

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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

DEVON ENERGY PRODUCTION COMPANY

Contact: REBECCA DEAL

Email: Rebecca.Deal@devn.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 NENE 200FNL 800FEL

8. Well Name and No.

SEAWOLF 1-12 FED 85H

9. API Well No.

30-025-43766

10. Field and Pool or Exploratory Area

WC-025 G-09 S253336D;U WC

11. County or Parish, State

LEA COUNTY, NM

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

TYPE OF SUBMISSION

- ☒
- Notice of Intent
-
- ☐
- Subsequent Report
-
- ☐
- Final Abandonment Notice

TYPE OF ACTION

- | | | | |
|---|---|--|---|
| ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| ☐ Alter Casing | ☐ Hydraulic Fracturing | ☐ Reclamation | ☐ Well Integrity |
| ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☒ Other |
| ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | Change to Original A |
| ☐ Convert to Injection | ☐ Plug Back | ☐ 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 recomple 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 recomple 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 an annular variance and the following changes to the original APD:

Target TVD from 12,664' to 12,713'
Production Hole Size Change from 8 3/4" to 6 3/4"
Production Casing Connect Change

Please see attached revised Drilling Plan, BOPE schematic, Production Hole Document and Annular Preventer Document.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

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

Electronic Submission #392254 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION COMPANY, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 11/08/2017 ()

Name (Printed/Typed) REBECCA DEAL

Title REGULATORY COMPLIANCE PROFESSI

Signature (Electronic Submission)

Date 10/17/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Mustafa Haguel

Title

PETROLEUM ENGINEER

Date 2/1/2018

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

**BUREAU OF LAND MANAGEMENT
CROSBY FIELD OFFICE**

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

(Instructions on page 2)

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

1. Component and Preventer Compatibility Table

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

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

Component	OD	Preventer	RWP
Drillpipe	4.5"	Fixed lower 4.5" Upper 3.5-5.5" VBR	10M
HWDP	4.5"	Fixed lower 4.5" Upper 3.5-5.5" VBR	10M
Drill collars and MWD tools	4.75"	Upper 3.5-5.5" VBR	10M
Mud Motor	4.75"	Upper 3.5-5.5" VBR	10M
Production casing	5.5"	Upper 3.5-5.5" VBR	10M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

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

2. Well Control Procedures

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

General Procedure While Drilling

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

Devon Energy, Seawolf 1-12 Wells

General Procedure While Tripping

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

General Procedure While Running Casing

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

General Procedure With No Pipe In Hole (Open Hole)

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

Devon Energy, Seawolf 1-12 Wells

General Procedures While Pulling BHA thru Stack

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

Devon Energy

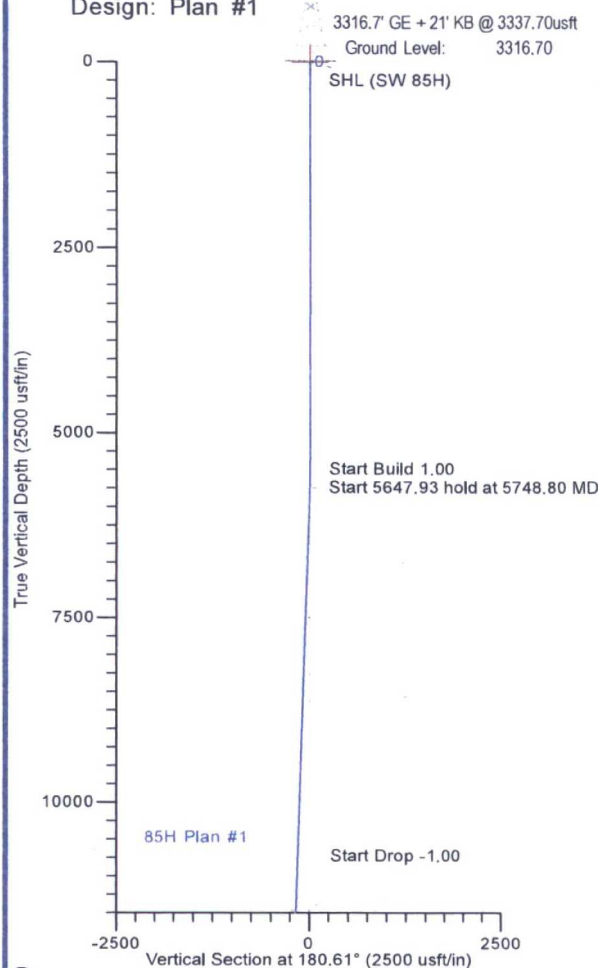
Project: Lea County, NM (NAD-83)
Site: Seawolf 1-12 Fed
Well: 85H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.43°
Magnetic North: 6.38°
Magnetic Field
Strength: 47949.1snT
Dip Angle: 59.80°
Date: 7/5/2017
Model: HDGM

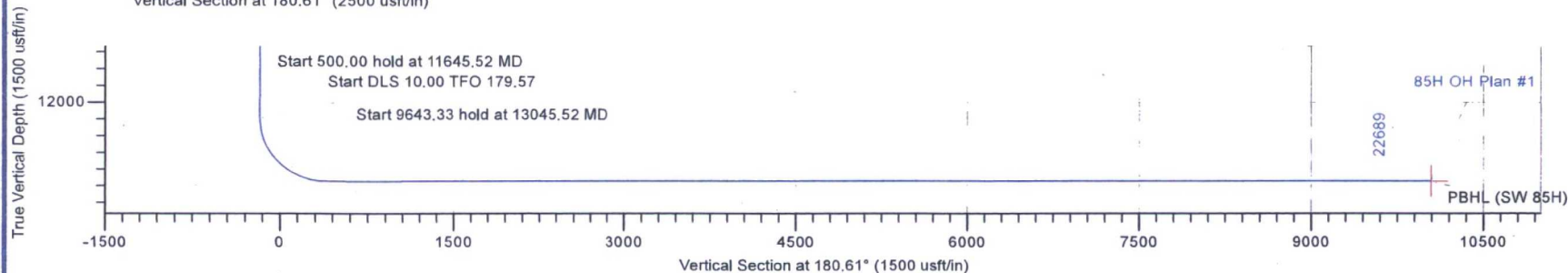
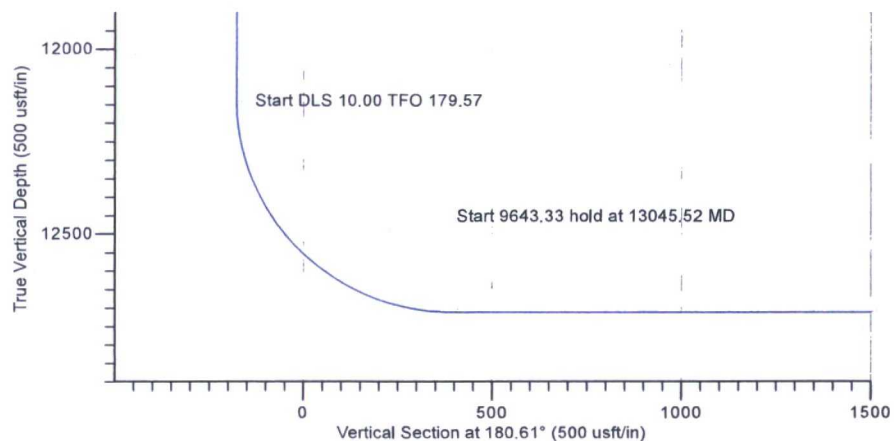
PROJECT DETAILS: Lea County, NM (NAD-83)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone



SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00	
5500.00	0.00	0.00	5500.00	0.00	0.00	0.00	0.00	0.00	Start 5647.93 hold at 5748.80 MD	
5748.80	2.49	314.68	5748.72	3.80	-3.84	1.00	314.68	-3.76	Start Drop -1.00	
11396.72	2.49	314.68	11391.32	176.20	-178.16	0.00	0.00	-174.31	Start 500.00 hold at 11645.52 MD	
11645.52	0.00	0.00	11640.04	180.00	-182.00	1.00	180.00	-178.07	Start DLS 10.00 TFO 179.57	
12145.52	0.00	0.00	12140.04	180.00	-182.00	0.00	0.00	-178.07	Start 9643.33 hold at 13045.52 MD	
13045.52	90.00	179.57	12713.00	-392.94	-177.74	10.00	179.57	394.80	TD at 22688.85	
22688.85	90.00	179.57	12713.00	-10036.00	-106.00	0.00	0.00	10036.56		

DESIGN TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
PBHL (SW 85H)	12713.00	-10036.00	-106.00	32° 3' 5.762 N	103° 31' 14.517 W	
SHL (SW 85H)	0.00	0.00	0.00	32° 4' 45.063 N	103° 31' 12.406 W	



HOBBS OCD
FEB 06 2018
RECEIVED



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

Plan: Plan #1 (85H/OH)
Seawolf 1-12 Fed
Created By: Brady Deaver Date: 12:08, July 05 2017
Date: _____
Approved: _____ Date: _____

Devon Energy

Project: Lea County, NM (NAD-83)
Site: Seawolf 1-12 Fed
Well: 85H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.43°
Magnetic North: 6.38°

Magnetic Field
Strength: 47949.1snT
Dip Angle: 59.80°
Date: 7/5/2017
Model: HDGM



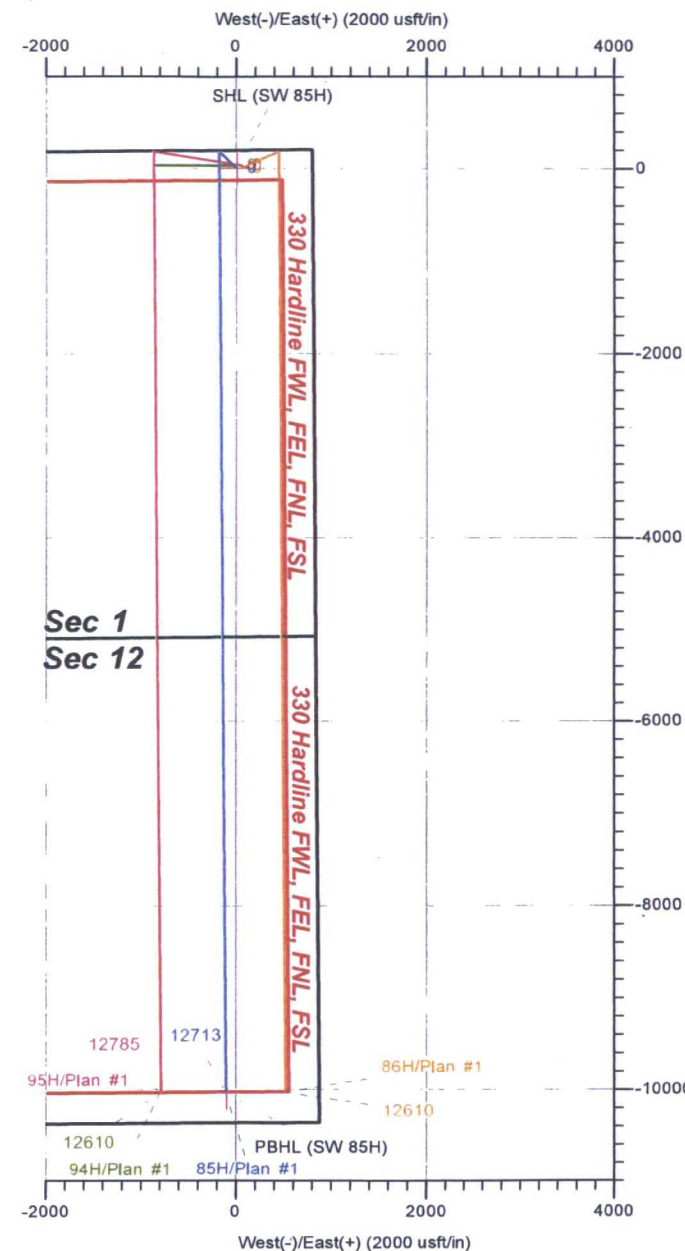
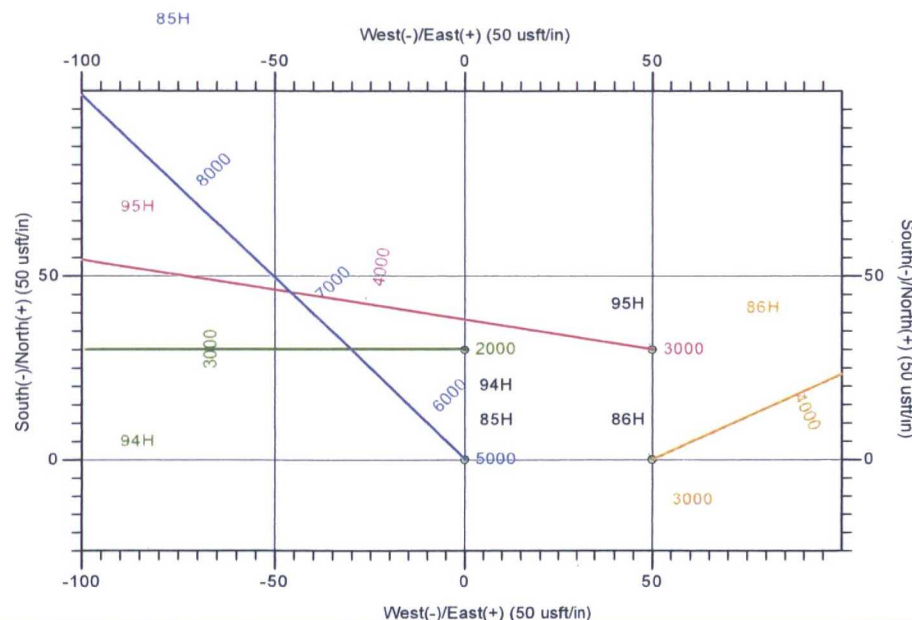
PROJECT DETAILS: Lea County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (SW 85H)	12713.00	-10036.00	-106.00	383457.75	793106.97	32° 3' 5.762 N	103° 31' 14.517 W
SHL (SW 85H)	0.00	0.00	0.00	393493.75	793212.97	32° 4' 45.063 N	103° 31' 12.406 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5500.00	0.00	0.00	5500.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
5748.80	2.49	314.68	5748.72	3.80	-3.84	1.00	314.68	-3.76	Start 5647.93 hold at 5748.80 MD
11396.72	2.49	314.68	11391.32	176.20	-178.16	0.00	0.00	-174.31	Start Drop -1.00
11645.52	0.00	0.00	11640.04	180.00	-182.00	1.00	180.00	-178.07	Start 500.00 hold at 11645.52 MD
12145.52	0.00	0.00	12140.04	180.00	-182.00	0.00	0.00	-178.07	Start DLS 10.00 TFO 179.57
13045.52	90.00	179.57	12713.00	-392.94	-177.74	10.00	179.57	394.80	Start 9643.33 hold at 13045.52 MD
22688.85	90.00	179.57	12713.00	-10036.00	-106.00	0.00	0.00	10036.56	TD at 22688.85



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

Plan: Plan #1 (85H/OH)
Seawolf 1-12 Fed
Created By: Dustin Ault
Date: 12:10, July 05 2017
Approved: _____
Date: _____

HOBBS OCD

FEB 06 2018

RECEIVED

Devon Energy

Lea County, NM (NAD-83)

Seawolf 1-12 Fed

85H

OH

Plan: Plan #1

Standard Planning Report

05 July, 2017

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: 85H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well 85H
 TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 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	85H					
Well Position	+N/-S	30.06 usft	Northing:	393,493.75 usft	Latitude:	32° 4' 45.063 N
	+E/-W	4,124.76 usft	Easting:	793,212.97 usft	Longitude:	103° 31' 12.406 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft	Ground Level:	3,316.70 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	7/5/2017	6.82	59.80	47,949

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	180.61

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	
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,748.80	2.49	314.68	5,748.72	3.80	-3.84	1.00	1.00	0.00	314.68	
11,396.72	2.49	314.68	11,391.32	176.20	-178.16	0.00	0.00	0.00	0.00	
11,645.52	0.00	0.00	11,640.04	180.00	-182.00	1.00	-1.00	0.00	180.00	
12,145.52	0.00	0.00	12,140.04	180.00	-182.00	0.00	0.00	0.00	0.00	
13,045.52	90.00	179.57	12,713.00	-392.94	-177.74	10.00	10.00	19.95	179.57	
22,688.85	90.00	179.57	12,713.00	-10,036.00	-106.00	0.00	0.00	0.00	0.00	PBHL (SW 85H)

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: 85H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well 85H
 TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (SW 85H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00

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: 85H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well 85H
 TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.00									
5,600.00	1.00	314.68	5,600.00	0.61	-0.62	-0.61	1.00	1.00	0.00
5,700.00	2.00	314.68	5,699.96	2.45	-2.48	-2.43	1.00	1.00	0.00
5,748.80	2.49	314.68	5,748.72	3.80	-3.84	-3.76	1.00	1.00	0.00
Start 5647.93 hold at 5748.80 MD									
5,800.00	2.49	314.68	5,799.87	5.36	-5.42	-5.30	0.00	0.00	0.00
5,900.00	2.49	314.68	5,899.78	8.41	-8.51	-8.32	0.00	0.00	0.00
6,000.00	2.49	314.68	5,999.69	11.47	-11.59	-11.34	0.00	0.00	0.00
6,100.00	2.49	314.68	6,099.59	14.52	-14.68	-14.36	0.00	0.00	0.00
6,200.00	2.49	314.68	6,199.50	17.57	-17.77	-17.38	0.00	0.00	0.00
6,300.00	2.49	314.68	6,299.40	20.62	-20.85	-20.40	0.00	0.00	0.00
6,400.00	2.49	314.68	6,399.31	23.68	-23.94	-23.42	0.00	0.00	0.00
6,500.00	2.49	314.68	6,499.21	26.73	-27.03	-26.44	0.00	0.00	0.00
6,600.00	2.49	314.68	6,599.12	29.78	-30.11	-29.46	0.00	0.00	0.00
6,700.00	2.49	314.68	6,699.03	32.83	-33.20	-32.48	0.00	0.00	0.00
6,800.00	2.49	314.68	6,798.93	35.89	-36.28	-35.50	0.00	0.00	0.00
6,900.00	2.49	314.68	6,898.84	38.94	-39.37	-38.52	0.00	0.00	0.00
7,000.00	2.49	314.68	6,998.74	41.99	-42.46	-41.54	0.00	0.00	0.00
7,100.00	2.49	314.68	7,098.65	45.04	-45.54	-44.56	0.00	0.00	0.00
7,200.00	2.49	314.68	7,198.55	48.10	-48.63	-47.58	0.00	0.00	0.00
7,300.00	2.49	314.68	7,298.46	51.15	-51.72	-50.60	0.00	0.00	0.00
7,400.00	2.49	314.68	7,398.37	54.20	-54.80	-53.62	0.00	0.00	0.00
7,500.00	2.49	314.68	7,498.27	57.25	-57.89	-56.64	0.00	0.00	0.00
7,600.00	2.49	314.68	7,598.18	60.31	-60.98	-59.66	0.00	0.00	0.00
7,700.00	2.49	314.68	7,698.08	63.36	-64.06	-62.68	0.00	0.00	0.00
7,800.00	2.49	314.68	7,797.99	66.41	-67.15	-65.70	0.00	0.00	0.00
7,900.00	2.49	314.68	7,897.89	69.46	-70.24	-68.72	0.00	0.00	0.00
8,000.00	2.49	314.68	7,997.80	72.52	-73.32	-71.74	0.00	0.00	0.00
8,100.00	2.49	314.68	8,097.71	75.57	-76.41	-74.76	0.00	0.00	0.00
8,200.00	2.49	314.68	8,197.61	78.62	-79.49	-77.78	0.00	0.00	0.00
8,300.00	2.49	314.68	8,297.52	81.67	-82.58	-80.80	0.00	0.00	0.00
8,400.00	2.49	314.68	8,397.42	84.73	-85.67	-83.82	0.00	0.00	0.00
8,500.00	2.49	314.68	8,497.33	87.78	-88.75	-86.84	0.00	0.00	0.00
8,600.00	2.49	314.68	8,597.23	90.83	-91.84	-89.86	0.00	0.00	0.00
8,700.00	2.49	314.68	8,697.14	93.88	-94.93	-92.88	0.00	0.00	0.00
8,800.00	2.49	314.68	8,797.05	96.94	-98.01	-95.90	0.00	0.00	0.00
8,900.00	2.49	314.68	8,896.95	99.99	-101.10	-98.92	0.00	0.00	0.00
9,000.00	2.49	314.68	8,996.86	103.04	-104.19	-101.94	0.00	0.00	0.00
9,100.00	2.49	314.68	9,096.76	106.09	-107.27	-104.96	0.00	0.00	0.00
9,200.00	2.49	314.68	9,196.67	109.15	-110.36	-107.98	0.00	0.00	0.00
9,300.00	2.49	314.68	9,296.57	112.20	-113.45	-110.99	0.00	0.00	0.00
9,400.00	2.49	314.68	9,396.48	115.25	-116.53	-114.01	0.00	0.00	0.00
9,500.00	2.49	314.68	9,496.39	118.30	-119.62	-117.03	0.00	0.00	0.00
9,600.00	2.49	314.68	9,596.29	121.36	-122.71	-120.05	0.00	0.00	0.00
9,700.00	2.49	314.68	9,696.20	124.41	-125.79	-123.07	0.00	0.00	0.00
9,800.00	2.49	314.68	9,796.10	127.46	-128.88	-126.09	0.00	0.00	0.00
9,900.00	2.49	314.68	9,896.01	130.51	-131.96	-129.11	0.00	0.00	0.00
10,000.00	2.49	314.68	9,995.91	133.57	-135.05	-132.13	0.00	0.00	0.00
10,100.00	2.49	314.68	10,095.82	136.62	-138.14	-135.15	0.00	0.00	0.00
10,200.00	2.49	314.68	10,195.73	139.67	-141.22	-138.17	0.00	0.00	0.00
10,300.00	2.49	314.68	10,295.63	142.72	-144.31	-141.19	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

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Well: 85H
Wellbore: OH
Design: Plan #1

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TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,400.00	2.49	314.68	10,395.54	145.78	-147.40	-144.21	0.00	0.00	0.00
10,500.00	2.49	314.68	10,495.44	148.83	-150.48	-147.23	0.00	0.00	0.00
10,600.00	2.49	314.68	10,595.35	151.88	-153.57	-150.25	0.00	0.00	0.00
10,700.00	2.49	314.68	10,695.25	154.93	-156.66	-153.27	0.00	0.00	0.00
10,800.00	2.49	314.68	10,795.16	157.99	-159.74	-156.29	0.00	0.00	0.00
10,900.00	2.49	314.68	10,895.07	161.04	-162.83	-159.31	0.00	0.00	0.00
11,000.00	2.49	314.68	10,994.97	164.09	-165.92	-162.33	0.00	0.00	0.00
11,100.00	2.49	314.68	11,094.88	167.14	-169.00	-165.35	0.00	0.00	0.00
11,200.00	2.49	314.68	11,194.78	170.20	-172.09	-168.37	0.00	0.00	0.00
11,300.00	2.49	314.68	11,294.69	173.25	-175.17	-171.39	0.00	0.00	0.00
11,396.72	2.49	314.68	11,391.32	176.20	-178.16	-174.31	0.00	0.00	0.00
Start Drop -1.00									
11,400.00	2.46	314.68	11,394.60	176.30	-178.26	-174.41	1.00	-1.00	0.00
11,500.00	1.46	314.68	11,494.54	178.70	-180.69	-176.78	1.00	-1.00	0.00
11,600.00	0.46	314.68	11,594.52	179.87	-181.87	-177.94	1.00	-1.00	0.00
11,645.52	0.00	0.00	11,640.04	180.00	-182.00	-178.07	1.00	-1.00	0.00
Start 500.00 hold at 11645.52 MD									
11,700.00	0.00	0.00	11,694.52	180.00	-182.00	-178.07	0.00	0.00	0.00
11,800.00	0.00	0.00	11,794.52	180.00	-182.00	-178.07	0.00	0.00	0.00
11,900.00	0.00	0.00	11,894.52	180.00	-182.00	-178.07	0.00	0.00	0.00
12,000.00	0.00	0.00	11,994.52	180.00	-182.00	-178.07	0.00	0.00	0.00
12,100.00	0.00	0.00	12,094.52	180.00	-182.00	-178.07	0.00	0.00	0.00
12,145.52	0.00	0.00	12,140.04	180.00	-182.00	-178.07	0.00	0.00	0.00
Start DLS 10.00 TFO 179.57									
12,150.00	0.45	179.57	12,144.52	179.98	-182.00	-178.05	10.00	10.00	0.00
12,200.00	5.45	179.57	12,194.44	177.41	-181.98	-175.48	10.00	10.00	0.00
12,250.00	10.45	179.57	12,243.94	170.50	-181.93	-168.57	10.00	10.00	0.00
12,300.00	15.45	179.57	12,292.66	159.30	-181.85	-157.37	10.00	10.00	0.00
12,350.00	20.45	179.57	12,340.21	143.90	-181.73	-141.97	10.00	10.00	0.00
12,400.00	25.45	179.57	12,386.24	124.41	-181.59	-122.49	10.00	10.00	0.00
12,450.00	30.45	179.57	12,430.39	100.99	-181.41	-99.06	10.00	10.00	0.00
12,500.00	35.45	179.57	12,472.33	73.80	-181.21	-71.88	10.00	10.00	0.00
12,550.00	40.45	179.57	12,511.75	43.06	-180.98	-41.15	10.00	10.00	0.00
12,600.00	45.45	179.57	12,548.34	9.01	-180.73	-7.10	10.00	10.00	0.00
12,650.00	50.45	179.57	12,581.82	-28.10	-180.45	30.01	10.00	10.00	0.00
12,700.00	55.45	179.57	12,611.93	-68.00	-180.16	69.89	10.00	10.00	0.00
12,750.00	60.45	179.57	12,638.46	-110.36	-179.84	112.25	10.00	10.00	0.00
12,800.00	65.45	179.57	12,661.19	-154.87	-179.51	156.76	10.00	10.00	0.00
12,850.00	70.45	179.57	12,679.96	-201.20	-179.16	203.08	10.00	10.00	0.00
12,900.00	75.45	179.57	12,694.62	-248.99	-178.81	250.86	10.00	10.00	0.00
12,950.00	80.45	179.57	12,705.05	-297.87	-178.45	299.73	10.00	10.00	0.00
13,000.00	85.45	179.57	12,711.19	-347.47	-178.08	349.33	10.00	10.00	0.00
13,045.52	90.00	179.57	12,713.00	-392.94	-177.74	394.80	10.00	10.00	0.00
Start 9643.33 hold at 13045.52 MD									
13,100.00	90.00	179.57	12,713.00	-447.42	-177.33	449.27	0.00	0.00	0.00
13,200.00	90.00	179.57	12,713.00	-547.42	-176.59	549.25	0.00	0.00	0.00
13,300.00	90.00	179.57	12,713.00	-647.41	-175.84	649.24	0.00	0.00	0.00
13,400.00	90.00	179.57	12,713.00	-747.41	-175.10	749.22	0.00	0.00	0.00
13,500.00	90.00	179.57	12,713.00	-847.41	-174.36	849.20	0.00	0.00	0.00
13,600.00	90.00	179.57	12,713.00	-947.41	-173.61	949.19	0.00	0.00	0.00
13,700.00	90.00	179.57	12,713.00	-1,047.40	-172.87	1,049.17	0.00	0.00	0.00
13,800.00	90.00	179.57	12,713.00	-1,147.40	-172.13	1,149.15	0.00	0.00	0.00
13,900.00	90.00	179.57	12,713.00	-1,247.40	-171.38	1,249.14	0.00	0.00	0.00

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 Survey Calculation Method: Minimum Curvature

Well 85H

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,000.00	90.00	179.57	12,713.00	-1,347.40	-170.64	1,349.12	0.00	0.00	0.00
14,100.00	90.00	179.57	12,713.00	-1,447.39	-169.89	1,449.11	0.00	0.00	0.00
14,200.00	90.00	179.57	12,713.00	-1,547.39	-169.15	1,549.09	0.00	0.00	0.00
14,300.00	90.00	179.57	12,713.00	-1,647.39	-168.41	1,649.07	0.00	0.00	0.00
14,400.00	90.00	179.57	12,713.00	-1,747.38	-167.66	1,749.06	0.00	0.00	0.00
14,500.00	90.00	179.57	12,713.00	-1,847.38	-166.92	1,849.04	0.00	0.00	0.00
14,600.00	90.00	179.57	12,713.00	-1,947.38	-166.17	1,949.03	0.00	0.00	0.00
14,700.00	90.00	179.57	12,713.00	-2,047.38	-165.43	2,049.01	0.00	0.00	0.00
14,800.00	90.00	179.57	12,713.00	-2,147.37	-164.69	2,148.99	0.00	0.00	0.00
14,900.00	90.00	179.57	12,713.00	-2,247.37	-163.94	2,248.98	0.00	0.00	0.00
15,000.00	90.00	179.57	12,713.00	-2,347.37	-163.20	2,348.96	0.00	0.00	0.00
15,100.00	90.00	179.57	12,713.00	-2,447.36	-162.45	2,448.94	0.00	0.00	0.00
15,200.00	90.00	179.57	12,713.00	-2,547.36	-161.71	2,548.93	0.00	0.00	0.00
15,300.00	90.00	179.57	12,713.00	-2,647.36	-160.97	2,648.91	0.00	0.00	0.00
15,400.00	90.00	179.57	12,713.00	-2,747.36	-160.22	2,748.90	0.00	0.00	0.00
15,500.00	90.00	179.57	12,713.00	-2,847.35	-159.48	2,848.88	0.00	0.00	0.00
15,600.00	90.00	179.57	12,713.00	-2,947.35	-158.73	2,948.86	0.00	0.00	0.00
15,700.00	90.00	179.57	12,713.00	-3,047.35	-157.99	3,048.85	0.00	0.00	0.00
15,800.00	90.00	179.57	12,713.00	-3,147.35	-157.25	3,148.83	0.00	0.00	0.00
15,900.00	90.00	179.57	12,713.00	-3,247.34	-156.50	3,248.81	0.00	0.00	0.00
16,000.00	90.00	179.57	12,713.00	-3,347.34	-155.76	3,348.80	0.00	0.00	0.00
16,100.00	90.00	179.57	12,713.00	-3,447.34	-155.02	3,448.78	0.00	0.00	0.00
16,200.00	90.00	179.57	12,713.00	-3,547.33	-154.27	3,548.77	0.00	0.00	0.00
16,300.00	90.00	179.57	12,713.00	-3,647.33	-153.53	3,648.75	0.00	0.00	0.00
16,400.00	90.00	179.57	12,713.00	-3,747.33	-152.78	3,748.73	0.00	0.00	0.00
16,500.00	90.00	179.57	12,713.00	-3,847.33	-152.04	3,848.72	0.00	0.00	0.00
16,600.00	90.00	179.57	12,713.00	-3,947.32	-151.30	3,948.70	0.00	0.00	0.00
16,700.00	90.00	179.57	12,713.00	-4,047.32	-150.55	4,048.68	0.00	0.00	0.00
16,800.00	90.00	179.57	12,713.00	-4,147.32	-149.81	4,148.67	0.00	0.00	0.00
16,900.00	90.00	179.57	12,713.00	-4,247.32	-149.06	4,248.65	0.00	0.00	0.00
17,000.00	90.00	179.57	12,713.00	-4,347.31	-148.32	4,348.64	0.00	0.00	0.00
17,100.00	90.00	179.57	12,713.00	-4,447.31	-147.58	4,448.62	0.00	0.00	0.00
17,200.00	90.00	179.57	12,713.00	-4,547.31	-146.83	4,548.60	0.00	0.00	0.00
17,300.00	90.00	179.57	12,713.00	-4,647.30	-146.09	4,648.59	0.00	0.00	0.00
17,400.00	90.00	179.57	12,713.00	-4,747.30	-145.34	4,748.57	0.00	0.00	0.00
17,500.00	90.00	179.57	12,713.00	-4,847.30	-144.60	4,848.56	0.00	0.00	0.00
17,600.00	90.00	179.57	12,713.00	-4,947.30	-143.86	4,948.54	0.00	0.00	0.00
17,700.00	90.00	179.57	12,713.00	-5,047.29	-143.11	5,048.52	0.00	0.00	0.00
17,800.00	90.00	179.57	12,713.00	-5,147.29	-142.37	5,148.51	0.00	0.00	0.00
17,900.00	90.00	179.57	12,713.00	-5,247.29	-141.62	5,248.49	0.00	0.00	0.00
18,000.00	90.00	179.57	12,713.00	-5,347.28	-140.88	5,348.47	0.00	0.00	0.00
18,100.00	90.00	179.57	12,713.00	-5,447.28	-140.14	5,448.46	0.00	0.00	0.00
18,200.00	90.00	179.57	12,713.00	-5,547.28	-139.39	5,548.44	0.00	0.00	0.00
18,300.00	90.00	179.57	12,713.00	-5,647.28	-138.65	5,648.43	0.00	0.00	0.00
18,400.00	90.00	179.57	12,713.00	-5,747.27	-137.91	5,748.41	0.00	0.00	0.00
18,500.00	90.00	179.57	12,713.00	-5,847.27	-137.16	5,848.39	0.00	0.00	0.00
18,600.00	90.00	179.57	12,713.00	-5,947.27	-136.42	5,948.38	0.00	0.00	0.00
18,700.00	90.00	179.57	12,713.00	-6,047.27	-135.67	6,048.36	0.00	0.00	0.00
18,800.00	90.00	179.57	12,713.00	-6,147.26	-134.93	6,148.34	0.00	0.00	0.00
18,900.00	90.00	179.57	12,713.00	-6,247.26	-134.19	6,248.33	0.00	0.00	0.00
19,000.00	90.00	179.57	12,713.00	-6,347.26	-133.44	6,348.31	0.00	0.00	0.00
19,100.00	90.00	179.57	12,713.00	-6,447.25	-132.70	6,448.30	0.00	0.00	0.00
19,200.00	90.00	179.57	12,713.00	-6,547.25	-131.95	6,548.28	0.00	0.00	0.00
19,300.00	90.00	179.57	12,713.00	-6,647.25	-131.21	6,648.26	0.00	0.00	0.00

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: 85H
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well 85H
 TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,400.00	90.00	179.57	12,713.00	-6,747.25	-130.47	6,748.25	0.00	0.00	0.00
19,500.00	90.00	179.57	12,713.00	-6,847.24	-129.72	6,848.23	0.00	0.00	0.00
19,600.00	90.00	179.57	12,713.00	-6,947.24	-128.98	6,948.22	0.00	0.00	0.00
19,700.00	90.00	179.57	12,713.00	-7,047.24	-128.23	7,048.20	0.00	0.00	0.00
19,800.00	90.00	179.57	12,713.00	-7,147.23	-127.49	7,148.18	0.00	0.00	0.00
19,900.00	90.00	179.57	12,713.00	-7,247.23	-126.75	7,248.17	0.00	0.00	0.00
20,000.00	90.00	179.57	12,713.00	-7,347.23	-126.00	7,348.15	0.00	0.00	0.00
20,100.00	90.00	179.57	12,713.00	-7,447.23	-125.26	7,448.13	0.00	0.00	0.00
20,200.00	90.00	179.57	12,713.00	-7,547.22	-124.51	7,548.12	0.00	0.00	0.00
20,300.00	90.00	179.57	12,713.00	-7,647.22	-123.77	7,648.10	0.00	0.00	0.00
20,400.00	90.00	179.57	12,713.00	-7,747.22	-123.03	7,748.09	0.00	0.00	0.00
20,500.00	90.00	179.57	12,713.00	-7,847.22	-122.28	7,848.07	0.00	0.00	0.00
20,600.00	90.00	179.57	12,713.00	-7,947.21	-121.54	7,948.05	0.00	0.00	0.00
20,700.00	90.00	179.57	12,713.00	-8,047.21	-120.80	8,048.04	0.00	0.00	0.00
20,800.00	90.00	179.57	12,713.00	-8,147.21	-120.05	8,148.02	0.00	0.00	0.00
20,900.00	90.00	179.57	12,713.00	-8,247.20	-119.31	8,248.00	0.00	0.00	0.00
21,000.00	90.00	179.57	12,713.00	-8,347.20	-118.56	8,347.99	0.00	0.00	0.00
21,100.00	90.00	179.57	12,713.00	-8,447.20	-117.82	8,447.97	0.00	0.00	0.00
21,200.00	90.00	179.57	12,713.00	-8,547.20	-117.08	8,547.96	0.00	0.00	0.00
21,300.00	90.00	179.57	12,713.00	-8,647.19	-116.33	8,647.94	0.00	0.00	0.00
21,400.00	90.00	179.57	12,713.00	-8,747.19	-115.59	8,747.92	0.00	0.00	0.00
21,500.00	90.00	179.57	12,713.00	-8,847.19	-114.84	8,847.91	0.00	0.00	0.00
21,600.00	90.00	179.57	12,713.00	-8,947.19	-114.10	8,947.89	0.00	0.00	0.00
21,700.00	90.00	179.57	12,713.00	-9,047.18	-113.36	9,047.87	0.00	0.00	0.00
21,800.00	90.00	179.57	12,713.00	-9,147.18	-112.61	9,147.86	0.00	0.00	0.00
21,900.00	90.00	179.57	12,713.00	-9,247.18	-111.87	9,247.84	0.00	0.00	0.00
22,000.00	90.00	179.57	12,713.00	-9,347.17	-111.12	9,347.83	0.00	0.00	0.00
22,100.00	90.00	179.57	12,713.00	-9,447.17	-110.38	9,447.81	0.00	0.00	0.00
22,200.00	90.00	179.57	12,713.00	-9,547.17	-109.64	9,547.79	0.00	0.00	0.00
22,300.00	90.00	179.57	12,713.00	-9,647.17	-108.89	9,647.78	0.00	0.00	0.00
22,400.00	90.00	179.57	12,713.00	-9,747.16	-108.15	9,747.76	0.00	0.00	0.00
22,500.00	90.00	179.57	12,713.00	-9,847.16	-107.40	9,847.75	0.00	0.00	0.00
22,600.00	90.00	179.57	12,713.00	-9,947.16	-106.66	9,947.73	0.00	0.00	0.00
22,688.85	90.00	179.57	12,713.00	-10,036.00	-106.00	10,036.56	0.00	0.00	0.00

TD at 22688.85 - PBHL (SW 85H)

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL (SW 85H)	0.00	0.00	0.00	0.00	0.00	393,493.75	793,212.97	32° 4' 45.063 N	103° 31' 12.406 W
- plan hits target center									
- Point									
PBHL (SW 85H)	0.00	0.01	12,713.00	-10,036.00	-106.00	383,457.75	793,106.97	32° 3' 5.762 N	103° 31' 14.517 W
- plan hits target center									
- Point									

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: 85H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,500.00	5,500.00	0.00	0.00	Start Build 1.00
5,748.80	5,748.72	3.80	-3.84	Start 5647.93 hold at 5748.80 MD
11,396.72	11,391.32	176.20	-178.16	Start Drop -1.00
11,645.52	11,640.04	180.00	-182.00	Start 500.00 hold at 11645.52 MD
12,145.52	12,140.04	180.00	-182.00	Start DLS 10.00 TFO 179.57
13,045.52	12,713.00	-392.94	-177.74	Start 9643.33 hold at 13045.52 MD
22,688.85	12,713.00	-10,036.00	-106.00	TD at 22688.85

Devon Energy

Lea County, NM (NAD-83)

Seawolf 1-12 Fed

85H

OH

Plan #1

HOBBS OCD

FEB 06 2018

RECEIVED

Anticollision Report

05 July, 2017

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well 85H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3316.7' GE + 21' KB @ 3337.70usft
Reference Site:	Seawolf 1-12 Fed	MD Reference:	3316.7' GE + 21' KB @ 3337.70usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	85H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 9,999.98 usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program	Date	7/5/2017
From	To	
(usft)	(usft)	
0.00	22,688.69	Plan #1 (OH)
Tool Name	Description	
LEAM MWD+HDGM	MWD+HDGM	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Seawolf 1-12 Fed						
86H - OH - Plan #1	3,000.00	3,000.00	50.00	36.79	3.784	CC, ES
86H - OH - Plan #1	22,688.85	22,586.23	626.54	296.75	1.900	SF
94H - OH - Plan #1	2,000.01	2,000.01	30.00	21.28	3.441	CC
94H - OH - Plan #1	2,200.00	2,199.92	30.20	20.62	3.153	ES
94H - OH - Plan #1	22,688.85	22,473.80	697.65	366.57	2.107	SF
95H - OH - Plan #1	3,715.00	3,716.84	37.63	21.29	2.303	CC, ES
95H - OH - Plan #1	22,688.85	22,810.11	693.75	361.75	2.090	SF

Offset Design													Seawolf 1-12 Fed - 86H - OH - Plan #1		Offset Site Error: 0.00 usft	
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance		Between		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)						
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	50.00	50.00							
100.00	100.00	100.00	100.00	0.09	0.09	90.00	0.00	50.00	50.00	49.82	0.18	281.586				
200.00	200.00	200.00	200.00	0.31	0.31	90.00	0.00	50.00	50.00	49.37	0.63	79.732				
300.00	300.00	300.00	300.00	0.54	0.54	90.00	0.00	50.00	50.00	48.92	1.08	46.441				
400.00	400.00	400.00	400.00	0.76	0.76	90.00	0.00	50.00	50.00	48.47	1.53	32.762				
500.00	500.00	500.00	500.00	0.99	0.99	90.00	0.00	50.00	50.00	48.02	1.98	25.308				
600.00	600.00	600.00	600.00	1.21	1.21	90.00	0.00	50.00	50.00	47.57	2.43	20.617				
700.00	700.00	700.00	700.00	1.44	1.44	90.00	0.00	50.00	50.00	47.13	2.87	17.393				
800.00	800.00	800.00	800.00	1.66	1.66	90.00	0.00	50.00	50.00	46.68	3.32	15.041				
900.00	900.00	900.00	900.00	1.89	1.89	90.00	0.00	50.00	50.00	46.23	3.77	13.249				
1,000.00	1,000.00	1,000.00	1,000.00	2.11	2.11	90.00	0.00	50.00	50.00	45.78	4.22	11.839				
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	90.00	0.00	50.00	50.00	45.33	4.67	10.700				
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	90.00	0.00	50.00	50.00	44.88	5.12	9.761				
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	90.00	0.00	50.00	50.00	44.43	5.57	8.974				
1,400.00	1,400.00	1,400.00	1,400.00	3.01	3.01	90.00	0.00	50.00	50.00	43.98	6.02	8.304				
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	90.00	0.00	50.00	50.00	43.53	6.47	7.727				
1,600.00	1,600.00	1,600.00	1,600.00	3.46	3.46	90.00	0.00	50.00	50.00	43.08	6.92	7.225				
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	90.00	0.00	50.00	50.00	42.63	7.37	6.784				
1,800.00	1,800.00	1,800.00	1,800.00	3.91	3.91	90.00	0.00	50.00	50.00	42.18	7.82	6.394				
1,900.00	1,900.00	1,900.00	1,900.00	4.13	4.13	90.00	0.00	50.00	50.00	41.73	8.27	6.047				
2,000.00	2,000.00	2,000.00	2,000.00	4.36	4.36	90.00	0.00	50.00	50.00	41.28	8.72	5.735				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 86H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
2,100.00	2,100.00	2,100.00	2,100.00	4.58	4.58	90.00	0.00	50.00	50.00	40.83	9.17	5.454	
2,200.00	2,200.00	2,200.00	2,200.00	4.81	4.81	90.00	0.00	50.00	50.00	40.38	9.62	5.199	
2,300.00	2,300.00	2,300.00	2,300.00	5.03	5.03	90.00	0.00	50.00	50.00	39.93	10.07	4.967	
2,400.00	2,400.00	2,400.00	2,400.00	5.26	5.26	90.00	0.00	50.00	50.00	39.48	10.52	4.754	
2,500.00	2,500.00	2,500.00	2,500.00	5.48	5.48	90.00	0.00	50.00	50.00	39.03	10.97	4.559	
2,600.00	2,600.00	2,600.00	2,600.00	5.71	5.71	90.00	0.00	50.00	50.00	38.58	11.42	4.380	
2,700.00	2,700.00	2,700.00	2,700.00	5.93	5.93	90.00	0.00	50.00	50.00	38.13	11.87	4.214	
2,800.00	2,800.00	2,800.00	2,800.00	6.16	6.16	90.00	0.00	50.00	50.00	37.69	12.31	4.060	
2,900.00	2,900.00	2,900.00	2,900.00	6.38	6.38	90.00	0.00	50.00	50.00	37.24	12.76	3.917	
3,000.00	3,000.00	3,000.00	3,000.00	6.61	6.61	90.00	0.00	50.00	50.00	36.79	13.21	3.784 CC, ES	
3,100.00	3,100.00	3,099.21	3,099.20	6.83	6.82	89.59	0.36	50.78	50.79	37.13	13.65	3.720	
3,200.00	3,200.00	3,198.35	3,198.31	7.06	7.03	88.44	1.45	53.11	53.16	39.08	14.08	3.776	
3,300.00	3,300.00	3,297.39	3,297.26	7.28	7.24	86.73	3.26	56.99	57.15	42.85	14.50	3.941	
3,400.00	3,400.00	3,397.26	3,396.99	7.51	7.45	84.96	5.44	61.66	61.98	47.04	14.94	4.150	
3,500.00	3,500.00	3,497.13	3,496.73	7.73	7.67	83.45	7.62	66.34	66.85	51.48	15.37	4.349	
3,600.00	3,600.00	3,596.99	3,596.46	7.96	7.88	82.15	9.80	71.01	71.77	55.96	15.81	4.540	
3,700.00	3,700.00	3,696.86	3,696.19	8.18	8.10	81.01	11.97	75.68	76.71	60.47	16.24	4.723	
3,800.00	3,800.00	3,796.73	3,795.93	8.41	8.32	80.01	14.15	80.35	81.69	65.01	16.68	4.897	
3,900.00	3,900.00	3,896.59	3,895.66	8.63	8.54	79.13	16.33	85.02	86.68	69.56	17.12	5.063	
4,000.00	4,000.00	3,896.46	3,895.39	8.85	8.76	78.34	18.51	89.69	91.70	74.14	17.56	5.222	
4,100.00	4,100.00	4,096.33	4,095.13	9.08	8.98	77.63	20.69	94.36	96.73	78.73	18.00	5.374	
4,200.00	4,200.00	4,196.19	4,194.86	9.30	9.20	77.00	22.87	99.04	101.77	83.33	18.44	5.519	
4,300.00	4,300.00	4,296.06	4,294.60	9.53	9.43	76.42	25.04	103.71	106.82	87.94	18.88	5.658	
4,400.00	4,400.00	4,395.93	4,394.33	9.75	9.65	75.90	27.22	108.38	111.89	92.56	19.32	5.790	
4,500.00	4,500.00	4,495.79	4,494.06	9.98	9.87	75.42	29.40	113.05	116.96	97.20	19.77	5.917	
4,600.00	4,600.00	4,595.66	4,593.80	10.20	10.10	74.98	31.58	117.72	122.04	101.83	20.21	6.039	
4,700.00	4,700.00	4,695.53	4,693.53	10.43	10.32	74.58	33.76	122.39	127.13	106.48	20.65	6.156	
4,800.00	4,800.00	4,795.39	4,793.26	10.65	10.55	74.21	35.94	127.06	132.22	111.12	21.09	6.268	
4,900.00	4,900.00	4,895.26	4,893.00	10.88	10.78	73.86	38.11	131.73	137.32	115.78	21.54	6.375	
5,000.00	5,000.00	4,895.13	4,892.73	11.10	11.00	73.54	40.29	136.41	142.42	120.44	21.98	6.479	
5,100.00	5,100.00	5,094.99	5,092.46	11.33	11.23	73.25	42.47	141.08	147.52	125.10	22.43	6.578	
5,200.00	5,200.00	5,194.86	5,192.20	11.55	11.46	72.97	44.65	145.75	152.63	129.76	22.87	6.674	
5,300.00	5,300.00	5,294.73	5,291.93	11.78	11.69	72.71	46.83	150.42	157.75	134.43	23.32	6.765	
5,400.00	5,400.00	5,394.59	5,391.67	12.00	11.92	72.46	49.01	155.09	162.86	139.10	23.76	6.854	
5,500.00	5,500.00	5,494.46	5,491.40	12.23	12.15	72.24	51.18	159.76	167.98	143.77	24.21	6.939	
5,600.00	5,600.00	5,594.31	5,591.11	12.45	12.38	117.54	53.36	164.43	173.51	148.86	24.65	7.039	
5,700.00	5,699.96	5,694.09	5,690.76	12.66	12.60	118.02	55.54	169.10	179.84	154.76	25.09	7.169	
5,748.80	5,748.72	5,742.75	5,739.36	12.77	12.72	118.41	56.60	171.38	183.24	157.94	25.30	7.243	
5,800.00	5,799.87	5,793.80	5,790.34	12.88	12.83	118.90	57.71	173.76	186.92	161.40	25.52	7.324	
5,900.00	5,899.78	5,893.49	5,889.90	13.10	13.06	119.79	59.89	178.43	194.14	168.18	25.96	7.479	
6,000.00	5,999.69	5,993.19	5,989.46	13.32	13.29	120.82	62.06	183.09	201.41	175.01	26.40	7.630	
6,100.00	6,099.59	6,092.88	6,089.02	13.54	13.53	121.39	64.24	187.75	208.72	181.88	26.84	7.777	
6,200.00	6,199.50	6,192.58	6,188.59	13.76	13.76	122.10	66.41	192.42	216.06	188.78	27.28	7.921	
6,300.00	6,299.40	6,292.27	6,288.15	13.98	13.99	122.77	68.59	197.08	223.43	195.72	27.72	8.061	
6,400.00	6,399.31	6,391.97	6,387.71	14.20	14.22	123.40	70.76	201.74	230.83	202.68	28.16	8.198	
6,500.00	6,499.21	6,491.66	6,487.27	14.42	14.45	123.99	72.94	206.41	238.26	209.66	28.60	8.331	
6,600.00	6,599.12	6,591.36	6,586.83	14.64	14.68	124.54	75.11	211.07	245.71	216.67	29.04	8.461	
6,700.00	6,699.03	6,691.05	6,686.39	14.86	14.91	125.06	77.29	215.73	253.19	223.70	29.48	8.587	
6,800.00	6,798.93	6,790.75	6,785.96	15.08	15.15	125.56	79.46	220.40	260.68	230.75	29.93	8.710	
6,900.00	6,898.84	6,890.44	6,885.52	15.31	15.38	126.02	81.63	225.06	268.19	237.82	30.37	8.831	
7,000.00	6,998.74	6,990.14	6,985.08	15.53	15.61	126.46	83.81	229.72	275.71	244.90	30.81	8.948	
7,100.00	7,098.65	7,089.83	7,084.64	15.75	15.84	126.87	85.98	234.39	283.26	252.00	31.26	9.062	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 86H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
7,200.00	7,198.55	7,189.53	7,184.20	15.98	16.08	127.26	88.16	239.05	290.81	259.11	31.70	9.173	
7,300.00	7,298.46	7,289.22	7,283.77	16.20	16.31	127.64	90.33	243.71	298.38	266.23	32.15	9.281	
7,400.00	7,398.37	7,388.91	7,383.33	16.42	16.54	127.99	92.51	248.38	305.96	273.37	32.59	9.387	
7,500.00	7,498.27	7,488.61	7,482.89	16.65	16.77	128.33	94.68	253.04	313.55	280.51	33.04	9.490	
7,600.00	7,598.18	7,588.30	7,582.45	16.87	17.01	128.65	96.86	257.70	321.15	287.67	33.49	9.591	
7,700.00	7,698.08	7,688.00	7,682.01	17.10	17.24	128.96	99.03	262.37	328.77	294.83	33.93	9.689	
7,800.00	7,797.99	7,787.69	7,781.58	17.32	17.47	129.25	101.21	267.03	336.39	302.01	34.38	9.785	
7,900.00	7,897.89	7,887.39	7,881.14	17.55	17.71	129.53	103.38	271.69	344.02	309.19	34.83	9.878	
8,000.00	7,997.80	7,987.08	7,980.70	17.77	17.94	129.80	105.56	276.36	351.65	316.38	35.27	9.969	
8,100.00	8,097.71	8,086.78	8,080.26	18.00	18.18	130.06	107.73	281.02	359.30	323.58	35.72	10.058	
8,200.00	8,197.61	8,186.47	8,179.82	18.23	18.41	130.30	109.90	285.68	366.95	330.78	36.17	10.145	
8,300.00	8,297.52	8,286.17	8,279.39	18.45	18.64	130.54	112.08	290.35	374.61	337.99	36.62	10.230	
8,400.00	8,397.42	8,385.86	8,378.95	18.68	18.88	130.76	114.25	295.01	382.27	345.20	37.07	10.313	
8,500.00	8,497.33	8,485.56	8,478.51	18.90	19.11	130.98	116.43	299.67	389.94	352.42	37.51	10.394	
8,600.00	8,597.23	8,585.25	8,578.07	19.13	19.35	131.19	118.60	304.34	397.61	359.65	37.96	10.473	
8,700.00	8,697.14	8,684.95	8,677.63	19.36	19.58	131.39	120.78	309.00	405.29	366.88	38.41	10.551	
8,800.00	8,797.05	8,784.64	8,777.20	19.59	19.82	131.58	122.95	313.66	412.98	374.11	38.86	10.627	
8,900.00	8,896.95	8,884.34	8,876.76	19.81	20.05	131.77	125.13	318.33	420.66	381.35	39.31	10.701	
9,000.00	8,996.86	8,984.03	8,976.32	20.04	20.28	131.95	127.30	322.99	428.36	388.60	39.76	10.773	
9,100.00	9,096.76	9,083.73	9,075.88	20.27	20.52	132.12	129.48	327.65	436.05	395.84	40.21	10.844	
9,200.00	9,196.67	9,183.42	9,175.44	20.50	20.75	132.29	131.65	332.32	443.76	403.09	40.66	10.913	
9,300.00	9,296.57	9,283.12	9,275.00	20.72	20.99	132.45	133.82	336.98	451.46	410.35	41.11	10.981	
9,400.00	9,396.48	9,382.81	9,374.57	20.95	21.22	132.61	136.00	341.64	459.17	417.61	41.56	11.048	
9,500.00	9,496.39	9,482.51	9,474.13	21.18	21.46	132.76	138.17	346.31	466.88	424.87	42.01	11.113	
9,600.00	9,596.29	9,582.20	9,573.69	21.41	21.69	132.91	140.35	350.97	474.59	432.13	42.46	11.176	
9,700.00	9,696.20	9,681.90	9,673.25	21.64	21.93	133.05	142.52	355.63	482.31	439.40	42.92	11.239	
9,800.00	9,796.10	9,781.59	9,772.81	21.86	22.16	133.19	144.70	360.30	490.03	446.67	43.37	11.300	
9,900.00	9,896.01	9,881.28	9,872.38	22.09	22.40	133.32	146.87	364.96	497.76	453.94	43.82	11.360	
10,000.00	9,995.91	9,980.98	9,971.94	22.32	22.63	133.45	149.05	369.62	505.48	461.21	44.27	11.418	
10,100.00	10,095.82	10,080.67	10,071.50	22.55	22.87	133.57	151.22	374.29	513.21	468.49	44.72	11.476	
10,200.00	10,195.73	10,180.37	10,171.06	22.78	23.10	133.69	153.40	378.95	520.94	475.77	45.17	11.532	
10,300.00	10,295.63	10,280.06	10,270.62	23.01	23.34	133.81	155.57	383.61	528.67	483.05	45.63	11.587	
10,400.00	10,395.54	10,379.76	10,370.19	23.24	23.58	133.92	157.75	388.28	536.41	490.33	46.08	11.641	
10,500.00	10,495.44	10,479.45	10,469.75	23.47	23.81	134.04	159.92	392.94	544.14	497.61	46.53	11.695	
10,600.00	10,595.35	10,579.15	10,569.31	23.70	24.05	134.14	162.09	397.60	551.88	504.90	46.98	11.747	
10,700.00	10,695.25	10,678.84	10,668.87	23.93	24.28	134.25	164.27	402.27	559.62	512.19	47.43	11.798	
10,800.00	10,795.16	10,778.54	10,768.43	24.16	24.52	134.35	166.44	406.93	567.37	519.48	47.89	11.848	
10,900.00	10,895.07	10,878.23	10,868.00	24.39	24.75	134.45	168.62	411.59	575.11	526.77	48.34	11.897	
11,000.00	10,994.97	10,977.93	10,967.56	24.61	24.99	134.55	170.79	416.26	582.86	534.06	48.79	11.946	
11,100.00	11,094.88	11,077.62	11,067.12	24.84	25.23	134.64	172.97	420.92	590.60	541.36	49.25	11.993	
11,200.00	11,194.78	11,177.32	11,166.68	25.07	25.46	134.73	175.14	425.58	598.35	548.65	49.70	12.040	
11,300.00	11,294.69	11,279.67	11,268.90	25.30	25.70	134.83	177.35	430.31	606.05	555.89	50.16	12.083	
11,396.72	11,391.32	11,386.50	11,375.66	25.53	25.89	134.98	179.04	433.94	612.31	561.72	50.58	12.105	
11,400.00	11,394.60	11,390.12	11,379.28	25.53	25.90	134.99	179.08	434.03	612.49	561.89	50.60	12.106	
11,500.00	11,494.54	11,500.80	11,489.94	25.71	26.09	135.19	179.92	435.82	616.53	565.56	50.97	12.096	
11,600.00	11,594.52	11,605.39	11,594.52	25.88	26.29	135.30	180.00	436.00	617.87	566.53	51.34	12.034	
11,645.52	11,640.04	11,650.91	11,640.04	25.96	26.38	90.00	180.00	436.00	618.00	566.48	51.52	11.995	
11,700.00	11,694.52	11,705.39	11,694.52	26.07	26.50	90.00	180.00	436.00	618.00	566.26	51.74	11.944	
11,800.00	11,794.52	11,805.39	11,794.52	26.29	26.71	90.00	180.00	436.00	618.00	565.82	52.18	11.844	
11,900.00	11,894.52	11,905.39	11,894.52	26.51	26.92	90.00	180.00	436.00	618.00	565.39	52.61	11.746	
12,000.00	11,994.52	12,005.39	11,994.52	26.73	27.13	90.00	180.00	436.00	618.00	564.95	53.05	11.650	
12,007.59	12,002.11	12,012.97	12,002.11	26.75	27.14	90.00	180.00	436.00	618.00	564.92	53.08	11.643	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 86H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,100.00	12,094.52	12,104.74	12,093.78	26.95	27.31	90.26	177.18	436.02	618.03	564.57	53.46	11.561	
12,145.52	12,140.04	12,149.02	12,137.63	27.05	27.38	90.82	171.10	436.07	618.14	564.50	53.63	11.526	
12,150.00	12,144.52	12,153.33	12,141.87	27.06	27.39	-88.68	170.33	436.07	618.15	564.51	53.65	11.523	
12,200.00	12,194.44	12,201.00	12,188.32	27.14	27.46	-87.89	159.67	436.15	618.42	564.62	53.80	11.495	
12,250.00	12,243.94	12,248.04	12,233.13	27.22	27.53	-87.11	145.40	436.26	618.79	564.86	53.93	11.473	
12,300.00	12,292.66	12,294.47	12,276.07	27.29	27.59	-86.37	127.76	436.39	619.26	565.21	54.06	11.456	
12,350.00	12,340.21	12,340.36	12,316.96	27.36	27.64	-85.65	106.97	436.54	619.81	565.65	54.16	11.444	
12,400.00	12,386.24	12,385.73	12,355.63	27.42	27.70	-84.96	83.26	436.72	620.43	566.17	54.26	11.435	
12,450.00	12,430.39	12,430.64	12,391.94	27.48	27.75	-84.32	56.85	436.92	621.09	566.75	54.34	11.429	
12,500.00	12,472.33	12,475.13	12,425.76	27.54	27.80	-83.71	27.97	437.13	621.78	567.36	54.43	11.424	
12,550.00	12,511.75	12,519.24	12,456.98	27.59	27.85	-83.15	-3.17	437.36	622.48	567.97	54.51	11.419	
12,600.00	12,548.34	12,563.00	12,485.50	27.63	27.90	-82.64	-36.35	437.61	623.18	568.58	54.60	11.413	
12,650.00	12,581.82	12,606.47	12,511.24	27.68	27.95	-82.18	-71.37	437.87	623.84	569.14	54.70	11.404	
12,700.00	12,611.93	12,650.00	12,534.28	27.73	28.01	-81.77	-108.29	438.15	624.46	569.64	54.82	11.391	
12,750.00	12,638.46	12,692.65	12,554.07	27.78	28.08	-81.42	-146.05	438.43	625.02	570.06	54.96	11.372	
12,800.00	12,661.19	12,735.44	12,571.05	27.85	28.16	-81.12	-185.32	438.72	625.51	570.38	55.13	11.346	
12,850.00	12,679.96	12,778.08	12,585.01	27.95	28.26	-80.88	-225.60	439.02	625.91	570.58	55.33	11.312	
12,900.00	12,694.62	12,820.60	12,595.91	28.07	28.37	-80.71	-266.68	439.32	626.21	570.85	55.56	11.270	
12,950.00	12,705.05	12,863.04	12,603.72	28.21	28.49	-80.59	-308.39	439.64	626.42	570.59	55.83	11.219	
13,000.00	12,711.19	12,905.43	12,608.42	28.38	28.63	-80.53	-350.50	439.95	626.52	570.38	56.14	11.160	
13,045.52	12,713.00	12,944.01	12,609.98	28.54	28.77	-80.54	-389.04	440.24	626.51	570.06	56.45	11.099	
13,051.33	12,713.00	12,949.12	12,610.00	28.56	28.79	-80.54	-394.15	440.27	626.51	570.02	56.49	11.090	
13,100.00	12,713.00	12,997.79	12,610.00	28.75	28.99	-80.54	-442.82	440.64	626.51	569.63	56.88	11.015	
13,200.00	12,713.00	13,097.79	12,610.00	29.22	29.45	-80.54	-542.82	441.38	626.51	568.71	57.80	10.839	
13,300.00	12,713.00	13,197.79	12,610.00	29.76	30.00	-80.54	-642.82	442.12	626.51	567.63	58.89	10.639	
13,400.00	12,713.00	13,297.79	12,610.00	30.38	30.62	-80.54	-742.81	442.87	626.51	566.38	60.13	10.420	
13,500.00	12,713.00	13,397.79	12,610.00	31.08	31.32	-80.54	-842.81	443.61	626.51	565.00	61.51	10.185	
13,600.00	12,713.00	13,497.79	12,610.00	31.84	32.08	-80.54	-942.81	444.36	626.51	563.48	63.04	9.939	
13,700.00	12,713.00	13,597.79	12,610.00	32.67	32.91	-80.54	-1,042.80	445.10	626.51	561.83	64.68	9.686	
13,800.00	12,713.00	13,697.79	12,610.00	33.56	33.80	-80.54	-1,142.80	445.85	626.51	560.06	66.45	9.428	
13,900.00	12,713.00	13,797.79	12,610.00	34.50	34.74	-80.54	-1,242.80	446.59	626.51	558.19	68.32	9.170	
14,000.00	12,713.00	13,897.79	12,610.00	35.49	35.74	-80.54	-1,342.80	447.33	626.51	556.22	70.30	8.912	
14,100.00	12,713.00	13,997.79	12,610.00	36.53	36.77	-80.54	-1,442.79	448.08	626.51	554.15	72.36	8.658	
14,200.00	12,713.00	14,097.79	12,610.00	37.61	37.85	-80.54	-1,542.79	448.82	626.51	552.01	74.51	8.409	
14,300.00	12,713.00	14,197.79	12,610.00	38.73	38.97	-80.54	-1,642.79	449.57	626.51	549.78	76.73	8.165	
14,400.00	12,713.00	14,297.79	12,610.00	39.89	40.13	-80.54	-1,742.78	450.31	626.51	547.49	79.03	7.928	
14,500.00	12,713.00	14,397.79	12,610.00	41.08	41.31	-80.54	-1,842.78	451.06	626.51	545.13	81.38	7.698	
14,600.00	12,713.00	14,497.79	12,610.00	42.30	42.53	-80.54	-1,942.78	451.80	626.52	542.71	83.80	7.476	
14,700.00	12,713.00	14,597.79	12,610.00	43.54	43.78	-80.54	-2,042.78	452.54	626.52	540.24	86.27	7.262	
14,800.00	12,713.00	14,697.79	12,610.00	44.81	45.05	-80.54	-2,142.77	453.29	626.52	537.72	88.79	7.056	
14,900.00	12,713.00	14,797.79	12,610.00	46.11	46.34	-80.54	-2,242.77	454.03	626.52	535.16	91.36	6.858	
15,000.00	12,713.00	14,897.79	12,610.00	47.42	47.65	-80.54	-2,342.77	454.78	626.52	532.55	93.97	6.667	
15,100.00	12,713.00	14,997.79	12,610.00	48.76	48.98	-80.54	-2,442.77	455.52	626.52	529.91	96.61	6.485	
15,200.00	12,713.00	15,097.79	12,610.00	50.11	50.34	-80.54	-2,542.76	456.27	626.52	527.23	99.29	6.310	
15,300.00	12,713.00	15,197.79	12,610.00	51.48	51.70	-80.54	-2,642.76	457.01	626.52	524.51	102.00	6.142	
15,400.00	12,713.00	15,297.79	12,610.00	52.86	53.09	-80.54	-2,742.76	457.75	626.52	521.77	104.75	5.981	
15,500.00	12,713.00	15,397.79	12,610.00	54.26	54.48	-80.54	-2,842.75	458.50	626.52	519.00	107.52	5.827	
15,600.00	12,713.00	15,497.79	12,610.00	55.67	55.89	-80.54	-2,942.75	459.24	626.52	516.21	110.31	5.679	
15,700.00	12,713.00	15,597.79	12,610.00	57.10	57.31	-80.54	-3,042.75	459.99	626.52	513.39	113.13	5.538	
15,800.00	12,713.00	15,697.79	12,610.00	58.53	58.75	-80.54	-3,142.75	460.73	626.52	510.55	115.97	5.402	
15,900.00	12,713.00	15,797.79	12,610.00	59.98	60.19	-80.54	-3,242.74	461.48	626.52	507.69	118.83	5.272	
16,000.00	12,713.00	15,897.79	12,610.00	61.43	61.64	-80.54	-3,342.74	462.22	626.52	504.81	121.72	5.147	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 86H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
16,100.00	12,713.00	15,997.79	12,610.00	62.89	63.11	-80.54	-3,442.74	462.96	626.52	501.91	124.61	5.028	
16,200.00	12,713.00	16,097.79	12,610.00	64.37	64.58	-80.54	-3,542.73	463.71	626.52	498.99	127.53	4.913	
16,300.00	12,713.00	16,197.79	12,610.00	65.85	66.05	-80.54	-3,642.73	464.45	626.52	496.06	130.46	4.803	
16,400.00	12,713.00	16,297.79	12,610.00	67.33	67.54	-80.54	-3,742.73	465.20	626.52	493.12	133.40	4.697	
16,500.00	12,713.00	16,397.79	12,610.00	68.83	69.03	-80.54	-3,842.73	465.94	626.52	490.16	136.36	4.595	
16,600.00	12,713.00	16,497.79	12,610.00	70.33	70.53	-80.54	-3,942.72	466.69	626.52	487.20	139.33	4.497	
16,700.00	12,713.00	16,597.79	12,610.00	71.83	72.04	-80.54	-4,042.72	467.43	626.52	484.21	142.31	4.403	
16,800.00	12,713.00	16,697.79	12,610.00	73.34	73.55	-80.54	-4,142.72	468.17	626.52	481.22	145.30	4.312	
16,900.00	12,713.00	16,797.79	12,610.00	74.86	75.06	-80.54	-4,242.72	468.92	626.52	478.22	148.30	4.225	
17,000.00	12,713.00	16,897.79	12,610.00	76.38	76.58	-80.54	-4,342.71	469.66	626.52	475.21	151.32	4.141	
17,100.00	12,713.00	16,997.79	12,610.00	77.91	78.11	-80.54	-4,442.71	470.41	626.52	472.19	154.34	4.059	
17,200.00	12,713.00	17,097.79	12,610.00	79.44	79.64	-80.54	-4,542.71	471.15	626.52	469.16	157.37	3.981	
17,300.00	12,713.00	17,197.79	12,610.00	80.97	81.17	-80.54	-4,642.70	471.90	626.53	466.12	160.41	3.906	
17,400.00	12,713.00	17,297.79	12,610.00	82.51	82.71	-80.54	-4,742.70	472.64	626.53	463.07	163.45	3.833	
17,500.00	12,713.00	17,397.79	12,610.00	84.06	84.25	-80.54	-4,842.70	473.38	626.53	460.02	166.50	3.763	
17,600.00	12,713.00	17,497.79	12,610.00	85.60	85.80	-80.54	-4,942.70	474.13	626.53	456.96	169.56	3.695	
17,700.00	12,713.00	17,597.79	12,610.00	87.15	87.34	-80.54	-5,042.69	474.87	626.53	453.90	172.63	3.629	
17,800.00	12,713.00	17,697.79	12,610.00	88.70	88.90	-80.54	-5,142.69	475.62	626.53	450.82	175.70	3.566	
17,900.00	12,713.00	17,797.79	12,610.00	90.26	90.45	-80.54	-5,242.69	476.36	626.53	447.75	178.78	3.504	
18,000.00	12,713.00	17,897.79	12,610.00	91.82	92.01	-80.54	-5,342.68	477.11	626.53	444.66	181.87	3.445	
18,100.00	12,713.00	17,997.79	12,610.00	93.38	93.57	-80.54	-5,442.68	477.85	626.53	441.57	184.95	3.387	
18,200.00	12,713.00	18,097.79	12,610.00	94.94	95.13	-80.54	-5,542.68	478.59	626.53	438.48	188.05	3.332	
18,300.00	12,713.00	18,197.79	12,610.00	96.51	96.70	-80.54	-5,642.68	479.34	626.53	435.38	191.15	3.278	
18,400.00	12,713.00	18,297.79	12,610.00	98.08	98.26	-80.54	-5,742.67	480.08	626.53	432.28	194.25	3.225	
18,500.00	12,713.00	18,397.79	12,610.00	99.65	99.83	-80.54	-5,842.67	480.83	626.53	429.17	197.36	3.175	
18,600.00	12,713.00	18,497.79	12,610.00	101.22	101.40	-80.54	-5,942.67	481.57	626.53	426.06	200.47	3.125	
18,700.00	12,713.00	18,597.79	12,610.00	102.79	102.98	-80.54	-6,042.67	482.32	626.53	422.94	203.59	3.077	
18,800.00	12,713.00	18,697.79	12,610.00	104.37	104.55	-80.54	-6,142.66	483.06	626.53	419.82	206.71	3.031	
18,900.00	12,713.00	18,797.79	12,610.00	105.95	106.13	-80.54	-6,242.66	483.80	626.53	416.70	209.83	2.986	
19,000.00	12,713.00	18,897.79	12,610.00	107.53	107.71	-80.54	-6,342.66	484.55	626.53	413.57	212.96	2.942	
19,100.00	12,713.00	18,997.79	12,610.00	109.11	109.29	-80.54	-6,442.65	485.29	626.53	410.45	216.09	2.899	
19,200.00	12,713.00	19,097.79	12,610.00	110.69	110.87	-80.54	-6,542.65	486.04	626.53	407.31	219.22	2.858	
19,300.00	12,713.00	19,197.79	12,610.00	112.28	112.46	-80.54	-6,642.65	486.78	626.53	404.18	222.36	2.818	
19,400.00	12,713.00	19,297.79	12,610.00	113.86	114.04	-80.54	-6,742.65	487.52	626.53	401.04	225.49	2.778	
19,500.00	12,713.00	19,397.79	12,610.00	115.45	115.63	-80.54	-6,842.64	488.27	626.53	397.90	228.64	2.740	
19,600.00	12,713.00	19,497.79	12,610.00	117.04	117.22	-80.54	-6,942.64	489.01	626.53	394.75	231.78	2.703	
19,700.00	12,713.00	19,597.79	12,610.00	118.63	118.81	-80.54	-7,042.64	489.76	626.53	391.61	234.93	2.667	
19,800.00	12,713.00	19,697.79	12,610.00	120.22	120.40	-80.54	-7,142.64	490.50	626.53	388.46	238.08	2.632	
19,900.00	12,713.00	19,797.79	12,610.00	121.82	121.99	-80.54	-7,242.63	491.25	626.53	385.31	241.23	2.597	
20,000.00	12,713.00	19,897.79	12,610.00	123.41	123.59	-80.54	-7,342.63	491.99	626.53	382.15	244.38	2.564	
20,100.00	12,713.00	19,997.79	12,610.00	125.00	125.18	-80.54	-7,442.63	492.73	626.54	379.00	247.54	2.531	
20,200.00	12,713.00	20,097.79	12,610.00	126.60	126.78	-80.54	-7,542.62	493.48	626.54	375.84	250.70	2.499	
20,300.00	12,713.00	20,197.79	12,610.00	128.20	128.37	-80.54	-7,642.62	494.22	626.54	372.68	253.86	2.468	
20,400.00	12,713.00	20,297.79	12,610.00	129.80	129.97	-80.54	-7,742.62	494.97	626.54	369.52	257.02	2.438	
20,500.00	12,713.00	20,397.79	12,610.00	131.39	131.57	-80.54	-7,842.62	495.71	626.54	366.35	260.18	2.408	
20,600.00	12,713.00	20,497.79	12,610.00	132.99	133.17	-80.54	-7,942.61	496.46	626.54	363.19	263.35	2.379	
20,700.00	12,713.00	20,597.79	12,610.00	134.60	134.77	-80.54	-8,042.61	497.20	626.54	360.02	266.52	2.351	
20,800.00	12,713.00	20,697.79	12,610.00	136.20	136.37	-80.54	-8,142.61	497.94	626.54	356.85	269.69	2.323	
20,900.00	12,713.00	20,797.79	12,610.00	137.80	137.97	-80.54	-8,242.60	498.69	626.54	353.68	272.86	2.296	
21,000.00	12,713.00	20,897.79	12,610.00	139.40	139.58	-80.54	-8,342.60	499.43	626.54	350.51	276.03	2.270	
21,100.00	12,713.00	20,997.79	12,610.00	141.01	141.18	-80.54	-8,442.60	500.18	626.54	347.34	279.20	2.244	
21,200.00	12,713.00	21,097.79	12,610.00	142.61	142.78	-80.54	-8,542.60	500.92	626.54	344.16	282.38	2.219	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
 Project: Lea County, NM (NAD-83)
 Reference Site: Seawolf 1-12 Fed
 Site Error: 0.00 usft
 Reference Well: 85H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
 TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 86H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
21,300.00	12,713.00	21,197.79	12,610.00	144.22	144.39	-80.54	-8,642.59	501.67	626.54	340.98	285.55	2.194	
21,400.00	12,713.00	21,297.79	12,610.00	145.82	145.99	-80.54	-8,742.59	502.41	626.54	337.81	288.73	2.170	
21,500.00	12,713.00	21,397.79	12,610.00	147.43	147.60	-80.54	-8,842.59	503.15	626.54	334.63	291.91	2.146	
21,600.00	12,713.00	21,497.79	12,610.00	149.04	149.21	-80.54	-8,942.59	503.90	626.54	331.45	295.09	2.123	
21,700.00	12,713.00	21,597.79	12,610.00	150.65	150.82	-80.54	-9,042.58	504.64	626.54	328.27	298.28	2.101	
21,800.00	12,713.00	21,697.79	12,610.00	152.25	152.42	-80.54	-9,142.58	505.39	626.54	325.08	301.46	2.078	
21,900.00	12,713.00	21,797.79	12,610.00	153.86	154.03	-80.54	-9,242.58	506.13	626.54	321.90	304.64	2.057	
22,000.00	12,713.00	21,897.79	12,610.00	155.47	155.64	-80.54	-9,342.57	506.88	626.54	318.71	307.83	2.035	
22,100.00	12,713.00	21,997.79	12,610.00	157.08	157.25	-80.54	-9,442.57	507.62	626.54	315.53	311.01	2.015	
22,200.00	12,713.00	22,097.79	12,610.00	158.69	158.86	-80.54	-9,542.57	508.36	626.54	312.34	314.20	1.994	
22,300.00	12,713.00	22,197.79	12,610.00	160.31	160.47	-80.54	-9,642.57	509.11	626.54	309.15	317.39	1.974	
22,400.00	12,713.00	22,297.79	12,610.00	161.92	162.09	-80.54	-9,742.56	509.85	626.54	305.96	320.58	1.954	
22,500.00	12,713.00	22,397.79	12,610.00	163.53	163.70	-80.54	-9,842.56	510.60	626.54	302.77	323.77	1.935	
22,600.00	12,713.00	22,497.79	12,610.00	165.14	165.31	-80.54	-9,942.56	511.34	626.54	299.58	326.96	1.916	
22,609.49	12,713.00	22,507.27	12,610.00	165.30	165.46	-80.54	-9,952.04	511.41	626.54	299.28	327.26	1.914	
22,688.85	12,713.00	22,586.23	12,610.00	166.58	166.74	-80.54	-10,031.00	512.00	626.54	296.75	329.79	1.900 SF	

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 94H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	30.00				
100.00	100.00	100.00	100.00	0.09	0.09	0.00	30.00	0.00	30.00	29.82	0.18	168.952	
200.00	200.00	200.00	200.00	0.31	0.31	0.00	30.00	0.00	30.00	29.37	0.63	47.839	
300.00	300.00	300.00	300.00	0.54	0.54	0.00	30.00	0.00	30.00	28.92	1.08	27.865	
400.00	400.00	400.00	400.00	0.76	0.76	0.00	30.00	0.00	30.00	28.47	1.53	19.657	
500.00	500.00	500.00	500.00	0.99	0.99	0.00	30.00	0.00	30.00	28.02	1.98	15.185	
600.00	600.00	600.00	600.00	1.21	1.21	0.00	30.00	0.00	30.00	27.57	2.43	12.370	
700.00	700.00	700.00	700.00	1.44	1.44	0.00	30.00	0.00	30.00	27.13	2.87	10.436	
800.00	800.00	800.00	800.00	1.66	1.66	0.00	30.00	0.00	30.00	26.68	3.32	9.024	
900.00	900.00	900.00	900.00	1.89	1.89	0.00	30.00	0.00	30.00	26.23	3.77	7.950	
1,000.00	1,000.00	1,000.00	1,000.00	2.11	2.11	0.00	30.00	0.00	30.00	25.78	4.22	7.103	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	0.00	30.00	0.00	30.00	25.33	4.67	6.420	
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	0.00	30.00	0.00	30.00	24.88	5.12	5.857	
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	0.00	30.00	0.00	30.00	24.43	5.57	5.384	
1,400.00	1,400.00	1,400.00	1,400.00	3.01	3.01	0.00	30.00	0.00	30.00	23.98	6.02	4.982	
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	0.00	30.00	0.00	30.00	23.53	6.47	4.636	
1,600.00	1,600.00	1,600.00	1,600.00	3.46	3.46	0.00	30.00	0.00	30.00	23.08	6.92	4.335	
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	0.00	30.00	0.00	30.00	22.63	7.37	4.071	
1,800.00	1,800.00	1,800.00	1,800.00	3.91	3.91	0.00	30.00	0.00	30.00	22.18	7.82	3.837	
1,900.00	1,900.00	1,900.00	1,900.00	4.13	4.13	0.00	30.00	0.00	30.00	21.73	8.27	3.628	
2,000.00	2,000.00	2,000.00	2,000.00	4.36	4.36	0.00	30.00	0.00	30.00	21.28	8.72	3.441	
2,000.01	2,000.01	2,000.01	2,000.01	4.36	4.36	0.00	30.00	0.00	30.00	21.28	8.72	3.441 CC	
2,100.00	2,100.00	2,099.99	2,099.98	4.58	4.57	-1.67	30.00	-0.87	30.01	20.86	9.15	3.279	
2,200.00	2,200.00	2,199.92	2,199.88	4.81	4.77	-6.63	30.00	-3.49	30.20	20.62	9.58	3.153 ES	
2,300.00	2,300.00	2,299.73	2,299.59	5.03	4.97	-14.64	30.00	-7.84	31.01	21.01	10.00	3.100	
2,400.00	2,400.00	2,399.35	2,399.03	5.26	5.18	-24.88	30.00	-13.91	33.08	22.65	10.43	3.171	
2,500.00	2,500.00	2,498.74	2,498.11	5.48	5.39	-35.87	30.00	-21.69	37.07	26.21	10.86	3.414	
2,600.00	2,600.00	2,598.05	2,596.98	5.71	5.61	-45.97	30.00	-31.03	43.27	31.99	11.28	3.836	
2,700.00	2,700.00	2,697.58	2,696.04	5.93	5.83	-53.59	30.00	-40.68	50.70	38.99	11.71	4.330	
2,800.00	2,800.00	2,797.11	2,795.10	6.16	6.06	-59.20	30.00	-50.33	58.79	46.66	12.14	4.843	
2,900.00	2,900.00	2,896.64	2,894.16	6.38	6.29	-63.43	30.00	-59.97	67.31	54.74	12.57	5.354	
3,000.00	3,000.00	2,996.16	2,993.22	6.61	6.52	-66.69	30.00	-69.62	76.11	63.11	13.01	5.852	
3,100.00	3,100.00	3,095.69	3,092.28	6.83	6.76	-69.27	30.00	-79.27	85.11	71.66	13.44	6.330	
3,200.00	3,200.00	3,195.22	3,191.34	7.06	7.00	-71.36	30.00	-88.92	94.24	80.36	13.88	6.788	
3,300.00	3,300.00	3,294.75	3,290.40	7.28	7.24	-73.07	30.00	-98.57	103.48	89.15	14.32	7.225	
3,400.00	3,400.00	3,394.28	3,389.46	7.51	7.49	-74.50	30.00	-108.21	112.79	98.02	14.76	7.640	
3,500.00	3,500.00	3,493.81	3,488.52	7.73	7.74	-75.72	30.00	-117.86	122.16	106.95	15.21	8.034	
3,600.00	3,600.00	3,593.34	3,587.58	7.96	7.98	-76.76	30.00	-127.51	131.58	115.93	15.65	8.408	
3,700.00	3,700.00	3,692.87	3,686.64	8.18	8.23	-77.66	30.00	-137.16	141.03	124.94	16.09	8.764	
3,800.00	3,800.00	3,792.40	3,785.70	8.41	8.48	-78.45	30.00	-146.80	150.52	133.98	16.54	9.101	
3,900.00	3,900.00	3,891.93	3,884.76	8.63	8.74	-79.15	30.00	-156.45	160.03	143.05	16.98	9.423	
4,000.00	4,000.00	3,991.46	3,983.82	8.85	8.99	-79.76	30.00	-166.10	169.56	152.13	17.43	9.728	
4,100.00	4,100.00	4,090.98	4,082.88	9.08	9.25	-80.31	30.00	-175.75	179.11	161.23	17.88	10.019	
4,200.00	4,200.00	4,190.51	4,181.94	9.30	9.50	-80.81	30.00	-185.39	188.67	170.35	18.32	10.296	
4,300.00	4,300.00	4,290.04	4,281.00	9.53	9.76	-81.26	30.00	-195.04	198.25	179.48	18.77	10.561	
4,400.00	4,400.00	4,389.57	4,380.07	9.75	10.02	-81.66	30.00	-204.69	207.83	188.61	19.22	10.813	
4,500.00	4,500.00	4,489.10	4,479.13	9.98	10.27	-82.03	30.00	-214.34	217.43	197.76	19.67	11.054	
4,600.00	4,600.00	4,588.63	4,578.19	10.20	10.53	-82.37	30.00	-223.98	227.03	206.92	20.12	11.285	
4,700.00	4,700.00	4,688.16	4,677.25	10.43	10.79	-82.68	30.00	-233.63	236.65	216.08	20.57	11.505	
4,800.00	4,800.00	4,787.69	4,776.31	10.65	11.05	-82.97	30.00	-243.28	246.26	225.25	21.02	11.716	
4,900.00	4,900.00	4,887.22	4,875.37	10.88	11.32	-83.24	30.00	-252.93	255.89	234.42	21.47	11.919	
5,000.00	5,000.00	4,986.75	4,974.43	11.10	11.58	-83.48	30.00	-262.57	265.52	243.60	21.92	12.113	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 94H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,100.00	5,086.28	5,073.49	11.33	11.84	-83.71	30.00	-272.22	275.15	252.78	22.37	12.299		
5,200.00	5,200.00	5,185.80	5,172.55	11.55	12.10	-83.92	30.00	-281.87	284.79	261.97	22.82	12.478		
5,300.00	5,300.00	5,285.33	5,271.61	11.78	12.37	-84.12	30.00	-291.52	294.43	271.15	23.27	12.650		
5,400.00	5,400.00	5,384.86	5,370.67	12.00	12.63	-84.31	30.00	-301.17	304.07	280.35	23.73	12.816		
5,500.00	5,500.00	5,484.39	5,469.73	12.23	12.89	-84.49	30.00	-310.81	313.72	289.54	24.18	12.975		
5,600.00	5,600.00	5,583.98	5,568.84	12.45	13.16	-39.38	30.00	-320.47	322.70	298.07	24.63	13.104		
5,700.00	5,699.96	5,683.65	5,668.05	12.66	13.42	-39.77	30.00	-330.13	330.35	305.28	25.07	13.178		
5,748.80	5,748.72	5,732.31	5,716.48	12.77	13.55	-40.03	30.00	-334.84	333.60	308.32	25.28	13.194		
5,800.00	5,799.87	5,783.38	5,767.31	12.88	13.69	-40.34	30.00	-339.79	336.86	311.35	25.51	13.205		
5,900.00	5,899.78	5,883.11	5,866.57	13.10	13.95	-40.93	30.00	-349.46	343.25	317.29	25.95	13.225		
6,000.00	5,999.69	5,982.85	5,965.84	13.32	14.22	-41.50	30.00	-359.13	349.67	323.27	26.40	13.246		
6,100.00	6,099.59	6,082.58	6,065.10	13.54	14.49	-42.04	30.00	-368.80	356.13	329.29	26.84	13.267		
6,200.00	6,199.50	6,182.32	6,164.37	13.76	14.75	-42.57	30.00	-378.46	362.62	335.33	27.29	13.288		
6,300.00	6,299.40	6,282.05	6,263.63	13.98	15.02	-43.08	30.00	-388.13	369.14	341.40	27.73	13.310		
6,400.00	6,399.31	6,381.79	6,362.90	14.20	15.29	-43.57	30.00	-397.80	375.68	347.50	28.18	13.331		
6,500.00	6,499.21	6,481.52	6,462.16	14.42	15.56	-44.05	30.00	-407.47	382.26	353.63	28.63	13.352		
6,600.00	6,599.12	6,581.25	6,561.43	14.64	15.82	-44.51	30.00	-417.13	388.85	359.78	29.08	13.373		
6,700.00	6,699.03	6,680.99	6,660.69	14.86	16.09	-44.95	30.00	-426.80	395.48	365.95	29.53	13.394		
6,800.00	6,798.93	6,780.72	6,759.96	15.08	16.36	-45.38	30.00	-436.47	402.12	372.15	29.97	13.415		
6,900.00	6,898.84	6,880.46	6,859.22	15.31	16.63	-45.80	30.00	-446.14	408.79	378.36	30.42	13.436		
7,000.00	6,998.74	6,980.19	6,958.49	15.53	16.90	-46.20	30.00	-455.80	415.48	384.60	30.88	13.457		
7,100.00	7,098.65	7,079.93	7,057.75	15.75	17.17	-46.59	30.00	-465.47	422.18	390.86	31.33	13.477		
7,200.00	7,198.55	7,179.66	7,157.02	15.98	17.43	-46.96	30.00	-475.14	428.91	397.13	31.78	13.497		
7,300.00	7,298.46	7,279.40	7,256.28	16.20	17.70	-47.33	30.00	-484.81	435.65	403.42	32.23	13.517		
7,400.00	7,398.37	7,379.13	7,355.55	16.42	17.97	-47.68	30.00	-494.47	442.41	409.73	32.68	13.537		
7,500.00	7,498.27	7,478.86	7,454.81	16.65	18.24	-48.03	30.00	-504.14	449.19	416.06	33.14	13.556		
7,600.00	7,598.18	7,578.60	7,554.07	16.87	18.51	-48.36	30.00	-513.81	455.98	422.39	33.59	13.575		
7,700.00	7,698.08	7,678.33	7,653.34	17.10	18.78	-48.68	30.00	-523.48	462.79	428.75	34.04	13.594		
7,800.00	7,797.99	7,778.07	7,752.60	17.32	19.05	-49.00	30.00	-533.14	469.61	435.12	34.50	13.613		
7,900.00	7,897.89	7,877.80	7,851.87	17.55	19.32	-49.30	30.00	-542.81	476.45	441.50	34.95	13.631		
8,000.00	7,997.80	7,977.54	7,951.13	17.77	19.59	-49.60	30.00	-552.48	483.30	447.89	35.41	13.649		
8,100.00	8,097.71	8,077.27	8,050.40	18.00	19.86	-49.88	30.00	-562.15	490.16	454.30	35.86	13.667		
8,200.00	8,197.61	8,177.01	8,149.66	18.23	20.13	-50.17	30.00	-571.82	497.03	460.71	36.32	13.685		
8,300.00	8,297.52	8,276.74	8,248.93	18.45	20.40	-50.44	30.00	-581.48	503.92	467.14	36.78	13.702		
8,400.00	8,397.42	8,376.47	8,348.19	18.68	20.67	-50.70	30.00	-591.15	510.81	473.58	37.23	13.719		
8,500.00	8,497.33	8,476.21	8,447.46	18.90	20.94	-50.96	30.00	-600.82	517.72	480.03	37.69	13.736		
8,600.00	8,597.23	8,575.94	8,546.72	19.13	21.21	-51.21	30.00	-610.49	524.64	486.49	38.15	13.752		
8,700.00	8,697.14	8,675.68	8,645.99	19.36	21.48	-51.46	30.00	-620.15	531.56	492.96	38.61	13.769		
8,800.00	8,797.05	8,775.41	8,745.25	19.59	21.75	-51.69	30.00	-629.82	538.50	499.43	39.07	13.785		
8,900.00	8,896.95	8,875.15	8,844.52	19.81	22.02	-51.93	30.00	-639.49	545.44	505.92	39.52	13.800		
9,000.00	8,996.86	8,974.88	8,943.78	20.04	22.29	-52.15	30.00	-649.16	552.40	512.41	39.98	13.816		
9,100.00	9,096.76	9,074.62	9,043.05	20.27	22.57	-52.37	30.00	-658.82	559.36	518.92	40.44	13.831		
9,200.00	9,196.67	9,174.35	9,142.31	20.50	22.84	-52.59	30.00	-668.49	566.33	525.43	40.90	13.846		
9,300.00	9,296.57	9,274.08	9,241.58	20.72	23.11	-52.80	30.00	-678.16	573.31	531.95	41.36	13.861		
9,400.00	9,396.48	9,373.82	9,340.84	20.95	23.38	-53.01	30.00	-687.83	580.29	538.47	41.82	13.875		
9,500.00	9,496.39	9,473.55	9,440.11	21.18	23.65	-53.21	30.00	-697.49	587.28	545.00	42.28	13.890		
9,600.00	9,596.29	9,573.29	9,539.37	21.41	23.92	-53.40	30.00	-707.16	594.28	551.54	42.74	13.904		
9,700.00	9,696.20	9,673.02	9,638.64	21.64	24.19	-53.59	30.00	-716.83	601.29	558.09	43.20	13.917		
9,800.00	9,796.10	9,772.76	9,737.90	21.86	24.46	-53.78	30.00	-726.50	608.30	564.64	43.67	13.931		
9,900.00	9,896.01	9,872.49	9,837.17	22.09	24.74	-53.96	30.00	-736.16	615.32	571.20	44.13	13.944		
10,000.00	9,995.91	9,972.23	9,936.43	22.32	25.01	-54.14	30.00	-745.83	622.35	577.76	44.59	13.958		
10,100.00	10,095.82	10,071.96	10,035.69	22.55	25.28	-54.31	30.00	-755.50	629.38	584.33	45.05	13.971		

CC - Min centre to center distance or convergent point. SF - min separation factor. ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 94H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,200.00	10,195.73	10,171.69	10,134.96	22.78	25.55	-54.48	30.00	-765.17	636.41	590.90	45.51	13.983		
10,300.00	10,295.63	10,271.43	10,234.22	23.01	25.82	-54.65	30.00	-774.83	643.46	597.48	45.97	13.996		
10,400.00	10,395.54	10,371.16	10,333.49	23.24	26.09	-54.81	30.00	-784.50	650.50	604.07	46.44	14.008		
10,500.00	10,495.44	10,470.90	10,432.75	23.47	26.36	-54.97	30.00	-794.17	657.56	610.86	46.90	14.020		
10,600.00	10,595.35	10,570.63	10,532.02	23.70	26.64	-55.13	30.00	-803.84	664.61	617.25	47.36	14.032		
10,700.00	10,695.25	10,670.37	10,631.28	23.93	26.91	-55.28	30.00	-813.50	671.68	623.85	47.83	14.044		
10,800.00	10,795.16	10,770.10	10,730.55	24.16	27.18	-55.43	30.00	-823.17	678.74	630.45	48.29	14.056		
10,900.00	10,895.07	10,869.84	10,829.81	24.39	27.45	-55.58	30.00	-832.84	685.81	637.06	48.75	14.067		
11,000.00	10,994.97	10,969.57	10,929.08	24.61	27.72	-55.72	30.00	-842.51	692.89	643.67	49.22	14.078		
11,100.00	11,094.88	11,080.75	11,039.80	24.84	27.96	-55.89	30.00	-852.49	699.28	649.59	49.69	14.072		
11,200.00	11,194.78	11,194.24	11,153.02	25.07	28.18	-56.10	30.00	-860.48	703.77	653.61	50.15	14.033		
11,300.00	11,294.69	11,307.88	11,266.50	25.30	28.39	-56.34	30.00	-866.24	706.32	655.72	50.60	13.959		
11,396.72	11,391.32	11,417.83	11,376.40	25.53	28.57	-56.60	30.00	-869.67	706.95	655.93	51.02	13.857		
11,400.00	11,394.60	11,421.55	11,380.12	25.53	28.58	-56.61	30.00	-869.75	706.94	655.91	51.03	13.853		
11,500.00	11,494.54	11,535.23	11,493.79	25.71	28.77	-56.85	30.00	-871.00	706.15	654.74	51.40	13.737		
11,600.00	11,594.52	11,635.96	11,594.52	25.88	28.94	-56.95	30.00	-871.00	705.24	653.46	51.78	13.621		
11,645.52	11,640.04	11,681.48	11,640.04	25.96	29.03	-102.28	30.00	-871.00	705.14	653.19	51.95	13.574		
11,700.00	11,694.52	11,735.96	11,694.52	26.07	29.13	-102.28	30.00	-871.00	705.14	652.98	52.16	13.518		
11,800.00	11,794.52	11,835.96	11,794.52	26.29	29.31	-102.28	30.00	-871.00	705.14	652.56	52.58	13.410		
11,900.00	11,894.52	11,935.96	11,894.52	26.51	29.49	-102.28	30.00	-871.00	705.14	652.14	53.00	13.304		
12,000.00	11,994.52	12,035.96	11,994.52	26.73	29.68	-102.28	30.00	-871.00	705.14	651.71	53.42	13.199		
12,002.23	11,996.75	12,038.19	11,996.75	26.74	29.68	-102.28	30.00	-871.00	705.14	651.71	53.43	13.197		
12,100.00	12,094.52	12,124.26	12,082.77	26.95	29.84	-102.43	28.17	-870.99	705.61	651.79	53.83	13.109		
12,145.52	12,140.04	12,160.14	12,118.42	27.05	29.90	-102.74	24.19	-870.96	706.69	652.68	54.00	13.086		
12,150.00	12,144.52	12,163.64	12,121.89	27.06	29.90	77.63	23.68	-870.95	706.82	652.81	54.02	13.085		
12,200.00	12,194.44	12,200.00	12,157.65	27.14	29.97	77.11	17.16	-870.90	708.27	654.11	54.16	13.078		
12,250.00	12,243.94	12,241.31	12,197.69	27.22	30.04	76.62	7.02	-870.83	709.54	655.25	54.29	13.069		
12,300.00	12,292.66	12,279.84	12,234.29	27.29	30.10	76.24	-5.02	-870.74	710.62	656.23	54.39	13.064		
12,350.00	12,340.21	12,318.23	12,269.86	27.36	30.17	75.94	-19.43	-870.63	711.48	657.01	54.48	13.060		
12,400.00	12,386.24	12,356.51	12,304.28	27.42	30.24	75.73	-36.14	-870.51	712.11	657.57	54.55	13.055		
12,450.00	12,430.39	12,400.00	12,341.95	27.48	30.31	75.59	-57.87	-870.35	712.52	657.89	54.63	13.043		
12,452.40	12,432.46	12,400.00	12,341.95	27.48	30.31	75.59	-57.87	-870.35	712.52	657.89	54.62	13.044		
12,500.00	12,472.33	12,432.88	12,369.27	27.54	30.37	75.56	-76.15	-870.21	712.62	657.96	54.66	13.037		
12,550.00	12,511.75	12,471.04	12,399.60	27.59	30.44	75.60	-99.30	-870.04	712.49	657.77	54.72	13.020		
12,600.00	12,548.34	12,509.25	12,428.36	27.63	30.51	75.73	-124.44	-869.85	712.10	657.31	54.80	12.996		
12,650.00	12,581.82	12,550.00	12,457.11	27.68	30.59	75.96	-153.31	-869.63	711.48	656.58	54.90	12.959		
12,700.00	12,611.93	12,585.91	12,480.69	27.73	30.66	76.25	-180.39	-869.43	710.61	655.59	55.01	12.917		
12,750.00	12,638.46	12,624.45	12,504.06	27.78	30.75	76.63	-211.02	-869.20	709.52	654.35	55.17	12.861		
12,800.00	12,661.19	12,663.17	12,525.41	27.85	30.84	77.09	-243.32	-868.96	708.24	652.88	55.37	12.791		
12,850.00	12,679.96	12,700.00	12,543.64	27.95	30.93	77.61	-275.31	-868.73	706.80	651.20	55.60	12.711		
12,900.00	12,694.62	12,741.36	12,561.63	28.07	31.04	78.26	-312.54	-868.45	705.22	649.31	55.90	12.615		
12,950.00	12,705.05	12,780.90	12,576.27	28.21	31.15	78.96	-349.26	-868.17	703.53	647.29	56.24	12.509		
13,000.00	12,711.19	12,820.82	12,588.44	28.38	31.28	79.72	-387.27	-867.89	701.78	645.16	56.62	12.394		
13,045.52	12,713.00	12,857.52	12,597.28	28.54	31.41	80.48	-422.88	-867.63	700.17	643.16	57.01	12.282		
13,100.00	12,713.00	12,900.00	12,604.63	28.75	31.57	81.08	-464.71	-867.31	698.65	641.15	57.50	12.150		
13,200.00	12,713.00	12,988.10	12,610.00	29.22	31.94	81.51	-552.56	-866.66	697.74	639.25	58.49	11.930		
13,300.00	12,713.00	13,088.10	12,610.00	29.76	32.44	81.51	-652.56	-865.92	697.73	638.14	59.60	11.707		
13,400.00	12,713.00	13,188.10	12,610.00	30.38	33.02	81.51	-752.55	-865.17	697.73	636.87	60.86	11.465		
13,500.00	12,713.00	13,288.10	12,610.00	31.08	33.66	81.51	-852.55	-864.43	697.73	635.47	62.26	11.206		
13,600.00	12,713.00	13,388.10	12,610.00	31.84	34.38	81.51	-952.55	-863.68	697.73	633.93	63.80	10.936		
13,700.00	12,713.00	13,488.10	12,610.00	32.67	35.16	81.51	-1,052.54	-862.94	697.73	632.27	65.46	10.658		
13,800.00	12,713.00	13,588.10	12,610.00	33.56	35.99	81.51	-1,152.54	-862.19	697.73	630.49	67.24	10.376		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 94H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance		Minimum Separation		Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
13,900.00	12,713.00	13,888.10	12,610.00	34.50	36.88	81.51	-1,252.54	-861.45	697.73	628.60	69.13	10.093		
14,000.00	12,713.00	13,788.10	12,610.00	35.49	37.82	81.51	-1,352.54	-860.70	697.73	626.62	71.11	9.812		
14,100.00	12,713.00	13,888.10	12,610.00	36.53	38.81	81.51	-1,452.53	-859.96	697.73	624.54	73.18	9.534		
14,200.00	12,713.00	13,988.10	12,610.00	37.61	39.84	81.51	-1,552.53	-859.21	697.73	622.39	75.34	9.261		
14,300.00	12,713.00	14,088.10	12,610.00	38.73	40.91	81.51	-1,652.53	-858.47	697.72	620.15	77.57	8.995		
14,400.00	12,713.00	14,188.10	12,610.00	39.89	42.02	81.51	-1,752.52	-857.72	697.72	617.85	79.87	8.735		
14,500.00	12,713.00	14,288.10	12,610.00	41.08	43.16	81.51	-1,852.52	-856.98	697.72	615.49	82.24	8.484		
14,600.00	12,713.00	14,388.10	12,610.00	42.30	44.33	81.51	-1,952.52	-856.23	697.72	613.06	84.66	8.241		
14,700.00	12,713.00	14,488.10	12,610.00	43.54	45.53	81.51	-2,052.52	-855.49	697.72	610.58	87.14	8.007		
14,800.00	12,713.00	14,588.10	12,610.00	44.81	46.76	81.51	-2,152.51	-854.74	697.72	608.06	89.66	7.782		
14,900.00	12,713.00	14,688.10	12,610.00	46.11	48.01	81.51	-2,252.51	-854.00	697.72	605.48	92.23	7.565		
15,000.00	12,713.00	14,788.10	12,610.00	47.42	49.29	81.51	-2,352.51	-853.25	697.72	602.87	94.85	7.356		
15,100.00	12,713.00	14,888.10	12,610.00	48.76	50.58	81.51	-2,452.51	-852.51	697.72	600.22	97.50	7.156		
15,200.00	12,713.00	14,988.10	12,610.00	50.11	51.90	81.51	-2,552.50	-851.76	697.72	597.54	100.18	6.965		
15,300.00	12,713.00	15,088.10	12,610.00	51.48	53.23	81.51	-2,652.50	-851.02	697.71	594.82	102.90	6.781		
15,400.00	12,713.00	15,188.10	12,610.00	52.86	54.58	81.51	-2,752.50	-850.27	697.71	592.07	105.64	6.604		
15,500.00	12,713.00	15,288.10	12,610.00	54.26	55.94	81.51	-2,852.49	-849.53	697.71	589.29	108.42	6.435		
15,600.00	12,713.00	15,388.10	12,610.00	55.67	57.32	81.51	-2,952.49	-848.78	697.71	586.49	111.22	6.273		
15,700.00	12,713.00	15,488.10	12,610.00	57.10	58.71	81.51	-3,052.49	-848.04	697.71	583.67	114.04	6.118		
15,800.00	12,713.00	15,588.10	12,610.00	58.53	60.12	81.51	-3,152.49	-847.29	697.71	580.82	116.89	5.969		
15,900.00	12,713.00	15,688.10	12,610.00	59.98	61.53	81.51	-3,252.48	-846.55	697.71	577.96	119.75	5.826		
16,000.00	12,713.00	15,788.10	12,610.00	61.43	62.96	81.51	-3,352.48	-845.80	697.71	575.07	122.64	5.689		
16,100.00	12,713.00	15,888.10	12,610.00	62.89	64.40	81.51	-3,452.48	-845.06	697.71	572.17	125.54	5.558		
16,200.00	12,713.00	15,988.10	12,610.00	64.37	65.84	81.51	-3,552.47	-844.31	697.71	569.25	128.46	5.431		
16,300.00	12,713.00	16,088.10	12,610.00	65.85	67.30	81.51	-3,652.47	-843.57	697.70	566.31	131.39	5.310		
16,400.00	12,713.00	16,188.10	12,610.00	67.33	68.76	81.51	-3,752.47	-842.82	697.70	563.36	134.34	5.194		
16,500.00	12,713.00	16,288.10	12,610.00	68.83	70.23	81.51	-3,852.47	-842.08	697.70	560.40	137.30	5.082		
16,600.00	12,713.00	16,388.10	12,610.00	70.33	71.71	81.51	-3,952.46	-841.33	697.70	557.43	140.27	4.974		
16,700.00	12,713.00	16,488.10	12,610.00	71.83	73.19	81.51	-4,052.46	-840.59	697.70	554.44	143.26	4.870		
16,800.00	12,713.00	16,588.10	12,610.00	73.34	74.68	81.51	-4,152.46	-839.84	697.70	551.44	146.26	4.770		
16,900.00	12,713.00	16,688.10	12,610.00	74.86	76.18	81.51	-4,252.46	-839.10	697.70	548.43	149.26	4.674		
17,000.00	12,713.00	16,788.10	12,610.00	76.38	77.68	81.51	-4,352.45	-838.35	697.70	545.42	152.28	4.582		
17,100.00	12,713.00	16,888.10	12,610.00	77.91	79.19	81.51	-4,452.45	-837.61	697.70	542.39	155.31	4.492		
17,200.00	12,713.00	16,988.10	12,610.00	79.44	80.70	81.51	-4,552.45	-836.86	697.70	539.35	158.34	4.406		
17,300.00	12,713.00	17,088.10	12,610.00	80.97	82.22	81.51	-4,652.44	-836.12	697.69	536.31	161.38	4.323		
17,400.00	12,713.00	17,188.10	12,610.00	82.51	83.74	81.51	-4,752.44	-835.37	697.69	533.26	164.43	4.243		
17,500.00	12,713.00	17,288.10	12,610.00	84.06	85.27	81.51	-4,852.44	-834.63	697.69	530.20	167.49	4.166		
17,600.00	12,713.00	17,388.10	12,610.00	85.60	86.80	81.51	-4,952.44	-833.88	697.69	527.13	170.56	4.091		
17,700.00	12,713.00	17,488.10	12,610.00	87.15	88.33	81.51	-5,052.43	-833.14	697.69	524.05	173.63	4.018		
17,800.00	12,713.00	17,588.10	12,610.00	88.70	89.87	81.51	-5,152.43	-832.39	697.69	520.98	176.71	3.948		
17,900.00	12,713.00	17,688.10	12,610.00	90.26	91.41	81.51	-5,252.43	-831.65	697.69	517.90	179.79	3.881		
18,000.00	12,713.00	17,788.10	12,610.00	91.82	92.95	81.51	-5,352.42	-830.90	697.69	514.81	182.88	3.815		
18,100.00	12,713.00	17,888.10	12,610.00	93.38	94.50	81.51	-5,452.42	-830.16	697.69	511.72	185.97	3.752		
18,200.00	12,713.00	17,988.10	12,610.00	94.94	96.05	81.51	-5,552.42	-829.41	697.69	508.62	189.07	3.690		
18,300.00	12,713.00	18,088.10	12,610.00	96.51	97.61	81.51	-5,652.42	-828.67	697.68	505.51	192.17	3.630		
18,400.00	12,713.00	18,188.10	12,610.00	98.08	99.16	81.51	-5,752.41	-827.92	697.68	502.40	195.28	3.573		
18,500.00	12,713.00	18,288.10	12,610.00	99.65	100.72	81.51	-5,852.41	-827.18	697.68	499.29	198.40	3.517		
18,600.00	12,713.00	18,388.10	12,610.00	101.22	102.28	81.51	-5,952.41	-826.44	697.68	496.17	201.51	3.462		
18,700.00	12,713.00	18,488.10	12,610.00	102.79	103.84	81.51	-6,052.41	-825.69	697.68	493.05	204.63	3.409		
18,800.00	12,713.00	18,588.10	12,610.00	104.37	105.41	81.51	-6,152.40	-824.95	697.68	489.92	207.76	3.358		
18,900.00	12,713.00	18,688.10	12,610.00	105.95	106.98	81.51	-6,252.40	-824.20	697.68	486.79	210.89	3.308		
19,000.00	12,713.00	18,788.10	12,610.00	107.53	108.55	81.51	-6,352.40	-823.46	697.68	483.66	214.02	3.260		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 94H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance		Minimum Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
19,100.00	12,713.00	18,888.10	12,610.00	109.11	110.12	81.51	-6,452.39	-822.71	697.68	480.52	217.15	3.213	
19,200.00	12,713.00	18,988.10	12,610.00	110.69	111.69	81.51	-6,552.39	-821.97	697.68	477.38	220.29	3.167	
19,300.00	12,713.00	19,088.10	12,610.00	112.28	113.27	81.51	-6,652.39	-821.22	697.67	474.24	223.43	3.123	
19,400.00	12,713.00	19,188.10	12,610.00	113.86	114.84	81.51	-6,752.39	-820.48	697.67	471.10	226.58	3.079	
19,500.00	12,713.00	19,288.10	12,610.00	115.45	116.42	81.51	-6,852.38	-819.73	697.67	467.95	229.72	3.037	
19,600.00	12,713.00	19,388.10	12,610.00	117.04	118.00	81.51	-6,952.38	-818.99	697.67	464.80	232.87	2.996	
19,700.00	12,713.00	19,488.10	12,610.00	118.63	119.58	81.51	-7,052.38	-818.24	697.67	461.65	236.03	2.956	
19,800.00	12,713.00	19,588.10	12,610.00	120.22	121.17	81.51	-7,152.37	-817.50	697.67	458.49	239.18	2.917	
19,900.00	12,713.00	19,688.10	12,610.00	121.82	122.75	81.51	-7,252.37	-816.75	697.67	455.33	242.34	2.879	
20,000.00	12,713.00	19,788.10	12,610.00	123.41	124.34	81.51	-7,352.37	-816.01	697.67	452.17	245.50	2.842	
20,100.00	12,713.00	19,888.10	12,610.00	125.00	125.92	81.51	-7,452.37	-815.26	697.67	449.01	248.66	2.806	
20,200.00	12,713.00	19,988.10	12,610.00	126.60	127.51	81.51	-7,552.36	-814.52	697.67	445.84	251.82	2.770	
20,300.00	12,713.00	20,088.10	12,610.00	128.20	129.10	81.51	-7,652.36	-813.77	697.66	442.68	254.99	2.736	
20,400.00	12,713.00	20,188.10	12,610.00	129.80	130.69	81.51	-7,752.36	-813.03	697.66	439.51	258.15	2.702	
20,500.00	12,713.00	20,288.10	12,610.00	131.39	132.29	81.51	-7,852.36	-812.28	697.66	436.34	261.32	2.670	
20,600.00	12,713.00	20,388.10	12,610.00	132.99	133.88	81.51	-7,952.35	-811.54	697.66	433.17	264.50	2.638	
20,700.00	12,713.00	20,488.10	12,610.00	134.60	135.47	81.51	-8,052.35	-810.79	697.66	429.99	267.67	2.606	
20,800.00	12,713.00	20,588.10	12,610.00	136.20	137.07	81.51	-8,152.35	-810.05	697.66	426.82	270.84	2.576	
20,900.00	12,713.00	20,688.10	12,610.00	137.80	138.66	81.51	-8,252.34	-809.30	697.66	423.64	274.02	2.546	
21,000.00	12,713.00	20,788.10	12,610.00	139.40	140.26	81.51	-8,352.34	-808.56	697.66	420.46	277.20	2.517	
21,100.00	12,713.00	20,888.10	12,610.00	141.01	141.86	81.51	-8,452.34	-807.81	697.66	417.28	280.38	2.488	
21,200.00	12,713.00	20,988.10	12,610.00	142.61	143.46	81.51	-8,552.34	-807.07	697.66	414.10	283.56	2.460	
21,300.00	12,713.00	21,088.10	12,610.00	144.22	145.06	81.51	-8,652.33	-806.32	697.65	410.91	286.74	2.433	
21,400.00	12,713.00	21,188.10	12,610.00	145.82	146.66	81.51	-8,752.33	-805.58	697.65	407.73	289.92	2.406	
21,500.00	12,713.00	21,288.10	12,610.00	147.43	148.26	81.51	-8,852.33	-804.83	697.65	404.54	293.11	2.380	
21,600.00	12,713.00	21,388.10	12,610.00	149.04	149.86	81.51	-8,952.33	-804.09	697.65	401.36	296.30	2.355	
21,700.00	12,713.00	21,488.10	12,610.00	150.65	151.46	81.51	-9,052.32	-803.34	697.65	398.17	299.48	2.330	
21,800.00	12,713.00	21,588.10	12,610.00	152.25	153.07	81.51	-9,152.32	-802.60	697.65	394.98	302.67	2.305	
21,900.00	12,713.00	21,688.10	12,610.00	153.86	154.67	81.51	-9,252.32	-801.85	697.65	391.79	305.86	2.281	
22,000.00	12,713.00	21,788.10	12,610.00	155.47	156.27	81.51	-9,352.31	-801.11	697.65	388.60	309.05	2.257	
22,100.00	12,713.00	21,888.10	12,610.00	157.08	157.88	81.51	-9,452.31	-800.36	697.65	385.40	312.25	2.234	
22,200.00	12,713.00	21,988.10	12,610.00	158.69	159.49	81.51	-9,552.31	-799.62	697.65	382.21	315.44	2.212	
22,300.00	12,713.00	22,088.10	12,610.00	160.31	161.09	81.51	-9,652.31	-798.87	697.65	379.01	318.63	2.189	
22,400.00	12,713.00	22,188.10	12,610.00	161.92	162.70	81.51	-9,752.30	-798.13	697.64	375.82	321.83	2.168	
22,500.00	12,713.00	22,288.10	12,610.00	163.53	164.31	81.51	-9,852.30	-797.38	697.64	372.62	325.02	2.146	
22,600.00	12,713.00	22,388.10	12,610.00	165.14	165.92	81.51	-9,952.30	-796.64	697.64	369.42	328.22	2.126	
22,685.35	12,713.00	22,473.44	12,610.00	166.52	167.29	81.51	-10,037.64	-796.00	697.64	366.69	330.95	2.108	
22,688.85	12,713.00	22,473.80	12,610.00	166.58	167.29	81.51	-10,038.00	-796.00	697.65	366.57	331.08	2.107 SF	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
 Project: Lea County, NM (NAD-83)
 Reference Site: Seawolf 1-12 Fed
 Site Error: 0.00 usft
 Reference Well: 85H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
 TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 95H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	59.04	30.00	50.00	58.31				
100.00	100.00	100.00	100.00	0.09	0.09	59.04	30.00	50.00	58.31	58.13	0.18	328.383	
200.00	200.00	200.00	200.00	0.31	0.31	59.04	30.00	50.00	58.31	57.88	0.63	92.983	
300.00	300.00	300.00	300.00	0.54	0.54	59.04	30.00	50.00	58.31	57.23	1.08	54.159	
400.00	400.00	400.00	400.00	0.76	0.76	59.04	30.00	50.00	58.31	56.78	1.53	38.207	
500.00	500.00	500.00	500.00	0.99	0.99	59.04	30.00	50.00	58.31	56.33	1.98	29.513	
600.00	600.00	600.00	600.00	1.21	1.21	59.04	30.00	50.00	58.31	55.88	2.43	24.043	
700.00	700.00	700.00	700.00	1.44	1.44	59.04	30.00	50.00	58.31	55.43	2.87	20.283	
800.00	800.00	800.00	800.00	1.66	1.66	59.04	30.00	50.00	58.31	54.99	3.32	17.540	
900.00	900.00	900.00	900.00	1.89	1.89	59.04	30.00	50.00	58.31	54.54	3.77	15.451	
1,000.00	1,000.00	1,000.00	1,000.00	2.11	2.11	59.04	30.00	50.00	58.31	54.09	4.22	13.806	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	59.04	30.00	50.00	58.31	53.64	4.67	12.478	
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	59.04	30.00	50.00	58.31	53.19	5.12	11.383	
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	59.04	30.00	50.00	58.31	52.74	5.57	10.465	
1,400.00	1,400.00	1,400.00	1,400.00	3.01	3.01	59.04	30.00	50.00	58.31	52.29	6.02	9.684	
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	59.04	30.00	50.00	58.31	51.84	6.47	9.011	
1,600.00	1,600.00	1,600.00	1,600.00	3.46	3.46	59.04	30.00	50.00	58.31	51.39	6.92	8.426	
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	59.04	30.00	50.00	58.31	50.94	7.37	7.912	
1,800.00	1,800.00	1,800.00	1,800.00	3.91	3.91	59.04	30.00	50.00	58.31	50.49	7.82	7.457	
1,900.00	1,900.00	1,900.00	1,900.00	4.13	4.13	59.04	30.00	50.00	58.31	50.04	8.27	7.051	
2,000.00	2,000.00	2,000.00	2,000.00	4.36	4.36	59.04	30.00	50.00	58.31	49.59	8.72	6.688	
2,100.00	2,100.00	2,100.00	2,100.00	4.58	4.58	59.04	30.00	50.00	58.31	49.14	9.17	6.360	
2,200.00	2,200.00	2,200.00	2,200.00	4.81	4.81	59.04	30.00	50.00	58.31	48.69	9.62	6.063	
2,300.00	2,300.00	2,300.00	2,300.00	5.03	5.03	59.04	30.00	50.00	58.31	48.24	10.07	5.792	
2,400.00	2,400.00	2,400.00	2,400.00	5.26	5.26	59.04	30.00	50.00	58.31	47.79	10.52	5.544	
2,500.00	2,500.00	2,500.00	2,500.00	5.48	5.48	59.04	30.00	50.00	58.31	47.34	10.97	5.317	
2,600.00	2,600.00	2,600.00	2,600.00	5.71	5.71	59.04	30.00	50.00	58.31	46.89	11.42	5.108	
2,700.00	2,700.00	2,700.00	2,700.00	5.93	5.93	59.04	30.00	50.00	58.31	46.44	11.87	4.914	
2,800.00	2,800.00	2,800.00	2,800.00	6.16	6.16	59.04	30.00	50.00	58.31	45.99	12.31	4.735	
2,900.00	2,900.00	2,900.00	2,900.00	6.38	6.38	59.04	30.00	50.00	58.31	45.55	12.76	4.568	
3,000.00	3,000.00	3,000.00	3,000.00	6.61	6.61	59.04	30.00	50.00	58.31	45.10	13.21	4.413	
3,100.00	3,100.00	3,100.77	3,100.77	6.83	6.82	58.47	30.14	49.13	57.64	43.99	13.65	4.222	
3,200.00	3,200.00	3,201.48	3,201.44	7.06	7.03	56.68	30.57	46.50	55.67	41.59	14.08	3.955	
3,300.00	3,300.00	3,302.07	3,301.93	7.28	7.23	53.42	31.28	42.14	52.52	38.01	14.50	3.621	
3,400.00	3,400.00	3,402.47	3,402.14	7.51	7.44	48.17	32.27	36.05	48.43	33.50	14.93	3.244	
3,500.00	3,500.00	3,502.62	3,501.98	7.73	7.66	40.11	33.53	28.25	43.89	28.53	15.37	2.857	
3,600.00	3,600.00	3,602.47	3,601.36	7.96	7.87	28.14	35.08	18.76	39.80	23.99	15.81	2.517	
3,700.00	3,700.00	3,701.94	3,700.20	8.18	8.09	11.85	36.87	7.74	37.67	21.40	16.27	2.315	
3,715.00	3,715.00	3,716.84	3,715.00	8.21	8.13	9.23	37.14	6.04	37.63	21.29	16.34	2.303 CC, ES	
3,800.00	3,800.00	3,801.27	3,798.86	8.41	8.32	-5.31	38.71	-3.60	38.89	22.17	16.72	2.326	
3,900.00	3,900.00	3,900.60	3,897.53	8.63	8.55	-20.21	40.55	-14.93	43.28	26.14	17.14	2.525	
4,000.00	4,000.00	3,999.93	3,996.19	8.85	8.79	-31.78	42.39	-26.26	50.01	32.45	17.56	2.848	
4,100.00	4,100.00	4,099.26	4,094.86	9.08	9.02	-40.36	44.24	-37.60	58.28	40.30	17.98	3.241	
4,200.00	4,200.00	4,198.59	4,193.52	9.30	9.26	-46.72	46.08	-48.93	67.52	49.12	18.40	3.669	
4,300.00	4,300.00	4,297.92	4,292.18	9.53	9.51	-51.51	47.92	-60.26	77.39	58.56	18.83	4.110	
4,400.00	4,400.00	4,397.25	4,390.85	9.75	9.75	-55.20	49.76	-71.60	87.67	68.41	19.26	4.551	
4,500.00	4,500.00	4,496.58	4,489.51	9.98	10.00	-58.11	51.60	-82.93	98.23	78.54	19.70	4.987	
4,600.00	4,600.00	4,595.91	4,588.18	10.20	10.25	-60.45	53.44	-94.26	109.00	88.87	20.13	5.414	
4,700.00	4,700.00	4,595.24	4,586.84	10.43	10.50	-62.36	55.29	-105.59	119.92	99.34	20.57	5.829	
4,800.00	4,800.00	4,794.57	4,785.50	10.65	10.76	-63.96	57.13	-116.93	130.94	109.93	21.01	6.232	
4,900.00	4,900.00	4,893.90	4,884.17	10.88	11.01	-65.31	58.97	-128.26	142.05	120.60	21.45	6.621	
5,000.00	5,000.00	4,993.23	4,982.83	11.10	11.27	-66.46	60.81	-139.59	153.23	131.33	21.90	6.998	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 95H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,100.00	5,092.56	5,081.49	11.33	11.53	-67.46	62.65	-150.93	164.46	142.12	22.34	7.362		
5,200.00	5,200.00	5,191.89	5,180.16	11.55	11.79	-68.32	64.50	-162.26	175.73	152.95	22.79	7.713		
5,300.00	5,300.00	5,291.21	5,278.82	11.78	12.06	-69.09	66.34	-173.59	187.04	163.81	23.23	8.051		
5,400.00	5,400.00	5,390.54	5,377.49	12.00	12.32	-69.76	68.18	-184.93	198.38	174.70	23.68	8.378		
5,500.00	5,500.00	5,489.87	5,476.15	12.23	12.58	-70.36	70.02	-196.26	209.74	185.61	24.12	8.694		
5,600.00	5,600.00	5,589.28	5,574.89	12.45	12.85	-25.64	71.86	-207.60	220.34	195.77	24.57	8.969		
5,700.00	5,699.96	5,688.82	5,673.76	12.66	13.12	-26.38	73.71	-218.96	229.40	204.40	25.01	9.174		
5,748.80	5,748.72	5,737.43	5,722.05	12.77	13.25	-26.78	74.61	-224.50	233.28	208.06	25.22	9.250		
5,800.00	5,799.87	5,788.46	5,772.73	12.88	13.39	-27.24	75.56	-230.33	237.16	211.72	25.44	9.321		
5,900.00	5,899.78	5,888.10	5,871.71	13.10	13.66	-28.09	77.40	-241.69	244.79	218.91	25.88	9.458		
6,000.00	5,999.69	5,987.75	5,970.68	13.32	13.93	-28.89	79.25	-253.06	252.48	226.15	26.32	9.591		
6,100.00	6,099.59	6,087.39	6,069.66	13.54	14.20	-29.64	81.10	-264.43	260.20	233.44	26.76	9.722		
6,200.00	6,199.50	6,187.03	6,168.64	13.76	14.47	-30.34	82.95	-275.80	267.97	240.76	27.21	9.849		
6,300.00	6,299.40	6,286.68	6,267.61	13.98	14.74	-31.01	84.79	-287.17	275.78	248.13	27.65	9.974		
6,400.00	6,399.31	6,386.32	6,366.59	14.20	15.02	-31.64	86.64	-298.54	283.62	255.53	28.09	10.095		
6,500.00	6,499.21	6,485.97	6,465.57	14.42	15.29	-32.24	88.49	-309.91	291.50	262.96	28.54	10.214		
6,600.00	6,599.12	6,585.61	6,564.54	14.64	15.56	-32.80	90.34	-321.28	299.40	270.41	28.99	10.329		
6,700.00	6,699.03	6,685.26	6,663.52	14.86	15.84	-33.34	92.19	-332.65	307.33	277.90	29.43	10.442		
6,800.00	6,798.93	6,784.90	6,762.50	15.08	16.12	-33.85	94.03	-344.02	315.29	285.41	29.88	10.552		
6,900.00	6,898.84	6,884.55	6,861.47	15.31	16.39	-34.33	95.88	-355.39	323.27	292.94	30.33	10.659		
7,000.00	6,998.74	6,984.19	6,960.45	15.53	16.67	-34.79	97.73	-366.75	331.27	300.50	30.78	10.764		
7,100.00	7,098.65	7,083.84	7,059.43	15.75	16.95	-35.23	99.58	-378.12	339.29	308.07	31.23	10.866		
7,200.00	7,198.55	7,183.48	7,158.41	15.98	17.23	-35.65	101.42	-389.49	347.34	315.66	31.68	10.965		
7,300.00	7,298.46	7,283.13	7,257.38	16.20	17.50	-36.05	103.27	-400.86	355.40	323.27	32.13	11.062		
7,400.00	7,398.37	7,382.77	7,356.36	16.42	17.78	-36.43	105.12	-412.23	363.47	330.89	32.58	11.157		
7,500.00	7,498.27	7,482.42	7,455.34	16.65	18.06	-36.79	106.97	-423.60	371.56	338.53	33.03	11.249		
7,600.00	7,598.18	7,582.06	7,554.31	16.87	18.34	-37.14	108.81	-434.97	379.67	346.19	33.48	11.339		
7,700.00	7,698.08	7,681.71	7,653.29	17.10	18.62	-37.48	110.66	-446.34	387.79	353.85	33.94	11.427		
7,800.00	7,797.99	7,781.35	7,752.27	17.32	18.90	-37.80	112.51	-457.71	395.92	361.53	34.39	11.513		
7,900.00	7,897.89	7,881.00	7,851.24	17.55	19.18	-38.11	114.36	-469.08	404.06	369.22	34.84	11.597		
8,000.00	7,997.80	7,980.64	7,950.22	17.77	19.46	-38.41	116.20	-480.44	412.22	376.92	35.30	11.678		
8,100.00	8,097.71	8,080.29	8,049.20	18.00	19.75	-38.69	118.05	-491.81	420.38	384.63	35.75	11.758		
8,200.00	8,197.61	8,179.93	8,148.17	18.23	20.03	-38.96	119.90	-503.18	428.55	392.35	36.21	11.836		
8,300.00	8,297.52	8,279.58	8,247.15	18.45	20.31	-39.23	121.75	-514.55	436.74	400.08	36.66	11.912		
8,400.00	8,397.42	8,379.22	8,346.13	18.68	20.59	-39.48	123.59	-525.92	444.93	407.81	37.12	11.986		
8,500.00	8,497.33	8,478.86	8,445.10	18.90	20.87	-39.73	125.44	-537.29	453.13	415.56	37.58	12.059		
8,600.00	8,597.23	8,578.51	8,544.08	19.13	21.16	-39.96	127.29	-548.66	461.34	423.31	38.03	12.130		
8,700.00	8,697.14	8,678.15	8,643.06	19.36	21.44	-40.19	129.14	-560.03	469.56	431.07	38.49	12.199		
8,800.00	8,797.05	8,777.80	8,742.03	19.59	21.72	-40.41	130.99	-571.40	477.78	438.84	38.95	12.267		
8,900.00	8,896.95	8,877.44	8,841.01	19.81	22.01	-40.62	132.83	-582.77	486.01	446.61	39.41	12.333		
9,000.00	8,996.86	8,977.09	8,939.99	20.04	22.29	-40.83	134.68	-594.13	494.25	454.39	39.87	12.398		
9,100.00	9,096.76	9,076.73	9,038.97	20.27	22.57	-41.03	136.53	-605.50	502.49	462.17	40.32	12.461		
9,200.00	9,196.67	9,176.38	9,137.94	20.50	22.86	-41.22	138.38	-616.87	510.74	469.96	40.78	12.523		
9,300.00	9,296.57	9,276.02	9,236.92	20.72	23.14	-41.40	140.22	-628.24	519.00	477.76	41.24	12.584		
9,400.00	9,396.48	9,375.67	9,335.90	20.95	23.43	-41.58	142.07	-639.61	527.26	485.56	41.70	12.643		
9,500.00	9,496.39	9,475.31	9,434.87	21.18	23.71	-41.76	143.92	-650.98	535.52	493.36	42.16	12.701		
9,600.00	9,596.29	9,574.96	9,533.85	21.41	23.99	-41.93	145.77	-662.35	543.79	501.17	42.62	12.758		
9,700.00	9,696.20	9,674.60	9,632.83	21.64	24.28	-42.09	147.61	-673.72	552.07	508.98	43.08	12.814		
9,800.00	9,796.10	9,774.25	9,731.80	21.86	24.56	-42.25	149.46	-685.09	560.35	516.80	43.54	12.868		
9,900.00	9,896.01	9,873.89	9,830.78	22.09	24.85	-42.41	151.31	-696.46	568.63	524.62	44.01	12.922		
10,000.00	9,995.91	9,973.54	9,929.76	22.32	25.13	-42.56	153.16	-707.83	576.92	532.45	44.47	12.974		
10,100.00	10,095.82	10,073.18	10,028.73	22.55	25.42	-42.70	155.00	-719.19	585.21	540.28	44.93	13.025		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

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Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
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North Reference: Grid
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Offset Design Seawolf 1-12 Fed - 95H - OH - Plan #1													Offset Site Error:	0.00 usft
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Reference		Offset		Semi Major Axis			Distance						Warning	
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10,200.00	10,195.73	10,172.83	10,127.71	22.78	25.71	-42.85	156.85	-730.56	593.50	548.11	45.39	13.075		
10,300.00	10,295.63	10,272.47	10,226.69	23.01	25.99	-42.98	158.70	-741.93	601.80	555.94	45.85	13.124		
10,400.00	10,395.54	10,372.12	10,325.66	23.24	26.28	-43.12	160.55	-753.30	610.10	563.78	46.32	13.173		
10,500.00	10,495.44	10,471.76	10,424.64	23.47	26.56	-43.25	162.39	-764.67	618.40	571.63	46.78	13.220		
10,600.00	10,595.35	10,571.41	10,523.62	23.70	26.85	-43.38	164.24	-776.04	626.71	579.47	47.24	13.266		
10,700.00	10,695.25	10,671.05	10,622.59	23.93	27.14	-43.50	166.09	-787.41	635.02	587.32	47.70	13.311		
10,800.00	10,795.16	10,770.70	10,721.57	24.16	27.42	-43.62	167.94	-798.78	643.34	595.17	48.17	13.356		
10,900.00	10,895.07	10,870.34	10,820.55	24.39	27.71	-43.74	169.79	-810.15	651.65	603.02	48.63	13.400		
11,000.00	10,994.97	10,969.98	10,919.53	24.61	27.99	-43.85	171.63	-821.52	659.97	610.88	49.10	13.443		
11,100.00	11,094.88	11,069.63	11,018.50	24.84	28.28	-43.96	173.48	-832.88	668.29	618.73	49.56	13.485		
11,200.00	11,194.78	11,179.88	11,128.09	25.07	28.54	-44.09	175.41	-844.76	675.99	625.94	50.04	13.508		
11,300.00	11,294.69	11,292.94	11,240.69	25.30	28.77	-44.25	177.04	-854.80	681.78	631.26	50.52	13.496		
11,396.72	11,391.32	11,402.48	11,349.96	25.53	28.98	-44.43	178.28	-862.44	685.53	634.57	50.96	13.452		
11,400.00	11,394.60	11,406.20	11,353.67	25.53	28.99	-44.44	178.32	-862.66	685.62	634.65	50.98	13.450		
11,500.00	11,494.54	11,519.57	11,466.90	25.71	29.20	-44.61	179.24	-868.32	688.19	636.81	51.37	13.396		
11,600.00	11,594.52	11,633.02	11,580.29	25.88	29.39	-44.68	179.80	-871.77	690.04	638.29	51.75	13.334		
11,645.52	11,640.04	11,684.68	11,631.94	25.96	29.48	-90.01	179.94	-872.60	690.65	638.73	51.92	13.303		
11,700.00	11,694.52	11,746.52	11,693.78	26.07	29.58	-90.00	180.00	-873.00	691.00	638.87	52.13	13.256		
11,800.00	11,794.52	11,847.26	11,794.52	26.29	29.76	-90.00	180.00	-873.00	691.00	638.45	52.55	13.150		
11,900.00	11,894.52	11,947.26	11,894.52	26.51	29.94	-90.00	180.00	-873.00	691.00	638.03	52.97	13.045		
12,000.00	11,994.52	12,047.26	11,994.52	26.73	30.13	-90.00	180.00	-873.00	691.00	637.60	53.40	12.941		
12,100.00	12,094.52	12,147.26	12,094.52	26.95	30.31	-90.00	180.00	-873.00	691.00	637.18	53.82	12.838		
12,145.52	12,140.04	12,192.78	12,140.04	27.05	30.40	-90.00	180.00	-873.00	691.00	636.98	54.02	12.792		
12,150.00	12,144.52	12,197.26	12,144.52	27.06	30.41	90.43	180.00	-873.00	691.00	636.96	54.04	12.788		
12,200.00	12,194.44	12,247.18	12,194.44	27.14	30.50	90.64	180.00	-873.00	691.02	636.81	54.22	12.746		
12,250.00	12,243.94	12,297.49	12,244.73	27.22	30.59	91.13	179.07	-872.99	691.12	636.74	54.38	12.709		
12,300.00	12,292.66	12,348.61	12,295.57	27.29	30.67	91.64	173.88	-872.95	691.27	636.75	54.52	12.679		
12,350.00	12,340.21	12,400.32	12,346.32	27.36	30.74	92.14	164.04	-872.88	691.47	636.82	54.65	12.652		
12,400.00	12,386.24	12,452.62	12,396.53	27.42	30.81	92.63	149.48	-872.77	691.71	636.94	54.78	12.628		
12,450.00	12,430.39	12,505.52	12,445.75	27.48	30.88	93.10	130.17	-872.62	692.00	637.11	54.89	12.607		
12,500.00	12,472.33	12,558.99	12,493.49	27.54	30.94	93.54	106.11	-872.44	692.31	637.31	55.00	12.587		
12,550.00	12,511.75	12,613.04	12,539.25	27.59	31.00	93.96	77.38	-872.23	692.64	637.53	55.12	12.567		
12,600.00	12,548.34	12,667.63	12,582.51	27.63	31.06	94.35	44.12	-871.98	692.98	637.75	55.23	12.546		
12,650.00	12,581.82	12,722.74	12,622.77	27.68	31.12	94.71	6.52	-871.69	693.32	637.96	55.36	12.524		
12,700.00	12,611.93	12,778.33	12,659.54	27.73	31.18	95.02	-35.14	-871.38	693.64	638.14	55.50	12.497		
12,750.00	12,638.46	12,834.34	12,692.32	27.78	31.24	95.30	-80.53	-871.04	693.93	638.27	55.67	12.466		
12,800.00	12,661.19	12,890.73	12,720.70	27.85	31.31	95.53	-129.23	-870.67	694.19	638.34	55.85	12.429		
12,850.00	12,679.96	12,947.43	12,744.26	27.95	31.40	95.72	-180.77	-870.28	694.40	638.33	56.07	12.385		
12,900.00	12,694.62	13,004.37	12,762.69	28.07	31.50	95.85	-234.62	-869.88	694.56	638.24	56.32	12.333		
12,950.00	12,705.05	13,061.47	12,775.71	28.21	31.62	95.93	-290.19	-869.46	694.66	638.05	56.60	12.272		
13,000.00	12,711.19	13,118.66	12,783.14	28.38	31.76	95.96	-346.87	-869.03	694.69	637.77	56.92	12.204		
13,045.52	12,713.00	13,169.99	12,785.00	28.54	31.92	95.95	-398.15	-868.64	694.67	637.42	57.24	12.135		
13,100.00	12,713.00	13,224.47	12,785.00	28.75	32.10	95.95	-452.63	-868.23	694.66	636.98	57.68	12.044		
13,200.00	12,713.00	13,324.47	12,785.00	29.22	32.51	95.95	-552.62	-867.48	694.65	636.05	58.60	11.854		
13,300.00	12,713.00	13,424.47	12,785.00	29.76	33.00	95.95	-652.62	-866.73	694.64	634.96	59.68	11.639		
13,400.00	12,713.00	13,524.47	12,785.00	30.38	33.56	95.95	-752.62	-865.97	694.63	633.71	60.92	11.402		
13,500.00	12,713.00	13,624.47	12,785.00	31.08	34.20	95.95	-852.62	-865.22	694.62	632.32	62.31	11.148		
13,600.00	12,713.00	13,724.47	12,785.00	31.84	34.91	95.95	-952.61	-864.46	694.61	630.78	63.83	10.882		
13,700.00	12,713.00	13,824.47	12,785.00	32.67	35.68	95.95	-1,052.61	-863.71	694.60	629.13	65.48	10.608		
13,800.00	12,713.00	13,924.47	12,785.00	33.56	36.51	95.95	-1,152.61	-862.96	694.59	627.35	67.24	10.330		
13,900.00	12,713.00	14,024.47	12,785.00	34.50	37.40	95.95	-1,252.60	-862.20	694.58	625.47	69.12	10.049		
14,000.00	12,713.00	14,124.47	12,785.00	35.49	38.34	95.95	-1,352.60	-861.45	694.58	623.48	71.09	9.770		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 95H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
14,100.00	12,713.00	14,224.47	12,785.00	36.53	39.32	95.95	-1,452.60	-860.70	694.57	621.40	73.16	9.494		
14,200.00	12,713.00	14,324.47	12,785.00	37.61	40.35	95.95	-1,552.60	-859.94	694.56	619.24	75.31	9.222		
14,300.00	12,713.00	14,424.47	12,785.00	38.73	41.42	95.95	-1,652.59	-859.19	694.55	617.01	77.54	8.957		
14,400.00	12,713.00	14,524.47	12,785.00	39.89	42.52	95.95	-1,752.59	-858.44	694.54	614.70	79.84	8.699		
14,500.00	12,713.00	14,624.47	12,785.00	41.08	43.66	95.95	-1,852.59	-857.68	694.53	612.32	82.20	8.449		
14,600.00	12,713.00	14,724.47	12,785.00	42.30	44.83	95.95	-1,952.58	-856.93	694.52	609.89	84.63	8.207		
14,700.00	12,713.00	14,824.47	12,785.00	43.54	46.03	95.95	-2,052.58	-856.18	694.51	607.40	87.11	7.973		
14,800.00	12,713.00	14,924.47	12,785.00	44.81	47.25	95.95	-2,152.58	-855.42	694.50	604.86	89.64	7.748		
14,900.00	12,713.00	15,024.47	12,785.00	46.11	48.50	95.95	-2,252.58	-854.67	694.49	602.28	92.21	7.532		
15,000.00	12,713.00	15,124.47	12,785.00	47.42	49.77	95.95	-2,352.57	-853.92	694.48	599.65	94.83	7.324		
15,100.00	12,713.00	15,224.47	12,785.00	48.76	51.06	95.95	-2,452.57	-853.16	694.47	596.99	97.48	7.124		
15,200.00	12,713.00	15,324.47	12,785.00	50.11	52.38	95.95	-2,552.57	-852.41	694.46	594.29	100.17	6.933		
15,300.00	12,713.00	15,424.47	12,785.00	51.48	53.71	95.95	-2,652.56	-851.65	694.45	591.55	102.90	6.749		
15,400.00	12,713.00	15,524.47	12,785.00	52.86	55.05	95.95	-2,752.56	-850.90	694.44	588.79	105.65	6.573		
15,500.00	12,713.00	15,624.47	12,785.00	54.26	56.41	95.95	-2,852.56	-850.15	694.43	586.00	108.43	6.404		
15,600.00	12,713.00	15,724.47	12,785.00	55.67	57.79	95.95	-2,952.56	-849.39	694.42	583.18	111.24	6.242		
15,700.00	12,713.00	15,824.47	12,785.00	57.10	59.18	95.95	-3,052.55	-848.64	694.41	580.34	114.07	6.087		
15,800.00	12,713.00	15,924.47	12,785.00	58.53	60.58	95.95	-3,152.55	-847.89	694.40	577.47	116.93	5.939		
15,900.00	12,713.00	16,024.47	12,785.00	59.98	61.99	95.95	-3,252.55	-847.13	694.39	574.59	119.80	5.796		
16,000.00	12,713.00	16,124.47	12,785.00	61.43	63.42	95.95	-3,352.54	-846.38	694.38	571.69	122.70	5.659		
16,100.00	12,713.00	16,224.47	12,785.00	62.89	64.85	95.95	-3,452.54	-845.63	694.37	568.76	125.61	5.528		
16,200.00	12,713.00	16,324.47	12,785.00	64.37	66.30	95.95	-3,552.54	-844.87	694.36	565.83	128.54	5.402		
16,300.00	12,713.00	16,424.47	12,785.00	65.85	67.75	95.95	-3,652.54	-844.12	694.35	562.87	131.48	5.281		
16,400.00	12,713.00	16,524.47	12,785.00	67.33	69.21	95.95	-3,752.53	-843.37	694.34	559.90	134.44	5.165		
16,500.00	12,713.00	16,624.47	12,785.00	68.83	70.68	95.95	-3,852.53	-842.61	694.34	556.92	137.41	5.053		
16,600.00	12,713.00	16,724.47	12,785.00	70.33	72.15	95.95	-3,952.53	-841.86	694.33	553.93	140.40	4.945		
16,700.00	12,713.00	16,824.47	12,785.00	71.83	73.63	95.95	-4,052.52	-841.10	694.32	550.92	143.40	4.842		
16,800.00	12,713.00	16,924.47	12,785.00	73.34	75.12	95.95	-4,152.52	-840.35	694.31	547.90	146.41	4.742		
16,900.00	12,713.00	17,024.47	12,785.00	74.86	76.62	95.95	-4,252.52	-839.60	694.30	544.87	149.42	4.646		
17,000.00	12,713.00	17,124.47	12,785.00	76.38	78.12	95.95	-4,352.52	-838.84	694.29	541.83	152.45	4.554		
17,100.00	12,713.00	17,224.47	12,785.00	77.91	79.62	95.95	-4,452.51	-838.09	694.28	538.79	155.49	4.465		
17,200.00	12,713.00	17,324.47	12,785.00	79.44	81.13	95.95	-4,552.51	-837.34	694.27	535.73	158.54	4.379		
17,300.00	12,713.00	17,424.47	12,785.00	80.97	82.65	95.95	-4,652.51	-836.58	694.26	532.67	161.59	4.296		
17,400.00	12,713.00	17,524.47	12,785.00	82.51	84.17	95.95	-4,752.50	-835.83	694.25	529.59	164.66	4.216		
17,500.00	12,713.00	17,624.47	12,785.00	84.06	85.69	95.95	-4,852.50	-835.08	694.24	526.51	167.73	4.139		
17,600.00	12,713.00	17,724.47	12,785.00	85.60	87.22	95.95	-4,952.50	-834.32	694.23	523.43	170.80	4.064		
17,700.00	12,713.00	17,824.47	12,785.00	87.15	88.76	95.95	-5,052.50	-833.57	694.22	520.33	173.89	3.992		
17,800.00	12,713.00	17,924.47	12,785.00	88.70	90.29	95.95	-5,152.49	-832.82	694.21	517.23	176.98	3.923		
17,900.00	12,713.00	18,024.47	12,785.00	90.26	91.83	95.95	-5,252.49	-832.06	694.20	514.13	180.08	3.855		
18,000.00	12,713.00	18,124.47	12,785.00	91.82	93.37	95.95	-5,352.49	-831.31	694.19	511.01	183.18	3.790		
18,100.00	12,713.00	18,224.47	12,785.00	93.38	94.92	95.95	-5,452.48	-830.56	694.18	507.90	186.28	3.726		
18,200.00	12,713.00	18,324.47	12,785.00	94.94	96.47	95.95	-5,552.48	-829.80	694.17	504.78	189.40	3.665		
18,300.00	12,713.00	18,424.47	12,785.00	96.51	98.02	95.95	-5,652.48	-829.05	694.16	501.65	192.51	3.606		
18,400.00	12,713.00	18,524.47	12,785.00	98.08	99.57	95.95	-5,752.48	-828.29	694.15	498.52	195.64	3.548		
18,500.00	12,713.00	18,624.47	12,785.00	99.65	101.13	95.95	-5,852.47	-827.54	694.14	495.38	198.76	3.492		
18,600.00	12,713.00	18,724.47	12,785.00	101.22	102.69	95.95	-5,952.47	-826.79	694.13	492.24	201.89	3.438		
18,700.00	12,713.00	18,824.47	12,785.00	102.79	104.25	95.95	-6,052.47	-826.03	694.12	489.10	205.03	3.386		
18,800.00	12,713.00	18,924.47	12,785.00	104.37	105.82	95.95	-6,152.46	-825.28	694.11	485.95	208.17	3.334		
18,900.00	12,713.00	19,024.47	12,785.00	105.95	107.38	95.95	-6,252.46	-824.53	694.11	482.80	211.31	3.285		
19,000.00	12,713.00	19,124.47	12,785.00	107.53	108.95	95.95	-6,352.46	-823.77	694.10	479.64	214.45	3.237		
19,100.00	12,713.00	19,224.47	12,785.00	109.11	110.52	95.95	-6,452.46	-823.02	694.09	476.48	217.60	3.190		
19,200.00	12,713.00	19,324.47	12,785.00	110.69	112.09	95.95	-6,552.45	-822.27	694.08	473.32	220.75	3.144		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Seawolf 1-12 Fed - 95H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
19,300.00	12,713.00	19,424.47	12,785.00	112.28	113.67	95.95	-6,652.45	-821.51	694.07	470.16	223.91	3.100		
19,400.00	12,713.00	19,524.47	12,785.00	113.86	115.24	95.95	-6,752.45	-820.76	694.06	466.99	227.07	3.057		
19,500.00	12,713.00	19,624.47	12,785.00	115.45	116.82	95.95	-6,852.44	-820.01	694.05	463.82	230.23	3.015		
19,600.00	12,713.00	19,724.47	12,785.00	117.04	118.40	95.95	-6,952.44	-819.25	694.04	460.65	233.39	2.974		
19,700.00	12,713.00	19,824.47	12,785.00	118.63	119.98	95.95	-7,052.44	-818.50	694.03	457.47	236.56	2.934		
19,800.00	12,713.00	19,924.47	12,785.00	120.22	121.56	95.95	-7,152.44	-817.74	694.02	454.29	239.73	2.895		
19,900.00	12,713.00	20,024.47	12,785.00	121.82	123.15	95.95	-7,252.43	-816.99	694.01	451.11	242.90	2.857		
20,000.00	12,713.00	20,124.47	12,785.00	123.41	124.73	95.95	-7,352.43	-816.24	694.00	447.93	246.07	2.820		
20,100.00	12,713.00	20,224.47	12,785.00	125.00	126.32	95.96	-7,452.43	-815.48	693.99	444.74	249.25	2.784		
20,200.00	12,713.00	20,324.47	12,785.00	126.60	127.91	95.96	-7,552.43	-814.73	693.98	441.56	252.42	2.749		
20,300.00	12,713.00	20,424.47	12,785.00	128.20	129.49	95.96	-7,652.42	-813.98	693.97	438.37	255.60	2.715		
20,400.00	12,713.00	20,524.47	12,785.00	129.80	131.08	95.96	-7,752.42	-813.22	693.96	435.18	258.79	2.682		
20,500.00	12,713.00	20,624.47	12,785.00	131.39	132.68	95.96	-7,852.42	-812.47	693.95	431.98	261.97	2.649		
20,600.00	12,713.00	20,724.47	12,785.00	132.99	134.27	95.96	-7,952.41	-811.72	693.94	428.79	265.16	2.617		
20,700.00	12,713.00	20,824.47	12,785.00	134.60	135.86	95.96	-8,052.41	-810.96	693.93	425.59	268.34	2.586		
20,800.00	12,713.00	20,924.47	12,785.00	136.20	137.46	95.96	-8,152.41	-810.21	693.92	422.39	271.53	2.556		
20,900.00	12,713.00	21,024.47	12,785.00	137.80	139.05	95.96	-8,252.41	-809.46	693.91	419.19	274.72	2.526		
21,000.00	12,713.00	21,124.47	12,785.00	139.40	140.65	95.96	-8,352.40	-808.70	693.90	415.99	277.91	2.497		
21,100.00	12,713.00	21,224.47	12,785.00	141.01	142.24	95.96	-8,452.40	-807.95	693.89	412.79	281.11	2.468		
21,200.00	12,713.00	21,324.47	12,785.00	142.61	143.84	95.96	-8,552.40	-807.20	693.88	409.58	284.30	2.441		
21,300.00	12,713.00	21,424.47	12,785.00	144.22	145.44	95.96	-8,652.39	-806.44	693.88	406.37	287.50	2.413		
21,400.00	12,713.00	21,524.47	12,785.00	145.82	147.04	95.96	-8,752.39	-805.69	693.87	403.17	290.70	2.387		
21,500.00	12,713.00	21,624.47	12,785.00	147.43	148.64	95.96	-8,852.39	-804.93	693.86	399.96	293.90	2.361		
21,600.00	12,713.00	21,724.47	12,785.00	149.04	150.24	95.96	-8,952.39	-804.18	693.85	396.75	297.10	2.335		
21,700.00	12,713.00	21,824.47	12,785.00	150.65	151.84	95.96	-9,052.38	-803.43	693.84	393.54	300.30	2.310		
21,800.00	12,713.00	21,924.47	12,785.00	152.25	153.45	95.96	-9,152.38	-802.67	693.83	390.32	303.50	2.286		
21,900.00	12,713.00	22,024.47	12,785.00	153.86	155.05	95.96	-9,252.38	-801.92	693.82	387.11	306.71	2.262		
22,000.00	12,713.00	22,124.47	12,785.00	155.47	156.65	95.96	-9,352.37	-801.17	693.81	383.89	309.91	2.239		
22,100.00	12,713.00	22,224.47	12,785.00	157.08	158.26	95.96	-9,452.37	-800.41	693.80	380.68	313.12	2.216		
22,200.00	12,713.00	22,324.47	12,785.00	158.69	159.86	95.96	-9,552.37	-799.66	693.79	377.46	316.33	2.193		
22,300.00	12,713.00	22,424.47	12,785.00	160.31	161.47	95.96	-9,652.37	-798.91	693.78	374.24	319.54	2.171		
22,400.00	12,713.00	22,524.47	12,785.00	161.92	163.08	95.96	-9,752.36	-798.15	693.77	371.02	322.75	2.150		
22,500.00	12,713.00	22,624.47	12,785.00	163.53	164.68	95.96	-9,852.36	-797.40	693.76	367.80	325.96	2.128		
22,600.00	12,713.00	22,724.47	12,785.00	165.14	166.29	95.96	-9,952.36	-796.65	693.75	364.58	329.17	2.108		
22,685.71	12,713.00	22,810.11	12,785.00	166.53	167.65	95.96	-10,038.00	-796.00	693.74	361.86	331.89	2.090		
22,688.85	12,713.00	22,810.11	12,785.00	166.58	167.65	95.96	-10,038.00	-796.00	693.75	361.75	332.00	2.090 SF		

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Anticollision Report

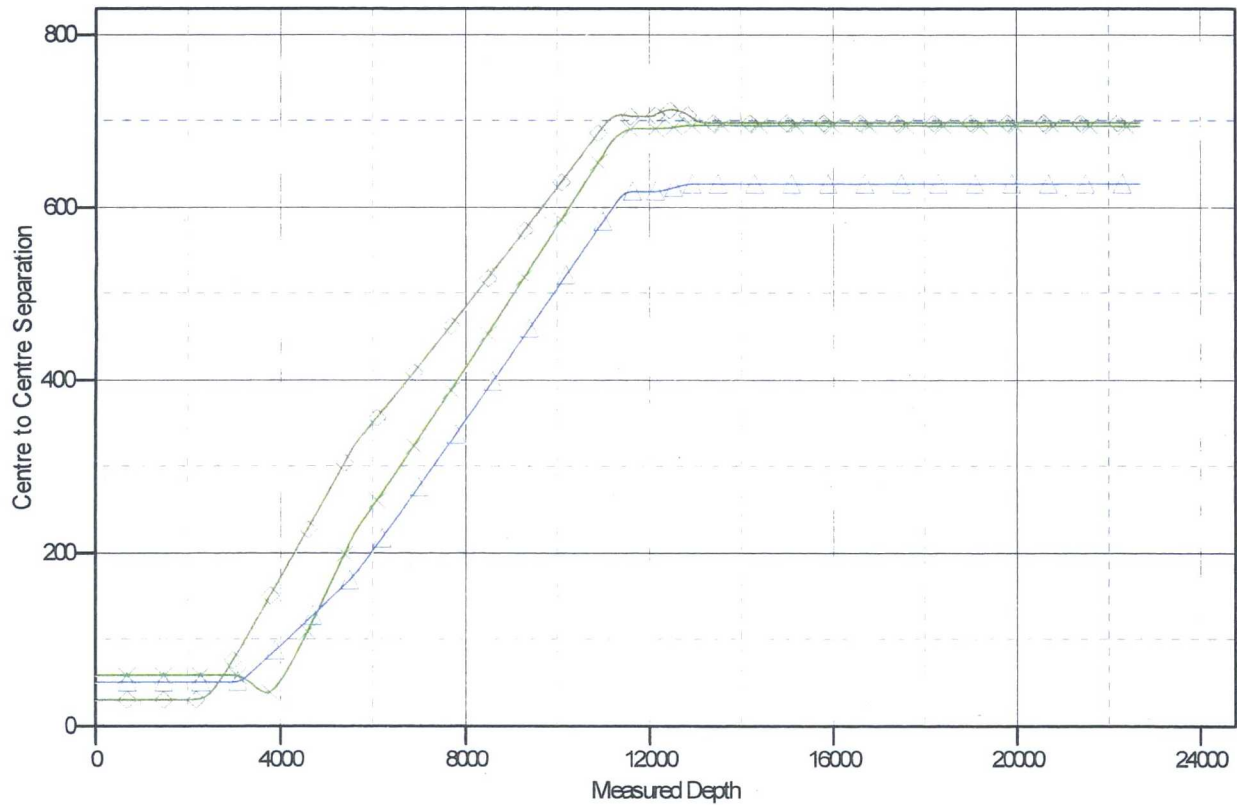
Company: Devon Energy
Project: Lea County, NM (NAD-83)
Reference Site: Seawolf 1-12 Fed
Site Error: 0.00 usft
Reference Well: 85H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well 85H
TVD Reference: 3316.7' GE + 21' KB @ 3337.70usft
MD Reference: 3316.7' GE + 21' KB @ 3337.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3316.7' GE + 21' KB @ 3337.70usft
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 85H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.43°

Ladder Plot



LEGEND

◆ 94H, OH, Plan #1 V0 ✕ 95H, OH, Plan #1 V0 ▲ 86H, OH, Plan #1 V0

LEAM Drilling Systems LLC

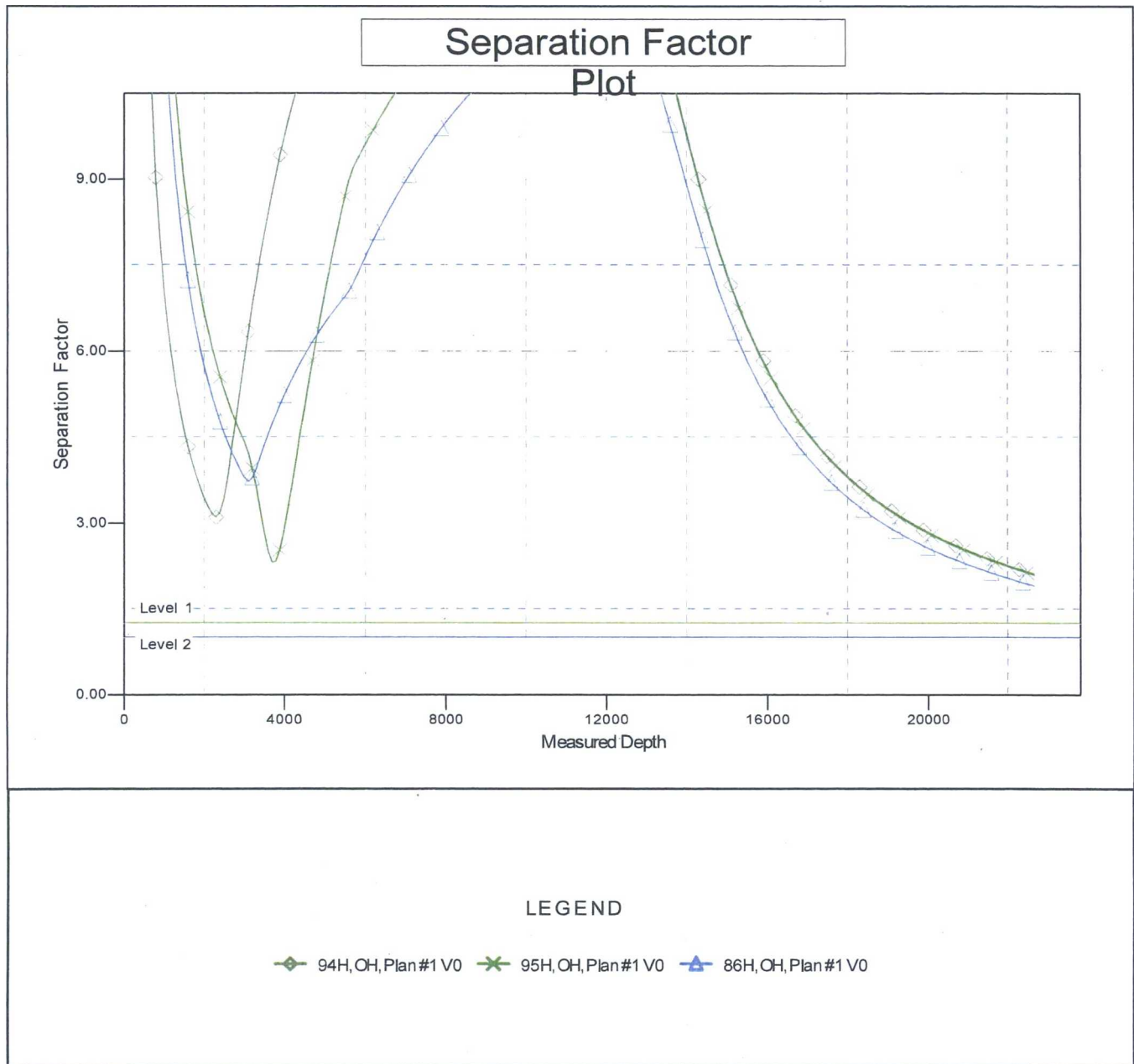
Anticollision Report

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FEB 06 2018

Devon Energy, Seawolf 1-12 85H

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1. Geologic Formations

TVD of target	12,713'	Pilot hole depth	N/A
MD at TD:	22,688'	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 85H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
6.75"	0	12,845'	5.5"	20	P110	Vam Top HT	1.125	1.25	1.6
6.75"	12,845'	22,688'	5.5"	20	P110	Vam SG	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 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 85H

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	H ₂ O gal/sk	Yld ft ³ / sack	Slurry Description
5-1/2" Production	750	14.8	6.32	1.33	Tail: Class C ^H 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
5-1/2" Production Casing	12,845'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
---	--

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
6-3/4"	13-5/8"	10M	Annular (5M)	X	70% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram	X	
			Double Ram	X	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

Devon Energy, Seawolf 1-12 85H

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. 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	A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly. 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. 10,000 (10M) psi - Wellhead will be installed by wellhead representatives. - If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. - Wellhead representative will install the test plug for the initial BOP test. - Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 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.

Devon Energy, Seawolf 1-12 85H

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. 13-5/8" BOP/BOPE system will have been tested to 10M rating prior to drilling out 7 5/8" casing. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 ^{10,000} psi WP. Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron. 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.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
13,045'	22,688'	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
---	-----------------------------

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
	Density
X	CBL
X	Mud log
	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 (H ₂ S) monitors will be installed prior to drilling out the surface shoe. If H ₂ S 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

Attachments

☒ Directional Plan
☐ Other, describe

TORQUE VALUES	
Min Make Up Torque	8,100 ft-lb
Opt Make Up Torque	9,800 ft-lb
Max Make Up Torque	11,500 ft-lb
Max Torque w/ Sealability	12,500 ft-lb



VAM® TOP HT

Connection Data Sheet

OD
5 1/2 in.

Weight
20.00 lb/ft

Wall Th.
0.361 in.

Grade
P110 EC

API Drift
4.653 in.

Connection
VAM® TOP HT

PIPE PROPERTIES

Nominal OD	5.500 in.
Nominal ID	4.778 in.
Nominal Cross Section Area	5.828 sqin.
Grade Type	High Yield
Min. Yield Strength	125 ksi
Max. Yield Strength	140 ksi
Min. Ultimate Tensile Strength	135 ksi

CONNECTION PROPERTIES

Connection Type	Premium T&C
Connection OD (nom)	6.071 in.
Connection ID (nom)	4.715 in.
Make-up Loss	4.382 in.
Coupling Length	10.748 in.
Critical Cross Section	5.828 sqin.
Tension Efficiency	100 % of pipe
Compression Efficiency	80 % of pipe
Internal Pressure Efficiency	100 % of pipe
External Pressure Efficiency	100 % of pipe

CONNECTION PERFORMANCES

Tensile Yield Strength	729 klb
Compression Resistance	583 klb
Internal Yield Pressure	14360 psi
External Pressure Resistance	12090 psi
Max. Bending with Sealability (CAL IV)	20 °/100 ft
Max. Load on Coupling Face	388 klb

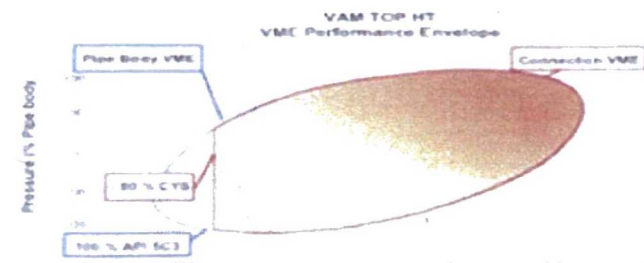
FIELD TORQUE VALUES

Min. Make-up torque	10850 ft.lb
Opt. Make-up torque	11950 ft.lb
Max. Make-up torque	13050 ft.lb
Field Liner Max	15900 ft.lb

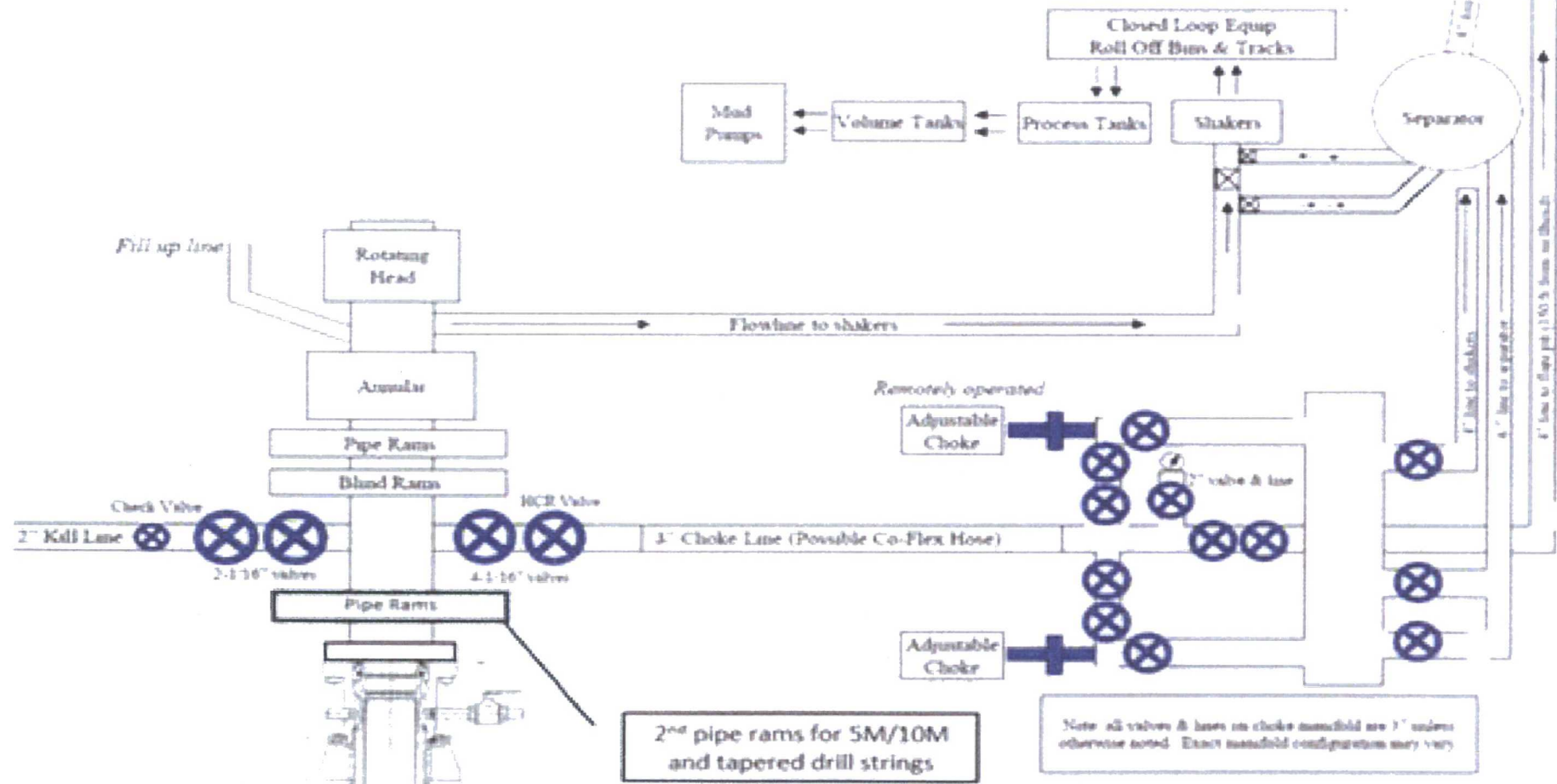
VAM® TOP HT (High Torque) is a T&C connection based on the main features of the VAM® TOP connection.

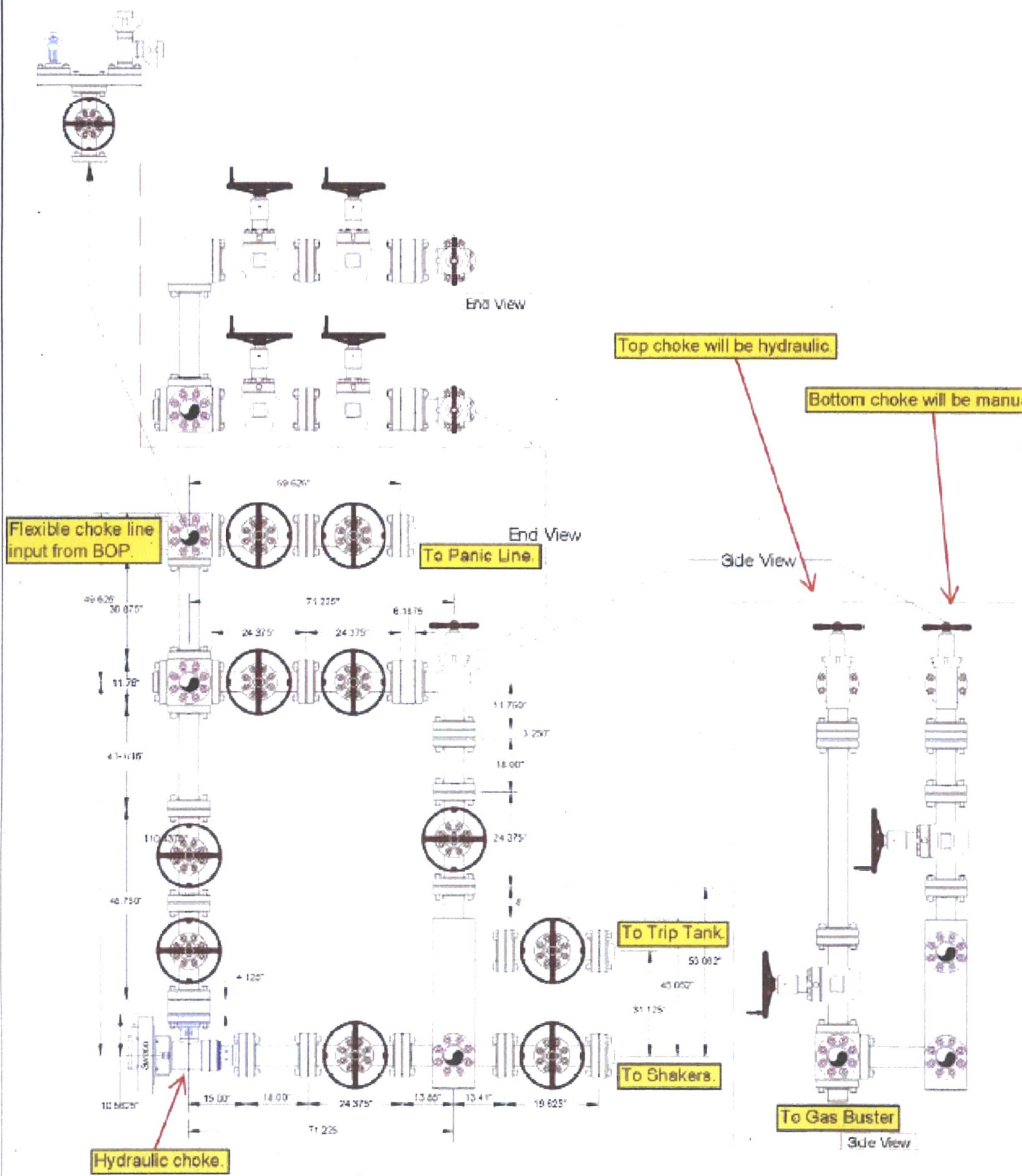
This connection provides reinforced torque capability for liners and where High Torque is anticipated due to string rotation during running operations (torque rotating liner while running, rotating casing when cementing). It has been tested as per ISO13679 CAL IV requirements.

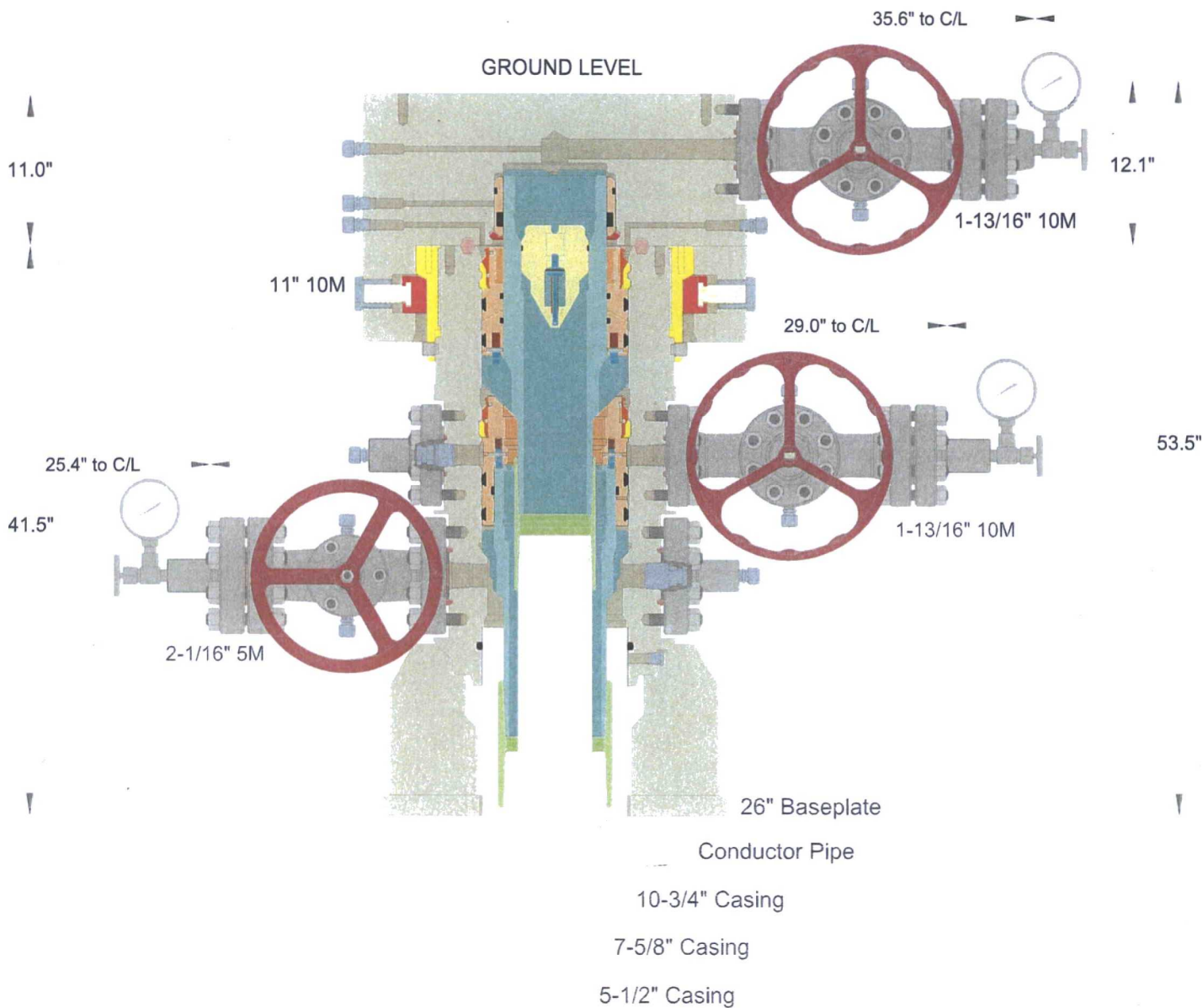
VAM® TOP HT is interchangeable with VAM® TOP product line with the exception of 4 1/2" size.



10M BOPE & Closed Loop Equipment Schematic







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CACTUS WELLHEAD LLC

DEVON ENERGY CORPORATION

16" x 11-7/8" x 7-5/8" MBU-T Wellhead Assembly
With 7-5/8" & 5-1/2" Pin Bottom Mandrel Casing Hangers
And 11" 10M MBU-T-HPS-F TA Cap

DRAWN	DLE	29NOV17
APPRV		

DRAWING NO. OKE0001764

**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL**

HOBBS OCD
FEB 06 2018
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OPERATOR'S NAME:	Devon Energy Production Co, LP
LEASE NO.:	NMNM114988
WELL NAME & NO.:	85H-Seawolf 1 12 Fed
SURFACE HOLE FOOTAGE:	200'/N & 800'/E
BOTTOM HOLE FOOTAGE:	330'/S & 1284'/E
LOCATION:	Section 1, T.26 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

Potash	☒ None	☒ Secretary	☒ R-111-P
Cave/Karst Potential	☒ Low	☒ Medium	☒ High
Variance	☒ None	☒ Flex Hose	☒ Other
Wellhead	☒ Conventional	☒ Multibowl	
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

All previous COAs still apply except for the following:

A. CASING

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

Option 1 (Single Stage):

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

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
- Second stage above DV tool:
 - Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. 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 **10,000 (10M) psi. Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

MHH 01162018

GENERAL REQUIREMENTS

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.
3. 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.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including

lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
- c. 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).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.