

BACA PROJECT
DATA AND REPORTS

WELLS

| <u>No.</u> | <u>Transfer Date</u> | <u>Release Date</u> | <u>Title</u> |
|------------|--------------------------|-------------------------|--|
| 1. | A | A | Summary sheet for Baca Wells No's 1-3. |
| 2. | A | A | Baca Wells No's 4-16 summary sheet. |
| 3. | A | A | Well summary reports and Drilling Histories-- Baca Wells No's 4-16. |
| 4. | B | B | Lithology logs--Baca Wells No's 4-16. |
| 5. | A | A | Temperature and Pressure Surveys--Baca Wells No's 4-8 and 10-16. |
| . | B | B | Electric logs for Baca Wells No's 10-14. |

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UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B-13 S-13 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #13
 CASING 20" AT 215'; 13 3/4" AT 1469' ELEV. 9211' DATE: 4/4/75
 LINER DESCRIPTION: 9 5/8" AT 3380'; ZERO POINT GL + 12'
7" 3380' - 8200'; SLOTS - 4227' - 8106' DEPTH 8200'

TUBING DETAIL:

PURPOSE GRADIENT

REMARKS:

0-4250 PSIG SN 7198 CLOCK-13375-L 15 TURN

ELEMENT 82"-686" SERIAL NO. 10055 CLOCK 13374-L 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0931; T-0926 DISENGAGE STYLUS P-1420; T-1420
 WELL HEAD 195 PSIG - BARTON RECORDER 0-1500 PSIG.
 PICKUP @ 8176' TIME ON BOTTOM 1254-1304 MAX. F 581.1
 WELL STATUS STATIC
 SHUT IN: 1040 HRS 2/25/75 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

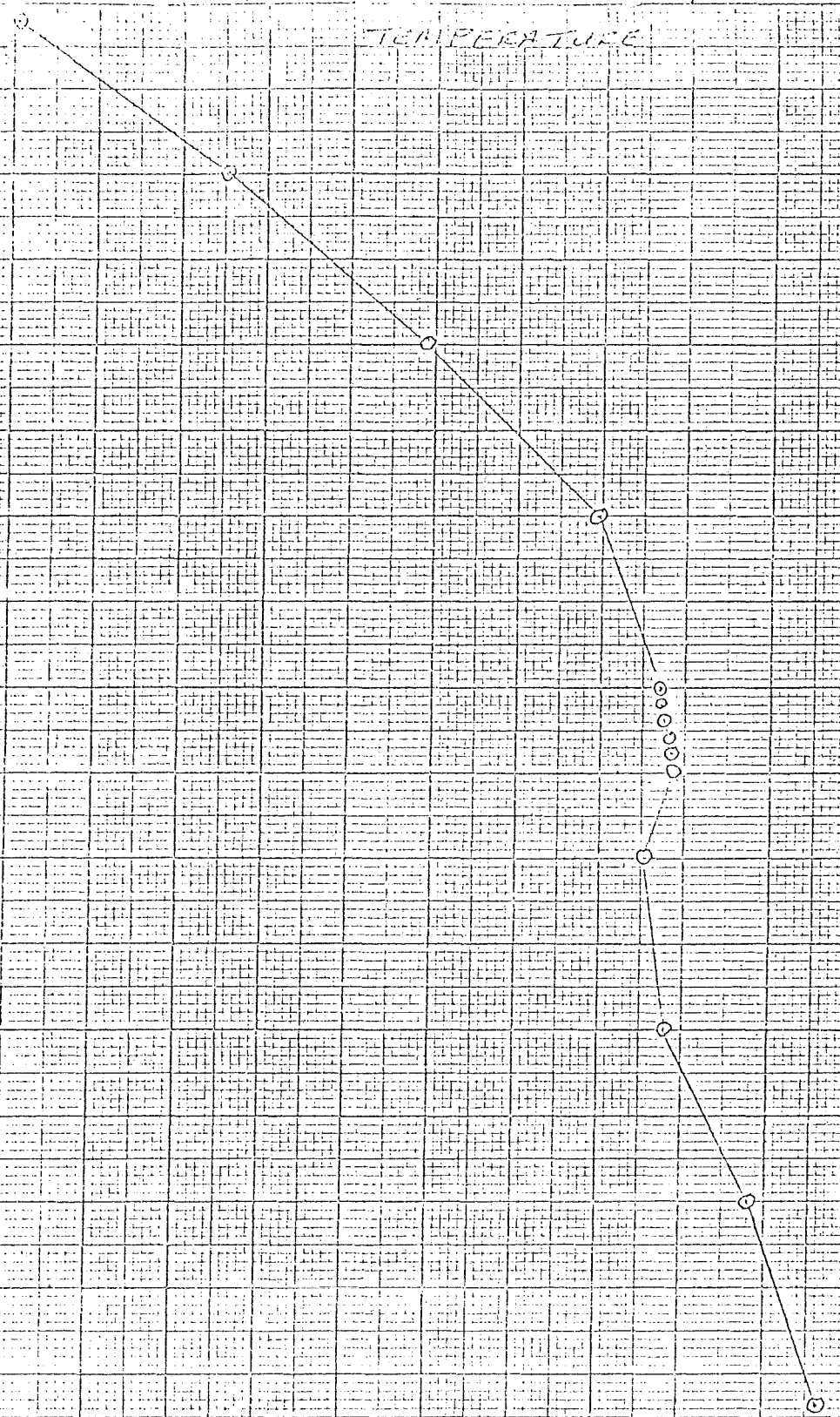
| TIME | DEPTH | DEFL. | P-S | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|--------|-------|--------|----------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| | 0 | .087 | 195.9 | 0 | 0 | 1009 hrs | 0 | 0 | 0 | | | | | | | | |
| | 100 | .087 | 195.9 | 0 | 0 | " | 100 | .066 | 103.0 | | | | | | | | |
| | 1000 | .088 | 198.2 | 0 | 0 | " | 1000 | .429 | 222.0 | | | | | | | | |
| | 2000 | .088 | 198.2 | 0 | 0 | " | 2000 | .818 | 346.8 | | | | | | | | |
| | 3000 | .238 | 333.9 | .336 | -1.001 | " | 3000 | 1.139 | 447.1 | | | | | | | | |
| | 4000 | .405 | 587.7 | .354 | 0 | " | 4000 | 1.269 | 486.4 | | | | | | | | |
| | 4100 | .425 | 930.1 | .424 | +1.002 | " | 4100 | 1.273 | 487.5 | | | | | | | | |
| | 4200 | .441 | 964.0 | .339 | +1.002 | " | 4200 | 1.276 | 488.4 | | | | | | | | |
| | 4300 | .456 | 995.8 | .318 | +1.002 | " | 4300 | 1.288 | 492.0 | | | | | | | | |
| | 4400 | .472 | 1029.4 | .335 | +1.002 | " | 4400 | 1.289 | 492.3 | | | | | | | | |
| | 4500 | .488 | 1063.0 | .336 | +1.002 | " | 4500 | 1.294 | 493.7 | | | | | | | | |
| | 5000 | .529 | 1232.2 | .340 | +1.003 | " | 5000 | 1.234 | 476.0 | | | | | | | | |
| | 6000 | .731 | 1574.2 | .341 | +1.006 | " | 6000 | 1.283 | 490.5 | | | | | | | | |
| | 7000 | .892 | 1915.3 | .341 | +1.004 | " | 7000 | 1.458 | 541.5 | | | | | | | | |
| | 8176 | 1.074 | 2302.1 | .329 | +1.002 | " | 8176 | 1.547 | 581.1 | | | | | | | | |

COMMENTS:

BY: 1.1

TEMPERATURE

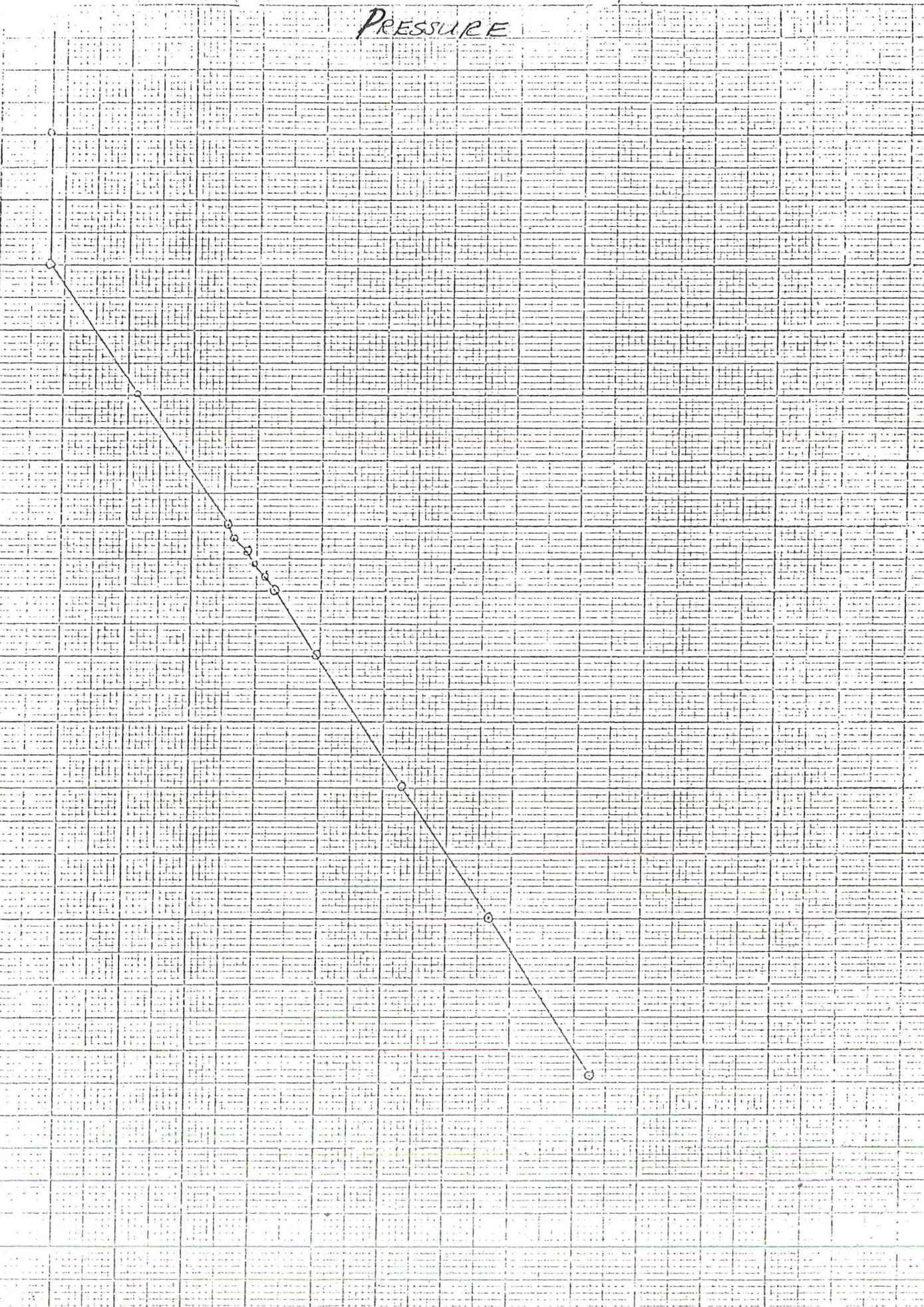
1000'
2000'
3000'
4000'
4100'
4200'
4300'
4400'
4500'
5000'
6000'
7000'
8000'
8170'



NEUFEL & CO. INC.

PRESSURE

500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500



47 1000
KIMBLE & ESSER CO.

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UNION GEOHERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B13 540 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BPCA #13
 CASING 20" AT 215', 13 3/8" AT 1336' ELEV. 9311 DATE: 7/7/76
 LINER DESCRIPTION: 9 5/8" AT 3350' ZERO POINT CL + 12'
7" AT 5346' - TD DEPTH 8176

TUBING DETAIL:

PURPOSE tandem PSI RUN

REMARKS:

ELEMENT P₁ - 0-4700 PSI SN 13012 CL - 12 hr 15 TURN
 ELEMENT P₂ - 0-2950 SERIAL NO. 9255 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P₁ 0829 P₂ 0827 DISENGAGE STYLUS P₁ 1340 P₂ 1350
 WELL HEAD 253 PS19
 PICKUP @ 8100 TIME ON BOTTOM 1223-1323 MAX. F 570
 WELL STATUS
 SHUT IN: 1100 hrs 4/27/76 ON PRODUCTION:
 RATE

P₁ - 0-4700 PSI P₂ - 0-2950 PSI

| TIME | DEPTH | DEFL. | P-T | GRAD. | COR'D | TIME | DEPTH | DEFL. | P-T | GRAD. | COR'D | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|-----|-------|----|
| 0926 | 100 | .097 | 249 | | -007 | 0926 | 100 | .160 | 263 | | -013 | | | | | | |
| 0941 | 150 | .102 | 261 | | -003 | 0941 | 150 | .165 | 270 | | -007 | | | | | | |
| 0957 | 200 | .104 | 266 | | -002 | 0957 | 200 | .170 | 278 | | -004 | | | | | | |
| 1009 | 300 | .120 | 540 | | 0 | 1009 | 300 | .1361 | 563 | | +001 | | | | | | |
| 1024 | 400 | .165 | 854 | | 0 | 1024 | 400 | .1599 | 918 | | +001 | | | | | | |
| 1040 | 4250 | .401 | 969 | | 0 | 1040 | 4250 | .659 | 1007 | | +002 | | | | | | |
| 1051 | 4500 | .453 | 1056 | | +001 | 1051 | 4500 | .715 | 1089 | | +002 | | | | | | |
| 1102 | 4750 | .473 | 1139 | | +001 | 1102 | 4750 | .772 | 1173 | | +003 | | | | | | |
| 1113 | 5000 | .511 | 1228 | | +002 | 1113 | 5000 | .831 | 1260 | | +005 | | | | | | |
| 1124 | 5250 | .547 | 1312 | | +002 | 1124 | 5250 | .891 | 1348 | | +006 | | | | | | |
| 1136 | 5500 | .583 | 1397 | | +002 | 1136 | 5500 | .950 | 1434 | | +006 | | | | | | |
| 1147 | 5750 | .619 | 1481 | | +002 | 1147 | 5750 | 1.010 | 1522 | | +008 | | | | | | |
| 1153 | 6000 | .657 | 1570 | | +002 | 1153 | 6000 | 1.069 | 1609 | | +009 | | | | | | |
| 1210 | 7000 | .803 | 1913 | | +003 | 1210 | 7000 | 1.306 | 1959 | | +008 | | | | | | |
| 1222 | 8000 | .947 | 2251 | | +002 | 1222 | 8000 | 1.537 | 2299 | | +003 | | | | | | |
| 1223 | 8100 | .962 | 2286 | | +002 | 1223 | 8100 | 1.561 | 2335 | | +003 | | | | | | |
| 1253 | 8100 | .962 | 2286 | | +002 | 1253 | 8100 | 1.561 | 2335 | | +003 | | | | | | |
| 1323 | 8100 | .962 | 2286 | | +002 | 1323 | 8100 | 1.561 | 2335 | | +003 | | | | | | |

0-4700 PSI

0-2950 PSI

CALIBRATION CHECK
WITH DWI AT 65°F

CALIBRATION CHECK
WITH DWI AT 65°F

dCF = 1.043
PSI = 2477

dCF = 1.690
PSI = 2525

NO CORRECTION FOR TEMP.
BELOW 100°F

NO CORRECTION FOR
TEMP BELOW 100°F

COMMENTS: TEMPERATURES FROM B.13 540 WERE USED FOR CORRECTIONS.

BY: JMI JSB

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UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B#13-544-T

OWNER UNION OIL CO. CALIF. FIELD WALL GRANGE WELL NAME B#13
 CASING 9 5/8" 215' 13 7/8" 132' ELEV. 9311 DATE: 7/7/76
 LINER DESCRIPTION: 9 5/8" C 5380' ZERO POINT 66+12
7" P 5346' - T.D. DEPTH 8100'

TUBING DETAIL:

PURPOSE _____
 REMARKS: _____

ELEMENT T-1015-7924 SERIAL NO. 10095 CLOCK 12HR 15 TURN STABILIZATION PERIOD _____
 ENGAGE SYLUS T-1431 DISENGAGE SYLUS T-1910 _____
 WELL HEAD 253 _____
 PICKUP @ 5100 TIME ON BOTTOM 1711-1511 MAX. °F 570 _____
 WELL STATUS SHUT IN _____
 SHUT IN: 1104HR 4/27/76 ON PRODUCTION: _____
 RATE _____

TEMPERATURE

| TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| 00 | 5100 | 1.111 | 451 | | | | | | | | | | | | | | |
| 01 | 5150 | 1.112 | 450 | | | | | | | | | | | | | | |
| 02 | 5200 | 1.115 | 450 | | | | | | | | | | | | | | |
| 03 | 5250 | 1.116 | 453 | | | | | | | | | | | | | | |
| 04 | 5300 | 1.119 | 455 | | | | | | | | | | | | | | |
| 05 | 5350 | 1.122 | 457 | | | | | | | | | | | | | | |
| 06 | 5400 | 1.127 | 458 | | | | | | | | | | | | | | |
| 07 | 5450 | 1.127 | 457 | | | | | | | | | | | | | | |
| 08 | 5500 | 1.131 | 459 | | | | | | | | | | | | | | |
| 09 | 5550 | 1.134 | 458 | | | | | | | | | | | | | | |
| 10 | 5600 | 1.137 | 453 | | | | | | | | | | | | | | |
| 11 | 5650 | 1.139 | 455 | | | | | | | | | | | | | | |
| 12 | 5700 | 1.141 | 456 | | | | | | | | | | | | | | |
| 13 | 5750 | 1.143 | 456 | | | | | | | | | | | | | | |
| 14 | 5800 | 1.145 | 520 | | | | | | | | | | | | | | |
| 15 | 5850 | 1.311 | 569 | | | | | | | | | | | | | | |
| 16 | 5900 | 1.319 | 570 | | | | | | | | | | | | | | |
| 17 | 5950 | 1.315 | 570 | | | | | | | | | | | | | | |
| 18 | 6000 | 1.316 | 570 | | | | | | | | | | | | | | |

COMMENTS:

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UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B13 539 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE

WELL NAME BACA #13

CASING 20" AT 215'; 13 3/8" AT 1336 ELEV.

DATE: 7/1/76

LINER DESCRIPTION: 9 5/8" AT 3350'
7" AT 5346'

ZERO POINT GL + 12'

DEPTH 8176

TUBING DETAIL:

PURPOSE

REMARKS:

ELEMENT - 0-470 PSI SN 13012 CLOCK 12 HR 15 TURN

ELEMENT 90° - 646 °F SERIAL NO. 10052 CLOCK 12 HR 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P-0900 T 0901 DISENGAGE STYLUS P 1115 T 1116

WELL HEAD 259 PSIG

PICKUP @ 8100 TIME ON BOTTOM 0930 - 1030 MAX. °F 569

WELL STATUS

SHUT IN: ON PRODUCTION:

RATE

PSI

TEMP

| PSI | | | | | TEMP | | | | | | | | | | | | |
|------|-------|-------|------|-------|-------|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
| 0930 | 8100 | .961 | 2284 | | 7.002 | 0930 | 8100 | 1.315 | 569 | | | | | | | | |
| 1000 | 8100 | .961 | 2284 | | 7.002 | 1000 | 8100 | 1.315 | 569 | | | | | | | | |
| 1030 | 8100 | .961 | 2284 | | 7.002 | 1030 | 8100 | 1.315 | 569 | | | | | | | | |

COMMENTS:

BY: JIM SG CP

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GEOHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B13-538-P/T

OWNER UNION OIL CO-OF CALIF FIELD VALLE GRANDE WELL NAME BARR 13
 CASING 20" @ 215', 13 3/4" @ 1336' ELEV. 9311' DATE: 6/25/76
 LINER DESCRIPTION: 9 5/8" @ 3380', ZERO POINT C+13'
 7" @ 3346' - T.D. DEPTH 8100'

TUBING DETAIL:

PURPOSE:

REMARKS:

P-0-4700 PSIG. 13012 12hr 15
 ELEMENT T-100-792 SERIAL NO. 10098 CLOCK 12hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1009 T-1005 DISENGAGE STYLUS P-1529 T-1530
 WELL HEAD 259
 PICKUP @ 8100 TIME ON BOTTOM 1416-1516 MAX. F 569
 WELL STATUS SHUT IN.
 SHUT IN: 1100 hrs 4/27/76 ON PRODUCTION:
 RATE

| PSIG | | | | | TEMP | | | | | | | | | | | | |
|------|-------|-------|------|-------|-------|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| TIME | DEPTH | DEFL. | P-T | GRAD. | GRAD. | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
| 1132 | 100 | 102 | 261 | -007 | 1132 | 100 | 1015 | 106 | | | | | | | | | |
| 1144 | 1000 | 103 | 264 | -003 | 1144 | 1000 | 1066 | 280 | | | | | | | | | |
| 1157 | 2000 | 105 | 269 | -002 | 1157 | 2000 | 1071 | 355 | | | | | | | | | |
| 1208 | 3000 | 118 | 536 | 0 | 1208 | 3000 | 1056 | 452 | | | | | | | | | |
| 1222 | 4000 | 135 | 854 | 0 | 1222 | 4000 | 1087 | 494 | | | | | | | | | |
| 1233 | 4250 | 140 | 967 | 0 | 1233 | 4250 | 1092 | 496 | | | | | | | | | |
| 1244 | 4500 | 1437 | 1054 | +001 | 1244 | 4500 | 1105 | 500 | | | | | | | | | |
| 1255 | 4750 | 1473 | 1139 | +001 | 1255 | 4750 | 1060 | 485 | | | | | | | | | |
| 1306 | 5000 | 1509 | 1221 | +001 | 1306 | 5000 | 1037 | 473 | | | | | | | | | |
| 1317 | 5250 | 1545 | 1308 | +002 | 1317 | 5250 | 1042 | 479 | | | | | | | | | |
| 1328 | 5500 | 1581 | 1392 | +002 | 1328 | 5500 | 1050 | 482 | | | | | | | | | |
| 1339 | 5750 | 1618 | 1479 | +002 | 1339 | 5750 | 1057 | 484 | | | | | | | | | |
| 1350 | 6000 | 1657 | 1570 | +003 | 1350 | 6000 | 1043 | 486 | | | | | | | | | |
| 1403 | 7000 | 1804 | 1916 | +003 | 1403 | 7000 | 1164 | 519 | | | | | | | | | |
| 1415 | 8000 | 1948 | 2253 | +002 | 1415 | 8000 | 1311 | 566 | | | | | | | | | |
| 1516 | 8100 | 1965 | 2288 | +002 | 1516 | 8100 | 1316 | 569 | | | | | | | | | |

COMMENTS:

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UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY Field Work Sheet

B13 537 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BHON #13
 CASING 20" AT 215' ; 13 3/8" 1336' ELEV. 9311' DATE: 6/3/76
 LINER DESCRIPTION: 9 5/8" AT 3330' ZERO POINT 62412'
7" AT 3346' DEPTH 8153'

TUBING DETAIL:

PURPOSE buildup

REMARKS:

ELEMENT C-4750 PSI SN 13012 CLOCK 12 HR 15 TURN
 ELEMENT - 82° - 0.86°F SERIAL NO. 10055 CLOCK 12 HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0948 T 0953 DISENGAGE STYLUS P-1605 T 1605
 WELL HEAD 310 PSI
 PICKUP @ 5100 TIME ON BOTTOM 1325 - 1525 MAX. °F 561.8
 WELL STATUS
 SHUT IN: 1100 hrs 4/27/76 ON PRODUCTION:
 RATE

PRESSURES

TEMPERATURE

| TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|------|-------|------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 10 | 100 | 108 | 300 | | -011 | 1033 | 100 | 110 | 117.2 | | | | | | | | |
| 20 | 200 | 115 | 317 | | -005 | 1045 | 100 | 110 | 251.5 | | | | | | | | |
| 05 | 200 | 120 | 324 | | -002 | 1057 | 200 | 113 | 351.6 | | | | | | | | |
| 112 | 3000 | 1209 | 538 | | 0 | 1112 | 3000 | 1129 | 443.1 | | | | | | | | |
| 128 | 4000 | 1350 | 585 | | +001 | 1128 | 4000 | 1260 | 485.5 | | | | | | | | |
| 140 | 4150 | 1385 | 624 | | +001 | 1140 | 4250 | 1215 | 483.1 | | | | | | | | |
| 151 | 4300 | 1421 | 1055 | | +002 | 1151 | 4500 | 1289 | 492.3 | | | | | | | | |
| 203 | 4750 | 1457 | 1141 | | +003 | 1203 | 4750 | 1226 | 475.7 | | | | | | | | |
| 214 | 5100 | 1490 | 1220 | | +003 | 1214 | 5100 | 1214 | 470.1 | | | | | | | | |
| 225 | 5250 | 1524 | 1301 | | +004 | 1225 | 5250 | 1221 | 472.2 | | | | | | | | |
| 236 | 5500 | 1511 | 1389 | | +004 | 1236 | 5500 | 1233 | 475.7 | | | | | | | | |
| 246 | 5750 | 1596 | 1473 | | +004 | 1246 | 5750 | 1243 | 478.8 | | | | | | | | |
| 300 | 6000 | 1607 | 1499 | | +004 | 1300 | 6000 | 1250 | 480.6 | | | | | | | | |
| 312 | 7000 | 1775 | 1890 | | +005 | 1312 | 7000 | 1367 | 515.3 | | | | | | | | |
| 324 | 8000 | 1905 | 2209 | | +003 | 1324 | 8000 | 1525 | 560.1 | | | | | | | | |
| 325 | 8100 | 1868 | 2111 | | +003 | 1325 | 8100 | 1529 | 561.8 | | | | | | | | |
| 355 | 8210 | 1808 | 2121 | | +003 | 1355 | 8100 | 1529 | 561.8 | | | | | | | | |
| 425 | 8300 | 1868 | 2121 | | +003 | 1425 | 8100 | 1529 | 561.8 | | | | | | | | |
| 455 | 8400 | 1868 | 2121 | | +003 | 1455 | 8100 | 1529 | 561.8 | | | | | | | | |
| 525 | 8400 | 1868 | 2121 | | +003 | 1525 | 8100 | 1529 | 561.8 | | | | | | | | |

SUSPECT AIR LIFT ACTION

COMMENTS: CHLCHK, 1.031 = 2505 COR PSI
1.026 def
3490.4 PSI
 BY: _____

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UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B13 S 36 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE

WELL NAME BUNA #13

CASING 20" AT 215' 13 3/8" AT 1336' ELEV. 9311'

DATE: 5/29/76

LINER DESCRIPTION: 9 5/8" AT 3350'
7" AT 3346'

ZERO POINT CL + 12"
DEPTH 8176

TUBING DETAIL:

PURPOSE *handicap*

REMARKS:

Cement - 0-4750 PSI SN 13012 CL-12 hr 15 TURN

ELEMENT 100-792 SERIAL NO. 10098 CLOCK 12 HR 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P-1300 T-1301 DISENGAGE STYLUS P 1603 T 1603

WELL HEAD 320 PSIG

PICKUP @ 8100 TIME ON BOTTOM 1330-1550 MAX. P 562.7

WELL STATUS

SHUT IN:

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 |
| 1330 | 8100 | .919 | 2242 | | 1.003 | 1330 | 8100 | 1.292 | 558.1 | | | | | | | | |
| 1400 | 8100 | .926 | 2259 | | 1.003 | 1400 | 8100 | 1.296 | 562.7 | | | | | | | | |
| 1430 | 8100 | .926 | 2259 | | 1.003 | 1430 | 8100 | 1.296 | 562.7 | | | | | | | | |
| 1500 | 8100 | .926 | 2259 | | 1.003 | 1500 | 8100 | 1.296 | 562.7 | | | | | | | | |
| 1530 | 8100 | .926 | 2259 | | 1.003 | 1530 | 8100 | 1.296 | 562.7 | | | | | | | | |

COMMENTS:

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UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B13 535 P/T

OWNER: UNION OIL COMPANY FIELD: VALLE GRANDE WELL NAME: BACP #13
 CASING: 20" AT 215' 13 3/8" AT 1330' ELEV. 9311 DATE: 5/24/76
 LINER DESCRIPTION: 9 5/8" AT 3350 ZERO POINT: CL 112'
 7" AT 3346 DEPTH: 8176

TUBING DETAIL:

PURPOSE: buildup

REMARKS:

ELEMENT - 0-4750 P319 SN 13012 CLOCK 12 HR 15 TURN
 ELEMENT 100' - 792' SERIAL NO. 70098 CLOCK 12 HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P 1054 T 1040 DISENGAGE STYLUS P 1635 T 1635
 WELL HEAD: 326 P515
 PICKUP @ 8100 TIME ON BOTTOM 1411-1611 MAX. F 562.7
 WELL STATUS
 SHUT IN: 1130 hrs 4/27/76 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

| TIME | DEPTH | PRESSURE | | | ID | TIME | TEMPERATURE | | | P.T | TIME | DEPTH | PRESSURE | | | ID |
|------|-------|----------|------|-------|--------|------|-------------|-------|-------|-------|------|-------|----------|--|--|----|
| | | DEFL. | P-T | GRAD. | | | DEPTH | DEFL. | P-T | | | | GRAD. | | | |
| 11 | 100 | .119 | 327 | | -0.011 | 1131 | 100 | .040 | 116.5 | | | | | | | |
| 114 | 1000 | .126 | 344 | | -0.005 | 1143 | 1000 | .478 | 234.7 | | | | | | | |
| 1155 | 2000 | .131 | 356 | | -0.002 | 1155 | 2000 | .672 | 355.2 | 1.44 | | | | | | |
| 1207 | 3000 | .204 | 534 | | 0 | 1207 | 3000 | .927 | 441.9 | 3.90 | | | | | | |
| 1218 | 4000 | .348 | 880 | | +0.01 | 1218 | 4000 | 1.059 | 484.9 | 5.95 | | | | | | |
| 1229 | 4250 | .383 | 91.4 | | +0.01 | 1229 | 4250 | 1.069 | 488.1 | 6.10 | | | | | | |
| 1240 | 4500 | .418 | 1048 | | +0.02 | 1240 | 4500 | 1.083 | 492.6 | 6.40 | | | | | | |
| 1251 | 4750 | .453 | 1131 | | +0.03 | 1251 | 4750 | 1.025 | 474.0 | ~5.35 | | | | | | |
| 1302 | 5000 | .488 | 1215 | | +0.03 | 1302 | 5000 | 1.016 | 471.1 | 5.20 | | | | | | |
| 1313 | 5250 | .524 | 1301 | | +0.04 | 1313 | 5250 | 1.023 | 473.4 | 5.30 | | | | | | |
| 1324 | 5500 | .510 | 1337 | | +0.04 | 1324 | 5500 | 1.036 | 477.5 | ~5.55 | | | | | | |
| 1335 | 5750 | .595 | 1470 | | +0.04 | 1335 | 5750 | 1.046 | 480.7 | 5.70 | | | | | | |
| 1346 | 6000 | .630 | 1554 | | +0.04 | 1346 | 6000 | 1.052 | 482.6 | 5.80 | | | | | | |
| 1357 | 7000 | .774 | 1897 | | +0.05 | 1357 | 7000 | 1.159 | 517.5 | 8.20 | | | | | | |
| 1410 | 8000 | .911 | 2223 | | +0.03 | 1410 | 8000 | 1.289 | 560.4 | | | | | | | |
| 1411 | 8100 | .926 | 2259 | | +0.03 | 1411 | 8100 | 1.296 | 562.7 | | | | | | | |
| 1441 | 9100 | .926 | 2259 | | +0.03 | 1441 | 9100 | 1.296 | 562.7 | | | | | | | |
| 1511 | 9100 | .926 | 2259 | | +0.03 | 1511 | 9100 | 1.296 | 562.7 | | | | | | | |
| 1541 | 9100 | .926 | 2259 | | +0.03 | 1541 | 9100 | 1.296 | 562.7 | | | | | | | |
| 1611 | 8100 | .926 | 2259 | | +0.03 | 1611 | 8100 | 1.296 | 562.7 | | | | | | | |

COMMENTS:

76

UNION

GEO THERMAL DIVISION

CORRECTED SUBSURFACE SURVEY
 COPY Field Work Sheet

B13-532-P1r

OWNER VALLE CIRCLE GEOTHERM FIELD WELL NAME BRACE #113
 CASING 3" 6 215' 15 7/8" 1330' ELEV. 9.311' DATE: 5/17/76
 LINER DESCRIPTION: 2 1/8" 6 538' ZERO POINT 667.12'
7" 6 531' TO T.O. DEPTH 517.1'

TUBING DETAIL:

PURPOSE:

REMARKS:
 P-C-1750 PSIC 13012 12/HR 15
 ELEMENT T-114 79201 SERIAL NO. 10095 CLOCK 12/HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0926 T-0925 DISENGAGE STYLUS P-1530 T-1530
 WELL HEAD 358
 PICKUP @ 5110 TIME ON BOTTOM 1255-1455 MAX. T 522.7
 WELL STATUS SHUT IN
 SHUT IN: 1/27/76 @ 1130 HRS ON PRODUCTION:
 RATE

| PSIC | | | | | TEMP | | | | | | | | | | | |
|------|-------|-------|-------|-------|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| TIME | DEPTH | DEFL. | P-T | GRAD. | TEMP | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
| 112 | 129 | 351 | -0.11 | 1004 | 766 | 1.00 | 125 | | | | | | | | | |
| 115 | 130 | 371 | -0.04 | 1116 | 1100 | 1.05 | 239.8 | | | | | | | | | |
| 123 | 201 | 412 | -0.02 | 1028 | 2600 | 1.77 | 353.5 | | | | | | | | | |
| 124 | 300 | 421 | 0 | 1114 | 3000 | 1.97 | 442 | | | | | | | | | |
| 125 | 400 | 443 | 0.01 | 1055 | 4000 | 1.50 | 483.3 | | | | | | | | | |
| 100 | 4950 | 379 | 0.01 | 1100 | 4750 | 1.11 | 480.5 | | | | | | | | | |
| 117 | 4950 | 415 | 0.02 | 1117 | 4750 | 1.17 | 491.3 | | | | | | | | | |
| 125 | 4750 | 478 | 0.05 | 1128 | 4750 | 1.25 | 477 | | | | | | | | | |
| 139 | 500 | 455 | 0.03 | 1139 | 5100 | 1.16 | 471.1 | | | | | | | | | |
| 150 | 5250 | 523 | 0.04 | 1150 | 5250 | 1.07 | 471 | | | | | | | | | |
| 161 | 5720 | 554 | 0.04 | 1201 | 5700 | 1.10 | 478.8 | | | | | | | | | |
| 172 | 5750 | 553 | 0.04 | 1212 | 5750 | 1.03 | 453 | | | | | | | | | |
| 125 | 1100 | 1229 | 0.04 | 1228 | 6100 | 1.01 | 485.5 | | | | | | | | | |
| 137 | 1100 | 171 | 0.04 | 1239 | 7000 | 1.14 | 520.4 | | | | | | | | | |
| 155 | 3100 | 210 | 0.05 | 1253 | 8200 | 1.29 | 500.7 | | | | | | | | | |
| 155 | 3110 | 2254 | 0.03 | 1255 | 8100 | 1.29 | 502.7 | | | | | | | | | |
| 125 | 3100 | 2259 | 0.03 | 1325 | 8100 | 1.29 | 512.7 | | | | | | | | | |
| 125 | 3100 | 2259 | 0.03 | 1355 | 8100 | 1.29 | 512.7 | | | | | | | | | |
| 125 | 3100 | 2259 | 0.03 | 1425 | 8100 | 1.29 | 512.7 | | | | | | | | | |
| 125 | 3100 | 2259 | 0.03 | 1455 | 8100 | 1.29 | 512.7 | | | | | | | | | |

COMMENTS:

76

UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B #12 S-32 9/1

OWNER UNION Oil Co. of CAL. FIELD Valle Grande
 CASING 20" @ 215'; 13 3/4" @ 1336 ELEV. 9212'
 LINER DESCRIPTION: 9 3/8" @ 3388 7" @ 3388 - TD

WELL NAME BAC #13
 DATE: 5-13-76
 ZERO POINT CL +12
 DEPTH 8176

TUBING DETAIL:

PURPOSE Buildup

REMARKS:

Elements 0-4750 PSI SN 13012 Clock 12 15 Turn

ELEMENT 100' - 782'P SERIAL NO. 10098 CLOCK 12 hr 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P0910 T0912 DISENGAGE STYLUS P1530 T1530

WELL HEAD 865

PICKUP @ 8100 TIME ON BOTTOM 1000-1430 MAX. F 563°

WELL STATUS

SHUT IN: 4/27/76 @ 1130 hrs ON PRODUCTION:

RATE

Pressure

Temperature

| TIME | DEPTH | DEFL. | P-T | GRAD. | COMP. | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|----|------|-------|-------|-----|-------|----|
| 1000 | 8100 | .921 | 2247 | | 7.003 | 1000 | 8100 | 1.298 | 563° | | | | | | | | |
| 1100 | 8100 | .921 | 2247 | | 7.003 | 1100 | 8100 | 1.298 | 563° | | | | | | | | |
| 1200 | 8100 | .921 | 2247 | | 7.003 | 1200 | 8100 | 1.298 | 563° | | | | | | | | |
| 1300 | 8100 | .921 | 2247 | | 7.003 | 1300 | 8100 | 1.298 | 563° | | | | | | | | |
| 1430 | 8100 | .921 | 2247 | | 7.003 | 1430 | 8100 | 1.298 | 563° | | | | | | | | |

COMMENTS:

BY: *[Signature]*

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B #13 533-P/T

OWNER UNION Oil Co. of CALIF. FIELD Valle Grande
 CASING 20" @ 215'; 13 3/8" @ 1336' ELEV. 9212'
 LINER DESCRIPTION: 9 1/2" @ 3380'; 7" @ 3386' - TD
 WELL NAME BACA #13
 DATE: 5-11-76
 ZERO POINT GL + 12
 DEPTH 8176

TUBING DETAIL:

PURPOSE Build up

REMARKS:

Element 0-4750 PSI SN 13012 clock 12hr 15 Turn

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

ENGAGE STYLUS P1030 T1035 DISENGAGE STYLUS P1358 T1350

WELL HEAD 378

PICKUP @ 8100 TIME ON BOTTOM 1115 - 1315 MAX. °F

WELL STATUS

SHUT IN: 4/27 176 @ 1130 hrs ON PRODUCTION:

RATE

Pressure

Temperature

| TIME | DEPTH | DEFL. | P-T | GRAD. | CO. 28 | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|--------|-------|--------|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| 5 | 8100 | .914 | 2230.4 | | +.003 | | | | | | | | | | | | |
| 5 | 8100 | .918 | 2239.9 | | +.003 | | | | | | | | | | | | |
| 1215 | 8100 | .918 | 2239.9 | | +.003 | | | | | | | | | | | | |
| 1245 | 8100 | .918 | 2239.9 | | +.003 | | | | | | | | | | | | |
| 1315 | 8100 | .918 | 2239.9 | | +.003 | | | | | | | | | | | | |

COMMENTS: Temperature Element is defective - ~~400~~
 Read 400°F below normal

BY: DAA KR

76

UNION

Jack

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B15-539-211

OWNER: UNION OIL CO. OF CALIF. FIELD: VALLE GRANDE WELL NAME: B-1-13
 CASING: 20" @ 213'; 15 7/8" @ 1330'; ELEV.: 9212' DATE: 5/19/76
 LINER DESCRIPTION: 9 5/8" @ 3380'; 7" @ 3380' - T.O. ZERO POINT: 66715'
 DEPTH: 8176'

TUBING DETAIL:

PURPOSE:

REMARKS:

P-O-4250 RSIC. 51N 15012 12/1/72 15
 ELEMENT T-309F-636F SERIAL NO. 100555 CLOCK 12/1/72 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0850 T-0855 DISENGAGE STYLUS P-1450 T-1454
 WELL HEAD 379
 PICKUP @ 8100 TIME ON BOTTOM 1213-1413 MAX. T - 557.2
 WELL STATUS shot in
 SHUT IN: 1/27/76 @ 1130 hrs ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

| TIME | DEPTH | DEFL. | P-T | GRAD. | CO ₂ R | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|------|-------|-------------------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| | 100 | .142 | 383 | | -010 | 0925 | 100 | .191 | 145 | | | | | | | | |
| 0952 | 1000 | .150 | 462 | | -1004 | 0958 | 1000 | .636 | 289 | | | | | | | | |
| 0954 | 2000 | .155 | 415 | | -1002 | 0950 | 2000 | .883 | 325 | | | | | | | | |
| 1002 | 3000 | .195 | 512 | | 0 | 1002 | 3000 | 1.052 | 430 | | | | | | | | |
| 1015 | 4000 | .241 | 563 | | +001 | 1015 | 4000 | 1.237 | 477 | | | | | | | | |
| 1030 | 4250 | .376 | 947 | | +001 | 1026 | 4250 | 1.257 | | | | | | | 483 | | |
| 1037 | 4500 | .412 | 1033 | | +102 | 1037 | 4500 | 1.273 | | | | | | | 488 | | |
| 1053 | 4750 | .447 | 1117 | | +102 | 1053 | 4750 | 1.227 | | | | | | | 474 | | |
| 1104 | 5000 | .483 | 1203 | | +003 | 1104 | 5000 | 1.231 | | | | | | | 475 | | |
| 1115 | 5250 | .515 | 1286 | | +003 | 1115 | 5250 | 1.262 | | | | | | | 484 | | |
| 1126 | 5500 | .553 | 1370 | | +003 | 1126 | 5500 | 1.290 | | | | | | | 493 | | |
| 1137 | 5750 | .590 | 1458 | | +004 | 1137 | 5750 | 1.312 | 499 | | | | | | | | |
| 1148 | 6000 | .624 | 1539 | | +004 | 1148 | 6000 | 1.306 | 497 | | | | | | | | |
| 1200 | 7000 | .766 | 1873 | | +004 | 1200 | 7000 | 1.417 | 530 | | | | | | | | |
| 1212 | 8000 | .903 | 2204 | | +003 | 1212 | 8000 | 1.510 | 556 | | | | | | | | |
| 1213 | 8100 | .917 | 2233 | | +003 | 1213 | 8100 | 1.511 | 557 | | | | | | | | |
| 1243 | 8100 | .917 | 2233 | | +003 | 1243 | 8100 | 1.513 | 557.2 | | | | | | | | |
| 1313 | 8100 | .917 | 2233 | | +003 | 1313 | 8100 | 1.513 | 557.2 | | | | | | | | |
| 1343 | 8100 | .917 | 2233 | | +003 | 1343 | 8100 | 1.513 | 557.2 | | | | | | | | |
| 1403 | 8100 | .917 | 2233 | | +003 | 1403 | 8100 | 1.513 | 557.2 | | | | | | | | |

COMMENTS:

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B13 528 T

OWNER UNION OIL CO. FIELD VALLE GRANDE WELL NAME BACH #13
 CASING 20" AT 215' 1 3/8" AT 1336 ELEV. 9272' DATE: 5/7/76
 LINER DESCRIPTION: 9 5/8" AT 5350 ZERO POINT CL + 12'
 7" AT 3346 - TD DEPTH 8176

TUBING DETAIL:

PURPOSE build up

REMARKS:

ELEMENT - 0-4750 SN 13012 CLOCK 12HR 15 TURN
 ELEMENT 32-686⁰⁴ SERIAL NO. 10055 CLOCK 12HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0925 T-0923 DISENGAGE STYLUS P-1540 T-1540
 WELL HEAD 390 PSIG
 PICKUP @ 51000 TIME ON BOTTOM 1300-1500 MAX. °F 556.9
 WELL STATUS
 SHUT IN: 4/27/76 1150 HRS ON PRODUCTION:
 RATE

TEMPERATURE PRESSURE

| TEMPERATURE | | | | | PRESSURE | | | | | | | | | | | | |
|-------------|-------|-------|-------|-------|----------|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
| 10 | 100 | 1.196 | 144.7 | | | | | | | | | | | | | | |
| 10 | 1000 | 1.655 | 259.0 | | | | | | | | | | | | | | |
| 1031 | 2000 | 1.883 | 351.6 | | | | | | | | | | | | | | |
| 1042 | 3000 | 1.081 | 429.7 | | | | | | | | | | | | | | |
| 1053 | 4000 | 1.237 | 476.9 | | | | | | | | | | | | | | |
| 1104 | 4250 | 1.258 | 483.1 | | | | | | | | | | | | | | |
| 1115 | 4500 | 1.272 | 487.2 | | | | | | | | | | | | | | |
| 1136 | 4750 | 1.227 | 473.7 | | | | | | | | | | | | | | |
| 1147 | 5000 | 1.230 | 471.8 | | | | | | | | | | | | | | |
| 1153 | 5250 | 1.261 | 484.0 | | | | | | | | | | | | | | |
| 1209 | 5500 | 1.290 | 492.6 | | | | | | | | | | | | | | |
| 1220 | 5750 | 1.312 | 499.0 | | | | | | | | | | | | | | |
| 1231 | 6000 | 1.306 | 497.3 | | | | | | | | | | | | | | |
| 1242 | 7000 | 1.416 | 529.6 | | | | | | | | | | | | | | |
| 258 | 8000 | 1.510 | 556.4 | | | | | | | | | | | | | | |
| 310 | 9100 | 1.511 | 556.6 | | | | | | | | | | | | | | |
| 330 | 9100 | 1.512 | 556.9 | | | | | | | | | | | | | | |
| 400 | 8100 | 1.512 | 556.9 | | | | | | | | | | | | | | |
| 450 | 9150 | 1.512 | 556.9 | | | | | | | | | | | | | | |
| 500 | 8100 | 1.512 | 556.9 | | | | | | | | | | | | | | |

NO SURVEY

COMMENTS:

76

UNION

GEOTHERMAL DIVISION

SUBSURFACE SURVEY Field Work Sheet

B13 528 Pit

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACH #13
 CASING 20" AT 215 13 3/8 AT 132 ELEV. 9211 DATE: 5/5/76
 LINER DESCRIPTION: 9 5/8 5380 ZERO POINT C.L.H.12
7" 5346 DEPTH 8176

TUBING DETAIL:

PURPOSE buildup

REMARKS:
 ELEMENT - 0-4750 PSI SN 13012 CLOCK 12 hr 15 T
 ELEMENT 52-686 1/2 SERIAL NO. 10055 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0955 T 0958 DISENGAGE STYLUS P-1340 T 1340
 WELL HEAD 400 PSIG
 PICKUP @ 800 TIME ON BOTTOM 1100 - 1300 MAX. *F 555.5
 WELL STATUS
 SHUT IN: 4/27/76 AT 1130 HR ON PRODUCTION:
 RATE

PRESSURE TEMPERATURE

| TIME | DEPTH | DEFL. | P-X | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 1100 | 8100 | .903 | 2209 | | +0.03 | 1100 | 8100 | 1.507 | 554.6 | | | | | | | | |
| 1130 | 8100 | .908 | 2216 | | +0.03 | 1130 | 8100 | 1.507 | 555.5 | | | | | | | | |
| 1200 | 8100 | .908 | 2216 | | +0.03 | 1200 | 8100 | 1.507 | 555.5 | | | | | | | | |
| 1230 | 8100 | .908 | 2216 | | +0.03 | 1230 | 8100 | 1.507 | 555.5 | | | | | | | | |
| 1300 | 8100 | .908 | 2216 | | +0.03 | 1300 | 8100 | 1.507 | 555.5 | | | | | | | | |

COMMENTS:

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B¹¹ 13 507 P/T

OWNER: UNION oil co of CAL. FIELD: Vallo Grande
CASING: 20" @ 215' 13 3/4" @ 1469 ELEV. 9211
LINER DESCRIPTION: 9 7/8" @ 3380
7" @ 3346

WELL NAME: B¹¹ 13
DATE: 5-4-76
ZERO POINT: 6L + 12
DEPTH: 8200

TUBING DETAIL:

PURPOSE: Buildup

REMARKS:

Element 0-4750 P/SR SN 13012 Clock 12hr 15 TURN

ELEMENT 82-188°P SERIAL NO. 10055 CLOCK 12hr 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P-0947 T-0952 DISENGAGE STYLUS P-1358 T-1458

WELL HEAD 400

PICKUP @ 8100 TIME ON BOTTOM MAX. °F 554.9

WELL STATUS

SHUT IN: 1130 hrs 4-27-76 ON PRODUCTION:

RATE

Pressure

Temperature

| TIME | DEPTH | DEFL. | P-T | GRAD. | CORR. | TIME | DEPTH | DEFL. | T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 1130 | 8100 | 899 | 2195 | | +0.03 | 1130 | 8100 | 1502 | 554.7 | | | | | | | | |
| 20 | 8100 | 903 | 2204 | | +0.03 | 1200 | 8100 | 1505 | 554.9 | | | | | | | | |
| 21 | 8100 | 904 | 2207 | | +0.03 | 1230 | 8100 | 1505 | 554.9 | | | | | | | | |
| 300 | 8100 | 904 | 2207 | | +0.03 | 1300 | 8100 | 1505 | 554.9 | | | | | | | | |
| 333 | 8100 | 904 | 2207 | | +0.03 | 1330 | 8100 | 1505 | 554.9 | | | | | | | | |

COMMENTS:

BY: [Signature]

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B# 13 S25 2/1

OWNER Union Oil of Cal. FIELD Valle Grande WELL NAME P# 13
 CASING 20" @ 215' 13 3/8" @ 1469' ELEV. 9211 DATE: 5-3-76
 LINER DESCRIPTION: 9 5/8" @ 3330' ZERO POINT CL + 12'
7" @ 3446' DEPTH 8200

TUBING DETAIL:

PURPOSE Buildup

REMARKS:

Element T 0-4750 DSP SN 13012 Clock 12hr 15 Turn

Element 8 7/8" - 686' P SERIAL NO. 10055 CLOCK 12hr 15 Turn STABILIZATION PERIOD

ENGAGE STYLUS P0935 T 0930 DISENGAGE STYLUS P1500 T 1500

WELL HEAD 400

PICKUP @ 8:00 TIME ON BOTTOM MAX. °F 550

WELL STATUS

SHUT IN: 1130 hrs 4-27-76 ON PRODUCTION:

RATE

Pressure

Temperature

| TIME | DEPTH | DEFL. | P-T | GRAD. | CD | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|------|-------|-------|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| 1030 | 8100 | .899 | 2194 | | 1.004 | 1030 | 8100 | 1.486 | 548 | | | | | | | | |
| | ↑ | .901 | 2200 | | 1.003 | 1100 | ↑ | 1.486 | 550 | | | | | | | | |
| | | .901 | 2200 | | | 1130 | ↑ | 1.486 | 550 | | | | | | | | |
| | | .901 | 2200 | | | 1200 | ↑ | 1.486 | 550 | | | | | | | | |
| | | .902 | 2202 | | | 1230 | ↑ | 1.486 | 550 | | | | | | | | |
| | | .902 | 2202 | | | 1300 | ↑ | 1.486 | 550 | | | | | | | | |
| | | .902 | 2202 | | | 1330 | ↑ | 1.486 | 550 | | | | | | | | |
| | | .903 | 2204 | | | 1400 | ↑ | 1.486 | 550 | | | | | | | | |
| | 8100 | .903 | 2204 | | 1.003 | 1430 | 8100 | 1.486 | 550 | | | | | | | | |

COMMENTS:

BY: [Signature]

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B13 525 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #73
 CASING 20" AT 215; 13 3/8" AT 1469 ELEV. 9211 DATE: 5/2/76
 LINER DESCRIPTION: 9 5/8" AT 3350' ZERO POINT GL #12
7" AT 3344 DEPTH

TUBING DETAIL:

PURPOSE buildup

REMARKS:

ELEMENT - 0-4750 PSI SN 13012 CLOCK 12 HR 15 TURN
 ELEMENT 82'-6.86' SERIAL NO. 10055 CLOCK 12 HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1142; T-1145 DISENGAGE STYLUS P-1647; T-1645
 WELL HEAD 402 PSIG
 PICKUP @ 9100 TIME ON BOTTOM 1505-1605 MAX. F 549
 WELL STATUS
 SHUT IN: 1130 hrs 4/27/76 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

| TIME | DEPTH | DEFL. | P-T | GRAD. | TO | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|-------|-------|-------|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| 1217 | 100 | 0.154 | 412 | | -7010 | 1217 | 100 | 0.255 | 165 | | | | | | | | |
| 1217 | 1000 | 0.162 | 1132 | | -7003 | 1229 | 1000 | 0.650 | 294 | | | | | | | | |
| 1217 | 2000 | 0.119 | 4119 | | -7001 | 1243 | 2000 | 0.810 | 354 | | | | | | | | |
| 1255 | 3000 | 0.136 | 4170 | | 0 | 1255 | 3000 | 1.065 | 425 | 305 | | | | | | | |
| 1305 | 4000 | 0.330 | 373 | | +1001 | 1305 | 4000 | 1.220 | 472 | 525 | | | | | | | |
| 1319 | 4250 | 0.361 | 923 | | +1001 | 1319 | 4250 | 1.244 | 479 | 520 | | | | | | | |
| 1330 | 4500 | 0.403 | 1012 | | +1002 | 1330 | 4500 | 1.263 | 485 | -595 | | | | | | | |
| 1341 | 4750 | 0.436 | 1091 | | +1002 | 1341 | 4750 | 1.274 | 483 | 610 | | | | | | | |
| 1352 | 5119 | 0.471 | 1174 | | +1002 | 1352 | 5000 | 1.318 | 501 | 695 | | | | | | | |
| 1403 | 5250 | 0.503 | 1263 | | +1003 | 1403 | 5250 | 1.332 | 505 | 710 | | | | | | | |
| 1414 | 5500 | 0.540 | 1339 | | +1003 | 1414 | 5500 | 1.341 | 508 | 720 | | | | | | | |
| 1425 | 5750 | 0.574 | 14120 | | +1003 | 1425 | 5750 | 1.338 | 507 | * | | | | | | | |
| 1436 | 6000 | 0.610 | 1526 | | +1004 | 1436 | 6000 | 1.343 | 503 | | | | | | | | |
| 1450 | 7000 | 0.713 | 1835 | | +1004 | 1450 | 7000 | 1.408 | 527 | | | | | | | | |
| 1503 | 8000 | 0.855 | 2022 | | +1004 | 1503 | 8000 | 1.479 | 543 | | | | | | | | |
| 1505 | 8100 | 0.875 | 2192 | | +1004 | 1505 | 8100 | 1.482 | 549 | | | | | | | | |
| 1535 | 8100 | 0.875 | 2192 | | +1004 | 1535 | 8100 | 1.482 | 549 | | | | | | | | |
| 1605 | 8100 | 0.875 | 2192 | | +1004 | 1605 | 8100 | 1.482 | 549 | | | | | | | | |

COMMENTS:

BY: B. C. C. P. R.

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

613 529 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACAP #13
 CASING 20 FT 2 1/8" AT 1469' ELEV. 9211 DATE: 5/1/76
 LINER DESCRIPTION: 9 3/8" AT 5530' ZERO POINT CL 712'
7" AT 5546' DEPTH 8176

TUBING DETAIL:

PURPOSE buildup

REMARKS:

ELEMENT - 0-4750 PSI SN 13012 CLOCK - 12 HR 15 TURN
 ELEMENT - 82°-686 °F SERIAL NO. 10055 CLOCK - 12 HR 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1127; T-1125 DISENGAGE STYLUS P-1655; T-1655
 WELL HEAD 400 PSIG
 PICKUP @ 8100 TIME ON BOTTOM 1210-1610 MAX. °F 547.8
 WELL STATUS 1130 HRS 9/27/76
 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 |
|------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 11 | 8160 | .887 | 2166 | | r.004 | 1210 | 8100 | 1.465 | 543.5 | | | | | | | | |
| 12 | " | .891 | 2176 | | " | 1240 | " | 1.478 | 547.2 | | | | | | | | |
| 13 | " | .891 | 2176 | | " | 1310 | " | 1.480 | 547.8 | | | | | | | | |
| 1340 | " | .891 | 2176 | | " | 1340 | " | 1.480 | 547.8 | | | | | | | | |
| 1410 | " | .892 | 2178 | | " | 1410 | " | 1.480 | 547.8 | | | | | | | | |
| 1440 | " | .892 | 2178 | | " | 1440 | " | 1.480 | 547.8 | | | | | | | | |
| 1510 | " | .892 | 2178 | | " | 1510 | " | 1.480 | 547.8 | | | | | | | | |
| 1540 | " | .892 | 2178 | | " | 1540 | " | 1.480 | 547.8 | | | | | | | | |
| 1610 | " | .892 | 2178 | | " | 1610 | " | 1.480 | 547.8 | | | | | | | | |

COMMENTS:

BY: 10.00

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B# 13 S.33 P/T

OWNER Union oil of cal. FIELD Umla Grande WELL NAME P# 13
 CASING 20" @ 815 - 13 3/8 @ 1464' ELEV. 9211 DATE: 4-30-76
 LINER DESCRIPTION: 9 5/8 - 3380 - 7" 3346 - 8200 ZERO POINT GL + 12
 DEPTH 8176

TUBING DETAIL:

PURPOSE *Buildup*

REMARKS:

Element T O-4750 DSP SN 13012 Clock 12hr 15 Turn

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

ENGAGE STYLUS

DISENGAGE STYLUS

WELL HEAD

PICKUP O

TIME ON BOTTOM

MAX. °F 546.1

WELL STATUS

SHUT IN: 1130 hrs 4-27-76 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 |
|------|-------|-------|--------|--------|------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 0521 | 100 | .148 | 397.6 | -1.010 | | 0521 | 100 | .282 | 173.9 | | | | | | | | |
| 0533 | 1000 | .157 | 419.5 | -1.003 | .024 | 0533 | 100 | .661 | 292.2 | | | | | | | | |
| 0544 | 2000 | .164 | 436.6 | -1.002 | .013 | 0544 | 2000 | .839 | 353.6 | | | | | | | | |
| 0555 | 3000 | .170 | 451.2 | -0- | .014 | 0555 | 3000 | 1.041 | 417.5 | | | | | | | | |
| 0606 | 4000 | .302 | 769.2 | 1.001 | .313 | 0606 | 4000 | 1.207 | 468.1 | | | | | | | | |
| 0617 | 5000 | .444 | 1109.8 | 1.002 | .341 | 0617 | 5000 | 1.322 | 502.0 | | | | | | | | |
| 0628 | 6000 | .583 | 1441.5 | 1.003 | .332 | 0628 | 6000 | 1.340 | 507.3 | | | | | | | | |
| 0638 | 7000 | .710 | 1768.5 | 1.004 | .327 | 0638 | 7000 | 1.384 | 510.7 | | | | | | | | |
| 0640 | 8100 | .867 | 2123.5 | 1.004 | | 0640 | 8100 | 1.440 | 536.4 | | | | | | | | |
| 0710 | 8100 | .876 | 2140.1 | 1.004 | .337 | 0710 | 8100 | 1.458 | 541.5 | | | | | | | | |
| 0740 | 8100 | .876 | 2140.1 | 1.004 | | 0740 | 8100 | 1.458 | 541.5 | | | | | | | | |
| 0810 | 8100 | .877 | 2142.5 | 1.004 | | 0810 | 8100 | 1.462 | 542.7 | | | | | | | | |
| 0840 | 8100 | .877 | 2142.5 | 1.004 | | 0840 | 8100 | 1.466 | 543.8 | | | | | | | | |
| 0910 | 8100 | .877 | 2142.5 | 1.004 | | 0910 | 8100 | 1.471 | 545.2 | | | | | | | | |
| 0940 | 8100 | .877 | 2142.5 | 1.004 | | 0940 | 8100 | 1.474 | 546.1 | | | | | | | | |

COMMENTS:

BY:

[Signature]

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

BA# 13-S 22 1/T

OWNER UNION oil of cal. FIELD Valle Grande WELL NAME B# 13
 CASING 20" @ 215' - 1398' @ 1454' ELEV. 9211 DATE: 4-29-76
 LINER DESCRIPTION: 9 5/8" - 3380 7" 3346 - 8200 ZERO POINT GL + 12
 DEPTH 8126

TUBING DETAIL:

PURPOSE Buildup

REMARKS:
 Element 0-4750 PSE SN 13012 clock 12 hr 15 TURN
 ELEMENT 82° - 686° P SERIAL NO. 10055 CLOCK 12 hr 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P 1347 T 1345 DISENGAGE STYLUS P 0315 T 0315
 WELL HEAD SEC ATTACHED CHAIRS
 PICKUP @ 8100 TIME ON BOTTOM 1415 - 0215 MAX. °F 542.4
 WELL STATUS 1130 hrs 4-27-76 SHUT IN
 SHUT IN: ON PRODUCTION:

RATE

Pressure Temperature

| TIME | DEPTH | DEFL. | P-T | GRAD. | CCPV | TIME | DEPTH | DEFL. | T-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|--------|-------|-------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 1415 | 8100 | 857 | 2095.0 | | +0.05 | 1415 | 8100 | 1.405 | 536.4 | | | | | | | | |
| 1415 | ↑ | 862 | 2106.4 | | +0.04 | 1445 | ↑ | 1.450 | 539.3 | | | | | | | | |
| 1515 | | 863 | 2109.3 | | ↑ | 1515 | | 1.451 | 539.5 | | | | | | | | |
| 1545 | | 864 | 2111.6 | | ↑ | 1545 | | 1.451 | 539.5 | | | | | | | | |
| 1615 | | 864 | 2111.6 | | | 1615 | | 1.452 | 539.8 | | | | | | | | |
| 1645 | | 865 | 2114.0 | | | 1645 | | 1.452 | 539.8 | | | | | | | | |
| 1715 | | 865 | 2114.0 | | | 1715 | | 1.453 | 540.1 | | | | | | | | |
| 1745 | | 866 | 2116.4 | | | 1745 | | 1.453 | 540.1 | | | | | | | | |
| 1815 | | 867 | 2118.8 | | | 1815 | | 1.454 | 540.4 | | | | | | | | |
| 1845 | | 867 | 2118.8 | | | 1845 | | 1.454 | 540.4 | | | | | | | | |
| 1915 | | 868 | 2121.1 | | | 1915 | | 1.455 | 540.7 | | | | | | | | |
| 1945 | | 869 | 2123.5 | | | 1945 | | 1.456 | 541.0 | | | | | | | | |
| 2015 | | 870 | 2125.9 | | | 2015 | | 1.456 | 541.0 | | | | | | | | |
| 2045 | | 870 | 2125.9 | | | 2045 | | 1.457 | 541.2 | | | | | | | | |
| 2115 | | 870 | 2125.9 | | | 2115 | | 1.457 | 541.2 | | | | | | | | |
| 2145 | | 871 | 2128.3 | | | 2145 | | 1.458 | 541.5 | | | | | | | | |
| 2215 | | 871 | 2128.3 | | | 2215 | | 1.459 | 541.8 | | | | | | | | |
| 2245 | | 872 | 2130.6 | | | 2245 | | 1.459 | 541.8 | | | | | | | | |
| 2315 | | 873 | 2133.0 | | | 2315 | | 1.459 | 541.8 | | | | | | | | |
| 2345 | | 873 | 2133.0 | | | 2345 | | 1.460 | 542.1 | | | | | | | | |
| 0015 | | 873 | 2133.0 | | | 0015 | | 1.460 | 542.1 | | | | | | | | |
| 0045 | | 874 | 2135.4 | | | 0045 | | 1.460 | 542.1 | | | | | | | | |
| 0115 | | 875 | 2137.8 | | | 0115 | | 1.460 | 542.1 | | | | | | | | |
| 0145 | | 876 | 2140.1 | | | 0145 | ↓ | 1.460 | 542.1 | | | | | | | | |
| 215 | 8100 | 876 | 2140.1 | | +0.04 | 2115 | 8100 | 1.461 | 542.4 | | | | | | | | |

COMMENTS:

BY: *[Signature]*

ARCO
RECORDING CHARTS
OF 1200 PSI
CHARTS



OFF.

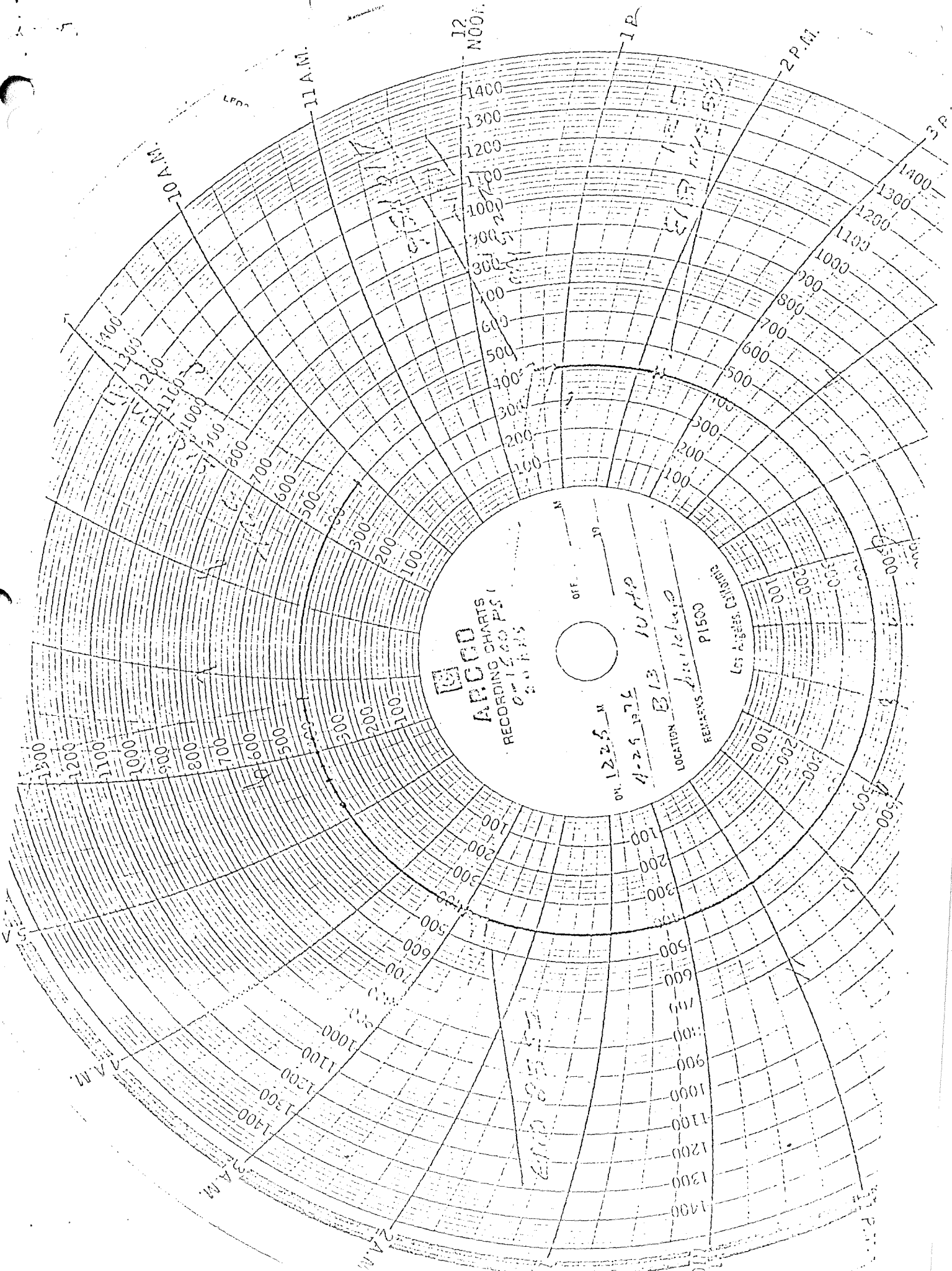
ON 1225 M

4-25-75 10:42

LOCATION - E 13 10 42

RELEASES P1550

LES 12-25-75



76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B#13 S 20 B/1

OWNER Union Oil Co of Cal. FIELD UAlto Grande
 CASING 20" @ 215 - 13 3/8 @ 1169 ELEV. 9211
 LINER DESCRIPTION: 4 3/4 3380 - 7" 3346' - 8200'

WELL NAME Brea #13
 DATE: 4-29-76
 ZERO POINT GL T-12
 DEPTH 8176

TUBING DETAIL:

PURPOSE Buildup

REMARKS:

Element - 0-4750 SN 13012 Clock 12hr 15T

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

ENGAGE STYLUS P2353 T 2355 DISENGAGE STYLUS P1309 T1310

WELL HEAD

PICKUP @ 8100 TIME ON BOTTOM 0025 - 1225 MAX. °F 539.8

WELL STATUS

SHUT IN: 1130 hrs 4-27-76 ON PRODUCTION:

RATE

Pressure

Temperature

| TIME | DEPTH | DEFL. | P-T | GRAD. | COV% | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|--------|-------|-------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 0025 | 8100 | .831 | 2033.3 | | 7.005 | 0025 | 8100 | 1.405 | 526.4 | | | | | | | | |
| | ↑ | .833 | 2033.0 | | 7.004 | 0055 | ↑ | 1.443 | 537.3 | | | | | | | | |
| | | .836 | 2045.1 | | ↑ | 0125 | | 1.444 | 537.5 | | | | | | | | |
| 0155 | | .837 | 2047.5 | | | 0155 | | 1.444 | 537.5 | | | | | | | | |
| 0225 | | .839 | 2052.3 | | | 0225 | | 1.445 | 537.8 | | | | | | | | |
| 0255 | | .840 | 2054.6 | | | 0255 | | 1.445 | 537.8 | | | | | | | | |
| 0325 | | .841 | 2057.0 | | | 0325 | | 1.445 | 537.8 | | | | | | | | |
| 0355 | | .841 | 2057.0 | | | 0355 | | 1.445 | 537.2 | | | | | | | | |
| 0425 | | .841 | 2057.0 | | | 0425 | | 1.446 | 538.1 | | | | | | | | |
| 0455 | | .842 | 2059.4 | | | 0455 | | 1.446 | 538.1 | | | | | | | | |
| 0525 | | .843 | 2061.7 | | | 0525 | | 1.446 | 538.1 | | | | | | | | |
| 0555 | | .844 | 2064.1 | | | 0555 | | 1.446 | 538.1 | | | | | | | | |
| 0625 | | .845 | 2066.6 | | | 0625 | | 1.446 | 538.1 | | | | | | | | |
| 0655 | | .847 | 2071.3 | | | 0655 | | 1.447 | 538.4 | | | | | | | | |
| 0725 | | .849 | 2076.0 | | | 0725 | | 1.447 | 538.4 | | | | | | | | |
| 0755 | | .851 | 2080.8 | | | 0755 | | 1.448 | 538.7 | | | | | | | | |
| 0825 | | .852 | 2083.1 | | | 0825 | | 1.448 | 538.7 | | | | | | | | |
| 0855 | | .853 | 2085.5 | | | 0855 | | 1.449 | 539.0 | | | | | | | | |
| 0925 | | .854 | 2087.9 | | | 0925 | | 1.449 | 539.0 | | | | | | | | |
| 0955 | | .855 | 2090.3 | | | 0955 | | 1.449 | 539.0 | | | | | | | | |
| 1025 | | .856 | 2092.6 | | | 1025 | | 1.449 | 539.0 | | | | | | | | |
| 1055 | | .857 | 2095.0 | | | 1055 | | 1.450 | 539.3 | | | | | | | | |
| 1125 | | .858 | 2097.4 | | | 1125 | | 1.451 | 539.5 | | | | | | | | |
| 1155 | | .859 | 2099.8 | | | 1155 | | 1.451 | 539.5 | | | | | | | | |
| 1225 | 8100 | .860 | 2102.1 | | 7.004 | 1225 | 8100 | 1.452 | 539.2 | | | | | | | | |

COMMENTS:

BY: *[Signature]*

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UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B# 13-S-20-P/T

OWNER Union Oil Co of Cal. Field Valle Grande

WELL NAME B# 13

CASING 20" @ 215' - 13 1/2" @ 1469' ELEV. 9211

DATE: 4-28-76

LINER DESCRIPTION: 7 1/2" @ 3380
7" 3346 - 8200'

ZERO POINT GL + 12'

DEPTH 8176

TUBING DETAIL:

PURPOSE Buildup

REMARKS:

Element - 0-4750 PSI SN 13012 Clock 12hr 15 Turn

Element 82' - 686' F SERIAL NO. 10055 CLOCK 12hr 15 Turn STABILIZATION PERIOD

ENGAGE STYLUS P0843-T 0849 DISENGAGE STYLUS P22250 T2250

WELL HEAD

PICKUP @ 8100 TIME ON BOTTOM 0945-2145 MAX. #F 537.8

WELL STATUS

SHUT IN: 1130 hrs - 4-27-76 ON PRODUCTION:

RATE

Pressure

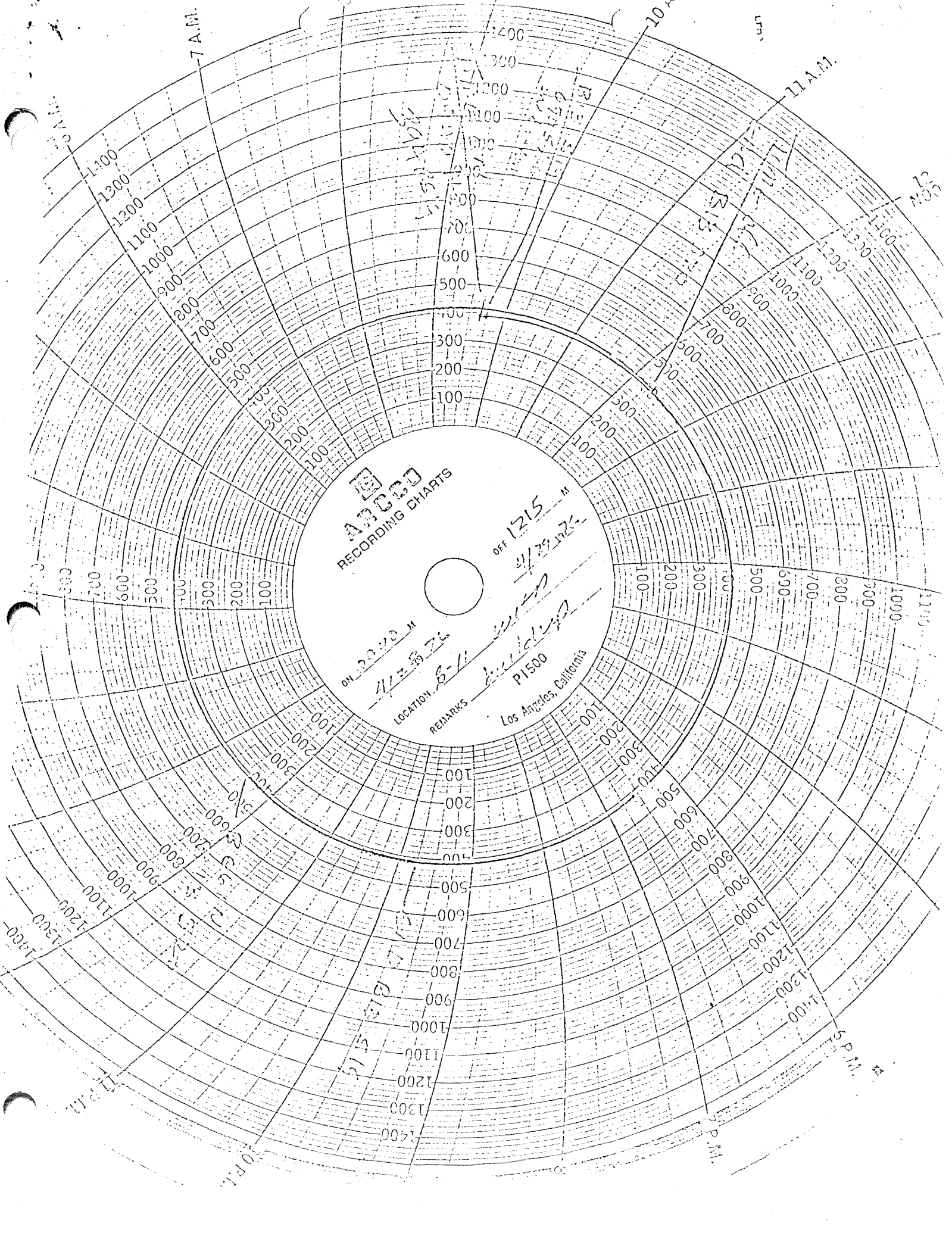
Temperature

| TIME | DEPTH | DEFL. | P-T | GRAD. | Corr | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|--------|-------|-------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 0945 | 8100 | .789 | 1937.2 | | 7.005 | 0945 | 8100 | 1.378 | 518.5 | | | | | | | | |
| 10 | ^ | .794 | 1945.1 | | 7.004 | 1015 | ^ | 1.433 | 534.4 | | | | | | | | |
| 10 | | .794 | 1945.1 | | ^ | 1045 | | 1.433 | 534.4 | | | | | | | | |
| 1115 | | .797 | 1952.3 | | | 1115 | | 1.434 | 534.7 | | | | | | | | |
| 1145 | | .797 | 1952.3 | | | 1145 | | 1.435 | 535.0 | | | | | | | | |
| 1215 | | .801 | 1961.8 | | | 1215 | | 1.436 | 535.3 | | | | | | | | |
| 1245 | | .801 | 1961.8 | | | 1245 | | 1.436 | 535.3 | | | | | | | | |
| 1315 | | .803 | 1966.6 | | | 1315 | | 1.437 | 535.5 | | | | | | | | |
| 1345 | | .804 | 1969.0 | | | 1345 | | 1.437 | 535.5 | | | | | | | | |
| 1415 | | .806 | 1973.7 | | | 1415 | | 1.439 | 536.1 | | | | | | | | |
| 1445 | | .807 | 1976.1 | | | 1445 | | 1.440 | 536.4 | | | | | | | | |
| 1515 | | .810 | 1983.3 | | | 1515 | | 1.442 | 536.9 | | | | | | | | |
| 1545 | | .810 | 1983.3 | | | 1545 | | 1.445 | 537.0 | | | | | | | | |
| 1615 | | .813 | 1990.5 | | | 1615 | | 1.445 | 537.0 | | | | | | | | |
| 1645 | | .814 | 1992.8 | | | 1645 | | 1.445 | 537.0 | | | | | | | | |
| 1715 | | .815 | 1997.6 | | | 1715 | | 1.445 | 537.0 | | | | | | | | |
| 1745 | | .818 | 2002.4 | | | 1745 | | | | | | | | | | | |
| 1815 | | .819 | 2004.7 | | | 1815 | | | | | | | | | | | |
| 1845 | | .822 | 2011.9 | | | 1845 | | | | | | | | | | | |
| 1915 | | .824 | 2016.6 | | | 1915 | | | | | | | | | | | |
| 1945 | | .825 | 2019.0 | | | 1945 | | | | | | | | | | | |
| 2015 | | .826 | 2021.4 | | | 2015 | | | | | | | | | | | |
| 2045 | | .827 | 2023.8 | | | 2045 | | | | | | | | | | | |
| 2115 | | .828 | 2026.1 | | | 2115 | | | | | | | | | | | |
| 2145 | 8100 | .828 | 2026.1 | | 7.004 | 2145 | 8100 | | | | | | | | | | |

Electrical Stillhead

COMMENTS:

BY: *[Signature]*



APCWD
RECORDING CHARTS

ON 20-20 M
OFF 1215 M
4/28 1976
LOCATION: 8-11
REMARKS: P1500
Los Angeles, California

MAY 15 1976

APCWD

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

613 518
613-13 PIT

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BAC11 #13
 CASING 2" AT 215; 1 3/8" - 1469' ELEV. 9211 DATE: 4/25/76
 LINER DESCRIPTION: 9 5/8 3380 ZERO POINT C.L. +12'
7" 3346 - 8200' DEPTH 8476 8176

TUBING DETAIL:

PURPOSE buildup

REMARKS:

ELEMENT - 0-4750 PSI SN 13012 CLOCK - 12 hr. 15 TURN
 ELEMENT 82-656' SERIAL NO. 10058 CLOCK - 12 hr. 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1845 T-1850 DISENGAGE STYLUS P-0315 T-0815
 WELL HEAD SEE ATTACHED CHARTS
 PICKUP @ 8100 TIME ON BOTTOM 1915 hr - 0715 MAX. °F 531.6
 WELL STATUS
 SHUT IN: 1130 hrs 7/27/76 ON PRODUCTION:
 RATE

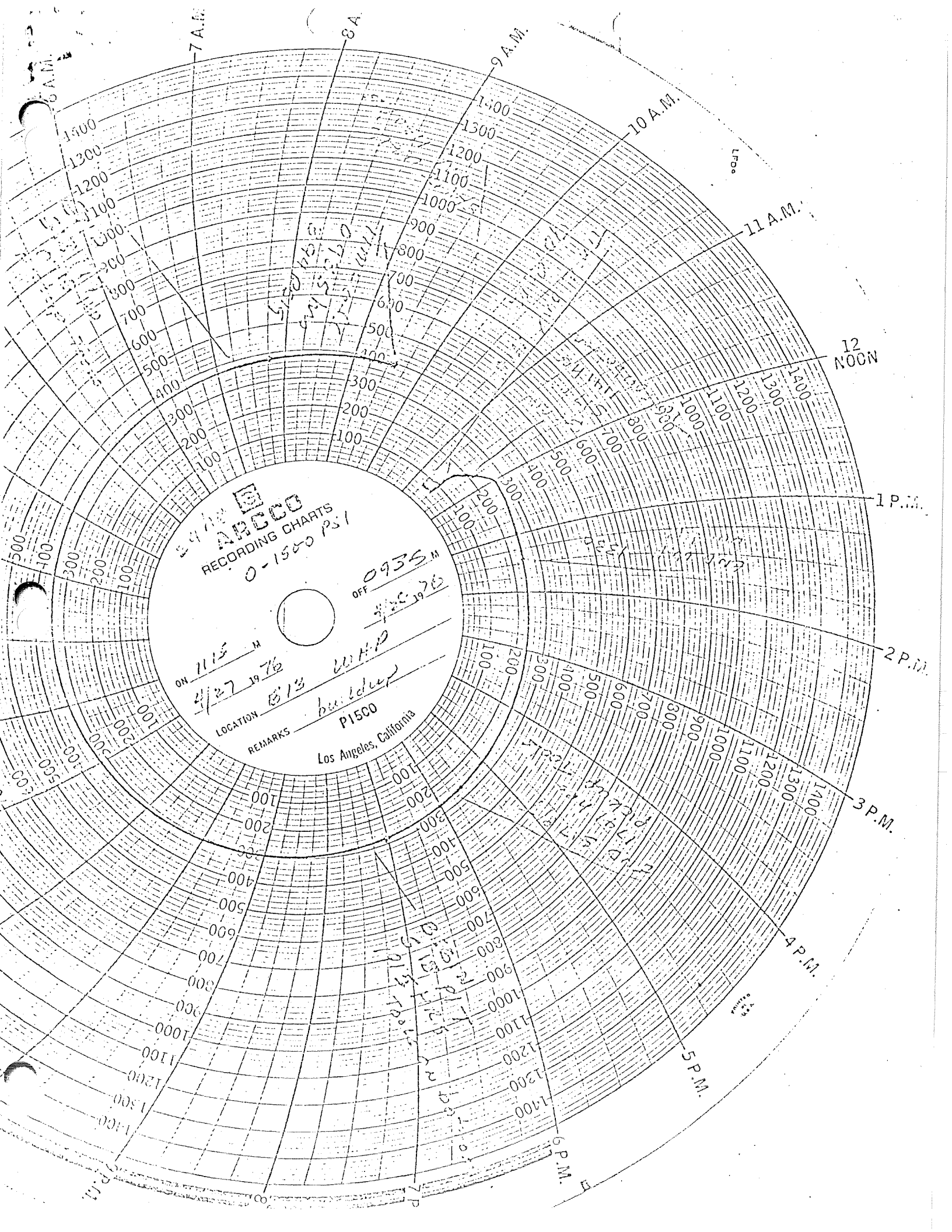
PRESSURE

TEMPERATURE

| TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 1915 | 8100 | .715 | 1757 | | 1.004 | 1915 | 8100 | 1.340 | 507.3 | | | | | | | | |
| | | .724 | 1778 | | | 45 | | 1.376 | 523.8 | | | | | | | | |
| 2015 | | .727 | 1785 | | | 2015 | | 1.398 | 524.4 | | | | | | | | |
| 45 | | .729 | 1790 | | | 45 | | 1.401 | 525.3 | | | | | | | | |
| 2115 | | .731 | 1795 | | | 2115 | | 1.401 | 525.3 | | | | | | | | |
| 45 | | .734 | 1802 | | | 2145 | | 1.403 | 525.6 | | | | | | | | |
| 2215 | | .738 | 1811 | | | 2215 | | 1.405 | 526.4 | | | | | | | | |
| 45 | | .742 | 1821 | | | 2245 | | 1.407 | 527.0 | | | | | | | | |
| 2315 | | .745 | 1828 | | | 2315 | | 1.408 | 527.3 | | | | | | | | |
| 45 | | .749 | 1838 | | | 45 | | 1.410 | 527.9 | | | | | | | | |
| 0015 | | .752 | 1845 | | | 0015 | | 1.412 | 528.4 | | | | | | | | |
| 45 | | .755 | 1852 | | | 45 | | 1.412 | 528.4 | | | | | | | | |
| 0115 | | .759 | 1861 | | | 0115 | | 1.414 | 529.0 | | | | | | | | |
| 45 | | .762 | 1868 | | | 45 | | 1.414 | 529.0 | | | | | | | | |
| 0215 | | .765 | 1876 | | | 0215 | | 1.416 | 529.6 | | | | | | | | |
| 45 | | .767 | 1881 | | | 45 | | 1.416 | 529.4 | | | | | | | | |
| 0315 | | .769 | 1885 | | | 0315 | | 1.418 | 530.1 | | | | | | | | |
| 45 | | .771 | 1890 | | | 0345 | | 1.418 | 530.1 | | | | | | | | |
| 0415 | | .774 | 1897 | | | 0415 | | 1.420 | 530.7 | | | | | | | | |
| 45 | | .776 | 1902 | | | 45 | | 1.420 | 530.7 | | | | | | | | |
| 0515 | | .778 | 1907 | | | 0515 | | 1.422 | 531.3 | | | | | | | | |
| 45 | | .780 | 1911 | | | 45 | | 1.422 | 531.3 | | | | | | | | |
| 0615 | | .782 | 1916 | | | 0615 | | 1.423 | 531.6 | | | | | | | | |
| 45 | | .784 | 1921 | | | 45 | | 1.423 | 531.6 | | | | | | | | |
| 0715 | | .786 | 1926 | | | 0715 | | 1.423 | 531.6 | | | | | | | | |

COMMENTS:

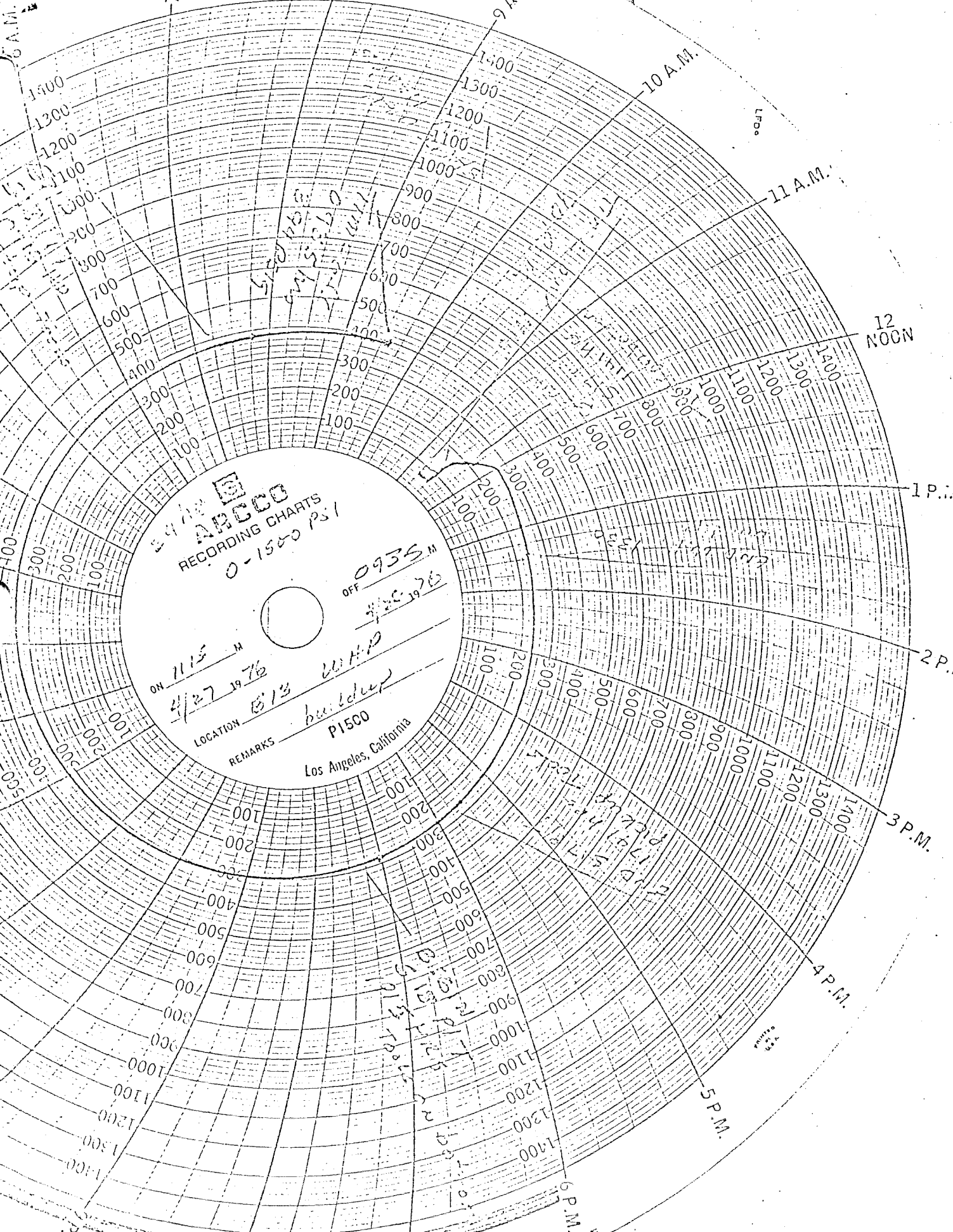
BY: LB RB



ARCO
RECORDING CHARTS
0-1500 PSI

ON 1115 M
4/27 1976
LOCATION B13 WHP
REMARKS build up
PI500
Los Angeles, California
OFF 0935 M
4:25 1976

5:20 1976
11:00 1976



76

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B #13 - S 18 PIT

OWNER UNION CIT CO. OF CAL. FIELD VALLE GRANDE

WELL NAME B #13

CASING 2 1/2" @ 215' - 13 3/8" @ 1469' ELEV. 9211

DATE: 4-27-76

LINER DESCRIPTION: 9 5/8" @ 3380, 7" 3380' - 8200'

ZERO POINT GL + 12'

DEPTH 8176

TUBING DETAIL:

PURPOSE

REMARKS:

PSI - 0 - 4750 SN 13012 12 hr 15 T

ELEMENT Temp. 82° - 686° SERIAL NO. 10056 CLOCK 12 hr 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P1024 T1057 DISENGAGE STYLUS P1814 - T-1314

WELL HEAD See Attached Charts

PICKUP @ 8100 TIME ON BOTTOM 1141 - 1741 MAX. °F 521.8

WELL STATUS

SHUT IN: 1130 hrs 4-27-76 ON PRODUCTION:

RATE

| Temp Perfor | | | | | | Temperature | | | | | | Pressure | | | | | |
|-------------|-------|-------|-------|-------|----|-------------|-------|-------|-------|-------|----|----------|-------|-------|--------|-------|--------|
| TIME | DEPTH | DEFL. | Y-T | GRAD. | ID | TIME | DEPTH | DEFL. | Y-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-Y | GRAD. | CRP |
| 141 | 8100 | 1271 | 486.9 | | | 1741 | 8100 | 1389 | 521.8 | | | 1141 | 8100 | .384 | 966.3 | | + .002 |
| 142 | ↑ | 1300 | 495.5 | | | | ↑ | | | | | 1142 | ↑ | .392 | 985.6 | | + .002 |
| 143 | | 1325 | 502.7 | | | | | | | | | 1143 | | .400 | 1004.8 | | + .002 |
| 144 | | 1336 | 506.1 | | | | | | | | | 1144 | | .410 | 1028.6 | | + .002 |
| 145 | | 1339 | 507.0 | | | | | | | | | 1145 | | .417 | 1045.3 | | + .002 |
| 146 | | 1342 | 507.9 | | | | | | | | | 1146 | | .426 | 1066.8 | | + .002 |
| 147 | | 1346 | 509.1 | | | | | | | | | 1147 | | .434 | 1085.9 | | + .003 |
| 148 | | 1347 | 509.4 | | | | | | | | | 1148 | | .443 | 1107.4 | | + .003 |
| 149 | | 1348 | 509.7 | | | | | | | | | 1149 | | | | | |
| 150 | | 1349 | 510.0 | | | | | | | | | | | | | | |
| 151 | | 1349 | 510.0 | | | | | | | | | | | | | | |
| 156 | | 1352 | 510.8 | | | | | | | | | | | | | | |
| 201 | | 1353 | 511.1 | | | | | | | | | | | | | | |
| 206 | | 1353 | 511.1 | | | | | | | | | | | | | | |
| 211 | | 1353 | 511.1 | | | | | | | | | | | | | | |
| 226 | | 1354 | 511.4 | | | | | | | | | | | | | | |
| 341 | | 1355 | 511.7 | | | | | | | | | | | | | | |
| 256 | | 1358 | 512.6 | | | | | | | | | | | | | | |
| 311 | | 1359 | 512.9 | | | | | | | | | | | | | | |
| 336 | | 1359 | 512.9 | | | | | | | | | | | | | | |
| 341 | | 1360 | 513.2 | | | | | | | | | | | | | | |
| 411 | | 1366 | 515.0 | | | | | | | | | | | | | | |
| 341 | | 1368 | 515.6 | | | | | | | | | | | | | | |
| 511 | | 1371 | 516.4 | | | | | | | | | | | | | | |
| 541 | | 1373 | 517.0 | | | | | | | | | | | | | | |
| 611 | | 1373 | 518.5 | | | | | | | | | | | | | | |
| | | 1381 | 519.4 | | | | | | | | | | | | | | |
| | 8100 | 1385 | 520.6 | | | | 8100 | | | | | 1741 | 8100 | 721 | 1770.9 | | + .004 |

CLOCK STOPPED

COMMENTS: Calibration check w/ D.W.I. def. .816 CORRECTION BASED ON 100°
AT 75 °F COL. +.002
C def. .818
C PSI = 2002.0

BY: AB PAB

4/27/75

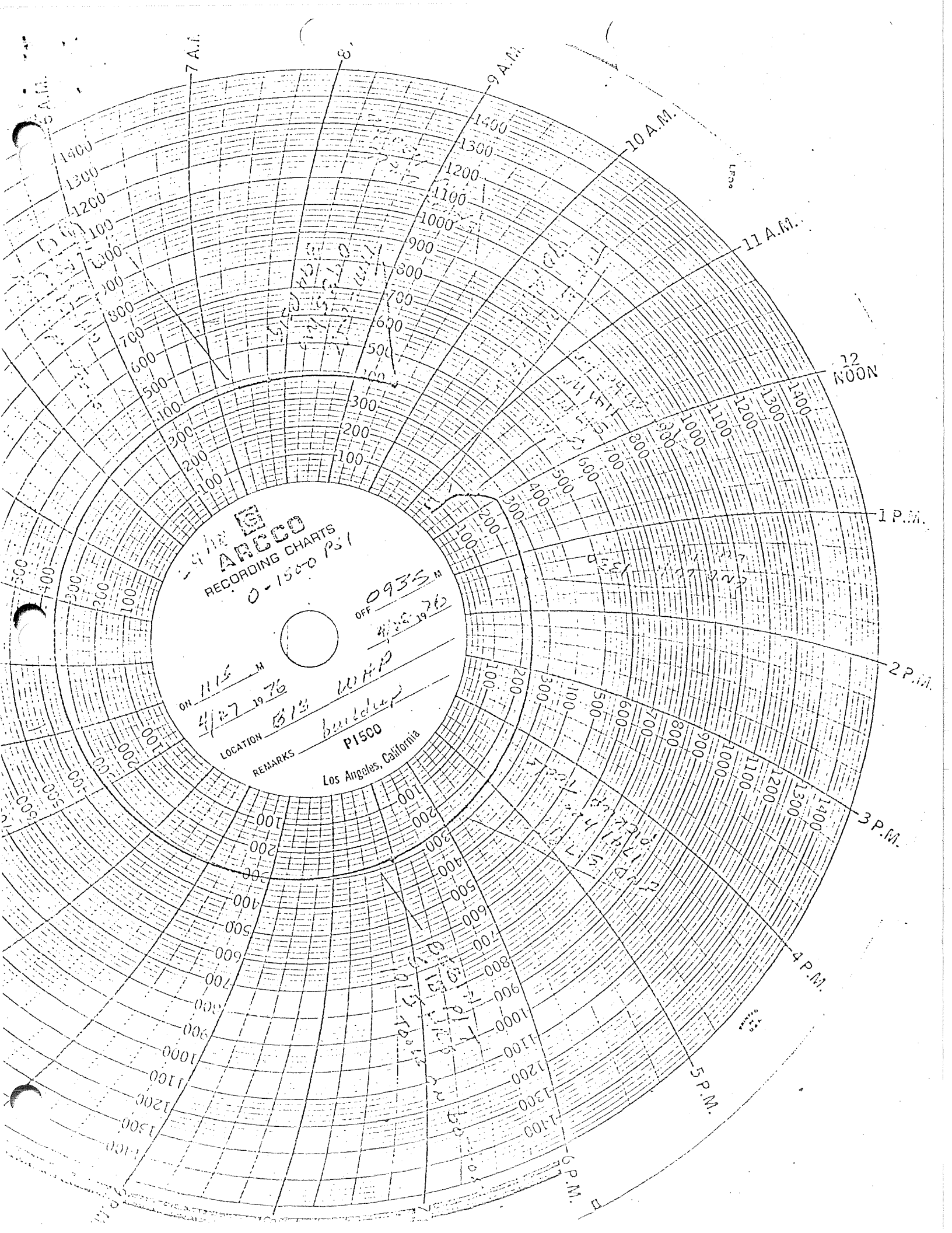
WELL HEAD PRESSURE BUILD UP

WELL: BACA #13

DATE: 4/27/75

TIME SHUT IN: 1130 HRS.

| TIME HRS: MIN | Pwh PSIG |
|------------------|-------------|
| 11:30 | 93 |
| 11:31 | 129 |
| 11:32 | 157 |
| 11:33 | 168 |
| 11:34 | 174 |
| 11:35 | 177 |
| 11:36 | 180 |
| 11:37 | 184 |
| 11:38 | 189 |
| 11:39 | 194 |
| 11:40 | 197 |
| 11:45 | 212 |
| 11:50 | 232 |
| 11:55 | 253 |
| 12:00 | 261 |
| 12:05 | 270 |
| 12:10 | 270 |
| 12:15 | 268 |
| 12:20 | 266 |
| 12:25 | 264 |
| 12:30 | 260 |
| 12:45 | 256 |
| 13:00 | 248 |
| 13:15 | 246 |
| 13:30 | 243 |



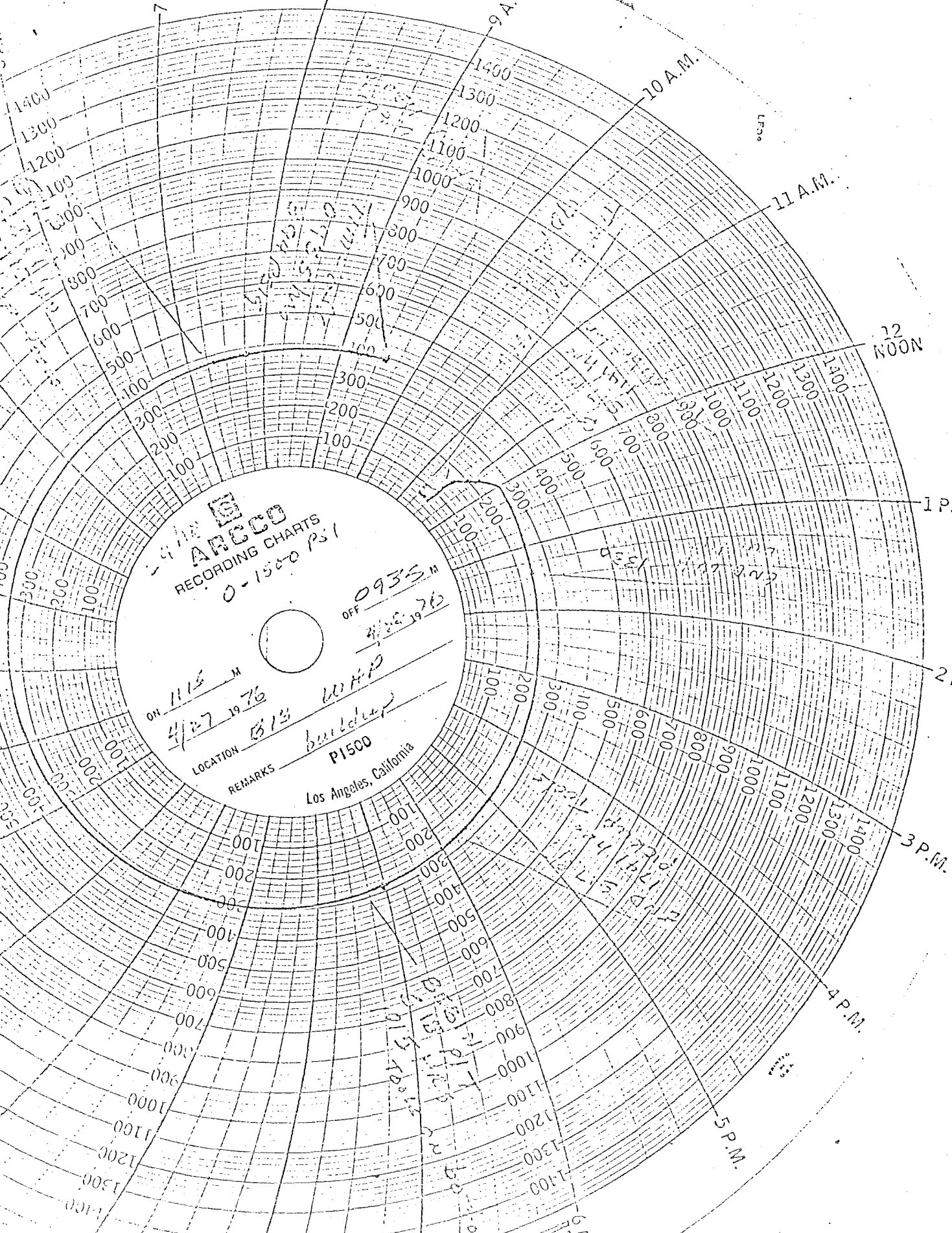
ARCO
RECORDING CHARTS
0-1500 PSI

ON 11:15 M
4/27 1976
OFF 09:35 M
4/28 1976
LOCATION B13
REMARKS Building P1500
Los Angeles, California

Handwritten notes in the upper left quadrant, including '1000' and '1100'.

Handwritten notes in the middle right quadrant, including '1300' and '1400'.

Handwritten notes in the lower left quadrant, including '1000' and '1100'.



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UNION

GEOHERMAL DIVISION

JOHN D. HARTZ
DEL PYLE
NO 6 1975
OCT 8 1975

SUBSURFACE SURVEY
Field Work Sheet

BACA #13-516-P/T

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA #13
 CASING 20" @ 215' ; 13 3/8" - 1469' ELEV. 9211' DATE: 10/27/75
 LINER DESCRIPTION: 9 5/8" - 3380' , 7" - 3380' - 8200' ZERO POINT 6L+12"
 DEPTH 8176'

TUBING DETAIL:

PURPOSE

REMARKS:

P-O-1050 - 7198 12HR 1337.5L 15
 ELEMENT T-82°F - 686°F SERIAL NO. 10055 CLOCK 12HR 14091-L TURN/5 STABILIZATION PERIOD
 ENGAGE STYLUS P-0910 T-0905 DISENGAGE STYLUS P-1398 - T-1398
 WELL HEAD 6.5 PSI G.
 PICKUP @ 8176' TIME ON BOTTOM 1147-1247 MAX. F 584.7
 WELL STATUS SHUT IN
 SHUT IN: 1040 HRS - 2/25/75 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

| T | DEPTH | DEFL. | P - T | GRAD. | LOG CORR. | TIME | DEPTH | DEFL. | P - T | GRAD. | ID | TIME | DEPTH | DEFL. | P - T | GRAD. | ID |
|------|-------|-------|--------|-------|-----------|------|-------|-------|-------|-------|----|------|-------|-------|-------|-------|----|
| 10 | 100 | .030 | 676 | 0 | 0 | - | 100 | .020 | 88.1 | | | | | | | | |
| 10 | 1000 | .025 | 56.3 | 0 | 0 | - | 1000 | .616 | 283 | | | | | | | | |
| 1026 | 2000 | .079 | 177.3 | .121 | 0 | - | 2000 | 1.534 | 352 | | | | | | | | |
| 1038 | 3000 | .250 | 557.3 | .382 | 0 | - | 3000 | 1.188 | 462.3 | | | | | | | | |
| 1053 | 4000 | .411 | 900.4 | .341 | +1.001 | - | 4000 | 1.312 | 50.2 | | | | | | | | |
| 1105 | 5000 | .569 | 1233.2 | .333 | +1.004 | - | 5000 | 1.247 | 480 | | | | | | | | |
| 1118 | 6000 | .734 | 1500.5 | .347 | +1.006 | - | 6000 | 1.292 | 493.1 | | | | | | | | |
| 1131 | 7000 | .891 | 1913.1 | .333 | +1.003 | - | 7000 | 1.474 | 546.1 | | | | | | | | |
| 1144 | 8000 | 1.045 | 2240.1 | .337 | +1.001 | - | 8000 | 1.603 | 583 | | | | | | | | |
| 1247 | 8176 | 1.066 | 2255.1 | .261 | +1.001 | - | 8176 | 1.611 | 585 | | | | | | | | |
| 1217 | 8176 | 1.066 | 2255.1 | " | " | - | 8176 | 1.611 | 585 | | | | | | | | |
| 1247 | 8176 | 1.066 | 2255.1 | " | " | - | 8176 | 1.611 | 585 | | | | | | | | |

COMMENTS:

BY: AMI RR

16

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

BACA#13-S16-T

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA#13
 CASING 30" @ 215', 13 3/8" - 1469' ELEV. 9211' DATE: 9/27/75
 LINER DESCRIPTION: 9 5/8" @ 3350', 7" - 3350' - 8700' ZERO POINT 66+19'
 DEPTH 8176'

HOLE DESCRIPTION:

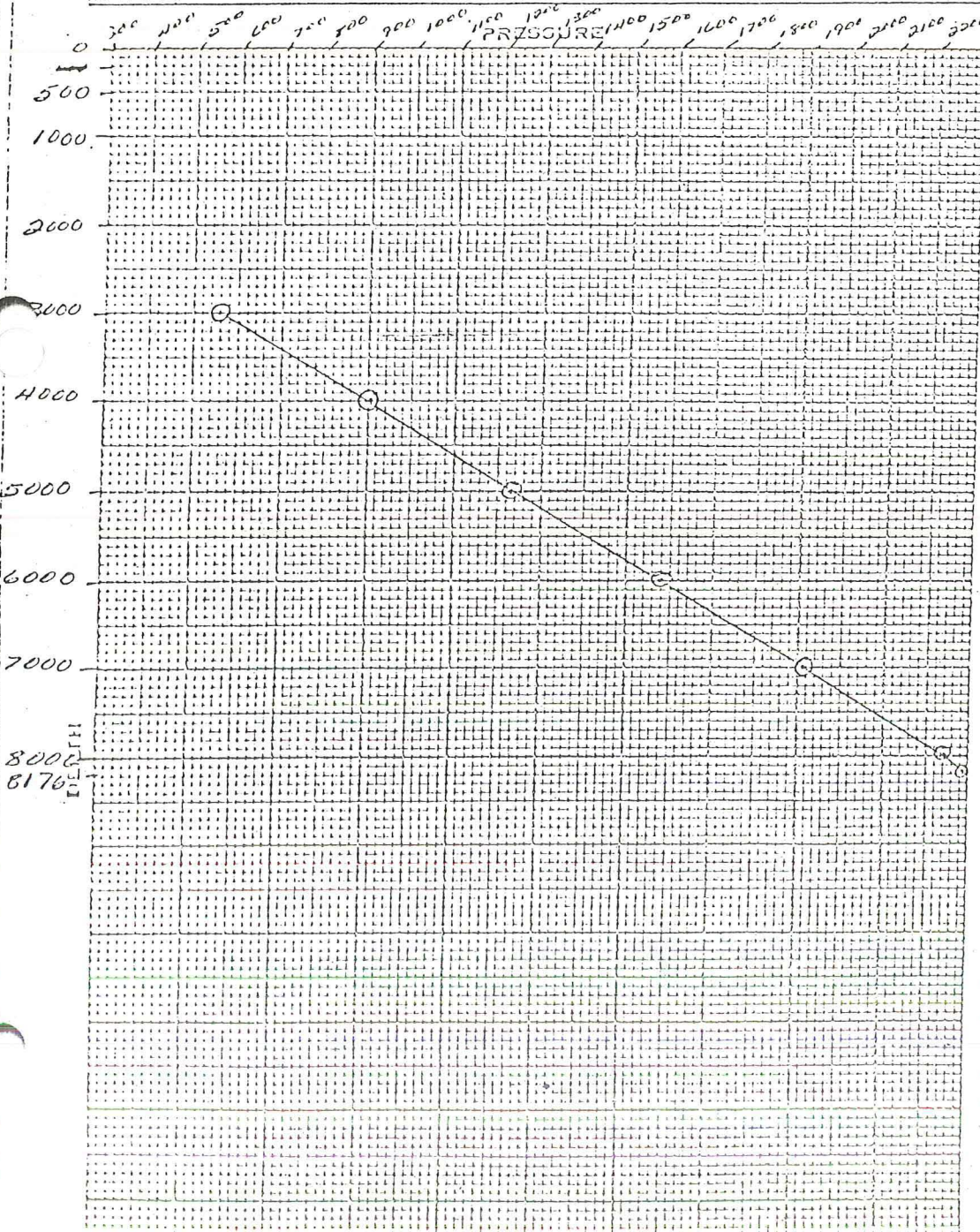
INSTRUMENT 0-4250
 SERIAL NO. 7198

PURPOSE:

MAX. TEMP 585 °F @ 8176'

REMARKS:

STABILIZATION PERIOD



| PRESSURES. | GAUGE | DEPTH |
|-------------|-------|--------|
| CASING, PSI | 65 | 66+19' |

| DEPTH | PRESSURE | GRADIENT |
|-------|----------|----------|
| 100 | 66 | 0 |
| 1000 | 56.3 | 0 |
| 2000 | 177.3 | .121 |
| 3000 | 559.3 | .359 |
| 4000 | 900.4 | .341 |
| 5000 | 1233.2 | .333 |
| 6000 | 1580.5 | .347 |
| 7000 | 1913.1 | .333 |
| 8000 | 2240.4 | .327 |
| 8176 | 2285.1 | .261 |

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

3#13-SK-7H

216

OWNER UNION OIL CO. OF CALIF FIELD UNITE GYHWD WELL NAME BACH #13
 CASING 20" O.D. 215' - 13 7/8" - 1469 ELEV. _____ DATE: 9-27-75
 LINE DESCRIPTION: 9 3/8" - 3380 - 7" 3380' - 8200' ZERO POINT GL + 12'
 DEPTH 8176

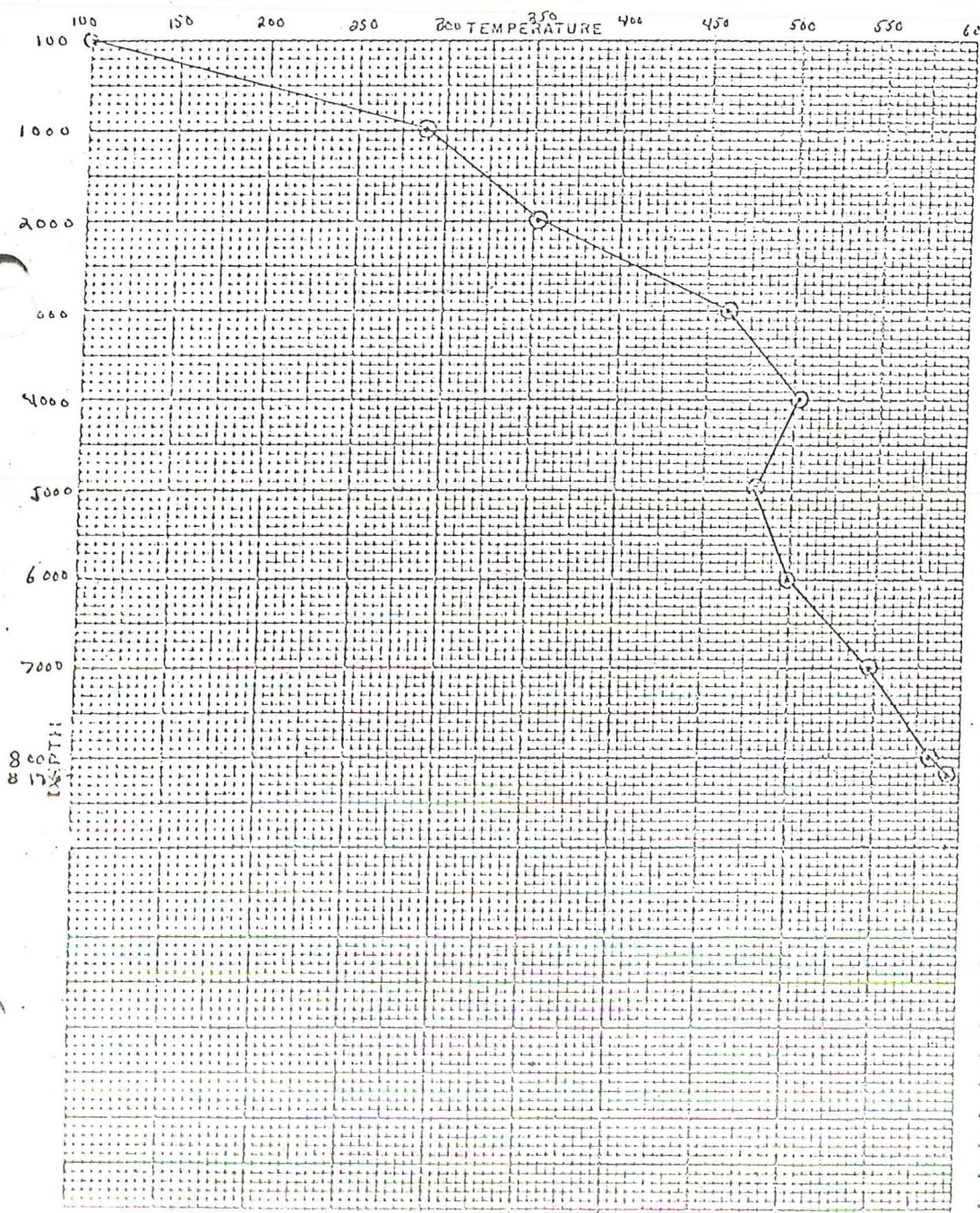
HOLE DESCRIPTION: _____

INSTRUMENT 82° to 686° FAN. _____
 SERIAL NO 10055

PURPOSE _____

MAX TEMP. 585 °F @ 8176

REMARKS: _____



STABILIZATION PERIOD _____

| PRESSURES | GAUGE | ROCK |
|-------------|-------|----------|
| CASING, PSI | 65 | 66 @ 10' |

| DEPTH | TEMP. | DEPTH | TEMP. |
|-------|-------|-------|-------|
| 100 | 88.1 | | |
| 1000 | 283 | | |
| 2000 | 352 | | |
| 3000 | 462 | | |
| 4000 | 502 | | |
| 5000 | 480 | | |
| 6000 | 493 | | |
| 7000 | 546 | | |
| 8000 | 583 | | |
| 8176 | 585 | | |
| 8176 | 585 | | |
| 8176 | 685 | | |

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UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B-13-5-15 P/T

OWNER: UNION OIL COMPANY FIELD: VALLE GRANDE WELL NAME: BACA # 13
 CASING: 20" - 215' ; 13 3/8" - 1469' ELEV. 9211' DATE: 4/25/75
 LINER DESCRIPTION: 4 5/8" - 3380' ZERO POINT: CL + 12'
 7" - 3380 - 8200' DEPTH: 8200'

TUBING DETAIL:

PURPOSE:

REMARKS:

0-4750 PSIG SN-7198 CLOCK 13375-L 15 TURN

ELEMENT 82° 68.6° F SERIAL NO. 10055 CLOCK 13374-L 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P-1114 ; T-1118 DISENGAGE STYLUS P-1358 ; T-1338

WELL HEAD 141

PICKUP @ 8176' TIME ON BOTTOM 1245-1255 MAX. °F 532.5

WELL STATUS: STATIC

SHUT IN: 1040 hrs 2/25/75 ON PRODUCTION:

RATE

PRESSURE

TEMPERATURE

| PRESSURE | | | | | TEMPERATURE | | | | | | | | | | | |
|----------|-------|-------|--------|-------|-------------|-------|-------|-------|-------|----|------|-------|-------|-------|-------|----|
| DEPTH | DEFL. | P - R | GRAD. | ID | TIME | DEPTH | DEFL. | P - T | GRAD. | ID | TIME | DEPTH | DEFL. | P - T | GRAD. | ID |
| - | 150 | .065 | 148.6 | - | " | 150 | .050 | 97.8 | | | | | | | | |
| 1-1231 | 6000 | .175 | 1584.7 | 4.006 | " | 6000 | 1.287 | 451.7 | | | | | | | | |
| 3-1243 | 7000 | .193 | 1917.4 | 4.003 | " | 7000 | 1.453 | 540.1 | | | | | | | | |
| 5-1255 | 8176 | .185 | 2302.0 | 4.002 | " | 8176 | 1.602 | 532.5 | | | | | | | | |

COMMENTS:

76

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B-13 5-15 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACH #13
 CASING 20"-215"; 13 3/8"-1469' ELEV. 9211' DATE: 4/25/75
 LINEAR DESCRIPTION: 9 5/8"-5380' ZERO POINT GL+12
7"-5380'-8200' DEPTH. 8200'

HOLE DESCRIPTION: _____ INSTRUMENT 82°-696° FAH.
 SERIAL NO 10055

PURPOSE _____ MAX. TEMP. _____ °F @ _____

REMARKS: _____



STABILIZATION PERIOD _____

| PRESSURES | GAUGE | COLLS |
|-------------|-------|-------|
| CASING, PSI | | |

| DEPTH | TEMP. | DEPTH | TEMP. |
|-------|-------|-------|-------|
| 110 | 97.5 | | |
| 6000 | 141.7 | | |
| 7000 | 151.1 | | |
| 8176 | 157.5 | | |

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GEO THERMAL DIVISION

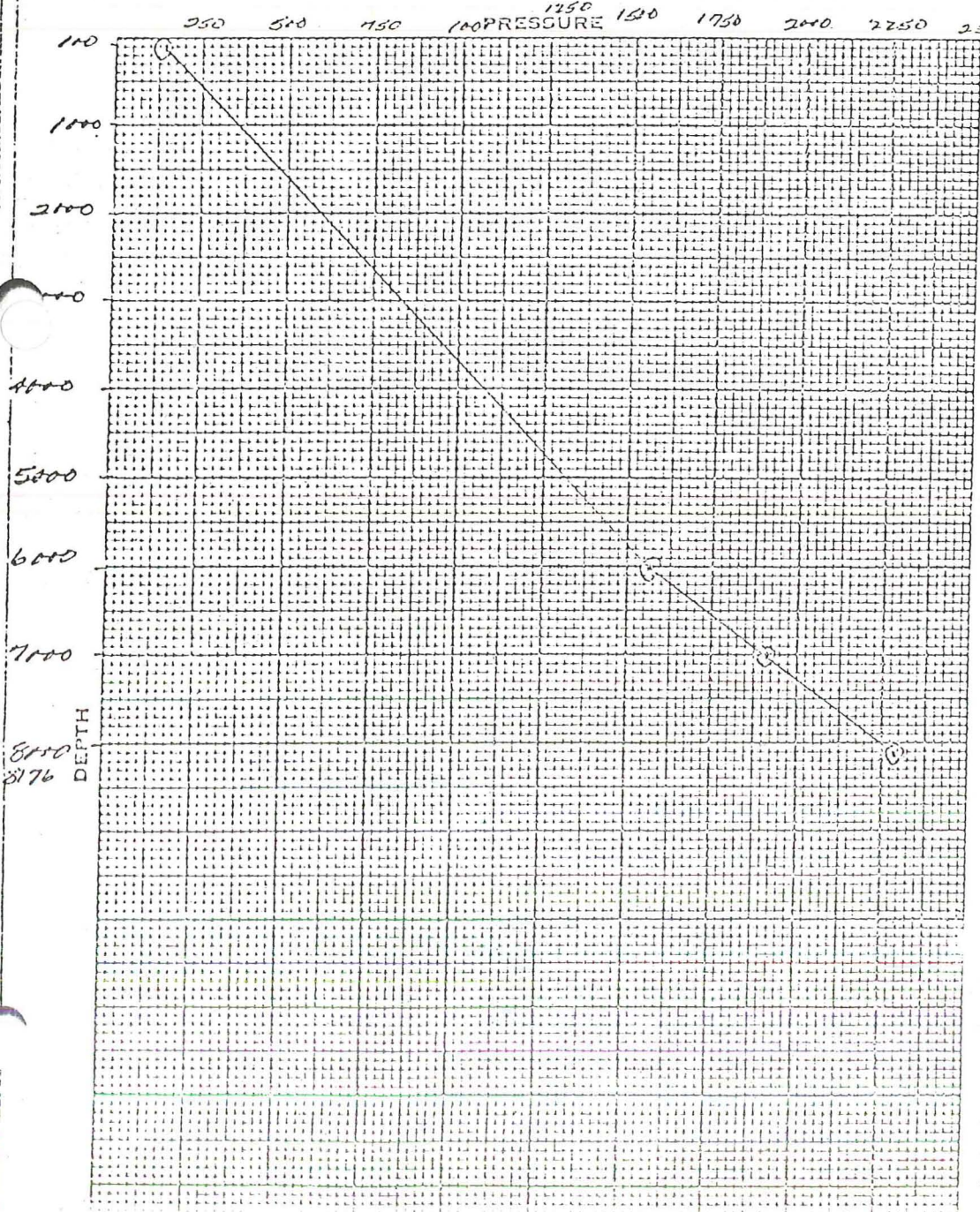
SUBSURFACE PRESSURE SURVEY

B-15 S-15 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #13
 CASING 20' - 215' 1 3/8" - 1469' ELEV. 9211' DATE: 4/25/75
 LINER DESCRIPTION: 9 5/8" - 3380' ZERO POINT CL + 17'
7" - 3380' - 8200' DEPTH 8200'

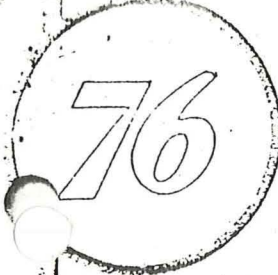
HOLE DESCRIPTION: _____
 INSTRUMENT 0-4250 PS.
 SERIAL NO 7198

PURPOSE _____ MAX TEMP 582.5 °F @ 8176'
 REMARKS: _____



STABILIZATION PERIOD _____

| PRESSURE | GAUGE | BOI.D |
|-------------|----------|----------|
| CASING, PSI | | |
| DEPTH | PRESSURE | GRADIENT |
| 100 | 148.6 | |
| 6000 | 1584.7 | |
| 7100 | 1917.8 | |
| 8176 | 2300.0 | |



UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B-13 -5-14 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BAVA #13
CASING 20" AT 215', 13 3/8" AT 1469' ELEV. 9211' DATE: 4/15/75
LINER DESCRIPTION: 9 3/8" AT 3380' ZERO POINT C.L. + 12'
7" 3330-8200 - DEPTH 8200'

TUBING DETAIL:

PURPOSE GRADIENT

REMARKS:
0-4250 PSIG SN-7198 CLOCK 13375-L 15 TURN
ELEMENT 82-686 SERIAL NO. 10055 CLOCK 13374-L 15 TURN STABILIZATION PERIOD
ENGAGE STYLUS P-C904; T-0909 DISENGAGE STYLUS P-1500; T-1500
WELL HEAD 158 PSIG - 0-1500 PSIG BARTON RECORDER
PICKUP @ 8176 TIME ON BOTTOM 1154-1214 MAX. F 582.3
WELL STATUS STATIC
SHUT IN: 1040 HL 2/25/75 ON PRODUCTION:
RATE

PRESSURE

TEMPERATURE

Table with columns for TIME, DEPTH, DEFL., P-T, GRAD., I/D under PRESSURE and TIME, DEPTH, DEFL., P-T, GRAD., I/D under TEMPERATURE. Contains data points for depths from 0 to 8176 feet.

COMMENTS:

BY: JMA/JPB

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GEOHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

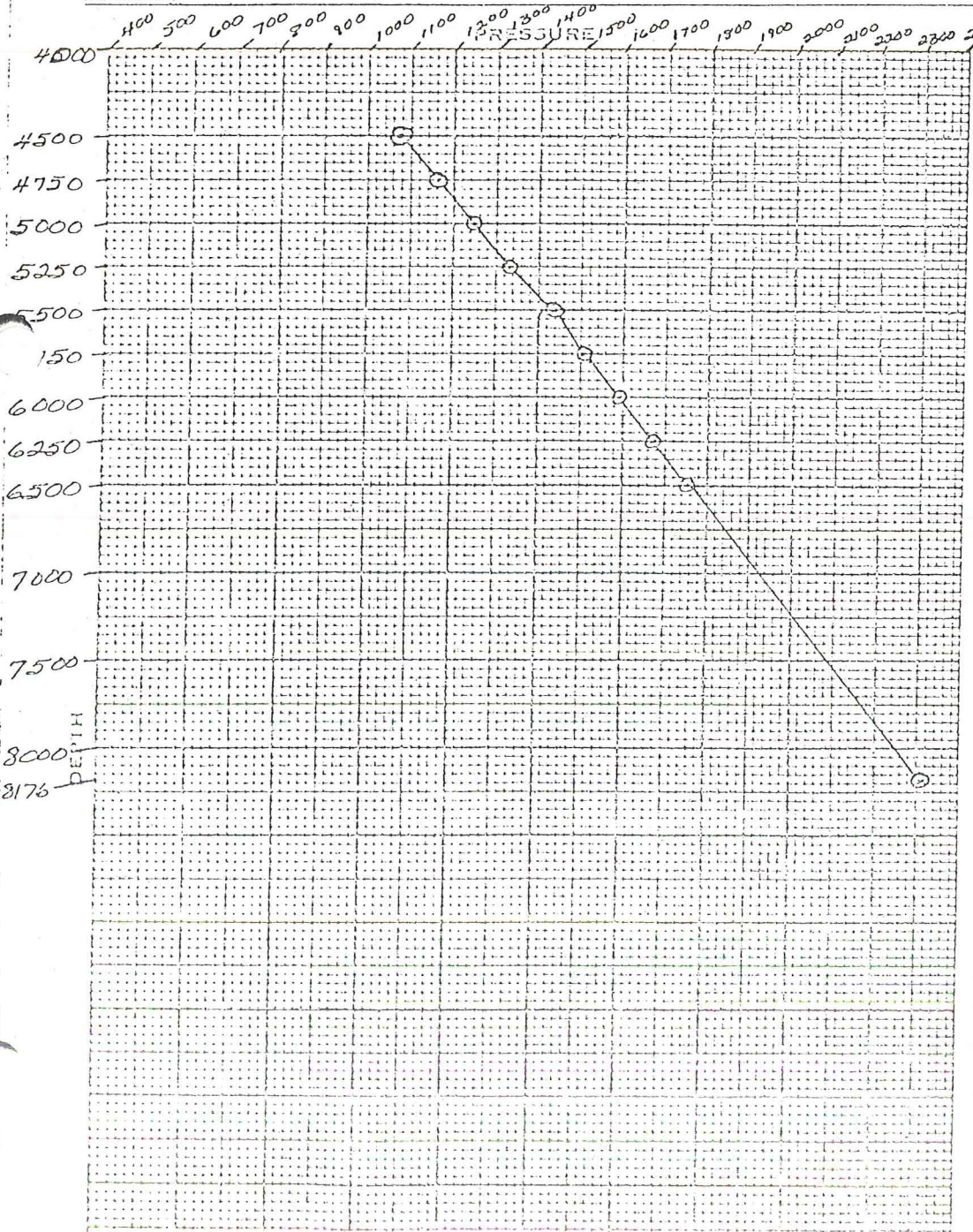
B#13-S14-P17

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACA #13
 CASING 20" @ 215', 13 3/8" @ 1469', 9 5/8" @ 3380' ELEV 9211' DATE 4/15/75
 LINER DESCRIPTION: 7" - 3380' - 8176' ZERO POINT GL+12'
SLOTS - 4227' - 8176' DEPTH 8176'

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

PURPOSE _____ MAX TEMP 582.3 °F @ 8176'

REMARKS: _____



STABILIZATION PERIOD _____

| PRESSURE | GAUGE | BONJA |
|-------------|-------|-------|
| CASING, PSI | 158 | 159.1 |

| DEPTH | PRESSURE | GRADIENT |
|-------|----------|----------|
| 0 | 159.1 | 0 |
| 4500 | 1077.7 | .204 |
| 4750 | 1161.8 | .336 |
| 5000 | 1247.8 | .344 |
| 5250 | 1334.0 | .344 |
| 5500 | 1420.2 | .345 |
| 5750 | 1506.4 | .345 |
| 6000 | 1591.1 | .339 |
| 6250 | 1675.7 | .330 |
| 6500 | 1756.4 | .331 |
| 8176 | 2310.6 | .331 |

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GEO THERMAL DIVISION

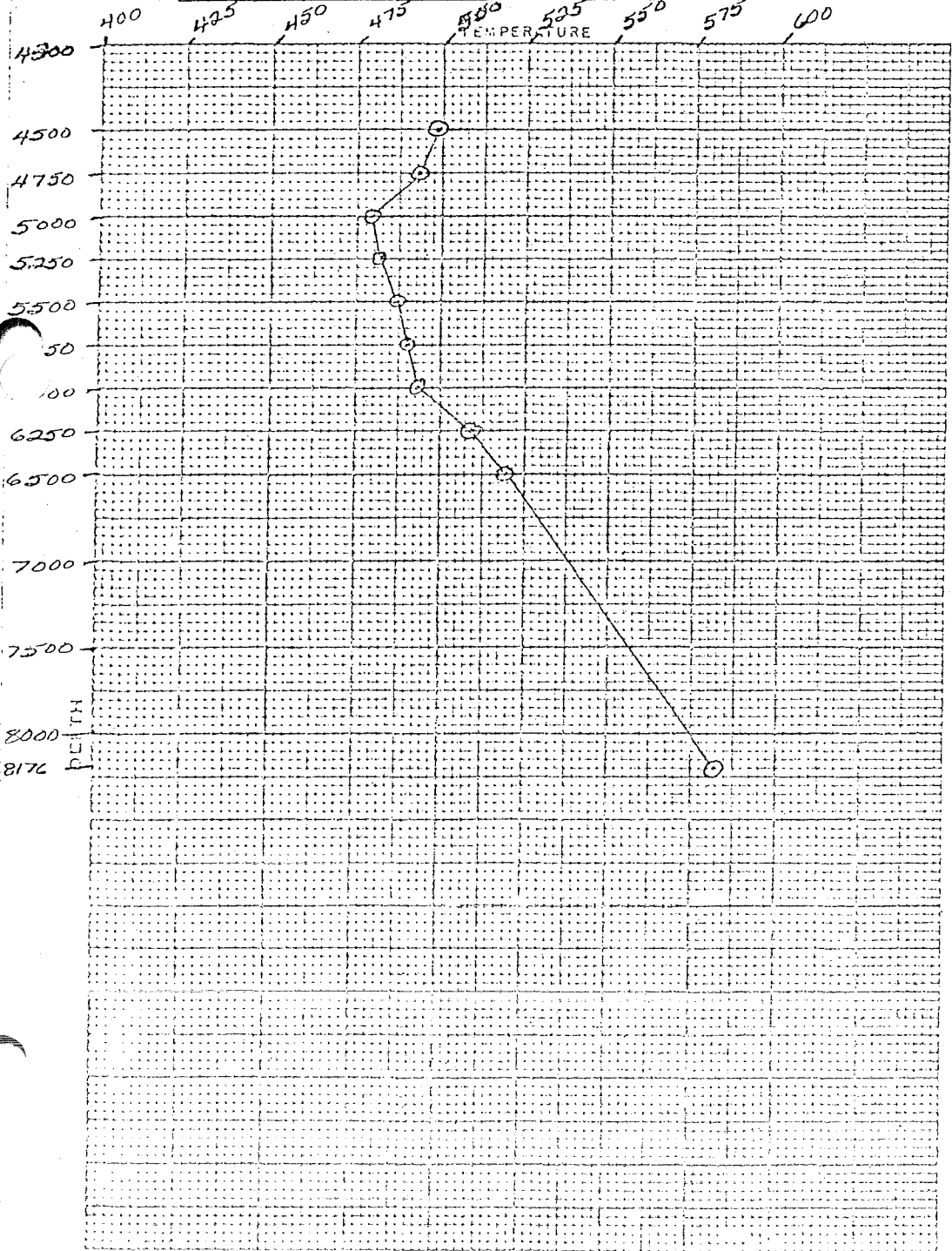
SUBSURFACE TEMPERATURE SURVEY

B#13-S14-P17

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BMA#13
 CAGING 20" @ 215', 13 3/8" @ 1469', 9 5/8" @ 3380' ELEV 9211' DATE 4/15/75
 LINER DESCRIPTION: 7" @ 3380'-8176' ZERO POINT GL+12'
SLOTS- 4227'-8176' DEPTH 8176'

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

PURPOSE _____ MAX TEMP 582.3 °F @ 8176'
 REMARKS: _____



STABILIZATION PERIOD _____

| PRESSURES | GAUGE | BOMB | |
|-------------|-------|-------|-------|
| CASING, PSI | 158 | 159.1 | |
| DEPTH | TEMP. | DEPTH | TEMP. |
| 0 | 0 | | |
| 4500 | 493.5 | | |
| 4750 | 493.4 | | |
| 5000 | 479.3 | | |
| 5250 | 482.5 | | |
| 5500 | 487.2 | | |
| 5750 | 490.8 | | |
| 6000 | 493.4 | | |
| 6250 | 509.1 | | |
| 6500 | 519.1 | | |
| 8176 | 582.3 | | |

BY: J.M./J.S.

UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B-13 5-13 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE

WELL NAME BAOR #13

CASING 2 1/2" AT 215'; 1 3/4" AT 1469' ELEV. 9211'

DATE: 4/14/75

LINER DESCRIPTION: 9 3/8" AT 3380';

ZERO POINT GL + 12'

7" 3380' - 8200'; SLOTS - 4227' - 8106'

DEPTH 8200'

TUBING DETAIL:

PURPOSE GRADIENT

REMARKS:

0-4250 PSIG SN 7193 CLOCK-15375-L 15 TURN

ELEMENT 82"-686" SERIAL NO. 10055 CLOCK-13374-L 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P-0931; T-0926 DISENGAGE STYLUS P-1420; T-1420

WELL HEAD 195 PSIG - BARTON RECORDER 0-1500 PSIG.

PICKUP @ 8176' TIME ON BOTTOM 1254-1304 MAX. F 581.1

WELL STATUS STABIL.

SHUT IN: 1040 HRS 2/25/75 ON PRODUCTION:

RATE

PRESSURE

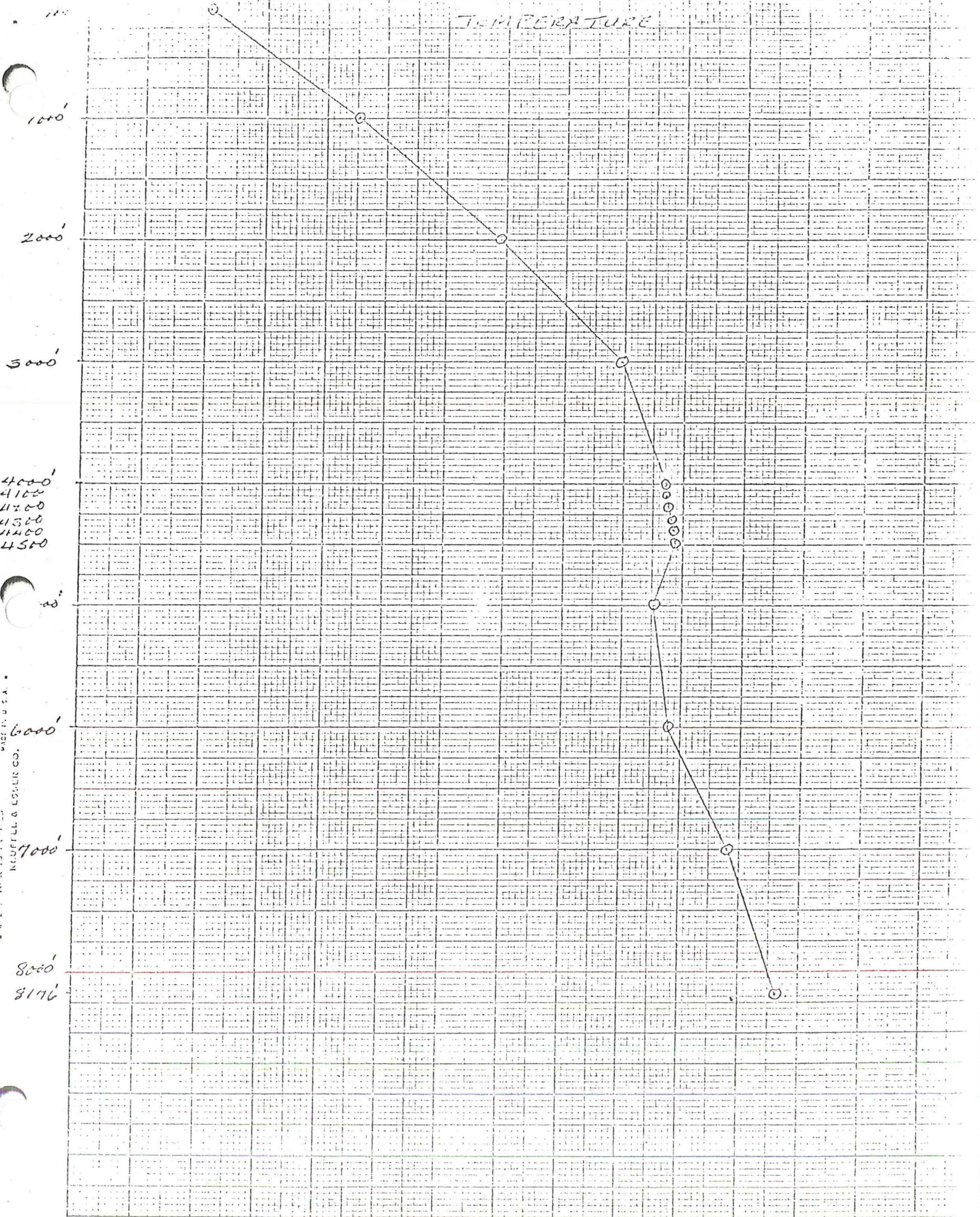
TEMPERATURE

| TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|--------|-------|--------|----------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| | 0 | .087 | 195.9 | 0 | 0 | 1003.000 | 0 | 0 | 0 | | | | | | | | |
| | 100 | .087 | 195.9 | 0 | 0 | " | 100 | .066 | 103.0 | | | | | | | | |
| | 1000 | .683 | 198.2 | 0 | 0 | " | 1000 | .129 | 222.6 | | | | | | | | |
| | 2000 | .083 | 198.2 | 0 | 0 | " | 2000 | .918 | 346.8 | | | | | | | | |
| | 3000 | .238 | 533.9 | .336 | -1.001 | " | 3000 | 1.139 | 447.1 | | | | | | | | |
| | 4000 | .405 | 937.7 | .254 | 0 | " | 4000 | 1.269 | 486.4 | | | | | | | | |
| | 4100 | .425 | 930.1 | .424 | +1.002 | " | 4100 | 1.273 | 487.5 | | | | | | | | |
| | 4200 | .441 | 964.0 | .339 | +1.002 | " | 4200 | 1.276 | 488.4 | | | | | | | | |
| | 4300 | .456 | 995.8 | .313 | +1.002 | " | 4300 | 1.283 | 492.0 | | | | | | | | |
| | 4400 | .473 | 1029.4 | .336 | +1.002 | " | 4400 | 1.289 | 492.3 | | | | | | | | |
| | 4500 | .488 | 1065.0 | .236 | +1.002 | " | 4500 | 1.294 | 493.7 | | | | | | | | |
| | 5100 | .519 | 1233.2 | .340 | +1.003 | " | 5100 | 1.234 | 476.0 | | | | | | | | |
| | 6000 | .731 | 1574.2 | .341 | +1.006 | " | 6000 | 1.233 | 490.5 | | | | | | | | |
| | 7000 | .872 | 1915.3 | .341 | +1.004 | " | 7000 | 1.458 | 541.6 | | | | | | | | |
| | 8176 | 1.074 | 2302.1 | .329 | +1.002 | " | 8176 | 1.547 | 581.1 | | | | | | | | |

COMMENTS:

BY: JA

TEMPERATURE



4000'
4100
4200
4300
4400
4500

6000'

7000'

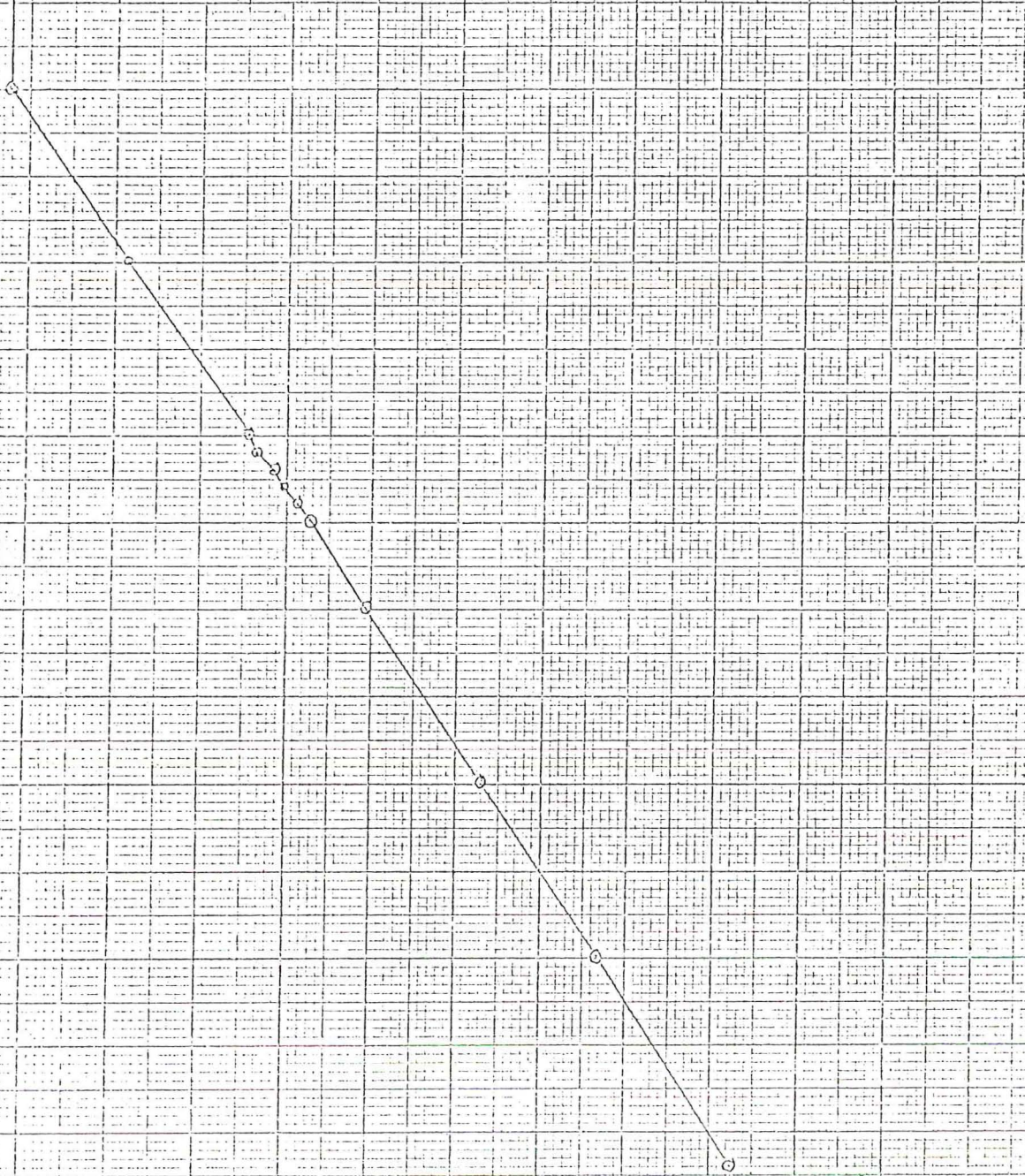
8000'
8176'

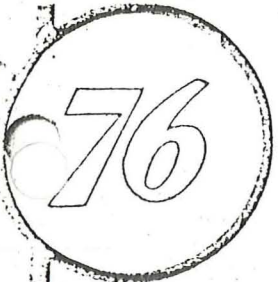
NO. 1000, INCH 27 1920
MADE IN U.S.A.
KEUFFEL & ESSER CO.

U.S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
WASHINGTON, D.C. 20506
KLUFT & LESSER CO.

DEPT.

500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500





UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY Field Work Sheet

BACA#13-S12-P/T

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACA#13
 CASING 20" @ 215'; 13 3/8" @ 1469'; 9 5/8" @ 3380' ELEV. 9211' DATE: 3/22/75
 LINER DESCRIPTION: 7"-3380'-9200' ZERO POINT GLT-12'
 DEPTH 8176'

TUBING DETAIL:

PURPOSE BUILD UP

REMARKS:
P-0-4250 PSIG - 7198 12hr 13375L - 15
 ELEMENT 7-80°-6460° SERIAL NO. 10052 CLOCK 12hr-13374L IS TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-0734hr T-0738 DISENGAGE STYLUS P-1037 - T-1037
 WELL HEAD 370 PSIG
 PICKUP @ 8176' TIME ON BOTTOM 1008-1025 MAX. *F 573.5
 WELL STATUS SHUT IN
 SHUT IN: 1040 hrs - 2/25/75 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

| | DEPTH | DEFL. | P-ψ | GRAD. | ID CORR | TIME | DEPTH | DEFL. | θ-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|---------|-------|-------|--------|-------|---------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| | 0 | .167 | 376.1 | 0 | 0 | " | " | .1004 | 81 | - | - | | | | | | |
| 27-0929 | 500 | .170 | 382.9 | 0 | 0 | " | " | .1380 | 198.8 | - | - | | | | | | |
| 30-0937 | 1000 | .170 | 382.9 | 0 | 0 | " | " | .1523 | 242.9 | - | - | | | | | | |
| 32-0944 | 1500 | .172 | 387.4 | 0 | 0 | " | " | .1647 | 279.9 | - | - | | | | | | |
| 35-0953 | 2000 | .172 | 387.4 | 0 | 0 | " | " | .1858 | 341.8 | - | - | | | | | | |
| 34-0959 | 2500 | .172 | 387.4 | 0 | 0 | " | " | 1.036 | 373.3 | - | - | | | | | | |
| 36-0965 | 3000 | .244 | 546.6 | .318 | -1.001 | " | " | 1.196 | 432.9 | - | - | | | | | | |
| 37-0972 | 3500 | .326 | 720.3 | .346 | 0 | " | " | 1.333 | 475.9 | - | - | | | | | | |
| 38-0979 | 4000 | .409 | 896.2 | .352 | +1.001 | " | " | 1.349 | 480.2 | - | - | | | | | | |
| 39-0924 | 4500 | .485 | 1063.2 | .334 | +1.002 | " | " | 1.374 | 487.0 | - | - | | | | | | |
| 40-0931 | 5000 | .568 | 1231.1 | .336 | +1.003 | " | " | 1.333 | 475.9 | - | - | | | | | | |
| 42-0937 | 5500 | .649 | 1401.3 | .340 | +1.005 | " | " | 1.385 | 489.9 | - | - | | | | | | |
| 43-0944 | 6000 | .729 | 1570.0 | .338 | +1.006 | " | " | 1.417 | 498.4 | - | - | | | | | | |
| 45-0951 | 6500 | .807 | 1735.2 | .330 | +1.004 | " | " | 1.515 | 543.9 | - | - | | | | | | |
| 47-0957 | 7000 | .884 | 1898 | .326 | +1.003 | " | " | 1.585 | 542.1 | - | - | | | | | | |
| 49-0964 | 7500 | .961 | 2062 | .328 | +1.003 | " | " | 1.649 | 558.2 | - | - | | | | | | |
| 50-098 | 8176 | 1.064 | 2281 | .324 | +1.002 | " | " | 1.710 | 573.5 | - | - | | | | | | |
| 518 | 8176 | 1.064 | 2281 | - | +1.002 | " | " | 1.710 | 573.5 | - | - | | | | | | |
| 523 | 8176 | 1.064 | 2281 | - | +1.002 | " | " | 1.710 | 573.5 | - | - | | | | | | |

COMMENTS:

GEO THERMAL DIVISION

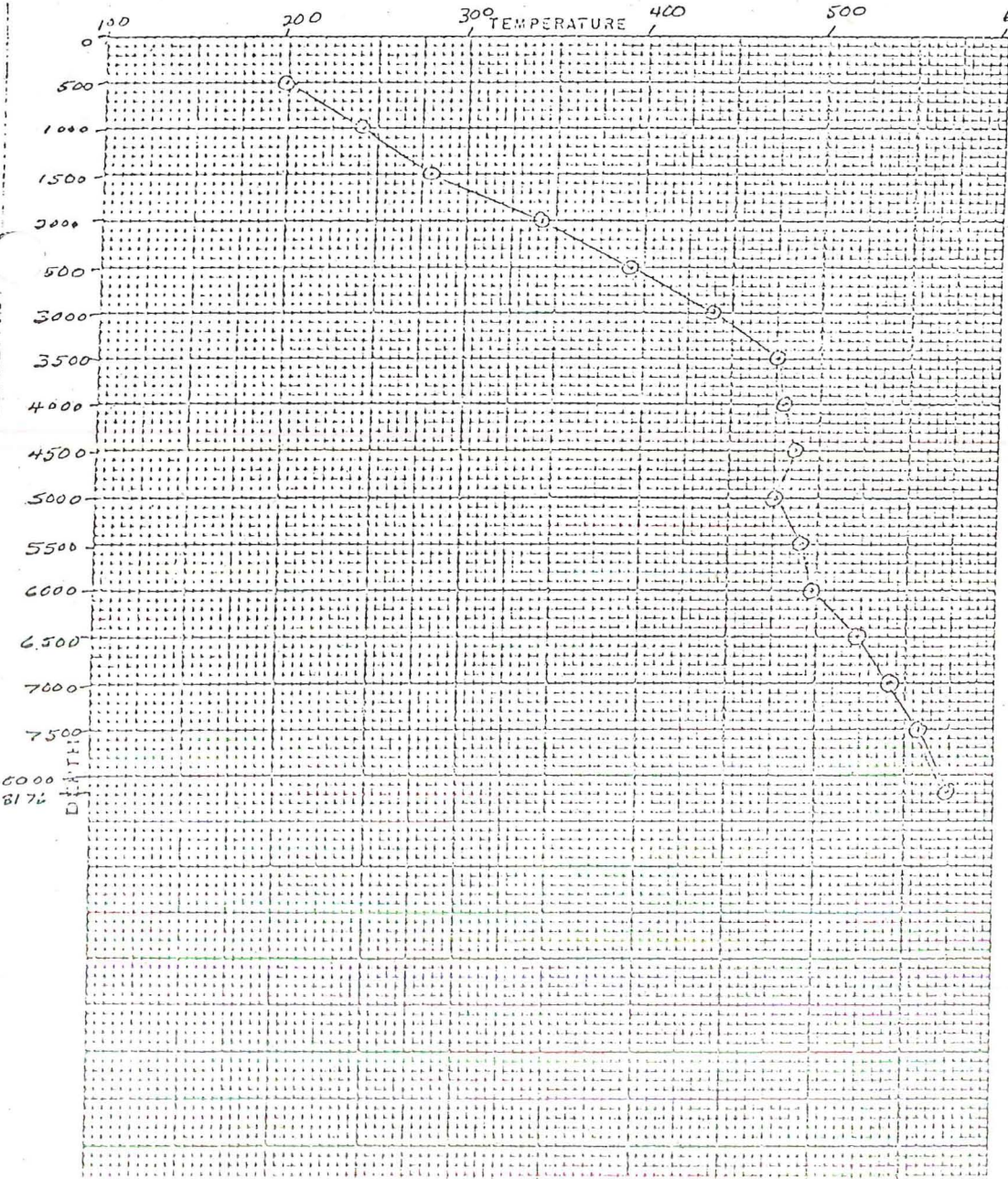
SUBSURFACE TEMPERATURE SURVEY

BACA#13-SID-TEMP

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACA#13
 CASING 20" @ 213'; 13 3/8" @ 1118'; 9 3/8" @ 5380' ELEV. 9211' DATE: 3/21/75
 LINER DESCRIPTION: 7" @ 3380' - 8800' ZERO POINT C.L. 712'
 DEPTH. 8176'

HOLE DESCRIPTION: _____ INSTRUMENT 20°F - 646°F FA
 SERIAL NO 10052

PURPOSE BUILD UP MAX. TEMP. 573.5 °F @ 8176'
 REMARKS: _____



| PRESSURES | GAUGE | BOND |
|-------------|-------|------|
| CASING, PSI | 372 | 376 |

| DEPTH | TEMP. | DEPTH | TEMP. |
|-------|-------|-------|-------|
| 0 | 81 | | |
| 500 | 199 | | |
| 1000 | 243 | | |
| 1500 | 250 | | |
| 2000 | 312 | | |
| 2500 | 393 | | |
| 3000 | 439 | | |
| 3500 | 476 | | |
| 4000 | 480 | | |
| 4500 | 487 | | |
| 5000 | 496 | | |
| 5500 | 498 | | |
| 6000 | 524 | | |
| 6500 | 542 | | |
| 7000 | 558 | | |
| 7500 | 574 | | |
| 8176 | 574 | | |

716

GEOHERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

BRAN#13-512-PRESS

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACH#13
 CASING 20" @ 215', 13 3/8" @ 1469', 9 5/8" @ 3330' ELEV. 7211' DATE: 3/21/75
 LINER DESCRIPTION: 7" @ 3330'-8236' ZERO POINT 64712'
 DEPTH 8176'

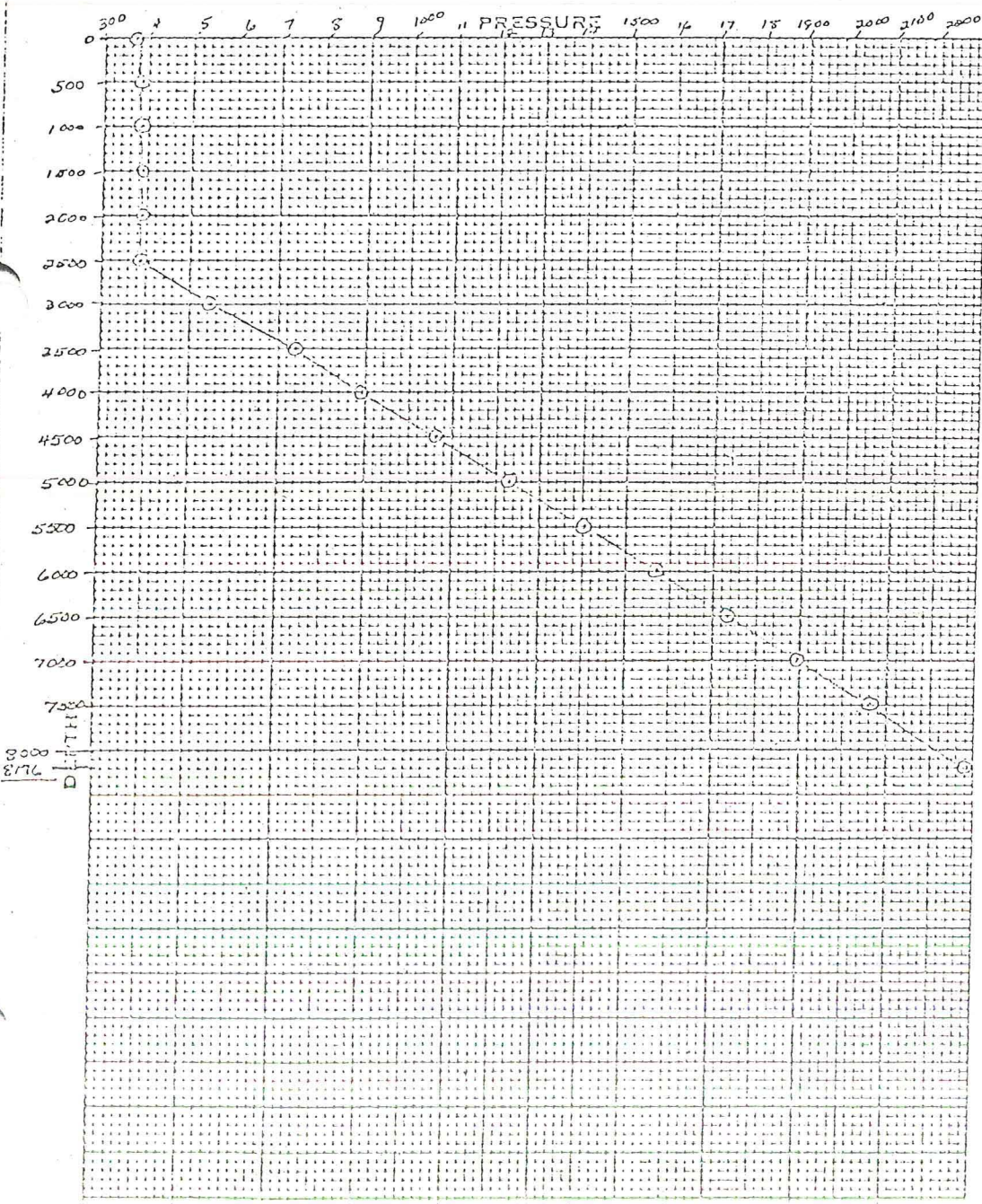
HOLE DESCRIPTION:

INSTRUMENT 0-42570
 SERIAL NO 7198

PURPOSE BUILD UP

MAX TEMP 573.5 °F @ 8176'

REMARKS:



| PRESSURES | GAUGE | BOND |
|-------------|-------|------|
| CASING, PSI | 372 | 376 |

| DEPTH | PRESSURE | GAGE |
|-------|----------|------|
| 0 | 376.1 | 0 |
| 500 | 382.9 | 0 |
| 1000 | 382.9 | 0 |
| 1500 | 387.4 | 0 |
| 2000 | 387.4 | 0 |
| 2500 | 387.4 | 0 |
| 3000 | 541.6 | 1318 |
| 3500 | 720.3 | 1346 |
| 4000 | 896.2 | 1352 |
| 4500 | 1063.2 | 1334 |
| 5000 | 1221.1 | 1336 |
| 5500 | 1401.3 | 1340 |
| 6000 | 1570. | 1338 |
| 6500 | 1735.2 | 1330 |
| 7000 | 1892. | 1326 |
| 7500 | 2062. | 1328 |
| 8176 | 2281 | 1324 |



GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

BACA#13-S11-P/T

76

OWNER UNION OIL CO OF CALIF FIELD VALLE GRANDE WELL NAME BACA#13
 CASING 20" @ 215'; 13 3/8" @ 1469' ELEV. 9211' DATE: 3/20/75
 LINER DESCRIPTION: 9 5/8" @ 3380'; 7" - 3380' - 8200' ZERO POINT GLT12'
 DEPTH 8176'

TUBING DETAIL:

PURPOSE BUILD UP

REMARKS:

P - 0 - 4250 PSIG 7198 12 HR 13375 L 15
 ELEMENT T-300 - 736°F SERIAL NO. 10036 CLOCK 12 HR - 13790 L TURN 15 STABILIZATION PERIOD
 ENGAGE STYLUS P-1028 HRS - T-1026 HRS, DISENGAGE STYLUS P-1534 HRS T-1534 HRS
 WELL HEAD 372 PSIG - 0 - 1500 B/R - 0 - 600 T/G
 PICKUP @ 8176' TIME ON BOTTOM 1415 - 1445 MAX. °F 578.1
 WELL STATUS SHUT IN
 SHUT IN: 1040 HRS 2/25/75 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

| TIME | DEPTH | DEFL. | P-ψ | GRAD. | ID CORR. | TIME | DEPTH | DEFL. | ψ-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|---------|-------|-------|--------|-------|----------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 2- | 0 | 0 | 0 | 0 | 0 | " | " | 0 | 0 | - | | | | | | | |
| 3- | 520 | 0 | 0 | 0 | 0 | " | " | 0 | 0 | - | | | | | | | |
| 4- | 1000 | 0 | 0 | 0 | 0 | " | " | 0 | 0 | - | | | | | | | |
| 5-1145 | 1500 | .168 | 378.4 | 0 | 0 | " | " | 0 | 0 | - | | | | | | | |
| 6-1156 | 2000 | .170 | 383 | 0 | 0 | " | " | .544 | 353.3 | - | | | | | | | |
| 7-1207 | 2500 | .170 | 383 | 0 | 0 | " | " | .729 | 405.8 | - | | | | | | | |
| 8-1218 | 3000 | .232 | 521.2 | .276 | 0 | " | " | .896 | 450.9 | - | | | | | | | |
| 9-1229 | 3500 | .315 | 697 | .352 | 0 | " | " | 1.010 | 480.6 | - | | | | | | | |
| 10-1240 | 4000 | .401 | 879 | .364 | +1.001 | " | " | 1.028 | 485.3 | - | | | | | | | |
| 11-1256 | 4500 | .418 | 915.3 | .073 | +1.001 | " | " | 1.056 | 492.6 | - | | | | | | | |
| 12-1307 | 5000 | .556 | 1206 | .581 | +1.003 | " | " | 1.010 | 480.6 | - | | | | | | | |
| 1-1318 | 5500 | .637 | 1376.1 | .340 | +1.004 | " | " | 1.076 | 497.8 | - | | | | | | | |
| 2-1330 | 6000 | .717 | 1544.5 | .337 | +1.005 | " | " | 1.108 | 506.1 | - | | | | | | | |
| 3-1341 | 6500 | .798 | 1716.1 | .344 | +1.004 | " | " | 1.205 | 531.3 | - | | | | | | | |
| 4-1352 | 7000 | .874 | 1877.1 | .322 | +1.003 | " | " | 1.271 | 548.5 | - | | | | | | | |
| 5-1403 | 7500 | .951 | 2040.4 | .326 | +1.002 | " | " | 1.333 | 564.6 | - | | | | | | | |
| 6-1414 | 8000 | 1.027 | 2203.1 | .324 | +1.001 | " | " | 1.381 | 577.1 | - | | | | | | | |
| 7-1425 | 8176 | 1.054 | 2260 | .330 | +1.001 | " | " | 1.385 | 578.1 | - | | | | | | | |
| 11 | 8176 | 1.054 | 2260 | - | +1.001 | " | " | 1.385 | 578.1 | - | | | | | | | |
| 11 | 8176 | 1.054 | 2260 | - | +1.001 | " | " | 1.385 | 578.1 | - | | | | | | | |

RANGE OF TEMP - ELEMENT DID NOT COVER THESE DEPTHS.

COMMENTS:

* NOTE - THIS STOP IS SUSPECT - DEPTH IS QUESTIONABLE,

The first three stops BY:

S.M.

76

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B#13-511-P1

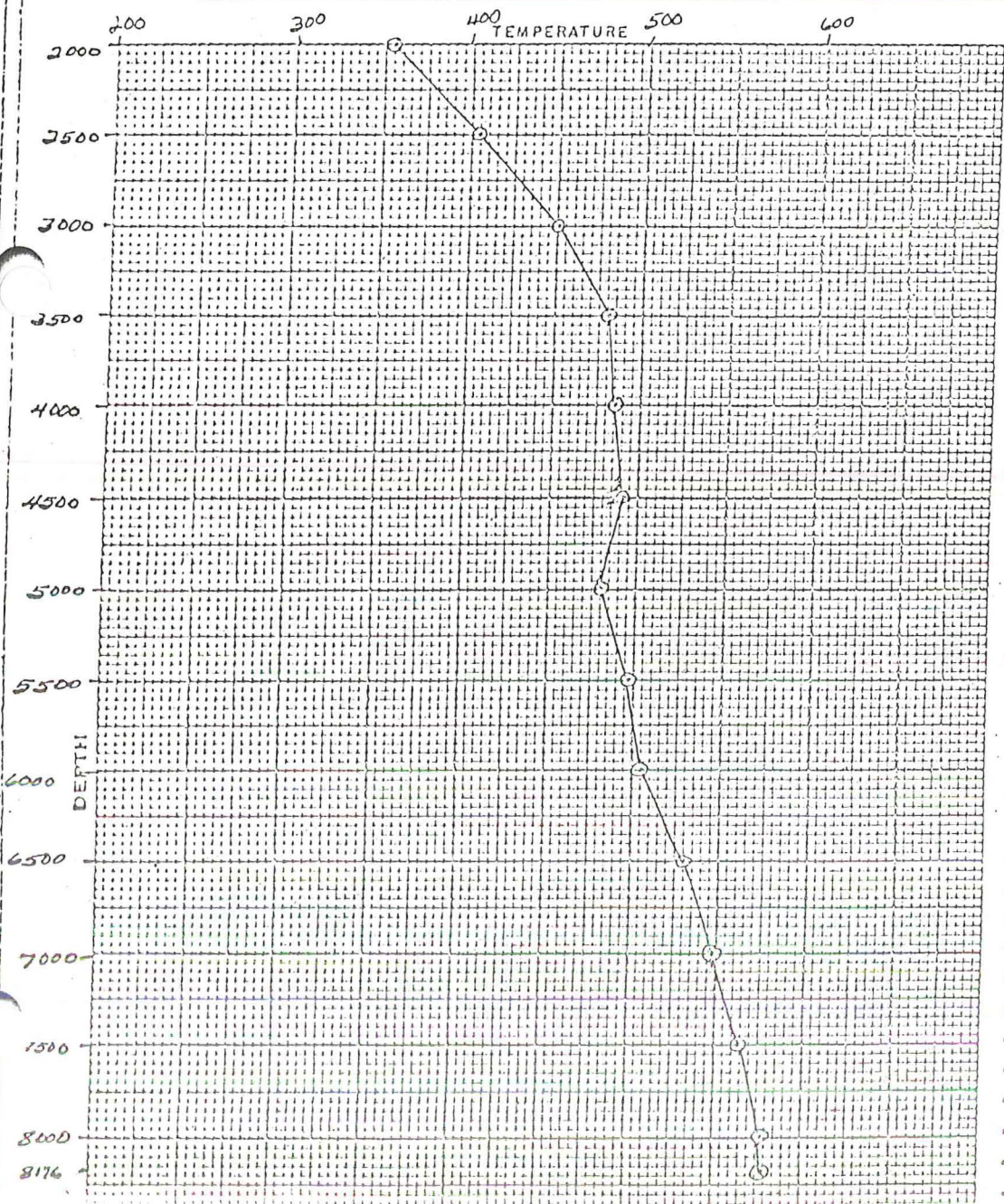
OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BAC#13
 CASING 20" @ 215' ; 13 3/8" @ 1469' ; 9 5/8" @ 3380' ELEV. 9211 DATE: 3/20/75
 LINER DESCRIPTION: 7"-3380'-8200' ZERO POINT GL+12'
 DEPTH. 8176'

HOLE DESCRIPTION: _____ INSTRUMENT 300°-236°F FAC _____
 SERIAL NO 10036

PURPOSE BUILD UP MAX TEMP. 478.1 °F @ 8176'

REMARKS: _____

STABILIZATION PERIOD _____



| PRESSURE, | GAUGE | DATE |
|-------------|-------|------|
| CASING, PSI | | |

| DEPTH | TEMP. | DEPTH | TEMP. |
|-------|-------|-------|-------|
| 2000 | 355.3 | | |
| 2500 | 405.8 | | |
| 3000 | 450.9 | | |
| 3500 | 480.6 | | |
| 4000 | 485.3 | | |
| 4500 | 492.6 | | |
| 5000 | 480.6 | | |
| 5500 | 497.8 | | |
| 6000 | 506.1 | | |
| 6500 | 531.3 | | |
| 7000 | 548.5 | | |
| 7500 | 564.6 | | |
| 8000 | 577.1 | | |
| 8176 | 578.1 | | |

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GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

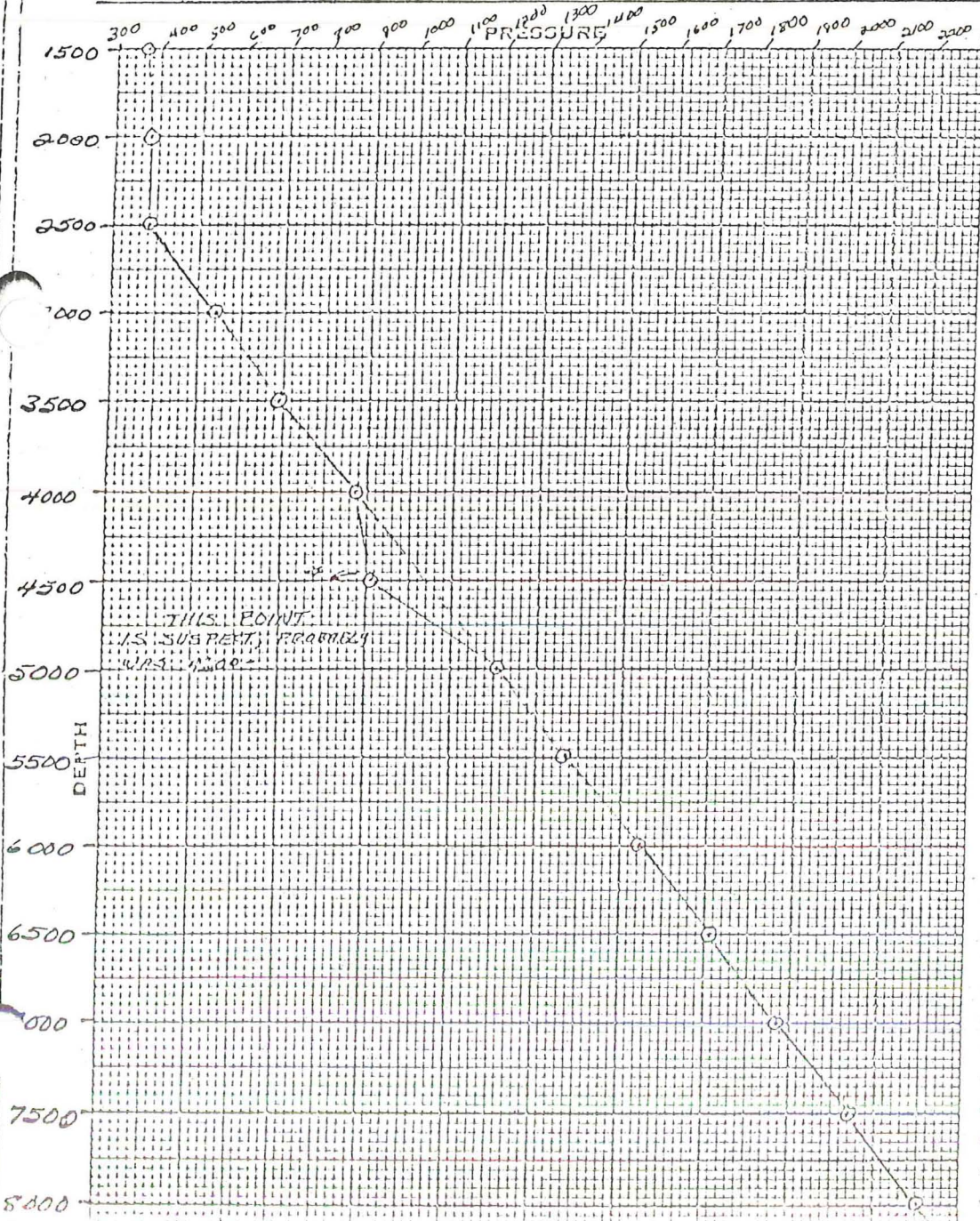
BACA#13-S11-TEMP

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACA#13
 CASING 20" @ 215'; 13 3/8" @ 1469'; 9 5/8" @ 3380' ELEV. 9211' DATE: 3/20/75
 LINE DESCRIPTION: 7" - 3380' - 8200' ZERO POINT GLT#2'
 DEPTH 8176'

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

PURPOSE BUILD UP MAX. TEMP 578.1 °F @ 8176'

REMARKS:



STABILIZATION PERIOD

| PRESSURES | GAUGE | BOMB |
|-------------|-------|------|
| CASING, PSI | 372 | — |

| DEPTH | PRESSURE | GRADIENT |
|-------|----------|----------|
| 1500 | 378.4 | 0 |
| 2000 | 383 | 0 |
| 2500 | 383 | 0 |
| 3000 | 521.2 | .276 |
| 3500 | 697 | .352 |
| 4000 | 879 | .364 |
| 4500 | 915.3 | .073 |
| 5000 | 1206 | .581 |
| 5500 | 1376 | .340 |
| 6000 | 1544.5 | .337 |
| 6500 | 1716.1 | .344 |
| 7000 | 1877.1 | .322 |
| 7500 | 2040.4 | .326 |
| 8000 | 2202.1 | .324 |
| 8176 | 2260 | .330 |

Production

Specialists

AGNEW and SWEET

3914 Gilmore Avenue
Bakersfield, California 93308

24-Hour Phone: 327-2267

SUBSURFACE SURVEY

Field Work Sheet

6413 5-10 P/H

OWNER Union Oil Co. of Calif. FIELD Valle Grande WELL NAME BACH #13
 CASING 20" AT 215'; 13 3/8" AT 1469' ELEV. 9211' DATE: 3/6/75
 LINER DESCRIPTION: 9 5/8" AT 3380' 7" - 3380' - 8200' ZERO POINT 641 + 12'
 DEPTH 8176'
 TUBING DETAIL: _____ ZONE _____

PUMP SHOE _____ GAS ANCHOR _____ INTAKE _____
 PURPOSE _____

REMARKS:
0-4250 PSIG SN 7198 C-13375-L 15 TURN
 ELEMENT 80°-646° SERIAL NO. 10052 CLOCK 13700-L 15 TURN STABILIZATION PERIOD _____
 ENGAGE STYLUS P-1142; T-1139 DISENGAGE STYLUS P-1605; T-1601 GROSS OIL RATE B/D _____
 OBS. TBG. PRESS. _____ OBS. CSG. PRESS. 735 NET OIL RATE B/D _____
 COR. TBG. PRESS. _____ COR. CSG. PRESS. _____ FORMATION GAS MCF/D _____
 PICKUP @ 8176' TIME ON BOTTOM 12:55 - 14:59 MAX. °F 566.7 GOR CFT/BBL. _____
 WELL STATUS STATIC CIRCULATED GAS MCF/D _____
 SHUT IN: 1040 HRS 1-25-75 ON PRODUCTION: _____ OIL DRY GRAVITY °API _____
 BEAN SIZE _____

PRESSURE

TEMPERATURE

| TIME | DEPTH | DEFL. | PS | GRAD. | /D | TIME | DEPTH | DEFL. | °F | GRAD. | /D | TIME | DEPTH | DEFL. | PT | GRAD. | /D |
|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|----|------|-------|-------|----|-------|----|
| 12:55 | 8176 | 1.017 | 2180.9 | - | 7.003 | 12:55 | 8176 | 1.666 | 562.5 | - | | | | | | | |
| 10 | 8176 | 1.020 | 2187.2 | - | " | 13:10 | 8176 | 1.683 | 566.7 | - | | | | | | | |
| 25 | 8176 | 1.020 | 2187.2 | - | " | 25 | 8176 | 1.683 | 566.7 | - | | | | | | | |
| 40 | 8176 | 1.020 | 2187.2 | - | " | 40 | 8176 | 1.683 | 566.7 | - | | | | | | | |
| 55 | 8176 | 1.020 | 2187.2 | - | " | 55 | 8176 | 1.683 | 566.7 | - | | | | | | | |
| 14:59 | 8176 | 1.020 | 2187.2 | - | " | 14:10 | 8176 | 1.683 | 566.7 | - | | | | | | | |
| 25 | 8176 | 1.020 | 2187.2 | - | " | 25 | 8176 | 1.683 | 566.7 | - | | | | | | | |
| 40 | 8176 | 1.020 | 2187.2 | - | " | 40 | 8176 | 1.683 | 566.7 | - | | | | | | | |
| 55 | 8176 | 1.020 | 2187.2 | - | " | 55 | 8176 | 1.683 | 566.7 | - | | | | | | | |
| 59 | 8176 | 1.020 | 2187.2 | - | " | 59 | 8176 | 1.683 | 566.7 | - | | | | | | | |

COMMENTS: WHP - 615 PSIG AT 12:55 HRS
WHP - 613 PSIG AT 14:59 HRS

BY: JS

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GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B-15-5-9 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACH #13
 CASING 20" AT 215'; 13 3/8" AT 1469' ELEV. 9211' DATE 3/3/75
 LINER DESCRIPTION: 9 5/8" AT 3380'; 7" - 3380 - 8200' ZERO POINT CL+12
 DEPTH 8176'

TUBING DETAIL:

PURPOSE BUILDUP

REMARKS:

0-4250 P316 SN- 7198 CLOCK 13375-L 15T
 ELEMENT SC-646°F SERIAL NO. 10052 CLOCK 13790-L 15TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1115; T-1111 DISENGAGE STYLUS P1610; T-1610
 WELL HEAD 653 P316 - 0-1600 L 7/2
 PICKUP @ 8176' TIME ON BOTTOM 1200 - 1530 HRS MAX. °F
 WELL STATUS STATIC
 SHUT IN: 1040 HRS 2/25/75 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 |
|------|-------|-------|--------|-------|-------|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 12 | 8176 | .977 | 2045.7 | — | 7.002 | 1200 | 8176 | 1.616 | 562.5 | | | | | | | | |
| 15 | " | .980 | 2102.1 | — | " | 15 | " | 1.676 | 565.0 | | | | | | | | |
| 30 | " | .980 | 2102.1 | — | " | 30 | " | 1.677 | 565.2 | | | | | | | | |
| 45 | " | .980 | 2102.1 | — | " | 45 | " | 1.677 | 565.2 | | | | | | | | |
| 1300 | " | .980 | 2102.1 | — | " | 1300 | " | 1.677 | 565.2 | | | | | | | | |
| 15 | " | .980 | 2102.1 | — | " | 15 | " | 1.678 | 565.5 | | | | | | | | |
| 30 | " | .981 | 2104.3 | — | " | 30 | " | 1.678 | 565.5 | | | | | | | | |
| 45 | " | .981 | 2104.3 | — | " | 45 | " | 1.678 | 565.5 | | | | | | | | |
| 1400 | " | .982 | 2106.4 | — | " | 1400 | " | 1.678 | 565.5 | | | | | | | | |
| 15 | " | .982 | 2106.4 | — | " | 15 | " | 1.678 | 565.5 | | | | | | | | |
| 30 | " | .982 | 2106.4 | — | " | 30 | " | 1.678 | 565.5 | | | | | | | | |
| 45 | " | .983 | 2108.5 | — | " | 45 | " | 1.678 | 565.5 | | | | | | | | |
| 1500 | " | .983 | 2109.5 | — | " | 1500 | " | 1.678 | 565.5 | | | | | | | | |
| 15 | " | .983 | 2108.5 | — | " | 15 | " | 1.678 | 565.5 | | | | | | | | |
| 30 | " | .984 | 2110.6 | — | " | 30 | " | 1.678 | 565.5 | | | | | | | | |

COMMENTS:



UNION

GEOTHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

BACA#13-55-111

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACA#13
 CASING 20" @ 215'; 13 1/8" @ 1469' ELEV. 9811' DATE: 2/28/75
 LINER DESCRIPTION: 9 7/8" @ 3380'; 7" 3350-8200' SLOTS 4227-8166 ZERO POINT GL+12'
 DEPTH 8176'

TUBING DETAIL:

PURPOSE BUILD UP

REMARKS:

P-0-4250-PSIG 7188 12HR-13375L 15
 ELEMENT T-80°F-646°F SERIAL NO. 10052 CLOCK 12HR-13796L-15TURN STABILIZATION PERIOD
 ENGAGE SYLUS P-1036HRS T-1035HRS DISENGAGE SYLUS P-1526HRS T-1526HRS
 WELL HEAD 698PSIG - 0-1000 1/6 - 0-1500 13/R @ 1115 HRS
 PICKUP @ 8176 TIME ON BOTTOM 1215 HRS-1445 HRS MAX. °F 558.7
 WELL STATUS SHUT IN
 SHUT IN: 1040 HRS - 2/25/75 ON PRODUCTION:
 RATE

PRESSURE

TEMPERATURE

| TIME | DEPTH | DEFL. | P-ψ | GRAD. | ID CORR. | TIME | DEPTH | DEFL. | ψ-T | GRAD. | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|-----------|-------|-------|--------|--------|----------|------|-------|-------|-------|-------|------|-------|-------|-----|-------|----|
| 110 | 1000 | .325 | 718.2 | 0 | -0.008 | " | 1000 | .715 | 299.9 | 0 | | | | | | |
| 116 | 2000 | .340 | 750.0 | -0.032 | -0.003 | " | 2000 | .897 | 353.1 | .053 | | | | | | |
| 1130-1130 | 3000 | .351 | 773.3 | -0.023 | 0.000 | " | 3000 | 1.185 | 435.7 | .083 | | | | | | |
| 1132-1139 | 4000 | .361 | 794.5 | -0.021 | +0.001 | " | 4000 | 1.357 | 482.4 | .047 | | | | | | |
| 1142-1152 | 5000 | .401 | 879.2 | .084 | +0.001 | " | 5000 | 1.461 | 509.9 | .028 | | | | | | |
| 1204-1201 | 6000 | .551 | 1195.4 | .316 | +0.003 | " | 6000 | 1.522 | 525.7 | .016 | | | | | | |
| 204-1212 | 7000 | .703 | 1514.8 | .319 | +0.003 | " | 7000 | 1.592 | 543.9 | .018 | | | | | | |
| 1215 | 8176 | .881 | 1891.9 | .386 | +0.003 | " | 8176 | 1.630 | 553.5 | .010 | | | | | | |
| 1236 | " | .881 | 1891.9 | - | +0.002 | " | " | 1.649 | 558.2 | - | | | | | | |
| 1245 | " | .882 | 1894.1 | - | +0.002 | " | " | 1.650 | 558.5 | - | | | | | | |
| 1300 | " | .882 | 1894.1 | - | +0.002 | " | " | 1.650 | 558.5 | - | | | | | | |
| 1315 | 8176 | .884 | 1898.3 | - | +0.002 | " | 8176 | 1.650 | 558.5 | - | | | | | | |
| 1330 | " | .884 | 1898.3 | - | +0.002 | " | " | 1.650 | 558.5 | - | | | | | | |
| 1345 | " | .884 | 1898.3 | - | +0.002 | " | " | 1.650 | 558.5 | - | | | | | | |
| 1400 | " | .885 | 1900.4 | - | +0.002 | " | " | 1.650 | 558.5 | - | | | | | | |
| 1415 | " | .885 | 1900.4 | - | +0.002 | " | " | 1.651 | 558.7 | - | | | | | | |
| 1430 | " | .885 | 1900.4 | - | +0.002 | " | " | 1.651 | 558.7 | - | | | | | | |
| 1445 | 8176 | .885 | 1900.4 | - | +0.002 | " | 8176 | 1.651 | 558.7 | - | | | | | | |

COMMENTS:

THE WELL DID NOT FLUCTUATE AT ALL DURING THE ENTIRE SURVEY.

BY:

76

UNION

GEOHERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B-13 S-7 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #13
 CASING 20" AT 215' ; 13 3/8" AT 1469' ELEV. 9211' DATE: 2/26/75
 LINER DESCRIPTION: 9 5/8" AT 3380' ; 7" 3380 - 8200 ; SLOTS-4227-8146 ZERO POINT CLT 12
 DEPTH 8200'

TUBING DETAIL:

PURPOSE BUILDUP

REMARKS:

0-4250 PSIC 7198 ; CLOCK 13775-L 15 TURN

ELEMENT 300° - 756° SERIAL NO. 10036 CLOCK 13790-L 15 TURN STABILIZATION PERIOD

ENGAGE STYLUS P-1140 ; T-1156 DISENGAGE STYLUS P-1542 ; T-1542

WELL HEAD SEE CHARTS

PICKUP @ 8200' TIME ON BOTTOM 1215 - 1500 HRS MAX. "F 545.6

WELL STATUS STATIC

SHUT IN: 1040 HRS 2/25/75 ON PRODUCTION:

RATE

PRESSURE

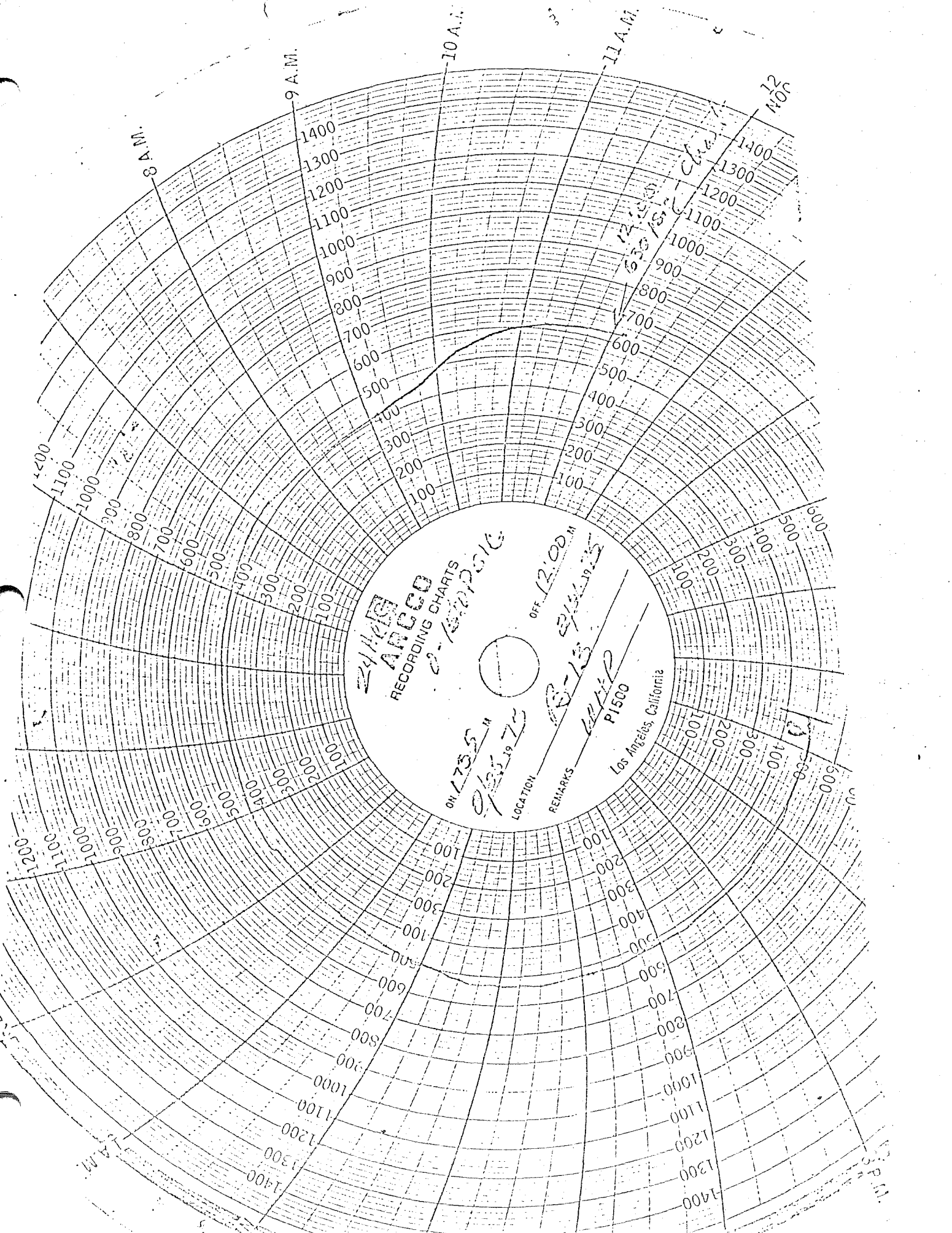
PRESSURE

TEMPERATURE

| TIME | DEPTH | DEFL. | P-# | GRAD. | ID | TIME | DEPTH | DEFL. | P-# | GRAD. | ID | TIME | DEPTH | DEFL. | P-# | GRAD. | ID |
|------|-------|-------|--------|-------|----|------|-------|-------|--------|-------|----|------|-------|-------|-------|-------|----|
| 11 | 8200 | .806 | 1735.1 | | | 1435 | 8200 | .771 | 1658.9 | | | 1215 | 1.246 | 542.0 | 8200' | | |
| | " | .819 | 1740.6 | | | 40 | " | .778 | 1673.7 | | | 1225 | 1.252 | 543.5 | " | | |
| 25 | " | .817 | 1736.4 | | | 45 | " | .792 | 1703.4 | | | 35 | 1.253 | 543.8 | " | | |
| 30 | " | .796 | 1711.9 | | | 50 | " | .808 | 1737.3 | | | 45 | 1.253 | 543.8 | " | | |
| 35 | " | .791 | 1701.3 | | | 55 | " | .819 | 1740.6 | | | 55 | 1.253 | 543.8 | " | | |
| 40 | " | .779 | 1675.8 | | | 1500 | " | .824 | 1771.2 | | | 1305 | 1.255 | 544.3 | " | | |
| 45 | " | .767 | 1650.4 | | | | | | | | | 15 | 1.255 | 544.3 | " | | |
| 50 | " | .766 | 1648.3 | | | | | | | | | 25 | 1.255 | 544.3 | " | | |
| 55 | " | .775 | 1667.4 | | | | | | | | | 35 | 1.255 | 544.3 | " | | |
| 1300 | " | .789 | 1697.0 | | | | | | | | | 45 | 1.255 | 544.3 | " | | |
| 05 | " | .806 | 1735.1 | | | | | | | | | 55 | 1.257 | 544.8 | " | | |
| 10 | " | .817 | 1740.6 | | | | | | | | | 1405 | 1.257 | 544.8 | " | | |
| 15 | " | .821 | 1744.8 | | | | | | | | | 15 | 1.257 | 544.8 | " | | |
| 20 | " | .809 | 1739.4 | | | | | | | | | 25 | 1.257 | 544.8 | " | | |
| 25 | " | .796 | 1711.9 | | | | | | | | | 35 | 1.258 | 545.1 | " | | |
| 30 | " | .791 | 1701.3 | | | | | | | | | 45 | 1.259 | 545.3 | " | | |
| 35 | " | .785 | 1688.6 | | | | | | | | | 55 | 1.259 | 545.3 | " | | |
| 40 | " | .774 | 1665.3 | | | | | | | | | 1500 | 1.260 | 545.6 | " | | |
| 45 | " | .772 | 1661.0 | | | | | | | | | | | | | | |
| 50 | " | .779 | 1675.8 | | | | | | | | | | | | | | |
| 55 | " | .791 | 1701.3 | | | | | | | | | | | | | | |
| 1400 | " | .809 | 1735.7 | | | | | | | | | | | | | | |
| 05 | " | .819 | 1740.6 | | | | | | | | | | | | | | |
| 10 | " | .824 | 1771.2 | | | | | | | | | | | | | | |
| 15 | " | .810 | 1741.5 | | | | | | | | | | | | | | |
| 20 | " | .797 | 1712.0 | | | | | | | | | | | | | | |
| 25 | " | .783 | 1684.5 | | | | | | | | | | | | | | |
| 30 | " | .772 | 1661.0 | | | | | | | | | | | | | | |

COMMENTS:

BY: 141.1A



8 A.M.

9 A.M.

10 A.M.

11 A.M.

12 M.

1 A.M.

2 A.M.

3 A.M.

4 A.M.

5 A.M.

6 A.M.

7 A.M.

8 A.M.

9 A.M.

10 A.M.

11 A.M.

12 M.

1 A.M.

2 A.M.

3 A.M.

4 A.M.

5 A.M.

6 A.M.

7 A.M.

8 A.M.

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UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B# 13-SC-P17

OWNER UNION OIL CO OF CALIF FIELD VALLE GRANDE WELL NAME BOP #13
 CASING 20" @ 215'; 13 3/8" @ 1469' ELEV. 9211' DATE: 2-25-75
 LINER DESCRIPTION: 9 5/8" - 3280', ZERO POINT C-L + 12'
 SLOTTED LINER - 7" - 3280' - 8200' SLOTS - 4227' - 8166' DEPTH 8200'

TUBING DETAIL:

PURPOSE BOTTOM HOLE BUILD UP

REMARKS:

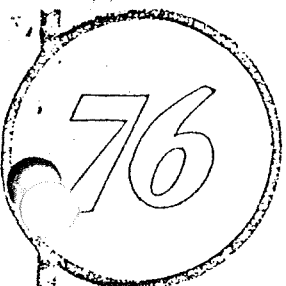
P-0-4250 PSIG 7198 12HR-13375L 15
 ELEMENTS 380-726°F SERIAL NO. 10036 CLOCK 12HR-13280L 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1648 T1646 DISENGAGE STYLUS P-2246 T-2246
 WELL HEAD SEE CHART
 PICKUP @ 8200' TIME ON BOTTOM 1723-2203 MAX. F 533.4
 WELL STATUS SHUT IN
 SHUT IN: 1046 hrs - 2/25/75 ON PRODUCTION:
 RATE

PRESSURE

| TIME | DEPTH | DEFL. | P-# | GRAD. | CO. ID | TIME | DEPTH | DEFL. | P-# | GRAD. | CO. ID | TIME | DEPTH | DEFL. | P-# | GRAD. | CO. ID |
|------|-------|-------|--------|-------|--------|------|-------|-------|--------|-------|--------|------|-------|-------|--------|-------|--------|
| 1723 | 8200 | .763 | 1641.9 | v | +0.06 | 1943 | 8200 | .711 | 1531.8 | | +0.06 | 2203 | 8200 | .792 | 1703.4 | | +0.06 |
| 1728 | " | .749 | 1612.3 | | " | 1948 | " | .726 | 1543.6 | | " | | | | | | |
| 1733 | " | .739 | 1591.1 | | " | 1953 | " | .750 | 1614.4 | | " | | | | | | |
| 1738 | " | .730 | 1572.0 | | " | 1958 | " | .769 | 1654.7 | | " | | | | | | |
| 1743 | " | .711 | 1531.8 | | " | 2003 | " | .786 | 1690.7 | | " | | | | | | |
| 1748 | " | .701 | 1510.6 | | " | 2008 | 8200 | .791 | 1701.3 | | " | | | | | | |
| 1753 | " | .705 | 1519.1 | | " | 2013 | " | .776 | 1648.5 | | " | | | | | | |
| 1758 | " | .724 | 1559.3 | | " | 2018 | " | .760 | 1635.6 | | " | | | | | | |
| 1803 | " | .749 | 1612.3 | | " | 2023 | " | .746 | 1606.0 | | " | | | | | | |
| 1808 | 8200 | .771 | 1658.9 | | " | 2028 | " | .727 | 1565.7 | | " | | | | | | |
| 1813 | " | .783 | 1684.3 | v | " | 2033 | " | .714 | 1538.1 | | " | | | | | | |
| 1818 | " | .779 | 1675.8 | | " | 2038 | " | .709 | 1527.5 | | +0.06 | | | | | | |
| 1823 | " | .763 | 1641.9 | | " | 2043 | 8200 | .724 | 1559.3 | | " | | | | | | |
| 1828 | " | .747 | 1608.1 | | +0.06 | 2048 | " | .746 | 1606.0 | | " | | | | | | |
| 1833 | " | .733 | 1578.4 | | " | 2053 | " | .767 | 1650.4 | | " | | | | | | |
| 1838 | " | .715 | 1540.3 | | " | 2058 | " | .784 | 1686.4 | | " | | | | | | |
| 1843 | " | .703 | 1514.8 | v | " | 2103 | " | .793 | 1705.5 | | " | | | | | | |
| 1848 | " | .707 | 1523.3 | | " | 2108 | " | .783 | 1684.3 | | " | | | | | | |
| 1853 | 8200 | .725 | 1561.4 | | " | 2113 | " | .766 | 1648.3 | | " | | | | | | |
| 1858 | " | .747 | 1608.1 | | " | 2118 | 8200 | .753 | 1620.8 | | " | | | | | | |
| 1903 | " | .768 | 1682.5 | | " | 2123 | " | .735 | 1582.7 | | " | | | | | | |
| 1908 | " | .784 | 1686.4 | | " | 2128 | " | .721 | 1553.0 | | " | | | | | | |
| 1913 | " | .786 | 1690.7 | v | " | 2133 | " | .716 | 1532.4 | | +0.06 | | | | | | |
| 1918 | " | .771 | 1658.9 | | " | 2138 | " | .728 | 1567.8 | | " | | | | | | |
| 1923 | " | .753 | 1620.8 | | " | 2143 | " | .746 | 1606.0 | | " | | | | | | |
| 1928 | " | .737 | 1586.9 | | " | 2148 | " | .768 | 1652.5 | | " | | | | | | |
| 1933 | " | .721 | 1553.0 | | " | 2153 | " | .786 | 1680.7 | | " | | | | | | |
| 1938 | 8200 | .708 | 1525.4 | v | +0.06 | 2158 | 8200 | .796 | 1711.9 | | " | | | | | | |

COMMENTS:

BY: J.M. / J.B. / J.H.



UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

B#13-SC-PIT

OWNER UNION OIL CO. OF CALIF. FIELD VALLE GRANDE WELL NAME BACH-13
 CASING 20" @ 215' 13 3/8" @ 1469 ELEV. 9211' DATE: 2/25/75
 LINER DESCRIPTION: 9 5/8" @ 3380' ZERO POINT GL+12'
 SLOTTED LINER - 7" - 3380' - 8200 SLOTS - 4227 - 8166' DEPTH 8200'

TUBING DETAIL:

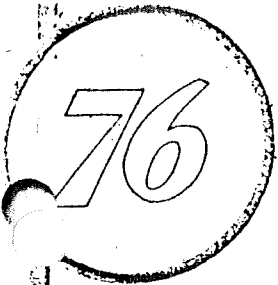
PURPOSE BOEYOM HOLE BUILD UP
 REMARKS:
 P-0-4250 PSIG - 7198 1242 13375 L 15
 ELEMENT T-300-736°F SERIAL NO. 10036 CLOCK 1242-13790 L 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1648, T-1648 DISENGAGE STYLUS P-2246, T-2246
 WELL HEAD SEE CHART
 PICKUP @ 8200' TIME ON BOTTOM 1723-2203 MAX. F 533.4
 WELL STATUS SHUT IN.
 SHUT IN: 1040 hrs - 2/25/75 ON PRODUCTION:
 RATE

TEMPERATURE

| TIME | DEPTH | DEFL. | B-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|------|-------|-------|-----|-------|----|
| 11 | 8200 | 1.185 | 526.1 | | | | | | | | | | | | | | |
| 12 | " | 1.190 | 527.4 | | | | | | | | | | | | | | |
| 1753 | " | 1.190 | 527.4 | | | | | | | | | | | | | | |
| 1808 | " | 1.193 | 528.2 | | | | | | | | | | | | | | |
| 1823 | " | 1.194 | 528.4 | | | | | | | | | | | | | | |
| 1838 | " | 1.194 | 528.4 | | | | | | | | | | | | | | |
| 1853 | " | 1.196 | 529.0 | | | | | | | | | | | | | | |
| 1908 | " | 1.200 | 530 | | | | | | | | | | | | | | |
| 1923 | " | 1.200 | 530 | | | | | | | | | | | | | | |
| 1938 | " | 1.200 | 530 | | | | | | | | | | | | | | |
| 1953 | " | 1.203 | 530.8 | | | | | | | | | | | | | | |
| 2008 | 8200 | 1.206 | 531.6 | | | | | | | | | | | | | | |
| 2023 | " | 1.206 | 531.6 | | | | | | | | | | | | | | |
| 2038 | " | 1.206 | 531.6 | | | | | | | | | | | | | | |
| 2053 | " | 1.209 | 532.3 | | | | | | | | | | | | | | |
| 108 | " | 1.210 | 532.6 | | | | | | | | | | | | | | |
| 123 | " | 1.210 | 532.6 | | | | | | | | | | | | | | |
| 128 | " | 1.211 | 532.9 | | | | | | | | | | | | | | |
| 133 | " | 1.213 | 533.4 | | | | | | | | | | | | | | |
| 138 | " | 1.213 | 533.4 | | | | | | | | | | | | | | |
| 143 | 8200 | 1.213 | 533.4 | | | | | | | | | | | | | | |

COMMENTS:

BY:



UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

63
B#11-562- P/P

OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME BACA #13
 CASING 20" AT 207'; 9 5/8" TIEBACK @ 1219' ELEV. 9064' DATE: 1/24/75
 LINER DESCRIPTION: 13 3/8" @ 1236'; 9 5/8" 1219-3380' ZERO POINT GLT 10'
SCOTTED LINER - 7" HUNG @ 3320 - T.D. DEPTH 6630'

TUBING DETAIL:

PURPOSE

REMARKS:

P1 - 0-4350 PSIG 7198 12HR - 12891 15
 ELEMENT P2 - 0-2950 PSIG SERIAL NO. 9235 CLOCK 12HR - 12889 TURN 15 STABILIZATION PERIOD
 ENGAGE STYLUS P1 - 1002 P2 1004 DISENGAGE STYLUS P1 - 1300, P2 - 1258
 WELL HEAD 310 PSIG
 PICKUP @ 6630 TIME ON BOTTOM 1116 - 1221 HRS MAX. F 602.9
 WELL STATUS SHUT IN
 SHUT IN: 1035 HRS - 11/17/74 ON PRODUCTION:
 RATE

P1 - 7198

CORR

P2 - 9235

| TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|----------|-------|-------|--------|-------|--------|------|-------|-------|--------|-------|--------|------|-------|-------|-----|-------|----|
| 23-10-33 | 100 | .140 | 315.3 | 0 | 0 | " | 100 | .205 | 319.3 | 0 | 0 | | | | | | |
| 15 | 1000 | .144 | 324.3 | .01 | 0 | " | 1000 | .210 | 327.1 | .01 | 0 | | | | | | |
| 3 | 3000 | .354 | 779.6 | .23 | +1.001 | " | 3000 | .516 | 790.2 | .23 | +1.001 | | | | | | |
| 1-1111 | 4000 | .449 | 980.9 | .20 | +1.002 | " | 4000 | .652 | 992.6 | .20 | +1.002 | | | | | | |
| 6-1221 | 6630 | .843 | 1811.4 | .32 | +1.007 | " | 6630 | 1.210 | 1816.6 | .31 | +1.008 | | | | | | |

COMMENTS:

BY: A.M.

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

84
B#11-563-T1T

OWNER UNION OIL CO. OF CALIF FIELD VALLE GRANDE WELL NAME BACP #13
 CASING 20" @ 207, 9 5/8" @ 1219' T.C. BASIS ELEV. 9064 DATE: 1/24/75
 LINER DESCRIPTION: 13 7/8" @ 1336' - 9 5/8" 1219' - 3380' ZERO POINT GLYD'
 SLOTTED LINER - 7" - 4099 - @ 3320 - T.D. DEPTH 6630'

TUBING DETAIL:

PURPOSE

REMARKS:

T₁ 28°F - 699°F 10055 124R - 13374 15
 ELEMENT T₂ 80°F - 646°F SERIAL NO. 10052 CLOCK 124R - 13375 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS T₁ - 1426, T₂ 1429 DISENGAGE STYLUS T₁ - 1720 T₂ 1722
 WELL HEAD 310 PSIG
 PICKUP @ 6630 - TIME ON BOTTOM 1554 - 1654 MAX. °F T₁ 602.1, T₂ 588
 WELL STATUS SHUT IN
 SHUT IN: 1035 hrs - 11/17/74 ON PRODUCTION:
 RATE

T₁ 10055 T₂ 10052

| TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID | TIME | DEPTH | DEFL. | P-T | GRAD. | ID |
|--|-------|-------|-------|-------|------|--|-------|-------|-------|-------|------|------|-------|-------|-----|-------|----|
| 119-159 | 100 | .054 | 106.4 | 0 | | " | 100 | .015 | 85.2 | 0 | | | | | | | |
| 162 | 1000 | .545 | 272.4 | .18 | | " | 1000 | .566 | 255.8 | .19 | | | | | | | |
| 316 | 3000 | 1.363 | 520.5 | .12 | 753 | " | 3000 | 1.459 | 509.3 | .13 | 731 | | | | | | |
| 533-1543 | 4000 | 1.463 | 548.6 | .02 | 1122 | " | 4000 | 1.538 | 535.1 | .02 | 973 | | | | | | |
| 734-1654 | 6630 | 1.655 | 602.1 | .02 | 1555 | " | 6630 | 1.767 | 587.7 | .02 | 1119 | | | | | | |
| REFER TO | | | | | | BACP #11 5-33- T ₁ /T ₂ - 4/1/74 | | | | | | | | | | | |
| THIS DIFFERENCE IN TEMPERATURE ELEMENTS WAS DETECTED AND THE ELEMENTS WERE SENT IN FOR A CALIBRATION CHECK. THEY WERE OKAY BY THE DIFFERENCE IS STILL EVIDENT. | | | | | | | | | | | | | | | | | |

COMMENTS:

BY: J. M.

76

UNION

GEO THERMAL DIVISION

SUBSURFACE SURVEY

Field Work Sheet

BACA #13 S-5 P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA #13
 CASING 20" AT 215'; 13 3/8" AT 1469' ELEV. 9291' DATE: 11-29-74
 LINER DESCRIPTION: 9 5/8" AT 3500' ZERO POINT GL 12
7" SLOTTED LINER - 3380' - 8200' DEPTH 8200'
 TUBING DETAIL: SLOTS - 4227' - 8100'

PURPOSE PRESSURE / TEMPERATURE GRADIENT

REMARKS:

ELEMENT - 0-4250 PSIC SERIAL NO. 7198 CLOCK - 12 HR 13314 - L 15 TURN
 ELEMENT - 880 - 699 °F SERIAL NO. 10055 CLOCK - 12 HR 13315 - L 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1134 HRS; T-1139 HRS DISENGAGE STYLUS P-1421 HRS; T-1424 HRS
 WELL HEAD 151 PSIG 0-200 T/B
 PICKUP @ 7700' TIME ON BOTTOM 1323 - 1326 HRS MAX. °F 588.1
 WELL STATUS STATIC
 SHUT IN: 11-27-74 AT 1510 HRS 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 |
|------|-------|-------|--------|-------|--------|---------|-------|-------|-------|-------|----|------|-------|-------|-----|-------|----|
| 1225 | 100 | .051 | 182.4 | 0 | 0 | 1225-15 | 100 | .050 | 105.0 | 0 | | | | | | | |
| | 1000 | .052 | 194.7 | .002 | 0 | " | 1000 | .454 | 243.3 | .153 | | | | | | | |
| | 2000 | .084 | 189.2 | .004 | 0 | " | 2000 | .747 | 337.0 | .093 | | | | | | | |
| | 3000 | .245 | 549.7 | .359 | -0.001 | " | 3000 | 1.085 | 440.6 | .103 | | | | | | | |
| | 4000 | .412 | 902.5 | .353 | +0.002 | " | 4000 | 1.239 | 485.1 | .004 | | | | | | | |
| | 5000 | .573 | 1241.0 | .339 | +0.003 | " | 5000 | 1.274 | 495.1 | .010 | | | | | | | |
| | 6000 | .730 | 1584.7 | .343 | +0.006 | " | 6000 | 1.353 | 517.6 | .022 | | | | | | | |
| | 7000 | .895 | 1921.6 | .330 | +0.007 | " | 7000 | 1.493 | 557.0 | .039 | | | | | | | |
| | 8200 | 1.007 | 2159.0 | .340 | +0.007 | " | 7700 | 1.604 | 588.1 | .044 | | | | | | | |

COMMENTS:

BY: JS

76

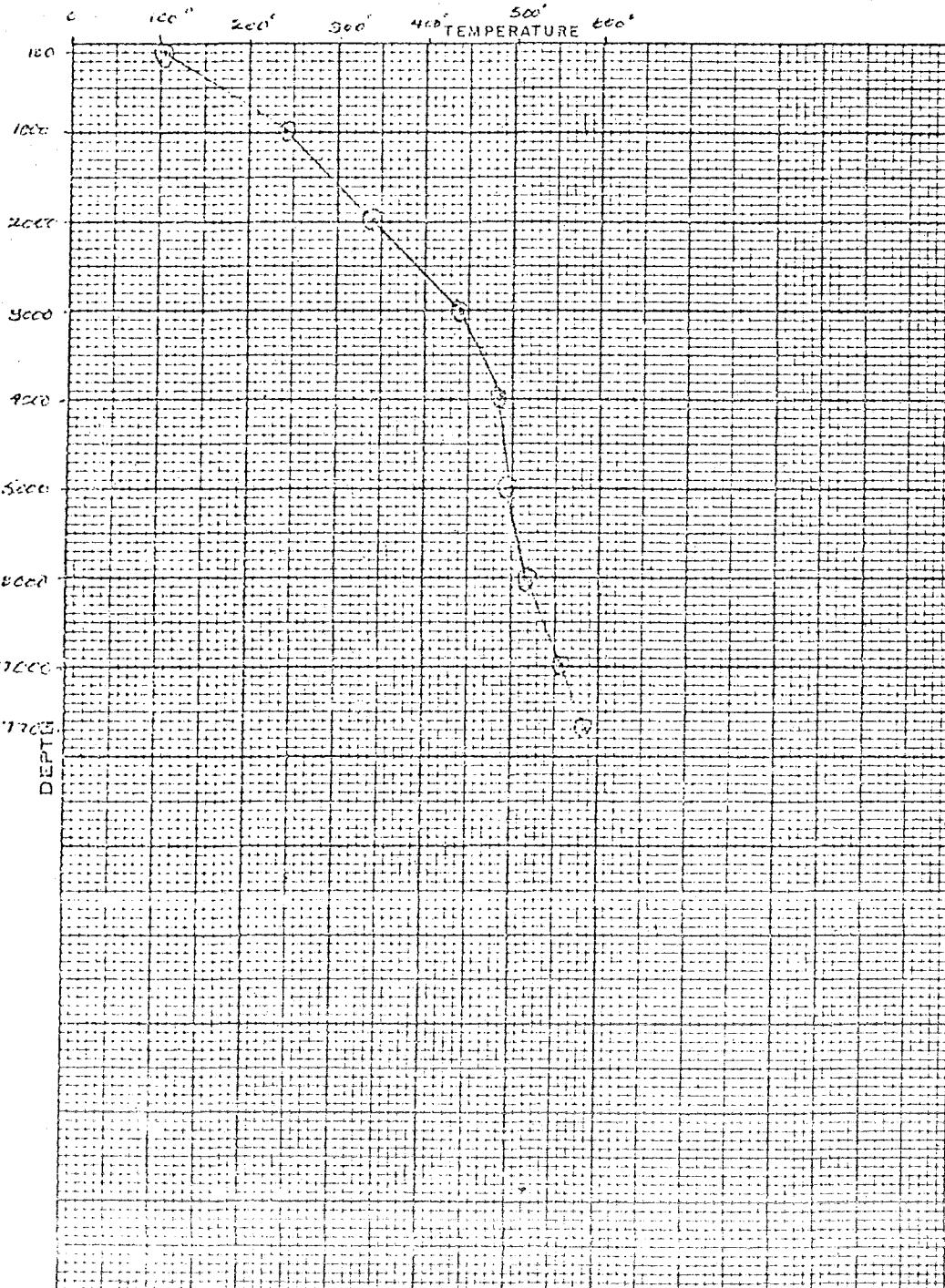
GEO THERMAL DIVISION SUBSURFACE TEMPERATURE SURVEY

BACA #13 S-S PIT

| | | |
|---|----------------------------|----------------------------|
| OWNER <u>UNION OIL COMPANY</u> | FIELD <u>VALLE GRANDE</u> | WELL NAME <u>BACA #13</u> |
| CASING <u>2 1/2" AT 215'; 1 3/8" AT 1469'</u> | ELEV <u>9291'</u> | DATE <u>11-29-74</u> |
| LINER DESCRIPTION: <u>4 5/8" AT 3500'</u> | | ZERO POINT <u>CL + 12'</u> |
| <u>7" SLOTTED LINER - 3330' - 8200'</u> | | DEPTH <u>8200'</u> |
| <u>SLOTS - 4227' - 8106'</u> | | |
| HOLE DESCRIPTION: _____ | | |
| | INSTRUMENT <u>580-6980</u> | FAH: _____ |
| | SERIAL NO <u>10055</u> | |

PURPOSE PRESSURE / TEMPERATURE GRADIENT MAX TEMP 588.1 °F @ 7700'

REMARKS: _____



STABILIZATION PERIOD

| PRESSURES | GAUGE | BOMB | |
|-------------|--------------|-------------------|-------|
| CASING, PSI | <u>181</u> | | |
| DEPTH | TEMP. | DEPTH | TEMP. |
| <u>100</u> | <u>105.0</u> | | |
| <u>1000</u> | <u>243.3</u> | | |
| <u>2000</u> | <u>337.0</u> | | |
| <u>3000</u> | <u>440.6</u> | | |
| <u>4000</u> | <u>485.1</u> | <u>4.45°/100'</u> | |
| <u>5000</u> | <u>495.1</u> | <u>1.0°/100'</u> | |
| <u>6000</u> | <u>517.6</u> | <u>2.25°/100'</u> | |
| <u>7000</u> | <u>557.0</u> | <u>3.94°/100'</u> | |
| <u>7700</u> | <u>588.1</u> | <u>1.59°/100'</u> | |

BY: [Signature]

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U1117511

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

BRN # 13 S-5 P/7

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BRN # 13
 CASING 20" AT 215'; 13 3/8" AT 1469' ELEV 9291' DATE 11-29-74
 LINER DESCRIPTION: 4 3/8" AT 3500' ZERO POINT GLT 12
7" SLOTTED LINER - 3350' - 8200' DEPTH 8200'
SLOTS - 4227' - 8100'

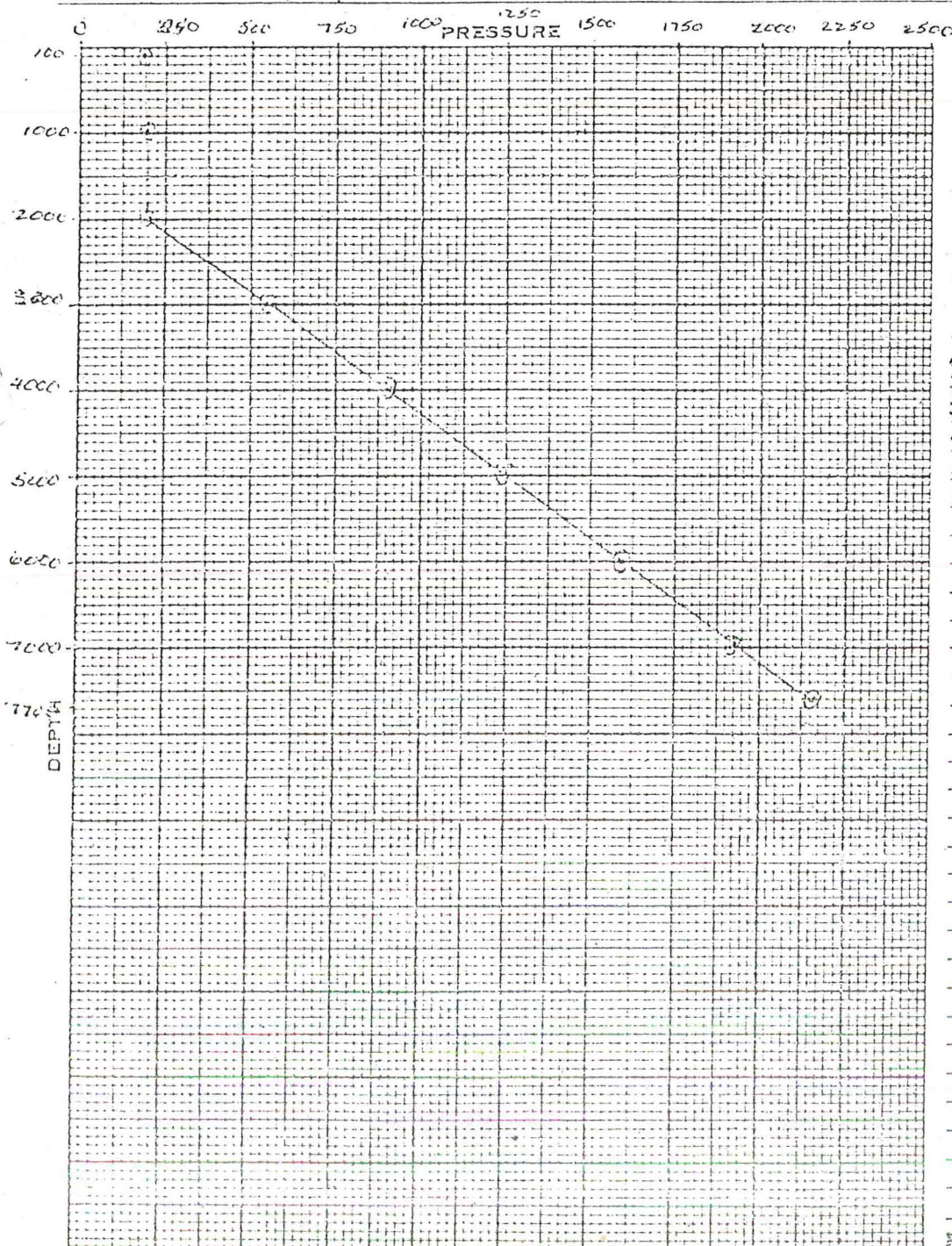
HOLE DESCRIPTION:

INSTRUMENT 0-4250 PSI
 SERIAL NO 7198

PURPOSE PRESSURE / TEMPERATURE GRADIENT

MAX TEMP 588.1 F @ 7700'

REMARKS:



STABILIZATION PERIOD

| PRESSURE | GAUGE | BOMB |
|-------------|-------|------|
| CASING, PSI | 181 | |

| DEPTH | PRESSURE | GRADIENT |
|-------|----------|----------|
| 100 | 182.4 | - |
| 1000 | 184.7 | .003 |
| 2000 | 189.2 | .015 |
| 3000 | 548.7 | .560 |
| 4000 | 902.6 | .352 |
| 5000 | 1241.6 | .339 |
| 6000 | 1584.7 | .343 |
| 7000 | 1921.6 | .337 |
| 7700 | 2159.6 | .310 |

8200' x 114.252 51

BY: *[Signature]*

76

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UNION 76

GEO THERMAL DIVISION

SUBSURFACE SURVEY
Field Work Sheet

B-13 S-5-P/T

OWNER UNION OIL COMPANY FIELD VALLE GRANDE WELL NAME BACA # 13
 CASING 20" AT 25'; 13 3/8" AT 146' ELEV. 9211' DATE: 2/25/75
 LINER DESCRIPTION: 9 5/8 AT 3380' ZERO POINT GL + 12
 7" SLOTTED LINER 3380' - 8200' ; SLOTS - 4227 - 8166' DEPTH 8200'
 TUBING DETAIL:

PURPOSE PRESSURE TEMPERATURE BUILD UP

REMARKS:

ELEMENT: P-0-4250 PSIG ; 7198 CLOCK-15375-L 15 T
 ELEMENT: T-300-426 SERIAL NO. 10036 CLOCK-13790-L 15 TURN STABILIZATION PERIOD
 ENGAGE STYLUS P-1065 HFS T-1009 HFS DISENGAGE STYLUS P-1610 HE T-1614 HFS
 WELL HEAD SEE ATTACHED CHARTS
 PICKUP @ 8200' TIME ON BOTTOM 1100 - 1630 HRS MAX. °F 523.5
 WELL STATUS - STATIC
 SHUT IN: 1040 HRS 2/25/75 ON PRODUCTION:
 RATE

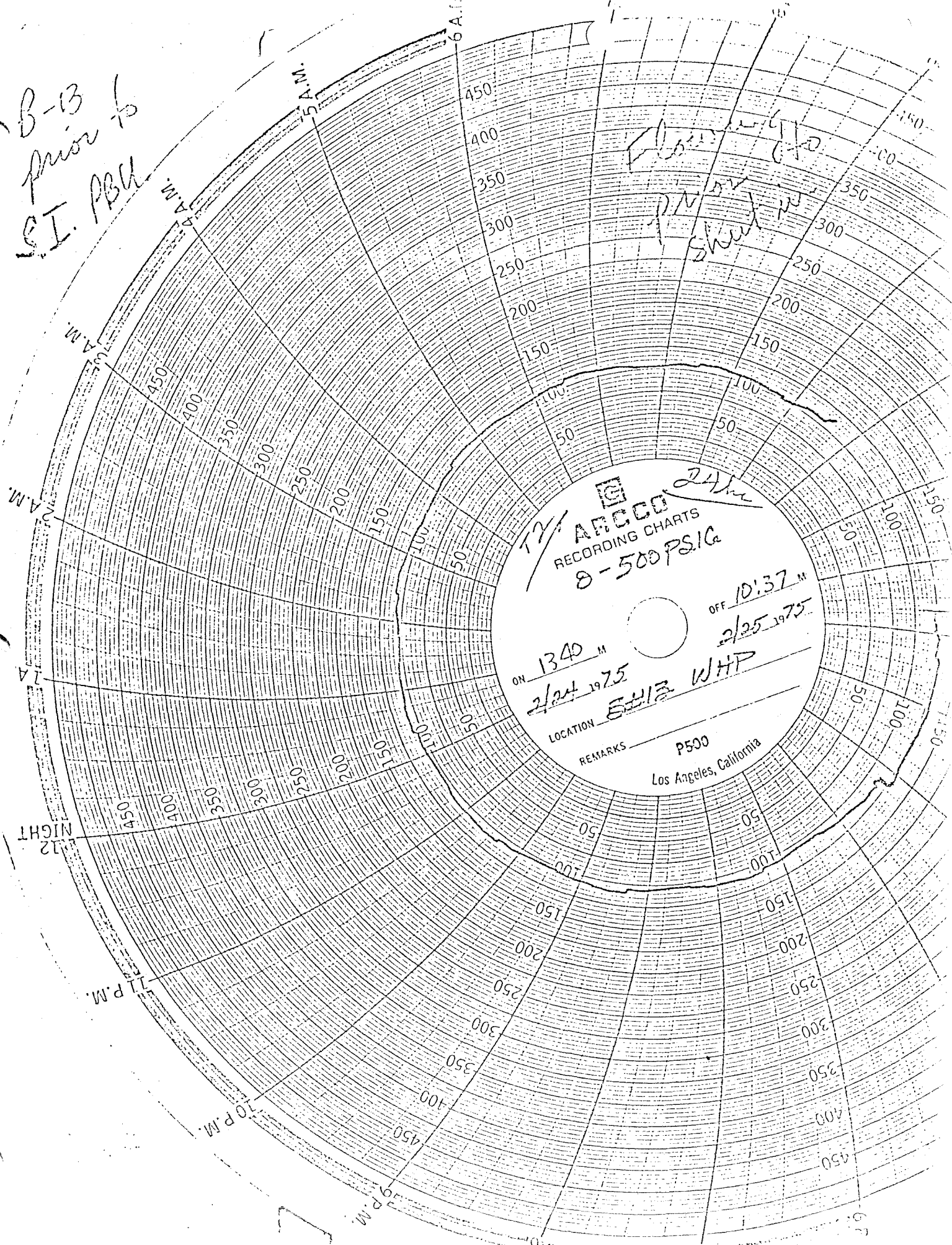
PRESSURE TEMPERATURE

| TIME | DEPTH | DEFL. | P - T | GRAD. | TD | TIME | DEPTH | DEFL. | P - T | GRAD. | TD | TIME | DEPTH | DEFL. | P - T | GRAD. | TD |
|------|-------|-------|--------|-------|----|------|-------|-------|-------|-------|----|------|-------|-------|-------|-------|----|
| 1100 | 8200 | .525 | 1140.6 | ±.004 | | 1100 | 8200 | 1.123 | 510.0 | | | | | | | | |
| 1105 | " | .564 | 1222.7 | ±.005 | | 1105 | " | 1.127 | 511.6 | | | | | | | | |
| 1110 | " | .601 | 1300.4 | ±.005 | | 1110 | " | 1.130 | 511.8 | | | | | | | | |
| 1115 | " | .641 | 1384.5 | ±.006 | | 1115 | " | 1.132 | 512.3 | | | | | | | | |
| 1120 | " | .678 | 1462.2 | ±.006 | | 1120 | " | 1.134 | 512.8 | | | | | | | | |
| 1125 | " | .708 | 1535.4 | " | | 1125 | " | 1.136 | 513.4 | | | | | | | | |
| 1130 | " | .730 | 1572.0 | " | | 1130 | " | 1.137 | 513.6 | | | | | | | | |
| 1135 | " | .740 | 1592.2 | " | | 1135 | " | 1.138 | 513.9 | | | | | | | | |
| 1140 | " | .743 | 1599.6 | " | | 1140 | " | 1.140 | 514.4 | | | | | | | | |
| 1145 | " | .743 | 1599.6 | " | | 1145 | " | 1.141 | 514.7 | | | | | | | | |
| 1150 | " | .743 | 1599.6 | " | | 1150 | " | 1.141 | 514.7 | | | | | | | | |
| 1155 | " | .743 | 1599.6 | " | | 1155 | " | 1.143 | 515.2 | | | | | | | | |
| 1200 | " | .743 | 1599.6 | " | | 1200 | " | 1.144 | 515.4 | | | | | | | | |
| 1215 | " | .747 | 1608.1 | " | | 1215 | " | 1.146 | 516.0 | | | | | | | | |
| 1230 | " | .740 | 1595.2 | " | | 1230 | " | 1.149 | 516.7 | | | | | | | | |
| 1245 | " | .738 | 1589.0 | " | | 1245 | " | 1.151 | 517.3 | | | | | | | | |
| 1300 | " | .738 | 1589.0 | " | | 1300 | " | 1.154 | 518.0 | | | | | | | | |
| 1315 | " | .738 | 1589.0 | " | | 1315 | " | 1.154 | 518.6 | | | | | | | | |
| 1330 | " | .738 | 1589.0 | " | | 1330 | " | 1.160 | 519.6 | | | | | | | | |
| 1345 | " | .738 | 1589.0 | " | | 1345 | " | 1.162 | 520.1 | | | | | | | | |
| 1400 | " | .733 | 1578.4 | " | | 1400 | " | 1.164 | 520.6 | | | | | | | | |
| 1415 | " | .730 | 1572.0 | " | | 1415 | " | 1.166 | 521.2 | | | | | | | | |
| 1430 | " | .742 | 1597.5 | " | | 1430 | " | 1.168 | 521.7 | | | | | | | | |
| 1445 | " | .731 | 1574.2 | " | | 1445 | " | 1.169 | 521.9 | | | | | | | | |
| 1500 | " | .696 | 1500.0 | " | | 1500 | " | 1.170 | 522.2 | | | | | | | | |
| 1515 | " | .755 | 1623.0 | " | | 1515 | " | 1.174 | 523.2 | | | | | | | | |
| 1530 | " | .763 | 1641.9 | " | | 1530 | " | 1.175 | 523.5 | | | | | | | | |

COMMENTS:

BY: SM/JS /SH/

B-13
Prior to
S.I. ABU



ARCCO
RECORDING CHARTS
8-500 PSIG

ON 1340 M
2/24 1975

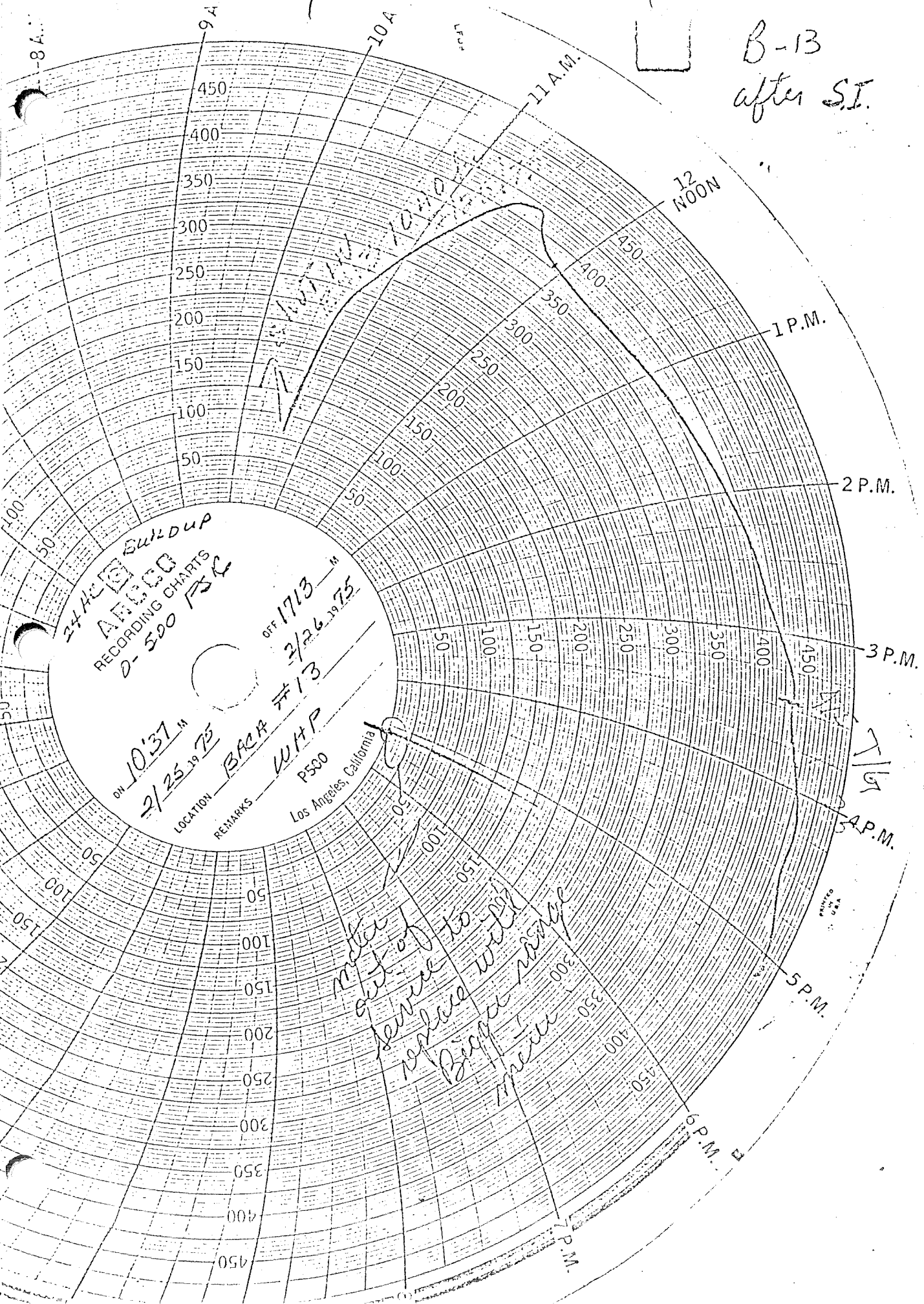
OFF 10:37 M
2/25 1975

LOCATION EMB WHP

REMARKS P500
Los Angeles, California

Handwritten notes in the upper right quadrant of the chart, including '1340 M' and '2/24 1975'.

B-13
after S.I.



24 Hrs BUILDUP
AFCO RECORDING CHARTS
D-520 FSC
ON 10:37 M 2/25 1975
OFF 1713 M 2/26 1975
LOCATION BACA #13
REMARKS WHP P530
Los Angeles, California

Make out of service to replace with BACA #13 then

TJR

PRINTED IN USA

Production

Specialists

AGNEW and SWEET

3914 Gilmore Avenue
Bakersfield, California 93308

DEL PYLE

24-Hour Phone: 327-2267

DEC 19 1974

B#15-59-14

SUBSURFACE SURVEY

Field Work Sheet

OWNER Union Oil of Calif. FIELD Valle Grande WELL NAME BRN#13
 CASING 20" @ 215', 13 3/4" @ 1969 ELEV. 9291' DATE: 11/20/74
 LINER DESCRIPTION: 9 5/8" @ 3540' ZERO POINT E.L. +1.2'
7" slotted liner 3338'-5220' DEPTH 8200'
 TUBING DETAIL: slab - 9227' - 8166' ZONE

PUMP SHOE _____ GAS ANCHOR _____ INTAKE _____
 PURPOSE _____
 REMARKS: P- C-4250PSIG 5M-7198 12 hr 133742 15 turn

ELEMENT F 518.698' SERIAL NO. 12053 CLOCK 12 hr 135756 TURN 15 STABILIZATION PERIOD _____
 ENGAGE STYLUS P-1319 T-1311 DISENGAGE STYLUS P-1537, T-1535 GROSS OIL RATE B/D _____
 OBS. TBG. PRESS. _____ OBS. CSG. PRESS. _____ NET OIL RATE B/D _____
 COR. TBG. PRESS. _____ COR. CSG. PRESS. _____ FORMATION GAS MCF/D _____
 PICKUP @ 5942' TIME ON BOTTOM 1440-1445 MAX. °F 496.8°F GOR CFT/BBL. _____
 WELL STATUS shut-in CIRCULATED GAS MCF/D _____
 SHUT IN: _____ ON PRODUCTION: _____ OIL DRY GRAVITY °API _____
W.H.P. - 36.7 PSIG BEAN SIZE _____

| Pressure | | | | | | Temp | | | | | | | | | | | |
|----------|-------|-------|--------|-------|-------|------|-------|-------|------|-------|----|------|-------|-------|-----|-------|----|
| TIME | DEPTH | DEFL. | P-T | GRAD. | TD | TIME | DEPTH | DEFL. | P-T | GRAD. | TD | TIME | DEPTH | DEFL. | P-T | GRAD. | TD |
| 12-152 | 160 | .169 | 355.6 | 0 | 0 | " | 160 | .017 | 43.6 | 0 | | | | | | | |
| 12-190 | 160 | .171 | 355.1 | .005 | 0 | " | 160 | .392 | 26.3 | .125 | | | | | | | |
| 12-200 | 160 | .172 | 354.1 | .009 | 0 | " | 200 | .685 | 31.2 | .111 | | | | | | | |
| 12-240 | 160 | .244 | 346.6 | .153 | -.001 | " | 300 | 1.031 | 42.9 | .110 | | | | | | | |
| 12-280 | 160 | .415 | 308.9 | .362 | +0.01 | " | 400 | 1.212 | 47.4 | .051 | | | | | | | |
| 12-320 | 160 | .579 | 1254.2 | .345 | +0.01 | " | 500 | 1.230 | 48.5 | .005 | | | | | | | |
| 12-340 | 160 | .733 | 1578.4 | .344 | +0.00 | " | 5942 | 1.280 | 49.8 | .015 | | | | | | | |

COMMENTS: Unable to get past 5942', plug in hole, sample included.
Jerry Jones

BY: _____

UNION

GEO THERMAL DIVISION

SUBSURFACE PRESSURE SURVEY

#13-54-D

76

OWNER Union Oil Co. of Calif. FIELD Valle Grande WELL NAME BAW #13
 CASING 2 7/8" 215' 1 3/8" @ 1909, 4 7/8" @ 3516' ELEV 9291' DATE 11/24/79
 LINER DESCRIPTION 7" Liner - 3338' - 5200' ZERO POINT GL. +12'
5165' - 4227' - 5166' DEPTH 5200'

MOLE DESCRIPTION:

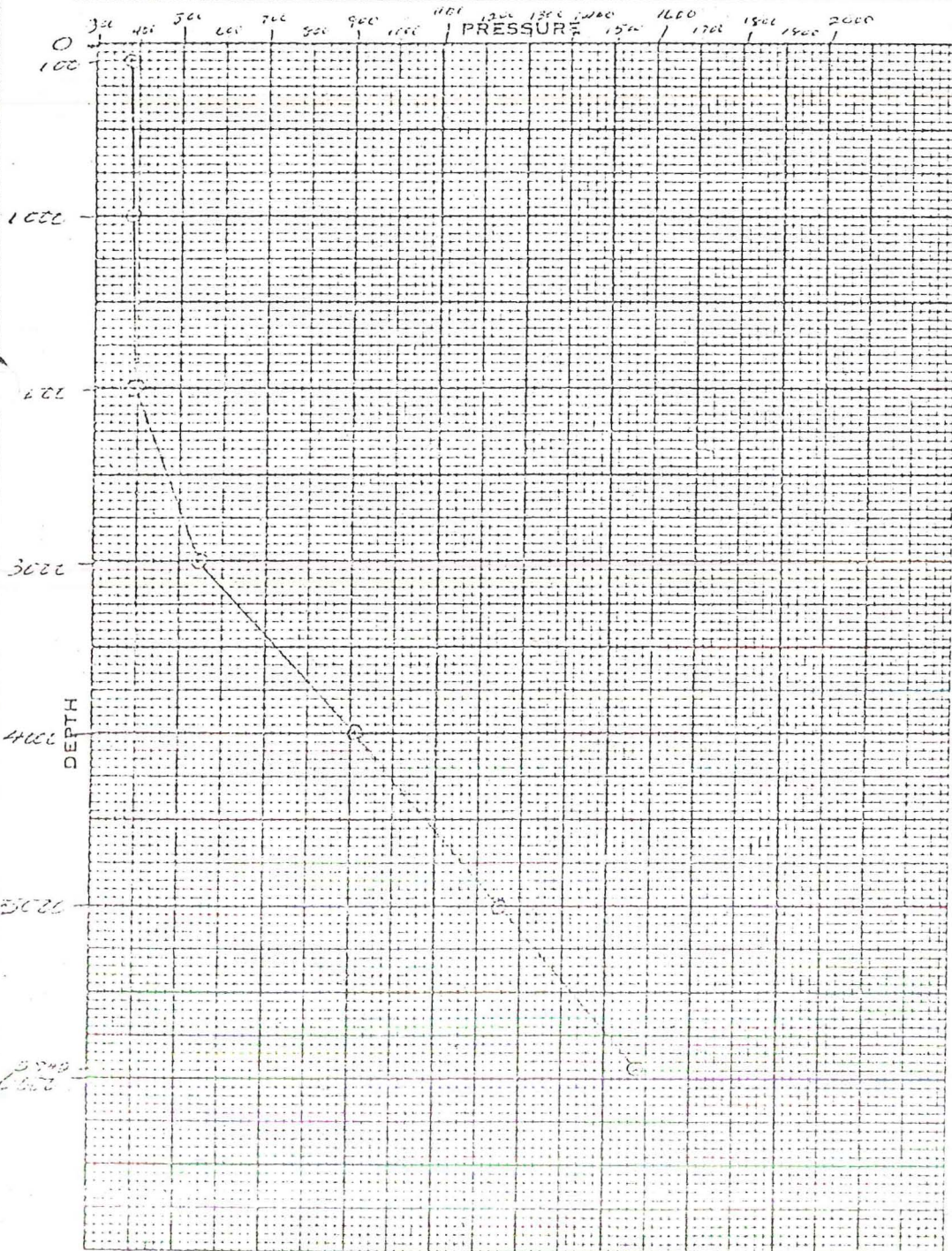
INSTRUMENT 9250
 SERIAL NO 7193

PURPOSE

MAX TEMP 496.8 549.2

REMARKS

STABILIZATION PERIOD



| | | |
|------------|-------|-----|
| PRESSURES | GAUGE | 30 |
| CASING PSI | | 367 |

| DEPTH | PRESSURE | GRAD |
|-------|----------|-------|
| 100 | 386.6 | 0 |
| 1000 | 385.1 | .0015 |
| 2000 | 394.1 | .009 |
| 3000 | 546.6 | .153 |
| 4000 | 905.9 | .362 |
| 5000 | 1254.2 | .345 |
| 5492 | 1578.4 | .344 |

BY: J.M.

76

GEO THERMAL DIVISION

SUBSURFACE TEMPERATURE SURVEY

B#13-54-T

OWNER UNION OIL OF CALIF FIELD VALLE GRANDE WELL NAME BACH #13
 CASING 20" @ 215, 13 3/8" @ 1469, 9 3/8" @ 5200 ELEV 9291' DATE 11/20/74
 LINER DESCRIPTION: 7" 5335' - 5200 ZERO POINT GL + 12'
SLOTS - 3227' - 3166' DEPTH 8200'

HOLE DESCRIPTION:

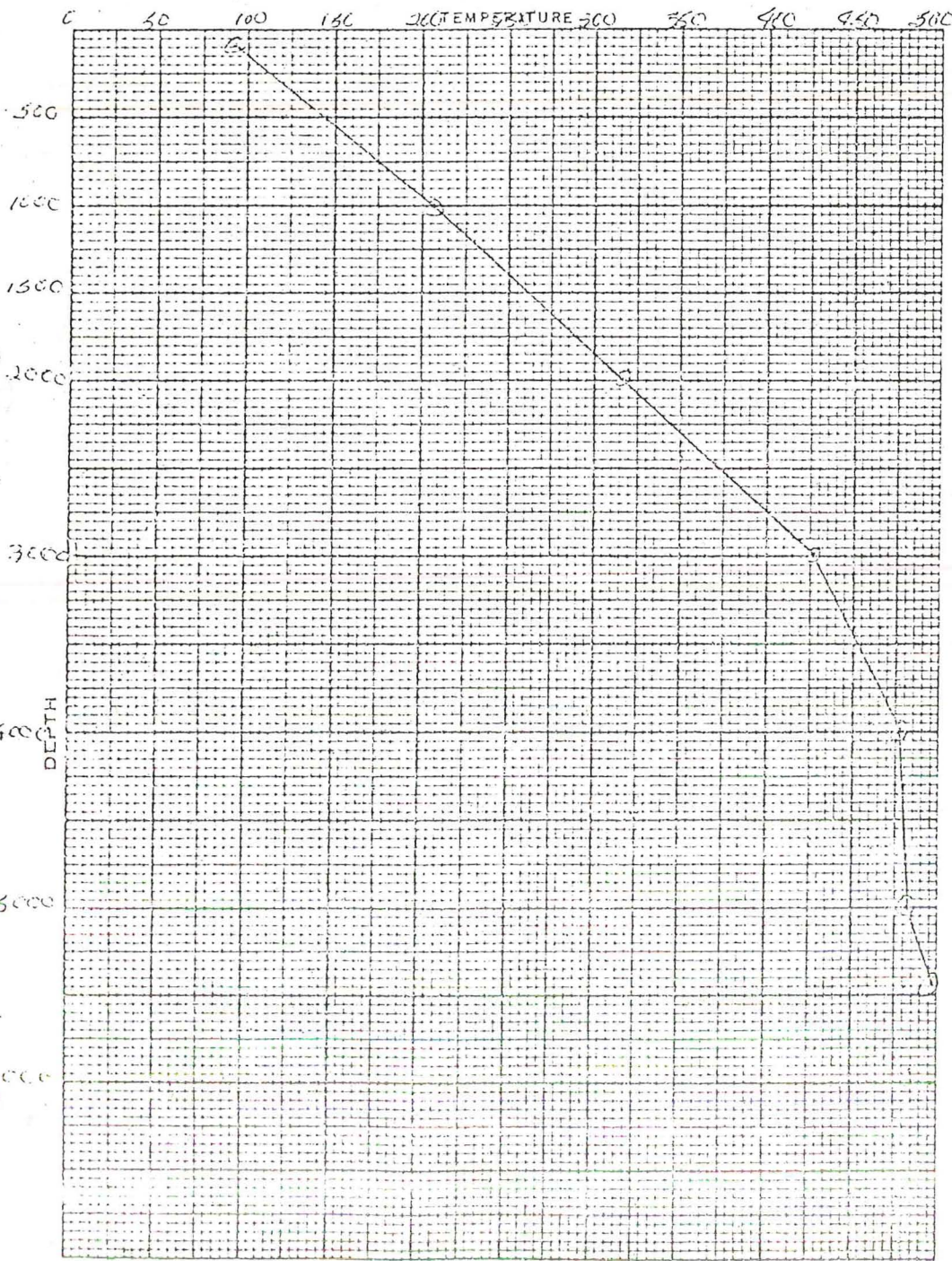
INSTRUMENT 85-698 FAH.
 SERIAL NO 10055

PURPOSE

MAX TEMP 496.8 °F @ 5992'

REMARKS

STABILIZATION PERIOD



| PRESSURE 3. | GAUGE | 8043 | |
|-------------|--------------|-------------|-------|
| CASING, PSI | | | |
| <u>WHD.</u> | <u>367</u> | <u>1816</u> | |
| DEPTH | TEMP. | DEPTH | TEMP. |
| <u>100</u> | <u>93.6</u> | | |
| <u>1000</u> | <u>206.3</u> | | |
| <u>2000</u> | <u>317.2</u> | | |
| <u>3000</u> | <u>426.4</u> | | |
| <u>4000</u> | <u>477.4</u> | | |
| <u>5000</u> | <u>482.5</u> | | |
| <u>5992</u> | <u>496.8</u> | | |

BY: [Signature]