

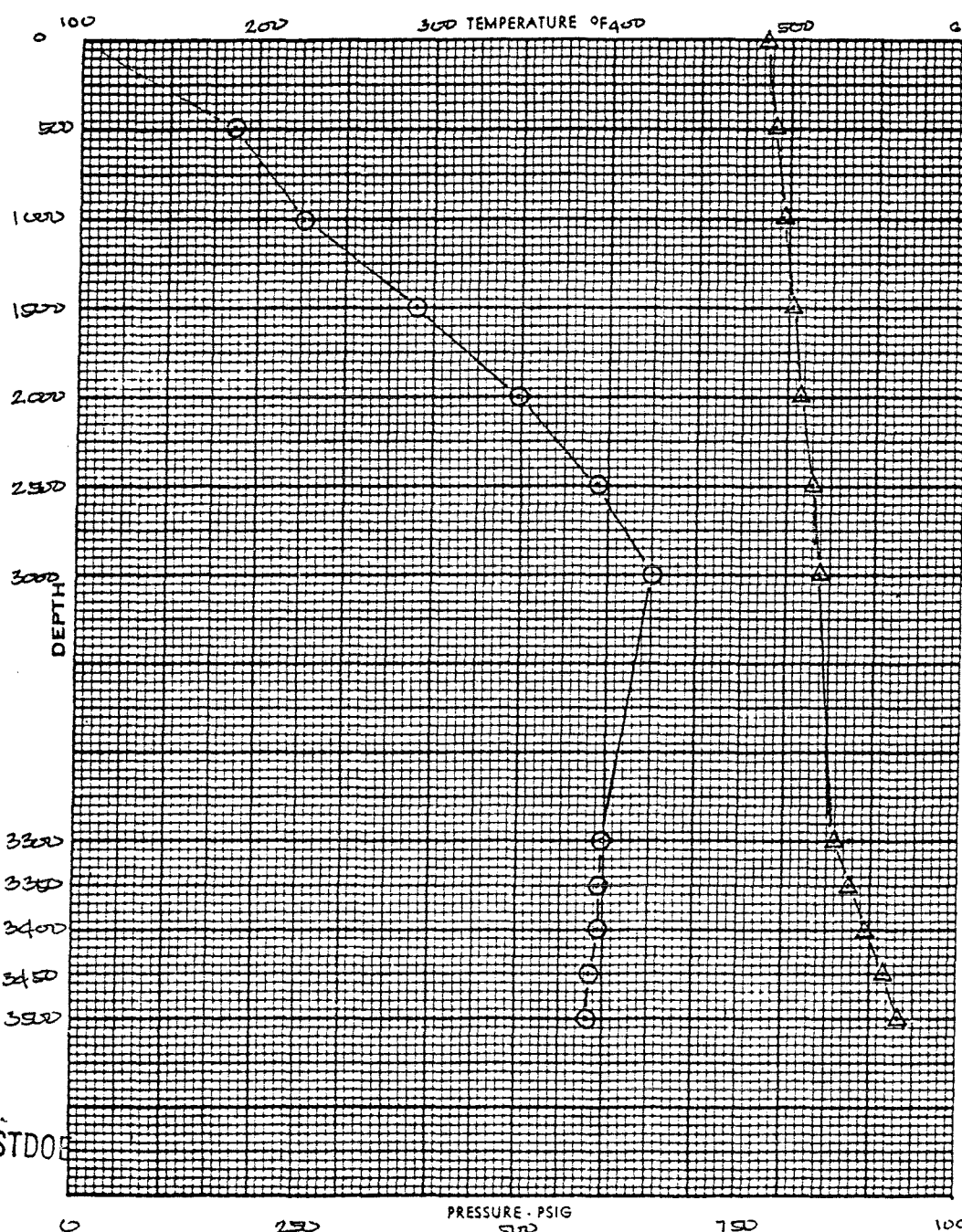
Union Geothermal Co. of New Mexico

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA #2 23
 CASING _____ ELEV. 8735 FT. DATE: 4-9-81
 LINER DESCRIPTION: 1" LINER @ 2917' - 3000' ; 5 1/2" LINER @ 3173' - 3529' ZERO POINT KB
 DEPTH 3531 FT.

HOLE DESCRIPTION: _____
 _____ KPG 9235 INSTRUMENT 93-618 FAHR.
 _____ 2950 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 3500 FT. MAX. TEMP. 425 °F @ 3000'
 REMARKS: _____



STABILIZATION PERIOD

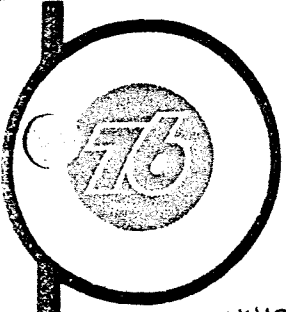
PRESSURES	GAUGE	BOMB
CASING, PSI	782	772

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
0	-	772	
500	187	782	0.020
1000	226	794	0.020
1500	290	804	0.020
2000	348	816	0.020
2500	393	830	0.020
3000	425	838	0.010
3300	398	858	0.060
3350	397	876	0.360
3400	397	895	0.350
3450	392	914	0.350
3500	391	933	0.380

○ TEMP
 △ PRESS

BY: JPR

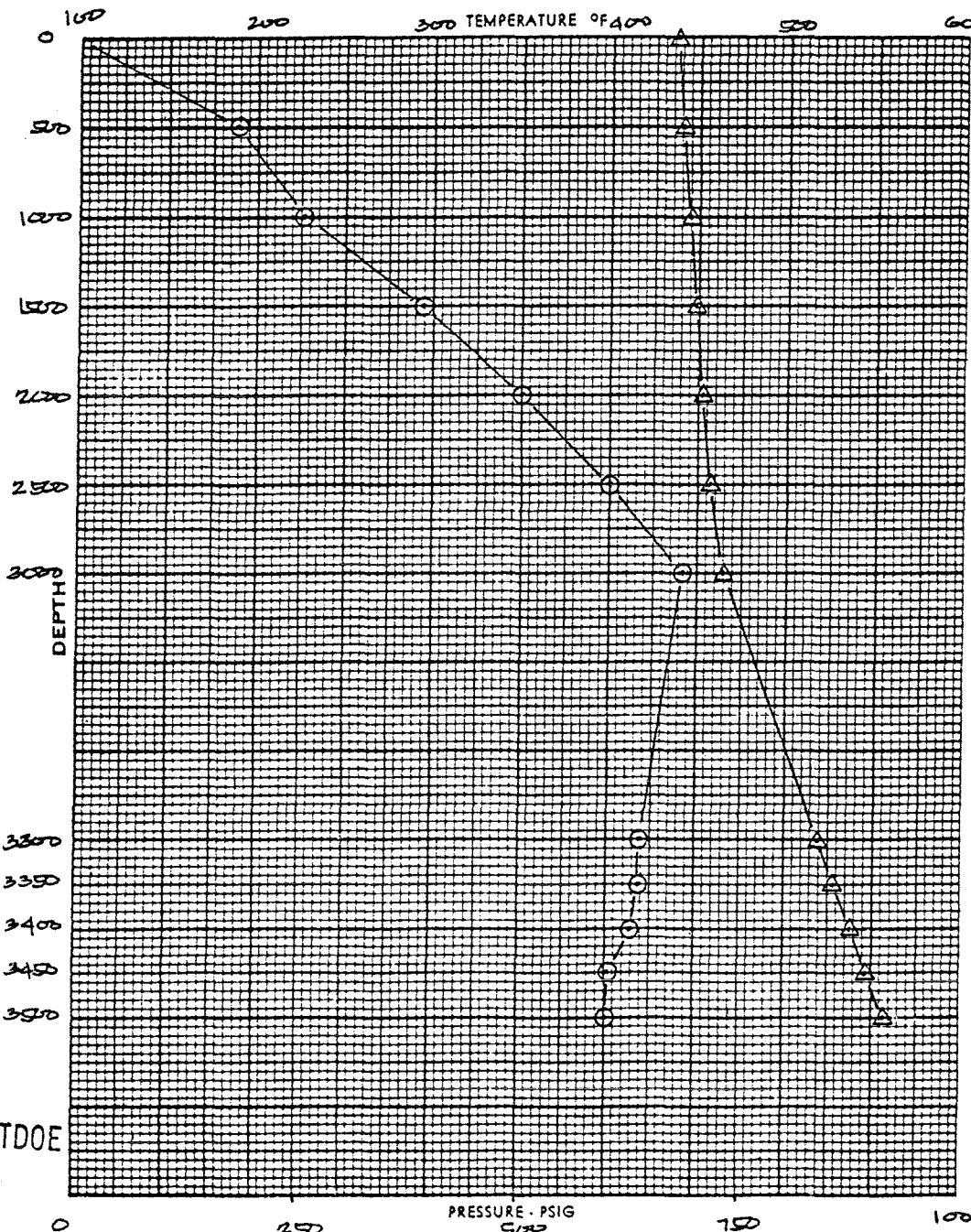
CSTD00



Union Geothermal Co. of New Mexico

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N. M. FIELD REDONDO CANYON WELL NAME BACA BR 23
 CASING _____ ELEV. 8735 FT. DATE: 4-13-81
 LINER DESCRIPTION: 30" @ 56'; 20" @ 612'; 13 3/4" @ 1405' ZERO POINT KB
1 5/8" LINER @ 1239'-2057'; 7" LINER @ 2917'-3300' DEPTH 3531 FT.
5 1/2" LINER @ 3173'-3529'
 HOLE DESCRIPTION: _____
 _____ KPG 9235 INSTRUMENT 93-618 FAHR.
 _____ 2950 PSI SERIAL NO. KTB 10222
 PURPOSE TEMP/PRESS GRADIENT SURVEY TO 3500 FT. MAX. TEMP. 442 °F @ 3000'
 REMARKS: PRIOR TO FLOWTEST # 3



STABILIZATION PERIOD			
PRESSURES	GAUGE	BOMB	
CASING, PSI	700	673	
DEPTH	TEMP.	PRESS.	GRAD.
FT.	°F	PSIG	
0	-	673	
500	188	681	0.016
1000	227	690	0.018
1500	294	699	0.018
2000	351	705	0.01
2500	400	715	0.021
3000	442	720	0.031
3300	418	839	0.36
3350	418	857	0.36
3400	414	876	0.38
3450	402	885	0.38
3500	401	914	0.38

○ TEMPERATURE
 △ PRESSURE

BY: JPR

STDOE

R. O. ENGBRETSSEN

RUN # 3

B 23 - S3PT

APR - 6 1981

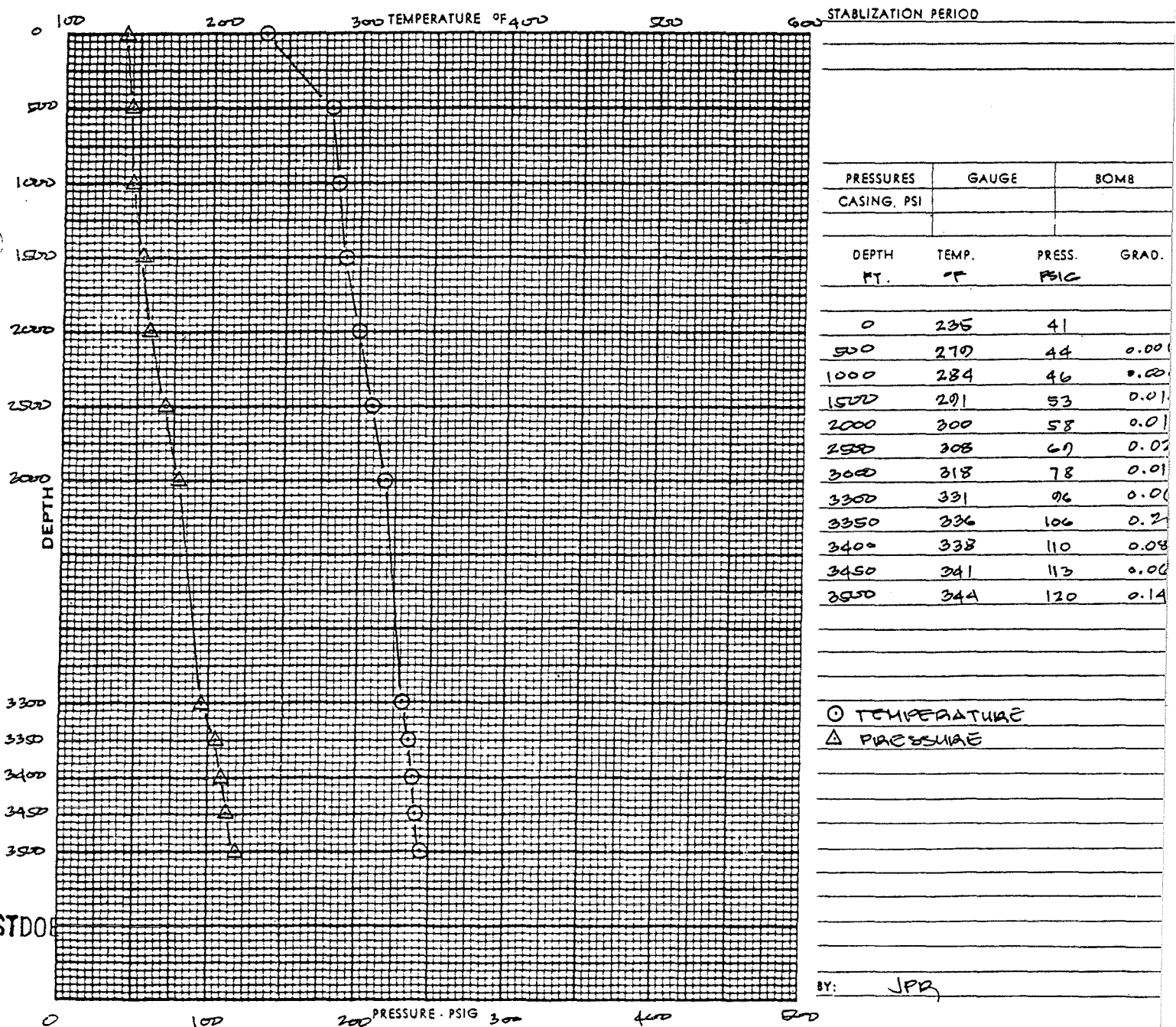
Union Geothermal Co. of New Mexico

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CANYON WELL NAME DACA # 23
 CASING 30" @ 56'; 20" @ 612'; 13 3/4" @ 1405' ELEV. 8735 FT. DATE: 4-21-81
 LINER DESCRIPTION: 9 5/8" @ 1237'-3057'; 7" @ 2017'-3300' ZERO POINT KB
5 1/2" @ 3173'-3520' DEPTH 3531 FT.

HOLE DESCRIPTION: _____
 _____ KPC 9235 INSTRUMENT 03-618 FAHR.
 _____ 2050 PSI SERIAL NO. KTB 10222

PURPOSE FLOWING TEMP/PRESS GRADIENT SURVEY TO 3500 FT. MAX. TEMP. 344 °F @ 3500'
 REMARKS: _____





Union Geothermal Co. of New Mexico

R. O. ENGBRETSSEN

MAY 14 1981

SURVEY DATE: 5-12-81

TITLE B23-54 P/T BUILD-UP AND GRADIENT SURVEY

TEMP. EL. S/N : KTB 10222 PRESS. EL. S/N : KPC 0235
 RANGE : 93-618°F RANGE : 2950 PSI
 CALIBRATED : 11-10-76 CALIBRATED : 7-26-76
 CLOCK: 12 HRS. : S/N: 23778 CLOCK: 12 HRS. : S/N: 23779

WHP AT START OF SURVEY : 34.5 FLOWING PSIG
 WHP AT END OF SURVEY : 30.5 PSIG
 OPENED WELL TO ELEMENT : 0946 HRS.
 POH : 1611 HRS.

TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY
 _____ MOS., _____ DAYS, _____ HRS., _____ MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. _____) _____ HRS. _____ 19____

SHUT-IN WELL @ 1005 HRS., 5-12-81

Station	Depth	Time at Sta.	TEMPERATURE		PRESSURE			REMARKS
			Defl.	°F	Defl.	Corr. Defl.	PSIG	
1	3300	0955	0.691	312	0.056	—	99.11	} WELL STILL FLOWING
		1005	0.760	332	0.058	—	102.65	
		1020	0.964	390	0.164	0.158	266	
		1035	1.056	416	0.205	0.199	326	
		1050	1.097	427	0.235	0.230	371	
		1105	1.115	432	0.260	0.256	409	
		1120	1.121	433	0.286	0.283	449	
		1135	1.126	435	0.309	0.306	482	
		1150	1.132	436	0.330	0.328	515	
		1205	1.136	437	0.347	0.345	539	
		1220	1.141	439	0.363	0.361	563	GRADIENT
		1235	1.144	440	0.374	0.372	579	
		1250	1.146	440	0.386	0.384	596	
		1305	1.146	440	0.396	0.394	611	
2	3350	1321	1.131	436	0.418	0.417	645	0.680
3	3400	1337	1.140	439	0.437	0.436	673	0.560
4	3450	1353	1.170	447	0.458	0.457	703	0.600

CSTDOE

B23-S4 P/T

R.O. ENGBRETSSEN

MAY 14 1981



Union Geothermal Co. of New Mexico

SURVEY DATE: 5-12-81

TITLE B23-S4 P/T (CONT.)

TEMP. EL. S/N : _____ PRESS. EL. S/N : _____

RANGE : _____ RANGE : _____

CALIBRATED : _____ CALIBRATED : _____

CLOCK: _____ HRS. : S/N: _____ CLOCK: _____ HRS. : S/N: _____

WHP AT START OF SURVEY : _____ PSIG

WHP AT END OF SURVEY : _____ PSIG

OPENED WELL TO ELEMENT : _____ HRS.

POH : _____ HRS.

TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY

____ MOS., ____ DAYS, ____ HRS., ____ MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. _____) _____ HRS. _____ 19__

Station	Depth	Time at Sta.	TEMPERATURE		P R E S S U R E			REMARKS
			Defl.	°F	Defl.	Corr. Defl.	PSIG	
5	3550	1409	1.208	457	0.478	0.477	732	CORRECT 0.580
1	3300	1411	1.162	445	0.430	0.429	662	
		1426	1.158	443	0.435	0.434	670	
		1441	1.160	444	0.440	0.439	677	
		1456	1.161	444	0.443	0.442	681	
		1511	1.163	445	0.447	0.446	687	
		1526	1.165	445	0.452	0.451	694	
		1541	1.166	446	0.455	0.454	699	
		1556	1.167	446	0.458	0.457	703	
	1611	1.168	446	0.460	0.459	706		

CSTDOE

Union Geothermal Co. of New Mexico

R.O. ENGBRETSSEN

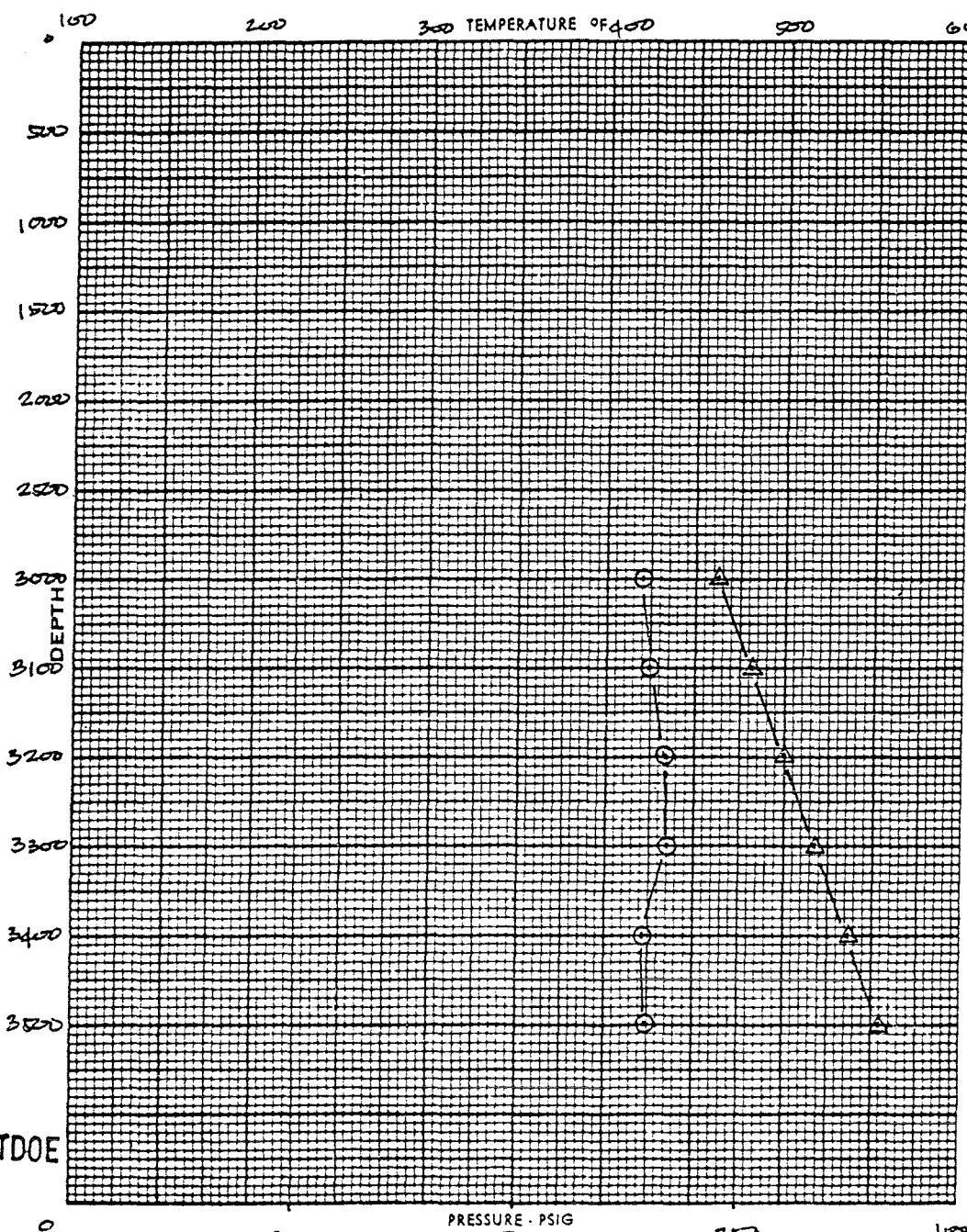
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

MAY 14 1981

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA #23
 CASING _____ ELEV. 8735' DATE: 5-13-81
 LINER DESCRIPTION: 7" @ 2917' - 3300' ZERO POINT KB
5 1/2" @ 3173' - 3520' DEPTH 3531 FT.

HOLE DESCRIPTION: _____
 _____ KPG 9235 INSTRUMENT 93-618 FAHR.
 _____ 2950 PSI SERIAL NO. KTB 10222

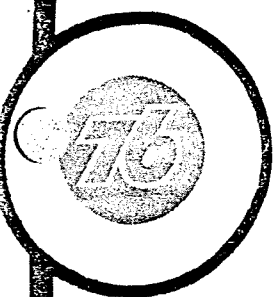
PURPOSE TEMP/PRESS GRADIENT SURVEY TO 3500' MAX. TEMP. 435 °F @ 3300'
 REMARKS: _____



STABILIZATION PERIOD			
PRESSURES	GAUGE	BOMB	
CASING, PSI			
DEPTH	TEMP.	PRESS.	GRAD.
FT.	°F	PSIG	
3000	420	725	
3100	424	763	0.38
3200	433	800	0.37
3300	435	836	0.36
3400	422	873	0.37
3500	423	909	0.36

○ TEMPERATURE
 △ PRESSURE

BY: JPR



Union Geothermal Co. of New Mexico

R.O. ENGBRETSSEN

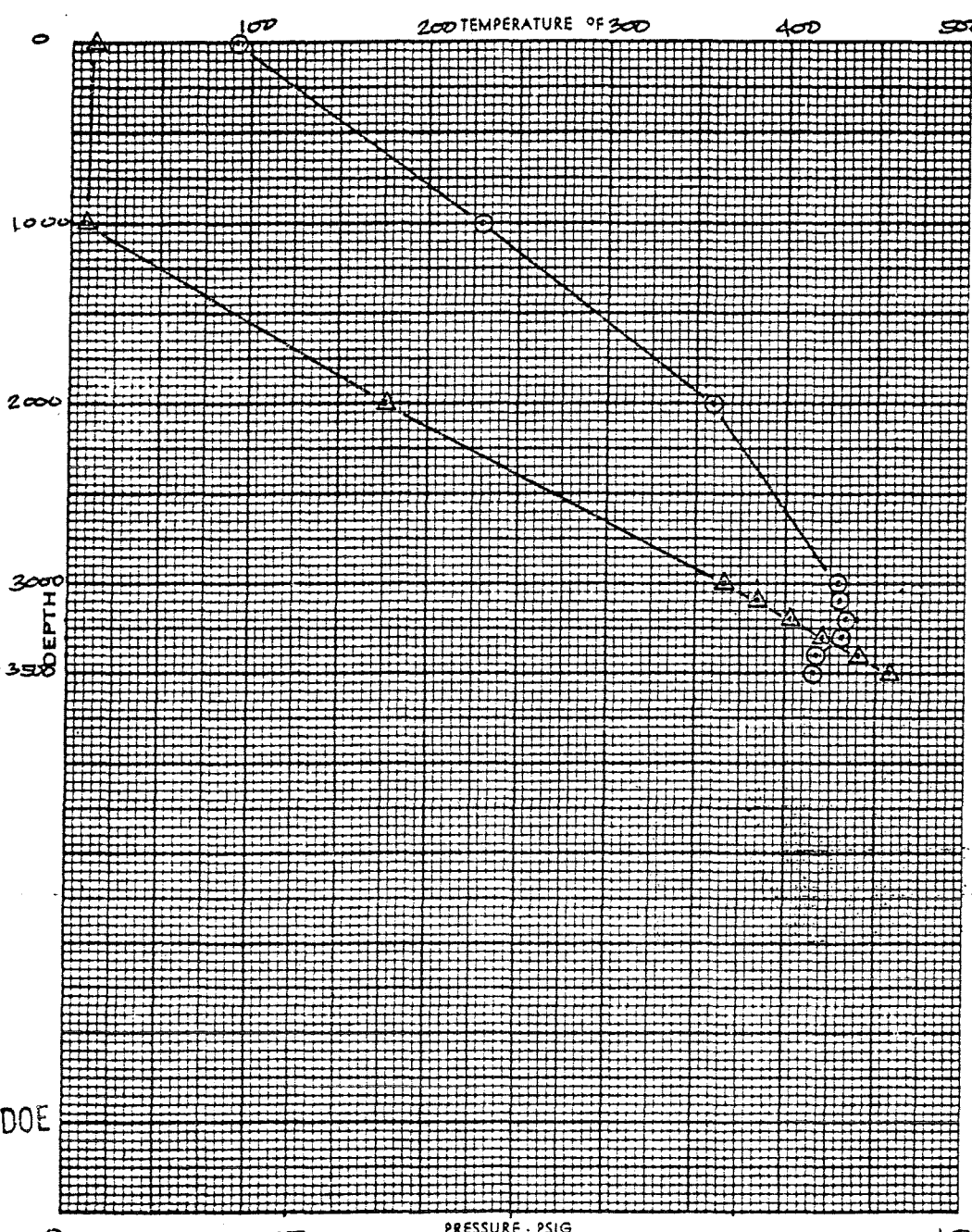
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

MAY 14 1981

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA # 23
 CASING _____ ELEV. 8735' DATE: 5-14-81
 LINER DESCRIPTION: 7' @ 2917' - 3300' ZERO POINT KB
5 1/2' @ 3173' - 3529' DEPTH 3531 FT.

HOLE DESCRIPTION: _____
 _____ KPB 9235 INSTRUMENT 93-618 FAHR.
 _____ 2950 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 3500' MAX. TEMP. 433 °F @ 3200'
 REMARKS: _____

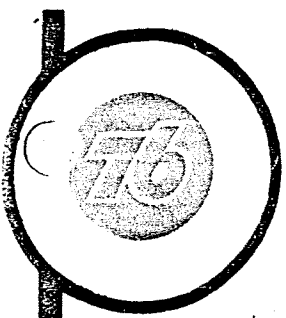


STABILIZATION PERIOD			
PRESSURES	GAUGE	BOMB	
CASING, PSI			
DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
0	23	23	
1000	220	145	
2000	359	352	0.34
3000	428	732	0.38
3100	429	769	0.37
3200	433	806	0.37
3300	431	842	0.36
3400	417	880	0.38
3500	416	915	0.38

○ TEMP.
 △ PRESS.

BY: JPR

STDOE



Union Geothermal Co. of New Mexico

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

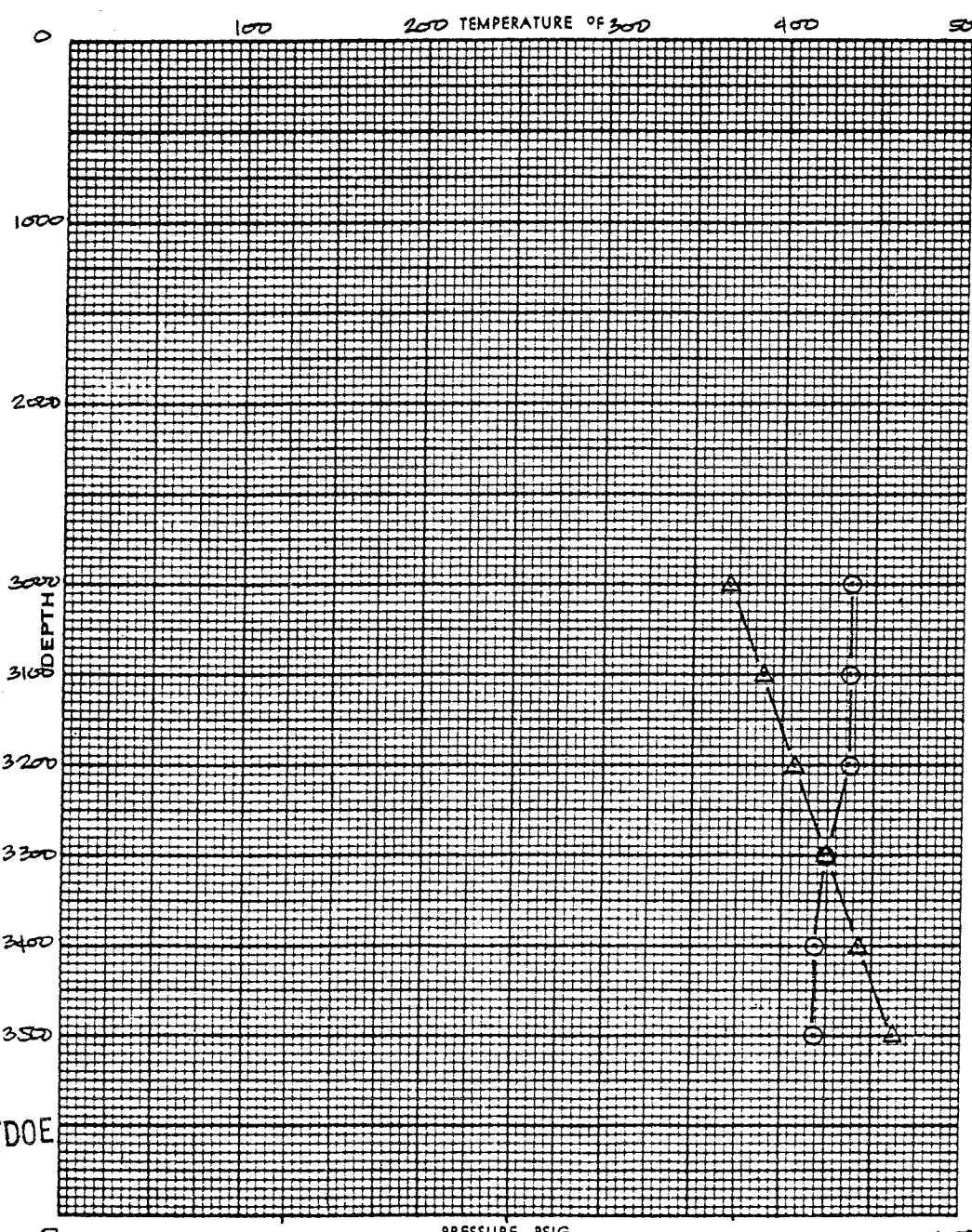
R.O. ENGBRETSSEN

MAY 17 1981

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA #23
 CASING _____ ELEV. 8735' DATE: 5-16-81
 LINER DESCRIPTION: 7" @ 2917' - 3300' ZERO POINT KB
5 1/2" @ 3173' - 3529' DEPTH 3531 FT.

HOLE DESCRIPTION: _____
 _____ KPG J235 INSTRUMENT J3 - G18 FAHR.
 _____ 2050 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 3500 FT. MAX. TEMP. 437 °F @ 3200'
 REMARKS: _____



STABILIZATION PERIOD			
PRESSURES	GAUGE	BOMB	
CASING. PSI			
DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
3000	437	740	
3100	437	778	0.38
3200	437	813	0.35
3300	423	849	0.36
3400	418	886	0.37
3500	418	923	0.37

○ TEMPERATURE
 △ PRESSURE

BY: JPR

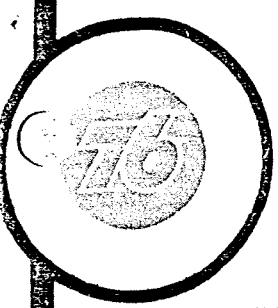
STDOE

Union Geothermal Co. of New Mexico

R. O. ENGBRETSSEN

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

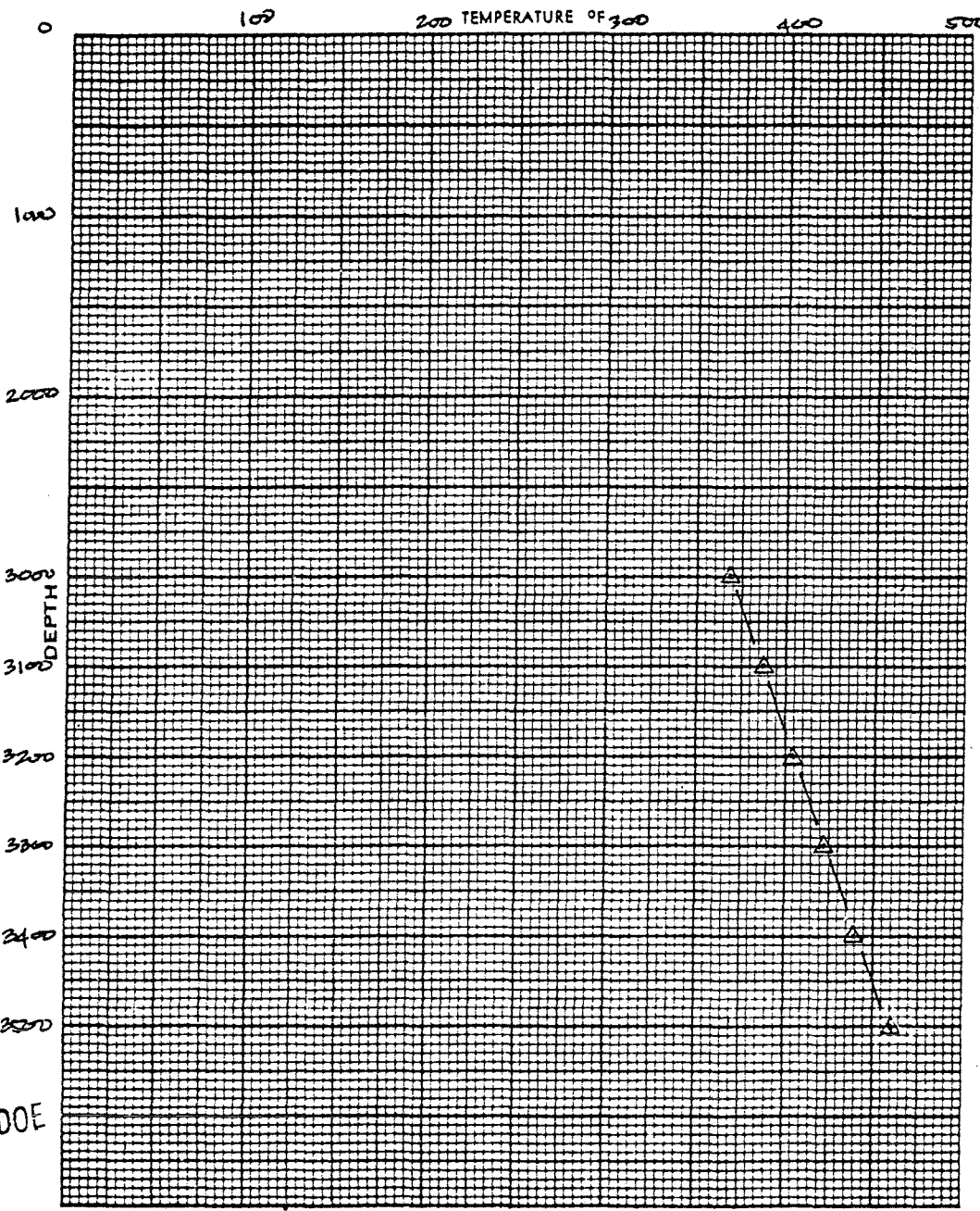
MAY 21 1981



OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA NO 23
 CASING _____ ELEV. 8735' DATE: 5-17-81
 LINER DESCRIPTION: 7" @ 2917' - 3000' ZERO POINT KB
5 1/2" @ 3173' - 3520' DEPTH 3531'

HOLE DESCRIPTION: _____
 _____ KPG 9235 INSTRUMENT 93-618 FAHR.
 _____ 2050 PSI SERIAL NO. KFD 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 3520' MAX. TEMP. 446 °F @
 REMARKS: _____



STABILIZATION PERIOD			
PRESURES	GAUGE	BOMB	
CASING, PSI			
DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
3000		737	
3100		775	0.3
3200		808	0.3
3300		844	0.3
3400		870	0.3
3520		920	0.4

A PRESSURE

BY: JPR

ESTDOE



Union Geothermal Co. of New Mexico

R.O. ENGBRETSSEN

MAY 21 1981

SURVEY DATE: 5-20-81

TITLE B 23 - S 9 P/T

TEMP. EL. S/N : KTB 10222 PRESS. EL. S/N : KPC 0235
 RANGE : 93 - 618 °F RANGE : 2950 PSI
 CALIBRATED : 11-10-76 CALIBRATED : 7-26-76
 CLOCK: 12 HRS. : S/N: 14087 CLOCK: 12 HRS. : S/N: 23781

WHP AT START OF SURVEY : 8 PSIG
 WHP AT END OF SURVEY : 7.5 PSIG
 OPENED WELL TO ELEMENT : 0030 HRS.
 POH : 1045 HRS.

TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY
 MOS., 7 DAYS, 23 HRS., 25 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 4) 1005 HRS. 5-12-1981

Station	Depth	Time at Sta.	TEMPERATURE		PRESSURE			REMARKS
			Defl.	°F	Defl.	Corr. Defl.	PSIG	
1	3000'	0935-0955	1.173	447	0.488	0.487	747	
2	3100	0955-1005	1.174	448	0.511	0.511	782	
3	3200	1005-1015	1.147	446	0.536	0.536	819	
4	3300	1015-1025	1.068	419	0.562	0.563	858	
5	3400	1025-1035	1.077	421	0.584	0.585	890	
6	3500	1035-1045	1.078	422	0.610	0.612	930	

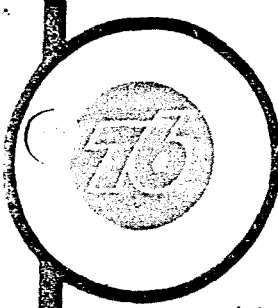
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Union Geothermal Co. of New Mexico

R.O. ENGBREITSEN

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

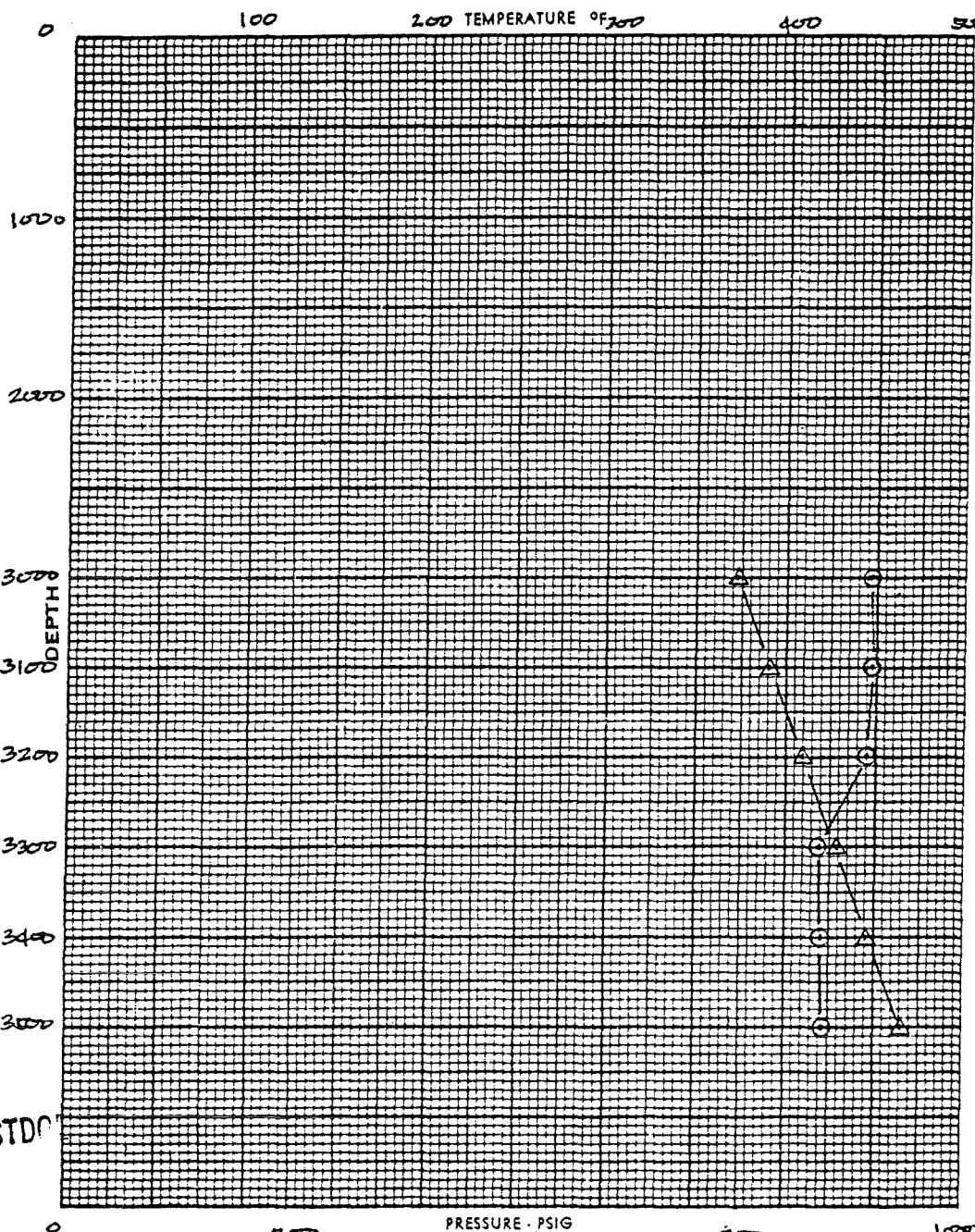
MAY 21 1981



OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA # 23
 CASING _____ ELEV. 8735' DATE: 5-20-81
 LINER DESCRIPTION: 7" LINER @ 2917' - 3000' ZERO POINT KB
5 1/2" @ 3173' - 3520' DEPTH 3531 FT.

HOLE DESCRIPTION: _____ INSTRUMENT KPG 9235 FAHR. _____
2950 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 3550 FT. MAX. TEMP. 448 °F @ 3100'
 REMARKS: _____

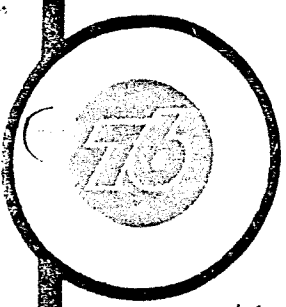


STABILIZATION PERIOD			
PRESSURES	GAUGE	BOMB	
CASING, PSI			
DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
3000	447	747	
3100	448	782	0.3
3200	446	810	0.3
3300	419	858	0.3
3400	421	890	0.3
3500	422	930	0.4

✓
 ○ TEMPERATURE
 △ PRESSURE

BY: JPR

CSTDO



Union Geothermal Co. of New Mexico

R. O. ENGBRETSSEN

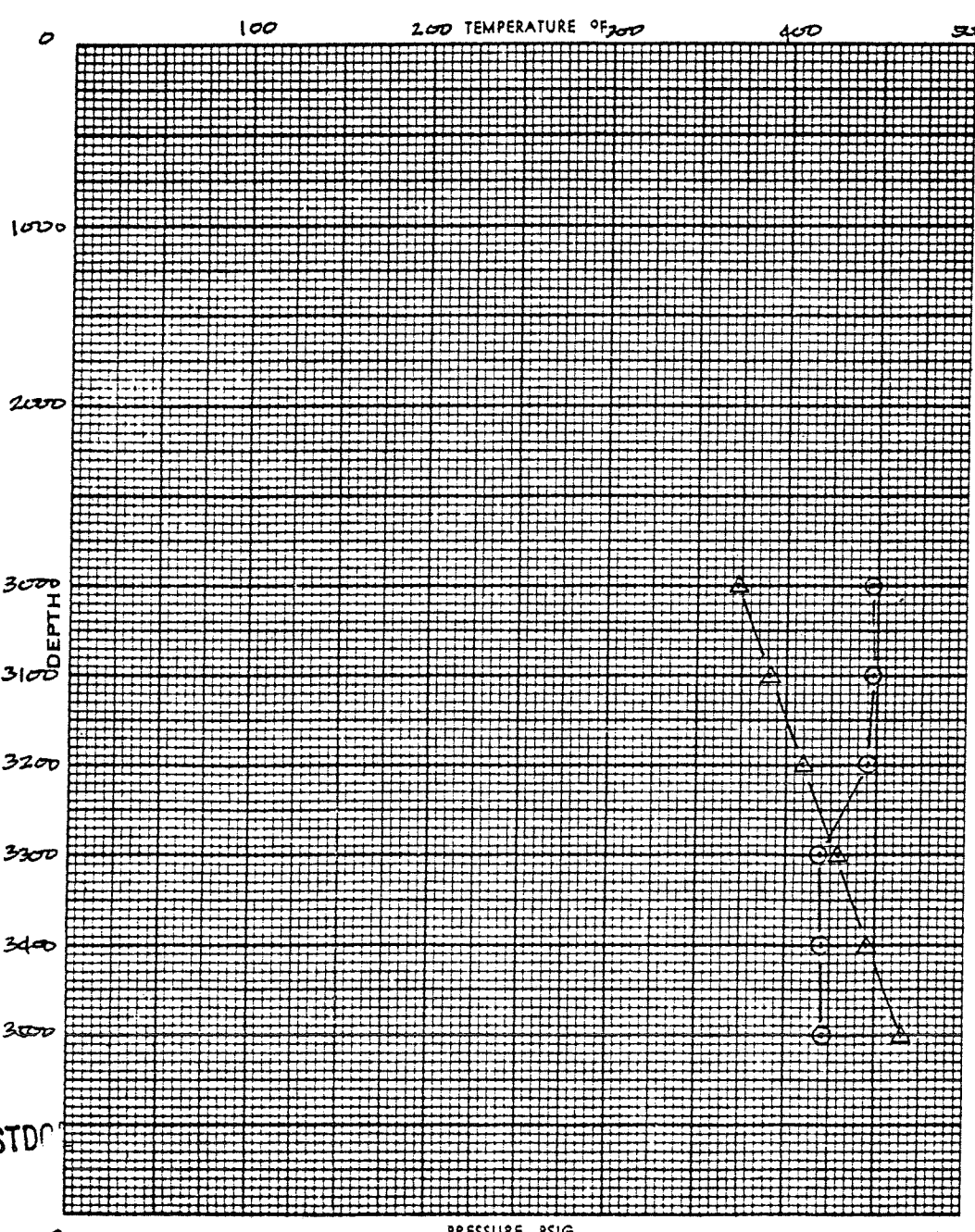
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

MAY 21 1981

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA NO. 23
 CASING _____ ELEV. 8735' DATE: 5-20-81
 LINER DESCRIPTION: 7" LINER @ 2917' - 3000' ZERO POINT KB
5 1/2" @ 3173' - 3520' DEPTH 3531 FT.

HOLE DESCRIPTION: _____
 _____ KPG 0235 INSTRUMENT 93-618 FAHR.
 _____ 2050 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 3500 FT. MAX. TEMP. 448 °F @ 3100'
 REMARKS: _____



STABILIZATION PERIOD			
PRESSURES	GAUGE	BOMB	
CASING, PSI			
DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
3000	447	747	
3100	448	782	0.3
3200	446	810	0.3
3300	419	858	0.3
3400	421	890	0.3
3500	422	930	0.4

✓
 ○ TEMPERATURE
 △ PRESSURE

BY: JPA

Baca 23 - Interference Pressure Data

p. 1042

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DATE TIME PRESSURE

06/19/81 1315 743.173

06/22/81 1150 743.860

06/23/81 1445 743.415

06/24/81 1510 743.816

06/25/81 1320 744.442

06/26/81 1345 744.470

06/29/81 1410 745.690

06/30/81 1515 746.359

07/01/81 1435 747.598

07/02/81 0840 753.056

07/03/81 1245 757.349

07/04/81 1445 759.768

07/05/81 1205 762.803

07/06/81 1135 763.479

07/07/81 1050 765.093 S.I. B24 @0937

07/10/81 1110 754.730

07/12/81 1740 750.657

07/13/81 1504 749.504 S.I. B4 @1446

07/14/81 1227 749.415

07/15/81 1350 749.912

07/16/81 1021 749.913

07/17/81 1445 748.585

07/20/81 1335 758.244

07/21/81 1132 759.468 OPENED BACA 13 @ 1520

07/22/81 1148 761.691

07/23/81 1440 764.361

07/24/81 1405 794.076

BACA 23 INTERFERENCE PRESSURE DATA
(p. 2 of 2)

~~07/23/81 1505 761.701~~

07/29/81 1058 763.151

07/30/81 1600 762.689

~~07/31/81 1358 761.073~~

08/04/81 1040 762.271

08/05/81 1530 760.077

~~08/06/81 1500 760.501~~

08/10/81 1410 762.470

08/11/81 1413 763.184

~~08/12/81 1435 762.155~~

08/13/81 1345 763.126

08/14/81 1120 766.494

~~08/17/81 1250 760.116~~

08/18/81 1330 758.963

08/19/81 1445 759.572

~~08/20/81 1450 758.132~~

08/21/81 1445 757.395

Interference Pressure Data - 23 (p 2 of 3)

07/28/81 1505 761.701
07/29/81 1058 763.151
07/30/81 1600 762.689
07/31/81 1358 761.073
08/04/81 1040 762.271
08/05/81 1530 760.077
08/06/81 1500 760.501
08/10/81 1410 762.470
08/11/81 1413 763.184
08/12/81 1435 762.155
08/13/81 1345 763.126
08/14/81 1120 765.494
08/17/81 1250 750.116
08/18/81 1330 758.963
08/19/81 1445 759.572
08/20/81 1450 758.132
08/21/81 1445 757.395
08/26/81 1335 751.411
08/27/81 1435 749.660
08/28/81 1455 761.558 PURGED NITROGEN @1445
08/31/81 1455 762.407
09/02/81 1128 763.547
09/03/81 1400 763.058
09/04/81 1341 763.531
09/08/81 1408 765.257
09/09/81 1540 765.257
09/10/81 1320 763.798
09/11/81 1305 764.272
09/14/81 1410 764.537
09/15/81 1515 764.314

Interference Pressure Data - 23 (p 3 of 3)

09/16/81 1350 764.510

09/17/81 1435 756.524

09/18/81 1430 752.747 PURGED TUBING W/NITROGEN @1300

09/21/81 1415 749.286

09/22/81 1520 749.150

09/24/81 1000 750.889

09/25/81 1100 750.493

Interference Pressure Data - 23 (1 of 1)

DATE TIME PRESSURE

09/23/81 1440 746.375

09/29/81 1330 747.346

09/30/81 1510 748.343

10/01/81 1350 750.037

Interference Pressure Data 23

DATE TIME PRESSURE

10/05/81 1450 747.723

10/06/81 1255 748.585

10/07/81 1330 748.357

10/08/81 1610 748.692

10/09/81 1445 748.241

Interference Pressure Data Baca 23 (p 1 of 1)

DATE TIME PRESSURE

10/12/81 1245 749.033

10/13/81 1315 756.675

10/14/81 1325 764.079

10/15/81 1440 PURGED NITROGEN

10/15/81 1510 757.254

10/16/81 1500 754.923

DATE TIME PRESSURE

10/19/81 1055 752.553

10/20/81 1405 750.583

10/22/81 1415 751.053

10/23/81 1125 753.248

10/27/81 1025 759.217 INJ @814 STARTED @1615 10/26/81

10/28/81 1345 763.417 814 INJ IN PROGRESS

10/29/81 1420 765.649

10/30/81 1445 767.755

BACA 23

DATE	TIME	PRESSURE
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11/02/81	1405	767.780
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11/03/81	1440	767.021
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11/04/81	1430	764.509
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11/05/81	1455	761.883
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11/06/81	1445	759.715
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INTERFERENCE PRESSURE DATA
BACA 23

DATE TIME PRESSURE

11/09/81 1055 750.651 WATER INJ @B14 IN PROGRESS

11/10/81 1620 745.090

11/11/81 1435 740.470

11/12/81 1350 742.304

11/13/81 1325 742.341

R.O. ENGEBRETSSEN
NOV 17 1981

INTERFERENCE PRESSURE DATA
BACA 23

DATE TIME PRESSURE

11/16/81 1415 734.624 WATER INJ IN PROGRESS

11/17/81 1025 737.553

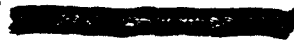
11/18/81 1345 735.149

11/19/81 1425 735.229

11/20/81 1405 736.637

R. O. ENGBRETSSEN

NOV 24 1981



DATE TIME PRESSURE

11/23/81 1320 734.587 WATER INJ @B14 CONTINUES

11/24/81 1410 734.320

11/25/81 1350 734.054

R.O. ENGBRETSSEN

DEC 01 1981

INTERFERENCE PRESSURE DATA
BACA 23

DATE TIME PRESSURE

11/30/81 1415 734.190

12/01/81 1450 734.101

12/02/81 1520 767.025 WATER INJ @B14 IN PROGRESS/PURGED NITRO @1500

12/03/81 1430 767.098

12/04/81 1130 770.434

END OF DATA

INTERFERENCE PRESSURE DATA

BACA 23

DATE TIME PRESSURE

12/07/81 1415 769.540 WATER INJ 0814 IN PROGRESS

12/08/81 1425 769.763

12/09/81 1425 769.536

12/10/81 1500 770.405

12/11/81 1430 770.338

R.O. ENGBRETSSEN
DEC 15 1981

INTERFERENCE PRESSURE DATA
BACA 23

DATE TIME PRESSURE

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12/14/81 1445 771.311 WATER INJ IN PROGRESS

12/15/81 1400 770.550

12/15/81 1435 770.420

12/17/81 1350 770.283

12/18/81 1325 764.181 SHUTIN B13 @0930/B4 @ 0945

12/21/81 1448 747.505

12/22/81 1435 760.498 PURGED @1100

12/23/81 1405 759.091

12/28/81 1510 759.010

12/29/81 1505 755.842

12/30/81 1435 755.800

12/31/81 1355 754.993

01/06/82 1415 754.730 PURGED @1100

01/07/82 1400 754.773

01/08/82 1455 752.537

R.O. ENGBRETSSEN

JAN 11 1982

UNION GEOTHERMAL CO. OF NEW MEXICO PRESSURE INTERFERENCE DATA

WELL NAME : BACA # 23
 TRANSDUCER : PAROSCIENTIFIC
 MODEL # : 73K - 002
 SERIAL # : 11251 3000 PSIA

CHAMBER SETTING : 3200' KB

DATE	TIME HRS.	AMBIENT TEMP. °F	TRANSR. RDGS.		WHP PSIG	WHT	INITIALS	REMARKS
			PRESS.	FREQ.				
12-22-81	1435	38	760.498	27.88257	7.5		(JL)	Purged @ 1100 hrs.
23	1405	37	759.091	27.88109	7.5			
28	1510	32	759.010	27.82108	7.5			
29	1505	50	755.842	27.87715	7.5			
30	1435	30	755.800	27.87750	7.5			
31	1355	31	754.995	27.87790	7.5			
1-6-82	1415	28	754.730	27.87667	8.0			PURGED @ 1100 HRS.
7	1400	28	754.778	27.87663	8			
8	1455	38	752.537	27.87351	8			
11	1315	37	755.117	27.87700	8			
12	1350	30	758.608	27.88062	8			
13	1112	32	759.585	27.88169	8			
14	1355	64	756.461	27.87837	8			
15	1440	54	757.109	27.87905	8			
18	1345	44	754.188	27.87607	8			
19	1525	41	753.230	27.87503	8			
20	1500	47	753.395	27.87520	8			PURGED @ 1025 HRS.
21	1400	42	753.578	27.87542	8			

UNION GEOTHERMAL CO. OF NEW MEXICO

PRESSURE INTERFERENCE DATA

WELL NAME : BACA Nº 23
 TRANSDUCER : PAROSCIENTIFIC
 MODEL # : 73K - 002
 SERIAL # : 11251 3000 PSIA

CHAMBER SETTING : 3200 FT.

DATE	TIME HRS	AMBIENT TEMP. °F	TRANSR. RDGS.		WHP PSIC	WHT	INITIALS	REMARKS
			PRESS.	FREQ.				
1-22-82	1215	28	755.726	27.87767	8			
25	1340	64	751.895	27.87368	8		} BACA #14 WATER INJECTION START @ 0912 HRS., 1-25-82 S.I. @ 1550 HRS., 1-28-82	
26	1450	54	753.801	27.87566	8			
27	1330	44	756.712	27.87866	7.5			
28	1545	35	755.534	27.87701	8			
29	1520	44	758.260	27.88024	8			
2-1-82	1535	30	757.660	27.87963	8			
2	1435	25	756.819	27.87877	8		} BACA #14 INJECTION START @ 0845 HRS., S.I. @ 1615 HRS.	
3	1310	28	757.138	27.87908	8			
4	1335	30	758.376	27.88034	8			
5	1505	41	754.411	27.87627	8			
8	1315	29	749.330	27.87104	8			
9	1330	37	746.620	27.86824	8			
10	1130	30	753.811	27.87564	8			PURGED TUBING w/ NITROGEN @ 1005 A
11	0930	28	754.324	27.87618	8			
12	1505	50	751.663	27.87343	8			
"	1510	50						PURGED TUBING w/ NITROGEN
"	1530	50	751.556	27.87332	8			

UNION GEOTHERMAL CO. OF NEW MEXICO

PRESSURE INTERFERENCE DATA

WELL NAME: BACA # 23
 TRANSDUCER: PAROSCIENTIFIC
 MODEL #: 73K - 002
 SERIAL #: 11251 3000 PSIA

CHAMBER SETTING: 3,200' eKB

DATE	TIME HRS	AMBIENT TEMP. °F	TRANSR. RDGS.		WHP PSIC	WHT	INITIALS	REMARKS
			PRESS.	FREQ.				
2-15-82	1300	54	751.508	27.87327	8			
16	1150	58	751.218	27.87296	8			START B-18 INJECTION @ 1500 HRS.
17	1355	61	756.190	27.87811	8			
18	1110	33	758.153	27.88017	8			
19	1235	62	754.362	27.87629	7.5			
20	1145	66	756.442	27.87835	8			
21	1020	64	756.439	27.87820	8			
22	1335	60	756.548	27.87846	8			
23	1000							PURGED TUBING w/ NITROGEN
"	1425	51	755.910	27.87782	8			
24	1125	56	756.693	27.87862	7.5			
25	1005	20	759.430	27.88144	7.5			
26	1050	55	757.302	27.87925	7.5			
"	1320							PURGED TUBING w/ NITROGEN
"	1405	57	756.287	27.87823	7.5			
27								NO DATA TAKEN
28	1020	51	757.525	27.87950	7.5			
3-01-82	1020	55	757.592	27.87955	7.5			

UNION GEOTHERMAL CO. OF NEW MEXICO

PRESSURE INTERFERENCE DATA

WELL NAME: BACA # 23
 TRANSDUCER: PAROSCIENTIFIC
 MODEL #: 73K-002
 SERIAL #: 11251 3000 PSIA

CHAMBER SETTING: 3200' CKB

DATE	TIME HRS	AMBIENT TEMP. °F	TRANSR. RDGS.		WHP PSIC	WHT	INITIALS	REMARKS
			PRESS.	FREQ.				
03-02-82	1450	40	757.360	27.87932	7.5			
03	1410	48	758.733	27.88076	7.5			
04	1515	38	758.579	27.88061	7.5			
05	1405	31	760.548	27.88263	7.5			
06	1015	34	764.038	27.88238	7.5			
07	1035	55	758.820	27.88084	7.5			
"	1150							FLUSHED N ₂
"	1215	62	756.411	27.87840	7.5			
08	1110	44	756.388	27.87831	7.5			
09	1220	54	755.958	27.87786	7.5			
10	1450	56	756.268	27.87819	7.5			
11	1015	46	758.184	27.88011	7.5			
13	1025	40	759.749	27.88177	7.5			
14	1035	48	759.613	27.88168	7.5			
15	1500	39	759.867	27.88191	7.5			
16	1025	59	759.420	27.88149	7.5			
17	1240	56	757.863	27.87984	7.5			
18	1140	49	759.449	27.88148	7.5			

UNION GEOTHERMAL CO. OF NEW MEXICO

PRESSURE INTERFERENCE DATA

WELL NAME: BACA № 23
 TRANSDUCER: PAROSCIENTIFIC
 MODEL #: 73K-002
 SERIAL #: 11251 3000 PSIA

CHAMBER SETTING: 3200' CKB

DATE	TIME HRS	AMBIENT TEMP. °F	TRANSR. RDGS.		WHP PSIC	WHT	INITIALS	REMARKS
			PRESS.	FREQ.				
3-19-82	1320	29	760.300	27.88231	7.5			
20	1130	50	759.981	27.88203	7.5			
21	1105	56	760.048	27.88215	7.5			
22	145	44	759.285	27.88120	7.5			
23	1030	50	759.594	27.88164	7.5			
24	1020	43	759.682	27.88172	7.5			
25	1120	48	758.627	27.88064	7.5			
26	1015	36	760.870	27.88203	8.0			
27	0930	46	760.131	27.88233	8			
28	1020	50						ERRATIC READS.
29	1445	34	761.121	27.88319	7.5			
30	1250	38	760.522	27.88259	7.5			
31	0903	52	760.103	27.88227	7.5			
4-1-82	0927	60	758.370	27.88036	7.5			
2	1425	42	757.786	27.87977	7.5	runned @ 1440 hrs.		4-1-82
3	0943	47	758.453	27.88039	7.5			
4	1215	61	756.664	27.87857	7.5			
5	0905	50	758.405	27.88041	7.5			

UNION GEOTHERMAL CO. OF NEW MEXICO

PRESSURE INTERFERENCE DATA

WELL NAME: BACA # 23
 TRANSDUCER: PAROSCIENTIFIC
 MODEL #: 73K-002
 SERIAL #: 11251 2000 PSIA

CHAMBER SETTING: 3200' @ KB

DATE	TIME HRS	AMBIENT TEMP. °F	TRANSR. RDGS.		WHP PSIG	WHT	INITIALS	REMARKS
			PRESS.	FREQ.				
4-6-82	0955	40	758.965	27.88099	7.5			
7	1005	41	758.598	27.88059	7.5			
8	1038	46	758.912	27.8802	7.5			
9	0922	42	759.507	27.88071	7.5			
10	1110	64	757.196	27.87916	7.5			
11	0911	60	756.974	27.87888	7.5			
12	1400	56	756.297	27.87818	7.5			
13	0655	46	760.213	27.88229	7.5			RDGS. TAKEN w/ wrong coefficient
13	0857	54	757.38	27.879	7.5			SHUT-IN B18 W. INJ. 20856#8.
13	1035	61	755.7	27.87	7.5			
13	1313	62	755.0	27.8769	7.5			
14	1030	52	754.024	27.87581	7.5			
14	1310	60	753.521	27.87534	7.5			
15	1245	56	753.356	27.87506	7.5			
16	1110	61	754.314	27.87609	7.5			
17	1210	62	753.907	27.87575	7.5			
18	1140	62	753.085	27.87481	7.5			
19	1420	64	752.989	27.87482	7.5			

**UNION GEOTHERMAL CO. OF NEW MEXICO
PRESSURE INTERFERENCE DATA**

WELL NAME: BACA # 23
 TRANSDUCER: PAROSCIENTIFIC
 MODEL #: 13K-002
 SERIAL #: 11251 2000 PSIA

CHAMBER SETTING: 3200' CKB

DATE	TIME HRS	AMBIENT TEMP. °F	TRANSR. RDGS.		WHP PSIC	WHT	INITIALS	REMARKS
			PRESS.	FREQ.				
4-20-82	1125	44	755.126	27.87702	7.5	- PURGED	N ₂	@ 1320 HRS.
20	1346	48	753.950	27.87510	7.5			
21	1025	45	755.199	27.87710	7.5			
22	1155	32	755.020	27.87690	7.5			
23	1025	34	755.165	27.87705	7.5			
24	1215	53	754.614	27.87697	7.5			
25	0907	60	753.453	27.87518	7.5			
26	1320	63	751.460	27.87324	7.5			
27	1105	63	751.750	27.87352	7.5	PURGED	N ₂	@ 1305 HRS.
27	1330	69	750.657	27.8739	7.5			
28	0910	51	753.240	27.87508	7.5			
29	1435	71	750.240	27.87195	7.5			
30	1328	68	749.340	27.87103	7.5			
5-1-82	1145	67	750.685	27.87242	7.5			
2	1000	68	751.467	27.87380	7.5			
3	1120	63	750.685	27.87242	7.5			
4	1020	65	750.531	27.87227	7.5			
5	1236	56	752.040	27.87384	7.5			

UNION GEOTHERMAL CO. OF NEW MEXICO

PRESSURE INTERFERENCE DATA

WELL NAME: BACA № 23
 TRANSDUCER: PAROSCIENTIFIC
 MODEL #: 73K-002
 SERIAL #: 11251 2000 PSIA

CHAMBER SETTING: 3200' eKB

DATE	TIME HRS	AMBIENT TEMP. °F	TRANSR. RDGS.		WHP PSIC	WHT	INITIALS	REMARKS
			PRESS.	FREQ.				
5-6-82	1045	52	752.214	27.87400	7.5			
7	1245	62	753.310	27.87480	7.5			
8	0005	57	753.215	27.87415	7.5			
9	1026	53	751.276	27.87303	7.5			
10	1005	60	751.620	27.87380	8			
11	1031	52	751.667	27.87325	8			
12	1340	39	752.089	27.87388	7.5			
13	1013	37	753.366	27.87524	8			
14	0855	46	752.543	27.87433	8			
15	0033	63	751.702	27.87346	8			
16	1245	62	750.647	27.87237	8			
17	1020	70	749.896	27.87163	8			
18	0842	59	751.773	27.87354	8			
18	1235	70	748.943	27.87062	8			
19	0054	64	750.502	27.87228	8			
20	0918	64	750.047	27.87183	8			
21	0908	63	751.314	27.87302	8			
22	1121	66	751.325	27.87461	8			

UNION

PREPARED BY: JPR CHECKED BY: _____
 DATE: 2-22-81 PAGE: 1 OF 2

BACA NO 23 FLOWTEST # 1 (OPEN HOLE)

1. OPEN WELL @ 0900 HRS. 2-22-81
2. WHP PRIOR TO OPENING — 805 PSIG
3. METERS:

1 ORIFICE — 5", FLOWLINE I.D. — 11.93"
 # 2 ORIFICE — 5", FLOWLINE I.D. — 11.96"

TWO-PHASE DATA

DATE	TIME HRS.	WHP PSIG	METER 1		% FLASH ASSUMED	MASS RATE #/HR.	STM RATE #/HR.	METER 2	
			P, PSIG	ΔP, PSI				P, PSIG	ΔP, PSI
2-22-81	0915	125	122	23	40	173,447.9	69,379.2	92	76
					60	123,462.8	74,077.7		
	0930	89	85	25	40	140,575.7	56,230.3	70	60
					60	99,067.9	59,440.7		
	1000	49	46	15.5	60	61,322.6	36,793.5	36	33
					80	47,037.3	37,629.7		
	1015	45	43	15	60	58,745.3	35,247.2	32.5	30
					80	45,032.7	36,026.2		
	1100	36	33.5	12	60	48,467.0	29,030.2	26	24.5
					80	37,037.9	29,670.3		
	1130	26	23.5	8.75	60	37,055.6	22,233.3	18	16.75
					80	28,292.4	22,633.9		
	1200	23	21	8	60	34,023.7	20,417.2	16	14.75
					80	25,963.4	20,770.7		
	1230	20	18	8.5	60	33,077.2	19,846.3	12	11
					80	25,211.9	20,169.6		
	1300	17	15.5	7.5	60	30,155.9	18,093.5	11.5	10.5
					80	42,973.9	18,379.2		
	1400	18	16	6	60	27,461.8	16,477.1	12	11
					80	20,927.5	16,742.0		
	1430	27	25	7.5	60	35,236.4	21,141.8	19	17.5
					80	26,918.0	21,531.4		
	1500	33	31	9.5	60	42,346.7	25,408.0	25	22
					80	32,391.9	25,913.5		

UNITROTE

UNITROTE COMPANY
 1000 S. GARDNER ST. TAMPA, FL 33604

JPR

2 22 81 2 2

BACA NO 23 FLOWTEST # 1 (CONT.)

TWO - PHASE DATA

DATE	TIME HRS.	WHP PSIG	METER 1		% FLASH ASSUMED	MORSE RATE #/HR.	STK RATE #/HR.	METER 2		
			P ₁	ΔP				P ₁	ΔP	
			PSIG	PSI				PSIG	PSI	
2-22-81	1530	33	30	9	60	40,846.75	24,508.05	24	21	
					80	31,238.8	24,991.04			
	1600	58	55	17.5	60	69,812.7	41,887.6	44	40	
					80	53,640.05	42,912.04			
	1700	37	35	12.5	60	49,931.02	29,958.6	28	26	
					80	38,215.7	30,572.5			
	1800	27	24.5	11.5	60	42,105.4	25,263.2	17	16.5	
					80	32,144.5	25,715.6			
	1900	6	5	3.5	60	16,651.4	9,990.8	3	2.5	
					80	12,646.5	10,117.2			
	1935	WELL STOP FLOWING POSSIBLE BRIDGED AT BOTTOM HOLE								
			CHLORIDE	7000		PPM				
		PH	8.9							

UNITED

Produced by _____ Checked by _____ Date _____

File# **BACA NO 23 FLOWTEST # 2 (AFTER FRACTURING)**

1. OPEN WELL @ 0830 HRS. 3-28-81
2. WELL HEAD PRESS PRIOR TO OPENING = 789 PSIG
3. TWO-PHASE ORIFICE = 5"
 FLOWLINE = 11.93" I.D.

TWO-PHASE DATA

DATE	TIME HRS.	WHP PSIG	P, PSIG	ΔP PSI	% FLASH ASSUMED	WASS RATE #/HR.	STM RATE #/HR.	REMARKS
3-28-81	0900	69 [?]	52	40	30	168,236	50,471	
					40	131,164	52,465	
	1005	57	55	44	30	177,736	53,381	REMOVED
					40	135,777	55,511	WHP GAUGE
	1100	59	57	48	30	135,611	55,683	TO LOWER
					40	144,757	57,904	RANGE
	1400	61	53	45.5	30	175,932	52,780	
					40	137,060	54,824	
					50	112,257	56,128	
	1700	60	51	44	30	170,836	51,248	
					40	133,014	53,206	
					50	108,908	54,454	
3-29-81	2000	59.5	50	44	30	168,990	50,697	
					40	131,529	52,612	
					50	107,663	53,832	
	2400	59.5	50	44	30	168,990	50,697	
					40	131,529	52,612	
					50	107,663	53,832	
	0100	0710 HRS.						METER PLUGGED (PARTIAL)
	0710	52.5	47.5	42	30	163,382	49,015	
					40	127,111	50,845	
					50	104,019	52,010	
	1100	53	47	42	30	161,532	45,460	
					40	125,618	50,247	
				50	102,768	51,384		

