

DRILLING AND COMPLETION HISTORY

CONSOLIDATED OIL & GAS, INC.

TRIBAL "C" NO. 8 - 5

Rio Arriba County, New Mexico
December 5, 1962

RECEIVED
OCT 11 1962
OIL & GAS DIVISION
SANTA FE, N.M.

Location: 990' F/SL & 1650' F/EL, Section 5
T26N-R3W, N.M. P.M.

Elevations: 7110' GL
7122' KB - all measurements from KB

Spud: September 1, 1962

Drilling Completed: September 27, 1962
Well Completed: October 16, 1962

Total Depth: 8200' Drilled
8184' PBD

Casing: Surface: 10 3/4" set at 319' with 290 sx. regular
2% CaCl₂ cement.

Production: 7 5/8" 26.40# J-5 set at 3928' KB with
75 sx. regular 40% Diacel "D" 4% CaCl₂,
100 sx. 50/50 Pozmix, 4% gel.

5 1/2" J-5 15.5#, S.T. & C. set at 8191'.
Top of liner at 3836'. Cemented with
155 sx. regular 20% Diacel "D". Tailed
in with 100 sx. 50/50 Pozmix, 4% gel.

Tubing: 1 1/2" 2.90, EUE landed in Baker Model
"C" packer at 7915'.

1" EUE landed at 3650'.

Logs: Welex Acoustic Velocity & Induction
Electric logs

Cores & Drill Stem Tests: None

Formation Tops: (Log)

Pictured Cliffs Fm.	3692'	(+3436)
Pictured Cliffs Sd.	3696'	(+3432)
Pt. Lookout	5840'	(+1288)
Mancos	6020'	(+1108)
Gallup	6872'	(+ 256)
Greenhorn	7855'	(- 727)
Dakota (Graneros)	7970'	(- 842)

Producing Perforations:

DK	PC
7974' - 7992'	3706' - 3712'
8012' - 8026'	3720' - 3728'
8034' - 8044'	3740' - 3746'
8068' - 8076'	3764' - 3784'
8096' - 8110'	3802' - 3808'
8122' - 8128'	
8144' - 8154'	
8161' - 8170'	

Treatment: DK Sand-water frac with 119,700 gal. water
and 106,500 lbs. sand in three stages

PC Sand-water frac with 90,000 gal. water
and 100,000 lbs. sand.

Initial Potential: DK Flow volume thru 3/4" choke: 563 MCFD
PC Flow volume thru 3/4" choke: 620 MCFD

WELL: TRIBAL "C" NO. 8-5
 990' F/SL & 1350' F/EL, Sec. 5-T26N-R3W
 FIELD: Basin Dakota Tapicito Pictured Cliffs
 COUNTY: Rio Arriba STATE: New Mexico
 ELEVATIONS: 7010' GL
 7128' KB

9/1/62

Finished rigging up. Drilling mouse hole and rat hole. Present operation, drilling 15" hole at 130'. Spud in at 12 a.m. 9/1/62.

9/2/62

Drilled 15" rat hole to 326'. Drilled 14" hole. Dev. 3/4" at 150', 1/4" at 300'. Ran 10 joints 10 3/4" 36# surface casing for total of 336'. set at 319' KB. Cemented with 290 sx. regular 2% CaCl₂ cement. Plug down at 3:30 a.m. Good returns. WOC.

9/3/62

Depth 355'. Surface pipe went to working. Recemented top of surface pipe with 15 sx. Present operation, WOC.

9/4/62

Depth 1480'. Drilled 1125' of sand and shale. Present operation, drilling with Bit No. 2. Mud 9.2. Vis. 42. Water loss 9.4. Dev. 1/4" at 950'.

9/5/62

Drilling at 2147'. Drilled 670' of sand and shale. Drilling with Bit 3. Mud 9.7. Vis. 36. Dev. 1/4" at 1550', 1 1/4" at 1907'.

9/6/62

Depth 2538'. drilled 391' of sand and shale. Present operation, tripping for Bit No. 5. Mud 9.9. Vis. 42. Water loss 8.4. Mud cake 2/32. PH 10. Dev. 1 3/4" at 2355'.

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9/7/62

Depth 2895'. Drilled 357' of sand and shale. Present operation, drilling with Bit 6. Mud 9.5. Vis. 44. Water loss 7.8. Mud cake 1/32. PH 9.5. Dev. 1/4" at 2850'.

9/8/62

Depth 3050'. Drilled 155' of sand and shale. Present operation, drilling with Bit 7. Mud 9.5. Vis. 55. Water loss 7. Mud cake 1/32. PH 10. Fished two cones out of hole.

9/9/62

Depth 3255'. Drilled 195' of sand and shale. Present operation, drilling with Bit 8. Mud 10. Vis. 51. Water loss 7. Mud cake 1/32. PH 10.

9/10/62

Drilling at 3505'. Drilled 250' of sand and shale. Drilling with Bit 10. Mud 10.1. Vis. 54. Dev. 3" at 3268'.

9/11/62

Depth 3700'. drilled 200' of sand and shale. Present operation, drilling with Bit 11. Mud 9.1. Vis. 56. Water loss 9.2. Mud cake 2/32. PH 9.5. Dev. 4" at 3590', 4 3/4" at 3665'.

9/12/62

Drilled 85' of sand and shale. Present operation, drilling with Bit 12. Mud 10.1. Vis. 55. Water loss 9.2. Mud cake 1/32. PH 9.5. Dev. 4 3/4" at 3661', 4 3/4" at 3725', 4 1/2" at 3766'.

9/13/62

Drilling at 3910'. Drilled 125' of sand and shale. Drilling with Bit 13. Mud 10.9. Vis. 68. Dev. 3 3/4" at 3800', 3" at 3860'.

9/14/62

Depth 3931'. Drilled 21'. Dev. 2 3/4" at 3900'. Logged well, ran 126 joint 7 5/8" 26.40# J-5, Range 2 casing for total of 3952' set at 3928' KB. Cemented with 75 sx. regular 40% Diacel D, 4% CaCl₂, 100 sx. 50/50 Pozmix, 4% gel. Plug down 1:30 a.m. 9/14. WOC and nipping up.

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9/15/62

Present operation, blowing hole at 3900', pressured up to 1000# before drilling shoe.

9/16/62

Depth 4170'. Drilled 239' of sand and shale 14 1/2 hours. Drilling with Bit 14. Dev. 4" at 4040', 2 3/4" at 4102'. Well dusting good.

9/17/62

Depth 4700'. Drilled 535' of sand and shale. Present operation, drilling with Bit 14. Dev. 1 3/4" at 4289', 1 1/2" at 4374', 1 1/2" at 4550'.

9/18/62

Depth 5370'. Drilled 670' of sand and shale. Present operation, tripping for Bit 16. Dev. 1" at 4840', 1/4" at 5300'.

9/19/62

Depth 5838'. Drilled 468'. Dev. 1/4" at 5300'. Drilling with Bit No. 17.

9/20/62

Drilling at 6258'. Drilled 420' of sand and shale. Present operation, drilling with Bit 17. Dev. 1" at 5880', 2 3/4" at 6137', 3" at 6235'.

9/21/62

Depth 6340'. Drilled 82' of sand and shale. Our present operation, drilling with Bit 17. Dev. 3 1/4" at 6310', 3 1/4" at 6388'.

9/22/62

Depth 6550'. Drilled 210' of sand and shale. Present operation, drilling with Bit 20. Dev. 3 1/4" at 6360', 3 1/4" at 6420', 3 1/2" at 6474'.

9/23/62

Depth 6725'. Drilled 125' of sand and shale. Present operation, drilling with Bit 21. Dev. 4 1/4" at 6565', 4 1/2" at 6595', 4 1/2" at 6673', 4 1/2" at 6697'.

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9/25/62

Depth 7543'. Drilled 535'. Bit No. 23 in hole. Dev. 4" at 7500'.

9/26/62

Drilling at 7970'. Drilled 407'. Bit No. 24 in hole. Dev. 4" at 7500'.

9/27/62

TD 8185'. Drilled 215'. Dev. 6" at 8185'. Present operation, coming out of hole to log.

9/28/62

Finished pulling out of hole. Ran logs instrument to 8196 KB, started logging up. Hung Gamma Ray Neutron tool up, worked loose. Got enough log off bottom for correlation. Will run Gamma Neutron inside of pipe. Ran 90 joints 17# J-5. Range 2 S.T. & C. for 2943.38'. Ran 54 joints 15.5# J-5. Range 2 S.T. & C. for 1412.57'. Total liner 144 joints, 4355.95'. top of 5 1/2" liner 3835.64' KB, pipe set at 8391.00' KB, float collar at 8164.00' KB. Cemented with 155 sx. regular 20% Diacel "D", 100 sx. 50/50 Pozmix, 4% gel. Bumped plug with 1000#, plug down at 8:15 a.m. 9/29/62.

9/29/62

WOC.

10/6/62

Moving in completion rig.

10/7/62

Finished moving in completion rig. Rigged up, started picking up 2 7/8" completion string at 8 p.m. Hit cement at 3190', drilled 126' of cement to 3316'. Fell through at this depth. Pumping out contaminated cement at 3620' 6:30 a.m. Lackec 215' being to top of liner.

10/8/62

Cleaned out to top of liner at 3835' with 6 3/4" bit, pressured up to 1700# with rig pump, held OK. Pulled out of hole, put on 4 3/4" bit. Went in hole to 3935', 100' below top of liner, pressured up to 1700# with rig pump,

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10/11/62 Cont'd.

hole OK. Went in to float collar at 8164'. drilled float collar plus 20' of firm cement below float collar to depth of 8184'. Rigged up Western, pressured up to 2800#, top of liner. Taking fluid at rate of 3 BPM at 2800#, released pressure. Repressed to 2800#, taking fluid at 5 BPM standing pressure 1200#. Circulated and cleaned hole at this depth (8184') pulled out of hole, rigged up McCullough, ran Gamma Ray Induction and Neutron logs, going in hole with Baker full bore packer to squeeze top of liner.

10/9/62

Set Baker model full bore packer at 3741' KB. Pressured up on back side of packer to 1000#, pumped in tubing at 2500#, 3 BPM into top of liner at 3 BPM, broke from 2800# back to 1100#. Started cement, pumped 20 bbls. slurry, pressure started climbing when tool was clear. Pressured back up to 2500#, let set for 10 minutes, pressure held, released pressure slow, started flowing back. Pressured back up to 2500#, left pressure on to squeeze for 30 minutes. Released pressure, squeeze held, released tool, job complete at 10:30 a.m. 10/8. Total cement pumped, 150 sx. regular 2% CaCl₂, left 40' of cement above liner top. Started drilling cement at 11 p.m. 10/8. Hit top of cement at 3795'. 40' above top of liner, drilled this 40' of firm cement to top of liner, came out of hole, ran 4 3/4" bit to top of liner. Drilled 2' of firm cement inside of 5 1/2" liner. Broke through at this point. Present operation, ran 4 3/4" bit to PBTD.

10/10/62

Finished cleaning out to 8184' at 9:30 a.m. Circulated until 11 a.m., wait on Western 8:30 a.m. to 3:30 p.m. 10/9. Pressured up on top of liner to 3000#, pressure held. Spotted 1000 gal. BDA. Started out of hole with tubing at 4 p.m., starter unit broke. Started out of hole with tubing after repairing starter at 8:30 p.m. Out of hole with tubing at 12:30 a.m. 10/10/62. Rigged up McCullough, perforated 4 per foot 8170' - 8161', 8144' - 8154', finished at 1:45 a.m. 10/10. Western header truck broke down on location and hooked up ready to frac at 6 a.m.

First stage acid pumped in at 1400#, 4 bbls., 5 min., 400#. Second stage acid pumped in at 1200#, 4 bbls., 5 min., 400#. Third stage acid pumped in at 1150#, 4 bbls., 5 min., 400#. Fourth stage pumped in at 1200#, 6 bbls., 5 min., 400#. Fifth stage pumped in at 1200#, 6 bbls., no shut down. Used 30 sx. cc-1% 190# J-2.

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10/10/62 Cont'd.

First stage DK, 5 pumps Western			
Breakdown, all pumps	2500#	Breakdown & fill	50 bbls.
Maximum treat. press	2950#	Treatment fluid	26,700 gal.
Min. treat. press.	2400#	Sand	20,000 lbs. 40-60 & 20-40
Final treat. press	2950#	Rubber balls	None
Instant shut in	2400#	Injection rate	33.7 BPM
Five min. shut in	1600#	Overflush	50 bbls.
Average treat. press	2800#	Finished frac	7 a.m. 10/10/62

Rigged up McCullough. Attempted to run bridge plug, plug went to 8092' and stopped.

10/11/62

Plug tried to hang up. Pulled plug out of hole. Rigged up Western, attempted to back flush well, attempted to pump in, could not at 3100#. Started in hole, with bit and tubing at 9:30 a.m. 10/10. Top of sand at 8092', went in with bit, top of sand at 8044'. Started circulating at 2 p.m., on bottom at 4 p.m. One side of rig pump out, would not clean hole. Rigged up one of Western pump trucks. Circulated 5 p.m. to 7:30 p.m. 10/10/62. Started out of hole with 2 7/8" tubing, out of hole at 11:40 p.m. Rigged up McCullough. Ran in with gun to check sand, TD at 8170', 15' of sand in hole. Well kicking and trying to flow. Ran in, set Baker bridge plug at 8134'. Perforated 4 per foot, 8122'-8128', 8096'-8110', 8068'-8076', total of 112 holes. Rig up Western (5 pumps).

Breakdown, one pump	1400#	Breakdown & fill	60 bbls.
Breakdown, five pumps	2400#	Treatment fluid	61,000 gal.
Maximum treat. press	2500#	Sand	60,000 lbs.
Minimum treat. press	2000#	Rubber balls	50
Average treat. press	2200#	Overflush	75 bbls.
Final treat. press	2500#	Injection rate	40 BPM
Instant shut in	1700#	Finished frac	at 5:25 a.m. 10/11/62
Five minute shut in	1600#	Used 535# J-2	

Rigged up McCullough, set bridge plug at 3050'. Perforated 4 per foot 8034'-8044', 8012'-8026', 7974'-7992'.

Breakdown, one pump	2200#	Breakdown & fill	60 bbls.
Breakdown, five pumps	2600#	Treatment fluid	32,000 gals.
Maximum treat. press	3100#	Sand	26,500 lbs.
Minimum treat. press	2400#	Sand (left in casing)	3500 lbs.
Average treat. press	2100#	Rubber balls	50
Final treat. press	3100#	Overflush	75 bbls.
Instant shut in	1700#	Injection rate	40 BPM
Five min. shut in	1600#	Finished frac	at 5:25 a.m. 10/11/62

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10/11/62 Cont'd.

Rigged up McCullough, set Baker bridge plug at 3950'. Perforated two per foot, 3802'-3808', 3764'-3784', 3740'-3746', 3720'-3728', 3706'-3712', 92 holes total.

Breakdown, one pump	1030#	Breakdown & fill	100 bbls.
Breakdown, all pumps	1130#	Treatment fluid	90,000 gal.
Maximum treat. press	2130#	Sand	100,000 lbs.
Minimum treat. press	930#	Average sand cont.	1.2 per gal.
Average treat. press	1330#	Rubber balls	35
Final treat. press	1630#	Overflush	None
Instant shut in	630#	Injection rate	55.3 BPM
Five minute shut in	430#	Finished frac	at 3:20 p.m. 10/11/62.

10/12/62

Finished fracing PC at 3:20 p.m. 10/11. Nippled up, laid blooie line, started blowing down at 8 p.m. 10/11. Having fuel trouble on rig, down until 1 a.m. Started back to blowing well down at 6 a.m. Present operation, blowing well at 3030', well beginning to show some gas.

10/13/62

Cleaned well on to 3950' (bridge plug), blew and cleaned well. Well gauged 600 MCFD, cleaned of sand and water. Drilled top off of plug at 3750'. Water came in from Graneros. Finished drilling plug at 3950'. Present operation, pushing and drilling plug down at 5280'. Well still making lot of water and sand.

10/14/62

Finished pushing plug at 8050', blew and cleaned well. Gauged Graneros and PC together, well shows no increase in gas. Drilled plug that was pushed down to plug at 8050'. Drilled plug loose at 8050'. Well started making lot of sand and water. pushed plug on to 8134', lost plug, cleaned and blew well. Gauged well, well gauged 700 MCFD. Well still making lot of water, present operation, coming out of hole for new bit.

10/15/62

Made trip for new bit. Blew and cleaned well to 8134' (bridge plug). Well gauged 650 MCFD, drilled plug at 8134', pushed on to 8184' PBTD. When plug was drilled, lots of water and sand came in. Blew and cleaned well from TD for 5 hours, well gauged 700 MCFD. Well still logging, well clean of sand, still making heavy spray of water. Started laying down 2 7/8" tubing at 4 a.m. 10/15.

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10/16/62

Finished laying down 2 7/8" completion string. Ran and set Model "D" packer at 7915' KB. Ran 244 joints of 1 1/2" 2.90 EUE, Range 2 tubing for total of 7889.59', 12.31' of 1 1/2" subs, 10' for KB, tubing at 7912' with 9000# weight on tubing. Ran 116 joints of 1" EUE continuous-weld tubing, landed at 3650.35' KB. Ran one jet collar at 3398.35' and one jet collar at 3136.35'. Present operation, moving out completion rig.

10/17/62

Shut in pressures, DK 1625#, PC 850#.

10/18/62

Shut in.

10/24/62

Will test PC today.

OPEN FLOW TEST DATA

DATE October 31, 1962

Operator Consolidated Oil & Gas, Inc.		Lease Tribal "C" No. 8-5	
Location 990 FSL, 1650 FEL, Sec. 5, T26N, R3W		County Rio Arriba	State New Mexico
Formation Dakota		Basin	
Casing Diameter 5-1/2" Liner	Set An. Feet 3835-8191	Tubing Diameter 1-1/2" EUE	Set An. Feet 7912
Pay Zone From 7974	To 8170	Total Depth 8196	
Simulation Method Sand Water Frac		Flow Through Casing	Flow Through Tubing X

Choke Size, Inches 0.75	Choke Constant C 14.1605		
Shut-In Pressure, Casing PSIG - 12 ± PSIA	Days Shut-In 14	Shut-In Pressure, Tubing PSIG - 12 ± PSIA	2227
Flowing Pressure P PSIG - 12 ± PSIA	30	Working Pressure P _w PSIG - 12 ± PSIA	46
Temperature T °F	50	F _{sc} (From Table) 0.13	Gravity 0.70

CHOKE VOLUME $Q = C \times P_r \times F_c \times F_g \times F_a$

$$Q = 14.1605 \times 42 \times 1.0098 \times .9258 \times 1.013 = \underline{563} \text{ MCF/D}$$

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

$$Aof = \left(\frac{P_c^2}{P_r - P_w} \right)^n$$

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

TESTED BY Clyde Phillips

WITNESSED BY

William
Chief Engineer

OPEN FLOW TEST DATA

DATE October 25, 1962

Operator Consolidated Oil & Gas, Inc.		Lease Tribal "C" No. 8-5	
Location 990 FSL, 1650 FEL, Sec. 5, T26N, R3W		County Rio Arriba	State New Mexico
Formation Pictured Cliffs		Tapchito	
Casing Diameter 7-5/8"	Set An. Feet 3928	Tubing Diameter 1" EUE	Set An. Feet 3650
Pay Zone From 3706	To 3808	Total Depth 8196	
Simulation Method Sand Water Frac		Flow Through Casing X	Flow Through Tubing

Choke Size, Inches 0.75	Choke Constant C 14.1605		
Shut-In Pressure, Casing PSIG - 12 ± PSIA	Days Shut-In 7	Shut-In Pressure, Tubing PSIG - 12 ± PSIA	1061
Flowing Pressure P PSIG - 12 ± PSIA	34	Working Pressure P _w PSIG - 12 ± PSIA	46
Temperature T °F	45	F _{sc} (From Table) 0.85	Gravity 0.70

CHOKE VOLUME $Q = C \times P_r \times F_c \times F_g \times F_a$

$$Q = 14.1605 \times 46 \times 1.0147 \times .9258 \times 1.013 = \underline{620} \text{ MCF/D}$$

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

$$Aof = \left(\frac{P_c^2}{P_r - P_w} \right)^n$$

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

TESTED BY Clyde Phillips

WITNESSED BY

William
Chief Engineer