

DRILLING & COMPLETION HISTORY

CONSOLIDATED OIL & GAS, INC.

LINDA NO. 1-31

San Juan County, New Mexico
December 18, 1962

| | | | |
|--------------------------|--|---------------|---------|
| Location: | 840' F/SL, 790' F/WL, Section 31 T27N-R8W, N. M. P. M. | | |
| Elevations: | 6082' GL 6094' KB - all measurements from KB | | |
| Spud: | November 10, 1962 | | |
| Drilling Completed: | November 22, 1962 | | |
| Well Completed: | November 29, 1962 | | |
| Total Depth: | 4606' Drilled 4572' PBTD | | |
| Casing - Surface: | 9 5/8" set at 224' with 100 sx. regular 2% CaCl ₂ cement. | | |
| - Production: | 5 1/2" set at 4606' with 90 sx. Diacel "D" with 2% CaCl ₂ and 50 sx. of 50/50 Pozmix with 4% gel in two stages. | | |
| - Tubing: | 1 1/2" landed in Model "D" packer at 4158'. 1" landed at 1896'. | | |
| Logs: | Gamma Ray Neutron | | |
| Cores & Drillstem Tests: | None | | |
| Formation Tops (Log): | Pictured Cliffs | 1918' | (+4176) |
| | Point Lookout | 4216' | (+1878) |
| Producing Perforations: | MV | PC | |
| | 4226' - 4246' | 1938' - 1950' | |
| | 4258' - 4262' | 1960' - 1980' | |
| | 4286' - 4294' | 2003' - 2014' | |
| | 4304' - 4314' | | |
| Treatment: PC | Sand water frac with 94,500 gal. water and 100,000 lbs. sand. | | |
| MV | Sand water frac with 93,744 gal. water and 100,000 lbs. sand. | | |
| Initial Potential: MV | Flow volume thru 3/4" choke: 1580 MCFD | | |
| PC | Flow volume thru 3/4" choke: 473 MCFD Calculated Absolute Open Flow Potential: 1019 MCFD. | | |

WELL: Linda No. 1-31
840 F/SL, 790 F/WL, Sec. 3-T27N-R8W
 FIELD: Ballard Pictured Cliffs, Blanco Mesaverde
 COUNTY: San Juan STATE: New Mexico
 ELEVATIONS: 6082' GL
6094' KB

11/7/62

Moving in rotary rig today.

11/8/62

Rigging up rotary rig.

11/9/62

Rigging up rotary rig.

11/10/62

Spud at 12:30 a.m. 11/10/62. Present operation, drilling at 130', 12 3/4" hole.

11/11/62

Finished drilling surface hole at 9 a.m. 11/10/62. Ran 7 joints 9 5/8" 36# surface casing, total 230' set at 224' KB. Cemented with 100 sx. regular 2% CaCl₂ cement, circulated. Plug down at 11:30 a.m. 11/10. Nipped up, in prep to pressure up at 6 a.m. 11/11.

11/12/62

Drilling at 1275', sand and shale. Drilling with water. Dev. 3/4° at 498', 1/4° at 1053'. Had small water flow at 730'.

11/13/62

Dropped drillpipe 40', tool joint broke, ran overshot, caught fish, came out of hole, had knocked 3 cones off of fish. Went in, recovered three cones, back to drilling at 6 2.m. Present operation drilling at 1528' hit water flow at 1480', well making 2 1/2" stream of water. Will set frac tank today to start filling from water flow.

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WELL: LINDA NO. 1-31

11/23/62

Came out of hole. Ran electric log. Ran 140 joints of 5 1/2" J-55 14# casing for total of 4623.93'. Set at 4605.82' KB. Float collar at 4572.12" KB. Stage collar at 2087.54' KB. First stage (MV) cemented with 45 sx. Diacel "D" with 2% CaCl₂, 50 sx. of 50/50 Pozmix with 4% gel. Second stage (PC) cemented with 45 sx. Diacel "D" with 2% CaCl₂ and 50 sx. of 50/50 Pozmix with 4% gel. Bumped plug with 1500#, released pressure, float held. Second stage, bumped plug with 2000#, released pressure, stage collar held. Job completed at 4:50 a.m., 11/23/62. Present operation, WOC.

11/24/62

WOC 24 hours. Present operation, picking up 2" tubing to drill stage collar.

11/25/62

Ran 4 3/4" bit to stage collar (2087'). Pressured up to 1300#, OK. Drilled stage. Pressured up to 1500#, OK. Cleaned out to 4350'. Pressured up with Western Co. to 2500#, OK. Pulled bit. Rigged up Mercury. Ran correlation log. Perforated 2 per foot, 4304'-4314' 4286'-4294', 4258'-4262', 4226'-4246'. Rigged up Western Co. to frac.

| | | | |
|----------------------|-------|---------------------------|--------------|
| Breakdown, 1 pump | 1700# | Breakdown & fill | 35 bbls. |
| Breakdown all pumps | 1800# | Treating fluid | 94,500 gals. |
| Max. treating press | 2200# | Sand | 100,000 lbs. |
| Min. treating press | 1800# | Injection rate | 50 BPM |
| Aver. treating press | 2000# | Rubber balls | 60 |
| Instant shut in | 1000# | Flush | 140 bbls. |
| 5 minut shut in | 900# | Job complete at 3:20 a.m. | |

Rigged up Mercury, set 5 1/2" bridge plug at 2070' KB. Perforated 2003-2014', 1960-1980', 1938-1950'. Broke formation at 2700', blender went out, present operation, waiting on blender.

| | | | |
|----------------------|-------|--------------------------------------|--------------|
| Breakdown, 1 pump | 2700# | Breakdown & fill | 20 bbls. |
| Breakdown all pumps | 1600# | Treating fluid | 93,744 gals. |
| Max. treating press | 1825# | Sand | 100,000 lbs. |
| Min. treating press | 1500# | Injection rate | 54.2 BPM |
| Aver. treating press | 1650# | Rubber balls | 60 |
| Instant shut in | 900# | Flush | 48 bbls. |
| 5 minute shut in | 800# | Job complete at 10:40 a.m. 11/25/62. | |

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WELL: LINDA NO. 1-31

11/14/62

Depth 2065'. Drilled 537' of sand and shale. Drilling with water. Making 2" stream of water.

11/15/62

Depth 2665'. Drilled 600'. Drilling with water. Dev. 1 3/4° at 2233'.

11/16/62

Depth 2968'. Drilled 303' of sand and shale. Dev. 3/4° at 2960'. Drilling with water. Making trip for Bit 9.

11/17/62

Depth 3230'. Drilled 262' of sand and shale. Present operation, drilling with Bit 12 with water. Dev. 1/2° at 3212'.

11/18/62

Depth 3471'. Drilled 241' of sand and shale. Drilling with water. Present operation, making trip for Bit 12.

11/19/62

Depth 3717'. Drilled 246' of sand and shale. Drilling with water. Dev. 1° at 3675'.

11/20/62

Drilling at 4110'. Drilled 393' of sand and shale. Drilling with water. Dev. 1 1/8° at 4000'.

11/21/62

Drilling at 4415'. Drilled 305' of sand and shale. Drilling with water. Dev. 1 1/8° at 4000'.

11/22/62

TD 4600'. Drilled 185'. Circulated 2 hours, made short trip, circulated one hour. Present operation, in prep to come out of hole to log. Mud 9.2. Vis. 64. Water loss 10. Dev. 3/4° at 4500'.

WELL: LINDA NO. 1-31

11/26/62

Rigged up, went in hole, blowing down. Present operation, blowing hole at 1935'. Estimated production 500 MCFD with 2' stream of sand and water.

11/27/62

Present operation, blowing hole at 3000', well making 2 to 3" stream of sand and water. Well gauged 1025 MCFD at 2 a.m. Have 165# gas pressure to blow well.

11/28/62

Blowing well from 4512', 194' below bottom perforation. Well making 1 3/4" stream fresh water, show of oil. Beginning to get help from MV, well gauged 1500 MCFD.

11/29/62

Cleaned and blew well to TD. Gauged well, well making 2740 MCFD with good show of oil. Well clean of sand, making 1" stream of fresh water. Laid 2 3/8" completion string down, ran Model D packer set at 4158' KB. Ran 128 joints of 1 1/2" 2.90#, 10-round, V50 FUE tubing for total of 4147.48' landed at 4158'. Ran 60 joints of 1" continuous weld 1.80# V50, 10-round tubing for total of 1885.89' landed at 1896.41'. Ran one 1" jet collar at 1644.88', one jet collar at 1393.53'. Pumped out pump-out plug from MV, well flowed back. Both sides, PC and MV, shut in until rig is moved off location.

11/30/62

Shut in.

12/1/62

Shut in.

12/2/62

MV shut in 1075# after 3 hour flow well making 980 MCFD with good show of oil spray of water.

12/3/62

Shut in.



WELL:

LINDA NO. 1-31

12/11/62

PC 500 MCFD, final casing pressure 439#, tested through 1" tubing. Well made a lot of water throughout 3 hour test. MV 1638 MCFD, no water, good show of oil throughout test. Tested through 1 1/2" tubing, turned MV through test separator at 3 p.m. 12/10.

12/12/62

Produced MV through test separator, well made 39 bbls. oil in 22 hours, passing 2000 MCFD with 500# back pressure.

12/13/62

Well made 15 bbls. oil, passing 1250 MCFD with 500# back pressure in 20 hours, dropped back pressure to 400#.

12/14/62

Well made 14 bbls. oil, passing 1145 MCFD with 400# back pressure, 4 bbls. water in 2 1/2 hours.

OPEN FLOW TEST DATA

DATE December 13, 1962

| | |
|--|---------------------------|
| Operator Consolidated Oil & Gas, Inc. | Lease Linda No. 1-31 |
| Location 840' F/SL, 790' F/WL, Sec. 31-T27N-R8W | County San Juan |
| Formation Mesaverde | State New Mexico |
| Casing Diameter 5 1/2" | Pool Blanco |
| Set At: Feet 4606' | Tubing Diameter 1 1/2" |
| Pay Zone: From 1226' | Set At: Feet 4158' |
| To 4314' | Total Depth 4606' |
| Simulation Method Sand water frac | Flow Through Casing X |
| | Flow Through Tubing X |

| | |
|--|-----------------------------------|
| Choke Size, inches 0.75 | Choke Constant C 14,1605 |
| Shut-in Pressure, Casing, PSIG 105 | Days Shut-in 7 |
| Shut-in Pressure, Tubing, PSIG 1091 | Shut-in Pressure, PSIG 1091 |
| Flowing Pressure, P, PSIG 105 | Working Pressure, Pw, PSIG 117 |
| Temperature, T, °F 46 | Flow Through Casing X |
| | Flow Through Tubing X |
| | Gravity 0.7 (est.) |

$$\text{CHOKE VOLUME} = Q = C \times P_c \times F_c \times F_g \times F_v$$

$$Q = 14,1605 \times 117 \times 1.0137 \times .9258 \times 1.016 = 1580 \text{ MCF/D}$$

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

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

$$Aof = 1019 \text{ MCF/D}$$

TESTED BY: Clyde Phillips

WITNESSED BY:

W. H. Williams
W. H. Williams, Chief Engineer

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DATE December 13, 1962

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| Operator Consolidated Oil & Gas, Inc. | Lease Linda No. 1-31 |
| Location 840' F/SL, 790' F/WL, Sec. 31-T27N-R8W | County San Juan |
| Formation Pictured Cliffs | State New Mexico |
| Casing Diameter 5 1/2" | Pool Ballard |
| Set At: Feet 4606' | Tubing Diameter 1" |
| Pay Zone: From 1938' | Set At: Feet 1896' |
| To 2014' | Total Depth 4606' |
| Simulation Method Sand water frac | Flow Through Casing X |
| | Flow Through Tubing X |

| | |
|---------------------------------------|----------------------------------|
| Choke Size, inches 0.75 | Choke Constant C 14,1605 |
| Shut-in Pressure, Casing, PSIG 573 | Days Shut-in 7 |
| Shut-in Pressure, Tubing, PSIG 585 | Shut-in Pressure, PSIG 585 |
| Flowing Pressure, P, PSIG 23 | Working Pressure, Pw, PSIG 35 |
| Temperature, T, °F 42 | Flow Through Casing X |
| | Flow Through Tubing X |
| | Gravity 0.70 (est.) |

$$\text{CHOKE VOLUME } Q = C \times P_c \times F_c \times F_g \times F_v$$

$$Q = 14,1605 \times 35 \times 1.0178 \times .9258 \times 1.013 = 473 \text{ MCF/D}$$

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

$$Aof = \left(\frac{342,225}{138,824} \right)^n$$

$$Aof = 1019 \text{ MCF/D}$$

TESTED BY: Clyde Phillips

WITNESSED BY:

W. H. Williams
W. H. Williams, Chief Engineer

