

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE*

(See other In-
structions on
reverse side)

Form approved.
Budget Bureau No. 1004-0137
Expires August 31, 1985

WELL COMPLETION OR RECOMPLETION REPORT AND LOG *

1a. TYPE OF WELL: OIL WELL ☒ GAS WELL ☐ DRY ☐ Other ☐
b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other ☐
2. NAME OF OPERATOR
ARCO Oil and Gas Company, Division of Atlantic Richfield Company
3. ADDRESS OF OPERATOR
P.O. Box 5540, Denver, Colorado 80217
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 1650' FNL & 1780' FEL
At top prod. interval reported below ---
At total depth ---

API #30-039-23838

14. PERMIT NO. BLM DATE ISSUED 8-14-85
15. DATE SPUDDED 8-29-85 16. DATE T.D. REACHED 9-20-85 17. DATE COMPL. (Ready to prod.) 1-28-86 18. ELEVATIONS (OF RKB, RT, GR, ETC.)* 7333' GL 7347' KB 19. ELEV. CASINGHEAD ---
20. TOTAL DEPTH, MD & TVD 8402' 21. PLUG, BACK T.D., MD & TVD 8313' 22. IF MULTIPLE COMPL., HOW MANY* 1 23. INTERVALS DRILLED BY --- ROTARY TOOLS 0-8402' CABLE TOOLS ---
24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* 8156'-8190' 7250'-7366' 7090'-7204' 25. WAS DIRECTIONAL SURVEY MADE NO
26. TYPE ELECTRIC AND OTHER LOGS RUN DIFL/GR CDL/CN/GR 27. WAS WELL CORED NO

CASING RECORD (Report all strings set in well)					
CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8"	24#	504' KB	12-1/4"	350 sx	---
5-1/2"	17#	8398' KB	7-7/8"	2220 sx - 3 stages	---

LINER RECORD					TUBING RECORD		
SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
---	---	NONE	---	---	2-7/8"	8188'	---

PERFORATION RECORD (Interval, size and number)			ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.	
INTERVAL (MD)	SIZE	NUMBER	AMOUNT AND KIND OF MATERIAL USED	
8156-8190	1 SPF	1	35 bbls + 51 ball sealers	
7250-7314 & 7318-7328	1 SP2F	1	76,500 gal + 105,00# sand	
7334-7366	1 SP4F	1	93 bbls + 68 ball sealers	
(OVER)			86,180 gal + 80,210# sand	

PRODUCTION							
DATE FIRST PRODUCTION		PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)					WELL STATUS (Producing or shut-in)
10-30-85		Swabbed Pumping 1 1/2" x 2 1/2" x 16'					Producing
DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
1-28-86	24	.3	---	48	142	19	2958
FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)	
90	106	---	48	142	19	42.7°	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) To be sold TEST WITNESSED BY

35. LIST OF ATTACHMENTS
2 of #26 above and Daily Well History
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED K.E. Baum TITLE Acting District Drilling Superintendent DATE 2-3-86

*(See Instructions and Spaces for Additional Data on Reverse Side)

GEOLOGIC MARKERS

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	MEAS. DEPTH	TOP TRUE VERT. DEPTH
NO CORES AND NO DSTs				Ojo Kirkland Fruitland Lewis Cliffhouse Menefee Point Lookout Upper Mancos Gallup Lower Mancos Greenhorn Graneros Dakota "A" Dakota "B" Dakota "C" Dakota "D" Morrison	3440' 3555' 3665' 3880' 5400' 5510' 5910' 6090' 6980' 7725' 7905' 7975' 8010' 8070' 8150' 8245' 8260'	
31. PERFORATION RECORD: 7090-7104 & 7116-7138 7146-7150 7150-7204		1 SP4F 1 SP4F 1 SP4F				
32. ACID, SHOT, FRACTURE, CMT SQUEEZE: 7090-7204 7090-7204		3000 gal + 45 ball sealers 61,000 gal + 87,000# sand				

ARCO Hill #1
SW NE 1650' & 1780' FEL
Section 22-2-3W
Rio Arriba County, New Mexico

8/29/85	240	Day-1 (240') - Drlg. RU. SPUD well 0230 hrs 8/29/85. Drld to PD. Surveys: 3/4° @ 103' & 225'.
8/30/85	505	Day-2 (265') - Setting wear bushing. (8-5/8" @ 504') Drld to PD. Circ & TOH f/csg. Run 12 jts 8-5/8", 24#, J-55, STC w/GS & insert flt valve & 4 cntrzs, set @ 504' KB. Cmt w/350 sx C1 "B" w/add. Bmp plug @ 1245 hrs 8/29/85. Circ cmt to surf. Flt held OK. Weld on 11" 3000 psi csghd. Tst weld w/1000 psi f/15 min. NU & tst blind rams, pipe rams, manifold & kelly valve to 250 psi f/5 min & 3000 psi f/15 min - OK. Set wear bushing. Surveys: 1/2° @ 317' & 406', 1° @ 505'.
8/31-9/3	2892	Day-5 (2387') - Drlg. (8-5/8" @ 504') MW: .1# Pv/Yp: 12/10 Tst csg w/1000 psi f/15 mins. Drld to PD w/TFB #1 & #2. Surveys: 3/4° @ 801', 1-1/4° @ 1107', 1° @ 1230', 1-1/4° @ 1382', 3/4° @ 1536', 1-1/2° @ 1847', 1-1/2° @ 1965', 1° @ 2059' & 2121', 1-1/4° @ 2213', 1° @ 2276', 2400' & 2703', 3/4° @ 3008', 1° @ 3210'.
9/4/85	4104	Day-6 (612') - Drlg. (8-5/8" @ 504') MW: 8.9# Vis: 46 Pv/Yp: 14/10 Drld to PD. Surveys: 1° @ 3529', 3/4° @ 3839'.
9/5/85	4580	Day-7 (476') - Drlg. (8-5/8" @ 504') MW: 9.1# Vis: 39 Pv/Yp: 12/7 Drld to PD. Surveys: 1-1/2° @ 4148' & 4210', 1° @ 4303'.
9/6/85	4880	Day-8 (300') - Drlg. (8-5/8" @ 504') MW: 8.6# Vis: 47 Pv/Yp: 15/10 Drld 7-7/8" hole to 4713'. Lost full returns. TOH 11 stds. Mix & spt LCM pill. Circ & bld vol. TIH. Drld to 4830' w/full returns. Lost 300 BM. Reduced pmp rate & regained full circ. Survey: 1/4° @ 4612'.
9/7-9	5665	Day-11 (785') - Drlg. (8-5/8" @ 504') MW: 9.0# Vis: 54 Pv/Yp: 19/12 Drld to PD. Losing partial returns. TFB #4. Plug bit & TOH. Unplug bit & TIH brkg circ. Mud lost to date - 1165 bbls. Surveys: 1/4° @ 4919', 1/2° @ 5103' & 5216', 3/4° @ 5375'.

ARCO Hill #1
SW NE 1650' & 1780' FEL
Section 22-23W
Rio Arriba County, New Mexico

9/10/85	5870	Day-12 (305') - Drlg. MW: 9.1# Vis: 43 Pv/Yp: 12/9 Drl'd to PD. Surveys: 3/4" @ 5873'. (8-5/8" @ 504') LCM: 4%
9/11/85	6240	Day-13 (270') - Drlg. MW: 9.1# Vis: 45 Pv/Yp: 18/12 Drl'd to PD. (8-5/8" @ 504')
9/12/85	6442	Day-14 (202') - Drlg. MW: 9.0# Vis: 47 Pv/Yp: 19/12 Drl'd to PD. Lost complete returns @ 6402'. Mix mud & LCM. Drlg w/partial returns. (8-5/8" @ 504')
9/13/85	6650	Day-15 (208') - Drlg. MW: 9.0# Vis: 45 Pv/Yp: 15/8 Drl'd to PD. Trip f/B#5. Lost 235 bbls mud. (8-5/8" @ 504')
9/14-16	7678	Day-16 (1028') - Drlg. MW: 9.1# Vis: 46 Pv/Yp: 14/7 Drl'd to PD. Surveyed: 3/4" @ 7075'. (8-5/8" @ 504')
9/17/85	7989	Day-19 (311") - Drlg. MW: 9.2# Vis: 45 Pv/Yp: 16/10 Drl'd to PD. (8-5/8" @ 504')
9/18/85	8120	Day-20 (131') - Drlg. MW: 9.1# Vis: 47 Pv/Yp: 17/10 Drl'd to PD. TFB#6. Survey: 3/4" @ 8040'. (8-5/8" @ 504')
9/19/85	8308	Day-21 (188') - Drlg. MW: 9.1# Vis: 49 Pv/Yp: 16/10 Drl'd to PD. Trip 9 stds for hole in DP. (8-5/8" @ 504')
9/20/85	8402	Day-23 (94') - Logging MW: 9.2# Vis: 64 Pv/Yp: 22/14 Drl'd to PD. Circ & cond mud for logs. TOH t/log. Ran LSS/DIL/GR. (8-5/8" @ 504')

ARCO Hill #1
SW NE 1650' & 1780' FEL
Section 22-23-34
Rio Arriba County, New Mexico

9/21-23	8402	Day-26 (0') - Rigging dwn rotary tools. (5-1/2" @ 8398') MW: Vis: Pv/Yp: Fin logging. Ran FDC/CNL/GR/CAL. TIH & rm bridge f/4315-4320'. Wsh 40' t/btm. Circ & cond Mud. POH LD drl string. Ran 5-1/2" csg. Cement csg in 3 sages. Ran temp survey. TOC on last stage @ 2845'. Rel Rig @ 1300 hrs 9/22/85. Drop from report pending completion.
10/1/85	8402	Day-1 PBD: 8318' - MIRU completion Rig. Blade location, unload 2-7/8" tbgs. SDFN.
10/2/85	8402	Day-2 PBD: 8318' - Drl out cmt. RU Comp Unit. NU BOPE. RIH w/mill f/5-1/2" csg, 5-1/2" csg scraper on 2-7/8" tbgs. Drld out DV tool @ 3615'. Circ. SDON.
10/3/85	8402	Day-3 PBD: 8318' - Drl out cmt. TIH w/mill & tagged cmt @ 5034' (969' inside 5-1/2" csg). TOH w/mill. TIH w/4-3/4" bit. Drld cmt f/5034-5680'. Circ. SDON.
10/4/85	8402	Day-4 PBD: 8313' - TOH f/scraper. Drld cmt t/5938'. TOH LD scraper. TIH w/new bit. Drld cmt t/DV tool @ 6003'. Drld DV tool & TIH t/top of cmt @ 8301'. Drld cmt t/FC @ 8381' (PBD). TOH w/50 stds. SDON.
10/5-7	8402	Day-4 PBD: 8313' - Drlg cmt. FOH w/bit. TIH w/bit & csg scpr. Displ hole w/2% KCl. TOH. RU Schl & run CBL/CCL/GR/VDL & CET/GR f/8307-2500'. Attempt to press tst csg. Pmp in @ 1-1/2 BPM & 4000 psi. SDON. TIH w/pkr. Confirm DV tool leaking @ 6003'. Pmp thru DV tool @ 1-1/2 BPM & 3100 psi. TOH w/pkr. WL set Bkr 5-1/2" cmt rtnr @ 5837'. TIH w/singer & sqz DV tool w/150 sx cmt. Static sqz press 600 psi. POH. SDON & f/Sunday.
10/8/85	8402	Day-7 PBD: 8313' - Drlg cmt. (5-1/2" @ 8398') TIH w/4-3/4" bit. Drld retainer & pushed same t/TOC @ 5868'. TOH t/ck bit. Left one cone in hole. TIH w/mill. Milled on cmt retainer, cone & cmt t/5876'. SDON.
10/9/85	8402	Day-8 PBD: 8313' - TIH w/pkr. (5-1/2" @ 8398') Fin milling iron & cmt t/6015'. Attempt t/press tst csg. Pmp into leak @ 1/4 BPM w/3900 psi. Bled back t/1600 psi in 4 min. TIH w/mill t/PBD 8313'. TOH. SDON.

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ARCO Hill #1
SW NE 1650' & 1780' FEL
Section 22-3N
Rio Arriba County, New Mexico

10/10/85 8402 Day-9 PBD: 8313' - Prep t/DO sqz. (5-1/2" @ 8398')
TIH w/pkr & establish rate & press through DV tool @ 6003' w/ 18BPM @ 3500
psi. POH. RIH w/5-1/2" cmt retainer & set @ 5865'. Sqzd hole w/75 sx
cmt. Static sqz press 2500 psi. Stung out of retainer & POH.

10/11/85 8402 Day-10 PBD: 8313' - Drlg. cmt. (5-1/2" @ 8398')
TIH w/5-1/2" mill t/5865'. Drld cmt retainer. Pushed dwn hole & drld cmt
stringers f/5931' t/5955'. Drld soft cmt t/5978'. Circ hole cln. SDON.

10/12-14 8402 Day-12 PBD: 8313' - Prep t/acidize & frac Dakota "C". (5-1/2" @ 8398')
Fin drlg cmt. Press tstd 5-1/2" csg t/4000 psi f/15 min. Disp hole w/2%
KCL wtr. TOH w/mill. SDON. RU Schlumberger & perf'd Dakota "C" w/1 JSPF
f/8156-8190' (34-0.40" holes). TIH w/2 jts tbg f/tailpipe & 5-1/2" pkr on
2-7/8" tbg. Landed btm of tailpipe @ 8200'. SDON & Sunday.

10/15/85 8402 Day-13 PBD: 8313' - SD WO Dowell t/frac. (5-1/2" @ 8398')
Spot'd 1-1/2 bbls 15% HCL & adds @ 8200'. Set pkr @ 7906'. Pressd ann
t/2000#. Dropped 51 ball sealers. Balled off w/35 BA in fm max press =
4000#. Press comm w/ann w/leak thru pkr. Surge balls & pmp remaining 12
BA. Knock balls off perfs & TOH w/tbg pkr & TP. SD WO Dowell t/frac.

10/16/85 8402 Day-14 PBD: 8313' - Prep t/set BP. (5-1/2" @ 8398')
Dowell fracd Dakota "C" perfs f/8156-8190' w/76,500 gal & 105,000# 20/40
sand. MXP 2160 psi, MNP 1500 psi, Avg P 2000 psi, AIR 30 BPM. ISIP 1626
psi 10 min, SIP 1420 psi. Max sand conc 4 ppg. All sand tagged w/RA
mat'l. SDON.

10/16/85 8402 Day-14 PBD: 8313' - Prep t/set BP. (5-1/2" @ 8398')
Dowell fracd Dakota "C" perfs f/8156-8190' w/76,500 gal & 105,000# 20/40
sand. MXP 2160 psi, MNP 1500 psi, Avg P 2000 psi, AIR 30 BPM. ISIP 1626
psi 10 min, SIP 1420 psi. Max sand conc 4 ppg. All sand tagged w/RA
mat'l. SDON.

10/17/85 8402 Day-15 PBD: 8313' - Prep t/perf lwr Gallup. (5-1/2" @ 8398')
17 hr SICP = 1300#. RIH w/5-1/2" gage ring t/5621'. Could not get below
5621'. POH. PU & TIH w/saw tooth cplg. Rev circ & CO 8313'.

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ARCO Hill #1
SW NE 1650' & 1780' FEL
Section 22-3W
Rio Arriba County, New Mexico

10/18/85 8402 Day-16 PBD: 8313' - Prep t/acidize & frac lwr Gallup. (5-1/2" @ 8398')
15 hr SICP = 300#. Set BP @ 7250'. Tst t/4000# f/15 min. Perf
7250-7314' & 7318-7328' w/1 SP2F & 7334-7366' w/ 1 SP4F. TIH w/2-7/8" tbg
& set pkr @ 7370'.

10/19-21 8402 Day-19 PBD: 8313' - Prep t/set BP & perf upr Gallup. (5-1/2" @ 8398')
Set pkr @ 6904'. Acidize w/93 BA & adds w/68 ball sealers. Press inc
f/2200-2750#. Max TP=3000#. Rel pkr run tbg in hole, knock balls off
perfs. TOH. Frac lwr Gallup perfs w/Dowell w/86,180 gal gel wtr &
80,210# 20/40 snd @ 40 BPM. Max P=2700#, Min P=1000#. Max sand conc =
4.5 ppg. All sand tagged w/RA mat'l. 15 hr SICP=300#. TIH w/4-3/4"
bit. CO t/7520'. Drl BP @ 7520'. TIH t/8313' & circ hole cln.

10/22/85 8402 Day-20 PBD: 8313' - Prep t/acidize & frac. (5-1/2" @ 8398')
Set CIBP @ 7230'. Tst csg & BP t/4000 psi f/15 min. Perf 7090-7104' &
7116-7138' @ 1 SP4F, 7146-7150' @ 1SPF, & 7150-7204' @ 1SP4F. TIH & set
pkr @ 7226'.

10/23/85 8402 Day-21 PBD: 8313' - Prep t/CO & rec frac fluid. (5-1/2" @ 8398')
Lnd pkr @ 7210'. Spotted acid f/7210-7031'. POH & set pkr @ 6903'.
Press BS t/2000#. Acidize w/3000 gal acid w/adds. BD f/3000# t/2100#.
Pmpd 45 ball sealers w/good ball action. Knock balls off. TOH. Frac
upper Gallup w/Smith Energy w/61,000 gal & 87M# 20/40 mesh snd. Max snd
conc = 4.5ppg. AIR = 40.3, MXP=3500 psi, MNP=1000 psi. ISIP=900#, 5 min
SIP=600#, 15 min SIP=550#.

10/24/85 8402 Day-22 PBD: 8313' - Prep t/PU & run completion assbly. (5-1/2" @ 8398')
17 hr SICP=0#. TIH w/bit. Drl CIBP @ 7230'. CO t/8313'. Circ hole
cln. TOH. LD tbq.

10/25/85 8402 Day-23 PBD: 8313' - Prep t/run completion assbly. (5-1/2" @ 8398')
TOH & LD 2-7/8" wk stq. Run tracer svy.

10/26-28 8402 Day-26 PBD: 8313' - Swbng t/rec frac loads. (5-1/2" @ 8398')
SI 15 hrs. SITP=230#, SICP=280#. FL @ 1500'. Md 16 swb runs. Swb total
303 BW w/trace of oil. Bled press. Run 2-7/8" comp stg. Land tbg anch @
7066'. ND BOP. RU t/swb. FL @ 1500'. Swb 77 BW. SDFS.

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ARCO Hill #1
SW NE 1650' & 1780' FEL
Section 22
Rio Arriba County, New Mexico

10/29/85	8402	Day-27 PBD: 8313' - Swbng t/rec frac loads. (5-1/2" @ 8398') SI 39 hrs. SITP=650#, SICP=700#. Open tbg. Flwd 33 BW w/1% oil in 25 min & died. Made 9 swb runs. FL @ 3000'. Swbng f/8000'. Swb'd 143 BW & 33 BO w/750# CP Well kicked off & flwd 25 min 2 BW. SDFN.
10/30/85	8402	Day-28 PBD: 8313' - Cont swbg. (5-1/2" @ 8398') 16 hrs SITP 525#, SICP 760#. Well KO & died intermittently. Swbd total 5 runs; total rec'd 137 BW & 62 BO.
10/31/85	8402	Day-29 PBD: 8313' - Swb & flw tst well. (5-1/2" @ 8398') Rel compl rig 10/30/85. MIRU swb unit. 16 hrs SITP 600#, SICP 1250#. Open tbg. Flwd 1 hr & died. Made 4 swb runs f/5100' FL @ 2500'. Well kicked off w/CP=1175 psi. Flw 1 hr FTP=150#, FCP=1175#. Swb & flwd total 35 BO & 79 BW. Flwd well O/N w/watchman
11/1/85	8402	Day-30 PBD: 8313' - Cont t/swb. (5-1/2" @ 8398') Flwd well 4 hrs thru separator & died. CP=1275#, 0 BO & 2 BW. Made 5 swb runs f/5000'. Well kicked off. Flwd 1-1/2 hr & died. Flwd 10 BO & 6 BW. Open t/tank & flwd 1-1/2 hrs. Made 2 swb runs. Well kicked off. Flwd 1 hr t/tank. SION.
11/2-4/85	8402	Day-33 PBD: 8313' - Cont t/swb & flw well. (5-1/2" @ 8398') Cont t/swb & flw well. In AM 11/1/85 SICP=1500#, SITP=750#. Flwd well 6 hrs & made 3 swb runs. Total daily rec 33 BO & 145 BW. In AM 11/2/85 SICP=1400#, SITP=775#. Flwd well 5 hrs & made 5 swb runs. Total daily rec 70 BO & 99 BW. In AM 11/3/85 SICP=1310#, SITP=480#. Flwd well 5 hrs & made 8 swb runs. Total daily rec 40 BO & 91 BW. SDFN.
11/5/85	8402	Day-34 PBD: 8313' - Cont t/swb & flw well. (5-1/2" @ 8398') SICP=1250#, SITP=360#. Made 7 swb runs & flwd 4 hrs. Total daily rec 76 BO & 81 BW. IFL @ 2500', FFL @ 3500'
11/6/85	8402	Day-35 PBD: 8313' - Cont t/swb & flw well. (5-1/2" @ 8398') SICP=1200#, SITP=460#. Made 3 swb runs & flwd 6 hrs. Made 2 more swb runs. Well flwd f/45 min. IFL @ 2800', FFL @ 3500'. Rec 65 BO & 60 BW.

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ARCO Hill #1
SW NE 1650' & 1780' FEL
Section 22-25-3W
Rio Arriba County, New Mexico

11/7/85	8402	Day-36 PBD: 8313' - Prep t/rel swbng unit today. (5-1/2" @ 8398') SICP=1125#, SITP=510#. IFL @ 3000'. Made 3 swb runs & flwd 4 1/4 hrs. Swbd well & flwd f/1 hr. Total daily rec 37 BO & 57 BW.
11/8/85	8402	Day- PBD: 8313' - WO final tst data. (5-1/2" @ 8398') TOTP 11/7/85. WO Final tst data.
11/9-12	8402	Day- PBD: 8313' - WO final tst data. (5-1/2" @ 8398') Drop f/report 11/12/85, until final tst data is in.
01/31/86	8402	Day- PBD: 8313' - <u>FINAL REPORT - COMPLETED OIL WELL 1/28/86.</u> (5-1/2" @ 8398') Flwd well for 30 days with final flow data 1/28/86 of 48 BOPD, 19 BWPD, 142 MCFD. Perfs: 8156-8190 1SPF, 7250-7314 1 SP2F, 7318-7328' 1 SP2F, 7334-7366, 1 SP4F, 7090-7104' 1 SP4F, 7116-7138' 1 SP4F, 7146-7150' 1 SPF, 7150-7204' 1 SP4F. LPP=8190'. (Dropped f/report 11/9-12/85.)

