

EL PASO NATURAL GAS COMPANY
OPEN FLOW TEST DATA

DUAL COMPLETION

DATE October 15, 1964

Operator Southern Union Production Company		Lease Navajo Indian No. 6 (DK)	
Location 1700'N, 910'W, Sec. 6, T-26-N, R-8-W		County San Juan	State New Mexico
Formation Dakota		Pool Basin	
Casing: Diameter 5.500	Set At: Feet 6600	Tubing: Diameter 1.900	Set At: Feet 6369
Pay Zone: From 6281	To 6538	Total Depth: 6600	Shut In 10-2-64
Stimulation Method Sand Water Frac.		Flow Through Casing	Flow Through Tubing X

Choke Size, Inches 0.750		Choke Constant: C 12.365		Packer set at 6050'	
Shut-In Pressure, Casing, PSIG -----	+ 12 = PSIA ---	Days Shut-In 13	Shut-In Pressure, Tubing PSIG 1935 (DK)	+ 12 = PSIA 1947	
Flowing Pressure: P PSIG 311	+ 12 = PSIA 323		Working Pressure: P _w PSIG Calc.	+ 12 = PSIA 1077	
Temperature: T = 80 °F	n =		F _{pv} (From Tables) 1.037	Gravity .735	F _g = .9035
F _t = .9813	.75				

Initial SIPT (MV) 1071 psig

Final SIPT (MV) 1079 psig

CHOKE VOLUME = Q = C × P_t × F_t × F_g × F_{pv}

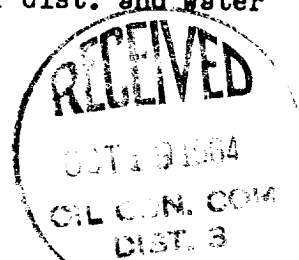
$$Q = (12.365)(323)(.9813)(.9035)(1.037) = \underline{\quad 3672 \quad} \text{ MCF/D}$$

$$\text{OPEN FLOW} = Aof = Q \left(\frac{P_c^2}{P_c^2 - P_w^2} \right)^n$$

$$Aof = \left(\frac{3,790,809}{2,630,880} \right)^n = (3672)(1.4408)^{.75} = (3672)(1.3150)$$

$$Aof = \underline{\quad 4829 \quad} \text{ MCF/D}$$

NOTE: Well rigged so that no casing pressure could be measured. The well produced a very heavy spray of dist. and water throughout the test.

TESTED BY Verne Rockhold (SUPC)WITNESSED BY Hermon E. McAnally (EPNG)

Lewis D. Galloway
Lewis D. Galloway

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE*

(See other in-
structions on
reverse side)Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other ☐				5. LEASE DESIGNATION AND SERIAL NO. 11-20-603-768		
b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐				6. IF INDIAN, ALLOTTEE OR TRIBE NAME Navajo Indian		
2. NAME OF OPERATOR Southern Union Production Company				7. UNIT AGREEMENT NAME		
3. ADDRESS OF OPERATOR P. O. Box 808 - Farmington, New Mexico				8. FARM OR LEASE NAME Navajo Indian		
4. LOCATION OF WELL (Report location clearly and in accordance with any State regulations) At surface 1700 ft. from North line and 910 ft. from West line At top prod. interval reported below Same as above At total depth Same as above				9. WELL NO. 6		
14. PERMIT NO.				DATE ISSUED NOV 5 1964		
15. DATE SPUDDED 8-25-64				16. DATE T.D. REACHED 9/8/64		
17. DATE COMPL. (Ready to prod.) 9/21/64				18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* 6121 ft. D.F.		
19. ELEV. CASINGHEAD 612 ft.				20. TOTAL DEPTH, MD & TVD 6800 ft. MD & TVD		
21. PLUG, BACK T.D., MD & TVD 6560' MD & TVD				22. IF MULTIPLE COMPL., HOW MANY* 2		
23. INTERVALS DRILLED BY 0-6400				24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* 6801-6538 Dakota 6182-6290 Mancosque		
25. WAS DIRECTIONAL SURVEY MADE No				26. TYPE ELECTRIC AND OTHER LOGS RUN Electrical-Induction, Gamma Ray Correlation, Cement Bond Log		
27. WAS WELL CORED No				28. CASING RECORD (Report all strings set in well)		
CASING SIZE		WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8"		24.00	293 ft.	12-1/4"	250 sacks	
5-3/8"		17.00	6800 ft.	7-7/8"	1st stage cemented w/125 cu. ft.	
Stage collar		at 154 ft.	(Cemented w/125 cubic ft. of cement.)			
Stage Collar		at 2007 ft.	Cemented to surface w/950 cu. ft. cement.			
29. LINER RECORD				30. TUBING RECORD		
SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)
					1-1/2" BUE	6879
					1-1/2"	6870
31. PERFORATION RECORD (Interval, size and number)				32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.		
Dakota: Perf. 1 shot/ft. 6801-6806, 6897-6903 6904-77, 6954-60, 6966-71, 6974-78, 6989-96 6998-84, 6998-96, 1/r. 6998-10, 1/r. 6998-14 6998-16, 1/r. 6998-20, 1/r. 6998-24, 6998-28 1/r. 6998-30, 1/r. 6998-34, 6998-38, 6998-42 1/r. 6998-46, 1/r. 6998-50, 6998-54, 6998-58, 6998-62 1/r. 6998-66, 1/r. 6998-70, 6998-74, 6998-78, 6998-82 1/r. 6998-86, 1/r. 6998-90, 6998-94, 6998-98, 6998-102				DEPTH INTERVAL (MD) 6801-6806 6998-102 AMOUNT AND KIND OF MATERIAL USED Sand from w/85,000' sand 133,978 gals. water, 40 tons CO ₂ Sand from w/800,000' sand 74,000 gals. water, 40 tons CO ₂		
33. DATE FIRST PRODUCTION 8-30-64				PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)		
WELL STATUS (Producing or shut-in) Shut-in				GAS-OIL RATIO		
DATE OF TEST	HOURS TESTED	CHOKER SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF (Estimated)	WATER—BBL.
10/15/64	1 hr.	3/8"	→		963 (Estimated)	
FLOW TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF	WATER—BBL.	OIL GRAVITY API (CORR.)
213 psig	700	→		7.37		
34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) Vented				TEST WITNESSED Vernon H. ...		
35. LIST OF ATTACHMENTS Drillbit D. Roland Jr.				NOV 9 1964		
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records				OIL CON		
SIGNED Gilbert D. Roland, Jr.		TITLE Drilling Superintendent		DATE November 3, 1964		

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

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES: SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES			38. GEOLOGIC MARKERS				
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	MEAS. DEPTH	TOP	TRUE VERT. DEPTH
				Washack	Surf.		
				Barland	1230		
				Prattland	1400		
				Plattland	1500		
				Landa	1600		
				Washack	1700		
				Washack	1800		
				Washack	1900		
				Washack	2000		
				Washack	2100		
				Washack	2200		
				Washack	2300		
				Washack	2400		