NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

WFX-614
pDEV0020600614

September 18, 1995

Cross Timbers Operating Company
P.O. Box 52070
Midland, Texas 79710

Attn: Mr. Ray F. Martin

RE: Injection Pressure Increase Southeast Maljamar Grayburg San Andres Unit Waterflood Project Lea County, New Mexico

Dear Mr. Martin:

Reference is made to your request dated September 5, 1995 to increase the surface injection pressure on 1 well on the above referenced projecty. This request is based on a step rate test conducted on August 24, 1995. The results of the test have been reviewed by my staff and we feel an increase in injection pressure on this well is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following well:

Well and Location	Maximum Injection Surface Pressure
Southeast Maljamar Grayburg San Andres Tract 6, No.9 Unit L, Section 29, Township 17 South, Range 33 East	2290 PSIG
This well located in Lea County, New Mexico.	

The Division Director may rescind this injection pressure increase if it becomes apparent that the injected water is not being confined to the injection zone or is endangering any fresh water aquifers.

Sincerely,

William J. LeMay
Director

WJL/BES

OFFICE OF THE SECRETARY - P. O. BOX 6429 - SANTA FE, NM 87505-6429 - (505) 827-5950
ADMINISTRATIVE SERVICES DIVISION - P. O. BOX 6429 - SANTA FE, NM 87505-6429 - (505) 827-5925
ENERGY CONSERVATION AND MANAGEMENT DIVISION - P. O. BOX 6429 - SANTA FE, NM 87505-6429 - (505) 827-5900
FORESTRY AND RESOURCES CONSERVATION DIVISION - P. O. BOX 1948 - SANTA FE, NM 87504-1948 - (505) 827-5830
MINING AND MINERALS DIVISION - P. O. BOX 6429 - SANTA FE, NM 87505-6429 - (505) 827-5970
OIL CONSERVATION DIVISION - P. O. BOX 6429 - SANTA FE, NM 87505-6429 - (505) 827-7131
PARK AND RECREATION DIVISION - P. O. BOX 1147 - SANTA FE, NM 87504-1147 - (505) 827-7465

cc: Oil Conservation Division - Hobbs
Files: WFX-614; PSI-X 1st QTR 96
Data Processing - Rick Brown

PSI-X N/R

Cross Timbers Operating Company

OIL CONSERVATION DIVISION
RECEIVED
'95 SEP 5 AM 8 52

August 31, 1995

Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87504

Re: Injection Well Pressure Limit Increase Application
SMGSAU TR 6 #9
L-29-17S-33E
API# 30-025-31446

Attached are the results of the Step Rate Test conducted on 8/24/95 by John West Engineering on the above referenced well. The injection rate versus wellhead pressure plot indicates that a wellhead pressure of 2,240 psig is required to fracture the reservoir. Based the fracture pressure determined for this well, Cross Timbers Operating Company requests that the approved injection pressure limit currently 831 psig be increased to 2,000 psig.

If you have any questions, please contact me at 915/682-8873.

Sincerely,

CROSS TIMBERS OPERATING COMPANY

Ray F. Martin

Ray F. Martin
Operations Engineer

RFM/bu
Enclosures

cc: RFM File
Well File
OCD District I

P.O. Box 52070, Midland, Texas 79710
3000 North Garfield, Suite 250, Midland, Texas 79705
(915) 682-8873 Fax (915) 687-0862

WEST-TEST, INC.

A SUBSIDIARY OF JOHN WEST ENGINEERING COMPANY
Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: CROSS TIMBERS OPERATING CO.

DATE: AUGUST 24, 1995

WELL NAME: S.M.G.S.A.U. TRACT 6 NO.9
LEA COUNTY, NEW MEXICO

WO#: 95-14-1241

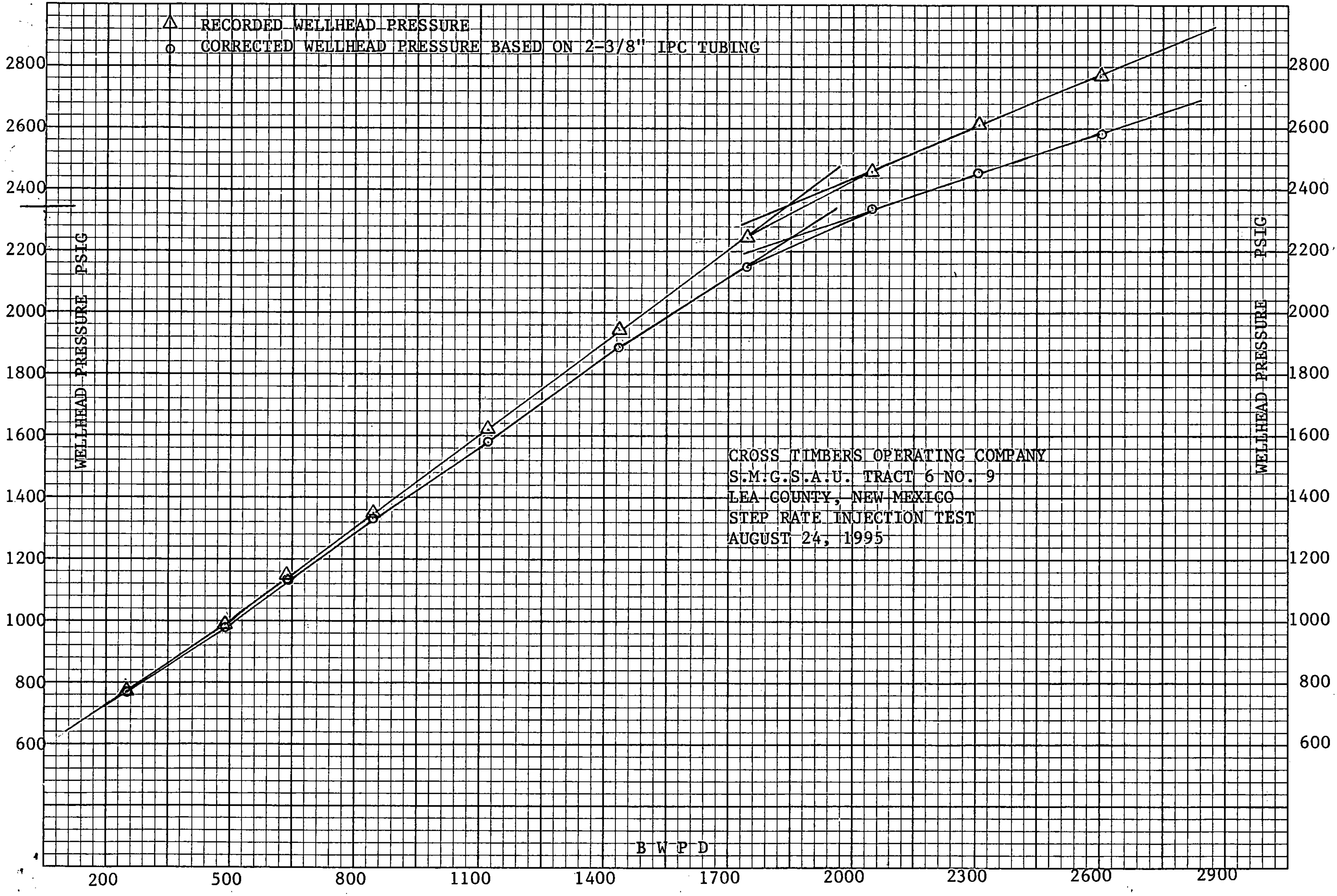
PERFS = 4153-4278

PACKER DEPTH = 4122

BHP GAUGE DEPTH = 4215 SURFACE ONLY

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	9:45	618.4				618.4		
	9:50	706.9	0.9	259.2	2.633	704.3	7.56	
	9:55	748.0	1.7	230.4	2.117	745.9	6.72	
1	10:00	768.0	2.6	259.2	2.633	765.4	7.56	
				249.6				
	10:05	892.5	4.3	489.6	8.539	884.0	14.28	
	10:10	942.4	6.0	489.6	8.539	933.9	14.28	
2	10:15	987.2	7.7	489.6	8.539	978.7	14.28	
				489.6				
	10:20	1073.3	9.9	633.6	13.758	1059.5	18.48	
	10:25	1117.1	12.1	633.6	13.758	1103.3	18.48	
3	10:30	1152.1	14.4	662.4	14.938	1137.2	19.32	
				643.2				
	10:35	1268.2	17.3	835.2	22.936	1245.3	24.36	
	10:40	1319.5	20.3	864.0	24.421	1295.1	25.20	
4	10:45	1350.7	23.2	835.2	22.936	1327.8	24.36	
				844.8				
	10:50	1508.1	27.1	1123.2	39.679	1468.4	32.76	
	10:55	1571.7	31.0	1123.2	39.679	1532.0	32.76	
5	11:00	1620.5	34.9	1123.2	39.679	1580.8	32.76	
				1123.2				
	11:05	1802.8	39.9	1440.0	62.832	1740.0	42.00	
	11:10	1900.2	44.9	1440.0	62.832	1837.4	42.00	
6	11:15	1951.3	49.9	1440.0	62.832	1888.5	42.00	
				1440.0				
	11:20	2136.2	55.9	1728.0	88.037	2048.2	50.40	
	11:25	2204.9	62.0	1756.8	90.771	2114.1	51.24	
7	11:30	2241.1	68.1	1756.8	90.771	2150.3	51.24	
				1747.2				

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)−(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	11:35	2409.8	75.2	2044.8	120.203	2289.6	59.64	
	11:40	2442.3	82.3	2044.8	120.203	2322.1	59.64	
8	11:45	2467.3	89.4	2044.8	120.203	2347.1	59.64	
				2044.8				
	11:50	2556.1	97.4	2304.0	149.900	2406.2	67.20	
	11:55	2592.5	105.4	2304.0	149.900	2442.6	67.20	
9	12:00	2613.7	113.4	2304.0	149.900	2463.8	67.20	
				2304.0				
	12:05	2740.3	122.4	2592.0	186.395	2553.9	75.60	
	12:10	2762.9	131.4	2592.0	186.395	2576.5	75.60	
10	12:15	2773.0	140.5	2620.8	190.245	2582.8	76.44	
				2601.6				
FALLOFF	12:16	2479.8				2479.8		
	12:17	2438.6				2438.6		
	12:18	2408.6				2408.6		
	12:19	2381.1				2381.1		
	12:20	2353.6				2353.6		
	12:25	2222.4				2222.4		
	12:30	2087.4				2087.4		



CROSS TIMBERS OPERATING COMPANY
S.M.G.S.A.U. TRACT 6 NO. 9
LEA COUNTY, NEW MEXICO
STEP RATE INJECTION TEST
AUGUST 24, 1995