

COMPLETION REPORT  
CONSOLIDATED OIL & GAS, INC.  
ALBERDING NO. 1  
(Mesa Verde)  
December 2, 1959

Basic Data:

Location	T31N-R13W, N. M. P. M. Sec. 3 NE NE (790' FN & EL)
Elevation	5769' Ground, 5782 K. B. (all measurements from K. B.)
Spud	10/12/59
Released Rig	11/19/59
Total Depth	4830' - P. B. 4796'
Contractor	Huron Drilling Company

Casing Program:

Surface	10-3/4" 32.75# H-40 cemented at 208' with 200 sx
Production	4 1/2" Full Hole Drillpipe 16.6# cemented at 4829 with 430 sx 6% gel. cement. Cement top at 3220'
Perforated	4388' - 4393'                      4558' - 4570' 4490' - 4416'                      4575' - 4579' 4465' - 4518'                      4583' - 4594' 4527' - 4531'                      4597' - 4601' 4533' - 4540'                      4612' - 4628' 4543' - 4550'                      4631' - 4647' 4652' - 4664'  2 jets per foot
Tubing	1 1/4" EUE to 4392'

Logs: Schlumberger Gamma Ray Neutron

Treatment: Sand frac w/130,000 gal. water and  
45,000 lbs. sand.

Initial Potential: 1,000 MCFD thru 3/4" choke after 3 hours  
7-Day Surface Pressures: Csg. 1102 psig  
Tbg. 1103 psig

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WELL: ALBERDING NO. 1 (NE NE of Sec. 3, T31N, R13E)

FIELD: Blanco

COUNTY: San Juan STATE: New Mexico

SPUD DATE: 10/12/59

ELEVATIONS: 5770' Cd. 5782' KB

10/12/59 Drlg rat hole.

10/13/59 T.D. 50'. Formation solid rock. Present operation packing swivel. 17 hrs drlg rat hole. 1 hr hooking up gas line. 4 hrs drlg. 2 hrs working on pump.

10/14/59 T.D. 224'. Now running surface pipe.

10/15/59 T.D. 224'. W.O.C.  
Set 194' 10-3/4" - 32.75# - H-40 cs3 at 203'. Circulated cmt to surface w/200 sx.

10/16/59 Drlg at 900'. 1/2" at 500'.

10/13/59 T.D. 2518'.

10/19/59 T.D. 3076'. Vis 44; mud wt 3.9; deviation 1/2" at 2850'.

10/20/59 T.D. 3291'. Sand and shale. Present operation coming out of hole w/fish. Vis 45; mud wt 9.7.

10/21/59 T.D. 3485'. Made 194' sand and shale. Bit #8. Mud wt 9.3; vis 5.4; deviation 3/4" at 3400'.

WELL: ALBERDING NO. 1 Continued:

10/22/59 T.D. 3656'. Made 172' sd and sh. Making trip bit #10. Mud wt 9.4; Vis 58; Dev 3/4" at 3600'.

10/23/59 T.D. 3718'. Made 160' in sd. Bit #12. Vis 60; Mud wt 9.25.

10/24/59 Drlg at 3845'. Bit #13. Mud wt 9.5; Vis 57; Dev 3/4" at 3475'.

10/25/59 Drlg at 4060'. Bit #17. Drld 217' sd and sh. Mud wt 9.5; Vis 65.

10/26/59 Drlg at 4275'. Made 215' w/bit #16. Mud wt 9.6; Vis 52; Dev 1/2" at 4200'.

10/27/59 Drlg at 4475'. Bit #13. Mud wt 9.5; Vis 59.

10/28/59 T.D. 4630'. Tripping. Mud wt 9.4; Vis 62; Dev 1/2" at 4500'.

10/29/59 T.D. 4775'. Drld 145' sd and sh. Drlg w/bit #21. Vis 70; Mud wt 9.4. Some lost circulation at 4650'.

10/30/59 T.D. 4830'. Running cs3. Ran Schumbarger RA logs.

10/31/59 W.O.C. Ran 4339' 4 1/2" full hole -- 16.6# cs3 (drill pipe) set at 4329' KB. Scratchers 4460' - 4710'. Rotated cs3 throughout job w/130% circulation returns before and during job. Cmtd w/430 sx w/6% GEL. Bumped plugs at 1600 psig -- checked plugs -- holding OK -- repressured to 500 psig and shut in at 2:00 PM.

11/1/59 Preparing to frac. Cmt top at 3220' by Temp Survey. PETD at top of float collar 4796' -- could only get to 4692' w/temp bomb. Refracted w/2 jets per foot as follows:

4388' - 4393'	5'	4558' - 4570'	12'
4409' - 4416'	7'	4575' - 4579'	4'
4465' - 4518'	53'	4583' - 4594'	11'
4527' - 4531'	4'	4597' - 4601'	4'
4533' - 4540'	7'	4612' - 4628'	16'
4543' - 4550'	7'	4631' - 4647'	16'
		4652' - 4664'	12'

WELL: ALBERDING NO. 1 Continued:

11/1/59 cont'd:

Displaced 300 gals 15% HCL -- pumped to bottom at 5 BPM at 800 psig.

11/2/59

Picking up 1 1/2" tbg w/bit to clean out to bottom in preparation for refrac. Attempted to frac yesterday as follows: Pumped in at 35 BPM at 2300 psig -- started 3/4" PG -- pressure began increasing at rate of about 100 psig/min -- when pressure at 3000 psig went to 1/2" PG but pressure continued increasing at same rate -- sand stopped. Attempted to flush but pumped at only 1 RPM at 3300-3600 psig. Estimate injected 8000# of sand w/about 2000# into formation. Ceased pumping and pressure bled to "0" rapidly found top of sand at 4238' by wire line.

11/3/59

Attempting to wash sand at 4238'.

11/4/59

Washing sd and perforation junk at 4570'.

11/5/59

Attempting to free stuck tbg at 4629'. Cleaned out to 4631' -- essentially all frac sd but last 1' was solid perforation junk. Raised tbg to 4629' -- displaced 500 gals 15% HCL -- let stand 1 hr then staged into perforations during additional hr. Attempted to pump down tbg to displace additional acid and found tbg plugged and stuck. Cannot circulate, rotate or move up or down. Displaced additional 500 gals 15% HCL down annulus. Pumped in annulus at 900 psig. First acid staged at 200 psig.

11/6/59

Preparing to spot 1000 gals 15% HCL w/tbg setting at about 4600'. Subd tbg down to enable breaking reverse circulation -- in process lost swab in tbg -- retrieved swab. Tbg came free. Will come out of hole and refrac.

11/7/59

Fishing for 18 jts. 1 1/2" tbg left in hole. Displaced through perforations the 1000 gals acid spotted yesterday.

11/8/59

Tearing down and moving off rotary rig. Retrieved 3 jts 1 1/2" tbg fish.

11/9/59

Preparing to move on wire line service rig to continue fishing.

WELL: ALBERDING NO. 1 Continued:

11/10/59

Fishing. Having difficulty latching on to fish. Moved what is believed to be 1 or 2 jts 10' up the hole. Impression block indicates top of fish even with tool bit and off to one side. Re-maining fish now ams to 15 jts (approximately 350') 1 1/2" regular tbg.

11/11/59

Fishing. Indications are that spear goes 15' by fish and over-shot not going over fish. Will run in with several jts of tbg on wire line above overshot to provide set-down weight. Top of fish at 4278' KC.

11/12/59

Fishing for 6 jts - 1 1/2" tbg remaining in hole. Recovered 9 jts tbg.

11/13/59

Fishing for remaining 3 jts 1 1/2" tbg. Top of fish now at 4572'. Recovered 3 jts tbg fish yesterday.

11/14/59

Fishing for remaining 3-joints 1" tubing. Unsuccessful in fishing attempts yesterday.

11/15/59

Preparing to free retrieved 3-joints 1 1/2" tubing fish. Re-maining fish indicated to be under water, sand, and perforating junk. Top of fish 4605' KC.

11/16/59

Preparing to go in hole with 1 1/2" tubing, and bring well in with supply gas. Sand and water fraced yesterday as follows:

Stage #1: Started pumping at 33 bpm at 2500 psig with a gradual increase to 2750 psig after 20 minutes. After 15,000 gallons of water dropped 50 balls with pressure increased to 2800 psig, dropped to 2700 psig.

Dropped 30 balls after 25,000 gallons.

20 balls after 30,000 gallons,

20 balls after 35,000 gallons,

20 balls after 40,000 gallons,

WELL: ALBERDING #1

11/16/59 - Stage #1 - Continued

Dropped 20 balls after 45,000 gallons,  
20 balls after 50,000 gallons,

Pressure gradually declined to 2550 psig.

TOTAL FIRST STAGE: 60,000 gallons water, 180 balls, 2550 to 2800 psig, 27 bpm.

Shut down to change pump trucks because of equipment failure. Well back-flowed approximately 100 barrels from initial standing pressure of 600 psig.

Stage #2: Began injecting at 2550 psig with 1 lb. sand per gallon at 28 bpm. After five minutes, the wellhead broke. Shut down to repair by welding. The well back-flowed water and sand for thirty minutes.

Stage #3: Started injecting at 2550 psig with 1 lb. sand per gallon with gradual pressure increase to 2750 psig. Started 1 lb. sand per gallon, and injected for ten minutes when the head broke again. Shut down to repair head. Well back-flowed water and sand for about thirty minutes.

Stage #4: Started injecting at 2600 psig with 1 lb. sand per gallon - increased to 1/2 lb. sand per gallon with pressure at 2650 psig. Increased to 3/4 lb. per gallon, pressure to 2700 psig. Increased to 1 lb. per gallon. After pumping 1 lb. per gallon for seven minutes, dropped 40 balls with pressure increase to 2800 psig. Continued pumping at 1 lb. per gallon while dropping three additional 30-ball stages. Throughout this procedure, pressure increased to 2800 psig. - to 2900 psig. - then to 2850 psig, all at 26 bpm.

TOTAL FOURTH STAGE: 50,000 gallons water, 130 balls, 45,000 lbs. sand, 2600 to 2900 psig., 26 bpm. Finished with additional 4,000 gallons water. Standing pressure 800 psig. immediately. Well flowed back a heavy stream of water, (milky and gas cut toward the end) with some sand, almost dead after one hour.

OVERALL JOB SUMMARY: 130,000 gallons water, 45,000 lbs. sand (40-60 mesh), 310 balls, (180 first stage, 130 fourth stage), 2550 to 3000 psig, and 26 bpm. Sand fill up to 4580' K.B. by wire line measurement.

WELL: ALBERDING #1

11/17/59

Running completion tubing. Blew with supply gas 20 hours with tubing setting in interval 1300' to 2200'. Well making lots of frac water with little sign of natural flow until 6:00 a.m. this morning, when well began unloading through tubing on its own.

11/18/59

Preparing to pull tubing after unsuccessful attempt to bring well in, as per report of 11/17/59. Will raise tubing to about 2000' and instigate natural formation flow with the aid of supply gas.

11/19/59

Well unloading frac water under natural flow - has been flowing on its own fairly steadily for ten hours. Flow stream contains heavy water fog, but will burn. Indicated volume is 1800 MCFD. Tubing is now at 1300'. Will kill tubing and strip to bottom.

11/20/59

Shut in for initial 7 day buildup and subsequent potential testing. Landed 1 1/2" tubing to 4392 K.B. Will continue to blow and clean up frac water with relatively settled indication of gas flow with small water mist of 1250 MCFD. Casing pressure rose gradually to 420 psig.

11/21/59

Shut-in.

Tbg. Pres. - 1080 psig.  
Csg. Pres. - 1080 psig.

11/29/59

Shut in for pipeline connections. - Initial Potential Test 11/28/59. Three hour test, 3/4" choke.

Time	Temp.	Tub. Press.	Csg. Press.	Rate
9:50 a.m.		1103	1102	Shut in
10:00 a.m.		1103	1102	Open
10:15 a.m.	40	222	885	
10:30 a.m.	39	183	815	
10:45 a.m.	44	145	705	
11:00 a.m.	46	98	672	
12:00	49	94	592	
1:00	49	74	464	1 000 MCF/H

# OPEN FLOW TEST DATA

DATE November 27, 1959

Operator <b>Consolidated Oil &amp; Gas, Inc.</b>		Lease <b>Alberding</b>	
Location <b>NE NE Sec. 3, T31N, R13W</b>		County <b>San Juan</b>	State <b>New Mexico</b>
Formation <b>Mesa Verde</b>		Pool <b>Blanco Mesa Verde</b>	
Casing: Diameter <b>4 1/2 F.H.D.</b>	Set At: Feet <b>P. 4829 KB</b>	Tubing: Diameter <b>1 1/4</b>	Set At: Feet <b>4392</b>
Pay Zone: From <b>4388</b>	To <b>4664</b>	Total Depth: <b>4796 PB</b>	
Stimulation Method <b>Sand-water frac</b>		Flow Through Casing	Flow Through Tubing <b>X</b>

Choke Size, inches <b>3/4</b>		Choke Constant: C <b>12,3650</b>			
Shut-In Pressure, Casing, PSIG <b>1102</b>	+ 12 = PSIA <b>1114</b>	Days Shut-In <b>7</b>	Shut-In Pressure, Tubing PSIG <b>1103</b>	+ 12 = PSIA <b>1115</b>	
Flowing Pressure: P PSIG <b>74</b>	+ 12 = PSIA <b>86</b>		Working Pressure: P <sub>w</sub> PSIG <b>564</b>	+ 12 = PSIA <b>576</b>	
Temperature: T °F <b>49</b>	n = <b>0.75</b>		F <sub>pv</sub> (From Tables) <b>1.008</b>	Gravity <b>0.70 est.</b>	

$$\text{CHOKE VOLUME} = Q = C \times P_i \times F_i \times F_g \times F_{pv}$$

$$Q = 12.365 \times 86 \times 1.0108 \times 0.9258 \times 1.008 = \underline{1000} \text{ MCF/D}$$

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

$$Aof = \left( \frac{1240996}{909220} \right)^n = 1367^n$$

$$Aof = \underline{1264} \text{ MCF/D}$$

TESTED BY Tevlison

WITNESSED BY \_\_\_\_\_

George E. Janner