

# DRILLING AND COMPLETION HISTORY

CONSOLIDATED OIL & GAS, INC.

NANCE NO. 1-27

San Juan County, New Mexico  
September 22, 1961

Location: 1760' F/SL, 2310' F/EL, Section 27  
T31N-R13W, N.M.P.M.

Elevation: 5597' Ground  
5609' K.B. - all measurements from KB

Spud: August 9, 1961

Drilling Completed: September 2, 1961  
Well Completed: September 5, 1961

Total Depth: 6450' Drilled  
6392' Plug Back

Casing:

Surface: 10 3/4" 32.75# H-40 cemented at 185'  
w/150 sx. 2% CaCl<sub>2</sub> cement.

Production: 5 1/2", 14# & 15.5# J-55 S.T.& C. cemented  
at 6450' w/125 sx. 1/2 cu. ft. Strata-Crete  
per sack & 4% gel cement. Thru stage collar  
at 4237' w/172 sx. 50-50 Diamix "A" with 4%  
gel cement.

Tubing: 1 1/2" EUE J-55 hung at 6249'

Logs: BJ Service Simultaneous Nuclear Log

Cores and Drillstem Tests: None

Formation Tops: (Log)

Pictured Cliffs	1703'	(+3906)
Mesaverde	3264'	(+2345)
Cliffhouse	3318'	(+2291)
Menefee	3540'	(+2069)
Pt. Lookout	4090'	(+1519)
Mancos	4439'	(+1170)
Greenhorn	6160'	(- 551)
Dakota	6282'	(- 673)

Producing Perforations: 6296' - 6313'  
6321' - 6335'  
6362' (8-way jets in plane)  
6367' (" " " " " " )  
6382' (" " " " " " )

Treatment: Sand water frac w/140,000# (10-20, 20-40 &  
40-60 mesh) sand, 134,400 gal. slicked water,  
750 gal. acid in two stages.

Initial Potential: Flow volume thru 3/4" choke: 2600 MCFD  
Calculated Absolute Open Flow Potential:  
3084 MCFD.

WELL: WANCE NO. 1-27  
(1760' FSL & 2310' FSL Sec. 27-31N-13W NMPH)  
 FIELD: BASIN DAKOTA  
 COUNTY: San Juan STATE: New Mexico  
 ELEVATIONS: 5597' GD  
5609' KB

8/9/61

Moving in with rig.

8/10/61

WOC. TD 185'. Working on draw works. Spud 10 a.m. yesterday. Set 5 joints 10 3/4", 172' at 185' KB. 150 ex. regular cement 2% CaCl<sub>2</sub>. Plug down 7:30 p.m. Dev. 1/4" at 90'. Circulated cement.

8/11/61

Depth 1520'. Drilled 1334'. Shale. Drilling with Bit 2. Drilling with water, preparing to mud up. Dev. 1/2" at 650' and 1" at 1150'.

8/12/61

Depth 2450'.

8/13/61

Depth 2940'.

8/14/61

Depth 3183'. Drilled 292'. Mud 9.4. Vis. 34. 5% oil. Dev. 3/4" at 2757'.

8/15/61

Depth 3295'. Changing mud pump motor. Drilled 113'. Sand and shale. Mud 9.5. Drilling with Bit 9. Vis. 32. Water loss 13. 5% oil.

8/16/61

Depth 3449'. Drilled 154'. Sand. Drilling with Bit 11. Mud 9.4. Vis. 33. Water loss 11. 1/4" sand. 6% oil.

WELL: WANCE NO. 1-27

8/26/61

Depth 6410'.

8/27/61

TD 6450'. Preparing to run casing. Logged well late last night. Log indicates anticipated Dakota pay sand development from 6290' to 6403'. A good commercial well is assured from these indications.

8/28/61

WOC, rig moving off. Ran 5 1/2" - J-55 - S. T. & C. casing as follows from bottom to top: 72 joints - 15.54' - 2502'; 74 joints - 14# - 2335'; 51 joints - 15.5# - 1617'; for a total of 203 joints 6454'. Landed at 6450' KB. Stage collar at 4237' KB. Cemented DK through shoe with 125 ex. regular 4% gel, 1/2 cu. ft. Strata-Crete #6 cement. Bumped plug with 2000 PSIG, check float, held OK. Opened stage collar and cemented opposite MW with 86 ex. regular cement and 86 ex. Diamix "A" with 4% gel. Bumped plug at 2000 PSIG - checked stage collar closing - OK. Good returns throughout job.

8/29/61

WOC.

8/30/61

Started to move on completion rig this a.m. Hard rain last night, stopped operation, too muddy.

8/31/61

Rigging up completion rig.

9/1/61

Going in hole to drill float collar, drilling cement from 4222' to 4236'. Drilled stage collar at 4226' (2' from casing measurement), pressure up to 1150 PSIG - held OK.

9/2/61

Running correlation log. Cleaned out to PBTD of 6392'. Pressured up casing to 3000 PSIG for 15 minutes - held OK. Spotted 750 gal. 15% mud acid.

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8/17/61

Depth 3827'. Drilled 378'. Sand and shale. Drilling with Bit 12. Mud 9.4. Vis. 33. Water loss 12. 6% oil. PH 8.5.

8/18/61

Depth 4262'. Tripping for Bit 14. Drilled 415'. Sand and shale. Mud 9.3. Vis. 34. Water loss 13. Mud cake 2/32. PH 8.5. Dev. 1 1/2" at 3865'.

8/19/61

Depth 4525'. Drilling with Bit 15. Drilled 288'. Sand. Mud 9.4. Vis. 34. Water loss 11. Mud cake 2/32. 5% oil. Sand 1/4%. PH 8.5. Dev. 1 1/4" at 4320'.

8/20/61

Depth 4890'. Drilling with Bit 16. Drilled 265'. Sand and shale. Mud 9.4. Vis. 35. Water loss 10. Mud cake 2/32. 6% oil. 1/4" sand. PH 8.5.

8/21/61

Depth 5221'. Trip for Bit 18. Drilled 331'. Sand and shale. Mud 9.1. Vis. 39. Water loss 11. Mud cake 2/32. Sand 1/8%. 6% oil. PH 8.5. Dev. 1" at 4940'.

8/22/61

Depth 5580'. Trip for Bit 19. Drilled 369'. Sand and shale. Mud 9.3. Vis. 40. Water loss 12. 7% oil. Sand 1/4%. Had hole in drill pipe.

8/23/61

Depth 5860'. Drilling with Bit 20. Drilled 280'. Sand and shale. Mud 9.4. Vis. 42. Water loss 13. Mud cake 2/32. 7% oil. PH 9. Sand 1/4%.

8/24/61

Depth 6221'. Trip for Bit 22. Drilled 341'. Sand and shale. Mud 9.4. Vis. 47. Water loss 10. Mud cake 2/32. PH 9. 7% oil. Dev. 1 1/4" at 5955'.

8/25/61

Depth 6399'. Trip for Bit 23. Mud 9.5. Vis. 48. Water loss 10.5. 8% oil. Lost 75 bbls. mud at 6315'.

WELL: WANCE NO. 1-27

9/3/61

Pumping and hauling frac water.

Lower Stage Dakota Frac as Follows:

Perforated with BJ 8-way frac jets at 6362', 6367' and 6393'. Soaked away mud acid in 3 stages. Broke down at 1000 PSIG, took acid at 600 PSIG at 1 BPM. Fraced with 60,000# (30,000# 40-60, 30,000# 20-40 mesh) sand, and 63,400 gal. water treated with fluid loss additive, slickum and 1% CaCl<sub>2</sub>. Minimum pressure 2200 PSIG, maximum pressure 3200 PSIG. Average rate during frac, 38 BPM. Overall rate 36 BPM. Instant shut-in pressure 2300 PSIG, 10 minute shut-in 1250 PSIG. Set bridge plug at 6350'. Perforated from 6296' to 6313' and 6321' to 6335' with 2 jets and 2 bullets per foot.

Lower Stage Summary:

60,000# sand  
 63,400 gal. water  
 750 gal. acid  
 38 BPM  
 2200-3200 PSIG

9/4/61

Pulling plugged bit.

Upper Stage Dakota Frac as Follows:

Fraced with 80,000# (40,000# 40-60, 35,000# 20-40, 5,000# 10-20 mesh) sand and 71,000 gal. water treated with fluid loss additive, slickum and 1% CaCl<sub>2</sub>. Minimum pressure 1600 PSIG, maximum pressure 2600 PSIG. Overall rate 38.5 BPM. Instant shut-in 1700 PSIG, 15 minute shut-in 1150 PSIG. Left well shut-in 1 hour after frac, opened and flowed back 600 bbls. frac water in 3 hours. While going to clean out, well very lively (very little sand flow-back). Circulated out 35' sand on top of bridge plug while drilling; plugged bit. While drilling plug, lost 200 bbls. water to DK.

Upper Stage Summary:

80,000# sand  
 71,000 gal. water  
 38.5 BPM  
 1600-2600 PSIG  
 20 Balls

9/5/61

Preparing to land 1 1/2" tubing. Drilled plug at 6350'. Cleaned out to PBTD of 6392'. Came out of hole, ran 198 joints of 1 1/2" integral joint tubing (6232.83'), plus 3 - 2' subs for total of 6238.83', set at 6248.83' KB. Jet collars at 5053', 4359' and 3854'.

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WELL: NANCE NO. 1-27

9/6/61

Flowing back frac water. After 19 hours open, making heavy mist and over 900 MCFD. (Gage broken, could not record, will have accurate gage later today). Went in to break tubing disk and after breaking tubing disk, lost 1 1/2" swabbing tool in hole. Swabbing tool went to bottom.

9/7/61

Flowing back frac water. After 24 hours open, making 1250 MCFD, heavy spray of water. Casing pressure 600 PSIG.

9/8/61

After 52 hours wide open to atmosphere, making 1020 MCFD, casing pressure 490 PSIG, heavy spray of frac water, drier than yesterday.

9/9/61

Shut-in.

9/10/61

Shut-in for 7 day test at 4 p.m. 9/9/61. Shut-in casing pressure after 40 hours 1875 PSIG. Opened to atmosphere for 6 hours, after 6 hours making 2060 MCFD and heavy mist. Will test 9/16/61.

9/11/61

Shut-in for 7 day test.

9/12/61

Shut-in.

9/13/61

Shut-in.

9/14/61

Shut-in.

9/15/61

Shut-in.

WELL: NANCE NO. 1-27

9/16/61

Ran 3 hour potential test with following results:

Time After <u>Opening</u> Minutes	Casing <u>Pressure</u> PSIG	Tubing <u>Pressure</u> PSIG	Temp. ° F.
0	2047	2043	
15	1677	610	38
30	1436	533	38
45	1318	414	39
60	1194	362	42
120	979	239	46
180	918	* 179	46

\* Approximately 2650 MCFD

9/17/61

Shut-in

9/18/61

Shut-in

# OPEN FLOW TEST DATA

DATE September 22, 1961

Operator <b>Consolidated Oil &amp; Gas, Inc.</b>		Lease <b>Nance No. 1-27</b>	
Location <b>Sec. 27, T31N-R13W</b>		County <b>San Juan</b>	State <b>New Mexico</b>
Formation <b>Basin Dakota</b>		Pool <b>Dakota</b>	
Casing: Diameter <b>5 1/2"</b>	Set At: Feet <b>6450</b>	Tubing: Diameter <b>1 1/2"</b>	Set At: Feet <b>6249</b>
Pay Zone: From <b>6296</b>	To <b>6335</b>	Total Depth: <b>6450</b>	
Stimulation Method <b>Sand-water frac</b>		Flow Through Casing	Flow Through Tubing <b>X</b>

Choke Size, Inches <b>0.750</b>		Choke Constant: C <b>14.1605</b>			
Shut-In Pressure, Casing, PSIG <b>2047</b>	+ 12 = PSIA <b>2059</b>	Days Shut-In <b>7</b>	Shut-In Pressure, Tubing PSIG <b>2043</b>	+ 12 = PSIA <b>2055</b>	
Flowing Pressure: P PSIG <b>179</b>	+ 12 = PSIA <b>191</b>		Working Pressure: P <sub>w</sub> PSIG <b>918</b>	+ 12 = PSIA <b>930</b>	
Temperature: T °F <b>46</b>	n = <b>0.750</b>		F <sub>pv</sub> (From Tables) <b>1.025</b>	Gravity <b>.70</b>	

$$\text{CHOKE VOLUME} = Q = C \times P_r \times F_r \times F_g \times F_{pv}$$

$$Q = 14.1605 \times 191 \times 1.0137 \times .9258 \times 1.025 = \underline{2600} \text{ MCF/D}$$

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

$$Aof = \left( \frac{4239481}{3374581} \right)^n = 1.186$$

$$Aof = \underline{3084} \text{ MCF/D}$$

TESTED BY \_\_\_\_\_

WITNESSED BY \_\_\_\_\_

*[Handwritten Signature]*