TPI

PMAM1432856927

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



ADMINISTRATIVE APPLICATION CHECKLIST

TI	HIS CHECKLIST IS M	NDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR		ES AND REGULATIONS
Annile	cation Acronym	WHICH REQUIRE PROCESSING AT THE DIVISION	IN LEVEL IN SANTA FE	
- Philip	[NSL-Non-Star [DHC-Down [PC-Po	idard Location] [NSP-Non-Standard Proration shole Commingling] [CTB-Lease Comminglis of Commingling] [OLS - Off-Lease Storage] [WFX-Waterflood Expansion] [PMX-Pressure [SWD-Salt Water Disposal] [IPI-Injection	ng] [PLC-Pool/Lease Co [OLM-Off-Lease Measu • Maintenance Expansion • Pressure Increase] [PPR-Positive Production	ommingling] rement] i] Response]
[1]	TYPE OF AF	PLICATION - Check Those Which Apply for	[A] - IPI	
	[A]	Location - Spacing Unit - Simultaneous Dedic	eation - Choss	Timbers Energy
	Check	One Only for [B] or [C]	- '	-77
	[B]	Commingling - Storage - Measurement		LEII
	[C]	☐ DHC ☐ CTB ☐ PLC ☐ PC Injection - Disposal - Pressure Increase - Enha ☐ WFX ☐ PMX ☐ SWD ☒ IP	OLS OLM	Licil - South cast Mayon, C-18/54 #105 30-025-26512 South east marythm
	[D]	Other: Specify		South ELST MALJAMA
[2]	NOTIFICAT [A]	ION REQUIRED TO: - Check Those Which A Working, Royalty or Overriding Royalty	Apply, or Does Not App Interest Owners	South East 1
	[B]	Offset Operators, Leaseholders or Surface	e Owner	6-13/5 A#617
	[C]	Application is One Which Requires Publ	lished Legal Notice	Poul - MANSAMAL Graybung SAN
	[D]	Notification and/or Concurrent Approval U.S. Bureau of Land Management - Commissioner of Public U	by BLM or SLO ands, State Land Office	Contybung san
	[E]	U.S. Bureau of Land Management - Commissioner of Public Li For all of the above, Proof of Notification Weissess are Attached	n or Publication is Attache	ed, and/or, Andre
	[F]	☐ Waivers are Attached		43229
[3]	The second secon	CURATE AND COMPLETE INFORMATION INDICATED ABOVE.	ON REQUIRED TO PR	OCESS THE TYPE
	val is accurate	TION: I hereby certify that the information sub and complete to the best of my knowledge. I also quired information and notifications are submit	o understand that no action	
	Note	: Statement must be completed by an individual with m	anagerial and/or supervisory o	apacity.
Rot	bie A Grigg	Bold of Sheet	Reg Compliance	11/25/2014
Print	or Type Name	Signature / /D	Title	Date
			rgrigg@mspartner e-mail Address	s.com
			C-IIIIII AUUI C55	



STEP RATE TEST

SEMGSAU #105

September 29, 2014

WELL: SEMGSAU #105
DATE: 9/31/2014
WATER SG 1.07
WATER GRADIENT 0.463
DEPTH, MID-PERF 4,103
DEPTH, BOMB 3,870

DO NOT EXCEED 3600 PSI INJECTION PRESSURE

ВРМ	BPD	SFC PSI	dPSI	(MEAS.)	dPSI	BH PSI (CALC.)	dPSI	REMARKS	d(PSI/	BPM)
0.00	0	1,480		3,154		3,273	-	1.000	-4	
0.25	360	1,625	145	3,192	38	3,411	138			
0.35	504	1,850	225	3,240	48	3,630	218			480
0.50	720	2,050	200	3,280	40	3,815	185			267
0.75	1,080	2,200	150	3,315	35	3,943	128		-	140
1.00	1,440	1,900	-300	3,357	42	3,609	-334	FRACTURE PSI @ 2060#, SURFACE		168
1.50	2,160	2,200	300	3,412	55	3,825	216			110
2.20	3,168	2,500	300	3,476	64	3,924	99			91
2.70	3,888	2,600	100	3,534	58	3,874	-51			116
3.20	4,608	2,750	150	3,580	46	3,772	-101			92
3.70	5.328	3100	350	3596	16	3 888	115			32



JOB INFORMATION SHEET

	Company Information	
Company Name:	Cross Timbers	
	Well Information	
Well Name:	SEMGSAU #105	
Location:	South East Maljamar GB/SA #105	
Field - Pool:	Maljamar Maljamar	
Status:	Injection	
	Test Information	The second se
Type of Test:	Step Rate Test	CYCLE CONTROL OF THE
Gauge Depth:	3870 ft —	
Production Interval:	3897' - 4213'	
Production Through:		
Tubing Pressure:		
Casing Pressure:		
Shut In Time		
Status:	Injecting	THE RESERVE OF THE PERSON OF T
Temperature @ Run Depth	92.75 degF	
Surface Temperature:	60.99 degF	
	Gauge Information	
	Top Recorder	Bottom Recorder
Serial Number:	79513	No bottom records)
Calibration Date:	11/1/13	No bottom records
Pressure Range:	10000 psi	
	Comments	

Pressure and Temperature Report

SEMGSAU #105

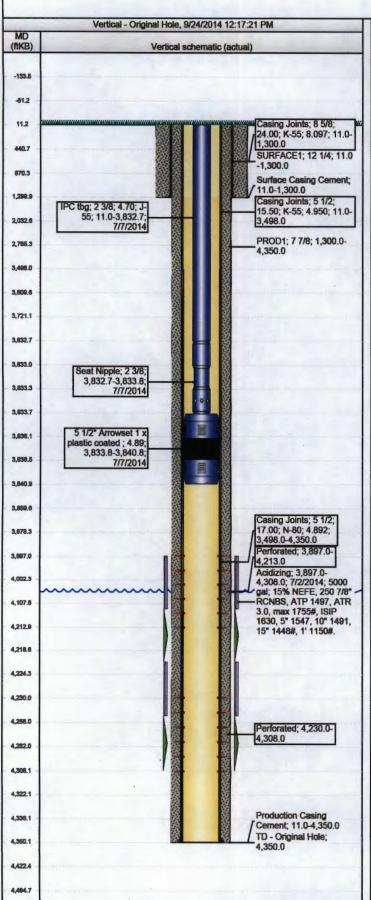
CONTRACTOR OF THE PARTY OF THE	Rate Bpd	Pressure psi	Temperature degF	Surface Psi
Set	0.00	3141.40	86.73	1480
Stg 1	360.00	3190.64	86.28	1625
Stg 2	504.00	3233.55	84.65	1850
Stg 3	720.00	3278.83	83.29	2050
Stg 4	1080.00	3323.16	82.84	2200
Stg 5	1440.00	3357.17	80.37	1900
Stg 6	2160.00	3416.01	79.31	2200
Stg 7	3168.00	3466.59	78.55	2500
Stg 8	3888.00	3546.22	78.12	2600
Stg 9	4608.00	3586.40	78.49	2750
Stg 10	5328.00	3593.11	78.85	3100

Analysis Summary

Allalysis ou	
Depth ft	Gradient psi/ft
0.00	
	0.0848
5328.00	



Schematic & History PI/I IWI County State/Province ield Name SOUTHEAST MALJAMAR GB/SA UNIT 105 3002526512 Lea **New Mexico** MALJAMAR Longitude (°) 33E 32° 49' 59.556" N 2490 FSL & 1595 FEL 175 30 103° 41' 54.564" W Original KB Elevation (ft) Ground/Corrected Ground Elevation (ft) KB-Ground Distance (ft) Spud Date 4,061.00 4,050.00 11.00 Vertical - Original Hole, 9/24/2014 12:17:21 PM Johs Туре Start Date (ftKB) Vertical schematic (actual) Lift Optimization 7/1/2009 Lift Optimization 4/21/2011 -133.5 Change Rod Pump 11/8/2013 6/30/2014 Convert well to Injection POOH rods & pmp, LD. POOh tbg, RIH bit -61.2 & scrpr, acidize existing perfs, install inj equip, SI & wait for OCD permit. Casing Joints; 8 5/8; 24.00; K-55; 8.097; 11.0-11.2 **Wellbore Sections** 1.300.0 440.7 Section Des Act Top (ftKB) Act Btm (ftKB) SURFACE1; 12 1/4; 11.0 SURFACE1 Original Hole 12 1/4 11.0 1,300.0 1.300.0 Act Too (ffKB) 870.3 Section De Wellbore Nam Size (in) Btm (ftKB) Surface Casing Cement; PROD1 Original Hole 7 7/8 1,300.0 4,350.0 11.0-1,300.0 Surface 1,300.0 ftKB <Run Date?> Casing Joints; 5 1/2: IPC tbg; 2 3/8; 4.70; J-15.50; K-55; 4.950; 11.0-55; 11.0-3,832.7 3.498.0 7/7/2014 OD (in) Wt (lb/ft) Grade Top (ftKB) Btm (ftKB) Len (ft) PROD1; 7 7/8; 1,300.0-2.785.3 1,300.0 1,289.00 Casing Joints 24.00 K-55 8 5/8 11.0 4.350.0 Production 4,350.0 ftKB <Run Date?> 3,600.6 OD (in) Wt (lb/ft) Grade Top (ftKB) Btm (ftKB) Len (ft) 5 1/2 15.50 K-55 11.0 3,498.0 3,487.00 Casing Joints 3,721.1 17.00 N-80 4,350.0 852.00 Casing Joints 3,498.0 5 1/2 **Cement Stages** Top (ftKB) Btm (ftKB) Top Meas Meth Description Surface Casing 11.0 1,300.0 Cement CMTD W/460 SX HLC Seat Nipple; 2 3/8; Cement Returns W/2% CaCl2 & 1/4#/SX 3,832.7-3,833.8 3,833.3 CF & 200 SX CL "C" CMT 7/7/2014 W/2% Cacl2, CIRC 125 3,833,7 SX CMT TO SURF. Top (ftKB) Btm (ftKB) 5 1/2" Arrowset 1 x 3,836,1 **Production Casing** 11.0 4,350.0 Cement CMT'D 1ST STG W/160 stic coated ; 4.89; Returns SX CL "H" CMT w/3#/SX Cement 3,833.8-3,840.8 3,838,5 7/7/2014 SALT, 3#/SX GILSONITE & 3#/SX SD. CMT'd 2ND 3,840.9 STG w/1,600 SX HLC w/15#/SX SALT & 1/4#/SX 3,869.6 CF & 200 SX CL "C" W/2% asing Joints; 5 1/2; CaCl2. CIRC 200 SX TO 17.00; N-80; 4.892; 3,878.3 SURF. NO FLOW FR/8-3,498.0-4,350.0 5/8" X 5-1/2" ANNULUS. Perforated; 3,897.0-3,897.0 Perforations 4,213.0 Acidizing; 3,897.0-4 002 3 4,308.0; 7/2/2014; 5000 gal; 15% NEFE, 250 7/8" RCNBS, ATP 1497, ATR Date Total Top (ftKB) Btm (ftKB) 4,107.6 3.0, max 1755#, ISIF 3,897.0 PREMIER, Original Hole 4,213.0 1630, 5" 1547, 10" 1491, 4,308.0 4.230.0 SAN ANDRES, Original Hole 4.212.9 15" 1448#, 1' 1150#. Stim/Treat Stages 4.218.6 Start Date Type Top (ftKB) Btm (ftKB) Acidizing 7/2/2014 3,897.0 4,308.0 5000 gal; 15% NEFE, 250 4 224 3 7/8" RCNBS, ATP 1497, ATR 3.0, max 1755#, ISIP 4,230.0 1630, 5" 1547, 10" 1491, 15" 1448#, 1' 1150#. Perforated; 4,230.0-Other In Hole 4,308.0 OD (in) Run Date Top (ftKB) Btm (ftKB) 4,282.0 Com Tubing - Water Injection set at 3,840.8ftKB on 7/7/2014 07:09 4.322.1 3,840.8 7/7/2014 Item Des OD (in) Wt (lb/ft) Grade Top (ftKB) Btm (ftKB) Production Casing Cement; 11.0-4,350.0 4.338.1 3,821.68 IPC tba 2 3/8 4.70 J-55 118 11.0 3,832.7 TD - Original Hole; 4,350.0 4,422,4



Item Des	OD (in) Wt (ib/ft)	Grade	Len (ft)	Jts	Top (ftKB)	Btm (ftKB)
Seat Nipple	2 3/8		1.10	1	3,832.7	3,833.8
5 1/2" Arrowset 1 x plastic coated	4.89		7.00	1	3,833.8	3,840.8

Rod Description

Item Des	OD (in)	Grade	Jts	Len (ft
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CROSS TIMBERS ENERGY, LLC

October 31, 2014

New Mexico EMNRD Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Re: Request for Maximum Injection Pressure Increase

Southeast Maljamar GB/SA Unit #105

API No. 30-025-26512

Pool No. 43329 Maljamar; Grayburg-San Andres

Lea County, New Mexico

Cross Timbers Energy, LLC respectfully requests a maximum surface pressure increase for the above referenced water injection well to 2060 psi at a rate of 1400 BPD.

See attached wellbore schematic and step rate test.

Sincerely,

Robbie Grigg

Cross Timbers Energy, LLC

817-334-7842

rgrigg@mspartners.com

Unplotted

2060 psi - 50 psi safity

2010 psi

Plotted

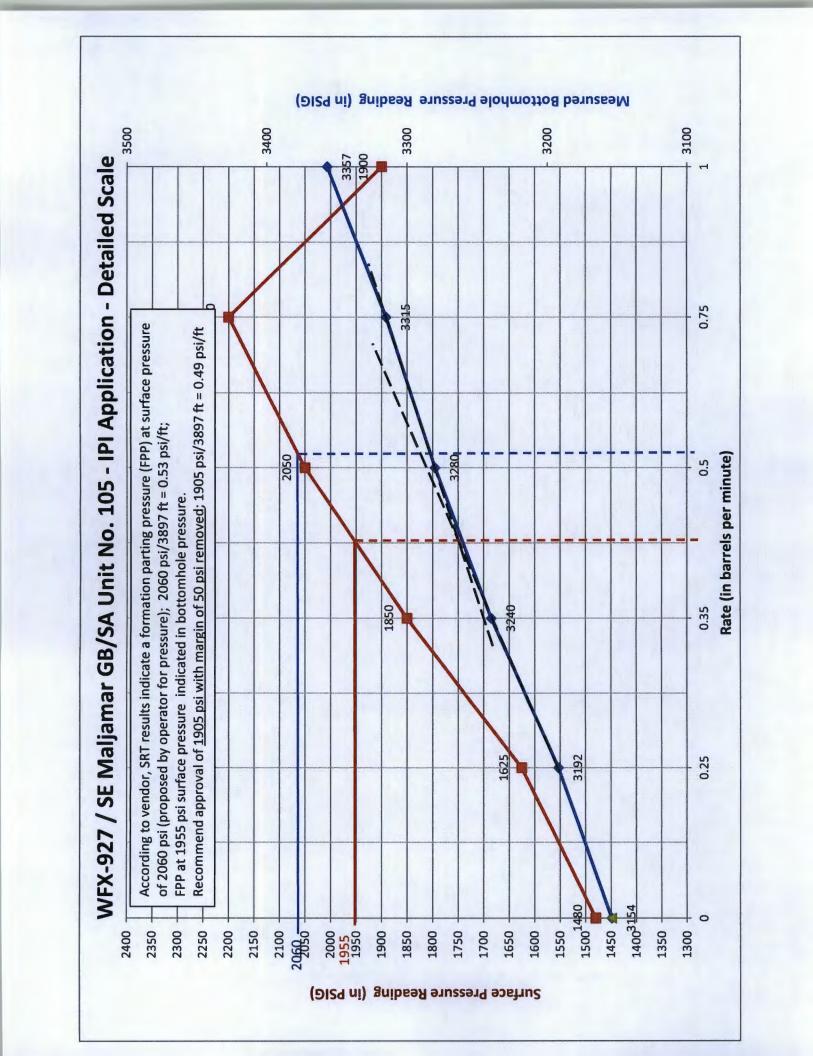
955 psi

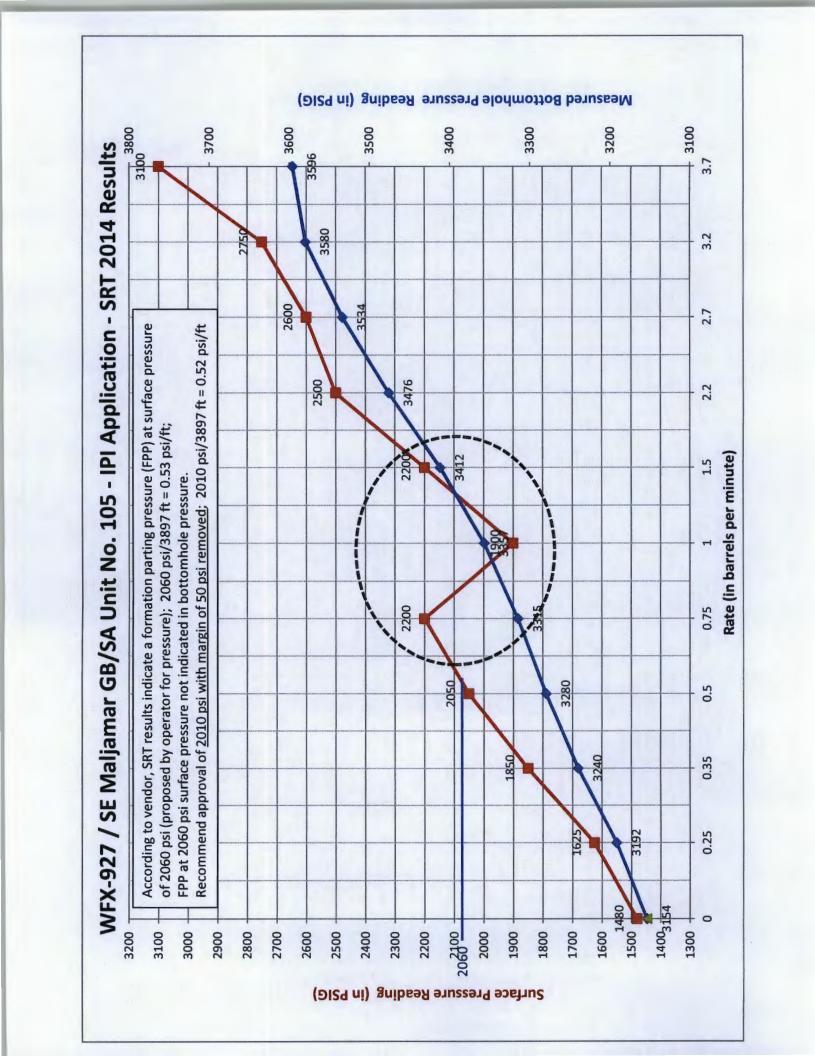
- 50 psi

MO:5/3897'

PHONE: 817-334-7860

X



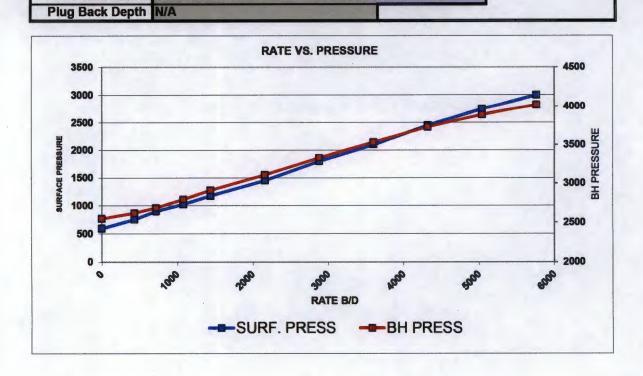




Southeast Maljamar Unit #617

October 27, 2014

KENE	- 1/				
	SERV	IDEST	STEP RAT	E TEST	
					-
RATE B/D	Date	Time	BH PRESS	SURF. PRESS	Comments
0	10/28/2015	8:17 AM	2546	592	
432	10/28/2015	8:57 AM	2617	750	
720	10/28/2015	9:23 AM	2685	900	
1080	10/28/2015	9:50 AM	2792	1025	
1440	10/28/2015	10:17 AM	2910	1175	
2160	10/28/2015	10:46 AM	3107	1450	
2880	10/28/2015	11:16 AM	3328	1800	
3600	10/28/2015	11:47 AM	3532	2100	
4320	10/28/2015	12:13 PM	3729	2450	
5040	10/28/2015	12:42 PM	3888	2750	
5760	10/28/2015	12:12 PM	4018	3000	
Fall Off	10/28/2015	2:32 PM	3678	1800	
Company:	Cross Timbe	ers		Recorded By:	M. Flores
	Southeast M		nit #617	Witnessed By:	
Field:	Southeast M	laljamar		Truck Number:	33
County:				District:	Levelland
State:	New Mexico			Tool Number:	
Injector:	WATER			Test Type:	STEP RATE TESTS
Shut In Time:					*
Total Shut In Time:					
Tubing Size:	2 3/8"				
Seat Nipple Depth:	N/A				
		4344'-4346	5' / 4349'-4351' /	4366'-4368'	



WELL: SEMGSAU #617 DATE: WATER SG **DO NOT EXCEED 3600 PSI INJECTION PRESSURE** 1.07 WATER GRADIENT 0.463 DEPTH, MID-PERF 4,312 DEPTH, BOMB 4,240 CALL IAN PETERSEN (ENGINEER) WITH QUESTIONS/CONCERNS @ 432-634-4922 BH PSI BH PSI (MEAS.) (CALC.) dPSI **BPM** BPD SFC PSI dPSI dPSI REMARKS d(PSI/BPM) 0.00 2,546 0 592 2,556 0.30 432 750 158 2,617 2,707 151 0.50 720 900 150 2,685 2,833 126 750 1,025 0.75 1,080 125 2,792 2,934 101 500 1.00 1,440 1,175 150 2,910 3,048 113 600 3,107 1.50 2,160 1,450 275 550 3,231 183 2.00 2,880 1,800 350 3,328 3,361 130 700 2.50 3,600 2,100 300 3,532 3,495 600 135 75 FRACTURE @ 2370 PSI, SURF. 3.00 4,320 2,450 350 3,729 3,570 700 3.50 5,040 2,750 300 3.888 3,613 43 600

500



JOB INFORMATION SHEET

	Company Information				
Company Name:	Cross Timbers				
	Well Information				
Well Name:	Southeast Maljamar Unit #617				
Location:					
Field - Pool:	Southeast Maljamar Unit #617				
Status:	Injection				
	Test Information				
Type of Test:	Pressure Survey				
Gauge Depth: 4240 ft					
Production Interval: 4255'-4289' / 4344'-4346' / 4346'-4351' / 4366-4368'					
Tubing Pressure:	531 psi				
Status:	Injecting				
Temperature @ Run Depth	87.72 degF				
Surface Temperature:	66.85 degF				
	Gauge Information				
	Top Recorder Bottom Recorder				
Serial Number:	79515				
Calibration Date:	11/1/13				
Pressure Range:	10000 psi				
	Comments /				

Gradient Data Report

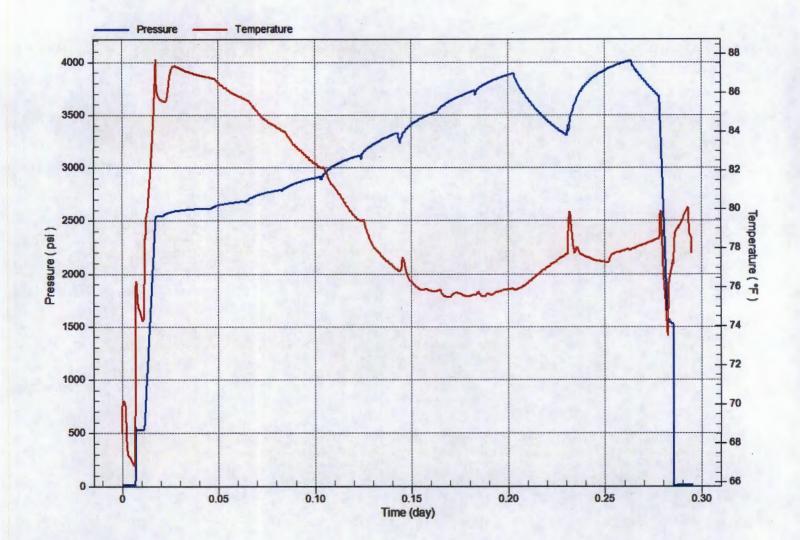
Southeast Maljamar Unit #617

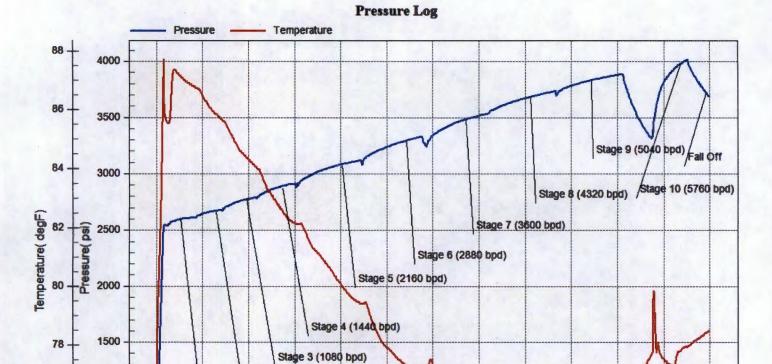
Gradient Data Table

Depth ft	Pressure psi	Temperature degF	Gradient psi/ft
0.00	527.45	74.37	0.0000
432.00	2618.00	86.74	4.8392
720.00	2678.78	85.62	0.2110
1080.00	2792.55	84.06	0.3160
1440.00	2908.25	82.27	0.3214
2160.00	3110.63	79.51	0.2811
2880.00	3333.27	76.89	0.3092
3600.00	3534.42	75.86	0.2794
4320.00	3733.75	75.61	0.2768
5040.00	3886.34	75.91	0.2119
5760.00	4018.64	77.95	0.1838
6000.00	3678.36	78.52	-1.4178

Analysis Summary

Alaiysis Guil	illiai y
Depth ft	Gradient psi/ft
0.00	
	0.5252
6000.00	
and the same of	
March 1880	
	1 2 2 2



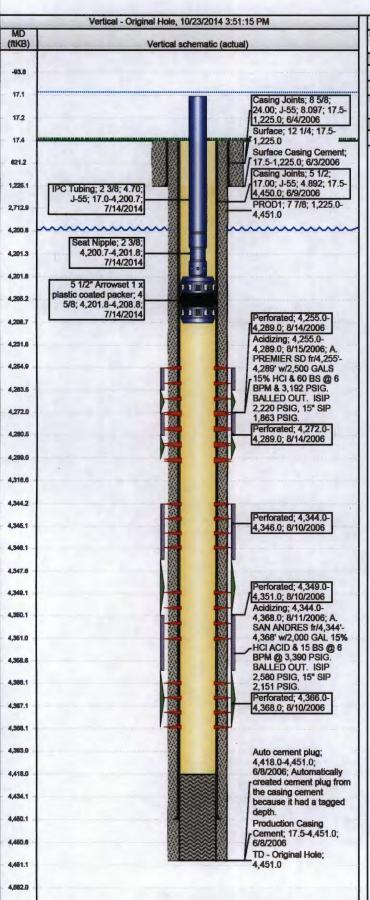


Rate (bpd)

Stage 2 (720 bpd)

Stage 1 (432 bpd)

Schematic & History API/UWI ield Name State/Province County 3002537897 SOUTHEAST MALJAMAR GB/SA UNIT 617 **New Mexico** MALJAMAR l ea ongitude (°) 33E 0° 32' 0" N 1° 43' 0" E 175 29 Survey Section Township Ground/Corrected Ground Elevation (ft) KB-Ground Distance (ft) Original KB Elevation (ft) Spud Date 4,058.00 17.50 4,075.50 6/2/2006 Vertical - Original Hole, 10/23/2014 3:51:15 PM **Jobs** Start Date Summary (ftKB) Vertical schematic (actual) **Drilling** - original 6/2/2006 Lift Optimization 1/4/2012 7/8/2014 Convert To Injection **Wellbore Sections** 17.1 Casing Joints; 8 5/8; Act Top (ftKB) Section Des Size (in) Act Btm (ftKB) Start Date 24.00; J-55; 8.097; 17.5 12 1/4 6/3/2006 Surface Original Hole 17.5 1,225.0 17.2 1,225.0; 6/4/2006 Surface; 12 1/4; 17.5-Section De Act Top (ftKB) ize (in) Act Btm (ftKB) PROD1 Original Hole 7 7/8 1,225.0 6/8/2006 4,451.0 174 1,225.0 Surface Casing Cement; Surface 1,225.0 ftKB 6/4/2006 17.5-1,225.0; 6/3/2006 Casing Joints; 5 1/2; 17.00; J-55; 4.892; 17.5-1,225.1 IPC Tubing; 2 3/8; 4.70; OD (in) Wt (lb/ft) Grade Top (ftKB) Btm (ftKB) Len (ft) 4,450.0; 6/9/2006 J-55, 17.0-4,200.7; 1,225.0 24.00 J-55 17.5 1,207.50 Casing Joints PROD1; 7 7/8; 1,225.0-7/14/2014 2,712.9 4.451.0 Production 4,450.0 ftKB 6/9/2006 Seat Nipple; 2 3/8; 4,200.7-4,201.8; 4.201.3 OD (in) Wt (lb/ft) Grade Top (ftKB) Btm (ftKB) Len (ft) Item Des 7/14/2014 0 4,450.0 5 1/2 17.00 J-55 17.5 4,432.50 Casing Joints **Cement Stages** 5 1/2" Arrowset 1 x 3 7 E stic coated packer, 4 Description Top (ftKB) | Btm (ftKB) | Top Meas Meth 4,205.2 5/8; 4,201.8-4,208.8; Surface Casing 17.5 1,225.0 Cement CMT'd w/430 SX CL "C" 1 1 1 1 7/14/2014 erforated; 4,255.0-Cement Returns CMT w/4% GEL, 2% 4,289.0; 8/14/2006 CaCl2 & 1/4#/SX CF (13.5 Acidizing; 4,255.0-PPG, 1.75 FT3/SX) 4,231.8 4,289.0; 8/15/2006; A **FOLLOWED BY 200 SX** PREMIER SD fr/4,255'-4,289' w/2,500 GALS 4 254 9 CL "C" w/2% CaCl2 (14.8 15% HCI & 60 BS @ 6 PPG, 1.34 FT3/SX). BPM & 3,192 PSIG. CIRC 155 SX CMT TO 4,263.5 BALLED OUT. ISIP SURF 2,220 PSIG, 15" SIP 4.272.0 Btm (ftKB) Description Top (ftKB) Top Meas Meth 1.863 PSIG Perforated; 4,272.0-**Production Casing** 17.5 4,451.0 Cement CMT'D w/570 SX Returns INTERFILL CL "C" 4,289.0; 8/14/2006 Cement w/1/4#/SX CF (11.9 PPG, 4.289.0 2.45 FT3/SX) FOLLOWED w/200 SX CLASS 4,316.8 "C" (14.8 PPG, 1.37 FT3/SX). CIRC 10 SX TO 4.344.2 SURF. Perforated; 4,344.0-Perforations 4,346.0; 8/10/2006 4.346.1 Shot Total Btm (ftKB) 4.344.0 4,346.0 8/10/2006 san andres, Original Hole 10 Perforated; 4,349.0-4,351.0; 8/10/2006 4,349.0 1.0 8/10/2006 4,351.0 san andres, Original Hole 3 Acidizing; 4,344.0-4,368.0; 8/11/2006; A 4.366.0 4.368.0 1.0 8/10/2006 3 san andres, Original Hole 4,255.0 4.289.0 8/14/2006 35 1.0 premier, Original Hole SAN ANDRES fr/4,344 1.0 8/14/2006 4,289.0 4,368' w/2,000 GAL 15% 4,272.0 premier, Original Hole 18 4.351.0 HCI ACID & 15 BS @ 6 BPM @ 3,390 PSIG. BALLED OUT. ISIP Stim/Treat Stages Top (ftKB) Start Date Btm (ftKB) 2,580 PSIG, 15° SIP Acidizing 8/11/2006 A. SAN ANDRES fr/4.344'-4.344.0 4,368.0 4,398.1 2.151 PSIG 4,368' w/2,000 GAL 15% HCI Perforated; 4,366.0-ACID & 15 BS @ 6 BPM @ 4.387.1 4,368.0; 8/10/2006 3,390 PSIG. BALLED OUT. ISIP 2,580 PSIG, 15" SIP 4,388.1 2.151 PSIG. Auto cement plug; Acidizing 8/15/2006 4,255.0 A. PREMIER SD fr/4,255'-4,289.0 4,418.0-4,451.0; 4,289' w/2,500 GALS 15% HCI & 60 BS @ 6 BPM & 6/8/2006; Automatically 4.418.0 created cement plug from 3,192 PSIG. BALLED OUT. the casing cement because it had a tagged 4,434.1 ISIP 2,220 PSIG, 15" SIP depth. 1.863 PSIG. 4,450,1 **Production Casing** Cement; 17.5-4,451.0; Other In Hole 6/8/2006 4.450.6 OD (in) Run Date Top (ftKB) Btm (ftKB) Des Com TD - Original Hole; 4.451.0 4.451.1 4.682.0



Set Depth (ftKB)	Comment	Comment				n Date	Pull Date	Pull Date	
Item De	s OD	(in) W	t (lb/ft)	Grade	Len (ft) Jts	Top (fikB)	Btm (ftKB)	
<des> on <dt< th=""><th>tmrun></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></dt<></des>	tmrun>								
1 tou Dooonpuon									

CROSS TIMBERS ENERGY, LLC

October 31, 2014

New Mexico EMNRD Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Re: Request for Maximum Injection Pressure Increase Southeast Maljamar GB/SA Unit #617 API No. 30-025-37897 Pool No. 43329 Maljamar;Grayburg-San Andres Lea County, New Mexico

Cross Timbers Energy, LLC respectfully requests a maximum surface pressure increase for the above referenced water injection well to 2370 psi at a rate of 4100 BPD.

See attached wellbore schematic and step rate test.

Sincerely,

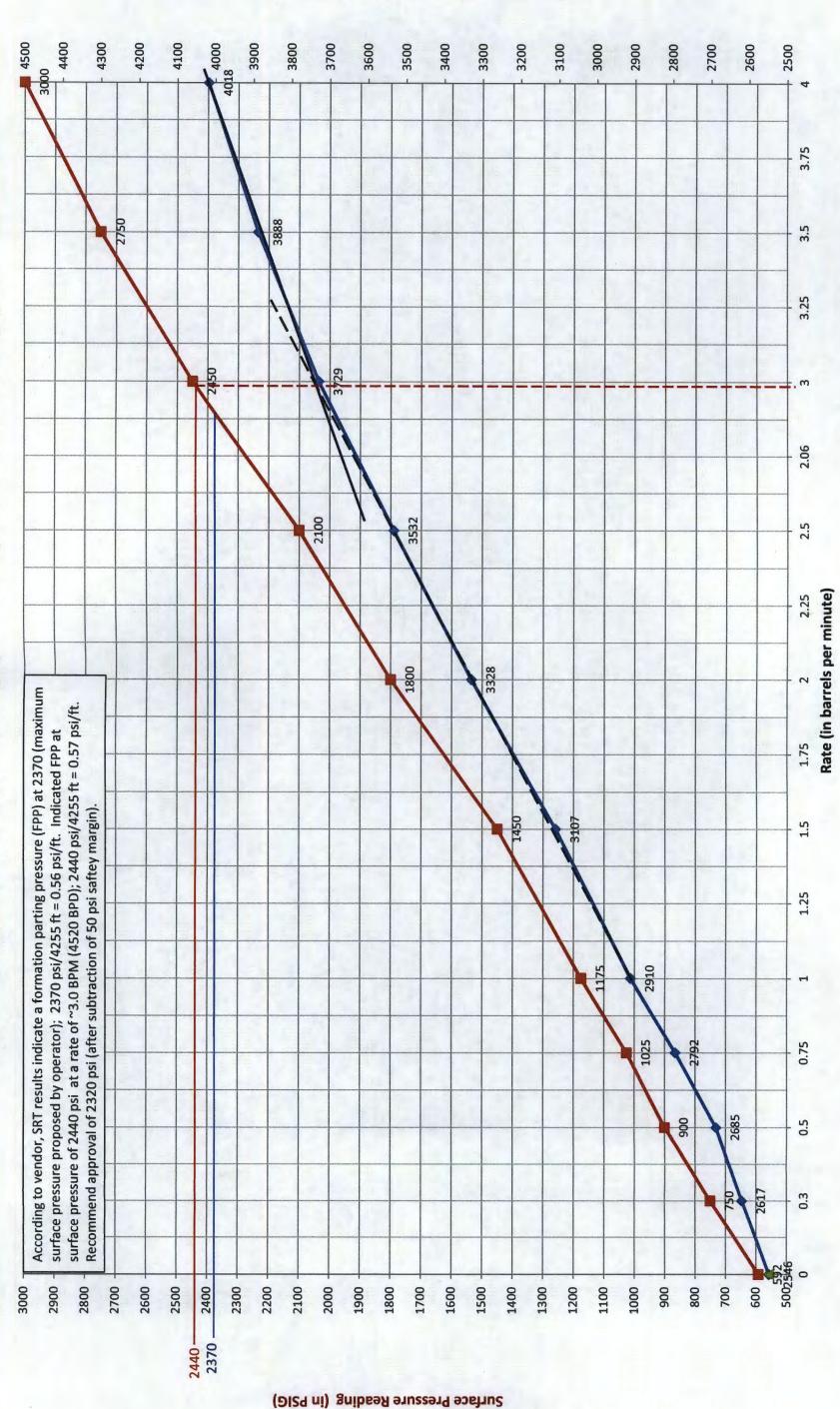
Robbie Grigg

Cross Timbers Energy, LLC

817-334-7842

rgrigg@mspartners.com

WFX-927 / SE Maljamar GB/SA Unit No. 617 - IPI Application - SRT 2014 Results



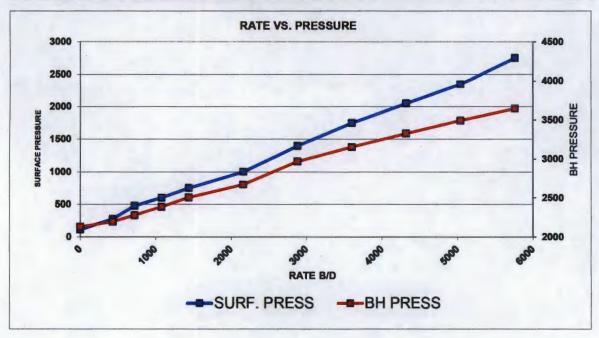
Measured Bottomhole Pressure Reading (in PSIG)



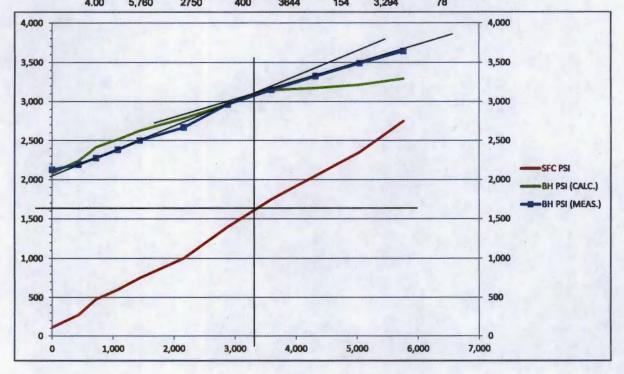
Southeast Maljamar Unit #906 October 28, 2014

ASTANDAN STEP RATE TEST

RATE B/D	Date	Time	BH PRESS	SURF. PRESS	Comments
0	10/29/2015	7:47 AM	2127	113	
432	10/29/2015	8:17 AM	2194	275	
720	10/29/2015	8:43 AM	2277	475	
1080	10/29/2015	9:10 AM	2384	600	7
1440	10/29/2015	9:36 AM	2503	750	
2160	10/29/2015	10:04 AM	2670	1000	
2880	10/29/2015	10:57 AM	2967	1400	
3600	10/29/2015	11:25 AM	3152	1750	
4320	10/29/2015	11:51 AM	3325	2050	
5040	10/29/2015	2:06 AM	3490	2350	
5760	10/29/2015	2:32 AM	3644	2750	
Fall Off	10/29/2015	2:52 AM	3072	1325	
Company:	Cross Timbe	ers		Recorded By:	M. Flores
Well:	Southeast M	laljamar Un	it #906	Witnessed By:	
	Southeast N			Truck Number:	33
County:				District:	Levelland
State:	New Mexico			Tool Number:	
Injector:	WATER			Test Type:	STEP RATE TESTS
Shut In Time:	7:47am				
Total Shut In Time:	7hr 5min				
Tubing Size:					
Seat Nipple Depth:					
Perforations:					
Plug Back Depth					



WELL:	SEMGSAU	#906							
DATE:									
WATER SG	1.07		**DO NOT	EXCEED 3600	PSI INJ	IECTION PRE	SSURE		
WATER GRADIENT	0.463		**EACH ST	TEP WILL LAS	TASLO	ONG AS IT TA	KES TO	STABILIZE PRESSURE FOR 5 MIN.	
DEPTH, MID-PERF	4,365								
DEPTH, BOMB	4,255		CALL IAN I	PETERSEN (E	NGINEE	R) WITH QUE	STIONS	CONCERNS @ 432-634-4922	
				BH PSI		BH PSI	,		
BPM	BPD	SFC PSI	dPSI	(MEAS.)	dPSI	(CALC.)	dPSI	REMARKS	d(PSI/BPM)
0.00	0	113		2,127		2,084			
0.30	432	275	162	2,194	67	2,239	155		
0.50	720	475	200	2,277	83	2,415	176		1000
0.75	1,080	600	125	2,384	107	2,516	101		500
1.00	1,440	750	150	2,503	119	2,629	113		600
1.50	2,160	1,000	250	2,670	167	2,787	158		500
2.00	2,880	1,400	400	2,967	297	2,966	179	/	800
2.50	3,600	1,750	350	3,152	185	3,150	184	FRACTURE @ 1615 PSI, SURF.	700
3.00	4,320	2,050	300	3,325	173	3,174	24		600
3.50	5,040	2,350	300	3,490	165	3,216	42		600
4.00	5 700	2750	400	2014	454	2 204	79		800



JOB INFORMATION SHEET

		npany Information	The state of the s
Company Name:	Cross Timbers		
	W	Vell Information	
Well Name:	Southeast Malja		
Location:	New Mexico	That affic wood	
Field – Pool:	Southeast Malja	mar	
Status:	Injection		
		est Information	
Type of Test:	Step Rate Test		
Gauge Depth:	4255 ft		
Production Interval:	4270'-4460'		
Status:	Injecting		
Temperature @ Run Depth	85.4 degF		
Surface Temperature:	51.58 degF		
	Ga	auge Information	
		Top Recorder	Bottom Recorder
Serial Number:		79515	
Calibration Date:		11/1/13	
Pressure Range:		10000 psi	
		Comments	

Gradient Data Report

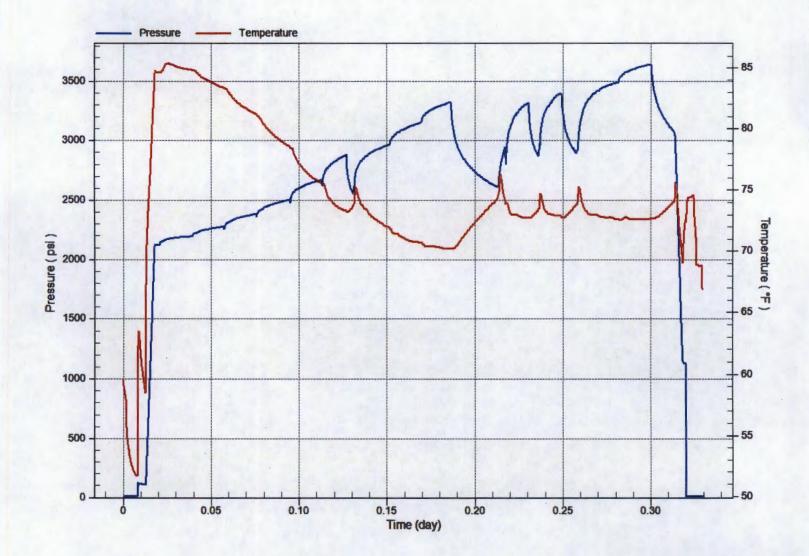
Southeast Maljamar Unit #906

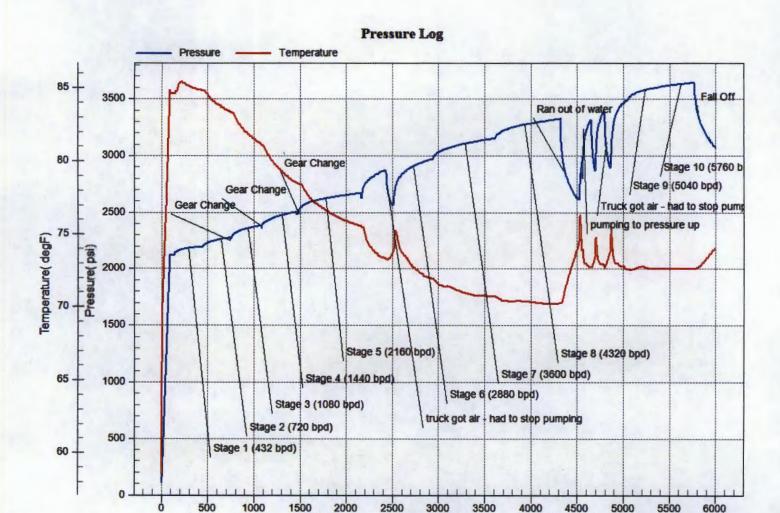
Gradient Data Table

Depth ft	Pressure psi	Temperature degF	Gradient psi/ft	
0.00	107.90	58.48	0.0000	
432.00	2194.19	84.83	4.8294	
720.00	2275.61	83.40	0.2827	
1080.00	2385.04	81.15	0.3040	
1440.00	2503.61	78.56	0.3294	
2160.00	2672.55	75.55	0.2346	
2880.00	2963.51	72.02	0.4041	
3600.00	3151.47	70.70	0.2610	
4320.00	3323.41	70.25	0.2388	
5040.00	3492.38	72.61	0.2347	
5760.00	3646.01	72.66	0.2134	
6000.00	3070.72	74.11	-2.3970	

Analysis Summary

Depth ft	Gradient psi/ft
0.00	
	0.4938
6000.00	
n	





Rate (bpd)

Schematic & History

Well Name SOUTHEAST MALJAMAR GB/SA UNIT 906	3002531444	County				State/Province New Mexico	Field Name MALJAMAR	
Location 1200 FNL & 950 FEL		Township 17S	Range 33E	Section 32	Latitude	32° 48' 3.636	Longitude (°)	103° 40' 45.444" W
Section Survey				Block		Township	Abstract	
Original KB Elevation (ft) 4,064.00 Ground/Correct	ed Ground Elevation (ft) 4,051.00	KB-Ground Dista	ance (ft)		13.00	Spud Date		
Original Hole, 11/3/2014 1:20:	12 PM	Jobs						

original res	B Elevation (ft) 4,064.00	Ground/Corrected Ground Elevation (ft) KB-Gr 4,051.00
	Original Hole, 1	1/3/2014 1:20:12 PM
MD (ftKB)	Vertic	al schematic (actual)
13.1	2 3/8" J-55 IPC tbg; 2 3/8; 4.70; J-55; 12.1- 4.220.1; 7/21/2014	Casing Joints; 8 5/8; 24.55; X-42; 8.097; 13.0- 306.0; 12/9/1991 SURFACE1; 12 1/4; 13.0 -306.0; 12/9/1991 Surface Casing Cement; 13.0-306.0; 12/9/1991 Casing Joints; 5 1/2; 17.00; K-55; 4.892; 13.0- 4,545.0; 12/14/1991 PROD1; 7 7/8; 306.0- 4,545,0; 12/13/1991
4,220.1	4,220.1, 112.1120.14	
	S Nipple; 2 3/8; 4,220.1- 4,221.2; 7/21/2014	
4,221.1	5 1/2" Arrowset 1 x plastic coated packer; 5 1/2; 4,221.2-4,228.2;	Perforated; 4,270.0-
4,228.0	7/21/2014	4,272.0; 1/9/1992 Perforated; 4,278.0- 4,304.0; 1/9/1992 Hydraulic Fracture; 4,270.0-4,374.0;
4,270.0		1/10/1992; 35,118 GALS 35# BORATE X-LINKED GUAR GELLED 2% KCL WTR & 71,600# 12/20
4,272.0	2	OTTAWA SD @ 31 BPM & 2,800 PSIG. ISIP 2,130 PSIG, 5" SIP – 1,850 PSIG, 10" SIP – 1,655
4,277.9		PSIG, 15" SIP – 1,519 PSIG. Acidizing; 4,270.0- 4,374.0; 1/9/1992; 2,950
4,304.1		GALS 15% NEFE HCI & 60 BS @ 4 BPM & 2,500 PSIG, ISDP 1,900 PSIG, 5" SIP – 1,400 PSIG, 10"
4,328.1		SIP – 1,020 PSIG, 15* SIP – 710 PSIG. Perforated; 4,328.0- 4,334.0; 1/9/1992
4,334.0		4,554.0, 118/1982
4,350.1		Perforated; 4,350.0- 4,358.0; 1/9/1992
4,357.9		Perforated; 4,366.0-
4,368.1		4,374.0; 1/9/1992 Perforated; 4,448.0- [4,460.0; 12/17/1991 Acidizing; 4,448.0-
4,374.0	l	4,460.0; 12/21/1991; 1,000 GALS 15% NEFE HCI @ 3.6 BPM & 2,300 [PSIG. ISDP 1,400 PSIG,
4,448.2	g-	5" SIP - 950 PSIG, 10" SIP - 700 PSIG, 15" SIP - 550 PSIG. Production Casing
4,480.0		Cement; 13.0-4,545.0; 12/14/1991 Auto cement plug; 4,499.0-4,545.0;
4,499.0		12/14/1991; Automatically created cement plug from the casing cement because it had a tagged depth.
4,544.9		TD - Original Hole; 4,545.0; 12/13/1991

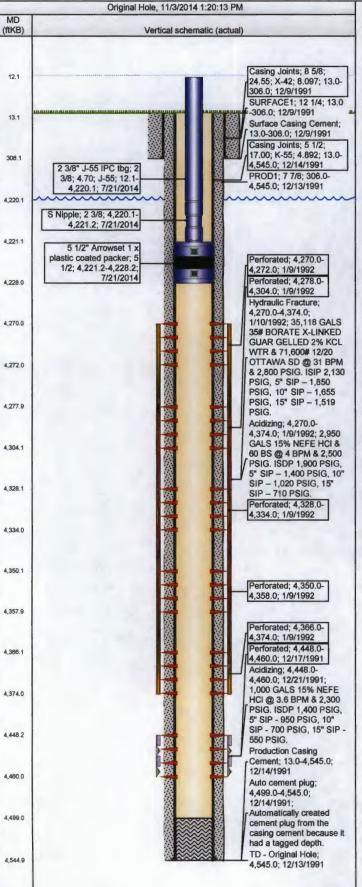
Jobs								
Ту	ре	Sta	rt Date	Summary				
Drilling Original & Initial Completion			1991	S. 31 10	7.5 BW % O	BFPH 20% , 5 MCF.	s producer. Pe 6 OC, POP, IP Perf GB, A. S. B, POP, IP 20 ated).	7 BOPD, 0.5 BFPH
Downhole Co	mmingle	8/7/1	992	Pull RBP over SA perfs, commingle, RTP.				
Repr Tbg Fai	lure	5/12/	2009					
Repair Parte	Rods	8/26	2009					
Repair Tubin	q	7/29/	2011					
Repair Rod F	art	9/30/	9/30/2011					
Repair Rod F	Part	11/7/	2012					
Change Rod		6/4/2	013					
Convert To Ir		7/15/	2014					
Step-Rate Inj	•	2000	3/2014					
Wellbore Se	ctions	_		_				
Section Des SURFACE1	Original Ho		Size (in) 12	1/4	Act T	op (ftKB) 13.0	Act Btm (ftKB) 306.0	Start Date 12/9/1991
Section Des PROD1	Wellbore Name Original Ho					op (ftKB) 306.0	Act Btm (ftKB) 4,545.0	Start Date 12/10/1991
Surface 306	.0 ftKB 12/9	/1991						
Comment								
OD (in) Wt (lb	Vft) Grade	Top (fix	R) Rtr	n (ftK	B) T	Len (ft)	Hem	Des
	55 X-42	- 1 1	3.0	306	_		Casing Joints	

24.55	A-42	13.0	306.0	293.00	Casing Joints
tion 4,5	45.0 ftK	B 12/14/199	91		
Wt (lb/ft)	Grade	Top (ftKB)	Btm (ftKB)	Len (ft)	Item Des
17.00	K-55	13.0	4,545.0	4,532.00	Casing Joints
	tion 4,5	tion 4,545.0 ftK	tion 4,545.0 ftKB 12/14/199 Wt (lb/ft) Grade Top (ftKB)	tion 4,545.0 ftKB 12/14/1991 Wt (lb/ft) Grade Top (ftKB) Btm (ftKB)	tion 4,545.0 ftKB 12/14/1991 Wt (lb/ft) Grade Top (ftKB) Btm (ftKB) Len (ft)

Cement Stages				
Description Surface Casing Cement	Top (ftKB) 13.0	Btm (ftKB) 306.0	Top Meas Meth Cement Returns	Comment 250 SX CL "C" CMT w/2% CaCl2 (14.8 PPG, 1.32 FT3/SX). CIRC 48 SX TO SURF.
Description Production Casing Cement	Тор (ftKB) 13.0	Btm (ftKB) 4,545.0	Top Meas Meth Cement Returns	Comment 1,050 SX 35/65 POZ/C w/8% GEL & 5# SALT/SX (12.7 PPG, 2.04 FT3/SX) & 250 SX CLASS "C" w/5# SALT/SX & 3# SD/SX (14.8 PPG, 1.33 FT3/SX). CIRC 52 SX CMT TO SURF.

Top (ftKB)	Btm (ftKB)	Shot Dens (shot s/ft)	Date	Zone	Calcu ated Shot Total
4,448.0	4,460.0	1.0	12/17/1991	SAN ANDRES, Original Hole	13
4,270.0	4,272.0	1.0	1/9/1992	GRAYBURG, Original Hole	3
4,278.0	4,304.0	1.0	1/9/1992	GRAYBURG, Original Hole	27
4,328.0	4,334.0	1.0	1/9/1992	GRAYBURG, Original Hole	7
4,350.0	4,358.0	1.0	1/9/1992	GRAYBURG, Original Hole	9
4,366.0	4,374.0	1.0	1/9/1992	GRAYBURG, Original Hole	9

Type	Start Date	Top (ftKB)	Btm (ftKB)	Com
Acidizing	12/21/199	4,448.0		1,000 GALS 15% NEFE HCI @ 3.6 BPM & 2,300 PSIG. ISDP 1,400 PSIG, 5" SIP - 950 PSIG, 10" SIP - 700 PSIG, 15" SIP - 550 PSIG.



Stim/Treat Stages							- VI		
Туре	Start Date		ftKB)	Btm (ftKB)			Com		
Acidizing	1/9/1992	4,2	270.0	4,374.	& PS SI 1,0	60 BS SIG. ISI P - 1,4	LS 15% N @ 4 BPM 8 DP 1,900 F 00 PSIG, IG, 15" SII	\$ 2,500 PSIG, 5" 10" SIP -	
Hydraulic Fracture	1/10/1992	2 4,2	270.0	4,374.	X- 29 12 BF 2,	35,118 GALS 35# BORATE X-LINKED GUAR GELLED 2% KCL WTR & 71,600# 12/20 OTTAWA SD @ 31 BPM & 2,800 PSIG. ISIP 2,130 PSIG, 5" SIP – 1,850 PSIG, 10" SIP – 1,655 PSIG, 15" SIP – 1,519 PSIG.			
Other In Hole									
Des	Co	Com		OD (in)	Rur	n Date	Top (ftKB)	Btm (ftKB)	
4,228.2	nment			Ru	7/2	1/2014			
Set Depth (ftKB) Con	OD (in) 2 3/8 2 3/8 5 1/2	Wt (b/h) 4.70		Len (fi 4,208	7/2	9		Btm (ftKB) 4,220.1 4,221.2	
Set Depth (ftKB) 4,228.2 ttem Des 2 3/8" J-55 IPC tbg S Nipple 5 1/2" Arrowset 1 x plastic coated pack Insert Pump on 6/	OD (in) 2 3/8 2 3/8 5 1/2 er 4/2013 00:0	Wt (lb/ft) 4.70	Grade	Len (fi 4,208	7/2) 3.00 .10 7.00	1/2014 Jts 130	Top (fiKB) 12.1 4,220.1 4,221.2	8tm (ftKB) 4,220.1 4,221.2 4,228.2	
Set Depth (ftKB) 4,228.2 Item Des 2 3/8" J-55 IPC tbg S Nipple 5 1/2" Arrowset 1 x plastic coated pack Insert Pump on 6/ Rod Description Insert Pump	OD (in) 2 3/8 2 3/8 5 1/2	Wt (lb/ft) 4.70	Grade	Len (fi 4,208	7/2 7/2 3.00 .10	Jts 130	Top (ftKB) 12.1 4,220.1	Btm (ftKB) 4,220.1 4,221.2	
Set Depth (ftKB) 4,228.2 Item Des 2 3/8" J-55 IPC tbg S Nipple 5 1/2" Arrowset 1 x plastic coated pack Insert Pump on 6/ Rod Description Insert Pump Ite Polished Rod	OD (in) 2 3/8 2 3/8 5 1/2 er 4/2013 00:0	Wt (lb/ft) 4.70	Grade	Len (fi 4,208	7/2 7/2 3.00 .10	1/2014 Jts 130	Top (fit/B) 12.1 4,220.1 4,221.2	Btm (ft/B) 4,220.1 4,221.2 4,228.2	
Set Depth (ftKB) 4,228.2 Item Des 2 3/8" J-55 IPC tbg S Nipple 5 1/2" Arrowset 1 x plastic coated pack Insert Pump on 6/ Rod Description Insert Pump Itt Polished Rod Rod Sub	OD (in) 2 3/8 2 3/8 5 1/2 er 4/2013 00:0	Wt (lb/ft) 4.70	Grade	Len (fill 4,208	n Date 7/2 7/2 3.00 10 D	1/2014 Jts 130	Top (fiKB) 12.1 4,220.1 4,221.2	Etm (ft/KB) 4,220.1 4,221.2 4,228.2 Len (ft) 22.00 12.00	
Set Depth (ftKB) 4,228.2 Item Des 2 3/8" J-55 IPC tbg S Nipple 5 1/2" Arrowset 1 x plastic coated pack Insert Pump on 6/ Rod Description Insert Pump Itt Polished Rod Rod Sub Sucker Rod	OD (in) 2 3/8 2 3/8 5 1/2 er 4/2013 00:0	Wt (lb/ft) 4.70	Grade	DD (in) 1 1/4 7/8	D D D	1/2014 Jts 130	Top (fiKB) 12.1 4,220.1 4,221.2	Etm (ft/KB) 4,220.1 4,221.2 4,228.2 Len (ft) 22.00 1,675.00	
Set Depth (ftKB) 4,228.2 Item Des 2 3/8" J-55 IPC tbg S Nipple 5 1/2" Arrowset 1 x plastic coated pack Insert Pump on 6/ Rod Description Insert Pump Ite Polished Rod Rod Sub Sucker Rod Sucker Rod	OD (in) 2 3/8 2 3/8 5 1/2 er 4/2013 00:0	Wt (lb/ft) 4.70	Grade	DD (in) 1 1/4 7/8 7/8	D D D D D D	1/2014 Jts 130	Top (fiKB) 12.1 4,220.1 4,221.2 Jts 1 1 67	Htm (ft/KB) 4,220.1 4,221.2 4,228.2 4,228.2 Len (ft) 22.00 1,675.00 2,125.00	
Set Depth (ftKB) 4,228.2 teem Des 2 3/8" J-55 IPC tbg S Nipple 5 1/2" Arrowset 1 x plastic coated pack Insert Pump on 6/ Rod Description Insert Pump th Polished Rod Rod Sub Sucker Rod Sucker Rod Sucker Rod Sucker Rod	OD (in) 2 3/8 2 3/8 5 1/2 er 4/2013 00:0	Wt (lb/ft) 4.70	Grade	OD (in) 1 1/4 7/8 3/4	D D D D D D D	1/2014 Jts 130	Top (ftKB) 12.1 4,220.1 4,221.2 Jts 1 1 67 85	Etm (ft/B) 4,220.1 4,221.2 4,228.2 4,228.2 Len (ft) 22.00 1,675.00 2,125.00 550.00	
Set Depth (ftKB) 4,228.2 ttem Des 2 3/8" J-55 IPC tbg S Nipple 5 1/2" Arrowset 1 x plastic coated pack Insert Pump on 6/	OD (in) 2 3/8 2 3/8 5 1/2 er 4/2013 00:0	Wt (lb/ft) 4.70	Grade	DD (in) 1 1/4 7/8 3/4 7/8	D D D D D D D D D D D D D D D D D D D	1/2014 Jts 130	Top (ffKB) 12.1 4,220.1 4,221.2 Jts 1 1 67 85 22	Stm (ft/KB) 4,220.1 4,221.2 4,228.2 Len (ft) 22.00	

CROSS TIMBERS ENERGY, LLC

October 31, 2014

New Mexico EMNRD Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Re:

Request for Maximum Injection Pressure Increase Southeast Maljamar GB/SA Unit #906 API No. 30-025-31444 Pool No. 43329 Maljamar;Grayburg-San Andres Lea County, New Mexico

Cross Timbers Energy, LLC respectfully requests a maximum surface pressure increase for the above referenced water injection well to 1615 psi at a rate of 3200 BPD.

See attached wellbore schematic and step rate test.

Sincerely,

Robbie Grigg

Cross Timbers Energy, LLC

817-334-7842

rgrigg@mspartners.com

