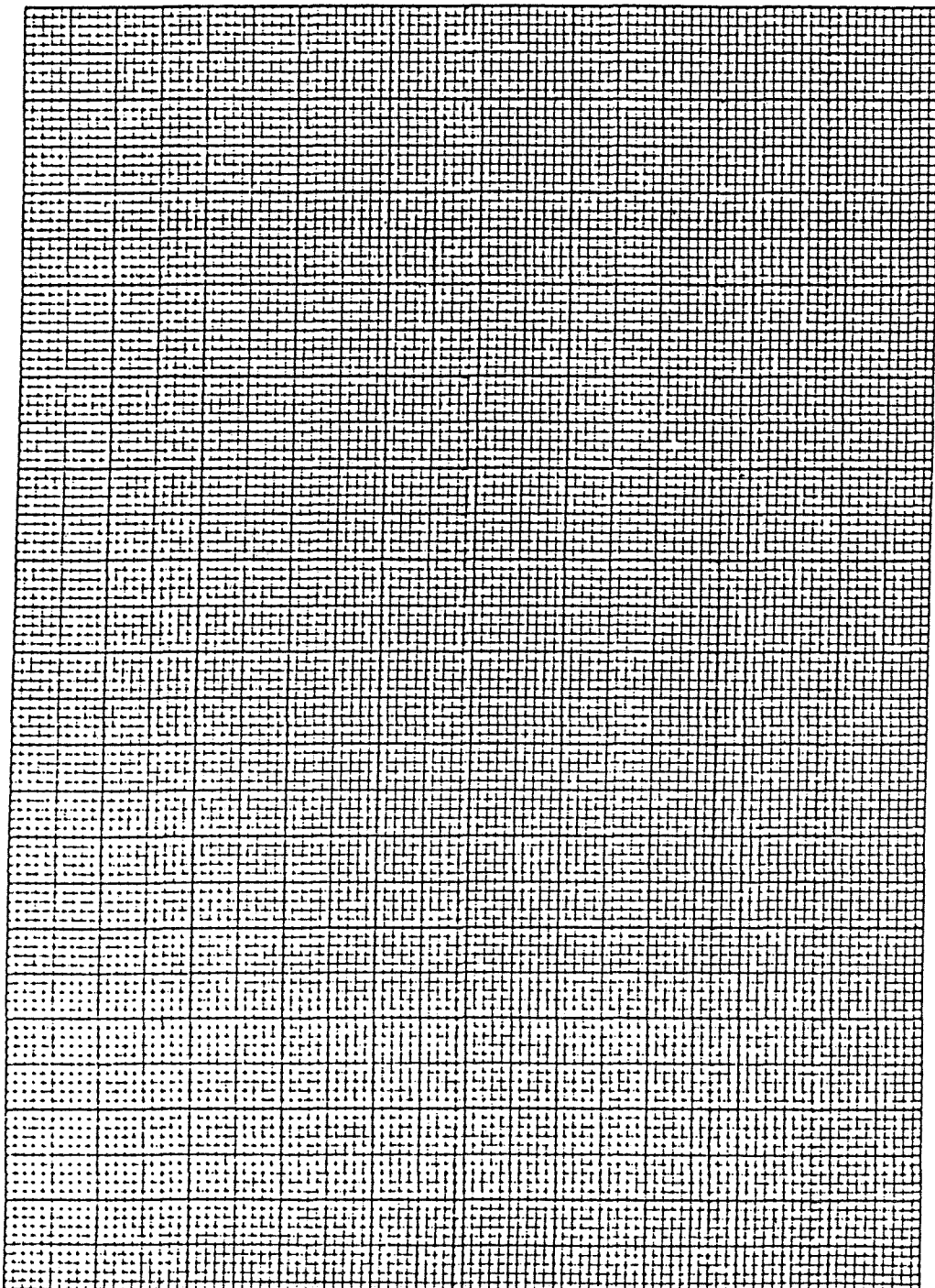
ST. 1222 11-13-73

PRESSURES	GAUGE	BON
CASING, PSI	<u>119</u>	<u>117</u>

DEPTH	PRESSURE	GRADIENT
<u>Depth</u>		
<u>36350</u>		

Time	Pressure	Time	Pressure
1236	873	1336	14
1237	857	1335	14
1238	872	1337	14
1239	855	1357	14
1240	909	1407	14
1241	925	1422	14
1242	951	1437	14
1243	970	1507	15
1244	987	1537	15
1245	1011	1602	15
1246	1036		
1247	1061		
1248	1085		
1249	1110		
1250	1129		
1251	1153		
1252	1172		
1255	1220		
1300	1283		
1305	1313		
1310	1357		
1315	1403		
1320	1424		
1325	1435		

DEPTH



BY: T.N. Minette

76

GEOHERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B4-512PT

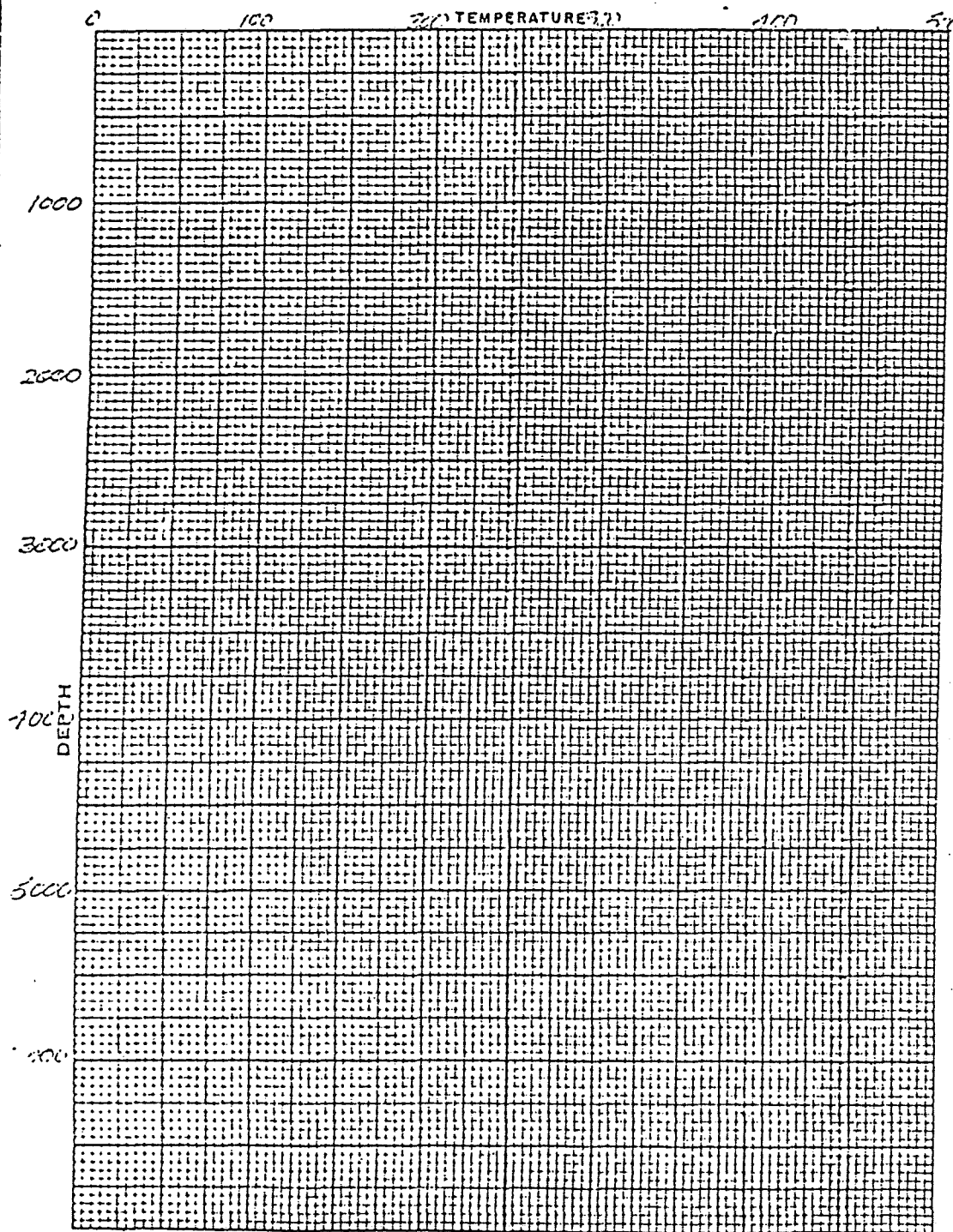
OWNER Union Oil Co of CA FIELD _____ WELL NAME ESCO No. 4
 CASING _____ ELEV. 9315 GL DATE: 11-13-73
 LINEAR DESCRIPTION: _____ ZERO POINT Swath Gate
 _____ DEPTH 6378 Swath-4.6

HOLE DESCRIPTION: _____

 INSTRUMENT 300-736 FI
 SERIAL NO KTB-10036

PURPOSE BHT AND BHP SURVEY Following Test B4-2 MAX TEMP 456.2 °F @ 6350
 REMARKS: Temp chart stopped. Max temp at final time. May not be accurate

STABILIZATION PERIOD
52 1222 11-13-73



PRESSURE	GAUGE	BOND
CASING, PSI	<u>119</u>	<u>117</u>

DEPTH TEMP. DEPTH TE
6350

Time Temp
1900 456.2 °F

BY: T. D. M. W. H. H.

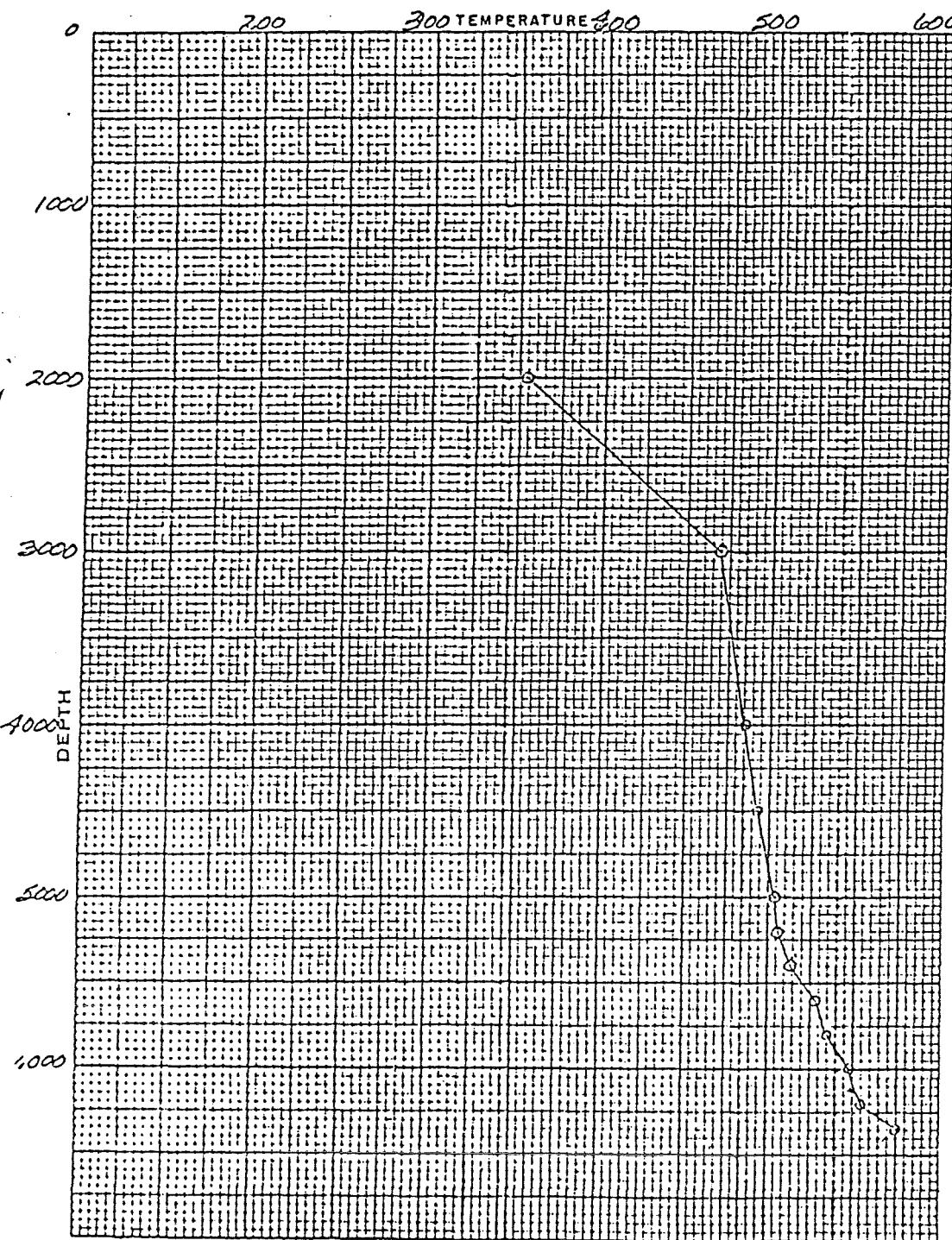
76

GEO THERMAL DIVISION

PA-311T

SUBSURFACE TEMPERATURE SURVEY

OWNER UNION OIL Co of CALIF FIELD _____ WELL NAME BACA No. 4
 CASING _____ ELEV 9318 GL DATE: 9-8-73
 LINER DESCRIPTION: _____ ZERO POINT GL + 4'
 _____ DEPTH 6358'
 HOLE DESCRIPTION: _____ INSTRUMENT 300-736 FAI
 _____ SERIAL NO KTB-10036
 PURPOSE TANDUM BHP AND BHT SURVEY MAX TEMP 574.7 °F @ 6358'
 REMARKS: _____



STABILIZATION PERIOD
SI 1715 8-22-73
READING AT 6358' - 1930

PRESSURES.	GAUGE	BOMB
CASING, PSI	<u>50</u>	

DEPTH	TEMP.	DEPTH	TEMP.
0			
2000	<u>253.6</u>		
3000	<u>409.8</u>		
4000	<u>485.7</u>		
4500	<u>493.5</u>		
5000	<u>503.6</u>		
5200	<u>506.1</u>	<u>.0125</u>	
5400	<u>514.8</u>	<u>.0435</u>	
5600	<u>528.2</u>	<u>.067</u>	
5800	<u>535.2</u>	<u>.035</u>	
6000	<u>548.6</u>	<u>.067</u>	
6200	<u>555.1</u>	<u>.0325</u>	
6358	<u>574.7</u>	<u>.124</u>	

BY: T. Minette

76

GLOUTHERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B1-54PT
9

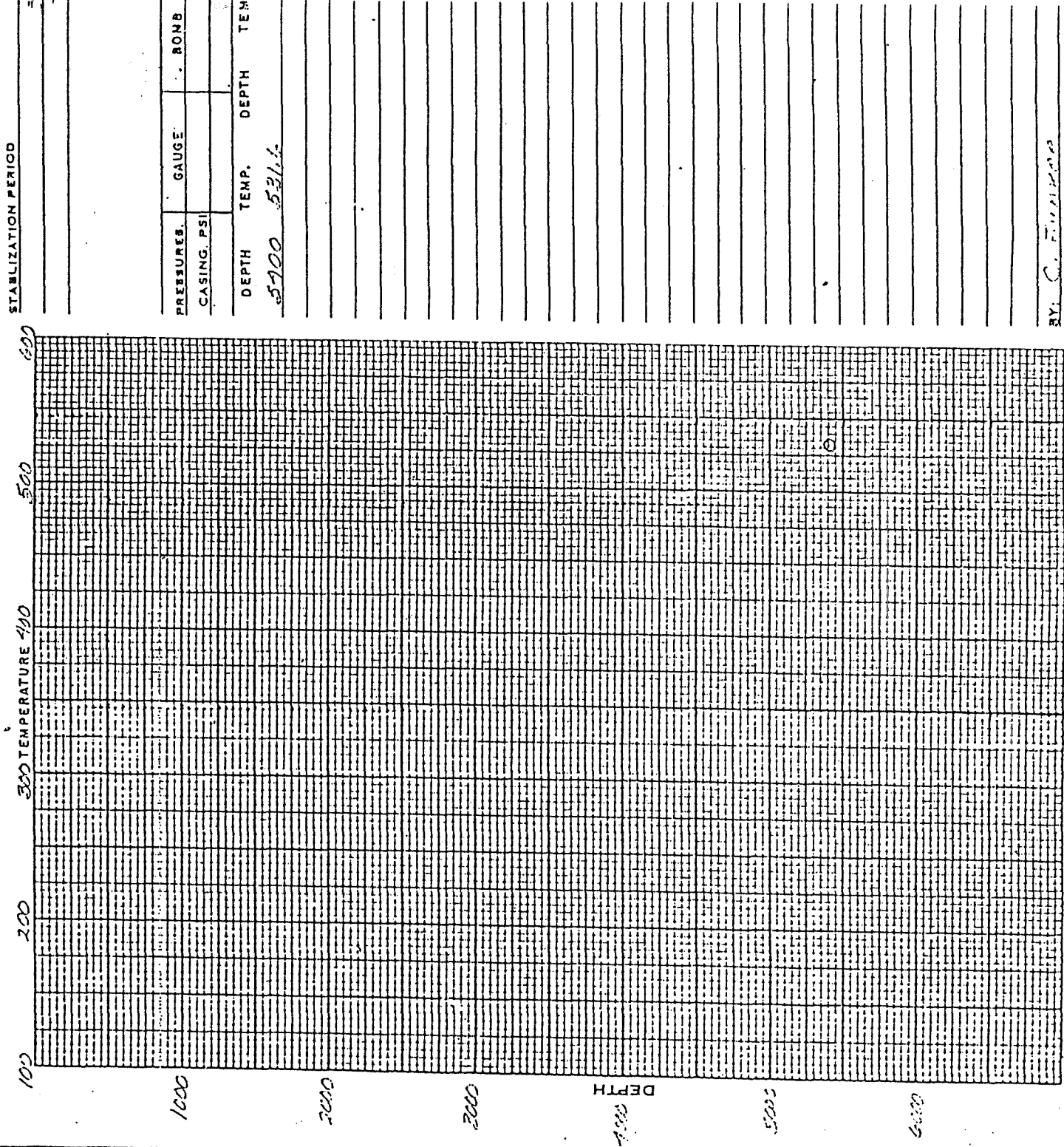
OWNER Union Oil Co of Calif FIELD Valle Grande WELL NAME Esca No. 4
 CASING 1-5/8" from surface to 3182' ELEV 9312.6 DATE 8-9-73
 LINER DESCRIPTION: 7" liner from 3031-4376 ZERO POINT Swab Gate
 DEPTH 6278

HOLE DESCRIPTION:

INSTRUMENT 200-726 FAT
 SERIAL NO KTB-10036

PURPOSE TANDUM PRESSURE/TEMPERATURE STATIC MAX TEMP 531.6 °F @ 5700

REMARKS:



PRESSURES	GAUGE	ROSB
CASING, PSI		
DEPTH	TEMP.	DEPTH
5700	531.6	

BY: C. F. ...

76

GEOTHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

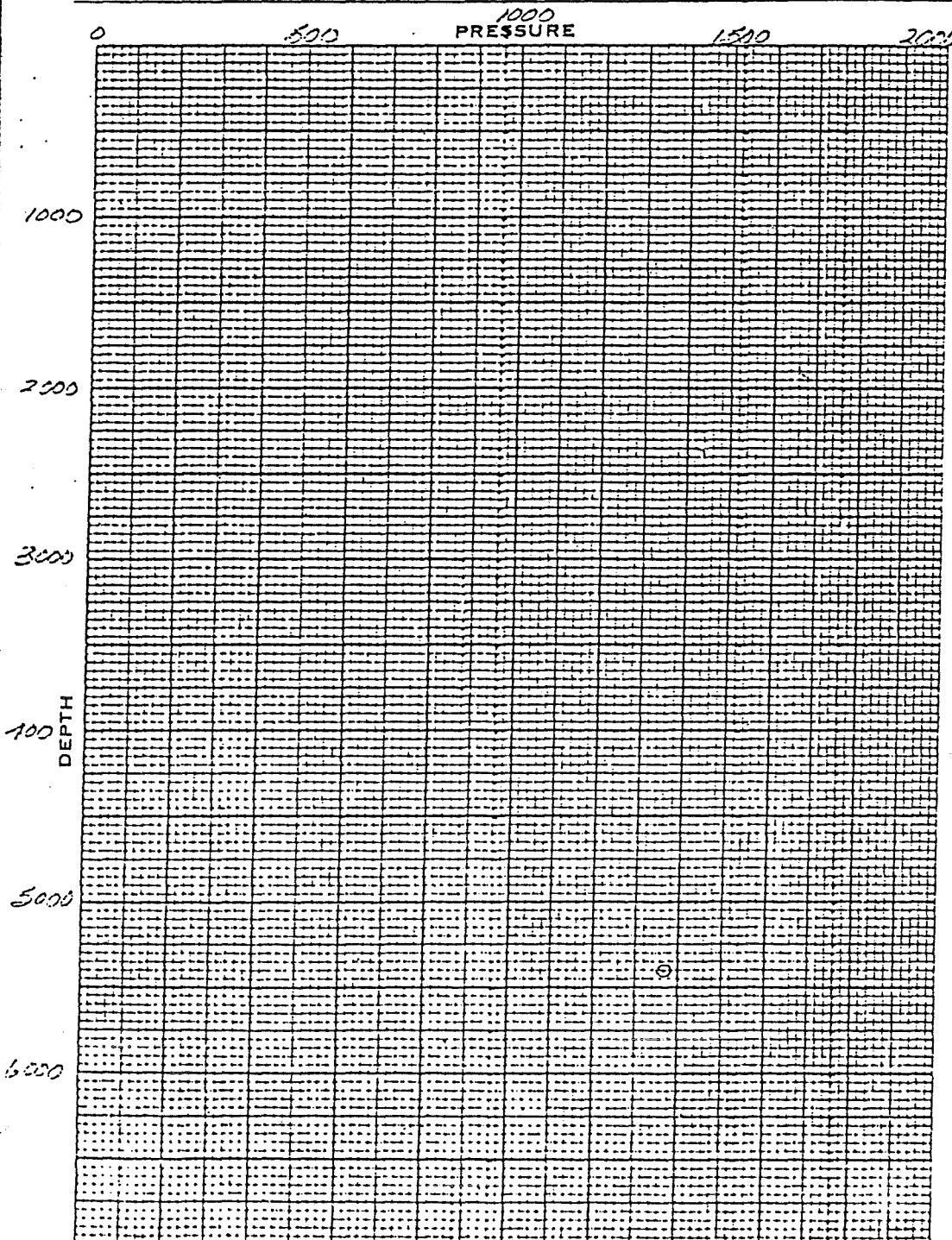
B4-34PT
9

OWNER Union Oil Co of Calif. FIELD Valle Grande WELL NAME BACA No. 1
 CASING 9-5/8" casing to 3182' ELEV 9312.61 DATE 8-9-73
 LINER DESCRIPTION: 7" liner from 3031-6376' ZERO POINT Swab Gate
 DEPTH 6378

HOLE DESCRIPTION: _____
 INSTRUMENT 2500 PSI
 SERIAL NO KPG 9595

PURPOSE Tandem pressure/temperature static MAX TEMP 531.6 °F @ 5400

REMARKS:



STABILIZATION PERIOD		
PRESSURES	GAUGE	BONS
CASING, PSI		
DEPTH	PRESSURE	GRADIENT
5400	1370.9	

BY: C. JUNKER

76

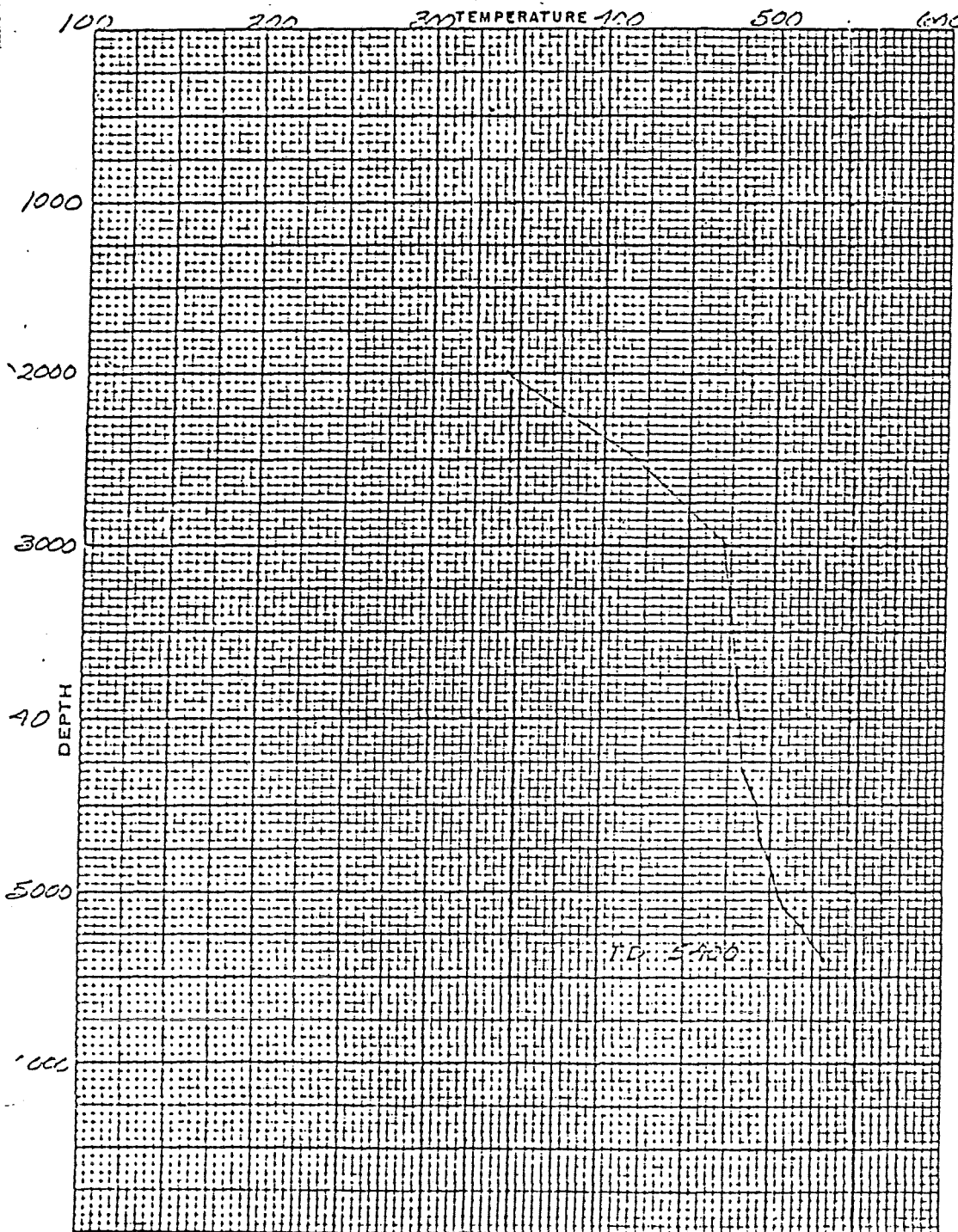
GEOTHERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

B-1-58PT

OWNER Union Oil Co of Calif FIELD Valle Grande WELL NAME BACA No. 1
 CASING 9-5/8" surface to 3182 ELEV 4319 CL DATE: 8-8-73
 LINER DESCRIPTION: 7" from 3231' to 6376. ZERO POINT Swanb Gate
Port: 3819-1232, 1317-1576, 4619-4929, 4972- DEPTH 6378
5356, 5700-5713, 5786-6036, 6079-6375

HOLE DESCRIPTION: Tagged at 5100' INSTRUMENT 300-736
 SERIAL NO. KTB-10036

PURPOSE TANDUM Procedure / Temperature Survey MAX TEMP 531.6 °F @ 5400
 REMARKS: Centralizer needed to pass liner hanger



STABILIZATION PERIOD

PRESSURE	GAUGE	BOMB
CASING, PSI		

DEPTH	TEMP.	DEPTH	TE
50	-		
500	-		
1000	-		
1500	-		
2000	321.8		
2500	118.2		
3000	176.2		
3500	176.7		
3800	179.6		
3900	180.3		
4000	181.1		
4100	181.6		
4200	182.2		
4300	183.5		
4400	186.4		
4500	192.0		
4600	193.9		
4700	197.1		
4800	198.3		
4900	501.9		
5000	503.5		
5100	508.1		
5200	515.0		
5300	521.0		
5400	531.3		

BY: JUNKER

76

GEOTHERMAL DIVISION

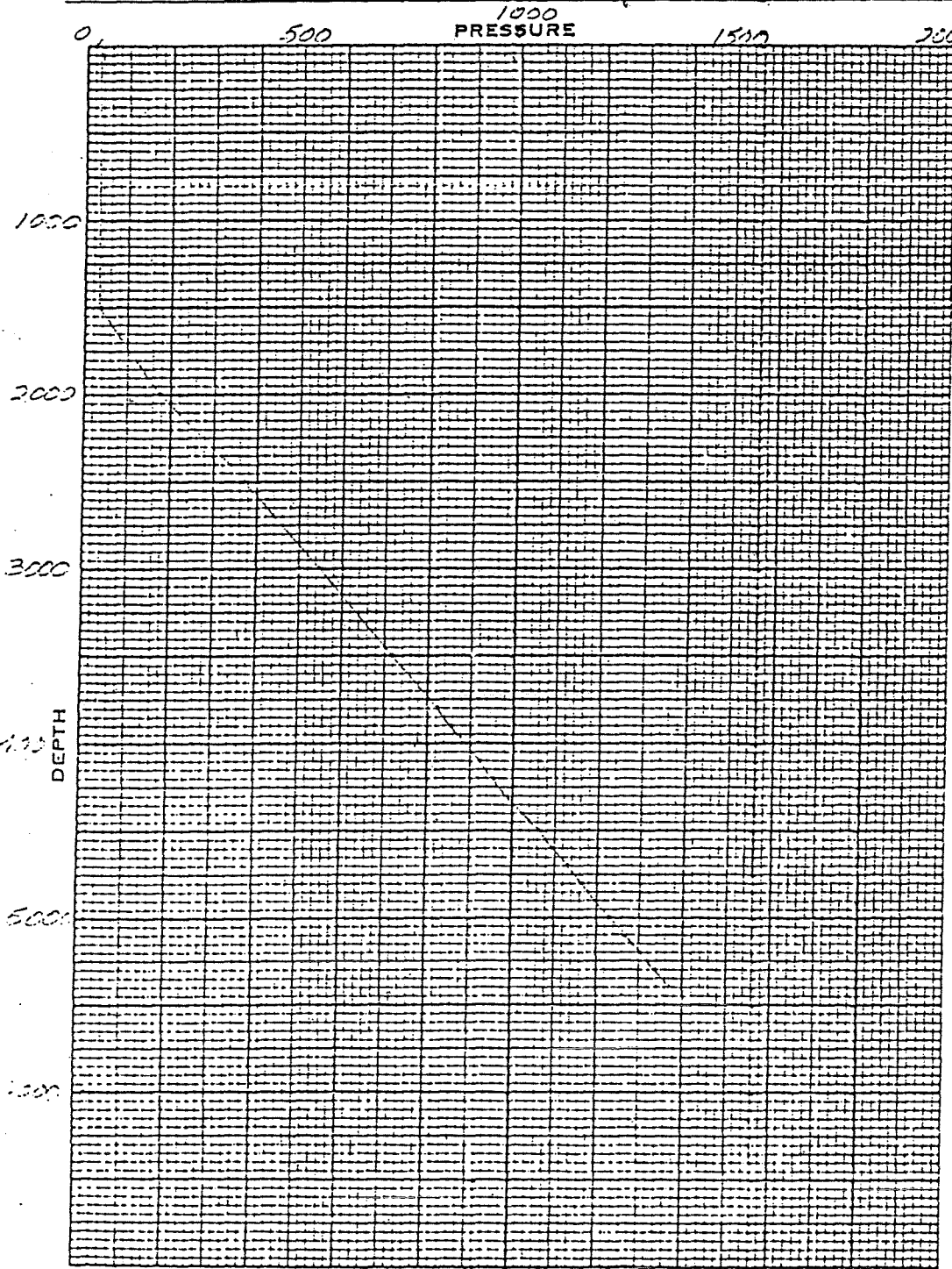
B4-54PT
8

SUBSURFACE PRESSURE SURVEY

OWNER UNION OIL CO OF CALIF. FIELD VALLE GRANDE WELL NAME BACA No. 1
 CASING 7-5/8" surface to 3182' ELEV 9318 GL DATE 8-3-73
 LINER DESCRIPTION: _____ ZERO POINT swab Gate
 _____ DEPTH 6373

HOLE DESCRIPTION: _____ INSTRUMENT 2500 PSI
 _____ SERIAL NO. KPG 9595

PURPOSE STATIC Pressure/Temperature Survey MAX TEMP 531.6 °F @ 5400'
 REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES.	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
50	28.6	—
500	31.7	—
1000	32.1	—
1500	33.4	—
2000	176.1	.285
2500	347.6	.333
3000	544.2	.353
3500	717.2	.346
3800	832.0	.349
3900	856.1	.371
4000	838.9	.328
4100	924.2	.353
4200	958.3	.341
4300	991.2	.329
4400	1026.6	.354
4500	1060.8	.342
4600	1093.7	.329
4700	1129.1	.354
4800	1164.6	.355
4900	1195.7	.341
5000	1232.9	.342
5100	1267.1	.342
5200	1302.6	.354
5300	1331.7	.342
5400	1362.6	.329

BY: C. FURMAN

76

G. THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B-4-2627
8

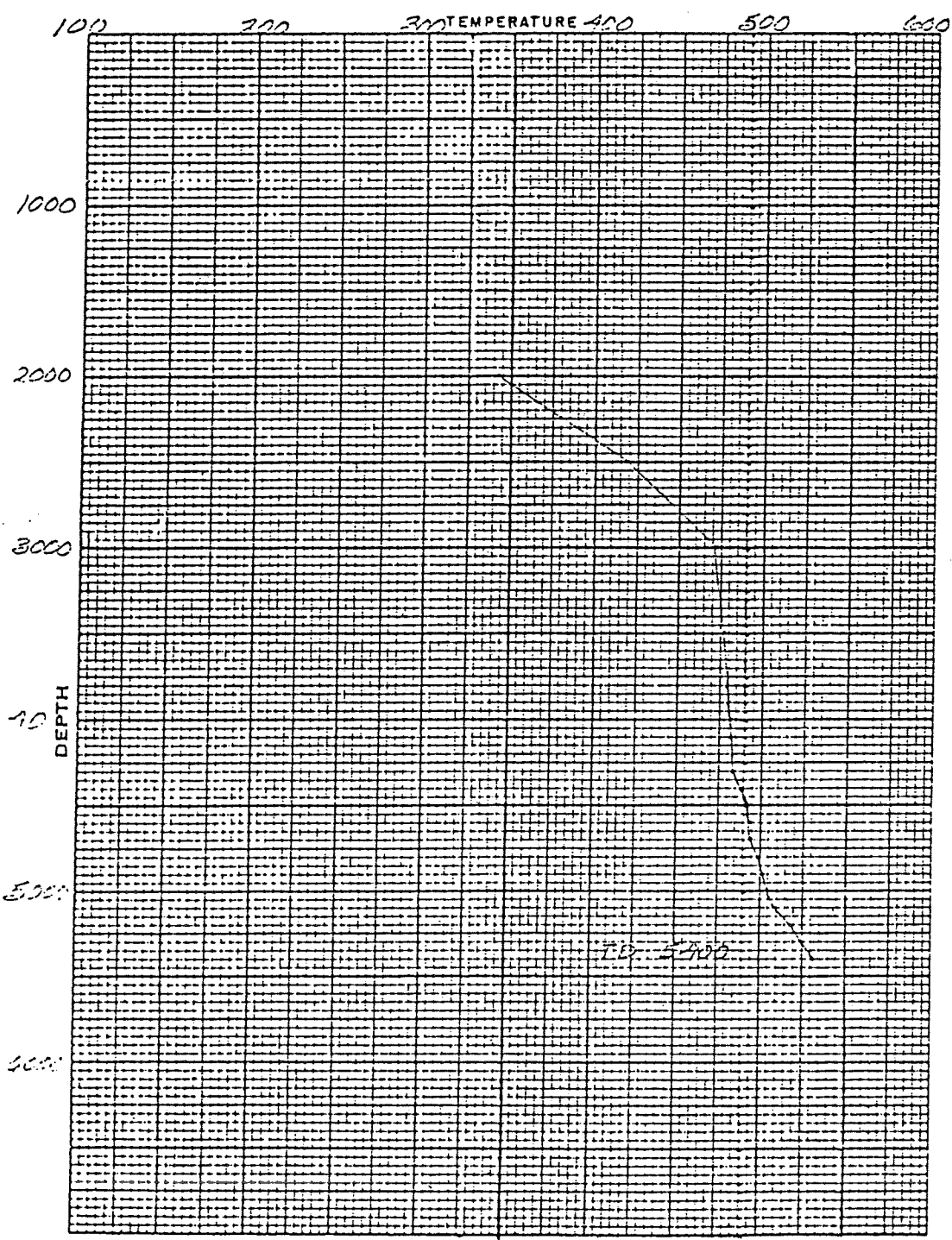
OWNER Union Oil Co of CALIF. FIELD VALLE GRANDE WELL NAME Boca No. 1
 CASING 9-5/8" surface to 3122 ELEV 9312 CL DATE 8-8-73
 LINER DESCRIPTION: 7" from 3031' to 6376. ZERO POINT Swab Gate
Pool: 3819-4222, 4317-4576, 4619-4929, 4972- DEPTH 6378
5356, 5400-5713, 5786-6036, 6079-6275
 HOLE DESCRIPTION: TRAPPED AT 5400' INSTRUMENT 300-736 FAH
 SERIAL NO KTS-10036

PURPOSE TANDUM Pressure / Temperature Survey MAX TEMP 531.6 °F @ 5400
 REMARKS: CENTRALIZER needed to pass liner hanger

STABILIZATION PERIOD

PRESSURES.	GAUGE	DOB
CASING. PSI		

DEPTH	TEMP.	DEPTH	TEM
50	-		
500	-		
1000	-		
1500	-		
2000	341.8		
2500	418.7		
3000	471.7		
3500	476.7		
3800	479.6		
3900	480.3		
4000	481.1		
4100	481.6		
4200	482.2		
4300	483.5		
4400	483.9		
4500	482.0		
4600	493.9		
4700	494.4		
4800	498.3		
4900	501.9		
5000	503.5		
5100	503.1		
5200	515.1		
5300	524.0		
5400	531.3		



BY: JUNYER

76

GEOTHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B7-015

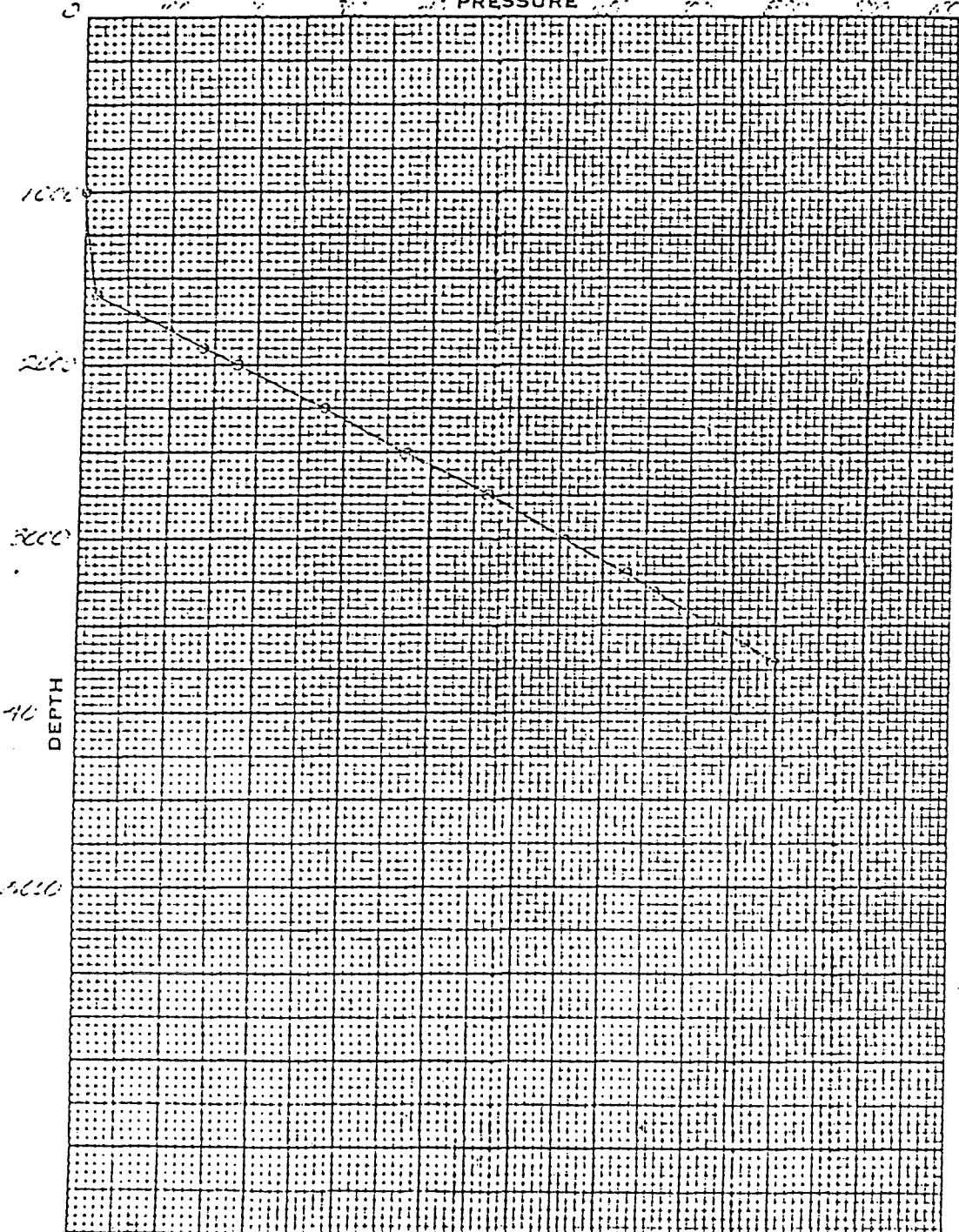
OWNER U.S. Geol. Surv. FIELD _____ WELL NAME BACA No. 4
 CASING _____ ELEV. 9318 GL DATE May 28 1973
 LINER DESCRIPTION: _____ ZERO POINT _____ DEPTH 3700

HOLE DESCRIPTION: _____ INSTRUMENT Q-2100
 SERIAL NO 6001N

PURPOSE _____ MAX TEMP 192.9 °F @ 3500
 REMARKS: _____

PRESSURE

STABILIZATION PERIOD



PRESSURES	GAUGE	BOH
CASING, PSI		

DEPTH	PRESSURE	GRADI
1000	Nil	
1600	15.92	.159
1700	57.55	.116
1800	96.13	.392
1900	137.19	.401
2000	175.15	.116
2200	213.51	.351
2400	304.69	.377
2700	402.97	.373
3000	503.41	.364
3200	605.57	.361
3500	696.11	.321
3700	796.43	.357
3800	730.45	.345
3800	766.67	.357
3700	796.61	.321

BY: TEFFELER/MUNITE

76

GEO THERMAL DIVISION

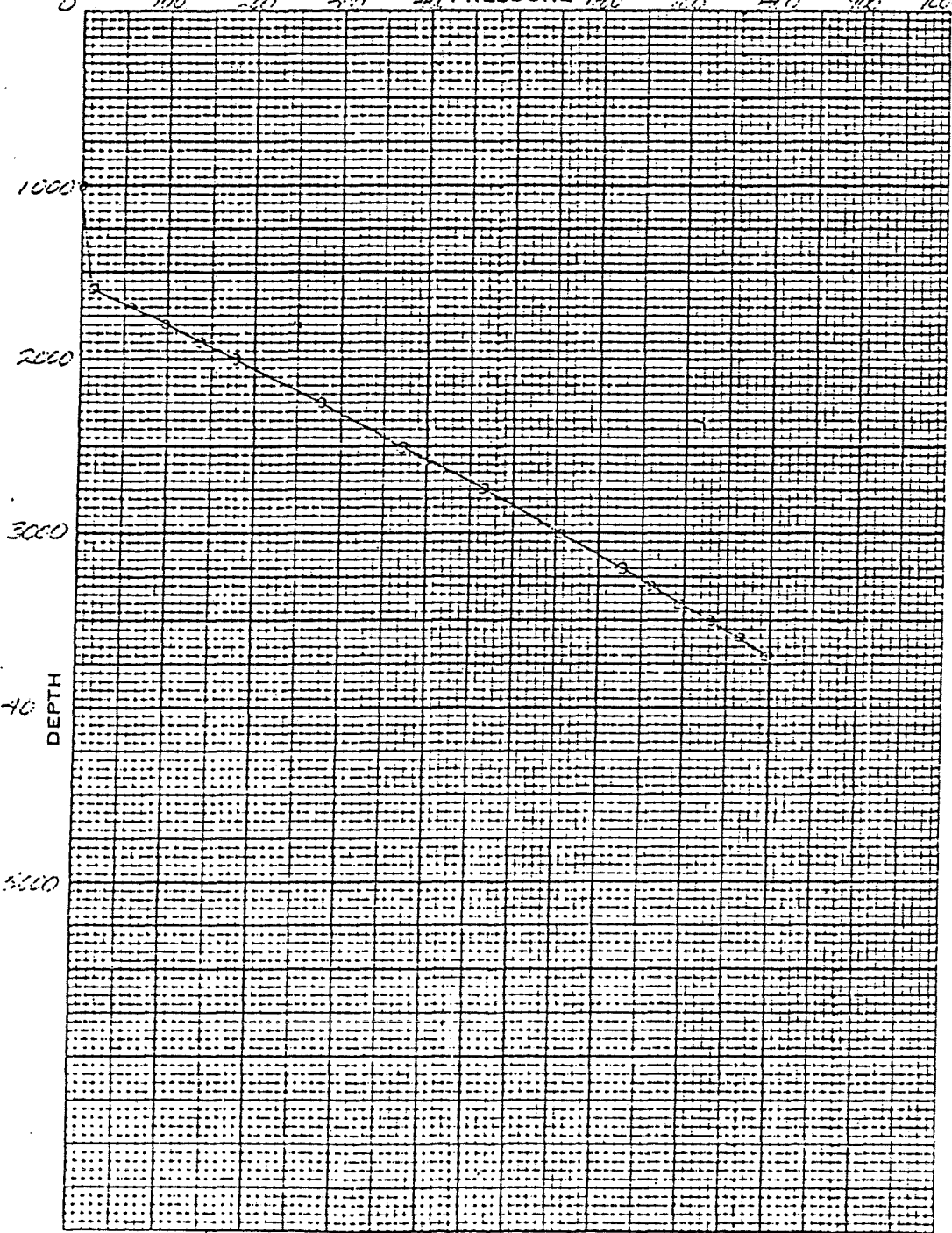
SUBSURFACE PRESSURE SURVEY

B7-015

OWNER Union Oil Co of Calif. FIELD _____ WELL NAME BACA No. 4
 CASING _____ ELEV. 9313 CL DATE MAY 28, 1973
 LINER DESCRIPTION: _____ ZERO POINT _____
 _____ DEPTH 3700
 HOLE DESCRIPTION: _____
 _____ INSTRUMENT O-2400
 _____ SERIAL NO 6609 N
 PURPOSE _____ MAX TEMP 492.9 °F @ 3500'
 REMARKS: _____

0 100 200 300 400 500 600 700 800 900 1000 PRESSURE

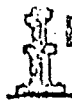
STABILIZATION PERIOD



PRESSURES, CASING, PSI	GAUGE	BOMB

DEPTH	PRESSURE	GRADIENT
1000	Nil	
1600	15.92	.159
1700	57.55	.416
1800	96.73	.392
1900	137.14	.404
2000	175.75	.416
2250	275.51	.357
2500	369.69	.377
2750	462.99	.373
3000	553.94	.364
3200	628.57	.361
3300	660.71	.371
3400	696.43	.357
3500	730.95	.345
3600	766.67	.357
3700	798.81	.321

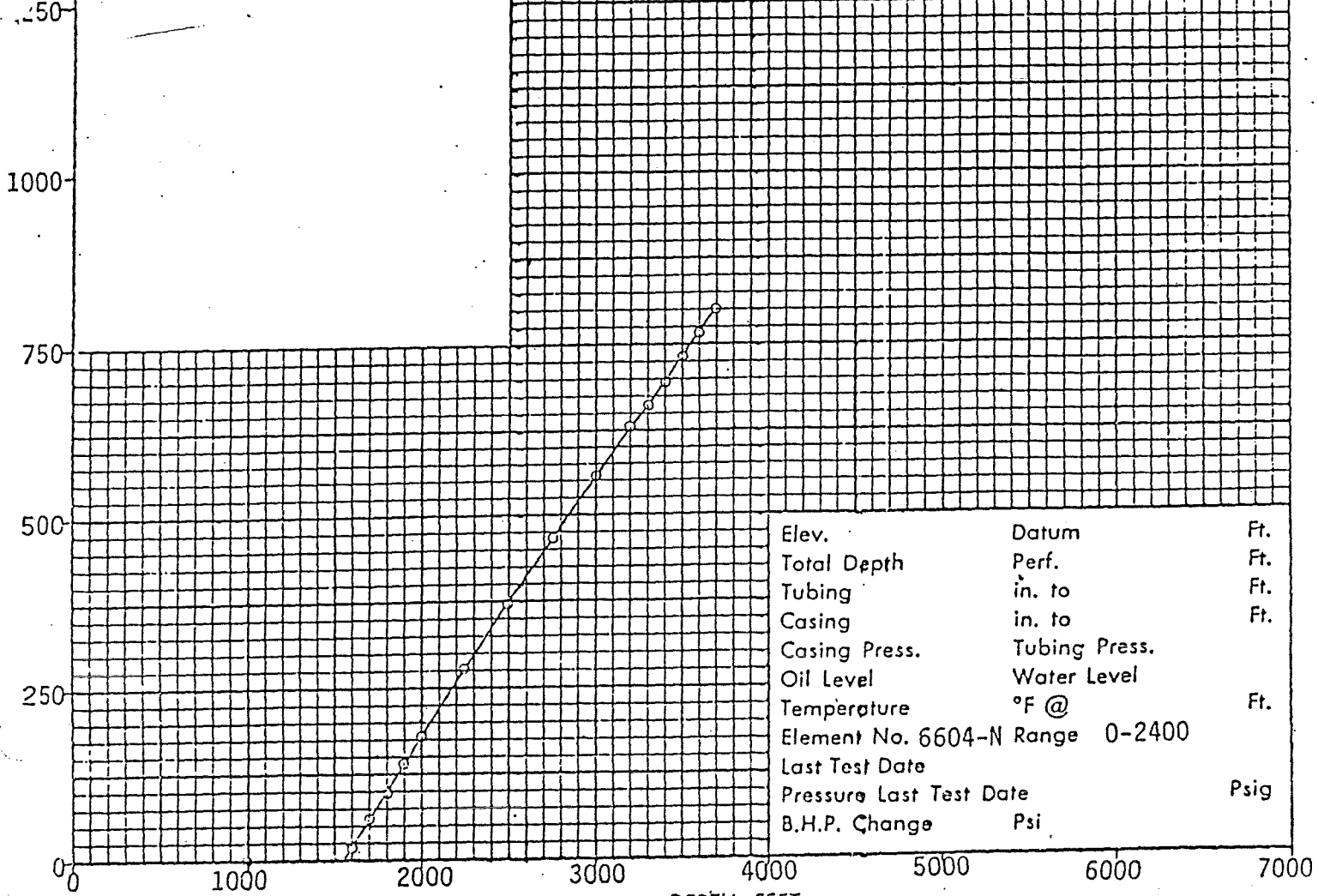
BY: TEFFELER / MINETTE



Company UNION OIL CO. OF CALIFORNIA Lease BACA Well No. 4
Field _____ County SANDOVAL State NEW MEXICO
Formation _____ Test Date MAY 28, 1973

Status of Well Survey #2

DEPTH Feet	PRESSURE Psig	GRADIENT Psi/Ft.
1000	Nil	
1600	15.92	0.159
1700	57.55	0.416
1800	97.96	0.404
1900	138.37	0.404
2000	178.78	0.404
2250	277.96	0.397
2500	370.87	0.372
2750	465.35	0.378
3000	555.12	0.359
3200	628.57	0.367
3300	660.71	0.321
3400	696.43	0.357
3500	730.95	0.345
3600	766.67	0.357
3700	798.81	0.321



Elev.	Datum	Ft.
Total Depth	Perf.	Ft.
Tubing	in. to	Ft.
Casing	in. to	Ft.
Casing Press.	Tubing Press.	
Oil Level	Water Level	
Temperature	°F @	Ft.
Element No. 6604-N	Range 0-2400	
Last Test Date		
Pressure Last Test Date		Psig
B.H.P. Change	Psi	

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GEOTHERMAL DIVISION

B4-56PT

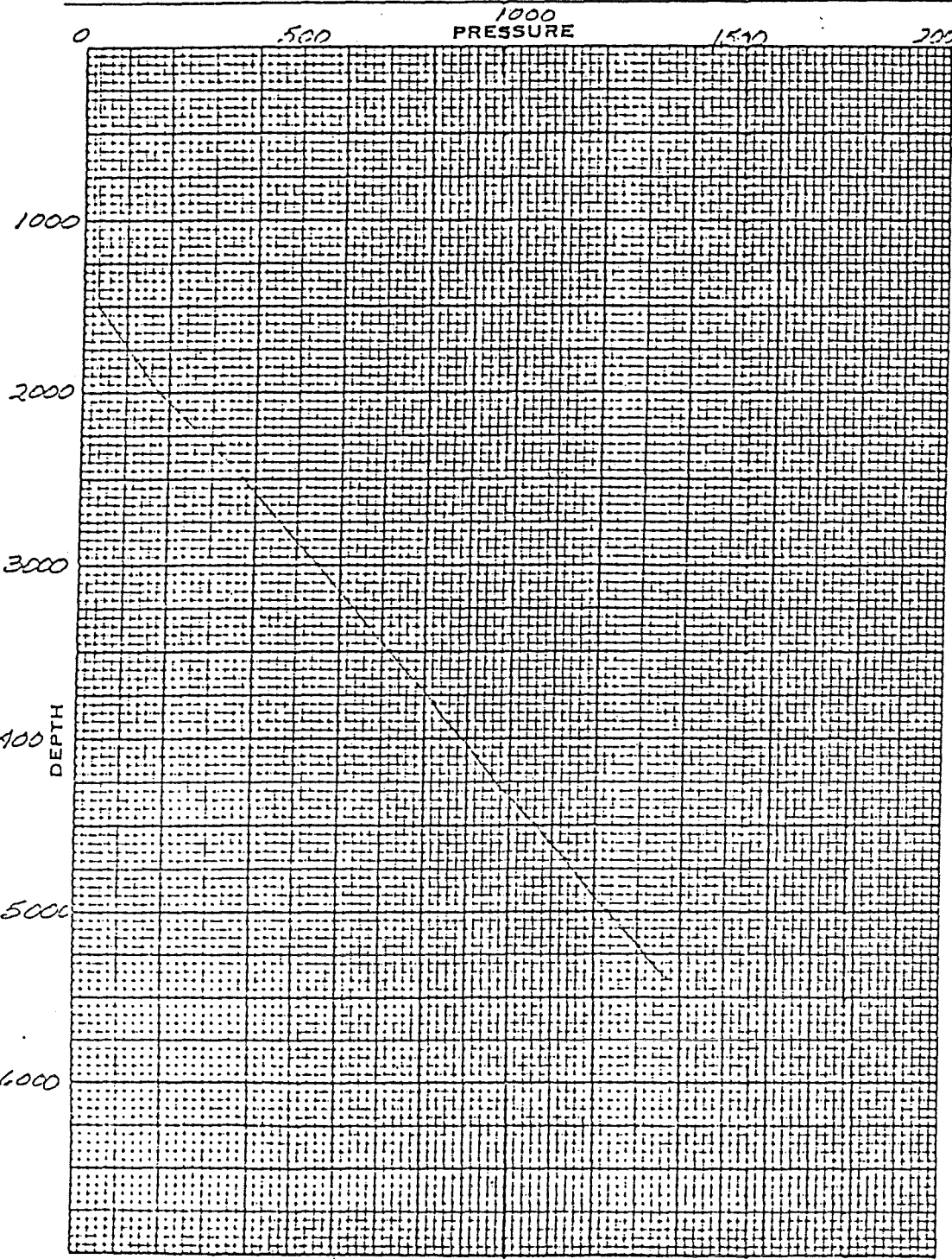
SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Co of Calif. FIELD Valle Grande WELL NAME Baco No. 1
 CASING 9-5/8" surface to 3182' ELEV. 9318 GL DATE: 8-8-73
 LINER DESCRIPTION: _____ ZERO POINT swab gate
 _____ DEPTH 6378

HOLE DESCRIPTION: _____ INSTRUMENT 2500
 _____ SERIAL NO KPG 9595

PURPOSE STATIC Pressure/Temperature Survey MAX TEMP 531.6 °F @ 5400

REMARKS: _____



STABILIZATION PERIOD _____

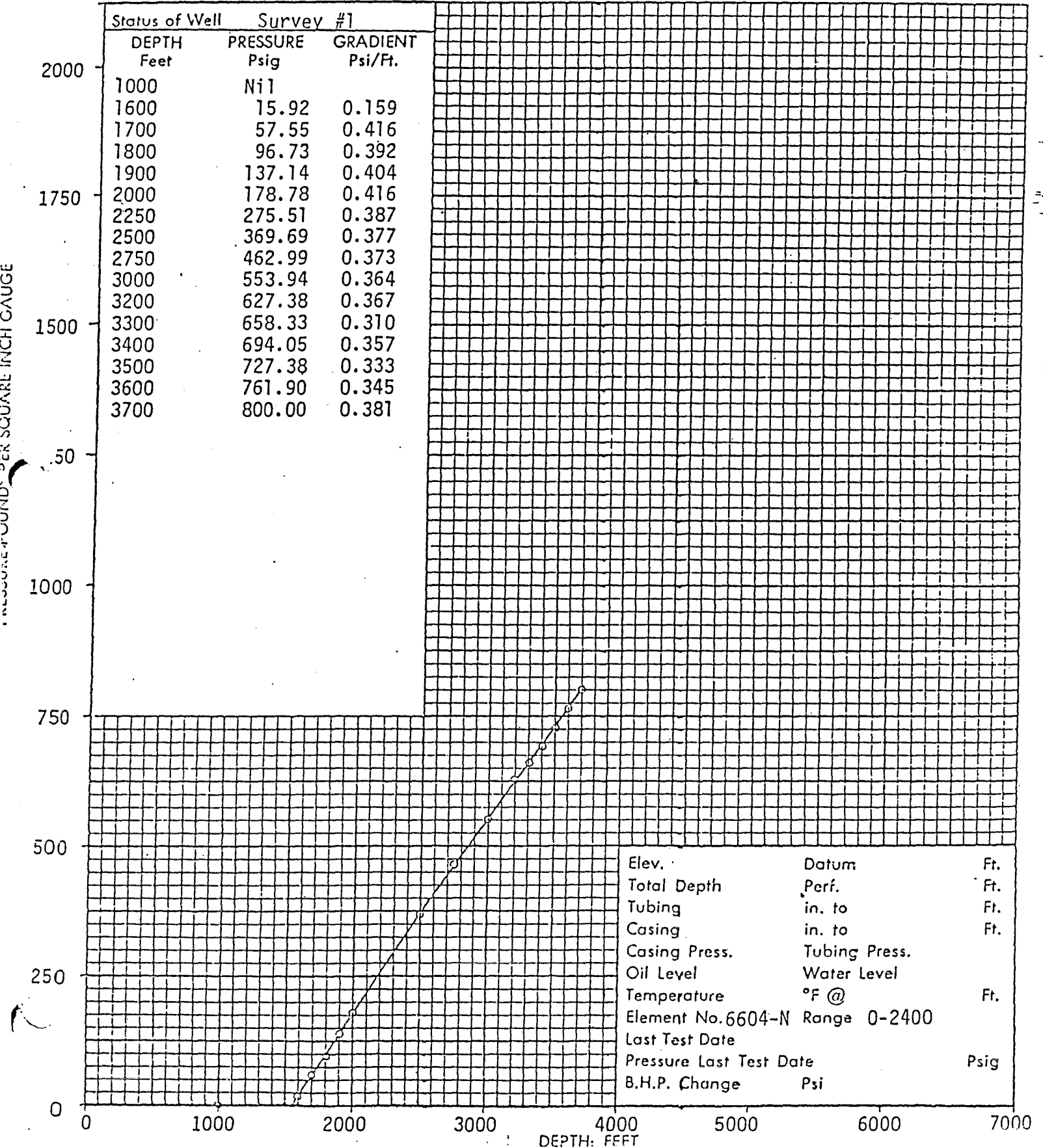
PRESSURES	GAUGE	BONE
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
50	38.6	—
500	31.7	—
1000	32.1	—
1500	33.4	—
2000	176.1	.295
2500	347.6	.283
3000	544.2	.353
3500	717.2	.346
3800	822.0	.349
3900	856.1	.341
4000	888.9	.328
4100	924.2	.353
4200	959.3	.341
4300	991.2	.329
4400	1026.6	.354
4500	1060.8	.342
4600	1093.7	.329
4700	1129.1	.354
4800	1164.6	.355
4900	1195.7	.341
5000	1232.9	.342
5100	1267.1	.342
5200	1302.5	.354
5300	1326.7	.342
5400	1369.6	.329

BY: C. JUNCO

Company UNION OIL CO. OF CALIFORNIA Lease BACA Well No. 4
 Field _____ County SANDOVAL State NEW MEXICO
 Formation _____ Test Date MAY 28, 1973

Status of Well		Survey #1
DEPTH Feet	PRESSURE Psig	GRADIENT Psi/Ft.
1000	Nil	
1600	15.92	0.159
1700	57.55	0.416
1800	96.73	0.392
1900	137.14	0.404
2000	178.78	0.416
2250	275.51	0.387
2500	369.69	0.377
2750	462.99	0.373
3000	553.94	0.364
3200	627.38	0.367
3300	658.33	0.310
3400	694.05	0.357
3500	727.38	0.333
3600	761.90	0.345
3700	800.00	0.381



Elev.	Datum	Ft.
Total Depth	Perf.	Ft.
Tubing	in. to	Ft.
Casing	in. to	Ft.
Casing Press.	Tubing Press.	
Oil Level	Water Level	
Temperature	°F @	Ft.
Element No. 6604-N	Range 0-2400	
Last Test Date		
Pressure Last Test Date		Psig
B.H.P. Change	Psi	

51-2611

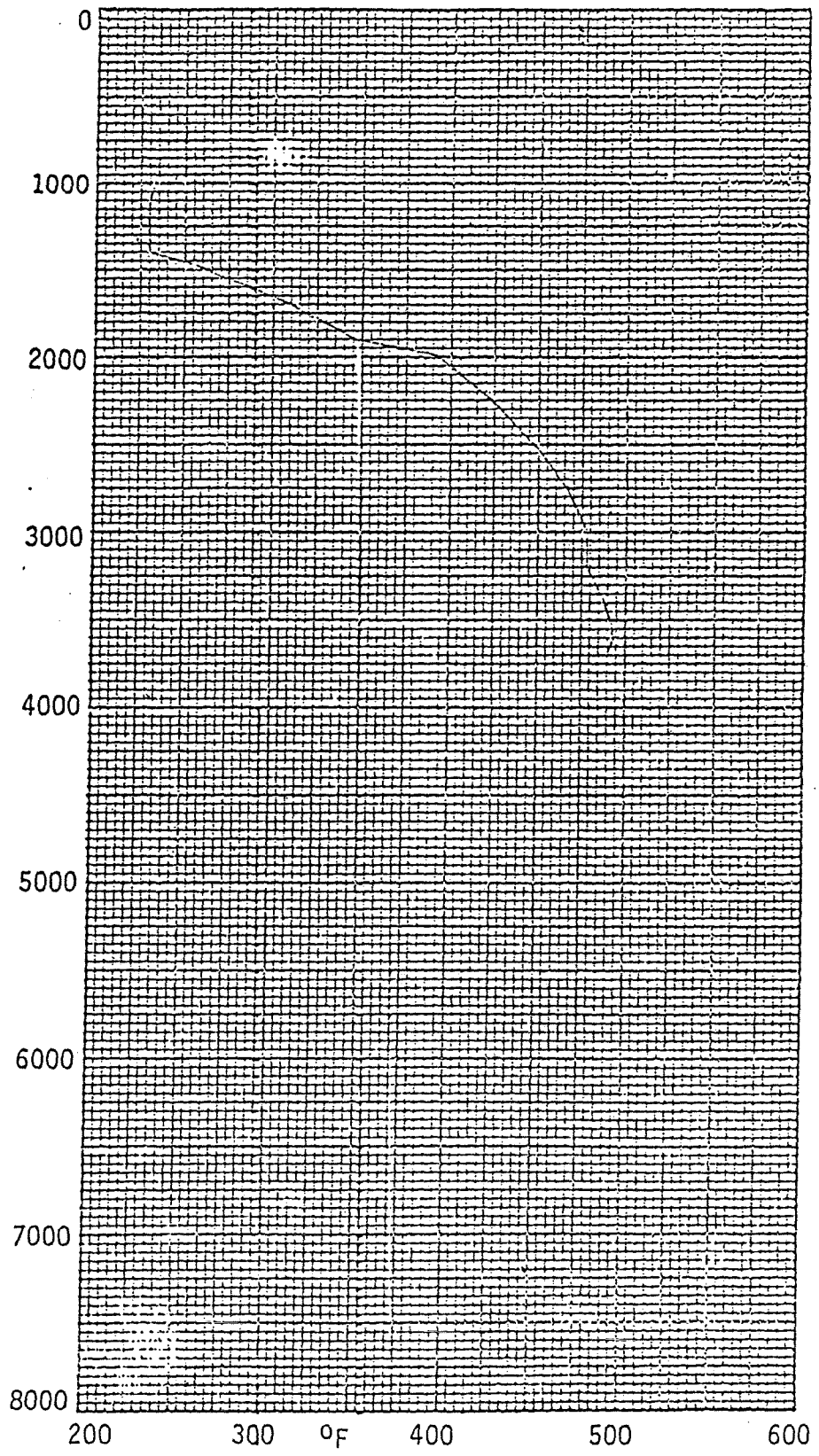
UNION OIL CO. OF CALIFORNIA
BACA # 4
SANDOVA! COUNTY, NEW MEXICO



TEMPERATURE SURVEY # 1
MAY 28, 1973
Our File No. 2-5258-P

Page 3 of 11

DEPTH FEET	TEMP. OF
1000	233.3
1100	233.0
1200	233.0
1300	233.0
1400	233.0
1500	259.0
1600	292.7
1700	309.3
1800	326.1
1900	347.9
2000	392.7
2250	424.7
2500	447.0
2750	466.9
3000	479.1
3200	478.9
3300	483.6
3400	488.1
3500	492.9
3600	494.0
3700	490.8



Temperature Element 10005 Range 84° - 646°F

76

GEOTHERMAL DIVISION
SUBSURFACE TEMPERATURE SURVEY

B-1-56 PT

OWNER Mano Oil Co of California FIELD Ball #4

CASING 3 1/2" 11.3 lb/ft DATE Nov 28, 1973

LINER DESCRIPTION: _____ ELEV 9318.6

HOLE DESCRIPTION: _____ ZERO POINT _____

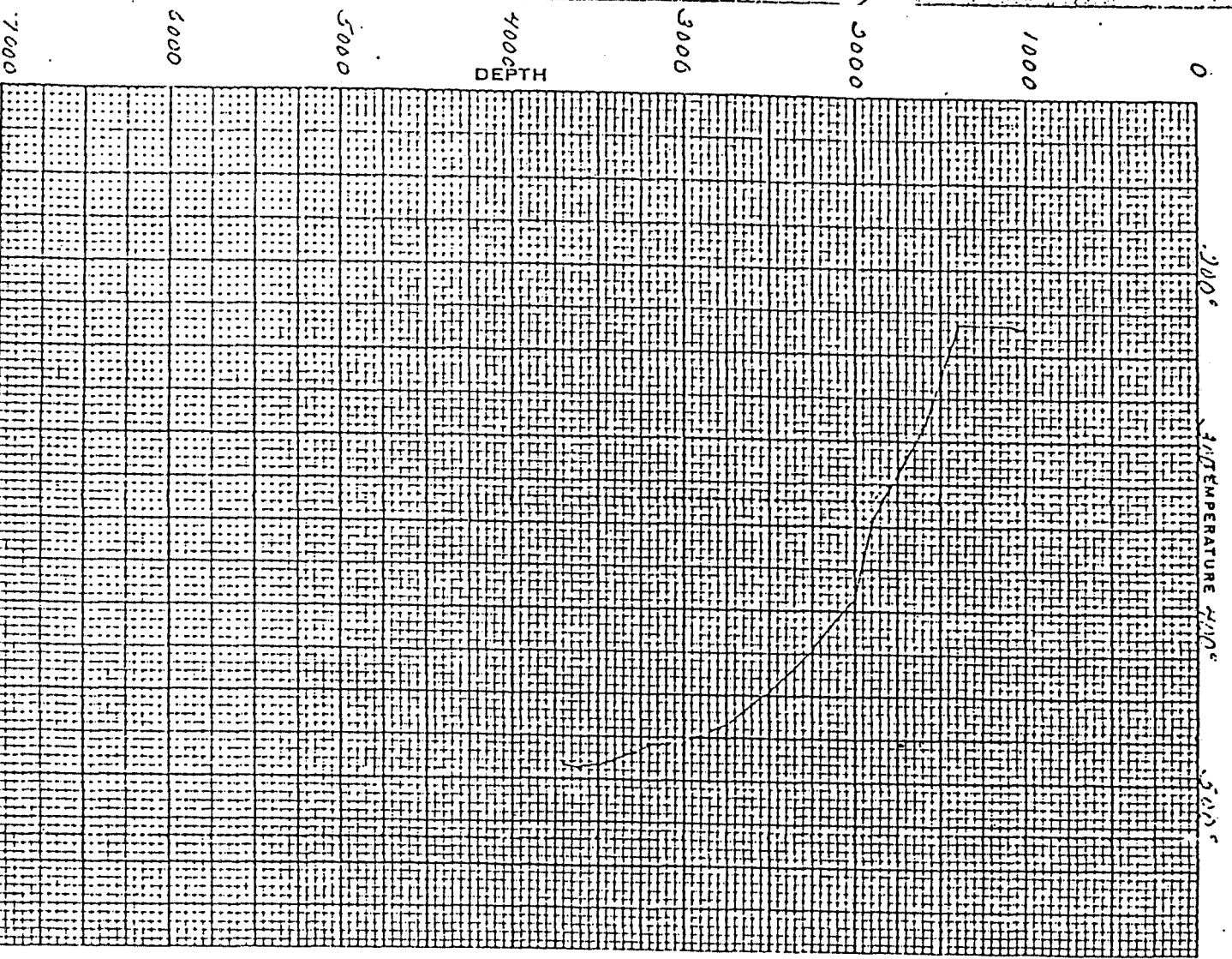
DEPTH _____

INSTRUMENT _____

SERIAL NO _____

PURPOSE _____ MAX TEMP _____ °F @ _____

REMARKS: _____ STABILIZATION PERIOD _____



DEPTH	TEMP.	DEPTH	TEMP.
1000	233.3		
1100	233.0		
1200	233.0		
1300	233.0		
1400	233.0		
1500	233.0		
1600	233.0		
1700	233.0		
1800	233.0		
1900	233.0		
2000	233.0		
2100	233.0		
2200	233.0		
2300	233.0		
2400	233.0		
2500	233.0		
2600	233.0		
2700	233.0		
2800	233.0		
2900	233.0		
3000	233.0		
3100	233.0		
3200	233.0		
3300	233.0		
3400	233.0		
3500	233.0		
3600	233.0		
3700	233.0		

BY: _____

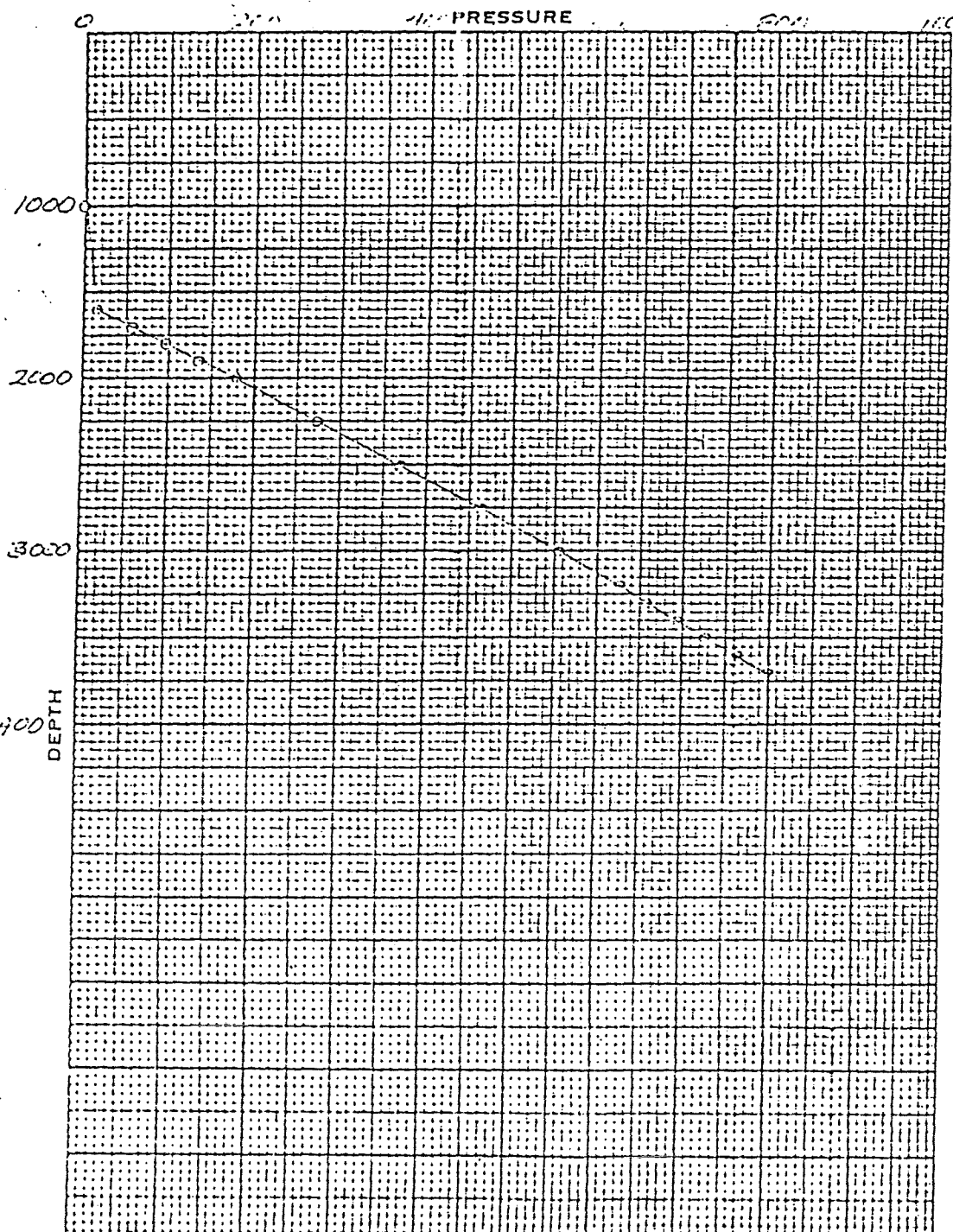
76

GEO THERMAL DIVISION

24-56PT

SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Co of Calif FIELD _____ WELL NAME Basin No. 4
 CASING _____ ELEV 7312.66 DATE May 28, 1973
 LINER DESCRIPTION: _____ ZERO POINT _____
 _____ DEPTH _____
 HOLE DESCRIPTION: _____
 _____ INSTRUMENT Q-2400
 _____ SERIAL NO 6-60-4 N
 PURPOSE _____ MAX TEMP _____ °F @ _____
 REMARKS: _____



STABILIZATION PERIOD

PRESSURES, CASING, PSI	GAUGE	BOM

DEPTH	PRESSURE	GRADIENT
1000	111	
1600	15.92	0.159
1700	57.55	0.416
1800	56.73	0.392
1900	137.14	0.404
2000	178.15	0.416
2200	224.51	0.387
2400	349.49	0.377
2700	702.99	0.373
3000	553.57	0.354
3200	627.55	0.357
3300	655.33	0.310
3400	691.65	0.357
3500	727.34	0.333
3600	761.97	0.345
3700	800.00	0.321

BY: T. C. MILLER

76

GEO THERMAL DIVISION

B4-55PT

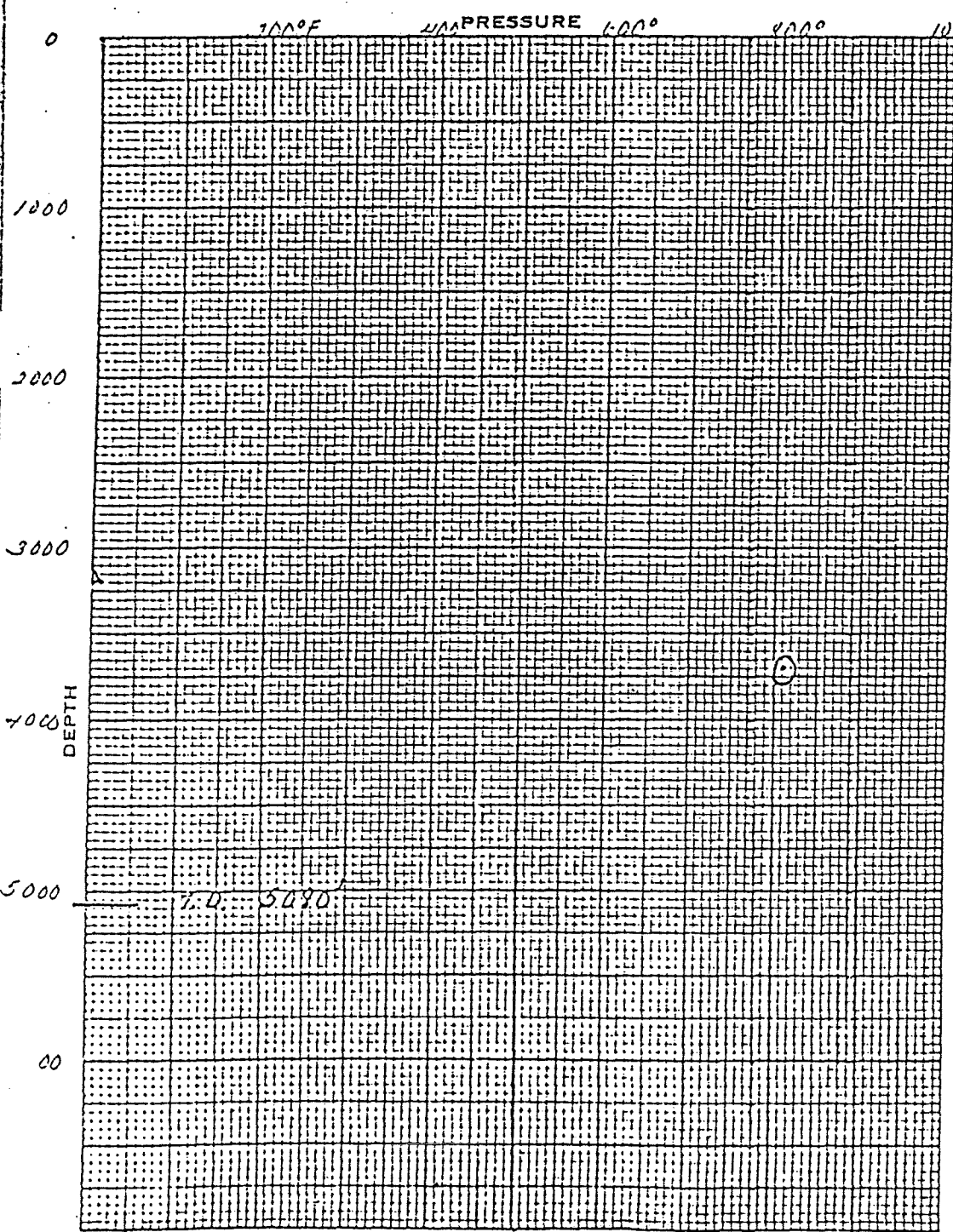
SUBSURFACE PRESSURE SURVEY

OWNER Union Oil Co of Calif FIELD Redondo Valley WELL NAME Boca #4
 CASING 9 5/8" C from surface to 3200' ELEV. 9313 GL DATE: 1-10-73
 LINER DESCRIPTION: 8 3/4" open hole 3200' to 5080' ZERO POINT 14' above gra
 DEPTH 5080'

HOLE DESCRIPTION:

INSTRUMENT 2400
 SERIAL NO 66604 N

PURPOSE Bottom Hole Temperature and Pressure Survey MAX TEMP _____ °F @ _____
 REMARKS:



STABILIZATION PERIOD

PRESSURES,	GAUGE	BONE
CASING, PSI		

DEPTH	PRESSURE	GRADE
3900	801.44	

BY:

76

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B7-55PT

OWNER Union Oil Co. of Calif. FIELD Redondo Valley WELL NAME Baco # 4
 CASING 9 3/8" C from surface to 3200' ELEV 9318.66 DATE: 1-10-73
 LINER DESCRIPTION: 8 3/4" open hole 3200' to 5080' ZERO POINT 14' above ground
 DEPTH 5080'

HOLE DESCRIPTION:

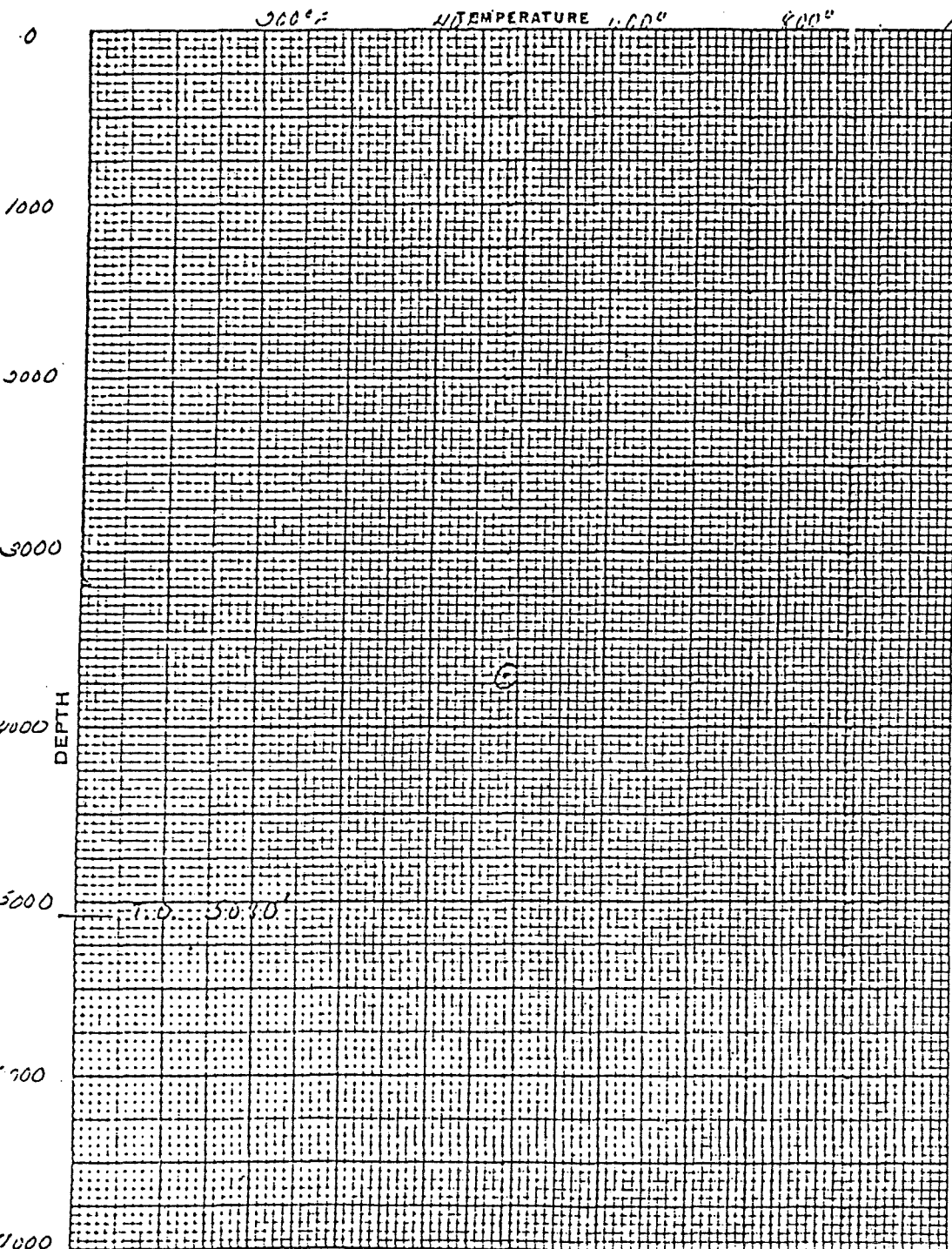
INSTRUMENT 840 to 646°F

SERIAL NO KTB-10005

PURPOSE Bottom Hole Temperature and Pressure Survey MAX TEMP _____ °F @ _____

REMARKS:

STABILIZATION PERIOD



PRESSURES	GAUGE	BOH
CASING, PSI		

DEPTH	TEMP.	DEPTH	TI
3700	486.8		

BY:

76

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

B4-54P

OWNER Union Oil Co of Calif FIELD Redondo Valley WELL NAME Boco #4
 CASING 9 5/8" O from surface to 3200' ELEV 9318 GL DATE 12-2-72
 LINER DESCRIPTION: 8 3/4" open hole 3200' to 5080' ZERO POINT 14' above ground
 DEPTH 5080'

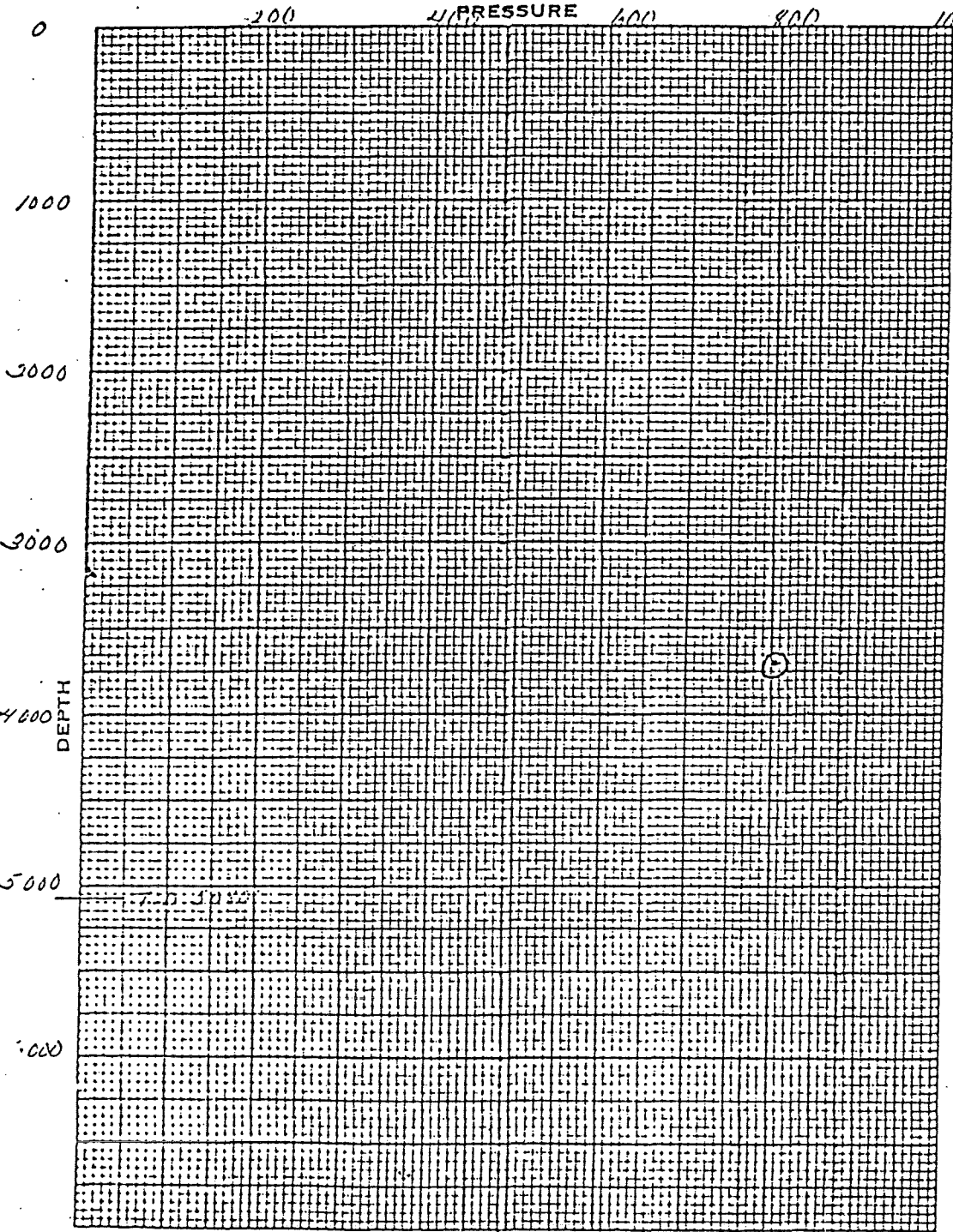
HOLE DESCRIPTION:

INSTRUMENT 2400
 SERIAL NO 6604 N

PURPOSE Bottom Hole Pressure Survey MAX TEMP _____ °F @ _____

REMARKS:

STABILIZATION PERIOD



PRESSURES	GAUGE	BOM
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
3700	803.83	

BY:

76

GEO THERMAL DIVISION

B4-53P

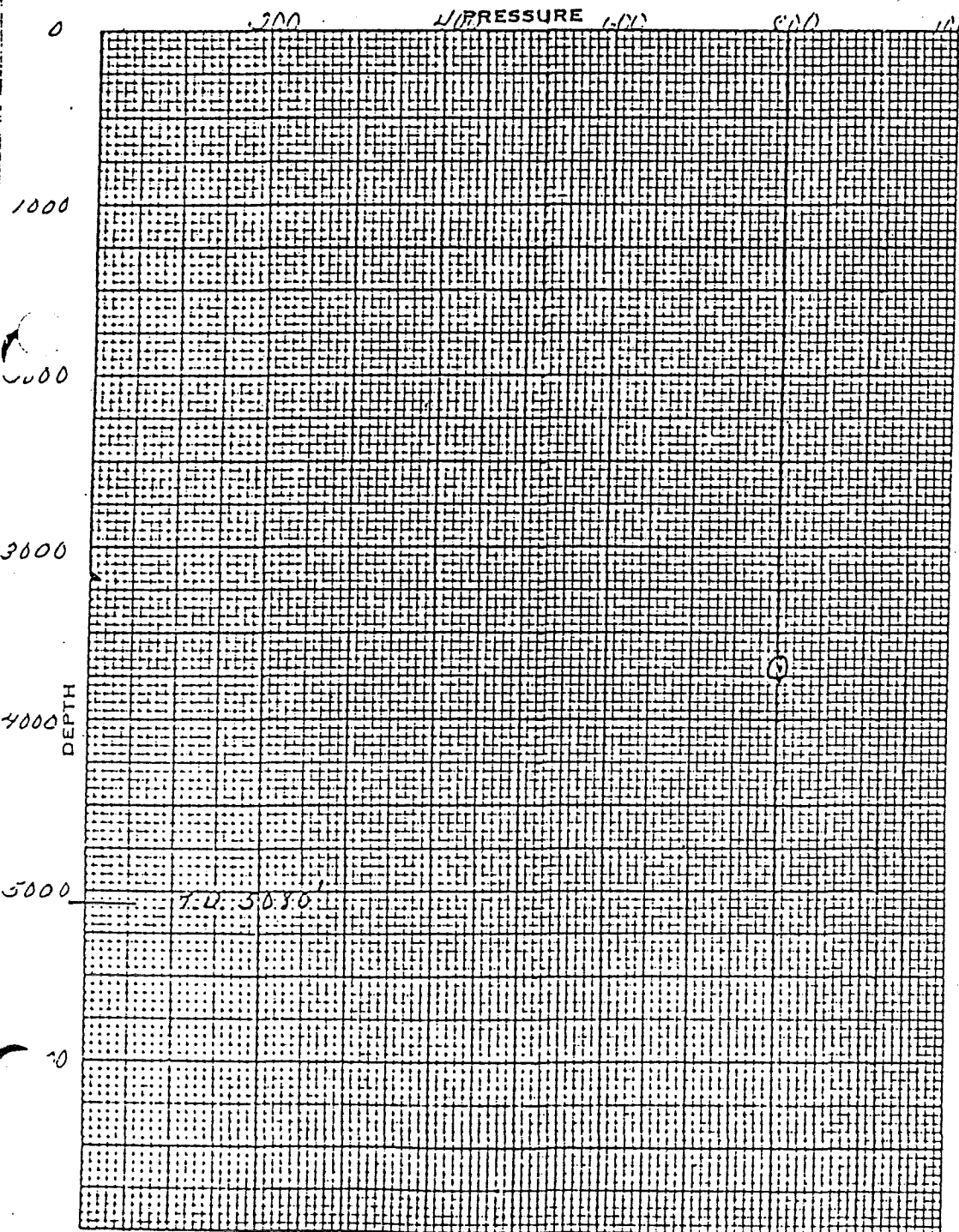
SUBSURFACE PRESSURE SURVEY

OWNER Boca Land & Cattle Co. FIELD Redondo Valley WELL NAME Boca #4
 CASING 9 5/8" O.D. from surface to 3300' ELEV 9318 GL DATE 10/29/72
 LINER DESCRIPTION: _____ ZERO POINT _____
 _____ DEPTH 5080'

HOLE DESCRIPTION: _____ INSTRUMENT 2400 PSIC
 _____ SERIAL NO 6604 N

PURPOSE Bottom Hole Pressure Survey MAX TEMP _____ °F @ _____

REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH	PRESSURE	GRADIENT
<u>3700</u>	<u>800.24</u>	

BY: _____

GEO THERMAL DIVISION

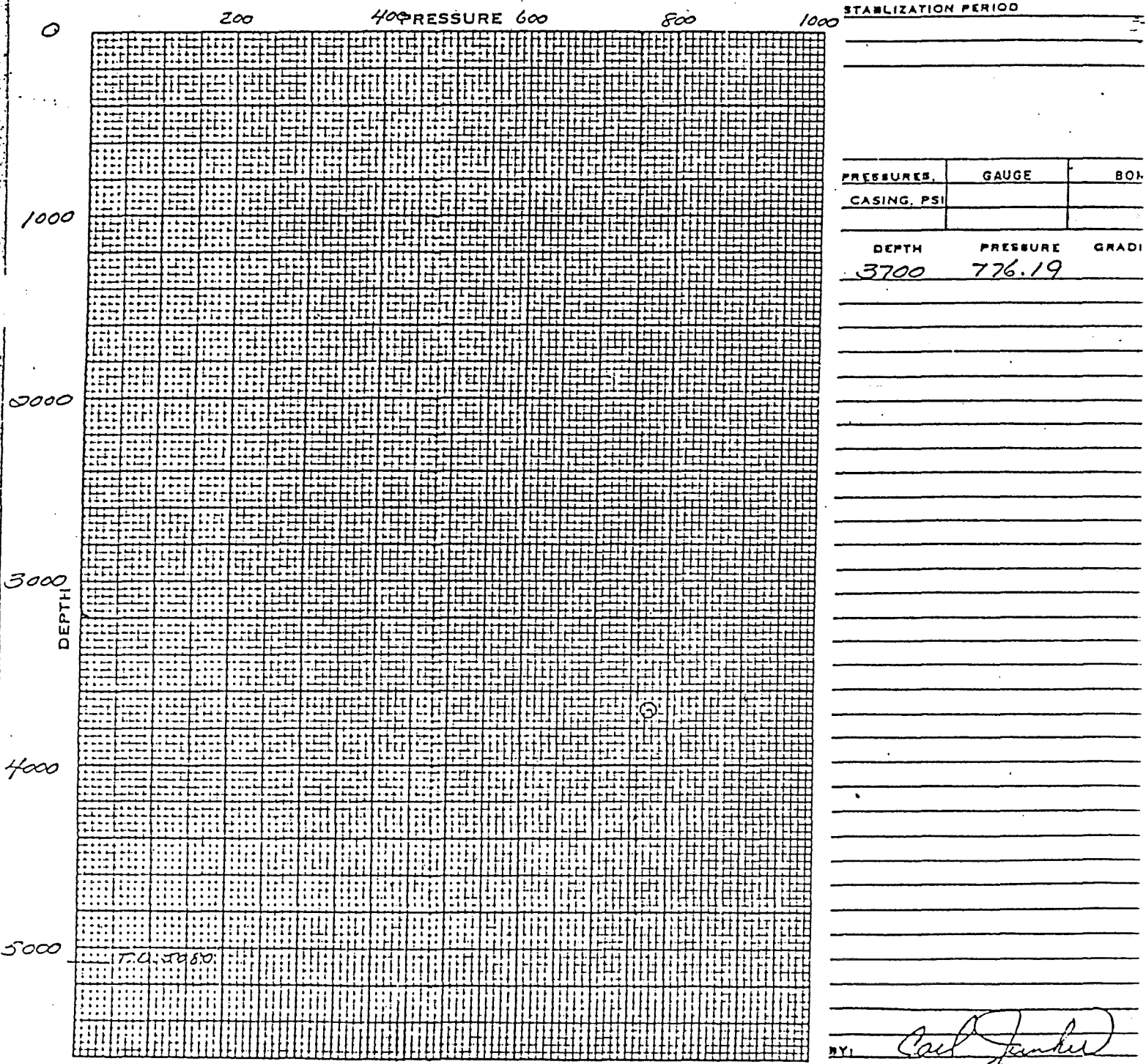
SUBSURFACE PRESSURE SURVEY

76

OWNER Boca Land & Cattle Co. FIELD Redondo Valley WELL NAME Boca #4
 CASING 9 5/8" C. from surface to 3200' ELEV. 9318 GL DATE: 10-13-72
 LINER DESCRIPTION: _____ ZERO POINT 14' above grou.
 _____ DEPTH 5080'

HOLE DESCRIPTION: _____ INSTRUMENT 2400
 _____ SERIAL NO. 6604 N

PURPOSE Bottom Hole Press. & Temp. Survey MAX. TEMP 485.0 °F @ 3700
 REMARKS: _____



76

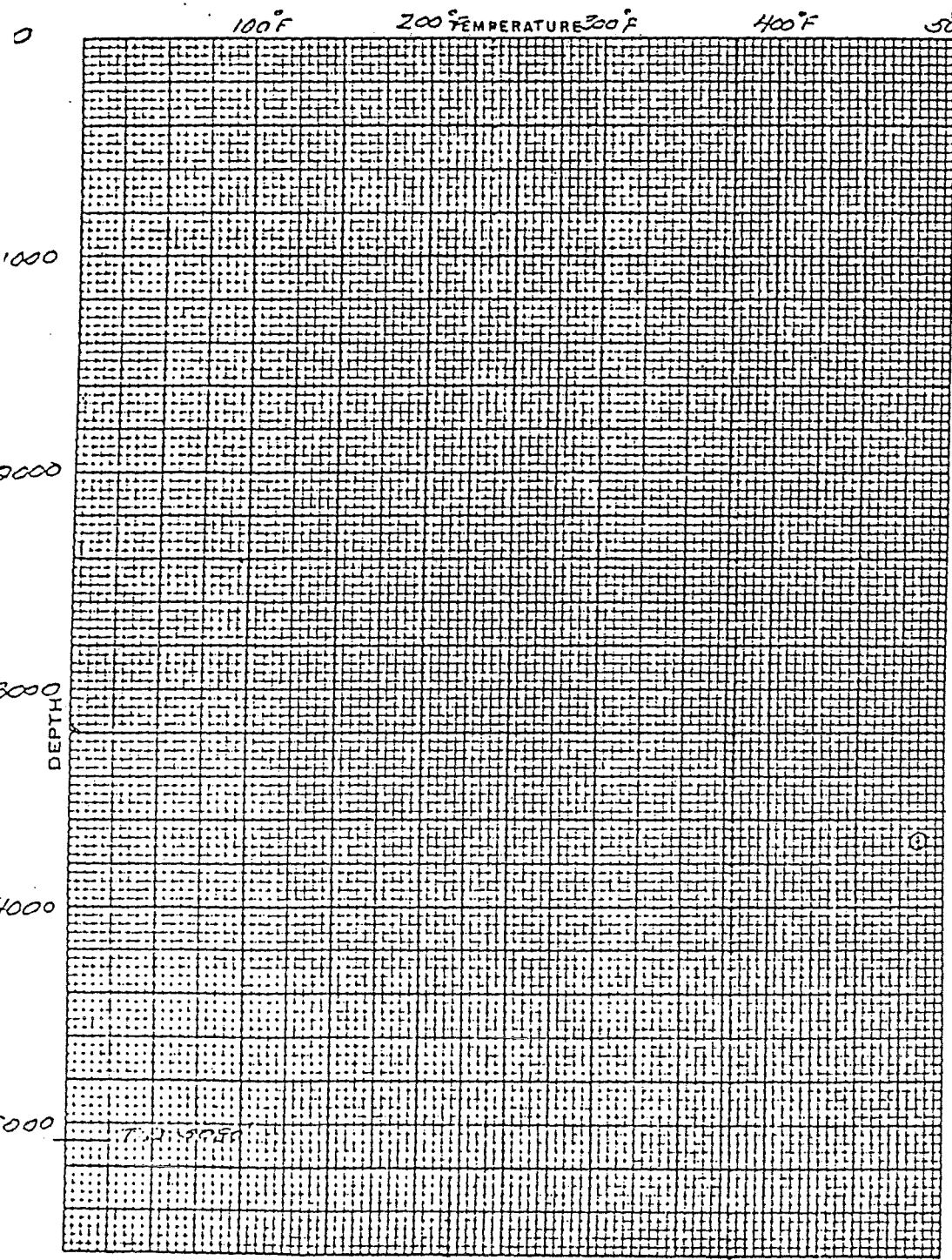
GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

OWNER Baca Land & Cattle Co. FIELD Redondo Valley WELL NAME Baca # 4
CASING 9 3/8" C. from surface to 3200' ELEV. 9312 ft. DATE: 10-13-72
LINER DESCRIPTION: _____ ZERO POINT 14' above grad.
DEPTH 5080'

HOLE DESCRIPTION: _____
INSTRUMENT 84-646
SERIAL NO KT-B 10005

PURPOSE Bottom Hole Press. & Temp. Survey MAX TEMP 485.0 °F @ 3700'
REMARKS: _____



STABILIZATION PERIOD

PRESSURES	GAUGE	BOWL	
CASING, PSI			
DEPTH	TEMP.	DEPTH	TE
3700	485.0		

BY: Carl Janker

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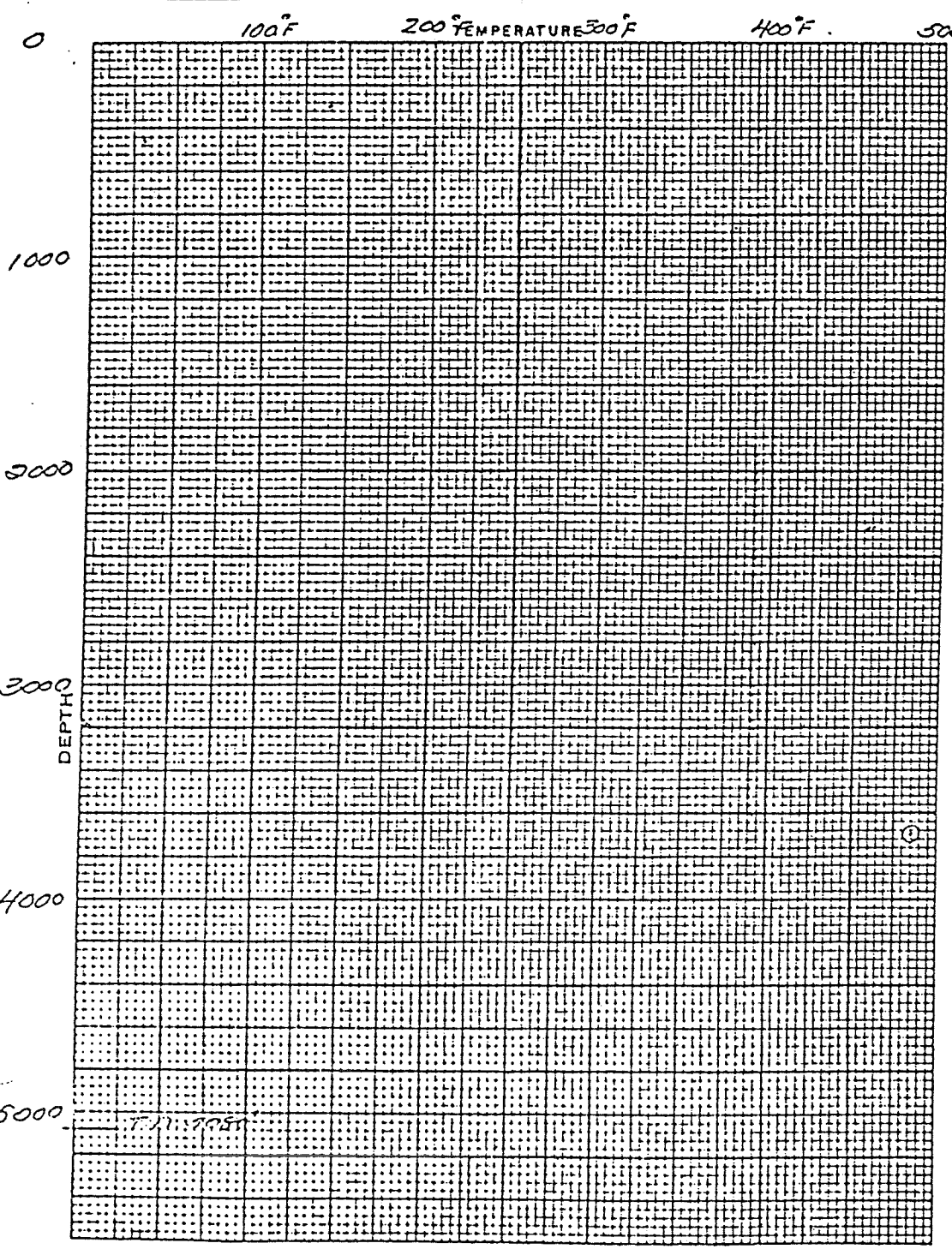
GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

OWNER Baca Land & Cattle Co. FIELD Redondo Valley WELL NAME Baca # 4
CASING 9 5/8" C. from surface to 3200' ELEV _____ DATE 10-13-72
LINER DESCRIPTION: _____ ZERO POINT 14' above grade
DEPTH 5080'

HOLE DESCRIPTION: _____ INSTRUMENT 84-646° FAI
SERIAL NO KT-B 10005

PURPOSE Bottom Hole Press. & Temp. Survey MAX TEMP 485.0 °F @ 3700'
REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES.	GAUGE	BOMB	
CASING, PSI			
DEPTH	TEMP.	DEPTH	TEMP.
3700	485.0		

BY: Carl Jander

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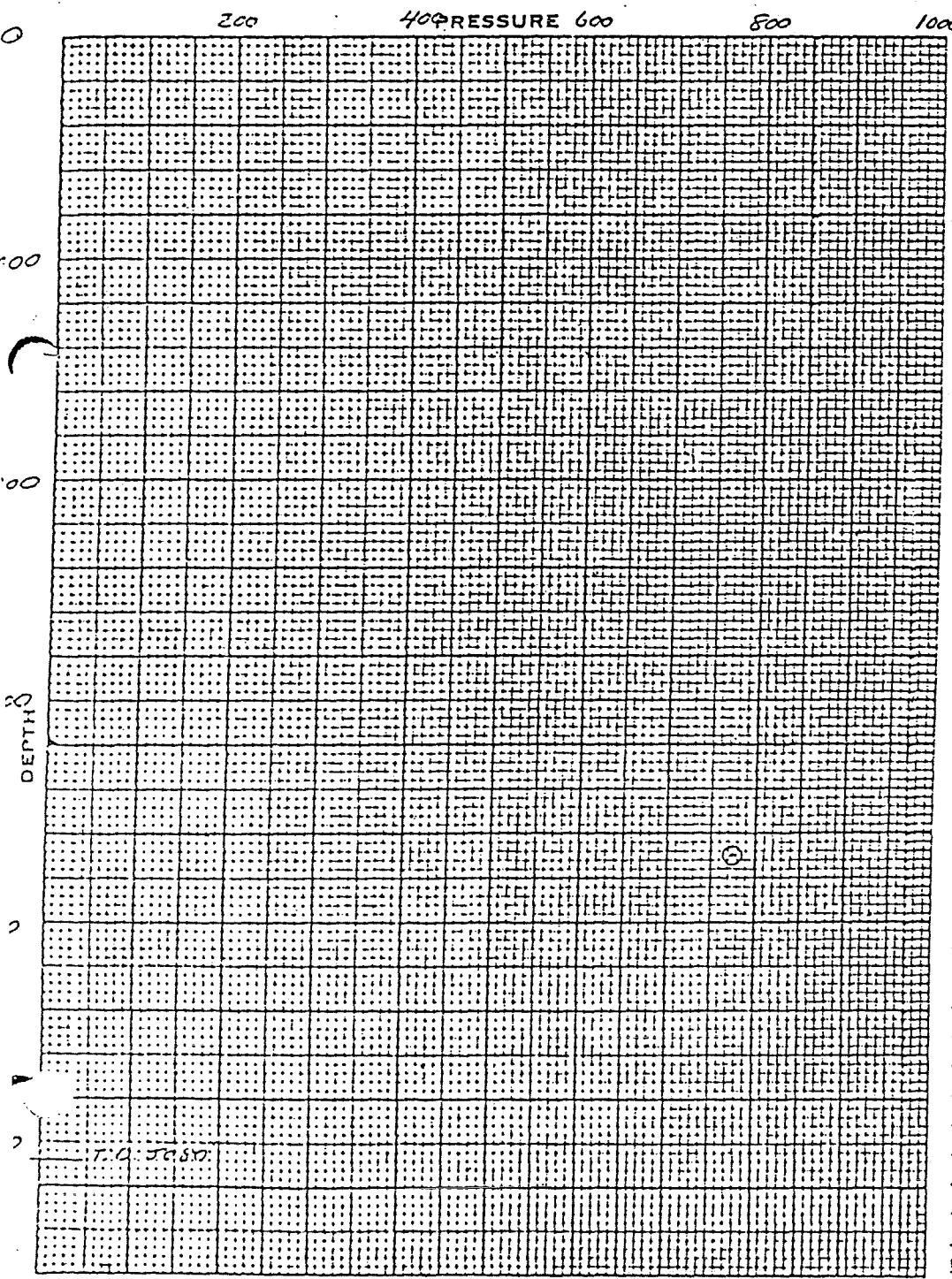
GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

OWNER Boca Land & Cattle Co. FIELD 15 Snake Valley WELL NAME Boca #4
 CASING 7 5/8" C. from surface to 3200' ELEV _____ DATE 10-13-72
 LINER DESCRIPTION: _____ ZERO POINT 14' above ground
 _____ DEPTH 5080'

HOLE DESCRIPTION: _____
 INSTRUMENT 2400 PSIG
 SERIAL NO 6604 N

PURPOSE Bottom Hole Press. & Temp. Survey MAX TEMP 485.0 °F @ 3700'
 REMARKS: _____



STABILIZATION PERIOD _____

PRESSURES	GAUGE	BOMB
CASING. PSI		

DEPTH	PRESSURE	GRADIENT
3700	776.19	

Unrecorded for temp.

BY: Carl Jankus

76

GEOTHERMAL DIVISION

B4-SIPT

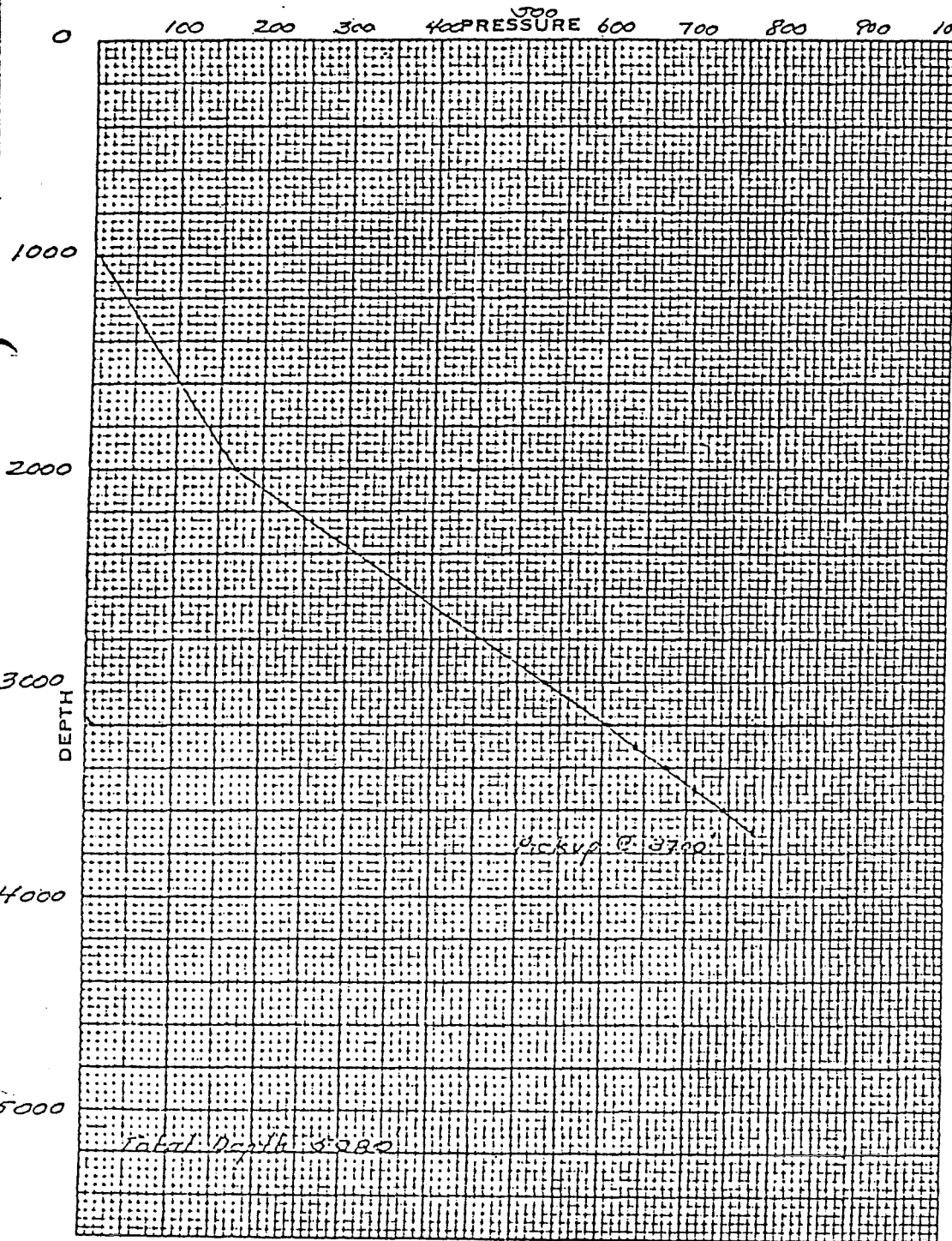
SUBSURFACE PRESSURE SURVEY

OWNER Boca Land & Cattle Co. FIELD Redondo Valley WELL NAME Boca #4
 CASING 9 5/8" C. from surface to 3200' ELEV. 9318.64 DATE 10/5/72
 LINER DESCRIPTION: _____ ZERO POINT 14' above ground
 _____ DEPTH 5080'

HOLE DESCRIPTION: 8 3/4" open hole from 3200' to 5080'
 INSTRUMENT 0400
 SERIAL NO 6604N

PURPOSE Tandem Temperature and Pressure MAX TEMP 491.3 °F @ 3600'
 REMARKS: _____

STABILIZATION PERIOD
Static



PRESSURES	GAUGE	BOM
CASING, PSI	0	0

DEPTH	PRESSURE	GRADIENT
1000	4.72	
2000	169.81	.165
3000	533.33	.365
3200	604.76	.357
3300	639.29	.345
3400	675.00	.357
3500	709.52	.345
3600	742.86	.333
3700	777.38	.345

BY: Carl Junker

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GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

OWNER Boca Land & Cattle Co. FIELD Redondo Valley WELL NAME Boca # 4
 CASING 9 5/8" C. from surface to 3200' ELEV 4312.66 DATE: 10/5/72
 LINER DESCRIPTION: _____ ZERO POINT 14' above ground
 _____ DEPTH 5080'

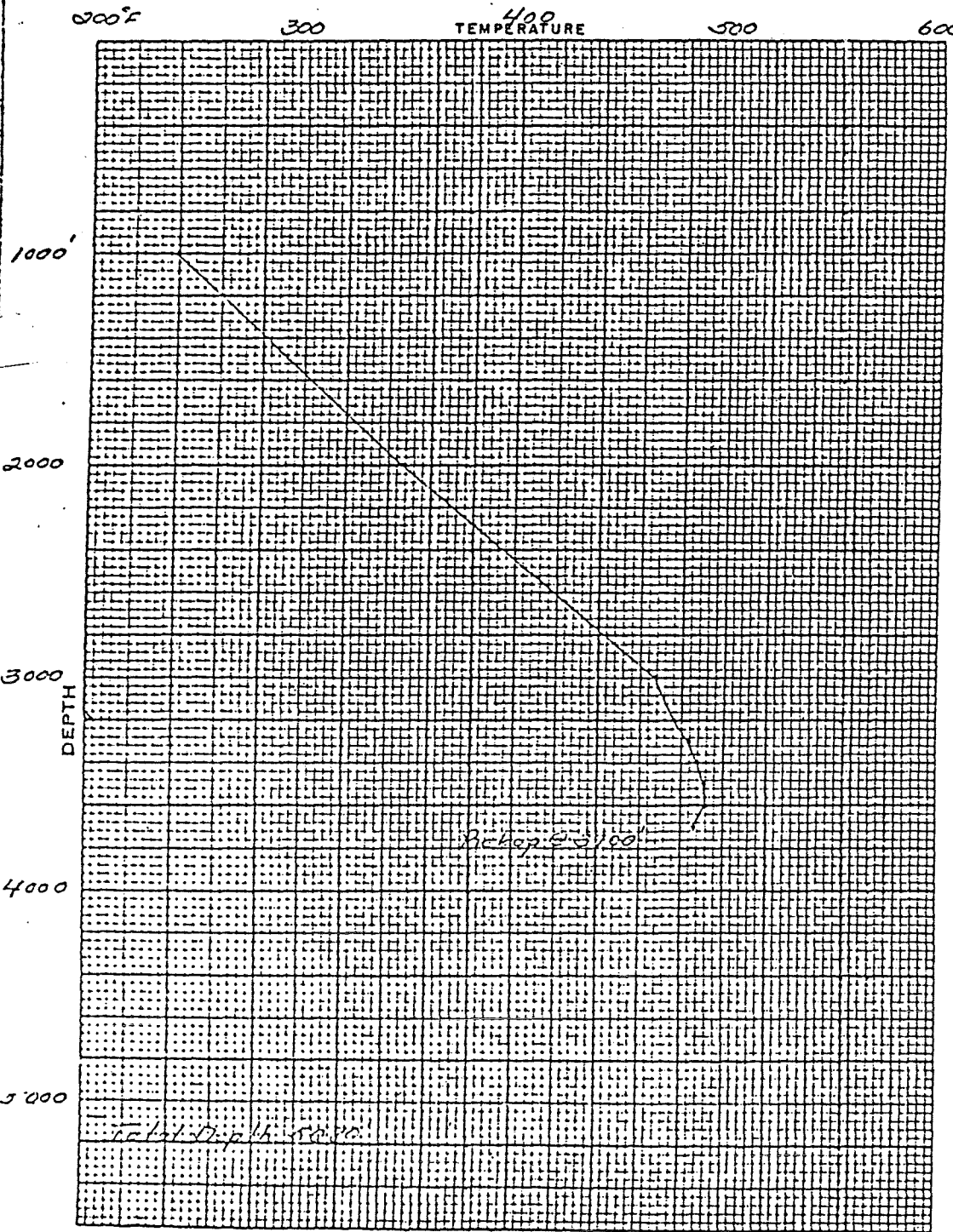
HOLE DESCRIPTION: 8 3/4" open hole from 3200' to 5080' INSTRUMENT 84-646° FA
 _____ SERIAL NO KT-B 10005

PURPOSE Tandem Temperature and Pressure MAX TEMP 491.3 °F @ 3600'
 REMARKS: _____

STABILIZATION PERIOD
Static

PRESSURES	GAUGE	BOMB
CASING, PSI	0	0

DEPTH	TEMP.	DEPTH	TEMP.
1000	339.0		
2000	346.5		
3000	466.9		
3200	476.5		
3300	483.4		
3400	487.6		
3500	490.8		
3600	491.3		
3700	486.3		



BY: Carl Jensen