

6107227

RAFT RIVER FLOW OF GEOTHERMAL FLUIDS (GALLONS)

<u>MONTH</u>	<u>RRGE-1</u>	<u>RRGE-2</u>		<u>RRGE-3</u>	<u>RRSI-4</u>
		<u>PRODUCTION</u>	<u>REINJECTION</u>		
1977					
January	2,600,000	600,000	0	1,240,000	
February	3,280,000	1,910,000	0	806,000	
March	3,620,000	2,430,000	0	893,000	
April	4,330,000	1,900,000	0	269,000	
May	4,014,000	185,000	0	0	
June	6,951,000	0	0	2,271,000	
July	8,276,000	0	0	10,953,000	
August	7,985,200	0	0	0	????
September	6,604,101	0	0		
October	8,572,130	0	0		
November	8,332,193	0	0		
December	9,449,166	0	0		
1978					
January	10,712,294				
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					

RAFT RIVER FLOW OF GEOTHERMAL FLUIDS (GALLONS)

<u>MONTH</u>	<u>RRGE-1</u>	<u>PRODUCTION</u>	<u>RRGE-2</u> <u>REINJECTION</u>	<u>RRGE-3</u>
1975				
February	8,000,000	--	--	--
March	1,000,000	--	--	--
April	400,000	--	--	--
May	0	100,000	--	--
June	0	500,000	--	--
July	0	3,400,000	--	--
August	0	1,900,000	--	--
September	0	9,000,000	--	--
October	0	10,000,000	--	--
November	0	3,000,000	--	--
December	1,800,000	1,000,000	2,000,000	--
1976				
January	2,000,000	1,300,000	1,600,000	--
February	5,400,000	1,000,000	4,200,000	--
March	500,000	1,000,000	2,700,000	--
April	0	0	0	--
May	0	0	0	--
June	0	0	0	1,690,000
July	1,300,000	1,000,000	20,000	0
August	12,300,000	5,500,000	0	0
September	8,600,000	7,200,000	0	0
October	7,000,000	1,000,000	0	0
November	6,000,000	1,000,000	16,000	80,000
December	5,000,000	750,000	0	1,240,000
1977				
January	2,600,000	600,000	0	1,240,000
February	3,280,000	1,910,000	0	800,000
March	3,620,000	2,430,000	0	893,000
April	4,330,000	1,900,000	0	269,000

# RRGE # 3

USGS (MENLO PARK) WATER SAMPLES

TIME	DISCHG. PRESS.	AMPS	BUTTERFLY
1340	PUMP ON		
1345	360	60	50
1400	360	60	50
1410	360	60	50
1430	360	60	50
1500	350	60	50
1530	350	60	50
1542	PUMP OFF		

## FLOW TEST CONDITIONS

## WELL CONDITIONS

DATE	TIME	TEMP.	WELL PRES- SURE (osig except as noted)	FLOW	COMMENTS	INITIAL
9/10/77	0850	—	106.2	—	—	WB
9/11/77	0915	—	106.1	—	—	WB
9/12/77	0955	—	106.3	—	—	WB
9-13-77	11:50	—	106.1	—	—	GC
9-14-77	0900	—	106.3	—	—	WB
9-15-77	0843	—	106.5	—	X CROSWEIGHT ADJUSTED STEVEN'S RECORDER TO GROUND LEVEL.	DF
9-16-77	0845	—	106.6	—	—	WB
9-17	0855	—	107	—	—	DF
9-18	0915	—	106.4	—	#3 COMMENCED FLOW #3 FROM #1 RESERVE PIT (TRANS-PUMP)	DF
9-19	1020	—	106.5	—	—	KP
9-20	09:00	—	106.5	—	23" IN #3 RES. PIT	GC
9-21	0850	—	106.2	—	~8" " " "	DF
9-22	0910	—	106.5	—	—	DF
9-23	0825	—	106.5	—	—	DF
9-24	1100	—	106.5	—	70" TRANS FROM #1	DF
9-25	0900	—	106.5	—	—	KP
9-26	0915	—	106.5	—	—	KP
9-27	1145	—	94	—	#3 PUMPED AT ~ 800 GPM FROM 12:02 TO 13:17	HN
9-28					#3 pumped at ~ 800 GPM FROM 08:42 to 09:40	
9-29	09:30		106 PSIG		#3 pumped at 800 GPM FROM 15:30 to 17:37	HN
9-30	10 00		104		12:00 to 12:10 10 min 800 GPM	KP
10-1	1130		103			KP
10-2	0855	—	101	—	60" IN #3 PIT	DF
10-3	0930	—	102	—		KP
10-4	1110	—	101	—		KP
10-5	0950	—	100	—	36" IN #3 PIT	DF
10-6	0835	—	100	—	22" IN #3 PIT	DF
10-7	0900	—	99	—	27" IN #3 PIT	DF
10-8	0905	—	102.5	—	36" IN PIT	DF
10-9	0850	—	101	—		DF
10-10	10:00	—	99	NONE	24" IN RES. PIT	GC
10-11	9:55	—	99	—	20" IN RES. PIT	DF
10-12		—	99	—	~8" " " "	DF
10-13	08:32	—	99	—	36" IN RES PIT	GC
10-14	0840	—	99.5	—	60" TRANS FROM #1 IN PIT (10-13)	DF



FLOW TEST CONDITIONS

WELL CONDITIONS

DATE	TIME	TRMP.	WELL PRES-SURE (psig except as noted)	FLOW	COMMENTS	INITIAL
10-15	0825	-	100	-	36" IN RES. PIT	DR
10-16	0930	-	100	-	26" IN RES. PIT	DE
10-17	09:35	-	100	-	50" IN RES. PIT	JA
10-18	09:35	-	100	-	34" IN RES. PIT	IA
10-19	09:00	-	100	-	33" IN RES. PIT <sup>TRANS FROM</sup> RESERVE PIT 2	IA
10-20	08:50	-	100	-	54" IN RES. PIT	IA
10-21	09:15	-	101	-	37" IN RES. PIT	IA
10-22	0830	-	100.5	-	27" IN RES. PIT	DE
10-23	0825	-	102	-	12" <sup>FREEZE LINE</sup> IN RES. PIT <sup>FLOWING</sup>	DE
10-24	10:25	-	101	←	12" " " "	KP
10-25	09:30	-	101	-	18" IN RES. PIT	IA
10-26	09:15	-	101	-	14" IN RES. PIT	IA
10-27	08:55	-	102	-	56" IN RES. PIT <sup>Freeze line flowing</sup>	IA
10-28	09:05	-	105	-	36" IN RES. PIT " " "	IA
10-29	0920	-	102.5	-	26" IN RES. PIT " " "	DR
10-30	0855	-	102.5	-	24" " " " <sup>FLOWING</sup> <sup>FREEZE LINE</sup>	DR
10-31	09:50	-	102.5	-	16" " " " " "	IA
11-1	09:05	-	104.5	-	18" " " " " "	IA
11-2	09:08	-	104	-	18" " " " " <sup>TRANSFER FROM #1</sup>	IA
11-3	0845	-	102.5	-	38" IN RES. PIT	DR
11-4	08:55	-	104.5	-	30" IN RES. PIT	IA
11-5	09:30	-	104.0	KEEP WARM	24" " "	GC
11-6	09:45	-	102.0	~3 "	52" " "	GC
11-7	14:00	-	99	"	63" " "	
11-7	0855	-	99	"	46" " "	HN
11-9	0910	-	99.5	"	35" IN RES. PIT FROZEN	DE
11-10	0900	-	100	"	28" IN RES. PIT	DE
11-11	0900	-	99.9	"	25" IN RES. PIT	DE
11-12	0820	-	100	"	" " " "	DE
11-13	0825	-	100	"	24" IN RES. PIT	DE
11-15	0920	-	101	"	24" " " "	LU
11-16	0820	-	101	"	23" IN RES. PIT	DP
11-17	0847	-	101	Brief 1/2 hr 600 gpm at 1545 to 1552	59" IN RES. PIT - TRANS <sup>Began flowing 600 gpm at 1545</sup>	DR
11-18	1130	-	340	~600	7'6" IN RES. PIT (FLOW #3)	DE
11-19	0745	-	318	~600	9' IN RES. PIT #3 FLOWING	DE

## FLOW TEST CONDITIONS

## WELL CONDITIONS

DATE	TIME	TEMP.	WELL PRES- SURE (psig except as noted)	FLOW	COMMENTS	INITIAL
11-20	0955	-	263	~600	10'6" Flow shut off @ 7600 hrs IN RES. PIT	DF
11-21	0957	-	42	No Flow	3'6" in pond #3	RS
11-23	0825	-	80		60" IN RES. PIT	DF
11-24	0830	-	86	-	96" Transp. from #1 to #3 off 1050	KP
11-25	0815	-	88	-	75"	KP
11-26	1020	-	91	-	54" FREEZE LINE OPEN IN RES. PIT	
11-27	0810	-	91.5	-	42" IN PIT	DF
11-28	0900	-	94	-	Pump test started 1645 hrs @ 600 gpm 34" PIT	DF
11-29	0900	-	260	Flowing Well 600	To mark steam to see	LU
11-30	0845	-	200 bubbler	"	11'2"	DF
12-1	0840	-	175 "	"	11'2"	DF
12-2	0800	-	156 "	600 gpm	11'4"	DF
12-3	0900	-	150 "	"	11'4"	DF
12-4	0840	-	140 "	"	11'	DF
12-5	0705	-	135 "	"	11'	KP
12-6	0800	-	130 "	"	10'6"	LU
12-7	0830	-	120 "	"	10'5"	DF
12-8	0820	-	120 "	"	10'	DF
12-9	0720	-	115 "	"	DENSE STEAM	DF
12-10	0830	-	112 "	"	" " 9'6"	DF
12-11	0830	-	109 "	"	9'6"	DF
12-12	0900	-	104 "	"	11'	LU
12-13	0920	-	100	"	11' steam	LU
12-14	0845	-	100	600	9'7"	DF
12-15	0830	-	105	600	9'5"	DF
12-16	0830	-	105	600	9'2"	DF
12-17	0830	-	100	600	~9'	DF
12-18	0845	-	99	600	8'7" TRANS. FROM #1 PIT.	DF
12-19	0900	-	95.3	600	11' IN RES. PIT.	GC
12-20	0846	-	94.6	600	~10'	
12-21	0945	-	93	600	DENSE STEAM	DF
12-22	0815	-	91	600	7' 11" (1030 #3 shut-in)	DF
12-23	0800	-	285	-	6' 10"	DF
12-24	830	-	310	No Flow	~7' 0"	LU

## FLOW TEST CONDITIONS

## WELL CONDITIONS

DATE	TIME	TEMP.	WELL PRES- SURE (psig except as noted)	FLOW	COMMENTS	INITIAL
12-25	0800	—	322	—	3' 3"	LU
12-26	0830		337	—	4' 3"	LU
12-27	08:30	ANNULUS = 44	345	—	3' 6"	GC
12-28	0730	"	49.352	—	2'	DF
12-29	0725	Digi	72.9-374	—	2 (P.M. TRANS FROM #1)	DF
12-30	0812	"	77.5-386	—	5'	DF
12-31	0905	"	81.5-390	—	3' 9"	DF
1-1-78	0830	"	84.6-390	—	2' 6"	KP
1-2-78	0730	"	87.3-390	—	1' 11"	KP
1-3-78	0650	"	89.6-397	—	—	KP
1-4	0833	"	92-403	—	—	DF
1-5	0925	"	94-404	—	—	DF
1-5	1033	"	94-404	600	Pump ON 10:33	DF
1-6	0915	"	42.3-230	600	Pump off 16:20 7.7" IN PIT	DF
1-6	1620		41.4-219	OFF	SHUT-IN	DF
1-7	1005	"	73.0-365	—	4' 7"	DF
1-8	0943	"	86.6-388	—	3' 9"	DF
1-9	0900	"	91.7-390	—	5' - 5"	GC
1-10	9:30	"	95.0-109	—	" "	RS
1-11	0953	"	97.3	—	3' 9"	DF
1-12	0950	"	99.3	—	3' 5"	LU
1-13	0815	"	100.7	—	32"	DF
	1500				Pump on 800 gpm (Rude Back from)	
	1735				Pump off, well shut in	
1-14	0950		107.4-392	—	5' 6"	DF
1-15	0933		105.6-395	—	4'	DF
1-16	0900		105.6-397		<del>4' 5"</del> 5'	LU
1-17-78	0900		106.0-397		4' 2"	LU
1-18	0835		106.6-400		3' 7"	DF
1-19	0812		107.1-405		3' 4"	DF
1-20	0820		107.7-406		3'	DF
1-21	0900		108.3-410		6' 6"	DF
1-22	0910		108.8-414		4' 9"	DF
1-23	0930		109.2-414		3' 11"	LU
1-24	1100		109.7-414		3' 6"	LU

RRGE # 3

9-27-77

≈ 800 GPM

TIME	DISCHG. PRESS.	MOTOR AMPS	BUTTERFLY BACK PRESSURE
1207	PUMP ON		
1210	320 PSIG	62 AMPS	50 PSIG
1220	320	62	50
1232	325	60	50
1240	318	60	50
1255	318	60	50
1310	318	60	50
1317	PUMP OFF	Flowed ≈ 800 gpm	
9-28-77			
08:47	pump on 320	62	50 psig
08:52	320 psig	61	50
09:00	320	61	50
09:10	320	61	50
09:26	320	60	50
09:40	pump off	Flowed approx 800 gpm	
9-29-77			
15:30	pump on 320	62-61-61	50 psig
15:45	320 psig	61	60
16:00	315 psig	60	60 adj to 50
16:30	315	60	50
17:37	pump off	Flowed ≈ 800 gpm	
9-30-77			
12:00	pump on - 320 psig	61	50
12:10	pump off -	800 gpm. SL Tribune	
10-1-77			
1150	Pump ON #1 TO #3		



## FLOW TEST CONDITIONS

## WELL CONDITIONS

DATE	TIME	TEMP.	WELL PRES- SURE (psig except as noted)	FLOW	COMMENTS	INITIAL
1-25-78	0847		103.2-420	"SAMPLED"	13" RES. PIT	DF
1-26	0834		110.5-420		13" (0950 #1 to #3)	DF
1-27	0830		110.8-420		6.5" RES PIT	DF
1-28	1107		111.2-419		5" " "	DF
1-29	0747		111.4-420		3' 9" " "	DF
1-30	10:08		111.8-420		3' 3" " "	LU
1-31	0915		112.0-420	15' pump on	3' started pump at 11:55	LU
2-1	1020	291.2	42.2-235	Ap 6:50 AM	9' 9" " "	DF
2-2	0825		42.5-180	"		DF
2-3	850		42.9-152	"	8'?	LU
2-4	0925	-	42.6-135	"	7' 9"	DF
2-5	0915	-	42.5-120	"		DF
2-6	0900	-	41.9 110	"	10'	LU
2-7	0830	-	38 Psig 103	"	? 11' 10"	LU
2-8	0840	-	38 " - 95	"	10' 7"	DF
2-9	0818	-	28" - 80	"	11' 9"	DF
2-10	0812	-	0 - 225	2-9 1605 →	SHUT-IN	DF
2-11	0904	-	43.0-274		6' 8" RES PIT	DF
2-12	0919	-	59.4-216		+5' " "	DF
2-13	0920	-	69.6 165		5' 9"	LU
2-14	0900	-	76.7 152		4' 6"	LU
2-15	0823	-	82.1-215		4' 6" SAMPLED	DF
2-16	0815	-	86.4-235		4' 6"	DF
2-17	0808	-	89.9-280		4'	DF
2-18	0834	-	92.7-289		4'	DF
2-19	1335	-	95.6-200		2'	DF
2-20	0845	-	97.1-295		2'	LU
2-21	0930	-	98.7 312		2'	LU
2-22	0930	-	100.4 311		2'	LU
2-23	0824	-	101.7-320		2' SAMPLED	DF
2-24	0820	-	102.8-310		2'	DF
2-25	0911	-	103.9-345		2'	DF
2-26	0845	-	104.8-380		4' 3"	DF
2-27	1200		105.7-355		3' 10"	LU
2-28	0920		106.5 395		3' 6"	LU

## RRGE # 3

## FLOW TEST CONDITIONS

## WELL CONDITIONS

DATE	TIME	TEMP.	WELL PRES- SURE (psig except as noted)	FLOW	COMMENTS	INITIAL
3-1-78	1515	-	107.2-335	-	SAMPLED 3'	DF
3-2	0737	-	107.7-365	-	3'	DF
3-3	0809	-	108.3-415	-	2'	DF
3-4	1638	-	109.0-400	-	1'	DF
3-5	0854	-	109.3-420	-	1'	DF
3-6	0900	-	109.8-400	-	1'	LU
3-7	0838	-	110.2-420	-	4'6"	LU
3-8	0800	-	110.6-420	-	SAMPLED 4'3"	DF
3-9	0813	-	111.0-420	-	3'6"	DF
3-10	0820	-	111.3-395	-	5'9"	DF
3-11	0913	-	111.7-305	-	4'	DF
3-12	0905	-	111.9-295	-	3'4"	DF
3-13	0945	-	112.2-155	-	5'1"	LU
3-14	0830	-	112.5-105	-	3'9"	LU
3-15	0830	-	112.4-395	-	SAMPLED 4'8"	DF
3-16	0813	-	112.9-365	-	7'4"	DF
3-17	0818	-	113.2-300	-	4'9"	DF
3-18	0844	-	113.4-350	-	7'9"	DF
3-19	0908	-	21.5-305	-	6'10"	DF
3-20	0900	-	24.2-250	-	5'9"	LU
3-21	0900	-	24.9-435	600 gpm	8 1/2" 10 min pump on 3'9" pump on 10:00 OFF 18:10	LU
3-22	0840	-	91.9-165	600 gpm	7 1/2" 52 min pump on 4'6" pump on 08:00 OFF 9:52	LU
3-23	1830	-	87.4-220	-	3'	LU
3-24	1730	-	88.5-185	3/4" live	2'5"	KP
3-25	0950	-	93.6-175	-	2"	KP
3-26	0800	-	106.9-175	-	1'4"	KP
3-27	11:40	-	112.7 112.5	-	10"	LU
3-28	0930	-	112.1 115.0	-	8"	LU
3-29	0840	-	- 120	-	6"	LU
3-30				800 gpm	pump on 15:30	
3-31				800 gpm	pump off 13:00	
4-1	0743	-	92.3-375	SHUT-IN	3'9"	DF
4-2	0729	-	106.3-395	"	3'	DF
4-3	09:45	205.8	25.4	KEEP WARM		
4-4				900 gpm	pump on 08:30	

RRGE # 3

## FLOW TEST CONDITIONS

## WELL CONDITIONS

DATE	TIME	TEMP.	WELL PRES- SURE (psig except as noted)	FLOW	COMMENTS	INITIAL
4-5-78	0713	-	49.4-305	-	shut-in pump off - 00.10	DC
4-6	0714	-	100.7-365	-	"	DF
4-7	0735	-	84.9-385	-	FREEZE LINE FLOW #4	DF
4-8	0730	-	78.0-400	-	" " " "	DF
4-9	0830	-	72.1-410	-	" " " "	DC
4-10	1035	289.5	75.1 <del>394</del>	625	started 1015 shut in at	WB
4-11	0820	-	118.2 <sup>435</sup> 394	-	shut in <sub>≈ 300</sub>	WB
4-12	0749	-	124.0-410	-		DR
4-13	0715	-	122.7-410	-		DF
4-14	0825	-	120.9-415	-	~1' IN RES. PIT	DR
4-15	0927	-	120.3-415	-	5' 4" " "	DF
4-16	0800	-	119.8-415	-	3' 6" " "	DF
4-17	0800	-	- 415	-	6' 9" " "	LU
4-18	0810	-	120.2-413	-	4' " "	LU
4-19	0733	-	119.9-415	-	7' " "	DE
4-20	1400	-	119.9	-		BC
4-21	0730	-	119.9-416	-	5' 6" " "	DE
4-22	0858	-	120-415	-	1' " "	DF
4-23	0935	-	120.1-415	-		DC
4-25	0800	-	121.5-415	-	2'	BU
4-26	0710	-	-	-	(INSTRUMENTATION REMOVED)	DF
4-27	0720	-	-	-	(FLOW FOR #6 DRILL RIG)	DF
4-28	0950	-	-	-	"	WB
<del>5-1</del>	0700	-	-	-		LU
5-4	0730	-	-	-		LU
5-5	0920	-	-	-		WB
5-6	1000	-	-	-		KP
5-7	11:00	-	-	-		KP
5-8	0715	-	-	-		LU
5-9	0805	-	-	-		WB
5-10	0745	-	-	-	NO FLOW NO READINGS	LU
5-11	0745	-	-	-	" "	LU
5-16-78	0940	-	0 metered well	-	bubbler is 246	WB
5-17-78	0930	-	-	-	246	WB
5-18-78	0840	-	-	-	bubbler - 246	WB

## FLOW TEST CONDITIONS

## WELL CONDITIONS

DATE	TIME	TEMP.	WELL PRESSURE (psig except as noted)	FLOW	COMMENTS	INITIALS
5-19	0905	-	0		bubbles in 246	WB
5-20	0806	-	0		" 244	DR
5-21	0930	-	0		244	LF
5-22	1050		0		well head <sup>etc</sup> being removed	WB
5-23	0900				pulling pump	WB
5-24	0900				Pump pulled	LF
5-25	0815					WB
5-26						WB
5-27						LF
5-28	0820	-	0	-		DR
5-29	0900	-	0	-	REINJECTING FROM #1 WELL PRESSURE FLOW	DR
5-30	0830	-	0	-	" "	LF
5-31	0925	-	<del>115</del>	-	Shut in <del>2400</del> 5/30	WB
6-1	0935		115			WB
6-2	0855		110			WB
6-3	0900	-	110	-		TW
6-4	1430		110			TW
6-5	0900		110			LF
6-6	1015		110			WB
6-7	1040		≈ 110		- hard to read gage	WB
6-8	0900		110			WB
6-9	0955		110			WB
6-10	2025		110			ND
6-11	1315		110			ND
6-12	0950		107			MR
6-13	0815		108			LF
6-14	0720		105			TR
6-15	0835		105			WB
6-16	0900		104			WB
6-18	10:00		104			LF
6-19	0855		100			WB
6-20	0805		100			WB
6-21	0815		110			WB



## FLOW TEST CONDITIONS

## WELL CONDITIONS

DATE	TIME	TEMP.	WELL PRESSURE (psig except as noted)	FLOW	COMMENTS	INITIALS
6-22	0805		110 psig			WB
6-23	0800		105			WB
6-24	0810		103 psig			TR
6-25	0730		105 psig			TR
6-26	0730		105 psig			TR
6-27	0730		105 psig			TR
6-28	0722		105 psig			TR
6-29	0725		105			TR
6-30						
7-1	1720		~105 psig	No	~6' in PIT	DF
7-2	1950		~105 psig	No	~6' in PIT	DF
7-3	0805		105 psig	NO	small amount water in pit	HQA
7-4	0910		110	NO	7' in pit	HQA
7-5	0730		105	"	7'	LU
7-6	0805		103			WB
7-7	0735		101			WB
7-8	0810		102			WB
7-9	0745		101			WB
7-10	0900		101			WB
7-11	0740		102			WB
7-12	0730		120		well opened slightly	WB
7-13	0245		115	NONE		DR
7-14	0805		110	NONE		DR
7-15	0840		~110	"	4' in RES. PIT	DR
7-16	0810		110	"		DR
7-17	0745		104			WB
7-18	0750		104			WB
7-19	0805		105			WB
7-20	0750		106			WB
7-21	0755		104			WB
7-22	0720		103	"	5.5' in RES. PIT	TR
7-23	0800		104	"	4.5' in RES. PIT	TR
7-24	0740		105		4' in RES. PIT	WB
7-25	0755		104		3'6" in RES. PIT	WB
7-26	0735		104		4'8" in RES. PIT (cementing casing at #7)	WB



RRGE #3  
except as noted

Date	Time	Temp	Well Pressure	Flow	Comments	Initial
3-25-77	08:30	233	143.0	~ 20gpm		T.R.
3-26-77	08:45	234	142.	~ 20gpm		RS
3-27-77	08:45	231	141	~ 20		DF
3-28	09:30	232	141	" "	cold winds	RS
3-29	08:45	234	142.5	" "		LU
3-30	08:30	235	143.0	"		T.R.
3-31	09:30	232	143.0	"		T.R.
4-1	08:45	236	142.5	"		T.R.
4-2	08:25	235	142.5	"		T.R.
4-3	06:30	235	142.5	"		T.R.
4-4	08:30	237	143.0	"		T.R.
4-5	08:20	235	143.0	"		T.R.
4-6	08:30	239	143.0	"		T.R.
4-7	09:00	232	143.0	"		T.R.
4-8	06:35	231	143.0	"		T.R.
4-9	07:00	231	143.0	"		KP
4-10	07:50	236	141	"	0753 "SHUT-IN", no measure-ments till after logging	DF
5-7	08:00				Installing pump in Well #3	KP
5-7	12:00	-	141	-	Well opened at 600gpm 18:00	
6-8	18:55	293	24	600gpm	Shut in 18:55	
6-9	7:15	-	38	-		TR
6-15	08:50	-	85	-	≈ 3'	
6-28	09:30	-	107	-		TK
6-29	1300	298-299	See Data	800gpm	Start 24 hr. Flow test	JMD
6-30	1300	298-299	Sheets	800gpm	End 24 hr Flow test	JMD
7-6	1800	289		600gpm	Start 14 day Flow Test	JMD
7-19	1015	290		±	End 14 day flow test.	
7-20	08:00	-	81.1 psig	-		TK
7-29	08:20	-	83.8 psig	-		TR
7-30	0830	-	96.5	-		WB
7-31	0843	-	98.5	-		WB
8-1	0844	-	100.2 psig	-		WB
8-2	-	-	101.6	-		
8-3	08:10	-	92.3 psig	-		TR
8-4	08:10	-	93.7 psig	-		TR
8-5	09:10	-	94.7 psig	-		TR
8-6	08:30	-	95.7 psig	-		TR
8-7	08:45	-	96.2 psig	-		TR
8-8	08:00	-	97.6 psig	-		TR
8-9	08:45	-	106.8	-	Pressure gage removed 8/8	TR
9-2	0845	-	106.8	-	" " "	WB
9-3	0840	-	106.7	-		DF
9-4	0850	-	106.2	-		DF
9-5	0910	-	106	-		DF
9-6	0700	-	106	-		KL
9-7	0915	-	105	-		HN
9-8	0915	-	106	-		HN
9-9	0847	-	106	-		DF

# RRGE #3 except as noted

Date	Time	Temp	Well # Pressure	Flow	Comments	Initial
2-6-77	14:30	208	140	~20gpm	Therma Coude installed	TR
2-6-77	22:00	—	140	"		
2-7-77	12:00	229	140	"	Geothermal sample taken	TR
2-7-77	19:00	216	140	"		TR RW
2-9-77	08:30	227	140	"		TR
2-8-77	20:00	228	140	"		TR
2-9-77	07:15	225	140	"		TR
2-10-77	07:10	226	140.5	"		TR
2-11-77	07:10	228	140.5	"		TR
2-12	07:15	229	140	—		TR
2-13	07:00	228	140	—		K.P.
2-14	09:30	228	142	—		RS
2-15	09:30	225	141	—		RU
2-16	07:00	225	141	~20gpm		TR
2-17	07:00	225	141	"		TR
2-18	07:10	225	141.5	"		T.R.
2-19	07:00	226	141.5	"		T.R.
2-20	07:00	227	141.5	"		T.R.
2-21	06:45	226	141.5	"		T.R.
2-22	07:30	226	142	"		T.R.
2-23	07:00	227	142	"		T.R.
2-24	07:00	226	142	"		T.R.
2-25	08:00	221	141	"		DF
2-26	06:30	227	141	"		DF
2-27	06:30	225	142	"		RU
2-28-77	11:35	232	142	"		RT-RSN
3-1-77	7:30	230	142	"		RS
3-2-77	07:15	229	141.5	"		TR
3-3-77	07:15	230	141.5	"		TR
3-4-77	08:00	229	141	"		TR
3-5-77	08:45	227	141.5	"		T.R.
3-6-77	08:45	228	141.5	"		T.R.
3-7-77	07:15	231	142.0	"		T.R.
3-8-77	09:00	231	142.0	"		T.R.
3-9-77	07:45	231	142.0	"		T.R.
3-10-77	07:15	228	141.5	"		TR
3-11-77	06:30	234	141.5	"		T.R.
3-12-77	09:00	231	141	"		D.F.
3-13-77	09:40	218	141	"		DF
3-14-77	8:30	228	142.5	"		RU
3-15-77	8:30	206°	142.0	"		RU
3-16-77	14:30	229°	140.0	"		T.R.
3-17-77	8:30	225	141.5	"		T.R.
3-18-77	08:30	228	141.5	"		T.R.
3-19-77	08:35	232	142.0	"		T.R.
3-20	09:30	229	141	"		DF
3-21	09:25	230	141	"		RS
3-22	09:00	230	142.0	"		TR
3-23	09:00	231	142.5	"		T.R.
3-24	09:00	234	143.0	"		T.R.



# RRGE # 3

psig, except as noted

Date	Time	Reading	Comment
1/28/77	2020	126 psig	PSI Gauge Installed after terminating flow test on Jan 27 @ 2230 hrs, Flow ~ 20 gpm
1-29	0855	125.5	
1-30	0915	134	
1-30	1315	136	
1-31	0900	137	
2-1	1630	137.5	
2-1	01200	137.5	
	0830	138	
	1800	138.5	
2-2	00:00	138.5	
2-2	08:30	139	
2-2	1435	139	
2-3	00:10	139	
2-3	0830	139	
2-3	01700	139.5	
2-4	09:30	139.5	
2-4	1200	<del>139</del> 139.5	
2-4	1600	140	
2-5	08:30	140	
2-5	1306	140	
2-5	1600	140	
2-6	1000	140	

**USE NEW LOG SHEET**

# RRE #3

Nov. 28 1976  $\frac{1}{2}$ -inch line opened, delivering about 20 gpm  
to prevent freezing

Jan 25, 1977 Temp. Logged

Jan 26 & 27 Flow test, for determining reservoir  
constants around the well.

Temp. °F

100

200

300

ARGE #3 Temp log

1/25/77

Flowing 20 gpm since Nov. 28, 1976

1000

2000

3000

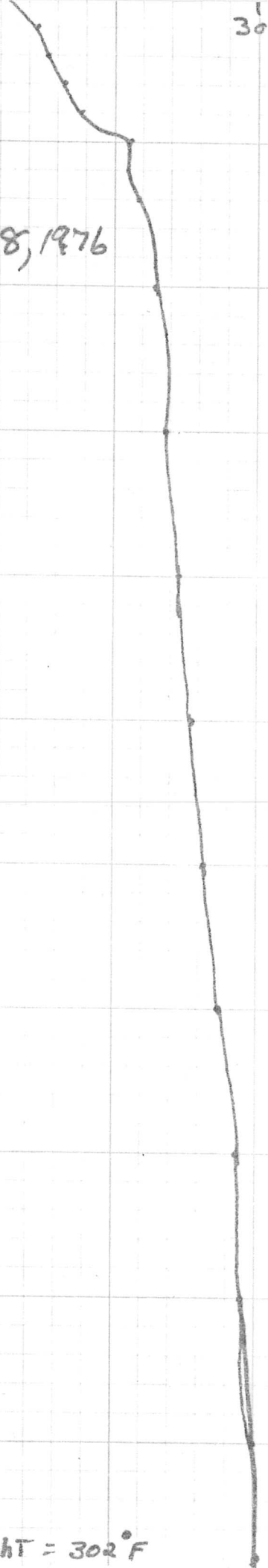
4000

5000

Depth in Ft from G.L.

8hT = 302°F

•



Time	pressure	Δ TIME	Δ PRESSURE
10:30	151.717		
10:59	151.719		
11:00	Flow Begin	0	-
11:01	145.835	1	5.88
11:02	145.678	2	6.04
11:03	145.802	3	5.92
11:04	145.821	4	5.90
11:05	145.851	5	5.87
11:06	145.348	6	6.37
11:07	145.202	7	6.52
11:08	145.223	8	6.50
11:10	145.169	10	6.55
11:12	145.153	12	6.57
11:15	145.313	15	6.41
11:20	145.623	20	6.10
11:25	146.411	25	5.31
11:30	146.798	30	4.92
11:35	147.096	35	4.62
11:41	147.400	41	4.32
11:45	147.643	45	4.08
11:50	147.883	51	3.84
11:57	147.802	57	3.92



RRGE#3

12  
6  
72

126 17

Page 2 of ...

Time	Pressure	Δ time (mins)	Δ pressure (from 151.72 psi)
12:05	147.968	65	3.75
12:15	147.950	75	3.77
12:25	147.906	85	3.81
12:35	147.912	95	3.81
12:45	147.799	105	3.92
13:00	147.429	120	4.29
13:20	146.992	140	4.93
13:40	145.990	160	5.73
14:00	145.188	180	6.53
14:20	144.612	200	7.11
14:40	144.263	220	7.46
15:00	143.518	240	8.20
15:20	142.801	260	8.92
15:40	142.220	280	9.50
16:00	141.781	300	9.94
16:30	140.877	330	10.84
17:00	140.282	360	11.44
18:00	138.785	420	12.93
19:00	137.686	480	14.03
20:00	136.590	540	15.13
21:00	135.571	600	16.15
22:00	134.586	660	17.13
22:59:50	133.778	720	17.96
23:00:20	129.88	720	21.84

150 gpm  
8 psi on 1.713"  
oil line

Flow increased to 250  
gpm 21 psi on  
1.71" orifice

# PRGE #3

Time of Day	Well Head Pressure	$\Delta b$ (min) Since Start at 11 AM	OP (min) Since 11 AM	Time Since Start of 2300 gpm at 7:30 AM	OP Since 7:30 AM
50 gpm 23:00:20	129.88	720	21.84	0.33 min	3.90
2301	128.17	721	23.55	1.0	5.61
2302	127.58	722	24.14	2	6.20
2303	127.31	723	24.41	3	6.47
2304	126.72	724	25.00	4	7.06
2305	126.52	725	25.20	5	7.26
2306	126.20	726	25.52	6	7.58
2308	125.48	728	26.24	8	8.30
2310	125.10	730	26.62	10	8.68
2315	124.52	735	27.20	15	9.26
2320	124.20	740	27.52	20	9.58
2325	123.90	745	27.82	25	9.88
2330	123.4	750	28.3	30	10.4
2345	122.6	765	29.1	45	11.2
2400	121.21	780	30.51	60	12.57

## January 27

Time	Well Head Pressure	$\Delta b$ (min)	OP (min)	Time Since Start of 2300 gpm at 7:30 AM	OP Since 7:30 AM
0015	120.5	795	31.2	75	13.2
0030	119.7	810	32.0	90	14.1
0045	118.9	825	32.8	105	14.9
0100	117.77	840	33.95	120	16.0
0115	117.15	855	34.6	135	16.7
0130	116.3	870	35.4	150	17.5
0145	115.6	885	36.1	165	18.2
0200	115.0	900	36.7	180	18.8
0215	114.0	915	37.7	195	19.8
0230	113.7	930	38.0	210	20.1

0245	113.0	995	38.7	225	20.8
0300	112.3	960	39.4	240	21.5
0315	111.9	975	39.8	255	21.9
0330	111.5	990	40.2	270	22.3

Jan 27

284°F

350 rpm

Time	Rate	Temp	Count
0338			111.064
0339	106.248		
0340	105.435		1 4.82
0341	104.366		2 5.63
0342	102.682		3 6.70
0343	102.450		4 8.38
0344	102.183		5 8.61
0345	101.920		6 8.88
0346	101.880		7 9.14
0348	101.555		8 9.18
0350	101.310		10 9.51
0353	100.816		12 9.75
0358	100.505		15 10.25
0403	100.016		20 10.56
0408	93.9316		25 11.05
0413	90.5245		30 17.13
0418	97.2975		35 20.49
0423	97.5808		40 13.77
0428	97.1392		45 13.18
0433	97.1174		50 13.92
			55 13.95



1/27/77

at 0338 started increasing flow but found  
 system possibly frozen. Unplugged with insul.  
 & added heat tapes to DP gages & got operating.  
 Continued to increase flow at 0405. Hit  
 DP = 41 at 0412 at which point starting to close  
 valve to hold at this pressure. Read @ 55 while  
 writing this but only holds to 41. Pressure to be held  
 now. Minimum off scale after 283 after calib.

Time	DP	Flow	DP
0312	200	200	
0324	106	200	
0331	105	400	
0338	105	200	
0342	105	200	
0345	101	200	
0350	101	200	
0355	100	200	
0400	100	200	
0405	100	200	
0410	100	200	
0415	100	200	
0420	100	200	
0425	100	200	
0430	100	200	





1/27/47

# "Full Flow" Test - RBE #3

Well shut-in from 0856 hrs. Opened at 1100 hrs, 3.370" orifice gpm = 217/49"

Time	Well head pressure	Break pressure below orifice	Spence orifice	
	122.7			
1100	75.5	55	9.5	-0.5 zero corr.
1105	74.3	55	9.0	217 x 3 6.51 gpm
1110	70.3	52 1/2	8.9	
1115	69.5	52	8.8	Ave = 217 x 1.75
1120	68.9	52		= 217 x 2.74 = 594
1125	68.7	52		
1135	68.8	52		290°F
1145	68.6	52		287°F
1155	68.2	52		285°F
1200	67.9	52		
1210	67.5	52		286°F 4.6
1224	68.1	52		5.6
1235	67.5	52		15.1
				289°F 1.5

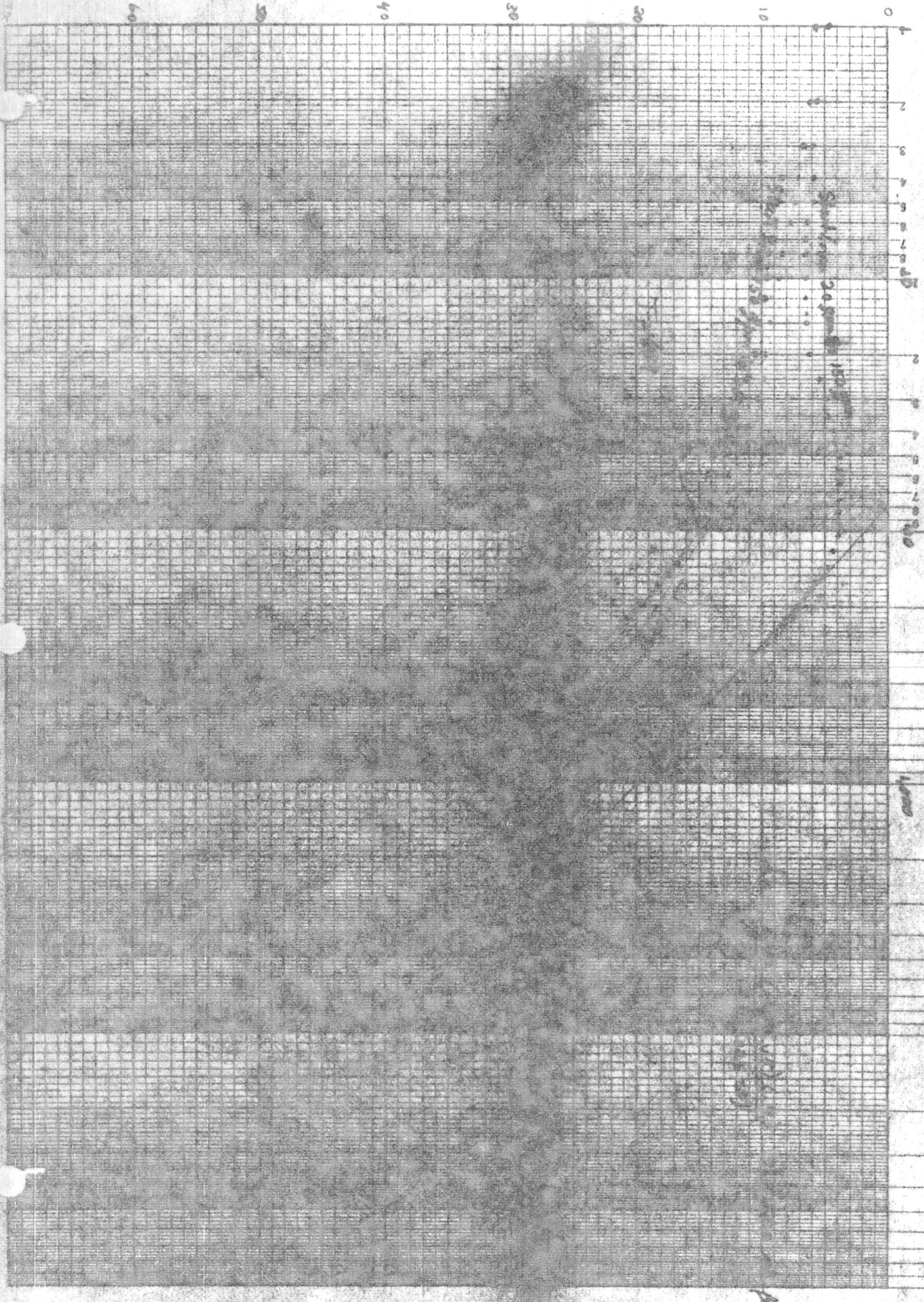


228	9	1 mm
232	9	2 mm
232	9	3 mm
234	9	4 mm
236	9	7 mm
238	9	10 mm
243	9	15 mm
247	9	25 mm
250	9	30 mm
252	9	35
255	9	45
257	9	55
260	9	70
264	9	90
272	9	130
275	9	150
280	9	240

K.E. SMI-LOGARTHMIC 359-91  
RUPPEL & ESSE, CO. JAN 19 1951  
5 CYCLES X 70 DIVISIONS

Time in minutes

from start of reaction





10

Line in miles from START of Runway

1,000

Start from runway to 150 gpm

Start from 150 gpm to 200 gpm

150 gpm

200 gpm

Change from 150 gpm to 200 gpm

14 = 1451 (5.5) (1.5) (1.5) = 8,400 MW

10 (2.22 (1.5))

