Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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 382408

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

1. Operator Name and Address	2. OGRID Number
DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	6137
	3. API Number 30-025-54375

4. Property Code	5. Property Name	6. Well No.
30884	Thistle Unit	194H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
D	22	23S	33E		690	N	890	W	Lea

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
N	34	23S	33E	N	20	S	2220	W	Lea

9. Pool Information

JOHNSON RANCH;WOLFCAMP (GAS)	79335

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
New Well	GAS		State	3710
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	28912	Wolfcamp		12/2/2025
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

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	14.75	10.75	45.5	1327	795	0
Int1	9.875	8.625	32	12704	1881	0
Prod	7.875	5.5	20	28912	2167	12204

Casing/Cement Program: Additional Comments

See attached drilling plan Int 1 Intermediate Squeeze 898 Surf 13.2 1.44 Squeeze Lead: Class C Cement + additives 396 Surf 9 3.27 Lead: Class C Cement + additives 587 7633 13.2 1.44 Tail: Class H / C + additives

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	10000	10000	
Blind	10000	10000	
Double Ram	10000	10000	
Annular	10000	10000	
Double Ram	10000	10000	
Blind	10000	10000	

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. **I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒, if applicable.** Signature:		**OIL CONSERVATION DIVISION**	
Printed Name:	Electronically filed by Jeff Walla	Approved By:	Matthew Gomez
Title:	Supervisor Land	Title:	
Email Address:	Jeff.Walla@dvn.com	Approved Date: 2/20/2025	Expiration Date: 2/20/2027
Date: 1/28/2025	Phone: 575-748-9925	Conditions of Approval Attached	

C-102	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024
Submit Electronically Via OCD Permitting		Submittal Type: ☒ Initial Submittal ☐ Amended Report ☐ As Drilled

WELL LOCATION INFORMATION

API Number	Pool Code	Pool Name	
30-025-54375	79335	JOHNSON RANCH;WOLFCAMP (GAS)	
Property Code: 30884	Property Name: THISTLE UNIT		Well Number: 194H
OGRID No.: 6137	Operator Name: DEVON ENERGY PRODUCTION COMPANY, L.P.		Ground Level Elevation: 3710.2
Surface Owner: ☒State ☐Fee ☐Tribal ☐Federal		Mineral Owner ☒State ☐Fee ☐Tribal ☐Federal	

Surface Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
D	22	23 S	33 E		690 NORTH	890 WEST	32.2955759°N	103.5658794°W	LEA

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
N	34	23 S	33 E		20 SOUTH	2220 WEST	32.2539488°N	103.5615613°W	LEA

Dedicated Acres	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (Y/N)	Consolidation Code
960 acs	Infill	30-025-48096	N	U
Order Numbers. Approved Wolfcamp PA: NMNM88526B			Well setbacks are under Common Ownership: ☒Yes ☐No	

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	22	23S	33E		50 FNL	2220 FWL	32.2972	-103.5617	LEA

First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
D	22	23 S	33 E		100 NORTH	2220 WEST	32.2971916°N	103.5615762°W	LEA

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
N	34	23 S	33 E		100 SOUTH	2220 WEST	32.2541686°N	103.5615613°W	LEA

Unitized Area or Area of Uniform Interest	Spacing Unit Type ☒Horizontal ☐Vertical	Ground Floor Elevation:
Thistle Unit: NMNM088526X, 3520 acs.		

OPERATOR CERTIFICATIONS

I hereby certify that the information contained herein is true and complete to the best ofmy knowledge and belief, and, if the well is a vertical or directional well, 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 a working interest run leased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order here to fore entered by the division.

If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.

Rebecca Deal — 1/20/2025

Signature — Date

Rebecca Deal, Regulatory Analyst

Printed Name

rebecca.deal@dvn.com

Email Address

SURVEYOR CERTIFICATIONS

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.

Signature and Seal of Professional Surveyor

FILIMON F. JARAMILLO

CertificateNumber: PLS 12797

Dateof Survey: OCTOBER 8, 2024

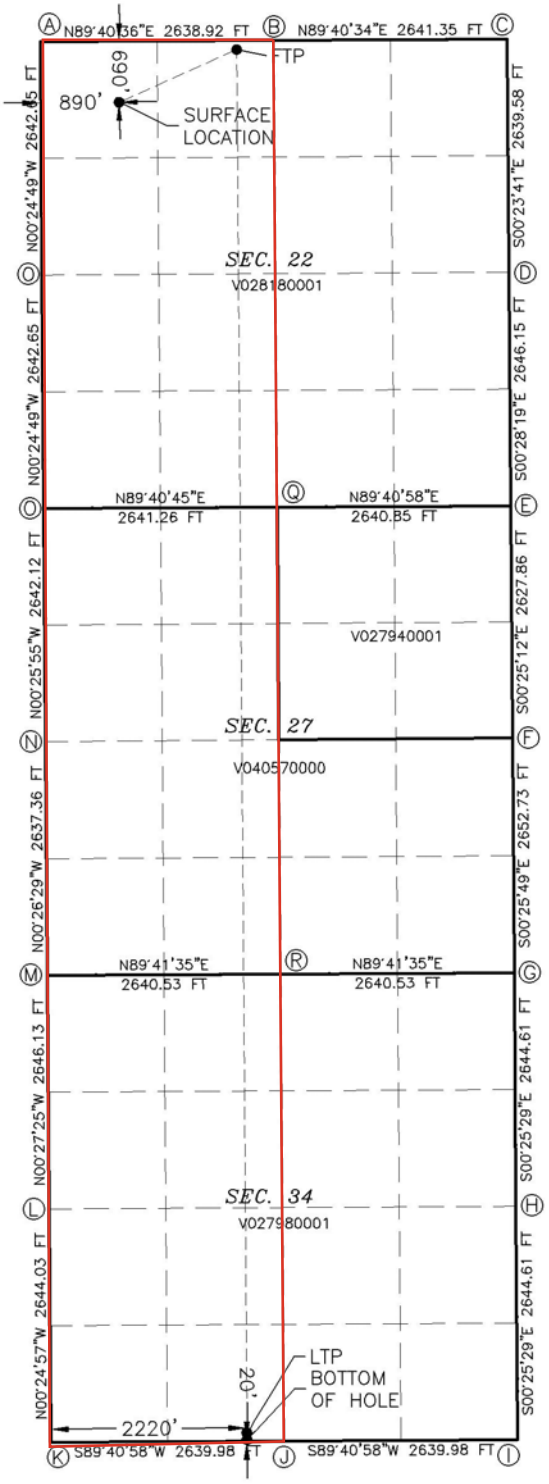
SURVEY NO. 10297

Note: 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.

ACREAGE DEDICATION PLATS

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators must outline the dedicated acreage in a red box, clearly show the well surface location and bottom hole location, if it is directionally drilled, with the dimensions from the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other than the First Take Point or Last Take Point) that is closest to any outer boundary of the tract.

Surveyors shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land is not surveyed, contact the OCD Engineering Bureau. Independent subdivision surveys will not be acceptable.



THISTLE UNIT 194H
EL=3710.2

GEODETIC COORDINATES
NAD 83 NMSP EAST
SURFACE LOCATION
690' FNL, 890' FWL
N.=472111.68
E.=778475.76
LAT.=32.2955759°N
LONG.=103.5658794°W

KICK OFF POINT
CALLS 50' FNL, 2220' FWL
N.= 472759
E.= 779801
LAT. = 32.2972
LONG. = -103.5617

FIRST TAKE POINT
100' FNL, 2220' FWL
N.=472709.03
E.=779801.23
LAT.=32.2971916°N
LONG.=103.5615762°W

LAST TAKE POINT
100' FSL, 2220' FWL
N.=457057.39
E.=779918.43
LAT.=32.2541686°N
LONG.=103.5615613°W

BOTTOM OF HOLE
20' FSL, 2220' FWL
N.=456977.40
E.=779919.01
LAT.=32.2539488°N
LONG.=103.5615613°W

CORNER COORDINATES TABLE
NAD 83 NMSP EAST

A	N.=472796.48	E.=777580.98
B	N.=472811.37	E.=780219.33
C	N.=472826.30	E.=782860.12
D	N.=470187.30	E.=782878.31
E	N.=467541.76	E.=782900.10
F	N.=464914.49	E.=782919.36
G	N.=462262.37	E.=782939.28
H	N.=459618.35	E.=782958.87
I	N.=456974.34	E.=782978.47
J	N.=456959.74	E.=780339.05
K	N.=456945.13	E.=777699.63
L	N.=459588.56	E.=777680.44
M	N.=462234.08	E.=777659.34
N	N.=464870.84	E.=777639.03
O	N.=467512.36	E.=777619.12
P	N.=470154.42	E.=777600.05
Q	N.=467527.14	E.=780259.81
R	N.=462248.22	E.=780299.31

LEGEND
SECTION LINE
QUARTER LINE
LEASE LINE
WELL PATH

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

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

Form APD Conditions

Permit 382408

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address:	API Number:
DEVON ENERGY PRODUCTION COMPANY, LP [6137] 333 West Sheridan Ave. Oklahoma City, OK 73102	30-025-54375
	Well: Thistle Unit #194H

OCD Reviewer	Condition
matthew.gomez	A [C-103] Sub. Drilling (C-103N) is required within (10) days of spud.
matthew.gomez	Notify the OCD 24 hours prior to casing & cement.
matthew.gomez	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.
matthew.gomez	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.
matthew.gomez	Cement is required to circulate on both surface and intermediate1 strings of casing.
matthew.gomez	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.
matthew.gomez	File As Drilled C-102 and a directional Survey with C-104 completion packet.
matthew.gomez	Administrative order required for non-standard location prior to production.

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 Energy Production Company, L.P. **OGRID:** 6137 **Date:** 1 / 14 / 2025

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If 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	Anticipated Produced Water BBL/D
See Attached						

IV. Central Delivery Point Name: THISTLE UNIT 22 CTB 3 [See 19.15.27.9(D)(1) NMAC]

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 central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	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. ☐ 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 ☐ will ☐ 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 ☐ does ☐ 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.

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

☐ 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. ☐ 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.

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: Jeff Walla
Title: Surface Land and Regulatory 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:

THISTLE UNIT 22 CTB 3

Well Name	API	SHL - STR & Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
THISTLE UNIT 192H		22-23S-33E, 690 FNL & 830 FWL	(+/-)2049bopd	(+/-) 3215mcf	(+/-)4011bwpd
THISTLE UNIT 193H		22-23S-33E, 20 FNL & 1360 FWL	(+/-)2049bopd	(+/-) 3215mcf	(+/-)4011bwpd
THISTLE UNIT 194H		22-23S-33E, 690 FNL & 890 FWL	(+/-)2049bopd	(+/-) 3215mcf	(+/-)4011bwpd
THISTLE UNIT 195H		22-23S-33E, 783 FNL & 1695 FEL	(+/-)2049bopd	(+/-) 3215mcf	(+/-)4011bwpd
THISTLE UNIT 196H		22-23S-33E, 783 FNL & 1665 FEL	(+/-)2049bopd	(+/-) 3215mcf	(+/-)4011bwpd
THISTLE UNIT 197H		22-23S-33E, 783 FNL & 1635 FEL	(+/-)2049bopd	(+/-) 3215mcf	(+/-)4011bwpd
THISTLE UNIT 198H		22-23S-33E, 690 FNL & 8920 FWL	(+/-)2049bopd	(+/-) 3215mcf	(+/-)4011bwpd
THISTLE UNIT 199H		22-23S-33E, 783 FNL & 1725 FEL	(+/-)2049bopd	(+/-) 3215mcf	(+/-)4011bwpd

Well Name	API	Anticipated Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
THISTLE UNIT 192H		1/2/2026	2/1/2026	6/1/2026	6/1/2026	6/1/2026
THISTLE UNIT 193H		11/2/2025	12/2/2025	4/1/2026	4/1/2026	4/1/2026
THISTLE UNIT 194H		12/2/2025	1/1/2026	5/1/2026	5/1/2026	5/1/2026
THISTLE UNIT 195H		6/4/2026	7/4/2026	11/1/2026	11/1/2026	11/1/2026
THISTLE UNIT 196H		8/1/2026	8/31/2026	12/29/2026	12/29/2026	12/29/2026
THISTLE UNIT 197H		7/4/2026	8/3/2026	12/1/2026	12/1/2026	12/1/2026
THISTLE UNIT 198H		10/15/25	11/14/2025	3/14/2026	3/14/2026	3/14/2026
THISTLE UNIT 199H		11/15/25	12/15/2025	4/14/2026	4/14/2026	4/14/2026

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

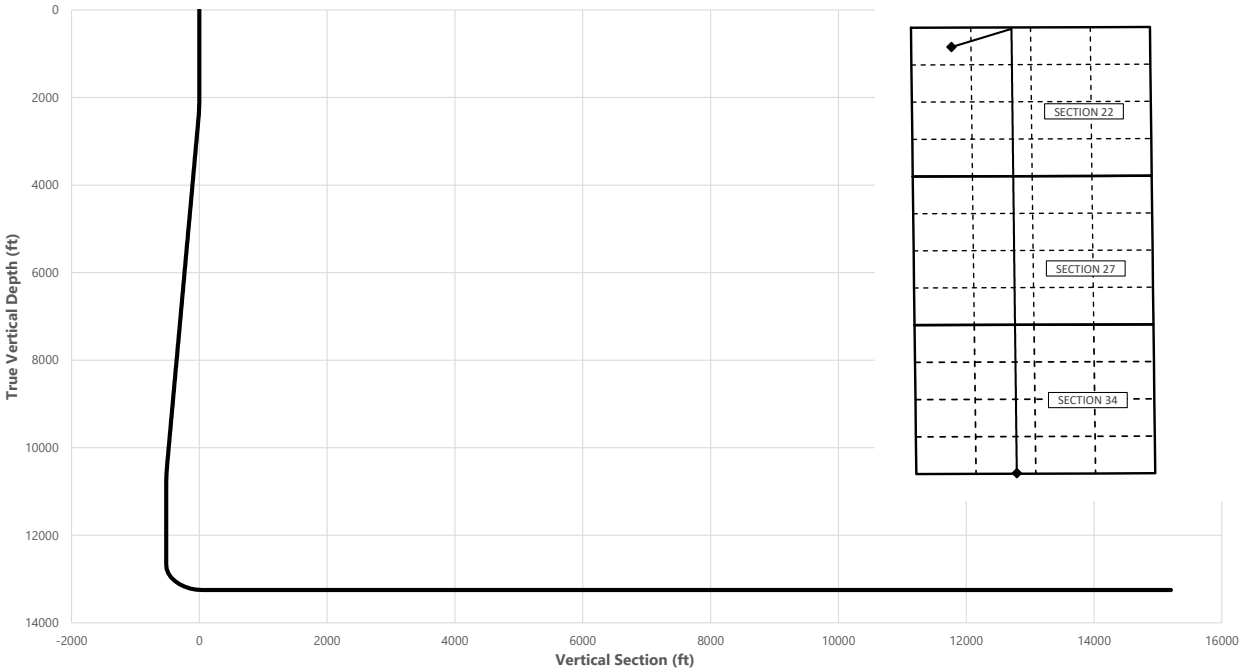
VIII. Best Management Practices during Maintenance

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.

Well: THISTLE UNIT 194H
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 (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL
2000.00	0.00	63.98	2000.00	0.00	0.00	0.00	0.00	Start Tangent
2500.00	10.00	63.98	2497.47	19.09	39.11	-15.29	2.00	Hold Tangent
10492.06	10.00	63.98	10368.10	627.90	1286.25	-502.96	0.00	Drop to Vertical
10992.06	0.00	63.98	10865.57	646.99	1325.36	-518.25	2.00	Hold Vertical
12803.53	0.00	179.57	12677.04	646.99	1325.36	-518.25	0.00	KOP
13703.53	90.00	179.57	13250.00	74.05	1329.64	52.51	10.00	Landing Point
28912.29	90.00	179.57	13250.00	-15134.28	1443.25	15202.94	0.00	BHL



Key Depths	MD (ft)	TVD (ft)
Rustler	1302.00	1302.00
Salt	5224.93	5181.00
Base of Salt	5224.93	5181.00
Delaware	5224.93	5181.00
Cherry Canyon	6287.07	6227.00
Brushy Canyon	7714.76	7633.00
1st bone spring lime	9183.07	9079.00
Bone Spring 1st	10330.50	10209.00
Bone Spring 2nd	10912.48	10786.00
Bone Spring 3rd lime	11451.49	11325.00
Bone Spring 3rd	11451.49	11325.00
Wolfcamp / Point of Penetration	12397.49	12271.00
exit	28832.29	13250.02

	MD (ft)	TVD (ft)	Lat (°)	Long (°)	Section Footages
SHL	0.00	0.00	32.2955	-103.5660	690' FNL, 890' FWL of Sec 22 in T23S, R33E
KOP	12803.53	12677.04	32.2972	-103.5617	50' FNL, 2220' FWL of Sec 22 in T23S, R33E
Point of Penetration	12397.49	12271.00	32.2972	-103.5616	100' FNL, 2220' FWL of Sec 22 in T23S, R33E
Exit	28832.29	13250.02	32.2542	-103.5616	100' FSL, 2220' FWL of Sec 34 in T23S, R33E
BHL	28912.29	13250.00	32.2539	-103.5616	20' FSL, 2220' FWL of Sec 34 in T23S, R33E

	Y	X	MD
KOP	472759	779801	12803.53

devon

Well: THISTLE UNIT 194H
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Geodetic System: US State Plane 1983
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Ellipsoid: Clarke 1866
Zone: 3001 - NM East (NAD83)

MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL
100.00	0.00	63.98	100.00	0.00	0.00	0.00	0.00	
200.00	0.00	63.98	200.00	0.00	0.00	0.00	0.00	
300.00	0.00	63.98	300.00	0.00	0.00	0.00	0.00	
400.00	0.00	63.98	400.00	0.00	0.00	0.00	0.00	
500.00	0.00	63.98	500.00	0.00	0.00	0.00	0.00	
600.00	0.00	63.98	600.00	0.00	0.00	0.00	0.00	
700.00	0.00	63.98	700.00	0.00	0.00	0.00	0.00	
800.00	0.00	63.98	800.00	0.00	0.00	0.00	0.00	
900.00	0.00	63.98	900.00	0.00	0.00	0.00	0.00	
1000.00	0.00	63.98	1000.00	0.00	0.00	0.00	0.00	
1100.00	0.00	63.98	1100.00	0.00	0.00	0.00	0.00	
1200.00	0.00	63.98	1200.00	0.00	0.00	0.00	0.00	
1300.00	0.00	63.98	1300.00	0.00	0.00	0.00	0.00	
1302.00	0.00	63.98	1302.00	0.00	0.00	0.00	0.00	Rustler
1400.00	0.00	63.98	1400.00	0.00	0.00	0.00	0.00	
1500.00	0.00	63.98	1500.00	0.00	0.00	0.00	0.00	
1600.00	0.00	63.98	1600.00	0.00	0.00	0.00	0.00	
1700.00	0.00	63.98	1700.00	0.00	0.00	0.00	0.00	
1800.00	0.00	63.98	1800.00	0.00	0.00	0.00	0.00	
1900.00	0.00	63.98	1900.00	0.00	0.00	0.00	0.00	
2000.00	0.00	63.98	2000.00	0.00	0.00	0.00	0.00	Start Tangent
2100.00	2.00	63.98	2099.98	0.77	1.57	-0.61	2.00	
2200.00	4.00	63.98	2199.84	3.06	6.27	-2.45	2.00	
2300.00	6.00	63.98	2299.45	6.88	14.10	-5.51	2.00	
2400.00	8.00	63.98	2398.70	12.23	25.05	-9.80	2.00	
2500.00	10.00	63.98	2497.47	19.09	39.11	-15.29	2.00	Hold Tangent
2600.00	10.00	63.98	2595.95	26.71	54.72	-21.40	0.00	
2700.00	10.00	63.98	2694.43	34.33	70.32	-27.50	0.00	
2800.00	10.00	63.98	2792.91	41.95	85.93	-33.60	0.00	
2900.00	10.00	63.98	2891.39	49.56	101.53	-39.70	0.00	
3000.00	10.00	63.98	2989.87	57.18	117.13	-45.80	0.00	
3100.00	10.00	63.98	3088.35	64.80	132.74	-51.90	0.00	
3200.00	10.00	63.98	3186.83	72.42	148.34	-58.01	0.00	
3300.00	10.00	63.98	3285.31	80.03	163.95	-64.11	0.00	
3400.00	10.00	63.98	3383.79	87.65	179.55	-70.21	0.00	
3500.00	10.00	63.98	3482.27	95.27	195.16	-76.31	0.00	
3600.00	10.00	63.98	3580.75	102.89	210.76	-82.41	0.00	
3700.00	10.00	63.98	3679.23	110.50	226.37	-88.52	0.00	
3800.00	10.00	63.98	3777.72	118.12	241.97	-94.62	0.00	
3900.00	10.00	63.98	3876.20	125.74	257.58	-100.72	0.00	
4000.00	10.00	63.98	3974.68	133.36	273.18	-106.82	0.00	
4100.00	10.00	63.98	4073.16	140.98	288.79	-112.92	0.00	
4200.00	10.00	63.98	4171.64	148.59	304.39	-119.03	0.00	
4300.00	10.00	63.98	4270.12	156.21	320.00	-125.13	0.00	
4400.00	10.00	63.98	4368.60	163.83	335.60	-131.23	0.00	
4500.00	10.00	63.98	4467.08	171.45	351.21	-137.33	0.00	
4600.00	10.00	63.98	4565.56	179.06	366.81	-143.43	0.00	
4700.00	10.00	63.98	4664.04	186.68	382.41	-149.53	0.00	
4800.00	10.00	63.98	4762.52	194.30	398.02	-155.64	0.00	
4900.00	10.00	63.98	4861.00	201.92	413.62	-161.74	0.00	
5000.00	10.00	63.98	4959.48	209.53	429.23	-167.84	0.00	
5100.00	10.00	63.98	5057.97	217.15	444.83	-173.94	0.00	
5200.00	10.00	63.98	5156.45	224.77	460.44	-180.04	0.00	
5224.93	10.00	63.98	5181.00	226.67	464.33	-181.57	0.00	Salt, Base of Salt, Delaware
5300.00	10.00	63.98	5254.93	232.39	476.04	-186.15	0.00	
5400.00	10.00	63.98	5353.41	240.01	491.65	-192.25	0.00	
5500.00	10.00	63.98	5451.89	247.62	507.25	-198.35	0.00	
5600.00	10.00	63.98	5550.37	255.24	522.86	-204.45	0.00	
5700.00	10.00	63.98	5648.85	262.86	538.46	-210.55	0.00	
5800.00	10.00	63.98	5747.33	270.48	554.07	-216.66	0.00	
5900.00	10.00	63.98	5845.81	278.09	569.67	-222.76	0.00	
6000.00	10.00	63.98	5944.29	285.71	585.28	-228.86	0.00	
6100.00	10.00	63.98	6042.77	293.33	600.88	-234.96	0.00	
6200.00	10.00	63.98	6141.25	300.95	616.49	-241.06	0.00	
6287.07	10.00	63.98	6227.00	307.58	630.07	-246.38	0.00	Cherry Canyon
6300.00	10.00	63.98	6239.73	308.56	632.09	-247.16	0.00	
6400.00	10.00	63.98	6338.22	316.18	647.70	-253.27	0.00	
6500.00	10.00	63.98	6436.70	323.80	663.30	-259.37	0.00	
6600.00	10.00	63.98	6535.18	331.42	678.90	-265.47	0.00	

devon

Well: THISTLE UNIT 194H
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Zone: 3001 - NM East (NAD83)

MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
6700.00	10.00	63.98	6633.66	339.04	694.51	-271.57	0.00	
6800.00	10.00	63.98	6732.14	346.65	710.11	-277.67	0.00	
6900.00	10.00	63.98	6830.62	354.27	725.72	-283.78	0.00	
7000.00	10.00	63.98	6929.10	361.89	741.32	-289.88	0.00	
7100.00	10.00	63.98	7027.58	369.51	756.93	-295.98	0.00	
7200.00	10.00	63.98	7126.06	377.12	772.53	-302.08	0.00	
7300.00	10.00	63.98	7224.54	384.74	788.14	-308.18	0.00	
7400.00	10.00	63.98	7323.02	392.36	803.74	-314.29	0.00	
7500.00	10.00	63.98	7421.50	399.98	819.35	-320.39	0.00	
7600.00	10.00	63.98	7519.99	407.59	834.95	-326.49	0.00	
7700.00	10.00	63.98	7618.47	415.21	850.56	-332.59	0.00	
7714.76	10.00	63.98	7633.00	416.34	852.86	-333.49	0.00	Brushy Canyon
7800.00	10.00	63.98	7716.95	422.83	866.16	-338.69	0.00	
7900.00	10.00	63.98	7815.43	430.45	881.77	-344.79	0.00	
8000.00	10.00	63.98	7913.91	438.07	897.37	-350.90	0.00	
8100.00	10.00	63.98	8012.39	445.68	912.98	-357.00	0.00	
8200.00	10.00	63.98	8110.87	453.30	928.58	-363.10	0.00	
8300.00	10.00	63.98	8209.35	460.92	944.18	-369.20	0.00	
8400.00	10.00	63.98	8307.83	468.54	959.79	-375.30	0.00	
8500.00	10.00	63.98	8406.31	476.15	975.39	-381.41	0.00	
8600.00	10.00	63.98	8504.79	483.77	991.00	-387.51	0.00	
8700.00	10.00	63.98	8603.27	491.39	1006.60	-393.61	0.00	
8800.00	10.00	63.98	8701.75	499.01	1022.21	-399.71	0.00	
8900.00	10.00	63.98	8800.24	506.62	1037.81	-405.81	0.00	
9000.00	10.00	63.98	8898.72	514.24	1053.42	-411.92	0.00	
9100.00	10.00	63.98	8997.20	521.86	1069.02	-418.02	0.00	
9183.07	10.00	63.98	9079.00	528.19	1081.98	-423.09	0.00	1st bone spring lime
9200.00	10.00	63.98	9095.68	529.48	1084.63	-424.12	0.00	
9300.00	10.00	63.98	9194.16	537.10	1100.23	-430.22	0.00	
9400.00	10.00	63.98	9292.64	544.71	1115.84	-436.32	0.00	
9500.00	10.00	63.98	9391.12	552.33	1131.44	-442.42	0.00	
9600.00	10.00	63.98	9489.60	559.95	1147.05	-448.53	0.00	
9700.00	10.00	63.98	9588.08	567.57	1162.65	-454.63	0.00	
9800.00	10.00	63.98	9686.56	575.18	1178.26	-460.73	0.00	
9900.00	10.00	63.98	9785.04	582.80	1193.86	-466.83	0.00	
10000.00	10.00	63.98	9883.52	590.42	1209.46	-472.93	0.00	
10100.00	10.00	63.98	9982.00	598.04	1225.07	-479.04	0.00	
10200.00	10.00	63.98	10080.49	605.65	1240.67	-485.14	0.00	
10300.00	10.00	63.98	10178.97	613.27	1256.28	-491.24	0.00	
10330.50	10.00	63.98	10209.00	615.60	1261.04	-493.10	0.00	Bone Spring 1st
10400.00	10.00	63.98	10277.45	620.89	1271.88	-497.34	0.00	
10492.06	10.00	63.98	10368.10	627.90	1286.25	-502.96	0.00	Drop to Vertical
10500.00	9.84	63.98	10375.93	628.50	1287.48	-503.44	2.00	
10600.00	7.84	63.98	10474.74	635.24	1301.29	-508.84	2.00	
10700.00	5.84	63.98	10574.02	640.47	1312.00	-513.02	2.00	
10800.00	3.84	63.98	10673.66	644.17	1319.58	-515.99	2.00	
10900.00	1.84	63.98	10773.53	646.35	1324.03	-517.73	2.00	
10912.48	1.59	63.98	10786.00	646.51	1324.37	-517.86	2.00	Bone Spring 2nd
10992.06	0.00	63.98	10865.57	646.99	1325.36	-518.25	2.00	Hold Vertical
11000.00	0.00	179.57	10873.51	646.99	1325.36	-518.25	0.00	
11100.00	0.00	179.57	10973.51	646.99	1325.36	-518.25	0.00	
11200.00	0.00	179.57	11073.51	646.99	1325.36	-518.25	0.00	
11300.00	0.00	179.57	11173.51	646.99	1325.36	-518.25	0.00	
11400.00	0.00	179.57	11273.51	646.99	1325.36	-518.25	0.00	
11451.49	0.00	179.57	11325.00	646.99	1325.36	-518.25	0.00	Bone Spring 3rd lime
11500.00	0.00	179.57	11373.51	646.99	1325.36	-518.25	0.00	
11600.00	0.00	179.57	11473.51	646.99	1325.36	-518.25	0.00	
11700.00	0.00	179.57	11573.51	646.99	1325.36	-518.25	0.00	
11800.00	0.00	179.57	11673.51	646.99	1325.36	-518.25	0.00	
11900.00	0.00	179.57	11773.51	646.99	1325.36	-518.25	0.00	
12000.00	0.00	179.57	11873.51	646.99	1325.36	-518.25	0.00	
12100.00	0.00	179.57	11973.51	646.99	1325.36	-518.25	0.00	
12200.00	0.00	179.57	12073.51	646.99	1325.36	-518.25	0.00	
12213.49	0.00	179.57	12087.00	646.99	1325.36	-518.25	0.00	Bone Spring 3rd
12300.00	0.00	179.57	12173.51	646.99	1325.36	-518.25	0.00	
12397.49	0.00	179.57	12271.00	646.99	1325.36	-518.25	0.00	Wolfcamp / Point of Penetration
12400.00	0.00	179.57	12273.51	646.99	1325.36	-518.25	0.00	
12500.00	0.00	179.57	12373.51	646.99	1325.36	-518.25	0.00	
12600.00	0.00	179.57	12473.51	646.99	1325.36	-518.25	0.00	
12700.00	0.00	179.57	12573.51	646.99	1325.36	-518.25	0.00	

devon

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MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
12800.00	0.00	179.57	12673.51	646.99	1325.36	-518.25	0.00	
12803.53	0.00	179.57	12677.04	646.99	1325.36	-518.25	0.00	KOP
12900.00	9.65	179.57	12773.06	638.89	1325.42	-510.18	10.00	
13000.00	19.65	179.57	12869.69	613.64	1325.61	-485.02	10.00	
13100.00	29.65	179.57	12960.46	571.99	1325.92	-443.53	10.00	
13200.00	39.65	179.57	13042.62	515.21	1326.35	-386.97	10.00	
13300.00	49.65	179.57	13113.68	445.03	1326.87	-317.05	10.00	
13400.00	59.65	179.57	13171.46	363.57	1327.48	-235.91	10.00	
13500.00	69.65	179.57	13214.23	273.32	1328.15	-146.00	10.00	
13600.00	79.65	179.57	13240.67	177.02	1328.87	-50.06	10.00	
13700.00	89.65	179.57	13249.99	77.58	1329.62	48.99	10.00	
13703.53	90.00	179.57	13250.00	74.05	1329.64	52.51	10.00	Landing Point
13800.00	90.00	179.57	13250.00	-22.42	1330.36	148.61	0.00	
13900.00	90.00	179.57	13250.00	-122.41	1331.11	248.23	0.00	
14000.00	90.00	179.57	13250.00	-222.41	1331.86	347.84	0.00	
14100.00	90.00	179.57	13250.00	-322.41	1332.60	447.46	0.00	
14200.00	90.00	179.57	13250.00	-422.40	1333.35	547.08	0.00	
14300.00	90.00	179.57	13250.00	-522.40	1334.10	646.69	0.00	
14400.00	90.00	179.57	13250.00	-622.40	1334.85	746.31	0.00	
14500.00	90.00	179.57	13250.00	-722.40	1335.59	845.93	0.00	
14600.00	90.00	179.57	13250.00	-822.39	1336.34	945.54	0.00	
14700.00	90.00	179.57	13250.00	-922.39	1337.09	1045.16	0.00	
14800.00	90.00	179.57	13250.00	-1022.39	1337.83	1144.78	0.00	
14900.00	90.00	179.57	13250.00	-1122.39	1338.58	1244.39	0.00	
15000.00	90.00	179.57	13250.00	-1222.38	1339.33	1344.01	0.00	
15100.00	90.00	179.57	13250.00	-1322.38	1340.08	1443.63	0.00	
15200.00	90.00	179.57	13250.00	-1422.38	1340.82	1543.24	0.00	
15300.00	90.00	179.57	13250.00	-1522.37	1341.57	1642.86	0.00	
15400.00	90.00	179.57	13250.00	-1622.37	1342.32	1742.47	0.00	
15500.00	90.00	179.57	13250.00	-1722.37	1343.07	1842.09	0.00	
15600.00	90.00	179.57	13250.00	-1822.37	1343.81	1941.71	0.00	
15700.00	90.00	179.57	13250.00	-1922.36	1344.56	2041.32	0.00	
15800.00	90.00	179.57	13250.00	-2022.36	1345.31	2140.94	0.00	
15900.00	90.00	179.57	13250.00	-2122.36	1346.05	2240.56	0.00	
16000.00	90.00	179.57	13250.00	-2222.35	1346.80	2340.17	0.00	
16100.00	90.00	179.57	13250.00	-2322.35	1347.55	2439.79	0.00	
16200.00	90.00	179.57	13250.00	-2422.35	1348.30	2539.41	0.00	
16300.00	90.00	179.57	13250.00	-2522.35	1349.04	2639.02	0.00	
16400.00	90.00	179.57	13250.00	-2622.34	1349.79	2738.64	0.00	
16500.00	90.00	179.57	13250.00	-2722.34	1350.54	2838.26	0.00	
16600.00	90.00	179.57	13250.00	-2822.34	1351.29	2937.87	0.00	
16700.00	90.00	179.57	13250.00	-2922.33	1352.03	3037.49	0.00	
16800.00	90.00	179.57	13250.00	-3022.33	1352.78	3137.11	0.00	
16900.00	90.00	179.57	13250.00	-3122.33	1353.53	3236.72	0.00	
17000.00	90.00	179.57	13250.00	-3222.33	1354.27	3336.34	0.00	
17100.00	90.00	179.57	13250.00	-3322.32	1355.02	3435.96	0.00	
17200.00	90.00	179.57	13250.00	-3422.32	1355.77	3535.57	0.00	
17300.00	90.00	179.57	13250.00	-3522.32	1356.52	3635.19	0.00	
17400.00	90.00	179.57	13250.01	-3622.32	1357.26	3734.81	0.00	
17500.00	90.00	179.57	13250.01	-3722.31	1358.01	3834.42	0.00	
17600.00	90.00	179.57	13250.01	-3822.31	1358.76	3934.04	0.00	
17700.00	90.00	179.57	13250.01	-3922.31	1359.51	4033.65	0.00	
17800.00	90.00	179.57	13250.01	-4022.30	1360.25	4133.27	0.00	
17900.00	90.00	179.57	13250.01	-4122.30	1361.00	4232.89	0.00	
18000.00	90.00	179.57	13250.01	-4222.30	1361.75	4332.50	0.00	
18100.00	90.00	179.57	13250.01	-4322.30	1362.49	4432.12	0.00	
18200.00	90.00	179.57	13250.01	-4422.29	1363.24	4531.74	0.00	
18300.00	90.00	179.57	13250.01	-4522.29	1363.99	4631.35	0.00	
18400.00	90.00	179.57	13250.01	-4622.29	1364.74	4730.97	0.00	
18500.00	90.00	179.57	13250.01	-4722.28	1365.48	4830.59	0.00	
18600.00	90.00	179.57	13250.01	-4822.28	1366.23	4930.20	0.00	
18700.00	90.00	179.57	13250.01	-4922.28	1366.98	5029.82	0.00	
18800.00	90.00	179.57	13250.01	-5022.28	1367.73	5129.44	0.00	
18900.00	90.00	179.57	13250.01	-5122.27	1368.47	5229.05	0.00	
19000.00	90.00	179.57	13250.01	-5222.27	1369.22	5328.67	0.00	
19100.00	90.00	179.57	13250.01	-5322.27	1369.97	5428.29	0.00	
19200.00	90.00	179.57	13250.01	-5422.27	1370.71	5527.90	0.00	
19300.00	90.00	179.57	13250.01	-5522.26	1371.46	5627.52	0.00	
19400.00	90.00	179.57	13250.01	-5622.26	1372.21	5727.14	0.00	
19500.00	90.00	179.57	13250.01	-5722.26	1372.96	5826.75	0.00	

devon

Well: THISTLE UNIT 194H
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 (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
19600.00	90.00	179.57	13250.01	-5822.25	1373.70	5926.37	0.00	
19700.00	90.00	179.57	13250.01	-5922.25	1374.45	6025.99	0.00	
19800.00	90.00	179.57	13250.01	-6022.25	1375.20	6125.60	0.00	
19900.00	90.00	179.57	13250.01	-6122.25	1375.95	6225.22	0.00	
20000.00	90.00	179.57	13250.01	-6222.24	1376.69	6324.83	0.00	
20100.00	90.00	179.57	13250.01	-6322.24	1377.44	6424.45	0.00	
20200.00	90.00	179.57	13250.01	-6422.24	1378.19	6524.07	0.00	
20300.00	90.00	179.57	13250.01	-6522.23	1378.93	6623.68	0.00	
20400.00	90.00	179.57	13250.01	-6622.23	1379.68	6723.30	0.00	
20500.00	90.00	179.57	13250.01	-6722.23	1380.43	6822.92	0.00	
20600.00	90.00	179.57	13250.01	-6822.23	1381.18	6922.53	0.00	
20700.00	90.00	179.57	13250.01	-6922.22	1381.92	7022.15	0.00	
20800.00	90.00	179.57	13250.01	-7022.22	1382.67	7121.77	0.00	
20900.00	90.00	179.57	13250.01	-7122.22	1383.42	7221.38	0.00	
21000.00	90.00	179.57	13250.01	-7222.21	1384.17	7321.00	0.00	
21100.00	90.00	179.57	13250.01	-7322.21	1384.91	7420.62	0.00	
21200.00	90.00	179.57	13250.01	-7422.21	1385.66	7520.23	0.00	
21300.00	90.00	179.57	13250.01	-7522.21	1386.41	7619.85	0.00	
21400.00	90.00	179.57	13250.01	-7622.20	1387.15	7719.47	0.00	
21500.00	90.00	179.57	13250.01	-7722.20	1387.90	7819.08	0.00	
21600.00	90.00	179.57	13250.01	-7822.20	1388.65	7918.70	0.00	
21700.00	90.00	179.57	13250.01	-7922.20	1389.40	8018.32	0.00	
21800.00	90.00	179.57	13250.01	-8022.19	1390.14	8117.93	0.00	
21900.00	90.00	179.57	13250.01	-8122.19	1390.89	8217.55	0.00	
22000.00	90.00	179.57	13250.01	-8222.19	1391.64	8317.17	0.00	
22100.00	90.00	179.57	13250.01	-8322.18	1392.38	8416.78	0.00	
22200.00	90.00	179.57	13250.01	-8422.18	1393.13	8516.40	0.00	
22300.00	90.00	179.57	13250.01	-8522.18	1393.88	8616.01	0.00	
22400.00	90.00	179.57	13250.01	-8622.18	1394.63	8715.63	0.00	
22500.00	90.00	179.57	13250.01	-8722.17	1395.37	8815.25	0.00	
22600.00	90.00	179.57	13250.01	-8822.17	1396.12	8914.86	0.00	
22700.00	90.00	179.57	13250.01	-8922.17	1396.87	9014.48	0.00	
22800.00	90.00	179.57	13250.01	-9022.16	1397.62	9114.10	0.00	
22900.00	90.00	179.57	13250.01	-9122.16	1398.36	9213.71	0.00	
23000.00	90.00	179.57	13250.01	-9222.16	1399.11	9313.33	0.00	
23100.00	90.00	179.57	13250.01	-9322.16	1399.86	9412.95	0.00	
23200.00	90.00	179.57	13250.01	-9422.15	1400.60	9512.56	0.00	
23300.00	90.00	179.57	13250.01	-9522.15	1401.35	9612.18	0.00	
23400.00	90.00	179.57	13250.01	-9622.15	1402.10	9711.80	0.00	
23500.00	90.00	179.57	13250.01	-9722.15	1402.85	9811.41	0.00	
23600.00	90.00	179.57	13250.01	-9822.14	1403.59	9911.03	0.00	
23700.00	90.00	179.57	13250.01	-9922.14	1404.34	10010.65	0.00	
23800.00	90.00	179.57	13250.01	-10022.14	1405.09	10110.26	0.00	
23900.00	90.00	179.57	13250.01	-10122.13	1405.84	10209.88	0.00	
24000.00	90.00	179.57	13250.01	-10222.13	1406.58	10309.50	0.00	
24100.00	90.00	179.57	13250.01	-10322.13	1407.33	10409.11	0.00	
24200.00	90.00	179.57	13250.01	-10422.13	1408.08	10508.73	0.00	
24300.00	90.00	179.57	13250.01	-10522.12	1408.82	10608.35	0.00	
24400.00	90.00	179.57	13250.01	-10622.12	1409.57	10707.96	0.00	
24500.00	90.00	179.57	13250.01	-10722.12	1410.32	10807.58	0.00	
24600.00	90.00	179.57	13250.01	-10822.11	1411.07	10907.19	0.00	
24700.00	90.00	179.57	13250.01	-10922.11	1411.81	11006.81	0.00	
24800.00	90.00	179.57	13250.01	-11022.11	1412.56	11106.43	0.00	
24900.00	90.00	179.57	13250.02	-11122.11	1413.31	11206.04	0.00	
25000.00	90.00	179.57	13250.02	-11222.10	1414.06	11305.66	0.00	
25100.00	90.00	179.57	13250.02	-11322.10	1414.80	11405.28	0.00	
25200.00	90.00	179.57	13250.02	-11422.10	1415.55	11504.89	0.00	
25300.00	90.00	179.57	13250.02	-11522.09	1416.30	11604.51	0.00	
25400.00	90.00	179.57	13250.02	-11622.09	1417.04	11704.13	0.00	
25500.00	90.00	179.57	13250.02	-11722.09	1417.79	11803.74	0.00	
25600.00	90.00	179.57	13250.02	-11822.09	1418.54	11903.36	0.00	
25700.00	90.00	179.57	13250.02	-11922.08	1419.29	12002.98	0.00	
25800.00	90.00	179.57	13250.02	-12022.08	1420.03	12102.59	0.00	
25900.00	90.00	179.57	13250.02	-12122.08	1420.78	12202.21	0.00	
26000.00	90.00	179.57	13250.02	-12222.08	1421.53	12301.83	0.00	
26100.00	90.00	179.57	13250.02	-12322.07	1422.28	12401.44	0.00	
26200.00	90.00	179.57	13250.02	-12422.07	1423.02	12501.06	0.00	
26300.00	90.00	179.57	13250.02	-12522.07	1423.77	12600.68	0.00	
26400.00	90.00	179.57	13250.02	-12622.06	1424.52	12700.29	0.00	
26500.00	90.00	179.57	13250.02	-12722.06	1425.26	12799.91	0.00	

Well: THISTLE UNIT 194H
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Zone: 3001 - NM East (NAD83)

MD (ft)	INC (°)	AZI (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Comment
26600.00	90.00	179.57	13250.02	-12822.06	1426.01	12899.53	0.00	
26700.00	90.00	179.57	13250.02	-12922.06	1426.76	12999.14	0.00	
26800.00	90.00	179.57	13250.02	-13022.05	1427.51	13098.76	0.00	
26900.00	90.00	179.57	13250.02	-13122.05	1428.25	13198.37	0.00	
27000.00	90.00	179.57	13250.02	-13222.05	1429.00	13297.99	0.00	
27100.00	90.00	179.57	13250.02	-13322.04	1429.75	13397.61	0.00	
27200.00	90.00	179.57	13250.02	-13422.04	1430.50	13497.22	0.00	
27300.00	90.00	179.57	13250.02	-13522.04	1431.24	13596.84	0.00	
27400.00	90.00	179.57	13250.02	-13622.04	1431.99	13696.46	0.00	
27500.00	90.00	179.57	13250.02	-13722.03	1432.74	13796.07	0.00	
27600.00	90.00	179.57	13250.02	-13822.03	1433.48	13895.69	0.00	
27700.00	90.00	179.57	13250.02	-13922.03	1434.23	13995.31	0.00	
27800.00	90.00	179.57	13250.02	-14022.02	1434.98	14094.92	0.00	
27900.00	90.00	179.57	13250.02	-14122.02	1435.73	14194.54	0.00	
28000.00	90.00	179.57	13250.02	-14222.02	1436.47	14294.16	0.00	
28100.00	90.00	179.57	13250.02	-14322.02	1437.22	14393.77	0.00	
28200.00	90.00	179.57	13250.02	-14422.01	1437.97	14493.39	0.00	
28300.00	90.00	179.57	13250.02	-14522.01	1438.71	14593.01	0.00	
28400.00	90.00	179.57	13250.02	-14622.01	1439.46	14692.62	0.00	
28500.00	90.00	179.57	13250.02	-14722.01	1440.21	14792.24	0.00	
28600.00	90.00	179.57	13250.02	-14822.00	1440.96	14891.86	0.00	
28700.00	90.00	179.57	13250.02	-14922.00	1441.70	14991.47	0.00	
28800.00	90.00	179.57	13250.02	-15022.00	1442.45	15091.09	0.00	
28832.29	90.00	179.57	13250.02	-15054.28	1442.69	15123.25	0.00	exit
28900.00	90.00	179.57	13250.02	-15121.99	1443.20	15190.71	0.00	
28912.29	90.00	179.57	13250.00	-15134.28	1443.25	15202.94	0.00	BHL

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

Hydrogen Sulfide (H_2S) Contingency Plan

For

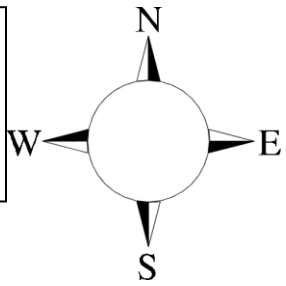
Thistle Unit 194H

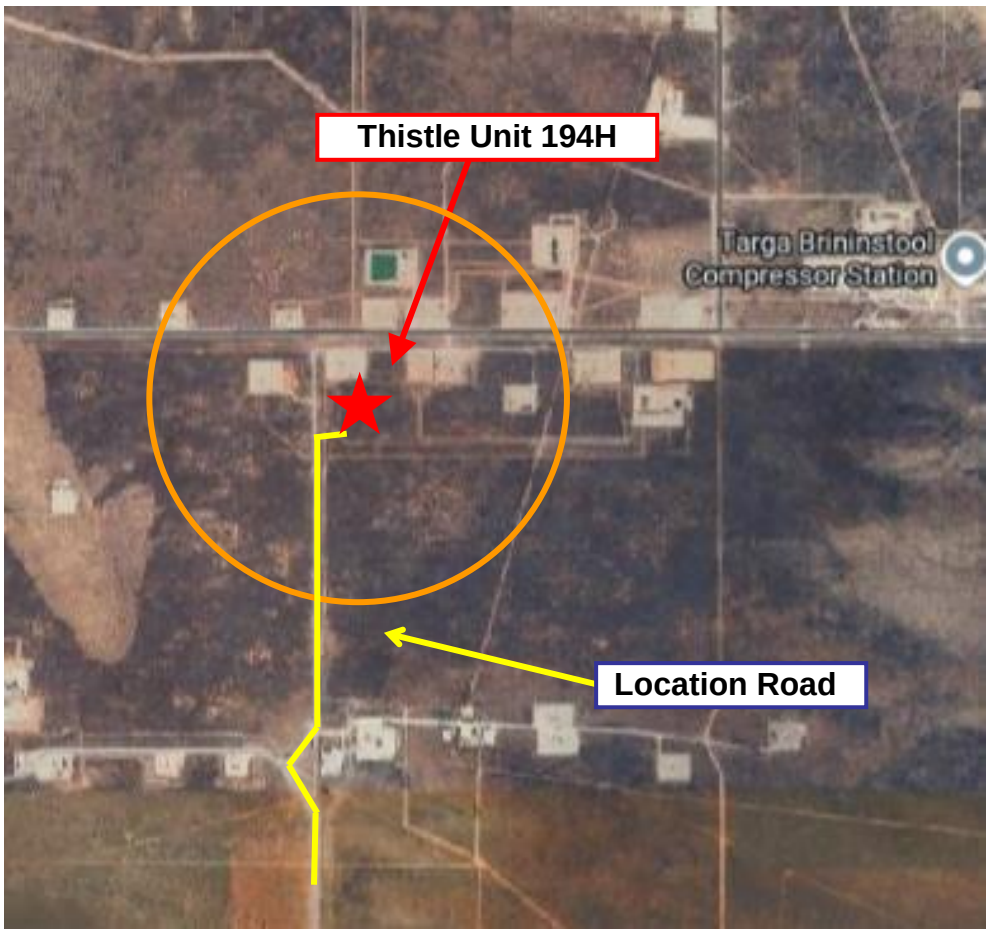
Sec-22 T-23S R-33E
690’ FNL & 890’ FWL
LAT. = 32.2955759° N (NAD83)
LONG = 103.5658794° W

Lea County NM

Thistle Unit 194H

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_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, 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_2S 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_2). 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_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	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_2S) 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_2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S 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_2S 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_2S 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.

3. **H_2S detection and monitoring equipment:**

   Portable H_2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H_2S levels reach 10 ppm and audible sirens which activate at 10 ppm. Sensor locations:

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

   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.

4. **Mud program:**

   The mud program has been designed to minimize the volume of H_2S circulated to surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.

5. **Metallurgy:**

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

   B. All elastomers used for packing and seals shall be H_2S trim.

6. **Communication:**

   A. Company personnel have/use cellular telephones in the field.

   B. Land line (telephone) communications at Office

7. **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_2S environment will use the closed chamber method of testing.

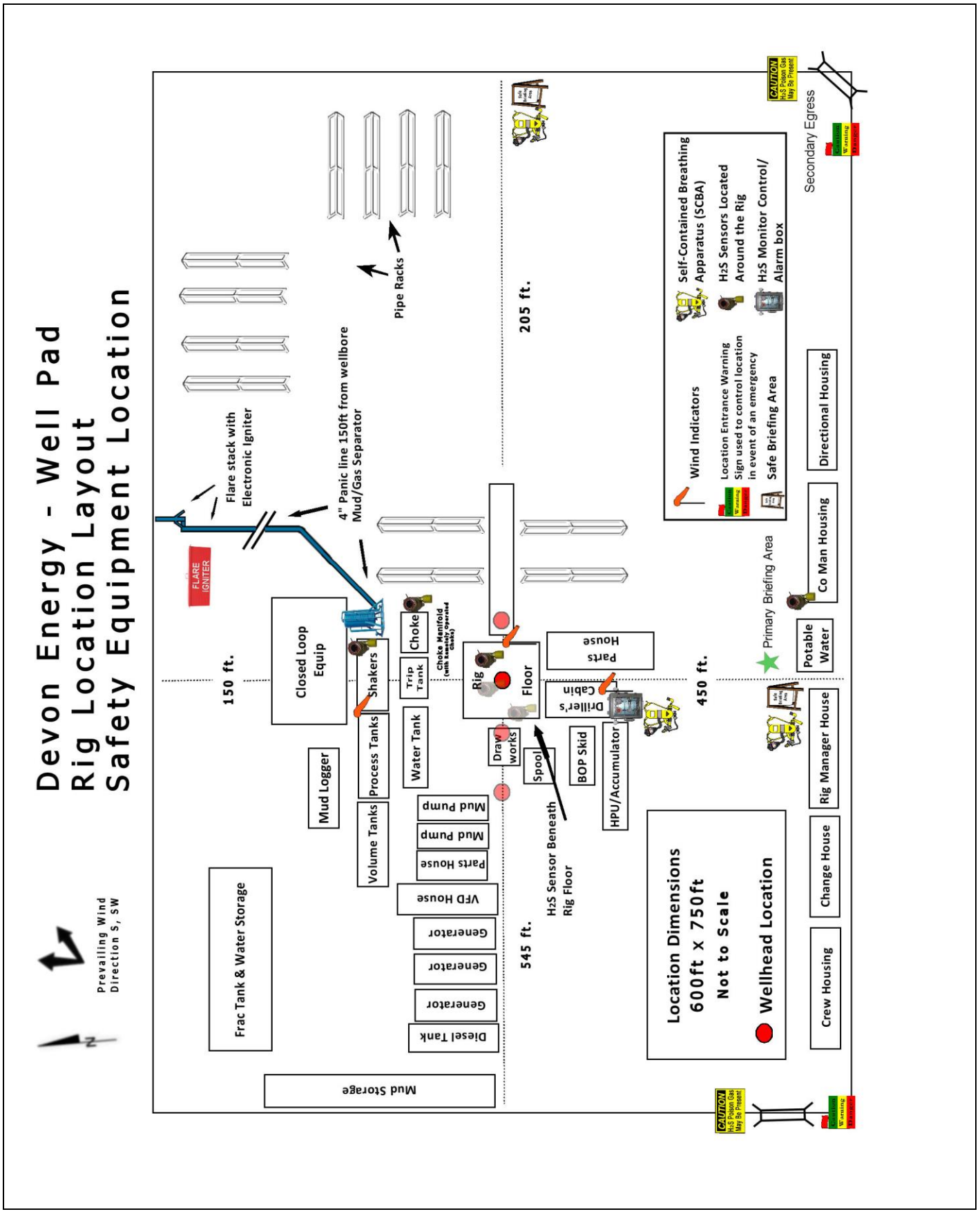
   B. There will be no drill stem testing.

Devon Energy Corp. Company Call List

Employee/Company Contact Representative	Position	Phone Number	After Hours Number
Jonathan Fisher (North)	Drilling Manager	832-967-7912	
Jason Hildebrand (South)	Drilling Manager	405-552-6514	
Rich Downey	Drilling VP	405-228-2415	
Josh Harvey	EHS Manager	405-228-2440	918-500-5536
Laura Wright	EHS Supervisor	405-552-5334	832-969-8145
Robert Glover	EHS Professional	575-703-5712	575-703-5712
Lane Frank	Lead EHS	580-579-7052	580-579-7052
Rickey Porter	Lead EHS	903-720-8315	903-720-8315
Ronnie Handy	Lead EHS	918-839-2046	918-839-2046
Brock Vise	Lead EHS	918-413-3291	918-413-3291

Agency Call List		
Lea County (575)	**Hobbs**	
	Lea County Communication Authority	397-9265
	State Police	885-3138
	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 (Closed)	393-0002
Eddy County (575)	**Carlsbad**	
	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	234-5972
	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
	B. J. Services	(575) 746-3569
Give GPS position:	Native Air – Emergency Helicopter – Hobbs	(575) 347-9836
	For Air Ambulance - **Eddy County** Dispatch	(575)-616-7155
	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

Prepared in conjunction with
Dave Small SHARP communications and consulting



Devon Energy Corp. Cont Plan. Page 8

THISTLE UNIT 194H

1. Geologic Formations

TVD of target	13250	Pilot hole depth	N/A
MD at TD:	28912	Deepest expected fresh water	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Rustler	1302		
Salt	5181		
Base of Salt	5181		
Delaware	5181		
Cherry Canyon	6227		
Brushy Canyon	7633		
1st bone spring lime	9079		
Bone Spring 1st	10209		
Bone Spring 2nd	10786		
Bone Spring 3rd lime	11325		
Bone Spring 3rd	12087		
Wolfcamp	12271		

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

2. Casing Program (Primary Design)

Hole Size	Csg. Size	Wt (PPF)	Grade	Conn	Casing Interval		Casing Interval	
					From (MD)	To (MD)	From (TVD)	To (TVD)
14 3/4	10 3/4	45 1/2	J-55	BTC	0	1327	0	1327
9 7/8	8 5/8	32	P110HP	Talon	0	12704	0	12704
7 7/8	5 1/2	20	P110	Talon	0	28912	0	13250

•All casing strings will be tested in accordance with 43 CFR 3172. Must have table for contingency casing.

3. Cementing Program (Primary Design)

Casing	# Sks	TOC	Wt. ppg	Yld (ft3/sack)	Slurry Description
Surface	795	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	396	Surf	9	3.27	Lead: Class C Cement + additives
	587	7633	13.2	1.44	Tail: Class H / C + additives
Int 1 Intermediate Squeeze	898	Surf	13.2	1.44	Squeeze Lead: Class C Cement + additives
	396	Surf	9	3.27	Lead: Class C Cement + additives
	587	7633	13.2	1.44	Tail: Class H / C + additives
Production	35	12204	9	3.27	Lead: Class H /C + additives
	2132	12804	13.2	1.44	Tail: Class H / C + additives

Assuming no returns are established while drilling, Devon requests to pump a two stage cement job on the intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. The final cement top will be verified by Echo-meter. Devon will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program. Devon will report to the BLM the volume of fluid (limited to 1 bbls) used to flush intermediate casing valves following backside cementing procedures.

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

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4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-5/8"	10M	Annular	X	50% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	10M	Annular (5M)	X	100% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram		
			Double Ram	X	
			Other*		
			Annular (5M)		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
Y	A variance is requested to run a 5 M annular on a 10M system

5. Mud Program (Three String Design)

Section	Type	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	
X	Will run GR/CNL from TD to surface (horizontal well - vertical portion of hole). Stated logs run will be in the 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
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specfiy what type and where?
BH pressure at deepest TVD	7235
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 43 CFR 3176.. If Hydrogen Sulfide is 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 (43 CFR 3172, 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