DRILLING AND COMPLETION HISTORY

CONSOLIDATED OIL & GAS, INC.

TRIBAL "C" NO. 2-6

Rio Arriba County, New Mexico
May 18, 1962

Location:	1650' F/NL & 1550' F/WL, Section 6 T26N-R3W, NMPM
Elevations:	6995' GL 7006' KB - all measurements from KB
Spud:	March 16, 1962
Drilling Completed: Well Completed:	April 4, 1962 April 16, 1962
Total Depth:	6065' Drilled 6015' Plug Back
Casing:	
Surface:	10 3/4" 32.75# H-40 cemented at 296' w/250 sx. 2% $CaCl_2$ cement.
Production:	7" 23# cemented at 3996' with 150 sx. 4 1/2" 9.5# J-55 liner 3866' - 6049', cemented thru shoe w/270 sx. 50-50 Diamix, 4 1/2" liner from surface set in packer at 630' to cover hole in 7".
Tubing:	1" IJ V50 landed at 3691' 1 1/2" IJ landed at 5858' in Model "D" packer set at 5858'
Logs:	Welex Induction Electric and Radioactivity Logs
Cores & Drillstem Tests:	None

Formation Tops: (Log)

Pictured Cliffs Fm.	3740'	(+3266)
Pictured Cliffs Sd. A	3745'	(+3261)
Pictured Cliffs Sd. B	3785'	(+3221)
Pt. Lookout	5900'	(+1106)

Producing Perforations:

MV	PC
5904' - 5925'	3752' - 3765'
5947' - 5965'	3785' - 3810'
5981' - 5997'	3822' - 3832'

Treatment:

Mesaverde: Sand water frac with 100,000# 20-40 sand and 72,000 gal. water, 750 gal. acid.

Pictured Cliffs: Sand water frac with 100,000# 20-40 sand and 73,000 gal. water.

Initial Potential: MV — Flow volume thru 3/4" choke: 3220 MCFD

PC — Flow volume thru 3/4" choke: 2940 MCFD
Calculated Absolute Open Flow Potential: 4522 MCFD.

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1650' F/NL, 1550' F/WL, Sec. 6-T26N-R3W

FIELD: Blanco Mesaverde, Tapacito Pictured Cliffs

COUNTY: Rio Arriba STATE: New Mexico

ELEVATIONS: 6995' GL

7007' KB

3/13/62

Moving in rotary rig.

3/14/62

Moving rotary rig on location this a.m.

3/15/62

Moving rotary rig on location.

3/16/62

Drilling rat hole.

3/17/62

Drilled 298' of 15" surface hole. Ran 10 joints of 10 3/4" 32.75# 8 round surface casing set at 296' KB. Cemented with 250 sx. of regular 2% $CaCl_2$. Plug down at 10:15 p.m. 3/16. Good returns on cement. WOC.

3/18/62

Drilling at 1707'. Drilled 1409' of sand and shale. Bit No. 2in hole. Mud 9. Vis. 35. Water loss 14. Mud cake 1/32. PH 8.4. Sand 1/4%. Dev. 1^{o} at 700', 1^{o} at 1200', 1 $1/4^{o}$ at 1500'. Drilling 8 3/4" hole.

3/19/62

Drilling at 2522'. Drilled 815' of sand and shale. Mud 9.3. Vis. 34. Mud cake 2/32. PH 8.4. Sand 1/4%. Dev. 1 $1/4^{o}$ at 2000'.

3/20/62

Drilling at 3030'. Drilled 508' of sand and shale. Drilling with Bit 5. Mud 9.4. Vis. 36. Water loss 14. Mud cake 2/32. Sand 1/4%. Dev. $3/4^{o}$ at 2630'.

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3/21/62

Drilling at 3430'. Drilled 400' of sand and shale. Mud 9.4. Vis. 35. Water loss 10.4. Mud cake 2/32. Sand content 2%.

3/22/62

Drilling at 3838'. Drilled 408' of sand and shale. Drilling with Bit 9. Mud 9.2. Vis. 38. Water loss 10. Mud cake 2/32. PH 11.

3/23/62

Depth 4000'. Circulated to log. Came out of hole attempted to run logs. Hit bridge at 3700', could not get down with logs. Came out of hole with logging tools. Went in hole driled out bridge, lost circulation. Lost approximately 100 bbls. mud,regained circulation, presently logging. Mud 9.4. Vis. 70. Water loss 7.6. Mud cake 2/32. PH 11. Sand content 2/10%.

3/24/62

Ran Gamma Ray Neutron logs from 4000' to surface. Ran 118 joints 7" 23# total 4013.17 less 17' above KB set at 3996.17' KB, float at 3964.73' KB. Ran 65 sacks regular 4% gel, 50 sx. Dia-mix tailed in with 50 sacks neet, total of 170 sx. Plug down at 8:30 p.m. 3/23/62. Good circulation throughout job. Did not bump plug. First centralizer on shoe joint, second at 3892', thrid at 3644'. Set slips, presently nippling up.

3/25/62

Nippled up. Pressured up on casing 1600#, blew hole down. Hit cement at 3876'. Drilling cement at 3940', float collar at 3965'.

3/26/62

Finished drilling cement in shoe at 4000'. Hole dry, drilled to 4149', hole dry to this point. At 4150' hit water, well making 3" stream of water. Blew hole for 3 hours, well still making 3" stream of fresh water. Rigged up to drill with water. Drilled to 4186', pulled drill pipe out of hole, pressured up to 600 PSI, well takeing fluid at 12 BPM. Rigged up BJ pumped 150 sx. of neat cement with 2% $CaCl_2$, 1/4 lb. cello flake in pipe, Pumped 14 bbls. of cement slurry into formation at 200#. Shut pump down for 20 minuts, standing pressure 200#. Started pumping cement into formation at 400#. End of cement job 800# standing pressure. Shut well in left 50' of cement up in pipe. Job completed at 4 a.m. 3/26, will start drilling out in 12 hours.

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3/27/62

12 hours WOC. Started blowing down, blew hole dry to 540', hit 6" cement bridge. Blew hole on 2440', well making 2" stream of water. Checked Bradenhead, no water some pressure. Backed preventor up to check slips, found top of 7" cut off slipped down into slips, backed pipe up with 15,000# tension, reset slips, will weld around slips, after this is done will go in with bit and clean out to TD.

3/28/62

Going in hole with packer to squeeze, stripped off blowout preventor, hooked on 7" casing with casing spear. Unable to break circulation or back up on casing. Reset slips, ran 6 1/4" casing roller, rolled out casing at 425'. Set bridge plug at 740'.

3/29/62

Ran Baker full bore packer to 560'. Pressured up on bridge plug to 2800#, released tool, reset at 283'. Pressured up on back side to 1400#, pumped down drill pipe into hole in casing at 5 BPM at 1000#. Squeezed hole and pipe (472') with 120 sx. regular 2% $CaCl_2$, 114 sx. in formation. Maximum squeeze pressure 2000#, standing pressure 2000#. Reverse cement out of drill pipe. Reset packer, pressured back up to 2000# against squeeze job. Pressure held, released packer came out of hole. Job completed at 7:45 a.m. 3/29. Let cement set 12 hours, started drilling out cement at 8 p.m. 3/29. Found top of cement at 283', drilled cement and cleaned out to top of plug at 740'. Pressured up on casing to 1600#, drilled bridge plug at 740', blowing well down at 2000', no apparent water.

3/31/62

Blow well on to 4183' TD (no water). Finished drilling up bridge plug on bottom. Drilled 3' of new hole, well started dusting. Packer slips that was lost in hole, tried to hang up drill pipe and bit. Came out of hole. Put magnet on went to bottom, came out of hole, recovered packer slips. P. O. blowing hole at 4186', TD. Very little water.

4/1/62

Depth 4605'. Drilled 522' of sand and shale. Bit #12 in hole. No apparent water.

4/2/62

Depth 4919'. Drilled 341' of sand and shale. Drilling with Bit 13. Dev. 1/4° at 4475'. Lost two cones off Bit 12 at 4705', recovered same.

4/3/62

Depth 5463'. Drilled 554'of sand and shale. Bit #14 in hole. DEv. 1/2° at 5050'. Present operation, drilling rate of 3 minutes per foot.

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4/4/62

TD 6050'. Drilled 587' of sand and shale. Present operation, pulling out of hole to log. Had estimated 150 MCFD natural picked up at approximately 5900'.

4/5/62

Ran logs, no trouble getting logs down. Ran 70 joints 4 1/2" 9.5.# casing set at 6048.69' KB, top of liner at 3865.96' KB (liner overlaps 130' up in 7" casing), used Burns liner hanger, float collar at 6015' KB. Cemented with 270 sx. 50/50 Diamix cement, plug down at 7:10 p.m. 4-4-62. Bumped plug with 1000#, released pressure, float held. Presently WOC.

4/6/62

Went in hole with 6 3/4" bit to top of liner at 3866', no cement, pressured up to 1350# with rig pump, held OK. Came out of hole, rigged up BJ, pressured to 1500#, pressure dropped from 1500# to 500#. Circulated out of Braden head, after 15 minutes pumping at 7 BPM pressure dropped to zero. Ran Baker full bore packer to 550', pressured to 3000# down drill pipe, held OK. Top of liner OK. Attempted to pressure up on back side, circulated through Braden head, released packer, reset at 400', pumped down drill pipe to hole in casing at 472'. Started taking fluid at 2 BPM at 1800#, no communication, released packer reset at 194', pumped down drill pipe. Started taking fluid at 2 BPM at 1800#, reset packer at 160' pressured down drill pipe started circulating thourgh Braden head. Reset packer at 174', pressured down drill pipe took fluid 2 BPM 1800#, hole at 164'. Ran packer to 380', pump in hole at 472' at 3 BPM at 2400#, started cement in formation at 2500#, pumped 14 sx. in formation, well squeezed at 3200# standing pressure. Reversed cement out of drill pipe released packer pulled out of hole. Job completed at 8 a.m. 4/6/62. Will cut casing off later today.

4/7/62

Nippled down - took hold of pipe with center spear. Picked pipe up. Came out of hole with 162' of pipe. Threads broke off in collar. Went in hole with cutter and cut off at 171'. Pulled 9' piece out of hole. Ran casing bowl - latched on and pulled 50,000#, nippled back up to go in hole with bit and clean out. No cement at point of squeeze, 472'. Pressured up on 7/8" casing to 3,000# - held 3 minutes and fell to 800#. Ran packed to 550'. Pressured up to 3,000# through drill pipe, pressure held OK. Reset packer at 400' - pressured to 800#. Held at 472' taking fluid at 800#, 12 BPM. Pressured up on back side to check casing patch. Pressured up to 3000#, pressure

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4/7/62 Cont'd.

held. Reset packer at 380'. Cement on formation at 1000#. Started staging cement at 3:30 a.m. Final squeeze standing pressure - 3000#. Held pressure on cement one hour at 3000#. Released tubing - came out of hole. 135 sx. cement behind pipe. Job completed at 7:30 a.m.

4/8/62

Started drilling cement at 5:00 a.m. Top of cement at 381'. Present operation - drilling cement at rate of 4 minutes per foot at 444'.

4/9/62

Finished cleaning out cement below 472', pressured to 2000#, rams leaking. Changed rams, pressured up to 2600#, well broke down to 2000# taking fluid at rate of 3 BPM. Lay drill pipe down picked up 2 3/8" tubing and 2 7/8" tubing, clean out inside of liner to 5910'. Came out of hole with tubing and bit, ran packer to 505'. Set packer, pressured up down tubing to check pipe and liner below this depth, pressured to 3000#, pressure held.

4/10/62

Reset packer at 415', pressured up on hole at 472', well taking fluid at 1500#, 3 BPM. Standing pressure 175#, rigged up Dowell, cemented with 44 sx. of neet cement, 36 gal. of Latex, 2% $CaCl_2$. Maximum pressure 1500#, 1 BPM at 9 a.m. 4/9. Let packer set for 3 hours, standing pressure 450#, released packer came out of hole, WOC 16 hours. Cleaned out below 472' at 1 a.m. no cement in pipe, pressured up to 1000#, set rig pump, started taking fluid kicked pump out, standing pressure 600#, cleaning out to float collar at 5960'.

4/11/62

Spotted 750 gal. 15% spear head acid on bottom, pulled tubing, laid 3500' of 2 7/8" tubing down. Ran correlation log, perforated 5997'-5981', 5965'-5947', 5925'-5904' for total of 110 holes. When well was perforated well went on vacuum. Ran 19 joints of 4 1/2" casing with Baker full bore packer set at 616' KB. Rigged up Western Co. to frac MV. Breakdown pressure, well on vacuum, treating pressure 1400#, caught fluid with all pumps on 1300#, maximum treating pressure 1550#, minimum treating pressure 1200#, instant shut-in

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4/11/62 Cont'd.

on vacuum, breakdown and fill 150 bbls., treating fluid 70,854 gal., flush 173 bbls., over flush 20 bbls., 10,000# 20-40 sand at 1 lb./gal., 90,000# 20-40 sand at 1 1/2 lb./gal., 70 balls. Injection rate 47.6 BPM. Unseated packer and pulled same, rigged up Welex, set top drillable Baker plug at 3965' KB. Perforated 2 per foot super dyna jets, 4" charges, 3832'-3822', 3810'-3785', 3765'-3752'. Ran Baker full bore packer on 4 1/2" casing set at 616' KB.

4/12/62

Rigged up Western to frac PC. Breakdown 800#, maximum pressure 1950#, average treating pressure 1750#, minimum treating pressure 1200#, instant shut-in 500#, 10 minute shut-in 300#, breakdown and fill 73 bbls., treating fluid 73,000 gal., flush 137 bbls., no over flush, 10,000# 20-40 sand at 1 lb./gal., 90,000# 20 40 sand at 1.6 lb./gal., 50 balls, average injection rate 47 BPM. Pulled Baker packer, waiting on Baker Model FA packer to get in from Los Angeles. Shut rig down at 4 p.m. 4/11. Started rig back up this a.m. at 8, FA packer in this morning, will set today.

4/13/62

Ran Baker Model FA packer set at 629.50' KB. Ran 19 joints 4 1/2" 9.50# casing, total of 604.82'. Ran 1 joint of 5 1/2" 15# casing, total of 32.50'. Latched into packer with latch-in type seal assembly. Landed at 629.50' KB. Set slips, nippled up, started blowing down with gas. Blowing down to 2100'.

4/14/62

Blew well down to bridge plug at 3965'. Blew well from this depth for 3 hours. Pictured Cliffs gauged 3000 MCFD, no sand, very little water. Drilled bridge plug. MV making lot of frac sand and water. Blowing well at 4515'.

4/15/62

Finished blowing well to 6015' PBTD. Blowing water and sand, well gauged 5500 MCFD. Started out of hole with 2" tubing at 5:30 p.m. 4/14. Laid down 6025' of 2 3/8" tubing. Rigged up Welex, set Baker Model D packer at 5860' KB. Gauged well - well making 7000 MCFD. Nippled up to run tubing. Ready to run tubing at 3 a.m., wait for daylight to start tubing in hole.

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4/16/62

Ran 179 joints 1 1/2" IJ tubing for 5820.15'. Ran one 1 1/2 X 10 pup joint, one 1 1/2 X 8 pup joint, one 1 1/2 X 6 pup joint, one 1 1/2 X 2 pup joint for total tubing and pup joints 5826.15' landed at 5858.15' KB. Ran 113 joints of 1" IJ for total of 3677'. Ran two 1" X 1' jet collars for total of 2'. Total tubing and jet collars 3679' landed at 3691' KB. One jet collar at 3467' KB, one jet collar at 3051' KB. Finished running tubing at 8:30 p.m. 4/15. Rig released at 2:30 a.m.

4/17/62

Shut in for test.

4/18/62

Shut in for test.

4/19/62

Shut-in for test MV pressure 1130#, PC 900 tubing, 900 casing.

4/20/62

Shut-in for test, hooked up test separator to test well.

4/21/62

Shut-in for test.

4/22/62

Shut-in for test.

4/23/62

Shut-in for test.

4/24/62

Will test MV and PC today.

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4/25/62

MV tubing pressure 1198#, went on 3 hour flow, end of 3 hour flow 223#, tested through 3/4" choke, slight spray of water throughout test, tested 3290 MCFD. PC tubing pressure 1018#, casing pressure 1018#, final flow pressure through 3/4" choke 203#, tested through casing, well dry throughout test, tested 3100 MCFD. Test data mailed. Turned MV through separator at 3 p.m. 4/24, well made 4 bbls. in 16 hours against 575# back pressure, will check gas flow today.

4/26/62

After 24 hours flowing with 575# back pressure, well gauged 2740 MCFD. After 36 hours gauged 1714 MCFD, total oil in 36 hours, 5.37 bbls.

4/27/62

1448 MCFD, 575# back pressure, 3.5 bbls. oil MV.

OPEN FLOW TEST DATA

DATE April 24, 1962

Operator: Consolidated Oil & Gas, Inc.		Lease: Tribal "C" No. 2-6	
Location: 1650' F/NL, 1550' F/WL, Sec. 6-T26N-R3W		County: Rio Arriba	State: New Mexico
Formation: Mesaverde		Pool: Blanco	
Casing: Diameter: 4 1/2	Set At: Feet: 6049	Tubing: Diameter: 1 1/2	Set At: Feet: 5858
Pay Zone: From: 5904	To: 5997	Total Depth: 5960 PB	
Stimulation Method: Sand water frac		Flow Through Casing:	Flow Through Tubing: X

Choke Size, Inches: 0.750		Choke Constant: C: 14.1605			
Shut-In Pressure, Casing, PSIG: PC	+ 12 = PSIA:	Days Shut-In: 7	Shut-In Pressure, Tubing PSIG: 1198	+ 12 = PSIA: 1210	
Flowing Pressure: P PSIG: 223	+ 12 = PSIA: 235		Working Pressure: P_w PSIG:	+ 12 = PSIA:	
Temperature: T °F: 48	n = .75		Fpv (From Tables): 1.032	Gravity: .70	

CHOKE VOLUME = $Q = C \times P_t \times F_t \times F_g \times F_{pv}$

$Q = 14.1605 \times 235 \times 1.0117 \times .9258 \times 1.032 =$ 3220 MCF/D

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

Aof = $\left(\quad \right)^n =$

Aof = _____ MCF/D

TESTED BY _____

WITNESSED BY _____

Lewis S. Jarman

OPEN FLOW TEST DATA

DATE April 24, 1962

Operator: Consolidated Oil & Gas, Inc.		Lease: Tribal "C" No. 2-6	
Location: 1650' F/NL, 1550' F/WL Sec. 6-T26N-R3W		County: Rio Arriba	State: New Mexico
Formation: Pictured Cliffs		Pool: Tapicito	
Casing: Diameter: 5 1/2	Set At: Feet: 6049	Tubing: Diameter: 1" IJ	Set At: Feet: 3691
Pay Zone: From: 3752	To: 3832	Total Depth: 5860' PKR	
Stimulation Method: Sand water frac		Flow Through Casing:	Flow Through Tubing: X

Choke Size, Inches: 0.750		Choke Constant: C: 14.1605			
Shut-In Pressure, Casing, PSIG: 1018	+ 12 = PSIA: 1030	Days Shut-In: 7	Shut-In Pressure, Tubing PSIG: 1018		+ 12 = PSIA: 1030
Flowing Pressure: P PSIG: 203	+ 12 = PSIA: 215		Working Pressure: P_w PSIG: 203		+ 12 = PSIA: 215
Temperature: T °F: 42	n = 0.75		Fpv (From Tables): 1.028		Gravity: .70

CHOKE VOLUME = $Q = C \times P_t \times F_t \times F_g \times F_{pv}$

$Q = 14.1605 \times 215 \times 1.0178 \times .9258 \times 1.028 =$ 2940 MCF/D

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

$Aof = \left(\frac{1,060,900}{597,775} \right)^n =$

Aof = 4522 MCF/D

TESTED BY Clyde Phillips

WITNESSED BY _____