Form 3160-3 (August 2007)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT RECEIVED

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

5. Lease Serial No. LC-064194

6. If Indian, Allotee or Tribe Name

APPLICATION FOR PERMIT TO D	APPLICATION FOR PERMIT TO DRILL OR REENTER							
la. Type of work:	R			7. If Unit or CA Agre	eement, Na	ame and No.		
Ib. Type of Well: ✓ Oil Well Gas Well Other 2. Name of Operator Read and Stevens, Inc. 1897	Sin	ngle Zone Multip	le Zone	8. Lease Name and North Lea 9 Fed C 9. API Well No.	om #1H	(317198)		
3a. Address 400 N. Pennsylvania Ave #1000 Roswell, NM 88201	b. Phone No. (include area code) 575-622-3770			10. Field and Pool, or Exploratory Quail Ridge; Bone Spring, South 5046				
4. Location of Well (Report location clearly and in accordance with any At surface 500' FSL 990' FEL Sec. 4 (P)		11. Sec., T. R. M. or B Sec. 4 T-20S R-3		rvey or Area				
At proposed prod. zone 330' FSL 350' FEL Sec. 9 (P) 14. Distance in miles and direction from nearest town or post office* 26 miles WSW of Hobbs				Sec. 9 T-20S R-3 12. County or Parish Lea	4E	13. State NM		
15. Distance from proposed* 500' location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of a 2000	cres in lease	17. Spacir 160	g Unit dedicated to this	well			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. See raduis maps attached.		Proposed Depth 20. BLM/BIA Bond NM-2310						
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL - 3632.5' RKB - 3654.5'	22. Approxim 05/15/201	Approximate date work will start* 23. Estimated duration 60 days until completion						
	24. Attac	chments						
The following, completed in accordance with the requirements of Onshore	e Oil and Gas	Order No.1, must be at	tached to th	is form:				
 Well plat certified by a registered surveyor. A Drilling Plan. A Surface Use Plan (if the location is on National Forest System L SUPO must be filed with the appropriate Forest Service Office). 	Lands, the	Item 20 above). 5. Operator certific	ation	ns unless covered by an				
25. Signature		(Printed/Typed) McMinn			Date 10/26/	2016		
Title Project Manager								
Approved by (Signature) /s/Cody Layton	Name	(Printed Typed)			DEC	1 9 2016		
Title FIELD MANAGER	Office		6	CARLSBAD FIELD	OFFICE			
Application approval does not warrant or certify that the applicant holds conduct operations thereon. Conditions of approval, if any, are attached.	legal or equi	table title to those right	ts in the sub			applicant to R TWO YEAR		

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

12/12/16

*(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

Read and Stevens, Inc **Drilling Prognosis** North Lea 9 Fed Com #1H

Revision date: June 26, 2014

Surface Location:

HOBBS OCT RECEIVED 581515.087usft N, 779553.81usft E

500' FSL, 990' FEL

Section 4, T-20-S, R-34-E

Lea County, New Mexico

Bottom Hole:

576065.611usft N, 780215.94usft E

330' FSL, 350' FEL

Section 9, T-20-S, R-34-E

Lea County, New Mexico

Planned Total Depth:

10934' TVD /16,333' MD

RKB: 3655'

GL: 3633'

Preparer:

Steve Morris

Attachment to Form 3160-3

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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	Туре
Rustler	1546'	-2111'		
Top of Salt	1680'	-1977'		
Base of Salt	3210'	-447'		
Tansil	3210'	-447'		
Yates	3420'	-237'		
Seven Rivers	3821'	164'		
Delaware	5448'	1791'	2870'	Hydrocarbon
Bone Spring Lime	8318'	4661'		
Avalon	8652'	4995'	821'	Hydrocarbon
1st Bone Spring	9473'	5816'	491'	Hydrocarbon
2 nd Bone Spring	9964'	6307'	682'	Hydrocarbon
3 rd Bone Spring	10646'	6989'	634'	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 59 Sec. 17

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.

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 on location. A variance is requested for the use of the Co-Flex hose. Below is an example of a typical test sheet.



Fluid Technology

Quality Document

QUALIT INSPECTION A	TY CONT		CATE		ERT. N	P;	205	
PURCHASER:	ContiTech B	eattle Co.		P	.O. N°:		004790	
CONTITECH ORDER N°: 4	93177	HOSE TYPE:	3"	ID		Choke a	nd Kill Hose	
HOSE SERIAL N°:	60296	NOMINAL / AC	TUAL L	NGTH:	10),67 m / 1	0,67 m	
W.P. 68,9 MPa 10	000 psi	T.P. 103,4	MPa	15000	psi	Duration:	60	min
↑ 10 mm = 10 Min.	٤	See attachm	ent. (1	page)				
→ 10 mm = 20 MPa	1	Serial Nº		011	ality		Heat N°	
3" coupling with	226		+		4130	_	H0434	
4 1/16" Swivel Flange end					4130		31742	
Hub					4130		G9496	
ASSET NO.: 66-06	28						API Spec 1	
All metal parts are flawless WE CERTIFY THAT THE ABOVE MSPECTED AND PRESSURE TE STATEMENT OF CONFORMITY: conditions and specifications of ti accordance with the referenced sta	We hereby of the above Purch	/E WITH SATISF/ entify that the abo aser Order and t	ve items/	quipment s	upplied	by us are in	conformity with	he terms,
	C	OUNTRY OF OR	GIN HUN	GARY/EU				
21. February 2011.	Inspector		Quality	Control		ContiTech R Industrial uality Contro	Kft.	

WITHCHIMEN OF ACUPITY CONTROL BARBETION WAS TEST CENTIFICATE

140. 203, 203, 200

Page: 1/1

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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.

Casing Program (minimum):

All casing is new API casing.

Hole Size	Casing	Weight lb/ft	Grade	Conn	MD/RKB	
	20"				120'	/
16"	13.375"	54.5	J-55	STC	1563	Set 25' into Rustler
12.25"	9.625"	40	L-80	LTC	5439540	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	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 - 1271'

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: 1271' - 1571'

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 proportionately 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 9%" 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' – 4928'

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 Cellc Flake + 0.005 lbs/sack Static Free + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride

Tail: 4928' - 5428'

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

Cement Stage 2

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 Cellc 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 proportionately.

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

Lead: 0 - 4928'

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: 4928' - 5428'

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

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 proportionately 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	2.38cuft/sk	2600	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 Ibs/sack Static Free + 0.005 gps FP-6L

Tail: 11000 - TD

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
13.2ppg	1.62cuft/sk	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 proportionately 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 (Flv 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 VIII. <u>Mud Program:</u>

Depth	Hole	Туре	MW	PV	YP	WL	рН	Sol %
0-1571 1650	16"	Fresh Water	8.4-8.9	10-12	12-15	NC	9.5	<3.0
1571-5428	12.25"	Brine	9.8-10	1-2	1-2	NC	9.5	<1.0
5428- 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.

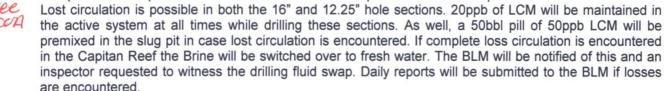
8.75" hole will have LWD (Gamma Ray) to section TD.

Article XI. Bottom Hole:

Temperature is expected to be 163°F, using a 0.76°/100' gradient. The bottom hole pressure is expected to be 4810psi 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 2405psi.

Article XII. Abnormal Conditions:

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







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:

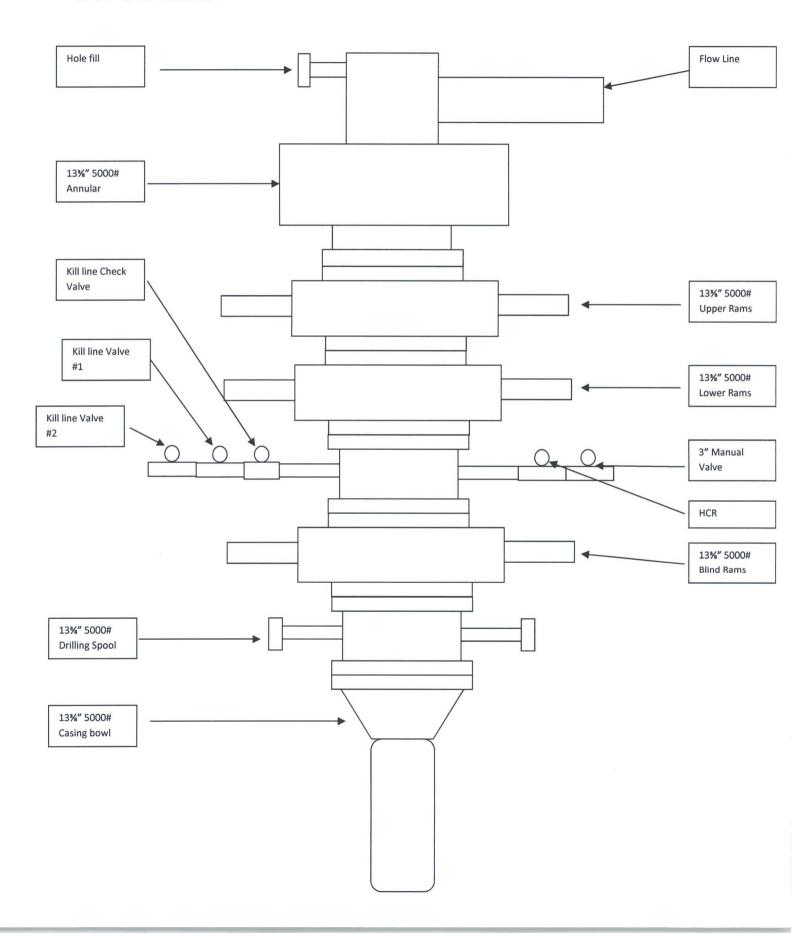
Directional survey plan and plot attached.

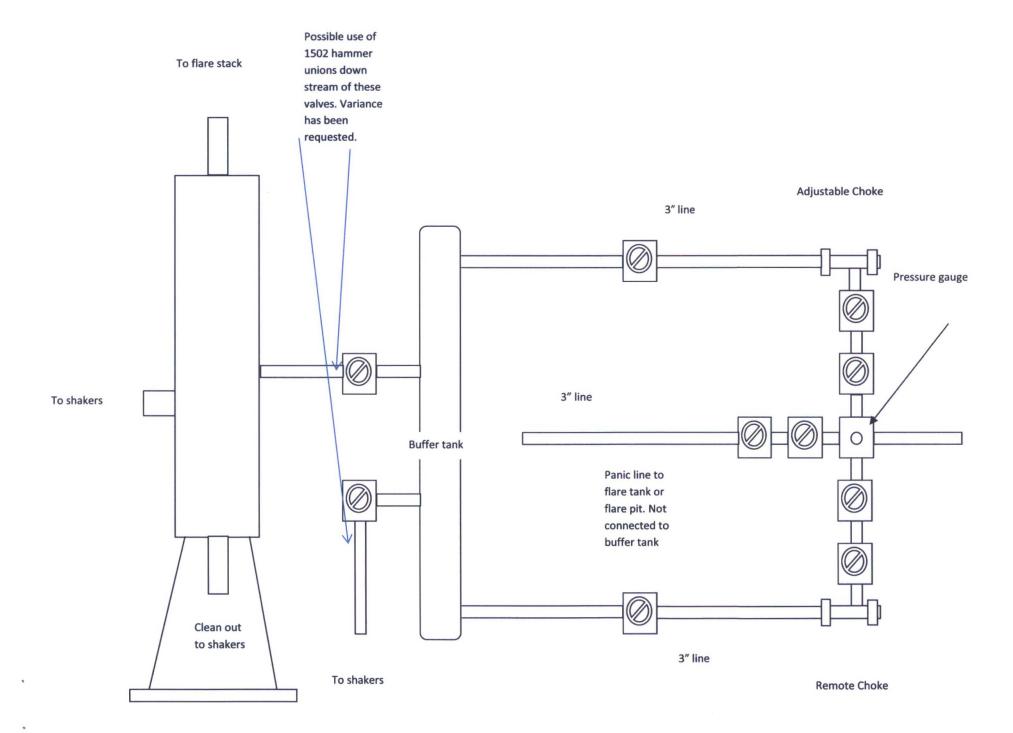
Article XV.

Drilling Recorder:

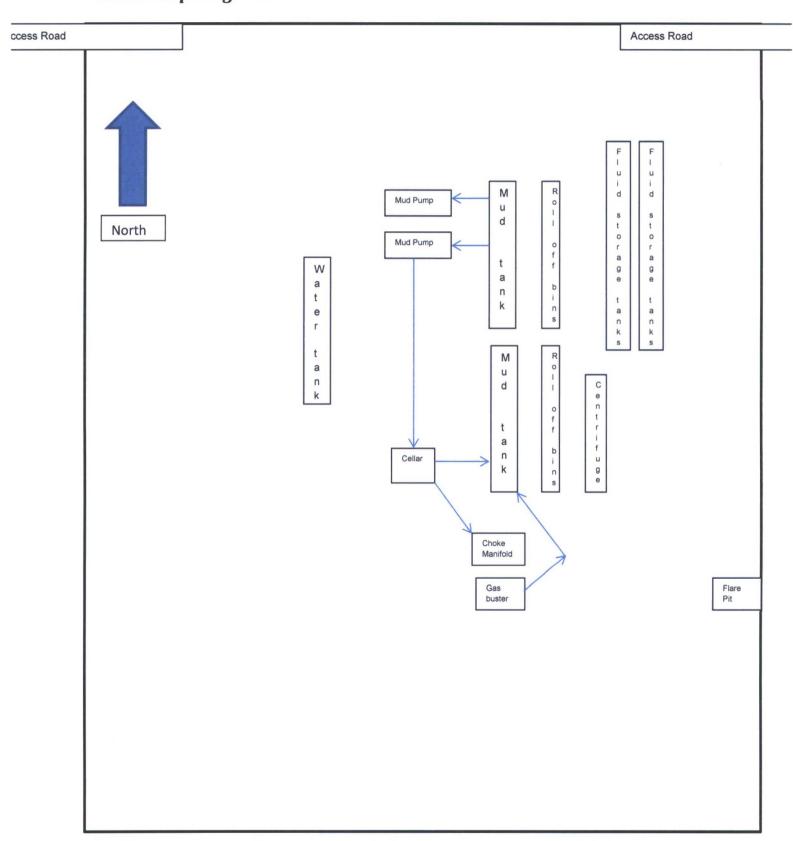
Rig up EDR & PVT prior to spud to record drilling times and other drilling parameters from surface to TD.

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

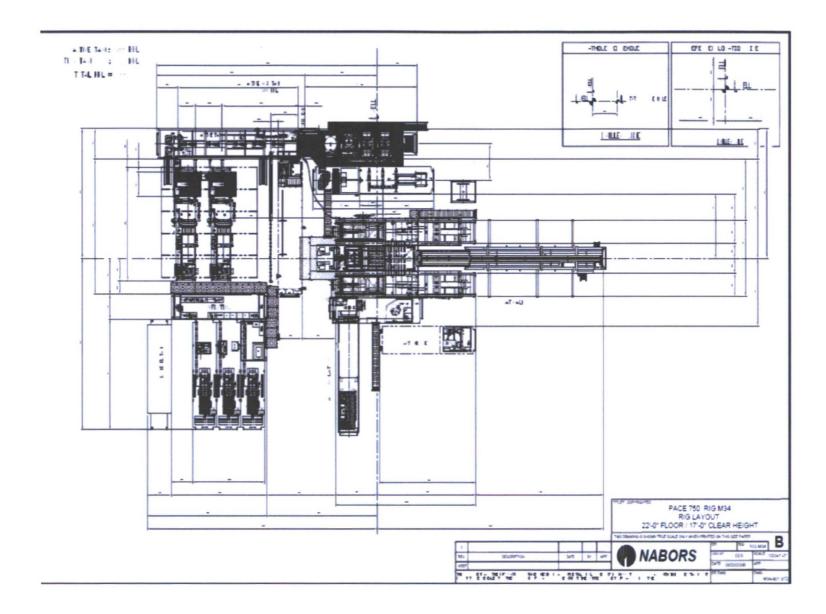
Roll off bins are lined and de watered with fluids recirculated into system

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): 9 Township: 20S Range: 34E



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

No PODs found.

POD Search:

POD Basin: Lea County

PLSS Search:

Section(s): 9

Township: 20S

Range: 34E

data 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, pility, usability, or suitability for any particular purpose of the data.