<u>District I</u> 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**

Form C-101 August 1, 2011

Permit 304381

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZO
--

	7 11 1 107 (110 (111 110 110 110 110 110 110 110 1							
Γ.	. Operator Name and Address	2. OGRID Number						
	DEVON ENERGY PRODUCTION CO	6137						
	333 West Sheridan Ave.	3. API Number						
	Oklahoma City, OK 73102		30-025-49589					
4	Property Code	5. Property Name	6. Well No.					
	322866	005H						

7. Surface Location

JL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
0	28	21S	34E	0	182	S	2425	E	Lea

8. Proposed Bottom Hole Location

	UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
	В	21	21S	34E	В	20	N	1980	E	Lea

#### 9. Pool Information

BERRY;BONE SPRING, SOUTH	96660	

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
New Well	OIL		State	3713
16. Multiple	17. Proposed Depth	18. Formation	19. Contractor	20. Spud Date
N	21129	Bone Spring		7/10/2022
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

#### ☑ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Туре	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	48	1870	1392	0
Int1	12.25	9.625	40	5628	775	0
Prod	8.75	5.5	17	21129	2529	5128

#### Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Туре	Working Pressure	Test Pressure	Manufacturer			
Annular	5000	5000				
Blind	5000	5000				
Double Ram	5000	5000				
Annular	5000	5000				
Blind	5000	5000				
Double Ram	5000	5000				

knowledge and be	•			OIL CONSERVATI	ON DIVISION
Signature:	Signature:				
Printed Name:	Electronically filed by Jeff Walla		Approved By:	Paul F Kautz	
Title:	Title: Supervisor Land			Geologist	
Email Address: Jeff.Walla@dvn.com			Approved Date:	11/23/2021	Expiration Date: 11/23/2023
Date:	Date: 11/19/2021 Phone: 575-748-9925			oval Attached	

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (576) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR. Santa Fe, New Mexico 87505

Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

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) 476-3460 Fax: (505) 476-3462

□ AMENDED REPORT

WELL	LOCATION	AND	ACREAGE	DEDICATION	PLAT

API Number	Pool Code	Pool Name			
30-025-49589	96660	96660 BERRY; BONE SPRING, S			
Property Code	Prop	Property Name			
322866	CHILES 28-	CHILES 28-21 STATE COM			
OGRID No.	Oper:	Elevation			
6137	DEVON ENERGY PROI	DUCTION COMPANY, L.P.	3713.3'		

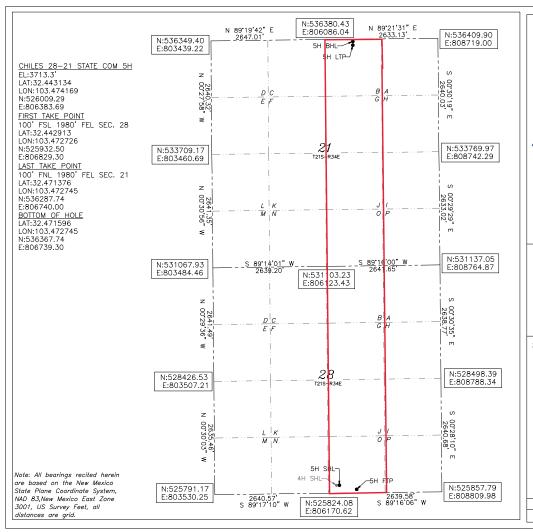
#### Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	28	21-S	34-E		182	SOUTH	2425	EAST	LEA

#### Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
В	21	21-S	34-E		20	NORTH	1980	EAST	LEA
Dedicated Acre	s Joint o	r Infill	Consolidation	Code Or	der No.				
320									

# NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



#### OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Rebutta Debl 11/10/2021 Signature Date

Rebecca Deal, Regulatory Analyst

rebecca.deal@dvn.com

E-mail Address

W.O. #

#### SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

11/2021

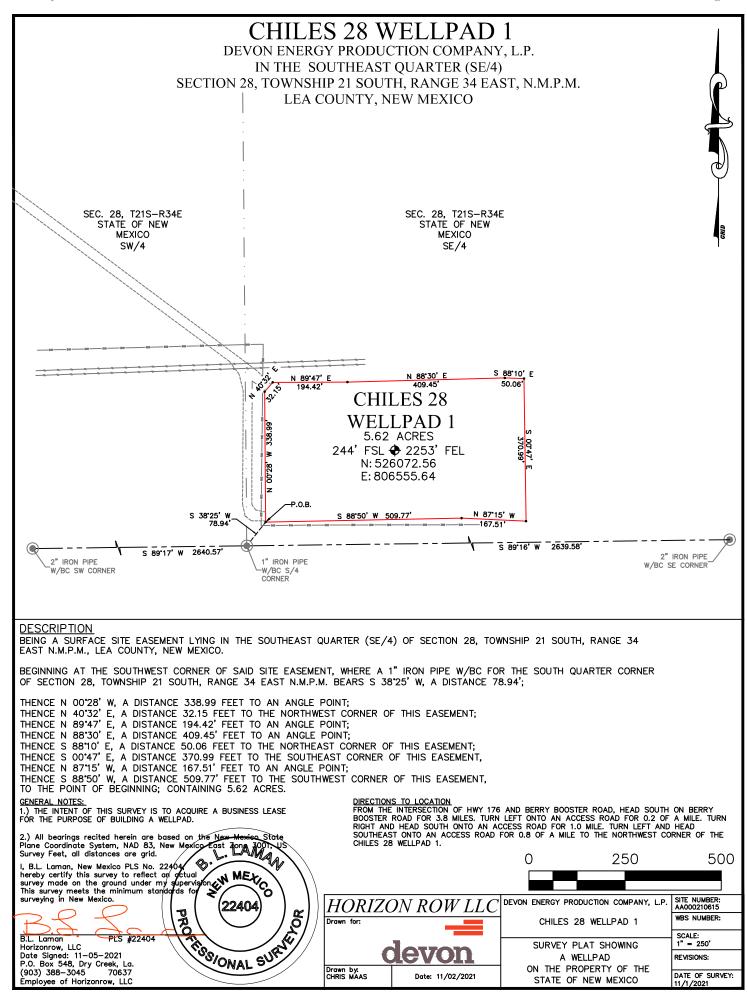
Date of Survey

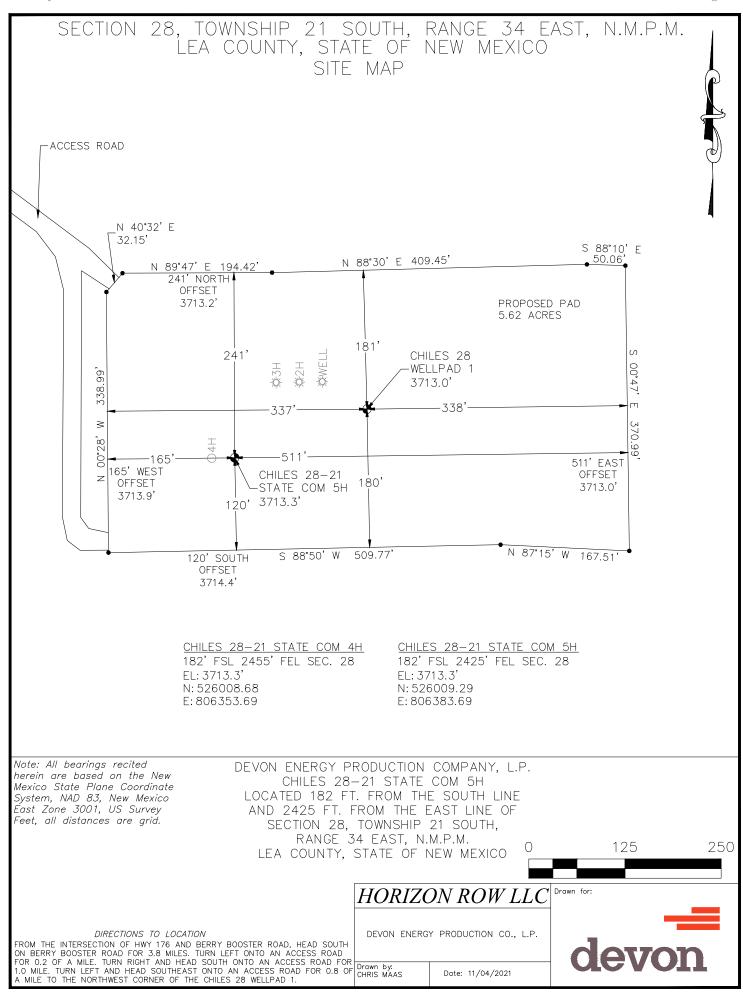
DRAWN BY: CM

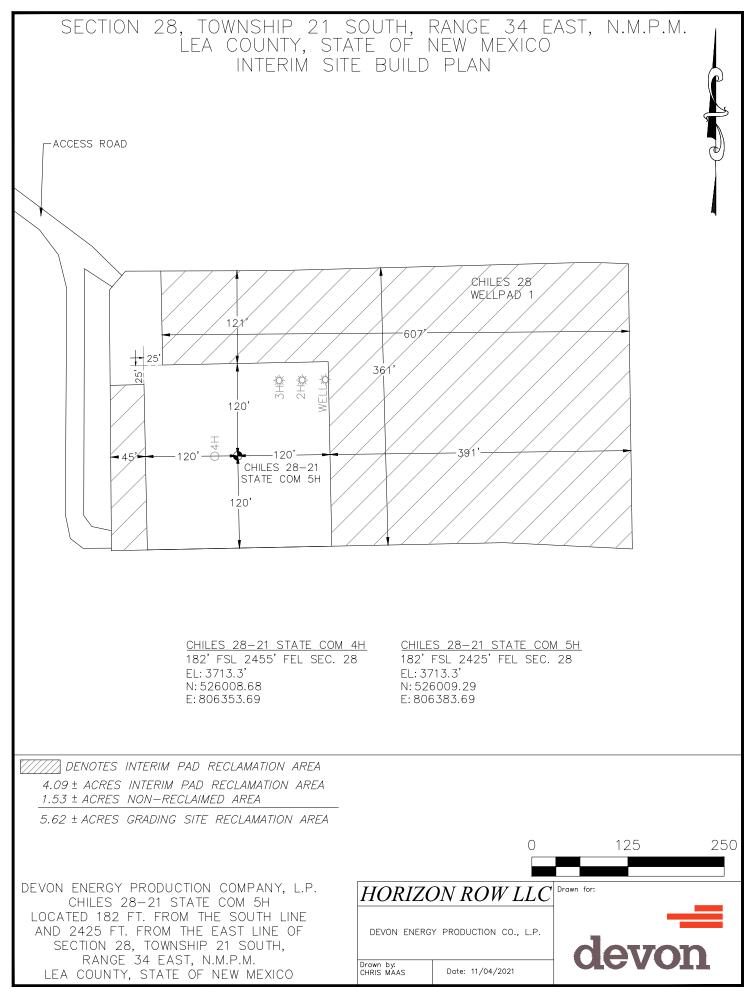


Inten	t x	As Dril	led										
API#													
DE\	rator Nar /ON EN MPANY	IERGY F	PRODUC	CTION	l		perty Name ILES 28-2		ATE (	COM	1		Well Number 5H
Kick (	Off Point	(KOP)											
UL	Section 28	Township 21S	Range 34E	Lot	Feet 50		From N/S FSL	Feet 1982	2	From FEL	E/W	County LEA	
132.4	<sup>ide</sup> 4427	I	ı		Longitu -103		.8					NAD 83	
		. (===)			•						II.		
UL	Section	t (FTP) Township	Pango	Lot	Feet		From N/S	Feet	1	From	E /\\	County	
0	28	21-S	Range 34-E		100		SOUTH	1	0	EAS		LEA	
32.	4429	13			Longitu 103		2726					NAD 83	
Last T	ake Poin	t (LTP)											
UL В	Section 21	Township 21-S	Range 34-E	Lot	Feet 100		m N/S Fee DRTH 19		From E EAS		Count	у	
32.	4713	76			Longitu 103		2745				NAD 83		
Is this	s well the	defining v	vell for th	e Horiz	ontal S <sub>l</sub>	pacin	g Unit?	N	]				
Is this	s well an i	infill well?		Υ	]								
	ll is yes pl ng Unit.	lease prov	ide API if a	availab	le, Ope	rator	Name and	well nu	ımber	for D	efinin	g well fo	r Horizontal
API#													
DE\	rator Nar /ON EN MPANY	IERGY F	PRODUC	CTION	I	_	perty Name		ATE (	COM	1		Well Number 2H

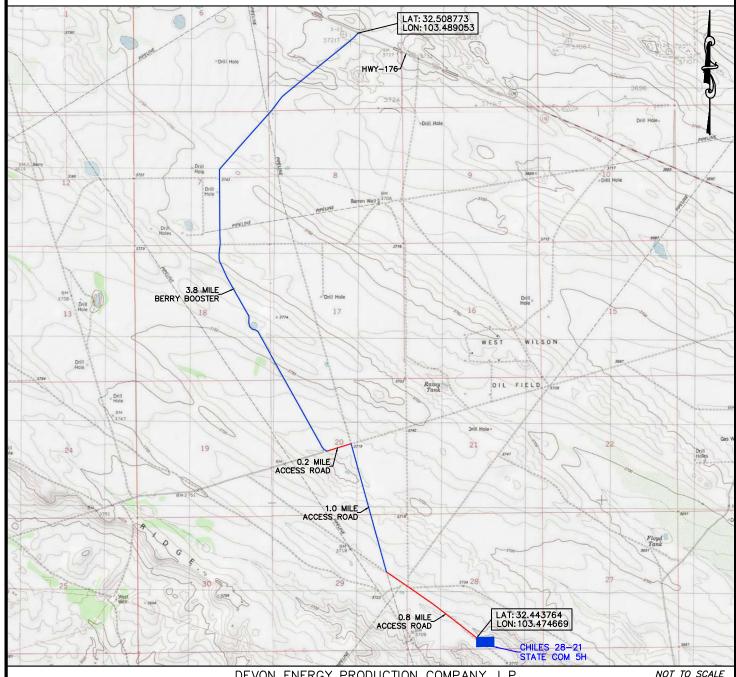
KZ 06/29/2018







# SECTION 28 TOWNSHIP 21 SOUTH, RANGE 34 EAST, N.M.P.M. LEA COUNTY, STATE OF NEW MEXICO VICINITY MAP



DEVON ENERGY PRODUCTION COMPANY, L.P.
CHILES 28-21 STATE COM 5H
LOCATED 182 FT. FROM THE SOUTH LINE
AND 2425 FT. FROM THE EAST LINE OF
SECTION 28, TOWNSHIP 21 SOUTH,
RANGE 34 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF HWY 176 AND BERRY BOOSTER ROAD, HEAD SOUTH ON BERRY BOOSTER ROAD FOR 3.8 MILES. TURN LEFT ONTO AN ACCESS ROAD FOR 0.2 OF A MILE. TURN RIGHT AND HEAD SOUTH ONTO AN ACCESS ROAD FOR 1.0 MILE. TURN LEFT AND HEAD SOUTHEAST ONTO AN ACCESS ROAD FOR 0.8 OF A MILE TO THE NORTHWEST CORNER OF THE CHILES 28 WELLPAD 1.

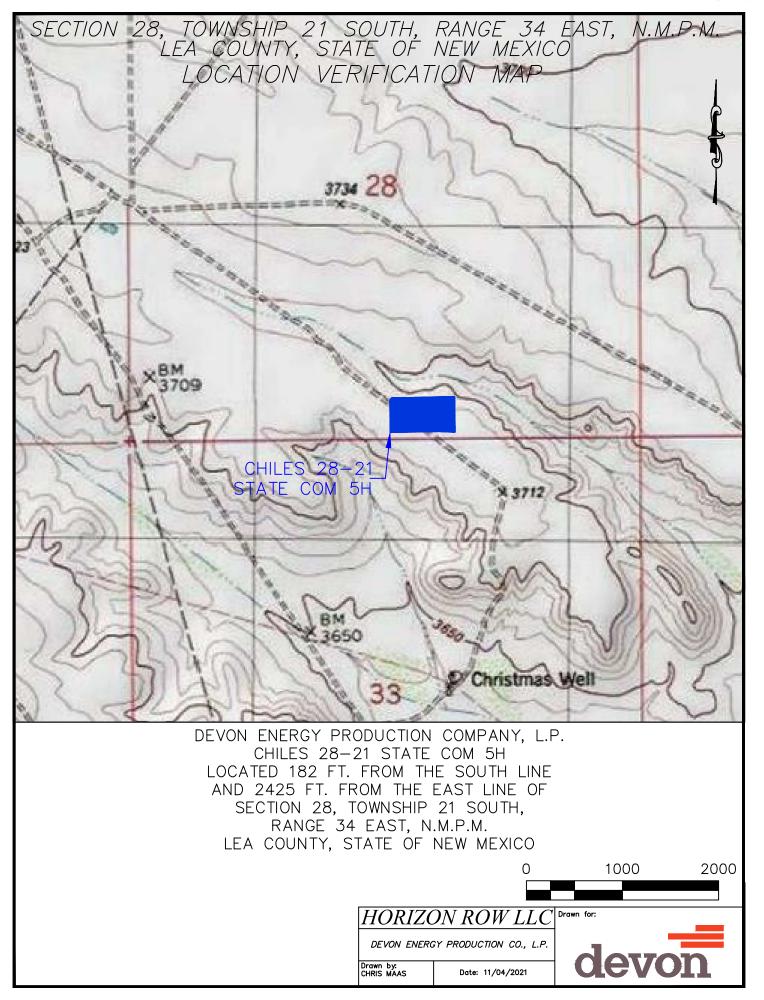
# HORIZON ROW LLC

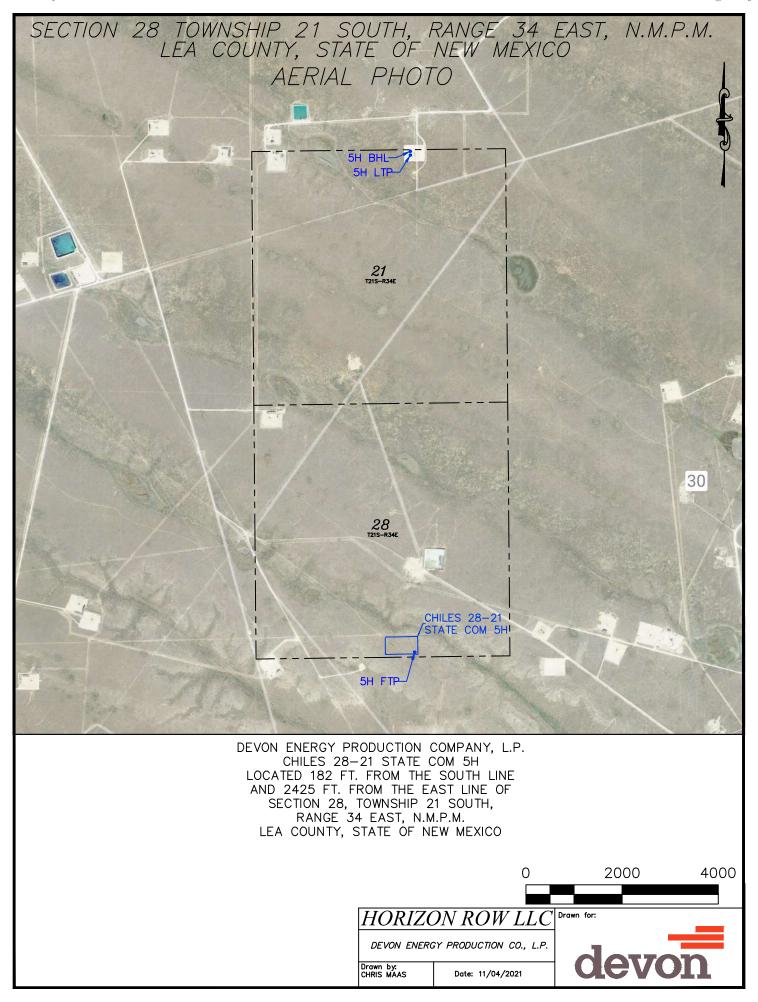
DEVON ENERGY PRODUCTION CO., L.P.

Drawn by: CHRIS MAAS

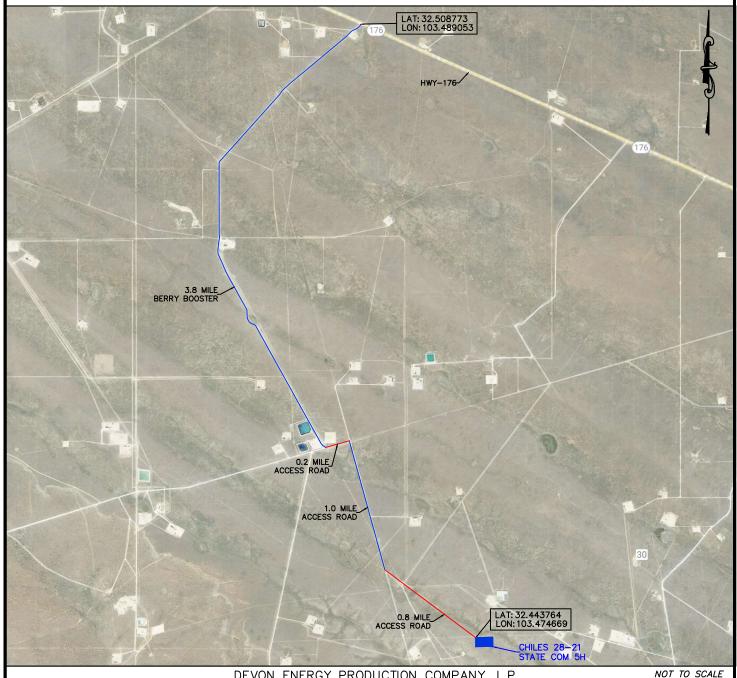
Date: 11/04/2021







# SECTION 28 TOWNSHIP 21 SOUTH, RANGE 34 EAST, N.M.P.M. LEA COUNTY, STATE OF NEW MEXICO AERIAL ACCESS ROUTE MAP



DEVON ENERGY PRODUCTION COMPANY, L.P. CHILES 28-21 STATE COM 5H LOCATED 182 FT. FROM THE SOUTH LINE AND 2425 FT. FROM THE EAST LINE OF SECTION 28, TOWNSHIP 21 SOUTH, RANGE 34 EAST, N.M.P.M. LEA COUNTY, STATE OF NEW MEXICO

 $HORIZON\ ROW\ LLC$ 

DEVON ENERGY PRODUCTION CO., L.P.

Drawn by: CHRIS MAAS

Date: 11/04/2021



Permit 304381

Form APD Conditions

<u>District I</u> 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

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**

#### PERMIT CONDITIONS OF APPROVAL

Operator Name and Address:	API Number:
DEVON ENERGY PRODUCTION COMPANY, LP [6137]	30-025-49589
333 West Sheridan Ave.	Well:
Oklahoma City, OK 73102	CHILES 28 21 STATE COM #005H

OCD Reviewer	Condition
pkautz	Notify OCD 24 hours prior to casing & cement
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104
pkautz	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
	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
pkautz	1) SURFACE & INTERMEDIATE CASING - Cement must circulate to surface 2) PRODUCTION CASING - Cement must tie back into intermediate casing
pkautz	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud

#### State of New Mexico Energy, Minerals and Natural Resources Department

Submit Electronically Via E-permitting

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

### NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

#### Section 1 – Plan Description Effective May 25, 2021

I. Operator: Devon End	ergy Productio	n Company, L.P.	_ OGRID: _	6137	Date	e: <u>11</u> /	10 / 2021			
II. Type:  ☐ Original □	II. Type:  ☐ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.									
f Other, please describe:										
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	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	P	Anticipated roduced Water BBL/D			
See Attached										
V. Anticipated Schedul proposed to be recomple  Well Name	e: Provide the		ion for each nev		ell or set of we		7.9(D)(1) NMAC]  sed to be drilled or  First Production  Date			
See Attached										
VI. Separation Equipment:   Attach a complete description of how Operator will size separation equipment to optimize gas capture.  VII. Operational Practices:   Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.  VIII. Best Management Practices:   Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.										

#### 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.  $\square$  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  $\square$  will  $\square$  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: 
  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.

(i)

# **Section 3 - Certifications**

# Effective May 25, 2021

Operator certifies that, af	ter reasonable inquiry and based on the available information at the time of submittal:
one hundred percent of t	to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport he anticipated volume of natural gas produced from the well(s) commencing on the date of first production, urrent and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering
hundred percent of the ar into account the current a	able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one naticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. Fox, Operator will select one of the following:
Well Shut-In. □ Operate D of 19.15.27.9 NMAC;	or will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection or
	an.   Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential s 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

#### **Section 4 - Notices**

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

other alternative beneficial uses approved by the division.

- (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.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:
Printed Name: Lindsey N. 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:

Chiles 28 Wellpad 1									
Well Name	API	ULSTR	N/S Footage	Call	E/W Footage	Call	Anticipated Oil B8L/D	Anticipated Gas MCF/D	Anticipated Produced Water BBI/D
Chiles 28-21 State Com 4H		28-21S-34E	180	FSL	2455	FEL	(+/-) 836mcfd	(+/-)1075bopd	(+/-)2043bwpd
Chiles 28-21 State Com 5H		28-21S-34E	180	FSL	2425	FEL	(+/-) 836mcfd	(+/-)1075bopd	(+/-)2043bwpd

Well Name	АРІ	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Chiles 28-21 State Com 4H		7/6/2022	8/5/2022	12/3/2022	12/3/2022	12/3/2022
Chiles 28-21 State Com 5H		7/10/2022	8/9/2022	12/7/2022	12/7/2022	12/7/2022

<sup>\*</sup>All dates and volumes are approximate and subject to change



#### 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
  - o 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.



Well: Chiles 28-21 State Com 5H County: Lea

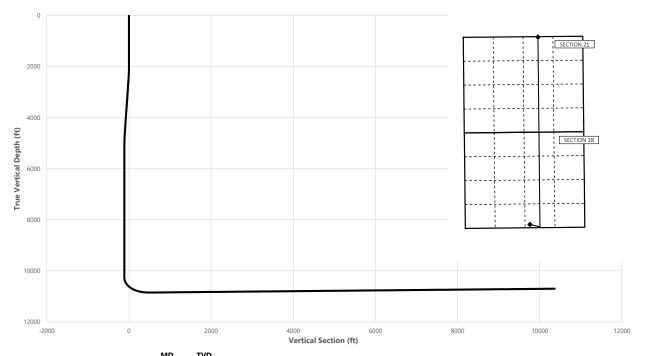
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983

Datum: North American Datum 1927

Ellipsoid: Clarke 1866

MD	INC	AZI	TVD	NS	EW	VS	DLS	Comment
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL
2000.00	0.00	106.00	2000.00	0.00	0.00	0.00	0.00	Start Tangent
2500.00	10.00	106.00	2497.47	-12.00	41.84	-10.55	2.00	Hold Tangent
4655.42	10.00	106.00	4620.14	-115.16	401.62	-101.31	0.00	Drop to Vertical
5155.42	0.00	106.00	5117.61	-127.16	443.46	-111.87	2.00	Hold Vertical
10314.92	0.00	359.52	10277.11	-127.16	443.46	-111.87	0.00	KOP
11223.60	90.87	359.52	10850.00	454.45	438.59	469.23	10.00	Landing Point
21129.08	90.87	359.52	10700.00	10358.45	355.61	10364.55	0.00	BHL



Key Depths	MD	עעו
key Deptils	(ft)	(ft)
Rustler	1845.00	1845.00
Salt	2080.01	2080.00
Base of Salt	5565.81	5528.00
Delaware	5565.81	5528.00
Cherry Canyon	6107.81	6070.00
Brushy Canyon	7049.81	7012.00
1st Bone Spring Lime	8672.81	8635.00
Bone Spring 1st	9912.81	9875.00
Bone Spring 2nd / Point of Penetration	10522.31	10480.00
exit	21049.08	10701.22

	MD (ft)	TVD (ft)	Lat (°)	Long (°)	Section Footages
SHL	0.00	0.00	32.4430	-103.4743	182' FSL, 2425' FEL of Sec 28 in T21S, R34E
КОР	10314.92	10277.11	32.4427	-103.4728	50' FSL, 1982' FEL of Sec 28 in T21S, R34E
<b>Point of Penetration</b>	10522.31	10480.00	32.4429	-103.4727	100' FSL, 1980' FEL of Sec 28 in T21S, R34E
Exit	21049.08	10701.22	32.4714	-103.4727	100' FNL, 1980' FEL of Sec 21 in T21S, R34E
BHL	21129.08	10700.00	32.4715	-103.4728	20' FNL, 1980' FEL of Sec 21 in T21S, R34E



County: Lea Wellbore: Permit Plan Design: Permit Plan #1 Geodetic System: US State Plane 1983

Datum: North American Datum 1927

Ellipsoid: Clarke 1866

	Design:	Permit Plan	1#1					<b>Zone:</b> 3001 - NM East (NAD83)
MD	INC	AZI	TVD	NS	EW	vs	DLS	<b>6</b>
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL
100.00	0.00	106.00	100.00	0.00	0.00	0.00	0.00	
200.00	0.00	106.00	200.00	0.00	0.00	0.00	0.00	
300.00	0.00	106.00	300.00	0.00	0.00	0.00	0.00	
400.00	0.00	106.00	400.00	0.00	0.00	0.00	0.00	
500.00	0.00	106.00	500.00	0.00	0.00	0.00	0.00	
600.00	0.00	106.00	600.00	0.00	0.00	0.00	0.00	
700.00	0.00	106.00	700.00	0.00	0.00	0.00	0.00	
800.00	0.00	106.00	800.00	0.00	0.00	0.00	0.00	
900.00	0.00	106.00	900.00	0.00	0.00	0.00	0.00	
1000.00	0.00	106.00	1000.00	0.00	0.00	0.00	0.00	
1100.00	0.00	106.00	1100.00	0.00	0.00	0.00	0.00	
1200.00	0.00	106.00	1200.00	0.00	0.00	0.00	0.00	
1300.00	0.00	106.00	1300.00	0.00	0.00	0.00	0.00	
1400.00	0.00	106.00	1400.00	0.00	0.00	0.00	0.00	
1500.00	0.00	106.00	1500.00		0.00		0.00	
				0.00		0.00		
1600.00	0.00	106.00	1600.00	0.00	0.00	0.00	0.00	
1700.00	0.00	106.00	1700.00	0.00	0.00	0.00	0.00	
1800.00	0.00	106.00	1800.00	0.00	0.00	0.00	0.00	D. other
1845.00	0.00	106.00	1845.00	0.00	0.00	0.00	0.00	Rustler
1900.00	0.00	106.00	1900.00	0.00	0.00	0.00	0.00	
2000.00	0.00	106.00	2000.00	0.00	0.00	0.00	0.00	Start Tangent
2080.01	1.60	106.00	2080.00	-0.31	1.07	-0.27	2.00	Salt
2100.00	2.00	106.00	2099.98	-0.48	1.68	-0.42	2.00	
2200.00	4.00	106.00	2199.84	-1.92	6.71	-1.69	2.00	
2300.00	6.00	106.00	2299.45	-4.33	15.09	-3.81	2.00	
2400.00	8.00	106.00	2398.70	-7.68	26.80	-6.76	2.00	
2500.00	10.00	106.00	2497.47	-12.00	41.84	-10.55	2.00	Hold Tangent
2600.00	10.00	106.00	2595.95	-16.78	58.53	-14.76	0.00	
2700.00	10.00	106.00	2694.43	-21.57	75.22	-18.98	0.00	
2800.00	10.00	106.00	2792.91	-26.36	91.91	-23.19	0.00	
2900.00	10.00	106.00	2891.39	-31.14	108.61	-27.40	0.00	
3000.00	10.00	106.00	2989.87	-35.93	125.30	-31.61	0.00	
3100.00	10.00	106.00	3088.35	-40.71	141.99	-35.82	0.00	
3200.00	10.00	106.00	3186.83	-45.50	158.68	-40.03	0.00	
3300.00	10.00	106.00	3285.31	-50.29	175.37	-44.24	0.00	
3400.00	10.00	106.00	3383.79	-55.07	192.07	-48.45	0.00	
3500.00	10.00	106.00	3482.27	-59.86	208.76	-52.66	0.00	
3600.00	10.00	106.00	3580.75	-64.65	225.45	-56.87	0.00	
3700.00	10.00	106.00	3679.23	-69.43	242.14	-61.08	0.00	
3800.00	10.00	106.00	3777.72	-74.22	258.83	-65.29	0.00	
3900.00	10.00	106.00	3876.20	-79.01	275.53	-69.51	0.00	
4000.00	10.00	106.00	3974.68	-83.79	292.22	-73.72	0.00	
4100.00	10.00	106.00	4073.16	-88.58	308.91	-77.93	0.00	
4200.00	10.00	106.00	4171.64	-93.36	325.60	-82.14	0.00	
4300.00	10.00	106.00	4270.12	-98.15	342.29	-86.35	0.00	
4400.00	10.00	106.00	4368.60	-102.94	358.99	-90.56	0.00	
4500.00	10.00	106.00	4467.08	-107.72	375.68	-94.77	0.00	
4600.00	10.00	106.00	4565.56	-112.51	392.37	-98.98	0.00	
4655.42	10.00	106.00	4620.14	-115.16	401.62	-101.31	0.00	Drop to Vertical
4700.00	9.11	106.00	4664.10	-117.20	408.73	-103.11	2.00	
4800.00	7.11	106.00	4763.10	-121.09	422.29	-106.53	2.00	
4900.00	5.11	106.00	4862.52	-124.02	432.52	-109.11	2.00	
5000.00	3.11	106.00	4962.26	-126.00	439.41	-110.85	2.00	
5100.00	1.11	106.00	5062.19	-127.01	442.94	-111.74	2.00	
5155.42	0.00	106.00	5117.61	-127.16	443.46	-111.87	2.00	Hold Vertical
5200.00	0.00	359.52	5162.19	-127.16	443.46	-111.87	0.00	
5300.00	0.00	359.52	5262.19	-127.16	443.46	-111.87	0.00	
5400.00	0.00	359.52	5362.19	-127.16	443.46	-111.87	0.00	
5500.00	0.00	359.52	5462.19	-127.16	443.46	-111.87	0.00	
							0.00	Base of Salt, Delaware
5565.81	0.00	359.52	5528.00 5562.10	-127.16	443.46	-111.87		Dase of Sail, Delawate
5600.00	0.00	359.52	5562.19	-127.16	443.46	-111.87	0.00	
5700.00	0.00	359.52	5662.19	-127.16	443.46	-111.87	0.00	
5800.00	0.00	359.52	5762.19	-127.16	443.46	-111.87	0.00	
5900.00	0.00	359.52	5862.19	-127.16	443.46	-111.87	0.00	
6000.00	0.00	359.52	5962.19	-127.16	443.46	-111.87	0.00	
6100.00	0.00	359.52	6062.19	-127.16	443.46	-111.87	0.00	
6107.81	0.00	359.52	6070.00	-127.16	443.46	-111.87	0.00	Cherry Canyon
		250 50	646040	12716	443.46	-111.87	0.00	
6200.00 6300.00	0.00	359.52 359.52	6162.19	-127.16 -127.16	443.40	-111.07	0.00	



County: Lea
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983

**Datum:** North American Datum 1927

Ellipsoid: Clarke 1866

	Design:	Permit Plan	1#1					<b>Zone:</b> 3001 - NM East (NAD83)
MD	INC	AZI	TVD	NS	EW	vs	DLS	
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
6400.00	0.00	359.52	6362.19	-127.16	443.46	-111.87	0.00	
6500.00	0.00	359.52	6462.19	-127.16	443.46	-111.87	0.00	
6600.00	0.00	359.52	6562.19	-127.16	443.46	-111.87	0.00	
6700.00	0.00	359.52	6662.19	-127.16	443.46	-111.87	0.00	
6800.00	0.00	359.52	6762.19	-127.16	443.46	-111.87	0.00	
6900.00	0.00	359.52	6862.19	-127.16	443.46	-111.87	0.00	
7000.00	0.00	359.52	6962.19	-127.16	443.46	-111.87	0.00	
7049.81	0.00	359.52	7012.00	-127.16	443.46	-111.87	0.00	Brushy Canyon
7100.00	0.00	359.52	7062.19	-127.16	443.46	-111.87	0.00	
7200.00	0.00	359.52	7162.19	-127.16	443.46	-111.87	0.00	
7300.00	0.00	359.52	7262.19	-127.16	443.46	-111.87	0.00	
7400.00	0.00	359.52	7362.19	-127.16	443.46	-111.87	0.00	
7500.00	0.00	359.52	7462.19	-127.16	443.46	-111.87	0.00	
7600.00	0.00	359.52	7562.19	-127.16	443.46	-111.87	0.00	
7700.00	0.00	359.52	7662.19	-127.16	443.46	-111.87	0.00	
7800.00	0.00	359.52	7762.19	-127.16	443.46	-111.87	0.00	
7900.00	0.00	359.52	7862.19	-127.16	443.46	-111.87	0.00	
8000.00	0.00	359.52	7962.19	-127.16	443.46	-111.87	0.00	
8100.00	0.00	359.52	8062.19	-127.16	443.46	-111.87	0.00	
8200.00	0.00	359.52	8162.19	-127.16	443.46	-111.87	0.00	
8300.00	0.00	359.52	8262.19	-127.16	443.46	-111.87	0.00	
8400.00	0.00	359.52	8362.19	-127.16	443.46	-111.87	0.00	
8500.00	0.00	359.52	8462.19	-127.16	443.46	-111.87	0.00	
8600.00	0.00	359.52	8562.19	-127.16	443.46	-111.87	0.00	Au Proce College Proce
8672.81	0.00	359.52	8635.00	-127.16	443.46	-111.87	0.00	1st Bone Spring Lime
8700.00	0.00	359.52	8662.19	-127.16	443.46	-111.87	0.00	
8800.00	0.00	359.52 359.52	8762.19	-127.16	443.46	-111.87 -111.87		
8900.00 9000.00	0.00	359.52	8862.19 8962.19	-127.16 -127.16	443.46 443.46	-111.87	0.00	
9100.00	0.00	359.52	9062.19	-127.16	443.46	-111.87	0.00	
9200.00	0.00	359.52	9162.19	-127.16	443.46	-111.87	0.00	
9300.00	0.00	359.52	9262.19	-127.16	443.46	-111.87	0.00	
9400.00	0.00	359.52	9362.19	-127.16	443.46	-111.87	0.00	
9500.00	0.00	359.52	9462.19	-127.16	443.46	-111.87	0.00	
9600.00	0.00	359.52	9562.19	-127.16	443.46	-111.87	0.00	
9700.00	0.00	359.52	9662.19	-127.16	443.46	-111.87	0.00	
9800.00	0.00	359.52	9762.19	-127.16	443.46	-111.87	0.00	
9900.00	0.00	359.52	9862.19	-127.16	443.46	-111.87	0.00	
9912.81	0.00	359.52	9875.00	-127.16	443.46	-111.87	0.00	Bone Spring 1st
10000.00	0.00	359.52	9962.19	-127.16	443.46	-111.87	0.00	
10100.00	0.00	359.52	10062.19	-127.16	443.46	-111.87	0.00	
10200.00	0.00	359.52	10162.19	-127.16	443.46	-111.87	0.00	
10300.00	0.00	359.52	10262.19	-127.16	443.46	-111.87	0.00	
10314.92	0.00	359.52	10277.11	-127.16	443.46	-111.87	0.00	KOP
10400.00	8.51	359.52	10361.87	-120.86	443.41	-105.57	10.00	
10500.00	18.51	359.52	10458.98	-97.53	443.21	-82.26	10.00	
10522.31	20.74	359.52	10480.00	-90.03	443.15	-74.78	10.00	Bone Spring 2nd / Point of Penetration
10600.00	28.51	359.52	10550.57	-57.69	442.88	-42.46	10.00	
10700.00	38.51	359.52	10633.84	-2.56	442.41	12.62	10.00	
10800.00	48.51	359.52	10706.28	66.20	441.84	81.32	10.00	
10900.00	58.51	359.52	10765.68	146.48	441.17	161.54	10.00	
11000.00	68.51	359.52	10810.23	235.87	440.42	250.84	10.00	
11100.00	78.51	359.52	10838.58	331.63	439.61	346.52	10.00	
11200.00	88.51	359.52	10849.87	430.86	438.78	445.66	10.00	
11223.60	90.87	359.52	10850.00	454.45	438.59	469.23	10.00	Landing Point
11300.00	90.87	359.52	10848.84	530.84	437.95	545.56	0.00	
11400.00	90.87	359.52	10847.33	630.83	437.11	645.45	0.00	
11500.00	90.87	359.52	10845.81	730.81	436.27	745.35	0.00	
11600.00	90.87	359.52	10844.30	830.80	435.43	845.25	0.00	
11700.00	90.87	359.52	10842.79	930.78	434.59	945.15	0.00	
11800.00	90.87	359.52	10841.27	1030.77	433.76	1045.04	0.00	
11900.00	90.87	359.52	10839.76	1130.75	432.92	1144.94	0.00	
12000.00	90.87	359.52	10838.24	1230.74	432.08	1244.84	0.00	
12100.00	90.87	359.52	10836.73	1330.72	431.24	1344.74	0.00	
12200.00	90.87	359.52	10835.22	1430.71	430.40	1444.63	0.00	
12300.00	90.87	359.52	10833.70	1530.69	429.56	1544.53	0.00	
12400.00	90.87	359.52	10832.19	1630.68	428.73	1644.43	0.00	
12500.00	90.87	359.52	10830.67	1730.66	427.89	1744.33 1844.22	0.00	
12600.00 12700.00	90.87 90.87	359.52 359.52	10829.16 10827.64	1830.65 1930.63	427.05 426.21	1944.22	0.00	
12100.00	30.07	33.32	10027.04	1330.03	426.21	1344.14	0.00	



County: Lea
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983

Datum: North American Datum 1927

Ellipsoid: Clarke 1866 Zone: 3001 - NM East (NAD83)

MD	INC	AZI	TVD	NS	EW	vs	DLS	<b></b>
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
12800.00	90.87	359.52	10826.13	2030.62	425.37	2044.02	0.00	
12900.00	90.87	359.52	10824.62	2130.60	424.54	2143.92	0.00	
13000.00	90.87	359.52	10823.10	2230.59	423.70	2243.81	0.00	
13100.00	90.87	359.52	10821.59	2330.57	422.86	2343.71	0.00	
13200.00	90.87	359.52	10820.07	2430.56	422.02	2443.61	0.00	
13300.00	90.87	359.52	10818.56	2530.54	421.18	2543.51	0.00	
13400.00	90.87	359.52	10817.05	2630.53	420.34	2643.40	0.00	
13500.00	90.87	359.52	10815.53	2730.51	419.51	2743.30	0.00	
13600.00	90.87	359.52	10813.33	2830.50	418.67	2843.20	0.00	
13700.00	90.87	359.52	10812.50	2930.48	417.83	2943.09	0.00	
13800.00	90.87	359.52	10810.99	3030.47	416.99	3042.99	0.00	
13900.00	90.87	359.52	10809.47	3130.45	416.15	3142.89	0.00	
14000.00	90.87	359.52	10807.96	3230.44	415.32	3242.79	0.00	
14100.00	90.87	359.52	10806.45	3330.42	414.48	3342.68	0.00	
14200.00	90.87	359.52	10804.93	3430.41	413.64	3442.58	0.00	
14300.00	90.87	359.52	10803.42	3530.39	412.80	3542.48	0.00	
14400.00	90.87	359.52	10801.90	3630.38	411.96	3642.38	0.00	
14500.00	90.87	359.52	10800.39	3730.36	411.12	3742.27	0.00	
14600.00	90.87	359.52	10798.88	3830.35	410.29	3842.17	0.00	
14700.00	90.87	359.52	10797.36	3930.33	409.45	3942.07	0.00	
14800.00	90.87	359.52	10795.85	4030.32	408.61	4041.97	0.00	
14900.00	90.87	359.52	10794.33	4130.30	407.77	4141.86	0.00	
15000.00	90.87	359.52	10792.82	4230.29	406.93	4241.76	0.00	
15100.00	90.87	359.52	10791.30	4330.27	406.10	4341.66	0.00	
15200.00	90.87	359.52	10789.79	4430.26	405.26	4441.56	0.00	
15300.00	90.87	359.52	10788.28	4530.24	404.42	4541.45	0.00	
15400.00	90.87	359.52	10786.76	4630.23	403.58	4641.35	0.00	
15500.00	90.87	359.52	10785.25	4730.21	402.74	4741.25	0.00	
15600.00	90.87	359.52	10783.73	4830.20		4841.15		
					401.90		0.00	
15700.00	90.87	359.52	10782.22	4930.18	401.07	4941.04	0.00	
15800.00	90.87	359.52	10780.70	5030.17	400.23	5040.94	0.00	
15900.00	90.87	359.52	10779.19	5130.15	399.39	5140.84	0.00	
16000.00	90.87	359.52	10777.68	5230.14	398.55	5240.73	0.00	
16100.00	90.87	359.52	10776.16	5330.12	397.71	5340.63	0.00	
16200.00	90.87	359.52	10774.65	5430.11	396.88	5440.53	0.00	
16300.00	90.87	359.52	10773.13	5530.09	396.04	5540.43	0.00	
16400.00	90.87	359.52	10771.62	5630.08	395.20	5640.32	0.00	
16500.00	90.87	359.52	10770.11	5730.06	394.36	5740.22	0.00	
16600.00	90.87	359.52	10768.59	5830.05	393.52	5840.12	0.00	
16700.00	90.87	359.52	10767.08	5930.03	392.68	5940.02	0.00	
16800.00	90.87	359.52	10765.56	6030.02	391.85	6039.91	0.00	
16900.00	90.87	359.52	10764.05	6130.00	391.01	6139.81	0.00	
17000.00	90.87	359.52	10762.53	6229.99	390.17	6239.71	0.00	
17100.00	90.87	359.52	10761.02	6329.97	389.33	6339.61	0.00	
17200.00	90.87	359.52	10759.51	6429.96	388.49	6439.50	0.00	
17300.00	90.87	359.52	10757.99	6529.94	387.66	6539.40	0.00	
17400.00	90.87	359.52	10757.99	6629.93	386.82	6639.30	0.00	
17500.00	90.87	359.52	10756.46	6729.91	385.98	6739.20	0.00	
			10754.96		385.96	6839.09	0.00	
17600.00	90.87	359.52						
17700.00	90.87	359.52	10751.94	6929.88	384.30	6938.99	0.00	
17800.00	90.87	359.52	10750.42	7029.87	383.46	7038.89	0.00	
17900.00	90.87	359.52	10748.91	7129.85	382.63	7138.79	0.00	
18000.00	90.87	359.52	10747.39	7229.84	381.79	7238.68	0.00	
18100.00	90.87	359.52	10745.88	7329.82	380.95	7338.58	0.00	
18200.00	90.87	359.52	10744.36	7429.81	380.11	7438.48	0.00	
18300.00	90.87	359.52	10742.85	7529.79	379.27	7538.37	0.00	
18400.00	90.87	359.52	10741.34	7629.78	378.44	7638.27	0.00	
18500.00	90.87	359.52	10739.82	7729.76	377.60	7738.17	0.00	
18600.00	90.87	359.52	10738.31	7829.75	376.76	7838.07	0.00	
18700.00	90.87	359.52	10736.79	7929.73	375.92	7937.96	0.00	
18800.00	90.87	359.52	10735.28	8029.72	375.08	8037.86	0.00	
18900.00	90.87	359.52	10733.77	8129.71	374.24	8137.76	0.00	
19000.00	90.87	359.52	10732.25	8229.69	373.41	8237.66	0.00	
19100.00	90.87	359.52	10732.23	8329.68	372.57	8337.55	0.00	
19200.00	90.87	359.52	10730.74	8429.66	371.73		0.00	
						8437.45		
19300.00	90.87	359.52	10727.71	8529.65	370.89	8537.35	0.00	
19400.00	90.87	359.52	10726.19	8629.63	370.05	8637.25	0.00	
19500.00	90.87	359.52	10724.68	8729.62	369.22	8737.14	0.00	
10000 00		359.52	10723.17	8829.60	368.38	8837.04	0.00	
19600.00 19700.00	90.87 90.87	359.52	10721.65	8929.59	367.54	8936.94	0.00	



County: Lea
Wellbore: Permit Plan
Design: Permit Plan #1

Geodetic System: US State Plane 1983

Datum: North American Datum 1927

Ellipsoid: Clarke 1866

MD	INC	AZI	TVD	NS	EW	VS	DLS	Comment
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	Comment
19800.00	90.87	359.52	10720.14	9029.57	366.70	9036.84	0.00	
19900.00	90.87	359.52	10718.62	9129.56	365.86	9136.73	0.00	
20000.00	90.87	359.52	10717.11	9229.54	365.02	9236.63	0.00	
20100.00	90.87	359.52	10715.59	9329.53	364.19	9336.53	0.00	
20200.00	90.87	359.52	10714.08	9429.51	363.35	9436.43	0.00	
20300.00	90.87	359.52	10712.57	9529.50	362.51	9536.32	0.00	
20400.00	90.87	359.52	10711.05	9629.48	361.67	9636.22	0.00	
20500.00	90.87	359.52	10709.54	9729.47	360.83	9736.12	0.00	
20600.00	90.87	359.52	10708.02	9829.45	360.00	9836.01	0.00	
20700.00	90.87	359.52	10706.51	9929.44	359.16	9935.91	0.00	
20800.00	90.87	359.52	10705.00	10029.42	358.32	10035.81	0.00	
20900.00	90.87	359.52	10703.48	10129.41	357.48	10135.71	0.00	
21000.00	90.87	359.52	10701.97	10229.39	356.64	10235.60	0.00	
21049.08	90.87	359.52	10701.22	10278.46	356.23	10284.63	0.00	exit
21100.00	90.87	359.52	10700.45	10329.38	355.80	10335.50	0.00	
21129.08	90.87	359.52	10700.00	10358.45	355.61	10364.55	0.00	BHL

Well: Chiles 28-21 State Com 5H Geodetic System: US State Plane 1983

County: Lea Datum: North American Datum 1927

Wellbore: Permit Plan
Design: Permit Plan #1

Ellipsoid: Clarke 1866 Zone: 3001 - NM East (NAD83)

MD INC AZI TVD NS EW ٧S DLS Comment (ft) (°) (°) (ft) (ft) (ft) (ft) (°/100ft)

#### 1. Geologic Formations

TVD of target	10701	Pilot hole depth	N/A
MD at TD:	21129	Deepest expected fresh water	

#### Basin

Dasin	D (I	XX7-4/M*1	
	Depth	Water/Mineral	
Formation	(TVD)	Bearing/Target	Hazards*
	from KB	Zone?	
Rustler	1845		
Salt	2080		
Base of Salt	5528		
Delaware	5528		
Cherry Canyon	6070		
Brushy Canyon	7012		
1st Bone Spring Lime	8635		
Bone Spring 1st	9875		
Bone Spring 2nd	10480		
		-	

<sup>\*</sup>H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

					Casing	Interval	Casing Interval		
Hole Size	Csg. Size	Wt (PPF)	Grade	Grade Conn		To (MD)	From (TVD)	To (TVD)	
17 1/2	13 3/8	48	H40	ВТС	0	1870	0	1870	
12 1/4	9 5/8	40	J-55	ВТС	0	5628	0	5628	
8 3/4	5 1/2	17	P110	ВТС	0	21129	0	10701	

<sup>•</sup> 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 (3-String Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft3/sack)	Slurry Description
Surface	1392	Surf	13.2	1.4	Lead: Class C Cement + additives
Total 1	621	Surf	9.0	3.3	Lead: Class C Cement + additives
Int 1	154	500' above shoe	13.2	1.4	Tail: Class H / C + additives
Int 1	As Needed	Surf	9.0	3.3	Squeeze Lead: Class C Cement + additives
Intermediate	621	Surf	9.0	3.3	Lead: Class C Cement + additives
Squeeze	154	500' above shoe	13.2	1.4	Tail: Class H / C + additives
Production	442	500' tieback	9.0	3.3	Lead: Class H /C + additives
Froduction	2087	KOP	13.2	1.4	Tail: Class H / C + additives

If a DV tool is ran the depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Slurry weights will be adjusted based on estimated fracture gradient of the formation. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If cement is not returned to surface during the primary cement job on the surface casing string, a planned top job will be conducted immediately after completion of the primary job.

Casing String	% Excess
Surface	50%
Intermediate	30%
Production	10%

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Туре		✓	Tested to:
			Anı	nular	X	50% of rated working pressure
Int 1	13-58"	5M		d Ram	X	
int i	13-36	J1V1		Ram		5M
			Doub	le Ram	X	3111
		Other*				
			Anı	nular	X	50% of rated working pressure
Production	13-5/8"	5M	Bline	d Ram	X	
Floduction	13-3/0	JIVI		Ram		5M
			Doub	le Ram	X	5M 50% of rated working
			Other*			
			Annul	ar (5M)		
			Blind Ram Pipe Ram			
			Doub	le Ram		
			Other*			

5. Mud Program (Three String Design)

Section	Туре	Weight (ppg)
Surface	FW Gel	8.5-9
Intermediate	Brine	10-10.5
Production	WBM	8.5-9

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	
X	Completion Report 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	
	Density	
X	CBL	Production casing
X	Mud log	KOP to TD
	PEX	

7. Drilling Conditions

Condition	Specfiy what type and where?
BH pressure at deepest TVD	5008
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.

encountere	encountered measured values and formations will be provided to the BLM.		
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 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 pad.
- 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. 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 NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments	i
X	Directional Plan
	Other, describe



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

# Hydrogen Sulfide (H₂S) Contingency Plan

For

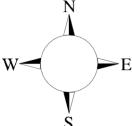
Chiles 28-21 State Com 5H

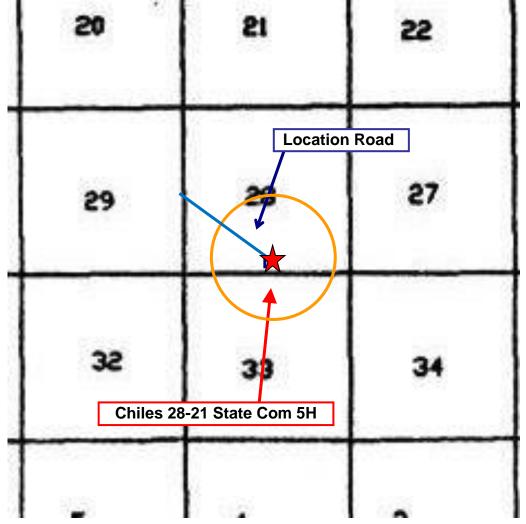
Sec-28 T-21S R-34E 182 FSL & 2425' FEL LAT. = 32.443134 N (NAD83) LONG = 103.474169 W

**Lea County NM** 

# Chiles 28-21 State Com 5H

This is an open drilling site.  $H_2S$  monitoring equipment and emergency response equipment will be used within 500' of zones known to contain  $H_2S$ , including warning signs, wind indicators and  $H_2S$  monitor.





Assumed 100 ppm ROE = 3000' (Radius of Exposure)
100 ppm H2S concentration shall trigger activation of this plan.

#### **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. There are no homes or buildings in or near the ROE.

**Assumed 100 ppm ROE = 3000'** 

# 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 H₂S, 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

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

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

# **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<sub>2</sub>S and well control drills for all personnel in each crew.

#### II. HYDROGEN SULFIDE TRAINING

Note: All H<sub>2</sub>S 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<sub>2</sub>S.

#### 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.

Fire Department       885-3125         LEPC (Local Emergency Planning Committee)       887-3798         US Bureau of Land Management (Carlsbad)       (575)-706-1920         (575)-234-5909         NM Emergency Response Commission (Santa Fe)       (505) 476-9600         24 HR       (505) 827-9126         National Emergency Response Center       (800) 424-8802         National Pollution Control Center: Direct       (703) 872-6000         For Oil Spills       (800) 280-7118         Emergency Services         Wild Well Control       (281) 784-4700         Cudd Pressure Control       (915) 699-0139       (915) 563-3356         Halliburton       (575) 746-2757	Devon En	ergy Corp. Company C	all List			
Jason Hildebrand (South)		• •	Position			
Rich Downey						
Dosh Harvey	Jason Hild	debrand (South)				
Laura Wright   EHS Supervisor   405-552-5334   832-969-8145   Robert Glover   EHS Professional   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   575-703-5712   580-579-7052	Rich Dow	ney	Drilling VP	405-228-2415		
Robert Glover	Josh Harv	rey	EHS Manger	405-228-2440	918-500-5536	
Lane Frank	Laura Wri	ght			832-969-8145	
Rickey Porter	Robert Glo	over	EHS Professiona	al 575-703-5712	575-703-5712	
Lead EHS   918-413-3291   918-413-3291	Lane Fran	ık	Lead EHS	580-579-7052	580-579-7052	
Lea   County   City Police   Sas-3138	Rickey Po	rter	Lead EHS	903-720-8315	903-720-8315	
Lea County (575)   Lea County Communication Authority   397-9265     State Police   397-9265     Sheriff's Office   396-3611     Ambulance   911     Fire Department   397-9308     LEPC (Local Emergency Planning Committee)   393-2870     NMOCD   393-6161     US Bureau of Land Management (Hobbs Office Closed)   393-0002	Brock Vise	9	Lead EHS	918-413-3291	918-413-3291	
Lea County (575)   Lea County Communication Authority   397-9265     State Police   397-9265     Sheriff's Office   396-3611     Ambulance   911     Fire Department   397-9308     LEPC (Local Emergency Planning Committee)   393-2870     NMOCD   393-6161     US Bureau of Land Management (Hobbs Office Closed)   393-0002						
Lea County Communication Authority   397-9265	Agency	Call List				
State Police   385-3138     City Police   397-9265     Sheriff's Office   396-3611     Ambulance   911     Fire Department   397-9308     LEPC (Local Emergency Planning Committee)   393-2870     NMOCD   393-6161     US Bureau of Land Management (Hobbs Office Closed)   393-0002     State Police   885-3137     City Police   885-2111     Sheriff's Office   887-7551     Ambulance   911     Fire Department   885-3125     LEPC (Local Emergency Planning Committee)   887-3798     US Bureau of Land Management (Carlsbad)   (575)-706-1920     (575)-234-5909     NM Emergency Response Commission (Santa Fe)   (505) 476-9600     24 HR   (505) 827-9126     National Emergency Response Center   (800) 424-8802     National Pollution Control Center: Direct   (703) 872-6000     For Oil Spills   (800) 280-7118     Emergency Services     Wild Well Control   (281) 784-4700     Cudd Pressure Control   (915) 699-0139   (915) 563-3356     Halliburton   (575) 746-2757						
City Police   397-9265			ation Authority			
Sheriff's Office	<u>(575)</u>					
Ambulance						
Fire Department						
LEPC (Local Emergency Planning Committee)						
NMOCD   393-6161     US Bureau of Land Management (Hobbs Office Closed)   393-0002						
US Bureau of Land Management (Hobbs Office Closed)   393-0002						
Eddy   County (575)   State Police   885-3137						
County (575)           State Police         885-3137           City Police         885-2111           Sheriff's Office         887-7551           Ambulance         911           Fire Department         885-3125           LEPC (Local Emergency Planning Committee)         887-3798           US Bureau of Land Management (Carlsbad)         (575)-706-1920           (575)-234-5909         (575)-234-5909           NM Emergency Response Commission (Santa Fe)         (505) 476-9600           24 HR         (505) 827-9126           National Emergency Response Center         (800) 424-8802           National Pollution Control Center: Direct         (703) 872-6000           For Oil Spills         (800) 280-7118           Emergency Services         Wild Well Control         (281) 784-4700           Cudd Pressure Control         (915) 699-0139         (915) 563-3356           Halliburton         (575) 746-2757		US Bureau of Land Management (Hobbs Office Closed) 393-000				
City Police       885-2111         Sheriff's Office       887-7551         Ambulance       911         Fire Department       885-3125         LEPC (Local Emergency Planning Committee)       887-3798         US Bureau of Land Management (Carlsbad)       (575)-706-1920         (575)-234-5909       (575)-234-5909         NM Emergency Response Commission (Santa Fe)       (505) 476-9600         24 HR       (505) 827-9126         National Emergency Response Center       (800) 424-8802         National Pollution Control Center: Direct       (703) 872-6000         For Oil Spills       (800) 280-7118         Emergency Services         Wild Well Control       (281) 784-4700         Cudd Pressure Control       (915) 699-0139       (915) 563-3356         Halliburton       (575) 746-2757		Carlsbad				
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LEPC (Local Emergency Planning Committee)       887-3798         US Bureau of Land Management (Carlsbad)       (575)-706-1920         (575)-234-5909         NM Emergency Response Commission (Santa Fe)       (505) 476-9600         24 HR       (505) 827-9126         National Emergency Response Center       (800) 424-8802         National Pollution Control Center: Direct       (703) 872-6000         For Oil Spills       (800) 280-7118         Emergency Services       Wild Well Control       (281) 784-4700         Cudd Pressure Control       (915) 699-0139       (915) 563-3356         Halliburton       (575) 746-2757					911	
US Bureau of Land Management (Carlsbad) (575)-706-1920 (575)-234-5909  NM Emergency Response Commission (Santa Fe) (505) 476-9600  24 HR (505) 827-9126  National Emergency Response Center (800) 424-8802  National Pollution Control Center: Direct (703) 872-6000  For Oil Spills (800) 280-7118  Emergency Services  Wild Well Control (281) 784-4700  Cudd Pressure Control (915) 699-0139 (915) 563-3356  Halliburton (575) 746-2757						
NM Emergency Response Commission (Santa Fe)   (505) 476-9600						
NM Emergency Response Commission (Santa Fe)       (505) 476-9600         24 HR       (505) 827-9126         National Emergency Response Center       (800) 424-8802         National Pollution Control Center: Direct       (703) 872-6000         For Oil Spills       (800) 280-7118         Emergency Services       (281) 784-4700         Cudd Pressure Control       (915) 699-0139       (915) 563-3356         Halliburton       (575) 746-2757		US Bureau of Land Ma				
24 HR       (505) 827-9126         National Emergency Response Center       (800) 424-8802         National Pollution Control Center: Direct       (703) 872-6000         For Oil Spills       (800) 280-7118         Emergency Services       Wild Well Control       (281) 784-4700         Cudd Pressure Control       (915) 699-0139       (915) 563-3356         Halliburton       (575) 746-2757						
National Emergency Response Center       (800) 424-8802         National Pollution Control Center: Direct       (703) 872-6000         For Oil Spills       (800) 280-7118         Emergency Services       Wild Well Control       (281) 784-4700         Cudd Pressure Control       (915) 699-0139       (915) 563-3356         Halliburton       (575) 746-2757					` '	
National Pollution Control Center: Direct       (703) 872-6000         For Oil Spills       (800) 280-7118         Emergency Services         Wild Well Control       (281) 784-4700         Cudd Pressure Control       (915) 699-0139       (915) 563-3356         Halliburton       (575) 746-2757						
For Oil Spills (800) 280-7118  Emergency Services  Wild Well Control (281) 784-4700  Cudd Pressure Control (915) 699-0139 (915) 563-3356  Halliburton (575) 746-2757					· /	
Emergency Services           Wild Well Control         (281) 784-4700           Cudd Pressure Control         (915) 699-0139         (915) 563-3356           Halliburton         (575) 746-2757					(703) 872-6000	
Wild Well Control       (281) 784-4700         Cudd Pressure Control       (915) 699-0139       (915) 563-3356         Halliburton       (575) 746-2757		·			(800) 280-7118	
Cudd Pressure Control         (915) 699-0139         (915) 563-3356           Halliburton         (575) 746-2757						
Halliburton (575) 746-2757		Wild Well Control			(281) 784-4700	
\ /		Cudd Pressure Control	(	915) 699-0139	(915) 563-3356	
B. J. Services (575) 746-3569		Halliburton			(575) 746-2757	
		B. J. Services			(575) 746-3569	
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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
	1 2	505-476-8700

Prepared in conjunction with Dave Small

