

ORIGINAL

SIDE ONE

STATE CORPORATION COMMISSION OF KANSAS
OIL & GAS CONSERVATION DIVISION
WELL COMPLETION FORM
ACO-1 WELL HISTORY
DESCRIPTION OF WELL AND LEASE

Operator: License # 05398
Name: ARCO Oil & Gas Company
Address Box 1610
Midland, TX 79702
Purchaser: Diamond Shamrock
Operator Contact Person: Ken W. Gosnell
Phone (915) 688-5672

Contractor: Name: Triad Drlg. Co.
License: 07345
Wellsite Geologist: Ben Francka

Designate Type of Completion
 New Well Re-Entry Workover
 oil SWD Temp. Abd.
 Gas Inj Delayed Comp.
 Dry Other (Core, Water Supply, etc.)

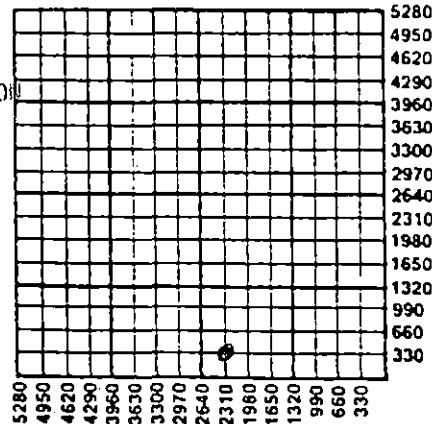
If OMO: old well info as follows:
Operator: _____
Well Name: _____
Comp. Date _____ Old Total Depth _____

Drilling Method:
 Mud Rotary Air Rotary Cable
9-8-90 9-16-90 1-18-91
Spud Date Date Reached TD Completion Date

API NO. 15- 187-20511-0000
County Stanton
SW SW SE Sec. 24 Twp. 29 Rge. 39 East West
330 Ft. North from Southeast Corner of Section
2310 Ft. West from Southeast Corner of Section
(NOTE: Locate well in section plat below.)
Lease Name V.R. Ray Well # 1
Field Name Big Bow
Producing Formation St. Louis
Elevation: Ground 3138 KB 3152
Total Depth 5800 PBDT 5714

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STATE CORPORATION COMMISSION
3-26-91
MAR 26 1991

CONSERVATION DIVISION
Wichita, Kansas



Amount of Surface Pipe Set and Cemented at 1805 Feet
Multiple Stage Cementing Collar Used? Yes No
If yes, show depth set 3044 Feet
If Alternate II completion, cement circulated from _____
feet depth to _____ w/ _____ sx cmt.

INSTRUCTIONS: This form shall be completed in triplicate and filed with the Kansas Corporation Commission, 200 Colorado Derby Building, Wichita, Kansas 67202, within 120 days of the spud date of any well. Rule 82-3-130, 82-3-107 and 82-3-106 apply. Information on side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form. See rule 82-3-107 for confidentiality in excess of 12 months. One copy of all wireline logs and drillers time log shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells. Any recompletion, workover or conversion of a well requires filing of ACO-2 within 120 days from commencement date of such work.

All requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Signature Ken W. Gosnell
Title Regulatory Coordinator Date 3-20-90

Subscribed and sworn to before me this 20th day of March,
1991
Notary Public, State of Texas
My Comm. Expires: 6-6-92

K.C.C. OFFICE USE ONLY
F Letter of Confidentiality Attached
C Wireline Log Received
C Drillers Timelog Received
Distribution
 KCC SWD/Rep NGPA
 KGS Plug Other
(Specify)

SIDE TWO

Operator Name ARCO Oil & Gas Company Lease Name V.R. Ray Well # 1
 Sec. 24 Twp. 29 Rge. 39 East County Stanton
 West

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all drill stem tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface during test. Attach extra sheet if more space is needed. Attach copy of log.

| | | | | |
|---|---|----------------|---|---------------------------------|
| Drill Stem Tests Taken (Attach Additional Sheets.) | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Formation Name | <input checked="" type="checkbox"/> Log | <input type="checkbox"/> Sample |
| Samples Sent to Geological Survey | <input type="checkbox"/> Yes <input type="checkbox"/> No | Chase | Top | |
| Cores Taken | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Council Grove | 2305 | |
| Electric Log Run (Submit Copy.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Heebner | 2591 | |
| | | Lansing | 3783 | |
| | | Marmaton | 3868 | |
| | | Morrow | 4461 | |
| | | Chester | 5163 | |
| | | St. Louis | 5490 | |
| | | | 5601 | |

| CASING RECORD <input checked="" type="checkbox"/> New <input type="checkbox"/> Used | | | | | | | |
|---|--|---------------------------|-----------------|--|----------------|--------------|----------------------------|
| Report all strings set-conductor, surface, intermediate, production, etc. | | | | | | | |
| Purpose of String | Size Hole Drilled | Size Casing Set (In O.D.) | Weight Lbs./Ft. | Setting Depth | Type of Cement | # Sacks Used | Type and Percent Additives |
| surface | 12 1/4 | 8 5/8 | 24 | 1805 | C | 900 | 2%CC+1/4#FC |
| Production | 7 7/8 | 5 1/2 | 1515 | 5800 | POZ C | 725 | 2%CC+1/4#FC |
| PERFORATION RECORD | | | | Acid, Fracture, Shot, Cement Squeeze Record | | | |
| Shots Per Foot | Specify Footage of Each Interval Perforated | | | (Amount and Kind of Material Used) | | Depth | |
| 4 | 5654-5671 | | | | | | |
| TUBING RECORD | | | | Liner Run <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| Size | | Set At | | Packer At | | | |
| 2 7/8 | | 5692 | | | | | |
| Date of First Production | Producing Method <input type="checkbox"/> Flowing <input checked="" type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other (Explain) | | | | | | |
| 1-18-91 | | | | | | | |
| Estimated Production Per 24 Hours | Oil Bbls. | Gas Mcf | Water Bbls. | Gas-Oil Ratio | | Gravity | |
| | 22 | 0 | 415 | NA | | 44 | |

Disposition of Gas: Vented Sold Used on Lease (If vented, submit ACO-18.)

METHOD OF COMPLETION: Open Hole Perforation Dually Completed Commingled Other (Specify) _____

Production Interval: 5654-5671

| | | | |
|--------------------------------|-----------------------|----------------------|-------------------------|
| AFE No. 940372 | Rpt. No. 11 | Date 9-19-90 | Supv. Init. BJB |
| Well V. Ray #1 | Last Csg 5 1/2 @ 5800 | Shoe test NONE | Days since spud/cst. 11 |
| Contractor Triad Rig 14 | Depth 5800 | Depth Yesterday 5800 | Progress |
| Operation @ 0800 Riggling D.W. | Daily cost 14148 | Accum. Cost 210595 | Est. cost to date |
| Next casing | Hours on jars | Barite | Cement |
| | | | Fuel |
| | | | Drig Water |

| MUD DATA | | BIT DATA | | MUD LOG DATA | | DRILLING AND PUMP DATA | | | |
|--------------|---------------|------------|--|------------------|-------------|------------------------|------------------|--------|--|
| Mud type | MBT | Bit No. | | Depth | | Depth | Rot. Wt. | K# | |
| Weight ppg | pH | Size | | Mud Wt. ppg | | P.U. Wt. K# | S.O. Wt. K# | K# | |
| Viscosity Pm | | Make | | Formation | | Avg. Drag K# | Max. Drag K# | K# | |
| FWYP PI | | Type | | Background gas u | | Trq. Btm. ft-lb. | Trq. Off. ft-lb. | ft-lb. | |
| Gels H2O | Mt | Serial No. | | Conn. gas u | | Pump No. 1 | | 2 | |
| API W.L. | Chlorides ppm | Depth Out | | Trip gas u | | Liner size in. | | in. | |
| HTHP 100 psi | Oil % | Footage ft | | Max BGG u | | SPM (1) spm | | spm | |
| HTHP 500 psi | OWR | Hours hrs | | DC Exponent | | Press. (1) psi | | psi | |
| Solids | ES | WOB K# | | Shale density | | SPM (2) spm | | spm | |
| Sand | LGS | RPM rpm | | Est. pore press | | Press. (2) psi | | psi | |
| Hole Vol. | Pit vol. bbl | Dull | | ROP/Shale fph | | Slow P.S. spm | | spm | |
| Daily Mud \$ | Total Mud \$ | Grade | | ROP/Sand fph | | Slow P.P. psi | | psi | |
| Accidents ? | | Jets/TFA | | Signed | B. J. Jones | | | | |
| Who ? NONE | | Bit Cost | | | | | | | |

| | | | | | | | | | |
|------------|--|--|--|------------|--|--|--|--|--|
| SURV. NO. | | | | | | | | | |
| DEPTH (MD) | | | | Elevation | | | | | |
| ANGLE | | | | KB 3152.4 | | | | | |
| DIRECTION | | | | DF 3151.1 | | | | | |
| | | | | Grd 3138.1 | | | | | |

| TIME | HOURS | OPERATIONS FROM 0600 to 0600 |
|-------------|--------|--|
| 0600 - 0730 | 1 1/2 | Pipe Set @ 5800', F.C. @ 5714', DV Tool @ 3044' |
| | | Cemented w/ 20 Bbls H2O, 10 Bbls J433, 10 Bbls |
| | | CLW 100, 19 Bbls Spacer 1000 + 275 SKs RFG w/ |
| | | 1/4" SK Cellophane Flakes. Lost Returns w/ 27 1/2 Bbls |
| | | Displacement Gave. Mixed Cement + Displaced @ |
| | | 5 BPM. with 100 Bbls Displacement Gave: P.P. 100# |
| | | with 130 Bbls Displacement Gave: P.P. 1000# |
| | | Bump Plug w/ 135 Bbls to 2500#. Mud In Annulus |
| | | 30' Below Grd. Float Held OK. |
| 0730 - 0745 | 1/4 | Drop Bomb, Open DV Tool @ 700# |
| 0745 - 1315 | 5 1/2 | Cir. Through DV Tool @ 3044'. 150# @ 5 BPM. |
| 1315 - 1415 | 1 | Cemented Top Stage w/ 10 Bbls H2O, 20 Bbls |
| | | 10.1# Scavenger, 150 SKs 35/65 PzC + 69# D20 + |
| | | C. 25% D60 + 1/4" SK D29. Tail In w/ 300 SKs 50/50 PzC |
| | | + 29# D20 + 1/4" SK D29. Cir. w/ Full Ret. Plug W.C. |
| | | @ 1415 + Close DV Tool w/ 2140#. Release Res. OK. |
| 1415 - 1630 | 2 1/4 | Pick BOP up. Set Slips w/ 68000. Rough Cut. |
| | 10 1/2 | Rig Released 1630 9-18-90 |

Tight Hole

Down ORIGINAL

West Area

ARCO Oil and GAS COMPANY
CASING AND CEMENTING REPORT

WELL V. Ray #1 AFE NO. 940372 DATE 9-18-90

CASING STRING: COND/SURF/P1/P2/P3/P4/PROD (CIRCLE ONE)

MD: 5800 TVD 5800 BIT SIZE 7 7/8 OPEN HOLE VOLUME 360 FT³

MUD PROPERTIES: TYPE MUD LSND MW 9.0 PV/YP 21-14

API W.L. 6.0 HTHP @ 300 °F _____, LB/BBL LIGNOSULFONATE _____

BHLT: _____ °F TIME SINCE CIRCULATING _____ HRS BHST: _____ °F

MUD FLOWLINE TEMP: _____ °F MUD SUCTION TEMP: _____ °F SURFACE TEMP: _____ °F

HOLE PROBLEMS ENCOUNTERED WHILE DRILLING (HIGH GAS, LOST CIRC, TIGHT HOLE, OTHER)

I. CASING DETAIL FULL STRING/LINER

CASING DESCRIPTION (BOTTOM TO TOP)

| SIZE (O.D.) | LENGTH | NO. OF JOINTS | BOTTOM DEPTH | TOP DEPTH | WEIGHT | GRADE | CONNECTION | I.D. | TORQUE (FT. LBS.) |
|-------------------|----------------|---------------|----------------|----------------|--------------|-------------|------------|--------------|-------------------|
| | <u>3051.73</u> | <u>70</u> | | | <u>15.50</u> | <u>K-55</u> | <u>8RD</u> | <u>4.950</u> | <u>3500</u> |
| <u>DV Tecl</u> | <u>2.10</u> | | <u>3046.05</u> | <u>3043.95</u> | | | <u>8RD</u> | <u>4.950</u> | <u>4000</u> |
| | <u>2554.93</u> | <u>60</u> | <u>5604.98</u> | <u>3046.05</u> | <u>15.50</u> | <u>K-55</u> | <u>8RD</u> | <u>4.950</u> | <u>3500</u> |
| <u>5 1/2 S.T.</u> | <u>23.71</u> | <u>1</u> | <u>5628.69</u> | <u>5604.98</u> | <u>15.50</u> | <u>K-55</u> | <u>8RD</u> | <u>4.950</u> | <u>3500</u> |
| <u>5 1/2</u> | <u>85.61</u> | <u>2</u> | <u>5714.30</u> | <u>5628.69</u> | <u>15.50</u> | <u>K-55</u> | <u>8RD</u> | <u>4.950</u> | <u>3500</u> |
| <u>F.C.</u> | <u>1.65</u> | | <u>5715.95</u> | <u>5714.30</u> | | | <u>8RD</u> | | <u>4000</u> |
| <u>5 1/2</u> | <u>83.15</u> | <u>2</u> | <u>5799.10</u> | <u>5715.95</u> | <u>15.50</u> | <u>K-55</u> | <u>8RD</u> | <u>4.950</u> | <u>3500</u> |
| <u>G.S.</u> | <u>.90</u> | | <u>5800.00</u> | <u>5799.10</u> | | | <u>8RD</u> | | <u>4000</u> |

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CONSERVATION DIVISION
Wichita, Kansas

5807.78 135
22.88
5784.90
15.10
5800.00

TOTAL PIPE RUN IN HOLE
LESS CUTOFF PIPE
TOTAL PIPE TALLY LEFT IN HOLE
RKB TO CUTOFF
TOTAL SETTING DEPTH

LINER HANGER COMPANY (MWL, TIW, BOT, OTIS, OTHER, NONE) SUCESS (Y/N)

CENTRALIZERS: MANUFACTURER Gamed TYPE 5B2D NUMBER RUN 10

PLACEMENT (DEPTHS): 5785' 5631' 5519' 5388' 5264' 5134'
5205' 5075' 3131' Basket @ 3087' 3000'

OTHER CEMENTING AIDES: _____

ORIGINAL

II. PRIMARY CEMENTING DETAIL CEMENTING CO: (HOWCO, DOWELL, BJ, WESTERN)

LEAD: TYPE: ^{35/100} 150 SX WT: 12.7 PPG YIELD 1.82 FT³/SK MIX WTR 10.4 GAL/SK
ADDITIVES: 6% D2C, 25% D60, 1/4# / SK D29

LAB MEASUREMENTS: 12/24 HR. COMPRESSIVE STRENGTH _____ PSI / _____ PSI AT _____ °F
BHCT _____ °F API W.L. _____ CC/30MIN FREE WATER _____ % N' _____ K' _____
THICKENING TIME (100UC) _____ HRS, PUMPING TIME (70 UC) _____ HRS, 20MIN UC TEST _____ UC

TAIL: TYPE: ^{50/100} 300 SX WT: 14.1 PPG YIELD 1.26 FT³/SK MIX WTR 5.80 GAL/SK
ADDITIVES: 2% D2C, 1/4# / SK D29

LAB MEASUREMENTS: 12/24 HR. COMPRESSIVE STRENGTH _____ PSI / _____ PSI AT _____ °F
BHCT _____ °F API W.L. _____ CC/30MIN FREE WATER _____ % N' _____ K' _____
THICKENING TIME (100VC) _____ HRS, PUMPING TIME (70 UC) _____ HRS, 20MIN UC TEST _____ UC

CONDITIONING TIME WITH CASING AT T.O. _____ HRS AT _____ BPM AND _____ PSI
SPACER TYPE: _____ BBLs: _____ WT: _____ VISC: _____ PV/YP _____
MIXED AND PUMPED _____ BBLs CEMENT FOR _____ HRS AT _____ BPM AND _____ PSI
DISPLACED CEMENT WITH _____ BBLs FOR _____ HRS AT _____ BPM AND _____ PSI
CALCULATED DISPLACEMENT _____ BBLs BUMPED PLUG (Y/N) _____ WITH _____ PSI (TOTAL)
BATCH MIX CEMENT (Y/N) _____ RETURNS (FULL, PARTIAL, NONE) _____ RECIPROCATED PIPE (Y/N) _____
CEMENT TO SURFACE (Y/N) _____ CALCULATED TOC: _____ W/ _____ % EXCESS AND _____ HOLE SIZE

REMARKS: Bottom stage @ 5800'
27.5 SKs 10-0 REC w/ 1/4# / SK Cellophane Flakes.
74.7 PPG, 1.49, 6.97. Did NOT see any returns after
27 1/2 Bbls Displacement. With 100 Bbls Displacement to
13.5 Bbls Displacement Pres. increased from 1000^{psi} to 1000^{psi}
Bump Plug to 2500^{psi}. Float Held OK.

TAG TOC AT _____ TESTED TOL TO _____ PPG TESTED SHOE TO _____ PPG
SUCCESSFUL CEMENT JOB (Y/N) _____ SQUEEZE (TOL, SHOE, ZONE) _____ CBL BOND (GOOD/FAIR/POOR) _____
STAGE JOB (Y/N) _____ DV TOOL AT _____ . IF SO, COMPLETE ANOTHER DETAIL FOR 2ND STAGE

II. SECONDARY CEMENT JOB CEMENTING CO: (HOWCO, DOWELL, BJ, WESTERN)

TYPE OF REMEDIAL WORK (SHOE/TOL/ZONE) _____ ATTEMPT NO: _____
BREAKDOWN PRESSURE: _____ PSI AT RATE OF _____ BPM
INJECTION PRESSURE: INITIAL _____ PSI AT _____ BPM, FINAL: _____ PSI AT _____ BPM
TYPE SQUEEZE (RUNNING/HESITATION/DISPLACE & HOLD): _____, ISIP _____ PSI
HELD _____ PSI FOR _____ HRS. HAD _____ BBLs. BLEED BACK _____
SLURRY: TYPE: _____ VOL: _____ SX WT: _____ PPG YIELD _____ FT³/SK MIX WTR _____ GAL/SK
ADDITIVES: _____

SUCCESSFUL SQUEEZE JOB (Y/N) _____ RETESTED SHOE TO _____ PPG TESTED TOL TO _____ PPG

REMARKS: _____ STATE CORPORATION COMMISSION

APR 12 1991

CONSERVATION DIVISION
Wichita, Kansas