Form 3160-3
(March 2012)

Hobbs
OCD Artesia
HOBBS OCD
AUG 31 2015
RECEIVED

ATS-14-1048

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMNM 12413-A

6. If Indian, Allotee or Tribe Name N/A (H)

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No. N/A

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. SUN MCKAY FEDERAL #4H (33192)

2. Name of Operator NADEL AND GUSSMAN PERMIAN, L.L.C. (15615)

9. API Well No. 30-025-42768

3a. Address 601 NORTH MARIENFELD, SUITE 508, MIDLAND, TX 79701

3b. Phone No. *(include area code)* (432) 682-4429

10. Field and Pool, or Exploratory LUSK; BONE SPRING, EAST (41442)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 250' FNL, 330' FWL (D)
At proposed prod. zone 330 FSL, 330' FWL (M)
NORTHODOX LOCATION

11. Sec., T. R. M. or Blk. and Survey or Area SEC. 10-T19S-R32E

14. Distance in miles and direction from nearest town or post office* APPROX. 25 MILES WEST OF HOBBS, NM

12. County or Parish LEA

13. State NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
250 FT	640	160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. on file
1650 FT SUN MCKAY FED #3H	13,912 MD, 9,420 TVD	NM 2812

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3664' GL	02/01/2015	45 DAYS

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

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

25. Signature	Name *(Printed/Typed)*	Date
	JASON GOSS	08/18/2014

Title: DRILLLING ENGINEER

Approved by *(Signature)* Steve Caffey	Name *(Printed/Typed)*	Date AUG 26 2015
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Capitan Controlled Water Basin

KZ 08/31/15

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

AUG 31 2015

DRILLING AND OPERATIONS PLAN
NADEL AND GUSSMAN PERMIAN, L.L.C.
SUN MCKAY FEDERAL #4H

Surface: 250' FNL & 330' FWL, UL D
BHL: 330' FSL & 330' FWL, UL M
Sec 10, T-19-S, R-32-E
Lea County, New Mexico

1. Geological Surface Formation: **Permian and Quaternary Alluvium.**
2. Horizontal Oil well. No pilot hole, depth to Fresh Water 800'. **Elevation 3664'**

3. **TOPS OF IMPORTANT GEOLOGICAL MARKERS:** TVD

Rustler	1100'
Top Salt	1300'
BX (base salt)/Tansill	2700'
Yates	3000'
7 Rivers	3438'
Queen	3850'
Grayburg	3950'
San Andres	4750'
Delaware Mountain Group	5200'
Bone Springs Ls	7150'
1st Bone Springs Sand	7226'
2nd Bone Springs Sand	9200'
Bone Springs Target	9420'

4. **Estimated Depth of Anticipated/Possible Water, Oil or Gas:**

Santa Rosa	0-800'	Fresh Water from WAIDS database
Yates	3000'	Oil, gas and water
Delaware	5200'	Oil, gas and water
Bone Springs	7150'	Oil, gas and water

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water will be protected by setting 13 3/8" casing at 1200' and circulating cement back to surface, all other intervals will be isolated by the 9 5/8 intermediate and 5-1/2" production casing.

5. Proposed Casing Program

See COA

HOLE SIZE	CASING SIZE	WT./GRADE	THREAD/COLLAR	SETTING DEPTH	TOP CEMENT
Conductor	20"	94# H-40	8rd STC	60'	Surface
17.5"	13 3/8" (new)	54.5# J-55	8rd STC	~~1200'~~ 1325	Surface
12.25"	9 5/8" (new)	40# J-55	8rd LTC	3,100'	Surface
*8.75"	5-1/2" (new)	17# P-110HC	8rd BTC	~~13,913'~~ 3350	2,500'

** 8-3/4 hole to end of curve, 7-7/8" bit in lateral.

MINIMUM SAFETY FACTORS: **BURST 1.125** **COLLAPSE 1.125** **TENSION 1.8**

ALL CASING WILL BE NEW API APPROVED

CEMENT PROGRAM-ALL CEMENT BLENDS WILL BE TESTED TO BLM MINIMUM REQUIREMENTS.

A. **13 3/8"** **SURFACE** CEMENT TO SURFACE **100% EXCESS OVER CALCULATED**

1200 SACKS CLASS "C"+2%CACL+.25# CELLO-FLAKE+.25% DEFOAMER, 14.8 PPG, 1.35 YIELD, 6.34 GAL/SK

B. **9 5/8"** **INTERMEDIATE** CEMENT TO SURFACE **50% EXCESS OVER CALCULATED**

LEAD 850 SACKS CLASS "C" 35/65 +6% BENTONITE+5% SALT+.25% DEFOAMER 12.8 PPG, 1.9 YIELD, 11.2 GAL/SK

TAIL 200 SACKS CLASS "C" + .25% DEFOAMER, 14.8 PPG, 1.33 YIELD, 6.34 GAL/SK

C. **5-1/2"** **PRODUCTION** CEMENT TO 2,500' (WILL RUN FLUID CALIPER) **25% EXCESS OVER FLUID CALIPER, OR 50% OVER CALCULATED.**

Lead Slurry: 1250 sacks 50:50 poz:Class H + %5 salt, + 10% bentonite, .4% PF153, +.2%PF13, + 3pps PF42, +.125 pps PF29, +.4pps PF46.
11.9 PPG 2.48 yield 13.876 gallons water/sack

50% excess over calculated, plan to circulate to min. of 2500'

Tail Slurry: 750 sacks PVL Acidsolid +30% Calcium Carbonate, +5%PF174, +.7% PF606 + .2% PF153 +.4% PF813 + .4 pps PF46,

13.0 PPG 1.87 yield 9.517 gallons/sack mix water

50% excess over calculated, plan top of tail cement is 8,950 MD/TVD

SPECIFICATIONS FOR PRESSURE CONTROL EQUIPMENT: (EXHIBIT #5)

See COA

A 2000# WP Annular will be installed after running the 13-3/8" casing. A 3,000# WP Double Ram BOP and 3,000 annular will be installed after running the 9-5/8" casing. Pressure test will be conducted prior to drilling out under all casing strings. BOP controls will be installed prior to drilling under surface casing and will remain in use until completion of drilling operations. BOP's will be inspected and operated as recommended in Onshore Order #2. A Kelly cock and a sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position when the Kelly is not in use. 9-5/8" BOP will be tested to 3000# and the annular to 1500# with a third party testing company before drilling below each shoe. If operations last more than 30 days from 1st test, will test again as per BLM Onshore Oil and Gas order #2.

MUD PROGRAM:

Spud and drill 17 ½" surface hole with **fresh water (8.4 to 8.7 ppg)** to a depth of approx 1200'. Control lost circulation with paper and LCM pills. Viscosity 28-55, no fluid loss control. Fresh water gel sweeps.

Drill 12 ¼" hole from 1200' to 3,100' with **Brine (10.0 ppg)** . Control lost circulation with paper and LCM pills. Viscosity 28-30, no fluid loss control. Salt water gel sweeps.

Drill 8 ¾" & 7-7/8" production hole from 3,100' to 13,912' (8,950 TD of vertical hole) with **cut brine (9.0 to 9.3 ppg)**. Control lost circulation with paper and LCM pills. Control filtrate with starch and water loss additives. Clean hole with pre-hydrated salt water sweeps as necessary. System properties: viscosity 28-38, fluid loss <20 ml/30min, pH 10.

All necessary mud products for weight addition and fluid loss control will be on location at all times. Mud program subject to change due to hole conditions.

Mud monitoring system: Mud will be maintained and checked daily for mud weight, viscosity, API water loss, pH, etc. Additional electronic monitoring will include a pit volume totalizer to monitor mud volume in active system, pump rate, and mud return flow percentage. H2S monitors and alarms will be located on rig floor, shale shakers, and mud tanks (see rig plat). Gas chromatograph with monitor hydrocarbon gas content of mud from 3,100' to TD. Third party corrosion company will utilize H2S/oxygen scavengers to monitor for corrosion and limit damage to tubulars.

Auxiliary Equipment

A. A Kelly cock will be in the drill string at all times.

B. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times

C. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 ½" casing is run and set and rigging down operations have begun.

TESTING, LOGGING & CORING PROGRAM: See COA

a. Testing: No DST's.
b. Cased hole CBL and Gamma during completion.
c. Mud logging will take place from 3,100ft to TD 10ft samples
d. Gyro survey will be run at KOP of 8950'
e. MWD (directional) and LWD (gamma) surveys will be taken from KOP (8950') to TD 13,912ft

POTENTIAL HAZARDS:

See COA

No significant hazards are expected, no abnormal pressures or temperatures are expected, **Expected pressure 4700 psi at 9420 ft from BHP test on Sun McKay Federal #1 7/18/1978.** Expected temperature at 9,420 TVD is **144 deg F**. Lost circulation may occur, no H_2S is expected, but the operator will utilize a 3rd party H_2S monitoring package from 1200' to TD. No losses or H2s occurred in the Sun McKay #1 or the Sun McKay #2 or Sun McKay #3H. If H2S is encountered the operator will comply with the provisions of onshore oil and gas order no 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.

ANTICIPATED STARTING DATE & DURATION:

Nadel & Gussman Permian, LLC anticipates drilling operations to begin around February 1, 2015 and completed in approximately 45 days. An additional 15 days will be needed for completion activities. Road and location construction will begin after the BLM has approved the APD.

9/21/14

Jason Goss, Drilling Engineer — Date
Nadel & Gussman Permian, LLC

Nadel and Gussman Permian, LLC

Lea County, New Mexico (NAD27)
Sun McKay Federal
4H

Wellbore #1 Job #1411461

Plan: Plan #1 08-11-14

Standard Planning Report

11 August, 2014

PHOENIX
TECHNOLOGY SERVICES

Phoenix Technology Services

Planning Report

PHOENIX TECHNOLOGY SERVICES

Database:	Compass 5000 GCR DB	**Local Co-ordinate Reference:**	Well 4H
Company:	Nadel and Gussman Permian, LLC	**TVD Reference:**	WELL @ 3687.50usft (Patriot 5)
Project:	Lea County, New Mexico (NAD27)	**MD Reference:**	WELL @ 3687.50usft (Patriot 5)
Site:	Sun McKay Federal	**North Reference:**	Grid
Well:	4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1 Job #1411461		
Design:	Plan #1 08-11-14		

Project	Lea County, New Mexico (NAD27)		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sun McKay Federal				
Site Position:		**Northing:**	612,072.20 usft	**Latitude:**	32° 40' 52.97148 N
From:	Map	**Easting:**	676,061.20 usft	**Longitude:**	103° 45' 40.01868 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.31 °

Well	4H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	612,072.20 usft	**Latitude:**	32° 40' 52.97148 N
	+E/-W	0.00 usft	**Easting:**	676,061.20 usft	**Longitude:**	103° 45' 40.01868 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	3,664.00 usft

Wellbore	Wellbore #1 Job #1411461				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010_14	08/07/14	7.32	60.50	48,554

Design	Plan #1 08-11-14				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	179.62	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,942.54	0.00	0.00	8,942.54	0.00	0.00	0.00	0.00	0.00	0.00	
9,692.54	90.00	179.62	9,420.00	-477.45	3.16	12.00	12.00	0.00	179.62	
13,913.17	90.00	179.62	9,420.00	-4,698.00	31.06	0.00	0.00	0.00	0.00	BHL Sun McKay Fede

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Well:	4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1 Job #1411461		
Design:	Plan #1 08-11-14		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

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Design:	Plan #1 08-11-14		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,942.54	0.00	0.00	8,942.54	0.00	0.00	0.00	0.00	0.00	0.00
KOP: Start Build 12.00°/100'									
8,950.00	0.90	179.62	8,950.00	-0.06	0.00	0.06	12.00	12.00	0.00
8,975.00	3.90	179.62	8,974.98	-1.10	0.01	1.10	12.00	12.00	0.00
9,000.00	6.90	179.62	8,999.86	-3.45	0.02	3.45	12.00	12.00	0.00
9,025.00	9.90	179.62	9,024.59	-7.10	0.05	7.10	12.00	12.00	0.00
9,050.00	12.90	179.62	9,049.10	-12.04	0.08	12.04	12.00	12.00	0.00
9,075.00	15.90	179.62	9,073.31	-18.26	0.12	18.26	12.00	12.00	0.00
9,100.00	18.90	179.62	9,097.16	-25.73	0.17	25.73	12.00	12.00	0.00
9,125.00	21.90	179.62	9,120.59	-34.44	0.23	34.44	12.00	12.00	0.00
9,150.00	24.90	179.62	9,143.53	-44.37	0.29	44.37	12.00	12.00	0.00
9,175.00	27.90	179.62	9,165.92	-55.48	0.37	55.48	12.00	12.00	0.00
9,200.00	30.90	179.62	9,187.70	-67.75	0.45	67.75	12.00	12.00	0.00
9,225.00	33.90	179.62	9,208.81	-81.14	0.54	81.14	12.00	12.00	0.00
9,250.00	36.90	179.62	9,229.19	-95.62	0.63	95.62	12.00	12.00	0.00
9,275.00	39.90	179.62	9,248.78	-111.15	0.73	111.15	12.00	12.00	0.00
9,300.00	42.90	179.62	9,267.53	-127.67	0.84	127.68	12.00	12.00	0.00

Database:	Compass 5000 GCR DB	**Local Co-ordinate Reference:**	Well 4H
Company:	Nadel and Gussman Permian, LLC	**TVD Reference:**	WELL @ 3687.50usft (Patriot 5)
Project:	Lea County, New Mexico (NAD27)	**MD Reference:**	WELL @ 3687.50usft (Patriot 5)
Site:	Sun McKay Federal	**North Reference:**	Grid
Well:	4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1 Job #1411461		
Design:	Plan #1 08-11-14		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,325.00	45.90	179.62	9,285.39	-145.16	0.96	145.17	12.00	12.00	0.00
9,350.00	48.90	179.62	9,302.31	-163.56	1.08	163.56	12.00	12.00	0.00
9,375.00	51.90	179.62	9,318.25	-182.82	1.21	182.82	12.00	12.00	0.00
9,400.00	54.90	179.62	9,333.15	-202.89	1.34	202.89	12.00	12.00	0.00
9,425.00	57.90	179.62	9,346.99	-223.71	1.48	223.71	12.00	12.00	0.00
9,450.00	60.90	179.62	9,359.71	-245.22	1.62	245.23	12.00	12.00	0.00
9,475.00	63.90	179.62	9,371.30	-267.37	1.77	267.38	12.00	12.00	0.00
9,500.00	66.90	179.62	9,381.70	-290.10	1.92	290.11	12.00	12.00	0.00
9,525.00	69.90	179.62	9,390.91	-313.34	2.07	313.35	12.00	12.00	0.00
9,550.00	72.90	179.62	9,398.88	-337.03	2.23	337.04	12.00	12.00	0.00
9,575.00	75.90	179.62	9,405.61	-361.11	2.39	361.11	12.00	12.00	0.00
9,600.00	78.90	179.62	9,411.06	-385.50	2.55	385.51	12.00	12.00	0.00
9,625.00	81.90	179.62	9,415.23	-410.15	2.71	410.15	12.00	12.00	0.00
9,650.00	84.90	179.62	9,418.11	-434.98	2.88	434.99	12.00	12.00	0.00
9,675.00	87.90	179.62	9,419.68	-459.92	3.04	459.93	12.00	12.00	0.00
9,692.54	90.00	179.62	9,420.00	-477.45	3.16	477.46	12.00	12.00	0.00
LP: 90° Inc at 179.62° Azm									
9,700.00	90.00	179.62	9,420.00	-484.92	3.21	484.93	0.00	0.00	0.00
9,800.00	90.00	179.62	9,420.00	-584.92	3.87	584.93	0.00	0.00	0.00
9,900.00	90.00	179.62	9,420.00	-684.91	4.53	684.93	0.00	0.00	0.00
10,000.00	90.00	179.62	9,420.00	-784.91	5.19	784.93	0.00	0.00	0.00
10,100.00	90.00	179.62	9,420.00	-884.91	5.85	884.93	0.00	0.00	0.00
10,200.00	90.00	179.62	9,420.00	-984.91	6.51	984.93	0.00	0.00	0.00
10,300.00	90.00	179.62	9,420.00	-1,084.91	7.17	1,084.93	0.00	0.00	0.00
10,400.00	90.00	179.62	9,420.00	-1,184.90	7.83	1,184.93	0.00	0.00	0.00
10,500.00	90.00	179.62	9,420.00	-1,284.90	8.49	1,284.93	0.00	0.00	0.00
10,600.00	90.00	179.62	9,420.00	-1,384.90	9.16	1,384.93	0.00	0.00	0.00
10,700.00	90.00	179.62	9,420.00	-1,484.90	9.82	1,484.93	0.00	0.00	0.00
10,800.00	90.00	179.62	9,420.00	-1,584.90	10.48	1,584.93	0.00	0.00	0.00
10,900.00	90.00	179.62	9,420.00	-1,684.89	11.14	1,684.93	0.00	0.00	0.00
11,000.00	90.00	179.62	9,420.00	-1,784.89	11.80	1,784.93	0.00	0.00	0.00
11,100.00	90.00	179.62	9,420.00	-1,884.89	12.46	1,884.93	0.00	0.00	0.00
11,200.00	90.00	179.62	9,420.00	-1,984.89	13.12	1,984.93	0.00	0.00	0.00
11,300.00	90.00	179.62	9,420.00	-2,084.88	13.78	2,084.93	0.00	0.00	0.00
11,400.00	90.00	179.62	9,420.00	-2,184.88	14.44	2,184.93	0.00	0.00	0.00
11,500.00	90.00	179.62	9,420.00	-2,284.88	15.11	2,284.93	0.00	0.00	0.00
11,600.00	90.00	179.62	9,420.00	-2,384.88	15.77	2,384.93	0.00	0.00	0.00
11,700.00	90.00	179.62	9,420.00	-2,484.88	16.43	2,484.93	0.00	0.00	0.00
11,800.00	90.00	179.62	9,420.00	-2,584.87	17.09	2,584.93	0.00	0.00	0.00
11,900.00	90.00	179.62	9,420.00	-2,684.87	17.75	2,684.93	0.00	0.00	0.00
12,000.00	90.00	179.62	9,420.00	-2,784.87	18.41	2,784.93	0.00	0.00	0.00
12,100.00	90.00	179.62	9,420.00	-2,884.87	19.07	2,884.93	0.00	0.00	0.00
12,200.00	90.00	179.62	9,420.00	-2,984.86	19.73	2,984.93	0.00	0.00	0.00
12,300.00	90.00	179.62	9,420.00	-3,084.86	20.40	3,084.93	0.00	0.00	0.00
12,400.00	90.00	179.62	9,420.00	-3,184.86	21.06	3,184.93	0.00	0.00	0.00
12,500.00	90.00	179.62	9,420.00	-3,284.86	21.72	3,284.93	0.00	0.00	0.00
12,600.00	90.00	179.62	9,420.00	-3,384.86	22.38	3,384.93	0.00	0.00	0.00
12,700.00	90.00	179.62	9,420.00	-3,484.85	23.04	3,484.93	0.00	0.00	0.00
12,800.00	90.00	179.62	9,420.00	-3,584.85	23.70	3,584.93	0.00	0.00	0.00
12,900.00	90.00	179.62	9,420.00	-3,684.85	24.36	3,684.93	0.00	0.00	0.00
13,000.00	90.00	179.62	9,420.00	-3,784.85	25.02	3,784.93	0.00	0.00	0.00
13,100.00	90.00	179.62	9,420.00	-3,884.84	25.68	3,884.93	0.00	0.00	0.00
13,200.00	90.00	179.62	9,420.00	-3,984.84	26.35	3,984.93	0.00	0.00	0.00
13,300.00	90.00	179.62	9,420.00	-4,084.84	27.01	4,084.93	0.00	0.00	0.00

Phoenix Technology Services

Planning Report

PHOENIX TECHNOLOGY SERVICES

Database:	Compass 5000 GCR DB	**Local Co-ordinate Reference:**	Well 4H
Company:	Nadel and Gussman Permian, LLC	**TVD Reference:**	WELL @ 3687.50usft (Patriot 5)
Project:	Lea County, New Mexico (NAD27)	**MD Reference:**	WELL @ 3687.50usft (Patriot 5)
Site:	Sun McKay Federal	**North Reference:**	Grid
Well:	4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1 Job #1411461		
Design:	Plan #1 08-11-14		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,400.00	90.00	179.62	9,420.00	-4,184.84	27.67	4,184.93	0.00	0.00	0.00
13,500.00	90.00	179.62	9,420.00	-4,284.84	28.33	4,284.93	0.00	0.00	0.00
13,600.00	90.00	179.62	9,420.00	-4,384.83	28.99	4,384.93	0.00	0.00	0.00
13,700.00	90.00	179.62	9,420.00	-4,484.83	29.65	4,484.93	0.00	0.00	0.00
13,800.00	90.00	179.62	9,420.00	-4,584.83	30.31	4,584.93	0.00	0.00	0.00
13,900.00	90.00	179.62	9,420.00	-4,684.83	30.97	4,684.93	0.00	0.00	0.00
13,913.17	90.00	179.62	9,420.00	-4,698.00	31.06	4,698.10	0.00	0.00	0.00
TD at 13913.17									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL Sun McKay Federa - plan hits target center - Point	0.00	0.00	9,420.00	-4,698.00	31.06	607,374.20	676,092.26	32° 40' 6.48231 N	103° 45' 39.95166 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
8,942.54	8,942.54	0.00	0.00	KOP: Start Build 12.00°/100'
9,692.54	9,420.00	-477.45	3.16	LP: 90° Inc at 179.62° Azm
13,913.17	9,420.00	-4,698.00	31.06	TD at 13913.17

T19.0S-R32.0E

COG OPERATING LLC
PEASHOOTER 4 FEDERAL COM
1H

CHEVRON U S A INC
PATTERSON-FEDERAL
1

TENNECO OIL CO
LUSK SEVEN RIVERS
WARHAWK 3 FEDERAL COM
3H

CACTUS DRILLING CO
HORN-FEDERAL
1

TENNECO OIL CO
LUSK(SVN RVRS)UNIT
8

CACTUS DRILLING CO
SHELL-FEDERAL A
1

TENNECO OIL CO
LUSK SVN RVRS UNIT
7

TENNECO OIL CO
LUSK SEVEN RIVERS U
6

TENNECO OIL CO
LUSK SEVEN RIVERS U
2

4

GULF OIL CORP
FEDERAL `4` COM
1

CHEVRON U S A INC
LANSDALE/D/FED COM
2

GULF OIL CORP
GULF OIL FEDERAL COM
1

TENNECO OIL CO
LUSK SEVEN RIVERS U
4

TENNECO OIL CO
LUSK SEVEN RIVERS U
5

3

TENNECO OIL CO
LUSK SEVEN RIVERS U
1 2

CACTUS DRILLING CO
SHELL-FEDERAL A
4

MARSHALL&WINSTON INC
TJG 3 FEDERAL COM
1H

COG OPERATING LLC
PEASHOOTER 4 FEDERAL COM
2H

MARBOB ENERGY CORP
FALCON FEDERAL
2H

NADEL AND GUSSMAN PERMIAN
SUN MCKAY FEDERAL #4H

MARBOB ENERGY CORP
FALCON FEDERAL
1

PETROLEUM DEV CORP
SUN-MCKAY FED
1

PETROLEUM DEV CORP
SUN-MCKAY FEDERAL
2

9

10

MARBOB ENERGY CORP
MCKAY DOROTHY
2

PETROLEUM DEV CORP
MCKAY DOROTHY FED
1

PACIFIC ENTPR OIL CO
MCKAY FEDERAL
3

CIMAREX ENERGY OF CO
MAYER LEN
1

CIMAREX ENERGY OF CO
HUMBLE-STATE
7H

CIMAREX ENERGY OF CO
STATE `15`
8

PETROLEUM DEV CORP
SIERRI-DAWN FEDERAL
1

SUN EXPL & PROD CO
JENNINGS `B` FEDERAL
4

SUN OIL COMPANY
JENNINGS /A/ FED
1

9 3 4

AMOCO PROD CO
STATE /DR/

MERIDIAN OIL INC
STATE `DR`
5

AMOCO PROD CO
STATE `DR`
2

SUN OIL COMPANY
SHEARN FEDERAL
2

SUN OIL COMPANY
JENNINGS /B/ FED

SUN OIL COMPANY
JENNINGS FED COM
3

CACTUS DRILLING CO
PLAINS UNIT
1

CIMAREX ENERGY OF CO
LUSK EAST `15` FEDERAL COM
3H

SUN OIL COMPANY
JENNINGS `A` FEDERAL
3

16

15

SUN OIL COMPANY
JENNINGS /B/ FED
1

CIMAREX ENERGY OF CO
LUSK EAST 15 FEDERAL COM
2

SUPERIOR OIL CO ETAL
STATE C
1

WESTALL RAY
LUSK `16` STATE
4

SUN OIL COMPANY
SHEARN FEDERAL
1

HENDRIX JOHN H CORP
JENNINGS A FEDERAL
4

SUN EXPL & PROD CO
JENNINGS`B`FEDERAL
WD-2

CIMAREX ENERGY OF CO
LUSK EAST 15 FEDERAL COM
1H

0 1,169
FEET

PETRA 8/15/2014 10:52:29 AM

R:\MLH PROSPECTS\NEW MEXICO\REGIONAL\MLH MASTER NM OVERLAY\MLH MASTER NM OVERLAY BACK-UP.OVL