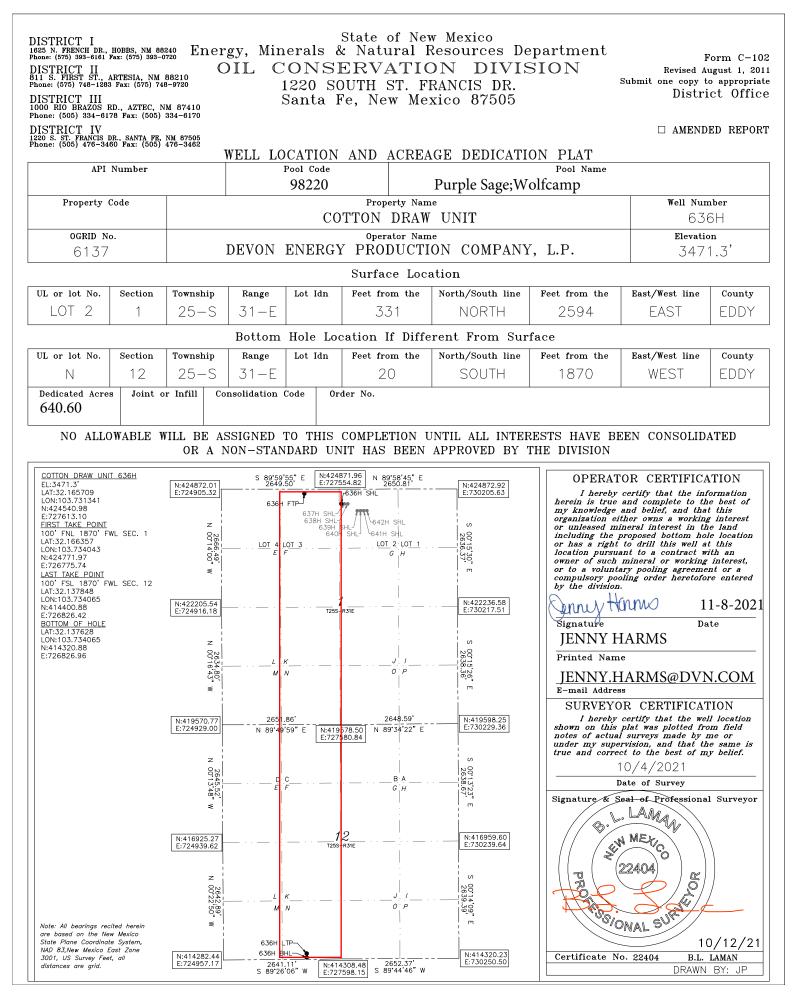
Form 3160-3 (June 2015)		FORM APPROVED OMB No. 1004-0137
UNITED STAT DEPARTMENT OF THI	E INTERIOR	Expires: January 31, 2018 5. Lease Serial No.
BUREAU OF LAND MA APPLICATION FOR PERMIT TO		6. If Indian, Allotee or Tribe Name
1a. Type of work:   DRILL	REENTER	7. If Unit or CA Agreement, Name and No.
1b. Type of Well:   Oil Well   Gas Well     1c. Type of Completion:   Hydraulic Fracturing	Other Single Zone Multiple Zone	8. Lease Name and Well No.
2. Name of Operator		9. API Well No.
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory
4. Location of Well (Report location clearly and in accordan At surface         At proposed prod. zone	ce with any State requirements.*)	11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post	office*	12. County or Parish 13. State
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. Space	ing Unit dedicated to this well
<ul><li>18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.</li></ul>	19. Proposed Depth 20. BLM	//BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
	24. Attachments	
The following, completed in accordance with the requirement (as applicable)	is of Onshore Oil and Gas Order No. 1, and the	Hydraulic Fracturing rule per 43 CFR 3162.3-3
<ol> <li>Well plat certified by a registered surveyor.</li> <li>A Drilling Plan.</li> <li>A Surface Use Plan (if the location is on National Forest Sy SUPO must be filed with the appropriate Forest Service Of</li> </ol>	Item 20 above). Stem Lands, the 5. Operator certification.	ons unless covered by an existing bond on file (see ormation and/or plans as may be requested by the
25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title	Office	I
Application approval does not warrant or certify that the applicant to conduct operations thereon. Conditions of approval, if any, are attached.	icant holds legal or equitable title to those right	s in the subject lease which would entitle the
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 121: of the United States any false, fictitious or fraudulent statement		
		-



\*(Instructions on page 2)

.

(Continued on page 2)



Intent As Drilled		
API #		
Operator Name:	Property Name:	Well Number

## Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitu	de				Longitude				NAD

### First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitu	de				Longitude				NAD

## Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitu	de				Longituc	le			NAD

Is this well the defining well for the Horizontal Spacing Unit?	

Is this well an infill well?

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

Operator Name: Property Name: Well Number	API #		
	Operator Name:	Property Name:	Well Number

KZ 06/29/2018

	E	Stat nergy, Minerals a	e of New Mex nd Natural Res		ent	Subr Via	nit Electronically E-permitting
		1220 S	onservation Di South St. Fran ta Fe, NM 87	cis Dr.			
	N	ATURAL GA	AS MANA	GEMENT PI	LAN		
This Natural Gas Manag	gement Plan m	ust be submitted wi	th each Applicat	tion for Permit to I	Drill (APD) fo	or a new o	r recompleted well.
			<u>1 – Plan D</u> fective May 25,				
I. Operator: DEVON EN	ERGY PRODUCT	TON COMPANY, LP	OGRID: _613	37	Da	ate: <u>10 /</u>	19 / 2021
II. Type: 🖄 Original 🛛	Amendment	due to □ 19.15.27.	9.D(6)(a) NMA	C 🗆 19.15.27.9.D(	6)(b) NMAC	C 🗆 Other.	
f Other, please describe	::						
III. Well(s): Provide the secompleted from a s					vells propose	ed to be dr	illed or proposed to
Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipate Gas MCF/		Anticipated roduced Water BBL/D
See attachment.							
V. Central Delivery P	oint Name: _S	ee attachment			[S	see 19.15.2	7.9(D)(1) NMAC]
V. Anticipated Schedul proposed to be recomple					ell or set of v	wells prop	osed to be drilled or
Well Name	API	Spud Date	TD Reached Date	Completion Commencement		tial Flow tock Date	First Production Date
See attachment							
VI. Separation Equipn VII. Operational Prac Subsection A through F VIII. Best Managemen during active and planne	tices: I Attac of 19.15.27.8 ht Practices: I	h a complete descr NMAC.	ription of the ac	tions Operator wil	I take to com	ply with	the requirements of

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#### NATURAL GAS MANAGEMENT PLAN Section 1 - Plan Description

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	Central Delivery Point Name:	API	ULSTR		FOOT	AGES			Anticipated Anticipated Gas Anticipated Produce Oil BBL/D MCF/D Water BBL/D
COTTON DRAW UNIT 631H	COTTON DRAW UNIT 1 CTB 1		1-255-31E	332	FNL	983	FWL	WC110	{+/-}6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 632H	COTTON DRAW UNIT 1 CTB 1	4	1-255-31E	332	FNL	1013	FWL	WCB	(+/-)6319mcfd/(+/-)886bopd/(+/-)4728bwpd
COTTON DRAW UNIT 633H	COTTON DRAW UNIT 1 CTB 1		1-255-316	332	FNL	1043	FWL	WCXY	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 634H	COTTON DRAW UNIT 1 CTB 1		1-255-31E	482	FNL	1233	FWL	WC130	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 635H	COTTON DRAW UNIT 1 CTB 1		1-255-31E	482	FNL	1263	FWL	WC110	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 636H	COTTON DRAW UNIT 1 CTB 1	-	1-255-31E	331	FNL	2594	FEL	WCB	(+/-)6319mcfd/(+/-)886bopd/(+/-)4728bwpd
COTTON DRAW UNIT 637H	COTTON DRAW UNIT 1 CTB 1		1-255-316	331	FNL	2564	FEL	WCXY	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 638H	COTTON DRAW UNIT 1 CTB 1		1-255-318	331	FNL	2534	FEL	WC130	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 639H	COTTON DRAW UNIT 1 CTB 2		1-255-318	481	FNL	2254	FEL	WC110	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 640H	COTTON DRAW UNIT 1 CTB 2		1-255-318	481	FNL	2224	FEL	WCB	(+/-)6319mcfd/(+/-)886bopd/(+/-)4728bwpd
COTTON DRAW UNIT 641H	COTTON DRAW UNIT 1 CTB 2		1-255-318	481	FNL	2194	FEL	WCXY	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 642H	COTTON DRAW UNIT 1 CTB 2		1-255-318	481	FNL	2164	FEL	WC130	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 643H	COTTON DRAW UNIT 1 CTB 2		1-255-31E	329	FNL	974	FEL	WC110	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 644H	COTTON DRAW UNIT 1 CTB 2		1-255-31E	329	FNL	944	FEL	WCB	(+/-)6319mcfd/(+/-)886bopd/(+/-)4728bwpd
COTTON DRAW UNIT 645H	COTTON DRAW UNIT 1 CTB 2		1-255-31E	329	FNL	914	FEL	WCXY	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd
COTTON DRAW UNIT 646H	COTTON DRAW UNIT 1 CTB 2		1-255-316	329	FNL	884	FEL	WC130	(+/-)6539mcfd/(+/-)1857bopd/(+/-)9727bwpd

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a cancel delivery point.

				Completion		First
			TD Reached	Commencem	Initial Flow	Production
Well Name	API	Spud Date	Date	ent Date	back Date	Date
COTTON DRAW UNIT 631H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 632H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 633H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 634H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 635H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 636H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 637H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 638H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 639H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 640H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 641H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 642H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 643H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/2024
COTTON DRAW UNIT 644H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 645H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202
COTTON DRAW UNIT 646H		10/1/2023	10/31/2023	2/28/2024	2/28/2024	2/28/202

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## Section 2 – Enhanced Plan EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

### IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

### X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

**XI. Map.**  $\Box$  Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system  $\Box$  will  $\Box$  will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII.** Line Pressure. Operator  $\Box$  does  $\Box$  does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

□ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:**  $\Box$  Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

## Section 3 - Certifications Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

 $\Box$  Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. *If Operator checks this box, Operator will select one of the following:* 

Well Shut-In. □ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.**  $\Box$  Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

# Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

Signature:
Printed Name: Lindsey Miles
Title: Land Manager
E-mail Address:
Date:
Phone:
OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:



### **VI. Separation Equipment**

Devon Energy Production Company, L.P. utilizes a "stage separation" process in which oil and gas separation is carried out through a series of separators operating at successively reduced pressures. Hydrocarbon liquids are produced into a high-pressure inlet separator, then carried through one or more lower pressure separation vessels before entering the storage tanks. The purpose of this separation process is to attain maximum recovery of liquid hydrocarbons from the fluids and allow maximum capture of produced gas into the sales pipeline. Devon utilizes a series of Low-Pressure Compression units to capture gas off the staged separation and send it to the sales pipeline. This process minimizes the amount of flash gas that enters the end-stage storage tanks that is subsequently vented or flared.



### **VII.** Operational Practices

Devon Energy Production Company, L. P. will employ best management practices and control technologies to maximize the recovery and minimize waste of natural gas through venting and flaring.

- During drilling operations, Devon will utilize flares and/or combustors to capture and control natural gas, where technically feasible. If flaring is deemed technically in-feasible, Devon will employ best management practices to minimize or reduce venting to the extent possible.
- During completions operations, Devon will utilize Green Completion methods to capture gas
  produced during well completions that is otherwise vented or flared. If capture is technically
  in-feasible, flares and/or combustors will be used to capture and control flow back fluids
  entering into frac tanks during initial flowback. Upon indication of first measurable hydrocarbon
  volumes, Devon will turn operations to onsite separation vessels and flow to the gathering
  pipeline.
- During production operations, Devon will take every practical effort to minimize waste of natural gas through venting and flaring by:
  - Designing and constructing facilities in a manner consistent to achieve maximum capture and control of hydrocarbon liquids & produced gas
  - Utilizing a closed-loop capture system to collect and route produced gas to sales line via low pressure compression, or to a flare/combustor
  - Flaring in lieu of venting, where technically feasible
  - Utilizing auto-ignitors or continuous pilots, with thermocouples connected to Scada, to quickly detect and resolve issues related to malfunctioning flares/combustors
  - Employ the use of automatic tank gauging to minimize storage tank venting during loading events
  - Installing air-driven or electric-driven pneumatics & combustion engines, where technically feasible to minimize venting to the atmosphere
  - Confirm equipment is properly maintained and repaired through a preventative maintenance and repair program to ensure equipment meets all manufacturer specifications
  - Conduct and document AVO inspections on the frequency set forth in Part 27 to detect and repair any onsite leaks as quickly and efficiently as is feasible



VIII. Best Management Practices during Maintenance

Devon Energy Production Company, L.P. will utilize best management practices to minimize venting during active and planned maintenance activities. Devon is operating under guidance that production facilities permitted under NOI permits have no provisions to allow high pressure flaring and high pressure flaring is only allowed in disruption scenarios so long as the duration is less than eight hours. When technically feasible, flaring during maintenance activities will be utilized in lieu of venting to the atmosphere. Devon will work with third-party operators during scheduled maintenance of downstream pipeline or processing plants to address those events ahead of time to minimize venting. Actions considered include identifying alternative capture approaches or planning to temporarily reduce production or shut in the well to address these circumstances.

### 1. Geologic Formations

TVD of target	12916	Pilot hole depth	N/A
MD at TD:	23060	Deepest expected fresh water	

Basin

Dusin			
	Depth	Water/Mineral	
Formation	(TVD)	Bearing/Target	Hazards*
	from KB	Zone?	
Rustler	640		
Salt	1020		
Base of Salt	4176		
Delaware	4434		
Cherry Canyon	5250		
Brushy Canyon	6662		
1st Bone Spring Lime	8304		
Bone Spring 1st	9362		
Bone Spring 2nd	9930		
3rd Bone Spring Lime	10460		
Bone Spring 3rd	11236		
Wolfcamp	11650		

\*H2S, water flows, loss of circulation, abnormal pressures, etc.

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2. Casing Program (Primary Design)	2.	Casing	Program	(Primary	Design)
------------------------------------	----	--------	---------	----------	---------

		Wt			Casing	Interval	Casing	Interval
Hole Size	Csg. Size	(PPF)	Grade	Conn	From (MD)	To (MD)	From (TVD)	To (TVD)
17 1/2	13 3/8	48	H40	STC	0	665	0	665
9 7/8	8 5/8	32	P110	TLW	0	11650	0	11650
7 7/8	5 1/2	17	P110	BTC	0	23060	0	12916

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for contingency casing.

### 3. Cementing Program (Primary Design)

Casing	# Sks	тос	Wt. ppg	Yld (ft3/sack)	Slurry Description
Surface	520	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	447	Surf	9	3.27	Lead: Class C Cement + additives
Int I	465	4000' above	13.2	1.44	Tail: Class H / C + additives
Int 1	As Needed	Surf	13.2	1.44	Squeeze Lead: Class C Cement + additives
Intermediate	447	Surf	9	3.27	Lead: Class C Cement + additives
Squeeze	465	4000' above	13.2	1.44	Tail: Class H / C + additives
Production	117	10221	9	3.27	Lead: Class H /C + additives
roduction	1435	12221	13.2	1.44	Tail: Class H / C + additives

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Туре		~	Tested to:																																										
			An	nular	X	50% of rated working pressure																																										
Int 1	13-58"	5M		d Ram	Х																																											
Int 1	15 50	5101		e Ram		5M																																										
			Doub	le Ram	Х	5111																																										
			Other*																																													
	13-5/8"	10M	Annular (5M)	Х	100% of rated working pressure																																											
Production			Blind Ram		Х																																											
Fioduction		15-5/8 1014	15-5/8	13-3/8	10101	TOM	5 10M	15-5/8 1014	78 10W	10101	10101	10111	10111	10111	10101	10101	10111	10101	10101	10111	10101	10101	10111	10101	10101	TOM	10101	10101	10101	1011	10101	10101	10101	10111	10111	10111	1011	10111	10101	10101	10111	1011	10101	10101	Pipe	e Ram		10M
											Doub	le Ram	Х	10101																																		
			Other*																																													
			Annul	ar (5M)																																												
			Blind Ram																																													
			Pipe	e Ram																																												
			Double Ram																																													
			Other*																																													
N A variance is requested for	the use of a	a diverter or	the surface	casing. See	attached for	schematic.																																										
Y A variance is requested to	run a 5 M a	nnular on a	10M system	1																																												

## 4. Pressure Control Equipment (Three String Design)

#### 5. Mud Program (Three String Design)

Section	Туре	Weight (ppg)
Surface	FW Gel	8.5-9
Intermediate	DBE / Cut Brine	10-10.5
Production	OBM	10-10.5

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
······ ···· ··· ··· ··· ···· ··· ···· ····	

#### 6. Logging and Testing Procedures

Logging, Coring and Testing						
	Will run GR/CNL from TD to surface (horizontal well - vertical portion of hole). Stated logs run will be in the					
Х	Completion Rpeort and sbumitted to the BLM.					
	No logs are planned based on well control or offset log information.					
	Drill stem test? If yes, explain.					
	Coring? If yes, explain.					

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
Х	CBL	Production casing
Х	Mud log	Intermediate shoe to TD
	PEX	

#### 7. Drilling Conditions

Condition	Specfiy what type and where?
BH pressure at deepest TVD	7052
Abnormal temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogren Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered measured values and formations will be provided to the BLM.

Y H2S plan attached.	N	H2S is present
	Y	H2S plan attached.

#### 8. Other facets of operation

Is this a walking operation? Potentially

- 1 If operator elects, drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
- 2 The drilling rig will then batch drill the intermediate sections and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
- 3 The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed

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from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

- 1 Spudder rig will move in and batch drill surface hole.
  - a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.,
- 2 After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
- $^{3}$  The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.
- 4 A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
- 5 Spudder rig operations is expected to take 4-5 days per well on a multi-well pa.
- 6 The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
- 7 Drilling operations will be performed with drilling rig. A that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
  - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

X Directional Plan Other, describe



# **Section 1 - Geologic Formations**

Sec	tion 1 - Geologic	Formatio	ons				
Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
13932478	UNKNOWN	3471	0	Ó	OTHER : SURFACE	NONE	N
13932479	RUSTLER	2831	640	640	SANDSTONE	NONE	N
13932480	SALADO	2451	1020	1020	SALT	NONE	N
13932481	BASE OF SALT	-705	4176	4176	ANHYDRITE	NATURAL GAS, OIL	N
13932482	BELL CANYON	-963	4434	4434	SANDSTONE	NATURAL GAS, OIL	N
13932483	CHERRY CANYON	-1779	5250	5250	SANDSTONE	NATURAL GAS, OIL	N
13932484	BRUSHY CANYON	-3191	6662	6662	SANDSTONE	NATURAL GAS, OIL	N
13932491	BONE SPRING LIME	-4833	8304	8304	LIMESTONE	NATURAL GAS, OIL	N
13932485	BONE SPRING	-5891	9362	9362	SANDSTONE	NATURAL GAS, OIL	N
13932487	BONE SPRING 2ND	-6459	9930	9930	SANDSTONE	NATURAL GAS, OIL	N
13932492	BONE SPRING LIME	-6989	10460	10460	LIMESTONE	NATURAL GAS, OIL	N
13932488	BONE SPRING 3RD	-7765	11236	11236	SANDSTONE	NATURAL GAS, OIL	N
13932489	WOLFCAMP	-8179	11650	11650	SHALE	NATURAL GAS, OIL	Y
13932490	STRAWN	-10129	13600	13600	LIMESTONE	NATURAL GAS, OIL	N

**Section 2 - Blowout Prevention** 





Commitment Runs Deep



Design Plan Operation and Maintenance Plan Closure Plan

SENM - Closed Loop Systems June 2010

## I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

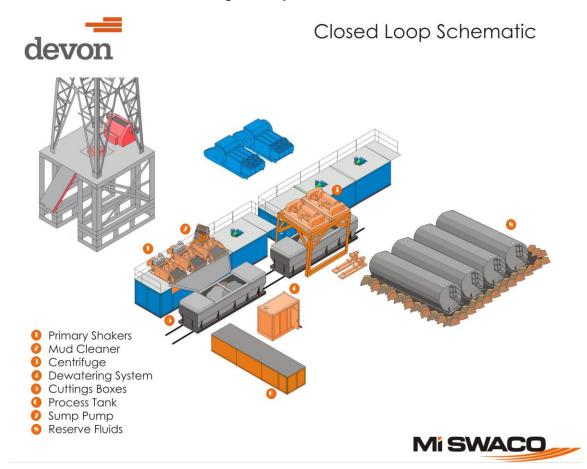
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

## II. Operations and Maintenance Plan

*Primary Shakers*: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

*Mud Cleaner*: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



*Centrifuges*: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependent on well factors.

*Dewatering System:* The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

*Cuttings Boxes:* Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

*Process Tank:* (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

*Reserve Fluids (Tank Farm):* A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

## III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

# **Devon Energy** APD VARIANCE DATA

## **OPERATOR NAME:** Devon Energy

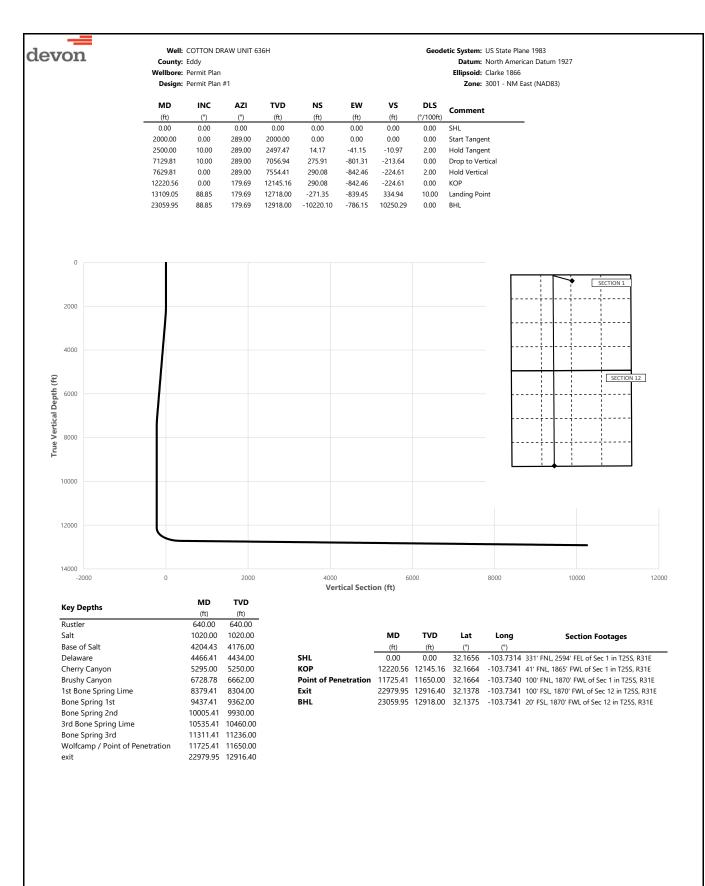
## 1. SUMMARY OF Variance:

Devon Energy respectfully requests approval for the following additions to the drilling plan:

1. Potential utilization of a spudder rig to pre-set surface casing.

### 2. Description of Operations

- **1.** A spudder rig contractor may move in their rig to drill the surface hole section and pre-set surface casing on this well.
  - **a.** After drilling the surface hole section, the rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
  - b. Rig will utilize fresh water based mud to drill surface hole to TD.
- 2. The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.
- **3.** A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wingvalves.
  - **a.** A means for intervention will be maintained while the drilling rig is not over the well.
- 4. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
- 5. Drilling operation will be performed with the big rig. At that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
  - **a.** The BLM will be contacted / notified 24 hours before the big rig moves back on to the pad with the pre-set surface casing.
- **6.** Devon Energy will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
- 7. Once the rig is removed, Devon Energy will secure the wellhead area by placing a guard rail around the cellar area.



deres		Well	COTTON	RAW UNIT 63	36H				Geodetic System: US State Plane 1983	
devon		County:							Datum: North American Datum 1927	
		Wellbore:	Permit Plar	I.					Ellipsoid: Clarke 1866	
		Design:	Permit Plar	#1					Zone: 3001 - NM East (NAD83)	
	MD	INC	AZI	TVD	NS	EW	vs	DLS	- · ·	
_	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)		
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL	
	100.00 200.00	0.00 0.00	289.00 289.00	100.00 200.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00		
	300.00	0.00	289.00	300.00	0.00	0.00	0.00	0.00		
	400.00	0.00	289.00	400.00	0.00	0.00	0.00	0.00		
	500.00	0.00	289.00	500.00	0.00	0.00	0.00	0.00		
	600.00 640.00	0.00 0.00	289.00 289.00	600.00 640.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	Rustler	
	700.00	0.00	289.00	700.00	0.00	0.00	0.00	0.00	Kustiei	
	800.00	0.00	289.00	800.00	0.00	0.00	0.00	0.00		
	900.00	0.00	289.00	900.00	0.00	0.00	0.00	0.00		
	1000.00	0.00	289.00	1000.00	0.00	0.00	0.00	0.00	Calt	
	1020.00 1100.00	0.00 0.00	289.00 289.00	1020.00 1100.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	Salt	
	1200.00	0.00	289.00	1200.00	0.00	0.00	0.00	0.00		
	1300.00	0.00	289.00	1300.00	0.00	0.00	0.00	0.00		
	1400.00	0.00	289.00	1400.00	0.00	0.00	0.00	0.00		
	1500.00 1600.00	0.00 0.00	289.00 289.00	1500.00 1600.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00		
	1700.00	0.00	289.00	1700.00	0.00	0.00	0.00	0.00		
	1800.00	0.00	289.00	1800.00	0.00	0.00	0.00	0.00		
	1900.00	0.00	289.00	1900.00	0.00	0.00	0.00	0.00		
	2000.00 2100.00	0.00	289.00 289.00	2000.00 2099.98	0.00 0.57	0.00	0.00	0.00 2.00	Start Tangent	
	2100.00	2.00 4.00	289.00	2099.98 2199.84	2.27	-1.65 -6.60	-0.44 -1.76	2.00		
	2300.00	6.00	289.00	2299.45	5.11	-14.84	-3.96	2.00		
	2400.00	8.00	289.00	2398.70	9.08	-26.36	-7.03	2.00		
	2500.00	10.00	289.00	2497.47	14.17	-41.15	-10.97	2.00	Hold Tangent	
	2600.00 2700.00	10.00 10.00	289.00 289.00	2595.95 2694.43	19.82 25.48	-57.57 -73.99	-15.35 -19.73	0.00 0.00		
	2800.00	10.00	289.00	2792.91	31.13	-90.41	-24.10	0.00		
	2900.00	10.00	289.00	2891.39	36.78	-106.83	-28.48	0.00		
	3000.00	10.00	289.00	2989.87	42.44	-123.25	-32.86	0.00		
	3100.00 3200.00	10.00 10.00	289.00 289.00	3088.35 3186.83	48.09 53.74	-139.66 -156.08	-37.24 -41.61	0.00 0.00		
	3300.00	10.00	289.00	3285.31	59.40	-172.50	-45.99	0.00		
	3400.00	10.00	289.00	3383.79	65.05	-188.92	-50.37	0.00		
	3500.00	10.00	289.00	3482.27	70.70	-205.34	-54.75	0.00		
	3600.00 3700.00	10.00 10.00	289.00 289.00	3580.75 3679.23	76.36 82.01	-221.76 -238.18	-59.12 -63.50	0.00 0.00		
	3800.00	10.00	289.00	3079.23	87.66	-254.60	-65.50	0.00		
	3900.00	10.00	289.00	3876.20	93.32	-271.01	-72.26	0.00		
	4000.00	10.00	289.00	3974.68	98.97	-287.43	-76.63	0.00		
	4100.00 4200.00	10.00	289.00	4073.16	104.62	-303.85	-81.01	0.00 0.00		
	4200.00	10.00 10.00	289.00 289.00	4171.64 4176.00	110.28 110.53	-320.27 -321.00	-85.39 -85.58	0.00	Base of Salt	
	4300.00	10.00	289.00	4270.12	115.93	-336.69	-89.77	0.00		
	4400.00	10.00	289.00	4368.60	121.58	-353.11	-94.14	0.00		
	4466.41 4500.00	10.00 10.00	289.00 289.00	4434.00 4467.08	125.34 127.24	-364.01 -369.53	-97.05	0.00 0.00	Delaware	
	4500.00 4600.00	10.00	289.00	4467.08	127.24	-369.53	-98.52 -102.90	0.00		
	4700.00	10.00	289.00	4664.04	138.54	-402.36	-107.28	0.00		
	4800.00	10.00	289.00	4762.52	144.20	-418.78	-111.65	0.00		
	4900.00	10.00	289.00	4861.00	149.85	-435.20	-116.03	0.00		
	5000.00 5100.00	10.00 10.00	289.00 289.00	4959.48 5057.97	155.50 161.16	-451.62 -468.04	-120.41 -124.79	0.00 0.00		
	5200.00	10.00	289.00	5156.45	166.81	-484.46	-129.16	0.00		
	5295.00	10.00	289.00	5250.00	172.18	-500.06	-133.32	0.00	Cherry Canyon	
	5300.00	10.00	289.00	5254.93	172.46	-500.88	-133.54	0.00		
	5400.00	10.00 10.00	289.00 289.00	5353.41 5451.89	178.12 183.77	-517.30 -533.71	-137.92	0.00 0.00		
	5500.00 5600.00	10.00	289.00 289.00	5451.89 5550.37	183.77 189.42	-533.71 -550.13	-142.30 -146.67	0.00		
	5700.00	10.00	289.00	5648.85	195.08	-566.55	-151.05	0.00		
	5800.00	10.00	289.00	5747.33	200.73	-582.97	-155.43	0.00		
	5900.00	10.00	289.00	5845.81	206.38	-599.39	-159.80	0.00		
	6000.00 6100.00	10.00 10.00	289.00 289.00	5944.29 6042.77	212.04 217.69	-615.81 -632.23	-164.18 -168.56	0.00 0.00		
	6200.00	10.00	289.00	6141.25	223.34	-648.65	-172.94	0.00		
	6300.00	10.00	289.00	6239.73	229.00	-665.06	-177.31	0.00		
	6400.00	10.00	289.00	6338.22	234.65	-681.48	-181.69	0.00		

darron		Well:	COTTON D	RAW UNIT 63	6H				Geodetic System: US State Plane 1983
devon		County:	Eddy						Datum: North American Datum 1927
			Permit Plan						Ellipsoid: Clarke 1866
		Design:	Permit Plar	#1					Zone: 3001 - NM East (NAD83)
	MD	INC	AZI	TVD	NS	EW	vs	DLS	Comment
-	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	connient
	6500.00 6600.00	10.00 10.00	289.00 289.00	6436.70 6535.18	240.30 245.96	-697.90 -714.32	-186.07 -190.45	0.00 0.00	
	6700.00	10.00	289.00	6633.66	251.61	-730.74	-194.82	0.00	
	6728.78	10.00	289.00	6662.00	253.24	-735.46	-196.08	0.00	Brushy Canyon
	6800.00	10.00	289.00	6732.14	257.26	-747.16	-199.20	0.00	
	6900.00 7000.00	10.00 10.00	289.00 289.00	6830.62 6929.10	262.92 268.57	-763.58 -780.00	-203.58 -207.96	0.00 0.00	
	7100.00	10.00	289.00	7027.58	274.22	-796.41	-212.33	0.00	
	7129.81	10.00	289.00	7056.94	275.91	-801.31	-213.64	0.00	Drop to Vertical
	7200.00 7300.00	8.60 6.60	289.00 289.00	7126.20 7225.32	279.60 283.91	-812.03 -824.53	-216.50 -219.83	2.00 2.00	
	7400.00	4.60	289.00	7324.84	287.08	-824.55	-219.85	2.00	
	7500.00	2.60	289.00	7424.64	289.12	-839.68	-223.87	2.00	
	7600.00	0.60	289.00	7524.59	290.03	-842.31	-224.58	2.00	
	7629.81 7700.00	0.00 0.00	289.00 179.69	7554.41 7624.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	2.00 0.00	Hold Vertical
	7800.00	0.00	179.69	7624.59	290.08 290.08	-842.46 -842.46	-224.61	0.00	
	7900.00	0.00	179.69	7824.59	290.08	-842.46	-224.61	0.00	
	8000.00	0.00	179.69	7924.59	290.08	-842.46	-224.61	0.00	
	8100.00 8200.00	0.00 0.00	179.69 179.69	8024.59 8124.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	8200.00	0.00	179.69	8124.59	290.08	-842.46	-224.61	0.00	
	8379.41	0.00	179.69	8304.00	290.08	-842.46	-224.61	0.00	1st Bone Spring Lime
	8400.00	0.00	179.69	8324.59	290.08	-842.46	-224.61	0.00	
	8500.00 8600.00	0.00 0.00	179.69 179.69	8424.59 8524.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	8700.00	0.00	179.69	8624.59	290.08	-842.46	-224.01	0.00	
	8800.00	0.00	179.69	8724.59	290.08	-842.46	-224.61	0.00	
	8900.00	0.00	179.69	8824.59	290.08	-842.46	-224.61	0.00	
	9000.00 9100.00	0.00 0.00	179.69 179.69	8924.59 9024.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	9200.00	0.00	179.69	9124.59	290.08	-842.46	-224.61	0.00	
	9300.00	0.00	179.69	9224.59	290.08	-842.46	-224.61	0.00	
	9400.00	0.00	179.69	9324.59	290.08	-842.46	-224.61	0.00	Dana Carina 1at
	9437.41 9500.00	0.00 0.00	179.69 179.69	9362.00 9424.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	Bone Spring 1st
	9600.00	0.00	179.69	9524.59	290.08	-842.46	-224.61	0.00	
	9700.00	0.00	179.69	9624.59	290.08	-842.46	-224.61	0.00	
	9800.00 9900.00	0.00 0.00	179.69 179.69	9724.59 9824.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	10000.00	0.00	179.69	9924.59	290.08	-842.46	-224.61	0.00	
	10005.41	0.00	179.69	9930.00	290.08	-842.46	-224.61	0.00	Bone Spring 2nd
	10100.00	0.00	179.69	10024.59	290.08	-842.46	-224.61	0.00	
	10200.00 10300.00	0.00 0.00	179.69 179.69	10124.59 10224.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	10400.00	0.00	179.69	10324.59	290.08	-842.46	-224.61	0.00	
	10500.00	0.00	179.69	10424.59	290.08	-842.46	-224.61	0.00	
	10535.41	0.00	179.69	10460.00	290.08	-842.46	-224.61	0.00	3rd Bone Spring Lime
	10600.00 10700.00	0.00 0.00	179.69 179.69	10524.59 10624.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	10800.00	0.00	179.69	10724.59	290.08	-842.46	-224.61	0.00	
	10900.00	0.00	179.69	10824.59	290.08	-842.46	-224.61	0.00	
	11000.00 11100.00	0.00 0.00	179.69 179.69	10924.59 11024.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	11200.00	0.00	179.69	11124.59	290.08	-842.46	-224.61	0.00	
	11300.00	0.00	179.69	11224.59	290.08	-842.46	-224.61	0.00	
	11311.41	0.00	179.69	11236.00	290.08	-842.46	-224.61	0.00	Bone Spring 3rd
	11400.00 11500.00	0.00 0.00	179.69 179.69	11324.59 11424.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	11600.00	0.00	179.69	11524.59	290.08	-842.46	-224.61	0.00	
	11700.00	0.00	179.69	11624.59	290.08	-842.46	-224.61	0.00	
	11725.41	0.00	179.69	11650.00	290.08	-842.46	-224.61	0.00	Wolfcamp / Point of Penetration
	11800.00 11900.00	0.00 0.00	179.69 179.69	11724.59 11824.59	290.08 290.08	-842.46 -842.46	-224.61 -224.61	0.00 0.00	
	12000.00	0.00	179.69	11924.59	290.08	-842.46	-224.61	0.00	
	12100.00	0.00	179.69	12024.59	290.08	-842.46	-224.61	0.00	
	12200.00	0.00	179.69	12124.59	290.08	-842.46	-224.61	0.00	<b>KOD</b>
	12220.56 12300.00	0.00 7.94	179.69 179.69	12145.16 12224.34	290.08 284.58	-842.46 -842.43	-224.61 -219.14	0.00 10.00	КОР
	12300.00	17.94	179.69	12224.54	262.21	-842.31	-196.84	10.00	
						-	-		

_			COTTO	D 4147					Constants Constants 100 Char. Di 1000
levon		Well: County:		RAW UNIT 63	86H				Geodetic System: US State Plane 1983 Datum: North American Datum 1927
		Wellbore:	Permit Plan						Ellipsoid: Clarke 1866
		Design:	Permit Plan	#1					Zone: 3001 - NM East (NAD83)
	MD	INC	AZI	TVD	NS	EW	VS	DLS	Comment
=	(ft) 12500.00	(°) 27.94	(°) 179.69	(ft) 12413.65	(ft) 223.28	(ft) -842.10	(ft) -158.04	(°/100ft) 10.00	
	12600.00	37.94	179.69	12497.46	168.97	-841.81	-103.91	10.00	
	12700.00	47.94	179.69	12570.57	100.93	-841.45	-36.10	10.00	
	12800.00 12900.00	57.94 67.94	179.69 179.69	12630.75 12676.18	21.23 -67.71	-841.02 -840.54	43.34 131.98	10.00 10.00	
	13000.00	77.94	179.69	12705.48	-163.19	-840.03	227.14	10.00	
	13100.00	87.94	179.69	12717.75	-262.31	-839.50	325.92	10.00	
	13109.05 13200.00	88.85 88.85	179.69 179.69	12718.00 12719.83	-271.35 -362.28	-839.45 -838.97	334.94 425.56	10.00 0.00	Landing Point
	13300.00	88.85	179.69	12721.84	-462.26	-838.43	525.21	0.00	
	13400.00	88.85	179.69	12723.85	-562.24	-837.89	624.85	0.00	
	13500.00	88.85	179.69	12725.86	-662.22	-837.36	724.49	0.00	
	13600.00 13700.00	88.85 88.85	179.69 179.69	12727.87 12729.88	-762.20 -862.18	-836.82 -836.29	824.13 923.78	0.00 0.00	
	13800.00	88.85	179.69	12731.89	-962.15	-835.75	1023.42	0.00	
	13900.00	88.85	179.69	12733.90	-1062.13	-835.21	1123.06	0.00	
	14000.00	88.85	179.69	12735.91	-1162.11	-834.68	1222.70	0.00	
	14100.00 14200.00	88.85 88.85	179.69 179.69		-1262.09 -1362.07	-834.14 -833.61	1322.35 1421.99	0.00 0.00	
	14300.00	88.85	179.69	12741.94	-1462.05	-833.07	1521.63	0.00	
	14400.00	88.85	179.69		-1562.02	-832.53	1621.28	0.00	
	14500.00 14600.00	88.85 88.85	179.69 179.69	12745.96 12747.97	-1662.00	-832.00 -831.46	1720.92 1820.56	0.00 0.00	
	14000.00	88.85	179.69	12749.98	-1861.96	-830.93	1920.20	0.00	
	14800.00	88.85	179.69	12751.99	-1961.94	-830.39	2019.85	0.00	
	14900.00	88.85	179.69	12754.00	-2061.92	-829.85	2119.49	0.00	
	15000.00 15100.00	88.85 88.85	179.69 179.69	12756.01 12758.02	-2161.89 -2261.87	-829.32 -828.78	2219.13 2318.78	0.00 0.00	
	15200.00	88.85	179.69	12760.03	-2361.85	-828.25	2418.42	0.00	
	15300.00	88.85	179.69	12762.04	-2461.83	-827.71	2518.06	0.00	
	15400.00 15500.00	88.85 88.85	179.69 179.69	12764.05 12766.06	-2561.81 -2661.79	-827.17 -826.64	2617.70 2717.35	0.00 0.00	
	15600.00	88.85	179.69	12768.07	-2761.76	-826.10	2816.99	0.00	
	15700.00	88.85	179.69	12770.08	-2861.74	-825.57	2916.63	0.00	
	15800.00 15900.00	88.85 88.85	179.69	12772.09 12774.10	-2961.72 -3061.70	-825.03 -824.49	3016.27	0.00 0.00	
	16000.00	88.85	179.69 179.69	12776.11	-3161.68	-824.49	3115.92 3215.56	0.00	
	16100.00	88.85	179.69	12778.12	-3261.66	-823.42	3315.20	0.00	
	16200.00	88.85	179.69	12780.13	-3361.64	-822.89	3414.85	0.00	
	16300.00 16400.00	88.85 88.85	179.69 179.69	12782.14 12784.15	-3461.61 -3561.59	-822.35 -821.81	3514.49 3614.13	0.00 0.00	
	16500.00	88.85	179.69		-3661.57	-821.28	3713.77	0.00	
	16600.00	88.85	179.69	12788.17		-820.74	3813.42	0.00	
	16700.00	88.85	179.69	12790.18	-3861.53	-820.21	3913.06	0.00	
	16800.00 16900.00	88.85 88.85	179.69 179.69	12792.19 12794.20	-3961.51 -4061.48	-819.67 -819.13	4012.70 4112.35	0.00 0.00	
	17000.00	88.85	179.69	12796.21	-4161.46	-818.60	4211.99	0.00	
	17100.00	88.85	179.69	12798.22	-4261.44	-818.06	4311.63	0.00	
	17200.00 17300.00	88.85 88.85	179.69 179.69	12800.23 12802.24	-4361.42 -4461.40	-817.53 -816.99	4411.27 4510.92	0.00 0.00	
	17400.00	88.85	179.69	12802.24	-4461.40	-816.45	4610.56	0.00	
	17500.00	88.85	179.69	12806.26	-4661.35	-815.92	4710.20	0.00	
	17600.00	88.85	179.69 179.69	12808.27	-4761.33	-815.38	4809.84	0.00	
	17700.00 17800.00	88.85 88.85	179.69 179.69	12810.28 12812.29	-4861.31 -4961.29	-814.85 -814.31	4909.49 5009.13	0.00 0.00	
	17900.00	88.85	179.69	12814.30	-5061.27	-813.77	5108.77	0.00	
	18000.00	88.85	179.69	12816.31	-5161.25	-813.24	5208.42	0.00	
	18100.00 18200.00	88.85 88.85	179.69 179.69	12818.32 12820.33	-5261.22 -5361.20	-812.70 -812.17	5308.06 5407.70	0.00 0.00	
	18300.00	88.85	179.69	12822.34	-5461.18	-811.63	5507.34	0.00	
	18400.00	88.85	179.69	12824.35	-5561.16	-811.09	5606.99	0.00	
	18500.00	88.85	179.69	12826.36	-5661.14	-810.56	5706.63	0.00	
	18600.00 18700.00	88.85 88.85	179.69 179.69	12828.37 12830.38	-5761.12 -5861.09	-810.02 -809.49	5806.27 5905.91	0.00 0.00	
	18800.00	88.85	179.69	12832.39	-5961.07	-808.95	6005.56	0.00	
	18900.00	88.85	179.69	12834.40	-6061.05	-808.41	6105.20	0.00	
	19000.00 19100.00	88.85 88.85	179.69 179.69	12836.41 12838.42	-6161.03	-807.88 -807.34	6204.84 6304.49	0.00	
	19100.00	88.85 88.85	179.69 179.69	12838.42	-6261.01 -6360.99	-807.34 -806.81	6304.49 6404.13	0.00 0.00	
	19300.00	88.85	179.69	12842.44	-6460.96	-806.27	6503.77	0.00	

n		County: Wellbore:			36H				Geodetic System: US State Plane 1983 Datum: North American Datum 1927 Ellipsoid: Clarke 1866 Zone: 3001 - NM East (NAD83)
	MD (ft)	INC (°)	<b>AZI</b> (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	<b>DLS</b> (°/100ft)	Comment
1	19400.00	88.85	179.69	12844.45	-6560.94	-805.73	6603.41	0.00	
	9500.00	88.85	179.69	12846.46	-6660.92	-805.20	6703.06	0.00	
1	19600.00	88.85	179.69	12848.47	-6760.90	-804.66	6802.70	0.00	
1	19700.00	88.85	179.69	12850.48	-6860.88	-804.13	6902.34	0.00	
	19800.00	88.85	179.69	12852.49	-6960.86	-803.59	7001.99	0.00	
1	19900.00	88.85	179.69	12854.50	-7060.83	-803.06	7101.63	0.00	
2	20000.00	88.85	179.69	12856.51	-7160.81	-802.52	7201.27	0.00	
2	20100.00	88.85	179.69	12858.52	-7260.79	-801.98	7300.91	0.00	
2	20200.00	88.85	179.69	12860.53	-7360.77	-801.45	7400.56	0.00	
2	20300.00	88.85	179.69	12862.54	-7460.75	-800.91	7500.20	0.00	
2	20400.00	88.85	179.69	12864.55	-7560.73	-800.38	7599.84	0.00	
2	20500.00	88.85	179.69	12866.56	-7660.70	-799.84	7699.48	0.00	
2	20600.00	88.85	179.69	12868.57	-7760.68	-799.30	7799.13	0.00	
2	20700.00	88.85	179.69	12870.58	-7860.66	-798.77	7898.77	0.00	
2	20800.00	88.85	179.69	12872.59	-7960.64	-798.23	7998.41	0.00	
2	20900.00	88.85	179.69	12874.60	-8060.62	-797.70	8098.06	0.00	
2	21000.00	88.85	179.69	12876.61	-8160.60	-797.16	8197.70	0.00	
	21100.00	88.85	179.69	12878.62	-8260.57	-796.62	8297.34	0.00	
	21200.00	88.85	179.69	12880.63	-8360.55	-796.09	8396.98	0.00	
	21300.00	88.85	179.69	12882.64	-8460.53	-795.55	8496.63	0.00	
	21400.00	88.85	179.69	12884.65	-8560.51	-795.02	8596.27	0.00	
	21500.00	88.85	179.69	12886.66	-8660.49	-794.48	8695.91	0.00	
	21600.00	88.85	179.69	12888.67	-8760.47	-793.94	8795.56	0.00	
	21700.00	88.85	179.69	12890.68	-8860.44	-793.41	8895.20	0.00	
	21800.00	88.85	179.69	12892.69	-8960.42	-792.87	8994.84	0.00	
	21900.00	88.85	179.69	12894.70	-9060.40	-792.34	9094.48	0.00	
	22000.00	88.85	179.69	12896.71	-9160.38	-791.80	9194.13	0.00	
	22100.00	88.85	179.69	12898.72	-9260.36	-791.26	9293.77	0.00	
	22200.00	88.85	179.69	12900.73	-9360.34	-790.73	9393.41	0.00	
	22300.00	88.85	179.69	12902.74	-9460.32	-790.19	9493.05	0.00	
	22400.00	88.85	179.69	12904.75	-9560.29	-789.66	9592.70	0.00	
	22500.00	88.85	179.69	12906.76	-9660.27	-789.12	9692.34	0.00	
	22600.00	88.85	179.69	12908.77	-9760.25	-788.58	9791.98	0.00	
	22700.00	88.85	179.69	12910.78	-9860.23	-788.05	9891.63	0.00	
	22800.00	88.85	179.69	12912.79	-9960.21	-787.51	9991.27	0.00	
	22900.00	88.85	179.69		-10060.19	-786.98	10090.91	0.00	
	22979.95	88.85	179.69		-10140.11	-786.55	10170.57	0.00	exit
	23000.00	88.85	179.69		-10140.11	-786.44	10170.57	0.00	Care
	23059.95	88.85	179.69		-10220.10	-786.15	10150.55	0.00	BHL

	County: Wellbore:			6H	Geodetic System: US State Plane 1983 Datum: North American Datum 1927 Ellipsoid: Clarke 1866 Zone: 3001 - NM East (NAD83)				
MD (ft)	<b>INC</b> (°)	<b>AZI</b> (°)	TVD (ft)	NS (ft)	<b>EW</b> (ft)	VS (ft)	<b>DLS</b> (°/100ft)	Comment	

A multibowl wellhead may be used. 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.

Devon proposes using a multi-bowl wellhead assembly. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.

- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial BOP test.
- Wellhead company 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 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running the surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the 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 intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 10M will be installed and tested, with 5M annular being tested to 100% of rated working pressure.

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 10,000 psi WP.

Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.

## **Devon Energy Annular Preventer Summary**

### 1. Component and Preventer Compatibility Table

The table below, which covers the drilling and casing of the 10M MASP portion of the well, outlines the tubulars and the compatible preventers in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Component	OD	Preventer	RWP
Drillpipe	4.5"	Fixed lower 4.5"	10M
		Upper 4.5-7" VBR	
HWDP	4.5"	Fixed lower 4.5"	10M
		Upper 4.5-7" VBR	
Drill collars and MWD tools	4.75"	Upper 4.5-7" VBR	10M
Mud Motor	4.75"	Upper 4.5-7" VBR	10M
Production casing	5.5"	Upper 4.5-7" VBR	10M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

6-3/4" Production hole section, 10M requirement

VBR = Variable Bore Ram. Compatible range listed in chart.

## 2. Well Control Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. The pressure at which control is swapped from the annular to another compatible ram is variable, but the operator will document in the submission their operating pressure limit. The operator may chose an operating pressure less than or equal to RWP, but in no case will it exceed the RWP of the annular preventer.

### General Procedure While Drilling

- 1. Sound alarm (alert crew)
- 2. Space out drill string
- 3. Shut down pumps (stop pumps and rotary)
- 4. Shut-in Well (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
- 5. Confirm shut-in
- 6. Notify toolpusher/company representative
- 7. Read and record the following:
  - a. SIDPP and SICP
  - b. Pit gain
  - c. Time
- 8. Regroup and identify forward plan
- 9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to the upper pipe ram.

## **Devon Energy Annular Preventer Summary**

## General Procedure While Tripping

- 1. Sound alarm (alert crew)
- 2. Stab full opening safety valve and close
- 3. Space out drill string
- 4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
- 5. Confirm shut-in
- 6. Notify toolpusher/company representative
- 7. Read and record the following:
  - a. SIDPP and SICP
    - b. Pit gain
    - c. Time
- 8. Regroup and identify forward plan
- 9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to the upper pipe ram.

## General Procedure While Running Casing

- 1. Sound alarm (alert crew)
- 2. Stab crossover and full opening safety valve and close
- 3. Space out string
- 4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
- 5. Confirm shut-in
- 6. Notify toolpusher/company representative
- 7. Read and record the following:
  - a. SIDPP and SICP
  - b. Pit gain
  - c. Time
- 8. Regroup and identify forward plan
- 9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to compatible pipe ram.

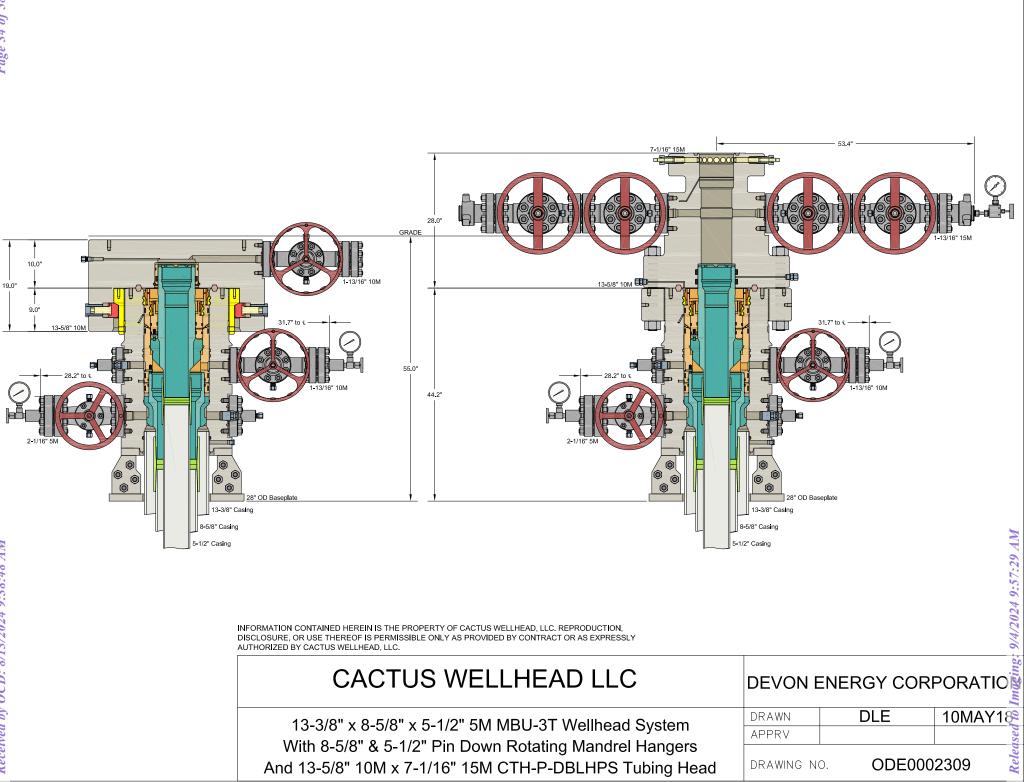
# General Procedure With No Pipe In Hole (Open Hole)

- 1. Sound alarm (alert crew)
- 2. Shut-in with blind rams or BSR. (HCR and choke will already be in the closed position.)
- 3. Confirm shut-in
- 4. Notify toolpusher/company representative
- 5. Read and record the following:
  - a. SICP
  - b. Pit gain
  - c. Time
- 6. Regroup and identify forward plan

## **Devon Energy Annular Preventer Summary**

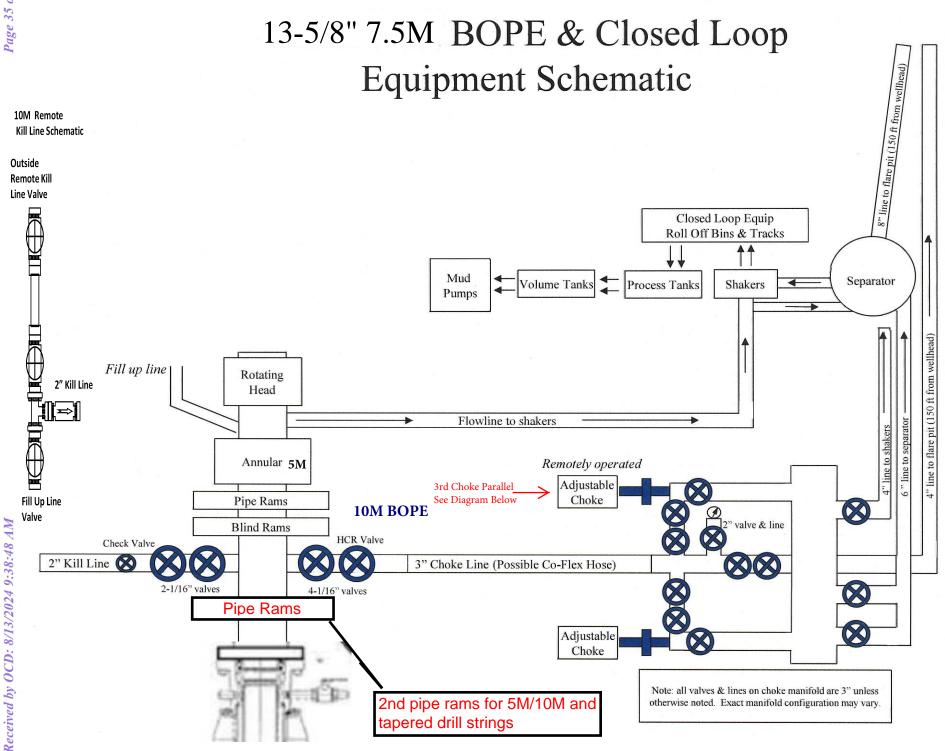
### General Procedures While Pulling BHA thru Stack

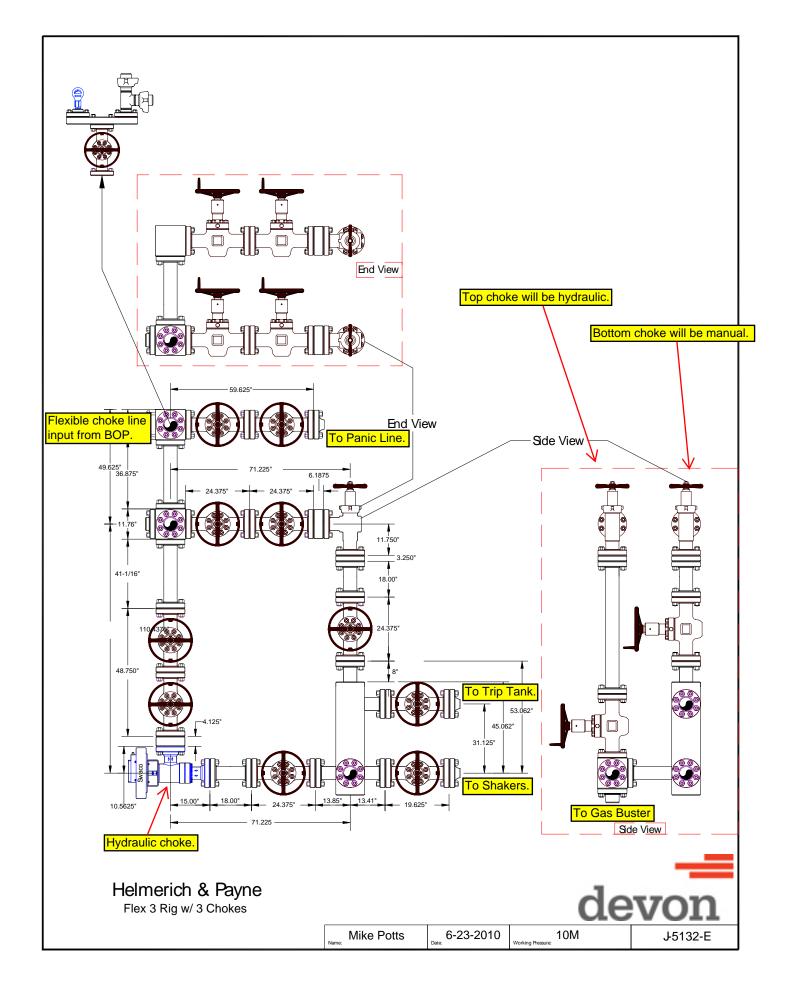
- 1. PRIOR to pulling last joint of drillpipe thru the stack.
  - a. Perform flowcheck, if flowing:
  - b. Sound alarm (alert crew)
  - c. Stab full opening safety valve and close
  - d. Space out drill string with tool joint just beneath the upper pipe ram.
  - e. Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
  - f. Confirm shut-in
  - g. Notify toolpusher/company representative
  - h. Read and record the following:
    - i. SIDPP and SICP
    - ii. Pit gain
    - iii. Time
  - i. Regroup and identify forward plan
- 2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
  - a. Sound alarm (alert crew)
  - b. Stab crossover and full opening safety valve and close
  - c. Space out drill string with upset just beneath the compatible pipe ram.
  - d. Shut-in using compatible pipe ram. (HCR and choke will already be in the closed position.)
  - e. Confirm shut-in
  - f. Notify toolpusher/company representative
  - g. Read and record the following:
    - i. SIDPP and SICP
    - ii. Pit gain
    - iii. Time
  - h. Regroup and identify forward plan
- 3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.
  - a. Sound alarm (alert crew)
  - b. If possible to pick up high enough, pull string clear of the stack and follow "Open Hole" scenario.
  - c. If impossible to pick up high enough to pull the string clear of the stack:
  - d. Stab crossover, make up one joint/stand of drillpipe, and full opening safety valve and close
  - e. Space out drill string with tooljoint just beneath the upper pipe ram.
  - f. Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
  - g. Confirm shut-in
  - h. Notify toolpusher/company representative
  - i. Read and record the following:
    - i. SIDPP and SICP
    - ii. Pit gain
    - iii. Time
  - j. Regroup and identify forward plan

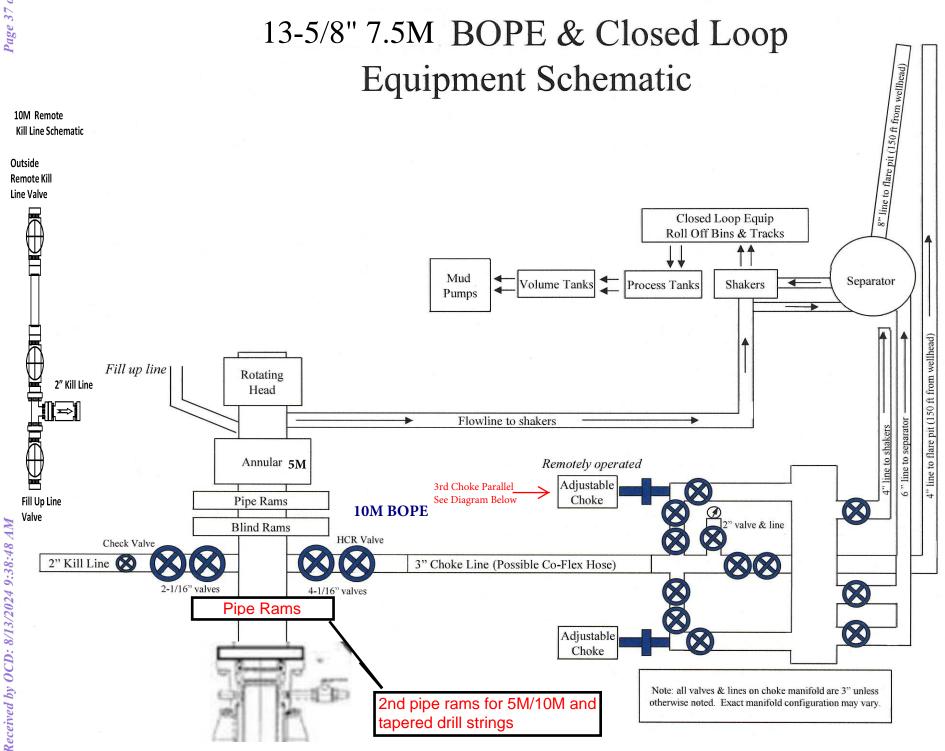


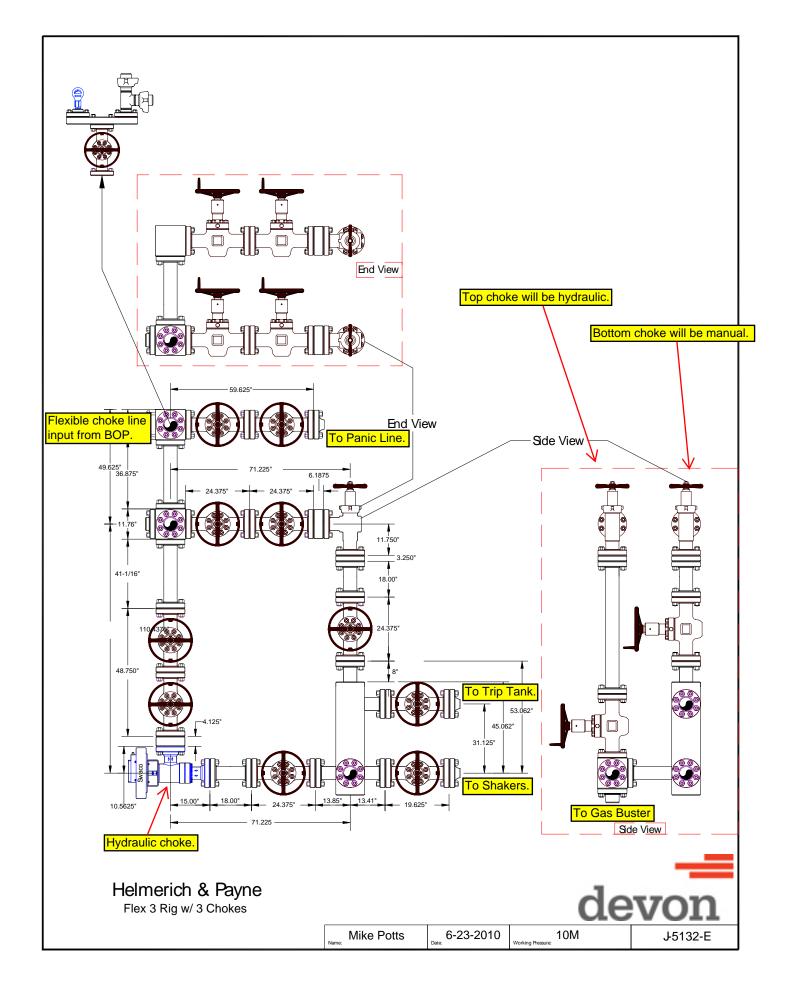
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### PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

LEASE NO.:	
	Section 1, T.25 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico 🔽

WELL NAME & NO.:	Cotton Draw Unit 636H
<b>BOTTOM HOLE FOOTAGE</b>	20'/S & 1870'/W
ATS/API ID:	ATS-22-256
APD ID:	10400081460
Sundry ID:	N/a
Date APD Submitted:	N/a

.

### COA

H2S	Yes		
Potash	Secretary 💌	None	
Cave/Karst Potential	Low		
Cave/Karst	Critical		
Potential			
Variance	C None	E Flex Hose	C Other
Wellhead	Conventional and Multibov	vl 🔽	
Other	□ 4 String	Capitan Reef	WIPP
		None 🔻	
Other	Pilot Hole	C Open Annulus	
Cementing	Contingency Squeeze	Echo-Meter None	Primary Cement Squeeze None
Special	□ Water	COM	🗹 Unit
Requirements	Disposal/Injection		
Special	Batch Sundry	Waste Prevention	
Requirements		None 🚽	
Special	Break Testing	□ Offline	Casing
Requirements Variance		Cementing	Clearance

### A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. As a result, the Hydrogen Sulfide area must meet **43 CFR part 3170 Subpart 3176** requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

### **B.** CASING

- 1. The 13-3/8 inch surface casing shall be set at approximately 725 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt when present, and below usable fresh water) and cemented to the surface. The surface hole shall be 17 1/2 inch in diameter.
  - 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 will be a minimum of <u>8</u> <u>hours</u> or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - 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.

## Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

- 2. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is:
  - Cement to surface. If cement does not circulate see B.1.a, c-d above. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash. Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.

Operator has proposed to pump down **13-3/8**" X **8-5/8**" annulus after primary cementing stage. <u>Operator must run a CBL from TD of the **8-5/8**" casing to surface. Submit results to the BLM. Operator may conduct a negative and positive pressure test during completion to remediate sustained casing pressure.</u>

If cement does not tie-back into the previous casing shoe, a third stage remediation BH may be performed. The appropriate BLM office shall be notified.

In Secretary Potash Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

## Production casing must be kept fluid filled to meet BLM minimum collapse requirement.

- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - Cement should tie-back 500 feet into the previous casing but not higher than USGS Marker Bed No. 126. Operator must run a CBL from TD of the production casing to surface to verify top of cement. Submit results to the BLM.
     Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.
     Cement excess is less than 25%, more cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.

### **C. PRESSURE CONTROL**

- 1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
- 2.

### **Option 1:**

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 8-5/8 inch intermediate casing shoe shall be 10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.

### **Option 2:**

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8** inch surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required

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for drilling below the surface casing shoe shall be 10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) 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. 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.
- e. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.

### D. SPECIAL REQUIREMENT (S)

### <u>Unit Wells</u>

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

### **Commercial Well Determination**

A commercial well determination shall be submitted after production has been established for at least six months.

## **GENERAL 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 EMAIL or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220.

BLM\_NM\_CFO\_DrillingNotifications@BLM.GOV (575) 361-2822

- 1. 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.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per **43** CFR part **3170** Subpart **3172** as soon as 2nd Rig is rigged up on well.
- 2. 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 are located, this does not include the dog house or stairway area.

#### A. CASING

1. 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.

- <u>Wait on cement (WOC) for Potash Areas:</u> After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends of both lead and tail cement, 2) until cement has been in place at least <u>8 hours</u>. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
- 3. <u>Wait on cement (WOC) for Water Basin:</u> After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least <u>8 hours</u>. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
- 4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
- 5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
- 6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
- 7. 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.
- 8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.
- B. PRESSURE CONTROL
- All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in 43 CFR part 3170 Subpart 3172 and API STD 53 Sec. 5.3.

- 2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. 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.
- 3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
- 4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - 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. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
  - 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.
- 5. 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 cement), 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. In potash areas, 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

#### Approval Date: 08/09/2024

-

done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)

- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to 43 CFR part 3170
  Subpart 3172 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. 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. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. 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.
- g. 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.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per 43 CFR part 3170 Subpart 3172.

#### C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

### D. 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.

Long Vo (LVO) 7/19/2024



Devon Energy Center 333 West Sheridan Avenue Oklahoma City, Oklahoma 73102-5015

# Hydrogen Sulfide (H<sub>2</sub>S) Contingency Plan

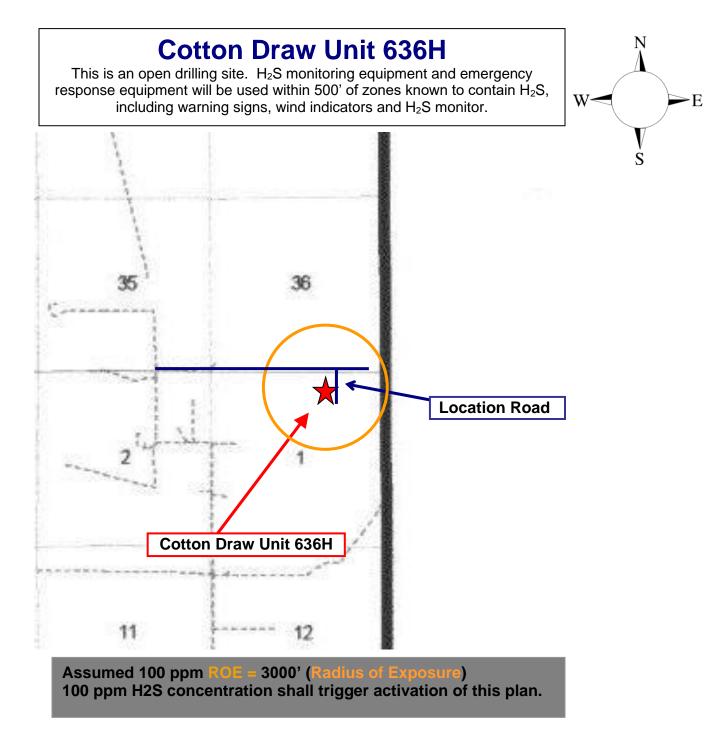
For

## **Cotton Draw Unit 636H**

Sec-1 T-25S R-31E 331 FNL & 2594' FEL LAT. = 32.165709 N (NAD83) LONG = 103.731341 W

**Eddy County NM** 

**Revision September 2021** 



### Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. <u>There are no homes or buildings in or near the ROE</u>.

### Assumed 100 ppm ROE = 3000'

**Revision September 2021** 

### **100** ppm H<sub>2</sub>S concentration shall trigger activation of this plan.

### Emergency Procedures

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the
  - Detection of  $H_2S$ , and
  - Measures for protection against the gas,
  - Equipment used for protection and emergency response.

### Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Common	Chemical	Specific	Threshold	Hazardous Limit	Lethal
Name	Formula	Gravity	Limit	Hazaruous Linnit	Concentration
Hydrogen Sulfide	H₂S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur	SO <sub>2</sub>	2.21	2 ppm	N/A	1000 ppm
Dioxide		Air = 1	- 66	,,,	

### Characteristics of H<sub>2</sub>S and SO<sub>2</sub>

### **Contacting Authorities**

Devon Energy Corp. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

### Hydrogen Sulfide Drilling Operation Plan

### I. HYDROGEN SULFIDE (H<sub>2</sub>S) TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- 1. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S)
- 2. The proper use and maintenance of personal protective equipment and life support systems.
- 3. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- 4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- 1. The effects of H<sub>2</sub>S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- 2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- 3. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan.

There will be weekly  $H_2S$  and well control drills for all personnel in each crew.

### II. HYDROGEN SULFIDE TRAINING

Note: All  $H_2S$  safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain  $H_2S$ .

### 1. Well Control Equipment

- A. Flare line
- B. Choke manifold Remotely Operated
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit
- D. Auxiliary equipment may include if applicable: annular preventer and rotating head.
- E. Mud/Gas Separator

### 2. Protective equipment for essential personnel:

30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

Fire extinguishers are located at various locations around the rig. First Aid supplies are located in the top doghouse and the rig manger's office.

### 3. H<sub>2</sub>S detection and monitoring equipment:

Portable H<sub>2</sub>S monitors positioned on location for best coverage and response. These units have warning lights which activate when H<sub>2</sub>S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

- Bell nipple
- Possum Belly/Shale shaker
- Rig floor
- Choke manifold
- Cellar

### 4. Visual warning systems:

- A. Wind direction indicators as shown on well site diagram
- B. Caution/Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

### 5. Mud program:

The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to surface. Proper mud weight, safe drilling practices and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S bearing zones.

### 6. Metallurgy:

All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be  $H_2S$  trim.

All elastomers used for packing and seals shall be H<sub>2</sub>S trim.

### 7. Communication:

- a. Company personnel have/use cellular telephones in the field.
- **b.** Land line (telephone) communications at Office

### 8. Well testing:

- a. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H<sub>2</sub>S environment will use the closed chamber method of testing.
- **b.** There will be no drill stem testing.

### Devon Energy Corp. Company Call List

	ee/Company Contact Representative	Position	Phone Number	After Hours Number	
	Fisher (North)	Drilling Manager	832-967-7912		
	debrand (South)	Drilling Manager	405-552-6514		
Rich Dow	ney	Drilling VP	405-228-2415		
Josh Harv	/ey	EHS Manger	405-228-2440 405-552-5334	918-500-5536	
_aura Wri	ght	EHS Supervisor		832-969-8145	
obert Glover		EHS Professional	575-703-5712	575-703-5712	
_ane Frar	ane Frank Lead EHS 580-579-7			580-579-7052	
Rickey Po		Lead EHS	903-720-8315	903-720-8315	
Brock Vis	e	Lead EHS	918-413-3291	918-413-3291	
Agency	v Call List				
<u>.ea</u>	Hobbs				
County	Lea County Communio	cation Authority		397-926	
<u>575)</u>	State Police			885-313	
	City Police			397-926	
	Sheriff's Office			396-361	
	Ambulance	91			
	Fire Department	397-930			
	LEPC (Local Emergency Planning Committee)			393-287	
	NMOCD	393-616			
	US Bureau of Land Ma	393-000			
Eddy	Carlsbad				
County	State Police			885-313	
<u>(575)</u>	City Police	885-211			
	Sheriff's Office	887-755			
	Ambulance	91			
	Fire Department	<u>885-312</u> 887-379			
	LEPC (Local Emergen				
	US Bureau of Land Management (Carlsbad)			(575)-706-192 (575)-234-590	
	NM Emergency Response Commission (Santa Fe)			(505) 476-960	
	24 HR			(505) 478-980	
				(800) 424-880	
	National Emergency Response Center			<b>\</b>	
	National Pollution Control Center: Direct			(703) 872-600	
	For Oil Spills	(800) 280-711			
	Emergency Services Wild Well Control			(281) 784-470	
	Cudd Pressure Contro	ıl (91	5) 699-0139	(915) 563-335	
	Halliburton	(01	_,	(575) 746-275	
				<u> </u>	
	B. J. Services			(575) 746-356	

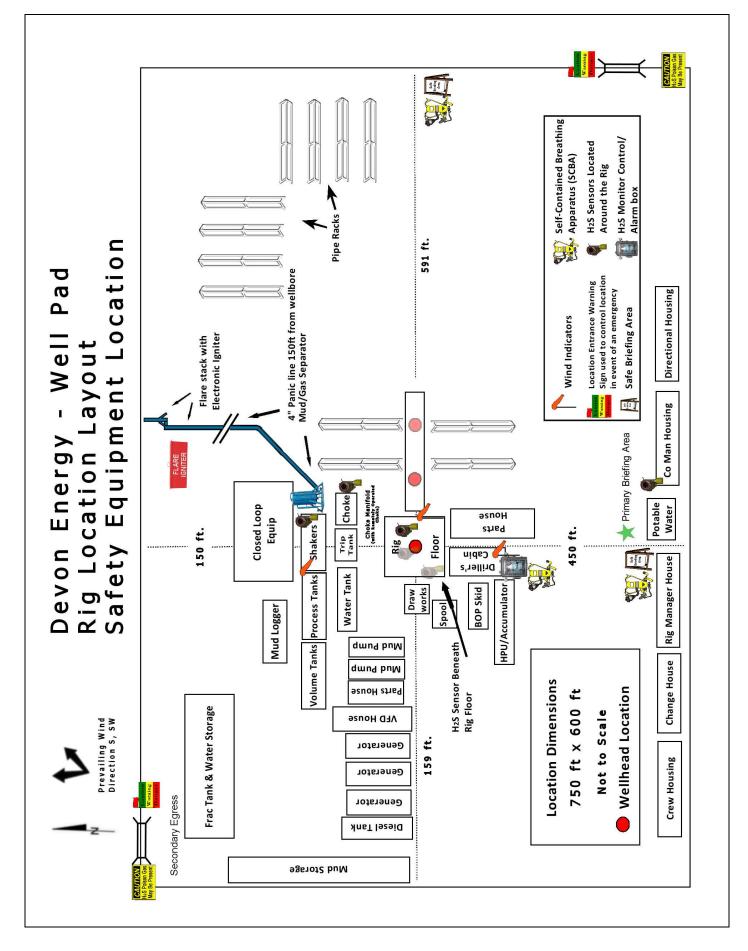
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Give	Native Air – Emergency Helicopter – Hobbs	(575) 347-9836
GPS	For Air Ambulance - Eddy County Dispatch	(575)-616-7155
position:	For Air Ambulance - Lea County (LCCA)	(575)-397-9265
	Poison Control (24/7)	(800) 222-1222
	Oil & Gas Pipeline 24 Hour Service	(800) 364-4366
	NOAA – Website - www.nhc.noaa.gov	
	National Pollution Control Center	202-795-6958
	NPCC – Oil Spills	800-280-7118
	BNSF Railroad Resource Operations	800-832-5452
	NM OSHA – Santa Fe	505-222-9595
	NM OSHA (Reporting)	877-610-6742
		505-476-8700



**Revision September 2021** 

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District I 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

### **State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. Santa Fe, NM 87505

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CONDITIONS

Action 373340

CONDITIONS

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP	6137
333 West Sheridan Ave.	Action Number:
Oklahoma City, OK 73102	373340
	Action Type:
	[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

#### CONDITIONS

CONDITIONO		
Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	9/4/2024
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	9/4/2024
ward.rikala	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	9/4/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	9/4/2024
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	9/4/2024
ward.rikala	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	9/4/2024
ward.rikala	Operator can not produce this well until they are in compliance with Rule 5.9.	9/4/2024