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December 1, 1992

Oil Conservation Division
1000 Rio Brazos Rd
Aztec, NM 87410

Attn: Diana Fairhurst

Re: Miguel Creek Field
Step Rate Tests
SFPRR Nos. 41, 51, and 52

Dear Diana:

Attached is my record of our step rate test results for the captioned wells. Also attached are my plots of the data. The best fit lines through the data are as generated by my plotting package.

I would not attempt to debate the results of the tests on SFPRR Nos. 41 and 51. They are clear cut. However, I was hoping for higher injection rates for well No. 41. Maximum proposed rates and pressures for these wells are listed below:

Well	Max. Press., PSI	Max BWIPD
41	234	21
51	170	48

I would propose an allowable maximum injection pressure of 500 PSI for well No. 52. This would allow for a maximum injection rate of about 40 BWPD. Since we are injecting fresh water, and since this is an edge well with thinner reservoir, I think this is reasonable given the data as plotted.

We have no record of fracture stimulations being done on any of the subject wells. This was a question Frank raised during our field work.

I will appreciate discussing this with you soon.

Sincerely,

Tom McCarthy
Petroleum Engineer

December 1, 1992

Conversion of SFPRR No. 41, 51 and 52 to Injection
Mechanical Integrity and Step Rate Tests

11/16/92 Rig up injection pump and water truck on well No. 51. Tested pump; made 5.45 GPM. Pumped the following 15 minute steps:

Step	Sec. Per 5 Gal	Bypassed GPM	Down Hole GPM	Total GPM	Begin PSI	End PSI
0					0	0
1	64	4.69	.31	5.00	80	85
2	65	4.62	.83	5.45	115	120
3	67	4.48	.97	5.45	139	144
4	75	4.00	1.45	5.45		170
5	155	1.94	3.51	5.45	200	220

Run Mechanical Integrity Test. Pressure test annulus to 300 psi for 30 minutes, held OK and passed test.

The Step Rate Test indicates a parting pressure of about 170 psi which was reached at an injection rate of 1.4 GPM (48 BWIPD).

11/16/92 Rig up injection pump and water truck on well No. 41. Tested pump; made 5.17 GPM. Pumped the following 15 minute steps:

Step	Sec. Per 5 Gal	Bypassed GPM	Down Hole GPM	Total GPM	Begin PSI	End PSI
0						70
1	60	5.00	.17	5.17		115
2	62	4.84	.33	5.17	180	197
3	66	4.55	.62	5.17	220	235
4	105	2.86	2.31	5.17	248	255
5	420	.71	4.46	5.17	270	280

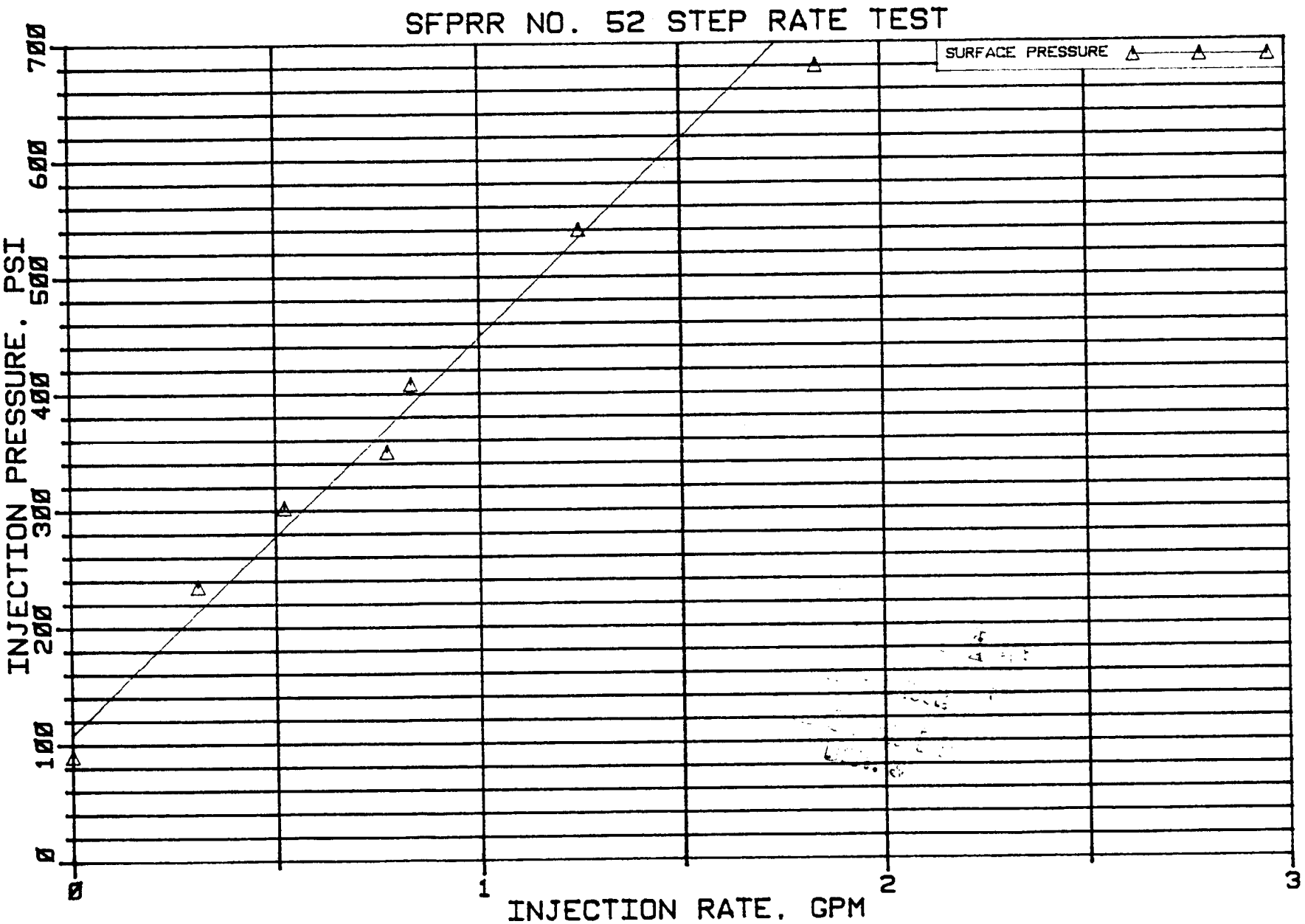
Run Mechanical Integrity Test. Pressure test annulus to 300 psi for 30 minutes, held OK and passed test.

The Step Rate Test indicates a parting pressure of 234 psi which was reached at an injection rate of .6 GPM (21 BWIPD).

11/16/92 Rig up injection pump and water truck on well No. 52. Run Mechanical Integrity Test. Pressure test annulus to 300 psi for 30 minutes, held OK and passed test. Tested injection pump; made 5 GPM. Pumped the following 15 minute steps:

Step	Sec. Per 5 Gal	Bypassed GPM	Down Hole GPM	Total GPM	Begin PSI	End PSI
0						90
1	64	4.69	.31	5.00	220	235
2	67	4.48	.52	5.00	290	302
3	71	4.23	.77	5.00	350	350
4	72	4.17	.83	5.00	400	408
5	80	3.75	1.25	5.00	515	540
6	95	3.16	1.84	5.00	670	680

The Step Rate Test does not clearly indicate a parting pressure, however, the last rate recorded deviates considerably from the best fit line through the data. it may indicate a parting pressure of about 660 psi.


SFPRR NO. 52 STEP RATE TEST
SURFACE PRESSURE
INJECTION PRESSURE. PSI
700
600
500
400
300
200
100
0
0
1
2
3
INJECTION RATE. GPM