GL03916

RUN #1

Union Geothermal Co. of New Mexico

SURVEY DATE: 10-01-80

TITLE BACA NO 21 TEMP/PRESS SURVEY (RIG STILL ON)

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 14191
RANGE	: 93° - 618°F	RANGE	: 0-4700 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 1-24-77
CLOCK: 12 HRS.	: S/N: 14090	CLOCK: 12 HRS.	: S/N: 14089

WHP AT START OF SURVEY : 0 PSIG

WHP AT END OF SURVEY : 0 PSIG

OPENED WELL TO ELEMENT : 0730 HRS. HRS.

POH : 0802 HRS. 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___

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	2500'	10 MIN.	1.017	402	0.194	0.190	477	
2	2611'	12 "	1.040	411.4	0.203	0.200	502	ELEMENTS CAN'T GET THROUGH BELOW 2611 FT.

RUN NO. 1

Union Geothermal Co. of New Mexico

R.O. ENGEBRETSEN
OCT 3 1980

SURVEY DATE: 10-1-80

TITLE BACA 31-51 - P/T RIG SURVEY.

PRESS. EL. S/N	: 14191	PRESS. EL. S/N	:
RANGE	: 0-4700	RANGE	:
CALIBRATED	: —	CALIBRATED	:
CLOCK: 12 HRS.: S/N: 14089		CLOCK: HRS.: S/N:	

WHP AT START OF SURVEY : 0 PSIG
WHP AT END OF SURVEY : 0 PSIG
OPENED WELL TO ELEMENT: 0730 HRS. HRS.
POH : 0802 HRS. 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__

			PRESSURE			PRESSURE			
Station	Depth	Time at Sta.	Defl.	Corr. Defl.	PSIG	Defl.	Corr. Defl.	PSIG	REMARKS
1	2500	0736-0740	.194	.190	477				HIT SOLID
2	2611	0750-0752	.203	.200	502				AT 2611'

RUN NO. 1

Union Geothermal Co. of New Mexico

R.O. ENGEBRETSEN

OCT 3 1980

SURVEY DATE: 10-1-80

TITLE BACA #21-5I- PIT RIG SURVEY.

TEMP. EL. S/N	: 10222	TEMP. EL. S/N	:
RANGE	: 930-615°F	RANGE	:
CALIBRATED	: —	CALIBRATED	:
CLOCK: 12 HRS.: S/N: 14090		CLOCK: HRS.: S/N:	

WHP AT START OF SURVEY : 0 PSIG

WHP AT END OF SURVEY : 0 PSIG

OPENED WELL TO ELEMENT: 0730 hrs. HRS.

POH : 0502 hrs 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 Defl.	TEMPERATURE °F	TEMPERATURE Defl.	TEMPERATURE °F	REMARKS
1	2500	0736-0746	1.017	402			HIT SOLID
2	2611	0750-0802	1.040	411.4			AT 2611'

RUN # 2

Union Geothermal Co. of New Mexico

SURVEY DATE: 11-12-80

TITLE BACA Nº 21 TEMP/PRESS GRADIENT SURVEY TO 2900FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 14071
RANGE	: 93° - 618°F	RANGE	: 0 - 4700 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 1-24-77
CLOCK: 12 HRS.	: S/N: 14089	CLOCK: 12 HRS.	: S/N: 14090

WHP AT START OF SURVEY : 439 PSIG

WHP AT END OF SURVEY : 436 PSIG

OPENED WELL TO ELEMENT : 1335 HRS.

POH : 1521 HRS.

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

1 MOS., 10 DAYS, 16 HRS., ____ MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 2) 2135 HRS. 10-02-1980

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	0	10 MIN.	N.R.	—	0.178	—	447	
2	500	15 MIN.	0.210	163	0.180	—	452	
3	1000		0.498	254	0.182	—	457	
4	1500		0.728	323	0.182	—	457	
5	2000		0.854	359	0.182	—	457	
6	2500		1.112	431	0.184	—	462	
7	2900	↓	1.129	436	0.207	0.204	519	

R.O. ENGEBRETSEN
NOV 10 1980

RUN # 2

Union Geothermal Co. of New Mexico

R.O. ENGEBRETSEN

NOV 10 1980

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CANYON
CASING 7" LINER HUNG @ 2470 FT. ELEV. 9361 FT. G.L.
LINER DESCRIPTION

WELL NAME BACA # 21
DATE 11-12-80
ZERO POINT @ BOTTOM MASTER VALV
DEPTH 3000 FT.

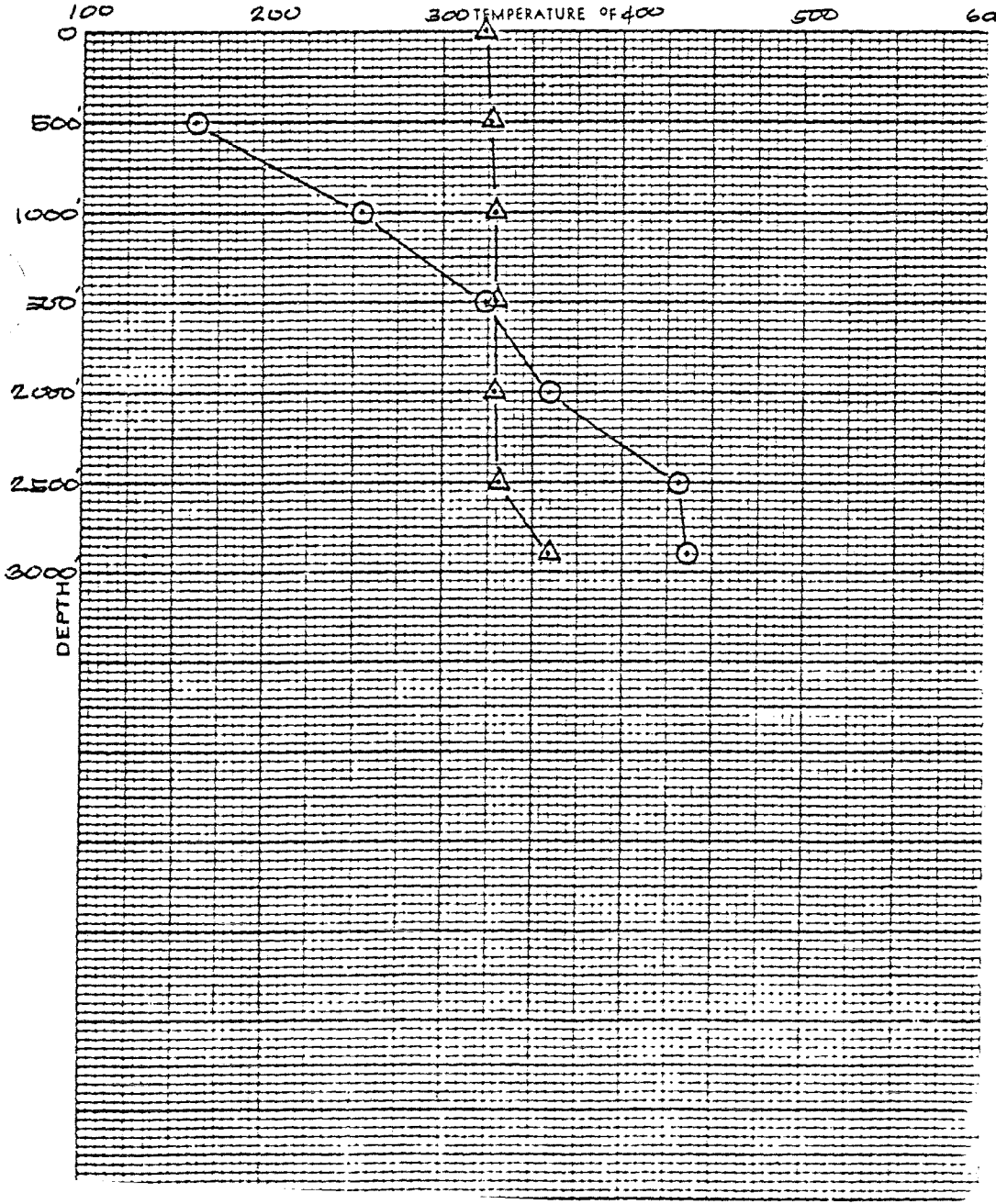
HOLE DESCRIPTION

KPC 14191
0-4700 PSI

INSTRUMENT 93°F-613°F FAHR
SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2900 FT.
REMARKS: PRIOR TO FLOWTEST # 3

MAX. TEMP. 436 °F @ 2900'
STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING PSI		

DEPTH	TEMP.	PRESS	GRAD
0	–	447	
500	163	452	
1000	254	457	
1500	323	457	-
2000	359	457	-
2500	431	462	0
2900	436	519	0.

⊙ TEMPERATURE
△ PRESSURE

BY: JPR

RUN # 3

R.O. ENGEBRETSEN

MAR 17 1981

Union Geothermal Co. of New Mexico

SURVEY DATE: 03-13-81

TITLE BACA No. 21 PRESS/TEMP GRADIENT SURVEY TO 2850 FT. (FLOWING)

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 14101
RANGE	: 93 - 618°F	RANGE	: 4700 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 1-24-77
CLOCK: 12 HRS.	: S/N: 13790	CLOCK: 12 HRS.	: S/N: 14090

WHP AT START OF SURVEY : 13.75 PSIG

WHP AT END OF SURVEY : 13.75 PSIG

OPENED WELL TO ELEMENT : 0950 HRS.

POH : 1218 HRS.

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

3 MOS., 14 DAYS, ____ HRS., 5 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 4) 0945 HRS. 11 - 20 1980

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	0 '	10 MIN.	0.441	237	0.000	—	22.61	NO CORRECTION
2	900 '		0.506	256	0.012	—	30.15	
3	1000		0.548	269	0.015	—	37.68	
4	1500		0.577	278	0.017	—	42.71	
5	2000		0.604	286	0.022	—	55.27	
6	2500		0.624	292	0.030	—	75.37	
7	2550		0.642	297	0.033	—	82.91	
8	2600		0.649	299	0.033	—	82.91	
9	2650		0.653	301	0.034	—	85.42	
10	2700		0.661	303	0.034	—	85.42	
11	2750		0.660	305	0.034	—	85.42	
12	2800	∇	0.676	308	0.040	—	100.5	
13	2850	20 MIN.	0.692	312	0.047	—	118.09	

RUN # 3

Union Geothermal Co. of New Mexico

R.O. ENGEBRETSEN

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

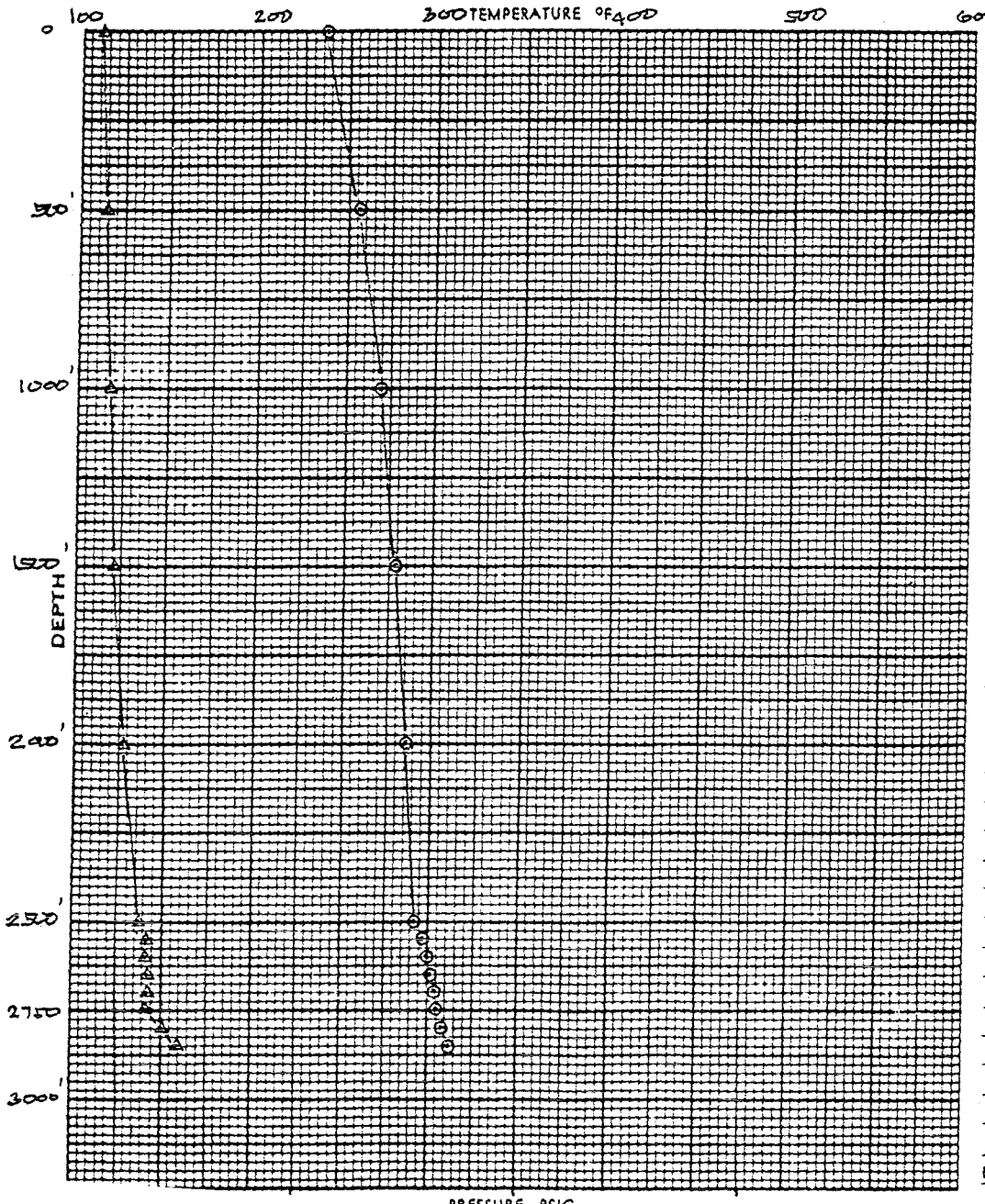
MAR 17 1981

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA NO 21
CASING ELEV. 9361 FT. G.L. DATE: 03-13-81
LINER DESCRIPTION: ZERO POINT @ KB
7" LINER HUNGER @ 2470 FT. DEPTH 3000 FT.

HOLE DESCRIPTION:
KPG 14191 INSTRUMENT 93-618 FAHR
4700 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEYS TO 2850 FT. MAX. TEMP. 312 °F @ 2850'
REMARKS: (FLOWING)

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD
0	237	22.61	
500	256	30.15	
1000	269	37.68	
1500	278	42.71	
2000	286	55.27	
2500	292	75.37	
2550	297	82.91	
2600	299	82.91	
2650	301	85.42	
2700	303	85.42	
2750	305	85.42	
2800	308	100.5	0.
2850	312	118.09	0.

⊙ TEMPERATURE
△ PRESSURE

BY:

11 (ΔT HRS, °F) 54 - 55

B21TBUI.DATA **CALCULATION RECORD**

B21PBUI.DATA (ΔT HRS, PSIG)

Union Geothermal Co. of New Mexico

GARY L. UBLAND
MAR 23 1981

BHP-BHT BUILDUP SURVEY

WELL NO. BACA # 21 AFTER FLOW TEST NO. 5

DATE: 3-21-81 PRESS. DATUM: 2750 FT.

CUM. PROD.: _____ TEMP. EL NO.: KTB 10222

RATE PRIOR TO SHUT-IN: 35,320 #/HR. PRESS. EL NO.: KPC 14191

WELL HEAD FLOWING PRESS: 13.75 PSIG

SEPARATOR PRESS: _____ TEST CONDUCTED: ☐ THROUGH SEPARATOR ☒ NOT THROUGH SEPARATOR

SHUT-IN-TIME: 1300 HRS. 3-21-81

t: _____ OPEN WELL @ 0745 HRS. 03-03-81

	S.I.TIME	TIME SCALE				PRESSURE		TEMPERATURE			REMARKS
RUN NOS.	At HRS.	MIC. UNITS	READER SCALE	REAL TIME	TIME ELAPSED HRS.	DEFL.	PRESS. PSIG.	DEFL.	TEMP. °F	$\frac{t+\Delta t}{\Delta t}$	
4				10 MIN	0.17	0.032	80.4	0.665	304		FLOWING
				5	0.25	0.032	80.4	0.668	305		
					0.33	0.034	85.4	0.672	306		
					0.42	0.036	90.5	0.683	310		
					0.50	0.037	93.0	0.693	313		
					0.58	0.040	100.5	0.701	315		
					0.67	0.040		0.705	316		
				↓	0.75	0.040		0.707	317		
				10	0.92	0.040		0.713	319		
					1.08	0.040	↓	0.719	320		
					1.25	0.041	103.0	0.726	322		
					1.42	0.041	"	0.731	324		
					1.58	0.042	105.5	0.736	325		
					1.75	0.043	108.0	0.741	327		
					1.92	0.043	"	0.745	328		
					2.08	0.044	110.6	0.749	329		
				↓	2.25	0.045	113.1	0.753	330		
				15	2.50	0.046	115.6	0.758	331		
					2.75	0.047	118.1	0.763	333		
					3.00	0.048	120.6	0.768	334		
					3.25	0.049	123.1	0.773	336		
					3.50	0.049	"	0.778	337		
				↓	3.75	0.050	125.6	0.782	338		
				30	4.25	0.052	130.7	0.789	340		
				"	4.75	0.053	133.2	0.798	343		

CALCULATION RECORD

Union Geothermal Co. of New Mexico

BHP-BHT BUILDUP SURVEY

WELL NO. Baca #21 AFTER FLOW TEST NO. 5

DATE: 3-22-81 PRESS. DATUM: 2750 FT.

CUM. PROD.: _____ TEMP. EL NO.: KTB 10222

RATE PRIOR TO SHUT-IN: 35,320 #/HR. PRESS. EL NO.: KPG 14191

WELL HEAD FLOWING PRESS: 13.75 PSIG

SEPARATOR PRESS: -- TEST CONDUCTED: ☐ THROUGH SEPARATOR ☒ NOT THROUGH SEPARATOR

SHUT-IN-TIME: 1300 HRS. 3-21-81

t: _____

	S.I.TIME	TIME SCALE				PRESSURE		TEMPERATURE			REMARKS
RUN NOS.	At HRS.	MIC. UNITS	READER SCALE	REAL TIME	TIME ELAPSED HRS.	DEFL.	PRESS. PSIG.	DEFL.	TEMP. °F	$\frac{t+\Delta t}{\Delta t}$	
4				30	5.25	0.055	138.2	0.805	345		
					5.75	0.056	140.7	0.811	347		
					6.25	0.057	143.2	0.817	348		
					6.75	0.059	148.2	0.822	350		
					7.25	0.060	150.8	0.827	351		
					7.75	0.061	153.3	0.831	352		
					8.25	0.061	153.3	0.834	353		
					8.75	0.062	155.8	0.838	354		
				↓	9.25	0.062	155.8	0.842	355		
↓				1 HR.	10.25	0.064	160.8	0.850	358		
5				15 MIN	10.50	0.061	153.3	0.863	361		
				"	10.75	0.061	153.3	0.865	362		
				30	11.25	0.061	153.3	0.868	363		
				"	11.75	0.062	155.8	0.871	364		
				"	12.25	0.062	155.8	0.874	365		
				"	12.75	0.063	158.3	0.877	365		
				"	13.25	0.063	158.3	0.879	366		
				1 HR.	14.25	0.065	163.3	0.885	368		
				"	15.25	0.067	168.3	0.890	369		
				"	16.25	0.068	170.9	0.894	370		
				"	17.25	0.069	173.4	0.898	371		
				"	18.25	0.070	175.9	0.902	373		
				"	19.25	0.072	180.9	0.906	374		
↓				"	20.25	0.074	185.9	0.910	375		

CALCULATION RECORD

Union Geothermal Co. of New Mexico

BHP-BHT BUILDUP SURVEY
WELL NO. BACA # 21 AFTER FLOW TEST NO. 5

DATE: 3-21-81
CUM. PROD.: _____
RATE PRIOR TO SHUT-IN: 35,320 #/HR.
WELL HEAD FLOWING PRESS: 13.75 PSIG
SEPARATOR PRESS: _____
SHUT-IN-TIME: 1300 HRS. 3-21-81
t: _____ OPEN WELL @ 0745 HRS. 02-03-81

PRESS. DATUM: 2750 FT.
TEMP. EL NO.: KTB 10222
PRESS. EL NO.: KPC 14191
TEST CONDUCTED: ☐ THROUGH SEPARATOR ☒ NOT THROUGH SEPARATOR

	S.I.TIME	TIME SCALE				PRESSURE		TEMPERATURE			REMARKS
RUN NOS.	At HRS.	MIC. UNITS	READER SCALE	REAL TIME	TIME ELAPSED HRS.	DEFL.	PRESS. PSIG.	DEFL.	TEMP. °F	$\frac{t+\Delta t}{\Delta t}$	
4				10 MIN	0.17	0.032	80.4	0.665	304		FLOWING
				5	0.25	0.032	80.4	0.668	305		2750' @ 1245
					0.33	0.034	85.4	0.672	306		
					0.42	0.036	90.5	0.683	310		
					0.50	0.037	93.0	0.693	313		
					0.58	0.040	100.5	0.701	315		
					0.67	0.040		0.705	316		
				↓	0.75	0.040		0.707	317		
				10	0.92	0.040		0.713	319		
					1.08	0.040	↓	0.719	320		
					1.25	0.041	103.0	0.726	322		
					1.42	0.041	"	0.731	324		
					1.58	0.042	105.5	0.736	325		
					1.75	0.043	108.0	0.741	327		
					1.92	0.043	"	0.745	328		
					2.08	0.044	110.6	0.749	329		
				↓	2.25	0.045	113.1	0.753	330		
				15	2.50	0.046	115.6	0.758	331		
					2.75	0.047	118.1	0.763	333		
					3.00	0.048	120.6	0.768	334		
					3.25	0.049	123.1	0.773	336		
					3.50	0.049	"	0.778	337		
				↓	3.75	0.050	125.6	0.782	338		
				30	4.25	0.052	130.7	0.789	340		
				"	4.75	0.053	133.2	0.798	343		

CALCULATION RECORD

Union Geothermal Co. of New Mexico

BHP-BHT BUILDUP SURVEY

WELL NO. BACA # 21 AFTER FLOW TEST NO. 5

DATE: 3-22-81 PRESS. DATUM: 2750 FT.

CUM. PROD.: _____ TEMP. EL NO.: KTB 10222

RATE PRIOR TO SHUT-IN: 35,320 #/HR. PRESS. EL NO.: KPG 14191

WELL HEAD FLOWING PRESS: 13.75 PSIG

SEPARATOR PRESS: _____ TEST CONDUCTED: ☐ THROUGH SEPARATOR ☒ NOT THROUGH SEPARATOR

SHUT-IN-TIME: 1300 HRS. 3-21-81

t: _____

	S.I.TIME	TIME SCALE				PRESSURE		TEMPERATURE			REMARKS
RUN NOS.	At HRS.	MIC. UNITS	READER SCALE	REAL TIME	TIME ELAPSED HRS.	DEFL.	PRESS. PSIG.	DEFL.	TEMP. °F	$\frac{t+\Delta t}{\Delta t}$	
4				30	5.25	0.055	138.2	0.805	345		
					5.75	0.056	140.7	0.811	347		
					6.25	0.057	143.2	0.817	348		
					6.75	0.059	148.2	0.822	350		
					7.25	0.060	150.8	0.827	351		
					7.75	0.061	153.3	0.831	352		
					8.25	0.061	153.3	0.834	353		
					8.75	0.062	155.8	0.838	354		
				↓	9.25	0.062	155.8	0.842	355		
↓				1 HR.	10.25	0.064	160.8	0.850	358		POH @ 2245 ft
5				15 MIN.	10.50	0.061	153.3	0.863	361		@ 2750' @ 2430'
				"	10.75	0.061	153.3	0.865	362		
				30	11.25	0.061	153.3	0.868	363		
				"	11.75	0.062	155.8	0.871	364		
				"	12.25	0.062	155.8	0.874	365		
				↓	12.75	0.063	158.3	0.877	365		
				"	13.25	0.063	158.3	0.879	366		
				1 HR.	14.25	0.065	163.3	0.885	368		
				"	15.25	0.067	165.3	0.890	369		
				"	16.25	0.068	170.9	0.894	370		
				"	17.25	0.069	173.4	0.898	371		
				"	18.25	0.070	175.9	0.902	373		
				"	19.25	0.072	180.9	0.906	374		
↓				"	20.25	0.074	185.9	0.910	375		POH @ 103'

GTNMMLB.TAOS

RUN # 6

B21TG1.DATA (°F, FT)
B21PG1.DATA (psig, FT)

Union Geothermal Co. of New Mexico

GARY W. UHLAND
MAR 23 1981

SURVEY DATE: 3-22-81

TITLE BACA NO 21 TEMP/PRESS GRADIENT SURVEY TO 2750 FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 14101
RANGE	: 93 - 618 °F	RANGE	: 4700 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 1-24-77
CLOCK: 12 HRS.	: S/N: 23779	CLOCK: 12 HRS.	: S/N: 18338

WHP AT START OF SURVEY : 173 PSIG
WHP AT END OF SURVEY : 170 PSIG
OPENED WELL TO ELEMENT : 1638 HRS.
POH : 2054 HRS.
TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY
___ MOS., 1 DAYS, 3 HRS., 38 MINS.
DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21 1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	500	15 MIN.	0.400	224	0.075	—	188.4	
2	1000		0.607	287	0.075	—	188.4	
3	1500		0.867	363	0.074	—	185.9	
4	2000		0.927	380	0.078	—	196.0	
5	2500		0.938	382.8	0.069	—	173.4	
6	2700		0.940	383.4	0.072	—	180.9	
7	2750	3 HRS.	0.944	384.5	0.075	—	188.4	
	"		0.945	384.8	0.076	—	191.0	
	"		0.948	385.6	0.077	—	193.5	
	"		0.949	385.9	0.078	—	196.0	

PRESSURE ELEMENT IS A SUSPECT

RUN # 6

Union Geothermal Co. of New Mexico

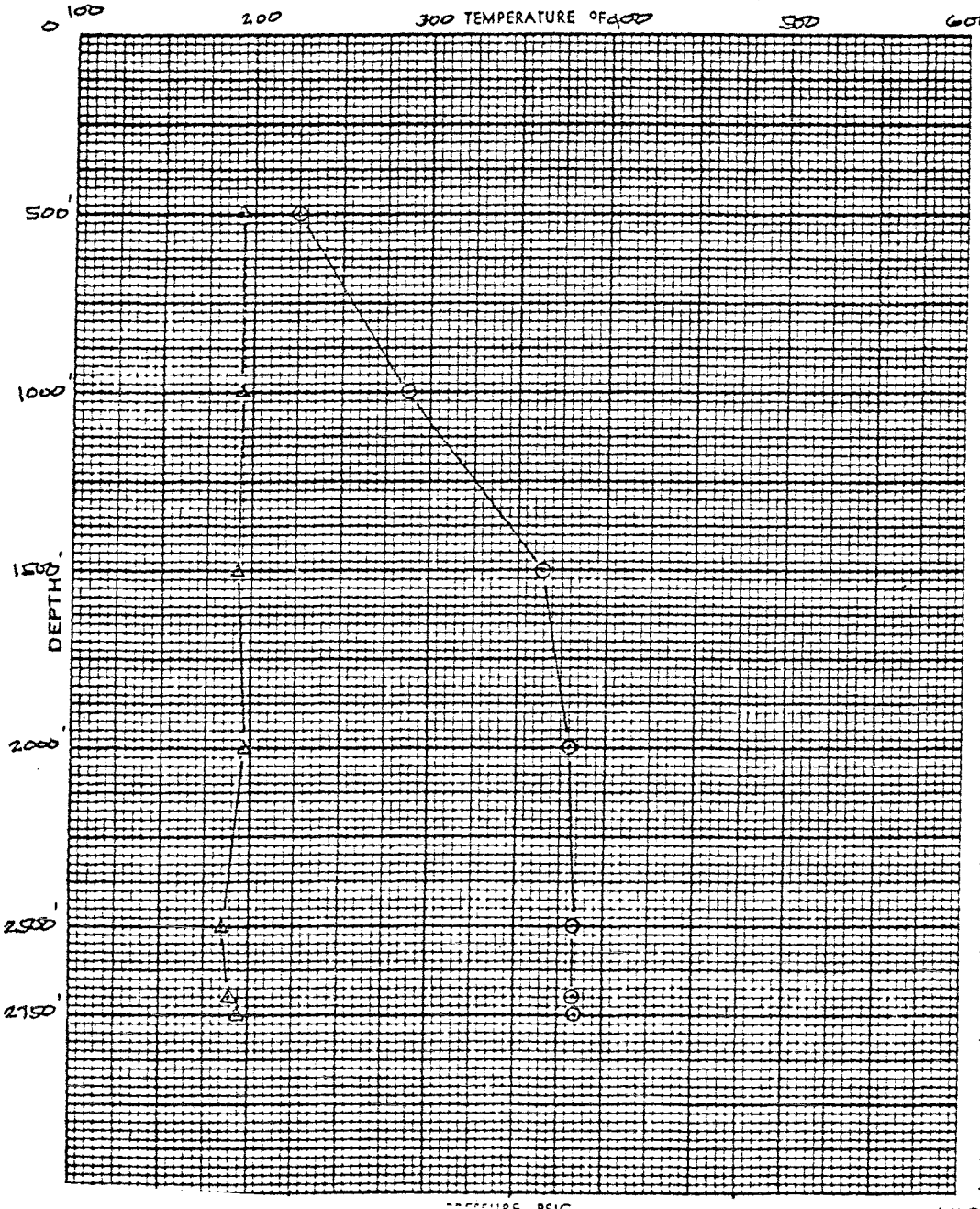
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BOCA No 21
CASING ELEV. 9361 FT. G.L. DATE: 3-22-81
LINER DESCRIPTION: ZERO POINT @ KB
7" LINER HANGER @ 2470 FT. DEPTH 3000 FT.

HOLE DESCRIPTION:
KPG 14191 INSTRUMENT 03-618 FAHR
4700 PSI SERIAL NO. KTG 10222

PURPOSE TEMP/PRESS GRADIENT SURVEYS TO 2750 FT. MAX. TEMP. 385.0 °F @ 2750'
REMARKS: FOLLOWING BUILD-UP SURVEYS @ 2750 FT.

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD
500	224	188.4	
1000	287	188.4	
1500	363	185.9	
2000	380	196.0	
2500	382.8	173.1	
2700	383.4	180.9	0
2750	384.5	188.4	0
	384.8	191.0	
	385.6	193.5	
	385.0	196.0	

O TEMPERATURE
Δ PRESSURE

BY: JPR

B21P6

RUN # 6

Union Geothermal Co. of New Mexico

SURVEY DATE: 3-22-81

TITLE BACA NO. 21 TEMP/PRESS GRADIENT SURVEY TO 2750 FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 14101
RANGE	: 93 - 618 °F	RANGE	: 4700 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 1-24-77
CLOCK: 12 HRS.	: S/N: 23779	CLOCK: 12 HRS.	: S/N: 18338

WHP AT START OF SURVEY : 173 PSIG

WHP AT END OF SURVEY : 179 PSIG

OPENED WELL TO ELEMENT : 1638 HRS.

POH : 2054 HRS.

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

____ MOS., 1 DAYS, 3 HRS., 38 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21 1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	500	15 MIN.	0.400	224	0.075	—	188.4	
2	1000		0.607	287	0.075	—	188.4	
3	1500		0.867	363	0.074	—	185.9	
4	2000		0.927	380	0.078	—	196.0	
5	2500		0.938	382.8	0.069	—	173.4	
6	2700		0.940	383.4	0.072	—	180.9	
7	2750	0 HRS.	0.944	384.5	0.075	—	188.4	
	"	1 "	0.945	384.8	0.076	—	191.0	
	"	2 "	0.948	385.6	0.077	—	193.5	
	"	3 "	0.949	385.9	0.078	—	196.0	

PRESSURE ELEMENT IS A SUSPECT

RUN # 6

Union Geothermal Co. of New Mexico

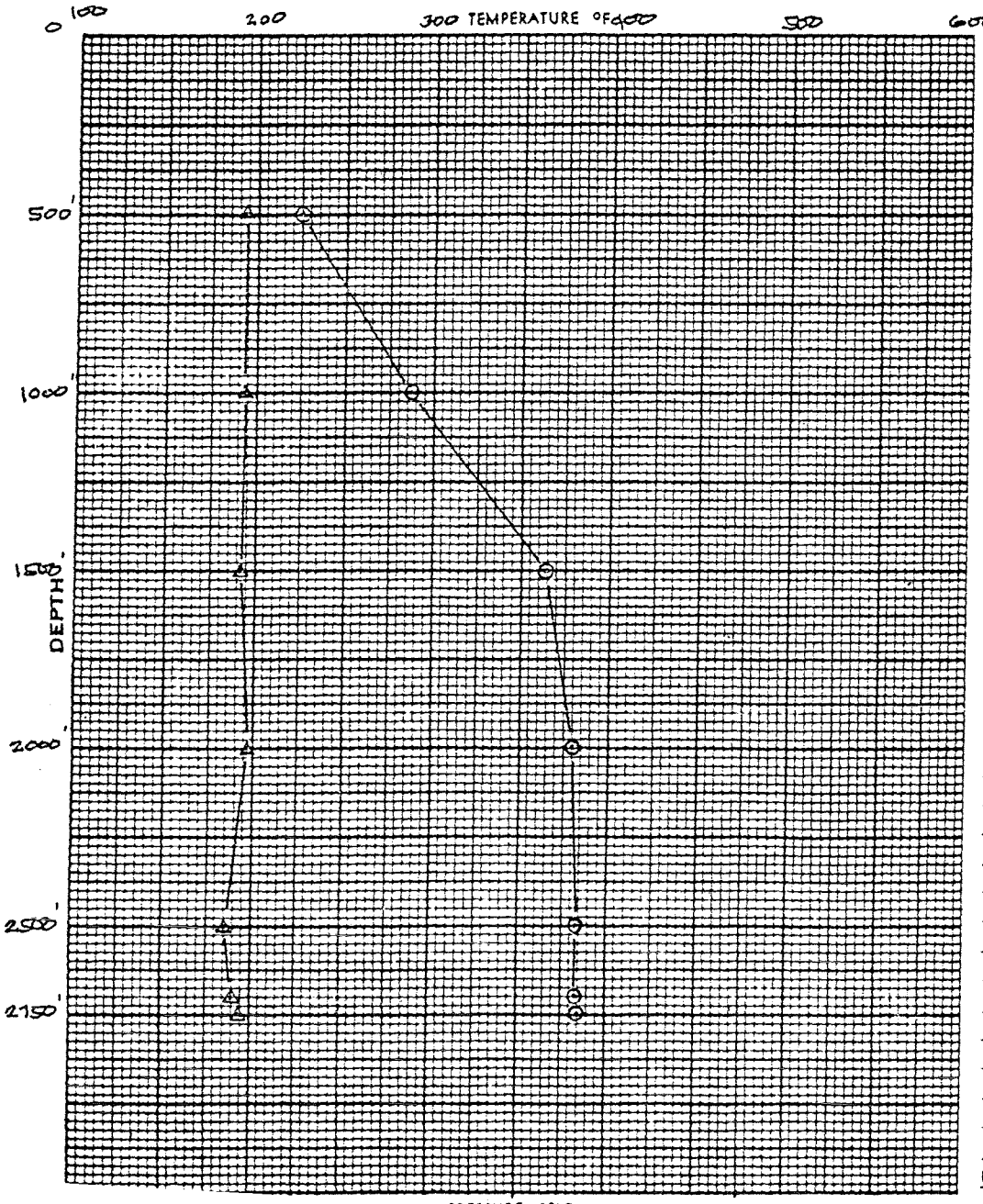
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA No 21
CASING ELEV. 6361 FT. G.L. DATE: 3-22-81
LINER DESCRIPTION: ZERO POINT @ KB
7" LINER HANGER @ 2470 FT. DEPTH 3000 FT.

HOLE DESCRIPTION:
KPG 14191 INSTRUMENT 03-618 FAHR.
4700 PSI SERIAL NO. KTG 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 385.0 °F @ 2750'
REMARKS: FOLLOWING BUILD-UP SURVEY @ 2750 FT.

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
500	224	188.4	
1000	287	188.4	
1500	363	185.9	
2000	380	196.0	
2500	382.8	193.1	
2700	383.4	180.9	0.
2750	384.5	188.4	0.
	384.8	191.0	
	385.6	193.5	
	385.0	196.0	

O TEMPERATURE
Δ PRESSURE

BY: JPB

RUN # 7

R.O. ENGEBRETSEN

MAR 25 1981

Union Geothermal Co. of New Mexico

SURVEY DATE: 3-23-81

TITLE BACA NO 21 TEMP/PRESS GRADIENT SURVEY TO 2750FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 0235
RANGE	: 93 - 618 °F	RANGE	: 2050 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 7-26-76
CLOCK: 12 HRS.	: S/N: 13790	CLOCK: 12 HRS.	: S/N: 23770

WHP AT START OF SURVEY : 204 PSIG

WHP AT END OF SURVEY : 206 PSIG

OPENED WELL TO ELEMENT : 1316 HRS.

POH : 1441 HRS.

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

MOS., 2 DAYS, 0 HRS., 16 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	500'	10 MIN.	0.363	213	0.140	0.127	220	
2	1000		0.576	277	0.140	0.128	222	
3	1500		0.768	324	0.140	0.130	225	
4	2000		0.964	370	0.140	0.133	229	
5	2500		0.981	395	0.142	0.136	233.6	
6	2700		0.985	396	0.143	0.137	235	
7	2750		0.987	397	0.143	0.137	235	

RUN # 7

Union Geothermal Co. of New Mexico

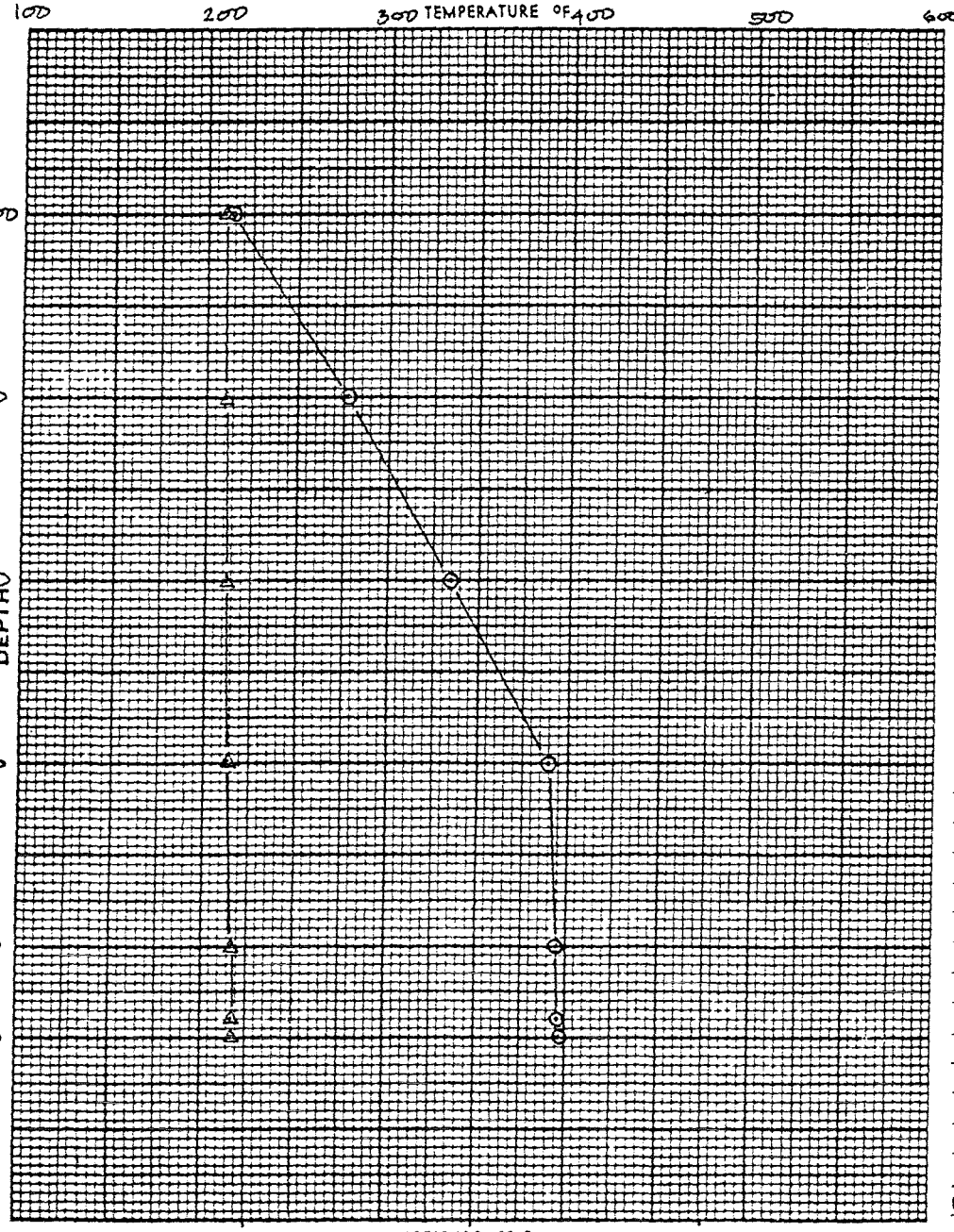
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL Co. OF N.M. FIELD REDONDO CREEK WELL NAME BACA No 21
CASING ELEV. 9361 FT. G.L. DATE: 3-23-81
LINER DESCRIPTION: ZERO POINT KB
7" LINER HUNGER @ 2470 FT. DEPTH 3000 FT.

HOLE DESCRIPTION:
KPC 9235 INSTRUMENT DD-618 FAHR.
2950 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 397 °F @ 2750'
REMARKS:

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
500	213	220	
1000	277	222	
1500	334	225	
2000	390	229	
2500	395	233.6	
2700	396	235	
2750	397	236	

⊙ TEMPERATURE
△ PRESSURE

BY: JPB

R.O. ENGEBRETSEN

MAR 25 1981 RUN NO. 8

Union Geothermal Co. of New Mexico

SURVEY DATE: 3-23-81

TITLE BACA No 21 PRESS/PRESS GRADIENT SURVEY TO 2750 FT.

PRESS. EL. S/N	: KPG 9235	PRESS. EL. S/N	: KPG 14191
RANGE	: 2050 PSI	RANGE	: 4700 PSI
CALIBRATED	: 7-26-76	CALIBRATED	: 1-24-77
CLOCK: 12 HRS.: S/N:	23770	CLOCK: 12 HRS.: S/N:	13700

WHP AT START OF SURVEY : 207 PSIG

WHP AT END OF SURVEY : 208 PSIG

OPENED WELL TO ELEMENT: 1554 HRS.

POH : 1630 HRS.

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

____ MOS., 2 DAYS, 2 HRS., 54 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

Station	Depth	Time at Sta.	PRESSURE Defl.	PRESSURE Corr. Defl.	PRESSURE PSIG	PRESSURE Defl.	PRESSURE Corr. Defl.	PRESSURE PSIG	REMARKS
1	500'	10 MIN.	0.141	0.128	222	0.087	—	210	
2	1000	〃	0.142	0.130	225	0.087	—	210	
3	1500	〃	0.142	0.132	228	0.087	—	210	
4	2000	〃	0.142	0.135	232	0.085	—	214	
5	2500	〃	0.144	0.138	237	0.004	—	236	
6	2700	〃	0.144	0.138	237	0.087	—	210	
7	2750	〃	0.144	0.138	237	0.087	—	210	
									KPG 14191 TO BG RE-CALIBRATE

RUN # 8

Union Geothermal Co. of New Mexico

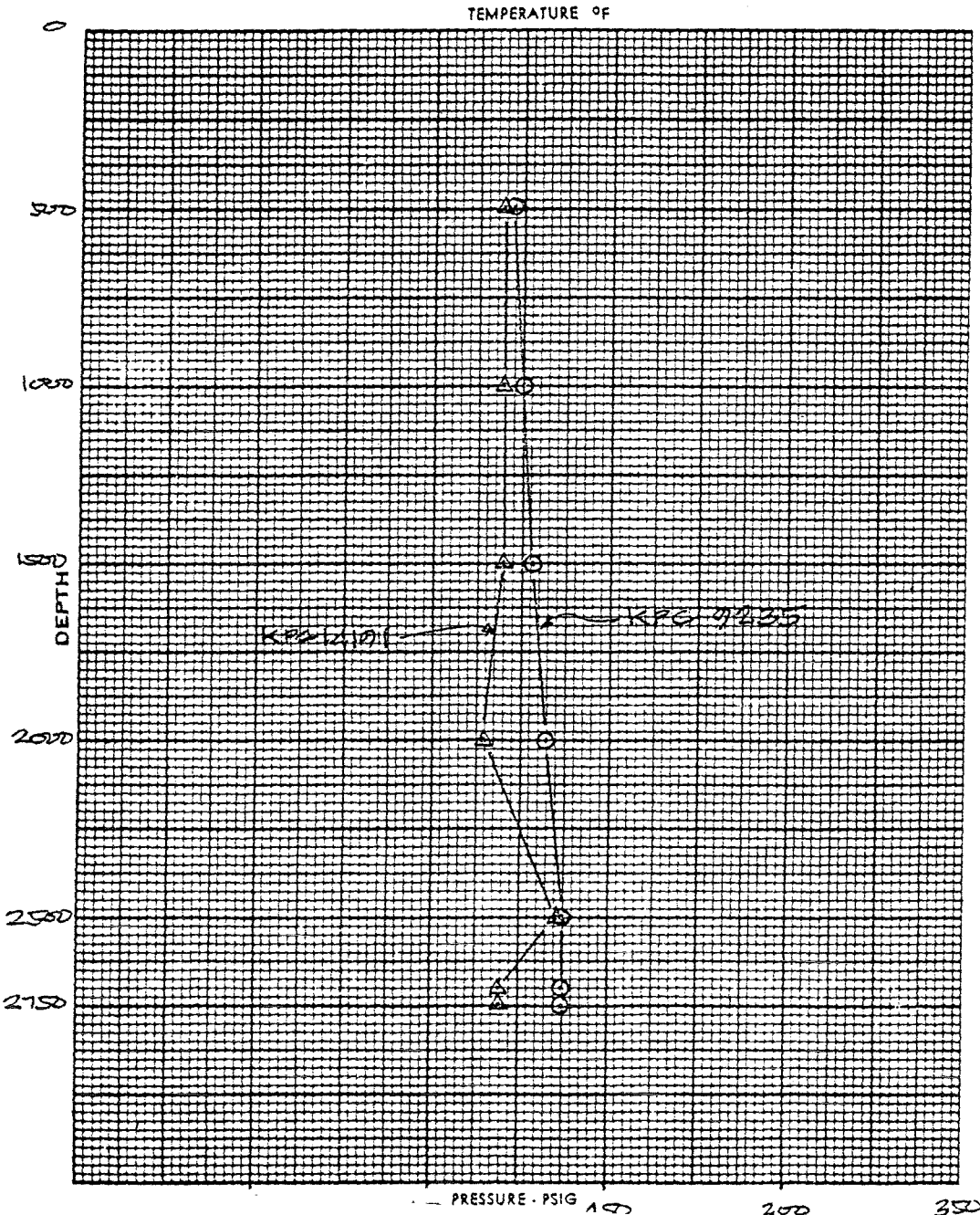
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME RGCA No 21
CASING ELEV. 9361 FT. G.L. DATE: 3-23-81
LINER DESCRIPTION: ZERO POINT KB
7" LINER HUNGER @ 2479 FT. DEPTH 3000 FT.

HOLE DESCRIPTION:
KPG 9235 INSTRUMENT KPG 14101 FAHR
2050 PSI SERIAL NO. 4700 PSI

PURPOSE PRESS/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. °F @
REMARKS:

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	~~PRESS TEMP.~~ KPG 9235	PRESS. KPG 14101	GRAD.
500	222	210	
1000	225	210	
1500	228	210	
2000	232	214	
2500	237	236	
2700	237	210	
2750	237	210	

BY: JPR

RUN # 9

R.O. ENGEBRETSEN

MAR 25 1981

Union Geothermal Co. of New Mexico

SURVEY DATE: 3-24-81

TITLE BACA NO. 21 TEMP/PRESS GRADIENT SURVEY TO 2750 FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPC 0235
RANGE	: 93 - 618 °F	RANGE	: 2050 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 7-26-76
CLOCK: 12 HRS.	: S/N: 18338	CLOCK: 12 HRS.	: S/N: 13700

WHP AT START OF SURVEY : 228 PSIG

WHP AT END OF SURVEY : 230 PSIG

OPENED WELL TO ELEMENT : 1247 HRS.

POH : 1416 HRS.

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

MOS., 2 DAYS, 23 HRS., 47 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1800 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	500	16 MIN.	0.340	208	0.156	0.144	245	
2	1000	11 "	0.563	274	0.157	0.146	248	
3	1500	11 "	0.741	327	0.158	0.149	253	
4	2000	10 "	0.985	396	0.159	0.153	259	
5	2500	↓	1.012	404	0.159	0.153	259	
6	2700	↓	1.017	405	0.160	0.154	260	
7	2750	↓	1.019	406	0.160	0.154	260	

RUN # 9

Union Geothermal Co. of New Mexico

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA No. 21

CASING _____ ELEV. 9361 FT. G.L. DATE: 3-24

LINER DESCRIPTION: 7" LINER HUNGER @ 2470 FT. ZERO POINT KB

DEPTH 3000 FT.

HOLE DESCRIPTION: _____

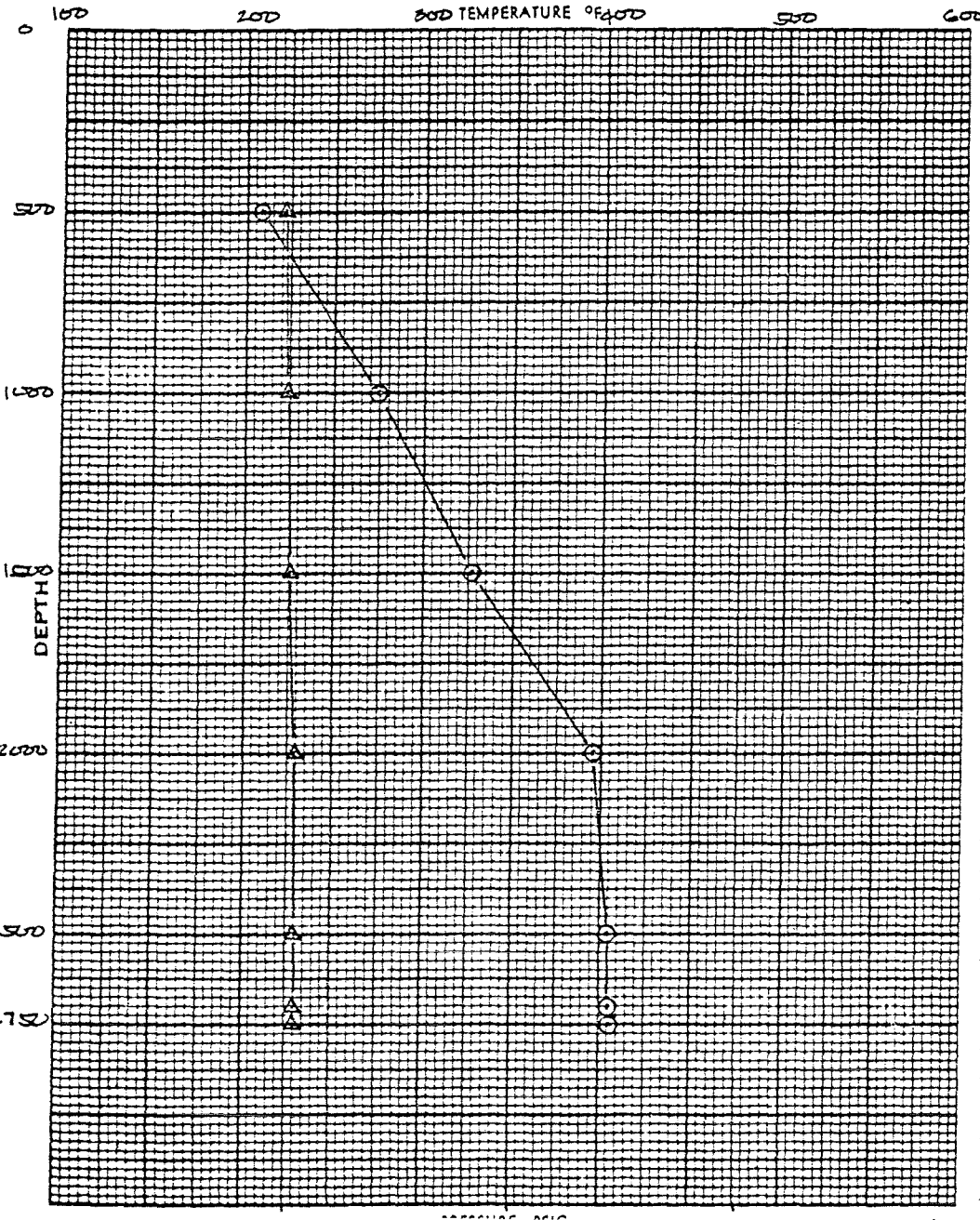
KPG 9235 INSTRUMENT 93-618 FAHR.

2050 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 406 °F @ 2750'

REMARKS: _____

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
500	208	245	
1000	274	248	
1500	327	253	
2000	396	257	
2500	404	259	
2700	405	260	
2750	406	260	

○ TEMPERATURE

△ PRESSURE

BY: JPR

RUN # 10

R.O. ENGEBRETSEN
MAR 26 1981
R.O. ENGEBRETSEN
MAR 27 1981

Union Geothermal Co. of New Mexico

SURVEY DATE: 3-25-81

TITLE BACA NO 21 TEMP/PRESS GRADIENT SURVEY TO 2750 FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 9235
RANGE	: 93 - 618 °F	RANGE	: 2050 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 7-26-76
CLOCK: 12 HRS.	: S/N: 18338	CLOCK: 12 HRS.	: S/N: 23779

WHP AT START OF SURVEY : 247 PSIG
WHP AT END OF SURVEY : 248 PSIG
OPENED WELL TO ELEMENT : 1045 HRS.
POH : 1220 HRS.
TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY
MOS., 3 DAYS, 21 HRS., 45 MINS.
DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	500'	17 MIN.	0.342	206	0.171	0.158	266	
2	1000	11 "	0.560	273	0.172	0.161	270	
3	1500	11 "	0.738	326	0.173	0.164	275	
4	2000	10 "	0.979	395	0.174	0.168	280	
5	2500		1.037	411	0.175	0.169	281	
6	2700		1.042	412	0.176	0.170	283	
7	2750	↓	1.042	412	0.176	0.170	283	

RUN # 10

R.O. ENGEBRETSEN
MAR 26 1981
R.O. ENGEBRETSEN
MAR 27 1981

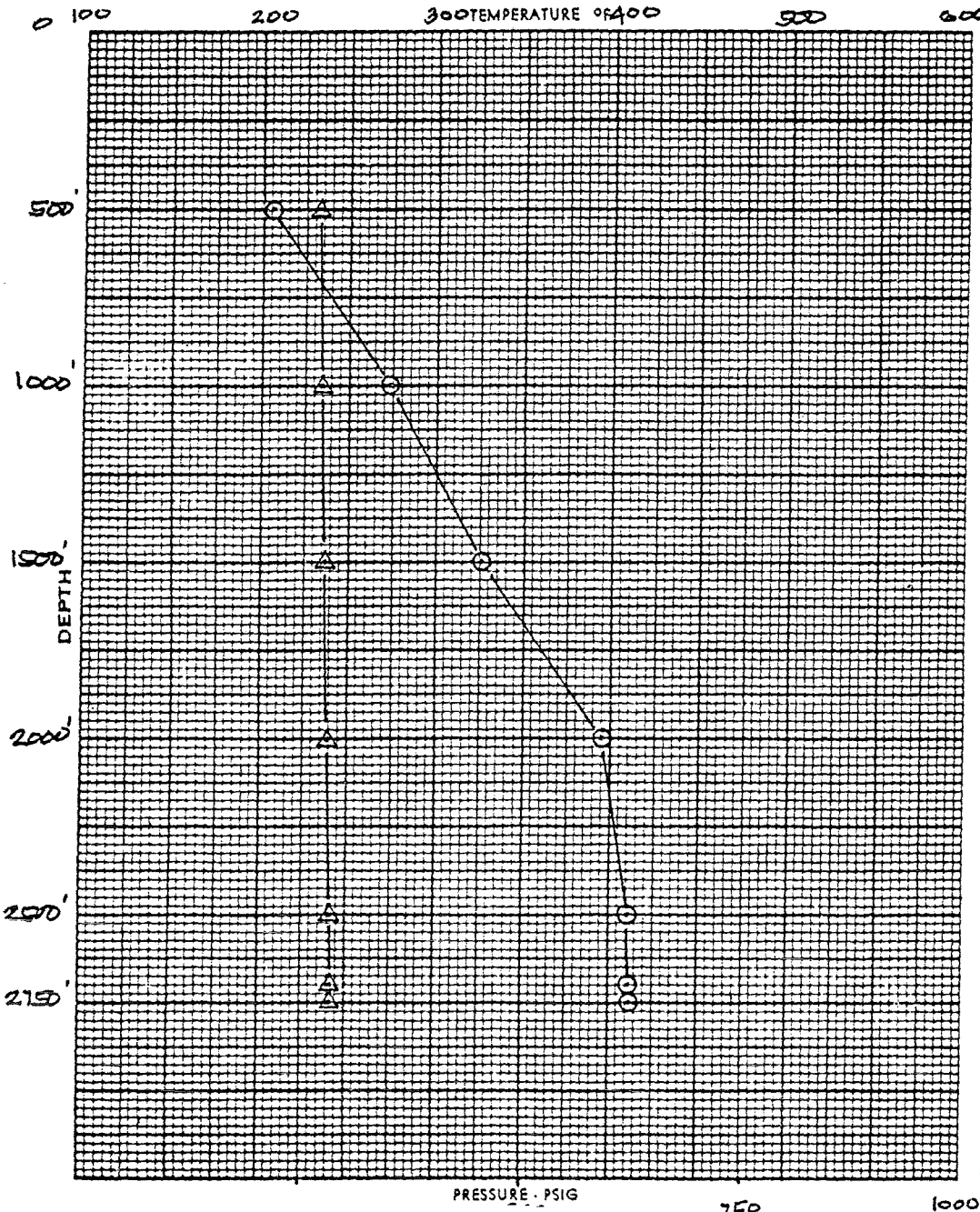
Union Geothermal Co. of New Mexico

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BOCA UP 21
CASING _____ ELEV. 9361 FT. G.L. DATE: 3-25-81
LINER DESCRIPTION: 7" LINER HUNGER @ 2479 FT. ZERO POINT KB
DEPTH 3000 FT.

HOLE DESCRIPTION: _____
KPG 9235 INSTRUMENT 93-618 FAHR
2750 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 412 °F @ 2750'
REMARKS: _____



STABLIZATION PERIOD

PRESSURES	GAUGE	BOMB
CASING. PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
500	206	266	
1000	273	270	
1500	326	275	
2000	395	280	
2500	411	282	
2700	412	283	
2750	412	283	

⊙ TEMPERATURE
△ PRESSURE

BY: JPB

RUN # 11

Union Geothermal Co. of New Mexico

SURVEY DATE: 3-26-81

TITLE BACA No 21 TEMP/PRESS GRADIENT SURVEY TO 2750 FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPE 0235
RANGE	: 93-618 °F	RANGE	: 2050 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 7-26-76
CLOCK: 12 HRS.	: S/N: 12880	CLOCK: 12 HRS.	: S/N: 18338

WHP AT START OF SURVEY : 260 PSIG
WHP AT END OF SURVEY : 261 PSIG
OPENED WELL TO ELEMENT : 1010 HRS.
POH : 1141 HRS.
TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY
MOS., 4 DAYS, 21 HRS., 10 MINS.
DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	500'	18 MIN.	0.315	197	0.181	0.168	280	
2	1000	11 "	0.543	268	0.182	0.171	285	
3	1500	11 "	0.725	322	0.183	0.174	290	
4	2000	10 "	0.888	369	0.185	0.178	295	
5	2500		1.050	414	0.185	0.180	298	
6	2700		1.055	415	0.186	0.181	300	
7	2750	↓	1.056	416	0.186	0.181	300	

RUN # 11

Union Geothermal Co. of New Mexico

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL Co. OF N.M. FIELD REDONDO CREEK WELL NAME BACA Loc 21

CASING _____ ELEV. 9361 FT. G.L. DATE: 3-26-81

LINER DESCRIPTION: 7" LINER HUNGER @ 2470 FT. ZERO POINT KB

DEPTH 3000 FT.

HOLE DESCRIPTION: _____

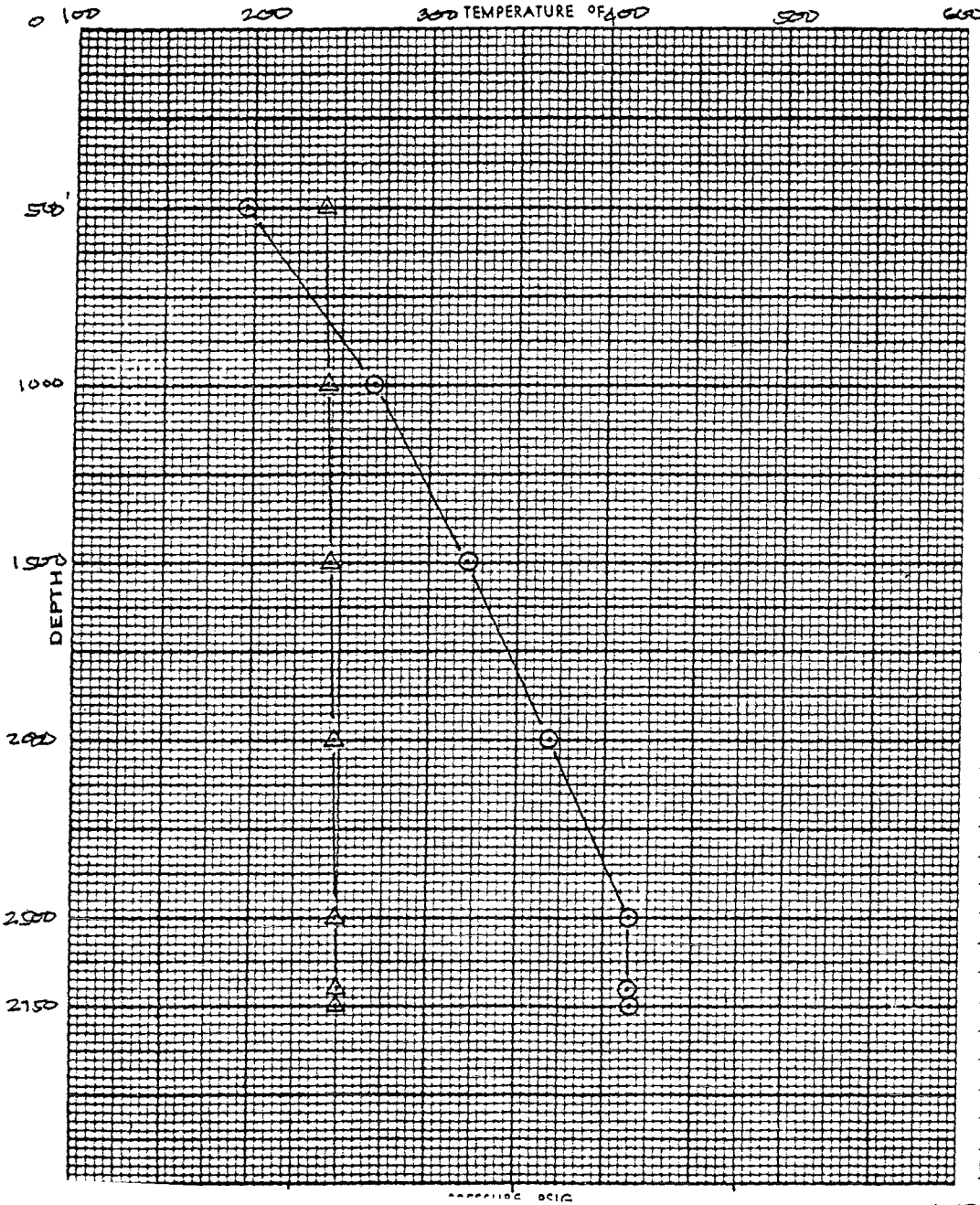
KPG 9235 INSTRUMENT 93-618 FAHR.

2050 PSI SERIAL NO. KTD 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 416 °F @ 2750'

REMARKS: _____

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
500	187	280	
1000	268	285	
1500	322	289	
2000	360	295	
2500	414	298	
2700	415	300	
2780	416	300	

⊙ TEMPERATURE

△ PRESSURE

BY: JPG

RUN # 12

Union Geothermal Co. of New Mexico

SURVEY DATE: 3-27-81

TITLE BACA № 21 TEMP/PRESS GRADIENT SURVEY TO 2750 FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 9235
RANGE	: 93°-618°F	RANGE	: 2050 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 7-26-76
CLOCK: 12 HRS.	: S/N: 14087	CLOCK: 12 HRS.	: S/N: 23778

WHP AT START OF SURVEY : 270 PSIG
WHP AT END OF SURVEY : 272 PSIG
OPENED WELL TO ELEMENT : 0724 HRS.
POH : 0858 HRS.
TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY
____ MOS., 5 DAYS, 18 HRS., 24 MINS.
DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	0	5 MIN.	N.R.	—	0.185	0.171	284	
2	500	18 "	0.325	200	0.187	0.174	289	
3	1000	11 "	0.554	271	0.180	0.177	294	
4	1500	11 "	0.735	325	0.190	0.181	299.5	
5	2000	10 "	0.877	365	0.192	0.185	305	
6	2500		1.062	417	0.193	0.187	308	
7	2700		1.060	419	0.194	0.188	310	
8	2750		1.071	420	0.194	0.188	310	

RUN #12

Union Geothermal Co. of New Mexico

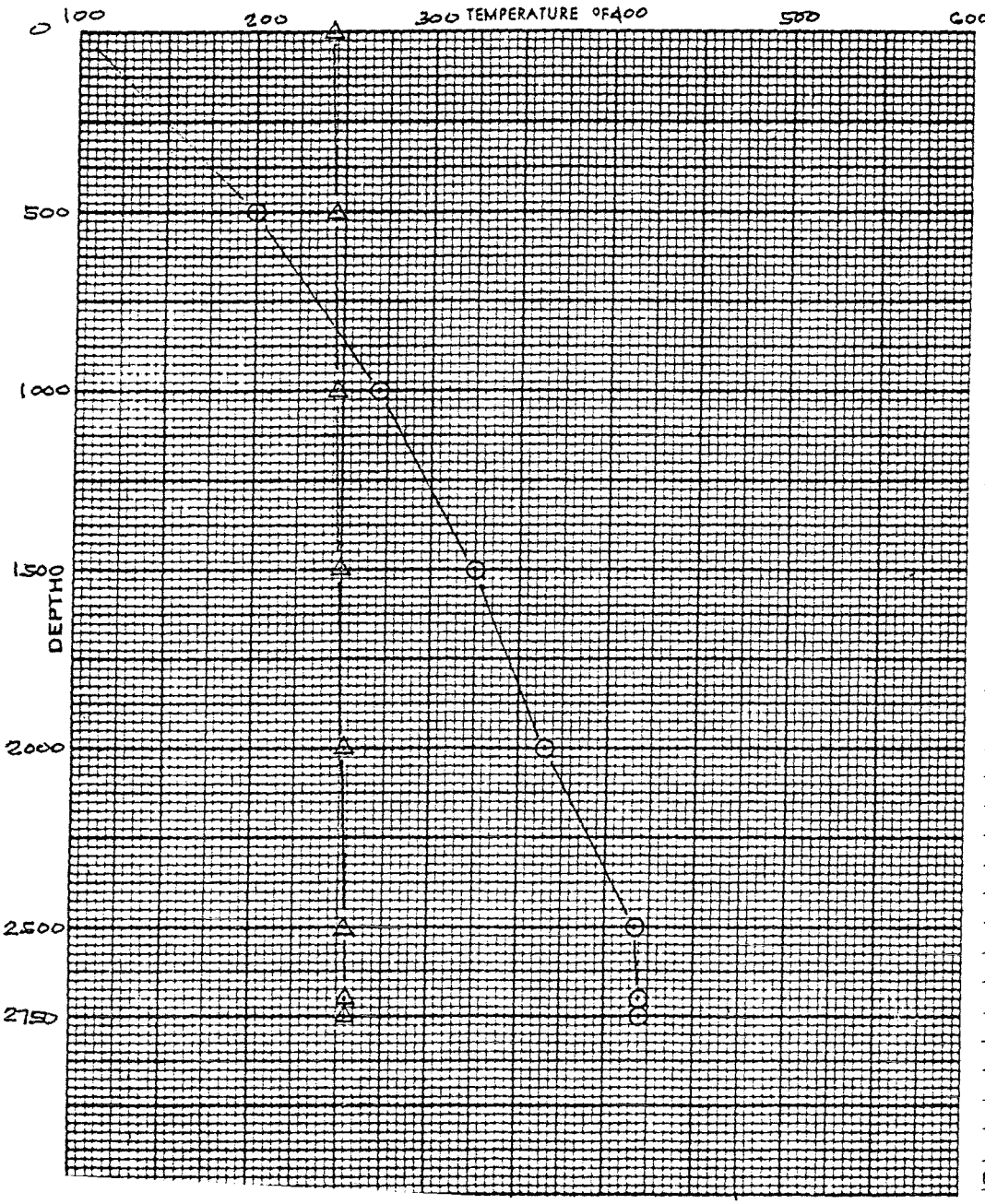
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA Nº 21
CASING ELEV. 9361 FT. G.L. DATE: 3-27-81
LINER DESCRIPTION: ZERO POINT KB
7" LINER HUNGER @ 2470 FT. DEPTH 3000 FT.

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

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 420 °F @ 2750'
REMARKS:

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
0	—	284	
500	200	289	
1000	271	294	
1500	325	299.5	
2000	365	305	
2500	417	308	
2700	419	310	
2750	420	310	

⊙ TEMPERATURE
△ PRESSURE

BY: JPR

RUN # 13

Union Geothermal Co. of New Mexico

SURVEY DATE: 3-30-81

TITLE BACA № 21 TEMP/PRESS GRADIENT SURVEY TO 2750FT.

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: 23778

WHP AT START OF SURVEY : 307 PSIG
WHP AT END OF SURVEY : 306 PSIG
OPENED WELL TO ELEMENT : 1220 HRS.
POH : 1357 HRS.
TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY
____ MOS., 8 DAYS, 23 HRS., 20 MINS.
DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	0	5 MIN.	N.R.	—	0.206	0.191	314	— CORRECTED @ 100°F
2	500	18 "	0.310	195	0.210	0.197	323	
3	1000	11 "	0.548	269	0.212	0.202	330	
4	1500	11 "	0.733	324	0.214	0.206	336	
5	2000	10 "	0.849	357	0.216	0.209	341	
6	2500		1.089	425	0.217	0.212	345	
7	2700		1.095	426	0.218	0.213	346	
8	2750	6	1.099	427	0.218	0.213	346	

RUN # 13

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 21

CASING _____ ELEV. 9361 FT. G.L. DATE: 3-30-81

LINER DESCRIPTION: _____ ZERO POINT KB

7" LINER HUNGER @ 2479 FT. DEPTH 3000 FT.

HOLE DESCRIPTION: _____

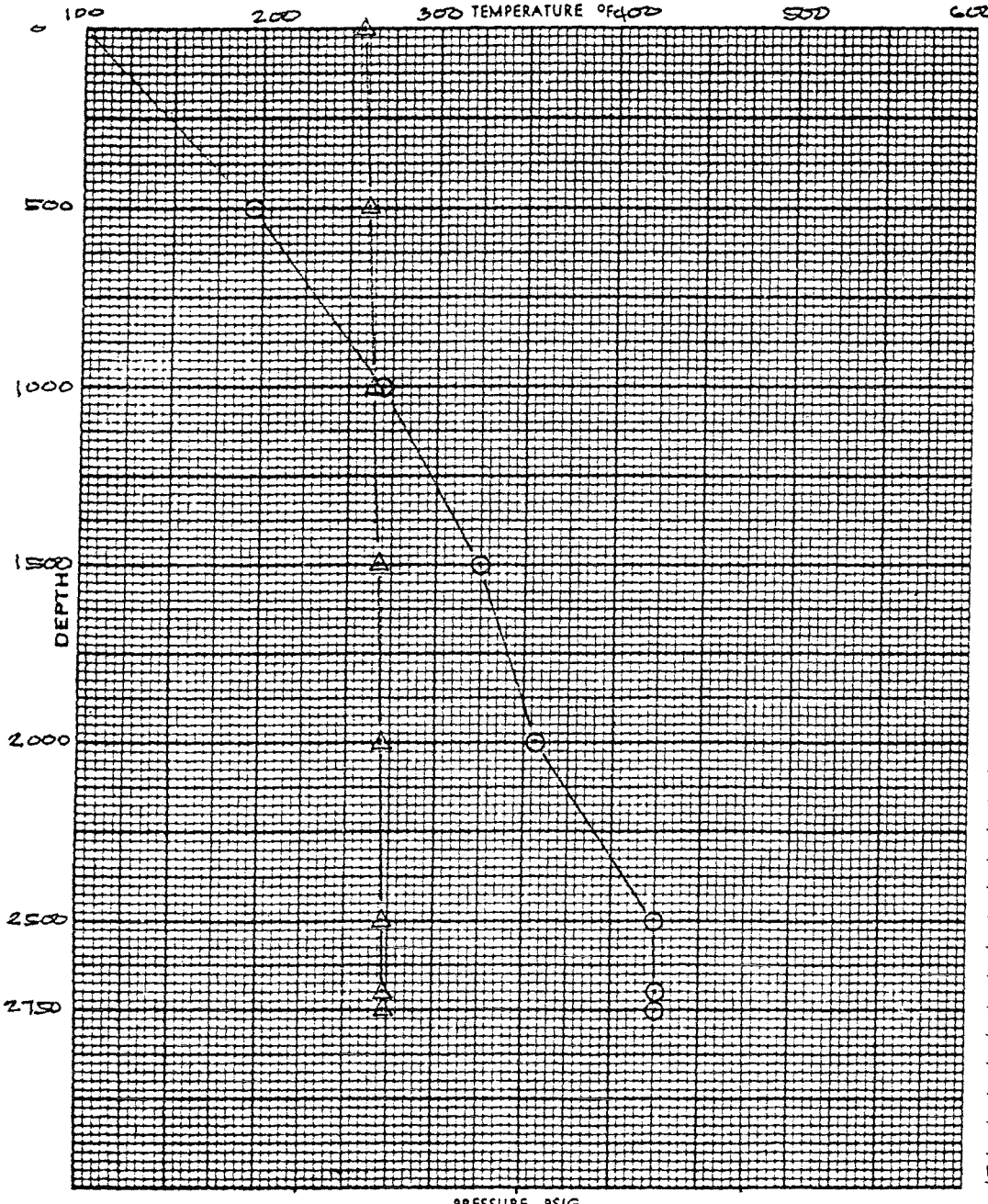
KPG 9235 INSTRUMENT 93-618 FAHR.

2950 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 427 °F @ 2750'

REMARKS: _____

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
0	—	314	
500	195	323	
1000	269	330	
1500	324	336	
2000	357	341	
2500	425	345	
2700	426	346	
2750	427	346	

⊙ TEMPERATURE

△ PRESSURE

BY: JR.

RUN # 14

Union Geothermal Co. of New Mexico

SURVEY DATE: 4-1-81

TITLE BACA No 21 TEMP/PRESS GRADIENT SURVEY TO 2750 FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 9235
RANGE	: 93 - 618°F	RANGE	: 2050 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 7-26-76
CLOCK: 12 HRS.	: S/N: 14087	CLOCK: 12 HRS.	: S/N: 23778

WHP AT START OF SURVEY : 324 PSIG
WHP AT END OF SURVEY : 325 PSIG
OPENED WELL TO ELEMENT : 1337 HRS.
POH : 1523 HRS.
TIME ELAPSED FROM LATEST S. I. TO START OF THIS SURVEY
MOS., 11 DAYS, 0 HRS., 37 MINS.
DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	0	5 MIN.	N.R.	—	0.222	0.207	338	— CORR. TO 100'
2	500	18 "	0.308	195	0.226	0.213	346	
3	1000	11 "	0.550	270	0.228	0.218	354	
4	1500	11 "	0.737	325	0.230	0.222	360	
5	2000	10 "	0.849	357	0.233	0.226	365	
6	2500	↓	1.102	428	0.235	0.230	371	
7	2700		1.111	430.7	0.235	0.230	371	
8	2750		1.114	431.4	0.235	0.230	371	

RUN # 14

Union Geothermal Co. of New Mexico

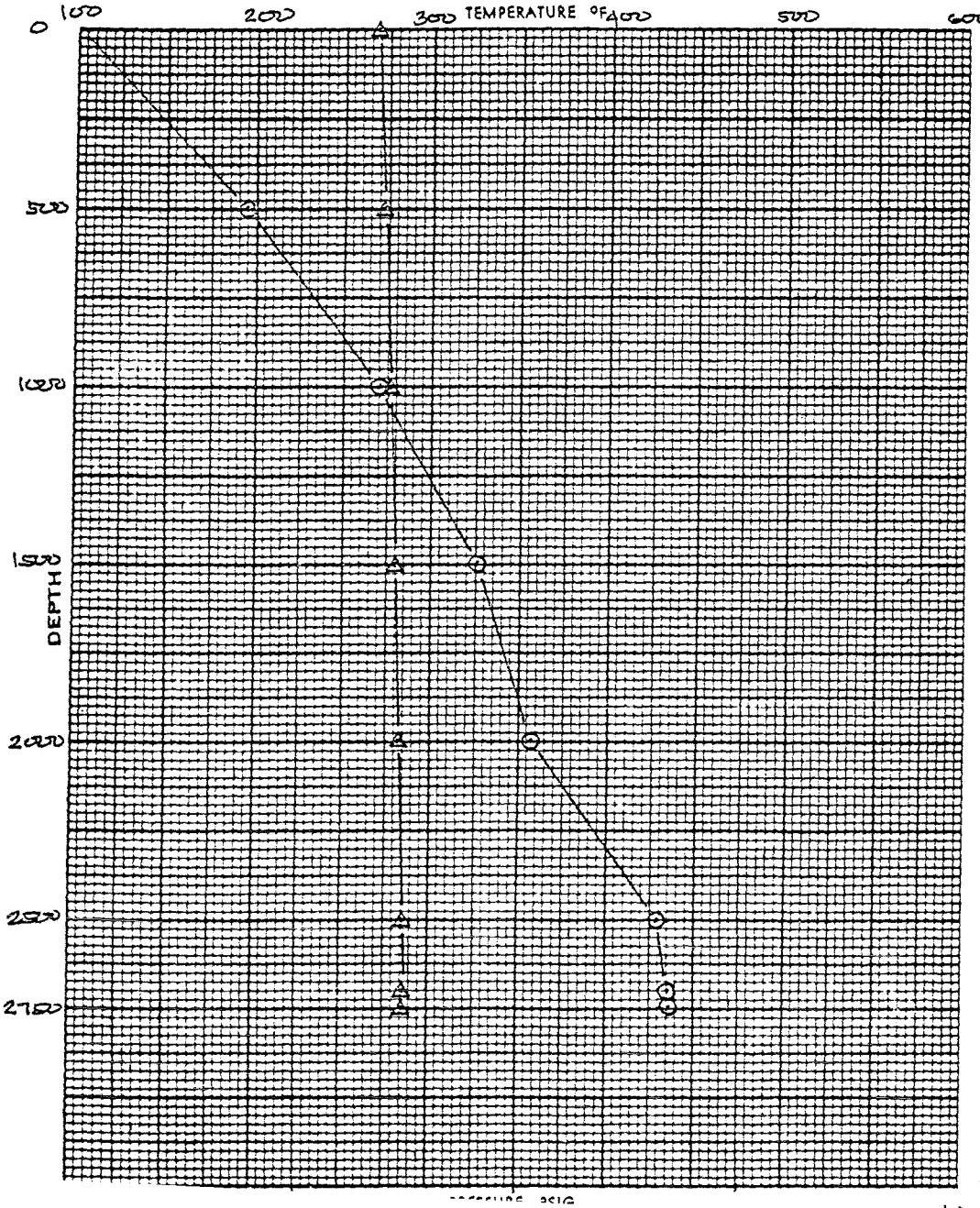
SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA No. 21
CASING ELEV. 6361 FT. G.L. DATE: 4-1-81
LINER DESCRIPTION: ZERO POINT KB
7" LINER HUNGER @ 2479 FT. DEPTH 3000 FT.

HOLE DESCRIPTION:
KPG 6235 INSTRUMENT 93 - 618 °F FAHR.
2750 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 431.4°F @ 2750'
REMARKS:

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI		

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
0	—	338	
500	195	346	
1000	270	354	
1500	325	360	
2000	357	365	
2500	428	371	
2700	430.7	371	
2750	431.4	371	

⊙ TEMPERATURE
△ PRESSURE

BY: JPB

Calculation Record
Union Oil Company of California

UNION

Prepared by	Checked by	Date
		12,02 80

Title: BACA NO 21

W.O. / A.F.E.

RAN SINKER BAR — CAN NOT PASS THRU 2760 FT.

BELLED ONLY 10 FT. DOWN 2760 FT.

BRIDGED MATERIAL — SAND

RUN # 15

R.O. ENGEBRETSEN

APR 07 1981

Union Geothermal Co. of New Mexico

SURVEY DATE: 4-6-81

TITLE BACA No. 21 TEMP/PRESS GRADIENT SURVEY TO 2750 FT.

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 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: 23778

WHP AT START OF SURVEY : 360 PSIG

WHP AT END OF SURVEY : 359 PSIG

OPENED WELL TO ELEMENT : 1211 HRS.

POH : 1350 HRS.

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

____ MOS., 15 DAYS, 23 HRS., 11 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	0	5 MIN.	N.R.	—	0.237	0.222	360	
2	900	18 "	0.209	192	0.242	0.227	370	
3	1000	11 "	0.547	269	0.244	0.235	370	
4	1500	11 "	0.743	327	0.246	0.231	384	
5	2000	10 "	0.871	364	0.251	0.246	395	
6	2950		1.131	436	0.252	0.248	398	
7	2700		1.139	438	0.252	0.248	398	
8	2750		1.142	439	0.252	0.248	398	

RUN #15

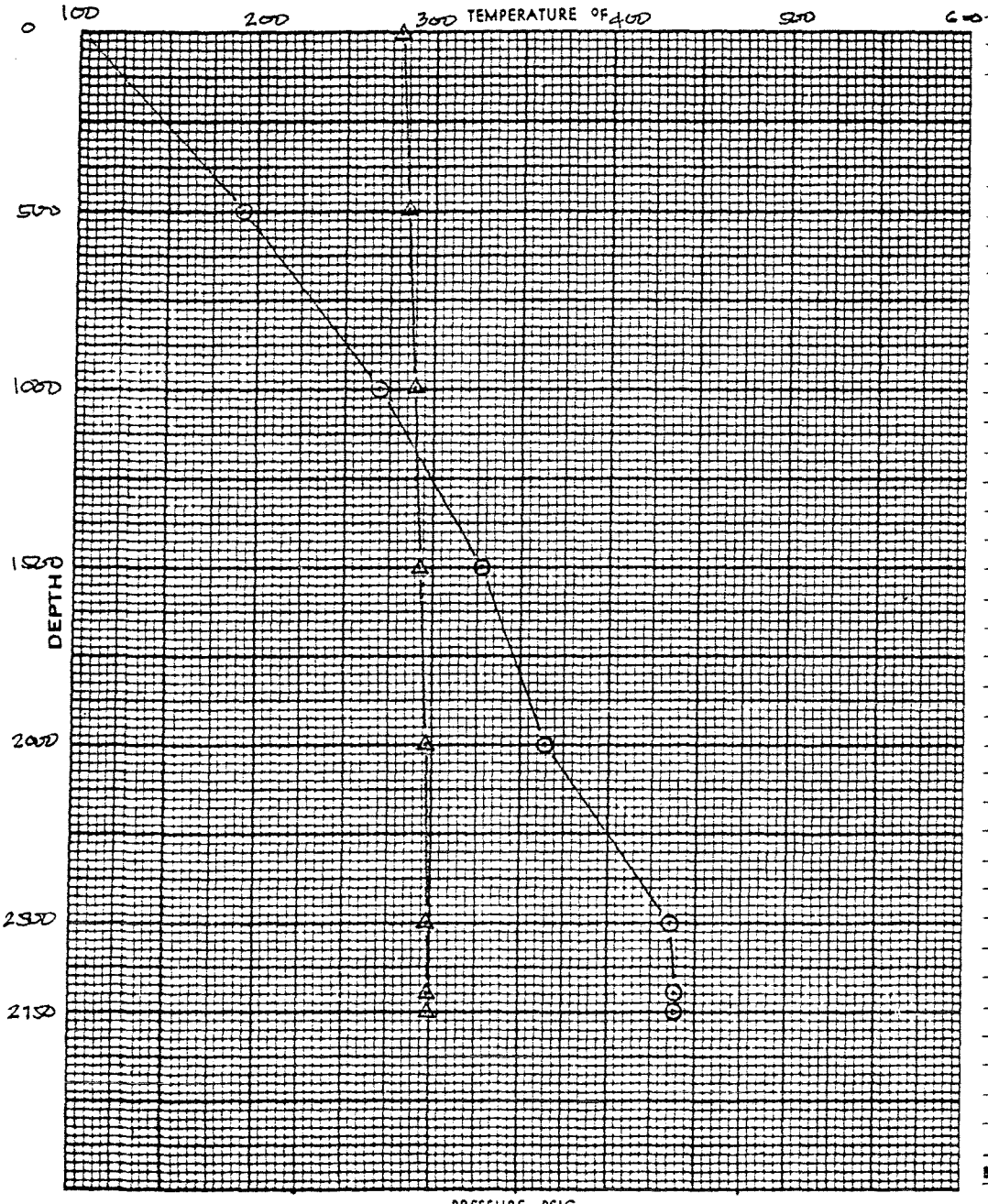
Union Geothermal Co. of New Mexico

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA No. 21
CASING ELEV. 9361 FT. G.L. DATE: 4-6-81
LINER DESCRIPTION: ZERO POINT KB
7" LINER HUNGED @ 2470 FT. DEPTH 3000 FT.

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

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 430 °F @ 2750'
REMARKS:



STABLIZATION PERIOD

PRESSURES	GAUGE	BOMB
CASING, PSI	360	360

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
0	—	360	
500	102	370	
1000	269	379	
1500	327	384	
2000	364	395	
2500	436	398	
2750	438	398	
2750	430	398	

⊙ TEMPERATURE
△ PRESSURE

BY: JPB

B21-SIGPT

R.O. ENGEBRETSEN

APR 24 1981

Union Geothermal Co. of New Mexico

SURVEY DATE: 4-23-81

TITLE B21-SIGPT

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 9235
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 : 411 PSIG

WHP AT END OF SURVEY : 411 PSIG

OPENED WELL TO ELEMENT : 1102 HRS.

POH : 1230 HRS.

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

1 MOS., 2 DAYS, 22 HRS., 2 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	0	1102-1107	N.R.	—	0.280	0.264	421	← corr. @ 100°F
2	500	1108-1126	0.268	182	0.288	0.275	437	
3	1000	1127-1138	0.539	266	0.291	0.283	449	
4	1500	1140-1151	0.748	329	0.294	0.289	457.5	
5	2000	1153-1204	0.859	360	0.299	0.295	466	
6	2500	1206-1216	1.120	433	0.302	0.299	472	
7	2700	1217-1228	1.130	436	0.303	0.300	473.6	
8	2750	1229-1239	1.136	437	0.304	0.301	475	

B 21-S16 PT

Union Geothermal Co. of New Mexico

R.O. ENGEBRETSEN

APR 24 1981

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA No 21

CASING ELEV. 9361 FT. DATE: 4-23-81

LINER DESCRIPTION: ZERO POINT KB

7" LINER @ 2479 FT. DEPTH 3000 FT.

HOLE DESCRIPTION:

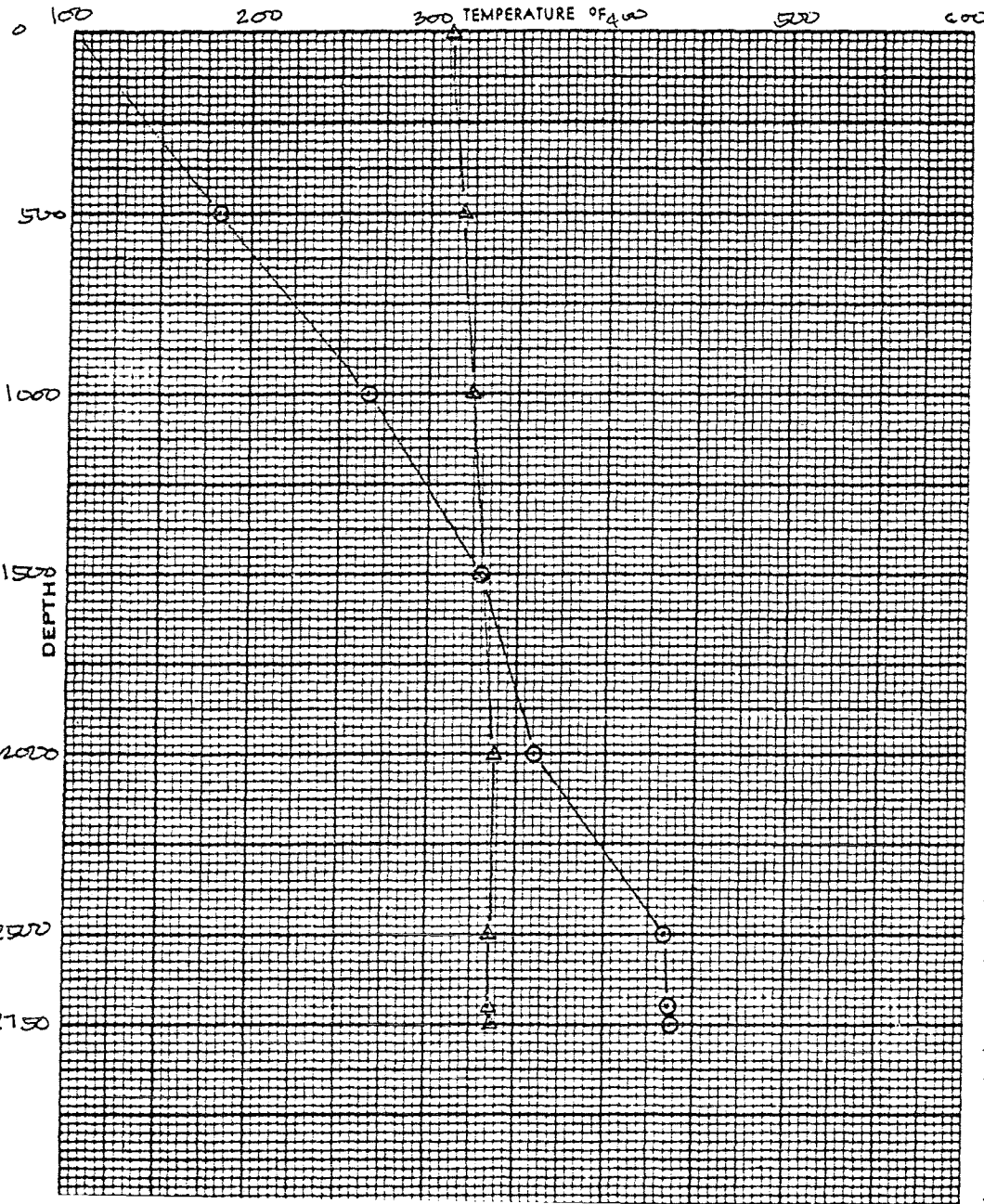
KPC 9235 INSTRUMENT 93-618 FAHR.

2950 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2750 FT. MAX. TEMP. 437 °F @ 2750'

REMARKS:

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI	411	421

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
0	—	421	
500	182	437	0.03
1000	266	449	0.02
1500	329	457.5	0.01
2000	360	466	0.01
2500	433	472	0.01
2700	436	473.6	0.00
2750	437	475	0.02

○ TEMPERATURE
△ PRESSURE

BY: JPB

B21-S17PT

Union Geothermal Co. of New Mexico

R.O. ENGEBRETSEN

MAY 06 1981

SURVEY DATE: 5-5-81

TITLE B21-S17PT

TEMP. EL. S/N	: KTB 10222	PRESS. EL. S/N	: KPG 9235
RANGE	: 03-618°F	RANGE	: 2050 PSI
CALIBRATED	: 11-10-76	CALIBRATED	: 7-26-76
CLOCK: 12 HRS.	: S/N: 23779	CLOCK: 12 HRS.	: S/N: 23778

WHP AT START OF SURVEY : 425 PSIG

WHP AT END OF SURVEY : 425 PSIG

OPENED WELL TO ELEMENT : 1102 HRS.

POH : 1244 HRS.

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

1 MOS., 14 DAYS, 22 HRS., 2 MINS.

DATE AND TIME OF LATEST S. I. (FT. NO. 5) 1300 HRS. 3-21-1981

			TEMPERATURE		PRESSURE			
Station	Depth	Time at Sta.	Defl.	°F	Defl.	Corr. Defl.	PSIG	REMARKS
1	0	1102-1107	N.R.	—	0.289	0.273	434	— CORR. @ 100°F
2	500	1108-1118	0.235	171	0.295	0.282	447	
3	1000	1119-1129	0.531	264	0.299	0.290	459	
4	1500	1130-1140	0.749	329	0.301	0.296	468	
5	2000	1141-1151	0.862	361	0.306	0.302	477	
6	2500	1152-1202	1.122	434	0.309	0.306	482	
7	2700	1203-1213	1.132	436	0.310	0.307	484	
8	2750	1214-1224	1.138	438	0.310	0.307	484	
9	2800	1224-1244	0.998	400	0.311	0.308	485	

B21-S17 PT

Union Geothermal Co. of New Mexico

R. O. ENGEBRETSEN

SUBSURFACE TEMPERATURE AND PRESSURE SURVEY

MAY 16 1981

OWNER UNION GEOTHERMAL CO. OF N.M. FIELD REDONDO CREEK WELL NAME BACA NO 21

CASING _____ ELEV. 7361 FT. DATE: 5-5-81

LINER DESCRIPTION: _____ ZERO POINT KB

7" LINER @ 2479 FT. DEPTH 3000 FT.

HOLE DESCRIPTION: _____

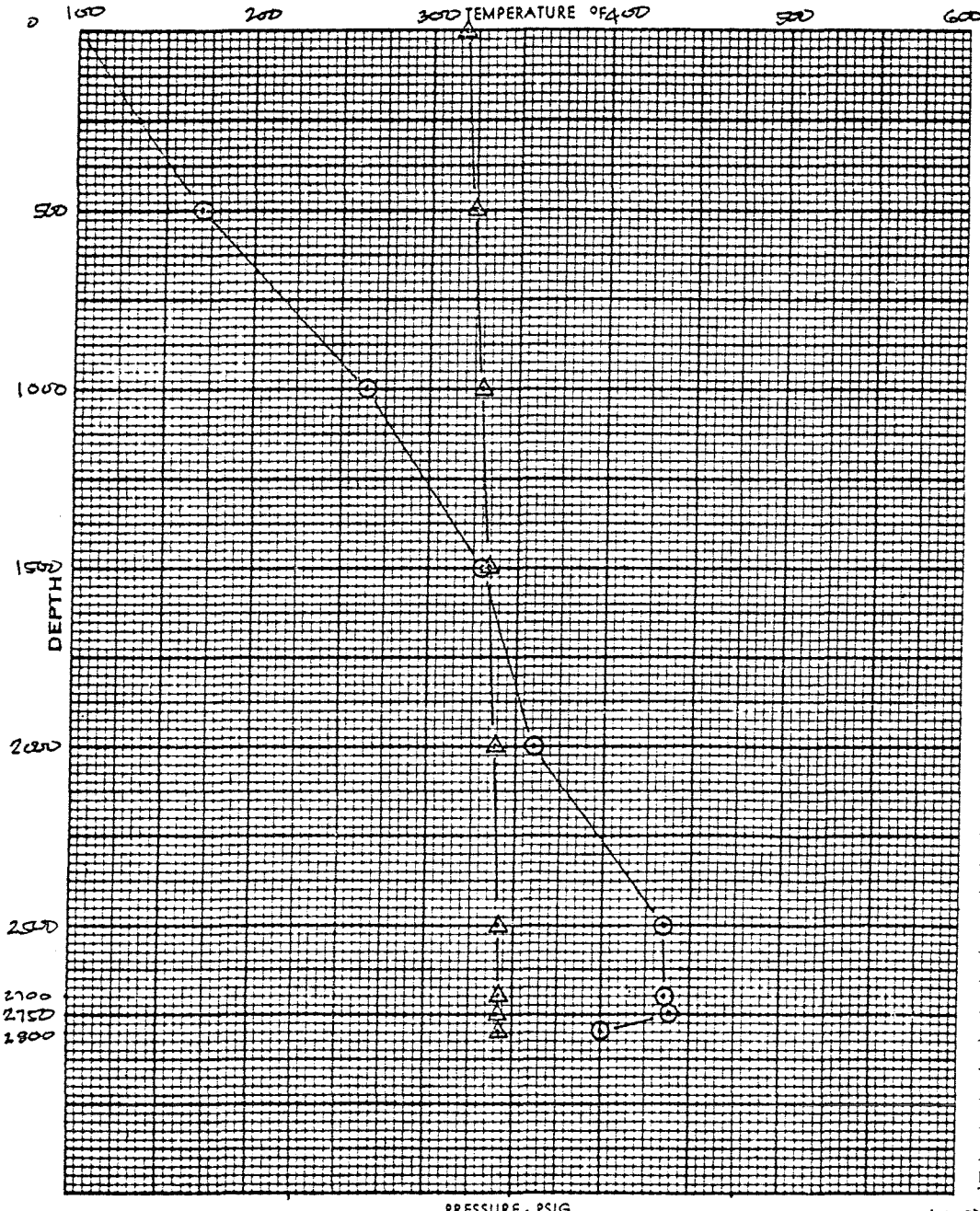
KPC 0235 INSTRUMENT 03-618 FAHR.

2050 PSI SERIAL NO. KTB 10222

PURPOSE TEMP/PRESS GRADIENT SURVEY TO 2800 FT. MAX. TEMP. 438 °F @ 2750'

REMARKS: _____

STABLIZATION PERIOD



PRESSURES	GAUGE	BOMB
CASING, PSI	425	434

DEPTH FT.	TEMP. °F	PRESS. PSIG	GRAD.
0	—	434	
500	171	447	
1000	264	459	
1500	329	468	
2000	361	477	
2500	434	482	
2700	436	484	
2750	438	484	
2800	400	485	

⊙ TEMPERATURE

△ PRESSURE

BY: JPR

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No 21

DATE 02-11-81 TIME 1520 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 54 PSIG WHT 300 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE 51 PSIG TEMP. 242 °F PRESS. 51 PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	50 PSIG	52 PSIG	51 PSIG
Δ P	2.1 PSI	0.13" W.C.	1.7 PSI
FLOW RATE			
MASS			
STEAM	33,928.76 #/HR.		
WATER		2,269.03 #/HR.	

TOTAL MASS FLOW 36,197.79 #/HR. ENTHALPY-EFF. 1,120.57 BTU/#

STEAM FRAC. 93.73 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

SWITCHED TO SEPARATOR @ 0945 HRS. 2-11-81

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 2-12-81 TIME 1430 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 52 PSIG WHT 301 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE 50 TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	49.5 PSIG	52 PSIG	50 PSIG
ΔP	2.2 PSI	0.13 "W.C.	1.62 PSI
FLOW RATE			
MASS			
STEAM	34,584.91 #/HR.		
WATER		2,269.03 #/HR.	

TOTAL MASS FLOW 36,853.94 #/HR. ENTHALPY-EFF. 1,121.24 BTU/#

STEAM FRAC. 93.84 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 2-13-81 TIME 0730 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 58 PSIG WHT 300 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE 50 PSIG TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	40 PSIG	52 PSIG	51 PSIG
Δ P	2.5 PSI	0.18 "w.c.	2 PSI
FLOW RATE			
MASS			
STEAM	36,674.0 #/HR.		
WATER		2,669.076 #/HR.	

TOTAL MASS FLOW 39,344.86 #/HR. ENTHALPY-EFF. 1,115.5 BTU/#

STEAM FRAC. 93.21 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No 21

DATE 2-13-81 TIME 0850 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 76.5 PSIG WHT 320 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE 75 PSIG TEMP. 293 °F PRESS. 75 PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	75 PSIG	77 PSIG	75.5 PSIG
Δ P	1.5 PSI	0.09 "W.C.	0.72 PSI
FLOW RATE			
MASS			
STEAM	33,462.6 #/HR.		
WATER		1,877.6 #/HR.	

TOTAL MASS FLOW 35,340.2 #/HR. ENTHALPY-EFF. 1,136.5 BTU/#

STEAM FRAC. 94.69 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

RAISED SEP. PRESS. FROM 50 – 75 PSIG @ 0735 HRS. 2-13

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 2-12-81 TIME 1100 HRS. TEST NO. _____ CHOKE TYPE _____

FLOW RATE DATA

WHP 77 PSIG WHT 320 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE 75 PSIG TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	74.5 PSIG	76 PSIG	75.5 PSIG
Δ P	0.86 PSI	0.06 "W.C.	0.70 PSI
FLOW RATE			
MASS			
STEAM	25,334.56 #/Hr.		
WATER		1,533.35 #/Hr.	

TOTAL MASS FLOW 26,867.9 #/Hr. ENTHALPY-EFF. 1,132.97 BTU/#

STEAM FRAC. 94.29 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 02-15-81 TIME 1100 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 75.5 PSIG WHT 320 °F CALORIMETRIC: SEP. EFF. 99 %

SEPARATOR PRESSURE 75 PSIG TEMP. 258 °F PRESS. 75 PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	75 PSIG	76 PSIG	75 PSIG
Δ P	1.2 PSI	0.98" W.C.	0.75 PSI
FLOW RATE			
MASS			
STEAM	29,964.86 #/HR.		
WATER		6,196.97 #/HR.	

TOTAL MASS FLOW 36,161.83 #/HR. ENTHALPY-EFF. 1,030.36 BTU/#

STEAM FRAC. 82.86 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 02-16-81 TIME 0755 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 77 PSIG WHT 321 °F CALORIMETRIC: SEP. EFF. 99 %

SEPARATOR PRESSURE 75 PSIG TEMP. 258 °F PRESS. 15 PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	75 PSIG	76 PSIG	75 PSIG
Δ P	1.5 PSI	0.08 "W.C.	1.5 PSI
FLOW RATE			
MASS			36,362.7 #/HR.
STEAM	33,462.6 #/HR.		34,532.65 "
WATER		1,770.56 #/HR.	1,829.05 "

TOTAL MASS FLOW 35,233.2 #/HR. ENTHALPY-EFF. 1,130.1 BTU/#

STEAM FRAC. 94.97 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

R.O. ENGEBRETSEN
FEB 1 1981

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO 21

DATE 02-16-81 TIME 1535 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 102 PSIG WHT 336 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE 101.5 PSIG TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	101 PSIG	103 PSIG	101.5 PSIG
ΔP	1.0 PSI	0.07" W.C.	1.0 PSI
FLOW RATE			
MASS			33,037.98 #/HR.
STEAM	30,873.07 #/HR.		32,217.3 #/HR.
WATER		1,647.44 #/HR.	1,720.65 #/HR.

TOTAL MASS FLOW 32,520.51 #/HR. ENTHALPY-EFF. 1144.52 BTU/#

STEAM FRAC. 94.93 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

1. ADJUST SEP. PRESS. FROM 75 TO 100 PSIG @ 1030 HRS.
2. @ 1335 HRS. RAPTURE DISC GIVE UP
3. @ 1340 HRS. BY-PASS SEPARATOR AND CHANGED RAPTURE DISC
4. @ 1430 HRS. SWITCHED BACK TO SEPARATOR AND
[illegible] PSIG SEP. PRESS.

R.O. ENGEBRETSEN
FEB 17 1981

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 02-17-81 TIME 0730 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 101.5 PSIG WHT 338 °F CALORIMETRIC: SEP. EFF. 99.2 %

SEPARATOR PRESSURE 101 PSIG TEMP. 275 °F PRESS. 101 PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	101 PSIG	103 PSIG	100.5 ?
Δ P	1.25 PSI	0.07" W.C.	0.5
FLOW RATE			
MASS			
STEAM	34,491.11 #/HR.		
WATER		1,647.44 #/HR.	

TOTAL MASS FLOW 36,138.55 #/HR. ENTHALPY-EFF. 1148.77 BTU/#

STEAM FRAC. 95.44 % EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

R.O. ENGEBRETSEN
FEB 17 1981

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 2-18-81 TIME 0840 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 127 PSIG WHT 352 °F CALORIMETRIC: SEP. EFF. 99.2 %

SEPARATOR PRESSURE 126.5 PSIG TEMP. 288 °F PRESS. 126.5 PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE	7"	2"	7"
QUALITY			
P_1	126 PSIG	127 PSIG	
Δ P	0.3800 PSI	0.12 "W.C.	
FLOW RATE			
MASS			
STEAM	21,207.6 #/HR.		
WATER		2,147.7 #/HR. ← Bottom hole press.	

TOTAL MASS FLOW 23,355.34 #/HR. ENTHALPY-EFF. 1,112.65 BTU/#

STEAM FRAC. 90.8 % (?) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

1. @ 1045 HRS. 2-17-81; RAISED SEP. PRESS. FROM 100 – 125 PSIG
2. BY-PASS SEPARATOR @ 1025 HRS., 2-18-81.

R. O. ENGEBRETSEN

FEB 17 1981

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA № 21

DATE 2-10-81 TIME 0710 HR TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 21.5 PSIG WHT 253 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			17 PSIG
Δ P			11 PSI
FLOW RATE			
MASS		MASS - 52,920.1 #	
STEAM		STM - 47,628.1	/HR.
WATER		WTR - 5,292.0	

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA № 21

DATE 2-19-81 TIME 1110 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 30 PSIG WHT 267 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			27 PSIG
Δ P			6 PSI
FLOW RATE			
MASS			49,286.3
STEAM			44,357.6
WATER			4,928.7

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

@ 1100 HRS. 2-19-81

SWITCHED FLOW TO SEPARATOR WITH BOTH STEAM AND WATER LINE CONTROL VALVES FULLY OPEN. THIS IS TO PREVENT ACCUMULATION OF DIRTY STUFFS [illegible] DUE TO WATER-LINE VALVE LEAKS.

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 2-20-81 TIME 0700 hrs. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 26.5 PSIG WHT 265 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			24 PSIG
Δ P			4.5 PSI
FLOW RATE			
MASS			41,483.73 #/HR.
STEAM			37,335.36
WATER			4,148.4

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO 21

DATE 2-21-81 TIME 0750 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 25 PSIG WHT 262 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			22 PSIG
Δ P			4 PSI
FLOW RATE			
MASS			38,129.43 #
STEAM			34,316.5 #/HR.
WATER			3,812.9

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No 21

DATE 2-22-81 TIME 0703 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 25 PSIG WHT 261 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			21 PSIG
Δ P			3.5 PSI
FLOW RATE			
MASS			35,294.05
STEAM			31,764.6 #/HR.
WATER			3,529.41

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA № 21

DATE 2-23-81 TIME 0640 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 24.5 PSIG WHT 261 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			21 PSIG
Δ P			4.1 PSI
FLOW RATE			
MASS			37,947.41
STEAM			34,152.66 # / HR.
WATER			3,794.74

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO 21

DATE 2-24-81 TIME 0715 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 19 PSIG WHT 242 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			11 PSIG
ΔP			6.5 PSI
FLOW RATE			
MASS			38,076.8 #/HR.
STEAM			34,269.13
WATER			3,807.67

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

@ 1230 HRS. 2-23-81 BY-PASS SEPARATOR

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 2-25-81 TIME 0715 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14.5 PSIG WHT 240 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10.5 PSIG
Δ P			5.5 PSI
FLOW RATE			
MASS			35,145.83 #/HR.
STEAM			31,631.25 #/HR.
WATER			3,514.58

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO. 21

DATE 2-26-81 TIME 1000 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14.5 PSIG WHT 240 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10.5 PSIG
Δ P			6 PSI
FLOW RATE			
MASS			36,407.9
STEAM			32,767.12
WATER			3,640.77

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA № 21

DATE 2-27-81 TIME 0745 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 15 PSIG WHT 240 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10 PSIG
Δ P			5.5 PSI
FLOW RATE			
MASS			34,688.93
STEAM			31,220.04 #/HR.
WATER			3,468.9

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL RACA NO. 21

DATE 02-28-81 TIME 0930 hrs. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14.5 PSIG WHT 230 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			1"
QUALITY			
P_1			10 PSIG
ΔP			5 PSI
FLOW RATE			
MASS			33,351.53
STEAM			30,016.37 #/HR.
WATER			3,335.15

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 03-01-81 TIME 0820 Hrs. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14 PSIG WHT 240 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.5 PSIG
Δ P			4.5 PSI
FLOW RATE			
MASS			31,488.64
STEAM			28,339.77 #/HR.
WATER			3,148.87

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO 21

DATE 03-02-81 TIME 1500 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14 PSIG WHT 240 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10 PSIG
ΔP			6 PSI
FLOW RATE			
MASS			35,928.02 #
STEAM			32,335.22 #/HR.
WATER			3,592.8

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

UNPLUGGED METER-LINE @ 1445 HRS. 3-2-81

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 03-03-81 TIME 1300 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14 PSIG WHT 240 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10 PSIG
ΔP			5 PSI
FLOW RATE			
MASS			33,351.53 #/
STEAM			30,016.37 /#HR.
WATER			3,335.15

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 03-04-81 TIME 0740 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.5 PSIG WHT 238°F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.5 PSIG
Δ P			5 PSI
FLOW RATE			
MASS			32,912.52 #/HR.
STEAM			29,621.27 #/HR.
WATER			3,291.25 #/HR.

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA Nº 21

DATE 3-5-81 TIME 0700 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14 PSIG WHT 238 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.5 PSIG
Δ P			4.5 PSI
FLOW RATE			
MASS			31,488.64 #/HR.
STEAM			28,339.77
WATER			3,148.87

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No 21

DATE 3-6-81 TIME 0710 Hrs. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14 PSIG WHT 237°F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.5 PSIG
Δ P			4.5 PSI
FLOW RATE			
MASS			31,488.64 #/
STEAM			28,339.77 /hr.
WATER			3,148.87

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 3-7-81 TIME 0740 Hrs. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14.5 PSIG WHT 238°F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10.5 PSIG
Δ P			5 PSI
FLOW RATE			
MASS			33,784.735
STEAM			30,406.26 #/Hr.
WATER			3,378.47

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL Baca No 21

DATE 3-8-81 TIME 0715 Hrs. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14.25 PSIG WHT 237°F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10.25 PSIG
ΔP			4.5 PSI
FLOW RATE			
MASS			32,287.93 #/Hr.
STEAM			29,059.13 #/Hr.
WATER			3,228.79

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 3-9-81 TIME 0630 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.5 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.5 PSIG
ΔP			4.5 PSI
FLOW RATE			
MASS			31,488.64 #/hr
STEAM			28,339.77 #/hr
WATER			3,148.87

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO. 21

DATE 3-10-81 TIME 0710 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.5 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10.25 PSIG
Δ P			4.75 PSI
FLOW RATE			
MASS			33,037.55
STEAM			29,733.70 #
WATER			3,303.75

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 3-11-81 TIME 0845 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10 PSIG
ΔP			5 PSI
FLOW RATE			
MASS			33,351.53
STEAM			30,016.37
WATER			3,335.15

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

3-10-81

NONSCO UNPLUGGED AND CLEANED BOTTOM LINER @ 2760 FT. TO BOTTOM.

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 3-12-81 TIME 0810 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.5 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10.25 PSIG
ΔP			5.5 PSI
FLOW RATE			
MASS			35,114.10 #/HR.
STEAM			31,602.69 #/HR.
WATER			3,511.41

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO 21

DATE 03-13-81 TIME 0740 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10.25 PSIG
Δ P			6 PSI
FLOW RATE			
MASS			36,371.75 #
STEAM			32,734.6 #
WATER			3,637.2 #/HR.

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 3-14-81 TIME 0915 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.5 PSIG WHT 237°F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10 PSIG
ΔP			4.75 PSI
FLOW RATE			
MASS			32,642.0
STEAM			29,377.8
WATER			3,264.2

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA No. 21

DATE 3-15-81 TIME 1615 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 14 PSIG WHT 238 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.75 PSIG
Δ P			5.25 PSI
FLOW RATE			
MASS			34,002.8
STEAM			30,602.5 ✱
WATER			3,400.3

✱ 90%.

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA #21

DATE 3-16-81 TIME 0725 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.5 PSIG WHT 237°F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.5 PSIG
ΔP			4.75 PSI
FLOW RATE			
MASS			32,215.3
STEAM			28,993.8
WATER			3,221.5

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO 21

DATE 3-17-81 TIME 0650 HRS TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.25 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.75 PSIG
Δ P			6.25 PSI
FLOW RATE			
MASS			36,056.2
STEAM			32,450.6 #
WATER			3,605.6

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA № 21

DATE 3-18-81 TIME 1600 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.5 PSIG WHT 237°F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10.25 PSIG
Δ P			6 PSI
FLOW RATE			
MASS			36,371.75
STEAM			32,734.6 # / HR.
WATER			3,637.2

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA NO 21

DATE 3-19-81 TIME 0625 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			9.75 PSIG
Δ P			6.25 PSI
FLOW RATE			
MASS			36,056.2 #
STEAM			32,450.6 # / HR.
WATER			3,605.6

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL Baca #21

DATE 3-20-81 TIME 0632 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10 PSIG
Δ P			4.75 PSI
FLOW RATE			
MASS			32,642 #/HR.
STEAM			29,378
WATER			3,264

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

Union Geothermal Co. of New Mexico
DAILY TESTING REPORT

WELL BACA № 21

DATE 3-21-81 TIME 1250 HRS. TEST NO. 5 CHOKE TYPE _____

FLOW RATE DATA

WHP 13.75 PSIG WHT 237 °F CALORIMETRIC: SEP. EFF. _____ %

SEPARATOR PRESSURE _____ TEMP. _____ °F PRESS. _____ PSIG

	STEAM	WATER	TWO-PHASE
ORIFICE			7"
QUALITY			
P_1			10 PSIG
Δ P			5.75 PSI
FLOW RATE			
MASS			35,320 #/hr
STEAM			31,788 #/hr
WATER			3,532

TOTAL MASS FLOW _____ ENTHALPY-EFF. _____

STEAM FRAC. 90% (ASSUMED) EQUIV. TEMP. _____

CHLORIDES

TRIALS	TIME	STEAM LINE PPM	WATER LINE PPM	SEP. EFF.

NON-CONDENSIBLE GAS

DENSITY _____ GM/L

Time	Vol. H_2O Ml.	Wt. H_2O Grams	Vol. Gas Ml.	Wt. Gas Grams	Total Mass Wt. Grams	Non-Condensible By Wt. %

REMARKS:

SHUT-IN WELL @ 1300 HRS.

Calculation Record
Union Oil Company of California

union

R. O. ENGEBRETSEN

Prepared by | Checked by | Date FEB-04-1981

File

BACA NO. 21 FLOWTEST #5

W.O. / A.F.E. no.

1. OPEN WELL @ 0045 HRS. 02-03-81
2. WHP PRIOR TO OPENNING ——— 433 PSIG
3. ORIFICE SIZE (TWO-PHASE) — 7"
   FLOWLINE — 10"

TWO-PHASE DATA

DATE	TIME HRS.	WHP PSIG	P1 PSIG	ΔP PSI	% FLASH ASSUMED	MASS RATE #/HR.	STEAM RATE #/HR.
02-03-81	1040	190	118	34	60	288,178.75	172,907.25
					80	223,163.2	178,530.56
	1130	112	92	33	60	250,755.3	150,453.2
					80	193,421.6	154,737.3
	1200	92	83	33	60	237,660.34	142,596.2
					80	183,038.44	146,430.75
	1230	87	76	34	60	229,214.6	137,528.77
					80	176,290.44	141,032.35
	1300	82	72	32	60	218,152.74	130,891.6
					80	167,607.8	134,158.24
	1440	72	62	30	60	197,247.3	118,348.4
					80	151,368.8	121,095.1
▼	1535	67	59	30	60	192,144.5	115,286.7
					80	147,361.8	117,889.44
02-04-81	2430	45	42.5	21	60	145,056.7	87,034.04
					80	110,093.8	88,795.02
"	0630	43	37	20	60	132,802.3	79,735.4
					80	101,556.4	81,245.13
					90	90,845.7	81,761.2
02-05-81	0730	31	25	14.5	80	76,123.87	60,899.1
					90	68,042.11	61,237.9
02-06-81	0700	25.5	21	11	80	64,233.1	51,386.5
					90	57,403.3	51,662.9
02-07-81	1545	23	18	10	"	52,244.35	47,019.92
08	0700	22	17.5	9	"	50,121.7	45,109.5
09	0645	20.5	16	9	"	48,157.1	43,341.4

WELL NAME: BACA #2 21

FLOWTEST # 5 OPEN WELL @ 0045 HRS. 2-3-81 SHUT-IN WELL @ 1300 HRS. 3-21-81