

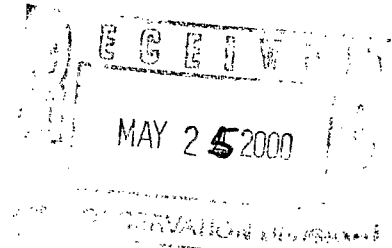


Manzano Oil Corporation

P.O. Box 2107
Roswell, New Mexico 88202-2107
(505) 623-1996
FAX (505) 625-2620

May 22, 2000

Mr. David Catanach
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87507



Re: Benson Shugart Waterflood
Case #10686
Order #R-9895

Dear Mr. Catanach:

Enclosed is a step rate test for the Benson Shugart Waterflood well #7. Manzano requests an increase in injection pressure based upon your analysis of the test data.

Manzano also requests an increase in injection pressure for the BSWU #6 since open hole log analysis indicates comparable net pay and porosity for each perforated zone. BSWU #6 is the north offset injection well to BSWU #7. Please refer to the attached map.

Very truly yours,

Donnie E. Brown
VP Engineering

#6 30-015-27644

DB:ah

#7 30-015-27546

Enclosures

56439 Shugart-Yates-Ters-Qu-Grbg
2 3/4 T
P@ 100' upmost part
0.2

Step Rate Injection Test

Injection Pressure, psi Vs. Rate BHPD

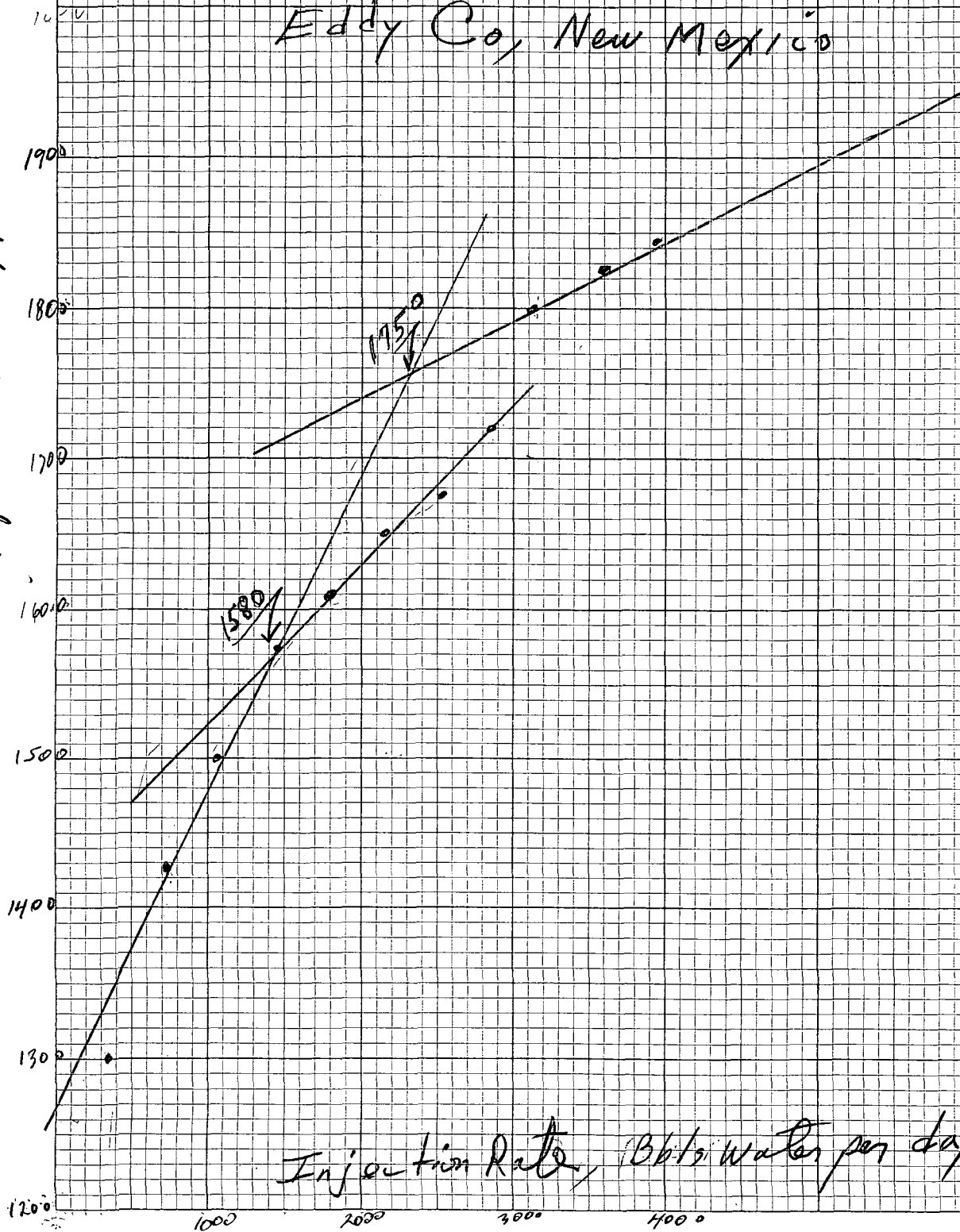
Benson Shugart Waterflood Unit #7

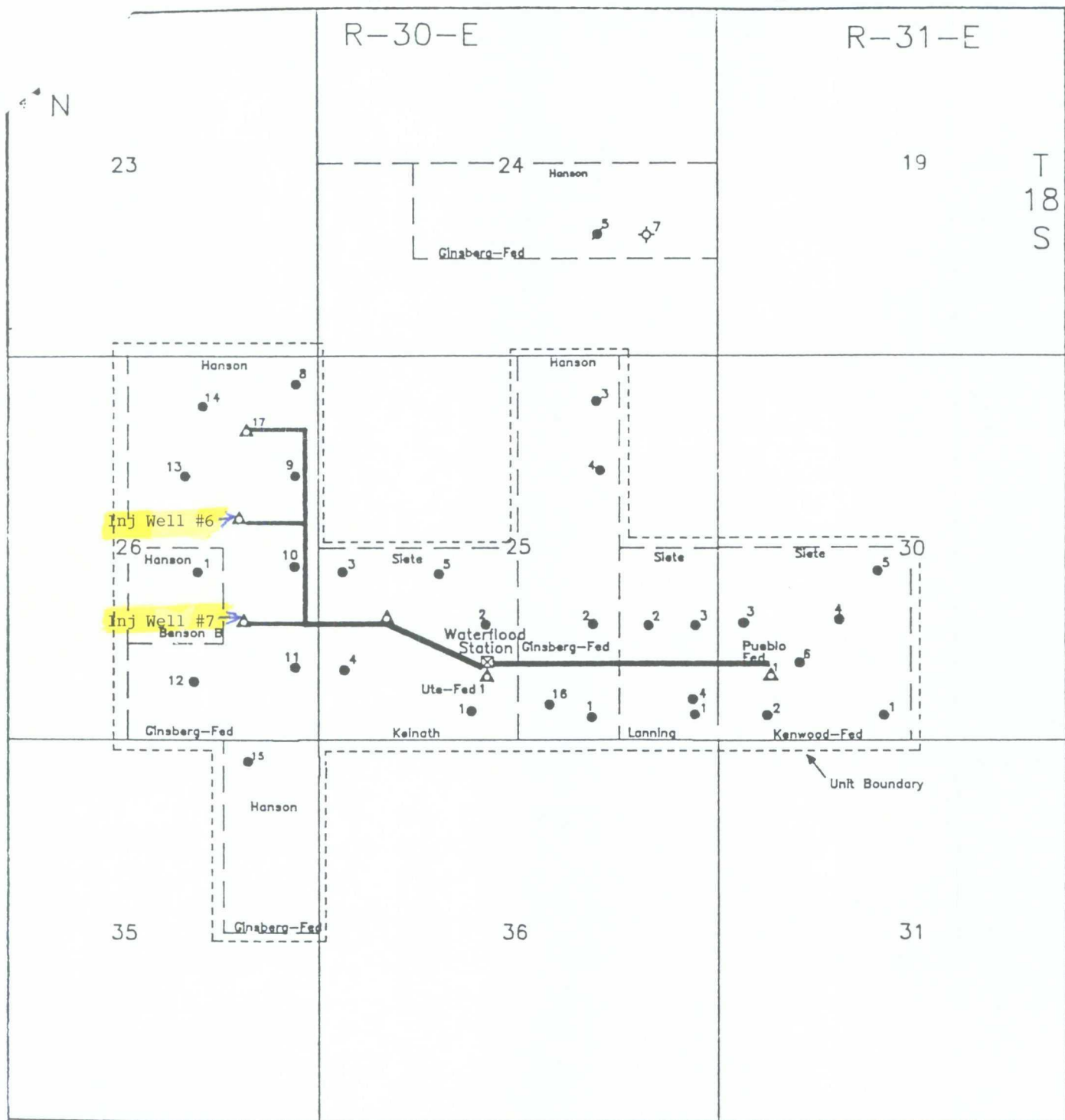
Unit I, Sec 26, T18S, R30E

Eddy Co, New Mexico

K&E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

Surface Injection Pressure, psi





- 2 7/8" Plastic Coated Line
- 2 3/8" Plastic Coated Line
- △ Proposed Injectors
- Producers

MANZANO OIL CORPORATION

SHUGART WATERFLOOD

Injection Lines

4-12-92 Exhibit "C"

MANZANO BSWU #7

April 27, 2000

STEP RATE

2 3/8" Tubing

Packer @ 3377'

Bottom perf @ 3444'

Hydrostatic Head @ 3400' is 1472 psi.

<u>RATE</u>	<u>TBG PRESSURE</u>	<u>FRICTION PRESSURE</u>	<u>BHP</u>	<u>RATE BBLs/DAY</u>
0.25	1300	14	2758	360
0.50	1425	20	2877	720
0.75	1500	40	2932	1080
1.00	1575	61	2987	1440
1.25	1610	91	2991	1800
1.50	1650	128	2994	2160
1.75	1675	169	2978	2520
2.00	1720	216	2976	2880
2.30	1800	257	3015	3312
2.50	1825	321	2976	3600
2.75	1845	405	2912	3960

FREEMYER TECHNICAL SERVICES, LLC.

DATE 4-27-00

WELL NAME AND NUMBER B.S.W.U. #7		LOCATION Grayburg	CUSTOMER REPRESENTATIVE		TREATMENT NUMBER 1250																																																																		
POOL		FORMATION N.m.	JOB DONE DOWN TUBING ☒ A ☐ CASING ☐ B ☐ ANNULUS ☐ C		ALLOWABLE PRESSURE 2500 CSQ																																																																		
COUNTY Eddy	STATE N.m.	TYPE OF WELL OIL ☐ A ☐ GAS ☐ B ☐ WATER ☐ C ☒ IN ☐ D																																																																					
TYPE OF SERVICE Step RATE Injection Test		AGE OF WELL NEW WELL ☐ A ☐ REWORK ☒ B		PACKER TYPE	PACKER DEPTH																																																																		
CUST. NAME MANZANO Oil		CASING SIZE 5 1/2 15.5	CASING DEPTH	TUBING SIZE 2 3/8 4.7	TUBING DEPTH 3328																																																																		
ADDRESS		LINER SIZE	LINER TOP	LINER BOTTOM	TOTAL DEPTH 3550																																																																		
CITY, STATE & ZIP CODE		OPEN HOLE	CSQ. OR ANRL. VOL.	TGB VOLUME 13.1	STATIC BHT.																																																																		
REMARKS:		<table border="1"> <thead> <tr> <th>DEPTH</th> <th>NO. OF HOLES</th> <th>DEPTH</th> <th>NO. OF HOLES</th> <th>DEPTH</th> <th>NO. OF HOLES</th> </tr> </thead> <tbody> <tr> <td>3436</td> <td>—</td> <td>3444</td> <td></td> <td></td> <td></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>				DEPTH	NO. OF HOLES	DEPTH	NO. OF HOLES	DEPTH	NO. OF HOLES	3436	—	3444																																																									
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7:15 Safety Meeting					REMARKS
TIME	RATE	BBLS IN	CSQ	TBG	
8:26	.3	8.7	0	1300	START Step RATE Injection test
8:45	.5	17.0	0	1425	Increase Injection RATE
9:00	.75	29.6	0	1500	"
9:15	1.0	43.9	0	1575	"
9:30	1.25	63.8	0	1610	"
9:45	1.5	83.5	0	1650	"
10:00	1.75	111.9	0	1675	"
10:15	2.0	144.7	0	1720	"
10:30	2.3	173.5	0	1800	"
10:45	2.5	216	0	1825	"
11:00	2.7	240		1840	"
11:12	2.7			1840	Step RATE Test Complete ISIP - 1400

TIME LEFT LOCATION		AVER. LIQUID INJ. RATE			
MAX PRESSURE		AVER. PRESSURE		SHUT IN PRESSURE 1400	
TOTAL FLUID		ENGINEER		IMMEDIATE 15 MINUTES	
CALL BACK	DATE	CUSTOMER REP. CONTACTED	Customer Considered Service ☐	Satisfactory Unsatisfactory Unknown ☐	PRODUCT BEFORE TREATMENT ☐ TEST
			PRODUCT AFTER TREATMENT ☐ TEST		ALLOWABLE ☐

EXHIBIT "A"

CASE NO. 10686
ORDER NO. R-9895

Hanson Operating Company, Inc.

**Proposed Injection Well Locations
Benson Shugart Waterflood Unit Area
Eddy County, New Mexico**

Well Name, Number and Location	Proposed Injection Interval (Feet)	Maximum Surface Injection Pressure (PSI)	Classification
Pueblo Federal Well No. 1 930' FSL - 660' FWL (Unit M) 30-18S-31E	2469 - 2487	495	Conversion
Ute Federal Well No. 1 930' FSL - 2310' FWL (Unit N) 25-18S-30E	2469 - 2487	495	Conversion
Ginsberg Federal Well No. 17 990' FN & EL (Unit A) 26-18S-31E	3074 - 3398	615	Conversion
WELL #6 Ginsberg Federal Well No. 18 SE/4 NE/4 (Unit H) 26-18S-30E	3160 - 3460	630	New Drill
WELL #7 Ginsberg Federal Well No. 19 NE/4 SE/4 (Unit I) 26-18S-30E	3190 - 3490	640	New Drill
Keinath Federal Well No. 6 NW/4 SW/4 (Unit L) 25-18S-30E	3180 - 3480	635	New Drill