

# DRILLING & COMPLETION HISTORY

## CONSOLIDATED OIL & GAS, INC.

SEGAL NO. 1-10

San Juan County, New Mexico  
April 12, 1962

|                          |   |   |         |
|--------------------------|---|---|---------|
| Location:                | 1844' F/SL & 1850' F/WL<br>Section 10-T31N-R13W, NMPM   |   |         |
| Elevation:               | 5782' GL<br>5794' KB - all measurements from KB   |   |         |
| Spud:                    | January 25, 1962  |   |         |
| Drilling Completed:      | February 19, 1962   |   |         |
| Well Completed:          | March 3, 1962   |   |         |
| Total Depth:             | 6728' Drilled<br>6708' Plug Back  |   |         |
| Casing:                  |   |   |         |
| Surface:                 | 9 5/8" 32.30# H-40 at 190' cemented<br>with 150 sx. 2% CaCl <sub>2</sub> cement.  |   |         |
| Production:              | 5 1/2" 15.5# J-55 at 6727' cemented<br>thru shoe with 126 sx. cement with<br>1/2 cu. ft. Strata-crete per sack and<br>thru stage collar at 4676' with 184 sx.<br>4% gel cement. |   |         |
| Tubing:                  | 1 1/2" EUE in packer at 6547' landed<br>at 6550'<br><br>1" B-50 tubing landed at 4353'  |   |         |
| Logs:                    | McCullough Gamma Ray-Neutron and<br>Bond Cement Logs  |   |         |
| Cores & Drillstem Tests: | None  |   |         |
| Formation Tops: Log      | Pictured Cliffs   | 1980'   | (+3814) |
|                          | Mesaverde   |   |         |
|                          | Cliffhouse  | 3712'   | (+2084) |
|                          | Menefee   | 3843'   | (+1951) |
|                          | Pt. Lookout   | 4347'   | (+1447) |
|                          | Mancos  | 4645'   | (+1148) |
|                          | Greenhorn   | 6441'   | (- 647) |
|                          | Dakota  | 6558'   | (- 764) |
| Producing Perforations:  | Mesaverde   | Dakota  |         |
|                          | 4408' - 4414'   | 6571'   | 6592'   |
|                          | 4440' - 4460'   | 6598'   | 6604'   |
|                          | 4466' - 4478'   | 6616'   | 6635'   |
|                          | 4484' - 4500'   | 6664'   | 6680'   |
|                          |   | 6684'   | 6690'   |
|                          |   | 6698'   | 6702'   |
| Treatment:               | Mesaverde:  | 100,000# 20-40 sand, 100,000 gal. water.  |         |
|                          | Dakota:   | 110,000# sand, 1,000 gal. acid, 153,000<br>gal. water in three stages.                          |         |
| Initial Potential:       | MV  | Flow volume thru 3/4" choke: 792 MCFD<br>Calculated Absolute Open Flow Potential:<br>1015 MCFD. |         |
|                          | DK  | Flow volume thru 3/4" choke: 1365 MCFD  |         |

WELL: SEGAL NO. 1-10  
 1844' F/SL & 1850' F/WL, Sec. 10-T31N-R13W  
 FIELD: Basin Dakota-Blanco Mesaverde  
 COUNTY: San Juan STATE: New Mexico  
 ELEVATIONS: 5782' GL  
 5794' KB

1/23/62

Moving in rotary, should break tower sometime tomorrow.

1/24/62

Rigging up rotary rig.

1/25/62

Finished rigging up, drilling on rat hole.

1/26/62

Drilled 190' of 1 3/4" hole of boulders, sand and shale. Presently running 9 5/8" surface pipe. Vis. 180. Dev. 1/2° at 90', 3/4° at 168'. Spudded at 4:30 p.m. 1/25.

1/27/62

Ran 9 joints of 9 5/8" surface pipe 201', set at 190' KB. Cemented with 150 ex. regular cement with 2% CaCl<sub>2</sub>. Plug down 8:30 1/26/62. Good returns on cement. Pressured up on pipe 500# for 30 minutes. Held OK. Drilled 613' of sand and shale. Drilling at 803' with water. Dev. 1/4° at 637'.

1/28/62

Depth 1852'. Drilled 1050' of sand and shale. Drilling with Bit 2. Dev. 3/4° at 1206', 3/4° at 1800', drilling with water.

1/29/62

Depth 2752'. Drilled 900' of sand and shale. Drilling with Bit 4. Dev. 1° at 2584'. Mixed 6 ex. gel, 25# of SP20, 50# of Super Seen, 4 gal. of DD. Last trip washed 30' to bottom.

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1/2/62

Depth 3332'. Drilled 581' of sand and shale. Making trip for Bit No. 1. Mud 9.8. Vis. 29. Water loss 32. Mud cake 1/32. Dev. 1° at 2584'.

1/11/62

Depth 3639'. Drilled 297' of sand and shale. Drilling with Bit 7. Mud 9. Vis. 30. Water loss 36. Dev. 1° at 3490'.

2/1/62

Depth 3750'. Drilled 120' of sand. Drilling with Bit 8. Mud 8.9. Vis. 30. Water loss 28. Mud cake 1/32. PH 8.6. Sand content nil. Dev. 1° at 3490'. Mixed 10 ex. gel., 50# Super Seen, 25# XP 20, 15 bbls. oil, 5 gal. of DD.

2/2/62

Depth 3871'. Drilled 124' of sand and shale. Trip for Bit 11. Mud 9. Vis. 30. Mud cake 2/32.

2/12/62

At 1541' trying to get to bottom. Hole was heaving, washing at 1541'. Made no hole at all. Mud 9.3. Vis. 240. Water loss 5. Mud cake 2/32. PH 9.5. 1% sand. 24 hours of washing and circulating trying to get to bottom.

2/14/62

Depth 4035'. Drilled 164' of sand and shale. Drilling with Bit 14. Mud 9.1. Vis. 63. Water loss 4.2. Mud cake 2/32. PH 9.5. Sand 1/2% Mixed 25 ex. gel., 100# super seen, 90# caustic, 50# XP 20, 6 gal. DD.

2/15/62

Depth 4360'. Drilled 325' of sand and shale. Drilling with Bit 15. Mud 9.3. Vis. 59. Water loss 5. Mud cake 2/32. PH 8.5. 1% sand. Dev. 3/4° at 4000'. Mixed 36 ex. gel., 100# Super Seen, 120# caustic, 25# XP20, 6 gal. DD.

2/16/62

Depth 4640'. Drilled 280' of sand and shale. Making trip for Bit 15. Mud 9.4. Vis. 53. Water loss 6. Mud cake 2/32. PH 9.5. Dev. 1/2° at 4338'.

2/17/62

Depth 4821'. Drilled 181' in sand. Drilling with Bit 16. Mud 9.3. Vis. 53. Water loss 6.8. Mud cake 2/32. PH 9.5. 1/4% sand

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2/8/62

Depth 5040'. Drilled 219' of sand and shale. Drilling with Bit 17. Mud 9.4. Vis. 55. Water loss 8.2. Mud cake 2/32. 1/4% sand. Dev. 1° at 4950'. Mixed 7 ex. gel., 30# caustic, 50# Super Seen, 20# XP 20, 4 gal. DD.

2/9/62

Depth 5238'. Drilled 198' of sand and shale. Tripping for Bit 19. Mud 9.4. Vis. 52. Water loss 9.2. Mud cake 2/32. PH 9. Mixed 23 ex. gel., 50# caustic, 100# Super Seen, 25# XP20, 8 gal. DD.

2/10/62

Depth 5387'. Drilled 149' of sand and shale. Twisted off, left 19 drill collars and two joints of drill pipe. Coming out of hole with fish. Mud 9.5. Vis. 50. Water loss 9.3. Mud cake 2/32.

2/11/62

Depth 5637'. Drilled 250' of sand and shale. Making trip for Bit 20. Mud 9.5. Vis. 54. Water loss 8.2. Mud cake 2/32.

2/12/62

Depth 6011'. Drilled 374' of sand and shale. Tripping for Bit 21. Mud 9.5. Vis. 55. Water loss 9.2. Mud cake 2/32. Dev. 1/2° at 5595'.

2/13/62

Depth 6235'. Drilling with Bit 23 in sand and shale. Mud 9.3. Vis. 60. Water loss 8.2. Mud cake 2/32. Dev. 1/2° at 5595'.

2/14/62

Depth 6455'. Drilled 229' of sand and shale. Drilling with Bit 24. Mud 9.5. Vis. 72. Water loss 8.4. Mud cake 2/32. Sand 1/2%. Mixed 20 ex. gel., 100# caustic, 100# super seen, 25# XP 20, 6 gal. DD.

2/15/62

Depth 6581'. Drilled 126' of sand and shale. Present operation, making trip for Bit 26. Mud 9.6. Vis. 78. Water loss 9.4.

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2/16/62

TD 6623'. Drilled 42'. Mud 9.9. Vis. 90. Pulled out of hole to log. Log from TD to surface, Gamma Neutron. Top of DK6568'. Presently going in hole with Bit #27 to deepen to 6728'.

2/17/62

Drilling at 6675' 12 to 15 minutes per foot. Drilling with Bit 28. Drilled 52'. Vis. 81. Mud 9.9. PH 9.5. Water loss 8.6. Presently drilling ahead, proposed TD 6728'.

2/18/62

Finished drilling to TD of 6728'. Circulated 2 hours came out of hole, logged well, Gamma Neutron. Going in hole with drill pipe to come out laying down to run 5 1/2" casing.

2/19/62

Ran 178 joints of 5 1/2" 15.5# J-55 casing for a total of 6746.87', set at 6727.24' KB. 5 1/2" right J Baker stage collar set at 4675.79' KB. One centralizer on shoe joint, one centralizer at 4708', one centralizer at 4348', one metal petal basket under stage collar. Float collar at 6697' KB. First cementing stage. Cemented with 126 ex. of No. 6 Strata-Crete 4% gel., displacement 160 bbls. Pumped 161.50 bbls. plug would not bump. Good circulation throughout job. First stage completed at 9:40 p.m. 2/18. Second cement stage, open DV tool at 12:45 a.m. 2/19, good circulation, cemented with 184 ex. of regular cement with 4% gel. Good circulation throughout job. Displacement 111 bbls. bumped plug 1500#, released pressure, job completed at 1:15 a.m. 2/19.

2/20/62

Moving out rotary rig.

2/21/62

Finished moving out rotary rig. Waiting to move in completion rig and completion string.

2/22/62

Will complete as soon as completion tubing string can be moved out of Ji carilla.

2/23/62

Will move completion string out of Jicarilla today.

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2/21/62

Will start moving in completion rig.

2/22/62

Moved in completion rig. Got completion string out of Jicarilla and on location.

2/21/62

Started picking up 2 7/8" tubing at 8 a.m.

2/22/62

Picked up 2 7/8" tubing, went in hole found top of cement at 4645'. Drilled 31' of cement, drilled stage collar at 4676'. Went in hole, found top of cement at 6660', firm cement to 6698'. Top of float collar pressured up to 2000# before drilling float collar. Drilled float collar at 6698' in good cement to 6708' clean out depth. Re-pressured to 2500# for 10 minutes, held OK. Circulated hole for two hours, spotted 1000 gal. acid on bottom, pulled tubing out of hole in preparation to run correlation log and Bond log.

2/22/62

Picked up McCollough, ran correlation log from TD to 6300' and from 4394' to 4390'. Ran Bond log from TD to top of MV. Rigged up and perforated from 6702' to 6698', 4 shots per foot and from 6690' to 6684', 4 shots per foot, from 6680' to 6664', 4 shots per foot. Displaced acid, first stage at 2000# pressure at rate of 3 BPM, staged 200 gal. and pressure dropped 1000# in 11 minutes. Second stage, pressure 1350#, rate 3 BPM, staged 200 gal. pressure dropped 750# in ten minutes. Third stage, pressure 1400#, rate 3 BPM, staged 200 gal., pressure dropped 600# in ten minutes. Fourth stage, pressure 1500#, rate 3 BPM, staged 200 gal., pressure dropped 650# in ten minutes. Fifth stage, finished displacing acid on pumps on line 2500#, rate 28 BPM, staged total of 1000 gal.

First stage frac: Break down pressure 1500#, all pumps on line 2500#, maximum pressure 3150#, maximum treating pressure, 2700#, minimum treating pressure 2200#, instant shut-in pressure 2000#, five minute shut-in pressure 1700#, ten minute shut-in pressure 1500#, average treating pressure 2300#. Used 1500# 40-60 1/4# per gal., 11,000# 40-60 1/2# per gal., 7500# 40-60 3/4# per gal. Used 12,500# 20-40 1/2# per gal., 7,500# 20-40 3/4# per gal. for total of 40,000# sand. Total water 57,300 gal. Injection rate on frac 25.8 BPM, average injection rate on flush 23.3 BPM. 160 bbls. on flush, overflush 49 bbls.

Set Baker bridge plug, top at 6654'. Perforated at 6635' and 6616'. One frac notch per foot, had communication.

Second stage frac: Break down pressure 1800#, all pumps on line 2700#. Maximum pressure 2700#, maximum treating pressure 2700#.

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2/22/62 Cont'd.

minimum treating pressure 2400#, instant shut-in 1900#, five minute shut-in 1750#, average treating pressure 2500#. Used 4100# of 20-40 at 1/2# per gal., 25,900# 20-40 at 3/4 lb. per gal. for total of 30,000#. Total water 41,720 gal. Average injection rate 33.1 BPM, injection rate on flush 28.5 BPM. Used 1480 bbls. water on break down on flush.

Set another Baker bridge plug, top at 6610'. Perforated from 6598' to 6604', 4 shots per foot, from 6571' to 6592', 4 shots per foot (had some communication on first run).

Third stage frac: Break down pressure 2900#. All pumps on line 2700#, maximum pressure 3000#, maximum treating pressure 2700#, minimum treating pressure 2500#, instant shut-in 2200#, five minute shut-in 2100#, average treating pressure 2600#. Used 27,500# of 20-40 at 3/4# per gal., 12,500# 20-40 with 1# per gal. 40,000# total used. Total water 43,466 gal. Injection rate 26.5 BPM. Break down and fill 1449 gal., flush 157 bbls. Used W4G gel at 7# per 1000 gals.

Set another bridge plug at 4530'. Perforated from 4484' to 4500', 4466' to 4478', 4440' to 4460', 2 shots per foot, from 4408' to 4414', total of 108 shots.

Last stage frac: Break down pressure 3000#, all pumps on line 1400#. Maximum pressure 3000#, maximum treating pressure 1750#, minimum treating pressure 1400#, instant shut-in 800#, five minute shut-in 750#, average treating pressure 1500#. Used 100,000 lbs. 20-40 with 1# per gal. Injection rate 36 BPM, used total 100 rubber balls. Break down and fill 1880 gal. and overflush 1076 gal. on flush 107 bbls.

3/1/62

Blew down to 4300' with gas, well making very little gas, 108' of sand over perfs. Cleaned out 12' of frac sand, plugged bit and three joints of tubing with sand. Unplugged the tubing, ran back into hole and found sand at 4300'. Started cleaning out sand and water at 2 a.m. Cleaned out to bridge plug at 4530', on plug at 6 a.m. blowing well. Well making estimated 1500 MCFD with lot of water and sand. Will call another report in around 11 a.m.

3/2/62

Gauged MV making 1024 MCFD to 1254 MCFD. Drilled plug at 4530', DK water backed up to 1800'. Started blowing water at this depth. Blew well down to 4530', finished drilling plug at 4530'. DK making alot of water. Blew well from this depth for 8 hours. Presently blowing well at 6430' with supply gas, well making a lot of water and sand. Some increase in gas, have not tested well because of large amount of sand and water well is making.

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3/3/62

Blowing and cleaning well. Drilled bridge plug at 6610', no increase in gas, blowing and cleaning. Drilled bridge plug at 6654', no increase in gas, cleaned out to PBTD of 6708', on bottom at 5 p.m. 3/2. Blew and cleaned well until midnight well making estimated 2061 MCFD on 30 minute test from MV and DK. Well still making lot of water. Pulled and laid down 2 7/8" completion string. Rigged up McCollough set Baker Model D packer (no flapper valve) set at 6547'. Gauged well at 5:30 a.m. 3/3/62, making 734 MCFD, in preparation to run production string.

3/4/62

Ran 201 joints 1 1/2" 10 round EUE tubing for total of 6511.50'. Ran two 1 1/2" X 8' pup joints, one 1 1/2" X 6' pup joint, one 1 1/2" X 4' pup joints, one 1 1/2" X 2' pup joints for total of 28' of pup joints. Total tubing and pup joints 6539.50' plus 11' for KB, tubing landed at 6550' with 10,000 lbs. of weight on tubing, tail pipe below packer 14.80. Ran 149 joints of 1" B50 regular tubing for total of 4342.30' plus 11' for KB. Tubing landed at 4353.30' KB. One jet collar at 4207' one jet collar at 3554', one jet collar at 3176'. Rig released at 12 midnight 3/3/62.

3/5/62

Opened DK through 1 1/2" tubing at 9 a.m. 3/4/62. Shut-in pressure at this time was 750#, well started flowing when opened MV through 1" tubing at 9 a.m. 3/4. Shut-in pressure at this time was 525#. MV started flowing at this time, checked well at 4 p.m. on 3/4. DK flowing rate of 685 MCFD with lot of water, 1 1/2" stream. MV making very little gas with some water (well logged off with frac water). Shut MV side in at 4:30 p.m., will turn DK side into MV to kick MV side on as soon as DK cleans up some.

3/6/62

Gauged DK went on 24 hours, well making 367 MCFD with 1/2" stream of water. MV shut-in pressure 675# at 4 p.m. Shut in DK at 4 p.m. Will turn DK pressure on MV side today to kick MV off.

3/7/62

After 15 hours shut-in DK tubing pressure 1500#, MV 800 tubing pressure, 800 casing pressure, turned DK through MV casing and after 8 hours flowing well making 548 MCFD for both zones. Making 1/2" stream of water.

3/8/62

Both DK and MV produced through 1" tubing through MV for 32 hours, both zones making 430 MCFD. Casing pressure 475#. Shut DK in, flowed MV for 8 hours, gauged well at end of 8 hours, making 98 MCFD with 1/2" stream of water. MV appears to be logging off. Casing pressure 300#. Shut well in for pressure build up, will attempt to clean MV later.

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3/9/62

Will blow and clean MV and DK during day and shut-in at night.

3/10/62

DK open 24 hours, making 391 MCFD with 3/4" stream of water. MV shut-in pressure 850, open to atmosphere at 9 a.m. 3/9, shut MV in at 5 p.m. 3/9, MV making 139 MCFD, casing pressure 300. Shut both sides in and will open both sides today.

3/11/62

Open up at 9 a.m. 3/10, DK shut-in pressure 1575, MV shut-in pressure 750. Opened both sides to atmosphere 6 p.m. 3/10. DK gauged 416 MCFD with 3/4" stream of water. MV gauged 108 MCFD with 1/2" stream of water. Shut both sides in at 6 p.m. 3/10.

3/12/62

8 a.m. 3/11, shut-in pressure, MV 720 shut-in pressure DK 1440. Gauged well at 5 p.m. 3/11, DK 439 MCFD, MV 139 MCFD. Casing pressure on MV 300. Both sides making 1 1/2" stream of water, will open back up today.

3/13/62

8 a.m. 3/12, shut-in pressure MV tubing and casing 800#, shut-in pressure tubing DK 1450. Gauged well at 5 p.m. 3/12, DK 440 MCFD with 1/2" stream of water. MV gauged 142 MCFD with 1/2" stream of water. Casing pressure MV end of flow 300#. Shut both sides in at 5 p.m., will open back up today.

3/14/62

8 a.m. 3/13, shut-in pressure DK 1500#, shut-in pressure MV 800#, opened both sides and flowed until 5 p.m. 3/13. Gauged DK 430 MCFD, MV 113 MCFD at 5 p.m., 300# casing pressure on MV. Both sides making about 1/2" stream of water.

3/15/62

9 a.m. shut-in pressure after 14 hours, DK 1580#, MV 820#. After 8 hours flowing DK 439 MCFD, 1/2" stream of water; MV 196 MCFD, 1/2" stream of water. MV casing pressure 325#. Shut-in after 8 hours flowing.

3/16/62

8 a.m. 3/15, DK shut-in pressure 1600#, MV shut-in pressure 750#, gauged well at 4 p.m. 3/15; DK 555 MCFD with 1/2" stream of water, MV 196 MCFD with 325# casing pressure at end of flow.

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## OPEN FLOW TEST DATA

DATE April 5, 1962

3/27/62

DK shut-in pressure 1560, MV shut-in pressure 760, DK gauged 588 MCFD, MV 196 MCFD, with 350# casing pressure.

3/28/62

Shut-in pressure DK 1580, Shut-in pressure MV 775, gauged well DK 555 MCFD, MV 196 MCFD with 325# casing pressure.

3/29/62

Shut-in pressure DK 1580, Shut-in pressure MV 750, gauged well DK 553 MCFD, MV 196 MCFD, with 325# casing pressure. Shut well in yesterday for seven day shut-in.

3/30/62

Shut-in for 7-day test.

3/31/62

Shut-in for 7-day test.

4/1/62

Shut-in for 7 day test.

4/2/62

Shut-in for 7 day test.

4/3/62

Shut-in for 7-day test.

4/4/62

Shut-in for 7-day test.

4/5/62

Will test DK today, this will be the start of Packer-Leakage tests.

4/6/62

Will test MV today, this will be the start of Packer-Leakage tests.

|                         |                              |                     |                |
|-------------------------|------------------------------|---------------------|----------------|
| Operator                | Consolidated Oil & Gas, Inc. | Lease               | Segal No. 1-10 |
| Location                | Sec. 10-T31N-R13W            | County              | San Juan       |
| 1844' F/SL & 1-50' F/WL |                              | State               | New Mexico     |
| Formation               | Mesaverde                    | Pool                | Blanco         |
| Casing Diameter         | 5 1/2"                       | Set At Feet         | 6727'          |
| Pay Zone From           | 4408'                        | To                  | 4500'          |
| Stimulation Method      | Sand water frac              | Total Depth         | 547' Pkrs.     |
|                         |                              | Flow Through Casing | X              |
|                         |                              | Flow Through Tubing |                |

|                                |      |   |        |
|--------------------------------|------|---|--------|
| Choke Size, Inches             | 0.75 | Choke Constant, C                       | 14.1-0 |
| Shut-in Pressure, Casing, PSIG | 1088 | Days Shut-in                            | 7      |
| Shut-in Pressure, Tubing, PSIG | 1100 | Shut-in Pressure, Tubing, PSIG          | 1100   |
| Flowing Pressure, P, PSIG      | 48   | Working Pressure, P <sub>w</sub> , PSIG | 597    |
| Temperature, T, F              | 55   | F <sub>ps</sub> (From Tables)           | 1.000  |
|                                |      | Gravity                                 | .70    |

$$\text{CHOKE VOLUME } Q = C \times P_1 \times F_1 \times F_2 \times F_3$$

$$Q = 14.1-0 \times 1088 \times 1.000 \times 1.0 \times 1.0 = 14,100 \text{ MCF/D}$$

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

$$Aof = \left( \frac{14,100,000}{87,775} \right)^n$$

$$Aof = 1015 \text{ MCF/D}$$

TESTED BY G. Reid

WITNESSED BY

*Signature*

WELL: SEGAL NO. 1-10

## OPEN FLOW TEST DATA

DATE March 26, 1962

3/28/62

Shut-in for 7 day test.

3/29/62

Shut-in.

3/30/62

Shut-in.

3/31/62

Shut-in for 7 day test.

4/1/62

Shut-in for 7 day test.

4/2/62

Will test MV today.

4/3/62

MV shut-in 1088#, tubing pressure, shut-in casing pressure 1088#. Three hours flow through 3/4" choke final tubing pressure 48#, final casing pressure, 585#. Temp. 55°. A very slight mist of water throughout test. Shut-in DK pressure at start of MV test, 1851#, end of MV test DK pressure 1851#.

|                         |   |                     |                |
|-------------------------|---|---------------------|----------------|
| Operator                | Consolidated Oil & Gas, Inc.                  | Lease               | Segal No. 1-10 |
| Location                | 1844' F/SL & 1850' F/WL, Section 10-T31N-R13W | County              | San Juan       |
| 1844' F/SL & 1850' F/WL |   | State               | New Mexico     |
| Formation               | Dakota  | Pool                | Basin          |
| Casing Diameter         | 5 1/2"  | Set At Feet         | 6727'          |
| Pay Zone From           | 6571'   | To                  | 6702'          |
| Stimulation Method      | Sand water frac                               | Total Depth         | 6708' PB       |
|                         |   | Flow Through Casing | X              |
|                         |   | Flow Through Tubing |                |

|                                |       |   |         |
|--------------------------------|-------|---|---------|
| Choke Size, Inches             | 0.750 | Choke Constant, C                       | 14.1605 |
| Shut-in Pressure, Casing, PSIG | 1088  | Days Shut-in                            | 7       |
| Shut-in Pressure, Tubing, PSIG | 1088  | Shut-in Pressure, Tubing, PSIG          | 1812    |
| Flowing Pressure, P, PSIG      | 88    | Working Pressure, P <sub>w</sub> , PSIG | 1824    |
| Temperature, T, F              | 32    | F <sub>ps</sub> (From Tables)           | 1.013   |
|                                |       | Gravity                                 | 0.70    |

$$\text{CHOKE VOLUME } Q = C \times P_1 \times F_1 \times F_2 \times F_3$$

$$Q = 14.1605 \times 100 \times 1.0281 \times 1.013 \times 1.013 = 1365 \text{ MCF/D}$$

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

$$Aof = \left( \frac{1365,000}{100,000} \right)^n$$

$$Aof = 1365 \text{ MCF/D}$$

TESTED BY G. Reid

WITNESSED BY

*Signature*