OCD-ARTESIA

Form 3160-3
(August 2007)

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010 EA 11-137

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM95630

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No.

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

8. Lease Name and Well No.
CROW FLATS 14 FEDERAL 4H

2. Name of Operator
CHESAPEAKE OPERATING, INC. ATTN: LINDA GOOD

9. API Well No.
30-015-38466 ~~34666~~

3a. Address P.O. BOX 18496
OKLAHOMA CITY, OK 73154-0496

3b. Phone No. *(include area code)*
405-935-4275

10. Field and Pool, or Exploratory
UNDES. CROW FLATS; WOLFCAMP

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
Becomes orthodox @approx. 16600'-MD

11. Sec., T. R. M. or Blk. and Survey or Area
14-16S-28E

At surface ~~SESE~~ NWSW 1980 FSL 200 FWL

At proposed prod. zone ~~NWSW~~ NESE 1980 FSL 330 FEL

UNORTHODOX LOCATION

14. Distance in miles and direction from nearest town or post office*
17.3 MILES NW OF LOVINGTON, NEW MEXICO

12. County or Parish
EDDY

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
	1760.00	320 ACRES
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
	11,137 MD / 6587 TVD	NM2634
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3593' GL		

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
Linda Good	Linda Good	Revised 10/29/2010

Title
Sr. Regulatory Compliance Specialist

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ Don Peterson		JAN 18 2011

Title	Office
FIELD MANAGER	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)

Approval Subject to General Requirements & Special Stipulations Attached

Roswell Controlled Water Basin

RECEIVED
JAN 25 2011
NMOCD ARTESIA

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Additional Operator Remarks:

Chesapeake Operating, Inc., respectfully requests permission to drill a well to 11,137' to test the Wolfcamp formation. If productive, casing will be run and the well completed. If dry, the well will be plugged and abandoned as per BLM and New Mexico Oil Conservation Division Requirements.

Please find the Surface Use Plan and Drilling Program as required by Onshore Order No. 1.

Attached are the Exhibit A-1 to A-4 Survey Plats, Exhibit B 1 Mile Radius Plat, Exhibit C Production Facility, Exhibit D Western Rig #6 Layout, Exhibit F-1 to F-2 BOP & Choke Manifold and Exhibit G Directional Drill Plan.

Exhibit E Archaeological Survey will be delivered to the BLM when completed.

CHESAPEAKE OPERATING, INC. HAS AN AGREEMENT WITH THE GRAZING LESSEE.

PLEASE BE ADVISED THAT CHESAPEAKE OPERATING, INC. IS CONSIDERED TO BE THE OPERATOR OF THE ABOVE MENTIONED WELL. CHESAPEAKE OPERATING, INC. AGREES TO BE RESPONSIBLE UNDER THE TERMS AND CONDITIONS OF THE LEASE FOR THE OPERATIONS CONDUCTED UPON THE LEASE LANDS.

(CHK PN

ONSHORE OIL & GAS ORDER NO. 1
Approval of Operations on Onshore Federal and Indian Oil and Gas Leases

All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (CFR 43, Part 3160) and the approved Application for Permit to Drill. The operator is considered fully responsible for the actions of his subcontractors. A copy of the approved APD must be on location during construction, drilling and completion operations.

Approval of this application 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.

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATIONS	SUBSEA	KBTVD
Yates	**3158'**	**457'**
Queen	**2445'**	**1170'**
San Andres	**1685'**	**1930'**
Glorieta	**202'**	**3413'**
Tubb	**1048'**	**4663'**
Abo Shale	**1787'**	**5402'**
Wolfcamp	**2948'**	**6563'**

TOTAL DEPTH 11,107'

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Oil/Gas	Wolfcamp	6563'

All shows of fresh water and minerals will be reported and protected.

3. BOP EQUIPMENT:

Will have a 5000 psi rig stack (see proposed schematic) for drill out below surface casing; this system will be tested to 3000 psi working pressure and 3000 psi working pressure for the annular preventer.

Chesapeake Operating, Inc.'s minimum specifications for pressure control equipment are as follows:

I. BOP, Annular, Choke Manifold, Pressure Test - See Exhibit F-1 to F-2.

A. Equipment
1. The equipment to be tested includes all of the following that is installed on the well:
(a) Ram-type and annular preventers,
(b) Choke manifolds and valves,
(c) Kill lines and valves, and
(d) Upper and lower kelly cock valves, inside BOP's and safety valves.

B. Test Frequency
1. All tests should be performed with clear **water**,
(a) when installed,
(b) before drilling out each casing string,
(c) at any time that there is a repair requiring a pressure seal to be broken in the assembly, and
(d) at least once every **30 days** while drilling.

C. Test Pressure
1. In some drilling operations, the pressures to be used for low and high-pressure testing of preventers and casing may be different from those given below due to governmental regulations, or approved local practices.
2. If an individual component does not test at the low pressure, **do not,** test to the high pressure and then drop back down to the low pressure.
3. All valves located downstream of a valve being tested must be placed in the open position.
4. All equipment will be tested with an initial "low pressure" test at 250 psi.
5. The subsequent "high pressure" test will be conducted at the rated working pressure of the equipment for all equipment except the annular preventer.
6. The "high pressure" test for the annular preventer will be conducted at 70% of the rated working pressure.
7. A record of all pressures will be made on a pressure-recording chart.

D. Test Duration
1. In each case, the individual components should be monitored for leaks for **10 minutes,** with no observable pressure decline, once the test pressure as been applied

II. Accumulator Performance Test

A. Scope

1. The purpose of this test is to check the capabilities of the BOP control systems, and to detect deficiencies in the hydraulic oil volume and recharge time.

B. Test Frequency

1. The accumulator is to be tested each time the BOP's are tested, or any time a major repair is performed.

C. Minimum Requirements

1. The accumulator should be of sufficient volume to supply 1.5 times the volume to close and hold all BOP equipment in sequence, **without recharging** and the **pump turned off**, and have remaining pressures of **200 PSI above the precharge pressure**.

2. Minimum precharge pressures for the various accumulator systems per **manufacturers recommended specifications** are as follows:

3.

System Operating Pressures	Precharge Pressure
1500 PSI	750 PSI
2000 PSI	1,000 PSI
3000 PSI	1,000 PSI

3. Closing times for the Hydril should be less than **20 seconds**, and for the ram-type preventers less than **10 seconds**.

4. System Recharge time should not exceed **10 minutes**.

D. Test Procedure

1. Shut accumulator pumps off and record accumulator pressure.

2. In sequence, close the annular and one set of properly sized pipe rams, and open the HCR valve.

3. Record time to close or open each element and the remaining accumulator pressure after each operation.

4. Record the remaining accumulator pressure at the end of the test sequence. Per the previous requirement, this pressure **should not be less** than the following pressures:

System Pressure	Remaining Pressure At Conclusion of Test
1,500 PSI	950 PSI
2,000 PSI	1,200 PSI
3,000 PSI	1,200 PSI

5. Turn the accumulator pumps on and record the recharge time. This time should not exceed **10 minutes.**

6. Open annular and ram-type preventers. Close HCR valve.

7. Place all 4-way control valves in **full open** or **full closed** position. **Do not leave in neutral position**.

4. CASING PROGRAM

a. The proposed casing program will be as follows:

Purpose	Interval	Hole Size	Casing Size	Weight	Grade	Thread	Condition
Surface	Surface – 350'	17-1/2"	13-3/8"	48.0#	H-40	STC	New
Intermediate	Surface – 1900'	12-1/4"	9-5/8"	40.0#	J-55	LTC	New
Production	Surface – 11,137'	8-3/4"	5-1/2"	17.0#	P-110	LTC	New

See COA b. Casing design subject to revision based on geologic conditions encountered.

c. Casing Safety Factors:

13-3/8" Surface Casing: SFb = 1.43, SFc = 4.85 and SFt = 1.64

9-5/8" Intermediate Casing: SFb = 2.38, SFc = 3.12 and SFt = 2.38

5-1/2" Production Casing: SFb = 1.28, SFc = 2.53 and SFt = 2.27

d. The cementing program will be as follows:

5. Cementing Program

Interval	Type	Weight	Amount	Yield	Top Of Cement	Excess
Surface	Single Slurry	13.5 ppg	375 sks	1.73	Surface	150%
Intermediate	Lead:	12.0 ppg	525 sks	1.82	Surface	150%
	Tail:	14.2 ppg	310 sks	1.37	1400'	150%
Production	Lead	12.0 ppg	990 sks	1.83	1,500	60%
	Tail	13.2 ppg	1175sks	1.74	6100'	60%

See COA

Final cement volumes will be determined by caliper.
Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.

Pilot Hole Plugging Plan:

The pilot hole will be plugged back with one cement plug. Note: objective formation is Wolfcamp. Pilot Hole will TD in the Wolfcamp so no isolation is needed.

The plug will be placed from Pilot Hole TD up 400' (~6,850' to ~6,450)' using 240 sx, 40% excess Class H 17.5 ppg, 0.96 yld.

6. MUD PROGRAM

a. The proposed circulating mediums to be used in drilling are as follows:

Interval	Mud Type	Mud Weight	Viscosity	Fluid Loss
0' – 350'	FW/Gel	8.4 – 8.7	32-34	NC
350' – 1,900'	Brine	9.5 – 10.1	28-30	NC
1,900' – Pilot TD	KCl Water	8.4 – 8.7	28-29	NC
6,215'-TD	FW/Cut Brine	8.7-9.5	34-38	12-20

A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toliet and then hauled to an approved sanitary

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation Division rules and regulations.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

7. TESTING, LOGGING AND CORING See COA
The anticipated type and amount of testing, logging and coring are as follows:

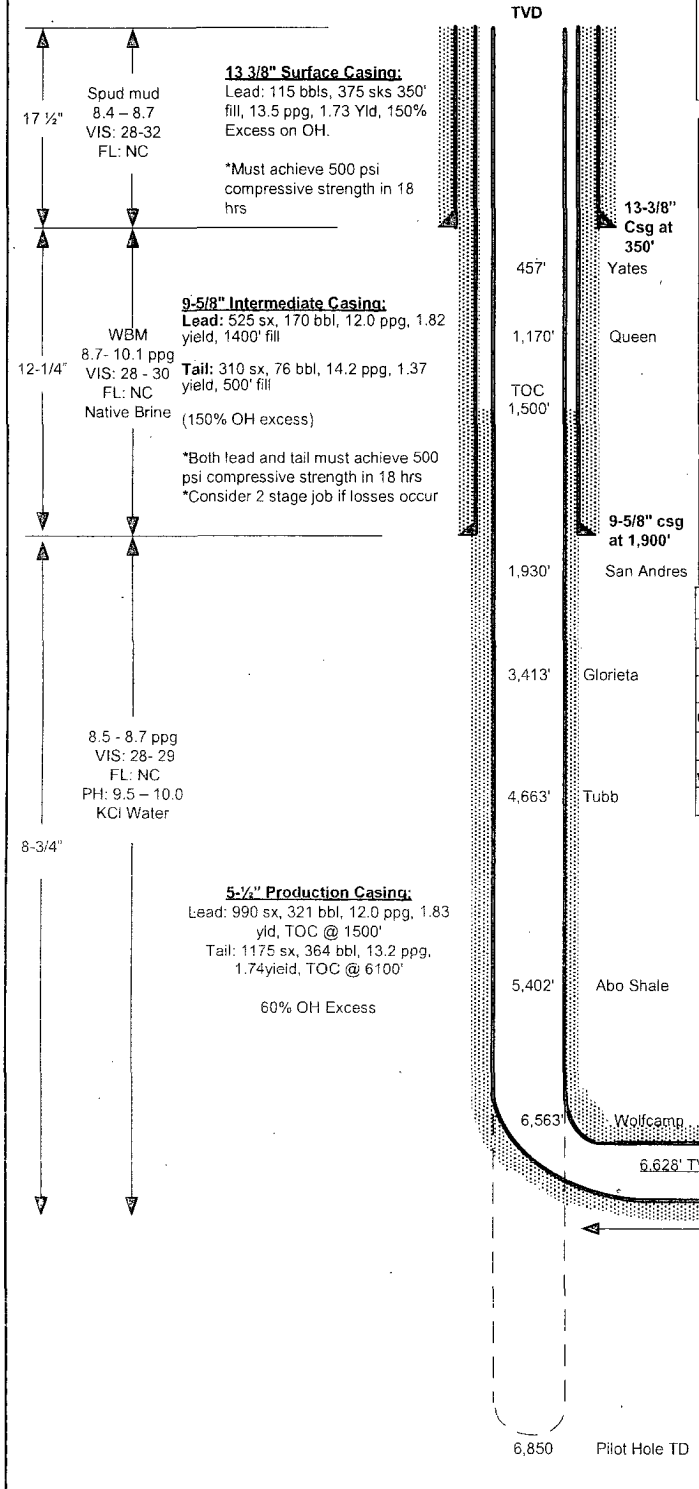
a. Drill stem tests are not planned.
b. The logging program will consist of Triple Combo with Spectral Gamma Ray and Sonic from Pilot TD up to 4800' then Gamma Ray/Neutron up to surface. GR in lateral.
c. Cores samples are not planned.

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

a. The estimated bottom hole pressure is 3000 psi.
b. No abnormal pressures or temperatures are anticipated

Chesapeake Operating Inc	Proposed Drilling Program

Well : **Crow Flats 14 Federal 4H**
Field : **Delaware Basin North**
County : **Eddy** **State : NM**
Surf Locat : **Section 14-16S-28E, 1980' FSL & 200' FWL Lat: N32.921546° Long: W104.154139° (NAD27)**
BH Locat : **Section 14-16S-28E, 1980' FSL & 330' FEL Lat: N32.921513° Long: W104.138862° (NAD27)**
KB Elev : **3,613' (Est)** **Grd Elev : 3,593'**



Wellhead Equipment

Tree Connection	
Backpressure Valve	
Tubing Spool	11" 5M x 7 1/16" 10K
Casing Spool	13-5/8" 5M x 11" 5M
Bradenhead	13-3/8" SOW x 13-5/8" 5M

Logging Program

Company	Log Type	Interval
	PILOT HOLE: Triple Combo with Spectral Gamma Ray and Sonic from TD up to 4800' then Gamma Ray/Neutron up to surface.	
	MWD-GR on BHA	Curve and lateral
Mud logging personnel at 6300' to TD		

Tubular Detail

	Size	Wt	Grd	Conn.	From:	To:
Surface	13-3/8"	48#	H-40	STC	0'	350'
Inter	9 5/8"	40#	J-55	LTC	0'	1,900'
Prod	5 ½"	17.0#	P-110	LTC	0'	Lateral TD

Lateral Directional Plan

	MD	INC	AZM	TVD	BUR	DLS
KOP	6,215'	0	0	6,215'	0	0
EOB	6,862'	90.5	90.05	6,624'	14.0	14.0
TD	11,137'	90.5	90.05	6,587'	0	0

Vendors

Rig	Western 6
Directional	Nevis
Mud	Venture
Cement	Schlumberger
Wellhead	Sunbelt
Wireline Logging	N/A
Mud Logging	Suttles

**Mud logging at 6300'

Drawn by:	Date:		Property No:	Drilling Engineer:	Drilling Superintendent:	Geologist:
CG	Rev #0: 8/13/10			Chris Gray	Cecil Luttrull	Robert Martin

Permian District

NM - Eddy - Wolfcamp (north Eddy)
Crow Flats 14 Federal 4H
Crow Flats 14 Federal 4H

Wellbore #1

Plan: Plat

Standard Planning Report

13 August, 2010

EXHIBIT G

Chesapeake Energy Corporation

Planning Report

Database:	Drilling Database	**Local Co-ordinate Reference:**	Site Crow Flats 14 Federal 4H
Company:	Permian District	**TVD Reference:**	WELL @ 3613.0ft (Original Well Elev)
Project:	NM - Eddy - Wolfcamp (north Eddy)	**MD Reference:**	WELL @ 3613.0ft (Original Well Elev)
Site:	Crow Flats 14 Federal 4H	**North Reference:**	Grid
Well:	Crow Flats 14 Federal 4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plat		

Project NM - Eddy - Wolfcamp (north Eddy)

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 Crow Flats 14 Federal 4H

Site Position:		**Northing:**	699,016.90 ft	**Latitude:**	32.92154579
From:	Map	**Easting:**	554,986.60 ft	**Longitude:**	-104.15413897
Position Uncertainty:	0.0 ft	**Slot Radius:**	0.000 in	**Grid Convergence:**	0.0973981 °

Well Crow Flats 14 Federal 4H

Well Position	**+N/-S**	0.0 ft	**Northing:**	699,016.90 ft	**Latitude:**	32.92154579
	+E/-W	0.0 ft	**Easting:**	554,986.60 ft	**Longitude:**	-104.15413897
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	3,593.0 ft	**Ground Level:**	3,593.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/13/2010	7.9962053	60.7709563	49,086

Design Plat

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	90.05

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0000000	
6,215.1	0.00	0.00	6,215.1	0.0	0.0	0.00	0.00	0.00	0.0000000	
6,861.5	90.50	90.05	6,624.3	-0.3	412.8	14.00	14.00	0.00	90.0452236	
11,136.5	90.50	90.05	6,587.0	-3.7	4,687.7	0.00	0.00	0.00	0.0000000	CF14F4H- BHL- Plat

Chesapeake Energy Corporation

Planning Report

Database:	Drilling Database	**Local Co-ordinate Reference:**	Site Crow Flats 14 Federal 4H
Company:	Permian District	**TVD Reference:**	WELL @ 3613.0ft (Original Well Elev)
Project:	NM - Eddy - Wolfcamp (north Eddy)	**MD Reference:**	WELL @ 3613.0ft (Original Well Elev)
Site:	Crow Flats 14 Federal 4H	**North Reference:**	Grid
Well:	Crow Flats 14 Federal 4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plat		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

Chesapeake Energy Corporation

Planning Report

Database:	Drilling Database	**Local Co-ordinate Reference:**	Site Crow Flats 14 Federal 4H
Company:	Permian District	**TVD Reference:**	WELL @ 3613.0ft (Original Well Elev)
Project:	NM - Eddy - Wolfcamp (north Eddy)	**MD Reference:**	WELL @ 3613.0ft (Original Well Elev)
Site:	Crow Flats 14 Federal 4H	**North Reference:**	Grid
Well:	Crow Flats 14 Federal 4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plat		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,215.1	0.00	0.00	6,215.1	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	11.89	90.05	6,299.4	0.0	8.8	8.8	14.00	14.00	0.00
6,400.0	25.89	90.05	6,393.8	0.0	41.1	41.1	14.00	14.00	0.00
6,500.0	39.89	90.05	6,477.5	-0.1	95.3	95.3	14.00	14.00	0.00
6,600.0	53.89	90.05	6,545.7	-0.1	168.1	168.1	14.00	14.00	0.00
6,700.0	67.89	90.05	6,594.2	-0.2	255.2	255.2	14.00	14.00	0.00
6,800.0	81.89	90.05	6,620.2	-0.3	351.5	351.5	14.00	14.00	0.00
6,861.5	90.50	90.05	6,624.3	-0.3	412.8	412.8	14.00	14.00	0.00
6,900.0	90.50	90.05	6,624.0	-0.4	451.3	451.3	0.00	0.00	0.00
7,000.0	90.50	90.05	6,623.1	-0.4	551.3	551.3	0.00	0.00	0.00
7,100.0	90.50	90.05	6,622.2	-0.5	651.3	651.3	0.00	0.00	0.00
7,200.0	90.50	90.05	6,621.4	-0.6	751.3	751.3	0.00	0.00	0.00
7,300.0	90.50	90.05	6,620.5	-0.7	851.3	851.3	0.00	0.00	0.00
7,400.0	90.50	90.05	6,619.6	-0.8	951.3	951.3	0.00	0.00	0.00
7,500.0	90.50	90.05	6,618.7	-0.8	1,051.3	1,051.3	0.00	0.00	0.00
7,600.0	90.50	90.05	6,617.9	-0.9	1,151.3	1,151.3	0.00	0.00	0.00
7,700.0	90.50	90.05	6,617.0	-1.0	1,251.3	1,251.3	0.00	0.00	0.00
7,800.0	90.50	90.05	6,616.1	-1.1	1,351.3	1,351.3	0.00	0.00	0.00
7,900.0	90.50	90.05	6,615.2	-1.1	1,451.3	1,451.3	0.00	0.00	0.00
8,000.0	90.50	90.05	6,614.4	-1.2	1,551.3	1,551.3	0.00	0.00	0.00
8,100.0	90.50	90.05	6,613.5	-1.3	1,651.3	1,651.3	0.00	0.00	0.00
8,200.0	90.50	90.05	6,612.6	-1.4	1,751.3	1,751.3	0.00	0.00	0.00
8,300.0	90.50	90.05	6,611.8	-1.5	1,851.3	1,851.3	0.00	0.00	0.00
8,400.0	90.50	90.05	6,610.9	-1.5	1,951.3	1,951.3	0.00	0.00	0.00
8,500.0	90.50	90.05	6,610.0	-1.6	2,051.3	2,051.3	0.00	0.00	0.00
8,600.0	90.50	90.05	6,609.1	-1.7	2,151.3	2,151.3	0.00	0.00	0.00
8,700.0	90.50	90.05	6,608.3	-1.8	2,251.3	2,251.3	0.00	0.00	0.00
8,800.0	90.50	90.05	6,607.4	-1.9	2,351.3	2,351.3	0.00	0.00	0.00
8,900.0	90.50	90.05	6,606.5	-1.9	2,451.3	2,451.3	0.00	0.00	0.00
9,000.0	90.50	90.05	6,605.6	-2.0	2,551.3	2,551.3	0.00	0.00	0.00
9,100.0	90.50	90.05	6,604.8	-2.1	2,651.3	2,651.3	0.00	0.00	0.00
9,200.0	90.50	90.05	6,603.9	-2.2	2,751.3	2,751.3	0.00	0.00	0.00
9,300.0	90.50	90.05	6,603.0	-2.3	2,851.3	2,851.3	0.00	0.00	0.00
9,400.0	90.50	90.05	6,602.2	-2.3	2,951.3	2,951.3	0.00	0.00	0.00
9,500.0	90.50	90.05	6,601.3	-2.4	3,051.2	3,051.3	0.00	0.00	0.00
9,600.0	90.50	90.05	6,600.4	-2.5	3,151.2	3,151.2	0.00	0.00	0.00
9,700.0	90.50	90.05	6,599.5	-2.6	3,251.2	3,251.2	0.00	0.00	0.00
9,800.0	90.50	90.05	6,598.7	-2.6	3,351.2	3,351.2	0.00	0.00	0.00
9,900.0	90.50	90.05	6,597.8	-2.7	3,451.2	3,451.2	0.00	0.00	0.00
10,000.0	90.50	90.05	6,596.9	-2.8	3,551.2	3,551.2	0.00	0.00	0.00
10,100.0	90.50	90.05	6,596.0	-2.9	3,651.2	3,651.2	0.00	0.00	0.00
10,200.0	90.50	90.05	6,595.2	-3.0	3,751.2	3,751.2	0.00	0.00	0.00
10,300.0	90.50	90.05	6,594.3	-3.0	3,851.2	3,851.2	0.00	0.00	0.00
10,400.0	90.50	90.05	6,593.4	-3.1	3,951.2	3,951.2	0.00	0.00	0.00
10,500.0	90.50	90.05	6,592.6	-3.2	4,051.2	4,051.2	0.00	0.00	0.00

Chesapeake Energy Corporation

Planning Report

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Design:	Plat		

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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,600.0	90.50	90.05	6,591.7	-3.3	4,151.2	4,151.2	0.00	0.00	0.00
10,700.0	90.50	90.05	6,590.8	-3.4	4,251.2	4,251.2	0.00	0.00	0.00
10,800.0	90.50	90.05	6,589.9	-3.4	4,351.2	4,351.2	0.00	0.00	0.00
10,900.0	90.50	90.05	6,589.1	-3.5	4,451.2	4,451.2	0.00	0.00	0.00
11,000.0	90.50	90.05	6,588.2	-3.6	4,551.2	4,551.2	0.00	0.00	0.00
11,100.0	90.50	90.05	6,587.3	-3.7	4,651.2	4,651.2	0.00	0.00	0.00
11,136.5	90.50	90.05	6,587.0	-3.7	4,687.7	4,687.7	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
CF14F4H- BHL- Plat - plan hits target center - Point	0.00	0.00	6,587.0	-3.7	4,687.7	699,013.20	559,674.30	32.92151278	-104.13686244
CF14F4H- TL 0'VS- Plat - plan misses target center by 172.2ft at 6533.4ft MD (6502.2 TVD, -0.1 N, 117.7 E) - Point	0.00	0.00	6,628.0	0.0	0.0	699,016.90	554,986.60	32.92154579	-104.15413897

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
350.0	350.0	13 3/8" Surface Casing	13.375	17.500
1,900.0	1,900.0	9 5/8" Intermediate Casing	9.625	12.250
11,136.5	6,587.0	5 1/2" Production Casing	5.500	8.750

BLOWOUT PREVENTOR SCHEMATIC

CHESAPEAKE OPERATING INC

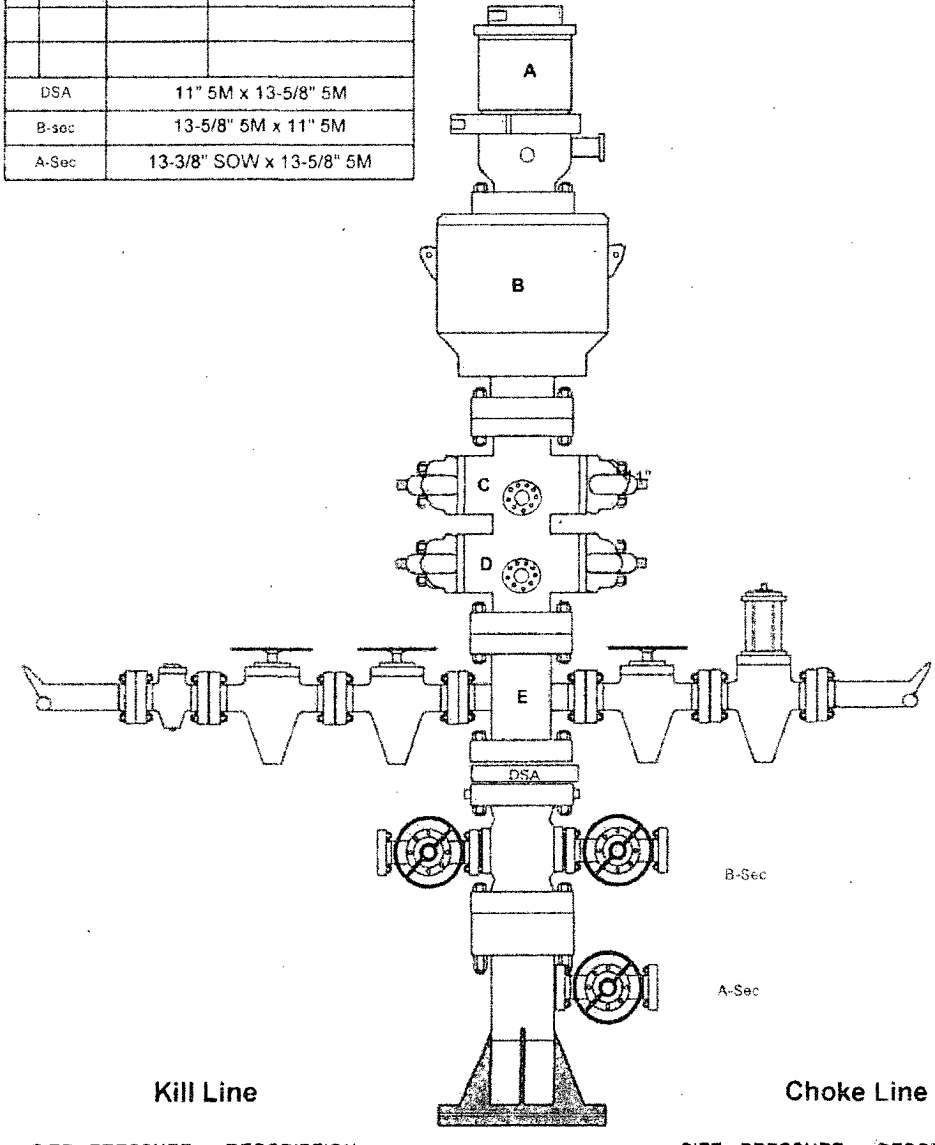
WELL : Crow Flats 14 Federal4 H

RIG : Western 6

COUNTY : Eddy STATE: New Mexico

OPERATION: Drillo ut below Surface Casing to TD

	SIZE	PRESSURE	DESCRIPTION
A	13-5/8"	500 psi	Rot Head
B	13-5/8"	5000 psi	Annular
C	13-5/8"	5000 psi	Pipe Rams
D	13-5/8"	5000 psi	Blind Rams
E	13-5/8"	5000 psi	Mud Cross
DSA		11" 5M x 13-5/8" 5M	
B-sec		13-5/8" 5M x 11" 5M	
A-Sec		13-3/8" SOW x 13-5/8" 5M	



Kill Line

SIZE	PRESSURE	DESCRIPTION
2"	5000 psi	Check Valve
2"	5000 psi	Gate Valve
2"	5000 psi	Gate Valve

Choke Line

SIZE	PRESSURE	DESCRIPTION
4"	5000 psi	Gate Valve
4"	5000 psi	HCR Valve