

DRILLING AND COMPLETION HISTORY

Consolidated Oil & Gas, Inc.

Jicarilla "C" No. 1-11

Rio Arriba County, New Mexico

November 19, 1963

Location: 890' FSL, 990' FEL, Sec. 11, T26N, R4W, N.M. P.M.

Elevations: 6847' GL
6858' KB

Spud: October 11, 1963

Drilling Completed: October 18, 1963

Well Completed: November 19, 1963

Total Depth: 7992' Driller, 8008' Log, 7967' Plugback.

Casing:

Surface: 9-5/8", 36# set at 197' and cemented with 150 sx.

Intermediate: 7", 26.4# set at 3531' and cemented with 150 sx.

Production: 249 jts. of 4-1/2", 9.5# and 11.6#, plus 1 jt. of 5-1/2", 15.5# on top, set at 8005' KB. Cemented in three stages as follows:

First Stage: 53 sx. reg. and 53 4%. Diamix "A" thru casing shoe at 8005'.

Second Stage: 44 sx. Type "C", 4% gel and 44 sx. Diamix "A" thru stage collar at 5910' KB.

Third Stage: 49 sx. Type "C", 4% gel and 49 sx. Diamix "A" thru stage collar at 3679' KB.

Tubing: 1-1/2" Integral Joint landed in Baker Model "D" packer at 7660'.

1" reg. landed at 5545'.

Logs: Lane-Wells: Gamma Ray Neutron

Cores and Drillstem Tests: None.

Formation Tops (Log):

Cliffhouse	5240' (+1618)
Point Lookout	5604' (+1254)
Greenhorn	7646' (- 788)
Graneros	7728' (- 870)

Producing Perforations:

M. V.	D. K.
5612-40'	7736-90'
5668-88'	7878-7902'
5702-18'	7922-34'
5728-32'	
5745-58'	
5770-80'	

Treatment:

(M. V.) Sand-water frac with 87,800 gals. water, and 125,000# sand.

(D. K.) Sand-water frac with 137,100 gals. water, and 100,000# sand.

Initial Potential: (M. V.) Flow volume thru 3/4" choke: 1085 MCFD
Calculated Absolute Open Flow: 2175 MCFD

(D. K.) Flow volume thru 3/4" choke: 1660 MCFD
Calculated Absolute Open Flow: 2175 MCFD

WELL: JICARILLA "C" NO. 1-11
890' F/SL, 990' F/EL., Sec. 11, T26N-R4W
FIELD: Basin Dakota, Blanco Mesaverde
COUNTY: Rio Arriba STATE: New Mexico
ELEVATIONS: 6847 GL
6858' KB

10/9/63

Moved in rotary rig.

10/10/63

Rigging up.

10/11/63

Finished rigging up. Nipped up. Picked up drill pipe. First indication of fluid was at 2339'. Present operation - blowing hole. 3534', 3' below 7" casing. Have been blowing at this depth for 30 mins. Hole showing estimated 200 MCF with small streams of distillate.

10/12/63

Depth 3764'. Drilled 147' sand and shale. Drilled with Bit 1. 1 3/4" dev. at 3650'. Blew and cleaned out to old TD of 3617'. Well dusting satisfactorily.

10/13/63

Depth 4464'. Drilled 700' sand and shale. 2° dev. at 4252'. Drilling with Bit 2. Well dusting satisfactorily.

10/14/63

Depth 5090'. Drilled 626'. 2 1/4" dev. at 4800'. Drilling with Bit 3. Dusting satisfactorily.

10/15/63

Depth 5776'. Drilled 616' sand and shale. Present operation - drilling with Bit 4. 2 1/2" dev. at 5182'. 2° at 5734'. Well dusting.

10/16/63

Depth 6500'. Drilled 766' sand and shale. Present operation - drilling with Bit 5. 2 1/2" dev. at 6318'. Well dusting satisfactorily.

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WELL: JICARILLA NO. "C" 1-11

10-17-63

Depth, 7360'. Drilled 860', sand and shale. Presently drilling with Bit #6, bottom bit. Made trip at 7062'. Blew for 2 hrs., began dusting.

10-18-63

Total depth, 7999'. Drilled 639', sand and shale. Presently pulling out of hole to log. No natural flow at this depth.

10-19-63

Finished coming out of hole with drill pipe. Logged well. Went back in hole with drill pipe; blew hole 1-1/2 hrs. Came out laying down all drill pipe. Rigged up and ran 159 jts. 4-1/2" 11.60# casing; 90 jts. 4-1/2" 9.50# casing; and 1 jt. 5-1/2" 15.50# casing on top. Total casing run: 8008'. Set at 8005' KB. First-stage collar at 5910' KB with basket; second-stage collar at 3679' KB with basket. Float collar at 7970' KB. Presently cementing first-stage.

10-20-63

First-stage cement: 63 sx reg., 53 sx Diamix "A", 1/8# celloflake per sk. preflushed with 22 bbls. gel water.

Second-stage cement: 44 sx Type "C" with 4% gel., 44 sx Diamix "A" 1 8# celloflake per sk.

Third-stage cement: 49 sx Type "C" with 4% gel., 49 sx Diamix "A".

Had good circulation on last stage. Bumped all plugs with 2000#, held.

10-21-63

Waiting on completion rig.

11-2-63

Moving on completion rig. Working on unit radiator.

11-4-63

Rigged up completion rig. Nipped up. Picked up 2-3/8" tubing. Presently pressuring up on stage collar at 3679'.

WELL: JICARILLA "C" NO. 1-11

11-5-63

Pressured up on stage collar at 3679' to 1500#, held. Drilled stage collar at 3679'. Pressured up to 1500#, held. Finished picking up 2-3/8" tubing. Went into second stage collar at 5910'. Drilled stage collar at 5910'. Ran tubing to 7910'. 50' to cleanout depth. Preventer trouble - changing out.

11-6-63

Finished cleaning out to 7970' (float collar). Circulated and cleaned hole; pressured up to 3200#, 5 minutes, okay. Spotted 1000 gals. 15% reg. acid. Changing out blowout preventer. Came out of hole with 2" tubing. Rigged up Lane-Wells:

Perforated: 7922-34', 4/ft.
7878-7902', 6/ft.

Rigged up Halliburton:

Stage acid in:	Broke at 2200#, S.I.	850#
	1500	700
	1500	700
	1350	700

First-stage frac (Graneros):

Break down 1 pump:	2200	Break down & fill:	3650
Break down all pumps on:	Max.	Treating fluid:	52,600 gals., with
Max. treating pressure:	3350		FR-4 & WG-4/1000 gal.
Min. treating pressure:	2700	Flush:	5224
Ave. treating pressure:	3150	Overflush:	1836
Final treating pressure:	3300	Sand:	20,000#, 40-60;
Instant S.I.:	2200		20,000#, 20-40.
5-Minute S.I.:	2000	Rubber balls:	None
		Maximum injection rate:	35
		Avg. injection rate:	29.5 BPM
		(Job completed 12:45 a.m., 11/6/63)	

Rigged up Lane-Wells:

Ran and set Baker magnesium bridge plug at 7850'.
Perforated 7736-90', 4/ft.

Second stage (Graneros):

Break down 1 pump:	3100 psi	Break down & fill:	1350 gals.
All pumps on:	3150	Treating fluid:	84,500 gals., with 13#
Max. treating pressure:	3250		FR-4, WG-4/1000 gal.
Min. treating pressure:	2800	Flush:	5200
Ave. treating pressure:	3100	Overflush:	None
Final treating pressure:	3200	Sand:	30,000#, 40-60;
Instant S.I.:	2100		30,000#, 20-40.
5-Minute S.I.:	2000	Rubber balls:	20
		Max. injection rate:	43
		Avg. injection rate:	39.6
		(Job completed 8:05 a.m., 11/6/63)	

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WELL: JICARILLA NO. "C" 1-11

11-6-63 - contd.

Third stage (Mesaverde):

Rigged up Lane-Wells. Set bridge plug at 5827'.

Perforated 2/ft.: 5612-40'
5668-88'
5702-18'
5728-32'
5745-58'
5770-80'

Break down 1 pump:	1800 psi	Break down & fill:	1200 gal.
All pumps:	2200	Treating fluid:	87,800 gals., with 4#
Max. treating pressure:	2600		FR-4, WG-4/1000 gal.
Min. treating pressure:	2200	Flush:	4770 gal.
Avg. treating pressure:	2450	Overflush:	None
Final treating pressure:	2800	Sand:	125,000#, 20-40.
Instant S.I.:	800	Rubber balls:	100
5-Minute S.I.:	600	Max. injection rate:	55
		Avg. injection rate:	50 bbl./hr.
		(Job completed 1:26 p.m., 11/6/63)	

11-7-63

Frac'd Graneros and Mesaverde. Nipped up. Blew well down to 2600'. Made water from this depth for 5 hrs. Some show of gas. Well stopped making water and gas. Blew hole on down to 5500'. 112' above top perforation; have hit sand. Preparing to clean out sand. (Bridge plug at 5827')

11-8-63

Attempted cleaning out sand. Almost stuck tubing. Pulled up hole; checked tubing for leaks - did have leak; pulled 2400' of tubing. Went back in hole. Began blowing at 3350'. Made 2 to 3" stream of water at this depth for 10 hrs. Water diminished. Blew on to bridge plug, 5827'. Blew and cleaned for 5 hrs. Gauged Mesaverde, 3,500 MCFD. Had float failure; came out of hole to change float. Making water and small amount of sand.

11-9-63

Making trip for new float. Went back to bridge plug (5827'). Mesaverde still making 3.5 million. Drilled top off bridge plug at 5827' at 1:30 p.m., 11-8-63. Log off when top drilled from plug. Pulled bit up to 2400' to break circulation. When circulation was made, lots of pure oil was blown from the well. Blew well from depth of 2900' for 2 hrs. Began blowing down. Blew down to bridge plug (5827'), 5:30 a.m. Presently drilling on bridge plug at 5827'. Have good increase in gas. Well making lots of oil.

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OPEN FLOW TEST DATA

11-10-63

Drilled plug loose at 5827'. Drilled and pushed plug to 7600'; lost circulation. Pulled up 10 stands; broke circulation. Drilled and pushed plug on to 7740' (in perforation). Drilled on plug; lost circulation. Pulled up 8 stands; broke circulation. Went back down to plug. Drilled plug on down to 7808'; lost circulation. Presently pulling up to break circulation. (Lost circulation because button-hole pressure and restriction is greater than line surface gas.) Well making estimated 4 million with some sand and water; good show of oil.

11-11-63

Attempted breaking circulation - couldn't. Pulled bit out of hole. Float plugged with sand and magnesium. Went back in hole; broke circulation at 6000'. Went on to 7500'. Couldn't circulate. Pulled up to 7000'. Broke circulation. Blew on to 7640'. Gradually logged off. Pulled up hole to 7000'. Broke circulation. Presently blowing well at 7120'.

11-12-63

Began injecting water at 7120'. Went on in and circulated sand down to 7808', original depth to which bridge plug was pushed. Drilled and pushed plug on to 7850' to next bridge plug. Well heading and unloading lots of gas and water. Drilled up first plug. Drilled loose second plug at 7850'. Have drilled and pushed plug to 7903'. Have been drilling on plug at this depth for 3 hrs. Well unloaded from 8:00 p.m. to 12:00 midnight. Cleaned hole of lots of sand, oil and water. Have not had circulation for 2 hrs. Injecting water and drilling. Had to dig burn pits to catch water and oil.

11-13-63

Finished drilling and pushing bridge plug to 7920'. No circulation for 8 hrs., while injecting water and drilling on bridge plug. Pulled bit up to 1450' of surface before being able to circulate with gas. Presently blowing down at 3600'. Making 3" stream of water and oil.

11-14-63

Blowing down at 5200' at 5:00 p.m. 3" stream of oil and water. 6500' at midnight; 5100' at 7:00 a.m., with line pressure down to 400#. Oil increasing and trying to log off. 2 to 2-1/2" stream of fluid.

11-15-63

Blew down to 6100'. Came out of hole, laying down. Making 2 to 2-1/2" stream of oil. Increase in fluid and gas after pulling up hole. Rigged up Lane Wells. Tagged bottom at 7967' on dummy run. Ran and set Baker Model "D" production packer at 7660'. Blew hole and unloaded well. Ran 2064' of 1-1/2" integral joint and 2-1/16" blast joints in hole at 7:00 a.m.

DATE November 25, 1963

Operator	Consolidated Oil & Gas, Inc.	Lease	Jicarilla "C" 1-11
Location	890' FSL, 990' FEL, Sec. 11, T26N, R4W	County	Rio Arriba
Formation	Mesaverde	State	New Mexico
Casing Diameter	4-1/2"	Set At Feet	8005' KB
Pay Zone From	5612'	To	5780'
Simulation Method	Sand Water Frac	Total Depth	8008'
		Flow Through Casing	
		Flow Through Tubing	X

Choke Size, Inches	0.75"	Choke Constant C	14,1605
Shut-in Pressure, Casing, PSIG	1208	Days Shut-in	7
Flowing Pressure, P, PSIG	68	Shut-in Pressure, Tubing, PSIG	1208
Temperature, T, °F	39	Working Pressure, P _w , PSIG	947
		Flow From Tubing	1,613
		Gravity	0.70 (est.)

$$\text{CHOKE VOLUME} = Q = C \times P_c \times F_1 \times F_2 \times F_3 \times F_4$$

$$Q = 14,1605 \times 80 \times 1,0208 \times 1,9258 \times 1,013 = 10.5 \text{ MCF D}$$

$$\text{OPEN FLOW } Aof = Q \left(\frac{P_c^3}{P_c - P_w} \right)^n$$

$$Aof = \left(\frac{1220^2}{1220 - 947} \right)^n \quad 2,532^{.75} = 2,005$$

$$Aof = 2175 \text{ MCF D}$$

TESTED BY John Walker

WITNESSED BY Clyde Phillips

W. H. Williams
W. H. Williams, Chief Engineer

WELL:

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OPEN FLOW TEST DATA

11-16-63

Landed 1-1/2" I.J. in Baker Model "D" at 7660'. Blast joints from 5599' to 5641', and 5651' to 5779'. Ran a total of 7648' of tubing. Set with 10,000# on packer. Ran a total of 5540' of 1" reg. tubing open-end with jet subs at 5283' and 4795'. Landed tubing at 5545', 62' above perforations. Pumped out plug on 1-1/2" at 800 psi., pumped in at 400 psi. Well went on vacuum. Pressure this a.m., 1080 psi on Dakota and Mesaverde 970/970.

11-17-63

No report.

11-18-63

No report.

11-19-63

Ran 3-hr. test on both zones: Dakota, S.I. 2019'. After 3-hr. flow thru 3/4" choke, 110# tubing pressure with heavy flow of oil, some water. Mesaverde: Shut in, 1094/1094. After 3-hr. flow thru 3/4" choke, tubing pressure, 41#, casing pressure 790# with spray of oil and water.

11-20-63

No report.

11-21-63

No report.

11-22-63

No report.

DATE December 2, 1963

Operator	Consolidated Oil & Gas, Inc.	Lease	Jicarilla "C" 1-11
Location	890' FSL, 990' FEL, Sec. 11, T26N, R4W	County	Rio Arriba
Formation	Dakota	State	New Mexico
Casing Diameter	4-1/2"	Set At Feet	8005'
Pay Zone From	7736'	To	7934'
Simulation Method	Sand Water Frac	Total Depth	8008'
		Flow Through Casing	
		Flow Through Tubing	X

Choke Size, Inches	0.75	Choke Constant C	14,1605
Shut-in Pressure, Casing, PSIG	Pkr.	Days Shut-in	7
Flowing Pressure, P, PSIG	110	Shut-in Pressure, Tubing, PSIG	2378
Temperature, T, °F	35	Working Pressure, P _w , PSIG	2390
		Flow From Tubing	1,613
		Gravity	0.70 (est.)

$$\text{CHOKE VOLUME} = Q = C \times P_c \times F_1 \times F_2 \times F_3 \times F_4$$

$$Q = 14,1605 \times 122 \times 1,0243 \times 1,9258 \times 1,013 = 10.6 \text{ MCF D}$$

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

$$Aof = \left(\frac{122^2}{122 - 110} \right)^n$$

$$Aof = \text{MCF D}$$

TESTED BY Aubrey Prater

WITNESSED BY Clyde Phillips

W. H. Williams
W. H. Williams, Chief Engineer