# DRILLING & COMPLETION HISTORY

# CONSOLIDATED OIL & GAS, INC.

# ROURKE NO. 1-4

San Juan County, New Mexico January 4, 1963

Location:

790' F/SL, 790' F/WL, Section 4 Township 30 North, Range 13 West

Elevations:

5574' GL

5586' KB - all measurements from KF

Spud:

November 28, 1962

Drilling Completed: Well Completed:

December 12, 1962 December 19, 1962

Total Depth:

6228' Drilled 6188' PBTD

Casing - Surface:

9 5/8" set at 212' KB with 175 sx. regular

DIST. 3

2% CaCl<sub>2</sub>.

- Production:

4 1/2" set at 6228' cement with 292 sx. through shoe and 82 sx. through stage

collar at 4186'.

- Tubing:

1 1/2" landed at 6037'.

Logs:

Gamma Ray/Neutron

Cores & Drillstem Tests:

 ${\tt None}$ 

Formation Tops (Log):

Cliffhouse 3114' (+2472)
Menefee 3247' (+2329)
Point Lookout 3898' (+1688)
Greenhorn 5982' (- 396)
Dakota 6077' (- 491)

Producing Perforations:

6086' - 6110' 6120' - 6140' 6172' - 6186'

Treatment:

Sand water frac with 149,000 gal. water and

100,000 lbs. sand in two stages.

Initial Potential:

Flow volume through 3/4" choke: 5959 MCFD Calculated Absolute Open Flow Potential:

11,024 MCFD.

WFILE: Rourke No. 1-4

790' F'SL, 790' F/WL, Sec, 4-T30N-R13W

FIFLD: Basin Dakota

COUNTY: San Juan STATE: New Mexico

 FLEVATIONS:
 5574
 GL

 5586
 KB

### 11/28/62

Finished rigging up rotary rig. Present operation, drilling mouse hole.

#### 11/29/62

Drilled 2:2' of 13 3/4" hole. Dev. 1/2 at 89'. Ran 7 joints 9 5/8" casing for 201' set at 212' KB. Cemented with 175 sx. regular 2% CaCl<sub>2</sub>. Plug down 2 a.m. 11/29. Had good returns on cement. Present operation, WOC.

#### 11/30/62

Depth 18:2'. Drilled 1600' of sand and shale. Drilling with Bit 2 with water. Dev. 1/2° at 500', 3/4° at 950', 3/4° at 1400'.

#### 12 - 1762

Depth 2712'. Drilled 900 of sand and shale. Drilling with Bit 3. Dev.  $1^{9}$  at 2300'.

#### 12/2/62

Depth 3065'. Drilled 353' of sand and shale. Present operation, drilling with Bit 5. Mud 8.5. Vis. 30. Dev. 3/4° at 2950'.

### 12/3/62

Depth 3320°. Drilled 255° of sand. Present operation, drilling with Bit 7. Mud 8 5. Vis. 30. Water loss 40. Dev.  $3/4^{\circ}$  at 2950°.

#### 12/4/62

Depth  $3660^\circ$ . Drilled 340 of sand and shale. Present operation, drilling with Bit 9. Mud 8.9. Vis. 30. Dev.  $1^{\rm G}$  at 3375'.

Page 2

WELL:

ROURKE NO. 1-4

## 12/5/62

Depth 4172'. Drilled 512' of sand and shale. Present operation, drilling with Bit 10. Mud 8.9. Vis. 30. Water loss 36.

## 12/6/6

Depth 4435'. Drilled 263' of sand and shale. Present operation, drilling with Bit 12. Mud 8.9. Vis. 30. Dev. 1 1/2° at 3850'.

## 12/7/62

Depth 4847'. Drilled 412' of sand and shale. Present operation, making trip for Bit 14. No loss of mud as of yet. Mud 8.9. Vis. 30. Dev. 10 at 4590'.

## 12/8/62

Depth 5133'. Drilled 286 of sand and shale. Present operation, drilling with Bit 15. Mud 9.3. Vis. 41. Dev. 3/4° at 5050'.

## 12/9/62

Depth 5550'. Drilled 420' of sand and shale. Lost 100 bbls, mud at 5550'. Dev. 1/2° at 5456'. Vis. 45, Mud 9.5.

## 12/10/62

Depth  $6093^{\circ}$ . Drilled  $542^{\circ}$  of sand and shale. Present operation, making tr:p for Bit 18. Mud 8.5. Vis. 47. Dev.  $1^{\circ}$  at 5790 $^{\circ}$ .

## 12/11/62

Depth 6186'. Drilled 93' of sand and shale. Present operation, drilling with Bit 20. Vis. 55. Mud 9.5.

## $\underline{12/12/62}$

Depth 6227°. Drilled 41° of sand and shale. TD'd at 6:30 p.m. 12/11. Made two short trips, came out of hole, ran logs. Ran drillpipe back to TD, on bottem at 3 a.m. 12/12/62. Present operation, circulating, waiting on 4 1/2° casing.

## 12/13/62

Ladd down drillpipe, rigged up, ran 4 1/2" casing. Ran 129 joints of 4 1/2" 9.5# casing for 4082.67. Ran t9 joints 4 1/2" 11.60# casing

WELL:

ROURKE NO. 1-4

## 12/13/62 Cont'd.

for 2152, 95'. Total pipe, 198 joints 4 1/2' casing for 6235, 62' set at 6227, 62' KB. Stage collar at 4186' KB. Float collar at 6202' KB. One centralizer on shoe joint, one cement basket at 4217, 44' KB. One centralizer at 3900' KB, one centralizer at 4248, 70' KB. First cement stage, ran pre-flush 50 cu, it, of GP100 cemented with 292 sx, one to one Diamix A. Plug down 8:45 p.m. 12/12/62. Bumped plug with 2000#, good circulation throughout cement job. WOC 3 hours, did second stage cement with 82 sx, 40% Diacel D, plug down 12:30 a, m. Bumped plug with 1800#, good returns on cement job.

#### 12/14/6

Moving out rotary rig,

#### 12/15/62

Moving in completion rig.

### 12/16/62

Moved in completion rig. Rigged up, nippled up. Pick up 2 3/8" tubing ran to top of DV tool. Pressured up to 1500%, having a lot of trouble with pump, blowing gaskets due to excess pump pressure, 2 3/8" inside of 4 1/2" casing. Present operation, drilling on DV tool at 4186'.

### 12/17/62

Pressured up on top of DV tool to 1500#. Pressure held. Drilled DV tool at 4166'. Pressured up to 1500#, pressure held. Ran 3 7/8" bit and 2 3/8" tubing to 6188'. Circulated and cleaned hole up. Pressured up with Halliburton to 3100#, pressure held. Spotted 1000 gal. MCA 15%, came out of hole with tubing. Rigged up PCAC, ran correlation log. Perforated four per foot 6172'-6186', 56 holes. Rigged up Halliburton staged acid away:

First stage acid - breakdown one pump 900\* to 700\*, pumped 5 bbls. in at rate of 2 BPM, let set 5 min., pressure dropped to 400\*.

Second stage acid - pumped 5 bbls. in rate of 4 BPM at 1000#, let acid set 5 min., pressure dropped to 400#.

Third Stage acid - Pumped 5 bbls. in rate of 4 BPM at 1000#, let acid set 5 min., pressure dropped to 400#.

Page 4

WELL:

ROURKE NO. 1-4

## 12/17/62 Cont'd.

Fourth stage acid - pumped 9 bbls, in rate of 23 BPM. All pumps on 2700#, formation break, 2700# to 2200#. Shut down five minutes, pressure dropped to 600#. In prep to frac. Rigged up Halliburton (five pumps).

## First stage frac;

Breakdown all pumps	2700#	Breakdown & fill	1500 gal,
Maximum treating	3000#	Treatment fluid	71,000 gals.
Minimum treating	2500#	Flush	97 bbls.
Average treating	2700#	Overflush	53 bbls.
Final treating	2800#	Rubber balls	None
Instant shut in	1200#	Sand	40,000 lbs.
Five minute shut in	1000#	Injection rate, treat.	32, I BPM
Tob complete at 5:20 n	m.	Overall ini. rate	31 BPM

Ran 4# per 1000 gal. stater of FR-4 with 1% CaCl<sub>2</sub>. Rigged up PGAC. Set Model OE top drilling plug at 6150' KB. Perforated four per foot 6140'-6120', 6110'-6086'. Rigged up Halliburton.

## Second stage frac:

Breakdown all pumps	2100#	Breakdown & fill	1600 gal.
Maximum treating	3000#	Treatment fluid	78,000 gals.
Minimum treating	2500#	Flush	4000 gal.
Average treating	2800#	Overflush	None
Final treating	2900#	Rubber balls	40
Instant shut in	1500#	Sand	60,000 lbs.
Five minute shut in	1200#	Injection rate, treat.	33.1 BPM
Job complete at 9:30 p	.m.	Overall inj. rate	32 BPM

Ran 4# of FR-4 per 1000 gal. water, nippled up, started blowing hole down at la.m. 12/17/62. Blew well down to 1850'. Blew well from this depth for 2 1/2 hours, well started unloading on own. Running tubing and blowing well at 3410', good show of gas, well making lot of water and sand. Too wet to gauge.

## 12/18/62

Finished blowing well to bridge plug at 6150°, blew well 3 1/2 hours, gauged well, making 3007 MCFD. Started to drill bridge plug, plugged bit, started out with bit, power tongs cratered. Came out of hole, came back in with new bit or bridge plug at 12 midnight. Started drilling on plug, drilled top off of plug, well started making lot of water and sand drilled and plushed plug on to PBTD of 6188°. Well clean of sand,

WELL:

ROURKE NO. 1-4

## 12/18/62 Cont'd.

making very little water, gauged well, making 4006 MCFD with good spray of oil. Present operation, laying down 2 3/8" completion string.

## 12/19/62

Finished laying down 2 3/8" completion string. Rigged up and ran 1 1/2" tubing. Ran 185 joints 1.90 OD, 2.90# V50 tubing for 6017,33". Ran 9.78' of subs, ran one 1.13 pump-out plug, tubing landed at 6037' KB. Ran 1 1/2" jet collar at 5542' KB, ran one 1 1/2" jet collar at 5768.55'.

## 12/20/62

Shut in for test.

## OPEN FLOW TEST DATA

Operator		Leese		
Consolidated Oil & Gas, Inc.		Rourke 1-4		
Location		Caunty	State	
790'FSL, 790'FWL, Sec. 4 - 30N - 13W		San Juan	New Mexico	
Formation		Poei		
Dakota		Basin		
Casing: Diameter 4-1/2"	Set At: Feet 6227	Tubing: Diemeter 1 - 1 / 2	Set An Feet 6017	
Pay Zono: From 6086	6186	Total Dopth: 6227		
Stimulation Method	0100	Flow Through Casing	Flow Through Tubing	
Sand Water Frac			x	

Choke Size, Inches			Cheke Constant	+ C			
	0.75		14.16	05			
Shut-in Pressure, Con	2010	PSIG	- 12 = PSIA 2022	Days Shut-In	Shus-In Pressure, Tubing 2022	PSIG	- 12 = P\$IA 2034
Flowing Pressure: P	411	PSIG	- 12 = PSIA	423	Working Pressure: Pw 1500	PSIG	- 12 = PSIA 1512
Temperature: T	45	#	n =	0.75	Fpv (From Tables) 1, 059		0.70

CHOKE VOLUME = Q = C x P, x F, x F, x F, x F.  Q = 14, 1605 x 423 x 1.0147 x 0.9258 x 1.059 =	5959	.MCF/D
OPEN FLOW: Asf = Q $\left( \begin{array}{c} \frac{2}{P_c^2 - P_u^2} \end{array} \right)^n$		
Acf = $\left(\begin{array}{c} \frac{4,088,484}{1,802,340} \end{array}\right)^n$ = 1,55		
Aof11,024 MCF D		
TESTED BY L. W. Jackson		

W. H. Williams, Chief Engineer