

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.
NMNM114991

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
GREEN WAVE 20 FEDERAL 2H

9. API Well No.
30-025-41234-00-X1

10. Field and Pool, or Exploratory
BRADLEY; BONE SPRING

11. County or Parish, and State
LEA COUNTY, NM

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

DEVON ENERGY PRODUCTION CO

Contact: DAVID H COOK
Email: david.cook@devn.com

3a. Address

333 WEST SHERIDAN AVE
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)

Ph: 405-552-7848

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 20 T26S R34E NENW 25FNL 1980FWL

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Devon Energy Production Company, L.P. respectfully requests to change from the Delaware formation to the 3rd Bone Spring formation.

The MD for TD will change from 14,197' to 17,349'.

Please see the attached revised Drilling Plan, (note: changes in yellow) and Directional Survey.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #268632 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION CO LP, sent to the Hobbs
Committed to AFMSS for processing by LINDA JIMENEZ on 11/19/2014 (15LJ0333SE)

Name (Printed/Typed) DAVID H COOK

Title REGULATORY SPECIALIST

Signature (Electronic Submission)

Date 10/06/2014

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

DEC 11 2014

Date

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED**

E-PERMITTING

P&A NR

P&A R

DEC 19 2014

INT to P&A

CSNG

CHG Loc

TA

Add Pool T.M.

1. Casing and Cementing Plan Summary

The surface fresh water sands will be protected by setting 13-3/8" casing at 200' and circulating cement back to surface. The fresh water sands will be protected by setting 9-5/8" casing at 3200' and circulating cement to surface. The Bone Spring intervals will be isolated by setting 5-1/2" casing to total depth and circulating cement above the base of the 9-5/8" casing. All casing is new and API approved.

2. Casing Program:

Hole Size	Hole Interval	Casing OD	Casing Interval	Weight	Collar	Grade
17-1/2"	0 - 800	13-3/8"	0 - 800'	48 54.5#	STC	H-40
12-1/4"	800' - 5,200'	9-5/8"	0 - 5,200'	40#	LTC	HCK-55
8-3/4"	5,200' - 8,900'	5-1/2"	0 - 8,900'	17#	LTC	HCP-110
8-3/4"	8,900' - 14,197'	5-1/2"	8,900' - 14,197'	17#	BTC	HCP-110
8-3/4"	5,200' - 17,349'	5-1/2"	0' - 17,349'	17#	BTC	HCP-110

3. Design Factors:

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
13-3/8"	1.53	2.34	4.15
9-5/8"	1.77	2.72	4.64
5-1/2" LTC	1.89	2.34	2.70
5-1/2" BTC	1.64	2.34	2.23

4. Cement Program:

13-3/8" Surface Tail: 850 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Poly-E Flake + 63.1% Fresh Water, 14.8 ppg

Yield: 1.35 cf/sk

TOC @ surface

9-5/8" Intermediate Lead: 1170 sacks (65:35) Class C Cement: Poz (Fly Ash) + 5% bwoc Sodium Chloride + 0.125 lbs/sack Poly-E Flake + 6% bwoc Bentonite + 70.9% Fresh Water, 12.9 ppg

Yield: 1.85 cf/sk

TOC @ surface

Tail: 425 sacks Class C Cement + 0.125 lbs/sack Poly-E Flake + 63.5% Water, 14.8 ppg

Yield: 1.33 cf/sk

5-1/2" Production 1st Stage Lead: 390 sacks (65:35) Class H Cement: Poz (Fly Ash) + 6% bwoc Bentonite + 0.2% bwoc HR-601 + 74.1% Fresh Water, 12.5 ppg

Yield: 1.95 cf/sk

Tail: 1560 sacks (50:50) Class H Cement: Poz (Fly Ash) + 1 lb/sk Sodium Chloride + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.1% bwoc HR-601 + 2% bwoc Bentonite + 58.8% Fresh Water, 14.5 ppg

Yield: 1.22 cf/sk

DV TOOL at 6500 ft

2nd Stage

Lead: 155 sacks Class C Cement + 3% bwoc Econolite + 0.125 lbs/sack Poly-E Flake + 82.4% Fresh Water, 11.4 ppg

Yield: 2.87 cf/sk

Tail: 145 sacks Class C Cement + 0.125 lbs/sack Poly-E Flake + 63.5% Fresh Water, 14.8 ppg

Drilling Program / Surface Use Plan
Discipline-Specific Input Form

Green Wave 20 Fed 2H Revised DP 10/6/2014

Yield: 1.33cf/sk

TOC @ 4700 ft

String	TOC
Surface	Surface
Intermediate	Surface
Production	4,700'

The above cement volumes are based on 25% excess. Actual cement volumes could be adjusted based on fluid caliper and caliper log data.

Casing	# Sk	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sac	500# Comp. Strength (hours)	Slurry Description
Surf.	870	14.8	6.32	1.33	7	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
Inter.	1170	12.9	9.81	1.85	17	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	430	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
Prod.	910	12.5	10.86	1.96	30	1 st Lead: (65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake
	1390	14.5	5.31	1.2	25	1 st Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV/ECP Tool 6500'					
	160	11	14.81	2.55	22	2 nd stage Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	120	14.8	6.32	1.33	6	2 nd stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

DV tool

depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	75%
Production	1 st Stage = 6500' / 2 nd Stage = 4700'	25%

5. Pressure Control Equipment

BOP DESIGN: The BOP system used to drill the intermediate and production holes will consist of a 13-5/8" 3M Triple Ram and Annular preventer. The BOP system will be tested as per BLM Onshore Oil and Gas Order No. 2 as a 3M system prior to drilling out the prior casing shoe.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool

5. d.

Pressure Control Equipment

BOP DESIGN: The BOP system used to drill the surface and intermediate holes will consist of a 13-5/8" 5M Triple Ram and Annular preventer. Devon plans to use a multi-bowl wellhead assembly (FMC UH1 Wellhead). When drilling intermediate section, the wellhead will be rated to 3K. Once the intermediate hanger is set and the packoff is set, the wellhead will be rated to 5K.

The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

- Wellhead will be installed by FMC's representatives.
- If the welding is performed by a third party, the FMC's representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- FMC representative will install the test plug for the initial BOP test.
- FMC will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.
- If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.
- Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.
- Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the FMC Uni-head wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.

After running the 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 5M will already be installed on the FMC Uni-head.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP.

The BOP system will be tested as per BLM Onshore Oil and Gas Order No. 2 as a 5M system prior to drilling out the prior casing shoe.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP.

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.

See
COA

below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.

6. **Proposed Mud Circulation System:**

Depth Range	Mud Weight	Viscosity	Fluid Loss	Type System
0 – 800'	8.4-8.6	28-32	NC	Fresh Water
800' – 5,200'	9.9-10.1	28-29	NC	Brine
5,200' – 14,197' 17,349'	8.7-9.2	28-29	NC	Fresh Water

The necessary mud products for weight addition and fluid loss control will be on location at all times.

7. **Auxiliary Well Control and Monitoring Equipment:**

- A Kelly cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- Hydrogen Sulfide detection equipment will be in operation after drilling out the 13-3/8" casing shoe until the 5-1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13-3/8" shoe until total depth is reached.

8. **Potential Hazards:**

No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area. 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. Estimated BHP of 3,600 psi and estimated BHT 145°. No H₂S is anticipated to be encountered.

9. **Anticipated Starting Date and Duration of Operations:**

- Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as a rig becomes available following BLM approval. Move in operations and drilling is expected to take 32 days. If production casing is run, then an additional 30 days will be needed to complete the well and construct surface facilities and/or lay flow lines in order to place well on production.

10. **Location and Types of Water Supply:**

This location will be drilled using a combination of water mud systems (outlined in the Drilling Program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown in the C-102. On occasion, water will be obtained from a pre-existing water well, running a pump directly to the drill rig. In these cases where a poly pipeline is used to transport water for drilling purposes, proper authorizations will be secured. If a poly pipeline is used, the size, distance, and map showing route will be provided to the BLM via sundry notice.

11. **Methods of Handling Waste Material:**

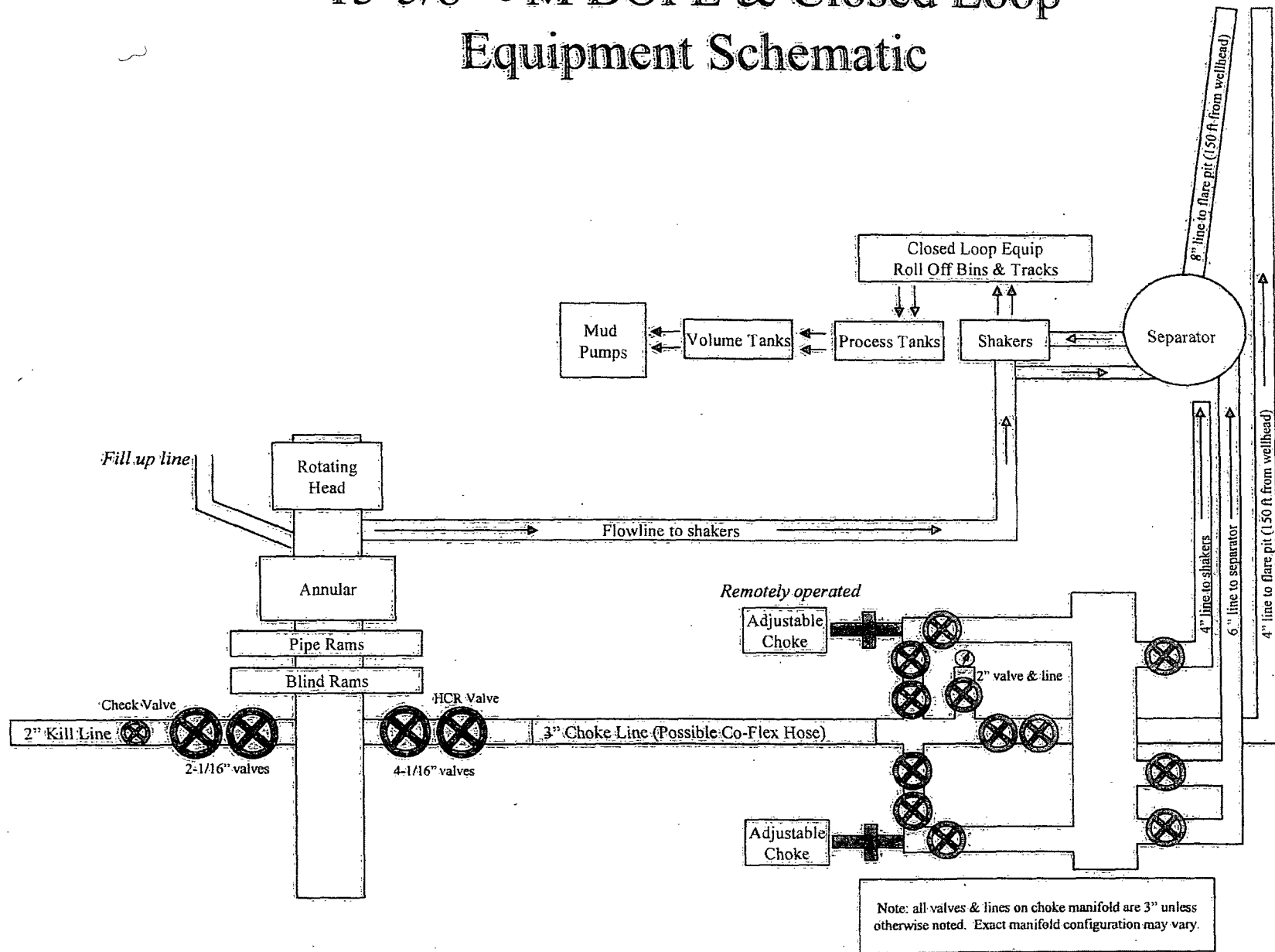
- Drill cuttings will be disposed of in a closed loop system.
- All trash, junk and other waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary landfill.
- The supplier will pick up salts remaining, including broken sacks, after completion of well.

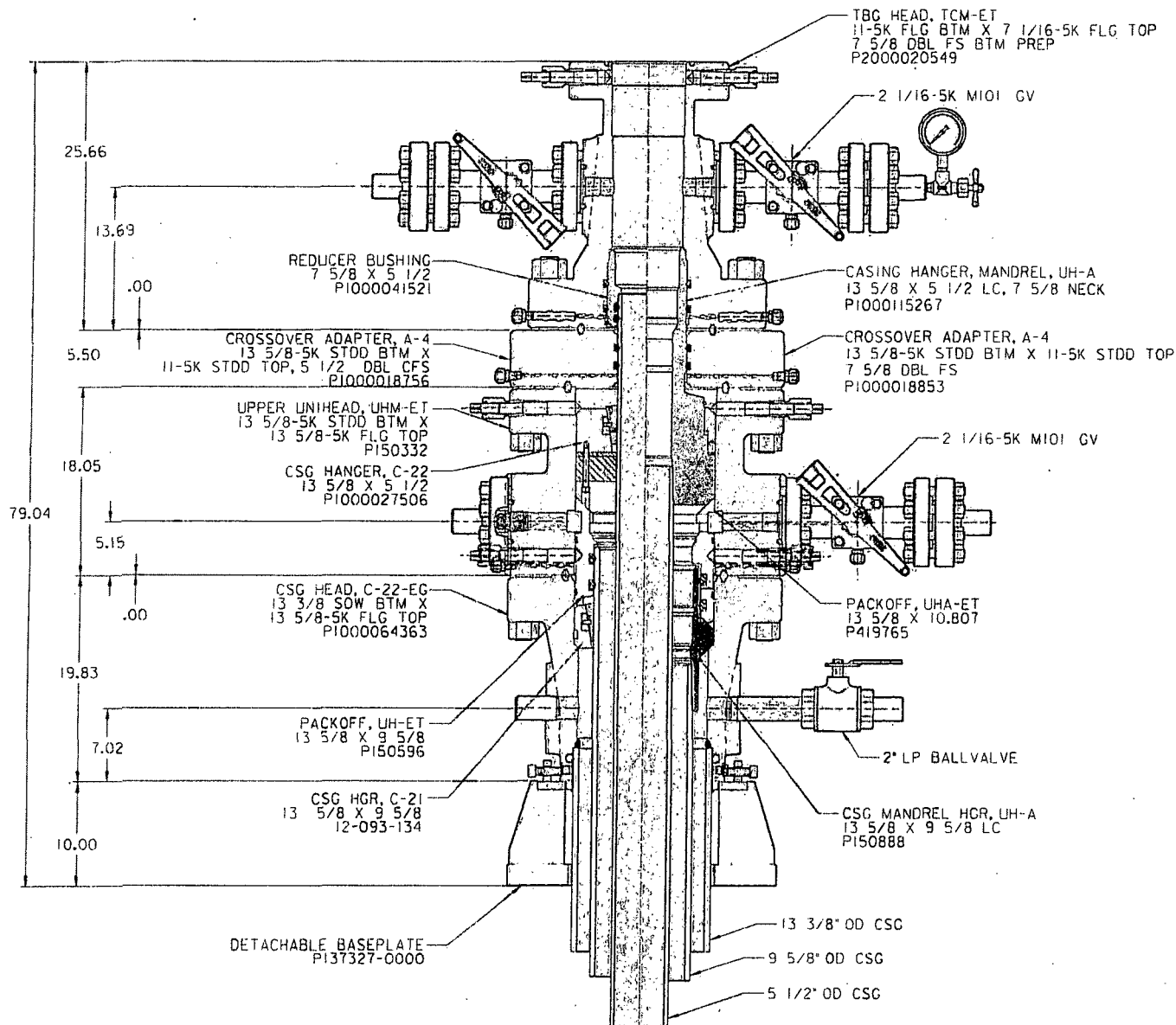
Drilling Program / Surface Use Plan
Discipline-Specific Input Form

Green Wave 20 Fed 2H Revised DP 10/6/2014

- d. A Porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- e. Remaining drilling fluids will be sent to a closed loop system.
- f. Disposal of fluids to be transported by the following companies:
 - i. American Production Service Inc, Odessa TX
 - ii. Gandy Corporation, Lovington NM
 - iii. I & W Inc, Loco Hill NM
 - iv. Jims Water Service of Co Inc, Denver CO

13-5/8" 5M BOPE & Closed Loop Equipment Schematic





DEVON ENERGY

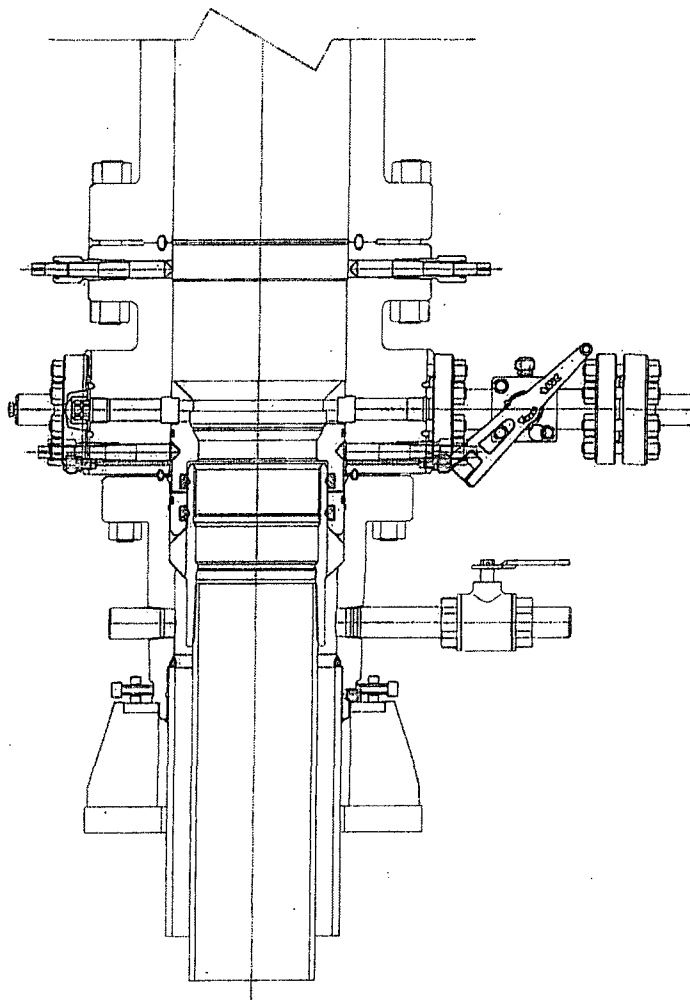
ARTESIA, NM

13 3/8 X 9 5/8 X 5 1/2

QUOTE LAYOUT
F18648
REF: DM100151315
DM100151051

PRIVATE AND CONFIDENTIAL THIS DOCUMENT AND ALL THE INFORMATION CONTAINED HEREIN ARE THE CONFIDENTIAL AND EXCLUSIVE PROPERTY OF FMC TECHNOLOGIES AND MAY NOT BE REPRODUCED, USED, DISCLOSED, OR MADE PUBLIC IN ANY MANNER PRIOR TO EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES. THIS DOCUMENT IS ACCEPTED BY RECIPIENT PURSUANT TO AGREEMENT TO THE FOREGOING AND MUST BE RETURNED UPON DEMAND. MANUFACTURER AGREES THAT ARTICLES MADE IN ACCORDANCE WITH THIS DOCUMENT SHALL BE CONSIDERED FMC TECHNOLOGIES DESIGN AND THAT IDENTICAL ARTICLES OR PARTS THEREOF SHALL NOT BE MANUFACTURED FOR THE USE OR SALE BY MANUFACTURER OR ANY OTHER PERSON WITHOUT THE PRIOR EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES	REVISIONS A 07/25/14	DESCRIPTION SURFACE WELLHEAD LAYOUT UNIHEAD, UH-1, SOW, MANDREL DEVON ENERGY, ARTESIA, NM	DESIGNED BY O. BUI 07/25/14 DRAFTING REVIEW Z. MARQUEZ 07/25/14 DESIGN REVIEW K. TAHA 07/25/14 APPROVED BY R. HAMILTON 07/25/14	DRAWING NUMBER DM100195430

FMCTechnologies



PRIMARY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

PRIVATE AND CONFIDENTIAL

THIS DOCUMENT AND ALL THE INFORMATION CONTAINED HEREIN ARE THE
CONFIDENTIAL AND EXCLUSIVE PROPERTY OF FMC TECHNOLOGIES AND MAY NOT
BE REPRODUCED, USED, DISCLOSED OR MADE PUBLIC IN ANY MANNER PRIOR TO
EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES. THIS DOCUMENT IS
ACCEPTED BY RECIPIENT PURSUANT TO AGREEMENT TO THE FOREGOING AND
MUST BE RETURNED UPON DEMAND.

MANUFACTURER AGREES THAT ARTICLES MADE IN ACCORDANCE WITH THIS
DOCUMENT SHALL BE CONSIDERED FMC TECHNOLOGIES DESIGN AND THAT
IDENTICAL ARTICLES OR PARTS THEREOF SHALL NOT BE MANUFACTURED
FOR THE USE OR SALE OF MANUFACTURER OR ANY OTHER PERSON
WITHOUT THE PRIOR EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES

REVISIONS

A	05-08-13
B	1-22-14
C	5-13-14

DESCRIPTION

SURFACE WELLHEAD LAYOUT
UNIHEAD, UH-1, SOW,
DEVON ENERGY, ODESSA

DRAWN BY

K. VU

05-08-13

DRAFTING REVIEW

Z. MARQUEZ

05-08-13

DESIGN REVIEW

K. TAHA

05-08-13

APPROVED BY

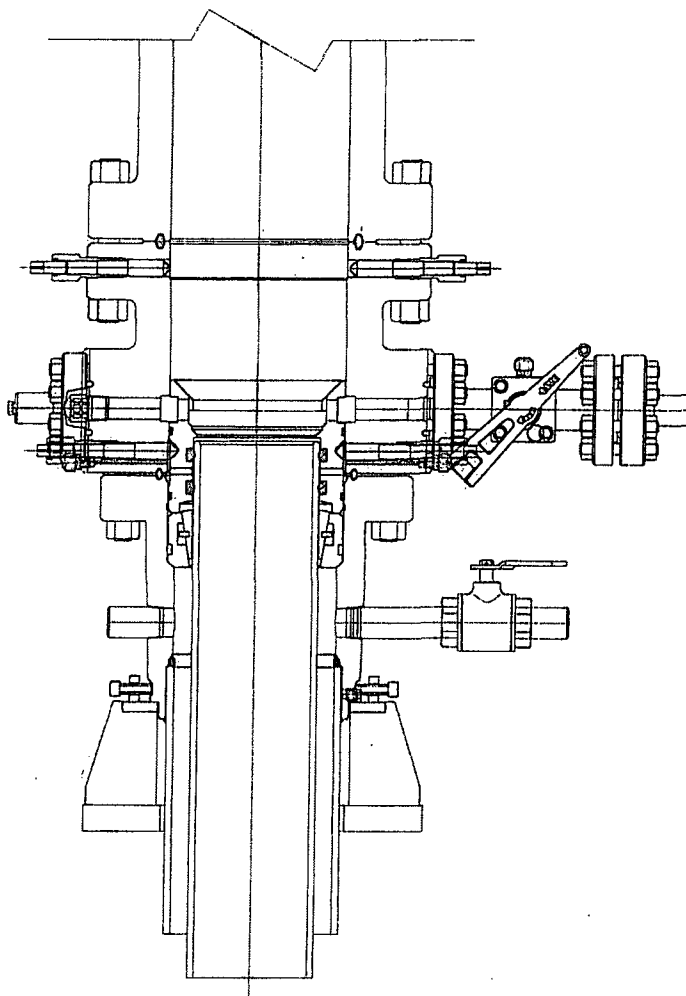
R. HAMILTON

05-08-13

DRAWING NUMBER

DM100161771-2A

FMC Technologies



CONTINGENCY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

PRIVATE AND CONFIDENTIAL THIS DOCUMENT AND ALL THE INFORMATION CONTAINED HEREIN ARE THE CONFIDENTIAL AND EXCLUSIVE PROPERTY OF FMC TECHNOLOGIES AND MAY NOT BE REPRODUCED, USED, DISCLOSED, OR MADE PUBLIC IN ANY MANNER PRIOR TO EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES. THIS DOCUMENT IS ACCEPTED BY RECIPIENT PURSUANT TO AGREEMENT TO THE FOREGOING, AND MUST BE RETURNED UPON DEMAND. MANUFACTURER AGREES THAT ARTICLES MADE IN ACCORDANCE WITH THIS DOCUMENT SHALL BE CONSIDERED FMC TECHNOLOGIES' DESIGN AND THAT IDENTICAL ARTICLES OR PARTS THEREOF SHALL NOT BE MANUFACTURED FOR THE USE OR SALE BY MANUFACTURER OR ANY OTHER PERSON WITHOUT THE PRIOR EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES.	REVISIONS	DESCRIPTION	DRAWN BY	DATE	FMC Technologies DRAWING NUMBER DM100161771-2B
	A	05-08-13	K. VU	05-08-13	
	B	1-22-14	Z. MARQUEZ	05-08-13	
	C	5-13-14	K. TAHA	05-08-13	
		SURFACE WELLHEAD LAYOUT UNIHEAD, UH-1, SOW, DEVON ENERGY, ODESSA	R. HAMILTON	05-08-13	

Devon

Project: Lea County, NM (NAD 83)

Site: Green Wave 20 Fed

Well: Green Wave 20 Fed 2H

Wellbore: Wellbore #1

Plan: Plan #1 093014 RevA0 (Green Wave 20 Fed 2H/Wellbore #1)

25'KB

HALLIBURTON

Geoperty Drilling

West(-)/East(+) (1000 ft/in)

WELL DETAILS: Green Wave 20 Fed 2H

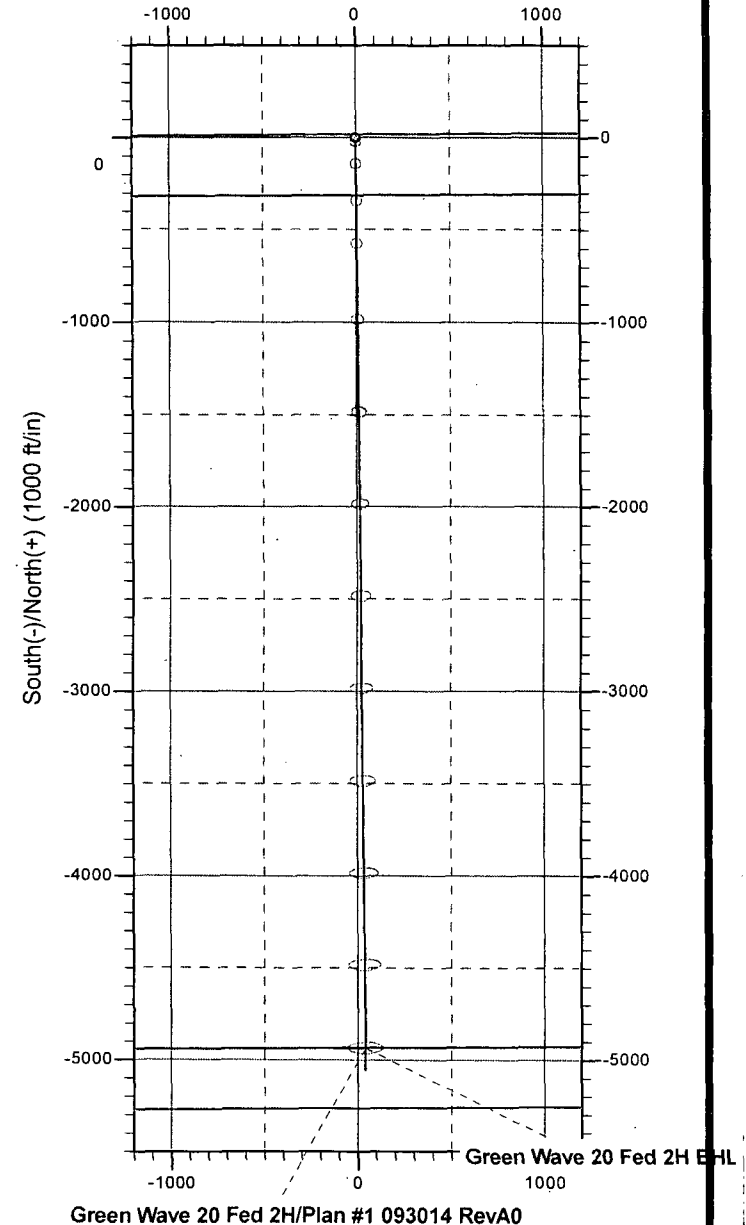
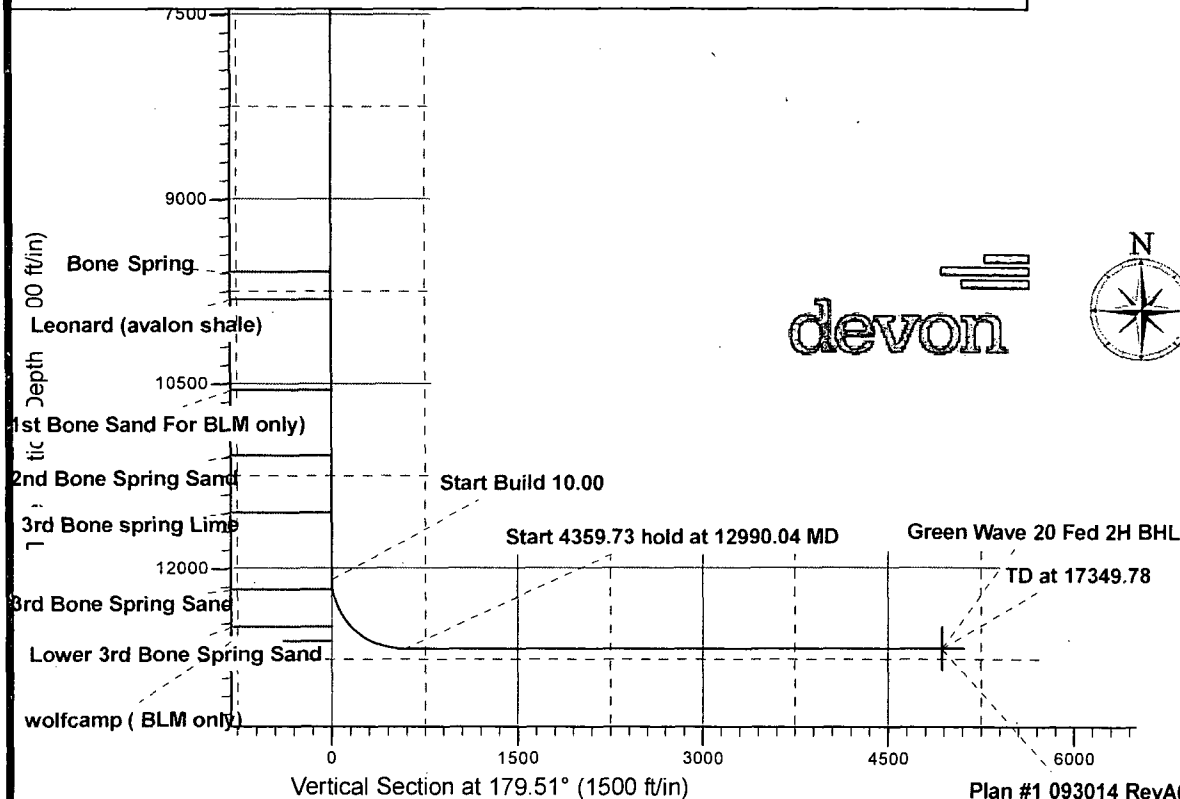
Ground Level: 3354.90			
Northing	Easting	Latitude	Longitude
377898.80	801410.90	32° 2' 10.126 N	103° 29' 38.538 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12090.04	0.00	0.00	12090.04	0.00	0.00	0.00	0.00	0.00	
12990.04	90.00	179.51	12663.00	-572.94	4.95	10.00	179.51	572.96	Green Wave 20 Fed 2H BHL
17349.78	90.00	179.51	12663.00	-4932.51	42.60	0.00	0.00	4932.69	Green Wave 20 Fed 2H BHL

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Green Wave 20 Fed 2H BHL	12663.00	-4932.51	42.60	Point



Job#
25'KB

Devon

Lea County, NM (NAD 83) Green Wave 20 Fed

API#

Green Wave 20 Fed 2H

25' FNL & 1980 FWL

Wellbore #1

Plan: Plan #1 093014 RevA0

Sperry Drilling Services Combo Report

30 September, 2014

Well Coordinates: 32° 02' 10.13" N
103° 29' 38.54" W

North American Datum 1983
New Mexico Eastern Zone
377,898.80 N
801,410.90 E

Ground Level: 3,354.90 ft

Local Coordinate Origin:

Centered on Well Green Wave 20 Fed 2H

Viewing Datum:

Well @ 3379.90ft (25'KB)

TVDs to System:

N

North Reference:

Grid

Unit System:

API US Survey Feet

Version: 5000.1 Build: 73

Report Version: Midcon Combo v1.50

HALLIBURTON

HALLIBURTON

Plan Report for Green Wave 20 Fed 2H - Plan #1 093014 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (usft)	Easting (usft)			
0.00	0.00	0.00	-3,379.90	0.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
100.00	0.00	0.00	-3,279.90	100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
200.00	0.00	0.00	-3,179.90	200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
300.00	0.00	0.00	-3,079.90	300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
400.00	0.00	0.00	-2,979.90	400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
500.00	0.00	0.00	-2,879.90	500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
600.00	0.00	0.00	-2,779.90	600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
700.00	0.00	0.00	-2,679.90	700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
730.00	0.00	0.00	-2,649.90	730.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	Rustler
800.00	0.00	0.00	-2,579.90	800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
900.00	0.00	0.00	-2,479.90	900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,000.00	0.00	0.00	-2,379.90	1,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,084.00	0.00	0.00	-2,295.90	1,084.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	Top of Salt
1,100.00	0.00	0.00	-2,279.90	1,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,200.00	0.00	0.00	-2,179.90	1,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,300.00	0.00	0.00	-2,079.90	1,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,400.00	0.00	0.00	-1,979.90	1,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,500.00	0.00	0.00	-1,879.90	1,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,600.00	0.00	0.00	-1,779.90	1,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,700.00	0.00	0.00	-1,679.90	1,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,800.00	0.00	0.00	-1,579.90	1,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
1,900.00	0.00	0.00	-1,479.90	1,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,000.00	0.00	0.00	-1,379.90	2,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,100.00	0.00	0.00	-1,279.90	2,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,200.00	0.00	0.00	-1,179.90	2,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,300.00	0.00	0.00	-1,079.90	2,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,400.00	0.00	0.00	-979.90	2,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,500.00	0.00	0.00	-879.90	2,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,600.00	0.00	0.00	-779.90	2,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,700.00	0.00	0.00	-679.90	2,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,800.00	0.00	0.00	-579.90	2,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
2,900.00	0.00	0.00	-479.90	2,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,000.00	0.00	0.00	-379.90	3,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,100.00	0.00	0.00	-279.90	3,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,200.00	0.00	0.00	-179.90	3,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,300.00	0.00	0.00	-79.90	3,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,400.00	0.00	0.00	20.10	3,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,460.00	0.00	0.00	80.10	3,460.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	Lamar
3,500.00	0.00	0.00	120.10	3,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,600.00	0.00	0.00	220.10	3,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,700.00	0.00	0.00	320.10	3,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	

Plan Report for Green Wave 20 Fed 2H - Plan #1 093014 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (usft)	Easting (usft)			
3,800.00	0.00	0.00	420.10	3,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
3,900.00	0.00	0.00	520.10	3,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,000.00	0.00	0.00	620.10	4,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,100.00	0.00	0.00	720.10	4,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,200.00	0.00	0.00	820.10	4,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,300.00	0.00	0.00	920.10	4,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,400.00	0.00	0.00	1,020.10	4,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,500.00	0.00	0.00	1,120.10	4,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,600.00	0.00	0.00	1,220.10	4,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,700.00	0.00	0.00	1,320.10	4,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,800.00	0.00	0.00	1,420.10	4,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
4,900.00	0.00	0.00	1,520.10	4,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,000.00	0.00	0.00	1,620.10	5,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,100.00	0.00	0.00	1,720.10	5,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,200.00	0.00	0.00	1,820.10	5,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,300.00	0.00	0.00	1,920.10	5,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,320.00	0.00	0.00	1,940.10	5,320.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	Delaware Group
5,400.00	0.00	0.00	2,020.10	5,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,500.00	0.00	0.00	2,120.10	5,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,600.00	0.00	0.00	2,220.10	5,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,700.00	0.00	0.00	2,320.10	5,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,800.00	0.00	0.00	2,420.10	5,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
5,900.00	0.00	0.00	2,520.10	5,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,000.00	0.00	0.00	2,620.10	6,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,100.00	0.00	0.00	2,720.10	6,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,200.00	0.00	0.00	2,820.10	6,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,300.00	0.00	0.00	2,920.10	6,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,400.00	0.00	0.00	3,020.10	6,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,500.00	0.00	0.00	3,120.10	6,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,600.00	0.00	0.00	3,220.10	6,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,700.00	0.00	0.00	3,320.10	6,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,800.00	0.00	0.00	3,420.10	6,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
6,900.00	0.00	0.00	3,520.10	6,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,000.00	0.00	0.00	3,620.10	7,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,100.00	0.00	0.00	3,720.10	7,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,200.00	0.00	0.00	3,820.10	7,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,300.00	0.00	0.00	3,920.10	7,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,400.00	0.00	0.00	4,020.10	7,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,500.00	0.00	0.00	4,120.10	7,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,600.00	0.00	0.00	4,220.10	7,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,700.00	0.00	0.00	4,320.10	7,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	

Plan Report for Green Wave 20 Fed 2H - Plan #1 093014 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (usft)	Easting (usft)			
7,800.00	0.00	0.00	4,420.10	7,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
7,900.00	0.00	0.00	4,520.10	7,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,000.00	0.00	0.00	4,620.10	8,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,100.00	0.00	0.00	4,720.10	8,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,200.00	0.00	0.00	4,820.10	8,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,300.00	0.00	0.00	4,920.10	8,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,400.00	0.00	0.00	5,020.10	8,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,500.00	0.00	0.00	5,120.10	8,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,600.00	0.00	0.00	5,220.10	8,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,700.00	0.00	0.00	5,320.10	8,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,800.00	0.00	0.00	5,420.10	8,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
8,900.00	0.00	0.00	5,520.10	8,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,000.00	0.00	0.00	5,620.10	9,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,100.00	0.00	0.00	5,720.10	9,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,200.00	0.00	0.00	5,820.10	9,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,300.00	0.00	0.00	5,920.10	9,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,400.00	0.00	0.00	6,020.10	9,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,500.00	0.00	0.00	6,120.10	9,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,590.00	0.00	0.00	6,210.10	9,590.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	Bone Spring
9,600.00	0.00	0.00	6,220.10	9,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,700.00	0.00	0.00	6,320.10	9,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,800.00	0.00	0.00	6,420.10	9,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
9,815.00	0.00	0.00	6,435.10	9,815.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	Leonard (avalon shale)
9,900.00	0.00	0.00	6,520.10	9,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,000.00	0.00	0.00	6,620.10	10,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,100.00	0.00	0.00	6,720.10	10,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,200.00	0.00	0.00	6,820.10	10,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,300.00	0.00	0.00	6,920.10	10,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,400.00	0.00	0.00	7,020.10	10,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,500.00	0.00	0.00	7,120.10	10,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,550.00	0.00	0.00	7,170.10	10,550.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	1st Bone Sand For BLM only
10,600.00	0.00	0.00	7,220.10	10,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,700.00	0.00	0.00	7,320.10	10,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,800.00	0.00	0.00	7,420.10	10,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
10,900.00	0.00	0.00	7,520.10	10,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,000.00	0.00	0.00	7,620.10	11,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,085.00	0.00	0.00	7,705.10	11,085.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	2nd Bone Spring Sand
11,100.00	0.00	0.00	7,720.10	11,100.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,200.00	0.00	0.00	7,820.10	11,200.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,300.00	0.00	0.00	7,920.10	11,300.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,400.00	0.00	0.00	8,020.10	11,400.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	

Plan Report for Green Wave 20 Fed 2H - Plan #1 093014 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (usft)	Easting (usft)			
11,500.00	0.00	0.00	8,120.10	11,500.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,550.00	0.00	0.00	8,170.10	11,550.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	3rd Bone Spring Lime
11,600.00	0.00	0.00	8,220.10	11,600.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,700.00	0.00	0.00	8,320.10	11,700.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,800.00	0.00	0.00	8,420.10	11,800.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
11,900.00	0.00	0.00	8,520.10	11,900.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
12,000.00	0.00	0.00	8,620.10	12,000.00	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	
12,090.04	0.00	0.00	8,710.14	12,090.04	0.00 N	0.00 E	377,898.80	801,410.90	0.00	0.00	Start Build 10.00
12,100.00	1.00	179.51	8,720.10	12,100.00	0.09 S	0.00 E	377,898.71	801,410.90	10.00	0.09	
12,175.31	8.53	179.51	8,795.10	12,175.00	6.33 S	0.05 E	377,892.47	801,410.95	10.00	6.33	3rd Bone Spring Sand
12,200.00	11.00	179.51	8,819.43	12,199.33	10.52 S	0.09 E	377,888.28	801,410.99	10.00	10.52	
12,300.00	21.00	179.51	8,915.43	12,295.33	38.04 S	0.33 E	377,860.76	801,411.23	10.00	38.04	
12,400.00	31.00	179.51	9,005.20	12,385.10	81.81 S	0.71 E	377,816.99	801,411.61	10.00	81.82	
12,500.00	41.00	179.51	9,086.00	12,465.90	140.51 S	1.21 E	377,758.29	801,412.11	10.00	140.51	
12,518.95	42.89	179.51	9,100.10	12,480.00	153.18 S	1.32 E	377,745.62	801,412.22	10.00	153.18	Lower 3rd Bone Spring Sand
12,600.00	51.00	179.51	9,155.39	12,535.29	212.34 S	1.83 E	377,686.46	801,412.73	10.00	212.35	
12,700.00	61.00	179.51	9,211.24	12,591.14	295.14 S	2.55 E	377,603.66	801,413.45	10.00	295.15	
12,718.83	62.88	179.51	9,220.10	12,600.00	311.75 S	2.69 E	377,587.05	801,413.59	10.00	311.76	wolfcamp (BLM-only)
12,800.00	71.00	179.51	9,251.87	12,631.77	386.37 S	3.34 E	377,512.43	801,414.24	10.00	386.38	
12,900.00	81.00	179.51	9,276.04	12,655.94	483.27 S	4.17 E	377,415.53	801,415.07	10.00	483.29	
12,990.04	90.00	179.51	9,283.10	12,663.00	572.94 S	4.95 E	377,325.86	801,415.85	10.00	572.96	Start 4359.73 hold at 12990.04 MD
13,000.00	90.00	179.51	9,283.10	12,663.00	582.90 S	5.03 E	377,315.91	801,415.93	0.00	582.92	
13,100.00	90.00	179.51	9,283.10	12,663.00	682.89 S	5.90 E	377,215.91	801,416.80	0.00	682.92	
13,200.00	90.00	179.51	9,283.10	12,663.00	782.89 S	6.76 E	377,115.91	801,417.66	0.00	782.92	
13,300.00	90.00	179.51	9,283.10	12,663.00	882.88 S	7.63 E	377,015.92	801,418.53	0.00	882.92	
13,400.00	90.00	179.51	9,283.10	12,663.00	982.88 S	8.49 E	376,915.92	801,419.39	0.00	982.92	
13,500.00	90.00	179.51	9,283.10	12,663.00	1,082.88 S	9.35 E	376,815.93	801,420.25	0.00	1,082.92	
13,600.00	90.00	179.51	9,283.10	12,663.00	1,182.87 S	10.22 E	376,715.93	801,421.12	0.00	1,182.92	
13,700.00	90.00	179.51	9,283.10	12,663.00	1,282.87 S	11.08 E	376,615.93	801,421.98	0.00	1,282.92	
13,800.00	90.00	179.51	9,283.10	12,663.00	1,382.87 S	11.94 E	376,515.94	801,422.84	0.00	1,382.92	
13,900.00	90.00	179.51	9,283.10	12,663.00	1,482.86 S	12.81 E	376,415.94	801,423.71	0.00	1,482.92	
14,000.00	90.00	179.51	9,283.10	12,663.00	1,582.86 S	13.67 E	376,315.95	801,424.57	0.00	1,582.92	
14,100.00	90.00	179.51	9,283.10	12,663.00	1,682.85 S	14.53 E	376,215.95	801,425.43	0.00	1,682.92	
14,200.00	90.00	179.51	9,283.10	12,663.00	1,782.85 S	15.40 E	376,115.95	801,426.30	0.00	1,782.92	
14,300.00	90.00	179.51	9,283.10	12,663.00	1,882.85 S	16.26 E	376,015.96	801,427.16	0.00	1,882.92	
14,400.00	90.00	179.51	9,283.10	12,663.00	1,982.84 S	17.13 E	375,915.96	801,428.02	0.00	1,982.92	
14,500.00	90.00	179.51	9,283.10	12,663.00	2,082.84 S	17.99 E	375,815.96	801,428.89	0.00	2,082.92	
14,600.00	90.00	179.51	9,283.10	12,663.00	2,182.84 S	18.85 E	375,715.97	801,429.75	0.00	2,182.92	
14,700.00	90.00	179.51	9,283.10	12,663.00	2,282.83 S	19.72 E	375,615.97	801,430.62	0.00	2,282.92	
14,800.00	90.00	179.51	9,283.10	12,663.00	2,382.83 S	20.58 E	375,515.98	801,431.48	0.00	2,382.92	
14,900.00	90.00	179.51	9,283.10	12,663.00	2,482.82 S	21.44 E	375,415.98	801,432.34	0.00	2,482.92	

Plan Report for Green Wave 20 Fed 2H - Plan #1 093014 RevA0

Measured Depth	Inclination	Grid Azimuth	TVD below System	Vertical Depth	Local Coordinates		Map Coordinates		Dogleg Rate	Vertical Section	Comments
(ft)	(°)	(°)	(ft)	(ft)	Northing (ft)	Easting (ft)	Northing (usft)	Easting (usft)	(°/100usft)	(ft)	
15,000.00	90.00	179.51	9,283.10	12,663.00	2,582.82 S	22.31 E	375,315.98	801,433.21	0.00	2,582.92	
15,100.00	90.00	179.51	9,283.10	12,663.00	2,682.82 S	23.17 E	375,215.99	801,434.07	0.00	2,682.92	
15,200.00	90.00	179.51	9,283.10	12,663.00	2,782.81 S	24.03 E	375,115.99	801,434.93	0.00	2,782.92	
15,300.00	90.00	179.51	9,283.10	12,663.00	2,882.81 S	24.90 E	375,016.00	801,435.80	0.00	2,882.92	
15,400.00	90.00	179.51	9,283.10	12,663.00	2,982.81 S	25.76 E	374,916.00	801,436.66	0.00	2,982.92	
15,500.00	90.00	179.51	9,283.10	12,663.00	3,082.80 S	26.62 E	374,816.00	801,437.52	0.00	3,082.92	
15,600.00	90.00	179.51	9,283.10	12,663.00	3,182.80 S	27.49 E	374,716.01	801,438.39	0.00	3,182.92	
15,700.00	90.00	179.51	9,283.10	12,663.00	3,282.79 S	28.35 E	374,616.01	801,439.25	0.00	3,282.92	
15,800.00	90.00	179.51	9,283.10	12,663.00	3,382.79 S	29.22 E	374,516.02	801,440.12	0.00	3,382.92	
15,900.00	90.00	179.51	9,283.10	12,663.00	3,482.79 S	30.08 E	374,416.02	801,440.98	0.00	3,482.92	
16,000.00	90.00	179.51	9,283.10	12,663.00	3,582.78 S	30.94 E	374,316.02	801,441.84	0.00	3,582.92	
16,100.00	90.00	179.51	9,283.10	12,663.00	3,682.78 S	31.81 E	374,216.03	801,442.71	0.00	3,682.92	
16,200.00	90.00	179.51	9,283.10	12,663.00	3,782.78 S	32.67 E	374,116.03	801,443.57	0.00	3,782.92	
16,300.00	90.00	179.51	9,283.10	12,663.00	3,882.77 S	33.53 E	374,016.04	801,444.43	0.00	3,882.92	
16,400.00	90.00	179.51	9,283.10	12,663.00	3,982.77 S	34.40 E	373,916.04	801,445.30	0.00	3,982.92	
16,500.00	90.00	179.51	9,283.10	12,663.00	4,082.76 S	35.26 E	373,816.04	801,446.16	0.00	4,082.92	
16,600.00	90.00	179.51	9,283.10	12,663.00	4,182.76 S	36.12 E	373,716.05	801,447.02	0.00	4,182.92	
16,700.00	90.00	179.51	9,283.10	12,663.00	4,282.76 S	36.99 E	373,616.05	801,447.89	0.00	4,282.92	
16,800.00	90.00	179.51	9,283.10	12,663.00	4,382.75 S	37.85 E	373,516.06	801,448.75	0.00	4,382.92	
16,900.00	90.00	179.51	9,283.10	12,663.00	4,482.75 S	38.72 E	373,416.06	801,449.62	0.00	4,482.92	
17,000.00	90.00	179.51	9,283.10	12,663.00	4,582.75 S	39.58 E	373,316.06	801,450.48	0.00	4,582.92	
17,100.00	90.00	179.51	9,283.10	12,663.00	4,682.74 S	40.44 E	373,216.07	801,451.34	0.00	4,682.92	
17,200.00	90.00	179.51	9,283.10	12,663.00	4,782.74 S	41.31 E	373,116.07	801,452.21	0.00	4,782.92	
17,300.00	90.00	179.51	9,283.10	12,663.00	4,882.74 S	42.17 E	373,016.07	801,453.07	0.00	4,882.92	
17,349.78	90.00	179.51	9,283.10	12,663.00	4,932.51 S	42.60 E	372,966.30	801,453.50	0.00	4,932.69	TD at 17349.78

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Comment
+N/-S	+E/-W			
12,090.04	12,090.04	0.00	0.00	Start Build 10.00
12,990.04	12,663.00	-572.94	4.95	Start 4359.73 hold at 12990.04 MD
17,349.78	12,663.00	-4,932.51	42.60	TD at 17349.78

Plan Report for Green Wave 20 Fed 2H - Plan #1 093014 RevA0

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
TD	No Target (Freehand)	179.51	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	17,349.78	Plan #1 093014 RevA0	MWD

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	TVDSS (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
730.00	730.00	-2,649.90	Rustler			
1,084.00	1,084.00	-2,295.90	Top of Salt			
3,460.00	3,460.00	80.10	Lamar			
5,320.00	5,320.00	1,940.10	Delaware Group			
9,590.00	9,590.00	6,210.10	Bone Spring			
9,815.00	9,815.00	6,435.10	Leonard (avalon shale)			
10,550.00	10,550.00	7,170.10	1st Bone Sand For BLM only)			
11,085.00	11,085.00	7,705.10	2nd Bone Spring Sand			
11,550.00	11,550.00	8,170.10	3rd Bone spring Lime			
12,175.31	12,175.00	8,795.10	3rd Bone Spring Sand			
12,518.95	12,480.00	9,100.10	Lower 3rd Bone Spring Sand			
12,718.83	12,600.00	9,220.10	wolfcamp (BLM only)			

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Green Wave 20 Fed 2H BHL ()									
	0.00	0.00	12,663.00	-4,932.51	42.60	372,966.30	801,453.50	32° 1' 21.314 N	103° 29' 38.488 W
- plan hits target center									
- Point									

Plan Report for Green Wave 20 Fed 2H - Plan #1 093014 RevA0

Directional Difficulty Index

Average Dogleg over Survey: 0.52 °/100usft

Maximum Dogleg over Survey: 10.00 °/100usft at
12,990.04 ft

Net Tortousity applicable to Plans: 0.52 °/100usft

Directional Difficulty Index: 6.066

Audit Info

SAP=346244

North Reference Sheet for Green Wave 20 Fed - Green Wave 20 Fed 2H - Wellbore #1

All data is in Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to Well @ 3379.90ft (25'KB). Northing and Easting are relative to Green Wave 20 Fed 2H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is 104° 20' 0.000 W°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 0° 0' 0.000 N°

False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 0.99998656

Grid Coordinates of Well: 377,898.80 usft N, 801,410.90 usft E

Geographical Coordinates of Well: 32° 02' 10.13" N, 103° 29' 38.54" W

Grid Convergence at Surface is: 0.45°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,349.78ft

the Bottom Hole Displacement is 4,932.69ft in the Direction of 179.51° (Grid).

Magnetic Convergence at surface is: -6.84° (30 September 2014, , BGGM2014)

