OCD Hobbs

14-212

Form 3160-3
(August 2007)

SECRETARY'S POTASH

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD
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APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No. LC-064194
	6. If Indian, Allotee or Tribe Name
	7. If Unit or CA Agreement, Name and No.
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	8. Lease Name and Well No. North Lea 9 Fed #2H (317575)
2. Name of Operator Read and Stevens, Inc (8917)	9. API Well No. 30-025-43729
3a. Address 400 N. Pennsylvania Ave #1000 Roswell, NM 88201	3b. Phone No. (include area code) 575-622-3770
	10. Field and Pool, or Exploratory QUAIL RIDGE; BONE SPRING, SOUTH (50461) Teas East; Bone Spring
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface 200' FSL 1670' FEL UNORTHODOX LOCATION At proposed prod. zone 330' FNL 1670'FEL	11. Sec., T. R. M. or Blk. and Survey or Area SHL: Sec. 4 T-20S R-34E BHL: Sec. 9 T-20S R-34E
14. Distance in miles and direction from nearest town or post office* 26 miles WSW of Hobbs	12. County or Parish Lea / 13. State NM

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15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 200'	16. No. of acres in lease 282.45	17. Spacing Unit dedicated to this well 160
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. See raduis maps attached.	19. Proposed Depth 10,930TVD/ 15,818'MD 11,800 (pilot hole)	20. BLM/BIA Bond No. on file NM-2310
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL - 3630.4' RKB - 3652.4'	22. Approximate date work will start* 12/01/2013	23. Estimated duration 60 days until completion

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature Jim Reedy	Name (Printed/Typed) ~~Tim Collier~~ Jim Reedy	Date 10/15/2013
Title ~~Sr. VP Drilling and Exploration~~ General Counsel		
Approved by (Signature) /s/Cody Layton	Name (Printed/Typed)	Date MAR 24 2017
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Capitan Controlled Water Basin

KZ 03/31/17

Witness Surface & Intermediate Casing

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

Read and Stevens, Inc.
Drilling Prognosis
North Lea 9 Fed #2H

Revision date: November 10, 2013

Surface Location:	581,214.04usft N, 778,876.18usft E 200' FSL, 1670' FEL Section 4, T-20-S, R-34-E Lea County, New Mexico
Bottom Hole Target:	576,060.18usft N, 778,895.93usft E 330' FSL, 1670' FEL Section 3, T-20-S, R-34-E Lea County, New Mexico
Planned Total Depth:	10,930' TVD /15,818' MD
RKB: 3630.4'	GL: 3652.4'
Preparer:	Steve Morris 972-835-3315 cell Joel Stockford 877-446-6656 office 972-835-3349 cell Tim Collier 575-914-5163 cell

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Article I. *Well Overview:*

The North Lea 9 Fed #2H will be a horizontal with a pilot hole drilled first. ~~The pilot hole will be drilled in to the Wolfcamp formation (to a depth of 11,800) for evaluation. The well bore will then be plugged back to KOP and the horizontal well bore will be drilled.~~ 5.5" production casing will be used with ported subs for the completion. See attached WBS for spacing of ported subs. No pilot hole - per Steve Morris 7-11-14

Article II. *Estimated Formation Tops (geoprognosis with TVD's adjusted to actual KB):*

Formation	TVD	Subsea	Thickness	Type
Rustler	1549'	-2103'		
Top of Salt	1670'	-1982'		
Base of Salt	3177'	-475		
Tansil (Top of Capitan Reef)	3177'	-475'	1424'	Possible Fresh Water
Yates	3413'	-239'		
Seven Rivers	3825'	173'		
Queen	4601'	949'		
San Andres	5183'	1531'		
Lamar Lime	5441'	1789'		
Bell Canyon	5481'	1829'		
Cherry Canyon	6286'	2634'		
Brushy Canyon	7305'	3653'		
Bone Spring	8289'	4637'	335'	Hydrocarbon
Avalon	8624'	4972'	823'	Hydrocarbon
1st Bone Spring	9447'	5795	512'	Hydrocarbon
2nd Bone Spring	9959'	6307'	658'	Hydrocarbon
3rd Bone Spring	10617'	6965'	662'	Hydrocarbon
Wolfcamp	11279'	7645'	640'	Hydrocarbon

No shallow water zones as per the attached POD and water column report.

Article III. *Pressure Control:*

A 13-5/8" 5M BOP and 5M choke manifold will be used. See schematics below.
BOP test shall be conducted:

A. when initially installed
B. whenever any seal subject to test pressure is broken
C. following related repairs
D. at 30 day intervals

See COA

BOP, choke, kill lines, Kelly cock, inside BOP, etc. will be hydro tested to 250psi(low) and 5,000psi(high). The annular will be tested to 250psi (low) and 2500psi (high).

BOP will be function tested on each trip.

Article IV. *Casing Program (minimum):*

All casing is new API casing.

Hole Size	Casing	Weight lb/ft	Grade	Conn	MD/RKB	Stage
	20"				120'	Conductor
16"	13.375"	54.5	J-55	STC	1574'	Surface
12.25"	9.625"	40	L-80	LTC	5461'	Intermediate
8.5"	5.5"	17	P-110	BTC	15818'	Production

Size	Collapse psi	SF	Burst psi	SF	Tension Klbs	SF
13.375	1130	3.08	2730	3.54	514	5.66
9.625	3090	1.28	5750	2.03	727	3.33
5.5	7480	1.55	10640	1.29	568	3.06

Steve Morris - will keep casing fluid filled 7-11-14

13.375" casing will be set 25' into the Rustler
9.625" casing will be set 10' into the Lamar Lime

Article V. *Cement Program:*

Section 5.01 13.375" Surface Casing

Lead:

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
13.5ppg	1.93cuft/sk	574	9.71	100%	Class C + 4% bwoc Bentonite II + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.005% bwoc Static Free + 0.005 gps FP- 6L

Tail:

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
14.8ppg	1.34cuft/sk	253	6.35	100%	Class C + 1.5% bwoc Calcium Chloride + 0.005 lbs/sack Static Free + 0.005 gps FP-6L

Circulate cement to surface. If cement does not circulate a 1" grout string will be used to perform a top job.

Cement volumes will be adjusted respectively once actual casing depth is determined and washout from a fluid caliper.

Section 5.02 9.625" Intermediate Casing

A DV tool and ECP will be used to cement this 9⅝" casing if losses are encountered in the Capitan Reef. DV tool and ECP placement will be determined if and when the loss circulation is encountered. DV tool and ECP placement will be a minimum of 100' above the lost circulation zone and a minimum of 100' from the previous casing shoe.

(i) Cement detail if DV tool is used: Assuming losses at 3200'. DV tool and ECP will be placed at 3100'.

Cement Stage 1
Lead:

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
12.5ppg	2.13cuft/sk	350	8.81	50%	Class C (35:65) + Poz (Fly Ash) + 4% bwoc Bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sack Cello Flake + 0.005 lbs/sack Static Free + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride

Tail :

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
14.8ppg	1.33cuft/sk	200	6.35	50%	Class C

Cement Stage 2

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
12.5ppg	2.13cuft/sk	1650	8.81	50%	Class C (35:65) + Poz (Fly Ash) + 4% bwoc Bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sack Cello Flake + 0.005 lbs/sack Static Free + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride

Once DV tool placement is determined cement volumes will be adjusted accordingly.

(ii) Cement detail if no DV tool is used:

Lead:

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
12.5ppg	2.13cuft/sk	1253	8.81	50%	Class C (35:65) + Poz (Fly Ash) + 4% bwoc Bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sack Cello Flake + 0.005 lbs/sack Static Free + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride

Tail

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
14.8ppg	1.33cuft/sk	235	6.35	50%	Class C

Circulate cement to surface. If cement does not circulate to surface a top squeeze job or casing perforation will be used.
This will be discussed with the BLM prior to commencing remedial cement job. As well, a temperature survey or CBL will be performed. This will be discussed with the BLM prior to either being run.

Cement volumes will be adjusted accordingly once actual casing depth is determined and washout from a fluid caliper.

Section 5.03 5.5" Production Casing

Lead: Surface-10,625'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
11.9ppg	2.38cuft/sk	1657	13.22	100%	Class H (50:50) + Poz (Fly Ash) + 10% bwoc Bentonite II + 5% bwow Sodium Chloride + 5 lbs/sack LCM-1 + 0.005 lbs/sack Static Free + 0.005 gps FP-6L

Tail: 10625'-TD

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
13.2ppg	1.62cuft/sk	1194	9.45	100%	Class H (15:61:11) Poz (Fly Ash):Class H Cement:CSE-2 + 4% bwow Sodium Chloride + 3 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.005 gps FP-6L + 0.005% bwoc Static Free

Circulate cement to surface. If cement does not circulate to surface a top squeeze job or casing perforation will be used.
This will be discussed with the BLM prior to commencing remedial cement job. As well, a temperature survey or CBL will be performed. This will be discussed with the BLM prior to either being run.

Cement volumes will be adjusted accordingly once actual casing depth is determined and washout from a fluid caliper.

Section 5.04 Cement Plugs for Pilot Hole

no pilot hole per Steve Morris 7-11-14

Each plug will be 300'. The plugs will be balanced plugs. Plug will be set and DP will be pulled out to top of the plug. Drill sting will then be circulated clean and the next plug will be set using the same methodology. The final plug to will be 10,329'MD. Plugs are stacked

2 plugs

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
17.5ppg	0.94cuft/sk	125	3.3	50%	Class H Cement + 1.5% bwoc CD-32 + 0.1% bwoc R-21

Article VI. *Product Descriptions:*

Bentonite II
P105

CSE-2
An additive which contributes to low density, high compressive strength development of cement slurries at all temperature ranges. This material also controls free water without the need for standard extenders.

Calcium Chloride
A powdered, flaked or pelletized material used to decrease thickening time and increase the rate of strength development.

Cello Flake
Graded (3/8 to 3/4 inch) cellophane flakes used as a lost circulation material.

Class C Cement

Class H Cement
Class H cement is an API type, all purpose oil well cement which is used without modification in wells up to 8,000 ft. It possesses a moderate sulfate resistance. With the use of accelerators or retarders, it can be used in a wide range of well depths and temperatures.

FL-25
An all purpose salt-tolerant fluid loss additive that provides exceptional fluid loss control across a wide range of temperatures and salinity conditions and remedial cementing applications.

FL-52
A water soluble, high molecular weight fluid loss additive used in medium to low density slurries. It is functional from low to high temperature ranges.

FP-6L
A clear liquid that decreases foaming in slurries during mixing.

LCM-1
A graded (8 to 60 mesh) naturally occurring hydrocarbon, asphaltite. It is used as a lost circulation material at low to moderate temperatures and will act as a slurry extender. Cement compressive strength is reduced.

MPA-5
Used to enhanced compressive, tensile, fleural strength development and reduced permeability

Poz (Fly Ash)
A synthetic pozzolan, (primarily Silicon Dioxide). When blended with cement, Pozzolan can be used to create lightweight cement slurries used as either a filler slurry or a sulfate resistant completion cement.

Sodium Chloride
At low concentrations, it is used to protect against clay swelling.

Sodium Metasilicate
An extender used to produce economical, low density cement slurry.

Static Free
An anti-static additive used to prevent air entrainment due to agglomerated particles. Can be used in Cementing and Fracturing operations to aid in the flow of dry materials.

Article VII. *Mud Program:*

See COA

Depth	Hole	Type	MW	PV	YP	WL	pH	Sol %
0-1574	16"	Fresh Water	8.4-8.9	10-12	12-15	NC	9.5	<3.0
1574-5461	12.25"	Brine	10	1	1	NC	9.5	<1.0
5461-10429	8.5"	Cut Brine	8.4-8.6	1	1	NC	9.5	<1.0
10429-TD	8.5"	Cut Brine	8.9-9.1	4-6	4-6	18-20	9.5	<3.0

Sufficient mud will be on location to control any abnormal conditions encountered. Such as but not limited to a kick, lost circulation and hole sloughing.

Article VIII. *Mud Monitoring System:*

A Pason PVT system will be rigged up prior to spudding the well. A volume monitoring system that measures, calculates, and displays readings from the mud system on the rig to alert the rig crew of impending gas kicks and lost circulation issues.

Components

a) PVT Pit Bull monitor:
Acts as the heart of the system, containing all the controls, switches, and alarms. Typically, it is mounted near the driller's console.

b) Junction box:
Provides a safe, convenient place for making the wiring connections.

c) Mud probes:
Measure the volume of drilling fluid in each individual tank.

d) Flow sensor:
Measures the relative amount of mud flowing in the return line.

Article IX. *Logging, Drill stem testing and Coring:*

2 man mud logging will start after surface casing has been set.

8.5" hole will have LWD (Gamma Ray) to section TD.

Sidewall cores are planned in the 1st Bone Spring, 2nd Bone Spring, and Wolfcamp.

Cores are planned in the 3rd Bone Spring.

no pilot hole per Steve Morris 7-11-14

See COA

Sonic Dipole logs, Lithoscanner Logs and Neutron Density logs are planned throughout the 8.5" ~~pilot hole~~ to the 9.625" casing shoe.

Article X. *Bottom Hole:*

Temperature is expected to be 162°F, using a 0.76°/100' gradient. The bottom hole pressure is expected to be 5192psi maximum using a pressure gradient of 0.44psi/ft. With a partially evacuated hole and a gradient of 0.22psi the maximum surface pressure would be 2596psi.

Article XI. *Abnormal Conditions:*

No abnormal conditions are expected. Temperature is expected to be normal. All zones are expected to be normal pressure.

See COA

Lost circulation is possible in both the 16" and 12.25" hole sections. 20ppb of LCM will be maintained in the active system at all times while drilling these sections. As well, a 50bbl pill of 50ppb LCM will be premixed in the slug pit in case lost circulation is encountered. If complete loss circulation is encountered in the Capitan Reef the Brine will be switched over to fresh water. The BLM will be notified of this and an inspector requested to witness the drilling fluid swap.

Article XII. *H2S:*

No H2S is expected. But there is the possibility of the presence of H2S. Attached is the H2S response plan.

See COA

Article XIII. *Directional:*

Directional survey plan and plot attached.

Article XIV. *Drilling Recorder:*

Rig up EDR & PVT prior to spud to record drilling times and other drilling parameters from surface to TD.

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

No records found.

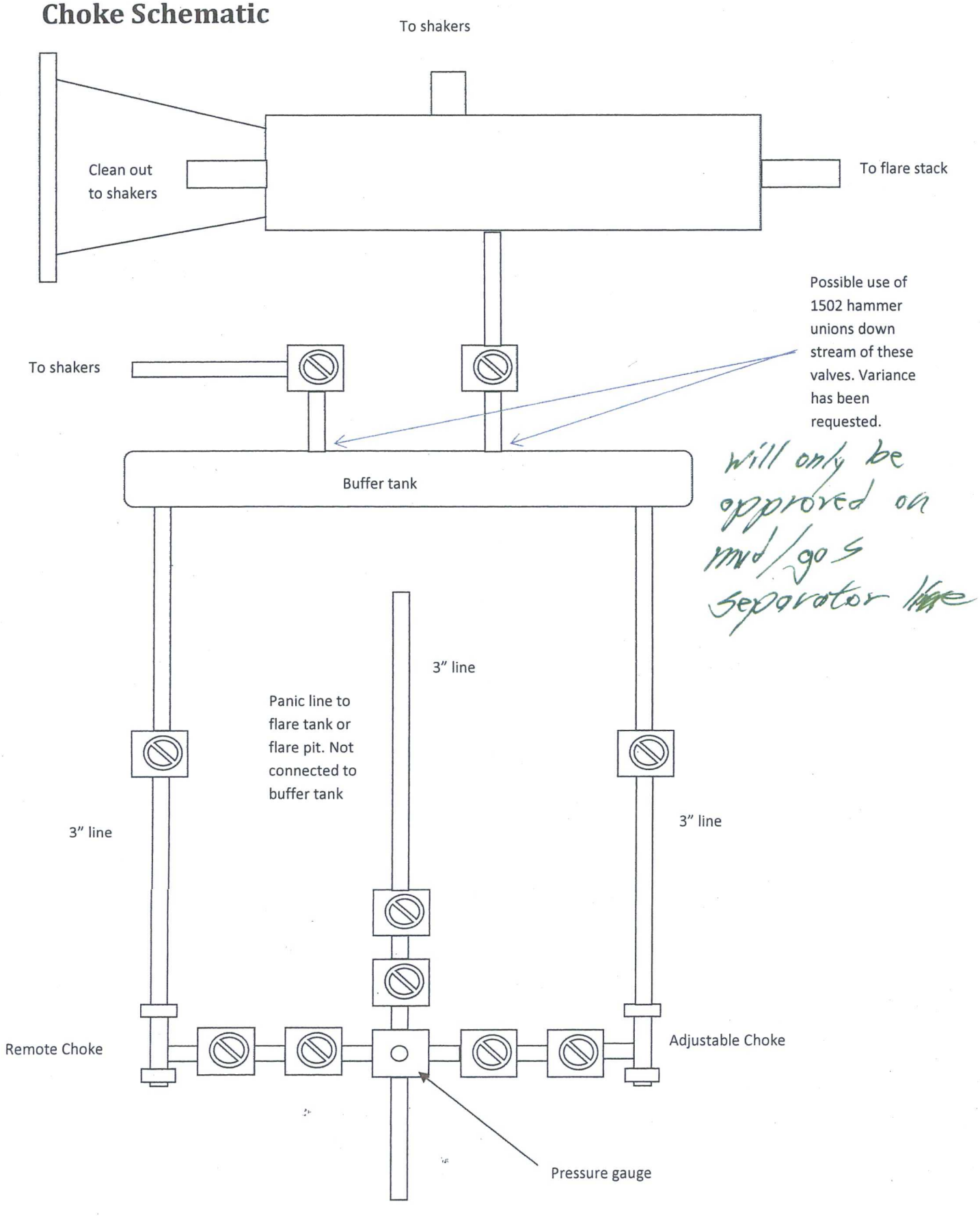
Basin/County Search:

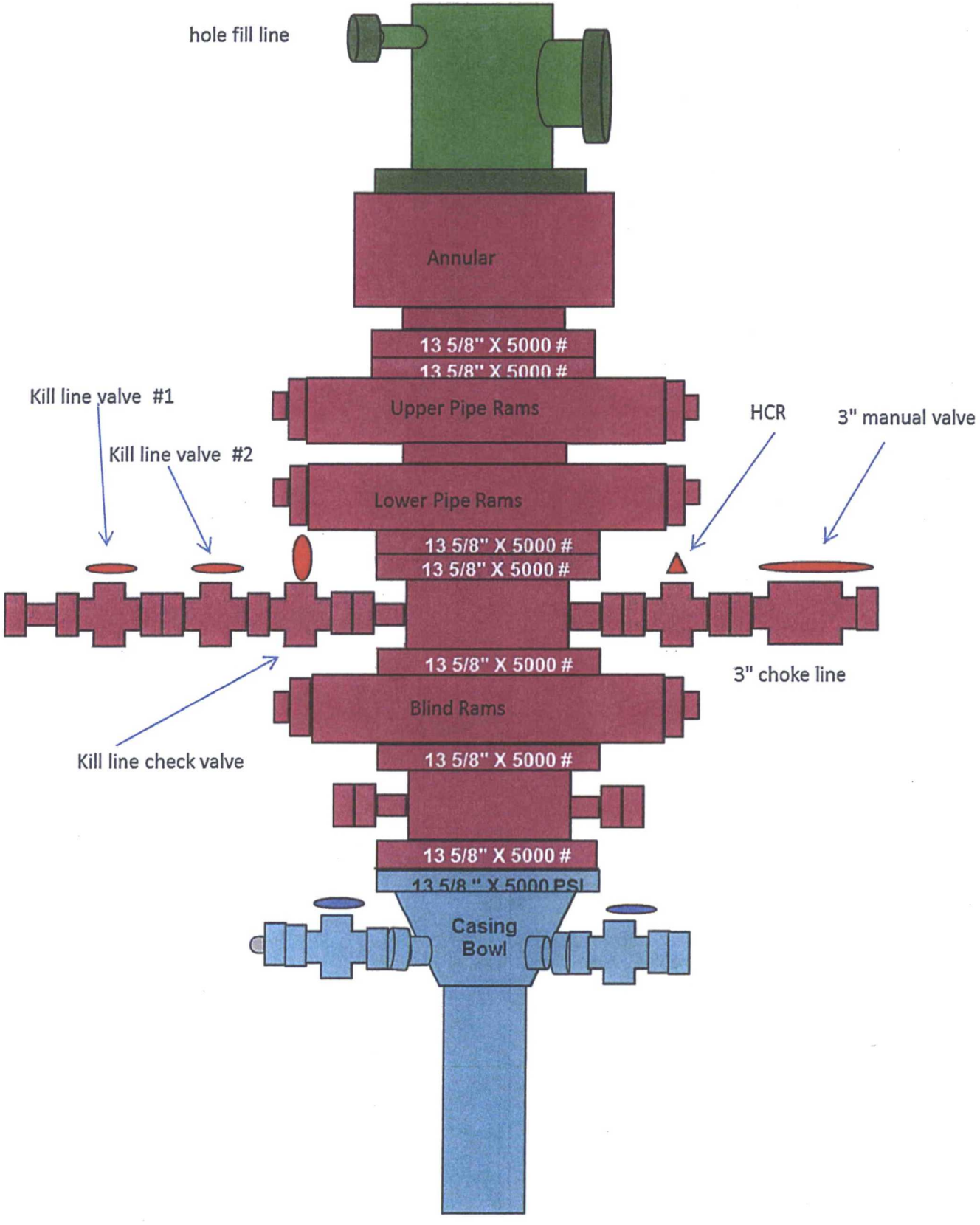
Basin: Lea County **County:** Lea

PLSS Search:

Section(s): 9 **Township:** 20S **Range:** 34E

Choke Schematic




hole fill line
Annular
13 5/8" X 5000 #
13 5/8" X 5000 #
Kill line valve #1
Upper Pipe Rams
HCR
3" manual valve
Kill line valve #2
Lower Pipe Rams
13 5/8" X 5000 #
13 5/8" X 5000 #
13 5/8" X 5000 #
3" choke line
Blind Rams
Kill line check valve
13 5/8" X 5000 #
13 5/8" X 5000 #
13 5/8 " X 5000 PSI
Casing
Bowl

Read and Stevens, Inc.

400 N Pennsylvania Ave #1000, Roswell, NM 88201

Operator Certification: Application for Permit to Drill
North Lea 9 Fed Com #2H
Read and Stevens, Inc.
Lea County, New Mexico

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in the Application for Permit to Drill (APD) package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Read and Stevens, Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. I also certify responsibility for the operations conducted on that portion of the leased lands associated with this application with bond coverage provided by BLM Bond Number NM-2310. This statement is subject to the provisions of the 18U.S.C.1001 for filing a false statement.

Signed: _____ Dated: 27 October 2016

Rory McMinn
President of Read Operating Company LLC,
Agent for Read & Stevens, Inc.