

HOBBS OCD

ATS-14-437

Form 3160-3
(August 2007)

NOV 02 2014

SECRETARY'S POTASH

OCD Hobbs

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

UNORTHODOX LOCATION RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator Read and Stevens, Inc

3a. Address 400 N. Pennsylvania Ave #1000
Roswell, NM 882013b. Phone No. (include area code)
575-622-37704. Location of Well (Report location clearly and in accordance with any State requirements.)
At surface 200' FNL 2290' FWL **Lot 3**
At proposed prod. zone 330' FSL 2290' FWL **Unit 1**14. Distance in miles and direction from nearest town or post office*
26 miles WSW of Hobbs15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)

200'

16. No. of acres in lease
640
602.4517. Spacing Unit dedicated to this well
160 **85**18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft. See raduis maps
attached.19. Proposed Depth
10,923TVD/ 15,408'MD20. BLM/BIA Bond No. on file
NM-231021. Elevations (Show whether DF, KDB, RT, GL, etc.)
GL - 3667.7' RKB - 3689.7'22. Approximate date work will start*
08/15/201423. 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:

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

25. Signature

Name (Printed/Typed)

~~Tim Collins~~ Rory McMinn

Date

01/23/2014

Title

~~Senior Drilling and Exploration~~ President

Approved by (Signature)

James A. Amos

Name (Printed/Typed)

Date

OCT 28 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)

Ka
11/03/14

Capitan Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

NOV 04 2014

Read and Stevens, Inc.

400 N Pennsylvania Ave #1000, Roswell, NM 88201

Operator Certification: Application for Permit to Drill
North Lea 3 Fed Com #3H
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~~ Rory McMinn
~~Sr. VP Drilling and Exploration~~ President

Dated: 01/23/2014

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Article I.**Well Overview:**

The North Lea 3 Fed Com #3H 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 (geoprognoisis with TVD's adjusted to actual KB):**

Formation	TVD	Subsea	Thickness	Type
Rustler	1600'	-2090'		
Top of Salt	1730'	-1960'		
Base of Salt	3340'	-350'		
Tansil (Top of Capitan Reef)	3340'	-350'	1889'	Possible Fresh Water
Yates	3550'	-140'		
Seven Rivers	3844'	154'		
Queen	4558'	868'		
Penrose	4897'	1207'		
Grayburg(Bottom Capitan Reef)	5067'	1377'		
San Andres	5229'	1539'		
Lamar Lime	5576'	1886'		
Bell Canyon	5673'	1983'		
Cherry Canyon	5990'	2300'		
Brushy Canyon	7310'	3620'		
Bone Spring Lime	8235'	4545'		
Avalon	8730'	5040'	692'	Hydrocarbon
1 st Bone Spring	9422'	5732'	517'	Hydrocarbon
2 nd Bone Spring	9939'	6249'	636'	Hydrocarbon
3 rd Bone Spring	10575'	6885'	656'	Hydrocarbon

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

Article III.**Pressure Control:**

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

BOP test shall be conducted:

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

Multi-bowl is not being used

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.

A Co-Flex hose may be used from the BOP to the Choke Manifold. If this is used the manufacturer specifications and certifications will be furnished prior to use. A variance is requested for use of a Co-Flex hose.

See COA Downstream of the Choke Manifold assembly 1502(15,000psi working pressure) hammer unions will be used to connect the mud/gas separator. See Choke Manifold diagram. A variance is requested for use of hammer unions downstream of the choke manifold. *end to shakers*

Article IV.

Casing Program (minimum):

All casing is new API casing.

See COA

Hole Size	Casing	Weight lb/ft	Grade	Conn	MD/RKB	Stage
	20"				120'	Conductor
16"	13.375"	54.5	J-55	STC	4625' <i>1285'</i>	Surface
12.25"	9.625"	40	L-80	LTC	5586' <i>5400'</i>	Intermediate
8.5"	5.5"	17	P-110	BTC	15408'	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

fluid filled per Steve Morris 7/11/14
 13.375" casing will be set 25' into the Rustler
 9.625" casing will be set 10' into the Lamar Lime

Article V.

Cement Program:

Section 5.01

13.375" Surface Casing

Lead:

Slurry WT	Yield	Sx	Gallons/ Sack	Excess	Additives
13.5ppg	1.93cuft/sk	591	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. The 13.375" casing ID is 12.615" and the OD of the coupling on the 9.625" casing is 10.620", which gives 1.995" divided by two will leave 0.9975" around. The 1" grout string fits in between the two annuli.

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	511	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	1193	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	230	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.

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	1533	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	771	9.45	20%	Class H (15:61:11) Poz (Fly Ash):Class H Cement:CSE-2 + 4% bwoc Sodium Chloride + 3 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.005 gps FP-6L + 0.005% bwoc Static Free
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Circulate cement to surface. If cement does not circulate to surface a top squeeze job or casing perforation will be used.

This will be discussed with the BLM prior to commencing remedial cement job. As well, a temperature survey or CBL will be performed. This will be discussed with the BLM prior to either being run.

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

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 COA

Depth	Hole	Type	MW	PV	YP	WL	pH	Sol %
0-1625	16"	Fresh Water	8.4-8.9	10-12	12-15	NC	9.5	<3.0
1625-5586	12.25"	Brine	9.8-10	1	1	NC	9.5	<1.0
5586-10400	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

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.

*Self
Coh* *Article XI. Abnormal Conditions:*

No abnormal conditions are expected. 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.

Article XII. H2S:

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.



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

No PODs found.

POD Search:

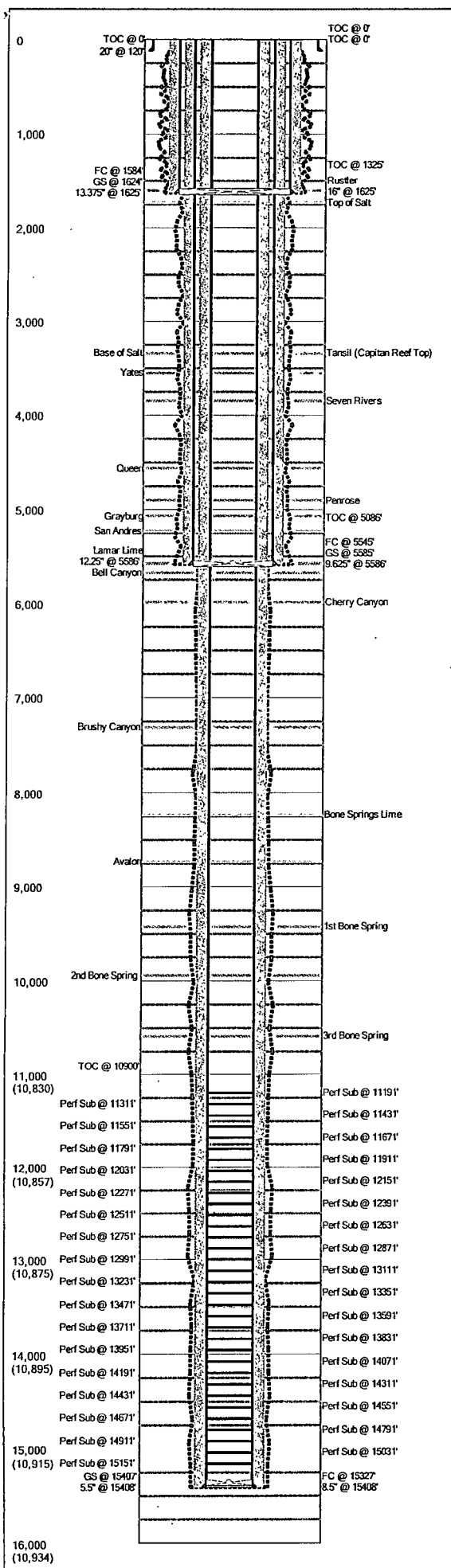
POD Basin: Lea County

PLSS Search:

Section(s): 3

Township: 20S

Range: 34E



Last Updated: 1/23/2014 08:18 AM

Field Name		Lease Name		Well No.	
North Lea		North Lea 3 Fed		3H	
County, State				API No.	
Lea, New Mexico				0222222222222	
Version		Version Tag			
1		Planning			
G.L. (ft)	K.B. (ft)	Sec.	Township/Block		Range/Survey
3,667.7	3,689.7	3	20S		34E
Operator		Well Status		Latitude	Longitude
Read and Stevens		Planning		32.608931	103.549172
Footage Call					
200' FNL & 2290' FWL From Section					
PropNum			Spud Date		Comp. Date
Additional Information					
AFE No.:					
Permit No.:					
Read and Stevens well No.: 10706					
Lease No.: NM-84902					
Bond No.: NM-2310					
Prepared By		Updated By		Last Updated	
Steve Morris		Steve Morris		1/23/2014 8:18 AM	

Hole Summary

Date	O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	16.000	120	1,625	Surface
	12.250	1,625	5,586	Intermediate
	8.500	5,586	15,408	Production

Tubular Summary

Date	Description	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)
	Conductor Casing	20.000			0	120
	Surface Casing	13.375	54.50	J-55	0	1,625
	Intermediate Casing	9.625	40.00	L-80	0	5,586
	Production Casing	5.500	17.00	P-110	0	15,408

Casing Cement Summary

Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	591	13.375	0	1,325	120' Lead casing in conductor with no excess 126.7cuft 22.6bbbls
					1205' Lead casing in open hole with 100% excess 1013.6cuft 180.5bbbls
					Shoe track 40ft with no excess 34.7cuft 6.2bbbls
	166	13.375	1,325	1,625	300' Tail casing in open hole with 100% excess 187.9cuft 33.5bbbls
					40' Tail in shoe track with no excess 34.7cuft 6.2bbbls
	1,193	9.625	0	5,086	1625' Lead casing in casing with no excess 589.4cuft 105bbbls
					3461' Lead casing in open hole with 80% excess 1951.1cuft 347.5bbbls
	230	9.625	5,086	5,586	500' Tail casing in open hole with 80% excess 281.9cuft 50.2bbbls
					40' Tail shoe track with no excess 17cuft 3bbbls
	1,533	5.500	0	10,900	5586 Lead casing in casing with no excess 1456.5cuft 259.4bbbls
					5314' Lead casing in open hole with 80% excess 2191.1cuft 390.3bbbls
	771	5.500	10,900	15,408	4508' Tail casing in open hole with 20% excess 1239.2cuft 220.7bbbls
					80' Tail shoe track with no excess 10.4cuft 1.9bbbls

Tools/Problems Summary

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)
	FC	13.375	0.000	1,584	0
	GS	13.375	0.000	1,624	0
	FC	9.625	0.000	5,545	0
	GS	9.625	0.000	5,585	0
	Perf Sub	5.500	0.000	11,191	11,207
	Perf Sub	5.500	0.000	11,311	11,327
	Perf Sub	5.500	0.000	11,431	11,447
	Perf Sub	5.500	0.000	11,551	11,567
	Perf Sub	5.500	0.000	11,671	11,687
	Perf Sub	5.500	0.000	11,791	11,807
	Perf Sub	5.500	0.000	11,911	11,927
	Perf Sub	5.500	0.000	12,031	12,047
	Perf Sub	5.500	0.000	12,151	12,167
	Perf Sub	5.500	0.000	12,271	12,287
	Perf Sub	5.500	0.000	12,391	12,411
	Perf Sub	5.500	0.000	12,511	12,527
	Perf Sub	5.500	0.000	12,631	12,647
	Perf Sub	5.500	0.000	12,751	12,767
	Perf Sub	5.500	0.000	12,871	12,887
	Perf Sub	5.500	0.000	12,991	13,007
	Perf Sub	5.500	0.000	13,111	13,127
	Perf Sub	5.500	0.000	13,231	13,247
	Perf Sub	5.500	0.000	13,351	13,367
	Perf Sub	5.500	0.000	13,471	13,487
	Perf Sub	5.500	0.000	13,591	13,607
	Perf Sub	5.500	0.000	13,711	13,727
	Perf Sub	5.500	0.000	13,831	13,847
	Perf Sub	5.500	0.000	13,951	13,967
	Perf Sub	5.500	0.000	14,071	14,087
	Perf Sub	5.500	0.000	14,191	14,207
	Perf Sub	5.500	0.000	14,311	14,327
	Perf Sub	5.500	0.000	14,431	14,447
	Perf Sub	5.500	0.000	14,551	14,567
	Perf Sub	5.500	0.000	14,671	14,687
	Perf Sub	5.500	0.000	14,791	14,807
	Perf Sub	5.500	0.000	14,911	14,927
	Perf Sub	5.500	0.000	15,031	15,047
	Perf Sub	5.500	0.000	15,151	15,167
	FC	5.500	0.000	15,327	0
	GS	5.500	0.000	15,407	0

Formation Tops Summary

Formation	Top (MD ft)	Comments
Rustler	1,600	Interbedded Anhydrite, Gypsum and Halite beds.
Top of Salt	1,730	Interbedded Halite with stringers of other evaporite minerals
Base of Salt	3,340	Base of Salt
Tansil (Capitan Reef Top)	3,340	Chiefly consisting of Evaporites, breaks of dolomite, silt and fine sand to shale, transitions to chiefly dolomite higher in the section
Yates	3,550	Interbedded red and grey sandstones, shale and anhydrite, as well as some dolomite facies
Seven Rivers	3,844	Contains mostly gypsum and red sandstones, however shelfward the seven rivers contains halite as well
Queen	4,558	Interbedded Sandstones & Carbonate beds with varying depositional system
Penrose	4,897	Interbedded Sandstones & Carbonate beds with varying depositional system
Grayburg	5,067	Interbedded Sandstones & Carbonate beds with varying depositional system
San Andres	5,229	Carbonate beds with depositional systems ranging from Tidal to potentially deep Marine
Lamar Lime	5,576	Limestone
Bell Canyon	5,673	Interbedded Carbonate and Sandstone layers
Cherry Canyon	5,990	Interbedded Sandstone layers with several limestone beds
Brushy Canyon	7,310	Interbedded Carbonate and Sandstone layers
Bone Springs Lime	8,235	Marker bed for the top of the Leonardian age rocks

Formation	Top (MD ft)	Comments
Avalon	8,730	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 Argilliceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).
2nd Bone Spring	9,939	Interbedded Argilliceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).
3rd Bone Spring	10,575	Interbedded Argilliceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).

Last Updated: 1/23/2014 08:18 AM

Field Name		Lease Name		Well No.	County, State		API No.	
North Lea		North Lea 3 Fed		3H	Lea, New Mexico		02222222222222	
Version	Version Tag				Spud Date	Comp. Date	G.L. (ft)	K.B. (ft)
1	Planning						3,667.7	3,689.7
Sec.	Township/Block		Range/Survey		Footage Call			
3	20S		34E		200' FNL & 2290' FWL From Section			
Operator			Well Status		Latitude		Longitude	PropNum
Read and Stevens			Planning		32.608931		103.549172	
Last Updated			Prepared By			Updated By		
01/23/2014 8:18 AM			Steve Morris			Steve Morris		
Additional Information								
AFE No.:								
Permit No.:								
Read and Stevens well No.: 10706								
Lease No.: NM-84902								
Bond No.: NM-2310								

Hole Summary

Date	O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	16.000	120	1,625	Surface
	12.250	1,625	5,586	Intermediate
	8.500	5,586	15,408	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			0	120	
	Surface Casing		13.375	54.50	J-55	0	1,625	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	5,586	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	17.00	P-110	0	15,408	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
	591	1.93	1,141	13.375	0	1,325	Lead 13.5ppg 9.71gps Class C + 4% bwoc Bentonite II + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.005% bwoc Static Free + 0.005gps FP-6L	120' Lead casing in conductor with no excess 126.7cuft 22.6bbbls 1205' Lead casing in open hole with 100% excess 1013.6cuft 180.5bbbls Shoe track 40ft with no excess 34.7cuft 6.2bbbls
	166	1.35	224	13.375	1,325	1,625	Tail 14.8ppg 6.35gps Class C + 1.5% bwoc Calcium Chloride + 0.005 lbs/sack Static Free + 0.005 gps FP-6L	300' Tail casing in open hole with 100% excess 187.9cuft 33.5bbbls 40' Tail in shoe track with no excess 34.7cuft 6.2bbbls
	1,193	2.13	2,541	9.625	0	5,086	Lead 12.6ppg 2.13gps 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 + 0.005gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride	1625' Lead casing in casing with no excess 589.4cuft 105bbbls 3461' Lead casing in open hole with 80% excess 1951.1cuft 347.5bbbls
	230	1.35	311	9.625	5,086	5,586	Tail 14.8ppg 6.35gps Class C	500' Tail casing in open hole with 80% excess 281.9cuft 50.2bbbls 40' Tail shoe track with no excess 17cuft 3bbbls
	1,533	2.38	3,649	5.500	0	10,900	Lead 11.9ppg 13.22gps 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 + 0.005gps FP-6L	5586' Lead casing in casing with no excess 1456.5cuft 259.4bbbls 5314' Lead casing in open hole with 80% excess 2191.1cuft 390.3bbbls
	771	1.62	1,249	5.500	10,900	15,408	Tail 13.2ppg 9.45gps 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	4508' Tail casing in open hole with 20% excess 1239.2cuft 220.7bbbls 80' Tail shoe track with no excess 10.4cuft 1.9bbbls

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	1,584	0		
	Guide Shoe	13.375	0.000	1,624	0		
	Float Collar	9.625	0.000	5,545	0		
	Guide Shoe	9.625	0.000	5,585	0		
	Perforated Sub	5.500	0.000	11,191	11,207	Opti-Port	Stage 34
	Perforated Sub	5.500	0.000	11,311	11,327	Opti-Port	Stage 33
	Perforated Sub	5.500	0.000	11,431	11,447	Opti-Port	Stage 33

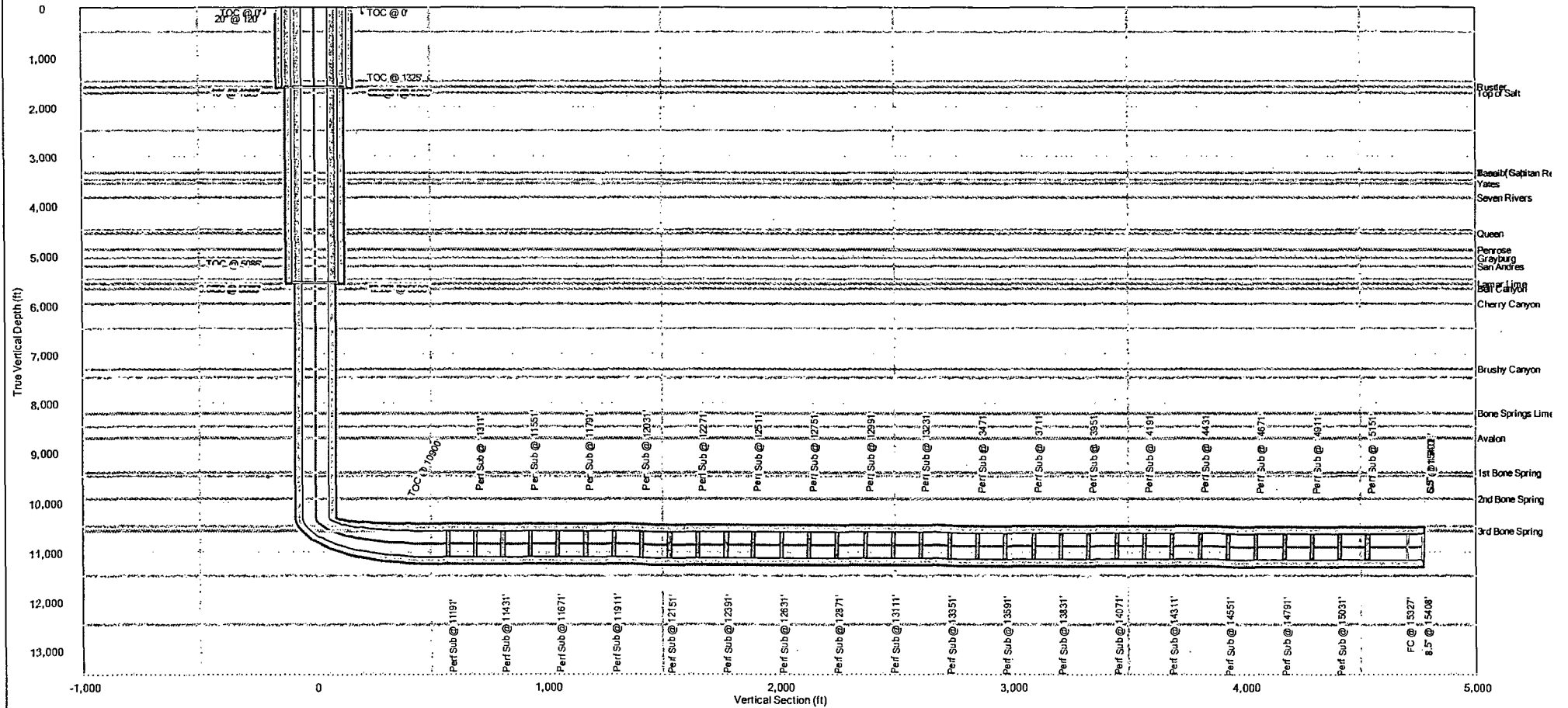
Last Updated: 1/23/2014 08:18 AM

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)	Description	Comments
	Perforated Sub	5.500	0.000	11,551	11,567	Opti-Port	Stage 31
	Perforated Sub	5.500	0.000	11,671	11,687	Opti-Port	Stage 30
	Perforated Sub	5.500	0.000	11,791	11,807	Opti-Port	Stage 29
	Perforated Sub	5.500	0.000	11,911	11,927	Opti-Port	Stage 28
	Perforated Sub	5.500	0.000	12,031	12,047	Opti-Port	Stage 27
	Perforated Sub	5.500	0.000	12,151	12,167	Opti-Port	Stage 26
	Perforated Sub	5.500	0.000	12,271	12,287	Opti-Port	Stage 25
	Perforated Sub	5.500	0.000	12,391	12,411	Opti-Port	Stage 24
	Perforated Sub	5.500	0.000	12,511	12,527	Opti-Port	Stage 23
	Perforated Sub	5.500	0.000	12,631	12,647	Opti-Port	Stage 22
	Perforated Sub	5.500	0.000	12,751	12,767	Opti-Port	Stage 21
	Perforated Sub	5.500	0.000	12,871	12,887	Opti-Port	Stage 20
	Perforated Sub	5.500	0.000	12,991	13,007	Opti-Port	Stage 19
	Perforated Sub	5.500	0.000	13,111	13,127	Opti-Port	Stage 18
	Perforated Sub	5.500	0.000	13,231	13,247	Opti-Port	Stage 17
	Perforated Sub	5.500	0.000	13,351	13,367	Opti-Port	Stage 16
	Perforated Sub	5.500	0.000	13,471	13,487	Opti-Port	Stage 15
	Perforated Sub	5.500	0.000	13,591	13,607	Opti-Port	Stage 14
	Perforated Sub	5.500	0.000	13,711	13,727	Opti-Port	Stage 13
	Perforated Sub	5.500	0.000	13,831	13,847	Opti-Port	Stage 12
	Perforated Sub	5.500	0.000	13,951	13,967	Opti-Port	Stage 11
	Perforated Sub	5.500	0.000	14,071	14,087	Opti-Port	Stage 10
	Perforated Sub	5.500	0.000	14,191	14,207	Opti-Port	Stage 9
	Perforated Sub	5.500	0.000	14,311	14,327	Opti-Port	Stage 8
	Perforated Sub	5.500	0.000	14,431	14,447	Opti-Port	Stage 7
	Perforated Sub	5.500	0.000	14,551	14,567	Opti-Port	Stage 6
	Perforated Sub	5.500	0.000	14,671	14,687	Opti-Port	Stage 5
	Perforated Sub	5.500	0.000	14,791	14,807	Opti-Port	Stage 4
	Perforated Sub	5.500	0.000	14,911	14,927	Opti-Port	Stage 3
	Perforated Sub	5.500	0.000	15,031	15,047	Opti-Port	Stage 2
	Perforated Sub	5.500	0.000	15,151	15,167	Opti-Port	Stage 1
	Float Collar	5.500	0.000	15,327	0		
	Guide Shoe	5.500	0.000	15,407	0		

Formation Top Summary

Formation Name	Top (MD ft)	Comments
Rustler	1,600	Interbedded Anhydrite, Gypsum and Halite beds.
Top of Salt	1,730	Interbedded Halite with stringers of other evaporite minerals
Base of Salt	3,340	Base of Salt
Tansil (Capitan Reef Top)	3,340	Chiefly consisting of Evaporites, breaks of dolomite, silt and fine sand to shale, transitions to chiefly dolomite higher in the section
Yates	3,550	Interbedded red and grey sandstones, shale and anhydrite, as well as some dolomite facies
Seven Rivers	3,844	Contains mostly gypsum and red sandstones, however shelfward the seven rivers contains halite as well
Queen	4,558	Interbedded Sandstones & Carbonate beds with varying depositional system
Penrose	4,897	Interbedded Sandstones & Carbonate beds with varying depositional system
Grayburg	5,067	Interbedded Sandstones & Carbonate beds with varying depositional system
San Andres	5,229	Carbonate beds with depositional systems ranging from Tidal to potentially deep Marine
Lamar Lime	5,576	Limestone
Bell Canyon	5,673	Interbedded Carbonate and Sandstone layers
Cherry Canyon	5,990	Interbedded Sandstone layers with several limestone beds
Brushy Canyon	7,310	Interbedded Carbonate and Sandstone layers
Bone Springs Lime	8,235	Marker bed for the top of the Leonardian age rocks
Avalon	8,730	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	9,939	Interbedded Argillaceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).
3rd Bone Spring	10,575	Interbedded Argillaceous quartz-rich siltstones with interbedded organic-rich silt beds (often colloquially described as shales).

Field Name	Lease Name	Well No.	County, State	API No.	Version	Version Tag	Spud Date	Comp. Date	G.L. (ft)	K.B. (ft)
North Lea	North Lea 3 Fed	3H	Lea, New Mexico	0222222222222	1	Planning			3,667.7	3,689.7
Sec.	Township/Block	Range/Survey	Footage Call	Latitude	Longitude	Well Status	PropNum	Operator		
3	20S	34E	200' FNL & 2290' FWL From Section	32.608931	103.549172	Planning		Read and Stevens		
Last Updated	Prepared By	Updated By	Additional Information							
1/23/14 8:18:12 AM	Steve Morris	Steve Morris	AFE No.:							

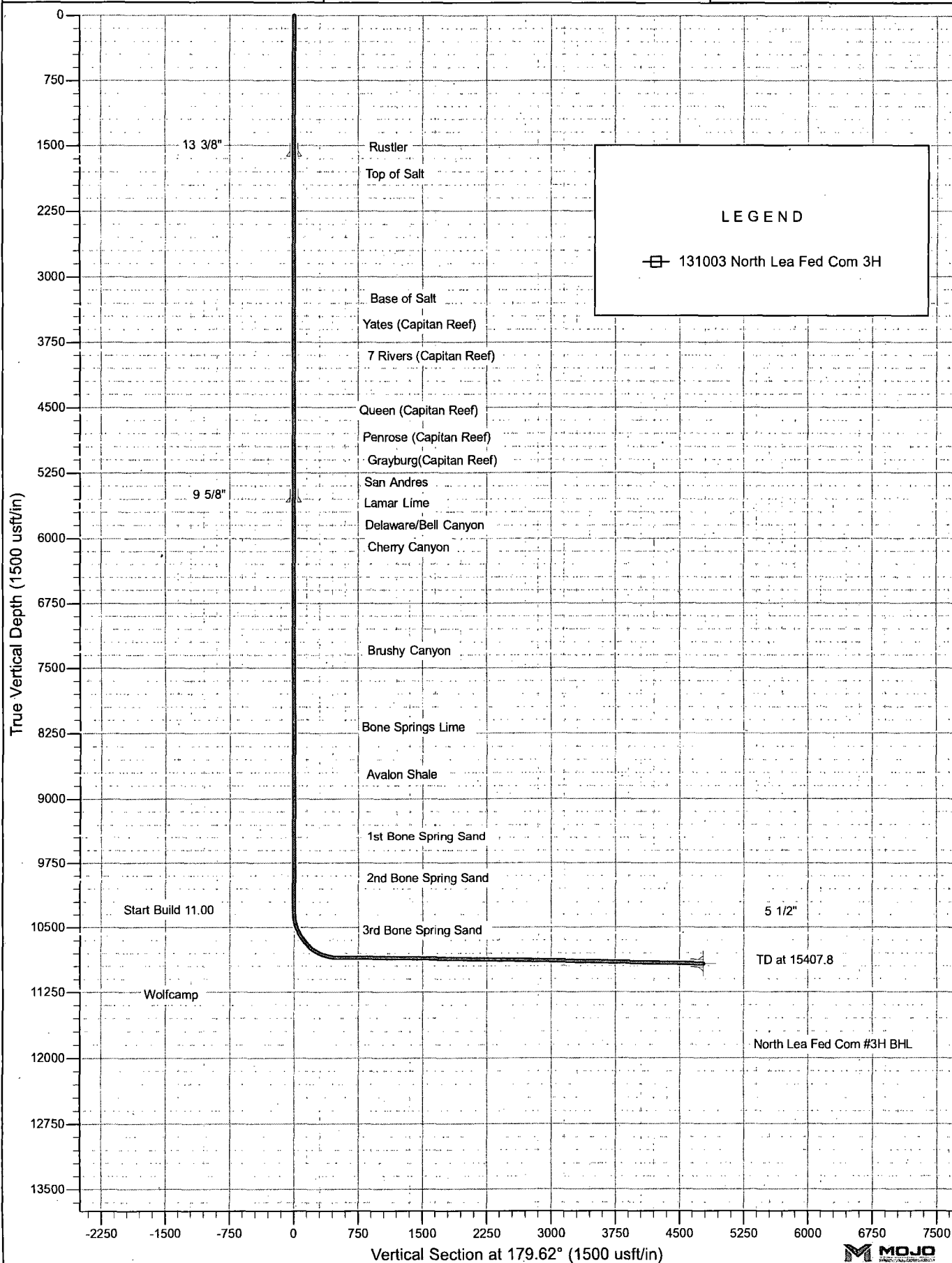


Project: North Lea Prospect T20S-R34E
 Site: Section 3
 Well: North Lea Federal Com 3 #3H
 Wellbore: North Lea Federal Com 3 #3H
 Design: 131003 North Lea Fed Com 3H

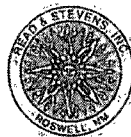


Azimuths to Grid North
 True North: -0.42°
 Magnetic North: 6.99°

Magnetic Field
 Strength: 48695.0snT
 Dip Angle: 60.51°
 Date: 28/12/2012
 Model: IGRF2010

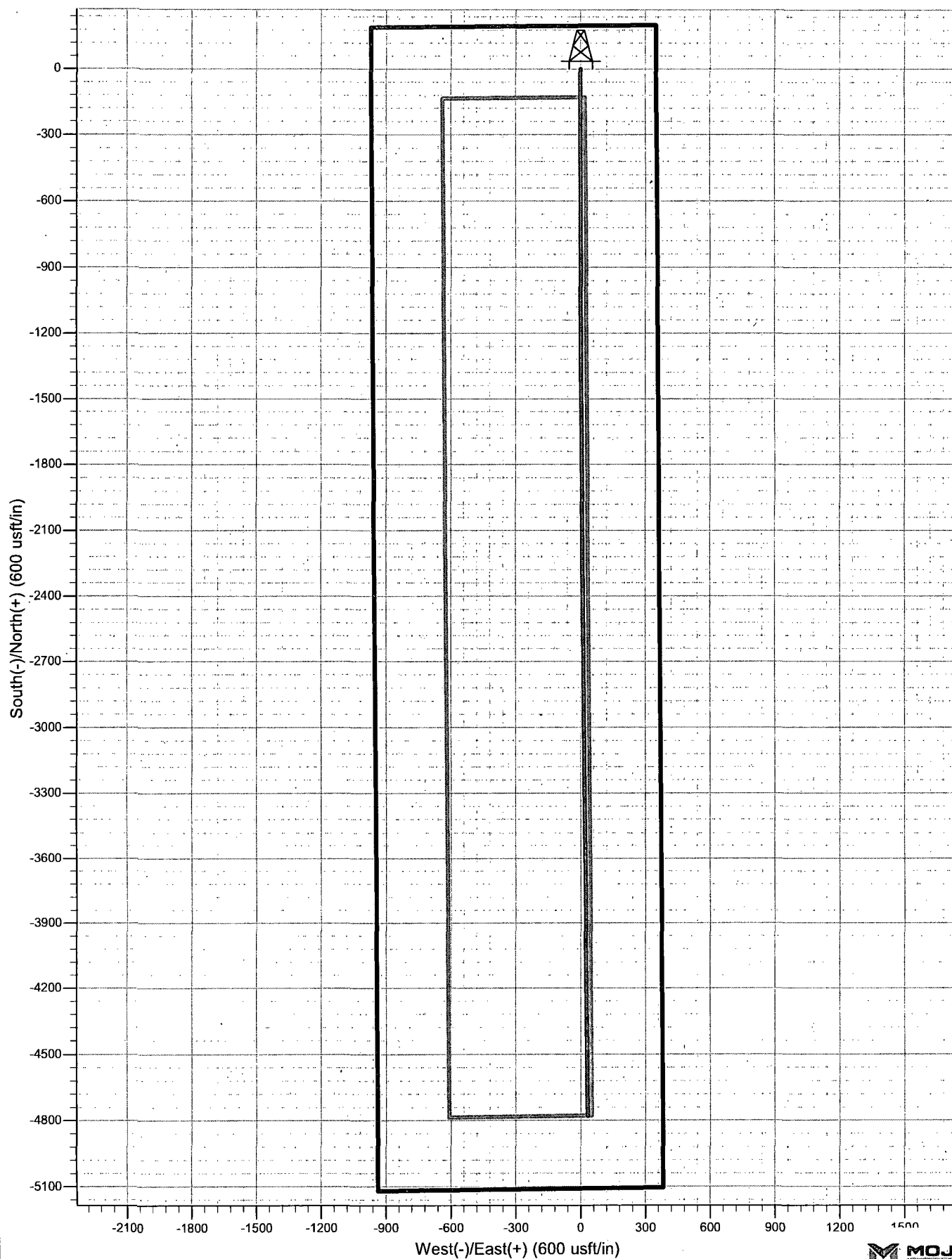


Project: North Lea Prospect T20S-R34E
Site: Section 3
Well: North Lea Federal Com 3 #3H
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Azimuths to Grid North
True North: -0.42°
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Magnetic Field
Strength: 48695.0nT
Dip Angle: 60.51°
Date: 28/12/2012
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Read and Stevens Inc.

North Lea Prospect T20S-R34E

Section 3

North Lea Federal Com 3 #3H

North Lea Federal Com 3 #3H

Plan: 131003 North Lea Fed Com 3H

MOJO Standard Survey

03 October, 2013





MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea Federal Com 3 #3H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Site:	Section 3	MD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Well:	North Lea Federal Com 3 #3H	North Reference:	Grid
Wellbore:	North Lea Federal Com 3 #3H	Survey Calculation Method:	Minimum Curvature
Design:	131003 North Lea Fed Com 3H	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 3				
Site Position:		Northing:	586,163.01 usft	Latitude:	32° 36' 32.180 N
From:	Lat/Long	Easting:	784,123.26 usft	Longitude:	103° 32' 41.562 W
Position Uncertainty:	1.0 usft	Slot Radius:	16 "	Grid Convergence:	0.42 °

Well	North Lea Federal Com 3 #3H					
Well Position	+N/-S	0.0 usft	Northing:	586,150.20 usft	Latitude:	32° 36' 32.150 N
	+E/-W	0.0 usft	Easting:	782,801.05 usft	Longitude:	103° 32' 57.020 W
Position Uncertainty	1.0 usft		Wellhead Elevation:	usft	Ground Level:	3,667.7 usft

Wellbore	North Lea Federal Com 3 #3H				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	28/12/2012	(°)	(°)	(nT)
			7.41	60.51	48,695

Design	131003 North Lea Fed Com 3H			
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	179.62

Survey Tool Program	Date	03/10/2013		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
0.0	15,407.8	131003 North Lea Fed Com 3H (North Lea	MWD	MWD - Standard

Company:	Read and Stevens, Inc.	Local Co-ordinate Reference:	Well: North Lea Federal Com 3 #3H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Site:	Section 3	MD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Well:	North Lea Federal Com 3 #3H	North Reference:	Grid:
Wellbore:	North Lea Federal Com 3 #3H	Survey Calculation Method:	Minimum Curvature
Design:	131003 North Lea Fed Com 3H	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	-3,689.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
100.0	0.00	0.00	100.0	-3,589.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
200.0	0.00	0.00	200.0	-3,489.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
300.0	0.00	0.00	300.0	-3,389.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
400.0	0.00	0.00	400.0	-3,289.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
500.0	0.00	0.00	500.0	-3,189.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
600.0	0.00	0.00	600.0	-3,089.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
700.0	0.00	0.00	700.0	-2,989.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
800.0	0.00	0.00	800.0	-2,889.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
900.0	0.00	0.00	900.0	-2,789.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,000.0	0.00	0.00	1,000.0	-2,689.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,100.0	0.00	0.00	1,100.0	-2,589.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,200.0	0.00	0.00	1,200.0	-2,489.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,300.0	0.00	0.00	1,300.0	-2,389.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,400.0	0.00	0.00	1,400.0	-2,289.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,500.0	0.00	0.00	1,500.0	-2,189.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,599.7	0.00	0.00	1,599.7	-2,090.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
Rustler												
1,600.0	0.00	0.00	1,600.0	-2,089.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,624.7	0.00	0.00	1,624.7	-2,065.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
13 3/8"												
1,700.0	0.00	0.00	1,700.0	-1,989.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,729.7	0.00	0.00	1,729.7	-1,960.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
Top of Salt												
1,800.0	0.00	0.00	1,800.0	-1,889.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
1,900.0	0.00	0.00	1,900.0	-1,789.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
2,000.0	0.00	0.00	2,000.0	-1,689.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		
2,100.0	0.00	0.00	2,100.0	-1,589.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05		



MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea Federal Com 3 #3H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Site:	Section 3	MD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Well:	North Lea Federal Com 3 #3H	North Reference:	Grid
Wellbore:	North Lea Federal Com 3 #3H	Survey Calculation Method:	Minimum Curvature
Design:	131003 North Lea Fed Com 3H	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)	
2,200.0	0.00	0.00	2,200.0	-1,489.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
2,300.0	0.00	0.00	2,300.0	-1,389.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
2,400.0	0.00	0.00	2,400.0	-1,289.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
2,500.0	0.00	0.00	2,500.0	-1,189.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
2,600.0	0.00	0.00	2,600.0	-1,089.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
2,700.0	0.00	0.00	2,700.0	-989.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
2,800.0	0.00	0.00	2,800.0	-889.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
2,900.0	0.00	0.00	2,900.0	-789.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,000.0	0.00	0.00	3,000.0	-689.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,100.0	0.00	0.00	3,100.0	-589.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,200.0	0.00	0.00	3,200.0	-489.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,300.0	0.00	0.00	3,300.0	-389.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,339.7	0.00	0.00	3,339.7	-350.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Base of Salt											
3,400.0	0.00	0.00	3,400.0	-289.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,500.0	0.00	0.00	3,500.0	-189.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,549.7	0.00	0.00	3,549.7	-140.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Yates (Capitan Reef)											
3,600.0	0.00	0.00	3,600.0	-89.7	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,700.0	0.00	0.00	3,700.0	10.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,800.0	0.00	0.00	3,800.0	110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
3,843.7	0.00	0.00	3,843.7	154.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7 Rivers (Capitan Reef)											
3,900.0	0.00	0.00	3,900.0	210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,000.0	0.00	0.00	4,000.0	310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,100.0	0.00	0.00	4,100.0	410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,200.0	0.00	0.00	4,200.0	510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,300.0	0.00	0.00	4,300.0	610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	

Company: Read and Stevens Inc.			Local Co-ordinate Reference:						Well North Lea Federal Com 3 #3H		
Project: North Lea Prospect T20S-R34E			TVD Reference:						WELL (copy) @ 3689.7usft (Original Well Elev)		
Site: Section 3			MD Reference:						WELL (copy) @ 3689.7usft (Original Well Elev)		
Well: North Lea Federal Com 3 #3H			North Reference:						Grid		
Wellbore: North Lea Federal Com 3 #3H			Survey Calculation Method:						Minimum Curvature		
Design: 131003 North Lea Fed Com 3H			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)	
4,400.0	0.00	0.00	4,400.0	710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,500.0	0.00	0.00	4,500.0	810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,557.7	0.00	0.00	4,557.7	868.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Queen (Capitan Reef)											
4,600.0	0.00	0.00	4,600.0	910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,700.0	0.00	0.00	4,700.0	1,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,800.0	0.00	0.00	4,800.0	1,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
4,896.7	0.00	0.00	4,896.7	1,207.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Penrose (Capitan Reef)											
4,900.0	0.00	0.00	4,900.0	1,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,000.0	0.00	0.00	5,000.0	1,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,066.7	0.00	0.00	5,066.7	1,377.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Grayburg(Capitan Reef)											
5,100.0	0.00	0.00	5,100.0	1,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,200.0	0.00	0.00	5,200.0	1,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,228.7	0.00	0.00	5,228.7	1,539.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
San Andres											
5,300.0	0.00	0.00	5,300.0	1,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,400.0	0.00	0.00	5,400.0	1,710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,500.0	0.00	0.00	5,500.0	1,810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,575.7	0.00	0.00	5,575.7	1,886.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Lamar Lime											
5,585.7	0.00	0.00	5,585.7	1,896.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
9 5/8"											
5,600.0	0.00	0.00	5,600.0	1,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,672.7	0.00	0.00	5,672.7	1,983.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Delaware/Bell Canyon											
5,700.0	0.00	0.00	5,700.0	2,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	



MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea Federal Com 3 #3H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Site:	Section 3	MD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Well:	North Lea Federal Com 3 #3H	North Reference:	Grid
Wellbore:	North Lea Federal Com 3 #3H	Survey Calculation Method:	Minimum Curvature
Design:	131003 North Lea Fed Com 3H	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)	
5,800.0	0.00	0.00	5,800.0	2,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,900.0	0.00	0.00	5,900.0	2,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
5,989.7	0.00	0.00	5,989.7	2,300.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Cherry Canyon											
6,000.0	0.00	0.00	6,000.0	2,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,100.0	0.00	0.00	6,100.0	2,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,200.0	0.00	0.00	6,200.0	2,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,300.0	0.00	0.00	6,300.0	2,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,400.0	0.00	0.00	6,400.0	2,710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,500.0	0.00	0.00	6,500.0	2,810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,600.0	0.00	0.00	6,600.0	2,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,700.0	0.00	0.00	6,700.0	3,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,800.0	0.00	0.00	6,800.0	3,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
6,900.0	0.00	0.00	6,900.0	3,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,000.0	0.00	0.00	7,000.0	3,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,100.0	0.00	0.00	7,100.0	3,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,200.0	0.00	0.00	7,200.0	3,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,300.0	0.00	0.00	7,300.0	3,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,309.7	0.00	0.00	7,309.7	3,620.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
Brushy Canyon											
7,400.0	0.00	0.00	7,400.0	3,710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,500.0	0.00	0.00	7,500.0	3,810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,600.0	0.00	0.00	7,600.0	3,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,700.0	0.00	0.00	7,700.0	4,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,800.0	0.00	0.00	7,800.0	4,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
7,900.0	0.00	0.00	7,900.0	4,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	
8,000.0	0.00	0.00	8,000.0	4,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	

Company: Read and Stevens Inc.
 Project: North Lea Prospect T20S-R34E
 Site: Section 3
 Well: North Lea Federal Com 3 #3H
 Wellbore: North Lea Federal Com 3 #3H
 Design: 131003 North Lea Fed Com 3H

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well North Lea Federal Com 3 #3H
 WELL (copy) @ 3689.7usft (Original Well Elev)
 WELL (copy) @ 3689.7usft (Original Well Elev)
 Grid
 Minimum Curvature
 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)
8,100.0	0.00	0.00	8,100.0	4,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,200.0	0.00	0.00	8,200.0	4,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,234.7	0.00	0.00	8,234.7	4,545.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05
Bone Springs Lime										
8,300.0	0.00	0.00	8,300.0	4,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,400.0	0.00	0.00	8,400.0	4,710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,500.0	0.00	0.00	8,500.0	4,810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,600.0	0.00	0.00	8,600.0	4,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,700.0	0.00	0.00	8,700.0	5,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,729.7	0.00	0.00	8,729.7	5,040.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05
Avalon Shale										
8,800.0	0.00	0.00	8,800.0	5,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,900.0	0.00	0.00	8,900.0	5,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,000.0	0.00	0.00	9,000.0	5,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,100.0	0.00	0.00	9,100.0	5,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,200.0	0.00	0.00	9,200.0	5,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,300.0	0.00	0.00	9,300.0	5,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,400.0	0.00	0.00	9,400.0	5,710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,421.7	0.00	0.00	9,421.7	5,732.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05
1st Bone Spring Sand										
9,500.0	0.00	0.00	9,500.0	5,810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,600.0	0.00	0.00	9,600.0	5,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,700.0	0.00	0.00	9,700.0	6,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,800.0	0.00	0.00	9,800.0	6,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,900.0	0.00	0.00	9,900.0	6,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,938.7	0.00	0.00	9,938.7	6,249.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05
2nd Bone Spring Sand										
10,000.0	0.00	0.00	10,000.0	6,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05



MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea Federal Com 3 #3H
Project:	North Lea-Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Site:	Section 3	MD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Well:	North Lea Federal Com 3 #3H	North Reference:	Grid
Wellbore:	North Lea Federal Com 3 #3H	Survey Calculation Method:	Minimum Curvature
Design:	131003 North Lea Fed Com 3H	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)	
10,100.0	0.00	0.00	10,100.0	6,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	2,801.75
10,200.0	0.00	0.00	10,200.0	6,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	2,802.09
10,300.0	0.00	0.00	10,300.0	6,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	2,802.50
10,330.0	0.00	0.00	10,330.0	6,640.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05	2,802.98
10,350.0	2.20	180.00	10,350.0	6,660.3	-0.4	0.0	0.4	11.00	586,149.81	782,801.05	2,803.53
10,400.0	7.70	180.00	10,399.8	6,710.1	-4.7	0.0	4.7	11.00	586,145.50	782,801.05	2,804.15
10,450.0	13.20	180.00	10,448.9	6,759.2	-13.8	0.0	13.8	11.00	586,136.44	782,801.05	2,804.83
10,500.0	18.70	180.00	10,497.0	6,807.3	-27.5	0.0	27.5	11.00	586,122.70	782,801.05	2,805.59
10,550.0	24.20	180.00	10,543.5	6,853.8	-45.8	0.0	45.8	11.00	586,104.42	782,801.05	2,806.41
10,584.7	28.02	180.00	10,574.7	6,885.0	-61.1	0.0	61.1	11.00	586,089.14	782,801.05	2,806.59
3rd Bone Spring Sand											
10,600.0	29.70	180.00	10,588.1	6,898.4	-68.4	0.0	68.4	11.00	586,081.77	782,801.05	2,807.28
10,650.0	35.20	180.00	10,630.2	6,940.5	-95.2	0.0	95.2	11.00	586,054.96	782,801.05	2,808.15
10,700.0	40.70	180.00	10,669.7	6,980.0	-126.0	0.0	126.0	11.00	586,024.22	782,801.05	2,809.02
10,750.0	46.20	180.00	10,705.9	7,016.2	-160.4	0.0	160.4	11.00	585,989.85	782,801.05	2,809.89
10,800.0	51.70	180.00	10,738.8	7,049.1	-198.0	0.0	198.0	11.00	585,952.16	782,801.05	2,810.77
10,850.0	57.20	180.00	10,767.8	7,078.1	-238.7	0.0	238.7	11.00	585,911.49	782,801.05	2,811.64
10,900.0	62.70	180.00	10,792.9	7,103.2	-282.0	0.0	282.0	11.00	585,868.23	782,801.05	2,812.51
10,950.0	68.20	180.00	10,813.6	7,123.9	-327.4	0.0	327.4	11.00	585,822.77	782,801.05	2,813.38
11,000.0	73.70	180.00	10,829.9	7,140.2	-374.7	0.0	374.7	11.00	585,775.53	782,801.05	2,814.25
11,050.0	79.20	180.00	10,841.6	7,151.9	-423.3	0.0	423.3	11.00	585,726.94	782,801.05	2,815.12
11,100.0	84.70	180.00	10,848.6	7,158.9	-472.8	0.0	472.7	11.00	585,677.45	782,801.05	2,815.99
11,148.2	90.00	180.00	10,850.9	7,161.2	-520.9	0.0	520.9	11.00	585,629.34	782,801.05	2,816.86
11,200.0	89.95	179.98	10,850.9	7,161.2	-572.7	0.0	572.7	0.10	585,577.52	782,801.06	2,817.74
11,300.0	89.86	179.94	10,851.1	7,161.4	-672.7	0.1	672.7	0.10	585,477.52	782,801.13	2,818.61
11,400.0	89.78	179.90	10,851.4	7,161.7	-772.7	0.2	772.7	0.10	585,377.53	782,801.26	2,819.48
11,500.0	89.69	179.86	10,851.8	7,162.1	-872.7	0.4	872.7	0.10	585,277.53	782,801.47	2,820.35
											2,821.22



MOJO Standard Survey



Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea Federal Com 3 #3H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Site:	Section 3	MD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Well:	North Lea Federal Com 3 #3H	North Reference:	Grid
Wellbore:	North Lea Federal Com 3 #3H	Survey Calculation Method:	Minimum Curvature
Design:	131003 North Lea Fed Com 3H	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)	
11,600.0	89.60	179.82	10,852.5	7,162.8	-972.7	0.7	972.7	0.10	585,177.54	782,801.75	
11,700.0	89.51	179.78	10,853.2	7,163.5	-1,072.7	1.0	1,072.7	0.10	585,077.54	782,802.09	
11,800.0	89.42	179.74	10,854.2	7,164.5	-1,172.7	1.5	1,172.7	0.10	584,977.55	782,802.50	
11,900.0	89.33	179.71	10,855.3	7,165.6	-1,272.7	1.9	1,272.7	0.10	584,877.56	782,802.98	
12,000.0	89.24	179.67	10,856.5	7,166.8	-1,372.7	2.5	1,372.6	0.10	584,777.57	782,803.53	
12,100.0	89.15	179.63	10,857.9	7,168.2	-1,472.6	3.1	1,472.6	0.10	584,677.59	782,804.15	
12,200.0	89.06	179.59	10,859.5	7,169.8	-1,572.6	3.8	1,572.6	0.10	584,577.60	782,804.83	
12,300.0	88.97	179.55	10,861.2	7,171.5	-1,672.6	4.5	1,672.6	0.10	584,477.62	782,805.59	
12,400.0	88.88	179.51	10,863.1	7,173.4	-1,772.6	5.4	1,772.6	0.10	584,377.65	782,806.41	
12,421.1	88.86	179.50	10,863.5	7,173.8	-1,793.7	5.5	1,793.7	0.10	584,356.54	782,806.59	
12,500.0	88.86	179.50	10,865.1	7,175.4	-1,872.6	6.2	1,872.6	0.00	584,277.67	782,807.28	
12,600.0	88.86	179.50	10,867.0	7,177.3	-1,972.5	7.1	1,972.6	0.00	584,177.70	782,808.15	
12,700.0	88.86	179.50	10,869.0	7,179.3	-2,072.5	8.0	2,072.5	0.00	584,077.72	782,809.02	
12,800.0	88.86	179.50	10,871.0	7,181.3	-2,172.5	8.8	2,172.5	0.00	583,977.75	782,809.89	
12,900.0	88.86	179.50	10,873.0	7,183.3	-2,272.5	9.7	2,272.5	0.00	583,877.77	782,810.77	
13,000.0	88.86	179.50	10,875.0	7,185.3	-2,372.5	10.6	2,372.5	0.00	583,777.80	782,811.64	
13,100.0	88.86	179.50	10,876.9	7,187.2	-2,472.4	11.5	2,472.5	0.00	583,677.83	782,812.51	
13,200.0	88.86	179.50	10,878.9	7,189.2	-2,572.4	12.3	2,572.4	0.00	583,577.85	782,813.38	
13,300.0	88.86	179.50	10,880.9	7,191.2	-2,672.4	13.2	2,672.4	0.00	583,477.88	782,814.25	
13,400.0	88.86	179.50	10,882.9	7,193.2	-2,772.4	14.1	2,772.4	0.00	583,377.90	782,815.12	
13,500.0	88.86	179.50	10,884.9	7,195.2	-2,872.3	14.9	2,872.4	0.00	583,277.93	782,815.99	
13,600.0	88.86	179.50	10,886.9	7,197.2	-2,972.3	15.8	2,972.4	0.00	583,177.96	782,816.86	
13,700.0	88.86	179.50	10,888.8	7,199.1	-3,072.3	16.7	3,072.3	0.00	583,077.98	782,817.74	
13,800.0	88.86	179.50	10,890.8	7,201.1	-3,172.3	17.6	3,172.3	0.00	582,978.01	782,818.61	
13,900.0	88.86	179.50	10,892.8	7,203.1	-3,272.2	18.4	3,272.3	0.00	582,878.03	782,819.48	
14,000.0	88.86	179.50	10,894.8	7,205.1	-3,372.2	19.3	3,372.3	0.00	582,778.06	782,820.35	
14,100.0	88.86	179.50	10,896.8	7,207.1	-3,472.2	20.2	3,472.3	0.00	582,678.08	782,821.22	

Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea Federal Com 3 #3H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Site:	Section 3	MD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Well:	North Lea Federal Com 3 #3H	North Reference:	Grid.
Wellbore:	North Lea Federal Com 3 #3H	Survey Calculation Method:	Minimum Curvature
Design:	131003 North Lea Fed Com 3H	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)	
14,200.0	88.86	179.50	10,898.8	7,209.1	-3,572.2	21.0	3,572.2	0.00	582,578.11	782,822.09	
14,300.0	88.86	179.50	10,900.7	7,211.0	-3,672.1	21.9	3,672.2	0.00	582,478.14	782,822.96	
14,400.0	88.86	179.50	10,902.7	7,213.0	-3,772.1	22.8	3,772.2	0.00	582,378.16	782,823.83	
14,500.0	88.86	179.50	10,904.7	7,215.0	-3,872.1	23.7	3,872.2	0.00	582,278.19	782,824.71	
14,600.0	88.86	179.50	10,906.7	7,217.0	-3,972.1	24.5	3,972.2	0.00	582,178.21	782,825.58	
14,700.0	88.86	179.50	10,908.7	7,219.0	-4,072.1	25.4	4,072.1	0.00	582,078.24	782,826.45	
14,800.0	88.86	179.50	10,910.7	7,221.0	-4,172.0	26.3	4,172.1	0.00	581,978.27	782,827.32	
14,900.0	88.86	179.50	10,912.6	7,222.9	-4,272.0	27.1	4,272.1	0.00	581,878.29	782,828.19	
15,000.0	88.86	179.50	10,914.6	7,224.9	-4,372.0	28.0	4,372.1	0.00	581,778.32	782,829.06	
15,100.0	88.86	179.50	10,916.6	7,226.9	-4,472.0	28.9	4,472.1	0.00	581,678.34	782,829.93	
15,200.0	88.86	179.50	10,918.6	7,228.9	-4,571.9	29.8	4,572.0	0.00	581,578.37	782,830.81	
15,300.0	88.86	179.50	10,920.6	7,230.9	-4,671.9	30.6	4,672.0	0.00	581,478.40	782,831.68	
15,398.4	88.86	179.50	10,922.5	7,232.8	-4,770.3	31.5	4,770.4	0.00	581,380.00	782,832.53	
15,407.8	88.86	179.50	10,922.7	7,233.0	-4,779.7	31.6	4,779.8	0.04	581,370.62	782,832.62	
5 1/2"											

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
5,585.7	5,585.7	9 5/8"	9-5/8	12-1/4	
15,407.8	10,922.7	5 1/2"	5-1/2	6	
1,624.7	1,624.7	13 3/8"	13-3/8	17-1/2	



MOJO Standard Survey

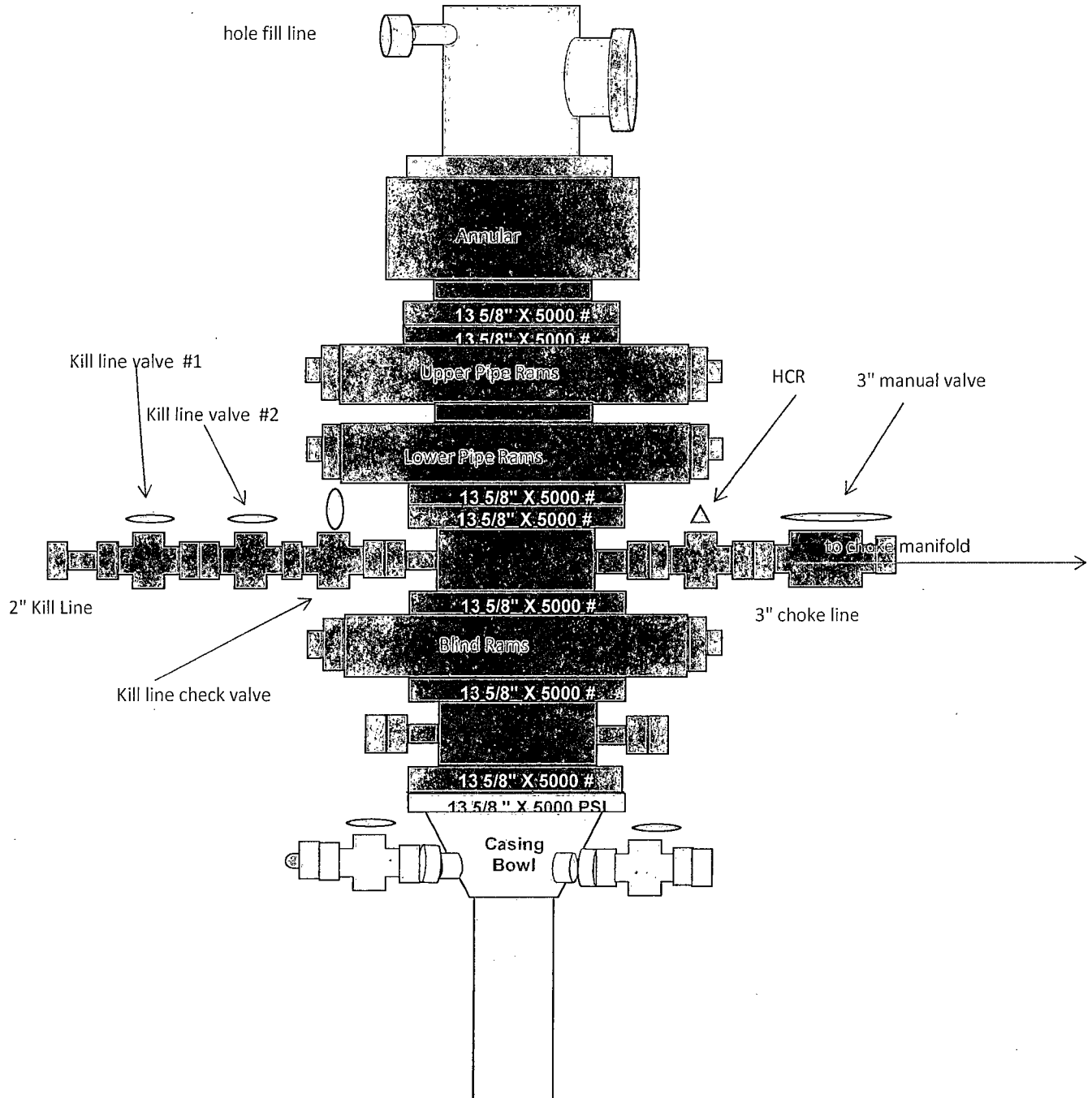


Company:	Read and Stevens Inc.	Local Co-ordinate Reference:	Well North Lea Federal Com 3 #3H
Project:	North Lea Prospect T20S-R34E	TVD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Site:	Section 3	MD Reference:	WELL (copy) @ 3689.7usft (Original Well Elev)
Well:	North Lea Federal Com 3 #3H	North Reference:	Grid
Wellbore:	North Lea Federal Com 3 #3H	Survey Calculation Method:	Minimum Curvature
Design:	131003 North Lea Fed Com 3H	Database:	EDM 5000.1 Single User Db

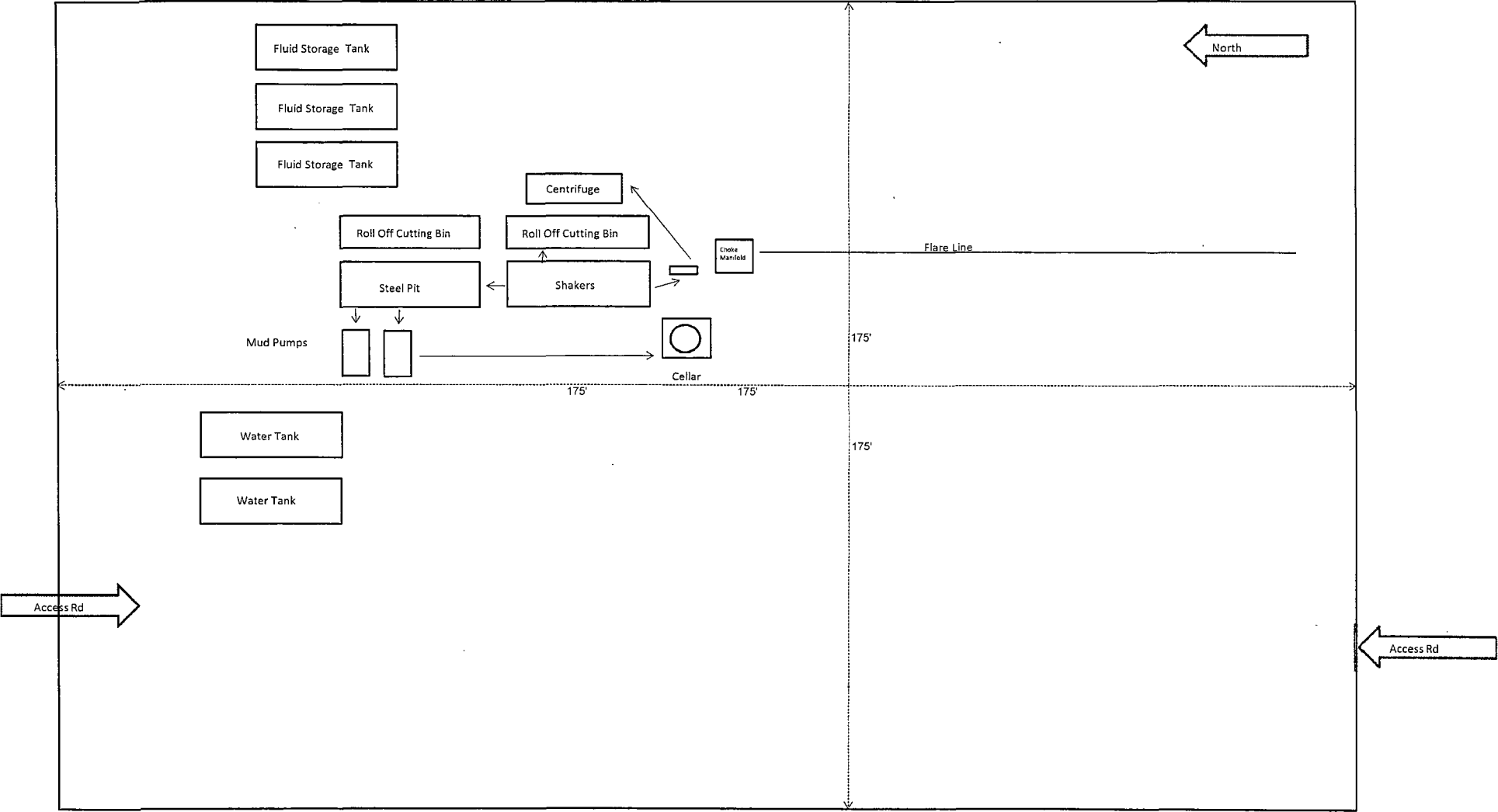
Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,309.7	7,309.7	Brushy Canyon		0.00	
9,938.7	9,938.7	2nd Bone Spring Sand		0.00	
4,557.7	4,557.7	Queen (Capitan Reef)		0.00	
5,989.7	5,989.7	Cherry Canyon		0.00	
9,421.7	9,421.7	1st Bone Spring Sand		0.00	
5,066.7	5,066.7	Grayburg(Capitan Reef)		0.00	
5,672.7	5,672.7	Delaware/Bell Canyon		0.00	
3,843.7	3,843.7	7 Rivers (Capitan Reef)		0.00	
10,584.7	10,574.7	3rd Bone Spring Sand		0.00	
3,549.7	3,549.7	Yates (Capitan Reef)		0.00	
1,729.7	1,729.7	Top of Salt		0.00	
3,339.7	3,339.7	Base of Salt		0.00	
5,575.7	5,575.7	Lamar Lime		0.00	
5,228.7	5,228.7	San Andres		0.00	
4,896.7	4,896.7	Penrose (Capitan Reef)		0.00	
8,729.7	8,729.7	Avalon Shale		0.00	
1,599.7	1,599.7	Rustler		0.00	
8,234.7	8,234.7	Bone Springs Lime		0.00	

Checked By: _____	Approved By: _____	Date: _____
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13-5/8" 5M BOP stack



Closed Loop Diagram



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 3 Fed Com #3H
API Number: _____ OCD Permit Number: _____
U/L or Qtr/Qtr C Section 3 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, 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 indentify 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 3 Fed Com #3H

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:

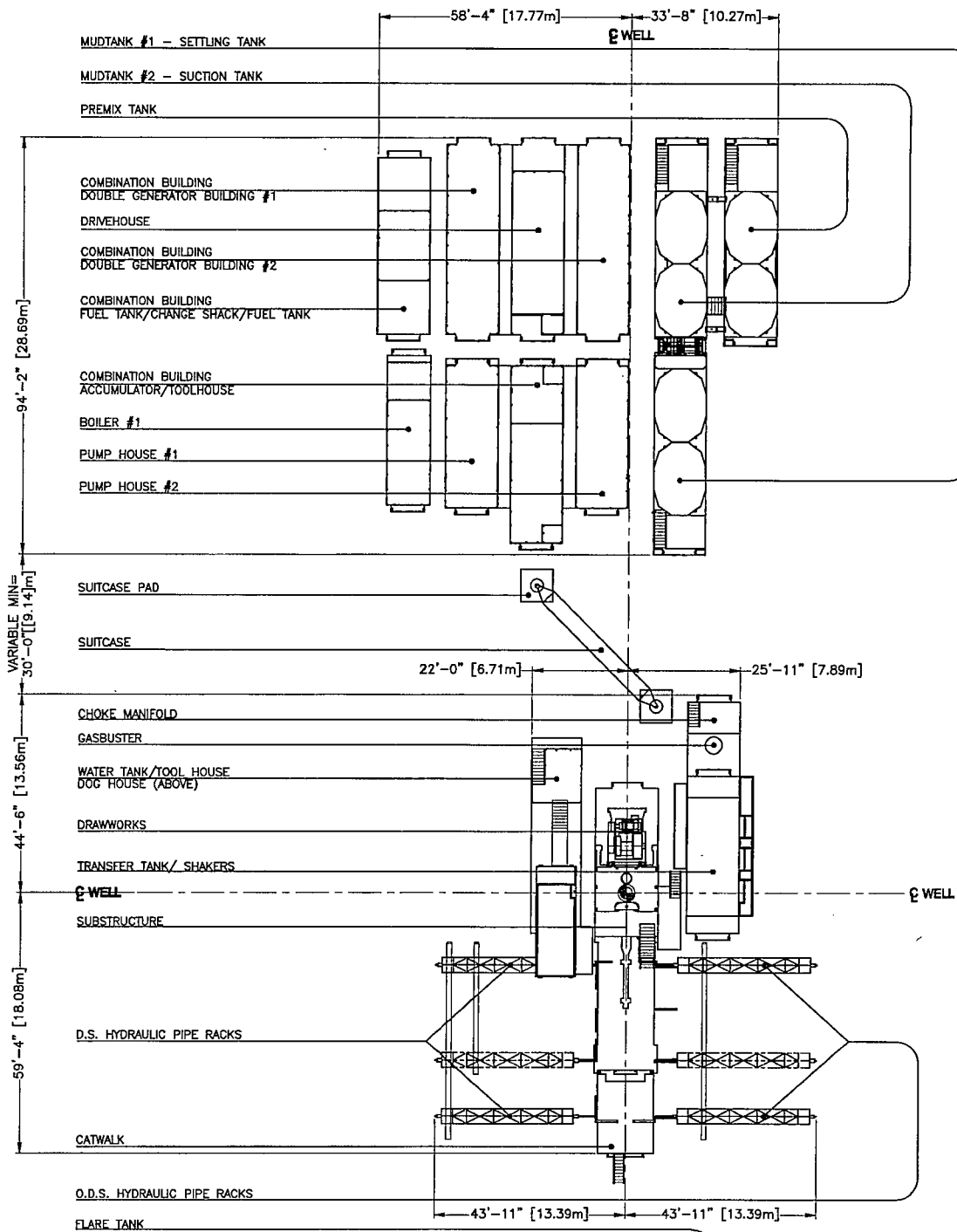
Inspection to occur every tour for proper operation of system and individual components. If any problems are found they will be repaired and/or corrected immediately.

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.

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