amended

OCD Artesia

Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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.
NMNM012121

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.
891005247X

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
COTTON DRAW UNIT 207H

2. Name of Operator
DEVON ENERGY PRODUCTION CO LP
Contact: TRINA C COUCH
Mail: trina.couch@dvn.com

9. API Well No.
30-015-42073-00-X1

3a. Address
333 WEST SHERIDAN AVE
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)
Ph: 405-228-7203

10. Field and Pool, or Exploratory
PADUCA

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 25 T24S R31E SWSW 0150FSL 1300FWL
32.181498 N Lat, 103.735837 W Lon

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

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 to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 recomplete 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 recompletion 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 make the following changes to the approved APD for the Cotton Draw Unit 207H:

* Change the Intermediate Casing
* Change BOP
* Add multi-bowl wellhead
* Change TVD

Please see attachment which addresses all of the above changes, thank you.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

2/11/15
Accepted for record
NMOCD

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

Electronic Submission #288957 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION CO LP, sent to the Hobbs
Committed to AFMSS for processing by JENNIFER MASON on 01/22/2015 (15JAM0063SE)

Name *(Printed/Typed)* TRINA C COUCH — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 01/22/2015

APPROVED
JAN 22 2015
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ 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

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

RJC 6.26.13

DRILLING PROGRAM

Devon Energy Production Company, LP
Cotton Draw Unit 207H

Surface Location: 150' FSL & 1300' FWL, Unit M, Sec 25, T24S R31E, Eddy, NM
Bottom Hole Location: 330' FNL & 660' FWL, Unit D, Sec 25, T24S R31E, Eddy, NM

1. Geologic Name of Surface Formation

a. Quaternary

2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:

a.	RUSTLER	640	Barren
b.	TOP SALT	1,033	Barren
c.	BASE SALT	4,107	Barren
d.	Bell Canyon	4,364	Oil & Gas Shows
e.	Cherry Canyon	5,388	
f.	Brushy Canyon	6,641	Oil & Gas Shows
g.	Bone Spring	8,268	
h.	1st Bone Spring Sand	9,352	Oil & Gas Shows
i.	2nd Bone Spring Sand	9,990	Oil & Gas Shows
j.	Target 2nd Bone Spring Sand (0' vert. sec)	10,520	Oil & Gas Shows
k.	2nd Bone Spring Sand Target (Heel)	10,465	Oil & Gas Shows
l.	2nd Bone Spring Sand Target (Toe)	10,490	Oil & Gas Shows

Total Depth 15,093' MD 10,490' TVD

3. Casing Program: (All casing is new and API approved.)

Hole Size	Hole Interval	Casing OD	Casing Interval	Weight	Collar	Grade
17-1/2"	0 - 800'	13-3/8"	0 – 800'	48#	STC	H-40
12-1/4"	800 - 4,350	9-5/8"	0 – 3400'	36#	LTC	J-55
12-1/4"	800-4350'	9-5/8"	3400-4350'	40	BTC	J-55
8-3/4"	4350-15093'	5-1/2"	0-15093'	17	BTC	P-110

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
13-3/8"	1.98	4.44	7.88
9-5/8" 36#	1.15	1.66	1.97
9-5/8" 40#	1.18	1.81	3.10
5-1/2" BTC	1.54	2.19	3.09

Maximum TVD in lateral: 10,490'

The maximum possible collapse load that the intermediate casing will experience will result from evacuated casing with the pore pressure exerting a collapse load at TD. There is no potential for the intermediate casing to be used as the injection string. All casing will be new and to API specification.

4. Cement Program: (cement volumes Surface 100%/ Intermediate 50% Production based on at least 25% excess):

String	Number of sx	Weight lbs/gal	Water Volume g/sx	Yield cf/sx	Stage; Lead/Tail	Slurry Description
13-3/8" Surface	840	14.8	6.32	1.33	Tail	Class C Cement + 63.5% Fresh Water
9-5/8" Intermediate	930	12.9	9.81	1.85	Lead	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake + 70.9 % Fresh Water
	430	14.8	6.32	1.33	Tail	Class C Cement + 63.5% Fresh Water
5-1/2" Production Casing 2-Stage	1160	11.9	10.86	2.31	Lead	(65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake + 74.1 % Fresh Water
	1095	14.5	5.38	1.22	Tail	(50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.25% bwoc CFR-3 + 0.1% bwoc HR-601 + 2% bwoc Bentonite + 58.8% Fresh Water
	DV Tool at least 50' into open hole					
	315	10.4	15.23	3.32	Lead	Tuned Light Blend + 0.125 lb/sk Pol-E-Flake + 76.3% Fresh Water
	190	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake + 63.5% Fresh Water

TOC for all Strings:

13-3/8" Surface	0ft
9-5/8" Intermediate	0ft
5-1/2" Production 2-Stage	Stage #1 = at DV tool Stage #2 = 4150ft

- Actual cement volumes will be adjusted based on fluid caliper and caliper log data
- If lost circulation is encountered while drilling the production hole section, a DV tool will be installed a minimum of 50' below the intermediate casing shoe. If the DV tool has to be moved, the cement volumes will be adjusted proportionately. Both single and double stage proposals are listed in the cement table. The cement will tie back 500' into the 9-5/8" casing shoe.

RJC 6.26.13

5. Pressure Control Equipment

Devon proposes using a multi-bowl wellhead assembly (FMC Uni-head). This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.

- 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 5M, 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 70% of burst 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 3M will be installed on the FMC Uni-head wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 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 3M 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 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.

Auxiliary Well Control and Monitoring 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 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

6. Proposed Mud Circulation System

Depth	Mud Wt.	Visc	Fluid Loss	Type System
0 – 800'	8.4-9.6	32-34	NC	FW
800 – 4,350'	10.0	28	NC	Brine
4,350'– 15,093'	8.4-8.8	28-30	NC-12	FW

The necessary mud products for weight addition and fluid loss control will be on location at all times. Visual mud monitoring equipment will be in place to detect volume changes indicating loss or gain of circulating fluid volume. If abnormal pressures are encountered, electronic/mechanical mud monitoring equipment will be installed.

7. Logging, Coring, and Testing Program:

a. Drill stem tests will be based on geological sample shows.

b. If a drill stem test is anticipated; a procedure, equipment to be used and safety measures will be provided via sundry notice to the BLM.

c. The open hole electrical logging program will be:

i. Total Depth to Intermediate Casing Dual Laterolog-Micro Laterolog with SP and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.

ii. Total Depth to Surface Compensated Neutron with Gamma Ray

iii. No coring program is planned

iv. Additional testing will be initiated subsequent to setting the 5 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

8. Potential Hazards:

a. 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 No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 3,600 psi and Estimated BHT 145°. No H2S is anticipated to be encountered.

9. Anticipated Starting Date and Duration of Operations:

a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. 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 well and construct surface facilities and/or lay flow lines in order to place well on production.

RJC 6.26.13

NOTES REGARDING BLOWOUT PREVENTERS

Devon Energy Production Company, LP
Cotton Draw Unit 207H

Surface Location: 150' FSL & 1300' FWL, Unit M, Sec 25, T24S R31E, Eddy, NM
Bottom Hole Location: 330' FNL & 660' FWL, Unit D, Sec 25, T24S R31E, Eddy, NM

1. Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.
2. Wear ring will be properly installed in head.
3. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 3000 psi working pressure.
4. All fittings will be flanged.
5. A full bore safety valve tested to a minimum 3000 psi WP with proper thread connections will be available on the rotary rig floor at all times.
6. All choke lines will be anchored to prevent movement.
7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.
8. Will maintain a kelly cock attached to the kelly.
9. Hand wheels and wrenches will be properly installed and tested for safe operation.
10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.
11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

Pressure Control Equipment:

A 3M 13-5/8" BOP system (Double Ram and Annular preventer) will be installed and tested prior to drilling out the surface casing shoe. The BOP system used to drill the intermediate hole will be tested per BLM Onshore Oil and Gas Order 2.

A 3M 13-5/8" BOP system (Double Ram and Annular preventer) will be installed and tested prior to drilling out the intermediate casing shoe. The BOP system used to drill the production hole will be tested per BLM Onshore Oil and Gas Order 2.

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 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); **if an H&P rig drills this well. Otherwise no flex line is needed**. The line will be kept as straight as possible with minimal turns.

Auxiliary Well Control and Monitoring 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 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

Devon

HALLIBURTON
Sperry Drilling

Project: Eddy County, NM (NAD 83)
Site: Sec 25 T. 24S., R.31E.
Well: Cotton Draw Unit 207H
Wellbore: Wellbore #1
Plan: Plan#1 010815 RevA0 (Cotton Draw Unit 207H/Wellbore #1)
HP 212

devon

WELL DETAILS: Cotton Draw Unit 207H

Ground Level: 3508.70

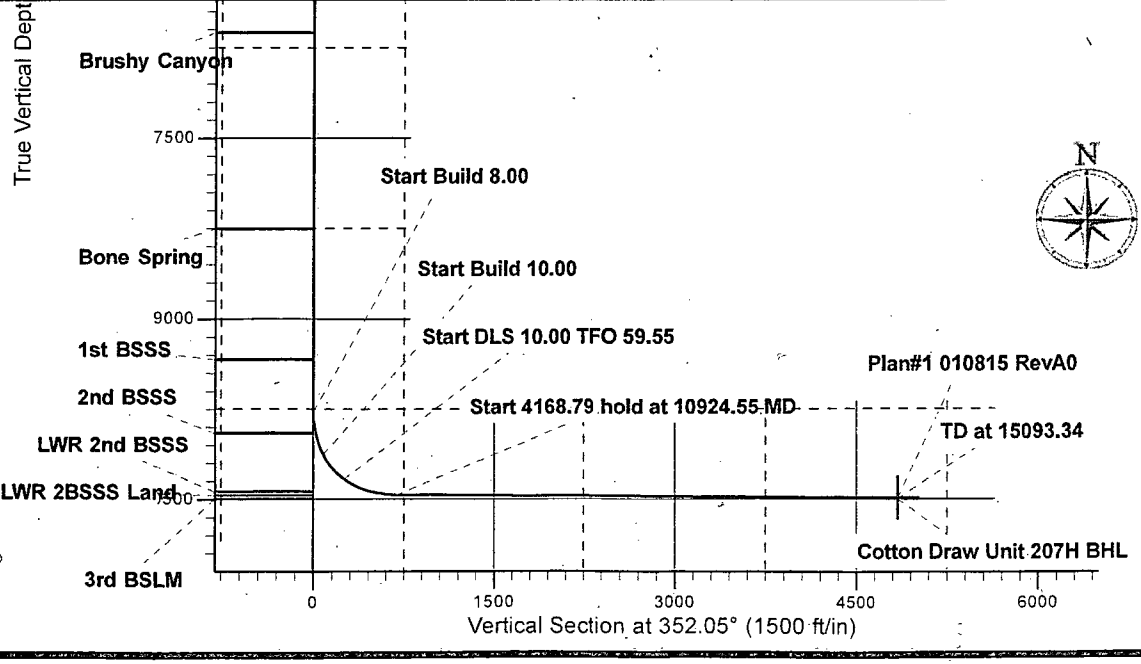
Northing	Easting	Latittude	Longitude
430277.07	726189.84	32° 10' 53.393 N	103° 44' 9.014 W

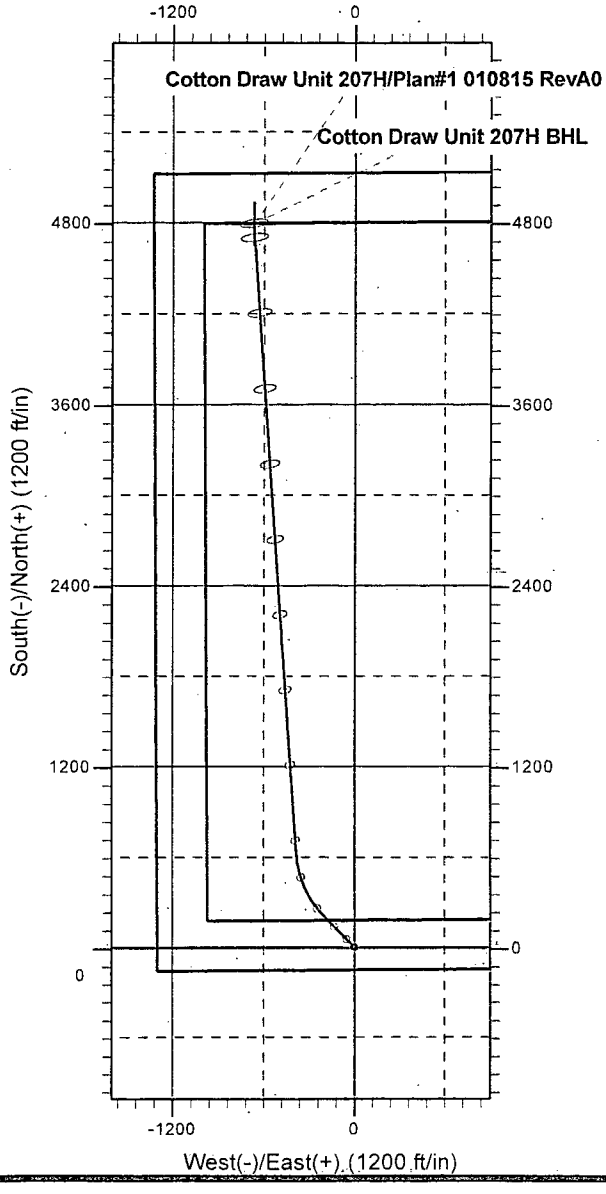
SECTION DETAILS

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	
9767.48	0.00	0.00	9767.48	0.00	0.00	0.00	0.00	0.00	
10142.48	30.00	316.07	10125.58	69.10	-66.57	8.00	316.07	77.65	
10442.48	60.00	316.07	10335.30	220.14	-212.07	10.00	0.00	247.36	
10924.55	89.66	356.07	10465.00	635.75	-383.67	10.00	59.55	682.71	Cotton Draw Unit 207H BHL
15093.34	89.66	356.07	10490.00	4794.64	-669.67	0.00	0.00	4841.18	Cotton Draw Unit 207H BHL

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Cotton Draw Unit 207H BHL	10490.00	4794.64	-669.67	Point





Job# 902020270
HP 212

Devon

Eddy County, NM (NAD 83) Sec 25 T. 24S., R.31E.
API# 30-015-42073
Cotton Draw Unit 207H
150' FSL & 1300' FWL
Wellbore #1
Plan: Plan#1 010815 RevA0

Sperry Drilling Services
Combo Report

08 January, 2015

Well Coordinates:	32° 10' 53.39" N 103° 44' 09.01" W	North American Datum 1983 New Mexico Eastern Zone 430,277.07 N 726,189.84 E
Ground Level: 3,508.70 ft		
Local Coordinate Origin:		Centered on Well Cotton Draw Unit 207H
Viewing Datum:		Well @ 3533.70ft (HP 212)
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

Plan Report for Cotton Draw Unit 207H - Plan#1 010815 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (usft)	Map Coordinates Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
0.00	0.00	0.00	-3,533.70	0.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
100.00	0.00	0.00	-3,433.70	100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
200.00	0.00	0.00	-3,333.70	200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
300.00	0.00	0.00	-3,233.70	300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
400.00	0.00	0.00	-3,133.70	400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
500.00	0.00	0.00	-3,033.70	500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
600.00	0.00	0.00	-2,933.70	600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
635.70	0.00	0.00	-2,898.00	635.70	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	Rustler
700.00	0.00	0.00	-2,833.70	700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
800.00	0.00	0.00	-2,733.70	800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
900.00	0.00	0.00	-2,633.70	900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,000.00	0.00	0.00	-2,533.70	1,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,028.70	0.00	0.00	-2,505.00	1,028.70	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	Top Salt
1,100.00	0.00	0.00	-2,433.70	1,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,200.00	0.00	0.00	-2,333.70	1,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,300.00	0.00	0.00	-2,233.70	1,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,400.00	0.00	0.00	-2,133.70	1,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,500.00	0.00	0.00	-2,033.70	1,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,600.00	0.00	0.00	-1,933.70	1,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,700.00	0.00	0.00	-1,833.70	1,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,800.00	0.00	0.00	-1,733.70	1,800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
1,900.00	0.00	0.00	-1,633.70	1,900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,000.00	0.00	0.00	-1,533.70	2,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,100.00	0.00	0.00	-1,433.70	2,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,200.00	0.00	0.00	-1,333.70	2,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,300.00	0.00	0.00	-1,233.70	2,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,400.00	0.00	0.00	-1,133.70	2,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,500.00	0.00	0.00	-1,033.70	2,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,600.00	0.00	0.00	-933.70	2,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,700.00	0.00	0.00	-833.70	2,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,800.00	0.00	0.00	-733.70	2,800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
2,900.00	0.00	0.00	-633.70	2,900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,000.00	0.00	0.00	-533.70	3,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,100.00	0.00	0.00	-433.70	3,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,200.00	0.00	0.00	-333.70	3,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,300.00	0.00	0.00	-233.70	3,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,400.00	0.00	0.00	-133.70	3,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,500.00	0.00	0.00	-33.70	3,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,600.00	0.00	0.00	66.30	3,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,700.00	0.00	0.00	166.30	3,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
3,800.00	0.00	0.00	266.30	3,800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	

Plan Report for Cotton Draw Unit 207H - Plan#1 010815 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (usft)	Map Coordinates Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
3,900.00	0.00	0.00	366.30	3,900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,000.00	0.00	0.00	466.30	4,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,100.00	0.00	0.00	566.30	4,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,102.70	0.00	0.00	569.00	4,102.70	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	Base Salt
4,200.00	0.00	0.00	666.30	4,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,300.00	0.00	0.00	766.30	4,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,349.70	0.00	0.00	816.00	4,349.70	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	Bell Canyon
4,400.00	0.00	0.00	866.30	4,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,500.00	0.00	0.00	966.30	4,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,600.00	0.00	0.00	1,066.30	4,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,700.00	0.00	0.00	1,166.30	4,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,800.00	0.00	0.00	1,266.30	4,800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
4,900.00	0.00	0.00	1,366.30	4,900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,000.00	0.00	0.00	1,466.30	5,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,100.00	0.00	0.00	1,566.30	5,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,200.00	0.00	0.00	1,666.30	5,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,300.00	0.00	0.00	1,766.30	5,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,373.70	0.00	0.00	1,840.00	5,373.70	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	Cherry Canyon
5,400.00	0.00	0.00	1,866.30	5,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,500.00	0.00	0.00	1,966.30	5,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,600.00	0.00	0.00	2,066.30	5,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,700.00	0.00	0.00	2,166.30	5,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,800.00	0.00	0.00	2,266.30	5,800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
5,900.00	0.00	0.00	2,366.30	5,900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,000.00	0.00	0.00	2,466.30	6,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,100.00	0.00	0.00	2,566.30	6,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,200.00	0.00	0.00	2,666.30	6,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,300.00	0.00	0.00	2,766.30	6,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,400.00	0.00	0.00	2,866.30	6,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,500.00	0.00	0.00	2,966.30	6,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,600.00	0.00	0.00	3,066.30	6,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,626.70	0.00	0.00	3,093.00	6,626.70	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	Brushy Canyon
6,700.00	0.00	0.00	3,166.30	6,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,800.00	0.00	0.00	3,266.30	6,800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
6,900.00	0.00	0.00	3,366.30	6,900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,000.00	0.00	0.00	3,466.30	7,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,100.00	0.00	0.00	3,566.30	7,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,200.00	0.00	0.00	3,666.30	7,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,300.00	0.00	0.00	3,766.30	7,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,400.00	0.00	0.00	3,866.30	7,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,500.00	0.00	0.00	3,966.30	7,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	

Plan Report for Cotton Draw Unit 207H - Plan#1 010815 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (usft)	Map Coordinates Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
7,600.00	0.00	0.00	4,066.30	7,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,700.00	0.00	0.00	4,166.30	7,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,800.00	0.00	0.00	4,266.30	7,800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
7,900.00	0.00	0.00	4,366.30	7,900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,000.00	0.00	0.00	4,466.30	8,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,100.00	0.00	0.00	4,566.30	8,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,200.00	0.00	0.00	4,666.30	8,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,253.70	0.00	0.00	4,720.00	8,253.70	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	Bone Spring
8,300.00	0.00	0.00	4,766.30	8,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,400.00	0.00	0.00	4,866.30	8,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,500.00	0.00	0.00	4,966.30	8,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,600.00	0.00	0.00	5,066.30	8,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,700.00	0.00	0.00	5,166.30	8,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,800.00	0.00	0.00	5,266.30	8,800.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
8,900.00	0.00	0.00	5,366.30	8,900.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,000.00	0.00	0.00	5,466.30	9,000.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,100.00	0.00	0.00	5,566.30	9,100.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,200.00	0.00	0.00	5,666.30	9,200.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,300.00	0.00	0.00	5,766.30	9,300.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,337.70	0.00	0.00	5,804.00	9,337.70	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	1st BSSS
9,400.00	0.00	0.00	5,866.30	9,400.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,500.00	0.00	0.00	5,966.30	9,500.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,600.00	0.00	0.00	6,066.30	9,600.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,700.00	0.00	0.00	6,166.30	9,700.00	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	
9,767.48	0.00	0.00	6,233.78	9,767.48	0.00 N	0.00 E	430,277.07	726,189.84	0.00	0.00	Start Build 8.00
9,800.00	2.60	316.07	6,266.29	9,799.99	0.53 N	0.51 W	430,277.60	726,189.33	8.00	0.60	
9,900.00	10.60	316.07	6,365.55	9,899.25	8.80 N	8.48 W	430,285.87	726,181.36	8.00	9.89	
9,954.83	14.99	316.07	6,419.00	9,952.70	17.55 N	16.90 W	430,294.62	726,172.94	8.00	19.72	2nd BSSS
10,000.00	18.60	316.07	6,462.24	9,995.94	26.95 N	25.96 W	430,304.02	726,163.88	8.00	30.28	
10,100.00	26.60	316.07	6,554.48	10,088.18	54.60 N	52.60 W	430,331.67	726,137.24	8.00	61.35	
10,142.48	30.00	316.07	6,591.88	10,125.58	69.10 N	66.57 W	430,346.17	726,123.27	8.00	77.65	Start Build 10.00
10,200.00	35.75	316.07	6,640.17	10,173.87	91.58 N	88.22 W	430,368.65	726,101.62	10.00	102.90	
10,300.00	45.75	316.07	6,715.82	10,249.52	138.53 N	133.45 W	430,415.60	726,056.39	10.00	155.66	
10,400.00	55.75	316.07	6,779.01	10,312.71	194.24 N	187.11 W	430,471.30	726,002.73	10.00	218.25	
10,442.48	60.00	316.07	6,801.60	10,335.30	220.14 N	212.07 W	430,497.21	725,977.77	10.00	247.36	Start DLS 10.00 TFO 59.55
10,500.00	63.03	321.63	6,829.04	10,362.74	258.21 N	245.28 W	430,535.28	725,944.56	10.00	289.65	
10,600.00	68.77	330.61	6,869.92	10,403.62	333.95 N	295.95 W	430,611.02	725,893.89	10.00	371.67	
10,700.00	74.95	338.89	6,901.09	10,434.79	419.82 N	336.31 W	430,696.89	725,853.53	10.00	462.30	
10,711.48	75.68	339.81	6,904.00	10,437.70	430.21 N	340.23 W	430,707.28	725,849.61	10.00	473.14	LWR 2nd BSSS
10,800.00	81.41	346.69	6,921.59	10,455.29	513.21 N	365.15 W	430,790.28	725,824.69	10.00	558.79	
10,900.00	88.02	354.23	6,930.81	10,464.51	611.29 N	381.59 W	430,888.36	725,808.25	10.00	658.20	

Plan Report for Cotton Draw Unit 207H - Plan#1 010815 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (usft)	Map Coordinates Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
10,924.55	89.66	356.07	6,931.30	10,465.00	635.75 N	383.67 W	430,912.82	725,806.17	10.00	682.71	Start 4168.79 hold at 10924.55 MD
11,000.00	89.66	356.07	6,931.76	10,465.46	711.02 N	388.85 W	430,988.09	725,800.99	0.00	757.97	
11,100.00	89.66	356.07	6,932.36	10,466.06	810.78 N	395.71 W	431,087.85	725,794.13	0.00	857.72	
11,200.00	89.66	356.07	6,932.96	10,466.66	910.54 N	402.57 W	431,187.61	725,787.27	0.00	957.48	
11,300.00	89.66	356.07	6,933.56	10,467.26	1,010.31 N	409.43 W	431,287.37	725,780.41	0.00	1,057.23	
11,374.09	89.66	356.07	6,934.00	10,467.70	1,084.22 N	414.51 W	431,361.29	725,775.33	0.00	1,131.14	LWR 2BSSS Land
11,400.00	89.66	356.07	6,934.16	10,467.86	1,110.07 N	416.29 W	431,387.14	725,773.55	0.00	1,156.98	
11,500.00	89.66	356.07	6,934.76	10,468.46	1,209.83 N	423.15 W	431,486.90	725,766.69	0.00	1,256.73	
11,600.00	89.66	356.07	6,935.35	10,469.05	1,309.59 N	430.01 W	431,586.66	725,759.83	0.00	1,356.49	
11,700.00	89.66	356.07	6,935.95	10,469.65	1,409.36 N	436.87 W	431,686.42	725,752.97	0.00	1,456.24	
11,800.00	89.66	356.07	6,936.55	10,470.25	1,509.12 N	443.73 W	431,786.19	725,746.11	0.00	1,555.99	
11,900.00	89.66	356.07	6,937.15	10,470.85	1,608.88 N	450.59 W	431,885.95	725,739.25	0.00	1,655.74	
12,000.00	89.66	356.07	6,937.75	10,471.45	1,708.64 N	457.45 W	431,985.71	725,732.39	0.00	1,755.50	
12,100.00	89.66	356.07	6,938.35	10,472.05	1,808.41 N	464.31 W	432,085.47	725,725.53	0.00	1,855.25	
12,200.00	89.66	356.07	6,938.95	10,472.65	1,908.17 N	471.17 W	432,185.23	725,718.67	0.00	1,955.00	
12,300.00	89.66	356.07	6,939.55	10,473.25	2,007.93 N	478.03 W	432,285.00	725,711.81	0.00	2,054.75	
12,400.00	89.66	356.07	6,940.15	10,473.85	2,107.69 N	484.89 W	432,384.76	725,704.95	0.00	2,154.51	
12,500.00	89.66	356.07	6,940.75	10,474.45	2,207.46 N	491.75 W	432,484.52	725,698.09	0.00	2,254.26	
12,600.00	89.66	356.07	6,941.35	10,475.05	2,307.22 N	498.62 W	432,584.28	725,691.23	0.00	2,354.01	
12,700.00	89.66	356.07	6,941.95	10,475.65	2,406.98 N	505.48 W	432,684.05	725,684.37	0.00	2,453.76	
12,800.00	89.66	356.07	6,942.55	10,476.25	2,506.74 N	512.34 W	432,783.81	725,677.50	0.00	2,553.52	
12,900.00	89.66	356.07	6,943.15	10,476.85	2,606.51 N	519.20 W	432,883.57	725,670.64	0.00	2,653.27	
13,000.00	89.66	356.07	6,943.75	10,477.45	2,706.27 N	526.06 W	432,983.33	725,663.78	0.00	2,753.02	
13,100.00	89.66	356.07	6,944.35	10,478.05	2,806.03 N	532.92 W	433,083.10	725,656.92	0.00	2,852.77	
13,200.00	89.66	356.07	6,944.95	10,478.65	2,905.79 N	539.78 W	433,182.86	725,650.06	0.00	2,952.53	
13,300.00	89.66	356.07	6,945.55	10,479.25	3,005.56 N	546.64 W	433,282.62	725,643.20	0.00	3,052.28	
13,400.00	89.66	356.07	6,946.15	10,479.85	3,105.32 N	553.50 W	433,382.38	725,636.34	0.00	3,152.03	
13,500.00	89.66	356.07	6,946.75	10,480.45	3,205.08 N	560.36 W	433,482.15	725,629.48	0.00	3,251.78	
13,600.00	89.66	356.07	6,947.35	10,481.05	3,304.84 N	567.22 W	433,581.91	725,622.62	0.00	3,351.54	
13,700.00	89.66	356.07	6,947.95	10,481.65	3,404.61 N	574.08 W	433,681.67	725,615.76	0.00	3,451.29	
13,800.00	89.66	356.07	6,948.55	10,482.25	3,504.37 N	580.94 W	433,781.43	725,608.90	0.00	3,551.04	
13,900.00	89.66	356.07	6,949.15	10,482.85	3,604.13 N	587.80 W	433,881.20	725,602.04	0.00	3,650.79	
14,000.00	89.66	356.07	6,949.75	10,483.45	3,703.90 N	594.66 W	433,980.96	725,595.18	0.00	3,750.55	
14,100.00	89.66	356.07	6,950.35	10,484.05	3,803.66 N	601.52 W	434,080.72	725,588.32	0.00	3,850.30	
14,200.00	89.66	356.07	6,950.95	10,484.65	3,903.42 N	608.38 W	434,180.48	725,581.46	0.00	3,950.05	
14,300.00	89.66	356.07	6,951.55	10,485.25	4,003.18 N	615.24 W	434,280.24	725,574.60	0.00	4,049.80	
14,400.00	89.66	356.07	6,952.15	10,485.85	4,102.95 N	622.10 W	434,380.01	725,567.74	0.00	4,149.56	
14,500.00	89.66	356.07	6,952.75	10,486.45	4,202.71 N	628.97 W	434,479.77	725,560.88	0.00	4,249.31	
14,600.00	89.66	356.07	6,953.35	10,487.05	4,302.47 N	635.83 W	434,579.53	725,554.02	0.00	4,349.06	
14,700.00	89.66	356.07	6,953.95	10,487.65	4,402.23 N	642.69 W	434,679.29	725,547.16	0.00	4,448.81	
14,800.00	89.66	356.07	6,954.54	10,488.24	4,502.00 N	649.55 W	434,779.06	725,540.29	0.00	4,548.57	

Plan Report for Cotton Draw Unit 207H - Plan#1 010815 RevA0

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (usft)	Map Coordinates Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (ft)	Comments
14,900.00	89.66	356.07	6,955.14	10,488.84	4,601.76 N	656.41 W	434,878.82	725,533.43	0.00	4,648.32	
15,000.00	89.66	356.07	6,955.74	10,489.44	4,701.52 N	663.27 W	434,978.58	725,526.57	0.00	4,748.07	
15,093.34	89.66	356.07	6,956.30	10,490.00	4,794.64 N	669.67 W	435,071.70	725,520.17	0.00	4,841.18	TD at 15093.34

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
9,767.48	9,767.48	0.00	0.00	Start Build 8.00
10,142.48	10,125.58	69.10	-66.57	Start Build 10.00
10,442.48	10,335.30	220.14	-212.07	Start DLS 10.00 TFO 59.55
10,924.55	10,465.00	635.75	-383.67	Start 4168.79 hold at 10924.55 MD
15,093.34	10,490.00	4,794.64	-669.67	TD at 15093.34

Vertical Section Information

	Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
TD		No Target (Freehand)	352.05	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	15,093.33	Plan#1 010815 RevA0	MWD

Plan Report for Cotton Draw Unit 207H - Plan#1 010815 RevA0

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	TVDSS (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
635.70	635.70	-2,898.00	Rustler		0.00	
1,028.70	1,028.70	-2,505.00	Top Salt		0.00	
4,102.70	4,102.70	569.00	Base Salt		0.00	
4,349.70	4,349.70	816.00	Bell Canyon		0.00	
5,373.70	5,373.70	1,840.00	Cherry Canyon		0.00	
6,626.70	6,626.70	3,093.00	Brushy Canyon		0.00	
8,253.70	8,253.70	4,720.00	Bone Spring		0.00	
9,337.70	9,337.70	5,804.00	1st BSSS		0.00	
9,954.83	9,952.70	6,419.00	2nd BSSS		0.00	
10,711.48	10,437.70	6,904.00	LWR 2nd BSSS		0.00	
11,374.09	10,467.70	6,934.00	LWR 2BSSS Land		0.00	

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Cotton Draw Unit 207H BHL ()									
- plan hits target center - Point	0.00	0.00	10,490.00	4,794.64	-669.67	435,071.70	725,520.17	32° 11' 40.876 N	103° 44' 16.497 W

Directional Difficulty Index

Average Dogleg over Survey:	0.72 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 10,442.48 ft
Net Tortousity applicable to Plans:	0.72 °/100usft	Directional Difficulty Index:	6.101

Audit Info

SAP=346244

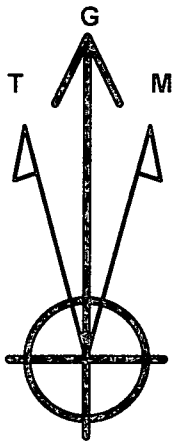
North Reference Sheet for Sec 25 T. 24S., R.31E. - Cotton Draw Unit 207H - Wellbore #1

All data is in Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to Well @ 3533.70ft (HP 212). Northing and Easting are relative to Cotton Draw Unit 207H

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: 0.99994823

Grid Coordinates of Well: 430,277.07 usft N, 726,189.84 usft E
Geographical Coordinates of Well: 32° 10' 53.39" N, 103° 44' 09.01" W
Grid Convergence at Surface is: 0.32°

Based upon Minimum Curvature type calculations, at a Measured Depth of 15,093.34ft
the Bottom Hole Displacement is 4,841.18ft in the Direction of 352.05° (Grid).
Magnetic Convergence at surface is: -7.07° (8 January 2015, , BGGM2014)



Magnetic Model: BGGM2014
Date: 08-Jan-15
Declination: 7.39°
Inclination/Dip: 60.02°
Field Strength: 48167

Grid North is 0.32° East of True North (Grid Convergence)
Magnetic North is 7.39° East of True North (Magnetic Declination)
Magnetic North is 7.07° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Subtract 0.32°
To convert a Magnetic Direction to a True Direction, Add 7.39° East
To convert a Magnetic Direction to a Grid Direction, Add 7.07°

NOTES REGARDING BLOWOUT PREVENTERS

Devon Energy Production Company, L.P.
Cotton Draw Unit 207H

1. Drilling Nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.

2. Wear ring will be properly installed in head.

3. Blowout preventer and all associated filings will be in operable condition to withstand a minimum of 3000psi working pressure.

4. All fittings will be flanged.

5. A fill bore safety valve tested to a minimum of 3000psi WP with proper thread connections will be available on the rotary rig floor at all times.

6. All choke lines will be anchored to prevent movement.

7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.

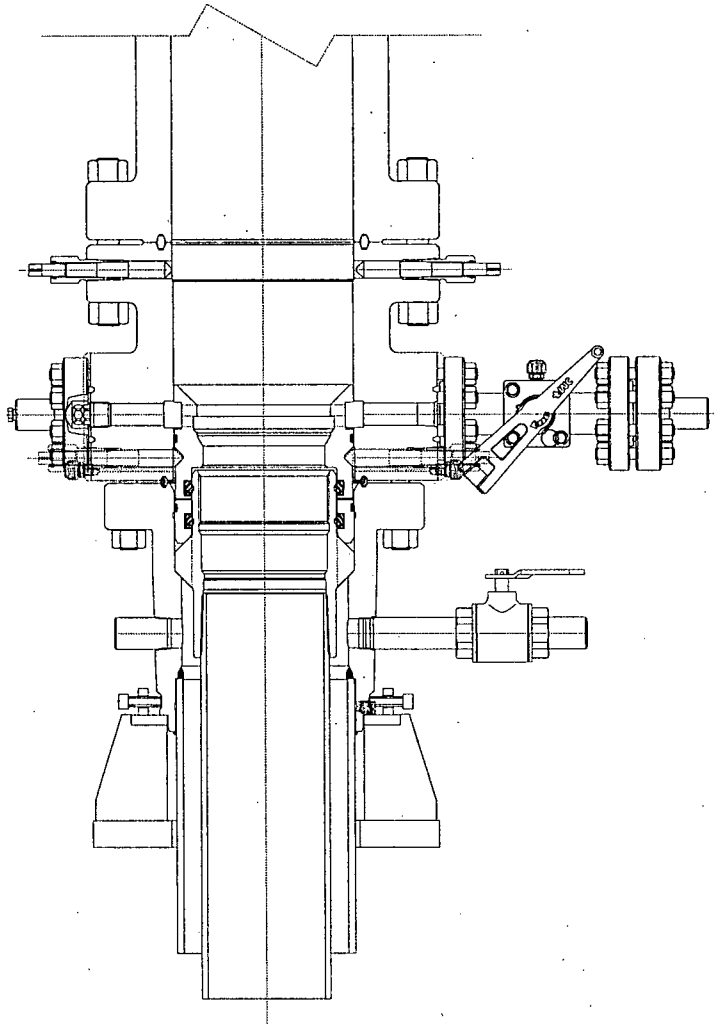
8. Will maintain a kelly cock attached to the kelly.

9. Hand wheels and wrenches will be properly installed and tested for safe operation.

10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.

11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

FMC Technologies



PRIMARY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

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

DESCRIPTION

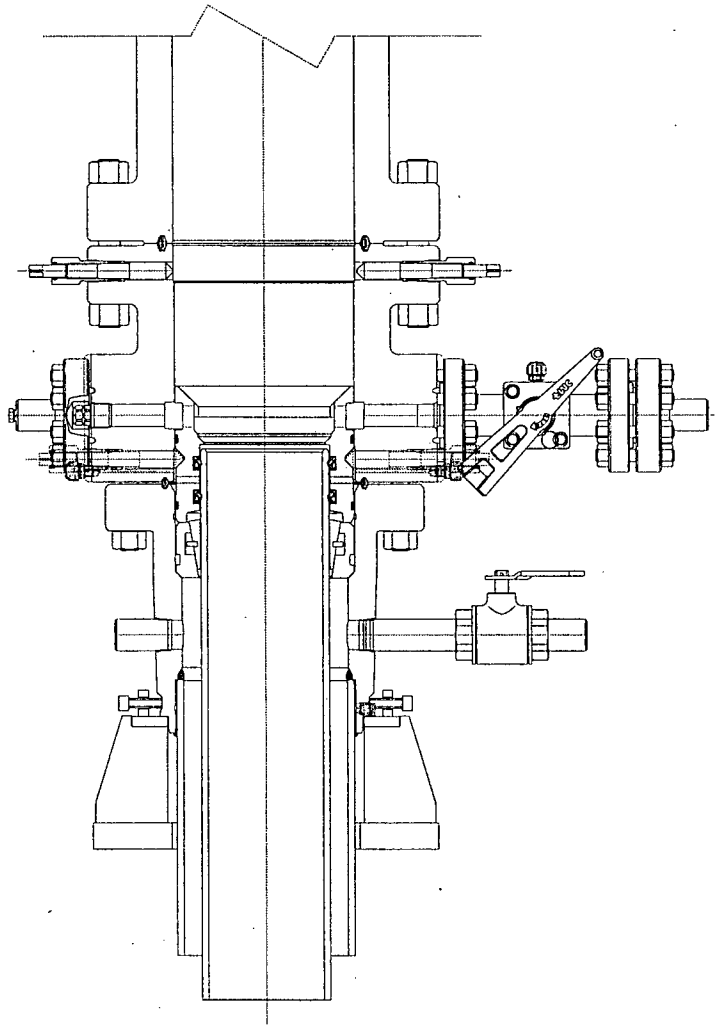
SURFACE WELLHEAD LAYOUT
UNIHEAD, UH-1,SOW,
DEVON ENERGY, ODESSA

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

FMC Technologies

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

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

FMC Technologies

DRAWING NUMBER
DM100161771-2B

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Devon Energy Production Company, L.P.**
LEASE NO.:	**NMNM-012121**
WELL NAME & NO.:	**Cotton Draw Unit 207H**
SURFACE HOLE FOOTAGE:	**0150' FSL & 1300' FWL**
BOTTOM HOLE FOOTAGE	**0330' FNL & 0660' FWL**
LOCATION:	**Section 25, T. 24 S., R 31 E., NMPM**
COUNTY:	**Eddy County, New Mexico**
API:	**30-015-42073**

The original COAs still stand with the following drilling modifications:

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. Operator has stated that they will have monitoring equipment in place prior to drilling out of the surface shoe. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possibility of water flows in the Salado, Castile, and Delaware.
Possibility of lost circulation in the Red Bed, Rustler, Delaware, and Bone Spring.
High pressures may be encountered within the 2nd Bone Spring.

1. The **13-3/8** inch surface casing shall be set at approximately **800** feet (**in a competent bed <u>below the Magenta Dolomite</u>, which is a <u>Member of the Rustler</u>, and if salt is encountered, set casing at least 25 feet above the salt**) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

Operator has proposed DV tool at depth of 4400', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

b. Second stage above DV tool:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.**
    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
    e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

    c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.

    d. The results of the test shall be reported to the appropriate BLM office.

    e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JAM 012215