

DRILLING AND COMPLETION HISTORY

CONSOLIDATED OIL & GAS, INC.

TRIBAL "C" NO. 10-7

Rio Arriba County, New Mexico

August 29, 1962

Location:	1750' F/SL, 1450' F/EL, Section 7 T26N-R3W, N.M.P.M.		
Elevations:	6894' GL 6905' KB - all measurements from KB		
Spud:	June 28, 1962		
Drilling Completed:	July 17, 1962		
Well Completed:	July 29, 1962		
Total Depth:	8093' Drilled 8044' Plug Back		
Casing:			
Surface:	10 3/4" 32.75# cemented at 310' with 250 sx. 2% CaCl ₂ cement		
Production:	7 5/8" 26.40# J-55 S.T. & C. cemented at 3984' with 75 sx. 40% Diacel, tailed in with 185 sx. 50% Diamix. 5 1/2" 17 & 15.5# J-55 liner 3823'-8080' cemented with 233 sx. regular 4% gel. cement squeezed top with 72 sx.		
Tubing:	1 1/2" EUE at 7656' set in Baker Model "D" packer at 7650'. 1" V-50 IF CW hung at 3595'		
Logs:	Welex Radioactivity, Induction Electric, & Acoustic		
Cores & Drillstem Tests:	None		
Formation Tops: (Log)	Pictured Cliffs	Fm.	3578' (+3327')
	Pictured Cliffs	Sd.	3609' (+3296')
	Pt. Lookout		5750' (+1155')
	Mancos		5897' (+1008')
	Gallup		6723' (+ 182')
	Greenhorn		7700' (- 795')
	Graneros Sd.		7796' (- 891')
	Dakota		7896' (- 991')
Producing Perforations:	DK	PC	
	7798' - 7824'	3610' - 3640'	
	7900' - 7916'	3658' - 3668'	
	7940' - 7964'		
	7982' - 8006'		
Treatment: DK	Sand water frac in three stages with 135,600 gal. water, 110,000 lbs. sand, 1000 gal. acid.		
PC	Sand water frac with 89,000 gal. water, 100,000 lbs. sand.		
Initial Potential: DK	Flow volume thru 3/4" choke: 509 MCFD		
PC	Flow volume thru 3/4" choke: 2934 MCFD Calculated Absolute Open Flow Potential: 3208 MCFD		

WELL: TRIBAL "C" NO. 10-7
 1750' F/SL, 1450' F/EL, sec. 7-T26N-R3W
 FIELD: Basin Dakota, Tapicito Pictured Cliffs
 COUNTY: Rio Arriba STATE: New Mexico
 ELEVATIONS: 6894' GL
 6905' KB

28/62

Drilling mouse hole.

6/29/62

Depth 230'. Drilled 230' 15" surface hole. Dev. 3/4° at 150'.
 Waiting on shaft for rig.

6/30/62

Depth 310'. Drilled 80' of sand and shale (15" hole). Ran 11 joints
 of 3/4" 32.75# casing. Total 314' set at 310' KB. Cemented with
 100 sx. regular cement 2% CaCl₂, plug down at 9 p.m. 6/29/62.
 Good returns on cement job. Going in hole with Bit No. 1.

7/1/62

Depth 1118'. drilled 808' of sand and shale. Drilling with Bit No. 2.
 Mud wt. 9.1. Vis. 33. Dev. 1° at 678', 3/4° at 1050'.

7/2/62

Drilling at 2135'. Drilled 1020' of sand and shale. Bit No. 3 in hole.
 Mud 9.1. Vis. 37. Water loss 15.2.

7/3/62

Depth 2675'. Drilled 537' of sand and shale. Drilling with Bit 4.
 Mud 9.3. Vis. 38. Water loss 12.2. Mud cake 1/32. PH 8.5.
 Sand content 1/2%. Dev. 1/2° at 2600'.

7/4/62

Drilling at 3026'. Drilled 351' of sand and shale. Drilling with Bit
 5. Mud. 9.1. Vis. 38. Water loss 7.6. Dev. 1/2° at 3000'.

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7/12/62

Depth 5480'. Drilled 660' of sand and shale. Bit No. 11 in hole.
 Dev. 1/2° at 4800' and 1/2° at 5400'.

7/13/62

Depth 6240'. Drilled 760' of sand and shale. Dev. 3/4° at 5954',
 making trip for Bit 12.

7/14/62

Depth 7107'. Drilled 867' of sand and shale. Blowing hole. Hit
 moisture at 7085', 1/8" stream of distillate. Dev. 1° @ 6250',
 3/4° @ 6700'.

7/15/62

Blew from depth of 7107' for six hours. well still making 1/8"
 stream of oil at this depth. Drilled on to 7139', blew well for
 2 hours at this depth, making 1/8" stream oil. Drilled on to
 depth of 7170'. Well still making 1/8" stream oil. Came out
 of hole for new bit. Back on bottom at 8:30 p.m. 7/14/62, pipe
 went to bottom, (no indication of bridges or hole trouble). Blew
 well 8:30 p.m. to 10:30 p.m. Very slight show of oil. Drilled,
 worked pipe, blew well to 1:45 a.m. 7/15/62. Drilled on to
 7225'. Well started dusting at this depth. Drilling at 7277',
 well dusting good.

7/16/62

Drilling at 7874'. Drilled 597' of sand and shale. Drilling with
 Bit 14.

7/17/62

Depth 8075' TD. Drilling with Bit 14. Drilled 201' of sand.
 Present operation - logging

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7/18/62

Depth 8410'. Drilled 384' of sand and shale. Drilling with Bit 6.
 Mud 9.4. Vis. 41. Water loss 9.2. Mud cake 1/32. PH 8.5.
 Sand content 1/2%.

7/19/62

Depth 8690'. Drilled 280' of sand and shale. Drilling with Bit 7.
 Mud 9.4. Vis. 40. Water loss 8.2. Mud cake 1/32. PH 8.
 Dev. 1/4° at 3450'.

7/19/62

Depth 3900'. Drilling sand and shale with Bit No. 8. Mud 9.3.
 Vis. 45. Water loss 8.6. Dev. 3/4° at 3705'. Lost 50 bbls.
 mud at 3700', 50 bbls. at 3859'.

7/20/62

TD 4000'. Rigged up to log at 8 p.m. Instrument failure in logging
 equipment. Worked with equipment until 10:30 p.m. 7/17/62.
 Called another truck at 10:30. Truck on location at 5 a.m. 7/18/62.
 Present operation - logging.

7/20/62

Finished logging well. Log TD 3982'. Ran 111 joints 7 5/8" 26.40#
 8-rod, S.T. & C. for total of 3984.51'. Pipe set at 3983.51',
 cemented with 75 sx. regular 40% diaseal D, tailed in with 97 1/2 sx.
 of regular. 97 1/2 sx. diamix, bumped plug with 1500#, float held.
 Plug down 2 p.m. 7/18/62. Good circulation throughout cement
 job. tripped up and pressured up to 1250#, pressure held. Blowing
 down 7 5/8" at 90'.

7/20/62

Finished blowing hole down, drilled shoe at 3983'. Blowing hole
 at 4001', no indication of water. few mud balls. dusting a little.

7/21/62

Drilling at 4820'. Drilled 759' of sand and shale. Drilling with Bit
 9. Dev. 3/4° at 4400', well dusting good.

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7/18/62

Finished logging. Ran 47 joints of 17# J55, 8-rod, range 2 & 3
 casing for 1678.54'. Ran 66 joints of 15.5# J55, 8-rod, range
 2 & 3 for 7577.75'. Ran one Burns 5 1/2" x 7 5/8" liner hanger
 for 1.25', total pipe 113 joints of 5 1/2" for 1257.54', 5 1/2"
 liner set at 8080.33' KB, top of liner at 3822.79' KB. Cemented
 with 233 sx. regular 4% gel, 9/10% fluid 9. Bumped plug with
 1000#, held OK. Plug down 6:15 p.m. 7/17. Moving out rotary
 rig.

7/19/62

Waiting on completion rig.

7/20/62

Moving on completion rig.

7/21/62

Finished rigging up, picked up 2 7/8" tubing, with 6 3/4" bit.
 Ran to top of liner, (no cement). Pressured up with rig pump.
 Hole starting to take fluid at 800# 2 1/2 BPM. Pulled tubing and
 bit. Running 2 7/8" tubing with Baker full-bore in preparation to
 squeeze.

7/22/62

Ran packer to 3671' KB and set (151') above top of liner. Pressured
 up on back side to 1100#. Hole taking fluid down 2 7/8" tubing, rate
 of 2 1/2 BPM at 800#. Started cement. Clear tool by 4 bbls., well
 squeezed. Let well set 45 minutes at 2200#. Released pressure to
 zero, no flow back. Pressured back up to 2200#, released pressure
 no flow back. Well squeezed at 11:30 a.m. 7/21/62. Released tool,
 came out of hole. Total cement pumped in, 56 sx. regular 2% CaCl₂
 14 sx. left in pipe. Finished picking up 2 7/8" tubing on cement time.
 Ran 6 3/4" bit to 3710', top of cement. Drilling good firm cement to
 top of liner. Pressured up to 1200# with rig pump. Pressure held.
 Came out of hole, ran 4 3/4" to top of liner, attempted to break cir-
 culation. Tubing on bit plugged. Coming out of hole to unplug bit.

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7/23/62

Finished pulling 2 7/8" tubing and bit. Found bit plugged. Ran 4 3/4" bit to 3822'. Drilled 8' cement. Ran tubing on to 60' inside of liner, pressured up to 1100# inside of liner, pressure held. Pressured up with Western to 2500#, pressure held. Spotted 1000 gal. 15% Spearhead acid. Pulled 8044' 2 7/8" tubing. Rigged up Lane Wells. Ran correlation log.

First Stage - Perforated 4 per foot 7982', 8006'. Frac by Western five pumps, 15% spear-head 1000 gal. acid.

Breakdown 1 pump	2000#	Breakdown & fill	70 bbls.
All pumps	2600#	Treating fluid	49,476 gal.
Maximum treating pres.	2600#	Sand	30,000 lbs
Minimum treating pres.	2600#	Overflush	43 bbls.
Average treating pres.	2600#	Rubber balls	20
Instant shut in	1900#	Injection rate	32.9 bbls/hr
Five min. shut in	1600#	7# per 1000 gal. water J-2	

7/24/62 Cont'd.

Basket and magnet, recovered chunks of magnesium in basket and cone on magnet. Present operation, going in hole to finish drilling plug at 7826.5'.

7/25/62

Finished drilling plug at 7826.5', cleaned out and blow to plug at 7962'. Well making 3 million at this time. Drilling plug at 7962'. Well started making water and sand when plug was drilled (6 p.m.). Blew and cleaned well on to 8044' (float collar) on bottom at 9 p.m. Six p.m. to nine p.m. well made lot of water. Nine p.m. to ten p.m. well started drying up. Ten p.m. to 12 a.m. well making slight mist of water, mist of oil. Gauged well making three million. Started out of hole laying down 2 7/8" tubing, tubing laid down at 8:30 a.m.

7/29/62

Rig up Lane-Wells. Ran and set Model "D", no flapper valve, at 7650' KB. Ran Baker (2) seal assembly with one 1 1/2" x 4' bridge plug on bottom, one 1 1/2" x 4' perf. joint and 1" B & R pump-out plug. Ran 235 joints 1 1/2" ten-coune EUC 1" 90 tubing total 7627.69'. Ran one 1 1/2" x 4' pup joint, one 1 1/2" x 1' pup joint for total 5.00' plus 13' for KB, total tubing landed at 7640' GL. Set 7900# on packer. Ran 110 joints 1" V-50 IF CW tubing total 3574.50', plus 13' for KB, 1" tubing landed at 3584.50' GL. One 1" jet collar at 3584' GL, one 1" jet collar at 3127' GL. Pump out pump-out plug. Shut in well. Release rig at 12:00 midnight. Will blow well today.

7/30/62

Opened DK, left open over night. Will check this a.m. FC shut in pressure 22 hours, 6304.

7/31/62

After flowing DK 36 hours, well gauged 538 MCFD with a mist of water and a spray of oil. FC shut in.

8/1/62

Shut in for 7 day test.

7/24/62

Set Baker bridge plug at 7862' KB. Perforated four per foot 7940' - 7964', 7900' - 7916'.

Second Stage -

Breakdown 1 pump	2600#	Breakdown & fill	28 bbls.
All pumps	2900#	Treating fluid	54,186 gal.
Maximum treat. pres.	2900#	Total sand	30,000 lbs.
Minimum treat. pres.	2200#	Overflush	30 bbls.
Average treat. pres.	2500#	Rubber balls	55
Instant shut in	1800#	Injection rate	39.7 bbls/hr
Five minute shut in	1600#	7# per 1000 gal. water J-2	

Set Baker bridge plug at 7826.5'. Plug hung up because of sand, had to set. Perforated 7798'-7824', 7826', four per foot.

Third Stage -

Breakdown 1 pump	2900-2700#	Breakdown and fill	30 bbls.
All pumps	2800#	Treating fluid	32,993 gal.
Max. treating pressure	2900#	Overflush	None
Minimum treating pres.	2500#	Rubber balls	47
Instant shut in	1600#	Injection rate	37.2 bbls/hr
10 minute shut in	1400#	Sand	30,000 lbs
Average treating pres.	2600#	7# J-2 per 1000 gal. water.	

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7/21/62 Cont'd.

FC - set Baker Bridge plug 3922'. Perforated 3658' - 3668', 3610' - 3640', 40' two per foot.

Fourth stage -

Breakdown 1 pump	600#	Breakdown & fill	20 bbls.
All pumps	800#	Treating fluid	89,040 gal.
Max. press.	1250#	overflush	None
Max. treating press.	1250#	Rubber balls	50
Min. treating press.	575#	Injection rate	51 BFR
Instant shut in	400#	Sand	100,000 lbs
Five minute shut in	250#		
Average treat. press.	800#		

Finished at 7:30 p.m. 7/23/62. Started blowing hole down at 10:30 p.m., well started unloading on own at 1600', blew well on to top of liner at 3822', on top of liner at 4:30 a.m. Well making a lot of water and sand. Gauged well with pitot tube - well making 2734 MCFD, blowing and cleaning well.

7/25/62

Blowing and cleaning PC at 8 p.m. 7/24/62. Well making slight mist of water. No sand. Well gauged 2838 MCFD. Drilled plug down at 3922'. Blowing and cleaning well on to 7826.5', bridge plug at that point. Was on the plug at 12 p.m. Well made small amount of sand, lots of water. Graneros cleaning up at 3 a.m. 7/25. Blowing and cleaning Graneros from 3 a.m. till 6 a.m. 7/25/62. Picked up 285 MCFD add-on gas. Total gas at this depth 3114 MCFD from PC and Graneros. Drilled on to plug at 7826.5'. Pictured Cliff's is producing through tubing.

7/26/62

Had cone off (faulty bit). Blowing hole with magnet at 6600'. Making sand, water and gas.

7/27/62

Blew well on to 7826.5' with magnet fishing for cone. Came out of hole, had magnet full of cast iron and bearings. ran back in hole with magnet and junk sub. Started blowing and cleaning hole of water and sand at 4:00'. Blew well on to 7826.5', blew well at this depth for 2 hours, well gauged from 3495 MCFD to 3876 MCFD, making no sand heavy spray of water with slight show of oil. Came out of hole with

8/3/62

Ran 3 hour test on FC, in test shut in. Gas flowing pressure 630, casing pressure. Real flow pressure 2955'. Test 21 through casing.

OPEN FLOW TEST DATA

DATE August 7, 1962

Operator Consolidated Oil & Gas, Inc.		Lease Tribal "C" No. 10-7	
Location 1750' F/SL, 1450' F/EL, Sec. 7-26N-3W		County Rio Arriba	State New Mexico
Formation Pictured Cliffs		Pool Tapicito	
Casing Diameter 7 5/8	Set At Feet 3984'	Tubing Diameter 1"	Set At Feet 3584'
Per Zone From 3610'	To 3668'	Total Depth 8044'	
Stimulation Method Sand water frac		Flow Through Casing	Flow Through Tubing X

Choke Size, inches .750		Choke Constant, C 14,1605	
Shut-in Pressure, Casing 965	PSIG -12 = PSIA 977	Days Shut-in 7	Shut-in Pressure, Tubing 964
Flowing Pressure, P 200	PSIG -12 = PSIA 212	Working Pressure, P _w 297	PSIG -12 = PSIA 309
Temperature, T 34	°F n = .85	F _{ps} (From Tables) 1.029	Gravity .7

CHOKE VOLUME: $Q = C \times P_r \times F_c \times F_g \times F_v$

$$Q = 14,1605 \times 212 \times 1.0260 \times .9258 \times 1.029 = 2934 \text{ MCF/D}$$

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

$$A_{of} = \left(\frac{954,529}{859,048} \right)^n$$

$$A_{of} = 3208 \text{ MCF/D}$$

TESTED BY A.A. Prater

APPROVED BY

James S. [Signature]

OPEN FLOW TEST DATA

DATE August 6, 1962

Operator Consolidated Oil & Gas, Inc.		Lease Tribal "C" No. 10-7	
Location 1750' FSL 1450' FFL Sec. 7, 26N 3W		County Rio Arriba	State New Mexico
Formation Dakota		Pool Basin	
Casing Diameter 5 1/2 & 7 5/8	Set At Feet 8080	Tubing Diameter 1 1/2	Set At Feet 7659
Per Zone From 7798	To 8006	Total Depth 8044	
Stimulation Method sand water frac		Flow Through Casing	Flow Through Tubing X

Choke Size, inches 14,1605		Choke Constant, C 0.750	
Shut-in Pressure, Casing P.C. Dual 2443	PSIG -12 = PSIA 2443	Days Shut-in 7	Shut-in Pressure, Tubing 2431
Flowing Pressure, P 26	PSIG -12 = PSIA 38	Working Pressure, P _w ---	PSIG -12 = PSIA ---
Temperature, T 36	°F n = .75	F _{ps} (From Tables) 1.000	Gravity .7

CHOKE VOLUME: $Q = C \times P_r \times F_c \times F_g \times F_v$

$$Q = 14,1605 \times 38 \times 1.0218 \times .9258 \times 1.000 = 509 \text{ MCF/D}$$

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

$$A_{of} = \left(\frac{---}{---} \right)^n$$

$$A_{of} = --- \text{ MCF/D}$$

TESTED BY A.A. Prater

APPROVED BY

James S. [Signature]