				_	ATS-	14-437
HOBBAUGE	OCTARY'S P	OTASH			-	
Form 3160-3 NOV 02 2014 SELA	acture .	OCD Hobbs		FORM	I APPROVE No. 1004-013	D 7
	ГES			Expires	July 31, 201	0
ORTHODORE DEPARTMENT OF TH	E INTERIOR	F		SHL: NM-84902	BHL: NM	-54432
OCATION FOR PERMIT T	O DRILL O	R REENTER		6. If Indian, Allote	e or Tribe	Name
la. Type of work: 🔽 DRILL 🗌 REE	INTER			7. If Unit or CA Ag	reement, Na	ime and No.
b. Type of Well: 🗹 Oil Well 🔲 Gas Well 🛄 Other	<b>√</b> s	ingle Zone 🔲 Mult	iple Zone	8. Lease Name and North Lea 3 Fed (	I Well No. Com #3H	<b>&lt;3136</b> 3
2. Name of Operator Read and Stevens, Inc	<.	89173		9. API Well No. <b>30 - 02</b>	۲ ۲	12228
3a. Address 400 N. Pennsylvania Ave #1000 Roswell, NM 88201	3b. Phone No 575-622-3	0. (include area code) 3770		10 Teas East; Bone	r Burlomtor Spring	V CSOUB
Location of Well (Report location clearly and in accordance with	h any State requirer	nents.*)		11. Sec., T. R. M. or	Blk. and Sur	vey or Area
At surface 200' FNL 2290' FWL LOS 3	. 4			Sec. 3 T-20S R-	34E	
At proposed prod. zone 330' FSL 2290'FWL Unit	N			12 County or Parich		13 State
26 miles WSW of Hobbs				Lea		NM
5. Distance from proposed* 200' location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of a	acres in lease ,DZ.45	17. Spacir 160 • <b>85</b>	g Unit dedicated to this	; well	
B. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Propose 10,923TV	d Depth D/ 15,408'MD	20, BLM/ NM-231	BIA Bond No. on file 0		
Elevations (Show whether DF, KDB, RT, GL, etc.)	22 Approxi	imate date work will sta	urt*	23. Estimated durati	on	
GL - 3667.7' RKB - 3689.7'	08/15/201	14		60 days until con	npletion	
are following completed in accordance with the requirements of On	24. Atta	Order No 1 must be s	uttached to th	is form:		
Well plat certified by a registered surveyor. A Drilling Plan. A Surface Use Plan (if the location is on National Forest Syst SUPO must be filed with the appropriate Forest Service Office).	lem Lands, the	<ol> <li>Bond to cover t Item 20 above).</li> <li>Operator certifi</li> <li>Such other site BLM.</li> </ol>	the operatio cation specific info	ns unless covered by a primation and/or plans a	n existing b as may be re	ond on file (see equired by the
5. Signature	Name	(Printed/Typed)			Date	
	Tiny	XXXXXX Rory	McMinn	· · · · · · · · · · · · · · · · ·	01/23/2	2014
SxXXPxDriling and Exploration President						
pproved by (Signature) James A. Amos	Name	(Printed/Typed)	÷.		Date <b>OC</b>	T 2 8 2014
tle	Office	с	ARLSBA	D FIELD OFFICE		
pplication approval does not warrant or certify that the applicant I nduct operations thereon. onditions of approval, if any, are attached.	iolds legal or equi	table title to those righ	nts in the sub	PPROVAL F	entitle the a	pplicant to
le 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it ates any false, fictitious or fraudulent statements or representations	a crime for any p as to any matter v	erson knowingly and vithin its jurisdiction.	willfully to m	nake to any department	or agency (	of the United
Continued on page 2)				*(Ins	tructions	on page 2)
			k	ZUNIY		
Capitan Controlled Water Basin			U		5	a (
Approval Subject	to General R	equirements	SEI	E ATTACH	ED F	OR
& Special S	tipulations At	tached	00	NDITIONS	OF F	<b>TLEVOA</b>

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Approval Subject to General Requirements & Special Stipulations Attached

NOV 0 4 2014

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## Read and Stevens, Inc.

400 N Pennsylvania Ave #1000, Roswell, NM 88201

Operator Certification:Application for Permit to DrillNorth Lea 3 Fed Com #3HRead 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:

Xinn Xookiexx Rory McMinn SrxXARQuilling and Explorationx President Dated: 01/23/2014

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### Article I. <u>Well Overview:</u>

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

Formation	TVD	Subsea	Thickness	Туре
Rustler	1600'	-2090'		
Top of Salt	1730'	-1960'		
Base of Salt	3340'	-350'		
Tansil (Top of	3340'	-350	1889'	Possible Fresh Water
Capitan Reef)				
Yates	3550'	-140'		
Seven Rivers	3844'	154'		
Queen	4558'	868'		
Penrose	4897'	1207'		
Grayburg(Bottom	5067'	1377'		
Capitan Reef)				
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 <sup>st</sup> Bone Spring	9422'	5732'	517'	Hydrocarbon
2 <sup>nd</sup> Bone Spring	9939'	6249'	636'	Hydrocarbon
3 <sup>rd</sup> Bone Spring	10575'	6885'	656'	Hydrocarbon

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

Pressure Control:

BOP test shall be conducted:

Article III.

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

- 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.

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.

Multi-bow/ is not e schematics below. being used



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.

OR	*All casing is new API casing.*						
Hole Size	Casing	Weight Ib/ft	Grade	Conn	MD/RKB	Stage	
	20"				120'	Conductor	
16"	13.375"	54.5	J-55	STC	1625' 1796	Surface	
12.25"	9.625"	40	L-80	LTC	-5586' 5496	Intermedia	
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 7	3090	1.28	5750	2.03	727	3.33
5.5	7480	1.55	10640	1.29	568	3.06
/						
					A	

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

Article V. <u>Cement Program:</u>

Section 5.01 13.375" Surface Casing

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 Ibs/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%" casing <u>if</u> 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
12.6ррд	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
	,				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 Cbloride

Tail:

Slurry WT	Yield	Sx	Gallons/ Sac	k 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 Ibs/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% bwow Sodium Chloride + 3 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.005 gps
					FP-6L + 0.005% bwoc Static Free

Circulate cement to surface. If cement does not circulate to surface a top squeeze job or casing perforation will be used.

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

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

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, fleural strength development and reduced permeability

#### Poz (Fly Ash)

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

#### **Sodium Chloride**

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

#### Sodium Metasilicate

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

#### Static Free

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



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. <u>Mud Monitoring System:</u>

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.

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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. <u>Bottom Hole:</u>

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.

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. <u>H2S:</u> No H2S is expected. But there is the possibility of the presence of H2S. Attached is the H2S response plan.

Article XIII. <u>Directional:</u> Directional survey plan and plot attached.

Article XIV. <u>Drilling Recorder:</u>

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)



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.



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

Field Nam	e			L	Lease Name						Well No.		
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Tools/Problems Summary

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

Date	Tool Type	O.D. (in)	I.D. (in)	Top (MD ft)	Bottom (MD ft)
	FC	13.375	0.000	1,584	C
	GS	13.375	0.000	1,624	C
	FC	9.625	0.000	5,545	C
	GS	9.625	0.000	5,585	C
	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	· · · · · · · · · · · · · · · · · · ·		I	

· · · · · · · · · · · · · · · · · · ·	, ,	
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 cheifly 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

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

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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 Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often coloquially described as shales).
2nd Bone Spring	9,939	Interbedded Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often coloquially described as shales).
3rd Bone Spring	10,575	Interbedded Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often coloquially described as shales).

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Field Nam	Name Lease Name Well No. County, State API No.															
North Lea				North L	ea 3 Fed			3H	Lea, Ne	ew Me	xico		0222222	222222	222	
Version	Ve	rsion Ta	g	·						Spi	ud Date	Comp. Date	G.L. (ft)		K.B.	(ft)
	1 Pla	anning											3,	667.7		3,689
Sec.	Town	ship/Blo	ock	R	ange/Surve	У		Footage Call	í							
3	20S			3	4E			200' FNL & 2	290' FWL F	rom S	Section					
Operator						Well St	atus		La	titude	9	Longitude		PropN	um	
Read and S	Stevens	3				Plannin	g		32	2.6089	31	103.549172				
Last Upda	ted			P	repared By					U	pdated By					
01/23/2014	4 8:18 A	M		S	teve Morris					St	eve Morris					
Additional	Inform	ation														
AFE No.: Permit No.: Read and S Lease No.: Bond No.: I	: Stevens : NM-84 NM-231	well No. 902	.: 10706													
Hole Summ	mary															
Date	O.D	. T	op E	Bottom					Co	mmer	nts					
	(in)	(MI	Dift) (	MD ft)												
	16.0	100	120	1,625	Surrace											
	12,2	250	1,625	5,586	Intermediat	e 										
Tubul C	8.5	000	3,586	15,408	Production											
Tubular Su	ummary	/			1 5											
Date	1	Descrip	otion	No 1+4	. O.D.	Wt (lb/ft)	Grade	e   Top (M⊡ ⊕)	Bottom			Com	nents			
	Condu	ctor Cas	ing	1.0	20.000	(io/it)			(11 G m)	20						
······	Surfac	e Casino	 1		13.375	54.50	J-55		1.62	25 Bur	st 2730nsi	SF 3,54Collans	e1130nsi	SF3 08	Tens	ile
			,						.,01	514	klbs SF 5.6	66 ID12.615" D	rift 12.459			
	Interm	ediate C	asing		9.625	40.00	L-80	0	5,58	86 Burst 5750psi SF 2.03 Collapse 300psi SF 1 727klbs SF 3.33ID 8.835"Drift 8.679"			300psi SF 1.28Tensile .679"			
	Produc	ction Cas	sing		5.500	17.00	P-110	) 0	15,40	8 Bur 568	Burst 10640psi SF 1.29 Collapse 7480psi SF 1.55 568klbs SF 3.06ID 4.892" Drift 4.767"			ſensile		
Casing Cer	ment S	ummary			-y											
Date	No.	Yield	Vol.	Csg.		Bo /M	ttom	Desc	ription		1	Co	mments			
	591	1.93	1,14	1 13.37	75 15	0	1,325	Lead ClassC+ 4%	13.5ppg 9 bwoc Bent	71gps onite II	120' Lead 126.7cuft	1 casing in cond 22.6bbls	luctor with	no ex	cess	
								+ 2% bwoc Ca 0,25 lbs/sa 0.005% b∖	ack Cello F woc Static	Free +	1205' Lea 1013.6cut	ad casing in ope ft 180.5bbls	en hole wit	h 1009	% exc	ess
									0.005gpsl	FP- 6L	Shoe trac 34.7cuft 6	k 40ft with no e 3.2bbls	xcess			
	166	1.35	22	4 13.37	5 1,3	25	1,625	Tail 14.8pp	og 6.35gps	Class	300' Tail o	casing in open l	nole with 1	00% e	excess	5
								C+1.5 Chloride+0.00	% bwoc C )5 lbs/sack	alcium Statio	187.9cuft	33,5bbls				
								Free+	0.005 gps	FP-6L	40' Tail in 34.7cuft 6	shoe track with	no exces	s		
	1,193	2.13	2,54	1 9.62	5	0	5,086	Lead ClassC(35:65	12.6ppg 2. ) + Poz (Fl	13gps y Ash)	1625' Lea 589.4cuft	id casing in cas 105bbls	ing with no	exce	ss	
								bwoc MPA-5 + 52 +5 lbs/sac lbs/sack Ce lbs/sack Static	0.25% bw k LCM-1 + llo Flake + Free + 0.0	oc FL- 0.125 0.005 05gps	3461' Lea 1951.1cuf	id casing in ope ft 347.5bbls	n hole wit	h 80%	exce	ss
								Metasilicate +	5%bwow S	odium Iloride						
	230	1.35	31	1 9.62	5 5,08	36	5,586	Tail 14.8ppg 6	6.35gps C	lass C	500' Tail o 281.9cuft	casing in open I 50.2bbls	nole with 8	0% ex	cess	
											40' Tail sh 17cuft 3bt	noe track with n	o excess			
	1,533	2.38	3,64	9 5.50	0	0	10,900	Lead 1 ClassH/50:50	1.9ppg 13.	22gps	5586 Lead	d casing in casi ft 259.4bbls	ng with no	exces	s	
								+10%bwoc i bwow Sod	Bentonite II	+ 5% de + 5	5314' Lea	d casing in ope	n hole wit	h 80%	exce	SS
								Ibs/sack St	taticFree +	0.005 FP-6L	2101.100					
	771	1.62	1,249	9 5.50	0 10,90	00	15,408	Tail Class (FlyAsh):Class 2 + 4% bwow + 3 lbs/sac	13.2ppg 9. H(15:61:1 H Cement Sodium Ch & L CM-1 +	45gps 1) Poz :CSE- Noride	4508' Tail 1239.2cuf 80' Tail sh 10 4cuft 1	casing in open it 220.7bbls noe track with n 9bbls	hole with o excess	20% e	xcess	5
ĺ								bwoc FL-25 + +0.005%	0.005 gps bwoc Stati	FP-6L c Free	10,70010 I					

Tools/Problems Summary

Date	ТооІ Туре	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

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Date	Тоо! Туре	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 Ton (MD ft)

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 cheifly 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 Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often coloquially described as shales).
2nd Bone Spring	9,939	Interbedded Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often coloquially described as shales).
3rd Bone Spring	10,575	Interbedded Argiliceous quartz-rich siltstones with interbedded organic-rich silt beds (often coloquially described as shales).

Field Name			Lease M	Name			Well No.	Count	ty, State			API	No.	7	Version	Version Ta	ag	Spud Date	Comp. Dat	e G.L. (ft)	K.B. (ft)
North Lea			North Le	ea 3 Fed			зн	Lea, N	lew Mex	ico		0222	22222222222		1	Planning				3,667.7	3,689.7
Sec.	Township/	Block	Range/S	urvey	Footag	ge Call	I				Latitude		Longitude		Well State	15	PropNum	Ope	rator		-1
3	205		34E		200' FI	VL & 2290	FWL From Se	ction				32.60893	103.	.549172	Planning	_		Rea	and Steven	s	
Last Update	d	Prepared B	у		Updat	ed By		Ad	ditional	Information											
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10,000						······································		1 0			<u> </u>	 					······································				2nd Bone Spring 3rd Bone Spring
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Page 6 of 6

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#### 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°

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Magnetic Field Strength: 48695,0snT Dip Angle: 60.51° Date: 28/12/2012 Model: IGRF2010

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							Wes	t(-)/East(	+) (600 u	sft/in)				M	



## **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





IRECTIONAL CORPORATION

N/A	Mojo
	DIRECTIONAL CORPORATION



Company: Rer Project: Nor Site: See Well: Nor Wellbore: Nor Design: 131 Project Man System:	id and Stevens Inc. th Lea Prospect T20S-R34 tion 3 : th Lea Federal Com 3 #3H th Lea Federal Com 3 #3H 003 North Lea Fed Com 3 	E H ci T20S-R34E					Local Co-ordin TVD Reference North Reference Survey Calcul Database:	nate Reference e; b: lation Method;	: Well WEL Grid Minin EDM	North Lea Fede L (copy) @ 368 L (copy) @ 368 num Curvature 5000,1 Single I Sea Level	ral Com 3 #3 9.7usft (Origi 9.7usft (Origi User Db	iH nal WelliElev) nal Well Elev)	
Geo Datum:	North American Datum 198	33					oyololli Dulu		Lising	neodetic scale	factor		
wap zone:									Cang	geodetic scale			] ]
Site	Section 3				5	* 4 4							
Site Position: From: Position Uncertainty:	Lat/Long 1.0 usft			Northing: Easting: Slot Radius	5:	· 58 78	6,163.01 usft 4,123.26 usft 16 "	. Latit Long Grid	ude: jitude: Convergence:	****	1	32° 36' 32.180 N 103° 32' 41.562 W 0.42 °	
Well	North Lea Federa	Com 3 #3H		55. (2003) 2003 - 2003			- <u>5</u> 283	<u></u>	- Ale		- Alexandre		<u>]</u>
Well Position	+N/-S 0.0 u +E/-W 0.0 u	usft usft		Northing: Easting:		586,150. 782,801.	20 usft 05 usft		Latitude Longitue	: de:		32° 36' 32.150 103° 32' 57.020 V	N N
Position Uncertainty	1.0 u	usft	•	Wellhead Elev	ation:		usft		Ground	Level:		3,667.7 ust	ft
Wellbore	North Lea Federa	I Com 3 #3H			<u> </u>					<u></u>			] 4
Magnetics	Model Name IGRF2010	Sample Date 28/12/201	2 2	eclination (°) 7.4	1	Dip Angle (?) 60	51	eld Strength (nT) 48,69	95		<u>j</u>		
Design	131003 North Lea	Fed Com 3H	and the second sec					in the second					
Audit Notes: Version:		Phase:	PLAN		Tie On Dep	th:	0.0						
Vertical Section:	Dep	th From (TVD) (usft) 0.0	+N (us 0	/-S sft) .0	+E/-W (usft) 0.0		Direction (*) 179.62	\$ 	in and a second				
Survey Tool Program From (usft)	Date 03/10/201: To (usti) Survey (W	3 eilbore)		Tool Name		Description							
0.0	15,407.8 131003 No	rth Lea Fed Com 3H	(North Lea	MWD		MWD - Stan	dard						

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Company: Read a Project: North Site: Section Well: North L Wellbore: North L Design: 131003	and Stevens Inc. ea Prospect T2 n 3 ea Federal Com ea Federal Com 3 North Lea Fed	0S-R34E 1 3 #3H 1 3 #3H Com 3H				Local Co-ordinate TVD Reference: MD Reference: North Reference: Survey Calculatic Database:	e Reference	Well North Lea F WELL (copy) @ WELL (copy) @ Grid Grid EDM 5000.1 Sin	Federal Com 3,#3H 3689:7usft (Original We 3689:7usft (Original We ure gie User Db	III Èlev) III Elev)
Planned Survey				54 54	, ۲۰, د ۲۰			- 2		
MD (usft)	Inc	Azi (azimuth)	TVD (usft)	TVDSS (usft)	N/S (üsft)	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
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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"	0.00		1 700 0	1 000 7		<u> </u>			F00.450.00	
1,700.0	. 0.00	0.00	1,700.0	-1,969.7	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	0.00	<u> </u>	4 000 0	1 000 7		<u> </u>		<u></u>	1.3.	
1,800.0	0.00	0.00	1,800.0	-1,009.7	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

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COMPASS 5000.1 Build 56

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MOJO Standard Survey



Company: Project: Site: Well: Wellbore: Design:	Read and Ste North Lea Pro Section 3 North Lea Feo North Lea Feo 131003 North	evens Inc. ospect T20S-R34E deral Com 3 #3H deral Com 3 #3H Lea Fed Com 3H					Local Co-or TVD Refere MD Referen North Refer Survey Cald Database	dinate Reference: ncé: encë: encë: sullation Method:	Well North Lea Fe WELL (copy) @ 36 WELL (copy) @ 36 Grid Minimum Curvatur EDM 5000 11Singl	deral Com 3,#3H 689.7usft (Original W 689.7usft (Original W e e Úser Db	'ell Elev) 'ell Elev)
Planned Su	irvey	<u> </u>				1. 					
MD (usft	) (°)	Azi (azi (°	imuth) )	TVD (usfi)	TVDSS (usft)	N/S (ustt)	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
ĩ	3,000.0	0.00	0.00	3,000.0	-689.7	0.0	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	) O	.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
Bas	se of Salt				<u> </u>	1.4	<u> </u>			5 4-3 T	
	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	0.4	) 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	0.00	586,150.20	782,801.05
Yat	es (Capitan Reef)				00.7			0 00	0.00	E96 150 20	782 801 05
	3,600.0	0.00	0.00	3,600.0	-89.7	0.1	, U	.0 0.0	0.00	586 150 20	762,601.05
	3,800.0	0.00	0.00	3,700.0	10.5	0.0		0 00	0.00	586 150 20	782,001.05
	3 843 7	0.00	0.00	3,843.7	154.0	0.	) 0	.0 0.0	0.00	586,150,20	782,801.05
5.7 R	ivers (Canitan Reef)		····		ina.		- w 3 {				
he he he	3.900.0	0.00	0.00	3.900.0	210.3	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.	o 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.	o 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.	o a	.0 0.0	0.00	586,150.20	782,801.05
	4,300.0	0.00	0.00	4,300.0	610.3	0.	D . C	.0 0.0	0.00	586,150.20	782,801.05

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Company - Project: Site: Well: Wellbore Design:	Read and Stevens Inc North Lea Prospect 77 Section 3 North Lea Federal Co North Lea Federal Co 131003 North Lea Federal Co	20S-R34E m3#3H m3#3H t Com3H				Local Co-ordi TVD Reference MD Reference North Referen Survey Calcul Database:	nate Reference: e: :: ce: ation Method:	Well North Lea Fe WELL (copy) @ 3 WELL (copy) @ 3 Grid. Minimum Curvatu EDM 5000.1 Sing	ederal Com 3 #3H 689.7usft (Original W 689.7usft (Original W re re le User Db	/ell Elev) /ell Elev)
Planned Survey MD (ùsft)	linc (°)	Azi((ázimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	EW (ust)	V Sec	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 (C	apitan Reef)	1. 1. Y. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ver i var		S. C.	126			<u></u>	
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)	- 286 1	¥6.4 ¥6.	× 34.		· Fe		1. 1. S. M. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	\$1	भू ते   भू ते
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)	1994 - C.								
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 Andr	es 🖉			A						No. A company
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	0.00	0.00	5,500.0	1.810.3	0.0	0.0	. 0.0	0.00	586,150.20	782,801.05
5,575	i.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
lämarlin	ne		<u></u>	.24		<u> 3</u> 8 ·	۲	- <u>896 - 189</u>		10.00
5,585	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"			54 - 1984.			5-34 j.		Reg di	in the	
5,600	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					· · · · · · · · · · · · · · · · · · ·			i Az	
5,700	. 0.00	0.00	5,700.0	2,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05

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Company: Project:Read and Stevens Inc. North Lea Prospect T2 Section 3Site: Well:Section 3Well: Wellbore: Design:North Lea Federal Con North Lea Federal Con 131003 North Lea Fed	0S-R34E n 3 #3H n 3 #3H I Com-3H			Local Co-ordina TVD Reference: MD Reference: North Reference Survey Calculat Database	ite Reference; e: iion Method:	Well North Lea F WELL (copy) @ WELE(copy) @ Grid Minimum Curvat EDM 5000:1 Sin	ederal Com 3 #3H 3689.7.usft (Original \ 3689.7.usft (Original \ 3689.7.usft (Original \ ure gle User,Db	Nell Elev) Nell Elev)
Planned Survey								
MD inc	Azi (azimuth) TVD	TVDSS	N/S	E/W	V. Sec	DLeg	Northing	Easting
(ustt)	(°) (usft)	(usft)	(usft)	(usft)	(usft) 🖉	(°/100usft)	(usft)	(usft)
5,800.0 0.00	0.00 5,80	0.0 2,110.3	0.0	.0.0	0.0	0.00	586,150.20	782,801.05
5,900.0 0.00	0.00 5,90	0.0 2,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
5,989.7 0.00	0.00 . 5,98	9.7 2,300.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05
Cherry Canyon						1.2.20		
6,000.0 0.00	0.00 6,00	0.0 2,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
6,100.0 0.00	0.00 6,10	0.0 2,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
6,200.0 0.00	0.00 6,20	0.0 2,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
6,300.0 0.00	0.00 6,30	0.0 2,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
6,400.0 0.00	0.00 6,40	0.0 2,710.3	0.0	0.0	. 0.0	0.00	586,150.20	782,801.05
6,500.0 0.00	0.00 6,50	0.0 2,810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
6,600.0 0.00	0.00 6,60	0.0 2,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
6,700.0 0.00	0.00 6,70	0.0 3,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
6,800.0 0.00	0.00 6,80	0.0 3,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
6,900.0 0.00	0.00 6,90	0.0 3,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,000.0 0.00	0.00 7,00	0.0 3,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,100.0 0.00	0.00 7,10	0.0 3,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,200.0 0.00	0.00 7,20	0.0 3,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,300.0 0.00	0.00 7,30	0.0 3,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,309.7 0.00	0.00 7,30	9.7 3,620.0	0.0	0.0	0.0	0.00	586,150.20	782,801.05
Brushy Canyon				AMEL .	Sec.	- 202	143 C.	
7,400.0 0.00	0.00 7,40	0.0 3,710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,500.0 0.00	0.00 7,50	0.0 3,810.3	• 0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,600.0 0.00	0.00 7,60	0.0 3,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,700.0 0.00	0.00 7,70	0.0 4,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,800.0 0.00	0.00 7,80	0.0 4,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
7,900.0 0.00	0.00 7,90	0.0 4,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,000.0 0.00	0.00 8,00	0.0 4,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05





Company Project Site: Well: Wellbore: Design:	Read and Ste North Lea Pro Section 3 North Lea Feo North Lea Feo 131003 North	vens Inc spect T20S-R34E leral Com 3 #3H leral Com 3 #3H Lea Fed Com 3H					Local Co-ordi TVD Reference MD Reference North Referen Survey Calcu Database:	nate Reference: :e: :ce: lation Method:	Well North Lea F WELL (copy) @ 3 WELL (copy) @ 3 Grid Minimum Curvatu EDM 5000.1 Sing	ederal Com 3 #3H 669.7usfi (Original 689.7usfi (Original 689.7usfi (Original 1 re le User Db	Well Elev) Well Elev)
Planned Surve	v <u>3</u> 12						<u>s</u>				<u></u>
MD	- Inc	Ázi (azi	muth)	TVD	TVDSS	NIS	*ENV	V Sec	Dien i	Northing	Fasting
(usft)	(*)	(°)	)	(usft)	(usft)	(usti)	(usft)	(usft)	(°/100usft)	(usft)	(usft)
8,1	00.0	0.00	0.00	8,100.0	4,410.3	0.0	. 0.0	0.0	0.00	· 586,150.20	782,801.05
8,2	00.0	0.00	0.00	8,200.0	4,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,2	34.7	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 S	prings Lime		\$.\$.	. Ch	A Press		<u> </u>	Al A		5-1	
8,3	0.00	0.00	0.00	8,300.0	4,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,4	0.00	0.00	0.00	8,400.0	4,710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
. 8,5	0.00	0.00	0.00	8,500.0	4,810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,6	0.00	0.00	0.00	8,600.0	4,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,70	0.0	0.00	0.00	8,700.0	5,010.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,7	29.7	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	A Contraction	<u>E.</u>		Star .		1. Start 1.	AND STREET	1		··· ( \$\$6.
8,8	0.00	0.00	0.00	8,800.0	5,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
8,9	00.0	0.00	0.00	8,900.0	5,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,0	00.0	0.00	0.00	9,000.0	5,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,1	00.0	0.00	0.00	9,100.0	5,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,2	0.00	0.00	0.00	9,200.0	5,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,3	00.0	0.00	0.00	9,300.0	5,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,4	00.0	0.00	0.00	9,400.0	5,710.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,4:	21.7	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 Bon	e Spring Sand								and the second s		· · · · · · · · · · · · · · · · · · ·
9,5	0.00	0.00	0.00	9,500.0	5,810.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
. 9,60	0.00	0.00	0.00	9,600.0	5,910.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,70	0.0	. 0.00	0.00	9,700.0	6,010.3	0.0	0.0	0.0	0.00	586,150.20	~782,801.05
9,8	00.0	0.00	0.00	9,800.0	6,110.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,9	00.0	0.00	0.00	9,900.0	6,210.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
9,9:	38.7	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 Bo	ne Spring Sand			<u> </u>				<u></u>			
10,0	0.00	0.00	0.00	10,000.0	6,310.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05





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أشم ng t) i2,801.75 12,802.09 2,802.50 2,802.98 2,803.53 12,804.15 12,804.83 12,805.59 2,806.41 2,806.59 2,807.28 2,808.15 2,809.02 2,809.89 2,810.77 12,811.64 2,812.51 2,813.38 2,814.25 2,815.12 2,815.99 2,816.86 2,817.74 2,818.61 2,819.48 2,820.35 2,821.22

Company: Project: Site: Well: Wellbore: Design:	Read and Stevens Inc. North Lea Prospect T2 Section 3 North Lea Federal Con North Lea Federal Con 131003 North Lea Fed	20S-R34E n 3 #3H n 3 #3H Com 3H				Local Co-ordinal TVD Reference: MD Reference: North Reference Survey Calculati Database:	é Reference: con Method:	Well North Lea Fec WELL (copy) @ 36 WELL (copy) @ 36 Grid Minimum Curvaturi EDM 5000.1 Single	Jeral Com 3 #3H 189.7usft (Original We 189.7usft (Original We 19.000 19.0000 19.00000 19.000000000000	il Elev) il Elev)
Planned Survey	, · · <u>C</u> .	· · · · · · · · · · · · · · · · · · ·				2) 2)	2			, j
MD (usft)	inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,10	0.00	0.00	10,100.0	6,410.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
10,20	0.00	0.00	10,200.0	6,510.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
10,30	0.00	0.00	10,300.0	6,610.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
10,33	30.0 0.00	0.00	10,330.0	6,640.3	0.0	0.0	0.0	0.00	586,150.20	782,801.05
10,35	50.0 2.20	180.00	10,350.0	6,660.3	-0.4	0.0	0.4	11.00	586,149.81	782,801.05
10,40	00.0 7.70	180.00	10,399.8	6,710.1	-4.7	0.0	4.7	11.00	586,145.50	782,801.05
10,45	50.0 13.20	180.00	10,448.9	6,759.2	-13.8	0.0	13.8	11.00	586,136.44	782,801.05
10,50	00.0 18.70	180.00	10,497.0	6,807.3	-27.5	0.0	27.5	11.00	586,122.70	782,801.05
10,55	50.0 24.20	180.00	10,543.5	6,853.8	-45.8	0.0	45.8	11.00	586,104.42	782,801.05
10,58	84.7 28.02	180.00	10,574.7	6,885.0	-61,1	0.0	61.1	11.00	586,089.14	782,801.05
3rd Bon	e Spring Sand		· ··· ··· ··· ··· ··· ··· ··· ··· ···					······································		- Kanalanan -
10,60	29.70	180.00	10,588.1	6,898.4	-68.4	0.0	68.4	11.00	586,081.77	782,801.05
10,65	50.0 35.20	180.00	10,630.2	6,940.5	-95.2	0.0	95.2	11.00	586,054.96	782,801.05
10,70	00.0 40.70	180.00	10,669.7	6,980.0	-126.0	0.0	126.0	11.00	586,024.22	782,801.05
10,75	50.0 . 46.20	180.00	10,705.9	7,016.2	-160.4	0.0	160.4	11.00	585,989.85	782,801.05
10,80	00.0 51.70	180.00	10,738.8	7,049.1	-198.0	0.0	198.0	11.00	585,952.16	782,801.05
10,8	50.0 57.20	180.00	10,767.8	7,078.1	-238.7	0.0	238.7	11.00	585,911.49	782,801.05
10,90	00.0 62.70	180.00	10,792.9	7,103.2	-282.0	0.0	282.0	11.00	585,868.23	782,801.05
10,9	50.0 68.20	180.00	10,813.6	7,123.9	-327.4	0.0	327.4	11.00	585,822.77	782,801.05
11,00	00.0 73.70	180.00	10,829.9	7,140.2	-374.7	0.0	374.7	11.00	585,775.53	782,801.05
11,0	50.0 79.20	180.00	10,841.6	7,151.9	-423.3	0.0	423.3	11.00	585,726.94	782,801.05
11,10	00.0 84.70	180.00	10,848.6	7,158.9	-472.8	0.0	472.7	11.00	585,677.45	782,801.05
11,14	48.2 90.00	180.00	. 10,850.9	7,161.2	-520.9	0.0	520.9	11.00	585,629.34	782,801.05
11,20	00.0 89.95	179.98	10,850.9	7,161.2	-572.7	0.0	572.7	0.10	585,577.52	782,801.06
11,3	00.0 89.86	179.94	10,851.1	7,161.4	-672.7	0.1	. 672.7	0.10	585,477.52	782,801.13
11,4	00.0 89.78	179.90	10,851.4	7,161.7	-772.7	0.2	772.7	0.10	585,377.53	782,801.26
11,5	00.0 89.69	179.86	10,851.8	7,162.1	-872.7	0.4	872.7	0.10	585,277.53	782,801.47

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Company:Read aProject:North LSite:SectionWell:North LWellbore:North LOesign:131003	ind Stevens Inc. .ea Prospect T20S-R3 1 3 .ea Federal Com 3 #31 8 North Lea Fed Com 3	4E 				Local Co-ordinate TVD Reference: MD Reference: North Reference: Survey Calculatic Database:	e Reference:	Well North Lea Fec WELL (copy) @ 36 WELL (copy) @ 36 Grid Minimum Curvatur EDM 5000,1 Single	deral Com 3 #3H 389.7usft (Original Wi 389.7usft (Original Wi 9 User Db	ell Elev) ell Elev)
Planned Survey							5 e.,	-3.		
MD (usft)	Inc (°)	azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (*/100usfi)	Northing (usff)	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

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MOJO Standard Survey



Company: Project: Site: Well: Wellbore: Design:	Read at North Le Section North Le North Le 131003	nd Stevens In ea Prospect 3 ea Federal C ea Federal C North Lea Fe	nc: T20S-R34E om 3 #3H om 3 #3H ed Com 3H								Local TVD R MD Re North Surve Datab	Co-ordin leference eference: Referenc y Calcula ase:	ate Reference: : :e: :tion Method:	S S G M E	/ell North Lea /ELL (copy) @ /ELL (copy) @ rid. Inimum Curva DM 5000:1 Sir	Federal 3689.71 3689.71 13689.71 1ure	Com 3 #3H isft (Original isft (Original r Db	Well Elé Well Elé	iv) iv)
Planned Survey		C		Ş		4				<u></u>				<u> </u>		<u>II</u>			<u>.</u>
s MD (usft)		Inc (°)	Azi (azi (°)	muth) 🔬	TVD (usft		TVDS: (usft)		N/S (usft		E/W (usft)		V. Sec (usft)		DLeg (100usft)	No (i	rthing usft)	Ea (	ısting usft)
14,200	0.0	88.8	6	179.50		10,898.8		7,209.1		-3,572.2		21.0	3,57	2.2	0.00		582,578.11		782,822.09
14,300	0.0	88.86	6	179.50	•	10,900.7		7,211.0		-3,672.1		21.9	3,67	2.2	0.00		582,478.14		782,822.96
14,400	0.0	88.86	6	179.50		10,902.7		7,213.0		-3,772.1		22.8	3,77	2.2	0.00		582,378.16		782,823.83
14,500	0.0	. 88.86	6	179.50		10,904.7		7,215.0		-3,872.1		23.7	3,87	2.2	0.00		582,278.19		782,824.71
14,600	0.0	88.8	6	179.50		10,906.7		7,217.0		-3,972.1		24.5	3,97	2.2	0.00		582,178.21		782,825.58
14,700	0.0	88.8	6	179.50	· ·	10,908.7		7,219.0		-4,072.1		25.4	4,07	2.1	0.00		582,078.24		782,826.45
14,800	0.0	88.8	6.	179.50		10,910.7		7,221.0		-4,172.0		26.3	4,17	2.1	0.00		581,978.27		782,827.32
14,900	0.0	88.86	6	179.50		10,912.6		7,222.9		-4,272.0		27.1	4,27	2.1	0.00		581,878.29		782,828.19
15,000	0.0	88.86	6	179.50		10,914.6		7,224.9		4,372.0		28.0	4,37	2.1	0.00		581,778.32		782,829.06
15,100	0.0	88.86	6	179.50		10,916.6		7,226.9		-4,472.0		28.9	4,47	2.1	0.00		581,678.34		782,829.93
15,200	0.0	88.86	6	179.50		10,918.6		7,228.9		-4,571.9		29.8	4,57	2.0	0.00		581,578.37		782,830.81
15,300	0.0	88.8	6	179.50		10,920.6		7,230.9		-4,671.9		30.6	4,67	2.0	0.00		581,478.40		782,831.68
15,398	3.4	88.86	6	179.50		10,922.5		7,232.8		-4,770.3		31.5	4,77	0.4	0.00		581,380.00		782,832.53
15,407	7.8	88.86	6	179.50		10,922.7		7,233.0		-4,779.7		31.6	4,77	9.8	0.04		581,370.62		782,832.62
5 1/2" ;		<u> </u>	aísti	<u> </u>		<u>\$</u>	2`	<u>X</u> .		l		· &	163 - 3	š		<u> </u>	• ) 4 = 1		
Casing Points	2	<u>(4</u> )													<del></del>			18	<u> </u>
	Measu Dep (us	ured A oth ft)	/ertical Depth (usft)			Ni	Ime	<b>.</b>			Casing Diameter (")	Ho Diam	ile ieter )					Ż	
	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						

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Company: Project: Site: Well: Wellbore: Design:	Read and Stevens Inc. North Lea Prospect T20S-f Section 3 North Lea Federal Com 3 # North Lea Federal Com 3 # 131003 North Lea Fed Cor	234E /3H /3H n 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
Formations	Measured Vertical Depth Depth (usft) (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 Avaion 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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Closed Loop Diagram

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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

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 NMOCD 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 S	tevens, Inc	······································	OGRID #:	18917		
Address: 400 N Penns	ylvania Ave #1000, Rosv	vell, NM 88201				
Facility or well name: N	orth Lea 3 Fed Com #3H					
API Number:		OC	D Permit Number:			
U/L or Qtr/Qtr C	Section 3	Township 20S	Range 34E	County: Lea	·	
Center of Proposed Desi	gn: Latitude	Lo	ngitude	<u></u>	NAD: 🔲 1927 🔲 1983	
Surface Owner: 🛄 Fede	ral 🔲 State 🖾 Private 🗌 Tr	ribal Trust or Indian Allo	tment			
2. 圖 <u>Closed-loop System</u> : Operation: 圖 Drilling a □ Above Ground Steel	Subsection H of 19.15.17. new well 🔲 Workover or D Tanks or 📋 Haul-off Bins	11 NMAC Drilling (Applies to activit	ies which require prior	approval of a permit o	or notice of intent)	
3. Signs: Subsection C of 12"x 24", 2" lettering Signed in compliance	19.15.17.11 NMAC , providing Operator's name, with 19.15.16.8 NMAC	site location, and emerge	ency telephone number	3		
<ul> <li>Closed-loop Systems Per Instructions: Each of the instructions: Each of the instructions: Each of the instructions: Each of the instructions: Each of the instruction of the in</li></ul>	rmit Application Attachme be following items must be an d upon the appropriate requin intenance Plan - based upon t se complete Box 5) - based u Design (attach copy of desig Operating and Maintenance	nt Checklist: Subsection trached to the application rements of 19.15.17.11 N the appropriate requirement pon the appropriate requirement gn) API Number: Plan API Number:	n B of 19.15.17.9 NM <i>Please indicate, by a</i> MAC nts of 19.15.17.12 NM irements of Subsection	AC check mark in the be AC C of 19.15.17.9 NMA	ox, that the documents are AC and 19.15.17.13 NMAC	
5. <u>Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only</u> : (19.15.17.13.D NMAC) Instructions: Please indentify 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, In	C	_ Disposal Facility P	ermit Number: <u>NM-U</u>	J1-0006	
Disposal Facility Name	:		_ Disposal Facility P	ermit Number:		
Will any of the proposed Yes (If yes, please	closed-loop system operatior provide the information belo	as and associated activitie w) 🔲 No	s occur on or in areas f	hat will not be used to	or future service and operations?	
Required for impacted ar Soil Backfill and C Re-vegetation Plan Site Reclamation P	eas which will not be used fo over Design Specifications - - based upon the appropriate lan - based upon the appropr	r future service and opera- based upon the appropre- requirements of Subsect- iate requirements of Subsect- iate requirements of Subsect- iate requirements of Subsect- su	ations: iate requirements of Su ion I of 19.15.17.13 NM section G of 19.15.17.12	bsection H of 19.15.1 AAC 3 NMAC	7.13 NMAC	
6. Operator Application C	ertification:					
I hereby certify that the i	nformation submitted with th	is application is true, acc	urate and complete to the	ie best of my knowled	dge and belief.	
Name (Print): Tim Collie	ər		Title: Sr. VP	Drilling and Explor	ration	
Signature: TMColl	ILEA So BAL	Arosicher 5	Date: 09/2	25/2013		
e-mail address: tcollier@	read-stevens.com	a Mann.)	Telephone: 57	75-622-3770 ext 31	6	
Form C	-144 CLEZ	Oil Conservati	on Division		Page 1 of 2	

7. OCD Approval:  Permit Application (including closure plan)	Closure Plan (only)					
OCD Representative Signature:	Approval Date:					
Title:	OCD Permit Number:					
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. <u>Closure Report Reparding Waste Removal Closure For Closed</u> Instructions: Please indentify the facility or facilities for where t two facilities were utilized.	I-loop Systems That Utilize Above Gronnd Steel Tanks or Haul-off Bins Only: The liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than					
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 served.         Site Reclamation (Photo Documentation)         Soil Backfilling and Cover Installation         Re-vegetation Application Rates and Seeding Technique	ice and operations:					
10. <u>Operator Closure Certification</u> : I hereby certify that the information and attachments submitted wit belief. I also certify that the closure complies with all applicable cl	h this closure report is true, accurate and complete to the best of my knowledge and losure 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
2-20yd<sup>3</sup> 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**

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## **RIG 827SSE**

\_\_\_\_\_33'−8\* [10.27m]--<u>€</u>WELL 58'-4" [17.77m]-MUDTANK #1 - SETTLING TANK MUDTANK #2 - SUCTION TANK PREMIX TANK COMBINATION BUILDING DOUBLE GENERATOR BUILDING #1 DRIVEHOUSE COMBINATION BUILDING COMBINATION BUILDING FUEL TANK/CHANGE SHACK/FUEL TANK [28.69m] 94'--2" COMBINATION BUILDING BOILER #1 PUMP HOUSE #1 PUMP HOUSE #2 MIN= 14]m] SUITCASE PAD Q. VARIABLE N 30'-0"[[9.1 SUITCASE 22'-0" [6.71m]--25'-11" [7.89m] 6 CHOKE MANIFOLD GASBUSTER [13.56m]  $\overline{\mathbf{O}}$ WATER TANK/TOOL HOUSE DOG HOUSE (ABOVE) 44'-6" DRAWWORKS TRANSFER TANK/ SHAKERS **E METT** 6 MELL SUBSTRUCTURE R -4" [18.08m]-D.S. HYDRAULIC PIPE RACKS CKDSDSD3 . 20 KDADADH Н CATWALK E O.D.S. HYDRAULIC PIPE RACKS -43'-11" [13.39m] -43'-11" [13.39m]-\_ FLARE TANK DATE: FEBRUARY 5, 2009 DWG NO.: 851-825-12 APPROVED BY ENGINEERING MINIMUM LOCATION SIZE 6 MELL FROM HOLE CENTER 
 FRVM
 HOLE
 VEINT

 TO
 CROWN END
 180'-5" (55m)

 TO
 BACK OF RIG
 78'-0" (54m)

 TO
 DOG HOUSE SIDE
 98'-5" (30m)

 TO
 SUMP SIDE
 65'-6" (20m)
 11 O'CLOCK 164'-O" (50m) FROM WELL CENTER 0'-0" 16'-6" 33'-0" 49'-6" (0m) (5m) (10m) (15m) **PRECISION DRILLING** CALGARY, ALBERTA, CANADA