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State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

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WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-35485	² Pool Code 57380	³ Pool Name Skaggs; Grayburg
⁴ Property Code 31667	⁵ Property Name Hardy 36 State	⁶ Well Number 31
⁷ OGRID No. 217817	⁸ Operator Name ConocoPhillips Company	⁹ Elevation 3500'

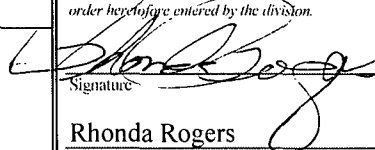
¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	36	20S	37E		1900'	North	2310'	West	Lea

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres 40	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

¹⁶						¹⁷ OPERATOR CERTIFICATION <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or by a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i>  Signature 11/06/2014 Date Rhonda Rogers Printed Name rogerrs@conocophillips.com E-mail Address
						¹⁸ SURVEYOR CERTIFICATION <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</i> Date of Survey Signature and Seal of Professional Surveyor: Certificate Number

NOV 18 2014
jm

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Hardy 36 State 31
API# 30-025-35485

The subject workover consists of re-completing to the Grayburg. This well is ideally placed to give the asset team a better indication of future Grayburg development in the same area. It is the intent of this job to re-complete to the Grayburg and increase total fluid production.

PROCEDURE

1. MI & RU service unit. The following is a well file source summary of current well configuration (last well service: 2/2014):
2. POOH & LD rods & pump. ND well. NU BOP. POOH & LD tbg.
3. RIH w/ 3-1/2", 9.3#, N-80 WS & bit & scraper (5-1/2", 17#) to 7619. POOH.
4. PU CIBP & PKR. RIH w/ WS & CIBP & PKR. Set CIBP @ 6770 (uppermost Drinkard perforation: 6780). Test CIBP @ 2500# surface prs. POOH w/ WS & PKR. Spot 35 ft. of cement on top of CIBP (If dump bailer is used, a tag of TOC is required).
5. PU CIBP & PKR. RIH w/ WS & CIBP & PKR. Set CIBP @ 6448 (uppermost Tubb perforation: 6458). Test CIBP @ 2500# surface prs. POOH w/ WS & PKR. Spot 35 ft. of cement on top of CIBP (If dump bailer is used, a tag of TOC is required).
6. TIH w/ open-ended WS. Fill hole w/ 26 bbl of 14.8 ppg mud up to 5306. Pull up hole. Mix & pump 16 sx of class C cement as a plug. Plug should be 154 ft. in length. POOH w/ WS. WOC.
7. RIH w/ WS & CIBP. Set CIBP @ 4100

Circ well w/ fresh water. (5-1/2", 17# well capacity: 95 bbl; 47 bbl w/ 3-1/2" WS)

Close pipe-rams & test CIBP @ 8500# surface prs.

POOH w/ WS.

8. RU perforating services.

Note:

If necessary, pull GR/CCL log from 4100-3000

NU lubricator w/ pack-off. Test @ 500#.

Perforate following intervals (3-3/8" SLB Power Jet HMX, 22.7 gm., EHD: 0.36"):

top	btm	Feet	SPF	Shots
3885	3890	5	2	10
3910	3930	20	2	40
3950	3965	15	2	30
3970	3985	15	2	30
3990	4005	15	2	30
		70		140

RD perforating services.

9. Breakdown perforations:

- a. RIH w/ 3-1/2" WS w/ PKR to lowermost perforation @ 4005.
- b. Spot 1000 gal 15% NE Fe HCl (23.8 bbl acid followed by 24.0 bbl water)
- c. Pull 20 stands. Set PKR @ approximately 2600 (acid column: 3383-4005)
- d. Displace acid w/ 35 bbl water
(11 bbl over-flush; equivalent to approximately 3 x AIR: 3 BPM @ 3000#)
- e. Record ISIP, SITP(5 min), SITP(10 min) & SITP(15 min)
- f. Re-set PKR @ 3835. Test 3-1/2" x 5-1/2", 17# annulus & PKR @ 500#.
- g. ND BOP
- h. NU frac stack
 - btm: 7-1/16" 5K psi manual frac valve
7-1/16" 5K psi hydraulic frac valve
 - top: 5K psi "goathead" w/: full-bore opening
2: 4" side connections

RD well service

10. Prior to frac date, spot 8 clean 500 bbl frac tanks.

Load tanks w/ fresh water. Water to be biocide-treated by frac-service provider.

Estimated water requirements:

Stage	Water: bbl		
	Pre-Frac	Frac	Total
1	<u>155</u>	<u>2152</u>	<u>2307</u>
	155	2152	2307

The well work will require the following acid volumes:

Stage	15% NE Fe HCl: gal		
	Spot	Job	Total
1		<u>2940</u>	<u>2940</u>
		2940	2940

Stage: Grayburg

11. RU HES. Set treating line pop-off: 8500#.
Set pump trips: 8000#
Test surface lines: 9000#.

Acidize 3885-4005 (70 perforations) w/ 70 bbl (2940 gal) 15% NE Fe HCl w/ 280 (1.1 sg) ball sealers:

Pump 20 bbl freshwater. Obtain pump-in rate: 15 BPM
Pump 15 bbl 15% HCl.
Pump 40 bbl 15% HCl. Drop 280 bs evenly spaced (7 bs/bbl)
Pump 15 bbl 15% HCl
Pump 135 bbl fresh water (overflush w/ 45 bbl, equivalent to 3 x BPM treating rate)

(csg capacity: 90.3 bbl top perf; 93.1 bbl btm perf)

Anticipated treating rate: 15 BPM @ 4250#

If ball-out occurs (5250#: 1000# over treating prs), SD. Surge perfs 3 times.

Frac 3885-4005 down 3-1/2", 9.3#, N-80 WS w/

RD & release HES. SION.

12. Open well and flow back until dead.
13. RU well service unit. ND frac stack. NU BOP.
14. POOH & LD 3-1/2", 9.3#, N-80 WS & PKR.
15. Pick-up & RIH w/ 4-3/4" bit, 6: 4-1/2" DC & 2-7/8", 6.5#, J-55 tbq.
Clean out wellbore to 4100.
16. Downhole equip as per attached.

	Depth (RKB): ft	
	(KB - GL: 11 ft.)	
<u>Tubing:</u>	<u>top</u>	<u>btm</u>
2-7/8", 6.5#, J-55	surface	3785
TAC (2-7/8" x 5-1/2", 17#)	3835	3838
2-7/8", 6.5#, J-55	3838	4010
SN	4010	4010
2-7/8", 6.5#, J-55 Tbg Sub	4010	4015
Desander	4015	4035
2-7/8" Fiberglass Tailpipe	4035	4065
2-7/8" Purge Valve	4065	4066
<u>Note:</u>		
upr perf 3885		
btm perf 4005		
CIBP @ 4100		

<u>Rods:</u>	<u>Ftg</u>
1" Norris D90	1475
7/8" Norris D90	2185
1-1/2" Flexbar C SB	350
Pump: 2" x 30' Insert	4010

17. Surface equip w/ 640-305-144 unit from Hardy 36 State 1. Operate at 8.2 SPM w/ 144" stroke.
Estimated RodStar-based production capacity: 455 BPD @ 85% pump efficiency

Loading: %	
Gearbox	88
Structure	69
Rods	83
ROL	75
MPRL/PPRL	25

18. Place well on test.

