



Anadarko Petroleum Corp.
Evans Office
4000 Burlington Avenue
Evans, CO 80620
970-330-0614

Workover Authorization

Prognosis Writer: Michael Schwarz

Prognosis Date: 9/9/2013

SEC FOUR 14-4

STIP:

START:

END:

RAPTOR Nest

2/15/2013 7/31/2013

WINS ID: 94274

RAPTOR Nest

2/15/2013 7/31/2013

Bald Eagle Nesting

10/15/2013 7/31/2013

AREA S S37 Location: NESW Section 4 Township: 1N Range: 68

Workover Type: BRADENHEAD

SubActivity Type:

Estimated Cost: \$100,000.00

Estimated BOE increase: 0.0

Payout (months): Never

Latest YE NPV @ 10%: \$247,876

Current LOE: \$165

Incremental LOE: \$0

Workorder Number:

State Form: FORM 4

Approved:

APC223 Approved:

Working interest: JSND 100.000000%

Comments: NB-CD 50.000000%

The SEC Four 14-4 is a well drilled in 2009 that is having bradenhead issues. The NPV10 of this well is approximately \$250,000, so I propose we fix the bradenhead issue as opposed to plugging the well. WO# 88414213

Approved

Date 9/9/2013

Area Engineer

Approved

Date 9/9/2013

Engineering Manager

Approved

Date 9/10/2013

Area Superintendent

Monday, September 09, 2013

KERR-MCGEE OIL AND GAS ONSHORE LP
SEC FOUR 14-4
NE SW 4 1N 68W 1,705' FSL 1,674' FWL
LAT: 40.07770 LONG: -105.01180
WELD,COLORADO

09/09/2013

AREA: S3 ROUTE: S37 Spud: 07/29/2009 WINS No.: 94274 AFE/WO#: 88414213 API#: 0512329457

GL: 5046 KB: 5061 MTD: 8535 TVD: 8421 LOG MD: 8523 PBMD: 8481 PBTVD: 8367

Directions: WCR 5 & WCR 12; EAST 5/10 MILE, NORTH INTO

<u>TUBULARS</u>	<u>Tool Type</u>	<u>Joints</u>	<u>Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Thread</u>	<u>Condition</u>	<u>Top D</u>	<u>Bottom D</u>
SURFACE CASING									
	Casing	17	8.63	24.00	J-55	ST&C	NEW	15	773
	Baffle	1	8.63		J-55			773	773
	Shoe Joint	1	8.63	24.00	J-55	ST&C	NEW	773	818
	Saw Tooth Shoe	1	8.63		J-55			818	819
PRODUCTION CASING									
	Casing	195	4.50	11.60	I-80	8RD LTC	NEW	15	8482
	Latch Down Baffle	1	4.50					8482	8482
	Shoe Joint	1	4.50	11.60	I-80	8RD LTC	NEW	8482	8516
	Casing Float Shoe	1	4.50					8516	8518
PRODUCTION TUBING									
	Tubing	251	2.38	4.70	J-55	External-Ups		15	7877
	Wellbore Equipment		2.38					7877	7878
	Wellbore Equipment		2.38					7878	7878

<u>CEMENT TYPE</u>	<u>Stage</u>	<u>Sacks</u>	<u>Cement Type</u>		<u>Top D</u>	<u>Btm D</u>	<u>cbi</u>	<u>est</u>	<u>Comments</u>
SURFACE CASING CEMENT									
	PRIM CMT 1ST STAGE	360	LEAD	TYPE 3	15	821	No		FULL 16.00
PRODUCTION CASING CEMENT									
	PRIM CMT 1ST STAGE	480	LEAD	PREMIUM LITE	3858	7168	Yes	No	
	PRIM CMT 1ST STAGE	280	TAIL	50/50 POZ-MIX	7168	8519	Yes	No	

<u>PERFORATIONS</u>									
<u>Formation</u>	<u>Zone</u>	<u>Top</u>	<u>Btm</u>	<u>spf</u>	<u>Shots</u>	<u>Date</u>	<u>Reason</u>	<u>Comments</u>	<u>Producing</u>
NIOBRARA	A	7567	7569	3	6	08/25/2009	PRODUCTION		Yes
NIOBRARA	B	7678	7688	3	30	08/25/2009	PRODUCTION		Yes
NIOBRARA	C	7776	7786	3	30	08/25/2009	PRODUCTION		Yes
CODELL		7915	7930	4	60	08/24/2009	PRODUCTION		Yes

Comments: The SEC Four 14-4 is a well drilled in 2009 that is having bradenhead issues. The NPV10 of this well is approximately \$250,000, so I propose we fix the bradenhead issue as opposed to plugging the well. WO# 88414213

Proposed Completion Procedure

- Level location for base beam equipped rig.
- Call Foreman or Field Coordinator before rig up to catch plunger, isolate production equipment, and ask if replacement parts/equipment are requested. Operations need to hook up the Bradenhead through hardline to a tank and bleed off the pressure before the rig gets on location.
- Check and report surface casing pressure prior to bleeding off. If surface casing is not accessible at ground level, re-plumb so valve is at ground level.
- If the tubinghead is not rated to 5000 psi then replace the wellhead and all the valves and fittings to make the tubinghead good to 5000 psi.
- Spot a minimum of 12 jts of 2-3/8", 4.7#, J-55, EUE tbg for replacement and 125 jts 1-1/4", 2-33#/ft, J-55, 10rd IJ for annular cement job.
- MIRU WO rig. Kill well, as necessary, with freshwater treated with biocide. ND wellhead. NU BOP.
- TOOH with tubing string to break any possible sand bridges, unseat landing joint and lay down. Do not exceed tubing tensile strength of 57,384 lbs.
- MIRU "EMI". TOOH with 2-3/8" tubing. EMI tubing while TOOH. Lay down joints with wall loss or penetrations >35%. Replace joints as necessary. **Keep yellow & blue band tubing. Note joint number and depth of tubing leak(s) on PRODUCTION EQUIPMENT FAILURE REPORT IN OPEN WELLS. Clearly mark all junk (red band) tubing sent to the yard.
- TIH with 2-3/8" tbg and 4.5" RBP and packer (4.5" csg 11.6#,I-80). Set RBP @ +/-5040', (collars are at 5022' and 5066'). Pressure test the RBP and casing to 5000 psi. spot 2 sx of sand on top of RBP and trip out of the hole with Packer.

KERR-MCGEE OIL AND GAS ONSHORE LP

SEC FOUR 14-4

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WELD, COLORADO

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10. Bleed off pressure. ND BOP's. ND wellhead. Un-land 4 1/2" casing string. NU double entry flange. NU BOP.
11. PU 1-1/4" 2.3#/ft J-55 10rd IJ tubing, and TIH outside 4-1/2" casing in open hole to 3300'. Circulate with freshwater treated with biocide to clean up annulus while TIH.
12. MIRU cement services and water truck containing fresh water for cementing. Circulate on bottom with freshwater treated with biocide until returns clean up with rig pump.
13. Rig up cement trucks.
14. Pump 150 Bbls of drilling mud followed with 5 Bbls. freshwater and cement job consisting of 20 Bbls Sodium Metasilicate followed by 525 sx 15.8 ppg neat Class G cement with 1/4 #/sx cello-flake. The cement to be retarded for 125 degree Fahrenheit for six hour pump time.
15. TOH with 86 joints to ~600' and reverse circulate 2 times the tubing volume with drilling mud or until the cement cleans up.
16. Rig down cementing company.
17. Trip out of the hole with 1-1/4" tubing and shut well in overnight.
18. Rig up wireline truck and run a CCL-GR-CBL-VDL from 3350' to 600' or the top of cement. If cement isn't above 819' then get with the Engineer on further cement work.
19. ND BOP. ND double entry flange and crossover. Pick up and land 4-1/2" casing in slips. NU tubing head. NU BOP SDFN to WOC.
20. Trip in the hole with 1-1/4" 2.3#/ft J-55 tubing, tagging for TOC. Trip out of the hole with the 1-1/4" tubing laying down the tubing. Make sure the tread protectors are installed.
21. PU and TIH with 2-3/8" tbg and retrieving head. Circulate sand off RBP at @ +/-5040'. TOOH with RBP and standing back tubing.
22. Bail if the need be.
23. TIH 2-3/8" NC, 2-3/8" SN, and 2-3/8" 6.5# J-55 EUE 8rd tubing. Land tubing at +/- 7885' or 1 joint above the top Codell perforation (7915'-7930').
24. Broach tubing to seating nipple. ND BOPs. NU master valve and tubing head adaptor and install 3' pup joint above master valve. Hydrotest tubinghead assembly to 3000 psi for 15 mins. RDMO WO Rig.
25. RDMO WO Rig.
26. Clean location and swab well back to production, if necessary. Notify Foreman/Field Coordinator of finished work and turn well over to production team.

Proposed Perforation Intervals

Top	Btm	Zone	Comments

Engineer: MICHAEL SCHWARZ: 832-623-8140

Foreman: PHIL WAGNER: 970-301-1551

Lead Pumper: LUKE EPPL: 970-397-7409

Authorized By: CORY EIKENBERG: 970-590-6234