Form 3160-3 (August 2007) **OCD** Hobbs

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

UNORTHODOX

DEPARTMENT OF THE INTERIOR OBBS OCD UNITED STATES

BUREAU OF LAND MANAGEMENT

5. Lease Serial No. SHL: LC-065607 BHL: LC-064194

LOCATION FOR PERMIT TO	DRILL O	R REENTER 2016	5	6. If Indian, Allotee	or Tribe N	ame	
la. Type of work:	ER	RECEIVE	ED	7. If Unit or CA Agre	eement, Nar	ne and N	No.
lb. Type of Well: Oil Well Gas Well Other	✓s	ingle Zone Multip	ole Zone	8. Lease Name and North Lea 4 Fed C		31	3886
2. Name of Operator Read and Stevens, Inc. (18917))	9		9. API Well No. 70-025-43511			
3a. Address 400 N. Pennsylvania Ave #1000 Roswell, NM 88201	3b. Phone N 575-622-3	0. (include area code) 3770		10. Field and Pool, or Exploratory Quail Ridge; Bone Spring, South			
Location of Well (Report location clearly and in accordance with an At surface 335' FNL 350' FEL (A1) At respect and resp. 2001 FOL 350' FEL (D)		11. Sec., T. R. M. or B Sec. 4 T-20S R-3		ey or A	rea		
At proposed prod. zone 330' FSL 350' FEL (P) 14. Distance in miles and direction from nearest town or post office* 26 miles WSW of Hobbs				12. County or Parish Lea		13. Stat	ie .
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of 2722.39	acres in lease	17. Spacin 160.89	g Unit dedicated to this	well		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Propose 10,831.70	ed Depth D'TVD / 15,030'MD	20. BLM/F NM-231	BIA Bond No. on file			
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL - 3656.1' RKB - 3678.1'	22. Approx 02/15/20	imate date work will star	rt*	23. Estimated duration 60 days until completion			
	24. Atta	achments					
The following, completed in accordance with the requirements of Onsho	re Oil and Gas	order No.1, must be a	ttached to the	is form:			
 Well plat certified by a registered surveyor. A Drilling Plan. A Surface Use Plan (if the location is on National Forest System SUPO must be filed with the appropriate Forest Service Office). 	Lands, the	Item 20 above). 5. Operator certific	cation	ns unless covered by an			,
25. Signature		e (Printed/Typed) McMinn			Date 10/31/2	016	
Project Manager							
Approved by (Signature) /s/Cody Layton	Name	e (Printed/Typed)			DateC	19	2016
Title FIELD MANAGER		Office CARLSBAD FIELD OFFICE					
Application approval does not warrant or certify that the applicant hole conduct operations thereon. Conditions of approval, if any, are attached.	is legal or equ	uitable title to those righ	ts in the sub	ject lease which would e			
Title 10 IIC C Section 1001 and Title 42 IIC C Section 1212 make it a c	nima fananni	naman Imazzinaliz and z	willfully to m			ftha II	

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)

Capitan Controlled Water Basin

*(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

Read & Stevens, Inc. **Drilling Prognosis** North Lea 4 Fed Com #1H

Revision date: October 10, 2016

Surface Location:

335' FNL, 350' FEL

Section 4, T-20-S, R-34-E Lea County, New Mexico

Bottom Hole:

330' FSL, 350' FEL

Section 4, T-20-S, R-34-E Lea County, New Mexico

Planned Total Depth:

10903' TVD / 15,433' MD

RKB: 3678.1

GL: 3656.1

Preparer:

Contents

Article I.	General Provisions:
Article II.	Permit Expiration3
Article III.	Estimated Formation Tops (geoprognosis with TVD's adjusted to actual KB):3
Article IV.	Pressure Control:3
Article V.	Casing Program (minimum):7
Article VI.	Cement Program:
Section 6	5.01 13.375" Surface Casing7
Section 6	5.02 9.625" Intermediate Casing7
	Cement detail if DV tool is used: Assuming losses at 3200'. DV tool and ECP will be placed at 3100'. al DV tool placement will be determined when and if losses are encountered. DV tool will be placed above loss zone
Article VII.	Product Descriptions:
Article VIII.	Mud Program:
Article IX.	Mud Monitoring System:
Article X.	Logging, Drill stem testing and Coring:
Article XI.	Bottom Hole:
Article XII.	Abnormal Conditions:
Article XIII.	H2S:
Article XIV.	Directional:
Article XV.	Drilling Recorder:

Article I. General Provisions:

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

Article II. Permit Expiration

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3106-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

Article III. <u>Estimated Formation Tops (geoprognosis with TVD's adjusted to actual KB):</u>

Formation	TVD	Subsea	Thickness	Type
Rustler	1550'	-2113'		
Top of Salt	1745'	-1918'		
Base of Salt	3175'	-488'		,
Tansil	3175'	-488'		
Yates	3638'	-25'		
Seven Rivers	3806'	143'		
Queen	4585'	922'		
Delaware	5580'	1917'	2627'	Hydrocarbon
Bone Spring Lime	8207'	4544'		
Avalon	8692'	5029'	688'	Hydrocarbon
1st Bone Spring	9380'	5717'	550'	Hydrocarbon
2 nd Bone Spring	9930'	6267'	588'	Hydrocarbon
3 rd Bone Spring	10518'	6855'	714'	Hydrocarbon

POD, Water Column Reports attached.

Article IV. 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

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.

All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17

Attachment to Form 3160-3

Minimum Working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 inch intermediate casing show shall be 5000 (5M) psi. 5M system requires an HCR valve, remote kill line ad annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips the minimum wait time before cut-off is eight hours after bumping the pug. BOP/BOPE testing can begin after cut-off or once cement reaches 500PSI compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

The tests shall be done by an independent service company utilizing a test plug **not** a **cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater prior to initiating the test (see casing segment as lead cement may be critical item).

- a. The results of the test shall be reported to the appropriate BLM office.
- b. All Tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- c. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

See COA

A Co-Flex hose may be used from the BOP to the Choke Manifold. If this is used the manufacture specifications and certifications will be furnished prior to use. A variance is requested for the use of the Co-Flex hose. Below is an example of a typical test sheet.

Read & Stevens, Inc.



Fluid Technology

Quality Document

QUALIT INSPECTION A	Y CONTE		ATE		CERT.	N°:	205	
PURCHASER:	ContiTech Be	attie Co.			P.O. N°:		004790	
CONTITECH ORDER N°: 4	93177	HOSE TYPE:	3"	ID		Choke	and Kill Hose	
IOSE SERIAL N°:	60295	NOMINAL / ACT	TUAL L	ENGTH:	10	0,67 m / 1	10,67 m	
N.P. 68,9 MPs 10	000 psi	T.P. 103,4	MPa	15000) psi	Duration:	60	min
Pressure test with water at imblent temperature								
	S	ee attachme	ent. (1 page)			
		Serial N°		(Quality		Heat N	,
→ 10 mm = 20 MPa	226	Serial N° 229			Quality SI 4130		Heat N°	
→ 10 mm = 20 MPa COUPLINGS Type	226			Al				
→ 10 mm = 20 MPa COUPLINGS Type 3" coupling with	226			Al	SI 4130		H0434	
→ 10 mm = 20 MPa COUPLINGS Type 3" coupling with 4 1/16" Swivel Flange end	226			Al	SI 4130 SI 4130		H0434 31742 G9496 API Spec 1	6 C
→ 10 mm = 20 MPa COUPLINGS Type 3" coupling with 4 1/16" Swivel Flange end Hub ASSET NO.: 66-06	226			Al	SI 4130 SI 4130		H0434 31742 G9496	6 C
→ 10 mm = 20 MPa COUPLINGS Type 3" coupling with 4 1/16" Swivel Flange end Hub	226 228	229		Ali	SI 4130 SI 4130 SI 4130	Ten	H0434 31742 G9496 API Spec 1 nperature ra	6 C
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A variance is requested to use 1502(15,000psi working pressure) hammer unions downstream of the Choke Manifold used to connect the mud/gas separator and panic line.

Article V. See COA

Casing Program (minimum):

All casing is new API casing.

		,	in odoning io	11011 / 11 1 040111	3.	
Hole Size	Casing	Weight lb/ft	Grade	Conn	MD/RKB	de Caracine Caracine Co
	20"				120'	•
16"	13.375"	54.5	J-55	STC	1575	Set 25' into Rustler
12.25"	9.625"	40	L-80	LTC	5560	Set 20' above Delaware
8.5"	5.5"	17	P-110	BTC	15439'	

Size	Collapse psi	SF	Burst psi	SF	Tension Klbs	SF	Max Setting Depth TVD
13.375	1130	3.08	2730	3.54	514	5.66	2568
9.625	2570	1.24	3950	1.82	520	3.12	4985
9.625	3090	1.28	5750	2.03	727	3.33	7022
5.5	7480	1.55	10640	1.29	568	3.06	17000 .

13.375" casing will be set 25' into the Rustler 9.625" casing will be set 20' above the Delaware

Article VI.

Cement Program:

Section 6.01

13.375" Surface Casing

Lead: 0 - 1275'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
13.5ppg	1.93cuft/sk	590	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: 1275' - 1575' /680'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
14.8ppg	1.34cuft/sk	166	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 6.02 9.625" Intermediate Casing

A DV tool and ECP will be used to cement this 95/8" 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'. Actual DV tool placement will be determined when and if losses are encountered. DV tool will be placed 150' above loss zone and a minimum of 100' below the last casing shoe.

Cement Stage 1 Lead: 3100' - 5060'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
12.6ppg	2.13cuft/sk	730	8.81	80%	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: 5060' - 5560'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
14.8ppg	1.33cuft/sk	220	6.35	80%	Class C

Cement Stage 2 Lead: 0-3100'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
12.6ppg	2.13cuft/sk	690	8.81	80%	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: 0 - 5060'

Slurry WT Yield		Sx	Gallons/ Sack	Excess	Additives		
12.5ppg	2.13cuft/sk	1500	8.81	80%	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: 5060' - 5560'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
14.8ppg	1.33cuft/sk	222	6.35	80%	Class C
			s	2	

Circulate cement to surface. If cement does not circulate to surface a top squeeze job or casing perforation will be used. As well, a temperature survey or CBL will be performed.

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

Section 6.03 5.5" Production Casing

Lead: 0 - 11000'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
11.9ppg			13.22	80%	Class H (50:50) + Poz (Fly Ash) + 10% bwoc Bentonite II + 5% bwow Sodium Chloride + 5 Ibs/sack LCM-1 + 0.005 lbs/sack Static Free + 0.005 gps FP-6L

Tail: 11000 - TD

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
13.2ppg 1.62cuft/sl		900	9.45	20%	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. As well, a temperature survey or CBL will be performed.

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

Article VII.

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

Intended for use from surface to 6000 ft., and for conditions requiring high early strength and/or sulfate resistance.

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.

See COA

Article VIII. <u>Mud Program:</u>

Depth	Hole	Type	MW	PV	YP	WL	рН	Sol %
0-1575	16"	Fresh Water	8.4-8.9	10-12	12-15	NC	9.5	<3.0
1575-5560	12.25"	Brine	9.8-10	1-2	1-2	NC	9.5	<1.0
5560- KOP	8.5"	Cut Brine	8.4-8.6	1-2	1-2	NC	9.5	<1.0
KOP-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 IX.

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 X.

Logging, Drill stem testing and Coring:

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

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

Article XI.

Bottom Hole:

Temperature is expected to be 162°F, using a 0.76°/100' gradient. The bottom hole pressure is expected to be 4796psi 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 2398psi.

Article XII.

Abnormal Conditions:

Temperature is expected to be normal. All zones are expected to be normal pressure.



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. Daily reports will be submitted to the BLM if losses are encountered.

Sec

Article XIII.

H2S:

No H2S is expected. But there is the possibility of the presence of H2S. Attached is the H2S response plan. H2S response plan will be put into effect after surface casing has been set and BOPE has been nippled up.

Article XIV.

Directional:

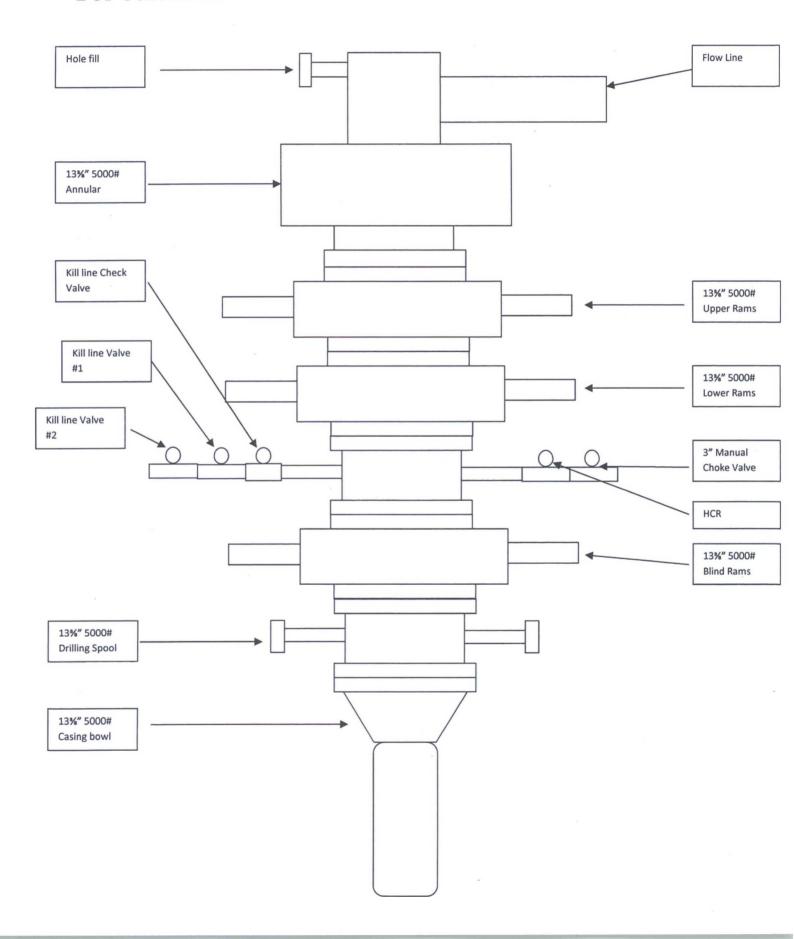
Directional survey plan and plot attached.

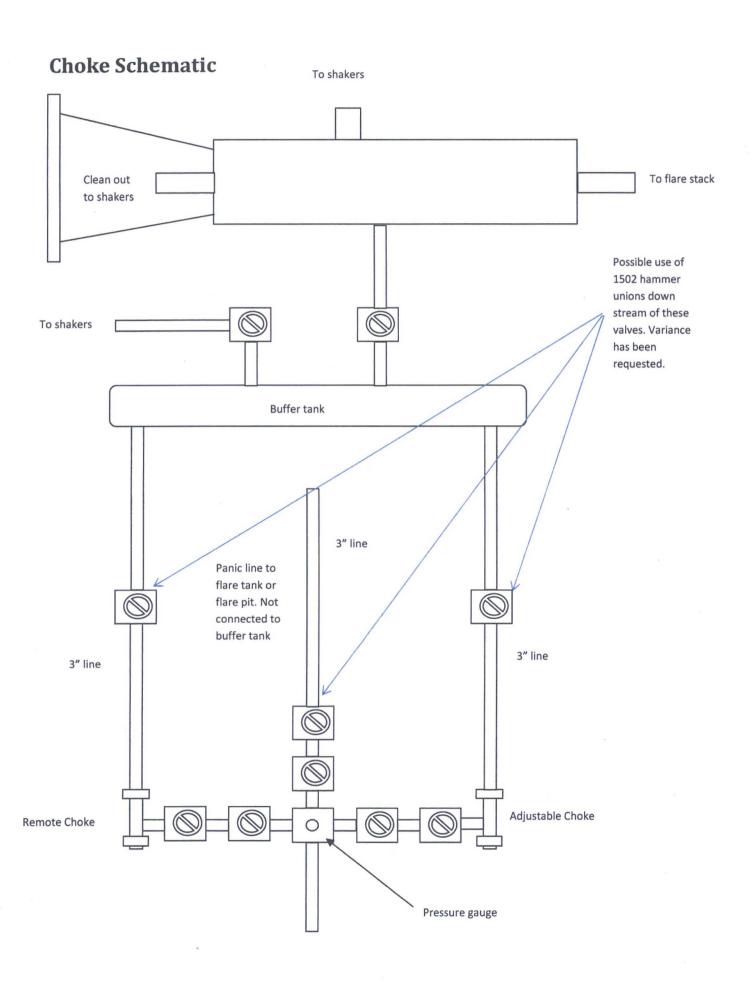
Article XV.

Drilling Recorder:

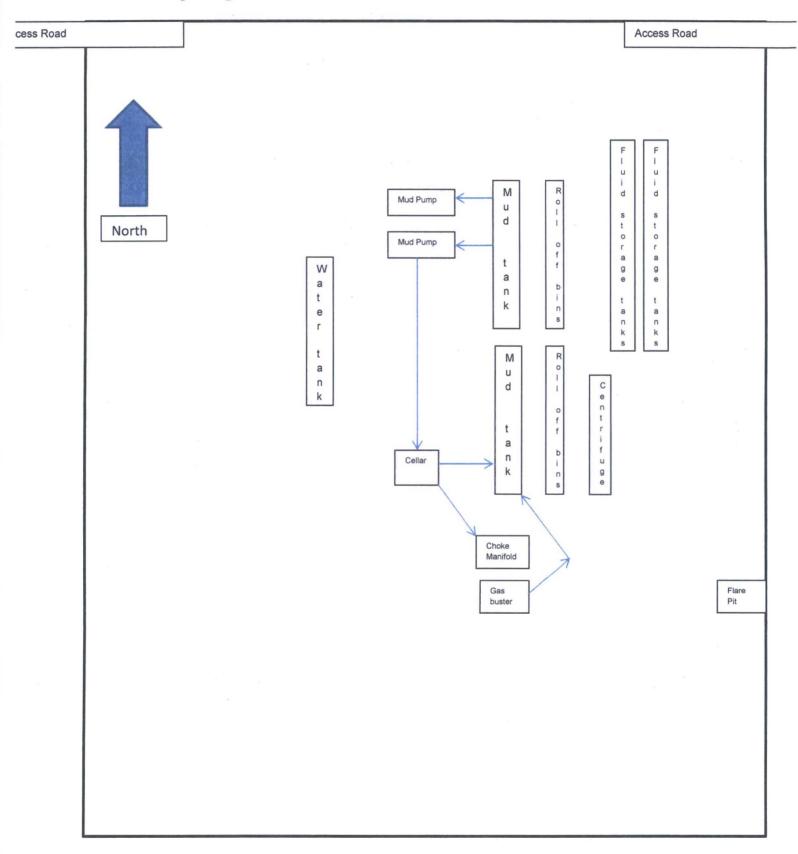
Rig up EDR & PVT prior to spud to record drilling times and other drilling parameters from surface to TD.

BOP Schematic





Closed Loop Diagram



Design Plan, Operating Plan and Maintenance Plan, and Closure Plan for the OCD form C-144

Design Plan:

Fluid and cuttings coming from drilling operations will pass over the shale shaker with the cuttings going to the haul off bin and the cleaned fluid returning to the working steel pits.

Equipment Includes:

- 1-670bbl steel working pit
- 2-100bbl steel working suction pits
- 2-500bbl steel tanks
- 2-20yd³ steel haul off bins
- 2-pumps (HHF-1600)
- 2-Shale shakers
- 1-Centrifuge
- 1-Desilter/Desander

Operating and Maintenance Plan:

Inspection to occur every tour for proper operation of system and individual components. If any problems are found they will be repaired and/or corrected immediately.

All drilling fluid circulated over shakers with cuttings discharged into roll off bins

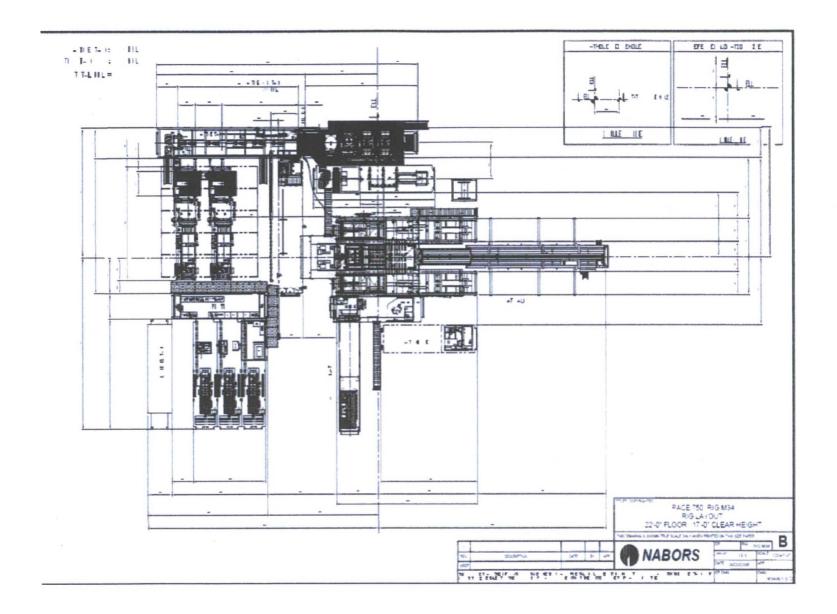
Fluid and fines below shakers are circulated with transfer pump through centrifuge

Roll off bins are lined and de watered with fluids recirculated into system

Additional tank is used to capture unused drilling fluid or cement returns from casing jobs.

Closure Plan:

All haul off bins containing cuttings will be removed from location and hauled to:
R360 Permit number R9166/NM-01-0006
GMI Permit number 711-019-001/NM-01-0019





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): 4

Township: 20S

Range: 34E



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

No PODs found.

OD Search:

POD Basin: Lea County

LSS Search:

Section(s): 4

Township: 20S

Range: 34E

Ita is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, ity, usability, or suitability for any particular purpose of the data.

Read and Stevens, Inc.

400 N Pennsylvania Ave #1000, Roswell, NM 88201

Operator Certification: Application for Permit to Drill

North Lea 4 Fed Com #1H 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:__

Rory McMinn

President of Read Operating Company LLC,

Agent for Read & Stevens, Inc.

Dated: 6/3//2/6