

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

Sundry Notices and Reports on Wells

57 OCT 31 PM 4:30

070

1. Type of Well

GAS

5. Lease Number

SF-081134

6. If Indian, All. or

Tribe Name

7. Unit Agreement Name

2. Name of Operator

**BURLINGTON
RESOURCES**

OIL & GAS COMPANY

8. Well Name & Number

Quigley #1

3. Address & Phone No. of Operator

PO Box 4289, Farmington, NM 87499 (505) 326-9700

9. API Well No.

30-045-09846

4. Location of Well, Footage, Sec., T, R, M

1650' FSL, 790' FWL, Sec. 6, T-30-N, R-9-W, NMPM

10. Field and Pool

Blanco Mesaverde

11. County and State

San Juan Co, NM

12. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OTHER DATA

Type of Submission

Type of Action

Notice of Intent

Abandonment

Change of Plans

Subsequent Report

Recompletion

New Construction

Final Abandonment

Plugging Back

Non-Routine Fracturing

Casing Repair

Water Shut off

Altering Casing

Conversion to Injection

Other - Pay add

13. Describe Proposed or Completed Operations

It is intended to add pay to the Mesaverde formation of the subject well according to the attached procedure and wellbore diagram. Please cancel the sundry to repair the tubing on this well filed 10-21-97. The tubing repair will be done during the pay add.

RECEIVED
NOV - 6 1997

MIN. CON. DIV.
DIST. 3

14. I hereby certify that the foregoing is true and correct.

Signed [Signature] (SCOpps) Title Regulatory Administrator Date 10/30/97

(This space for Federal or State Office use)

APPROVED BY _____ Title _____

Date NOV 04 1997

CONDITION OF APPROVAL, if any:

[Handwritten mark]

Quigley #1
Lewis Shale Recompletion Procedure
K 06 30N 09W
San Juan County, NM
Latitude: 36 Deg., 50.29 Min
Longitude: 107 Deg., 49.46 Min.

Summary:

The subject well is a 1998 Lewis Shale recompletion in 7" casing. This well was originally drilled in 1953 and was completed in the Mesa Verde formation as an open hole completion. The open hole section will be cemented and recompleted in the Lewis Shale interval. The subject well has depleted the Mesa Verde formation and is currently shut-in. The Mesa Verde is currently being drained effectively by the Quigley #1A and the Quigley #1R. This well is a 1998 discretionary project to test the Lewis interval and has the potential of multiple offsets throughout the basin. The Lewis Shale formation will be stimulated in two (2) stages with the first stage, or lower Lewis Shale interval, will be fracture stimulated with 63,967 gal of 60Q N₂ foamed 25# linear guar gel and 215,500# 20/40 mesh sand. The second stage interval, or upper Lewis Shale interval, will be fracture stimulated with 63,875 gal. of 60Q N₂ foamed 25# linear guar gel and 208,000# 20/40 mesh sand. The well will then be cleaned-up and placed on production.

- Comply to all NMOCD, BLM and BR regulations. Conduct daily safety meetings for all personnel on location. Notify BR regulatory (Peggy Bradfield 326-9727) and the appropriate Regulatory Agency prior to pumping any cement job. If an unplanned cement job is required, approval is required before the job can be pumped. If verbal approval is obtained, document the approval in Dims. Allow adequate notice prior to the pump time for the Agency to witness the cementing operation.
 - Inspect location and wellhead and install rig anchors prior to rig move.
 - Construct blow pit.
1. MOL, hold safety meeting and RU completion rig. Insure all safety equipment is strategically located and functioning properly. NU relief lines to blow pit. Set four (4) 400 BBL frac tanks and fill w/ 2% KCL. Blow well down and kill well with 2% KCL water as necessary. ND wellhead and NU 7-1/16" 3M BOP, stripping head and blooie line. Test BOP.
 2. TOOH w/ 2-3/8" Mesa Verde tbg. set @ 5625' and lay down. Inspect tubing and replace bad tubing as necessary.
 3. PU 7" guage ring on 2-3/8" 4.7# J-55 workstring and check wellbore for obstructions to bottom of open hole section @ 4805'.**

**NOTE: If obstructions are encountered, PU 6-1/4" bit and 7" 23.0# csg. scraper on 2-3/8" 4.7# J-55 workstring and CO to PBTB @ 4805'. TOOH
 4. RIH w/ 7" CIBP on 2-3/8" 4.7# J-55 workstring and set @ 4790'. Dump 50' of cement on CIBP. WOC
 5. Roll hole clean w/ 2% KCL water. TOOH w/ 2-3/8" 4.7# J-55 workstring. Pressure test cement and CIBP to 3000 psi.
 6. RU wireline and run CBL/CCL/GR and dual spaced neutron log from new PBTB @ 4740' to 2900'.** Send logs to office immediately and perforations and setting depths will be supplied for the upper and lower Lewis Shale interval only. A squeeze procedure will be provided if TOC does not cover the Fruitland and Ojo Alamo interval (refer to step #24). RD wireline company.

** Correlate log depths to GR-Electric log.

LOWER LEWIS

7. Perforate approximately 20 holes in the lower Lewis interval (+/- 4500' - +/- 4300') top down, using 3-1/8" HSC select fire guns with 17 gram charges and 0.27" diameter holes. (Perforations will be provided after reviewing logs). RD wireline company.

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8. TIH w/ 7" fullbore pkr. and approx. 137 jts. 3-1/2" 9.3# N-80 frac string and set @ 4250'. RU stimulation company. Pressure test surface lines to 6000 psi. Breakdown perforations @ 4 BPM w/ 500 gal. 15% HCL acid.** Drop forty (40) 7/8" 1.1 SG RCN balls @ 4 balls/bbl. Displace acid w/ 2% KCL water to bottom perforation. Balloff to maximum pressure of 3500 psi. Record breakdown pressure, ball action and ISIP. RD stimulation company.

** All acid to contain the following additives/1000 gal.:

2 gal.	CI-22	corrosion inhibitor
5 gal	Ferrotrol-300L	iron control
1 gal	Flo-back 20	surfactant
0.5 gal	Clay Master-5C	clay control

9. Release pkr. and TIH knocking balls off perforations. Reset pkr. @ 4250'.
10. RU stimulation company to frac down frac valve and 3-1/2" 9.3# N-80 frac string. Hold pre-job safety meeting. Pressure test surface lines to 6000 psi prior to stimulation. Maximum allowable surface treating pressure is 5000 psi.
11. Fracture stimulate in 2.0 to 6.0 ppg stages @ 40 BPM constant downhole rate with 63,967 gal. of 60Q N₂ foamed 25# linear guar gel and 215,500# 20/40 mesh sand. **Maintain a bottom hole frac gradient of 0.65 psi/ft throughout job.** When sand is in hopper and the concentration begins to drop, call flush. **Flush to top perforation with +/-11 fluid bbls and 2750 scf N₂.** Monitor bottomhole treating pressure, surface treating pressure, downhole rate, foam quality and sand concentration with computer van. Treat per the following schedule:

<u>Stage</u>	<u>Foam Volume (gal)</u>	<u>Clean Gel Volume (gal)</u>	<u>SandVolume (lbs)</u>	<u>Type</u>
Pad	15,500	6,200	0	20/40 Az
2ppg	4,000	1,746	8,000	20/40 Az
3 ppg	5,000	2,274	15,000	20/40 Az
4 ppg	10,000	4,730	40,000	20/40 Az
5 ppg	12,500	6,140	62,500	20/40 Az
6 ppg	15,000	7,642	90,000	20/40 Az
Flush	1,967	787	0	
Totals	63,967	29,517	215,500	

Treat frac fluid with the following additives per 1000 gallons:

* WG-19	(Gelling agent pre-mixed if full tank)
* 2.0 gal SSO-21M	(Non-ionic surfactant pre-mixed in full tank)
* 0.5 # GBW-3	(Enzyme breaker mixed on fly)
* 3.0 gal AQF-2	(Foamer mixed on fly)
* 0.18# BE-6	(Bacteriacide pre-mixed in full tank)
* 0.25 gal BA-20	(pH buffer mixed of fly)
* 0.3 mCi Sb-124	(Zero wash radioactive sand mixed on fly, 3-4 ppg stage)
* 0.3 mCi Sc-46	(Zero wash radioactive sand mixed on fly, 4-5 ppg stage)
* 0.4 mCi Ir-192	(Zero wash radioactive sand mixed on fly, 5-6 ppg stage)

12. Shut well in after frac and record ISIP. 5, 10 and 15 shut-in pressure. RD stimulation company. Install flowback line above frac valve. Wait for 30 minutes to 1 hour before commencing flowback.

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Open well to pit in accordance to flowback schedule listed in the table below. If choke plugs off, shut well in and remove obstruction from choke and return to flowback schedule. **Do not replace with next larger choke size until schedule dictates.** Continue cleaning well up until fluid returns are negligible. **Take pitot gauges when possible.**

8/64 choke from	shut-in psi to 300 psi
10/64 choke from	300 psi to 150 psi
12/64 choke from	150 psi till well dies

NOTE: If well begins making sand during flowback, drop to next smaller choke size. If well is producing only N₂ during flowback, consult with Production Engineer about flowback schedule.

13. After well cleans up and pressures allow, release pkr. and TOOH standing back 3-1/2" 9.3# N-80 frac string.
14. RIH and wireline set a 7" RBP @ +/- 4250'. Dump 10' of sand on top of RBP w/ dump bailer.

UPPER LEWIS

15. Perforate approximately 20 holes in the upper Lewis interval (+/- 4250' - +/- 4030') top down, using 3-1/8" HSC select fire guns with 17 gram charges and 0.27" diameter holes. (Perforations will be provided after reviewing logs).** RD wireline company.
16. TIH w/ 7" fullbore pkr. and approx. 129 jts. 3-1/2" 9.3# N-80 frac string and set @ +/- 4000'. RU stimulation company. Pressure test surface lines to 6000 psi. Breakdown perforations @ 4 BPM w/ 500 gal. 15% HCL acid.** Drop forty (40) 7/8" 1.1 SG RCN balls @ 4 balls/bbl. Displace acid w/ 2% KCL water to bottom perforation. Balloff to maximum pressure of 4000 psi. Record breakdown pressure, ball action and ISIP. RD stimulation company.

** All acid to contain the following additives/1000 gal.:

2 gal.	CI-22	corrosion inhibitor
5 gal	Ferrotrol-300L	iron control
1 gal	Flo-back 20	surfactant
0.5 gal	Clay Master-5C	clay control

Release pkr. and TIH knocking balls off perforations. Reset pkr. @ +/- 4000'.

17. RU stimulation company to frac down frac valve and 3-1/2" 9.3# N-80 frac string. Hold pre-job safety meeting. Pressure test surface lines to 6000 psi prior to stimulation. Maximum allowable surface treating pressure is 5000 psi.
18. Fracture stimulate in 2.0 to 6.0 ppg stages @ 40 BPM constant downhole rate with 63,875 gal. of 60Q N₂ foamed 25# linear guar gel and 208,000# 20/40 mesh sand. **Maintain a bottom hole frac gradient of 0.65 psi/ft throughout job.** When sand is in hopper and the concentration begins to drop, call flush. **Flush to top perforation with +/-10.5 fluid bbls and 2650 scf N₂.** Monitor bottomhole treating pressure, surface treating pressure, downhole rate, foam quality and sand concentration with computer van. Treat per the following schedule:

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<u>Stage</u>	<u>Foam Volume (gal)</u>	<u>Clean Gel Volume (gal)</u>	<u>Sand Volume (lbs)</u>	<u>Type</u>
Pad	15,500	6,200	0	20/40 Az
2 ppg	4,000	1,746	8,000	20/40 Az
3 ppg	7,500	3,410	22,500	20/40 Az
4 ppg	10,000	4,730	40,000	20/40 Az
5 ppg	12,500	6,140	62,500	20/40 Az
6 ppg	12,500	6,368	75,000	20/40 Az
Flush	1,875	750	0	
Totals	63,875	29,344	208,000	

Treat frac fluid with the following additives per 1000 gallons:

- * WG-19 (Gelling agent pre-mixed if full tank)
- * 2.0 gal SSO-21M (Non-ionic surfactant pre-mixed in full tank)
- * 0.5 # GBW-3 (Enzyme breaker mixed on fly)
- * 3.0 gal AQF-2 (Foamer mixed on fly)
- * 0.18# BE-6 (Bacteriacide pre-mixed in full tank)
- * 0.25 gal BA-20 (pH buffer mixed of fly)
- * 0.3 mCi Sb-124 (Zero wash radioactive sand mixed on fly, 3-4 ppg stage)
- * 0.3 mCi Sc-46 (Zero wash radioactive sand mixed on fly, 4-5 ppg stage)
- * 0.4 mCi Ir-192 (Zero wash radioactive sand mixed on fly, 5-6 ppg stage)

19. Shut well in after frac and record ISIP, 5, 10 and 15 shut-in pressure. RD stimulation company. Install flowback line above frac valve. Wait for 30 minutes to 1 hour before commencing flowback. Open well to pit in accordance to flowback schedule listed in the table below. If choke plugs off, shut well in and remove obstruction from choke and return to flowback schedule. **Do not replace with next larger choke size until schedule dictates.** Continue cleaning well up until fluid returns are negligible. **Take pitot gauges when possible.**

8/64 choke from	shut-in psi to 300 psi
10/64 choke from	300 psi to 150 psi
12/64 choke from	150 psi till well dies

NOTE: If well begins making sand during flowback, drop to next smaller choke size. If well is producing only N₂ during flowback, consult with Production Engineer about flowback schedule.

20. After well cleans up and pressures allow, release pkr. and TOOH standing back 3-1/2" 9.3# N-80 frac string.
21. TIH w/ RBP retrieving head on 2-3/8" 4.7# J-55 workstring and CO with air/mist to RBP set @ +/- 4250'. Obtain accurate pitot gauge for the upper Lewis Shaie interval. When well is sufficiently clean, retrieve RBP set @ +/- 4250'. TOOH
22. TIH w/ 6-1/4" bit on 2-3/8" 4.7# J-55 workstring and CO to PBSD @ 4740'. TOOH and stand back workstring.
23. RU wireline company. Run After Frac GR from +/- 4650' to top of tracer activity. RD wireline.
24. Perform squeeze procedure as needed to ensure TOC covers Fruitland and Ojo Alamo interval.

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25. TIH with one joint of 2-3/8", 4.7#, J-55 tubing w/ expendable check, a seating nipple, then the remaining 2-3/8" production tubing. Land tubing @ +/- 4400'.
26. ND BOP's, NU single tubing hanger wellhead. Pump off expendable check. Obtain final pitot up tubing. If well will not flow on it's own, make swab run to seating nipple. If swab run is not necessary, run a broach on slickline to ensure that the tubing is clear. RD and MOL. Return well to production.

Approve: _____
 Team Leader

Approve: _____
 Drilling Superintendent

Recommend: _____
 Production Engineer

VENDORS:

Wireline:	Schlumberger	325-5006
Stimulation:	Halliburton	325-3575
Tracer Survey:	Protechnics	326-7133
Packer:	Arrow Completion Services	326-5141
Bridge Plug:	Arrow Completion Services	326-5141

Steve Campbell	Home 325-8218	Office 326-9546	Pager 564-1902
Bob Goodwin	Home 599-0992	Office 326-9713	Pager 564-7096
Jennifer Dobson	Home 564-3244	Office 326-9708	Pager 324-2461
Mike Pippin	Home 327-4573	Office 326-9848	Pager 324-2559

Quigley #1
Pertinent Data Sheet

Location: 1650' FSL & 790' FWL, Unit K, Section 06, T30N, R09W, San Juan County, New Mexico

Latitude: 36°-50.29' **Longitude:** 107°-49.46'

Field: Blanco Mesa Verde **Elevation:** 6530' GL
6520' KB **TD:** 5670' OH
PBTD: 4805'

Spud Date: 4/14/53 **Compl Date:** 5/29/53 **DP #:** 48644A
Lease: NMSF-078128
GWI: 100.00%
NRI: 83.016%
Prop#: 012599903

Initial Potential: Initial Potential = 5115 MCF/D, SICP = 1056 psi

Casing Record:

<u>Hole Size</u>	<u>Csg Size</u>	<u>Wt. & Grade</u>	<u>Depth Set</u>	<u>Cement</u>	<u>Cement (Top)</u>
13-1/4"	9-5/8"	25.4# Armco	174'	125 sx.	Circ Cmt
8-3/4"	7"	23# Spang	4805'	300 sx.	2940' (TS)
6-1/4"	OH		4805'-5670'		

Tubing Record:

<u>Tbg. Size</u>	<u>Wt. & Grade</u>	<u>Depth Set</u>	<u># Joints</u>
2-3/8"	4.7#	5625'	190

Formation Tops:

Ojo Alamo:	1905'	Cliffhouse:	4862'
Kirtland Shale:	2045'	Menefee:	5060'
Fruitland:	2855'	Point Lookout:	5474'
Pictured Cliffs:	3255'	Mancos:	5584'
Lewis Shale:	3275'		

Logging Record: ES, GR, TS

Stimulation: SNG w/ 1835 qts. from 4805' - 5670'

Workover History: 5/10/53 - set cement retainer @ 4752'. Squeezed w/ 300sx (did not hold).
Squeezed w/ 200 sx. tested to 650 psi. Squeezed w/ 175 sx. pressure tested to 2200 psi.

Pipeline: EPNG

Quigley #1

Unit K, Section 06, T30N, R09W
San Juan County, NM

Current Schematic

Proposed Schematic

