

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE

(See other in-
structions on
reverse side)

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐		1b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☒ DIFF. RESVR ☒		2. NAME OF OPERATOR Santa Fe Energy Resources, Inc.		3. ADDRESS AND TELEPHONE NO. 550 W. Texas, Suite 1330, Midland, TX 79701		4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements) At surface (0). 660' FSL & 1980' FEL At top prod. interval reported below At total depth		5. LEASE DESIGNATION AND SERIAL NO. LC069464-A		6. IF INDIAN, ALLOTTEE OR TRIBE NAME		7. UNIT AGREEMENT NAME	
14. PERMIT NO.		DATE ISSUED		18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* 3401' GR		19. ELEV. CASINGHEAD		20. TOTAL DEPTH, MD & TVD 12,350'		21. PLUG, BACK T.D., MD & TVD 11,770'		22. IF MULTIPLE COMPL. HOW MANY* N/A		23. INTERVALS DRILLED BY ROTARY TOOLS A11 CABLE TOOLS N/A	
15. DATE SPUNDED 3/11/99		16. DATE T.D. REACHED 4/2/99		17. DATE COMPL. (Ready to prod.) 4/2/99 Recompleted		24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)* 11,354' - 11,370' (Atoka)		25. WAS DIRECTIONAL SURVEY MADE No		26. TYPE ELECTRIC AND OTHER LOGS RUN PEX w/ HALS; CMR		27. WAS WELL CORED No		28. CASING RECORD (Report all strings set in well)	
Casing Size/Grade		Weight, LB./FT.		Depth Set (MD)		Hole Size		Top of Cement, Cementing Record		Amount Pulled					
13-3/8" H-40		42#		530'		17-1/2"		500 sx C1 H & C (circ'd)		None					
8-5/8" K-55		24 & 32#		3098'		11"		1st stage 100 sx C1 "C"		None					
								2nd stg 600 sx C1 H & C		(circ'd)					
5-1/2" L80/K55		20 & 17#		12,348'		7-7/8"		524 sx Super-C-Mod (TOC 8960')		None					
29. LINER RECORD		30. TUBING RECORD													
SIZE		TOP (MD)		BOTTOM (MD)		SACKS CEMENT*		SCREEN (MD)		SIZE		DEPTH SET (MD)		PACKER SET (MD)	
N/A										2-3/8"		11,236'		11,272'	
31. PERFORATION RECORD (Interval, size and number)		32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.													
12,146' - 12,154' (plugged)		DEPTH INTERVAL (MD)		AMOUNT AND KIND OF MATERIAL USED											
11,841' - 11,966' (plugged)		12,146' - 12,154'		CIBP @ 12,120' w/ 20' cmt on top.											
11,354' - 11,370'		11,841' - 11,966'		CIBP @ 11,790' w/ 20 cmt on top.											
		11,354' - 11,370'		Natural completion											
33.* PRODUCTION		DATE FIRST PRODUCTION		PRODUCTION METHOD (Flowing, gas lift, pumping - size and type of pump)		WELL STATUS (Producing or shut-in)									
4/2/99		Flowing		Producing											
DATE OF TEST		HOURS TESTED		CHOKE SIZE		PROD'N. FOR TEST PERIOD		OIL - BBL.		GAS - MCF.		WATER - BBL.		GAS - OIL RATIO	
4/29/99		4 hrs		varied				0		198.6		0		N/A	
FLOW. TUBING PRESS.		CASING PRESSURE		CALCULATED 24-HOUR RATE		OIL - BBL.		GAS - MCF.		WATER - BBL.		OIL GRAVITY - API (CORR.)			
2888-3339		pkr				0		CAOF 8538		0		N/A			
34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)		35. LIST OF ATTACHMENTS		36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records											
Sold		C-104, C-122 + attachments													
SIGNED		TITLE		DATE											
Mary McCullough		Sr. Production Clerk		5/4/99											
		BLM													

(See Instructions and Spaces for Additional Data on Reverse Side)

Submit in duplicate to
appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator SANTA FE ENERGY Resources, Inc.						Lease or Unit Name HACKBERRY 18			
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 4/29/99		Well No.	
Completion Date 4/2/99		Total Depth 12348		Plug Back ID 11770		Elevation 3401' GR		Unbr. Ltr. Sec. TWP - Rge.	
Log. Size 5 1/2		Wt. 17		d 4.892		Set At 12348		Perforations: From: 11,354' To: 11,370'	
Log. Size 2-3/8		Wt. 4.7		d 1.995		Set At 11272		Perforations: From: To:	
Type Well - Single - Bradenhead - G.G. Multiple SINGLE						Packer Set At 11272		Formation Atoka	
Producing Thru TBG		Reservoir Temp. °F 169.7		Mean Annual Temp. °F 60°		Haro. Press - P 13.2		Connection ATR	
L 11272	II 11272	Gg .662	% CO ₂ .200	% N ₂ 3.176	% H ₂ S 0	Prover 0	Meas. Run 4.026	Taps FLG	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
1.	4.026 X 1.500	269	2.0	77°	3345	3339		PKR		60 min
2.	4.026 X 1.500	270	5.9	78°	3270					60 min
3.	4.026 X 1.500	275	19.7	83°	3108					60 min
4.	4.026 X 1.500	287	47.3	86°	2888					60 min
5.										

RATE OF FLOW CALCULATIONS							
NO.	COEFFICIENT (24 HOUR)		Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.							410
2.							710
3.							1358
4.							2289
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid (Hydrocarbon Ratio)	Method
1.					N/A	
2.					A.P. L. Gravity of Liquid Hydrocarbons	Deg.
3.					Specific Gravity Separator Gas	XXXXXXX
4.					Specific Gravity Flowing Fluid	N/A XXXXX
5.					Critical Pressure	669 P.S.I.A.
					Critical Temperature	368 R

P_c **3588.9** P_c **12880.2**

NO.	P _c ²	P _w	P _w ²	P _c ² - P _w ²
1.		3498.8	12241.6	638.6
2.		3435.0	11799.2	1081.0
3.		3273.3	10714.5	2165.7
4.		3071.7	9435.3	3444.9
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.73$

2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^a = 3.73$

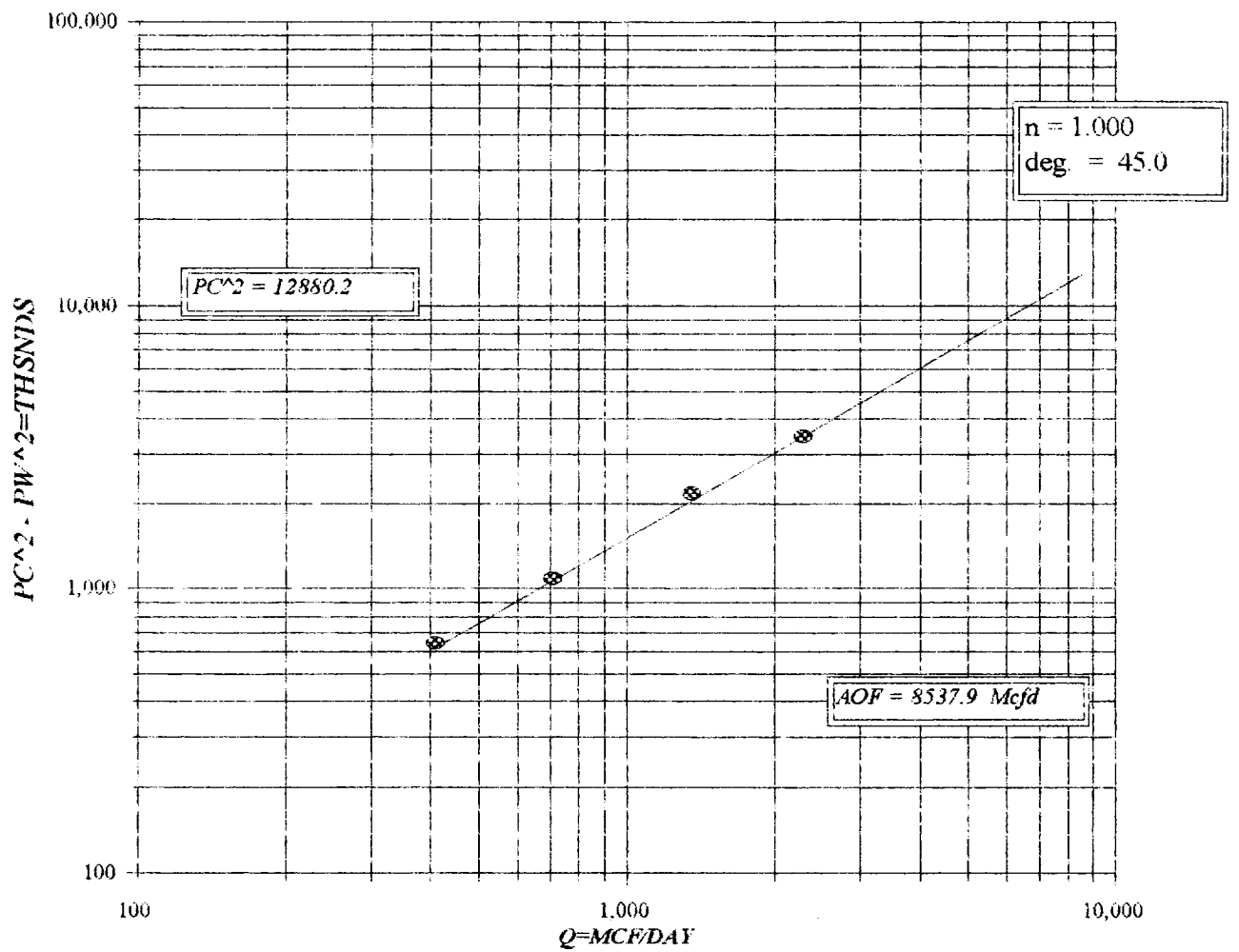
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^a = 8537.9$

Absolute Open Flow 8537.9	Meq @ 15.025	Angle of Slope θ 45°	Slope, n 1.000
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Remarks: * NO LIQUID MADE DURING TEST
* CALCULATED FROM KNOWN BOTTOM HOLE PRESSURE

Approved By Division	Conducted By: PRO WELL TESTING	Calculated By: M. B	Checked By: B. M.
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SANTA FE ENERGY
HACKBERRY "18" #1



WORK SHEET FOR CALCULATION OF WELHEAD PRESSURE (Pc or Pw)
FROM KNOWN BOTTOM HOLE PRESSURE (Pf or Ps)

FORM C-122F

COMPANY: SARTA FE ENERGY

LEASE: HAGENBERG WELL NO.: 118 #1

DATE: 4/22/99

WELL

SECTION:

THICKNESS:

RANGE:

1 11272

2 11272

3 1

G/GMIX: 0.6620

OD: 0.2

N2: 3.175

H2S:

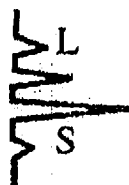
GR: 7462.1

PCR: 669

TCR: 368

LINE		1	2	3	4	5	6	7	8
1	Tw (H. R)	534	534	534	534	534	534	534	534
2	Ts (B. H. R)	646.7	646.7	646.7	646.7	646.7	646.7	646.7	646.7
3	T = (Tw + Ts / 2)	590.4	590.4	590.4	590.4	590.4	590.4	590.4	590.4
4	Z (EST.)	0.982	0.878	0.909	0.871	0.894	0.859	0.876	0.845
5	IZ	580	518	537	514	528	507	517	499
6	GR / IZ	12.872	14.393	13.903	14.508	14.035	14.710	14.423	14.952
7	ESTIMATE XIV)	1.620	1.716	1.584	1.723	1.699	1.736	1.717	1.752
8	Pf or Ps	4582.7	4582.7	4582.8	4582.8	4312.9	4312.9	4065.7	4065.7
9	Pf2 or Ps2	21001.1	21001.1	20329.3	20329.3	18601.1	18601.1	16529.9	16529.9
10	Pc2 = Pf1/5 or Pw2 = Ps2/5	12960.4	12241.5	12069.8	11799.1	10948.2	10714.4	9624.5	9435.5
11	Pc or Pw	3600	3499	3474	3435	3309	3273	3102	3072
12	P = (Pw + Ps / 2) or (Pc + Pf / 2)	4091	4041	3991	3972	3811	3793	3584	3569
13	Pr = (P / Pcr)	5.12	6.04	5.97	5.94	5.70	5.67	5.36	5.33
14	Tr = T / Tcr	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
15	Z (TABLE XI)	0.878	0.875	0.871	0.870	0.859	0.858	0.845	0.844

PW 1 : 3498.8 PW 2 : 3435.0 PW 3 : 3273.3 PW 4 : 3071.7

**Laboratory Services, Inc.**

4016 Fiesta Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: Santa Fe Energy
P. O. Box 2327
Carlsbad, New Mexico 88220

SAMPLE:
IDENTIFICATION: Hackberry 18 #1
COMPANY: Santa Fe Energy
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 4/29/99
ANALYSIS DATE: 4/30/99
PRESSURE - PSIG 284
SAMPLE TEMP. °F 83
ATMOS. TEMP. °F

GAS (XX) LIQUID ()
SAMPLED BY: Pro Well
ANALYSIS BY: Vickie Walker

REMARKS: Sample taken @ the meter run.

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide (H2S)		
Nitrogen (N2)	3.176	
Carbon Dioxide (CO2)	0.200	
Methane (C1)	55.608	
Ethane (C2)	6.437	1.717
Propane (C3)	2.536	0.697
I-Butane (IC4)	0.400	0.131
N-Butane (NC4)	0.675	0.212
I-Pentane (IC5)	0.224	0.082
N-Pentane (NC5)	0.190	0.069
Hexane Plus (C6+)	0.554	0.227
	100.000	3.135

BTU/CU.FT. - DRY 1120
AT 14.650 DRY 1117
AT 14.650 WET 1097
AT 14.73 DRY 1123
AT 14.73 WET 1103

MOLECULAR WT. 19.1641

SPECIFIC GRAVITY -
CALCULATED 0.662
MEASURED