

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM114988

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
SEAWOLF 1-12 FED 81H9. API Well No.
30-025-43762-00-X110. Field and Pool or Exploratory Area
WC025G09S253336D-UPPER WC11. County or Parish, State
LEA COUNTY, NM

SUBMIT IN TRIPLICATE - Other instructions on page 2

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1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

DEVON ENERGY PRODUCTION COMPANY

Contact: REBECCA DEAL

E-MAIL: REBECCA.DEAL@DVN.COM

3a. Address

333 WEST SHERIDAN AVENUE
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)

Ph: 405-228-8429

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 1 T26S R33E NWNW 200FNL 360FWL
32.079185 N Lat, 103.533432 W Lon

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original A
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Devon Energy respectfully requests the following changes to the original APD:

? Change BHL from 330 FSL & 380 FWL to 330 FSL & 360 FWL of Sec 12-26S-33E.

? Change surface casing set depth from 1,000' to 850'.

? Change of TVD from 12,557 to 12,713'.

Please see the attached revised C-102, Drill Plan & Directional Survey.

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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

Electronic Submission #380783 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION COMPANY, sent to the Hobbs
Committed to AFMSS for processing by ZOTA STEVENS on 07/13/2017 (17ZS0005SE)

Name (Printed/Typed) REBECCA DEAL

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 07/10/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS

Title PETROLEUM ENGINEER

Date 07/13/2017

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office Hobbs

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

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

1. Geologic Formations

TVD of target	12,713'	Pilot hole depth	N/A
MD at TD:	22,497'	Deepest expected fresh water:	746'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	746		
Top of Salt	1094		
Base of Salt	4817		
Delaware	5059		
Lower Brushy Canyon	9112		
1st BSPG Lime	9292		
1st BSPG Sand	10230		
2nd BSPG Lime	10505		
2nd BSPG Sand	10778		
3rd BSPG Lime	11272		
3rd BSPG Sand	11856		
Wolfcamp	12342		
Wolfcamp X	12369		
Wolfcamp Y	12465		
Wolfcamp 100	12526		
Wolfcamp 110	12598		
Wolfcamp 120	12675		
Wolfcamp 130	12742		

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

Devon Energy, Seawolf 1-12 81H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
14.75"	0	850' ± 0.00	10.75"	40.5	J-55	STC	1.125	1.25	1.6
8.75"	0	11,940'	7.625"	29.7	P110	Flushmax III	1.125	1.25	1.6
6.75"	0	22,497'	5.5"	20	P110	SF/Flush	1.125	1.25	1.6

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

A variance is requested to wave the centralizer requirement for the 7-5/8" flush casing in the 8-3/4" hole and the 5-1/2" SF/Flush casing in the 6-3/4" hole.

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy, Seawolf 1-12 81H

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	H ₂ O gal/sk	Yld ft ³ / sack	Slurry Description
10-3/4" Surface	623	14.8	6.34	1.34	Tail: Class C Cement + 1% Calcium Chloride
7-5/8" Int	311	9	13.5	3.27	Lead: Tuned Light® Cement
	430	14.5	5.31	1.2	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
7-5/8" Int Two Stage	122	10.9	20.6	3.31	1 st Stage Lead: (50:40:10) Class C: Silicalite: Enhancer 923 + 10% BWOC Bentonite + 0.05% BWOC SA-1015 + 0.3% BWOC HR-800 + 0.2% BWOC FE-2 + 0.125 lb/sk Pol-E-Flake + 0.5 lb/sk D-Air 5000
	430	14.5	5.31	1.2	1 st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	230	10.9	20.6	3.31	2 nd Stage Lead: (50:40:10) Class C: Silicalite: Enhancer 923 + 10% BWOC Bentonite + 0.05% BWOC SA-1015 + 0.3% BWOC HR-800 + 0.2% BWOC FE-2 + 0.125 lb/sk Pol-E-Flake + 0.5 lb/sk D-Air 5000
	30	14.8	6.32	1.33	2 nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Inter.	852	14.8	6.32	1.33	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
10-3/4" Surface	0'	50%
7-5/8" Intermediate	0'	30%
7-5/8" Intermediate Two Stage Option	1 st Stage = 4900' / 2 nd Stage = 0'	30%
5-1/2" Production Casing	11,740'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
8-3/4"	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram	X	
			Double Ram	X	
			Other*		
6-3/4"	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram	X	
			Double Ram	X	
			Other*		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2.
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Devon Energy, Seawolf 1-12 81H

	On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
Y	<p>A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.</p> <p>Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.</p> <ul style="list-style-type: none"> Wellhead will be installed by wellhead representatives. If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. Wellhead representative will install the test plug for the initial BOP test. Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. <p>After running the 10-3/4" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.</p> <p>After running the 7-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 5M will already be installed on the wellhead.</p> <p>The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line</p>

Devon Energy, Seawolf 1-12 81H

	<p>and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.</p> <p>Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.</p> <p>Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.</p>
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5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	850'	FW Gel	8.6-8.8	28-34	N/C
850'	11,940'	OBM/Cut Brine	8.6-10	34-65	N/C - 6
11,940'	22,497'	Oil Based Mud	9.5-12	45-65	N/C - 6

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
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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 Report and submitted 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	Specify what type and where?
BH Pressure at deepest TVD	7200 psi
Abnormal Temperature	No

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

Hydrogen 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.

N	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? Yes

1. In the event the spudder rig is unable to drill the surface holes the 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 with either OBM or cut brine 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? Yes

1. Spudder rig will move in and drill surface hole.
 - a. Rig will utilize fresh water based mud to drill 14 3/4" 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 10-3/4" 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.

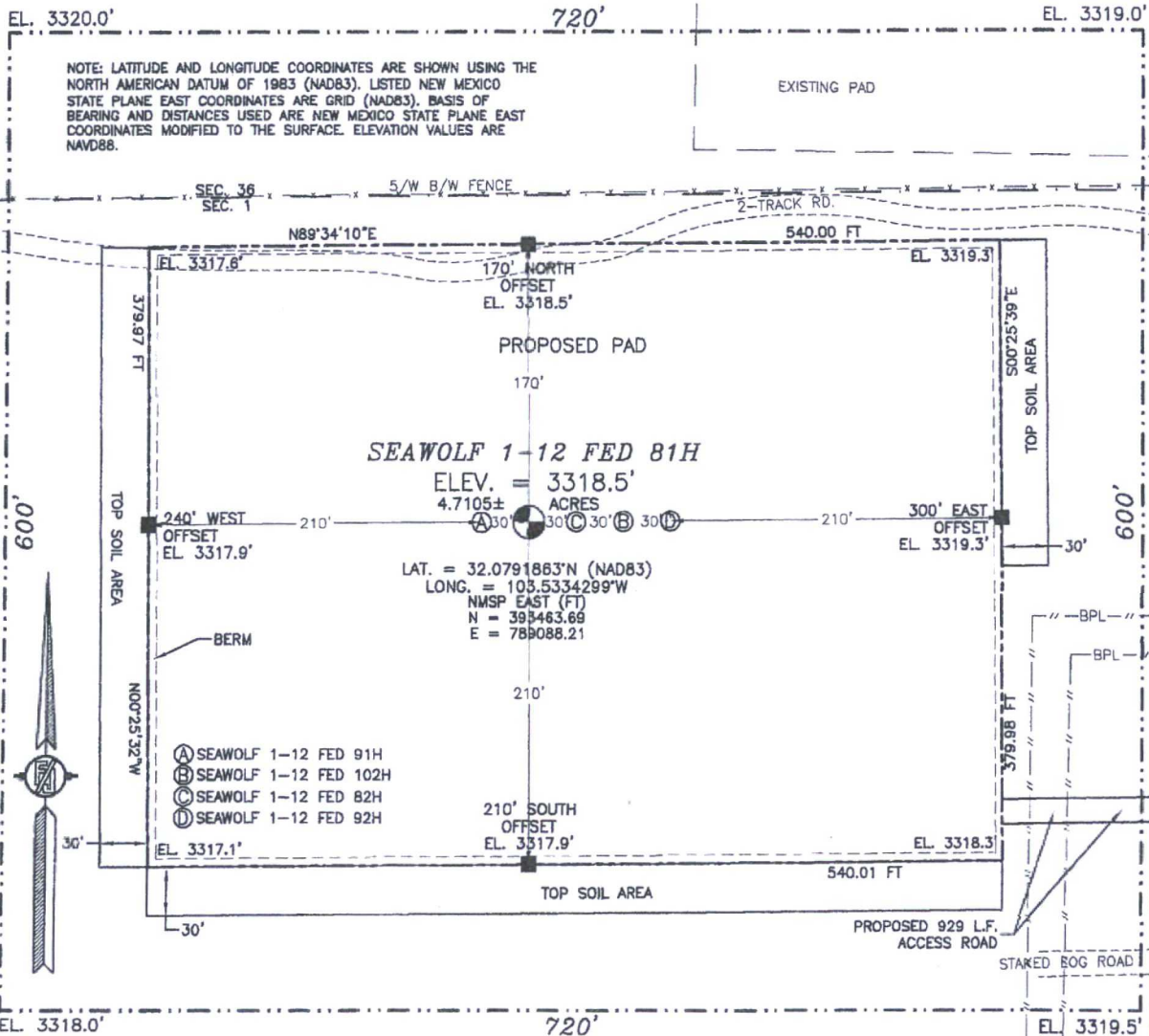
Devon Energy, Seawolf 1-12 81H

6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nipped 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

- ☒ Directional Plan
☐ Other, describe

SECTION 1, TOWNSHIP 26 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
SITE MAP



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HWY. 128 & BATTLE AXE (CR. 2)
GO SOUTH & WEST ON BATTLE AXE ROAD APPROX. 11.2 MILES TO
AN EXISTING CATTLE GUARD AND LEASE ROAD ON RIGHT (WEST) ON
THE NORTH SIDE OF AN EXISTING FENCE, GO WEST APPROX. 0.41
MILE TO A ROAD LATH IN FENCE ON SOUTH SIDE OF ROAD, FOLLOW
ROAD LATHS 929' SOUTH & WEST TO LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.
SEAWOLF 1-12 FED 81H

LOCATED 200 FT. FROM THE NORTH LINE
AND 360 FT. FROM THE WEST LINE OF
SECTION 1, TOWNSHIP 26 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

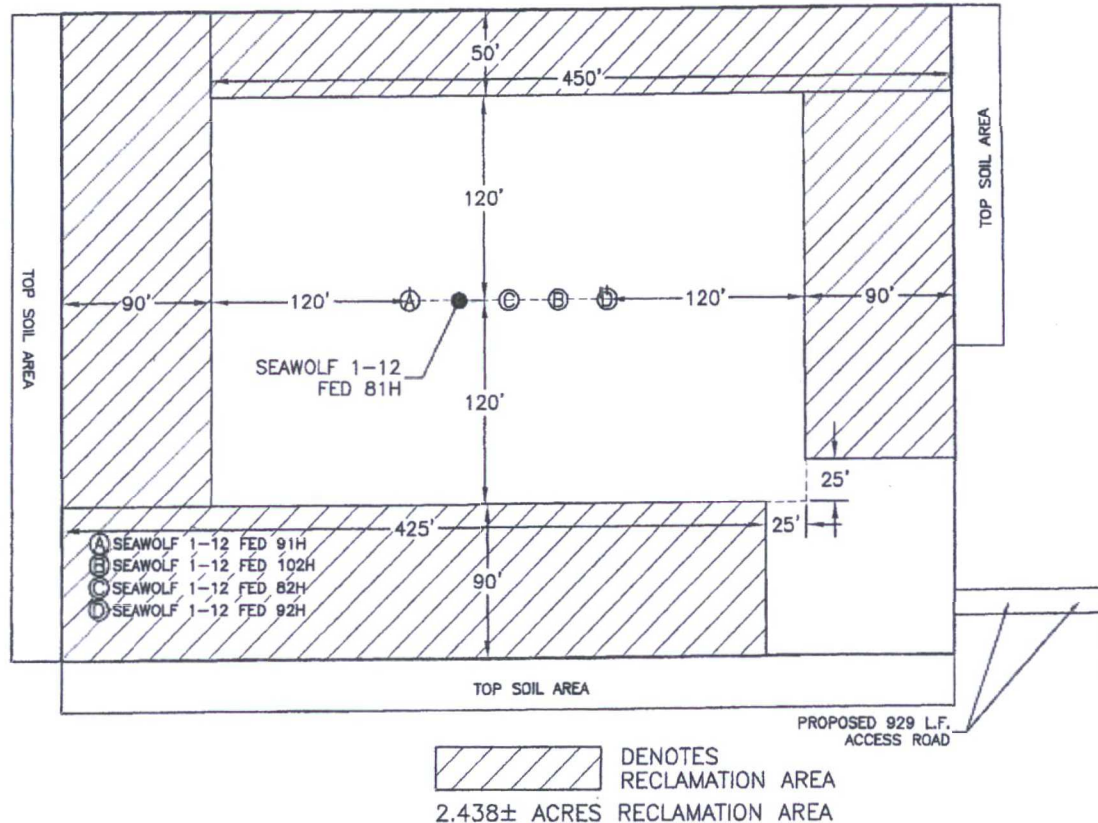
JUNE 14, 2017

SURVEY NO. 39181

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 1, TOWNSHIP 26 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
INTERIM SITE RECLAMATION



0 10 50 100 200
SCALE 1" = 100'

DEVON ENERGY PRODUCTION COMPANY, L.P.
SEAWOLF 1-12 FED 81H
LOCATED 200 FT. FROM THE NORTH LINE
AND 360 FT. FROM THE WEST LINE OF
SECTION 1, TOWNSHIP 26 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

JUNE 14, 2017

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

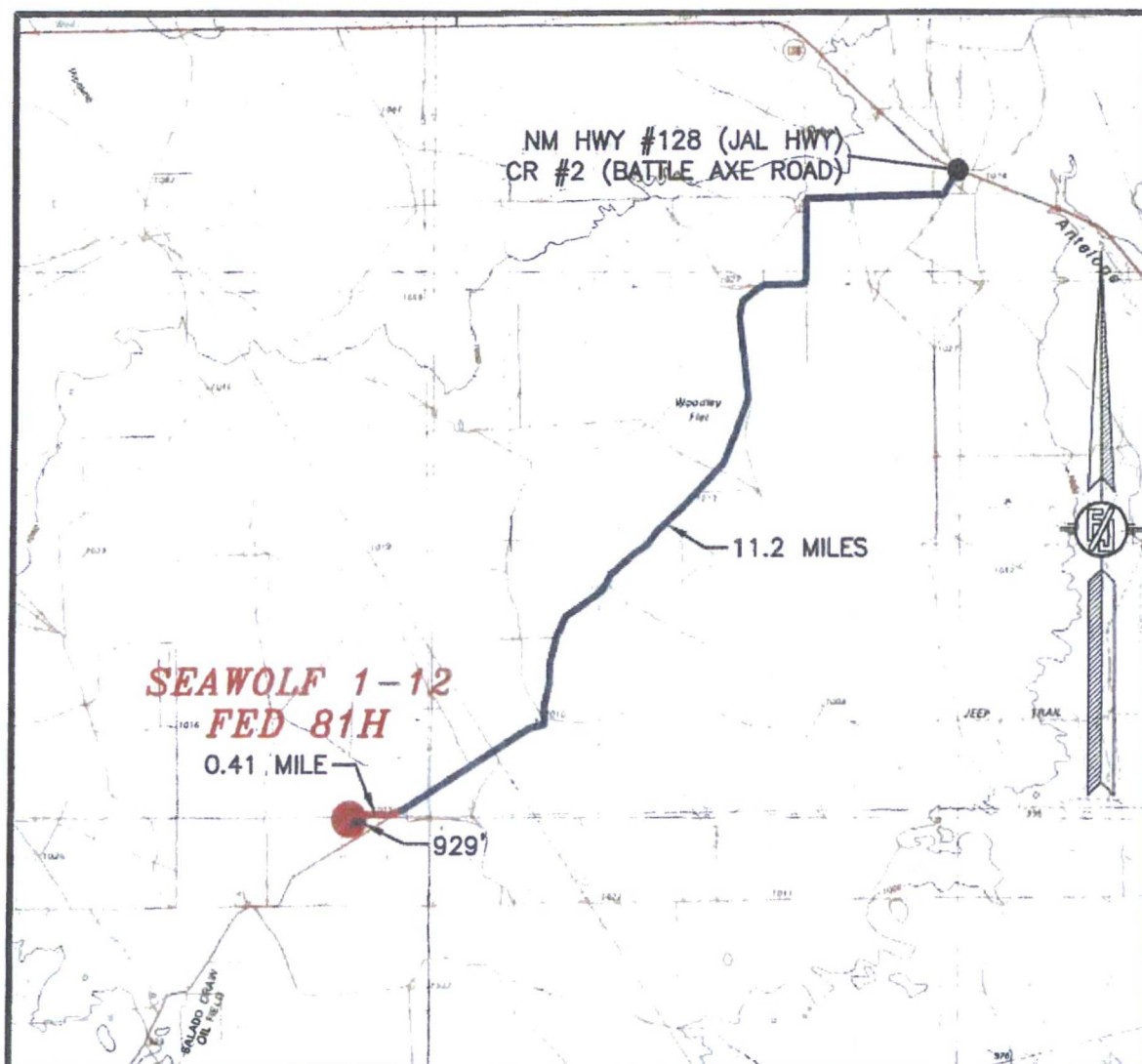
SURVEY NO. 39181

NOT TO SCALE

JUNE 14, 2017

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 1, TOWNSHIP 26 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE HWY. 128 & BATTLE AXE (CR. 2)
GO SOUTH & WEST ON BATTLE AXE ROAD APPROX. 11.2 MILES TO
AN EXISTING CATTLE GUARD AND LEASE ROAD ON RIGHT (WEST) ON
THE NORTH SIDE OF AN EXISTING FENCE, GO WEST APPROX. 0.41
MILE TO A ROAD LATH IN FENCE ON SOUTH SIDE OF ROAD, FOLLOW
ROAD LATHS 929' SOUTH & WEST TO LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.
SEAWOLF 1-12 FED 81H

LOCATED 200 FT. FROM THE NORTH LINE
AND 360 FT. FROM THE WEST LINE OF
SECTION 1, TOWNSHIP 26 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

JUNE 14, 2017

SURVEY NO. 3918I

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

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2

11

12

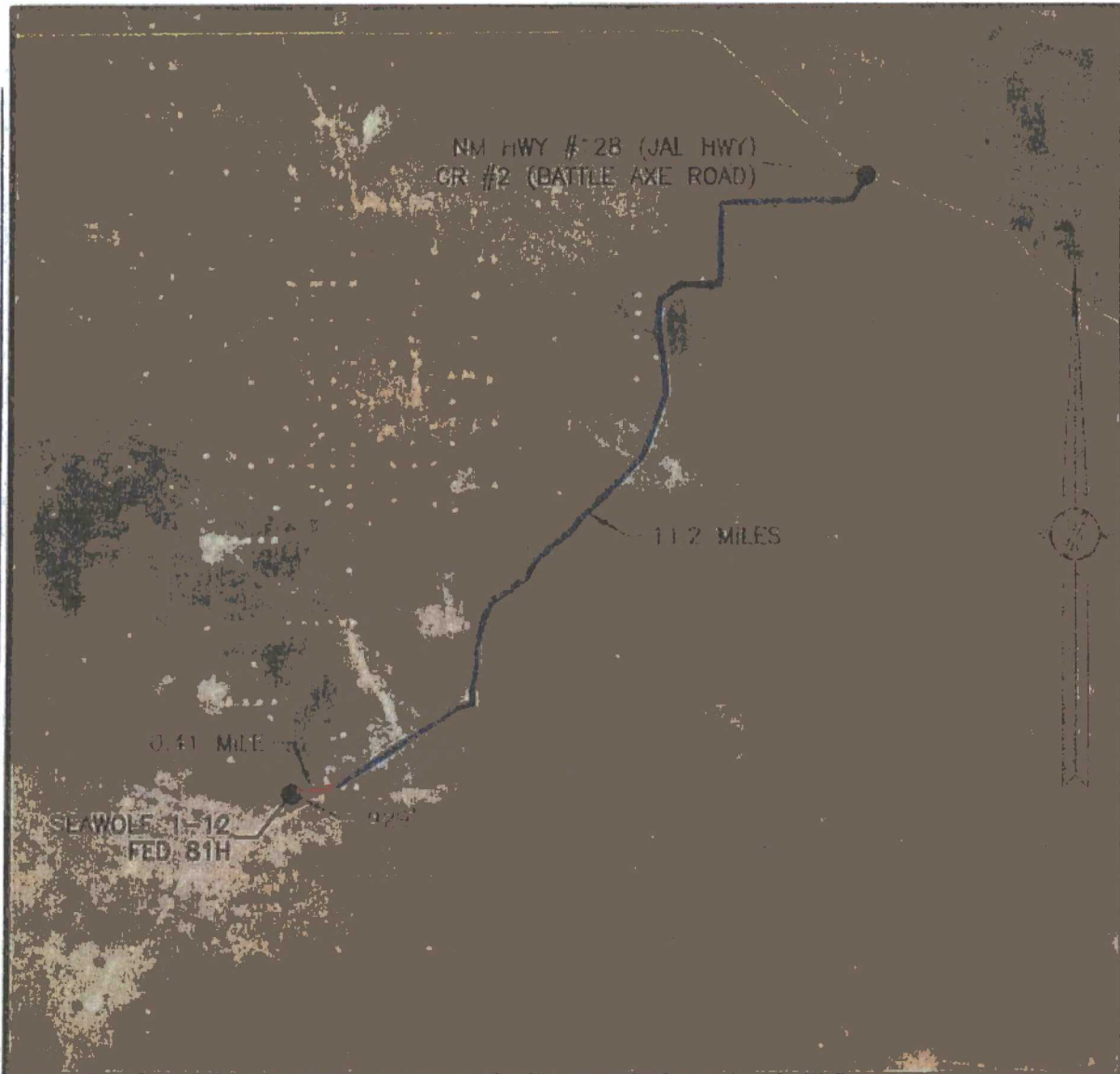
REYNOLDS 920 11
AND 511 ROAD

DEVON ENERGY PRODUCTION COMPANY, L.P.
SEAWOLF 1-12 FED 81H
LOCATED 200 FT. FROM THE NORTH LINE
AND 360 FT. FROM THE WEST LINE OF
SECTION 1, TOWNSHIP 26 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

SURVEY NO. 3918I

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 1, TOWNSHIP 26 SOUTH, RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
AERIAL ACCESS ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
APR. 2013

DEVON ENERGY PRODUCTION COMPANY, L.P.
SEAWOLF 1-12 FED 81H
LOCATED 200 FT. FROM THE NORTH LINE
AND 360 FT. FROM THE WEST LINE OF
SECTION 1, TOWNSHIP 26 SOUTH,
RANGE 33 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

JUNE 14, 2017

SURVEY NO. 3918I

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

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Devon Energy

Lea County, NM (NAD-83)

Seawolf 1-12 Fed

81H

OH

Plan: Plan #1

Standard Planning Report

05 July, 2017

Devon Energy

Project: Lea County, NM (NAD-83)
Site: Seawolf 1-12 Fed
Well: 81H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.44°

Magnetic Field
Strength: 47999.8snT
Dip Angle: 59.82°
Date: 1/19/2017
Model: HDGM



PROJECT DETAILS: Lea County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

HOBBS OCD

JUL 17 2017

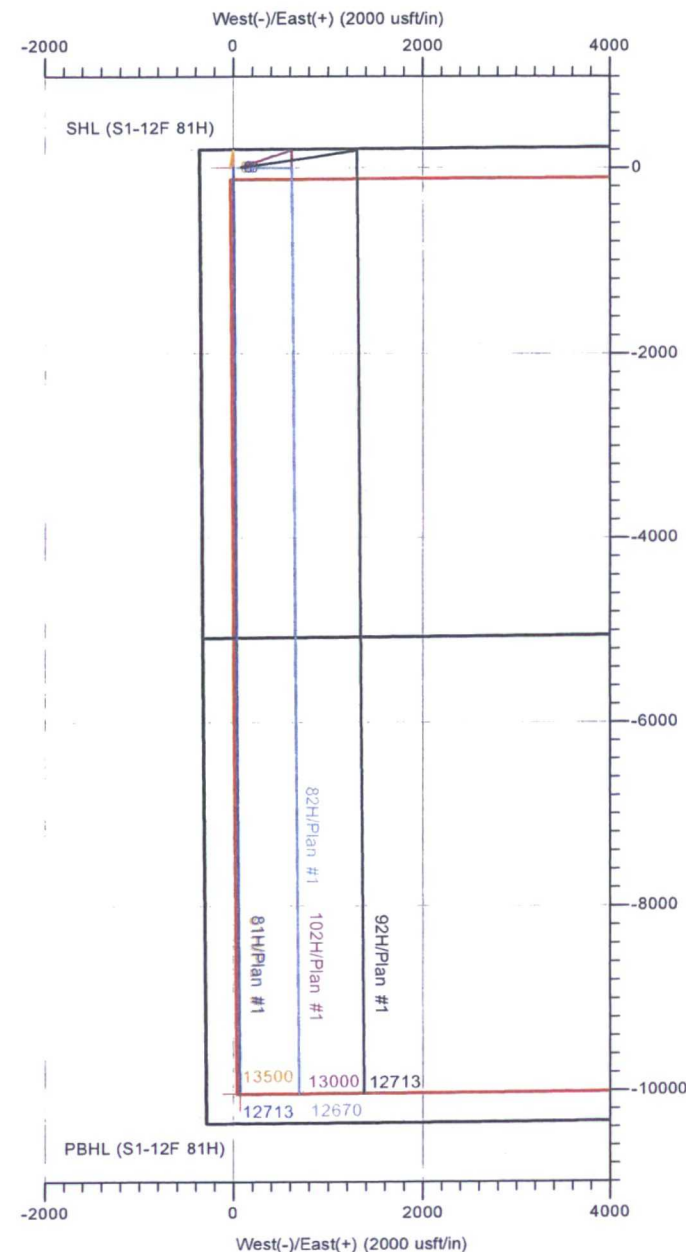
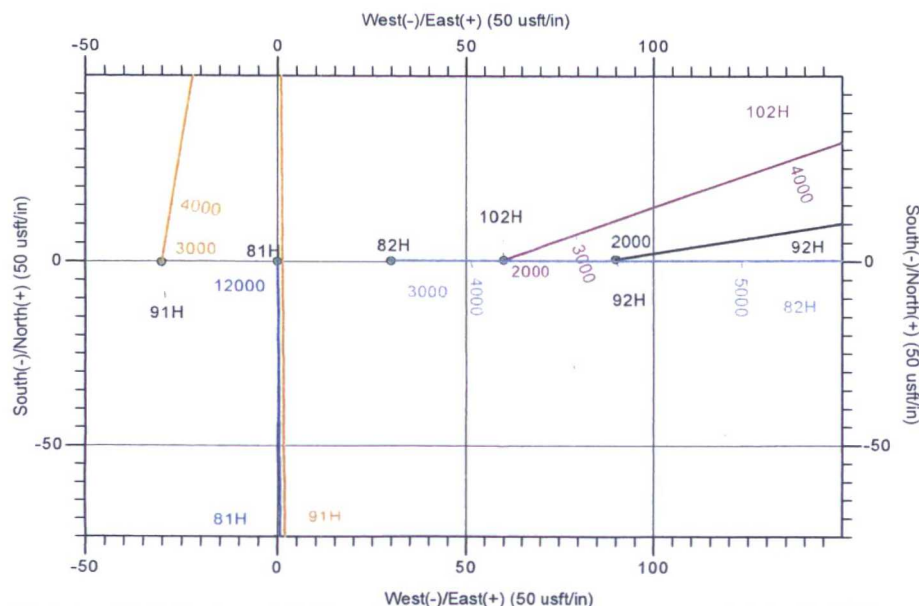
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DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (S1-12F 81H)	12713.00	-10029.87	74.17	383433.82	789162.38	32° 3' 5.816 N	103° 32' 0.350 W
SHL (S1-12F 81H)	0.00	0.00	0.00	393463.69	789088.21	32° 4' 45.071 N	103° 32' 0.348 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	12140.04	0.00	0.00	12140.04	0.00	0.00	0.00	0.00	0.00	Start DLS 10.00 TFO 179.58
3	13040.04	90.00	179.58	12713.00	-572.94	4.24	10.00	179.58	572.94	Start 9457.19 hold at 13040.04 MD
4	22497.23	90.00	179.58	12713.00	-10029.87	74.17	0.00	0.00	10029.87	TD at 22497.23



LEAM DRILLING SYSTEMS LLC
2010 East Davis, Conroe, Texas 77301
Phone: 936/756-7577, Fax: 936/756-7595

Plan: Plan #1 (81H/OH)
Seawolf 1-12 Fed
Created By: Brady Deaver
Date: 16:09, July 05 2017
Approved: _____
Date: _____

Leam Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi_User DB
 Company: Devon Energy
 Project: Lea County, NM (NAD-83)
 Site: Seawolf 1-12 Fed
 Well: 81H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well 81H
 TVD Reference: 3318.5' GE + 21' KB @ 3339.50usft
 MD Reference: 3318.5' GE + 21' KB @ 3339.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Project	Lea County, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Seawolf 1-12 Fed			
Site Position:		Northing:	393,463.69 usft	Latitude: 32° 4' 45.071 N
From: Map		Easting:	789,088.21 usft	Longitude: 103° 32' 0.348 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.42 °

Well	81H			
Well Position	+N/-S	0.00 usft	Northing:	393,463.69 usft
	+E/-W	0.00 usft	Easting:	789,088.21 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 3,318.50 usft

Wellbore	OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)
	HDGM	1/19/2017	6.87	59.82
				Field Strength (nT) 48,000

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	180.00

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12,140.04	0.00	0.00	12,140.04	0.00	0.00	0.00	0.00	0.00	0.00	
13,040.04	90.00	179.58	12,713.00	-572.94	4.24	10.00	10.00	19.95	179.58	
22,497.23	90.00	179.58	12,713.00	-10,029.87	74.17	0.00	0.00	0.00	0.00	PBHL (S1-12F 81H)

Devon Energy

Project: Lea County, NM (NAD-83)

Site: Seawolf 1-12 Fed

Well: 81H

Wellbore: OH

Design: Plan #1

3318.5' GE + 21' KB @ 3339.50usft

Ground Level: 3318.50



Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.44°

Magnetic Field
Strength: 47999.8snT
Dip Angle: 59.82°
Date: 1/19/2017
Model: HDGM

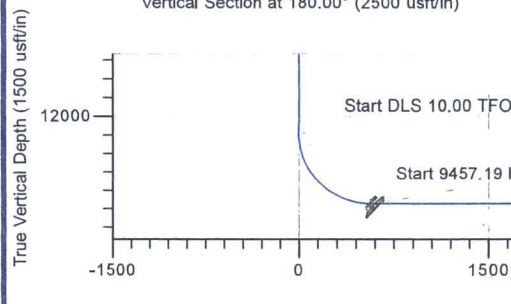
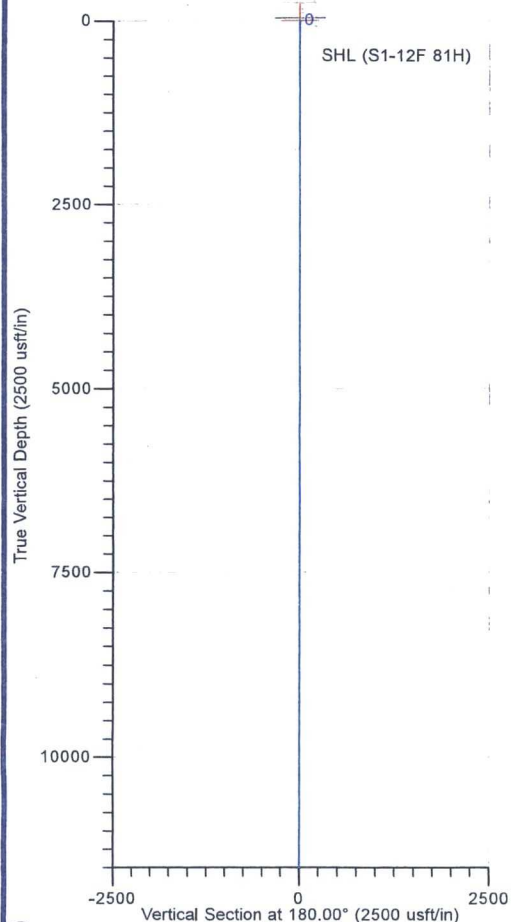
PROJECT DETAILS: Lea County, NM (NAD-83)

Geodetic System: US State Plane 1983

Datum: North American Datum 1983

Ellipsoid: GRS 1980

Zone: New Mexico Eastern Zone

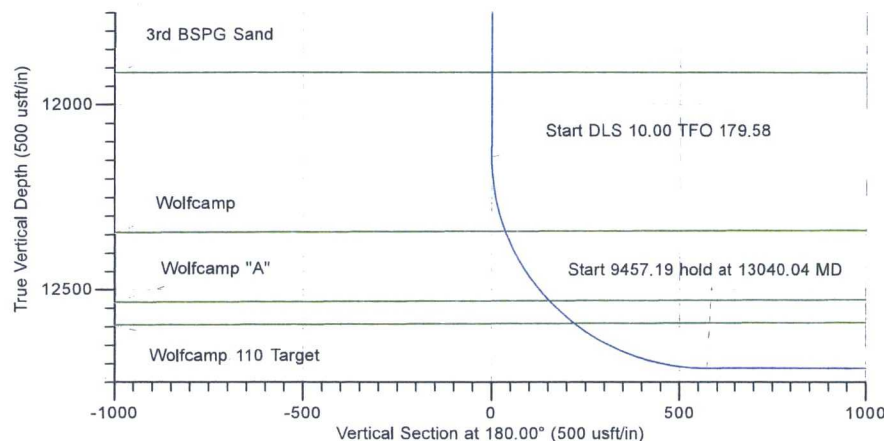


SECTION DETAILS

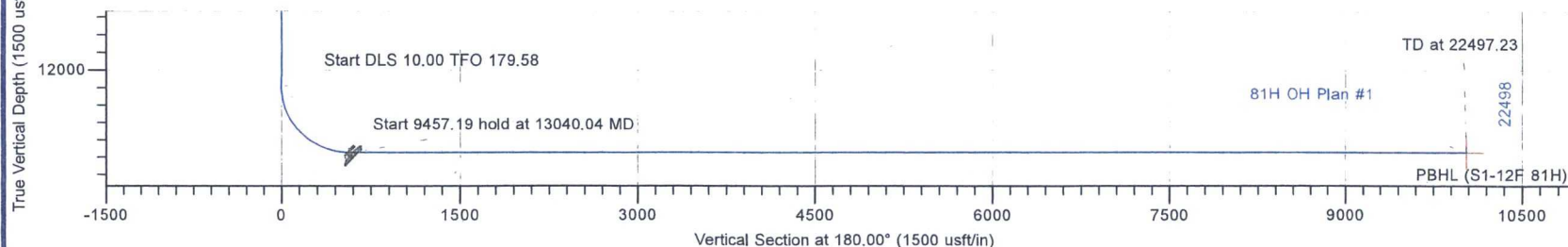
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	12140.04	0.00	0.00	12140.04	0.00	0.00	0.00	0.00	0.00	Start DLS 10.00 TFO 179.58
3	13040.04	90.00	179.58	12713.00	-572.94	4.24	10.00	179.58	572.94	Start 9457.19 hold at 13040.04 MD
4	22497.23	90.00	179.58	12713.00	-10029.87	74.17	0.00	0.00	10029.87	TD at 22497.23

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL (S1-12F 81H)	12713.00	-10029.87	74.17	32° 3' 5.816 N	103° 32' 0.350 W
SHL (S1-12F 81H)	0.00	0.00	0.00	32° 4' 45.071 N	103° 32' 0.348 W



HOBBS
JUL 17 2017
RECEIVED



LEAM DRILLING SYSTEMS LLC
2010 East Davis, Conroe, Texas 77301
Phone: 936/756-7577, Fax: 936/756-7595

Plan: Plan #1 (81H/OH)
Seawolf 1-12 Fed
Created By: Brady Deaver
Date: 15:10, July 05 2017
Approved: _____
Date: _____

JUL 17 2017

RECEIVED

**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Production Co, LP
LEASE NO.:	NMNM114988
WELL NAME & NO.:	81H-Seawolf 1 12 Fed
SURFACE HOLE FOOTAGE:	200'/N & 635'/W
BOTTOM HOLE FOOTAGE:	330'/S & 380'/W
LOCATION:	Section 1, T.26 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated 500 feet prior to drilling into the Wolfcamp formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper**

copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

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

Wait on cement (WOC) for Water Basin:

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. **DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE.**

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

Risks:

Medium Cave/Karst

Possibility of water flows in the Castile and in the Salado.

Possibility of lost circulation in the Rustler, in the Red Beds and in the Delaware.

A. The 10 3/4 inch surface casing shall be set at approximately 1000 feet (in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt) and cemented to the surface.

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

completing the cement job.

2. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 3. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 4. If cement falls back, remedial cementing will be done prior to drilling out that string.
- B. The minimum required fill of cement behind the **7 5/8** inch intermediate casing (**in the basal anhydrite of the Castile Formation**) is:
- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Excess calculates to 14%. Additional cement may be required.**

The intermediate casing shall be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing, which is calculated by BLM standards.

- C. The minimum required fill of cement behind the **5 1/2** inch production casing is:
- ☒ Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 17%. Additional cement may be required.**

Note: All perforations shall be a minimum of 0330 feet FEL.

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

C. PRESSURE CONTROL

- A. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.
- B. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with

a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

C. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

- a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
- b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
- c. **Manufacturer representative shall install the test plug for the initial BOP test.**
- d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
- e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

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

1. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
2. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for

the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

3. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
4. The results of the test shall be reported to the appropriate BLM office.
5. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
6. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

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

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

ZS07132017

10 3/4 Segment	surface csg in a #/ft	Grade	14 3/4 Coupling	inch hole. Coupling	Joint	Design Factors		SURFACE	
"A"						Collapse	Burst	Length	Weight
"A"	40.50	J 55	ST&C		10.37	3.46	0.5	1,000	40,500
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500					Tail Cmt	does	circ to sfc.	Totals:	1,000 40,500
<u>Comparison of Proposed to Minimum Required Cement Volumes</u>									
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
14 3/4	0.5563	623	835	582	43	8.80	3576	5M	1.50

Burst Frac Gradient(s) for Segment(s) A, B = 3.13, b All > 0.70,
OK.

7 5/8	casing inside the		10 3/4	Design Factors				INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	29.70	P 110	BUTT	2.28	1.62	1.25	11,940	354,618	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	11,940	354,618
The cement volume(s) are intended to achieve a top of					0	ft from surface or a	1000	overlap.	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
8 3/4	0.1005	741	1533	1344	14	10.00	4897	5M	0.56
							MASP is within 10% of 5000psig, need		
*Assumed 1/3 fluid filled for collapse calculation									

*Assumed 1/3 fluid filled for collapse calculation

Tail cmt					Design Factors		PRODUCTION		
5 1/2 Segment	casing inside the #/ft	7 5/8 Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	20.00	P 110	BUTT	2.61	1.9	1.12	12,140	242,800	
"B"	20.00	P 110	BUTT	9.25	1.36	1.67	10,357	207,140	
w/8.4#/g mud, 30min Sfc Csg Test psig: 627							Totals:	22,497 449,940	
B	would be:			∞	1.46	if it were a vertical wellbore.			
No Pilot Hole Planned		MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC	
		22497	12140	12140	12140	90	10	13040	
The cement volume(s) are intended to achieve a top of				11100	ft from surface or a		840	overlap.	
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	852	1133	965	17	12.00			0.35
Class 'H' tail cmt yld > 1.20									