

SECRETARY'S POTASH

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

NOV 17 2014

RECEIVED

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. SHL: LC-065607 BHL: LC-064194
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Read and Stevens, Inc (18917)		7. If Unit or CA Agreement, Name and No.
3a. Address 400 N. Pennsylvania Ave #1000 Roswell, NM 88201		8. Lease Name and Well No. North Lea 4 Fed Com #4H (713886)
3b. Phone No. (include area code) 575-622-3770		9. API Well No. 30-025-42270
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 660' FNL 1040' FWL (D4) At proposed prod. zone 330' FSL 970' FWL (M)		10. Field and Pool, or Exploratory QUAIL RIDGE, Bone Spring, SOUTH (50961)
14. Distance in miles and direction from nearest town or post office* 26 miles WSW of Hobbs		11. Sec., T. R. M. or Blk. and Survey or Area Sec. 4 T-20S R-34E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease 2722.39	12. County or Parish Lea
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. See raduis maps attached.	19. Proposed Depth 10,883.9TVD/ 15,371.6'MD	13. State NM
21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL - 3644.9' RKB - 3666.9'	22. Approximate date work will start* 08/01/2014	17. Spacing Unit dedicated to this well 160.21
		20. BLM/BIA Bond No. on file NM-2310
		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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 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). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature 	Name (Printed/Typed) Steve Morris	Date 02/13/2014
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Title

Contract Project Manager

Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date NOV 13 2014
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

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

NOV 18 2014

HOBBS
NOV 17 2014

RECEIVED

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

Revision date: February 12, 2014

Surface Location: 585,629.36usft N, 776,266.58usft E
660' FNL, 1040' FWL

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

Bottom Hole: 581,336.23usft N, 776,199.17usft E
330' FSL, 970' FWL

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

Planned Total Depth: 10,884' TVD /15,371' MD

RKB: 3667' GL: 3645'

Preparer: Steve Morris

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Article I.Well Overview:

The North Lea 4 Fed Com #4H will be a horizontal well. 5.5" production casing will be used with ported subs for the completion. See attached WBS for spacing of ported subs.

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

Formation	TVD	Subsea	Thickness	Type
Rustler	1520'	-2147'		
Top of Salt	1648'	-2019'		
Base of Salt	3150'	-517'		
Tansil (Top of Capitan Reef)	3150'	-517'	1560'	Possible Fresh Water
Yates	3297'	-370'		
Seven Rivers	3630'	-37'		
Queen(Capitan Reef Bottom)	4710'	1043'		
Penrose	4840'	1173'		
San Andres	5327'	1660'		
Lamar Lime	5790'	2123'		
Bell Canyon	5820'	2153'	594'	Hydrocarbon
Cherry Canyon	6414'	2747'	976'	Hydrocarbon
Brushy Canyon	7390'	3723'	878'	Hydrocarbon
Bone Spring Lime	8268'	4601'		
Avalon	8710'	5043'	712'	Hydrocarbon
1 st Bone Spring	9422'	5755'	500'	Hydrocarbon
2 nd Bone Spring	9922'	6255'	651'	Hydrocarbon
3 rd Bone Spring	10573'	6906'	658'	Hydrocarbon

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

Article III.Pressure Control:

This is not a multi-bowl wellhead.

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.

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.

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 pipe line. *to chokers - both atmospheric*

See COA

See
COA

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	1545' 1625'	Surface
12.25"	9.625"	40	L-80	LTC	5800' 5250'	Intermediate
8.5"	5.5"	17	P-110	BTC	15372'	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

13.375" casing will be set 25' into the Rustler

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

See COA

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	556	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	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. See COA ←

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 9 5/8" 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'.

Cement Stage 1**Lead:**

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
12.6ppg	2.13cuft/sk	726	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 :

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 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	1414	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:

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.

See COA

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-10,900'

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
11.9ppg	2.38cuft/sk	1519	13.22	80%	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: 10900'-TD

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
13.2ppg	1.62cuft/sk	766	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.

See COA

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.

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

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, flexural 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
CA

Depth	Hole	Type	MW	PV	YP	WL	pH	Sol %
0-1545	16"	Fresh Water	8.4-8.9	10-12	12-15	NC	9.5	<3.0
1545-5800	12.25"	Brine	10.9-11.0	1	1	NC	9.5	<1.0
5800-10400	8.5"	Cut Brine	8.4-8.6	1	1	NC	9.5	<1.0
10400-TD	8.5"	Cut Brine	8.9-9.1	4-6	4-6	18-20	9.5	<3.0

operator e-mail

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.

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:

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

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.



MOJO
DIRECTIONAL CORPORATION

Read and Stevens Inc.

North Lea Prospect T20S-R34E

Section 4

North Lea 4 Federal Com #4H

North Lea 4 Federal Com #4H

Plan: 131001 North Lea 4 Federal Com #4H

MOJO Standard Survey

01 October, 2013



MOJO
DIRECTIONAL CORPORATION



MOJO Standard Survey



Company Project:	Read and Stevens Inc. North Lea Prospect T20S-R34E	Local Co-ordinate Reference:	Well North Lea 4 Federal Com #4H
Site:	Section 4	TVD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Well:	North Lea 4 Federal Com #4H	MD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Wellbore:	North Lea 4 Federal Com #4H	North Reference:	Grid
Design:	131001 North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
		Database:	EDM 5000.1 Single User Db

Project:	North Lea Prospect T20S-R34E		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site:	Section 4		
Site Position:	From:	Lat/Long	
Position Uncertainty:	1.0 usft	Northing:	583,662.16 usft
		Easting:	777,897.65 usft
		Slot Radius:	16 "
		Latitude:	32° 36' 7.886 N
		Longitude:	103° 33' 54.552 W
		Grid Convergence:	0.41 °

Well:	North Lea 4 Federal Com #4H					
Well Position	+N/-S	0.0 usft	Northing:	585,629.36 usft	Latitude:	32° 36' 27.467 N
	+E/-W	0.0 usft	Easting:	776,266.58 usft	Longitude:	103° 34' 13.453 W
Position Uncertainty	1.0 usft		Wellhead Elevation:	usft	Ground Level:	3,644.9 usft

Wellbore:	North Lea 4 Federal Com #4H				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	28/12/2012	(°)	(°)	(nT)
			7.42	60.50	48,692

Design:	131001 North Lea 4 Federal Com #4H			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	180.90

Survey Tool Program	Date 01/10/2013			
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
0.0	15,371.6	131001 North Lea 4 Federal Com #4H (No	MWD	MWD - Standard



MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea 4 Federal Com #4H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Site:	Section 4	MD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Well:	North Lea 4 Federal Com #4H	North Reference:	Grid
Wellbore:	North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
Design:	131001 North Lea 4 Federal Com #4H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%/100usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-3,666.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
100.0	0.00	0.00	100.0	-3,566.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
200.0	0.00	0.00	200.0	-3,466.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
300.0	0.00	0.00	300.0	-3,366.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
400.0	0.00	0.00	400.0	-3,266.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
500.0	0.00	0.00	500.0	-3,166.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
600.0	0.00	0.00	600.0	-3,066.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
700.0	0.00	0.00	700.0	-2,966.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
800.0	0.00	0.00	800.0	-2,866.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
900.0	0.00	0.00	900.0	-2,766.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,000.0	0.00	0.00	1,000.0	-2,666.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,100.0	0.00	0.00	1,100.0	-2,566.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,200.0	0.00	0.00	1,200.0	-2,466.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,300.0	0.00	0.00	1,300.0	-2,366.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,400.0	0.00	0.00	1,400.0	-2,266.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,500.0	0.00	0.00	1,500.0	-2,166.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,519.9	0.00	0.00	1,519.9	-2,147.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Rustler(Geoprog)											
1,544.9	0.00	0.00	1,544.9	-2,122.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
13 3/8"											
1,600.0	0.00	0.00	1,600.0	-2,066.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,647.9	0.00	0.00	1,647.9	-2,019.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Top of Salt(Geoprog)											
1,700.0	0.00	0.00	1,700.0	-1,966.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,800.0	0.00	0.00	1,800.0	-1,866.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
1,900.0	0.00	0.00	1,900.0	-1,766.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,000.0	0.00	0.00	2,000.0	-1,666.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,100.0	0.00	0.00	2,100.0	-1,566.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	

Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea 4 Federal Com #4H
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Site:	Section 4	MD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Well:	North Lea 4 Federal Com #4H	North Reference:	Grid
Wellbore:	North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
Design:	131001 North Lea 4 Federal Com #4H	Database:	EDM:5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)	
2,200.0	0.00	0.00	2,200.0	-1,466.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,300.0	0.00	0.00	2,300.0	-1,366.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,400.0	0.00	0.00	2,400.0	-1,266.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,500.0	0.00	0.00	2,500.0	-1,166.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,600.0	0.00	0.00	2,600.0	-1,066.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,700.0	0.00	0.00	2,700.0	-966.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,800.0	0.00	0.00	2,800.0	-866.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
2,900.0	0.00	0.00	2,900.0	-766.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,000.0	0.00	0.00	3,000.0	-666.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,100.0	0.00	0.00	3,100.0	-566.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,149.9	0.00	0.00	3,149.9	-517.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Base of Salt(Geoprog)											
3,200.0	0.00	0.00	3,200.0	-466.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,296.9	0.00	0.00	3,296.9	-370.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Yates(Geoprog)											
3,300.0	0.00	0.00	3,300.0	-366.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,400.0	0.00	0.00	3,400.0	-266.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,500.0	0.00	0.00	3,500.0	-166.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,600.0	0.00	0.00	3,600.0	-66.9	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,629.9	0.00	0.00	3,629.9	-37.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
7 Rivers(Geoprog)											
3,700.0	0.00	0.00	3,700.0	33.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,800.0	0.00	0.00	3,800.0	133.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
3,900.0	0.00	0.00	3,900.0	233.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,000.0	0.00	0.00	4,000.0	333.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,100.0	0.00	0.00	4,100.0	433.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,200.0	0.00	0.00	4,200.0	533.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,300.0	0.00	0.00	4,300.0	633.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	



MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea 4 Federal Com #4H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Site:	Section 4	MD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Well:	North Lea 4 Federal Com #4H	North Reference:	Grid
Wellbore:	North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
Design:	131001 North Lea 4 Federal Com #4H	Database:	EDM 5000.1 Single User Db

Planned Survey:											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)	
4,400.0	0.00	0.00	4,400.0	733.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,500.0	0.00	0.00	4,500.0	833.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,600.0	0.00	0.00	4,600.0	933.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,700.0	0.00	0.00	4,700.0	1,033.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,709.9	0.00	0.00	4,709.9	1,043.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Queen (Geoprog)											
4,800.0	0.00	0.00	4,800.0	1,133.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
4,839.9	0.00	0.00	4,839.9	1,173.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Penrose (Geoprog)											
4,900.0	0.00	0.00	4,900.0	1,233.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,000.0	0.00	0.00	5,000.0	1,333.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,100.0	0.00	0.00	5,100.0	1,433.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,200.0	0.00	0.00	5,200.0	1,533.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,295.9	0.00	0.00	5,295.9	1,629.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Premier Sand (Geoprog)											
5,300.0	0.00	0.00	5,300.0	1,633.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,326.9	0.00	0.00	5,326.9	1,660.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Sand Andres (Geoprog)											
5,400.0	0.00	0.00	5,400.0	1,733.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,500.0	0.00	0.00	5,500.0	1,833.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,600.0	0.00	0.00	5,600.0	1,933.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,700.0	0.00	0.00	5,700.0	2,033.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,799.9	0.00	0.00	5,799.9	2,133.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
9 5/8"											
5,800.0	0.00	0.00	5,800.0	2,133.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
5,819.9	0.00	0.00	5,819.9	2,153.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
Delaware (Geoprog)											
5,900.0	0.00	0.00	5,900.0	2,233.1	0.0	0.0	0.0	0.00	585,629.36	776,266.58	



MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea 4 Federal Com #4H,
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Site:	Section 4	MD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Well:	North Lea 4 Federal Com #4H	North Reference:	Grid
Wellbore:	North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
Design:	131001 North Lea 4 Federal Com #4H	Database:	EDM 5000.1 Single User Db

Planned Survey:											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
5,919.9	0.00	0.00	5,919.9	2,253.0	0.0	0.0	0.0	0.00	585,629.36	776,266.58	
6,000.0	2.40	350.00	6,000.0	2,333.1	1.7	-0.3	-1.6	3.00	585,631.02	776,266.29	
6,100.0	5.40	350.00	6,099.7	2,432.8	8.4	-1.5	-8.3	3.00	585,637.72	776,265.11	
6,119.9	6.00	350.00	6,119.5	2,452.6	10.3	-1.8	-10.3	3.00	585,639.66	776,264.77	
6,200.0	6.00	350.00	6,199.2	2,532.3	18.5	-3.3	-18.5	0.00	585,647.91	776,263.31	
6,300.0	6.00	350.00	6,298.6	2,631.7	28.8	-5.1	-28.8	0.00	585,658.20	776,261.50	
6,400.0	6.00	350.00	6,398.1	2,731.2	39.1	-6.9	-39.0	0.00	585,668.50	776,259.68	
6,415.9	6.00	350.00	6,413.9	2,747.0	40.8	-7.2	-40.7	0.00	585,670.13	776,259.39	
Cherry Canyon (Geoprog)											
6,500.0	6.00	350.00	6,497.6	2,830.7	49.4	-8.7	-49.3	0.00	585,678.79	776,257.87	
6,600.0	6.00	350.00	6,597.0	2,930.1	59.7	-10.5	-59.6	0.00	585,689.09	776,256.05	
6,700.0	6.00	350.00	6,696.5	3,029.6	70.0	-12.3	-69.8	0.00	585,699.38	776,254.24	
6,800.0	6.00	350.00	6,795.9	3,129.0	80.3	-14.2	-80.1	0.00	585,709.67	776,252.42	
6,900.0	6.00	350.00	6,895.4	3,228.5	90.6	-16.0	-90.3	0.00	585,719.97	776,250.61	
7,000.0	6.00	350.00	6,994.8	3,327.9	100.9	-17.8	-100.6	0.00	585,730.26	776,248.79	
7,100.0	6.00	350.00	7,094.3	3,427.4	111.2	-19.6	-110.9	0.00	585,740.55	776,246.98	
7,200.0	6.00	350.00	7,193.7	3,526.8	121.5	-21.4	-121.1	0.00	585,750.85	776,245.16	
7,300.0	6.00	350.00	7,293.2	3,626.3	131.8	-23.2	-131.4	0.00	585,761.14	776,243.35	
7,397.3	6.00	350.00	7,389.9	3,723.0	141.8	-25.0	-141.4	0.00	585,771.15	776,241.58	
Brushy Canyon (Geoprog)											
7,400.0	6.00	350.00	7,392.6	3,725.7	142.1	-25.1	-141.7	0.00	585,771.44	776,241.53	
7,500.0	6.00	350.00	7,492.1	3,825.2	152.4	-26.9	-151.9	0.00	585,781.73	776,239.72	
7,600.0	6.00	350.00	7,591.5	3,924.6	162.7	-28.7	-162.2	0.00	585,792.02	776,237.90	
7,700.0	6.00	350.00	7,691.0	4,024.1	173.0	-30.5	-172.5	0.00	585,802.32	776,236.09	
7,800.0	6.00	350.00	7,790.4	4,123.5	183.3	-32.3	-182.7	0.00	585,812.61	776,234.27	
7,900.0	6.00	350.00	7,889.9	4,223.0	193.5	-34.1	-193.0	0.00	585,822.90	776,232.46	
8,000.0	6.00	350.00	7,989.3	4,322.4	203.8	-35.9	-203.3	0.00	585,833.20	776,230.64	

Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea-4, Federal Com #4H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3666.9usft. (Original Well Elev)
Site:	Section 4	MD Reference:	WELL (copy) @ 3666.9usft. (Original Well Elev)
Well:	North Lea 4, Federal Com #4H	North Reference:	Grid
Wellbore:	North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
Design:	131001 North Lea-4 Federal Com #4H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
8,100.0	6.00	350.00	8,088.8	4,421.9	214.1	-37.8	-213.5	0.00	585,843.49	776,228.83	
8,200.0	6.00	350.00	8,188.2	4,521.3	224.4	-39.6	-223.8	0.00	585,853.79	776,227.01	
8,280.1	6.00	350.00	8,267.9	4,601.0	232.7	-41.0	-232.0	0.00	585,862.03	776,225.56	
Bone Springs Lime (Geoprog)											
8,300.0	6.00	350.00	8,287.7	4,620.8	234.7	-41.4	-234.0	0.00	585,864.08	776,225.20	
8,400.0	6.00	350.00	8,387.1	4,720.2	245.0	-43.2	-244.3	0.00	585,874.37	776,223.38	
8,500.0	6.00	350.00	8,486.6	4,819.7	255.3	-45.0	-254.6	0.00	585,884.67	776,221.57	
8,600.0	6.00	350.00	8,586.0	4,919.1	265.6	-46.8	-264.8	0.00	585,894.96	776,219.75	
8,700.0	6.00	350.00	8,685.5	5,018.6	275.9	-48.6	-275.1	0.00	585,905.25	776,217.94	
8,724.5	6.00	350.00	8,709.9	5,043.0	278.4	-49.1	-277.6	0.00	585,907.78	776,217.49	
Avalon Shale (Geoprog)											
8,800.0	6.00	350.00	8,785.0	5,118.1	286.2	-50.5	-285.4	0.00	585,915.55	776,216.12	
8,900.0	6.00	350.00	8,884.4	5,217.5	296.5	-52.3	-295.6	0.00	585,925.84	776,214.30	
9,000.0	6.00	350.00	8,983.9	5,317.0	306.8	-54.1	-305.9	0.00	585,936.14	776,212.49	
9,100.0	6.00	350.00	9,083.3	5,416.4	317.1	-55.9	-316.2	0.00	585,946.43	776,210.67	
9,200.0	6.00	350.00	9,182.8	5,515.9	327.4	-57.7	-326.4	0.00	585,956.72	776,208.86	
9,300.0	6.00	350.00	9,282.2	5,615.3	337.7	-59.5	-336.7	0.00	585,967.02	776,207.04	
9,400.0	6.00	350.00	9,381.7	5,714.8	348.0	-61.4	-347.0	0.00	585,977.31	776,205.23	
9,440.5	6.00	350.00	9,421.9	5,755.0	352.1	-62.1	-351.1	0.00	585,981.47	776,204.50	
1st Bone Spring Sand											
9,500.0	6.00	350.00	9,481.1	5,814.2	358.3	-63.2	-357.2	0.00	585,987.60	776,203.41	
9,600.0	6.00	350.00	9,580.6	5,913.7	368.5	-65.0	-367.5	0.00	585,997.90	776,201.60	
9,700.0	6.00	350.00	9,680.0	6,013.1	378.8	-66.8	-377.7	0.00	586,008.19	776,199.78	
9,800.0	6.00	350.00	9,779.5	6,112.6	389.1	-68.6	-388.0	0.00	586,018.49	776,197.97	
9,900.0	6.00	350.00	9,878.9	6,212.0	399.4	-70.4	-398.3	0.00	586,028.78	776,196.15	
9,943.2	6.00	350.00	9,921.9	6,255.0	403.9	-71.2	-402.7	0.00	586,033.23	776,195.37	
2nd Bone Spring Sand											

Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea 4 Federal Com #4H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Site:	Section 4	MD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Well:	North Lea 4 Federal Com #4H	North Reference:	Grid
Wellbore:	North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
Design:	131001 North Lea 4 Federal Com #4H	Database:	EDM 5000.1 Single User Db

Planned Survey:											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
10,000.0	6.00	350.00	9,978.4	6,311.5	409.7	-72.2	-408.5	0.00	586,039.07	776,194.34	
10,100.0	6.00	350.00	10,077.8	6,410.9	420.0	-74.1	-418.8	0.00	586,049.37	776,192.52	
10,200.0	6.00	350.00	10,177.3	6,510.4	430.3	-75.9	-429.1	0.00	586,059.66	776,190.71	
10,300.0	6.00	350.00	10,276.7	6,609.8	440.6	-77.7	-439.3	0.00	586,069.95	776,188.89	
10,352.9	6.00	350.00	10,329.3	6,662.4	446.1	-78.7	-444.8	0.00	586,075.40	776,187.93	
10,375.0	3.00	339.64	10,351.4	6,684.5	447.7	-79.1	-446.4	14.00	586,077.08	776,187.53	
10,400.0	1.25	236.75	10,376.4	6,709.5	448.2	-79.5	-446.9	14.00	586,077.54	776,187.08	
10,425.0	4.31	194.00	10,401.3	6,734.4	447.1	-80.0	-445.8	14.00	586,076.48	776,186.62	
10,450.0	7.76	187.70	10,426.2	6,759.3	444.5	-80.4	-443.2	14.00	586,073.90	776,186.17	
10,475.0	11.23	185.27	10,450.8	6,783.9	440.5	-80.9	-439.1	14.00	586,069.80	776,185.72	
10,500.0	14.72	183.98	10,475.2	6,808.3	434.9	-81.3	-433.5	14.00	586,064.20	776,185.27	
10,525.0	18.21	183.18	10,499.2	6,832.3	427.8	-81.8	-426.4	14.00	586,057.13	776,184.83	
10,550.0	21.71	182.63	10,522.7	6,855.8	419.3	-82.2	-417.9	14.00	586,048.61	776,184.41	
10,575.0	25.21	182.22	10,545.6	6,878.7	409.3	-82.6	-408.0	14.00	586,038.67	776,183.99	
10,600.0	28.70	181.91	10,567.9	6,901.0	398.0	-83.0	-396.6	14.00	586,027.35	776,183.58	
10,605.7	29.51	181.85	10,572.9	6,906.0	395.2	-83.1	-393.8	14.00	586,024.55	776,183.49	
3rd Bone Spring Sand											
10,625.0	32.20	181.66	10,589.4	6,922.5	385.3	-83.4	-384.0	14.00	586,014.68	776,183.19	
10,650.0	35.70	181.46	10,610.2	6,943.3	371.4	-83.8	-370.0	14.00	586,000.73	776,182.81	
10,675.0	39.20	181.28	10,630.0	6,963.1	356.2	-84.1	-354.8	14.00	585,985.54	776,182.45	
10,700.0	42.70	181.13	10,648.9	6,982.0	339.8	-84.5	-338.4	14.00	585,969.16	776,182.10	
10,725.0	46.19	181.00	10,666.7	6,999.8	322.3	-84.8	-320.9	14.00	585,951.66	776,181.78	
10,750.0	49.69	180.89	10,683.5	7,016.6	303.8	-85.1	-302.4	14.00	585,933.10	776,181.47	
10,775.0	53.19	180.78	10,699.1	7,032.2	284.2	-85.4	-282.8	14.00	585,913.56	776,181.19	
10,800.0	56.69	180.69	10,713.4	7,046.5	263.7	-85.7	-262.4	14.00	585,893.10	776,180.92	
10,825.0	60.19	180.60	10,726.5	7,059.6	242.4	-85.9	-241.1	14.00	585,871.80	776,180.69	
10,850.0	63.69	180.52	10,738.3	7,071.4	220.4	-86.1	-219.0	14.00	585,849.75	776,180.47	

Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea 4 Federal Com #4H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Site:	Section 4	MD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Well:	North Lea 4 Federal Com #4H	North Reference:	Grid
Wellbore:	North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
Design:	131001 North Lea 4 Federal Com #4H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)	
10,875.0	67.19	180.44	10,748.6	7,081.7	197.7	-86.3	-196.3	14.00	585,827.01	776,180.28	
10,900.0	70.69	180.37	10,757.6	7,090.7	174.3	-86.5	-173.0	14.00	585,803.69	776,180.12	
10,925.0	74.19	180.30	10,765.2	7,098.3	150.5	-86.6	-149.1	14.00	585,779.86	776,179.98	
10,950.0	77.69	180.23	10,771.2	7,104.3	126.3	-86.7	-124.9	14.00	585,755.61	776,179.87	
10,975.0	81.19	180.16	10,775.8	7,108.9	101.7	-86.8	-100.3	14.00	585,731.04	776,179.79	
11,000.0	84.69	180.10	10,778.9	7,112.0	76.9	-86.9	-75.5	14.00	585,706.23	776,179.73	
11,025.0	88.19	180.03	10,780.5	7,113.6	51.9	-86.9	-50.6	14.00	585,681.29	776,179.70	
11,038.0	90.00	180.00	10,780.7	7,113.8	39.0	-86.9	-37.6	14.00	585,668.33	776,179.70	
11,100.0	89.92	179.99	10,780.7	7,113.8	-23.1	-86.9	24.4	0.13	585,606.29	776,179.71	
11,200.0	89.79	179.96	10,780.9	7,114.0	-123.1	-86.8	124.4	0.13	585,506.30	776,179.75	
11,300.0	89.67	179.94	10,781.4	7,114.5	-223.1	-86.7	224.4	0.13	585,406.30	776,179.84	
11,400.0	89.54	179.91	10,782.1	7,115.2	-323.1	-86.6	324.4	0.13	585,306.30	776,179.97	
11,500.0	89.41	179.89	10,783.0	7,116.1	-423.1	-86.4	424.4	0.13	585,206.31	776,180.14	
11,600.0	89.29	179.87	10,784.2	7,117.3	-523.1	-86.2	524.3	0.13	585,106.32	776,180.36	
11,700.0	89.16	179.84	10,785.5	7,118.6	-623.0	-86.0	624.3	0.13	585,006.33	776,180.61	
11,800.0	89.03	179.82	10,787.1	7,120.2	-723.0	-85.7	724.3	0.13	584,906.35	776,180.91	
11,900.0	88.90	179.79	10,788.9	7,122.0	-823.0	-85.3	824.3	0.13	584,806.37	776,181.25	
12,000.0	88.78	179.77	10,790.9	7,124.0	-923.0	-85.0	924.2	0.13	584,706.39	776,181.63	
12,100.0	88.65	179.75	10,793.2	7,126.3	-1,023.0	-84.5	1,024.2	0.13	584,606.42	776,182.06	
12,200.0	88.52	179.72	10,795.6	7,128.7	-1,122.9	-84.1	1,124.1	0.13	584,506.46	776,182.52	
12,293.1	88.40	179.70	10,798.1	7,131.2	-1,216.0	-83.6	1,217.1	0.13	584,413.41	776,182.99	
12,300.0	88.40	179.70	10,798.3	7,131.4	-1,222.9	-83.6	1,224.1	0.00	584,406.50	776,183.03	
12,400.0	88.40	179.70	10,801.1	7,134.2	-1,322.9	-83.0	1,324.0	0.00	584,306.54	776,183.56	
12,500.0	88.40	179.70	10,803.9	7,137.0	-1,422.8	-82.5	1,423.9	0.00	584,206.58	776,184.08	
12,600.0	88.40	179.70	10,806.7	7,139.8	-1,522.8	-82.0	1,523.9	0.00	584,106.63	776,184.61	
12,700.0	88.40	179.70	10,809.5	7,142.6	-1,622.7	-81.5	1,623.8	0.00	584,006.67	776,185.13	
12,800.0	88.40	179.70	10,812.3	7,145.4	-1,722.7	-80.9	1,723.8	0.00	583,906.71	776,185.66	



MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea 4 Federal Com #4H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Site:	Section 4	MD Reference:	WELL (copy) @ 3666.9usft (Original Well Elev)
Well:	North Lea 4 Federal Com #4H	North Reference:	Grid
Wellbore:	North Lea 4 Federal Com #4H	Survey Calculation Method:	Minimum Curvature
Design:	131001 North Lea 4 Federal Com #4H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%/100usft)	Northing (usft)	Easting (usft)	
12,900.0	88.40	179.70	10,815.0	7,148.1	-1,822.7	-80.4	1,823.7	0.00	583,806.75	776,186.18	
13,000.0	88.40	179.70	10,817.8	7,150.9	-1,922.6	-79.9	1,923.6	0.00	583,706.80	776,186.71	
13,100.0	88.40	179.70	10,820.6	7,153.7	-2,022.6	-79.4	2,023.6	0.00	583,606.84	776,187.23	
13,200.0	88.40	179.70	10,823.4	7,156.5	-2,122.5	-78.8	2,123.5	0.00	583,506.88	776,187.76	
13,300.0	88.40	179.70	10,826.2	7,159.3	-2,222.5	-78.3	2,223.5	0.00	583,406.93	776,188.28	
13,400.0	88.40	179.70	10,829.0	7,162.1	-2,322.5	-77.8	2,323.4	0.00	583,306.97	776,188.81	
13,500.0	88.40	179.70	10,831.8	7,164.9	-2,422.4	-77.2	2,423.3	0.00	583,207.01	776,189.34	
13,600.0	88.40	179.70	10,834.5	7,167.6	-2,522.4	-76.7	2,523.3	0.00	583,107.05	776,189.86	
13,700.0	88.40	179.70	10,837.3	7,170.4	-2,622.3	-76.2	2,623.2	0.00	583,007.10	776,190.39	
13,800.0	88.40	179.70	10,840.1	7,173.2	-2,722.3	-75.7	2,723.1	0.00	582,907.14	776,190.91	
13,900.0	88.40	179.70	10,842.9	7,176.0	-2,822.3	-75.1	2,823.1	0.00	582,807.18	776,191.44	
14,000.0	88.40	179.70	10,845.7	7,178.8	-2,922.2	-74.6	2,923.0	0.00	582,707.23	776,191.96	
14,100.0	88.40	179.70	10,848.5	7,181.6	-3,022.2	-74.1	3,023.0	0.00	582,607.27	776,192.49	
14,200.0	88.40	179.70	10,851.3	7,184.4	-3,122.1	-73.6	3,122.9	0.00	582,507.31	776,193.01	
14,300.0	88.40	179.70	10,854.0	7,187.1	-3,222.1	-73.0	3,222.8	0.00	582,407.36	776,193.54	
14,400.0	88.40	179.70	10,856.8	7,189.9	-3,322.1	-72.5	3,322.8	0.00	582,307.40	776,194.06	
14,500.0	88.40	179.70	10,859.6	7,192.7	-3,422.0	-72.0	3,422.7	0.00	582,207.44	776,194.59	
14,600.0	88.40	179.70	10,862.4	7,195.5	-3,522.0	-71.5	3,522.7	0.00	582,107.48	776,195.12	
14,700.0	88.40	179.70	10,865.2	7,198.3	-3,621.9	-70.9	3,622.6	0.00	582,007.53	776,195.64	
14,800.0	88.40	179.70	10,868.0	7,201.1	-3,721.9	-70.4	3,722.5	0.00	581,907.57	776,196.17	
14,900.0	88.40	179.70	10,870.8	7,203.9	-3,821.9	-69.9	3,822.5	0.00	581,807.61	776,196.69	
15,000.0	88.40	179.70	10,873.5	7,206.6	-3,921.8	-69.4	3,922.4	0.00	581,707.66	776,197.22	
15,100.0	88.40	179.70	10,876.3	7,209.4	-4,021.8	-68.8	4,022.4	0.00	581,607.70	776,197.74	
15,200.0	88.40	179.70	10,879.1	7,212.2	-4,121.7	-68.3	4,122.3	0.00	581,507.74	776,198.27	
15,300.0	88.40	179.70	10,881.9	7,215.0	-4,221.7	-67.8	4,222.2	0.00	581,407.79	776,198.79	
15,368.6	88.40	179.70	10,883.8	7,216.9	-4,290.3	-67.4	4,290.8	0.00	581,339.19	776,199.15	
15,371.6	88.40	179.70	10,883.9	7,217.0	-4,293.3	-67.4	4,293.8	0.13	581,336.23	776,199.17	

Company	Read and Stevens Inc.	Local Co-ordinate Reference	Well North Lea 4 Federal Com #4H
Project	North Lea Prospect T20S-R34E	TVD Reference	WELL (copy) @ 3666.9usft (Original Well Elev)
Site	Section 4	MD Reference	WELL (copy) @ 3666.9usft (Original Well Elev)
Well	North Lea 4 Federal Com #4H	North Reference	Grid
Wellbore	North Lea 4 Federal Com #4H	Survey Calculation Method	Minimum Curvature
Design	131001 North Lea 4 Federal Com #4H	Database	EDM 5000.1 Single User Db

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
5,799.9	5,799.9	9 5/8"	9-5/8	12-1/4	
15,371.6	10,883.9	5 1/2"	5-1/2	6	
1,544.9	1,544.9	13 3/8"	13-3/8	17-1/2	

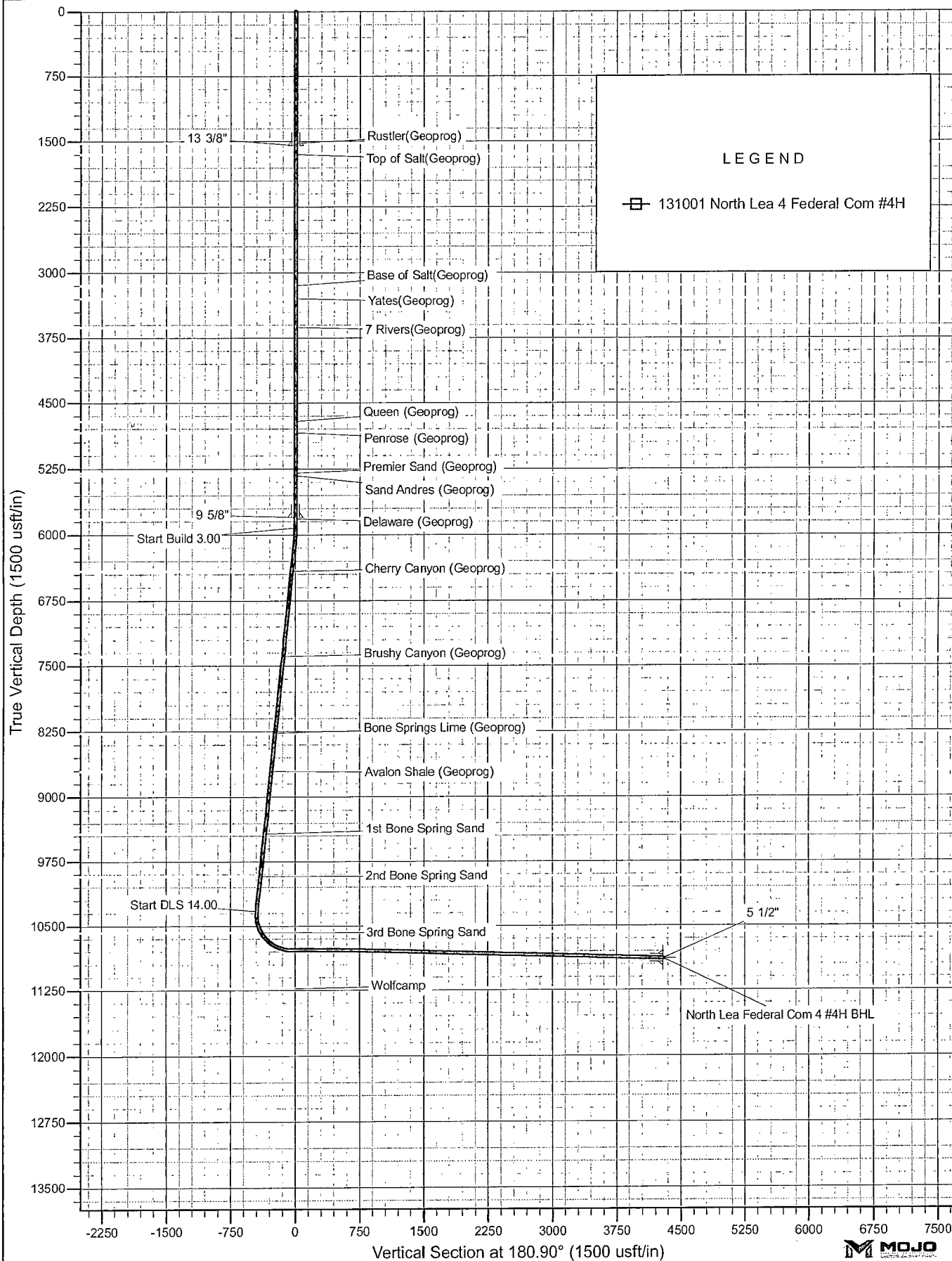
Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,397.3	7,389.9	Brushy Canyon (Geoprog)		0.00	
5,819.9	5,819.9	Delaware (Geoprog)		0.00	
3,629.9	3,629.9	7 Rivers (Geoprog)		0.00	
5,295.9	5,295.9	Premier Sand (Geoprog)		0.00	
8,280.1	8,267.9	Bone Springs Lime (Geoprog)		0.00	
3,149.9	3,149.9	Base of Salt (Geoprog)		0.00	
8,724.5	8,709.9	Avalon Shale (Geoprog)		0.00	
4,839.9	4,839.9	Penrose (Geoprog)		0.00	
5,326.9	5,326.9	Sand Andres (Geoprog)		0.00	
1,647.9	1,647.9	Top of Salt (Geoprog)		0.00	
9,440.5	9,421.9	1st Bone Spring Sand		0.00	
4,709.9	4,709.9	Queen (Geoprog)		0.00	
9,943.2	9,921.9	2nd Bone Spring Sand		0.00	
1,519.9	1,519.9	Rustler (Geoprog)		0.00	
10,605.7	10,572.9	3rd Bone Spring Sand		0.00	
6,415.9	6,413.9	Cherry Canyon (Geoprog)		0.00	
3,296.9	3,296.9	Yates (Geoprog)		0.00	

Checked By: _____	Approved By: _____	Date: _____
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Project: North Lea Prospect T20S-R34E
 Site: Section 4
 Well: North Lea 4 Federal Com #4H
 Wellbore: North Lea 4 Federal Com #4H
 Design: 131001 North Lea4 Fed Com 4H



Azimuths to Grid North
 True North: -0.41°
 Magnetic North: 7.01°
 Magnetic Field
 Strength: 48692.1nT
 Dip Angle: 60.50°
 Date: 26/12/2012
 Model: IGRF2010

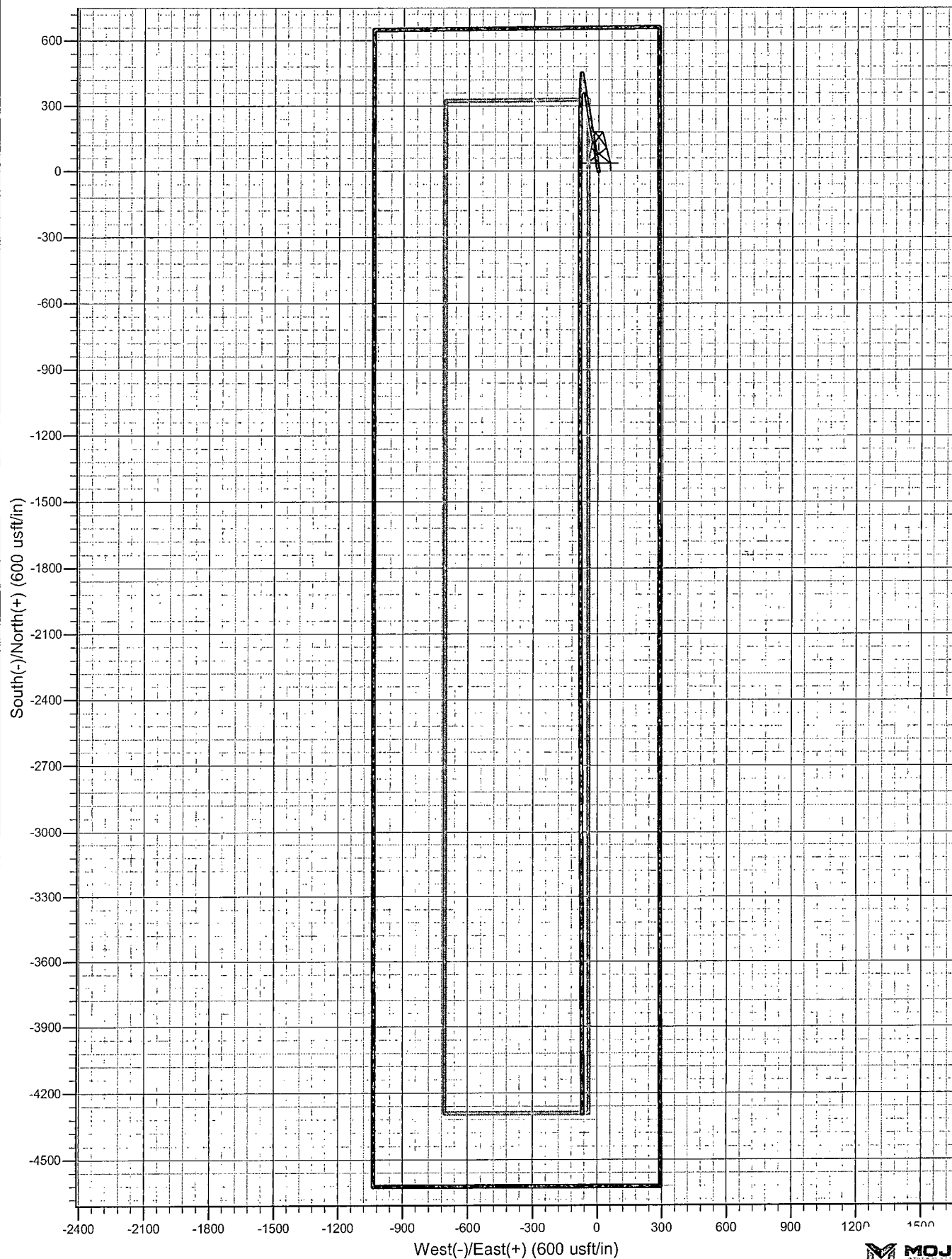


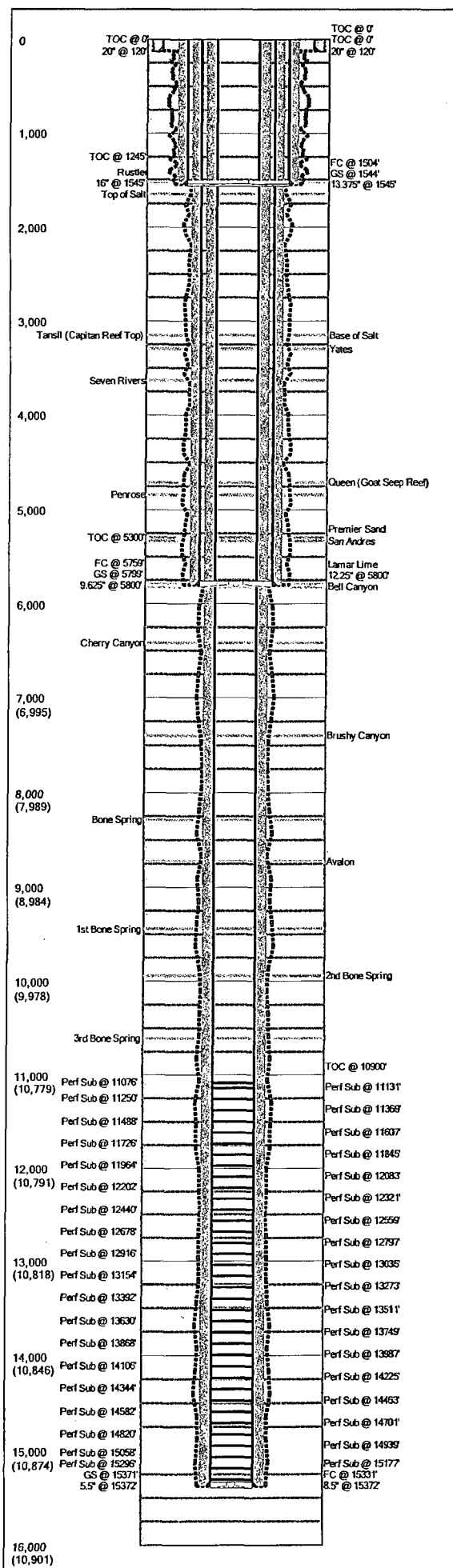
Project: North Lea Prospect T20S-R34E
Site: Section 4
Well: North Lea 4 Federal Com #4H
Wellbore: North Lea 4 Federal Com #4H
Design:131001 North Lea 4 Fed Com 4H



Azimuths to Grid North
True North: -0.41°
Magnetic North: 7.01°

Magnetic Field
Strength: 48692.1snT
Dip Angle: 60.50°
Date: 28/12/2012
Model: IGRF2010





Last Updated: 2/6/2014 02:04 PM

Field Name		Lease Name		Well No.	
North Lea		North Lea 4 Fed		4H	
County, State				API No.	
Lea, New Mexico				1111111122222	
Version	Version Tag				
1	Planning				
G.L. (ft)	K.B. (ft)	Sec.	Township/Block		Range/Survey
3,644.9	3,666.9	4	20 S		34 E
Operator		Well Status		Latitude	Longitude
Read and Stevens		Planning		32.60763	103.570404
Footage Call					
660' FNL & 1040' FWL From Section					
PropNum			Spud Date		Comp. Date
Additional Information					
Prepared By		Updated By		Last Updated	
Steve Morris		Steve Morris		2/6/2014 2:04 PM	

Hole Summary

Date	O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	20.000	0	120	
	16.000	120	1,545	Surface
	12.250	1,545	5,800	Intermediate
	8.500	5,800	15,372	Production

Tubular Summary

Date	Description	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)
	Conductor Casing	20.000	54.50	J-55	0	120
	Surface Casing	13.375	54.50	J-55	0	1,545
	Intermediate Casing	9.625	40.00	L-80	0	5,800
	Production Casing	5.500	8.50	P-110	0	15,372

Casing Cement Summary

Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	556	13.375	0	1,245	120' Lead casing in conductor with no excess 126.7cuft 22.6bbls 66sx
					1125' Lead casing in open hole with 100% excess 946.3cuft 168.5bbls 490sx
	166	13.375	1,245	1,545	300' Tail casing in open hole with 100% excess 187.9cuft 33.5bbls 139sx
					40' Tail in shoe track with no excess 34.7cuft 6.2bbls 27sx
	1,414	9.625	0	5,300	1545' Lead casing in casing with no excess 560.4cuft 99.8bbls 263sx
					3755' Lead casing in open hole with 80% excess 2451.4cuft 436.6bbls 1151sx
	222	9.625	5,300	5,800	500' Tail casing in open hole with 80% excess 281.9cuft 50.2bbls 209sx
					40' Tail shoe track with no excess 17cuft 3bbls 13sx
	1,519	5.500	0	10,900	5800' Lead casing in casing with no excess 1512.3cuft 269.4bbls 635sx
					5100' Lead casing in open hole with 80% excess 2102.9cuft 374.5bbls 884sx
	766	5.500	10,900	15,372	4472' Tail casing in open hole with 20% excess 1229.3cuft 218.9bbls 759sx
					80' Tail shoe track with no excess 10.4cuft 1.9bbls 7sx

Tools/Problems Summary

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)
	FC	13.375	0.000	1,504	0
	GS	13.375	0.000	1,544	0
	FC	9.625	0.000	5,759	0
	GS	9.625	0.000	5,799	0
	Perf Sub	5.500	0.000	11,076	11,091

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Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)
	Perf Sub	5.500	0.000	11,131	11,146
	Perf Sub	5.500	0.000	11,250	11,265
	Perf Sub	5.500	0.000	11,369	11,384
	Perf Sub	5.500	0.000	11,488	11,503
	Perf Sub	5.500	0.000	11,607	11,622
	Perf Sub	5.500	0.000	11,726	11,741
	Perf Sub	5.500	0.000	11,845	11,860
	Perf Sub	5.500	0.000	11,964	11,979
	Perf Sub	5.500	0.000	12,083	12,098
	Perf Sub	5.500	0.000	12,202	12,217
	Perf Sub	5.500	0.000	12,321	12,336
	Perf Sub	5.500	0.000	12,440	12,455
	Perf Sub	5.500	0.000	12,559	12,574
	Perf Sub	5.500	0.000	12,678	12,693
	Perf Sub	5.500	0.000	12,797	12,812
	Perf Sub	5.500	0.000	12,916	12,931
	Perf Sub	5.500	0.000	13,035	13,050
	Perf Sub	5.500	0.000	13,154	13,169
	Perf Sub	5.500	0.000	13,273	13,288
	Perf Sub	5.500	0.000	13,392	13,407
	Perf Sub	5.500	0.000	13,511	13,526
	Perf Sub	5.500	0.000	13,630	13,645
	Perf Sub	5.500	0.000	13,749	13,764
	Perf Sub	5.500	0.000	13,868	13,883
	Perf Sub	5.500	0.000	13,987	14,002
	Perf Sub	5.500	0.000	14,106	14,121
	Perf Sub	5.500	0.000	14,225	14,240
	Perf Sub	5.500	0.000	14,344	14,359
	Perf Sub	5.500	0.000	14,463	14,478
	Perf Sub	5.500	0.000	14,582	14,597
	Perf Sub	5.500	0.000	14,701	14,716
	Perf Sub	5.500	0.000	14,820	14,835
	Perf Sub	5.500	0.000	14,939	14,954
	Perf Sub	5.500	0.000	15,058	15,073
	Perf Sub	5.500	0.000	15,177	15,192
	Perf Sub	5.500	0.000	15,296	15,311
	FC	5.500	0.000	15,331	0
	GS	5.500	0.000	15,371	0

Formation Tops Summary

Formation	Top (MD ft)	Comments
Rustler	1,520	Interbedded Anhydrite, Gypsum and Halite beds.
Top of Salt	1,648	Interbedded Halite with stringers of other evaporite minerals
Base of Salt	3,150	Salt Base
Tansil (Capitan Reef Top)	3,150	Chiefly consisting of Evaporites, breaks of dolomite, silt and fine sand to shale, transitions to chiefly dolomite higher in the section
Yates	3,297	Interbedded red and grey sandstones, shale and anhydrite, as well as some dolomite facies
Seven Rivers	3,630	Contains mostly gypsum and red sandstones, however shelfward the seven rivers contains halite as well
Queen (Goat Seep Reef)	4,710	Interbedded Sandstones & Carbonate beds with varying depositional system
Penrose	4,840	Interbedded Sandstones & Carbonate beds with varying depositional system
Premier Sand	5,296	
San Andres	5,327	Carbonate beds with depositional systems ranging from Tidal to potentially deep Marine
Lamar Lime	5,790	Limestone
Bell Canyon	5,820	Interbedded Carbonate and Sandstone layers
Cherry Canyon	6,414	Interbedded Sandstone layers with several limestone beds
Brushy Canyon	7,390	Interbedded Carbonate and Sandstone layers
Bone Spring	8,268	Marker bed for the top of the Leonardian age rocks
Avalon	8,710	Interbedded Organic-rich Siltstones with interbedded carbonate, and quartz-rich silts, Deposition setting often described as benthic or "deep-water"

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Formation	Top (MD ft)	Comments
1st Bone Spring	9,422	Interbedded Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).
2nd Bone Spring	9,922	Interbedded Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).
3rd Bone Spring	10,573	Interbedded Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).

Last Updated: 2/6/2014 02:04 PM

Field Name		Lease Name		Well No.	County, State		API No.		
North Lea		North Lea 4 Fed		4H	Lea, New Mexico		1111111122222		
Version	Version Tag				Spud Date	Comp. Date	G.L. (ft)	K.B. (ft)	
1		Planning						3,644.9	3,666.9
Sec.	Township/Block		Range/Survey		Footage Call				
4	20 S		34 E		660' FNL & 1040' FWL From Section				
Operator			Well Status		Latitude		Longitude		PropNum
Read and Stevens			Planning		32.60763		103.570404		
Last Updated		Prepared By			Updated By				
02/06/2014 2:04 PM		Steve Morris			Steve Morris				
Additional Information									

Hole Summary

Date	O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
20.000		0	120	
16.000		120	1,545	Surface
12.250		1,545	5,800	Intermediate
8.500		5,800	15,372	Production

Tubular Summary

Date	Description	No. Jts	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)	Comments
	Conductor Casing		20.000	54.50	J-55	0	120	
	Surface Casing		13.375	54.50	J-55	0	1,545	Burst 2730psi SF 3.54 Collapse 1130psi SF 3.08 Tensile 514klbs SF 5.66 ID 12.615" Drift 12.459"
	Intermediate Casing		9.625	40.00	L-80	0	5,800	Burst 5750psi SF 2.03 Collapse 300psi SF 1.28 Tensile 727klbs SF 3.33 ID 8.835" Drift 8.679"
	Production Casing		5.500	8.50	P-110	0	15,372	Burst 10640psi SF 1.29 Collapse 7480psi SF 1.55 Tensile 568klbs SF 3.06 ID 4.892" Drift 4.767"

Casing Cement Summary

Date	No. Sx	Yield (cuft/sk)	Vol. (cuft)	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Description	Comments
	556	1.93	1,073	13.375	0	1,245	Lead 13.5ppg 9.71gpsClassC+4% bwocBentonite II+ 2% bwocCalciumChloride +0.25 lbs/sackCelloFlake + 0.005% bwocStaticFree +0.005gpsFP-6L	120' Lead casing in conductor with no excess 126.7cuft 22.6bbls 66sx
	166	1.93	320	13.375	1,245	1,545	Tail 14.8ppg6.35gpsClassC+1.5% bwocCalciumChloride+0.005lbs /sackStaticFree+0.005 gpsFP-6L	300' Tail casing in open hole with 100% excess 187.9cuft 33.5bbls 139sx
	1,414	2.13	3,012	9.625	0	5,300	Lead12.6ppg2.13gpsClassC(3 5:65)+ Poz(Fly Ash)+4%bwocBentonite II+ 5% bwoc MPA-5+ 0.25%bwoc FL-52 +5lbs/sack LCM-1 + 0.125lbs/sack Cello Flake+ 0.005lbs/sack Static Free +0.005gpsFP-6L + 1.2% bwocSodiumMetasilicate +5%bwowSodium	1125' Lead casing in open hole with 100% excess 946.3cuft 168.5bbls 490sx
	222	1.35	300	9.625	5,300	5,800	Tail 14.8ppg 6.35gps Class C	500' Tail casing in open hole with 80% excess 281.9cuft 50.2bbls 209sx
	1,519	2.38	3,615	5.500	0	10,900	Lead11.9ppg 13.22gpsClassH(50:50)+ Poz(Fly Ash)+10%bwocBentoniteII + 5% bwow SodiumChloride+ 5 lbs/sack LCM-1 +0.005lbs/sack	40' Tail in shoe track with no excess 17cuft 3bbls 13sx
	766	1.62	1,241	5.500	10,900	15,372	Tail13.2ppg 9.45gpsClassH(15:61:11) Poz(FlyAsh):Class HCement:CSE-2 + 4% bwowSodiumChloride+ 3 lbs/sackLCM-1 +0.6% bwoc FL -25+0.005 gpsFP-6L+0.005%b	5800' Lead casing in casing with no excess 1512.3cuft 269.4bbls 635sx
								5100' Lead casing in open hole with 80% excess 2102.9cuft 374.5bbls 884sx
								4472' Tail casing in open hole with 20% excess 1229.3cuft 218.9bbls 759sx
								80' Tail shoe track with no excess 10.4cuft 1.9bbls 7sx

Tools/Problems Summary

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)	Description	Comments
	Float Collar	13.375	0.000	1,504	0		
	Guide Shoe	13.375	0.000	1,544	0		
	Float Collar	9.625	0.000	5,759	0		
	Guide Shoe	9.625	0.000	5,799	0		
	Perforated Sub	5.500	0.000	11,076	11,091	Opti-Port	
	Perforated Sub	5.500	0.000	11,131	11,146	Opti-Port	Stage 37
	Perforated Sub	5.500	0.000	11,250	11,265	Opti-Port	Stage 36
	Perforated Sub	5.500	0.000	11,369	11,384	Opti-Port	Stage 35
	Perforated Sub	5.500	0.000	11,488	11,503	Opti-Port	Stage 34
	Perforated Sub	5.500	0.000	11,607	11,622	Opti-Port	Stage 32

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)	Description	Comments
	Perforated Sub	5.500	0.000	11,726	11,741	Opti-Port	Stage 31
	Perforated Sub	5.500	0.000	11,845	11,860	Opti-Port	Stage 30
	Perforated Sub	5.500	0.000	11,964	11,979	Opti-Port	Stage 29
	Perforated Sub	5.500	0.000	12,083	12,098	Opti-Port	Stage 28
	Perforated Sub	5.500	0.000	12,202	12,217	Opti-Port	Stage 27
	Perforated Sub	5.500	0.000	12,321	12,336	Opti-Port	Stage 26
	Perforated Sub	5.500	0.000	12,440	12,455	Opti-Port	Stage 25
	Perforated Sub	5.500	0.000	12,559	12,574	Opti-Port	Stage 24
	Perforated Sub	5.500	0.000	12,678	12,693	Opti-Port	Stage 23
	Perforated Sub	5.500	0.000	12,797	12,812	Opti-Port	Stage 22
	Perforated Sub	5.500	0.000	12,916	12,931	Opti-Port	Stage 21
	Perforated Sub	5.500	0.000	13,035	13,050	Opti-Port	Stage 20
	Perforated Sub	5.500	0.000	13,154	13,169	Opti-Port	Stage 19
	Perforated Sub	5.500	0.000	13,273	13,288	Opti-Port	Stage 18
	Perforated Sub	5.500	0.000	13,392	13,407	Opti-Port	Stage 17
	Perforated Sub	5.500	0.000	13,511	13,526	Opti-Port	Stage 16
	Perforated Sub	5.500	0.000	13,630	13,645	Opti-Port	Stage 15
	Perforated Sub	5.500	0.000	13,749	13,764	Opti-Port	Stage 14
	Perforated Sub	5.500	0.000	13,868	13,883	Opti-Port	Stage 13
	Perforated Sub	5.500	0.000	13,987	14,002	Opti-Port	Stage 12
	Perforated Sub	5.500	0.000	14,106	14,121	Opti-Port	Stage 11
	Perforated Sub	5.500	0.000	14,225	14,240	Opti-Port	Stage 10
	Perforated Sub	5.500	0.000	14,344	14,359	Opti-Port	Stage 9
	Perforated Sub	5.500	0.000	14,463	14,478	Opti-Port	Stage 8
	Perforated Sub	5.500	0.000	14,582	14,597	Opti-Port	Stage 7
	Perforated Sub	5.500	0.000	14,701	14,716	Opti-Port	Stage 6
	Perforated Sub	5.500	0.000	14,820	14,835	Opti-Port	Stage 5
	Perforated Sub	5.500	0.000	14,939	14,954	Opti-Port	Stage 4
	Perforated Sub	5.500	0.000	15,058	15,073	Opti-Port	Stage 3
	Perforated Sub	5.500	0.000	15,177	15,192	Opti-Port	Stage 2
	Perforated Sub	5.500	0.000	15,296	15,311	Opti-Port	Stage 1
	Float Collar	5.500	0.000	15,331	0		
	Guide Shoe	5.500	0.000	15,371	0		

Formation Top Summary

Formation Name	Top (MD ft)	Comments
Rustler	1,520	Interbedded Anhydrite, Gypsum and Halite beds.
Top of Salt	1,648	Interbedded Halite with stringers of other evaporite minerals
Base of Salt	3,150	Salt Base
Tansil (Capitan Reef Top)	3,150	Chiefly consisting of Evaporites, breaks of dolomite, silt and fine sand to shale, transitions to chiefly dolomite higher in the section
Yates	3,297	Interbedded red and grey sandstones, shale and anhydrite, as well as some dolomite facies
Seven Rivers	3,630	Contains mostly gypsum and red sandstones, however shelfward the seven rivers contains halite as well.
Queen (Goat Seep Reef)	4,710	Interbedded Sandstones & Carbonate beds with varying depositional system
Penrose	4,840	Interbedded Sandstones & Carbonate beds with varying depositional system
Premier Sand	5,296	
San Andres	5,327	Carbonate beds with depositional systems ranging from Tidal to potentially deep Marine
Lamar Lime	5,790	Limestone
Bell Canyon	5,820	Interbedded Carbonate and Sandstone layers
Cherry Canyon	6,414	Interbedded Sandstone layers with several limestone beds
Brushy Canyon	7,390	Interbedded Carbonate and Sandstone layers
Bone Spring	8,268	Marker bed for the top of the Leonardian age rocks
Avalon	8,710	Interbedded Organic-rich Siltstones with interbedded carbonate, and quartz-rich silts, Deposition setting often described as benthic or "deep-water"
1st Bone Spring	9,422	Interbedded Argillaceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).
2nd Bone Spring	9,922	Interbedded Argillaceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).
3rd Bone Spring	10,573	Interbedded Argillaceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).



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

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



New Mexico Office of the State Engineer
Active & Inactive Points of Diversion
(with Ownership Information)

No PODs found.

POD Search:

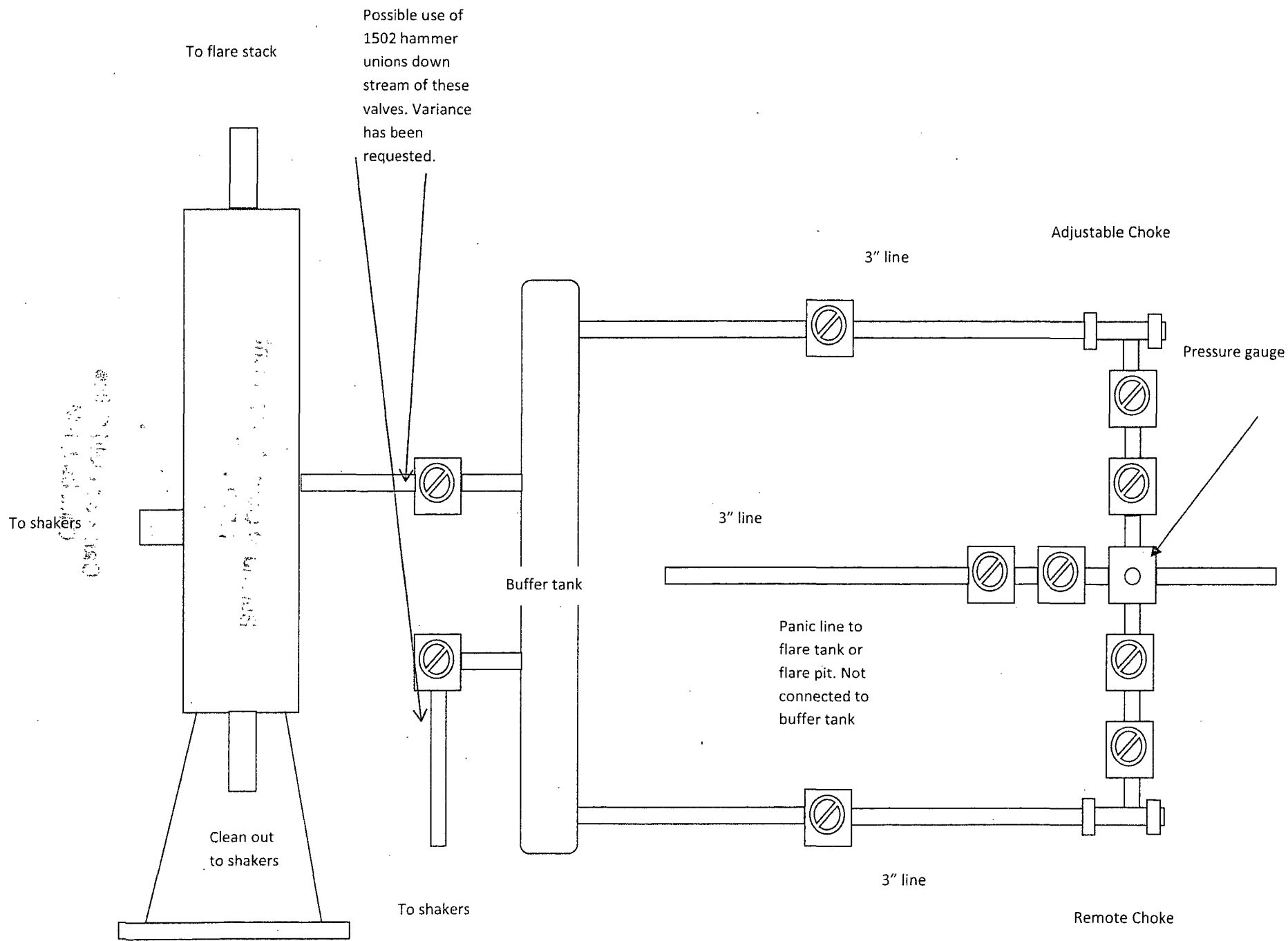
POD Basin: Lea County

PLSS Search:

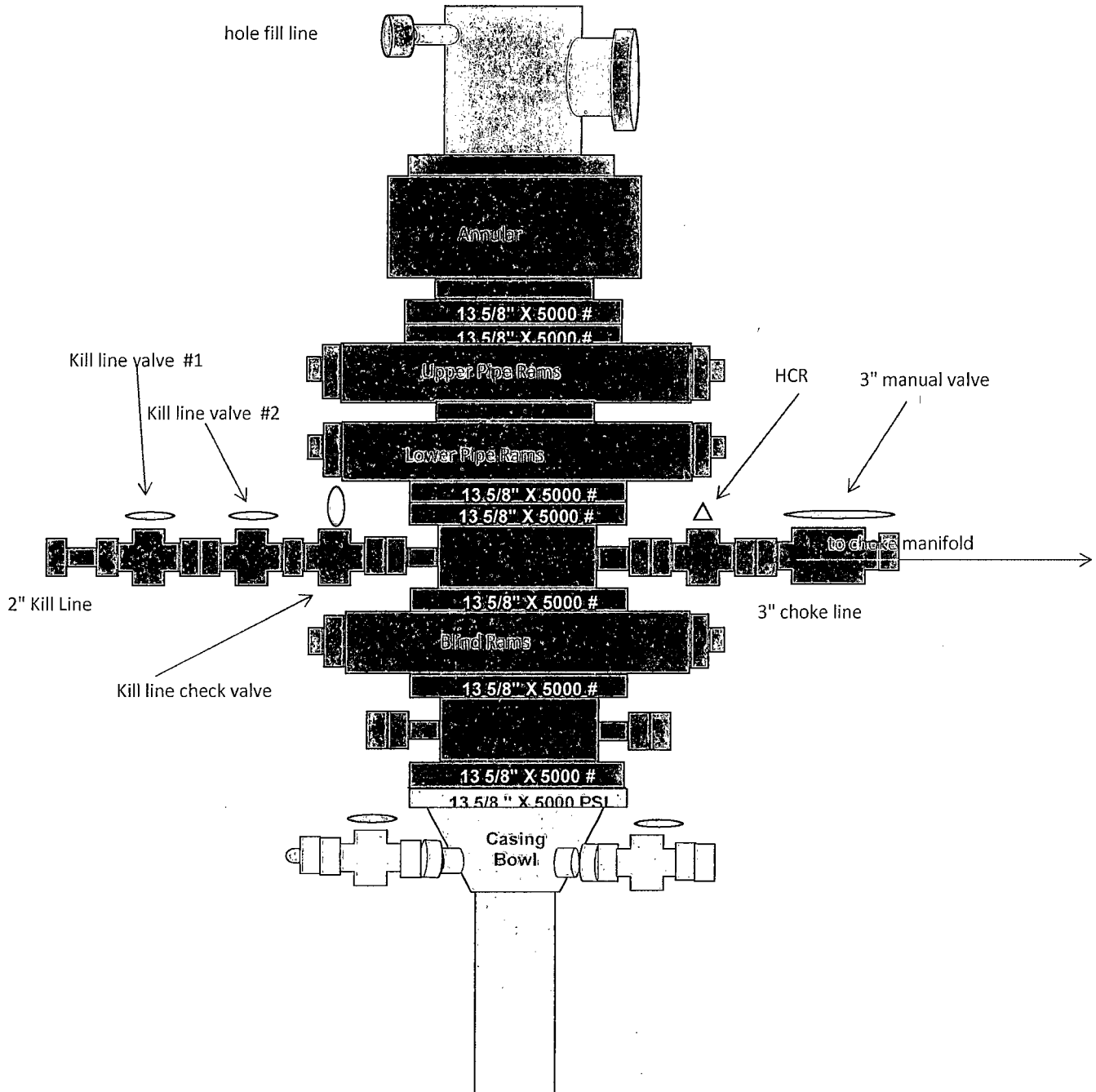
Section(s): 4

Township: 20S

Range: 34E



13-5/8" 5M BOP stack



District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144 CLEZ
Revised August 1, 2011

For closed-loop systems that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, submit to the appropriate NMOC District Office.

Closed-Loop System Permit or Closure Plan Application

(that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

Type of action: ☒ Permit ☐ Closure

Instructions: Please submit one application (Form C-144 CLEZ) per individual closed-loop system request. For any application request other than for a closed-loop system that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, please submit a Form C-144.

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Read and Stevens, Inc OGRID #: 18917
Address: 400 N Pennsylvania Ave #1000, Roswell, NM 88201
Facility or well name: North Lea 4 Fed Com #4H
API Number: _____ OCD Permit Number: _____
U/L or Qtr/Qtr D Section 4 Township 20S Range 34E County: Lea
Center of Proposed Design: Latitude _____ Longitude _____ NAD: ☐ 1927 ☐ 1983
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2.
☒ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Operation: ☒ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent) ☐ P&A
☐ Above Ground Steel Tanks or ☐ Haul-off Bins

3.
Signs: Subsection C of 19.15.17.11 NMAC
☒ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
☐ Signed in compliance with 19.15.16.8 NMAC

4.
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.
☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☒ Closure Plan (Please complete Box 5) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
☐ Previously Approved Design (attach copy of design) API Number: _____
☐ Previously Approved Operating and Maintenance Plan API Number: _____

5.
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)
Instructions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.
Disposal Facility Name: Controlled Recovery, Inc Disposal Facility Permit Number: NM-01-0006
Disposal Facility Name: _____ Disposal Facility Permit Number: _____
Will any of the proposed closed-loop system operations and associated activities occur on or in areas that will not be used for future service and operations?
☐ Yes (If yes, please provide the information below) ☐ No
Required for impacted areas which will not be used for future service and operations:
☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

6.
Operator Application Certification:
I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.
Name (Print): Tim Collier Title: Sr. VP Drilling and Exploration
Signature: Tim Collier by RA, President Date: 09/25/2013
e-mail address: tcollier@read-stevens.com Telephone: 575-622-3770 ext 316

7.
OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan (only)
 OCD Representative Signature: _____ Approval Date: _____
 Title: _____ OCD Permit Number: _____

8.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC
Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.
☐ Closure Completion Date: _____

9.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:
Instructions: Please identify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.
 Disposal Facility Name: _____ Disposal Facility Permit Number: _____
 Disposal Facility Name: _____ Disposal Facility Permit Number: _____
 Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?
☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No
Required for impacted areas which will not be used for future service and operations:
☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

10.
Operator Closure Certification:
 I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.
 Name (Print): _____ Title: _____
 Signature: _____ Date: _____
 e-mail address: _____ Telephone: _____

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

North Lea 4 Fed Com #4H

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

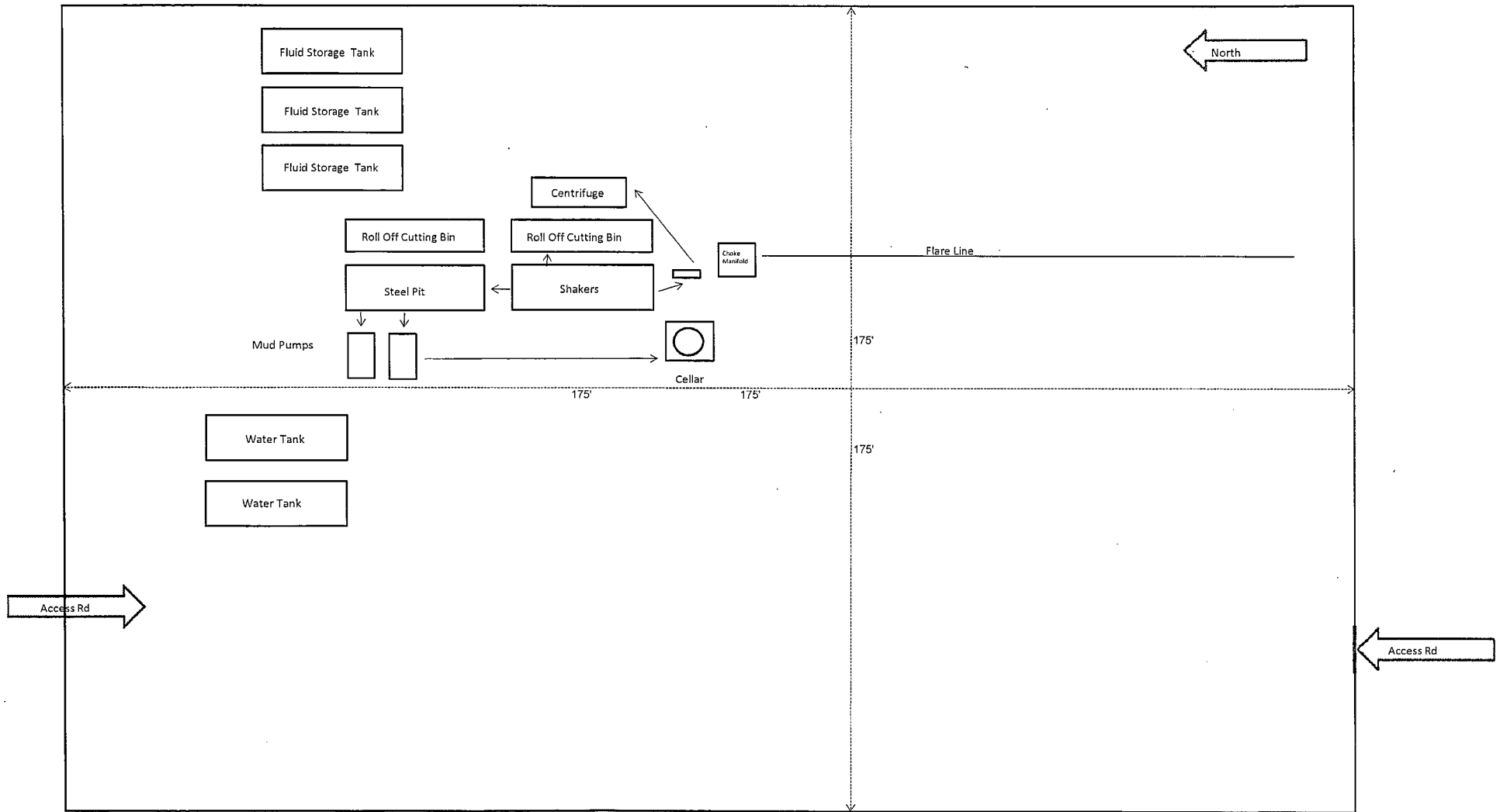
Operating and Maintenance Plan:

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.

Closure Plan:

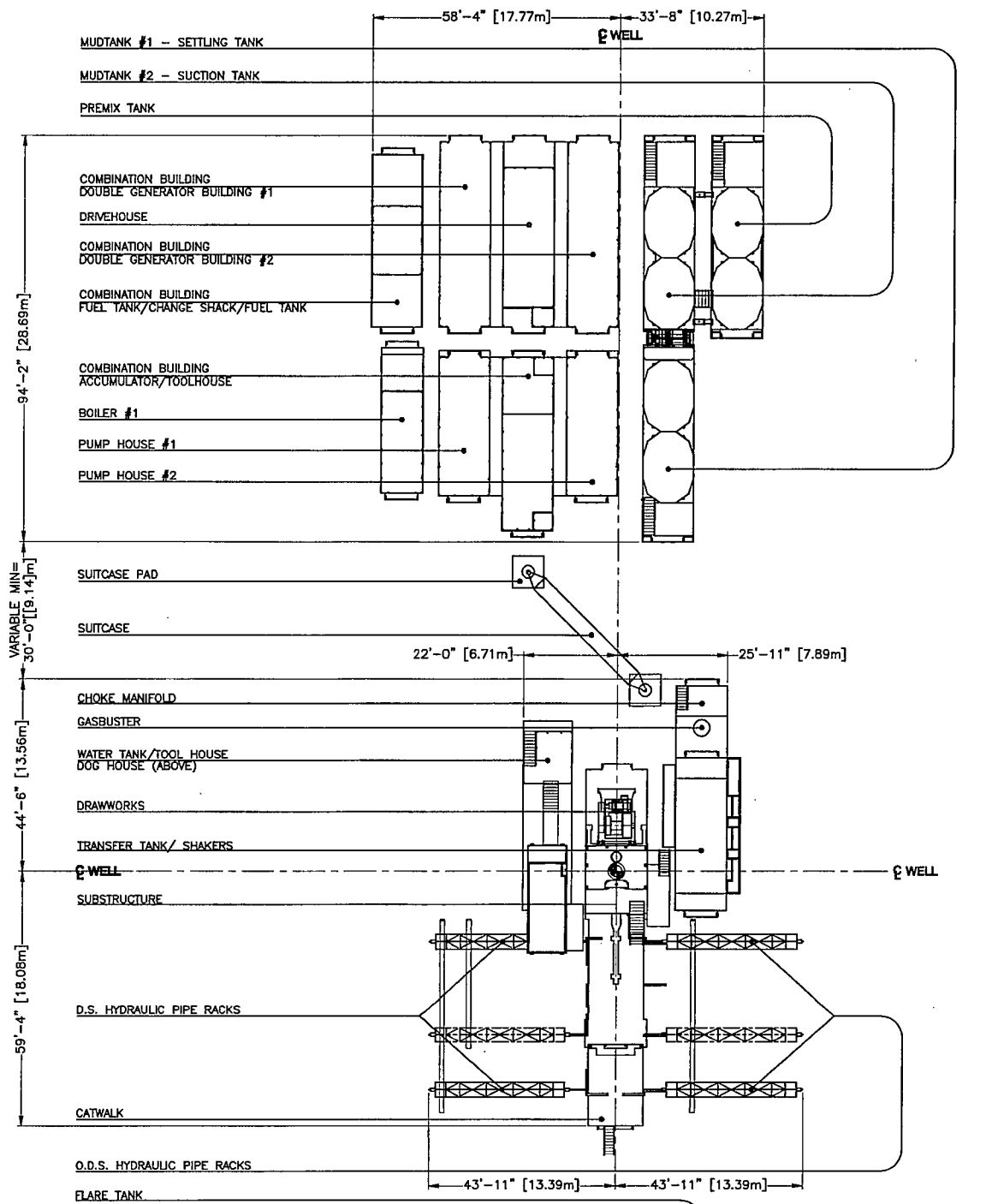
All haul off bins containing cuttings will be removed from location and hauled to Controlled Recovery, Inc. (NM-01-0006) disposal site located near mile marker 66 on Highway 62/180.

Closed Loop Diagram



RIG LAYOUT

RIG 827SSE



MINIMUM LOCATION SIZE

FROM HOLE CENTER

TO CROWN END	180'-6" (55m)
TO BACK OF RIG	178'-0" (54m)
TO DOG HOUSE SIDE	98'-6" (30m)
TO SUMP SIDE	65'-6" (20m)

WELL

11 O'CLOCK
164'-0" (50m)
FROM
WELL CENTER

DATE: FEBRUARY 5, 2009

DWG NO.: 851-825-J2
APPROVED BY ENGINEERING

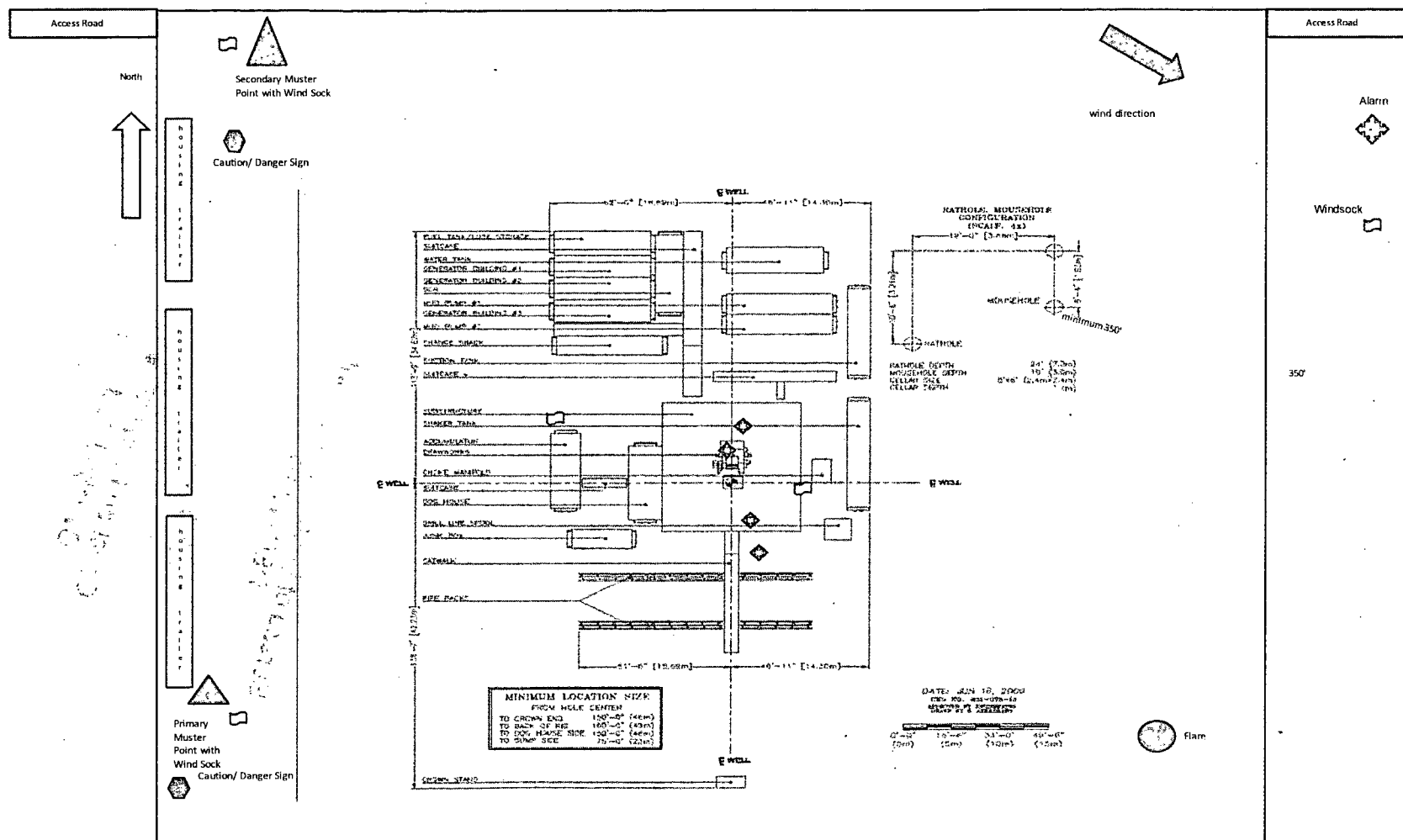
0'-0" (0m) 16'-6" (5m) 33'-0" (10m) 49'-6" (15m)



PRECISION DRILLING

CALGARY, ALBERTA, CANADA

350



HOBBS OCD

NOV 17 2014

RECEIVED

Read and Stevens, Inc.

400 N Pennsylvania Ave #1000, Roswell, NM 88201

Operator Certification: Application for Permit to Drill
North Lea 4 Fed Com #4H
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: Tim Collier

Tim Collier

Sr. VP Drilling and Exploration

Dated: 2-18-2014