DRILLING AND COMPLETION HISTORY

CONSOLIDATED OIL & GAS, INC.

CLAYTON NO. 1-2

San Juan County, New Mexico
October 31, 1961

Location:	990' F/SL, 1850' F/WL, Section 2 T30N-R12W, N.M.P.M.
Elevation:	5769' Ground 5781' KB - all measurements from KB
Spud:	June 27, 1961
Drilling Completed: Well Completed:	July 18, 1961 October 1, 1961
Total Depth:	6701' Drilled 6687' Plug Back
Casing:	
Surface:	10 3/4" 32.75# H-40 cemented at 204' w/150 sx. 2% HA5 cement
Production:	5 1/2" 15.5# J-55 S.T. & C. cemented at 6701' w/320 sx. 1/2 cu. ft. Strata-Crete per sack and 4% gel cement. Thru stage collar at 4731' w/340 sx. with 12.5# Gilsonite with 4% gel cement. Thru stage collar at 2201' w/150 sx. regular with 4% gel cement.
Tubing:	1 1/2" EUE J-55 hung at 6525'
Logs:	Schlumberger Induction Electric & Sonic Logs Lane Wells Gamma Ray Neutron & Cemoton Logs
Cores and Drillstem Tests:	None

Formation Tops: (Log)

Pictured Cliffs	2095'	(+3686)
Mesaverde	3622'	(+2159)
Cliffhouse	3685'	(+2096)
Menefee	3818'	(+1963)
Pt. Lookout	4442'	(+1339)
Mancos	4761'	(+1020)
Gallup	5706'	(+ 75)
B/Gallup	5971'	(- 190)
Greenhorn	6445'	(- 664)
Dakota	6557'	(- 776)

Producing Perforations:

Gallup	Dakota
5954' - 5961'	6580' - 6590'
	6595' - 6606'
	6624' - 6630'
	6634' - 6643'
	6661' - 6680'

Treatment:

Gallup:	Sand oil frac w/45,000# 20-40 mesh sand, 37,600 gal. crude oil treated with 1000# Adomite.
Dakota:	Sand water frac w/160,000# 40-60 and 20-40 mesh sand, 160,000 gal. water treated with Dowell's J-101, 1500 gal. acid in three stages.

Initial Potential:

Gallup:	Flow volume thru 3/4" choke: 1070 MCFD Calculated Absolute Open Flow Potential: 1195 MCFD
Dakota:	Flow volume thru 3/4" choke: 1640 MCFD Calculated Absolute Open Flow Potential: 1860 MCFD

WELL: CLAYTON NO. 1-2

(990' FSL & 1850' FWL Sec. 2-30N-12W, NMPM)

FIELD: Blanco Mesaverde and Basin Dakota

COUNTY: San Juan STATE: New Mexico

ELEVATIONS: 5769' GD

5781' KB

6/28/61

TD 205' of 15" hole. WOC. Ran 194' 10 3/4" - set at 204' KB. Cemented with 150 sx regular 2% HA5 - plug down 5 a.m. Dev. - 1/4° at 130'. Spudded well at 8 p.m.

6/29/61

Depth 1220'. Drilled 1015'. Sand and shale. Using water. Dev. 3/4° at 500'; 1° at 1000'.

6/30/61

Depth 2222'. Drilled 1002'. Sand and shale. Tripping for Bit No. 4. Mud 9.1. Vis. 36. Dev. 1/2° at 1850'.

7/1/61

Depth 3207'. Drilled 803'. Sand and shale. Drilling with Bit 5. Mud 9.4. Vis. 47. Water loss 12. Dev. 3° at 2400'.

7/2/61

Depth 3375'. Drilled 803'. Sand and shale. Drilling with Bit 7. Mud 9.5. Vis. 46. Dev. 3/4° at 3350'.

7/3/61

Depth 3600'. Drilled 225'. Sand and shale. Drilling with Bit 9. Mud 9.4. Vis. 43. Water loss 8.4. 5% oil.

WELL: CLAYTON NO. 1-2

7/4/61

Depth 3803'. Drilled 203'. Sand and shale. Tripping for Bit 12. Mud 9.6. Vis. 45. Water loss 8.

7/5/61

Depth 3910'. Preparing to drill ahead after drill stem test No. 1. Mud 9.7. Vis. 54. Water loss 8.6. Dev. 3/4° at 3850'.

Drill stem test No. 1 was taken in an effort to evaluate the Cliff House zone which occurred in the interval 4000' to 4100' in Southern Union's Rawson No. 1 in the NE/4 of Section 35-31N-12W. Significant natural gas flow has been found in this correlative zone at other nearby locations in this general area. Drill stem test No. 1: 3760' to 3910'. Tool open 2 hours. Tool closed 30 min. for initial shut-in, 30 min. for final shut-in. Initial flow pressure 60 PSIG. Final flow pressure 110 PSIG. Initial shut-in pressure 1470 PSIG. Final shut-in pressure 735 PSIG. Recovered 180' slightly gas cut mud. Had only weak blow at surface beginning after 15 minutes and dying off at 60 minutes.

7/6/61

Depth 4360'. Drilled 447'. Sand and shale. Drilling with Bit 14. Mud 9.6. Vis 43. Water loss 8.6.

7/7/61

Depth 4575'. Drilled 215'. Sand and shale. Tripping for plugged bit. Mud 9.5. Vis. 50. Water loss 8.2. Dev. 3/4° at 4350'. 5 1/2 hours lost circulation from 4500' to 4524'. Lost circulation material: 125 sx lost circulation material, 75 sx gel, 75# tanison, 50# caustic, 50# soda ash, 10 bbls. oil.

7/8/61

TD 4666'. Fishing. Drilled 91' of hole - sand and shale. Continued to lose circulation extensively. While spotting the last batch of lost circulation material just prior to regaining returns the drill stem became stuck. Now running free-point indicator in preparation for backing off.

WELL: CLAYTON NO. 1-2

7/9/61

TD 4666'. Washing over. Have now washed over 70' of a total of 150 of drill pipe fish.

Ran free-point indicator and backed off leaving 5 drill collars in hole - had total of 12 drill collars. The drill pipe was stuck 42' off bottom. Have had full returns while washing.

Made one trip in prior to washing with jars and bumper sub - screwed into fish but unable to pull.

7/10/61

Drilling at 4730' with Bit No. 17. Mud 9.1. Vis. 68. Water loss 7.2. Have had full returns since retrieving fish and drilling ahead as well as throughout wash-over operation. Dev. 1/2° at 4700'.

Continued wash over, which was quite routine, to the bit. Pulled wash pipe and went back with overshot - tied on to fish and retrieved all fish.

7/11/61

Depth 5023'. Drilled 293'. Sand and shale. Drilling with Bit 18. Mud 9.2. Vis. 59. Water loss 7.8.

7/12/61

Depth 5310'. Drilled 287'. Sand and shale. Mud 9.3. Vis. 57. Water loss 8.4. Dev. 3/4° at 5200'.

7/13/61

Depth 5671'. Drilled 361'. Sand and shale. Making trip for Bit 22. Mud 9.4. Vis. 55. Water loss 8%.

7/14/61

Depth 6028'. Drilled 367'. Sand and shale. Drilling with Bit 23. Mud 9.4. Vis. 52. Water loss 9.

WELL: CLAYTON NO. 1-2

7/15/61

Depth 6500'. Drilled 472'. Sand and shale. Drilling with Bit 24. Mud 9.4. Vis. 51. Water loss 9.2. 5% oil. Dev. 3/4° at 6100'.

7/16/61

Depth 6639'. Drilled 139'. Sand and shale. Drilling with Bit 26. Mud 9.4. Vis. 50. Water loss 10.

7/17/61

TD 6701'. Laying down drillpipe in preparation for running casing. Drilled 62'. Sand and shale. Mud 9.7. Vis. 61. Water loss 9. Ran Schlumberger induction and sonic logs - found top of Dakota at approximately 6570'.

7/18/61

Preparing to perform third stage cement job opposite Pictured Cliffs. Ran 5 1/2" production casing and set and cemented at 6701' KB. See tomorrow's report for job details.

7/19/61

WOC. Moving off rotary rig and waiting on completion rig.

Details of production casing job as follows: 210 joints 5 1/2" J-55 - 15.5# - ST&C - new casing (6708') set at 6701' KB. Lost circulation approximately 1000' from bottom while running in - found automatic fill-up equipment was not working - regained circulation and continued to bottom. Float collar at 6639' KB - stage collars at 4731' and 2201' KB. Centralizers spaced throughout Dakota and Mesaverde and Pictured Cliffs horizons. Reciprocating type scratchers utilized throughout Dakota section. Performed three stages of cementing operations as follows:

Lower Stage (through shoe)
320 sx reg. cement with 4% gel and 1/2 cu. ft. per sack of Strata Crete No. 6. Bumped plugs at 2000 PSIG - checked float - OK. Good returns throughout job.

WELL: CLAYTON NO. 1-2

7/19/61 (Cont'd)

Middle stage (Mesaverde)
WOC 8 hours. Injected 340 sx reg. cement with 4% gel and 12.5# Gilsonite per sack. Bumped plug at 2000 PSIG - checked and found stage collar closed successfully. No returns throughout job but hole stood full.

Upper stage (Pictured Cliffs)
WOC 4 hours. Injected 150 sx reg. cement with 4% gel. Bumped plug at 2000 PSIG - checked and found stage collar closed successfully. Full returns throughout job.

7/28/61

RW service to move in Sat. (July 29, 1961).

7/29/61

Moving on completion rig.

7/30/61

Drilling out cement oposite second stage collar.

7/31/61

Preparing to proceed with second stage Dakota frac.

Drilled out oposite stage collar. Drilled float collar. Drilled out hard cement to 6687' PBTD. Tested full casing string to 3000 PSIG - held ok.

Displaced 750 gals. 15% mud acid on bottom - pulled tubing string. Ran correlation and cement log. Perforated with 2 bullets and 2 jets per foot at 6661' - 6680'. Flushed acid away in 3 slow 250-gal. stages. Initial pressure 1500 PSIG, final pressure 1400 PSIG. Lower stage sand and water frac as follows:

Injected 40,000# (40-60 mesh) sand at 32 BPM in 1 lb. per gal. concentration. Injection pressure rose slowly from 2300 PSIG to 2600 PSIG.

All frac water except flush was Dowell's J-101. The initial standing pressure was 1500 PSIG to 1200 PSIG in 15 min. 500 PSIG in 2 hrs.

Attempted to lubricate in bridge plug but unable to get below 6565' depth because of indicated casing obstruction, probably a burr. Displaced 750 gal. acid to bottom - will now proceed with perforation and second stage frac leaving lower stage open.

WELL: CLAYTON NO. 1-2

8/1/61

Coming out of hole with casing scraper after working on indicated obstruction at 6565'.

Perforated with 2 bullets and 2 jets per foot for second stage Dakota frac as follows: 6624' - 30', 6634' - 43'.

Soaked acid away at about 1500 PSIG. Performed middle stage frac as follows: (Note: All perforations open.)

Started at 2750 PSIG which reduced rapidly to 2600 PSIG. Built sand concentration rapidly to 1# per gal. After 10,000 lbs. sand injected, had 2500 PSIG at 30 BPM. After 30,000 lbs. sand injected, had 2400 PSIG at 31 BPM. Dropped 10 balls. After 37,000 lbs. sand injected, had 2450 PSIG - dropped 5 balls. After 40,000 lbs. sand injected, had 2500 PSIG - dropped 5 balls. Dropped additional 5 balls after 44,000 lbs. sand injected. Dropped 5 more balls after 47,000 lbs. sand.

At this point, pressure was 2550 PSIG, which built to 2600 after 50,000 lbs. sand injected. Pressure rose to 2800 PSIG during flush - sand was flushed to perforations only. Standing pressure was 1560 PSIG immediately.

Middle Dakota Stage Summary:

50,000# (40-60 mesh) sand
30,000 gals. water (treated with Dowell's J-101)
30 Balls
750 gals. 15% mud acid.
31 BPM
2400 to 2600 PSIG

Lubricated in McCullough Cage Ring which cleared casing obstruction at 6565', OK, but still unable to get down undersized bridge plug. Went in hole with Baker casing scraper to remove obstruction. Well came in on its own while going in hole and has continued to be quite lively throughout the night.

8/2/61

Fishing for tubing swab.

Successfully removed casing obstruction - pulled tubing with casing scraper and lubricated in cast iron bridge plug and set at 6620'.

Perforated for upper stage Dakota frac with 2 bullets and 2 jets per foot as follows: 6580' - 90', 6595' - 6606'. (No communication indicated with perforations under bridge plug.)

Performed upper stage Dakota frac as follows:

WELL: CLAYTON NO. 1-2

8/2/61 Cont'd.

Job Summary

70,000# (20,000# 40-60 mesh, 50,000# 20-40 mesh) sand
70,000 gal. water (treated with Dowell's J-101)
55 balls
31 BPM
2300 to 3300 PSIG

Started injecting with 2700 PSIG which rapidly declined to 2300 PSIG. Injected all of 40-60 mesh sand, followed with 20-40 mesh. Dropped 10 balls after 30,000 lbs. sand injected, dropped 10 balls after 37,000 lbs. sand injected, 10 more balls after 45,000 lbs. sand, 15 more balls after 53,000 lbs. sand, 10 more balls after 60,000 lbs. sand injected.

The injection pressure was 2500 PSIG after 45,000 lbs. sand injected, 2850 PSIG after 53,000 lbs. sand injected and 3300 PSIG after 70,000 lbs. sand injected.

Flushed to perforation with ending pressure of 3350 PSIG. Standing pressure was 2000 PSIG, 1400 PSIG in 10 minutes and 1000 PSIG in 30 minutes. Shut-in well about two hours - allowed to flow back for about 1 hour before entering hole with work-over tubing and bit. Planned procedure as follows:

1. Enter hole with work-over tubing and bit.
2. Clean out frac sand to top of bridge plug at 6620'.
3. Bring well in and obtain brief test of upper Dakota (Granerous)
4. Drill bridge plug and test whole Dakota interval.
5. Kill well, pull work-over string, set plug above Dakota and proceed with Gallup completion.

8/3/61

Preparing to swab in Dakota formation after drilling out bridge plug and cleaning sand to 6887' PBTD.

Retrieved lost tubing swab. Upper Dakota (Granerous) came in on its own. Allowed to flow several hours while unloading heavy frac water stream. Indicated flow rate - 700 to 800 MCFD.

Killed well and drilled bridge plug and cleaned sand with water circulation, lost approximately 50 bbls. water while cleaning out. Well continued to kick heavily. Tubing now hanging at 6830' with bit on bottom.

WELL: CLAYTON NO. 1-2

8/4/61

Flowing very erratically, no stabilization. 300 PSIG casing pressure-indication of 1800 MCFD.

8/5/61

Blowing Dakota. Ran 207 joints of 1 1/2" integral joint. Set at 6539' KB. 4/64" jet collars @ 5334' KB, 4624' KB, 4135' KB.

Tubing Summary:

207 joints-6523' plus subs 5.55', plus 10' for KB.
Swabbed 2 1/2 hrs. Well kicked off. Rig released 10 a.m. 6 p.m. 400 MCFD. 185 PSIG casing pressure.

8/6/61

Blowing Dakota, gaged 600 MCFD, casing pressure 220 PSIG, real wet with frac water.

8/7/61

Blowing Dakota, gaged 400 MCFD. Casing pressure 185 PSIG. Real wet with frac water. Shut-in for brief pressure build-up.

8/8/61

Shut-in for pressure build-up at 6 p.m. Pressure 600 PSIG tubing and casing after shut-in 12 hrs. Opened well at 7 a.m. Well was making 450 MCFD, casing 245 PSIG.

8/9/61

Shut-in to pressure up. Shut-in for 8 hrs. 8-8-61, casing pressure 940 PSIG. Open to atmosphere after 8 hrs., rate 7 a.m. 459 MCFD, 3/4" stream of water. Casing pressure 250 PSIG.

8/10/61

Pressure build-up 8 1/2 hours, 900 PSIG, 12 hrs. flowing to atmosphere. Well gaged 425 MCFD, casing pressure 240 PSIG. Well shut-in 7 a.m. for 1 day pressure build-up, will run 3/4" choke test.

8/11/61

Will run 3 hour 3/4" choke test today. Shut-in 24 hrs. as of this a.m.

8/14/61

Flowing intermittantly. Well will pressure up to 1300 PSIG in 15 hours. Still blows down to 450 MCFD from Dakota.

WELL: CLAYTON NO. 1-2

8/15/61

Shut-in, 1200 PSIG casing pressure. Checking tubing to see if it is parted.

8/16/61

Shut-in. Preparing to check possible tubing parting. Too muddy yesterday.

8/17/61

After 18 hours making 439 MCFD, 240 PSIG casing pressure. Shut-in - still wet. Tubing not parted - checked ok.

8/18/61

Shut-in 24 hours, 1300 PSIG pressure, opened to atmosphere.

8/19/61

After 24 hours open, making 416 MCFD, 220 PSIG casing pressure. Shut-in to pressure up.

8/20/61

24 hour shut-in casing pressure 1225 PSIG, opened to atmosphere.

8/21/61

After 24 hours 391 MCFD, 180 PSIG casing pressure. Indication of condensate in fluid. Indication of fluid decreasing.

8/22/61

Shut-in for pressure build-up.

8/23/61

Shut-in for pressure build-up.

8/24/61

Shut-in, will run 3 hour test this morning.

8/25/61

Will acidize with 2000 gal. 7 1/2% mud acid this a.m. Pressure 1444 PSIG on casing yesterday a.m. After 3 hrs flow tubing pressure 12 PSIG, casing pressure 476 PSIG. Well loggy, tubing pressure fluxuates greatly. Left well flowing throughout the night. Do not beleive test representative.

WELL: CLAYTON NO. 1-2

8/26/61

Swabbing. Pumped 2000 gal. of 7 1/2% mud acid, 90 bbls. water with $CaCl_2$. Well took all fluid on a vacumn. After 2 hours tubing approximately 250 PSIG. Moved on swab unit 4 p.m. Fluid level below 3000', swabbed from 5 to 7:30, shut well in.

8/27/61

Well had 700 PSIG casing pressure, 25 PSIG tubing. Opened well through tubing, well would not flow. Pulled swab twice, well kicked off. Left flowing until Sunday a.m., well gaged 825 MCFD, casing pressure 300 PSIG. Shut-in for pressure build up. Well still very wet.

8/28/61

Will open well for clean up. No pressure yet.

8/29/61

1100 PSIG casing pressure after 19 hours shut-in. Left shut-in to pressure up additional 24 hours.

8/31/61

Shut-in for pressure build up for 7 day test.

9/1/61

Shut-in for 7 day test.

9/2/61

Shut-in for 7 day test.

9/3/61

Shut-in for 7 day test.

9/4/61

Shut-in for 7 day test.

9/5/61

Shut-in, will test this afternoon.

WELL: CLAYTON NO. 1-2

9/6/61

Moving in completion rig.
Shut-in after running routine potential test following 7 days shut-in.

Time After Opening Minutes	Casing PSIG	Tubing PSIG	Temp. ° F.
0	1550	1563	-
15	390	1248	36
30	294	1078	36
45	229	956	38
60	218	873	39
120	122	700	41
180	109*	603	41

* Approximately 1700 MCFD with continuous frac water mist.

9/7/61

Pulling 1 1/2" tubing, preparing to complete Gallup.

9/8/61

Fishing with sand line for 1 1/2" tubing at 3150'. Total of 88 joints recovered in 13 trips. Lift plug popped out of tubing box, dropped 6150' of tubing to bottom, fell 592'. Went in with overshot, recovered 38 joints, badly corkscrewed.

9/9/61

Going in hole with impression block. Pulled an additional 91 joints for a total of 179 joints fished out of hole. 16 joints remaining in hole. Unable to latch on to fish with Clulow socket.

9/10/61

Running Clulow socket on wire line. Ran impression block to 6250', no conclusive result. Ran spear and attempted to stab in fish, no success. Went in with wash over shoe and Clulow socket on tubing. Went 6" and dropped over fish at 6250'. Attempted to grab with Clulow socket, pulled 4000# for 20' and then jumped. Came out of hole to check if fish was in socket. No fish.

9/11/61

Fishing for wire line with center spear on tubing. Ran Clulow socket on wire line. Latched on to fish, attempted to pull fish, wire line parted and lost approximately 4000' of 9/16" wire line in hole. Ran 2 pronged grab, could not get through coiled line at 2900'. Ran center spear in 3 trips. Recovered 90' of wire line.

WELL: CLAYTON NO. 1-2

9/12/61

Coming out of hole after hooking wire line with center spear, now fishing with cable tool rig. Made one trip with center spear on tubing. Recovered approximately 30' of wire line. Rigged up cable tool rig, well kicked off, killed well with 70 bbls. water. Went in hole with center spear on 7/8" cable tool wire line.

9/13/61

Fishing with Clulow socket on wire line for remaining 7 joints of tubing in hole. Hooked wire line, came out of hole with all of wire line, fishing Clulow socket and 9 joints of tubing after jaring for 12 hours.

9/14/61

Jarring on stuck fish at 6580'. Recovered 4 joints, well kicking strongly periodically.

9/15/61

Rigging down cable tools, preparing to go in with wash over shoe on tubing. Fished with Clulow socket, 2 pronged grab, rasp and over shot, recovered no fish.

9/16/61

Killing well, killed with 90 bbls. water. Ran tubing with wash over shoe, milled at 6611' for 4 hours, made 4". Pulled tubing, during trip out pipe hung up approximately every 30' until 30 stands off bottom.

9/17/61

Going in hole with 1 joint of 4 1/2" casing for wash over shoe. Pulled tubing, found wash over shoe jammed with chunk of 1 1/2" tubing. Re-ran wash over shoe, well kicked off, killed with 80 bbls. water. Milled on fish for 5 hours, made 5", pulled tubing, no fish. While coming off bottom pipe hung up every 20' for 21 stands.

9/18/61

Preparing to run impression block on wire line. Washed over fish from 6611' to 6615' in 6 hours, unable to wash over further. Washing dry with no attempt to circulate. Fish consists of 5 or 6 joints of 1 1/2" tubing with top at 6611'. Pulled wash over pipe, no fish. Spooled on sand line, well kicked off, killed with 80 bbls. water.

WELL: CLAYTON NO. 1-2

9/19/61

Swabbing Dakota. Completed running impression block and found indications of tubing gooseneck at top of fish. Decided to leave fish in hole. Top of fish at 6611'. Swabbed for 15 hours, recovered approximately 200 bbls., fluid level 3000', gassing slightly.

9/20/61

Swabbing Dakota 5 bbls. per hour, swabbing from very close to bottom. Decreasing amount of water from 10 to 15 bbls. yesterday.

9/21/61

Going in with gage ring, preparing to set production packer to frac Gallup. Shut-in for 13 hours, fluid level build up 5800'. Pressure 945 PSIG. Went in, swabbed well, only giving up 1/2 bbl. fluid per hour.

9/22/61

Gallup flowing 1790 MCFD after 19 hours open, slight mist of oil. Preparing to treat with 1000 gal. of mud acid. Ran Baker Model "D" packer with push out plug, set at 6530' KB. Loaded hole with water to 5750', perforated Gallup from 5954' to 5961' with 4 jets per foot. Gas to surface in 8 minutes, after 1 hour open, making 1350 MCFD at 5 p.m. after 6 hours open, began making light mist of oil. Well open all night. Gradually increased in flow volume.

9/23/61

Swabbing back load oil after 1000 gal. mud acid treatment. Preparing to frac. Injected 1000 gal. of 15% mud acid down casing in 3 stages, took acid on vacuum at 1/2 BPM, reached 500 PSI on 12 bbl. over flush. Swabbed back 138 bbls. of load oil, recovered no acid water, well making 360 MCF and 1/4 bbl. frac water per hour.

9/24/61

Attempting to kill well. Fraced with 45,000# (20-40 mesh) sand, 37,600 gal. crude oil, treated with 1000# Adomite fluid loss agent (frac fluid 30,000 gal. 7,600 gal. flush and break down). Maximum pressure 2400 PSIG at 31 BPM, minimum pressure 1900 PSIG at 36 BPM, no apparent break down pressure. Average rate 33 BPM, average sandconcentration 1 1/2# per gal. Instant shut-in 1100 PSIG, 10 minutes 950 PSIG, 2 hours shut-in 0 PSIG with light vacuum. Ran 5330' 2 1/2" EUE tubing. Swabbed back 120 bbls. load oil, well kicked off out of control -- flowing 3 1/2 - 5 MMCFD estimated - cut out flow line.

Sequence of Frac Job

1. No break down pressure.
2. All trucks on line, 2000 PSIG, 33 BPM, started sand 1/2# per gal.

WELL: CLAYTON NO. 1-2

9/24/61 Cont'd.

3. After 3 minutes, went to 1# per gal. (2000 PSIG and 34 BPM)
4. 10,000# sand in - increase to 1 1/2# per gal., pressure increase to 2400 PSIG, cut sand to 1# per gal.
5. Break back to 2200 PSIG, increase to 1 1/2# per gal. 25,000# sand in.
6. At 30,000# sand in - pressure 2200 PSIG, rate 33 BPM
7. At 38,000# sand in - increase to 2# per gal., pressure 2200 PSIG, rate 33 BPM
8. At 45,000# sand in - started flush, pressure 2200 PSIG, rate 33 BPM, flush complete (no over flush, pressure 2400 PSIG, rate 31 BPM).

9/25/61

Laying down drill pipe, preparing to run 1 1/2" string to Dakota. Killed well with 250 bbls. of water. Ran additional 1200' 2 1/2" EUE, circulated out 140' of sand on top of packer. Pushed out push out plug in Model D packer, coming out, laying down. During clean out, Gallup took additional 210 bbls. of water.

9/26/61

Running Dakota string of tubing and circulating sand off top of production packer. 90' of sand fill up on top of packer.

9/27/61

Going in hole with 2 1/2" EUE tubing with jagged collar on end - attempt to circulate out junk on top of packer. Ran 1 1/2" tubing to 6525', reverse circulated 90' sand off top of packer (lost 120 bbls. water), unable to get tubing below 6525', seems to be hanging on junk above packer. Pulled 1 1/2" tubing, ran 4" sand pump, recovered no junk.

9/28/61

Washing below packer with 1 1/2" tubing stinger. Went in hole with notched collar on 2 1/2" EUE tubing, washed out some pieces of rubber. Came out of hole, went in with 2 1/2" EUE and 60' of 1 1/2" stinger, milled in packer 30 minutes with 4000# of weight, went through packer. No signs of lost circulation at this time and no signs of sand below packer, however, just below packer at this point.

WELL: CLAYTON NO. 1-2

9/29/61

Running Dakota production string (1 1/2" IJ tubing). After milling through packer ran stinger to 40' below packer, encountered no sand. Circulated 25 minutes to clean hole, no sand returns, made connection, tubing stuck while making connection. (Sand apparently fell in from Gallup zone.) Forced tubing for 5 hours before coming loose, regained circulation - circulated hole for 3 1/2 hours before getting clean returns. Circulated out sand and chunks of rubber. Came out of hole, laying down 2 1/2" tubing. Ran second Baker Model "D" packer to insure against possibility of packer bore being scraped by milling out junk, set packer at 6525' KB.

9/30/61

Running Gallup production string (1 1/2" IJ tubing). Ran 207 joints 1 1/2" IJ tubing for 6508.28', plus 27.73' 1 1/2" IJ subs, plus 5.37' 2" tubing pup joint, plus 3.72' packer seal assembly for total of 6545.10' set at 6556.1' KB. Tubing landed in packer at 6525' KB with 25.96' stinger joint on bottom of seal assembly.

10/1/61

Swabbing Gallup, Dakota flowing 1020 MCFD plus light spray of water. Ran 185 joints (5915.72') 1 1/2" IJ tubing plus 5.72' 1 1/2" IJ subs for total of 5921.44' set at 5932.44' KB. Set collars at 4737' and 4043' KB. Rigged up to swab DK, made two pulls off bottom. Kicked off. After 3 hours making 1250 MCFD plus heavy spray of water and large amounts of sand. Swabbed approximately 450 bbls. of water from Gallup since 3:30 Sat.

10/2/61

DK cycling through Gallup tubing. Swabbed Gallup till 4 p.m. Swabbed additional 200 bbls. water, turned DK into annulus at 4 p.m., continued swabbing Gallup. Gallup kicked off at 9:30 p.m. cycled throughout night.

10/3/61

Shut-in since 12 noon on Gallup, 1190 PSIG pressure. Dakota shut-in 24 hours, 1590 PSIG pressure. Will flow Gallup and Dakota at 2 p.m. this afternoon. Swabbed Gallup until noon or 4 hours, making estimated 250 MCFD.

10/4/61

Shut-in, building well head. After 26 hours shut-in, casing pressure on Gallup 1200 PSIG. Shut-in tubing pressure on DK, 1600 PSIG. Opened Gallup up, flowed by heads. Gas erratic, making 2500 MCFD at one time. Shut-in after 2 hours flow. Plan to blow today after building well head.

WELL: CLAYTON NO. 1-2

10/5/61

Shut-in. Built well head, opened Gallup to atmosphere for 4 hours. Made large amount of oil and water for 1 1/2 hours, died and then slugged intermittantly for 1 hour. Logging down. Shut-in for pressure up.

10/6/61

Had 1230 PSIG shut-in pressure after 36 hours. Opened to atmosphere at 7 a.m. this morning. Flowing heavy stream of water and oil from Gallup.

10/7/61

Flowed Dakota and Gallup. Estimated 1025 MCFD out of the Gallup, flow steady bringing light mist of oil. Dakota estimated 1000 MCFD, diminishing amount of water in the spray. Both zones shut-in.

10/8/61

Shut-in

10/9/61

Shut-in, will run 7 day test on Dakota Saturday the 14th, will flow Gallup today.

10/10/61

Gallup flowing to pits, after 24 hours open 714 MCFD plus light spray of oil. Casing pressure 300 PSIG. Going to leave open additional 24 hours.

10/11/61

Flowing to atmosphere. Shut-in for 3 hours, casing pressure after 3 hours 1050 PSIG, open to atmosphere. After open 5 hours producing at rate of 820 MCFD plus a steady spray of oil.

10/12/61

Shut-in. Opened to atmosphere all day yesterday. Flowing casing pressure stabilized at 300 PSI. Flow rate stabilized at approximately 750 MCFD plus steady spray of oil. Going to set on test separator today.

10/13/61

Flowing through test separator with 250 PSIG back pressure on tubing. Casing pressure 420 PSIG. Producing at rate of 475 MCFD, made 13 bbls. oil and 4 bbls. water in 15 hours.

WELL: CLAYTON NO. 1-2

10/14/61

Producing at rate of 725 MCFD. 200 PSIG tubing pressure, casing pressure 380 PSIG. Made 12 bbls. of oil in 24 hours.

10/15/61

Shut-in at 1 p.m. Sat.

10/16/61

Shut-in 8 a.m. for 7 day test. Reopened at 10 a.m. Sun., intermitting 1 hour open, 1 hour shut-in. Producing at rate of 750 MCFD, made 10 bbls. fluid in 9 hours.

10/17/61

Ran 3 hour test on Dakota, 102 PSIG pressure on tubing after 3 hours indicating 1650 MCFD.

10/20/61

Shut-in.

10/23/61

Will run 3 hour test today.

10/24/61

Ran 3 hour test with following results:

Time After Opening Minutes	Tubing Pressure PSIG	Casing Pressure PSIG	Temp. ° F.
0	1323	1321	
15	228	822	31
30	135	623	34
45	117	539	36
60	98	482	37
120	97	514	40
180	* 68	484	40

Very heavy spray of oil last 2 hours of test

* 1070 MCFD

10/25/61

Shut-in.

OPEN FLOW TEST DATA

DATE October 23, 1961

Operator: Consolidated Oil & Gas, Inc.		Lease: Clayton No. 1-2	
Location: 990' F/SL, 1850' F/WL Sec. 2-30N-12W		County: San Juan	State: New Mexico
Formation: Gallup		Pool: Undesignated	
Casing: Diameter: 5 1/2	Set At: Feet: 6701	Tubing: Diameter: 1 1/2 IJ	Set At: Feet: 5932
Pay Zone: From: 5954	To: 5961	Total Depth: 6530' (Packer)	
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: 1321	+ 12 = PSIA: 1333	Days Shut-in: 7	Shut-in Pressure, Tubing PSIG: 1323	+ 12 = PSIA: 1335	
Flowing Pressure: P PSIG: 68	+ 12 = PSIA: 80		Working Pressure: Pw PSIG: 484	+ 12 = PSIA: 496	
Temperature: T °F: 40	n = 0.75		Fpv (From Tables): 1.000	Gravity: 0.70	

CHOKE VOLUME = Q = C × P_t × F_t × F_g × F_{pv}

Q = 14.1605 X 80 X 1.0198 X .9258 = 1070 MCF/D

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

Aof = $\left(\frac{1776389}{1530873}\right)^n$ = Q 1.118

Aof = 1195 MCF/D

Time After Opening Minutes	Tubing Pressure PSIG	Casing Pressure PSIG	Temp. ° F.
0	1323	1321	
15	228	822	31
30	135	623	34
45	117	539	36
60	98	482	37
120	97	514	40
180	*68	484	40

Very heavy spray of oil last 2 hours

* 1070 MCFD

TESTED BY Clyde Phillips

WITNESSED BY _____

OPEN FLOW TEST DATA

DATE September 5, 1961

Operator: Consolidated Oil & Gas, Inc.		Lease: Clayton	
Location: 990' FSL, 1850' FWL Sec. 2-30N-12W		County: San Juan	State: New Mexico
Formation: Dakota		Pool: Basin	
Casing: Diameter: 5 1/2"	Set At: Feet: 6701'	Tubing: Diameter: 1 1/2"	Set At: Feet: 6539'
Pay Zone: From: 6580'	To: 6680'	Total Depth: 6887' PB	
Stimulation Method: Sand water frac		Flow Through Casing: X	Flow Through Tubing

Choke Size, Inches: 0.750		Choke Constant: C: 14.1605			
Shut-in Pressure, Casing, PSIG: 1550	+ 12 = PSIA: 1562	Days Shut-in: 7	Shut-in Pressure, Tubing PSIG: 1563	+ 12 = PSIA: 1575	
Flowing Pressure: P PSIG: 109	+ 12 = PSIA: 121		Working Pressure: Pw PSIG: 603	+ 12 = PSIA: 615	
Temperature: T °F: 41	n = 0.75		Fpv (From Tables): 1.017	Gravity: 0.70	

CHOKE VOLUME = Q = C × P_t × F_t × F_g × F_{pv}

Q = 14.1605 X 121 X 1.0188 X .9258 X 1.017 = 1640 MCF/D

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

Aof = $\left(\frac{2,450,000}{2,072,000}\right)^n$

Aof = 1860 MCF D

Time After Opening Minutes	Tubing Pressure PSIG	Casing Pressure PSIG	Temp. ° F.
0	1550	1562	
15	490	1248	39
30	294	1075	40
45	229	958	38
60	218	873	39
120	122	720	41
180	109*	605	41

* Approximately 1750 MCFD with continuous frac water mist.

TESTED BY Sanger

WITNESSED BY _____