

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.**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	6. Lease Serial No. NMNM14988	7. If Unit or CA/Agreement, Name and/or No.
3a. Address 333 WEST SHERIDAN AVENUE OKLAHOMA CITY, OK 73102		3b. Phone No. (include area code) Ph: 405-228-8429		8. Well Name and No. SEAWOLF 1-12 FED 91H	9. API Well No. 30-025-43768
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 1 T26S R33E NWNW 200FNL 330FWL		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	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A PD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 recompleat 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 recompleat 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 exception and the following changes to the original APD:

Target TVD from 12,752' to 13,381'
Production Hole Size Change from 8 3/4" to 6 3/4"
Production Casing Connect Change

Please see attached revised Drilling Plan, Directional 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 #390981 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 11/07/2017 ()	
Name (Printed/Typed) REBECCA DEAL	Title REGULATORY COMPLIANCE PROFESSI
Signature (Electronic Submission)	Date 10/05/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>Mustafa Haguel</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>1-16-2019</u>
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 <u>CFO</u>

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 ****

FEB 06 2018

RECEIVED

1. Geologic Formations

TVD of target	13,381'	Pilot hole depth	N/A
MD at TD:	23,274'	Deepest expected fresh water:	746'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	976		
Top of Salt	1348		
Base of Salt	5138		
Delaware	5138		
Lower Brushy Canyon	9136		
1st BSPG Lime	9299		
1st BSPG Sand	10248		
2nd BSPG Lime	10495		
2nd BSPG Sand	10796		
3rd BSPG Lime	11257		
3rd BSPG Sand	11880		
Wolfcamp	12332		
Wolfcamp X	12358		
Wolfcamp Y	12436		
Wolfcamp 110	12512		
Wolfcamp 120	12633		
Wolfcamp 130	12728		
Wolfcamp 200	12847		
Wolfcamp 300	13214		

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

Devon Energy, Seawolf 1-12 91H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
6.75"	0	12,350'	5.5"	20	P110	Vam Top HT	1.125	1.25	1.6
6.75"	12,350'	23,274'	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 91H

3. Cementing Program

Casing	# Sks	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	Slurry Description
5-1/2" Production	852	14.8	6.32	1.33	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake <i>H</i>

*Low Cement
- SEE COA*

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	12,350'	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	50% 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.

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

Devon Energy, Seawolf 1-12 91H

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. 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

Devon Energy, Seawolf 1-12 91H

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				
12,550'	23,274'	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.

Devon Energy, Seawolf 1-12 91H

	Drill stem test? If yes, explain
	Coring? If yes, explain

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

7. Drilling Conditions

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

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

Hydrogen Sulfide (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



devon

Devon Energy Corporation

Lea Co., NM
SeaWolf 1-12
Fed 91H

OH
PN2

HOBBS OCD

FEB 06 2018

RECEIVED

Anticollision Report

14 August, 2017



NABORS



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Reference	PN2				
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria				
Interpolation Method:	Stations	Error Model:	ISCWSA		
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D		
Results Limited by:	Maximum center-center distance of 10,000.00 ft	Error Surface:	Pedal Curve		
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied		

Survey Tool Program	Date 8/14/2017				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	23,274.76	PN2 (OH)	MWD+HRGM	OWSG MWD + HRGM	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SeaWolf 1-12						
Fed 102H - OH - PN2	2,200.66	2,197.99	86.30	70.53	5.472	CC
Fed 102H - OH - PN2	2,300.00	2,295.81	86.85	70.41	5.284	ES
Fed 102H - OH - PN2	23,274.76	22,993.99	745.64	475.00	2.755	SF
Fed 81H - OH - PN2	2,255.03	2,254.49	24.55	8.37	1.517	CC
Fed 81H - OH - PN2	2,300.00	2,300.70	24.82	8.32	1.505	ES, SF
Fed 82H - OH - PN2	2,439.67	2,438.41	49.02	31.55	2.807	CC, ES
Fed 82H - OH - PN2	2,500.00	2,498.37	49.46	31.57	2.765	SF
Fed 92H - OH - PN2	1,500.00	1,499.90	119.99	108.96	10.877	CC, ES
Fed 92H - OH - PN2	23,274.76	22,645.43	1,487.75	1,205.91	5.279	SF

Offset Design SeaWolf 1-12 - Fed 102H - OH - PN2													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft
Reference	Offset	Semi Major Axis		Distance				Minimum Separation		Separation Factor		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.00	0.00	0.40	0.40	2.00	2.00	89.57	0.67	90.00	90.00				
100.00	100.00	100.40	100.40	2.00	2.00	89.57	0.67	90.00	90.00	86.00	4.01	22.459	
200.00	200.00	200.40	200.40	2.06	2.06	89.57	0.67	90.00	90.00	85.89	4.11	21.877	
300.00	300.00	300.40	300.40	2.17	2.17	89.57	0.67	90.00	90.00	85.66	4.34	20.747	
400.00	400.00	400.40	400.40	2.33	2.33	89.57	0.67	90.00	90.00	85.34	4.66	19.303	
500.00	500.00	500.40	500.40	2.53	2.53	89.57	0.67	90.00	90.00	84.93	5.07	17.757	
600.00	600.00	600.40	600.40	2.77	2.77	89.57	0.67	90.00	90.00	84.46	5.54	16.252	
700.00	700.00	700.40	700.40	3.03	3.03	89.57	0.67	90.00	90.00	83.95	6.06	14.862	
800.00	800.00	800.40	800.40	3.31	3.31	89.57	0.67	90.00	90.00	83.39	6.61	13.614	
900.00	900.00	900.40	900.40	3.60	3.60	89.57	0.67	90.00	90.00	82.81	7.20	12.509	
1,000.00	1,000.00	1,000.40	1,000.40	3.90	3.90	89.57	0.67	90.00	90.00	82.20	7.80	11.537	
1,100.00	1,100.00	1,100.40	1,100.40	4.21	4.21	89.57	0.67	90.00	90.00	81.58	8.42	10.683	
1,200.00	1,200.00	1,200.40	1,200.40	4.53	4.53	89.57	0.67	90.00	90.00	80.94	9.06	9.932	
1,300.00	1,300.00	1,300.40	1,300.40	4.85	4.86	89.57	0.67	90.00	90.00	80.29	9.71	9.268	
1,400.00	1,400.00	1,400.40	1,400.40	5.18	5.18	89.57	0.67	90.00	90.00	79.63	10.37	8.681	
1,500.00	1,500.00	1,500.40	1,500.40	5.52	5.52	89.57	0.67	90.00	90.00	78.97	11.03	8.158	
1,600.00	1,600.00	1,600.40	1,600.40	5.85	5.85	89.57	0.67	90.00	90.00	78.30	11.70	7.690	
1,700.00	1,700.00	1,700.40	1,700.40	6.19	6.19	89.57	0.67	90.00	90.00	77.62	12.38	7.270	

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



Nabors Corporate Services
Anticollision Report



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 102H - OH - PN2													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Distance		Minimum		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation (ft)			
1,800.00	1,800.00	1,800.40	1,800.40	6.53	6.53	89.57	0.67	90.00	90.00	76.94	13.06	6.891		
1,810.00	1,810.00	1,810.40	1,810.40	6.56	6.57	89.57	0.67	90.00	90.00	76.87	13.13	6.855		
1,900.00	1,900.00	1,900.40	1,900.40	6.87	6.87	55.16	0.67	90.00	89.60	75.85	13.74	6.519		
2,000.00	1,999.97	2,000.37	2,000.37	7.21	7.22	56.47	0.67	90.00	88.22	73.80	14.43	6.115		
2,100.00	2,099.88	2,098.85	2,098.84	7.55	7.55	58.61	0.87	90.83	86.81	71.71	15.10	5.749		
2,200.00	2,199.70	2,197.34	2,197.30	7.90	7.88	61.44	1.45	93.31	86.30	70.53	15.77	5.473		
2,200.66	2,200.36	2,197.99	2,197.95	7.90	7.88	61.47	1.46	93.33	86.30	70.53	15.77	5.472 CC		
2,300.00	2,299.40	2,295.81	2,295.68	8.25	8.21	64.89	2.43	97.43	86.85	70.41	16.43	5.284 ES		
2,400.00	2,398.96	2,394.24	2,393.93	8.59	8.55	68.80	3.79	103.19	88.61	71.50	17.10	5.181		
2,436.97	2,435.72	2,430.62	2,430.21	8.72	8.67	70.34	4.39	105.74	89.60	72.24	17.35	5.163		
2,500.00	2,498.37	2,492.63	2,492.03	8.94	8.88	72.84	5.54	110.60	91.83	74.06	17.78	5.166		
2,600.00	2,597.77	2,591.00	2,589.95	9.30	9.22	76.09	7.68	119.64	96.88	78.43	18.45	5.250		
2,700.00	2,697.18	2,709.91	2,688.46	9.65	9.64	78.55	10.16	130.13	103.36	84.15	19.21	5.380		
2,800.00	2,796.58	2,789.79	2,787.54	10.01	9.92	80.68	12.70	140.84	110.13	90.28	19.85	5.548		
2,900.00	2,895.98	2,889.48	2,886.62	10.37	10.27	82.56	15.23	151.55	117.04	96.48	20.56	5.692		
3,000.00	2,995.38	2,989.17	2,985.70	10.74	10.63	84.23	17.76	162.26	124.06	102.79	21.28	5.831		
3,100.00	3,094.78	3,088.86	3,084.79	11.10	10.99	85.72	20.30	172.97	131.18	109.19	21.99	5.965		
3,200.00	3,194.19	3,188.55	3,183.87	11.46	11.35	87.06	22.83	183.68	138.37	115.66	22.71	6.092		
3,300.00	3,293.59	3,288.24	3,282.95	11.83	11.71	88.26	25.37	194.39	145.63	122.20	23.44	6.214		
3,400.00	3,392.99	3,387.93	3,382.03	12.20	12.07	89.35	27.90	205.10	152.95	128.79	24.16	6.330		
3,481.78	3,474.28	3,469.46	3,463.06	12.50	12.37	90.17	29.97	213.86	158.98	134.22	24.76	6.421		
3,500.00	3,492.39	3,487.63	3,481.12	12.57	12.44	90.34	30.43	215.82	160.32	135.43	24.89	6.441		
3,600.00	3,591.92	3,587.34	3,580.22	12.93	12.80	90.91	32.97	226.53	167.71	142.10	25.62	6.547		
3,700.00	3,691.60	3,687.07	3,679.34	13.30	13.17	90.87	35.50	237.24	175.08	148.74	26.34	6.647		
3,800.00	3,791.40	3,786.78	3,778.43	13.66	13.54	90.28	38.04	247.96	182.44	155.38	27.06	6.742		
3,900.00	3,891.30	3,886.43	3,877.48	14.02	13.91	89.22	40.57	258.66	189.83	162.06	27.77	6.835		
4,000.00	3,991.26	3,986.01	3,976.45	14.37	14.28	87.74	43.10	269.36	197.36	168.88	28.48	6.930		
4,108.75	4,100.00	4,105.83	4,083.95	14.75	14.73	120.50	45.85	280.98	205.84	176.56	29.28	7.030		
4,200.00	4,191.25	4,184.86	4,174.09	15.07	15.02	118.63	48.16	290.73	213.24	183.37	29.88	7.138		
4,300.00	4,291.25	4,284.25	4,272.87	15.42	15.39	116.73	50.68	301.41	221.60	191.03	30.57	7.248		
4,400.00	4,391.25	4,383.64	4,371.65	15.77	15.76	114.97	53.21	312.08	230.18	198.91	31.27	7.361		
4,500.00	4,491.25	4,483.03	4,470.43	16.12	16.14	113.33	55.73	322.76	238.97	207.00	31.97	7.475		
4,600.00	4,591.25	4,582.42	4,569.21	16.47	16.51	111.81	58.26	333.44	247.93	215.26	32.67	7.589		
4,700.00	4,691.25	4,681.81	4,668.00	16.82	16.88	110.40	60.79	344.12	257.06	223.69	33.37	7.703		
4,800.00	4,791.25	4,781.20	4,766.78	17.18	17.26	109.08	63.31	354.80	266.33	232.26	34.07	7.816		
4,900.00	4,891.25	4,880.59	4,865.56	17.53	17.63	107.85	65.84	365.48	275.73	240.96	34.78	7.929		
5,000.00	4,991.25	4,979.97	4,964.34	17.88	18.01	106.71	68.36	376.16	285.25	249.77	35.48	8.040		
5,100.00	5,091.25	5,079.36	5,063.12	18.23	18.38	105.64	70.89	386.83	294.88	258.70	36.18	8.149		
5,200.00	5,191.25	5,178.75	5,161.90	18.58	18.76	104.63	73.42	397.51	304.60	267.71	36.89	8.257		
5,300.00	5,291.25	5,278.14	5,260.68	18.94	19.14	103.69	75.94	408.19	314.41	276.82	37.59	8.363		
5,400.00	5,391.25	5,377.53	5,359.46	19.29	19.51	102.81	78.47	418.87	324.30	286.00	38.30	8.467		
5,500.00	5,491.25	5,476.92	5,458.24	19.64	19.89	101.97	81.00	429.55	334.26	295.25	39.01	8.569		
5,600.00	5,591.25	5,576.31	5,557.02	20.00	20.27	101.19	83.52	440.23	344.28	304.57	39.72	8.669		
5,700.00	5,691.25	5,675.69	5,655.81	20.35	20.65	100.45	86.05	450.90	354.37	313.95	40.42	8.766		
5,800.00	5,791.25	5,775.08	5,754.59	20.70	21.03	99.75	88.57	461.58	364.51	323.38	41.13	8.862		
5,900.00	5,891.25	5,874.47	5,853.37	21.06	21.40	99.09	91.10	472.26	374.70	332.86	41.84	8.955		
6,000.00	5,991.25	5,973.86	5,952.15	21.41	21.78	98.47	93.63	482.94	384.94	342.39	42.55	9.047		
6,100.00	6,091.25	6,073.25	6,050.93	21.77	22.16	97.87	96.15	493.62	395.23	351.97	43.26	9.136		
6,200.00	6,191.25	6,172.64	6,149.71	22.12	22.54	97.31	98.68	504.30	405.55	361.58	43.97	9.223		
6,300.00	6,291.25	6,272.03	6,248.49	22.47	22.92	96.77	101.20	514.98	415.91	371.23	44.68	9.308		
6,400.00	6,391.25	6,371.41	6,347.27	22.83	23.30	96.27	103.73	525.65	426.30	380.91	45.39	9.391		
6,500.00	6,491.25	6,470.80	6,446.05	23.18	23.68	95.78	106.26	536.33	436.73	390.62	46.10	9.472		

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 102H - OH - PN2													Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft	
Reference		Offset		Semi Major Axis			Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	+N/-S (ft)		+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
6,600.00	6,591.25	6,570.19	6,544.84	23.54	24.06	95.32	108.78	547.01	447.18	400.36	46.82	9.552		
6,700.00	6,691.25	6,669.58	6,643.62	23.89	24.44	94.88	111.31	557.69	457.66	410.13	47.53	9.629		
6,800.00	6,791.25	6,768.97	6,742.40	24.25	24.82	94.46	113.84	568.37	468.17	419.93	48.24	9.705		
6,900.00	6,891.25	6,868.36	6,841.18	24.60	25.20	94.05	116.36	579.05	478.70	429.75	48.96	9.778		
7,000.00	6,991.25	6,967.75	6,939.96	24.96	25.58	93.67	118.89	589.72	489.26	439.59	49.67	9.850		
7,100.00	7,091.25	7,067.14	7,038.74	25.31	25.96	93.30	121.41	600.40	499.83	449.45	50.38	9.921		
7,200.00	7,191.25	7,166.52	7,137.52	25.67	26.34	92.94	123.94	611.08	510.43	459.33	51.10	9.990		
7,300.00	7,291.25	7,265.91	7,236.30	26.03	26.72	92.60	126.47	621.76	521.04	469.23	51.81	10.057		
7,400.00	7,391.25	7,365.30	7,335.08	26.38	27.10	92.28	128.99	632.44	531.67	479.15	52.52	10.122		
7,500.00	7,491.25	7,464.69	7,433.86	26.74	27.49	91.96	131.52	643.12	542.32	489.08	53.24	10.186		
7,600.00	7,591.25	7,564.08	7,532.65	27.09	27.87	91.66	134.04	653.79	552.98	499.03	53.95	10.249		
7,700.00	7,691.25	7,663.47	7,631.43	27.45	28.25	91.37	136.57	664.47	563.66	508.99	54.67	10.310		
7,800.00	7,791.25	7,762.86	7,730.21	27.80	28.63	91.09	139.10	675.15	574.35	518.97	55.38	10.370		
7,900.00	7,891.25	7,862.24	7,828.99	28.16	29.01	90.83	141.62	685.83	585.06	528.96	56.10	10.429		
8,000.00	7,991.25	7,968.45	7,934.59	28.52	29.42	90.56	144.23	696.86	595.42	538.56	56.87	10.470		
8,100.00	8,091.25	8,079.33	8,045.03	28.87	29.83	90.33	146.50	706.46	604.08	546.42	57.66	10.476		
8,200.00	8,191.25	8,190.56	8,155.98	29.23	30.24	90.16	148.29	714.01	610.86	552.42	58.44	10.453		
8,300.00	8,291.25	8,302.04	8,267.32	29.58	30.65	90.04	149.58	719.47	615.75	556.56	59.20	10.402		
8,400.00	8,391.25	8,413.70	8,378.92	29.94	31.04	89.97	150.38	722.83	618.76	558.82	59.94	10.324		
8,500.00	8,491.25	8,525.45	8,490.67	30.30	31.42	89.94	150.67	724.06	619.86	559.21	60.66	10.219		
8,600.00	8,591.25	8,626.43	8,591.65	30.65	31.76	89.94	150.67	724.07	619.87	558.51	61.36	10.103		
8,700.00	8,691.25	8,726.43	8,691.65	31.01	32.10	89.94	150.67	724.07	619.87	557.81	62.06	9.989		
8,800.00	8,791.25	8,826.43	8,791.65	31.37	32.44	89.94	150.67	724.07	619.87	557.11	62.76	9.877		
8,900.00	8,891.25	8,926.43	8,891.65	31.72	32.78	89.94	150.67	724.07	619.87	556.41	63.46	9.768		
9,000.00	8,991.25	9,026.43	8,991.65	32.08	33.11	89.94	150.67	724.07	619.87	555.71	64.16	9.661		
9,100.00	9,091.25	9,126.43	9,091.65	32.44	33.45	89.94	150.67	724.07	619.87	555.01	64.86	9.556		
9,200.00	9,191.25	9,226.43	9,191.65	32.79	33.79	89.94	150.67	724.07	619.87	554.30	65.57	9.454		
9,300.00	9,291.25	9,326.43	9,291.65	33.15	34.13	89.94	150.67	724.07	619.87	553.60	66.27	9.354		
9,400.00	9,391.25	9,426.43	9,391.65	33.51	34.47	89.94	150.67	724.07	619.87	552.90	66.97	9.256		
9,500.00	9,491.25	9,526.43	9,491.65	33.86	34.81	89.94	150.67	724.07	619.87	552.20	67.68	9.159		
9,600.00	9,591.25	9,626.43	9,591.65	34.22	35.15	89.94	150.67	724.07	619.87	551.49	68.38	9.065		
9,700.00	9,691.25	9,726.43	9,691.65	34.58	35.49	89.94	150.67	724.07	619.87	550.79	69.08	8.973		
9,800.00	9,791.25	9,826.43	9,791.65	34.93	35.83	89.94	150.67	724.07	619.87	550.08	69.79	8.882		
9,900.00	9,891.25	9,926.43	9,891.65	35.29	36.18	89.94	150.67	724.07	619.87	549.38	70.49	8.793		
10,000.00	9,991.25	10,026.43	9,991.65	35.65	36.52	89.94	150.67	724.07	619.87	548.67	71.20	8.706		
10,100.00	10,091.25	10,126.43	10,091.65	36.00	36.86	89.94	150.67	724.07	619.87	547.97	71.90	8.621		
10,200.00	10,191.25	10,226.43	10,191.65	36.36	37.20	89.94	150.67	724.07	619.87	547.26	72.61	8.537		
10,300.00	10,291.25	10,326.43	10,291.65	36.72	37.54	89.94	150.67	724.07	619.87	546.56	73.31	8.455		
10,400.00	10,391.25	10,426.43	10,391.65	37.08	37.89	89.94	150.67	724.07	619.87	545.85	74.02	8.375		
10,500.00	10,491.25	10,526.43	10,491.65	37.43	38.23	89.94	150.67	724.07	619.87	545.15	74.72	8.296		
10,600.00	10,591.25	10,626.43	10,591.65	37.79	38.57	89.94	150.67	724.07	619.87	544.44	75.43	8.218		
10,700.00	10,691.25	10,726.43	10,691.65	38.15	38.92	89.94	150.67	724.07	619.87	543.74	76.14	8.142		
10,800.00	10,791.25	10,826.43	10,791.65	38.50	39.26	89.94	150.67	724.07	619.87	543.03	76.84	8.067		
10,900.00	10,891.25	10,926.43	10,891.65	38.86	39.61	89.94	150.67	724.07	619.87	542.32	77.55	7.993		
11,000.00	10,991.25	11,026.43	10,991.65	39.22	39.95	89.94	150.67	724.07	619.87	541.62	78.26	7.921		
11,100.00	11,091.25	11,126.43	11,091.65	39.58	40.30	89.94	150.67	724.07	619.87	540.91	78.96	7.850		
11,200.00	11,191.25	11,226.43	11,191.65	39.93	40.64	89.94	150.67	724.07	619.87	540.20	79.67	7.781		
11,300.00	11,291.25	11,326.43	11,291.65	40.29	40.99	89.94	150.67	724.07	619.87	539.49	80.38	7.712		
11,400.00	11,391.25	11,426.43	11,391.65	40.65	41.33	89.94	150.67	724.07	619.87	538.79	81.08	7.645		
11,500.00	11,491.25	11,526.43	11,491.65	41.00	41.68	89.94	150.67	724.07	619.87	538.08	81.79	7.579		
11,600.00	11,591.25	11,626.43	11,591.65	41.36	42.02	89.94	150.67	724.07	619.87	537.37	82.50	7.514		
11,700.00	11,691.25	11,726.43	11,691.65	41.72	42.37	89.94	150.67	724.07	619.87	536.66	83.21	7.450		

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 102H - OH - PN2													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
11,800.00	11,791.25	11,826.43	11,791.65	42.08	42.72	89.94	150.67	724.07	619.87	535.96	83.92	7.387	
11,900.00	11,891.25	11,926.43	11,891.65	42.43	43.06	89.94	150.67	724.07	619.87	535.25	84.62	7.325	
12,000.00	11,991.25	12,026.43	11,991.65	42.79	43.41	89.94	150.67	724.07	619.87	534.54	85.33	7.264	
12,100.00	12,091.25	12,126.43	12,091.65	43.15	43.76	89.94	150.67	724.07	619.87	533.83	86.04	7.204	
12,200.00	12,191.25	12,226.43	12,191.65	43.51	44.11	89.94	150.67	724.07	619.87	533.12	86.75	7.145	
12,300.00	12,291.25	12,326.43	12,291.65	43.86	44.45	89.94	150.67	724.07	619.87	532.41	87.46	7.088	
12,400.00	12,391.25	12,426.43	12,391.65	44.22	44.80	89.94	150.67	724.07	619.87	531.70	88.17	7.031	
12,490.11	12,481.36	12,516.56	12,481.76	44.54	45.11	90.00	150.00	724.07	619.87	531.07	88.80	6.980	
12,500.00	12,491.25	12,526.42	12,491.61	44.58	45.14	90.05	149.44	724.07	619.87	531.00	88.87	6.975	
12,600.00	12,591.25	12,624.03	12,587.99	44.94	45.44	91.41	134.80	724.07	620.07	530.52	89.55	6.924	
12,700.00	12,691.25	12,714.31	12,673.75	45.29	45.70	93.98	106.88	724.07	621.63	531.42	90.21	6.891	
12,767.75	12,759.00	12,769.66	12,723.77	45.54	45.85	96.15	83.22	724.07	624.48	533.88	90.60	6.893	
12,800.00	12,791.23	12,794.59	12,745.50	45.64	45.91	-82.60	71.01	724.07	626.47	535.72	90.75	6.904	
12,850.00	12,840.97	12,832.49	12,777.47	45.80	46.00	-80.69	50.67	724.07	630.12	539.20	90.92	6.930	
12,900.00	12,890.08	12,869.59	12,807.40	45.96	46.07	-78.84	28.75	724.07	634.34	543.31	91.03	6.968	
12,950.00	12,938.19	12,905.99	12,835.32	46.10	46.15	-77.07	5.41	724.07	639.00	547.93	91.07	7.016	
13,000.00	12,984.94	12,941.78	12,861.28	46.24	46.21	-75.37	-19.23	724.07	643.98	552.93	91.05	7.073	
13,050.00	13,029.97	12,977.05	12,885.30	46.37	46.27	-73.77	-45.04	724.07	649.15	558.19	90.96	7.136	
13,100.00	13,072.94	13,011.85	12,907.40	46.50	46.32	-72.27	-71.91	724.07	654.39	563.57	90.82	7.205	
13,150.00	13,113.52	13,046.25	12,927.61	46.61	46.37	-70.87	-99.75	724.07	659.59	568.95	90.64	7.277	
13,200.00	13,151.40	13,080.31	12,945.93	46.71	46.42	-69.59	-128.45	724.07	664.64	574.21	90.43	7.350	
13,250.00	13,186.29	13,114.06	12,962.38	46.82	46.46	-68.43	-157.91	724.07	669.45	579.25	90.20	7.422	
13,300.00	13,217.94	13,150.00	12,977.95	46.93	46.51	-67.35	-190.30	724.07	673.95	583.94	90.00	7.488	
13,350.00	13,246.08	13,180.83	12,989.67	47.04	46.55	-66.49	-218.81	724.07	678.02	588.26	89.76	7.554	
13,400.00	13,270.53	13,213.92	13,000.52	47.15	46.59	-65.71	-250.07	724.07	681.63	592.05	89.58	7.609	
13,450.00	13,291.08	13,250.00	13,010.28	47.25	46.64	-65.02	-284.80	724.07	684.72	595.26	89.46	7.654	
13,500.00	13,307.58	13,279.68	13,016.65	47.35	46.69	-64.54	-313.78	724.07	687.22	597.87	89.35	7.691	
13,550.00	13,319.90	13,312.41	13,021.93	47.45	46.74	-64.15	-346.08	724.07	689.11	599.78	89.33	7.714	
13,600.00	13,327.96	13,350.00	13,025.70	47.54	46.81	-63.89	-383.47	724.07	690.38	601.00	89.39	7.723	
13,650.00	13,331.68	13,377.70	13,026.91	47.64	46.86	-63.79	-411.15	724.07	690.95	601.45	89.50	7.720	
13,664.83	13,331.95	13,387.37	13,027.02	47.66	46.88	-63.78	-420.82	724.07	690.99	601.45	89.55	7.717	
13,700.00	13,332.13	13,419.85	13,026.84	47.73	46.95	-63.75	-453.30	724.07	691.15	601.48	89.68	7.707	
13,800.00	13,332.64	13,519.85	13,026.21	47.95	47.18	-63.67	-553.29	724.07	691.66	601.56	90.10	7.677	
13,900.00	13,333.15	13,619.84	13,025.59	48.21	47.46	-63.58	-653.28	724.07	692.16	601.57	90.59	7.641	
14,000.00	13,333.66	13,719.83	13,024.96	48.51	47.77	-63.50	-753.27	724.07	692.67	601.51	91.16	7.599	
14,100.00	13,334.17	13,819.83	13,024.34	48.85	48.13	-63.41	-853.26	724.07	693.17	601.38	91.80	7.551	
14,200.00	13,334.68	13,919.82	13,023.71	49.23	48.53	-63.33	-953.25	724.07	693.68	601.17	92.51	7.499	
14,300.00	13,335.19	14,019.82	13,023.09	49.65	48.96	-63.25	-1,053.25	724.07	694.19	600.90	93.29	7.441	
14,400.00	13,335.70	14,119.81	13,022.46	50.10	49.44	-63.16	-1,153.24	724.07	694.71	600.57	94.14	7.380	
14,500.00	13,336.21	14,219.80	13,021.84	50.60	49.94	-63.08	-1,253.23	724.07	695.22	600.17	95.05	7.314	
14,600.00	13,336.72	14,319.80	13,021.21	51.13	50.49	-63.00	-1,353.22	724.07	695.73	599.71	96.03	7.245	
14,700.00	13,337.23	14,419.79	13,020.59	51.69	51.07	-62.91	-1,453.21	724.07	696.25	599.19	97.06	7.173	
14,800.00	13,337.74	14,519.78	13,019.96	52.28	51.68	-62.83	-1,553.20	724.07	696.77	598.61	98.16	7.098	
14,900.00	13,338.26	14,619.78	13,019.34	52.91	52.32	-62.75	-1,653.20	724.07	697.29	597.98	99.31	7.021	
15,000.00	13,338.77	14,719.77	13,018.71	53.57	52.99	-62.66	-1,753.19	724.07	697.81	597.29	100.52	6.942	
15,100.00	13,339.28	14,819.76	13,018.09	54.26	53.70	-62.58	-1,853.18	724.07	698.33	596.55	101.78	6.861	
15,200.00	13,339.79	14,919.76	13,017.46	54.98	54.43	-62.50	-1,953.17	724.07	698.85	595.76	103.09	6.779	
15,300.00	13,340.30	15,019.75	13,016.84	55.72	55.19	-62.42	-2,053.16	724.07	699.38	594.93	104.45	6.696	
15,400.00	13,340.81	15,119.74	13,016.21	56.49	55.97	-62.33	-2,153.15	724.07	699.91	594.05	105.85	6.612	
15,500.00	13,341.32	15,219.74	13,015.59	57.29	56.79	-62.25	-2,253.15	724.07	700.43	593.13	107.30	6.528	
15,600.00	13,341.83	15,319.73	13,014.96	58.11	57.62	-62.17	-2,353.14	724.07	700.96	592.17	108.79	6.443	
15,700.00	13,342.34	15,419.73	13,014.34	58.96	58.48	-62.09	-2,453.13	724.07	701.49	591.17	110.32	6.359	

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



Nabors Corporate Services
Anticollision Report



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 102H - OH - PN2														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM														Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)							
15,800.00	13,342.85	15,519.72	13,013.71	59.83	59.36	-62.00	-2,553.12	724.07	702.03	590.14	111.89	6.274			
15,900.00	13,343.36	15,619.71	13,013.09	60.72	60.26	-61.92	-2,653.11	724.07	702.56	589.06	113.50	6.190			
16,000.00	13,343.87	15,719.71	13,012.46	61.63	61.18	-61.84	-2,753.10	724.07	703.09	587.96	115.14	6.107			
16,100.00	13,344.38	15,819.70	13,011.84	62.55	62.12	-61.76	-2,853.09	724.07	703.63	586.82	116.81	6.024			
16,200.00	13,344.89	15,919.69	13,011.21	63.50	63.08	-61.68	-2,953.09	724.07	704.17	585.65	118.52	5.941			
16,300.00	13,345.40	16,019.69	13,010.59	64.47	64.06	-61.60	-3,053.08	724.07	704.71	584.45	120.25	5.860			
16,400.00	13,345.91	16,119.68	13,009.96	65.45	65.05	-61.52	-3,153.07	724.07	705.25	583.23	122.02	5.780			
16,500.00	13,346.42	16,219.67	13,009.34	66.45	66.06	-61.44	-3,253.06	724.07	705.79	581.98	123.81	5.701			
16,600.00	13,346.93	16,319.67	13,008.71	67.47	67.09	-61.35	-3,353.05	724.07	706.34	580.71	125.63	5.622			
16,700.00	13,347.44	16,419.66	13,008.09	68.50	68.13	-61.27	-3,453.04	724.07	706.88	579.41	127.47	5.545			
16,800.00	13,347.95	16,519.65	13,007.46	69.54	69.19	-61.19	-3,553.04	724.07	707.43	578.09	129.34	5.470			
16,900.00	13,348.46	16,619.65	13,006.84	70.60	70.25	-61.11	-3,653.03	724.07	707.97	576.75	131.23	5.395			
17,000.00	13,348.97	16,719.64	13,006.21	71.67	71.33	-61.03	-3,753.02	724.07	708.52	575.39	133.14	5.322			
17,100.00	13,349.48	16,819.64	13,005.59	72.76	72.43	-60.95	-3,853.01	724.07	709.07	574.01	135.07	5.250			
17,200.00	13,349.99	16,919.63	13,004.96	73.85	73.53	-60.87	-3,953.00	724.07	709.63	572.61	137.02	5.179			
17,300.00	13,350.50	17,019.62	13,004.34	74.96	74.65	-60.79	-4,052.99	724.07	710.18	571.19	138.99	5.110			
17,400.00	13,351.02	17,119.62	13,003.71	76.08	75.77	-60.71	-4,152.99	724.07	710.73	569.76	140.97	5.042			
17,500.00	13,351.53	17,219.61	13,003.09	77.21	76.91	-60.63	-4,252.98	724.07	711.29	568.32	142.97	4.975			
17,600.00	13,352.04	17,319.60	13,002.46	78.35	78.06	-60.55	-4,352.97	724.07	711.85	566.86	144.99	4.910			
17,700.00	13,352.55	17,419.60	13,001.84	79.49	79.21	-60.47	-4,452.96	724.07	712.41	565.38	147.02	4.846			
17,800.00	13,353.06	17,519.59	13,001.21	80.65	80.38	-60.39	-4,552.95	724.07	712.97	563.90	149.07	4.783			
17,900.00	13,353.57	17,619.58	13,000.59	81.82	81.55	-60.31	-4,652.94	724.07	713.53	562.40	151.13	4.721			
18,000.00	13,354.08	17,719.58	12,999.96	82.99	82.73	-60.23	-4,752.94	724.07	714.09	560.89	153.20	4.661			
18,100.00	13,354.59	17,819.57	12,999.34	84.18	83.92	-60.16	-4,852.93	724.07	714.66	559.37	155.29	4.602			
18,200.00	13,355.10	17,919.56	12,998.71	85.37	85.12	-60.08	-4,952.92	724.07	715.22	557.84	157.38	4.545			
18,300.00	13,355.61	18,019.56	12,998.09	86.56	86.32	-60.00	-5,052.91	724.07	715.79	556.30	159.49	4.488			
18,400.00	13,356.12	18,119.55	12,997.46	87.77	87.53	-59.92	-5,152.90	724.07	716.36	554.75	161.61	4.433			
18,500.00	13,356.63	18,219.54	12,996.84	88.98	88.75	-59.84	-5,252.89	724.07	716.93	553.20	163.73	4.379			
18,600.00	13,357.14	18,319.54	12,996.21	90.20	89.98	-59.76	-5,352.88	724.07	717.50	551.63	165.87	4.326			
18,700.00	13,357.65	18,419.53	12,995.59	91.42	91.21	-59.68	-5,452.88	724.07	718.07	550.06	168.01	4.274			
18,800.00	13,358.16	18,519.53	12,994.96	92.65	92.44	-59.61	-5,552.87	724.07	718.65	548.48	170.17	4.223			
18,900.00	13,358.67	18,619.52	12,994.34	93.89	93.68	-59.53	-5,652.86	724.07	719.22	546.89	172.33	4.174			
19,000.00	13,359.18	18,719.51	12,993.71	95.13	94.93	-59.45	-5,752.85	724.07	719.80	545.30	174.50	4.125			
19,100.00	13,359.69	18,819.51	12,993.09	96.38	96.18	-59.37	-5,852.84	724.07	720.37	543.70	176.67	4.077			
19,200.00	13,360.20	18,919.50	12,992.46	97.63	97.44	-59.29	-5,952.83	724.07	720.95	542.10	178.86	4.031			
19,300.00	13,360.71	19,019.49	12,991.84	98.89	98.70	-59.22	-6,052.83	724.07	721.53	540.49	181.05	3.985			
19,400.00	13,361.22	19,119.49	12,991.21	100.15	99.97	-59.14	-6,152.82	724.07	722.12	538.87	183.24	3.941			
19,500.00	13,361.73	19,219.48	12,990.59	101.42	101.24	-59.06	-6,252.81	724.07	722.70	537.26	185.44	3.897			
19,600.00	13,362.24	19,319.47	12,989.96	102.69	102.52	-58.99	-6,352.80	724.07	723.28	535.63	187.65	3.854			
19,700.00	13,362.75	19,419.47	12,989.34	103.96	103.80	-58.91	-6,452.79	724.07	723.87	534.01	189.86	3.813			
19,800.00	13,363.26	19,519.46	12,988.71	105.24	105.08	-58.83	-6,552.78	724.07	724.46	532.38	192.08	3.772			
19,900.00	13,363.78	19,619.45	12,988.09	106.53	106.37	-58.75	-6,652.78	724.07	725.04	530.75	194.30	3.732			
20,000.00	13,364.29	19,719.45	12,987.46	107.81	107.66	-58.68	-6,752.77	724.07	725.63	529.11	196.52	3.692			
20,100.00	13,364.80	19,819.44	12,986.84	109.10	108.95	-58.60	-6,852.76	724.07	726.23	527.47	198.75	3.654			
20,200.00	13,365.31	19,919.44	12,986.21	110.40	110.25	-58.53	-6,952.75	724.07	726.82	525.83	200.99	3.616			
20,300.00	13,365.82	20,019.43	12,985.59	111.70	111.55	-58.45	-7,052.74	724.07	727.41	524.19	203.22	3.579			
20,400.00	13,366.33	20,119.42	12,984.96	113.00	112.86	-58.37	-7,152.73	724.07	728.01	522.54	205.47	3.543			
20,500.00	13,366.84	20,219.42	12,984.34	114.30	114.16	-58.30	-7,252.73	724.07	728.60	520.89	207.71	3.508			
20,600.00	13,367.35	20,319.41	12,983.71	115.61	115.47	-58.22	-7,352.72	724.07	729.20	519.24	209.96	3.473			
20,700.00	13,367.86	20,419.40	12,983.09	116.92	116.79	-58.15	-7,452.71	724.07	729.80	517.59	212.20	3.439			
20,800.00	13,368.37	20,519.40	12,982.46	118.23	118.10	-58.07	-7,552.70	724.07	730.40	515.94	214.46	3.406			
20,900.00	13,368.88	20,619.39	12,981.83	119.55	119.42	-57.99	-7,652.69	724.07	731.00	514.29	216.71	3.373			

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



Nabors Corporate Services
Anticollision Report



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 102H - OH - PN2													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
21,000.00	13,369.39	20,719.38	12,981.21	120.87	120.75	-57.92	-7,752.68	724.07	731.60	512.63	218.97	3.341		
21,100.00	13,369.90	20,819.38	12,980.58	122.19	122.07	-57.84	-7,852.68	724.07	732.21	510.98	221.23	3.310		
21,200.00	13,370.41	20,919.37	12,979.96	123.51	123.40	-57.77	-7,952.67	724.07	732.81	509.32	223.49	3.279		
21,300.00	13,370.92	21,019.36	12,979.33	124.84	124.73	-57.69	-8,052.66	724.07	733.42	507.66	225.75	3.249		
21,400.00	13,371.43	21,119.36	12,978.71	126.17	126.06	-57.62	-8,152.65	724.07	734.02	506.01	228.02	3.219		
21,500.00	13,371.94	21,219.35	12,978.08	127.50	127.39	-57.54	-8,252.64	724.07	734.63	504.35	230.28	3.190		
21,600.00	13,372.45	21,319.35	12,977.46	128.83	128.73	-57.47	-8,352.63	724.07	735.24	502.69	232.55	3.162		
21,700.00	13,372.96	21,419.34	12,976.83	130.16	130.06	-57.39	-8,452.62	724.07	735.85	501.04	234.82	3.134		
21,800.00	13,373.47	21,519.33	12,976.21	131.50	131.40	-57.32	-8,552.62	724.07	736.47	499.38	237.09	3.106		
21,900.00	13,373.98	21,619.33	12,975.58	132.84	132.75	-57.25	-8,652.61	724.07	737.08	497.72	239.36	3.079		
22,000.00	13,374.49	21,719.32	12,974.96	134.18	134.09	-57.17	-8,752.60	724.07	737.69	496.06	241.63	3.053		
22,100.00	13,375.00	21,819.31	12,974.33	135.53	135.43	-57.10	-8,852.59	724.07	738.31	494.41	243.90	3.027		
22,200.00	13,375.51	21,919.31	12,973.71	136.87	136.78	-57.02	-8,952.58	724.07	738.93	492.75	246.18	3.002		
22,300.00	13,376.03	22,019.30	12,973.08	138.22	138.13	-56.95	-9,052.57	724.07	739.55	491.09	248.45	2.977		
22,400.00	13,376.54	22,119.29	12,972.46	139.57	139.48	-56.88	-9,152.57	724.07	740.17	489.44	250.73	2.952		
22,500.00	13,377.05	22,219.29	12,971.83	140.92	140.83	-56.80	-9,252.56	724.07	740.79	487.78	253.00	2.928		
22,600.00	13,377.56	22,319.28	12,971.21	142.27	142.19	-56.73	-9,352.55	724.07	741.41	486.13	255.28	2.904		
22,700.00	13,378.07	22,419.27	12,970.58	143.62	143.54	-56.66	-9,452.54	724.07	742.03	484.48	257.56	2.881		
22,800.00	13,378.58	22,519.27	12,969.96	144.98	144.90	-56.58	-9,552.53	724.07	742.66	482.83	259.83	2.858		
22,900.00	13,379.09	22,619.26	12,969.33	146.33	146.26	-56.51	-9,652.52	724.07	743.28	481.18	262.11	2.836		
23,000.00	13,379.60	22,719.25	12,968.71	147.69	147.62	-56.44	-9,752.52	724.07	743.91	479.53	264.38	2.814		
23,100.00	13,380.11	22,819.25	12,968.08	149.05	148.98	-56.36	-9,852.51	724.07	744.54	477.88	266.66	2.792		
23,200.00	13,380.62	22,919.24	12,967.46	150.41	150.34	-56.29	-9,952.50	724.07	745.17	476.23	268.94	2.771		
23,274.76	13,381.00	22,993.99	12,966.99	151.43	151.36	-56.24	-10,027.25	724.07	745.64	475.00	270.64	2.755 SF		

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 91H - OH - PN2													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.10	-0.10	2.00	2.00	89.66	0.18	30.02	30.02					
100.00	100.00	100.10	99.90	2.00	2.00	89.66	0.18	30.02	30.02	26.01	4.01	7.491		
200.00	200.00	200.10	199.90	2.06	2.06	89.66	0.18	30.02	30.02	25.91	4.11	7.297		
300.00	300.00	300.10	299.90	2.17	2.17	89.66	0.18	30.02	30.02	25.68	4.34	6.921		
400.00	400.00	400.10	399.90	2.33	2.33	89.66	0.18	30.02	30.02	25.36	4.66	6.439		
500.00	500.00	500.10	499.90	2.53	2.53	89.66	0.18	30.02	30.02	24.95	5.07	5.924		
600.00	600.00	600.10	599.90	2.77	2.77	89.66	0.18	30.02	30.02	24.48	5.54	5.422		
700.00	700.00	700.10	699.90	3.03	3.03	89.66	0.18	30.02	30.02	23.97	6.06	4.958		
800.00	800.00	800.10	799.90	3.31	3.31	89.66	0.18	30.02	30.02	23.41	6.61	4.541		
900.00	900.00	900.10	899.90	3.60	3.60	89.66	0.18	30.02	30.02	22.83	7.19	4.173		
1,000.00	1,000.00	1,000.10	999.90	3.90	3.90	89.66	0.18	30.02	30.02	22.22	7.80	3.849		
1,100.00	1,100.00	1,100.10	1,099.90	4.21	4.21	89.66	0.18	30.02	30.02	21.60	8.42	3.564		
1,200.00	1,200.00	1,200.10	1,199.90	4.53	4.53	89.66	0.18	30.02	30.02	20.96	9.06	3.313		
1,300.00	1,300.00	1,300.10	1,299.90	4.85	4.85	89.66	0.18	30.02	30.02	20.31	9.71	3.092		
1,400.00	1,400.00	1,400.10	1,399.90	5.18	5.18	89.66	0.18	30.02	30.02	19.65	10.37	2.896		
1,500.00	1,500.00	1,500.10	1,499.90	5.52	5.52	89.66	0.18	30.02	30.02	18.99	11.03	2.721		
1,600.00	1,600.00	1,600.10	1,599.90	5.85	5.85	89.66	0.18	30.02	30.02	18.32	11.70	2.565		
1,700.00	1,700.00	1,700.10	1,699.90	6.19	6.19	89.66	0.18	30.02	30.02	17.64	12.38	2.425		
1,800.00	1,800.00	1,800.10	1,799.90	6.53	6.53	89.66	0.18	30.02	30.02	16.96	13.06	2.299		
1,810.00	1,810.00	1,809.90	1,809.90	6.56	6.56	89.66	0.18	30.02	30.02	16.89	13.13	2.287		
1,900.00	1,900.00	1,900.10	1,899.90	6.87	6.87	55.99	0.18	30.02	29.62	15.88	13.74	2.155		
2,000.00	1,999.97	2,000.13	1,999.87	7.21	7.22	60.10	0.18	30.02	28.33	13.90	14.43	1.963		
2,100.00	2,099.88	2,100.22	2,099.78	7.55	7.56	67.99	0.18	30.02	26.49	11.37	15.11	1.753		
2,200.00	2,199.70	2,200.40	2,199.60	7.90	7.91	80.75	0.18	30.02	24.88	9.07	15.80	1.574		
2,255.03	2,254.59	2,254.49	2,254.49	8.09	8.10	90.00	0.18	30.02	24.55	8.37	16.18	1.517 CC		
2,300.00	2,299.40	2,300.70	2,299.30	8.25	8.26	98.46	0.18	30.02	24.82	8.32	16.50	1.505 ES, SF		
2,400.00	2,398.96	2,401.14	2,398.86	8.59	8.61	117.91	0.18	30.02	27.82	10.62	17.20	1.617		
2,436.97	2,435.72	2,435.62	2,435.62	8.72	8.73	124.53	0.18	30.02	29.86	12.41	17.45	1.711		
2,500.00	2,498.37	2,501.73	2,498.27	8.94	8.96	134.03	0.18	30.02	34.25	16.35	17.90	1.913		
2,600.00	2,597.77	2,602.33	2,597.67	9.30	9.31	144.63	0.18	30.02	42.59	23.99	18.60	2.289		
2,700.00	2,697.18	2,702.92	2,697.08	9.65	9.66	151.62	0.18	30.02	51.90	32.59	19.30	2.688		
2,800.00	2,796.58	2,803.52	2,796.48	10.01	10.01	156.44	0.18	30.02	61.73	41.73	20.01	3.086		
2,900.00	2,895.98	2,904.12	2,895.88	10.37	10.37	159.92	0.18	30.02	71.88	51.17	20.71	3.471		
3,000.00	2,995.38	3,004.72	2,995.28	10.74	10.72	162.53	0.18	30.02	82.23	60.82	21.42	3.840		
3,100.00	3,094.78	3,105.32	3,094.68	11.10	11.08	164.56	0.18	30.02	92.71	70.59	22.12	4.191		
3,200.00	3,194.19	3,205.91	3,194.09	11.46	11.43	166.17	0.18	30.02	103.28	80.45	22.83	4.524		
3,300.00	3,293.59	3,306.51	3,293.49	11.83	11.79	167.48	0.18	30.02	113.92	90.38	23.54	4.840		
3,400.00	3,392.99	3,407.11	3,392.89	12.20	12.14	168.57	0.18	30.02	124.61	100.36	24.25	5.139		
3,481.78	3,474.28	3,474.18	3,474.18	12.50	12.38	169.33	0.18	30.02	133.38	108.60	24.78	5.383		
3,500.00	3,492.39	3,507.71	3,492.29	12.57	12.50	169.49	0.18	30.02	135.30	110.34	24.96	5.421		
3,600.00	3,591.92	3,608.18	3,591.82	12.93	12.85	170.21	0.18	30.02	144.89	119.22	25.67	5.644		
3,700.00	3,691.60	3,708.50	3,691.50	13.30	13.21	170.73	0.18	30.02	152.78	126.40	26.38	5.791		
3,800.00	3,791.40	3,808.70	3,791.30	13.65	13.56	171.10	0.18	30.02	158.96	131.87	27.09	5.868		
3,900.00	3,891.30	3,908.80	3,891.20	14.02	13.92	171.35	0.18	30.02	163.42	135.62	27.80	5.878		
4,000.00	3,991.26	4,008.84	3,991.16	14.37	14.27	171.50	0.18	30.02	166.16	137.65	28.51	5.828		
4,108.75	4,100.00	4,100.10	4,099.90	14.75	14.60	-153.66	0.18	30.02	167.18	137.96	29.22	5.722		
4,200.00	4,191.25	4,208.85	4,191.15	15.07	14.99	-153.66	0.18	30.02	167.18	137.25	29.92	5.587		
4,300.00	4,291.25	4,308.85	4,291.15	15.42	15.34	-153.66	0.18	30.02	167.18	136.55	30.63	5.458		
4,400.00	4,391.25	4,408.85	4,391.15	15.77	15.70	-153.66	0.18	30.02	167.18	135.84	31.34	5.334		
4,500.00	4,491.25	4,508.85	4,491.15	16.12	16.05	-153.66	0.18	30.02	167.18	135.13	32.05	5.216		
4,600.00	4,591.25	4,608.85	4,591.15	16.47	16.41	-153.66	0.18	30.02	167.18	134.42	32.76	5.103		
4,700.00	4,691.25	4,708.85	4,691.15	16.82	16.76	-153.66	0.18	30.02	167.18	133.71	33.47	4.995		

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 81H - OH - PN2													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
4,800.00	4,791.25	4,808.85	4,791.15	17.18	17.12	-153.66	0.18	30.02	167.18	133.00	34.18	4.891	
4,900.00	4,891.25	4,908.85	4,891.15	17.53	17.48	-153.66	0.18	30.02	167.18	132.29	34.89	4.792	
5,000.00	4,991.25	5,008.85	4,991.15	17.88	17.83	-153.66	0.18	30.02	167.18	131.58	35.60	4.696	
5,100.00	5,091.25	5,108.85	5,091.15	18.23	18.19	-153.66	0.18	30.02	167.18	130.87	36.31	4.604	
5,200.00	5,191.25	5,208.85	5,191.15	18.58	18.54	-153.66	0.18	30.02	167.18	130.16	37.02	4.516	
5,300.00	5,291.25	5,308.85	5,291.15	18.94	18.90	-153.66	0.18	30.02	167.18	129.45	37.73	4.431	
5,400.00	5,391.25	5,408.85	5,391.15	19.29	19.26	-153.66	0.18	30.02	167.18	128.74	38.44	4.349	
5,500.00	5,491.25	5,508.85	5,491.15	19.64	19.61	-153.66	0.18	30.02	167.18	128.02	39.15	4.270	
5,600.00	5,591.25	5,608.85	5,591.15	20.00	19.97	-153.66	0.18	30.02	167.18	127.31	39.87	4.194	
5,700.00	5,691.25	5,708.85	5,691.15	20.35	20.33	-153.66	0.18	30.02	167.18	126.60	40.58	4.120	
5,800.00	5,791.25	5,808.85	5,791.15	20.70	20.68	-153.66	0.18	30.02	167.18	125.89	41.29	4.049	
5,900.00	5,891.25	5,908.85	5,891.15	21.06	21.04	-153.66	0.18	30.02	167.18	125.18	42.00	3.980	
6,000.00	5,991.25	5,991.15	5,991.15	21.41	21.33	-153.66	0.18	30.02	167.18	124.53	42.65	3.920	
6,100.00	6,091.25	6,092.34	6,092.33	21.77	21.69	-153.89	0.18	30.76	166.85	123.49	43.36	3.848	
6,200.00	6,191.25	6,193.58	6,193.55	22.12	22.03	-154.67	0.18	33.29	165.77	121.71	44.06	3.762	
6,300.00	6,291.25	6,294.71	6,294.58	22.47	22.38	-156.03	0.18	37.60	163.99	119.23	44.77	3.663	
6,400.00	6,391.25	6,395.65	6,395.34	22.83	22.72	-158.00	0.18	43.68	161.64	116.17	45.47	3.555	
6,500.00	6,491.25	6,496.35	6,495.73	23.18	23.07	-160.62	0.18	51.51	158.88	112.71	46.17	3.441	
6,600.00	6,591.25	6,596.74	6,595.66	23.54	23.41	-163.94	0.18	61.07	155.97	109.09	46.88	3.327	
6,700.00	6,691.25	6,696.26	6,694.62	23.89	23.76	-167.72	0.18	71.60	153.37	105.78	47.59	3.223	
6,800.00	6,791.25	6,795.32	6,793.20	24.25	24.10	-171.31	0.18	81.30	151.57	103.28	48.29	3.139	
6,900.00	6,891.25	6,894.66	6,892.23	24.60	24.45	-174.32	0.18	89.31	150.56	101.56	49.00	3.073	
7,000.00	6,991.25	6,994.26	6,991.62	24.96	24.79	-176.72	0.18	95.62	150.07	100.36	49.70	3.019	
7,100.00	7,091.25	7,094.05	7,091.30	25.31	25.14	-178.48	0.18	100.21	149.87	99.47	50.41	2.973	
7,200.00	7,191.25	7,193.96	7,191.17	25.67	25.48	-179.57	0.18	103.07	149.82	98.71	51.11	2.931	
7,300.00	7,291.25	7,293.95	7,291.15	26.03	25.83	-179.99	0.18	104.18	149.82	98.00	51.82	2.891	
7,307.53	7,298.78	7,314.12	7,298.68	26.05	25.90	180.00	0.18	104.20	149.82	97.90	51.92	2.886	
7,335.81	7,327.06	7,329.76	7,326.96	26.15	25.96	180.00	0.18	104.20	149.82	97.75	52.07	2.877	
7,400.00	7,391.25	7,406.05	7,391.15	26.38	26.23	180.00	0.18	104.20	149.82	97.25	52.57	2.850	
7,500.00	7,491.25	7,506.05	7,491.15	26.74	26.59	180.00	0.18	104.20	149.82	96.53	53.29	2.812	
7,600.00	7,591.25	7,606.05	7,591.15	27.09	26.95	180.00	0.18	104.20	149.82	95.82	54.00	2.774	
7,700.00	7,691.25	7,706.05	7,691.15	27.45	27.30	180.00	0.18	104.20	149.82	95.11	54.71	2.738	
7,800.00	7,791.25	7,806.05	7,791.15	27.80	27.66	180.00	0.18	104.20	149.82	94.39	55.43	2.703	
7,900.00	7,891.25	7,906.05	7,891.15	28.16	28.02	180.00	0.18	104.20	149.82	93.68	56.14	2.669	
8,000.00	7,991.25	8,006.05	7,991.15	28.52	28.37	180.00	0.18	104.20	149.82	92.97	56.85	2.635	
8,100.00	8,091.25	8,106.05	8,091.15	28.87	28.73	180.00	0.18	104.20	149.82	92.25	57.57	2.603	
8,200.00	8,191.25	8,206.05	8,191.15	29.23	29.09	180.00	0.18	104.20	149.82	91.54	58.28	2.571	
8,300.00	8,291.25	8,306.05	8,291.15	29.58	29.44	180.00	0.18	104.20	149.82	90.83	58.99	2.540	
8,400.00	8,391.25	8,406.05	8,391.15	29.94	29.80	180.00	0.18	104.20	149.82	90.11	59.71	2.509	
8,500.00	8,491.25	8,506.05	8,491.15	30.30	30.16	180.00	0.18	104.20	149.82	89.40	60.42	2.480	
8,600.00	8,591.25	8,606.05	8,591.15	30.65	30.52	180.00	0.18	104.20	149.82	88.68	61.14	2.451	
8,700.00	8,691.25	8,706.05	8,691.15	31.01	30.87	180.00	0.18	104.20	149.82	87.97	61.85	2.422	
8,800.00	8,791.25	8,806.05	8,791.15	31.37	31.23	180.00	0.18	104.20	149.82	87.26	62.56	2.395	
8,900.00	8,891.25	8,906.05	8,891.15	31.72	31.59	180.00	0.18	104.20	149.82	86.54	63.28	2.368	
9,000.00	8,991.25	9,006.05	8,991.15	32.08	31.94	180.00	0.18	104.20	149.82	85.83	63.99	2.341	
9,100.00	9,091.25	9,106.05	9,091.15	32.44	32.30	180.00	0.18	104.20	149.82	85.11	64.71	2.315	
9,200.00	9,191.25	9,206.05	9,191.15	32.79	32.66	180.00	0.18	104.20	149.82	84.40	65.42	2.290	
9,300.00	9,291.25	9,306.05	9,291.15	33.15	33.02	180.00	0.18	104.20	149.82	83.68	66.14	2.265	
9,400.00	9,391.25	9,406.05	9,391.15	33.51	33.37	180.00	0.18	104.20	149.82	82.97	66.85	2.241	
9,500.00	9,491.25	9,506.05	9,491.15	33.86	33.73	180.00	0.18	104.20	149.82	82.26	67.56	2.217	
9,600.00	9,591.25	9,606.05	9,591.15	34.22	34.09	180.00	0.18	104.20	149.82	81.54	68.28	2.194	
9,700.00	9,691.25	9,706.05	9,691.15	34.58	34.45	180.00	0.18	104.20	149.82	80.83	68.99	2.172	

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



Nabors Corporate Services
Anticollision Report



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 91H - OH - PN2													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,800.00	9,791.25	9,806.05	9,791.15	34.93	34.80	180.00	0.18	-104.20	149.82	80.11	69.71	2.149	
9,900.00	9,891.25	9,906.05	9,891.15	35.29	35.16	180.00	0.18	104.20	149.82	79.40	70.42	2.127	
10,000.00	9,991.25	10,006.05	9,991.15	35.65	35.52	180.00	0.18	104.20	149.82	78.68	71.14	2.106	
10,100.00	10,091.25	10,106.05	10,091.15	36.00	35.88	180.00	0.18	104.20	149.82	77.97	71.85	2.085	
10,200.00	10,191.25	10,206.05	10,191.15	36.36	36.23	180.00	0.18	104.20	149.82	77.25	72.57	2.065	
10,300.00	10,291.25	10,306.05	10,291.15	36.72	36.59	180.00	0.18	104.20	149.82	76.54	73.28	2.044	
10,400.00	10,391.25	10,406.05	10,391.15	37.08	36.95	180.00	0.18	104.20	149.82	75.82	74.00	2.025	
10,500.00	10,491.25	10,506.05	10,491.15	37.43	37.31	180.00	0.18	104.20	149.82	75.11	74.71	2.005	
10,600.00	10,591.25	10,606.05	10,591.15	37.79	37.66	180.00	0.18	104.20	149.82	74.39	75.43	1.986	
10,700.00	10,691.25	10,706.05	10,691.15	38.15	38.02	180.00	0.18	104.20	149.82	73.68	76.14	1.968	
10,800.00	10,791.25	10,806.05	10,791.15	38.50	38.38	180.00	0.18	104.20	149.82	72.96	76.86	1.949	
10,900.00	10,891.25	10,906.05	10,891.15	38.86	38.74	180.00	0.18	104.20	149.82	72.25	77.57	1.931	
11,000.00	10,991.25	11,006.05	10,991.15	39.22	39.09	180.00	0.18	104.20	149.82	71.53	78.29	1.914	
11,100.00	11,091.25	11,106.05	11,091.15	39.58	39.45	180.00	0.18	104.20	149.82	70.82	79.00	1.896	
11,200.00	11,191.25	11,206.05	11,191.15	39.93	39.81	180.00	0.18	104.20	149.82	70.10	79.72	1.879	
11,300.00	11,291.25	11,306.05	11,291.15	40.29	40.17	180.00	0.18	104.20	149.82	69.39	80.43	1.863	
11,400.00	11,391.25	11,406.05	11,391.15	40.65	40.52	180.00	0.18	104.20	149.82	68.67	81.15	1.846	
11,500.00	11,491.25	11,506.05	11,491.15	41.00	40.88	180.00	0.18	104.20	149.82	67.96	81.86	1.830	
11,600.00	11,591.25	11,606.05	11,591.15	41.36	41.24	180.00	0.18	104.20	149.82	67.24	82.58	1.814	
11,700.00	11,691.25	11,706.05	11,691.15	41.72	41.60	180.00	0.18	104.20	149.82	66.53	83.29	1.799	
11,800.00	11,791.25	11,806.05	11,791.15	42.08	41.96	180.00	0.18	104.20	149.82	65.81	84.01	1.783	
11,900.00	11,891.25	11,906.05	11,891.15	42.43	42.31	180.00	0.18	104.20	149.82	65.09	84.73	1.768	
12,000.00	11,991.25	11,993.95	11,991.15	42.79	42.63	180.00	0.18	104.20	149.82	64.42	85.40	1.754	
12,100.00	12,091.25	12,078.37	12,075.47	43.15	42.92	180.00	-2.81	104.20	153.61	67.90	85.71	1.792	
12,200.00	12,191.25	12,155.27	12,151.21	43.51	43.16	180.00	-15.76	104.20	170.50	85.46	85.04	2.005	
12,300.00	12,291.25	12,227.52	12,220.20	43.86	43.38	180.00	-37.06	104.20	200.07	116.48	83.58	2.394	
12,400.00	12,391.25	12,293.48	12,280.40	44.22	43.57	180.00	-63.95	104.20	240.92	159.28	81.64	2.951	
12,500.00	12,491.25	12,350.00	12,329.23	44.58	43.72	180.00	-92.37	104.20	291.48	212.25	79.23	3.679	
12,600.00	12,591.25	12,400.00	12,369.91	44.94	43.85	180.00	-121.41	104.20	350.16	273.24	76.91	4.553	
12,700.00	12,691.25	12,450.00	12,407.90	45.29	43.98	180.00	-153.88	104.20	415.42	340.12	75.30	5.517	
12,767.75	12,759.00	12,477.28	12,427.40	45.54	44.05	180.00	-172.96	104.20	462.81	388.78	74.03	6.251	
12,800.00	12,791.23	12,489.81	12,436.04	45.64	44.08	0.00	-182.03	104.20	485.52	412.07	73.45	6.610	
12,850.00	12,840.97	12,509.52	12,449.23	45.80	44.14	0.00	-196.67	104.20	519.14	446.62	72.52	7.159	
12,900.00	12,890.08	12,529.54	12,462.11	45.96	44.19	0.00	-212.00	104.20	550.77	479.21	71.56	7.696	
12,950.00	12,938.19	12,550.00	12,474.71	46.10	44.24	0.00	-228.13	104.20	580.34	509.74	70.60	8.220	
13,000.00	12,984.94	12,570.33	12,486.65	46.24	44.30	0.00	-244.58	104.20	607.79	538.19	69.60	8.733	
13,050.00	13,029.97	12,600.00	12,503.00	46.37	44.37	0.00	-269.33	104.20	633.19	564.11	69.08	9.166	
13,100.00	13,072.94	12,611.91	12,509.21	46.50	44.40	0.00	-279.50	104.20	656.10	588.49	67.61	9.704	
13,150.00	13,113.52	12,632.94	12,519.63	46.61	44.46	0.00	-297.75	104.20	676.86	610.23	66.63	10.158	
13,200.00	13,151.40	12,650.00	12,527.60	46.71	44.50	0.00	-312.84	104.20	695.33	629.84	65.49	10.617	
13,250.00	13,186.29	12,675.33	12,538.59	46.82	44.56	0.00	-335.66	104.20	711.38	646.65	64.73	10.989	
13,300.00	13,217.94	12,700.00	12,548.31	46.93	44.63	0.00	-358.33	104.20	725.09	661.13	63.97	11.336	
13,350.00	13,246.08	12,718.06	12,554.81	47.04	44.67	0.00	-375.19	104.20	736.35	673.36	62.99	11.690	
13,400.00	13,270.53	12,750.00	12,564.98	47.15	44.75	0.00	-405.46	104.20	745.35	682.81	62.54	11.919	
13,450.00	13,291.08	12,750.00	12,564.98	47.25	44.75	0.00	-405.46	104.20	751.74	690.57	61.16	12.290	
13,500.00	13,307.58	12,782.55	12,573.60	47.35	44.83	0.00	-436.84	104.20	755.45	694.62	60.83	12.420	
13,550.00	13,319.90	12,800.00	12,577.48	47.45	44.88	0.00	-453.85	104.20	756.90	696.71	60.18	12.577	
13,600.00	13,327.96	12,825.63	12,582.24	47.54	44.94	0.00	-479.03	104.20	755.81	696.00	59.81	12.637	
13,650.00	13,331.68	12,850.00	12,585.71	47.64	45.00	0.00	-503.15	104.20	752.27	692.78	59.49	12.645	
13,664.83	13,331.95	12,850.00	12,585.71	47.66	45.00	0.00	-503.15	104.20	750.75	691.43	59.32	12.655	
13,700.00	13,332.13	12,868.71	12,587.68	47.73	45.05	0.00	-521.76	104.20	747.32	688.11	59.21	12.622	
13,800.00	13,332.64	12,912.14	12,589.91	47.95	45.15	0.00	-565.13	104.20	742.70	683.59	59.11	12.565	

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 91H - OH - PN2													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
13,900.00	13,333.15	13,007.10	12,590.54	48.21	45.39	0.00	-660.07	104.20	742.52	683.18	59.34	12.513	
14,000.00	13,333.66	13,107.10	12,591.20	48.51	45.70	0.00	-780.07	104.20	742.38	682.76	59.62	12.452	
14,100.00	13,334.17	13,207.10	12,591.85	48.85	46.04	0.00	-860.07	104.20	742.23	682.30	59.94	12.383	
14,200.00	13,334.68	13,307.10	12,592.51	49.23	46.42	0.00	-960.07	104.20	742.09	681.79	60.29	12.308	
14,300.00	13,335.19	13,407.10	12,593.17	49.65	46.85	0.00	-1,060.07	104.20	741.94	681.25	60.69	12.225	
14,400.00	13,335.70	13,507.10	12,593.82	50.10	47.31	0.00	-1,160.06	104.20	741.80	680.67	61.12	12.136	
14,500.00	13,336.21	13,607.10	12,594.48	50.60	47.82	0.00	-1,260.06	104.20	741.65	680.06	61.59	12.041	
14,600.00	13,336.72	13,707.10	12,595.13	51.13	48.36	0.00	-1,360.06	104.20	741.51	679.41	62.10	11.940	
14,700.00	13,337.23	13,807.10	12,595.79	51.69	48.94	0.00	-1,460.06	104.20	741.36	678.72	62.64	11.835	
14,800.00	13,337.74	13,907.10	12,596.45	52.28	49.55	0.00	-1,560.05	104.20	741.21	678.00	63.22	11.725	
14,900.00	13,338.26	14,007.10	12,597.10	52.91	50.19	0.00	-1,660.05	104.20	741.07	677.24	63.83	11.610	
15,000.00	13,338.77	14,107.10	12,597.76	53.57	50.87	0.00	-1,760.05	104.20	740.92	676.45	64.47	11.492	
15,100.00	13,339.28	14,207.10	12,598.41	54.26	51.58	0.00	-1,860.05	104.20	740.78	675.64	65.14	11.372	
15,200.00	13,339.79	14,307.10	12,599.07	54.98	52.32	0.00	-1,960.05	104.20	740.63	674.78	65.85	11.248	
15,300.00	13,340.30	14,407.09	12,599.73	55.72	53.08	0.00	-2,060.04	104.20	740.49	673.90	66.58	11.121	
15,400.00	13,340.81	14,507.09	12,600.38	56.49	53.88	0.00	-2,160.04	104.20	740.34	673.00	67.34	10.993	
15,500.00	13,341.32	14,607.09	12,601.04	57.29	54.70	0.00	-2,260.04	104.20	740.20	672.06	68.14	10.864	
15,600.00	13,341.83	14,707.09	12,601.69	58.11	55.54	0.00	-2,360.04	104.20	740.05	671.10	68.95	10.733	
15,700.00	13,342.34	14,807.09	12,602.35	58.96	56.41	0.00	-2,460.03	104.20	739.91	670.11	69.80	10.601	
15,800.00	13,342.85	14,907.09	12,603.01	59.83	57.30	0.00	-2,560.03	104.20	739.76	669.10	70.66	10.469	
15,900.00	13,343.36	15,007.09	12,603.66	60.72	58.22	0.00	-2,660.03	104.20	739.61	668.06	71.56	10.336	
16,000.00	13,343.87	15,107.09	12,604.32	61.63	59.15	0.00	-2,760.03	104.20	739.47	667.00	72.47	10.204	
16,100.00	13,344.38	15,207.09	12,604.97	62.55	60.11	0.00	-2,860.03	104.20	739.32	665.92	73.41	10.072	
16,200.00	13,344.89	15,307.09	12,605.63	63.50	61.08	0.00	-2,960.02	104.20	739.18	664.81	74.36	9.940	
16,300.00	13,345.40	15,407.09	12,606.28	64.47	62.07	0.00	-3,060.02	104.20	739.03	663.69	75.34	9.809	
16,400.00	13,345.91	15,507.09	12,606.94	65.45	63.08	0.00	-3,160.02	104.20	738.89	662.54	76.34	9.679	
16,500.00	13,346.42	15,607.09	12,607.60	66.45	64.10	0.00	-3,260.02	104.20	738.74	661.38	77.36	9.550	
16,600.00	13,346.93	15,707.09	12,608.25	67.47	65.14	0.00	-3,360.01	104.20	738.60	660.20	78.40	9.421	
16,700.00	13,347.44	15,807.09	12,608.91	68.50	66.19	0.00	-3,460.01	104.20	738.45	659.00	79.45	9.295	
16,800.00	13,347.95	15,907.09	12,609.56	69.54	67.26	0.00	-3,560.01	104.20	738.30	657.79	80.52	9.169	
16,900.00	13,348.46	16,007.09	12,610.22	70.60	68.34	0.00	-3,660.01	104.20	738.16	656.55	81.60	9.046	
17,000.00	13,348.97	16,107.09	12,610.88	71.67	69.44	0.00	-3,760.00	104.20	738.01	655.31	82.71	8.923	
17,100.00	13,349.48	16,207.09	12,611.53	72.76	70.54	0.00	-3,860.00	104.20	737.87	654.04	83.82	8.803	
17,200.00	13,349.99	16,307.09	12,612.19	73.85	71.66	0.00	-3,960.00	104.20	737.72	652.77	84.95	8.684	
17,300.00	13,350.50	16,407.09	12,612.84	74.96	72.79	0.00	-4,060.00	104.20	737.58	651.48	86.10	8.567	
17,400.00	13,351.02	16,507.09	12,613.50	76.08	73.93	0.00	-4,160.00	104.20	737.43	650.17	87.26	8.451	
17,500.00	13,351.53	16,607.09	12,614.16	77.21	75.08	0.00	-4,259.99	104.20	737.29	648.86	88.43	8.338	
17,600.00	13,352.04	16,707.09	12,614.81	78.35	76.24	0.00	-4,359.99	104.20	737.14	647.53	89.61	8.226	
17,700.00	13,352.55	16,807.09	12,615.47	79.49	77.41	0.00	-4,459.99	104.20	737.00	646.19	90.80	8.116	
17,800.00	13,353.06	16,907.09	12,616.12	80.65	78.59	0.00	-4,559.99	104.20	736.85	644.84	92.01	8.008	
17,900.00	13,353.57	17,007.09	12,616.78	81.82	79.77	0.00	-4,659.98	104.20	736.70	643.48	93.23	7.902	
18,000.00	13,354.08	17,107.09	12,617.43	82.99	80.97	0.00	-4,759.98	104.20	736.56	642.10	94.45	7.798	
18,100.00	13,354.59	17,207.09	12,618.09	84.18	82.17	0.00	-4,859.98	104.20	736.41	640.72	95.69	7.696	
18,200.00	13,355.10	17,307.09	12,618.75	85.37	83.38	0.00	-4,959.98	104.20	736.27	639.33	96.94	7.595	
18,300.00	13,355.61	17,407.09	12,619.40	86.56	84.59	0.00	-5,059.98	104.20	736.12	637.93	98.19	7.497	
18,400.00	13,356.12	17,507.09	12,620.06	87.77	85.81	0.00	-5,159.97	104.20	735.98	636.52	99.46	7.400	
18,500.00	13,356.63	17,607.09	12,620.71	88.98	87.04	0.00	-5,259.97	104.20	735.83	635.10	100.73	7.305	
18,600.00	13,357.14	17,707.09	12,621.37	90.20	88.28	0.00	-5,359.97	104.20	735.69	633.67	102.01	7.212	
18,700.00	13,357.65	17,807.09	12,622.03	91.42	89.52	0.00	-5,459.97	104.20	735.54	632.24	103.30	7.120	
18,800.00	13,358.16	17,907.09	12,622.68	92.65	90.77	0.00	-5,559.96	104.20	735.39	630.79	104.60	7.031	
18,900.00	13,358.67	18,007.09	12,623.34	93.89	92.02	0.00	-5,659.96	104.20	735.25	629.34	105.90	6.943	
19,000.00	13,359.18	18,107.09	12,623.99	95.13	93.28	0.00	-5,759.96	104.20	735.10	627.89	107.22	6.856	

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 81H - OH - PN2													Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft	
Reference		Offset		Semi Major Axis			Highside		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
19,100.00	13,359.69	18,207.09	12,624.65	96.38	94.54	0.00	-5,859.96	104.20	734.96	626.42	108.54	6.772		
19,200.00	13,360.20	18,307.09	12,625.31	97.63	95.81	0.00	-5,959.96	104.20	734.81	624.95	109.86	6.689		
19,300.00	13,360.71	18,407.09	12,625.96	98.89	97.08	0.00	-6,059.95	104.20	734.67	623.48	111.19	6.607		
19,400.00	13,361.22	18,507.09	12,626.62	100.15	98.36	0.00	-6,159.95	104.20	734.52	621.99	112.53	6.527		
19,500.00	13,361.73	18,607.09	12,627.27	101.42	99.64	0.00	-6,259.95	104.20	734.38	620.50	113.87	6.449		
19,600.00	13,362.24	18,707.09	12,627.93	102.69	100.92	0.00	-6,359.95	104.20	734.23	619.01	115.22	6.372		
19,700.00	13,362.75	18,807.09	12,628.58	103.96	102.21	0.00	-6,459.94	104.20	734.09	617.51	116.58	6.297		
19,800.00	13,363.26	18,907.09	12,629.24	105.24	103.51	0.00	-6,559.94	104.20	733.94	616.00	117.94	6.223		
19,900.00	13,363.78	19,007.09	12,629.90	106.53	104.80	0.00	-6,659.94	104.20	733.79	614.49	119.30	6.151		
20,000.00	13,364.29	19,107.09	12,630.55	107.81	106.10	0.00	-6,759.94	104.20	733.65	612.98	120.67	6.080		
20,100.00	13,364.80	19,207.09	12,631.21	109.10	107.41	0.00	-6,859.93	104.20	733.50	611.46	122.05	6.010		
20,200.00	13,365.31	19,307.09	12,631.86	110.40	108.71	0.00	-6,959.93	104.20	733.36	609.93	123.43	5.942		
20,300.00	13,365.82	19,407.09	12,632.52	111.70	110.02	0.00	-7,059.93	104.20	733.21	608.40	124.81	5.875		
20,400.00	13,366.33	19,507.09	12,633.18	113.00	111.34	0.00	-7,159.93	104.20	733.07	606.87	126.20	5.809		
20,500.00	13,366.84	19,607.09	12,633.83	114.30	112.65	0.00	-7,259.93	104.20	732.92	605.33	127.59	5.744		
20,600.00	13,367.35	19,707.09	12,634.49	115.61	113.97	0.00	-7,359.92	104.20	732.78	603.79	128.99	5.681		
20,700.00	13,367.86	19,807.09	12,635.14	116.92	115.29	0.00	-7,459.92	104.20	732.63	602.24	130.39	5.619		
20,800.00	13,368.37	19,907.09	12,635.80	118.23	116.62	0.00	-7,559.92	104.20	732.48	600.69	131.79	5.558		
20,900.00	13,368.88	20,007.09	12,636.46	119.55	117.94	0.00	-7,659.92	104.20	732.34	599.14	133.20	5.498		
21,000.00	13,369.39	20,107.09	12,637.11	120.87	119.27	0.00	-7,759.91	104.20	732.19	597.58	134.61	5.439		
21,100.00	13,369.90	20,207.09	12,637.77	122.19	120.61	0.00	-7,859.91	104.20	732.05	596.02	136.03	5.382		
21,200.00	13,370.41	20,307.09	12,638.42	123.51	121.94	0.00	-7,959.91	104.20	731.90	594.46	137.45	5.325		
21,300.00	13,370.92	20,407.09	12,639.08	124.84	123.28	0.00	-8,059.91	104.20	731.76	592.89	138.87	5.269		
21,400.00	13,371.43	20,507.09	12,639.74	126.17	124.61	0.00	-8,159.91	104.20	731.61	591.32	140.29	5.215		
21,500.00	13,371.94	20,607.09	12,640.39	127.50	125.95	0.00	-8,259.90	104.20	731.47	589.74	141.72	5.161		
21,600.00	13,372.45	20,707.09	12,641.05	128.83	127.30	0.00	-8,359.90	104.20	731.32	588.17	143.15	5.109		
21,700.00	13,372.96	20,807.09	12,641.70	130.16	128.64	0.00	-8,459.90	104.20	731.18	586.59	144.59	5.057		
21,800.00	13,373.47	20,907.09	12,642.36	131.50	129.99	0.00	-8,559.90	104.20	731.03	585.01	146.02	5.006		
21,900.00	13,373.98	21,007.09	12,643.01	132.84	131.34	0.00	-8,659.89	104.20	730.88	583.42	147.46	4.956		
22,000.00	13,374.49	21,107.09	12,643.67	134.18	132.69	0.00	-8,759.89	104.20	730.74	581.84	148.90	4.907		
22,100.00	13,375.00	21,207.09	12,644.33	135.53	134.04	0.00	-8,859.89	104.20	730.59	580.25	150.35	4.859		
22,200.00	13,375.51	21,307.09	12,644.98	136.87	135.39	0.00	-8,959.89	104.20	730.45	578.65	151.80	4.812		
22,300.00	13,376.03	21,407.09	12,645.64	138.22	136.75	0.00	-9,059.89	104.20	730.30	577.06	153.24	4.766		
22,400.00	13,376.54	21,507.09	12,646.29	139.57	138.11	0.00	-9,159.88	104.20	730.16	575.46	154.70	4.720		
22,500.00	13,377.05	21,607.09	12,646.95	140.92	139.46	0.00	-9,259.88	104.20	730.01	573.86	156.15	4.675		
22,600.00	13,377.56	21,707.09	12,647.61	142.27	140.82	0.00	-9,359.88	104.20	729.87	572.26	157.61	4.631		
22,700.00	13,378.07	21,807.09	12,648.26	143.62	142.19	0.00	-9,459.88	104.20	729.72	570.66	159.06	4.588		
22,800.00	13,378.58	21,907.09	12,648.92	144.98	143.55	0.00	-9,559.87	104.20	729.58	569.05	160.53	4.545		
22,900.00	13,379.09	22,007.09	12,649.57	146.33	144.91	0.00	-9,659.87	104.20	729.43	567.44	161.99	4.503		
23,000.00	13,379.60	22,107.09	12,650.23	147.69	146.28	0.00	-9,759.87	104.20	729.28	565.83	163.45	4.462		
23,100.00	13,380.11	22,207.09	12,650.89	149.05	147.65	0.00	-9,859.87	104.20	729.14	564.22	164.92	4.421		
23,200.00	13,380.62	22,307.09	12,651.54	150.41	149.01	0.00	-9,959.87	104.20	728.99	562.61	166.39	4.381		
23,274.76	13,381.00	22,381.84	12,652.03	151.43	150.04	0.00	-10,034.62	104.20	728.88	561.40	167.49	4.352		



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 82H - OH - PN2													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)	
0.00	0.00	0.00	0.00	2.00	2.00	89.60	0.42	59.98	59.98					
100.00	100.00	100.00	100.00	2.00	2.00	89.60	0.42	59.98	59.98	55.97	4.01	14.968		
200.00	200.00	200.00	200.00	2.06	2.06	89.60	0.42	59.98	59.98	55.87	4.11	14.581		
300.00	300.00	300.00	300.00	2.17	2.17	89.60	0.42	59.98	59.98	55.64	4.34	13.828		
400.00	400.00	400.00	400.00	2.33	2.33	89.60	0.42	59.98	59.98	55.32	4.66	12.866		
500.00	500.00	500.00	500.00	2.53	2.53	89.60	0.42	59.98	59.98	54.91	5.07	11.836		
600.00	600.00	600.00	600.00	2.77	2.77	89.60	0.42	59.98	59.98	54.44	5.54	10.833		
700.00	700.00	700.00	700.00	3.03	3.03	89.60	0.42	59.98	59.98	53.93	6.05	9.906		
800.00	800.00	800.00	800.00	3.31	3.31	89.60	0.42	59.98	59.98	53.37	6.61	9.074		
900.00	900.00	900.00	900.00	3.60	3.60	89.60	0.42	59.98	59.98	52.79	7.19	8.338		
1,000.00	1,000.00	1,000.00	1,000.00	3.90	3.90	89.60	0.42	59.98	59.98	52.18	7.80	7.690		
1,100.00	1,100.00	1,100.00	1,100.00	4.21	4.21	89.60	0.42	59.98	59.98	51.56	8.42	7.121		
1,200.00	1,200.00	1,200.00	1,200.00	4.53	4.53	89.60	0.42	59.98	59.98	50.92	9.06	6.620		
1,300.00	1,300.00	1,300.00	1,300.00	4.85	4.85	89.60	0.42	59.98	59.98	50.27	9.71	6.178		
1,400.00	1,400.00	1,400.00	1,400.00	5.18	5.18	89.60	0.42	59.98	59.98	49.61	10.37	5.786		
1,500.00	1,500.00	1,500.00	1,500.00	5.52	5.52	89.60	0.42	59.98	59.98	48.95	11.03	5.437		
1,600.00	1,600.00	1,600.00	1,600.00	5.85	5.85	89.60	0.42	59.98	59.98	48.28	11.70	5.125		
1,700.00	1,700.00	1,700.00	1,700.00	6.19	6.19	89.60	0.42	59.98	59.98	47.60	12.38	4.845		
1,800.00	1,800.00	1,800.00	1,800.00	6.53	6.53	89.60	0.42	59.98	59.98	46.92	13.06	4.593		
1,810.00	1,810.00	1,810.00	1,810.00	6.56	6.56	89.60	0.42	59.98	59.98	46.85	13.13	4.569		
1,900.00	1,900.00	1,900.00	1,900.00	6.87	6.87	55.37	0.42	59.98	59.58	45.83	13.74	4.335		
2,000.00	1,999.97	2,000.03	1,999.97	7.21	7.22	57.36	0.42	59.98	58.22	43.80	14.43	4.036		
2,100.00	2,099.88	2,100.12	2,099.88	7.55	7.56	60.98	0.42	59.98	56.07	40.96	15.11	3.710		
2,200.00	2,199.70	2,200.30	2,199.70	7.90	7.91	66.57	0.42	59.98	53.45	37.64	15.80	3.382		
2,300.00	2,299.40	2,300.60	2,299.40	8.25	8.26	74.52	0.42	59.98	50.88	34.38	16.50	3.084		
2,400.00	2,398.96	2,401.04	2,398.96	8.59	8.61	85.11	0.42	59.98	49.20	32.01	17.20	2.861		
2,436.97	2,435.72	2,435.72	2,435.72	8.72	8.73	89.66	0.42	59.98	49.02	31.57	17.45	2.810		
2,439.67	2,438.41	2,438.41	2,438.41	8.73	8.74	90.00	0.42	59.98	49.02	31.55	17.47	2.807 CC, ES		
2,500.00	2,498.37	2,498.37	2,498.37	8.94	8.95	97.61	0.42	59.98	49.46	31.57	17.89	2.765 SF		
2,600.00	2,597.77	2,597.25	2,597.25	9.30	9.28	108.76	0.42	60.81	52.54	33.96	18.58	2.828		
2,700.00	2,697.18	2,696.28	2,696.24	9.65	9.61	116.88	0.42	63.34	58.18	38.92	19.26	3.020		
2,800.00	2,796.58	2,795.40	2,795.27	10.01	9.95	122.09	0.42	67.59	65.44	45.49	19.95	3.280		
2,900.00	2,895.98	2,894.56	2,894.24	10.37	10.28	124.97	0.42	73.56	73.70	53.06	20.64	3.570		
3,000.00	2,995.38	2,993.69	2,993.08	10.74	10.62	126.12	0.42	81.24	82.66	61.32	21.34	3.874		
3,100.00	3,094.78	3,092.75	3,091.69	11.10	10.96	126.04	0.42	90.61	92.18	70.15	22.03	4.184		
3,200.00	3,194.19	3,208.22	3,190.11	11.46	11.37	125.07	0.42	101.66	102.27	79.48	22.79	4.487		
3,300.00	3,293.59	3,308.77	3,288.87	11.83	11.72	124.01	0.42	113.32	112.58	89.08	23.50	4.790		
3,400.00	3,392.99	3,409.33	3,387.63	12.20	12.08	123.12	0.42	124.98	122.93	98.71	24.22	5.076		
3,481.78	3,474.28	3,472.01	3,468.40	12.50	12.30	122.50	0.42	134.51	131.41	106.67	24.74	5.312		
3,500.00	3,492.39	3,509.88	3,486.39	12.57	12.43	122.37	0.42	136.64	133.28	108.34	24.94	5.344		
3,600.00	3,591.92	3,589.61	3,585.19	12.93	12.72	121.41	0.42	148.30	143.05	117.47	25.58	5.591		
3,700.00	3,691.60	3,689.14	3,684.03	13.30	13.08	120.00	0.42	159.96	151.99	125.69	26.30	5.779		
3,800.00	3,791.40	3,788.67	3,782.88	13.66	13.44	118.21	0.42	171.63	160.19	133.17	27.01	5.930		
3,900.00	3,891.30	3,888.18	3,881.70	14.02	13.80	116.07	0.42	183.30	167.77	140.05	27.72	6.052		
4,000.00	3,991.26	3,987.64	3,980.47	14.37	14.16	113.59	0.42	194.96	174.88	146.45	28.43	6.152		
4,108.75	4,100.00	4,104.30	4,087.79	14.75	14.59	145.34	0.42	207.62	182.26	153.04	29.22	6.237		
4,200.00	4,191.25	4,186.32	4,177.79	15.07	14.89	142.68	0.42	218.25	188.58	158.75	29.83	6.323		
4,300.00	4,291.25	4,285.63	4,276.41	15.42	15.26	139.96	0.42	229.89	195.94	165.42	30.52	6.419		
4,400.00	4,391.25	4,384.94	4,375.04	15.77	15.63	137.44	0.42	241.53	203.71	172.49	31.22	6.525		
4,500.00	4,491.25	4,484.25	4,473.67	16.12	16.00	135.12	0.42	253.17	211.84	179.92	31.92	6.637		
4,600.00	4,591.25	4,583.56	4,572.29	16.47	16.37	132.96	0.42	264.81	220.30	187.68	32.61	6.755		
4,700.00	4,691.25	4,682.87	4,670.92	16.82	16.74	130.97	0.42	276.46	229.04	195.73	33.31	6.876		

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 82H - OH - PN2														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM														Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Distance		Warning							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
4,800.00	4,791.25	4,782.18	4,769.54	17.18	17.11	129.12	0.42	288.10	238.04	204.03	34.01	6.999			
4,900.00	4,891.25	4,881.49	4,868.17	17.53	17.48	127.41	0.42	299.74	247.27	212.56	34.71	7.124			
5,000.00	4,991.25	4,980.81	4,966.79	17.88	17.85	125.83	0.42	311.38	256.70	221.29	35.41	7.250			
5,100.00	5,091.25	5,080.12	5,065.42	18.23	18.23	124.36	0.42	323.02	266.32	230.21	36.11	7.375			
5,200.00	5,191.25	5,179.43	5,164.05	18.58	18.60	122.99	0.42	334.66	276.09	239.28	36.81	7.500			
5,300.00	5,291.25	5,278.74	5,262.67	18.94	18.98	121.71	0.42	346.31	286.02	248.50	37.51	7.625			
5,400.00	5,391.25	5,378.05	5,361.30	19.29	19.35	120.52	0.42	357.95	296.07	257.86	38.22	7.747			
5,500.00	5,491.25	5,477.36	5,459.92	19.64	19.73	119.41	0.42	369.59	306.25	267.33	38.92	7.869			
5,600.00	5,591.25	5,576.67	5,558.55	20.00	20.10	118.37	0.42	381.23	316.53	276.90	39.62	7.989			
5,700.00	5,691.25	5,675.98	5,657.18	20.35	20.48	117.39	0.42	392.87	326.91	286.58	40.33	8.106			
5,800.00	5,791.25	5,775.29	5,755.80	20.70	20.86	116.48	0.42	404.51	337.37	296.34	41.03	8.222			
5,900.00	5,891.25	5,874.60	5,854.43	21.06	21.24	115.62	0.42	416.16	347.92	306.18	41.74	8.336			
6,000.00	5,991.25	5,973.91	5,953.05	21.41	21.62	114.81	0.42	427.80	358.54	316.09	42.44	8.447			
6,100.00	6,091.25	6,073.22	6,051.68	21.77	21.99	114.05	0.42	439.44	369.22	326.07	43.15	8.556			
6,200.00	6,191.25	6,172.53	6,150.30	22.12	22.37	113.33	0.42	451.08	379.97	336.11	43.86	8.663			
6,300.00	6,291.25	6,271.84	6,248.93	22.47	22.75	112.65	0.42	462.72	390.77	346.21	44.57	8.768			
6,400.00	6,391.25	6,371.15	6,347.56	22.83	23.13	112.00	0.42	474.36	401.63	356.35	45.28	8.871			
6,500.00	6,491.25	6,470.46	6,446.18	23.18	23.51	111.39	0.42	486.01	412.53	366.55	45.99	8.971			
6,600.00	6,591.25	6,569.77	6,544.81	23.54	23.89	110.82	0.42	497.65	423.48	376.78	46.69	9.069			
6,700.00	6,691.25	6,669.08	6,643.43	23.89	24.28	110.27	0.42	509.29	434.46	387.06	47.40	9.165			
6,800.00	6,791.25	6,768.39	6,742.06	24.25	24.66	109.74	0.42	520.93	445.49	397.37	48.12	9.259			
6,900.00	6,891.25	6,867.71	6,840.69	24.60	25.04	109.25	0.42	532.57	456.55	407.72	48.83	9.350			
7,000.00	6,991.25	6,967.02	6,939.31	24.96	25.42	108.78	0.42	544.21	467.64	418.10	49.54	9.440			
7,100.00	7,091.25	7,066.33	7,037.94	25.31	25.80	108.32	0.42	555.86	478.76	428.51	50.25	9.528			
7,200.00	7,191.25	7,165.64	7,136.56	25.67	26.18	107.89	0.42	567.50	489.91	438.95	50.96	9.613			
7,300.00	7,291.25	7,264.95	7,235.19	26.03	26.57	107.48	0.42	579.14	501.08	449.41	51.67	9.697			
7,400.00	7,391.25	7,364.26	7,333.81	26.38	26.95	107.09	0.42	590.78	512.28	459.90	52.39	9.779			
7,500.00	7,491.25	7,463.57	7,432.44	26.74	27.33	106.71	0.42	602.42	523.51	470.41	53.10	9.859			
7,600.00	7,591.25	7,562.88	7,531.07	27.09	27.72	106.35	0.42	614.07	534.75	480.94	53.81	9.937			
7,700.00	7,691.25	7,662.19	7,629.69	27.45	28.10	106.00	0.42	625.71	546.02	491.49	54.53	10.014			
7,800.00	7,791.25	7,761.50	7,728.32	27.80	28.48	105.67	0.42	637.35	557.30	502.06	55.24	10.089			
7,900.00	7,891.25	7,860.81	7,826.94	28.16	28.87	105.35	0.42	648.99	568.60	512.65	55.95	10.162			
8,000.00	7,991.25	7,960.12	7,925.57	28.52	29.25	105.05	0.42	660.63	579.92	523.25	56.67	10.234			
8,100.00	8,091.25	8,059.43	8,024.20	28.87	29.63	104.75	0.42	672.27	591.25	533.87	57.38	10.304			
8,200.00	8,191.25	8,158.74	8,122.82	29.23	30.02	104.47	0.42	683.92	602.60	544.50	58.10	10.372			
8,300.00	8,291.25	8,268.91	8,232.34	29.58	30.44	104.19	0.42	695.56	613.13	554.23	58.90	10.409			
8,400.00	8,391.25	8,360.15	8,343.12	29.94	30.86	103.96	0.42	707.20	624.81	564.11	59.70	10.416			
8,500.00	8,491.25	8,461.72	8,454.43	30.30	31.27	103.79	0.42	718.84	636.61	574.13	60.48	10.394			
8,600.00	8,591.25	8,603.56	8,566.12	30.65	31.67	103.67	0.42	729.30	648.52	584.28	61.24	10.345			
8,700.00	8,691.25	8,715.58	8,678.08	31.01	32.07	103.59	0.42	739.77	660.54	594.55	61.99	10.269			
8,800.00	8,791.25	8,827.70	8,790.19	31.37	32.45	103.57	0.42	750.06	672.66	604.95	62.71	10.168			
8,900.00	8,891.25	8,928.76	8,891.25	31.72	32.79	103.57	0.42	760.07	684.66	615.25	63.41	10.056			
9,000.00	8,991.25	9,028.76	8,991.25	32.08	33.13	103.57	0.42	770.07	696.66	625.55	64.11	9.946			
9,100.00	9,091.25	9,128.76	9,091.25	32.44	33.46	103.57	0.42	780.07	708.66	635.85	64.81	9.839			
9,200.00	9,191.25	9,228.76	9,191.25	32.79	33.80	103.57	0.42	790.07	720.66	646.15	65.51	9.734			
9,300.00	9,291.25	9,328.76	9,291.25	33.15	34.14	103.57	0.42	800.07	732.66	656.45	66.21	9.631			
9,400.00	9,391.25	9,428.76	9,391.25	33.51	34.47	103.57	0.42	810.07	744.66	666.75	66.91	9.530			
9,500.00	9,491.25	9,528.76	9,491.25	33.86	34.81	103.57	0.42	820.07	756.66	677.05	67.61	9.431			
9,600.00	9,591.25	9,628.76	9,591.25	34.22	35.15	103.57	0.42	830.07	768.66	687.35	68.32	9.334			
9,700.00	9,691.25	9,728.76	9,691.25	34.58	35.49	103.57	0.42	840.07	780.66	697.64	69.02	9.239			
9,800.00	9,791.25	9,828.76	9,791.25	34.93	35.83	103.57	0.42	850.07	792.66	707.94	69.72	9.146			
9,900.00	9,891.25	9,928.76	9,891.25	35.29	36.17	103.57	0.42	860.07	804.66	718.24	70.42	9.055			

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 82H - OH - PN2														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM														Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Distance								Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
10,000.00	9,991.25	10,028.76	9,991.25	35.65	36.51	103.57	0.42	724.07	637.66	566.54	71.13	8.965			
10,100.00	10,091.25	10,128.76	10,091.25	36.00	36.85	103.57	0.42	724.07	637.66	565.83	71.83	8.877			
10,200.00	10,191.25	10,228.76	10,191.25	36.36	37.19	103.57	0.42	724.07	637.66	565.13	72.53	8.791			
10,300.00	10,291.25	10,328.76	10,291.25	36.72	37.53	103.57	0.42	724.07	637.66	564.42	73.24	8.707			
10,400.00	10,391.25	10,428.76	10,391.25	37.08	37.87	103.57	0.42	724.07	637.66	563.72	73.94	8.624			
10,500.00	10,491.25	10,528.76	10,491.25	37.43	38.21	103.57	0.42	724.07	637.66	563.02	74.65	8.542			
10,600.00	10,591.25	10,628.76	10,591.25	37.79	38.55	103.57	0.42	724.07	637.66	562.31	75.35	8.462			
10,700.00	10,691.25	10,728.76	10,691.25	38.15	38.90	103.57	0.42	724.07	637.66	561.61	76.06	8.384			
10,800.00	10,791.25	10,828.76	10,791.25	38.50	39.24	103.57	0.42	724.07	637.66	560.90	76.76	8.307			
10,900.00	10,891.25	10,928.76	10,891.25	38.86	39.58	103.57	0.42	724.07	637.66	560.20	77.47	8.231			
11,000.00	10,991.25	11,028.76	10,991.25	39.22	39.92	103.57	0.42	724.07	637.66	559.49	78.17	8.157			
11,100.00	11,091.25	11,128.76	11,091.25	39.58	40.27	103.57	0.42	724.07	637.66	558.79	78.88	8.084			
11,200.00	11,191.25	11,228.76	11,191.25	39.93	40.61	103.57	0.42	724.07	637.66	558.08	79.58	8.012			
11,300.00	11,291.25	11,328.76	11,291.25	40.29	40.95	103.57	0.42	724.07	637.66	557.37	80.29	7.942			
11,400.00	11,391.25	11,428.76	11,391.25	40.65	41.30	103.57	0.42	724.07	637.66	556.67	81.00	7.873			
11,500.00	11,491.25	11,528.76	11,491.25	41.00	41.64	103.57	0.42	724.07	637.66	555.96	81.70	7.805			
11,600.00	11,591.25	11,628.76	11,591.25	41.36	41.99	103.57	0.42	724.07	637.66	555.25	82.41	7.738			
11,700.00	11,691.25	11,728.76	11,691.25	41.72	42.33	103.57	0.42	724.07	637.66	554.55	83.12	7.672			
11,800.00	11,791.25	11,828.76	11,791.25	42.08	42.68	103.57	0.42	724.07	637.66	553.84	83.82	7.607			
11,900.00	11,891.25	11,928.76	11,891.25	42.43	43.02	103.57	0.42	724.07	637.66	553.13	84.53	7.544			
11,902.60	11,893.85	11,931.36	11,893.85	42.44	43.03	103.57	0.42	724.07	637.66	553.11	84.55	7.542			
12,000.00	11,991.25	12,016.81	11,979.26	42.79	43.32	103.72	-1.37	724.07	638.20	552.99	85.21	7.490			
12,100.00	12,091.25	12,094.29	12,055.84	43.15	43.57	104.71	-12.69	724.07	641.84	556.03	85.81	7.480			
12,200.00	12,191.25	12,167.48	12,126.18	43.51	43.80	106.43	-32.77	724.07	649.52	563.23	86.29	7.527			
12,300.00	12,291.25	12,234.60	12,187.95	43.86	43.99	108.63	-58.93	724.07	662.24	575.69	86.56	7.651			
12,400.00	12,391.25	12,294.78	12,240.39	44.22	44.16	111.04	-88.38	724.07	681.05	594.53	86.52	7.872			
12,500.00	12,491.25	12,350.00	12,285.56	44.58	44.30	113.55	-120.11	724.07	706.76	620.62	86.14	8.204			
12,600.00	12,591.25	12,400.00	12,323.65	44.94	44.41	116.01	-152.48	724.07	739.82	654.39	85.44	8.659			
12,700.00	12,691.25	12,434.95	12,348.53	45.29	44.49	117.81	-177.01	724.07	780.15	695.94	84.20	9.265			
12,767.75	12,759.00	12,459.39	12,365.02	45.54	44.54	119.10	-195.05	724.07	811.49	728.17	83.32	9.740			
12,800.00	12,791.23	12,470.60	12,372.33	45.64	44.56	-58.78	-203.55	724.07	827.09	744.23	82.86	9.982			
12,850.00	12,840.97	12,488.37	12,383.56	45.80	44.60	-55.68	-217.32	724.07	850.94	768.80	82.13	10.360			
12,900.00	12,890.08	12,500.00	12,390.68	45.96	44.63	-53.07	-226.52	724.07	874.19	792.95	81.23	10.762			
12,950.00	12,938.19	12,525.10	12,405.39	46.10	44.67	-50.21	-246.85	724.07	896.45	815.81	80.64	11.117			
13,000.00	12,984.94	12,550.00	12,419.10	46.24	44.73	-47.69	-267.64	724.07	917.72	837.69	80.04	11.466			
13,050.00	13,029.97	12,563.09	12,425.93	46.37	44.75	-45.77	-278.80	724.07	937.65	858.49	79.16	11.845			
13,100.00	13,072.94	12,582.45	12,435.58	46.50	44.79	-43.92	-295.59	724.07	956.20	877.76	78.44	12.191			
13,150.00	13,113.52	12,600.00	12,443.82	46.61	44.82	-42.35	-311.08	724.07	973.21	895.50	77.70	12.525			
13,200.00	13,151.40	12,621.74	12,453.38	46.71	44.87	-40.92	-330.61	724.07	988.53	911.45	77.09	12.824			
13,250.00	13,186.29	12,650.00	12,464.67	46.82	44.92	-39.64	-356.51	724.07	1,002.18	925.55	76.63	13.078			
13,300.00	13,217.94	12,650.00	12,464.67	46.93	44.92	-38.87	-356.51	724.07	1,013.97	938.28	75.69	13.396			
13,350.00	13,246.08	12,681.70	12,475.81	47.04	44.99	-37.97	-386.18	724.07	1,023.60	948.21	75.40	13.576			
13,400.00	13,270.53	12,700.00	12,481.48	47.15	45.03	-37.36	-403.58	724.07	1,031.42	956.49	74.93	13.766			
13,450.00	13,291.08	12,722.10	12,487.59	47.25	45.08	-36.90	-424.82	724.07	1,037.21	962.62	74.59	13.906			
13,500.00	13,307.58	12,750.00	12,494.12	47.35	45.14	-36.59	-451.94	724.07	1,041.02	966.62	74.40	13.992			
13,550.00	13,319.90	12,750.00	12,494.12	47.45	45.14	-36.48	-451.94	724.07	1,042.80	968.82	73.98	14.095			
13,600.00	13,327.96	12,782.96	12,500.13	47.54	45.21	-36.51	-484.34	724.07	1,042.20	968.18	74.01	14.081			
13,650.00	13,331.68	12,800.00	12,502.50	47.64	45.25	-36.70	-501.22	724.07	1,039.71	965.72	73.99	14.052			
13,664.83	13,331.95	12,800.00	12,502.50	47.66	45.25	-36.76	-501.22	724.07	1,038.66	964.68	73.98	14.040			
13,700.00	13,332.13	12,823.54	12,504.95	47.73	45.31	-36.84	-524.62	724.07	1,035.99	961.89	74.10	13.981			
13,800.00	13,332.64	12,864.41	12,506.91	47.95	45.41	-36.89	-565.44	724.07	1,032.55	958.18	74.38	13.882			
13,810.64	13,332.69	12,872.56	12,506.95	47.98	45.43	-36.89	-568.21	724.07	1,032.52	958.09	74.43	13.873			

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 82H - OH - PN2													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore +N/-S (ft)	+E/-W (ft)					
13,900.00	13,333.15	12,956.54	12,507.20	48.21	45.66	-36.89	-657.57	724.07	1,032.68	957.88	74.80	13.806	
14,000.00	13,333.86	13,056.54	12,507.49	48.51	45.98	-36.88	-757.57	724.07	1,032.86	957.58	75.28	13.720	
14,100.00	13,334.17	13,156.54	12,507.78	48.85	46.33	-36.87	-857.57	724.07	1,033.04	957.23	75.82	13.625	
14,200.00	13,334.68	13,256.54	12,508.06	49.23	46.73	-36.87	-957.57	724.07	1,033.22	956.81	76.41	13.522	
14,300.00	13,335.19	13,356.54	12,508.35	49.65	47.16	-36.86	-1,057.56	724.07	1,033.40	956.34	77.06	13.411	
14,400.00	13,335.70	13,456.54	12,508.63	50.10	47.64	-36.85	-1,157.56	724.07	1,033.58	955.82	77.76	13.292	
14,500.00	13,336.21	13,556.54	12,508.92	50.60	48.15	-36.84	-1,257.56	724.07	1,033.76	955.25	78.51	13.168	
14,600.00	13,336.72	13,656.54	12,509.21	51.13	48.70	-36.84	-1,357.56	724.07	1,033.94	954.63	79.31	13.037	
14,700.00	13,337.23	13,756.54	12,509.49	51.69	49.28	-36.83	-1,457.56	724.07	1,034.12	953.96	80.16	12.901	
14,800.00	13,337.74	13,856.54	12,509.78	52.28	49.90	-36.82	-1,557.56	724.07	1,034.30	953.24	81.06	12.760	
14,900.00	13,338.26	13,956.54	12,510.06	52.91	50.55	-36.81	-1,657.56	724.07	1,034.48	952.48	82.00	12.616	
15,000.00	13,338.77	14,056.53	12,510.35	53.57	51.24	-36.81	-1,757.56	724.07	1,034.66	951.68	82.98	12.468	
15,100.00	13,339.28	14,156.53	12,510.64	54.26	51.95	-36.80	-1,857.56	724.07	1,034.84	950.83	84.01	12.318	
15,200.00	13,339.79	14,256.53	12,510.92	54.98	52.69	-36.79	-1,957.56	724.07	1,035.02	949.94	85.08	12.166	
15,300.00	13,340.30	14,356.53	12,511.21	55.72	53.47	-36.78	-2,057.56	724.07	1,035.20	949.01	86.18	12.011	
15,400.00	13,340.81	14,456.53	12,511.49	56.49	54.26	-36.78	-2,157.56	724.07	1,035.38	948.05	87.33	11.856	
15,500.00	13,341.32	14,556.53	12,511.78	57.29	55.09	-36.77	-2,257.56	724.07	1,035.56	947.05	88.51	11.700	
15,600.00	13,341.83	14,656.53	12,512.07	58.11	55.94	-36.76	-2,357.56	724.07	1,035.74	946.01	89.73	11.543	
15,700.00	13,342.34	14,756.53	12,512.35	58.96	56.81	-36.75	-2,457.56	724.07	1,035.92	944.94	90.97	11.387	
15,800.00	13,342.85	14,856.53	12,512.64	59.83	57.70	-36.75	-2,557.55	724.07	1,036.10	943.84	92.25	11.231	
15,900.00	13,343.36	14,956.53	12,512.92	60.72	58.62	-36.74	-2,657.55	724.07	1,036.28	942.71	93.56	11.076	
16,000.00	13,343.87	15,056.53	12,513.21	61.63	59.55	-36.73	-2,757.55	724.07	1,036.46	941.55	94.90	10.921	
16,100.00	13,344.38	15,156.53	12,513.50	62.55	60.51	-36.72	-2,857.55	724.07	1,036.64	940.36	96.27	10.768	
16,200.00	13,344.89	15,256.53	12,513.78	63.50	61.48	-36.72	-2,957.55	724.07	1,036.82	939.15	97.67	10.616	
16,300.00	13,345.40	15,356.53	12,514.07	64.47	62.48	-36.71	-3,057.55	724.07	1,037.00	937.91	99.09	10.465	
16,400.00	13,345.91	15,456.53	12,514.35	65.45	63.48	-36.70	-3,157.55	724.07	1,037.18	936.64	100.53	10.317	
16,500.00	13,346.42	15,556.53	12,514.64	66.45	64.51	-36.69	-3,257.55	724.07	1,037.36	935.35	102.00	10.170	
16,600.00	13,346.93	15,656.53	12,514.93	67.47	65.55	-36.69	-3,357.55	724.07	1,037.54	934.04	103.49	10.025	
16,700.00	13,347.44	15,756.53	12,515.21	68.50	66.60	-36.68	-3,457.55	724.07	1,037.72	932.71	105.00	9.883	
16,800.00	13,347.95	15,856.53	12,515.50	69.54	67.67	-36.67	-3,557.55	724.07	1,037.90	931.36	106.54	9.742	
16,900.00	13,348.46	15,956.53	12,515.78	70.60	68.76	-36.67	-3,657.55	724.07	1,038.08	929.99	108.09	9.604	
17,000.00	13,348.97	16,056.53	12,516.07	71.67	69.85	-36.66	-3,757.55	724.07	1,038.26	928.59	109.66	9.468	
17,100.00	13,349.48	16,156.53	12,516.36	72.76	70.96	-36.65	-3,857.55	724.07	1,038.44	927.19	111.25	9.334	
17,200.00	13,349.99	16,256.53	12,516.64	73.85	72.08	-36.64	-3,957.55	724.07	1,038.62	925.76	112.86	9.203	
17,300.00	13,350.50	16,356.53	12,516.93	74.96	73.21	-36.64	-4,057.54	724.07	1,038.80	924.32	114.48	9.074	
17,400.00	13,351.02	16,456.53	12,517.21	76.08	74.35	-36.63	-4,157.54	724.07	1,038.98	922.86	116.12	8.948	
17,500.00	13,351.53	16,556.53	12,517.50	77.21	75.50	-36.62	-4,257.54	724.07	1,039.16	921.38	117.77	8.824	
17,600.00	13,352.04	16,656.53	12,517.79	78.35	76.65	-36.61	-4,357.54	724.07	1,039.34	919.90	119.44	8.702	
17,700.00	13,352.55	16,756.53	12,518.07	79.49	77.82	-36.61	-4,457.54	724.07	1,039.52	918.39	121.12	8.582	
17,800.00	13,353.06	16,856.53	12,518.36	80.65	79.00	-36.60	-4,557.54	724.07	1,039.70	916.88	122.82	8.465	
17,900.00	13,353.57	16,956.53	12,518.64	81.82	80.19	-36.59	-4,657.54	724.07	1,039.88	915.35	124.52	8.351	
18,000.00	13,354.08	17,056.53	12,518.93	82.99	81.38	-36.58	-4,757.54	724.07	1,040.06	913.81	126.24	8.238	
18,100.00	13,354.59	17,156.53	12,519.22	84.18	82.58	-36.58	-4,857.54	724.07	1,040.24	912.26	127.98	8.128	
18,200.00	13,355.10	17,256.53	12,519.50	85.37	83.79	-36.57	-4,957.54	724.07	1,040.42	910.70	129.72	8.021	
18,300.00	13,355.61	17,356.53	12,519.79	86.56	85.01	-36.56	-5,057.54	724.07	1,040.60	909.12	131.47	7.915	
18,400.00	13,356.12	17,456.53	12,520.07	87.77	86.23	-36.55	-5,157.54	724.07	1,040.78	907.54	133.24	7.812	
18,500.00	13,356.63	17,556.53	12,520.36	88.98	87.46	-36.55	-5,257.54	724.07	1,040.96	905.95	135.01	7.710	
18,600.00	13,357.14	17,656.53	12,520.65	90.20	88.69	-36.54	-5,357.54	724.07	1,041.14	904.35	136.79	7.611	
18,700.00	13,357.65	17,756.53	12,520.93	91.42	89.93	-36.53	-5,457.54	724.07	1,041.32	902.73	138.58	7.514	
18,800.00	13,358.16	17,856.53	12,521.22	92.65	91.18	-36.53	-5,557.53	724.07	1,041.50	901.11	140.38	7.419	
18,900.00	13,358.67	17,956.53	12,521.51	93.89	92.43	-36.52	-5,657.53	724.07	1,041.68	899.48	142.19	7.326	
19,000.00	13,359.18	18,056.52	12,521.79	95.13	93.69	-36.51	-5,757.53	724.07	1,041.86	897.85	144.01	7.235	

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



Nabors Corporate Services
Anticollision Report



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 82H - OH - PN2														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM														Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
19,100.00	13,359.69	18,156.52	12,522.08	96.38	94.95	-36.50	-5,857.53	724.07	1,042.04	896.20	145.84	7.145			
19,200.00	13,360.20	18,256.52	12,522.36	97.63	96.22	-36.50	-5,957.53	724.07	1,042.22	894.55	147.67	7.058			
19,300.00	13,360.71	18,356.52	12,522.65	98.89	97.49	-36.49	-6,057.53	724.07	1,042.40	892.89	149.51	6.972			
19,400.00	13,361.22	18,456.52	12,522.94	100.15	98.77	-36.48	-6,157.53	724.07	1,042.58	891.23	151.35	6.888			
19,500.00	13,361.73	18,556.52	12,523.22	101.42	100.05	-36.47	-6,257.53	724.07	1,042.76	889.55	153.21	6.806			
19,600.00	13,362.24	18,656.52	12,523.51	102.69	101.33	-36.47	-6,357.53	724.07	1,042.94	887.87	155.07	6.726			
19,700.00	13,362.75	18,756.52	12,523.79	103.96	102.62	-36.46	-6,457.53	724.07	1,043.12	886.19	156.93	6.647			
19,800.00	13,363.26	18,856.52	12,524.08	105.24	103.91	-36.45	-6,557.53	724.07	1,043.30	884.50	158.80	6.570			
19,900.00	13,363.78	18,956.52	12,524.37	106.53	105.21	-36.44	-6,657.53	724.07	1,043.48	882.80	160.68	6.494			
20,000.00	13,364.29	19,056.52	12,524.65	107.81	106.51	-36.44	-6,757.53	724.07	1,043.66	881.10	162.56	6.420			
20,100.00	13,364.80	19,156.52	12,524.94	109.10	107.81	-36.43	-6,857.53	724.07	1,043.84	879.39	164.45	6.347			
20,200.00	13,365.31	19,256.52	12,525.22	110.40	109.12	-36.42	-6,957.53	724.07	1,044.02	877.68	166.34	6.276			
20,300.00	13,365.82	19,356.52	12,525.51	111.70	110.43	-36.42	-7,057.52	724.07	1,044.20	875.96	168.24	6.207			
20,400.00	13,366.33	19,456.52	12,525.80	113.00	111.74	-36.41	-7,157.52	724.07	1,044.38	874.24	170.14	6.138			
20,500.00	13,366.84	19,556.52	12,526.08	114.30	113.06	-36.40	-7,257.52	724.07	1,044.57	872.52	172.05	6.071			
20,600.00	13,367.35	19,656.52	12,526.37	115.61	114.37	-36.39	-7,357.52	724.07	1,044.75	870.79	173.96	6.006			
20,700.00	13,367.86	19,756.52	12,526.65	116.92	115.70	-36.39	-7,457.52	724.07	1,044.93	869.05	175.88	5.941			
20,800.00	13,368.37	19,856.52	12,526.94	118.23	117.02	-36.38	-7,557.52	724.07	1,045.11	867.31	177.79	5.878			
20,900.00	13,368.88	19,956.52	12,527.23	119.55	118.35	-36.37	-7,657.52	724.07	1,045.29	865.57	179.72	5.816			
21,000.00	13,369.39	20,056.52	12,527.51	120.87	119.67	-36.36	-7,757.52	724.07	1,045.47	863.82	181.65	5.756			
21,100.00	13,369.90	20,156.52	12,527.80	122.19	121.01	-36.36	-7,857.52	724.07	1,045.65	862.07	183.58	5.696			
21,200.00	13,370.41	20,256.52	12,528.08	123.51	122.34	-36.35	-7,957.52	724.07	1,045.83	860.32	185.51	5.638			
21,300.00	13,370.92	20,356.52	12,528.37	124.84	123.67	-36.34	-8,057.52	724.07	1,046.01	858.56	187.45	5.580			
21,400.00	13,371.43	20,456.52	12,528.66	126.17	125.01	-36.33	-8,157.52	724.07	1,046.19	856.80	189.39	5.524			
21,500.00	13,371.94	20,556.52	12,528.94	127.50	126.35	-36.33	-8,257.52	724.07	1,046.37	855.04	191.33	5.469			
21,600.00	13,372.45	20,656.52	12,529.23	128.83	127.69	-36.32	-8,357.52	724.07	1,046.55	853.27	193.28	5.415			
21,700.00	13,372.96	20,756.52	12,529.51	130.16	129.04	-36.31	-8,457.52	724.07	1,046.73	851.50	195.23	5.362			
21,800.00	13,373.47	20,856.52	12,529.80	131.50	130.38	-36.31	-8,557.52	724.07	1,046.91	849.73	197.18	5.309			
21,900.00	13,373.98	20,956.52	12,530.09	132.84	131.73	-36.30	-8,657.51	724.07	1,047.10	847.96	199.14	5.258			
22,000.00	13,374.49	21,056.52	12,530.37	134.18	133.08	-36.29	-8,757.51	724.07	1,047.28	846.18	201.10	5.208			
22,100.00	13,375.00	21,156.52	12,530.66	135.53	134.43	-36.28	-8,857.51	724.07	1,047.46	844.40	203.06	5.158			
22,200.00	13,375.51	21,256.52	12,530.94	136.87	135.79	-36.28	-8,957.51	724.07	1,047.64	842.61	205.02	5.110			
22,300.00	13,376.03	21,356.52	12,531.23	138.22	137.14	-36.27	-9,057.51	724.07	1,047.82	840.83	206.99	5.062			
22,400.00	13,376.54	21,456.52	12,531.52	139.57	138.50	-36.26	-9,157.51	724.07	1,048.00	839.04	208.96	5.015			
22,500.00	13,377.05	21,556.52	12,531.80	140.92	139.86	-36.25	-9,257.51	724.07	1,048.18	837.25	210.93	4.969			
22,600.00	13,377.56	21,656.52	12,532.09	142.27	141.22	-36.25	-9,357.51	724.07	1,048.36	835.46	212.90	4.924			
22,700.00	13,378.07	21,756.52	12,532.37	143.62	142.58	-36.24	-9,457.51	724.07	1,048.54	833.66	214.88	4.880			
22,800.00	13,378.58	21,856.52	12,532.66	144.98	143.94	-36.23	-9,557.51	724.07	1,048.72	831.87	216.86	4.836			
22,900.00	13,379.09	21,956.52	12,532.95	146.33	145.30	-36.23	-9,657.51	724.07	1,048.90	830.07	218.84	4.793			
23,000.00	13,379.60	22,056.52	12,533.23	147.69	146.67	-36.22	-9,757.51	724.07	1,049.09	828.27	220.82	4.751			
23,100.00	13,380.11	22,156.51	12,533.52	149.05	148.03	-36.21	-9,857.51	724.07	1,049.27	826.47	222.80	4.709			
23,200.00	13,380.62	22,256.51	12,533.80	150.41	149.40	-36.20	-9,957.51	724.07	1,049.45	824.66	224.78	4.669			
23,274.76	13,381.00	22,325.03	12,534.00	151.43	150.34	-36.20	-10,026.02	724.07	1,049.60	823.32	226.28	4.638			



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 92H - OH - PN2												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM												Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
0.00	0.00	0.10	-0.10	2.00	2.00	89.58	0.87	119.99	119.99				
100.00	100.00	100.10	99.90	2.00	2.00	89.58	0.87	119.99	119.99	115.99	4.01	29.943	
200.00	200.00	200.10	199.90	2.06	2.06	89.58	0.87	119.99	119.99	115.88	4.11	29.168	
300.00	300.00	300.10	299.90	2.17	2.17	89.58	0.87	119.99	119.99	115.66	4.34	27.663	
400.00	400.00	400.10	399.90	2.33	2.33	89.58	0.87	119.99	119.99	115.33	4.66	25.738	
500.00	500.00	500.10	499.90	2.53	2.53	89.58	0.87	119.99	119.99	114.93	5.07	23.677	
600.00	600.00	600.10	599.90	2.77	2.77	89.58	0.87	119.99	119.99	114.46	5.54	21.671	
700.00	700.00	700.10	699.90	3.03	3.03	89.58	0.87	119.99	119.99	113.94	6.06	19.817	
800.00	800.00	800.10	799.90	3.31	3.31	89.58	0.87	119.99	119.99	113.38	6.61	18.152	
900.00	900.00	900.10	899.90	3.60	3.60	89.58	0.87	119.99	119.99	112.80	7.19	16.679	
1,000.00	1,000.00	1,000.10	999.90	3.90	3.90	89.58	0.87	119.99	119.99	112.19	7.80	15.383	
1,100.00	1,100.00	1,100.10	1,099.90	4.21	4.21	89.58	0.87	119.99	119.99	111.57	8.42	14.245	
1,200.00	1,200.00	1,200.10	1,199.90	4.53	4.53	89.58	0.87	119.99	119.99	110.93	9.06	13.243	
1,300.00	1,300.00	1,300.10	1,299.90	4.85	4.85	89.58	0.87	119.99	119.99	110.28	9.71	12.358	
1,400.00	1,400.00	1,400.10	1,399.90	5.18	5.18	89.58	0.87	119.99	119.99	109.63	10.37	11.574	
1,500.00	1,500.00	1,499.90	1,499.90	5.52	5.52	89.58	0.87	119.99	119.99	108.96	11.03	10.877 CC, ES	
1,600.00	1,600.00	1,597.85	1,597.85	5.85	5.84	89.54	0.97	120.82	120.84	109.15	11.69	10.340	
1,700.00	1,700.00	1,695.75	1,695.71	6.19	6.16	89.42	1.25	123.31	123.39	111.05	12.34	10.001	
1,800.00	1,800.00	1,793.53	1,793.40	6.53	6.48	89.22	1.73	127.46	127.63	114.64	12.99	9.825	
1,810.00	1,810.00	1,803.30	1,803.15	6.56	6.51	89.20	1.79	127.96	128.15	115.10	13.06	9.815	
1,900.00	1,900.00	1,891.16	1,890.86	6.87	6.80	54.38	2.40	133.25	133.17	119.52	13.64	9.761	
2,000.00	1,999.97	1,988.66	1,988.06	7.21	7.13	54.82	3.26	140.68	139.38	125.09	14.29	9.752	
2,100.00	2,099.88	2,085.98	2,084.96	7.55	7.46	55.68	4.31	149.73	146.31	131.36	14.94	9.792	
2,200.00	2,199.70	2,183.10	2,181.49	7.90	7.80	56.89	5.55	160.39	153.99	138.40	15.59	9.877	
2,300.00	2,299.40	2,280.00	2,277.60	8.25	8.14	58.39	6.97	172.65	162.49	146.25	16.24	10.006	
2,400.00	2,398.96	2,377.49	2,374.08	8.59	8.49	60.12	8.57	186.53	171.80	154.90	16.90	10.167	
2,436.97	2,435.72	2,414.23	2,410.41	8.72	8.63	60.84	9.20	191.92	175.22	158.07	17.15	10.214	
2,500.00	2,498.37	2,476.87	2,472.37	8.94	8.85	62.10	10.26	201.09	181.03	163.44	17.59	10.290	
2,600.00	2,597.77	2,576.25	2,570.67	9.30	9.22	63.95	11.94	215.65	190.40	172.11	18.29	10.409	
2,700.00	2,697.18	2,675.63	2,668.96	9.65	9.59	65.63	13.63	230.21	199.96	180.96	19.00	10.525	
2,800.00	2,796.58	2,775.01	2,767.25	10.01	9.96	67.15	15.31	244.76	209.66	189.96	19.71	10.639	
2,900.00	2,895.98	2,874.39	2,865.55	10.37	10.33	68.54	17.00	259.32	219.51	199.08	20.42	10.749	
3,000.00	2,995.38	2,973.77	2,963.84	10.74	10.71	69.80	18.68	273.88	229.46	208.32	21.14	10.855	
3,100.00	3,094.78	3,073.15	3,062.13	11.10	11.09	70.97	20.37	288.44	239.52	217.66	21.86	10.958	
3,200.00	3,194.19	3,172.53	3,160.43	11.46	11.47	72.03	22.05	302.99	249.67	227.09	22.58	11.056	
3,300.00	3,293.59	3,271.91	3,258.72	11.83	11.86	73.02	23.74	317.55	259.90	236.59	23.31	11.149	
3,400.00	3,392.99	3,371.29	3,357.01	12.20	12.24	73.93	25.42	332.11	270.20	246.16	24.04	11.239	
3,481.78	3,474.28	3,452.57	3,437.40	12.50	12.56	74.62	26.80	344.01	278.67	254.03	24.64	11.310	
3,500.00	3,492.39	3,470.67	3,455.31	12.57	12.63	74.78	27.11	346.67	280.57	255.80	24.77	11.326	
3,600.00	3,591.92	3,570.06	3,553.61	12.93	13.02	75.44	28.79	361.22	291.29	265.78	25.50	11.421	
3,700.00	3,691.60	3,669.43	3,651.89	13.30	13.40	75.74	30.48	375.78	302.45	276.22	26.23	11.530	
3,800.00	3,791.40	3,768.75	3,750.12	13.66	13.79	75.73	32.16	390.33	314.05	287.09	26.95	11.651	
3,900.00	3,891.30	3,867.99	3,848.28	14.02	14.19	75.42	33.84	404.87	326.08	298.41	27.67	11.785	
4,000.00	3,991.26	3,967.13	3,946.34	14.37	14.58	74.87	35.52	419.39	338.58	310.20	28.38	11.930	
4,108.75	4,100.00	4,074.79	4,052.82	14.75	15.00	108.80	37.35	435.16	352.76	323.61	29.15	12.103	
4,200.00	4,191.25	4,165.04	4,142.08	15.07	15.36	107.89	38.88	448.38	364.98	335.20	29.79	12.253	
4,300.00	4,291.25	4,263.94	4,239.91	15.42	15.75	106.97	40.56	462.87	378.48	347.99	30.49	12.413	
4,400.00	4,391.25	4,362.85	4,337.73	15.77	16.15	106.11	42.23	477.35	392.06	360.86	31.20	12.568	
4,500.00	4,491.25	4,461.76	4,435.56	16.12	16.54	105.31	43.91	491.84	405.72	373.82	31.90	12.719	
4,600.00	4,591.25	4,560.67	4,533.38	16.47	16.94	104.56	45.59	506.33	419.46	386.85	32.61	12.864	
4,700.00	4,691.25	4,659.57	4,631.21	16.82	17.33	103.85	47.26	520.82	433.26	399.95	33.31	13.006	
4,800.00	4,791.25	4,758.48	4,729.04	17.18	17.73	103.19	48.94	535.31	447.13	413.11	34.02	13.143	

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 92H - OH - PN2													Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,900.00	4,891.25	4,857.39	4,826.86	17.53	18.12	102.57	50.62	549.79	461.05	426.32	34.73	13.276		
5,000.00	4,991.25	4,956.29	4,924.69	17.88	18.52	101.99	52.29	564.28	475.01	439.58	35.44	13.404		
5,100.00	5,091.25	5,055.20	5,022.51	18.23	18.92	101.44	53.97	578.77	489.03	452.88	36.15	13.529		
5,200.00	5,191.25	5,154.11	5,120.34	18.58	19.32	100.92	55.65	593.26	503.08	466.23	36.86	13.649		
5,300.00	5,291.25	5,253.01	5,218.16	18.94	19.71	100.43	57.33	607.75	517.18	479.61	37.57	13.766		
5,400.00	5,391.25	5,351.92	5,315.99	19.29	20.11	99.96	59.00	622.23	531.31	493.03	38.28	13.879		
5,500.00	5,491.25	5,450.83	5,413.81	19.64	20.51	99.52	60.68	636.72	545.47	506.48	38.99	13.989		
5,600.00	5,591.25	5,549.73	5,511.64	20.00	20.91	99.10	62.36	651.21	559.66	519.96	39.70	14.096		
5,700.00	5,691.25	5,648.64	5,609.47	20.35	21.31	98.70	64.03	665.70	573.88	533.47	40.42	14.199		
5,800.00	5,791.25	5,747.55	5,707.29	20.70	21.71	98.33	65.71	680.19	588.13	547.00	41.13	14.299		
5,900.00	5,891.25	5,846.45	5,805.12	21.06	22.11	97.96	67.39	694.67	602.40	560.55	41.85	14.396		
6,000.00	5,991.25	5,945.36	5,902.94	21.41	22.51	97.62	69.06	709.16	616.69	574.13	42.56	14.490		
6,100.00	6,091.25	6,044.27	6,000.77	21.77	22.91	97.29	70.74	723.65	631.01	587.73	43.27	14.581		
6,200.00	6,191.25	6,143.17	6,098.59	22.12	23.31	96.98	72.42	738.14	645.34	601.35	43.99	14.670		
6,300.00	6,291.25	6,242.08	6,196.42	22.47	23.71	96.68	74.09	752.63	659.69	614.99	44.71	14.756		
6,400.00	6,391.25	6,340.99	6,294.24	22.83	24.11	96.39	75.77	767.11	674.06	628.64	45.42	14.840		
6,500.00	6,491.25	6,439.89	6,392.07	23.18	24.51	96.11	77.45	781.60	688.44	642.31	46.14	14.922		
6,600.00	6,591.25	6,538.80	6,489.90	23.54	24.91	95.85	79.13	796.09	702.84	655.99	46.85	15.001		
6,700.00	6,691.25	6,637.71	6,587.72	23.89	25.32	95.59	80.80	810.58	717.26	669.69	47.57	15.078		
6,800.00	6,791.25	6,736.62	6,685.55	24.25	25.72	95.35	82.48	825.07	731.68	683.39	48.29	15.153		
6,900.00	6,891.25	6,835.52	6,783.37	24.60	26.12	95.12	84.16	839.55	746.12	697.12	49.00	15.225		
7,000.00	6,991.25	6,934.43	6,881.20	24.96	26.52	94.89	85.83	854.04	760.57	710.85	49.72	15.296		
7,100.00	7,091.25	7,033.34	6,979.02	25.31	26.92	94.67	87.51	868.53	775.03	724.59	50.44	15.365		
7,200.00	7,191.25	7,132.24	7,076.85	25.67	27.33	94.46	89.19	883.02	789.51	738.35	51.16	15.433		
7,300.00	7,291.25	7,231.15	7,174.67	26.03	27.73	94.26	90.86	897.51	803.99	752.11	51.88	15.498		
7,400.00	7,391.25	7,330.06	7,272.50	26.38	28.13	94.07	92.54	911.99	818.48	765.89	52.60	15.562		
7,500.00	7,491.25	7,428.96	7,370.33	26.74	28.54	93.88	94.22	926.48	832.98	779.67	53.31	15.624		
7,600.00	7,591.25	7,527.87	7,468.15	27.09	28.94	93.70	95.89	940.97	847.49	793.46	54.03	15.685		
7,700.00	7,691.25	7,626.78	7,565.98	27.45	29.34	93.52	97.57	955.46	862.01	807.26	54.75	15.744		
7,800.00	7,791.25	7,725.68	7,663.80	27.80	29.74	93.35	99.25	969.95	876.53	821.06	55.47	15.801		
7,900.00	7,891.25	7,824.59	7,761.63	28.16	30.15	93.19	100.93	984.43	891.07	834.87	56.19	15.858		
8,000.00	7,991.25	7,923.50	7,859.45	28.52	30.55	93.03	102.60	998.92	905.60	848.69	56.91	15.912		
8,100.00	8,091.25	8,022.40	7,957.28	28.87	30.95	92.88	104.28	1,013.41	920.15	862.52	57.63	15.966		
8,200.00	8,191.25	8,121.31	8,055.10	29.23	31.36	92.73	105.96	1,027.90	934.70	876.35	58.35	16.018		
8,300.00	8,291.25	8,220.22	8,152.93	29.58	31.76	92.59	107.63	1,042.39	949.26	890.19	59.07	16.069		
8,400.00	8,391.25	8,319.12	8,250.76	29.94	32.17	92.45	109.31	1,056.88	963.82	904.03	59.79	16.119		
8,500.00	8,491.25	8,418.03	8,348.58	30.30	32.57	92.31	110.99	1,071.36	978.39	917.88	60.51	16.168		
8,600.00	8,591.25	8,516.94	8,446.41	30.65	32.97	92.18	112.66	1,085.85	992.97	931.73	61.23	16.216		
8,700.00	8,691.25	8,615.84	8,544.23	31.01	33.38	92.05	114.34	1,100.34	1,007.55	945.59	61.96	16.262		
8,800.00	8,791.25	8,714.75	8,642.06	31.37	33.78	91.93	116.02	1,114.83	1,022.13	959.45	62.68	16.308		
8,900.00	8,891.25	8,813.66	8,739.88	31.72	34.18	91.81	117.69	1,129.32	1,036.72	973.32	63.40	16.352		
9,000.00	8,991.25	8,912.56	8,837.71	32.08	34.59	91.69	119.37	1,143.80	1,051.31	987.19	64.12	16.396		
9,100.00	9,091.25	9,011.47	8,935.53	32.44	34.99	91.57	121.05	1,158.29	1,065.91	1,001.07	64.84	16.439		
9,200.00	9,191.25	9,110.38	9,033.36	32.79	35.40	91.46	122.73	1,172.78	1,080.51	1,014.95	65.56	16.480		
9,300.00	9,291.25	9,209.29	9,131.19	33.15	35.80	91.35	124.40	1,187.27	1,095.12	1,028.83	66.28	16.521		
9,400.00	9,391.25	9,308.19	9,229.01	33.51	36.21	91.25	126.08	1,201.76	1,109.72	1,042.72	67.01	16.561		
9,500.00	9,491.25	9,407.10	9,326.84	33.86	36.61	91.15	127.76	1,216.24	1,124.34	1,056.61	67.73	16.600		
9,600.00	9,591.25	9,506.01	9,424.66	34.22	37.02	91.05	129.43	1,230.73	1,138.95	1,070.50	68.45	16.639		
9,700.00	9,691.25	9,604.91	9,522.49	34.58	37.42	90.95	131.11	1,245.22	1,153.57	1,084.40	69.17	16.676		
9,800.00	9,791.25	9,703.82	9,620.31	34.93	37.82	90.85	132.79	1,259.71	1,168.19	1,098.30	69.90	16.713		
9,900.00	9,891.25	9,802.73	9,718.14	35.29	38.23	90.76	134.46	1,274.20	1,182.82	1,112.20	70.62	16.749		
10,000.00	9,991.25	9,901.63	9,815.96	35.65	38.63	90.67	136.14	1,288.68	1,197.45	1,126.11	71.34	16.785		

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



Nabors Corporate Services
Anticollision Report



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 92H - OH - PN2														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM														Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
10,100.00	10,091.25	10,000.54	9,913.79	36.00	39.04	90.58	137.82	1,303.17	1,212.08	1,140.02	72.06	16.819			
10,200.00	10,191.25	10,100.55	10,011.62	36.36	39.45	90.50	139.49	1,317.66	1,226.71	1,153.92	72.79	16.852			
10,300.00	10,291.25	10,201.65	10,109.44	36.72	39.86	90.41	141.17	1,332.15	1,241.35	1,167.83	73.52	16.884			
10,400.00	10,391.25	10,302.74	10,207.27	37.08	40.28	90.33	142.85	1,346.64	1,255.99	1,181.74	74.25	16.915			
10,500.00	10,491.25	10,410.43	10,319.26	37.43	40.71	90.24	144.73	1,362.85	1,270.35	1,195.29	75.06	16.926			
10,600.00	10,591.25	10,537.84	10,445.65	37.79	41.22	90.15	146.56	1,378.70	1,282.79	1,206.84	75.95	16.890			
10,700.00	10,691.25	10,665.90	10,573.03	38.15	41.71	90.09	148.08	1,391.82	1,293.03	1,216.21	76.82	16.832			
10,800.00	10,791.25	10,794.49	10,701.19	38.50	42.18	90.03	149.27	1,402.14	1,301.05	1,223.40	77.66	16.754			
10,900.00	10,891.25	10,923.48	10,829.96	38.86	42.64	89.99	150.14	1,409.62	1,306.85	1,228.39	78.46	16.655			
11,000.00	10,991.25	11,052.75	10,959.15	39.22	43.09	89.97	150.67	1,414.22	1,310.41	1,231.17	79.24	16.537			
11,100.00	11,091.25	11,182.16	11,088.54	39.58	43.51	89.96	150.87	1,415.93	1,311.73	1,231.75	79.98	16.401			
11,200.00	11,191.25	11,284.76	11,191.15	39.93	43.84	89.96	150.87	1,415.94	1,311.74	1,231.07	80.68	16.260			
11,300.00	11,291.25	11,384.76	11,291.15	40.29	44.15	89.96	150.87	1,415.94	1,311.74	1,230.38	81.37	16.121			
11,400.00	11,391.25	11,484.76	11,391.15	40.65	44.47	89.96	150.87	1,415.94	1,311.74	1,229.68	82.06	15.985			
11,500.00	11,491.25	11,584.76	11,491.15	41.00	44.79	89.96	150.87	1,415.94	1,311.74	1,228.99	82.75	15.852			
11,600.00	11,591.25	11,684.76	11,591.15	41.36	45.11	89.96	150.87	1,415.94	1,311.74	1,228.30	83.44	15.720			
11,700.00	11,691.25	11,784.76	11,691.15	41.72	45.43	89.96	150.87	1,415.94	1,311.74	1,227.61	84.14	15.591			
11,800.00	11,791.25	11,884.76	11,791.15	42.08	45.75	89.96	150.87	1,415.94	1,311.74	1,226.91	84.83	15.463			
11,900.00	11,891.25	11,984.76	11,891.15	42.43	46.07	89.96	150.87	1,415.94	1,311.74	1,226.22	85.52	15.338			
12,000.00	11,991.25	12,084.76	11,991.15	42.79	46.39	89.96	150.87	1,415.94	1,311.74	1,225.52	86.22	15.214			
12,092.41	12,083.66	12,177.19	12,083.56	43.12	46.68	90.00	150.00	1,415.94	1,311.74	1,224.89	86.86	15.102			
12,100.00	12,091.25	12,184.76	12,091.12	43.15	46.70	90.02	149.53	1,415.94	1,311.74	1,224.83	86.91	15.093			
12,200.00	12,191.25	12,282.32	12,187.41	43.51	46.99	90.67	134.64	1,415.94	1,311.84	1,224.25	87.59	14.978			
12,300.00	12,291.25	12,372.48	12,272.98	43.86	47.24	91.90	106.54	1,415.94	1,312.59	1,224.34	88.25	14.874			
12,400.00	12,391.25	12,452.22	12,344.18	44.22	47.43	93.46	70.77	1,415.94	1,314.97	1,226.09	88.88	14.794			
12,500.00	12,491.25	12,520.72	12,400.88	44.58	47.58	95.12	32.40	1,415.94	1,320.09	1,230.65	89.44	14.759			
12,600.00	12,591.25	12,578.64	12,444.96	44.94	47.69	96.74	-5.12	1,415.94	1,328.95	1,239.06	89.89	14.785			
12,700.00	12,691.25	12,627.31	12,478.92	45.29	47.77	98.24	-39.96	1,415.94	1,342.31	1,252.14	90.17	14.887			
12,767.75	12,759.00	12,650.00	12,493.72	45.54	47.81	98.97	-57.17	1,415.94	1,354.22	1,264.00	90.22	15.011			
12,800.00	12,791.23	12,668.66	12,505.36	45.64	47.83	-79.78	-71.74	1,415.94	1,360.55	1,270.30	90.26	15.074			
12,850.00	12,840.97	12,688.93	12,517.48	45.80	47.86	-78.12	-88.00	1,415.94	1,370.81	1,280.59	90.22	15.194			
12,900.00	12,890.08	12,709.55	12,529.19	45.96	47.89	-76.46	-104.96	1,415.94	1,381.42	1,291.27	90.15	15.324			
12,950.00	12,938.19	12,730.45	12,540.44	46.10	47.92	-74.82	-122.58	1,415.94	1,392.21	1,302.17	90.04	15.462			
13,000.00	12,984.94	12,750.00	12,550.37	46.24	47.94	-73.26	-139.42	1,415.94	1,403.02	1,313.13	89.90	15.607			
13,050.00	13,029.97	12,772.96	12,561.30	46.37	47.97	-71.68	-159.61	1,415.94	1,413.70	1,323.94	89.75	15.751			
13,100.00	13,072.94	12,800.00	12,573.11	46.50	48.00	-70.10	-183.93	1,415.94	1,424.12	1,334.50	89.63	15.890			
13,150.00	13,113.52	12,816.21	12,579.64	46.61	48.02	-68.84	-198.77	1,415.94	1,434.09	1,344.68	89.41	16.039			
13,200.00	13,151.40	12,838.05	12,587.77	46.71	48.04	-67.57	-219.03	1,415.94	1,443.55	1,354.31	89.24	16.175			
13,250.00	13,186.29	12,850.00	12,591.89	46.82	48.06	-66.55	-230.25	1,415.94	1,452.44	1,363.42	89.02	16.316			
13,300.00	13,217.94	12,882.06	12,601.77	46.93	48.09	-65.36	-260.74	1,415.94	1,460.44	1,371.50	88.94	16.420			
13,350.00	13,246.08	12,900.00	12,606.55	47.04	48.11	-64.48	-278.04	1,415.94	1,467.69	1,378.89	88.80	16.528			
13,400.00	13,270.53	12,926.40	12,612.60	47.15	48.15	-63.65	-303.73	1,415.94	1,474.01	1,385.27	88.74	16.611			
13,450.00	13,291.08	12,950.00	12,617.00	47.25	48.18	-62.97	-326.92	1,415.94	1,479.35	1,390.66	88.69	16.680			
13,500.00	13,307.58	12,970.97	12,620.10	47.35	48.20	-62.46	-347.65	1,415.94	1,483.67	1,394.99	88.68	16.731			
13,550.00	13,319.90	13,000.00	12,623.14	47.45	48.24	-62.04	-376.52	1,415.94	1,486.93	1,398.20	88.74	16.757			
13,600.00	13,327.96	13,015.68	12,624.18	47.54	48.26	-61.81	-392.17	1,415.94	1,489.02	1,400.22	88.80	16.768			
13,650.00	13,331.68	13,042.39	12,624.95	47.64	48.30	-61.69	-418.86	1,415.94	1,490.03	1,401.08	88.95	16.752			
13,664.83	13,331.95	13,047.54	12,624.98	47.66	48.31	-61.68	-424.01	1,415.94	1,490.09	1,401.09	89.00	16.743			
13,700.00	13,332.13	13,082.71	12,625.18	47.73	48.37	-61.68	-459.19	1,415.94	1,490.08	1,400.92	89.15	16.714			
13,800.00	13,332.64	13,182.71	12,625.74	47.95	48.56	-61.68	-559.18	1,415.94	1,490.05	1,400.41	89.65	16.621			
13,900.00	13,333.15	13,282.71	12,626.30	48.21	48.80	-61.68	-659.18	1,415.94	1,490.03	1,399.81	90.21	16.517			
14,000.00	13,333.66	13,382.71	12,626.86	48.51	49.08	-61.69	-759.18	1,415.94	1,490.00	1,399.15	90.85	16.400			

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



Nabors Corporate Services
Anticollision Report



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 92H - OH - PN2													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error: 2.00 ft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
14,100.00	13,334.17	13,482.71	12,627.43	48.85	49.41	-61.69	-859.18	1,415.94	1,489.98	1,398.41	91.57	16.272	
14,200.00	13,334.68	13,582.71	12,627.99	49.23	49.78	-61.69	-959.18	1,415.94	1,489.95	1,397.61	92.35	16.134	
14,300.00	13,335.19	13,682.71	12,628.55	49.65	50.19	-61.69	-1,059.18	1,415.94	1,489.93	1,396.73	93.20	15.987	
14,400.00	13,335.70	13,782.71	12,629.12	50.10	50.64	-61.69	-1,159.17	1,415.94	1,489.90	1,395.79	94.11	15.831	
14,500.00	13,336.21	13,882.71	12,629.68	50.60	51.14	-61.70	-1,259.17	1,415.94	1,489.88	1,394.79	95.09	15.668	
14,600.00	13,336.72	13,982.71	12,630.24	51.13	51.66	-61.70	-1,359.17	1,415.94	1,489.85	1,393.72	96.13	15.498	
14,700.00	13,337.23	14,082.71	12,630.80	51.69	52.23	-61.70	-1,459.17	1,415.94	1,489.83	1,392.59	97.23	15.322	
14,800.00	13,337.74	14,182.71	12,631.37	52.28	52.83	-61.70	-1,559.17	1,415.94	1,489.80	1,391.41	98.39	15.141	
14,900.00	13,338.26	14,282.71	12,631.93	52.91	53.46	-61.70	-1,659.17	1,415.94	1,489.78	1,390.17	99.61	14.956	
15,000.00	13,338.77	14,382.71	12,632.49	53.57	54.12	-61.70	-1,759.17	1,415.94	1,489.75	1,388.87	100.88	14.768	
15,100.00	13,339.28	14,482.71	12,633.06	54.26	54.81	-61.71	-1,859.16	1,415.94	1,489.73	1,387.53	102.20	14.576	
15,200.00	13,339.79	14,582.71	12,633.62	54.98	55.54	-61.71	-1,959.16	1,415.94	1,489.70	1,386.13	103.57	14.383	
15,300.00	13,340.30	14,682.71	12,634.18	55.72	56.29	-61.71	-2,059.16	1,415.94	1,489.68	1,384.68	104.99	14.188	
15,400.00	13,340.81	14,782.71	12,634.74	56.49	57.06	-61.71	-2,159.16	1,415.94	1,489.65	1,383.19	106.46	13.993	
15,500.00	13,341.32	14,882.71	12,635.31	57.29	57.86	-61.71	-2,259.16	1,415.94	1,489.63	1,381.66	107.97	13.796	
15,600.00	13,341.83	14,982.71	12,635.87	58.11	58.69	-61.71	-2,359.16	1,415.94	1,489.60	1,380.08	109.53	13.600	
15,700.00	13,342.34	15,082.71	12,636.43	58.96	59.54	-61.72	-2,459.15	1,415.94	1,489.58	1,378.46	111.12	13.405	
15,800.00	13,342.85	15,182.71	12,637.00	59.83	60.41	-61.72	-2,559.15	1,415.94	1,489.55	1,376.80	112.75	13.211	
15,900.00	13,343.36	15,282.71	12,637.56	60.72	61.31	-61.72	-2,659.15	1,415.94	1,489.53	1,375.10	114.42	13.018	
16,000.00	13,343.87	15,382.71	12,638.12	61.63	62.22	-61.72	-2,759.15	1,415.94	1,489.50	1,373.37	116.13	12.826	
16,100.00	13,344.38	15,482.71	12,638.68	62.55	63.15	-61.72	-2,859.15	1,415.94	1,489.48	1,371.61	117.87	12.636	
16,200.00	13,344.89	15,582.71	12,639.25	63.50	64.10	-61.73	-2,959.15	1,415.94	1,489.45	1,369.81	119.65	12.449	
16,300.00	13,345.40	15,682.71	12,639.81	64.47	65.07	-61.73	-3,059.14	1,415.94	1,489.43	1,367.98	121.45	12.264	
16,400.00	13,345.91	15,782.71	12,640.37	65.45	66.06	-61.73	-3,159.14	1,415.94	1,489.41	1,366.12	123.29	12.081	
16,500.00	13,346.42	15,882.71	12,640.94	66.45	67.06	-61.73	-3,259.14	1,415.94	1,489.38	1,364.23	125.15	11.901	
16,600.00	13,346.93	15,982.71	12,641.50	67.47	68.08	-61.73	-3,359.14	1,415.94	1,489.36	1,362.31	127.04	11.723	
16,700.00	13,347.44	16,082.71	12,642.06	68.50	69.11	-61.73	-3,459.14	1,415.94	1,489.33	1,360.37	128.96	11.549	
16,800.00	13,347.95	16,182.71	12,642.62	69.54	70.16	-61.74	-3,559.14	1,415.94	1,489.31	1,358.41	130.90	11.377	
16,900.00	13,348.46	16,282.71	12,643.19	70.60	71.22	-61.74	-3,659.13	1,415.94	1,489.28	1,356.41	132.87	11.209	
17,000.00	13,348.97	16,382.71	12,643.75	71.67	72.30	-61.74	-3,759.13	1,415.94	1,489.26	1,354.40	134.86	11.043	
17,100.00	13,349.48	16,482.71	12,644.31	72.76	73.38	-61.74	-3,859.13	1,415.94	1,489.23	1,352.37	136.87	10.881	
17,200.00	13,349.99	16,582.71	12,644.88	73.85	74.48	-61.74	-3,959.13	1,415.94	1,489.21	1,350.31	138.90	10.722	
17,300.00	13,350.50	16,682.71	12,645.44	74.96	75.59	-61.74	-4,059.13	1,415.94	1,489.18	1,348.23	140.95	10.565	
17,400.00	13,351.02	16,782.71	12,646.00	76.08	76.71	-61.75	-4,159.13	1,415.94	1,489.16	1,346.14	143.02	10.412	
17,500.00	13,351.53	16,882.71	12,646.56	77.21	77.84	-61.75	-4,259.13	1,415.94	1,489.13	1,344.02	145.11	10.262	
17,600.00	13,352.04	16,982.71	12,647.13	78.35	78.98	-61.75	-4,359.12	1,415.94	1,489.11	1,341.89	147.22	10.115	
17,700.00	13,352.55	17,082.71	12,647.69	79.49	80.13	-61.75	-4,459.12	1,415.94	1,489.08	1,339.74	149.34	9.971	
17,800.00	13,353.06	17,182.71	12,648.25	80.65	81.29	-61.75	-4,559.12	1,415.94	1,489.06	1,337.58	151.48	9.830	
17,900.00	13,353.57	17,282.71	12,648.82	81.82	82.45	-61.76	-4,659.12	1,415.94	1,489.03	1,335.40	153.64	9.692	
18,000.00	13,354.08	17,382.71	12,649.38	82.99	83.63	-61.76	-4,759.12	1,415.94	1,489.01	1,333.20	155.81	9.557	
18,100.00	13,354.59	17,482.71	12,649.94	84.18	84.81	-61.76	-4,859.12	1,415.94	1,488.98	1,330.99	157.99	9.424	
18,200.00	13,355.10	17,582.71	12,650.50	85.37	86.00	-61.76	-4,959.11	1,415.94	1,488.96	1,328.77	160.19	9.295	
18,300.00	13,355.61	17,682.71	12,651.07	86.56	87.20	-61.76	-5,059.11	1,415.94	1,488.93	1,326.53	162.40	9.168	
18,400.00	13,356.12	17,782.71	12,651.63	87.77	88.41	-61.76	-5,159.11	1,415.94	1,488.91	1,324.28	164.62	9.044	
18,500.00	13,356.63	17,882.71	12,652.19	88.98	89.62	-61.77	-5,259.11	1,415.94	1,488.88	1,322.02	166.86	8.923	
18,600.00	13,357.14	17,982.71	12,652.76	90.20	90.84	-61.77	-5,359.11	1,415.94	1,488.86	1,319.75	169.11	8.804	
18,700.00	13,357.65	18,082.71	12,653.32	91.42	92.06	-61.77	-5,459.11	1,415.94	1,488.83	1,317.47	171.37	8.688	
18,800.00	13,358.16	18,182.71	12,653.88	92.65	93.29	-61.77	-5,559.10	1,415.94	1,488.81	1,315.17	173.64	8.574	
18,900.00	13,358.67	18,282.71	12,654.44	93.89	94.53	-61.77	-5,659.10	1,415.94	1,488.78	1,312.87	175.92	8.463	
19,000.00	13,359.18	18,382.71	12,655.01	95.13	95.77	-61.78	-5,759.10	1,415.94	1,488.76	1,310.55	178.20	8.354	
19,100.00	13,359.69	18,482.71	12,655.57	96.38	97.02	-61.78	-5,859.10	1,415.94	1,488.73	1,308.23	180.50	8.248	
19,200.00	13,360.20	18,582.71	12,656.13	97.63	98.27	-61.78	-5,959.10	1,415.94	1,488.71	1,305.90	182.81	8.143	

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



Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Offset Design SeaWolf 1-12 - Fed 92H - OH - PN2													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HRGM													Offset Well Error:	2.00 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
19,300.00	13,360.71	18,682.71	12,656.70	98.89	99.53	-61.78	-6,059.10	1,415.94	1,488.69	1,303.56	185.13	8.041		
19,400.00	13,361.22	18,782.71	12,657.26	100.15	100.79	-61.78	-6,159.09	1,415.94	1,488.66	1,301.21	187.45	7.941		
19,500.00	13,361.73	18,882.71	12,657.82	101.42	102.06	-61.78	-6,259.09	1,415.94	1,488.64	1,298.85	189.79	7.844		
19,600.00	13,362.24	18,982.71	12,658.38	102.69	103.33	-61.79	-6,359.09	1,415.94	1,488.61	1,296.48	192.13	7.748		
19,700.00	13,362.75	19,082.71	12,658.95	103.96	104.61	-61.79	-6,459.09	1,415.94	1,488.59	1,294.11	194.48	7.654		
19,800.00	13,363.26	19,182.71	12,659.51	105.24	105.88	-61.79	-6,559.09	1,415.94	1,488.56	1,291.73	196.84	7.562		
19,900.00	13,363.78	19,282.71	12,660.07	106.53	107.17	-61.79	-6,659.09	1,415.94	1,488.54	1,289.34	199.20	7.473		
20,000.00	13,364.29	19,382.71	12,660.64	107.81	108.46	-61.79	-6,759.09	1,415.94	1,488.51	1,286.94	201.57	7.385		
20,100.00	13,364.80	19,482.71	12,661.20	109.10	109.75	-61.79	-6,859.08	1,415.94	1,488.49	1,284.54	203.95	7.298		
20,200.00	13,365.31	19,582.71	12,661.76	110.40	111.04	-61.80	-6,959.08	1,415.94	1,488.46	1,282.13	206.33	7.214		
20,300.00	13,365.82	19,682.71	12,662.32	111.70	112.34	-61.80	-7,059.08	1,415.94	1,488.44	1,279.72	208.72	7.131		
20,400.00	13,366.33	19,782.71	12,662.89	113.00	113.64	-61.80	-7,159.08	1,415.94	1,488.41	1,277.30	211.12	7.050		
20,500.00	13,366.84	19,882.71	12,663.45	114.30	114.94	-61.80	-7,259.08	1,415.94	1,488.39	1,274.87	213.52	6.971		
20,600.00	13,367.35	19,982.71	12,664.01	115.61	116.25	-61.80	-7,359.08	1,415.94	1,488.36	1,272.44	215.92	6.893		
20,700.00	13,367.86	20,082.71	12,664.58	116.92	117.56	-61.81	-7,459.07	1,415.94	1,488.34	1,270.00	218.34	6.817		
20,800.00	13,368.37	20,182.71	12,665.14	118.23	118.87	-61.81	-7,559.07	1,415.94	1,488.31	1,267.56	220.75	6.742		
20,900.00	13,368.88	20,282.71	12,665.70	119.55	120.19	-61.81	-7,659.07	1,415.94	1,488.29	1,265.11	223.18	6.669		
21,000.00	13,369.39	20,382.71	12,666.26	120.87	121.51	-61.81	-7,759.07	1,415.94	1,488.26	1,262.66	225.60	6.597		
21,100.00	13,369.90	20,482.71	12,666.83	122.19	122.83	-61.81	-7,859.07	1,415.94	1,488.24	1,260.20	228.04	6.526		
21,200.00	13,370.41	20,582.71	12,667.39	123.51	124.15	-61.81	-7,959.07	1,415.94	1,488.21	1,257.74	230.47	6.457		
21,300.00	13,370.92	20,682.71	12,667.95	124.84	125.48	-61.82	-8,059.06	1,415.94	1,488.19	1,255.28	232.91	6.389		
21,400.00	13,371.43	20,782.71	12,668.52	126.17	126.81	-61.82	-8,159.06	1,415.94	1,488.16	1,252.81	235.36	6.323		
21,500.00	13,371.94	20,882.71	12,669.08	127.50	128.14	-61.82	-8,259.06	1,415.94	1,488.14	1,250.33	237.81	6.258		
21,600.00	13,372.45	20,982.71	12,669.64	128.83	129.47	-61.82	-8,359.06	1,415.94	1,488.12	1,247.85	240.26	6.194		
21,700.00	13,372.96	21,082.71	12,670.20	130.16	130.80	-61.82	-8,459.06	1,415.94	1,488.09	1,245.37	242.72	6.131		
21,800.00	13,373.47	21,182.71	12,670.77	131.50	132.14	-61.82	-8,559.06	1,415.94	1,488.07	1,242.88	245.18	6.069		
21,900.00	13,373.98	21,282.71	12,671.33	132.84	133.48	-61.83	-8,659.05	1,415.94	1,488.04	1,240.39	247.65	6.009		
22,000.00	13,374.49	21,382.71	12,671.89	134.18	134.82	-61.83	-8,759.05	1,415.94	1,488.02	1,237.90	250.11	5.949		
22,100.00	13,375.00	21,482.71	12,672.46	135.53	136.16	-61.83	-8,859.05	1,415.94	1,487.99	1,235.40	252.59	5.891		
22,200.00	13,375.51	21,582.71	12,673.02	136.87	137.51	-61.83	-8,959.05	1,415.94	1,487.97	1,232.90	255.06	5.834		
22,300.00	13,376.03	21,682.71	12,673.58	138.22	138.86	-61.83	-9,059.05	1,415.94	1,487.94	1,230.40	257.54	5.777		
22,400.00	13,376.54	21,782.71	12,674.14	139.57	140.20	-61.84	-9,159.05	1,415.94	1,487.92	1,227.89	260.02	5.722		
22,500.00	13,377.05	21,882.71	12,674.71	140.92	141.55	-61.84	-9,259.05	1,415.94	1,487.89	1,225.38	262.51	5.668		
22,600.00	13,377.56	21,982.71	12,675.27	142.27	142.91	-61.84	-9,359.04	1,415.94	1,487.87	1,222.87	265.00	5.615		
22,700.00	13,378.07	22,082.71	12,675.83	143.62	144.26	-61.84	-9,459.04	1,415.94	1,487.84	1,220.36	267.49	5.562		
22,800.00	13,378.58	22,182.71	12,676.40	144.98	145.61	-61.84	-9,559.04	1,415.94	1,487.82	1,217.84	269.98	5.511		
22,900.00	13,379.09	22,282.71	12,676.96	146.33	146.97	-61.84	-9,659.04	1,415.94	1,487.79	1,215.32	272.48	5.460		
23,000.00	13,379.60	22,382.71	12,677.52	147.69	148.33	-61.85	-9,759.04	1,415.94	1,487.77	1,212.79	274.98	5.411		
23,100.00	13,380.11	22,482.71	12,678.08	149.05	149.69	-61.85	-9,859.04	1,415.94	1,487.74	1,210.26	277.48	5.362		
23,200.00	13,380.62	22,582.71	12,678.65	150.41	151.05	-61.85	-9,959.03	1,415.94	1,487.72	1,207.74	279.98	5.314		
23,264.49	13,380.95	22,647.21	12,679.01	151.29	151.92	-61.85	-10,023.53	1,415.94	1,487.70	1,206.10	281.60	5.283		
23,274.76	13,381.00	22,645.43	12,679.00	151.43	151.90	-61.85	-10,021.75	1,415.94	1,487.75	1,205.91	281.84	5.279 SF		



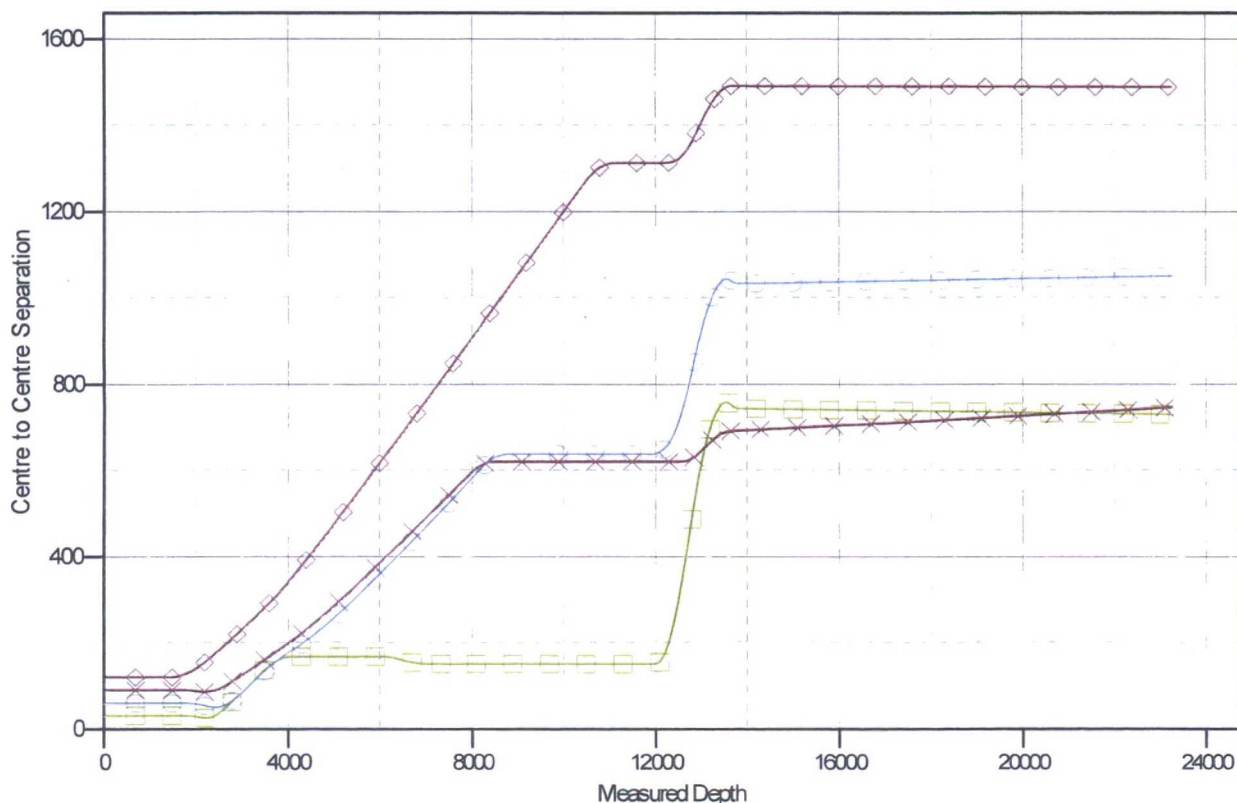
Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Reference Depths are relative to RT=32 @ 3350.60ft (Nabors X-04)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: Fed 91H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.42°

Ladder Plot



LEGEND

■ Fed 81H, OH, PN2 V0 × Fed 102H, OH, PN2 V0
◆ Fed 92H, OH, PN2 V0 ● Fed 82H, OH, PN2 V0

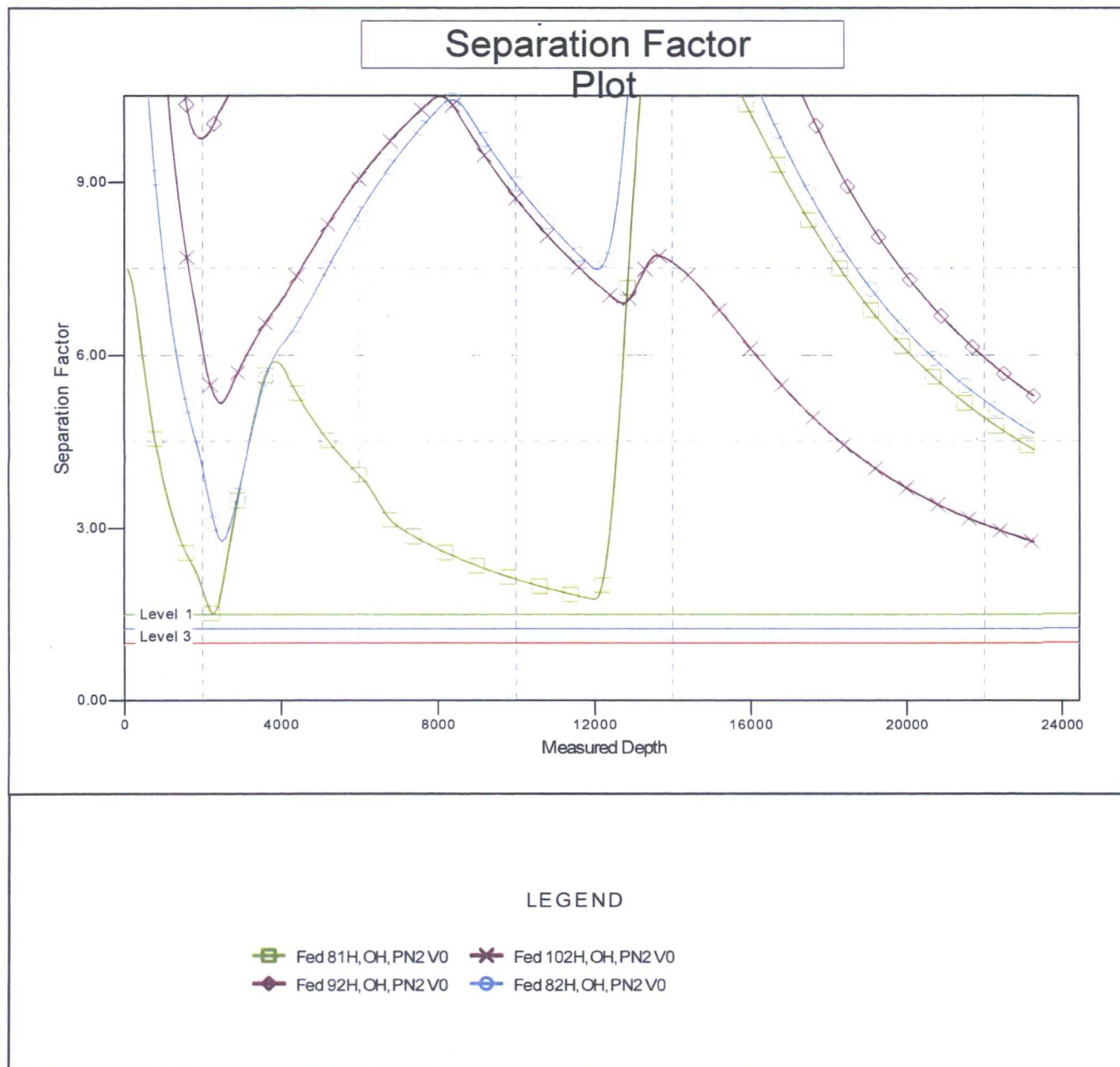


Company: Devon Energy Corporation
Project: Lea Co., NM
Reference Site: SeaWolf 1-12
Site Error: 0.00 ft
Reference Well: Fed 91H
Well Error: 2.00 ft
Reference Wellbore: OH
Reference Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: RyanUSA_Compass
Offset TVD Reference: Offset Datum

Reference Depths are relative to RT=32 @ 3350.60ft (Nabors X-04)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: Fed 91H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.42°



FEB 06 2018

RECEIVED

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

The logo for Devon Energy Corporation, featuring the word "devon" in a white, lowercase, sans-serif font. Above the letters "on" are three horizontal orange bars of increasing length, creating a stylized flame or sunburst effect. The entire logo is set against a solid black rectangular background.

devon

Devon Energy Corporation

Lea Co., NM
SeaWolf 1-12
Fed 91H

OH

Plan: PN2

Standard Planning Report

14 August, 2017





Database: RyanUSA_Compass
Company: Devon Energy Corporation
Project: Lea Co., NM
Site: SeaWolf 1-12
Well: Fed 91H
Wellbore: OH
Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Lea Co., NM		
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				
Site Position:		Northing:	393,463.690 usft	Latitude:	32° 4' 45.07085 N
From:	Map	Easting:	789,088.210 usft	Longitude:	103° 32' 0.34763 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well	Fed 91H					
Well Position	+N/-S	-0.18 ft	Northing:	393,463.510 usft	Latitude:	32° 4' 45.07127 N
	+E/-W	-30.02 ft	Easting:	789,058.190 usft	Longitude:	103° 32' 0.69655 W
Position Uncertainty	2.00 ft	Wellhead Elevation:		Ground Level:	3,318.60 ft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/9/2017	6.80	59.82	47,934.40000000

Design	PN2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	179.40	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,810.00	0.00	0.00	1,810.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,436.97	6.27	34.79	2,435.72	28.14	19.55	1.00	1.00	0.00	34.79	
3,481.78	6.27	34.79	3,474.28	121.86	84.65	0.00	0.00	0.00	0.00	
4,108.75	0.00	0.00	4,100.00	150.00	104.20	1.00	-1.00	0.00	180.00	
12,767.75	0.00	0.00	12,759.00	150.00	104.20	0.00	0.00	0.00	0.00	
13,664.83	89.71	180.00	13,331.95	-420.03	104.20	10.00	10.00	20.07	180.00	
23,274.76	89.71	180.00	13,381.00	-10,029.84	104.20	0.00	0.00	0.00	0.00	Fed 91H_BHL



Database: RyanUSA_Compass
Company: Devon Energy Corporation
Project: Lea Co., NM
Site: SeaWolf 1-12
Well: Fed 91H
Wellbore: OH
Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
805.00	0.00	0.00	805.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00
13 3/8"									
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
1,153.00	0.00	0.00	1,153.00	0.00	0.00	0.00	0.00	0.00	0.00
Top of Salt									
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
1,810.00	0.00	0.00	1,810.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.90	34.79	1,900.00	0.58	0.40	-0.58	1.00	1.00	0.00
2,000.00	1.90	34.79	1,999.97	2.59	1.80	-2.57	1.00	1.00	0.00
2,100.00	2.90	34.79	2,099.88	6.03	4.19	-5.98	1.00	1.00	0.00
2,200.00	3.90	34.79	2,199.70	10.90	7.57	-10.82	1.00	1.00	0.00
2,300.00	4.90	34.79	2,299.40	17.20	11.95	-17.07	1.00	1.00	0.00
2,400.00	5.90	34.79	2,398.96	24.93	17.32	-24.75	1.00	1.00	0.00
2,436.97	6.27	34.79	2,435.72	28.14	19.55	-27.94	1.00	1.00	0.00
2,500.00	6.27	34.79	2,498.37	33.80	23.48	-33.55	0.00	0.00	0.00
2,600.00	6.27	34.79	2,597.77	42.77	29.71	-42.46	0.00	0.00	0.00
2,700.00	6.27	34.79	2,697.18	51.74	35.94	-51.36	0.00	0.00	0.00
2,800.00	6.27	34.79	2,796.58	60.71	42.17	-60.26	0.00	0.00	0.00
2,900.00	6.27	34.79	2,895.98	69.67	48.40	-69.17	0.00	0.00	0.00
3,000.00	6.27	34.79	2,995.38	78.64	54.63	-78.07	0.00	0.00	0.00
3,100.00	6.27	34.79	3,094.78	87.61	60.86	-86.98	0.00	0.00	0.00
3,200.00	6.27	34.79	3,194.19	96.58	67.09	-95.88	0.00	0.00	0.00
3,300.00	6.27	34.79	3,293.59	105.55	73.32	-104.78	0.00	0.00	0.00
3,400.00	6.27	34.79	3,392.99	114.52	79.55	-113.69	0.00	0.00	0.00
3,481.78	6.27	34.79	3,474.28	121.86	84.65	-120.97	0.00	0.00	0.00
3,500.00	6.09	34.79	3,492.39	123.47	85.77	-122.57	1.00	-1.00	0.00
3,600.00	5.09	34.79	3,591.92	131.46	91.32	-130.51	1.00	-1.00	0.00
3,700.00	4.09	34.79	3,691.60	138.03	95.89	-137.03	1.00	-1.00	0.00
3,800.00	3.09	34.79	3,791.40	143.17	99.46	-142.13	1.00	-1.00	0.00
3,900.00	2.09	34.79	3,891.30	146.88	102.03	-145.81	1.00	-1.00	0.00
4,000.00	1.09	34.79	3,991.26	149.15	103.61	-148.07	1.00	-1.00	0.00
4,108.75	0.00	0.00	4,100.00	150.00	104.20	-148.91	1.00	-1.00	0.00
4,200.00	0.00	0.00	4,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
4,300.00	0.00	0.00	4,291.25	150.00	104.20	-148.91	0.00	0.00	0.00



Database: RyanUSA_Compass
Company: Devon Energy Corporation
Project: Lea Co., NM
Site: SeaWolf 1-12
Well: Fed 91H
Wellbore: OH
Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,400.00	0.00	0.00	4,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
4,500.00	0.00	0.00	4,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
4,600.00	0.00	0.00	4,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
4,700.00	0.00	0.00	4,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
4,800.00	0.00	0.00	4,791.25	150.00	104.20	-148.91	0.00	0.00	0.00
4,884.75	0.00	0.00	4,876.00	150.00	104.20	-148.91	0.00	0.00	0.00
Base of Salt									
4,900.00	0.00	0.00	4,891.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,000.00	0.00	0.00	4,991.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,100.00	0.00	0.00	5,091.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,126.75	0.00	0.00	5,118.00	150.00	104.20	-148.91	0.00	0.00	0.00
Delaware									
5,200.00	0.00	0.00	5,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,300.00	0.00	0.00	5,291.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,400.00	0.00	0.00	5,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,500.00	0.00	0.00	5,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,600.00	0.00	0.00	5,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,700.00	0.00	0.00	5,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,800.00	0.00	0.00	5,791.25	150.00	104.20	-148.91	0.00	0.00	0.00
5,900.00	0.00	0.00	5,891.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,000.00	0.00	0.00	5,991.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,100.00	0.00	0.00	6,091.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,200.00	0.00	0.00	6,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,300.00	0.00	0.00	6,291.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,400.00	0.00	0.00	6,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,500.00	0.00	0.00	6,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,600.00	0.00	0.00	6,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,700.00	0.00	0.00	6,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,800.00	0.00	0.00	6,791.25	150.00	104.20	-148.91	0.00	0.00	0.00
6,900.00	0.00	0.00	6,891.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,000.00	0.00	0.00	6,991.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,100.00	0.00	0.00	7,091.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,200.00	0.00	0.00	7,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,300.00	0.00	0.00	7,291.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,400.00	0.00	0.00	7,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,500.00	0.00	0.00	7,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,600.00	0.00	0.00	7,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,700.00	0.00	0.00	7,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,800.00	0.00	0.00	7,791.25	150.00	104.20	-148.91	0.00	0.00	0.00
7,900.00	0.00	0.00	7,891.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,000.00	0.00	0.00	7,991.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,100.00	0.00	0.00	8,091.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,200.00	0.00	0.00	8,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,300.00	0.00	0.00	8,291.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,400.00	0.00	0.00	8,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,500.00	0.00	0.00	8,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,600.00	0.00	0.00	8,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,700.00	0.00	0.00	8,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,800.00	0.00	0.00	8,791.25	150.00	104.20	-148.91	0.00	0.00	0.00
8,900.00	0.00	0.00	8,891.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,000.00	0.00	0.00	8,991.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,100.00	0.00	0.00	9,091.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,179.75	0.00	0.00	9,171.00	150.00	104.20	-148.91	0.00	0.00	0.00

Database: RyanUSA_Compass
Company: Devon Energy Corporation
Project: Lea Co., NM
Site: SeaWolf 1-12
Well: Fed 91H
Wellbore: OH
Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Lower Brushy Canyon									
9,200.00	0.00	0.00	9,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,300.00	0.00	0.00	9,291.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,359.75	0.00	0.00	9,351.00	150.00	104.20	-148.91	0.00	0.00	0.00
1st BSPG Lime									
9,400.00	0.00	0.00	9,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,500.00	0.00	0.00	9,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,600.00	0.00	0.00	9,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,700.00	0.00	0.00	9,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,800.00	0.00	0.00	9,791.25	150.00	104.20	-148.91	0.00	0.00	0.00
9,900.00	0.00	0.00	9,891.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,000.00	0.00	0.00	9,991.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,100.00	0.00	0.00	10,091.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,200.00	0.00	0.00	10,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,297.75	0.00	0.00	10,289.00	150.00	104.20	-148.91	0.00	0.00	0.00
1st BSPG Sand									
10,300.00	0.00	0.00	10,291.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,400.00	0.00	0.00	10,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,500.00	0.00	0.00	10,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,572.75	0.00	0.00	10,564.00	150.00	104.20	-148.91	0.00	0.00	0.00
2nd BSPG Lime									
10,600.00	0.00	0.00	10,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,700.00	0.00	0.00	10,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,800.00	0.00	0.00	10,791.25	150.00	104.20	-148.91	0.00	0.00	0.00
10,845.75	0.00	0.00	10,837.00	150.00	104.20	-148.91	0.00	0.00	0.00
2nd BSPG Sand									
10,900.00	0.00	0.00	10,891.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,000.00	0.00	0.00	10,991.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,100.00	0.00	0.00	11,091.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,200.00	0.00	0.00	11,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,300.00	0.00	0.00	11,291.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,339.75	0.00	0.00	11,331.00	150.00	104.20	-148.91	0.00	0.00	0.00
3rd BSPG Lime									
11,400.00	0.00	0.00	11,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,500.00	0.00	0.00	11,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,600.00	0.00	0.00	11,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,700.00	0.00	0.00	11,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,800.00	0.00	0.00	11,791.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,900.00	0.00	0.00	11,891.25	150.00	104.20	-148.91	0.00	0.00	0.00
11,923.75	0.00	0.00	11,915.00	150.00	104.20	-148.91	0.00	0.00	0.00
3rd BSPG Sand									
12,000.00	0.00	0.00	11,991.25	150.00	104.20	-148.91	0.00	0.00	0.00
12,100.00	0.00	0.00	12,091.25	150.00	104.20	-148.91	0.00	0.00	0.00
12,200.00	0.00	0.00	12,191.25	150.00	104.20	-148.91	0.00	0.00	0.00
12,300.00	0.00	0.00	12,291.25	150.00	104.20	-148.91	0.00	0.00	0.00
12,400.00	0.00	0.00	12,391.25	150.00	104.20	-148.91	0.00	0.00	0.00
12,409.75	0.00	0.00	12,401.00	150.00	104.20	-148.91	0.00	0.00	0.00
Wolfcamp									
12,436.75	0.00	0.00	12,428.00	150.00	104.20	-148.91	0.00	0.00	0.00
Wolfcamp X									
12,500.00	0.00	0.00	12,491.25	150.00	104.20	-148.91	0.00	0.00	0.00
12,532.75	0.00	0.00	12,524.00	150.00	104.20	-148.91	0.00	0.00	0.00
Wolfcamp Y									

Database: RyanUSA_Compass
 Company: Devon Energy Corporation
 Project: Lea Co., NM
 Site: SeaWolf 1-12
 Well: Fed 91H
 Wellbore: OH
 Design: PN2

Local Co-ordinate Reference: Well Fed 91H
 TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
 MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,593.75	0.00	0.00	12,585.00	150.00	104.20	-148.91	0.00	0.00	0.00
Wolfcamp 100									
12,600.00	0.00	0.00	12,591.25	150.00	104.20	-148.91	0.00	0.00	0.00
12,665.75	0.00	0.00	12,657.00	150.00	104.20	-148.91	0.00	0.00	0.00
Wolfcamp 110									
12,700.00	0.00	0.00	12,691.25	150.00	104.20	-148.91	0.00	0.00	0.00
12,742.75	0.00	0.00	12,734.00	150.00	104.20	-148.91	0.00	0.00	0.00
Wolfcamp 120									
12,767.75	0.00	0.00	12,759.00	150.00	104.20	-148.91	0.00	0.00	0.00
Fed 91H_KOP									
12,800.00	3.22	180.00	12,791.23	149.09	104.20	-148.00	10.00	10.00	0.00
12,809.79	4.20	180.00	12,801.00	148.46	104.20	-147.37	10.00	10.00	0.00
Wolfcamp 130									
12,850.00	8.22	180.00	12,840.97	144.11	104.20	-143.02	10.00	10.00	0.00
12,900.00	13.22	180.00	12,890.08	134.80	104.20	-133.71	10.00	10.00	0.00
12,930.95	16.32	180.00	12,920.00	126.91	104.20	-125.83	10.00	10.00	0.00
Wolfcamp 200									
12,950.00	18.22	180.00	12,938.19	121.26	104.20	-120.17	10.00	10.00	0.00
13,000.00	23.22	180.00	12,984.94	103.57	104.20	-102.48	10.00	10.00	0.00
13,050.00	28.22	180.00	13,029.97	81.87	104.20	-80.79	10.00	10.00	0.00
13,100.00	33.22	180.00	13,072.94	56.34	104.20	-55.25	10.00	10.00	0.00
13,150.00	38.22	180.00	13,113.52	27.15	104.20	-26.07	10.00	10.00	0.00
13,200.00	43.22	180.00	13,151.40	-5.46	104.20	6.54	10.00	10.00	0.00
13,250.00	48.22	180.00	13,186.29	-41.25	104.20	42.33	10.00	10.00	0.00
13,300.00	53.22	180.00	13,217.94	-79.94	104.20	81.02	10.00	10.00	0.00
13,350.00	58.22	180.00	13,246.08	-121.25	104.20	122.32	10.00	10.00	0.00
13,400.00	63.22	180.00	13,270.53	-164.85	104.20	165.92	10.00	10.00	0.00
13,436.70	66.90	180.00	13,286.00	-198.12	104.20	199.19	10.00	10.00	0.00
Wolfcamp 300									
13,450.00	68.22	180.00	13,291.08	-210.41	104.20	211.48	10.00	10.00	0.00
13,500.00	73.22	180.00	13,307.58	-257.59	104.20	258.66	10.00	10.00	0.00
13,550.00	78.22	180.00	13,319.90	-306.03	104.20	307.10	10.00	10.00	0.00
13,600.00	83.22	180.00	13,327.96	-355.37	104.20	356.43	10.00	10.00	0.00
13,650.00	88.22	180.00	13,331.68	-405.21	104.20	406.27	10.00	10.00	0.00
13,664.83	89.71	180.00	13,331.95	-420.03	104.20	421.09	10.00	10.00	0.00
Fed 91H_EOC									
13,700.00	89.71	180.00	13,332.13	-455.21	104.20	456.27	0.00	0.00	0.00
13,800.00	89.71	180.00	13,332.64	-555.21	104.20	556.26	0.00	0.00	0.00
13,900.00	89.71	180.00	13,333.15	-655.20	104.20	656.25	0.00	0.00	0.00
14,000.00	89.71	180.00	13,333.66	-755.20	104.20	756.25	0.00	0.00	0.00
14,100.00	89.71	180.00	13,334.17	-855.20	104.20	856.24	0.00	0.00	0.00
14,200.00	89.71	180.00	13,334.68	-955.20	104.20	956.23	0.00	0.00	0.00
14,300.00	89.71	180.00	13,335.19	-1,055.20	104.20	1,056.22	0.00	0.00	0.00
14,400.00	89.71	180.00	13,335.70	-1,155.20	104.20	1,156.22	0.00	0.00	0.00
14,500.00	89.71	180.00	13,336.21	-1,255.20	104.20	1,256.21	0.00	0.00	0.00
14,600.00	89.71	180.00	13,336.72	-1,355.20	104.20	1,356.20	0.00	0.00	0.00
14,700.00	89.71	180.00	13,337.23	-1,455.19	104.20	1,456.20	0.00	0.00	0.00
14,800.00	89.71	180.00	13,337.74	-1,555.19	104.20	1,556.19	0.00	0.00	0.00
14,900.00	89.71	180.00	13,338.26	-1,655.19	104.20	1,656.18	0.00	0.00	0.00
15,000.00	89.71	180.00	13,338.77	-1,755.19	104.20	1,756.18	0.00	0.00	0.00
15,100.00	89.71	180.00	13,339.28	-1,855.19	104.20	1,856.17	0.00	0.00	0.00
15,200.00	89.71	180.00	13,339.79	-1,955.19	104.20	1,956.16	0.00	0.00	0.00
15,300.00	89.71	180.00	13,340.30	-2,055.19	104.20	2,056.16	0.00	0.00	0.00



Database: RyanUSA_Compass
Company: Devon Energy Corporation
Project: Lea Co., NM
Site: SeaWolf 1-12
Well: Fed 91H
Wellbore: OH
Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,400.00	89.71	180.00	13,340.81	-2,155.19	104.20	2,156.15	0.00	0.00	0.00
15,500.00	89.71	180.00	13,341.32	-2,255.18	104.20	2,256.14	0.00	0.00	0.00
15,600.00	89.71	180.00	13,341.83	-2,355.18	104.20	2,356.14	0.00	0.00	0.00
15,700.00	89.71	180.00	13,342.34	-2,455.18	104.20	2,456.13	0.00	0.00	0.00
15,800.00	89.71	180.00	13,342.85	-2,555.18	104.20	2,556.12	0.00	0.00	0.00
15,900.00	89.71	180.00	13,343.36	-2,655.18	104.20	2,656.12	0.00	0.00	0.00
16,000.00	89.71	180.00	13,343.87	-2,755.18	104.20	2,756.11	0.00	0.00	0.00
16,100.00	89.71	180.00	13,344.38	-2,855.18	104.20	2,856.10	0.00	0.00	0.00
16,200.00	89.71	180.00	13,344.89	-2,955.17	104.20	2,956.10	0.00	0.00	0.00
16,300.00	89.71	180.00	13,345.40	-3,055.17	104.20	3,056.09	0.00	0.00	0.00
16,400.00	89.71	180.00	13,345.91	-3,155.17	104.20	3,156.08	0.00	0.00	0.00
16,500.00	89.71	180.00	13,346.42	-3,255.17	104.20	3,256.08	0.00	0.00	0.00
16,600.00	89.71	180.00	13,346.93	-3,355.17	104.20	3,356.07	0.00	0.00	0.00
16,700.00	89.71	180.00	13,347.44	-3,455.17	104.20	3,456.06	0.00	0.00	0.00
16,800.00	89.71	180.00	13,347.95	-3,555.17	104.20	3,556.06	0.00	0.00	0.00
16,900.00	89.71	180.00	13,348.46	-3,655.17	104.20	3,656.05	0.00	0.00	0.00
17,000.00	89.71	180.00	13,348.97	-3,755.16	104.20	3,756.04	0.00	0.00	0.00
17,100.00	89.71	180.00	13,349.48	-3,855.16	104.20	3,856.04	0.00	0.00	0.00
17,200.00	89.71	180.00	13,349.99	-3,955.16	104.20	3,956.03	0.00	0.00	0.00
17,300.00	89.71	180.00	13,350.50	-4,055.16	104.20	4,056.02	0.00	0.00	0.00
17,400.00	89.71	180.00	13,351.02	-4,155.16	104.20	4,156.02	0.00	0.00	0.00
17,500.00	89.71	180.00	13,351.53	-4,255.16	104.20	4,256.01	0.00	0.00	0.00
17,600.00	89.71	180.00	13,352.04	-4,355.16	104.20	4,356.00	0.00	0.00	0.00
17,700.00	89.71	180.00	13,352.55	-4,455.16	104.20	4,456.00	0.00	0.00	0.00
17,800.00	89.71	180.00	13,353.06	-4,555.15	104.20	4,555.99	0.00	0.00	0.00
17,900.00	89.71	180.00	13,353.57	-4,655.15	104.20	4,655.98	0.00	0.00	0.00
18,000.00	89.71	180.00	13,354.08	-4,755.15	104.20	4,755.98	0.00	0.00	0.00
18,100.00	89.71	180.00	13,354.59	-4,855.15	104.20	4,855.97	0.00	0.00	0.00
18,200.00	89.71	180.00	13,355.10	-4,955.15	104.20	4,955.96	0.00	0.00	0.00
18,300.00	89.71	180.00	13,355.61	-5,055.15	104.20	5,055.96	0.00	0.00	0.00
18,400.00	89.71	180.00	13,356.12	-5,155.15	104.20	5,155.95	0.00	0.00	0.00
18,500.00	89.71	180.00	13,356.63	-5,255.14	104.20	5,255.94	0.00	0.00	0.00
18,600.00	89.71	180.00	13,357.14	-5,355.14	104.20	5,355.94	0.00	0.00	0.00
18,700.00	89.71	180.00	13,357.65	-5,455.14	104.20	5,455.93	0.00	0.00	0.00
18,800.00	89.71	180.00	13,358.16	-5,555.14	104.20	5,555.92	0.00	0.00	0.00
18,900.00	89.71	180.00	13,358.67	-5,655.14	104.20	5,655.92	0.00	0.00	0.00
19,000.00	89.71	180.00	13,359.18	-5,755.14	104.20	5,755.91	0.00	0.00	0.00
19,100.00	89.71	180.00	13,359.69	-5,855.14	104.20	5,855.90	0.00	0.00	0.00
19,200.00	89.71	180.00	13,360.20	-5,955.14	104.20	5,955.90	0.00	0.00	0.00
19,300.00	89.71	180.00	13,360.71	-6,055.13	104.20	6,055.89	0.00	0.00	0.00
19,400.00	89.71	180.00	13,361.22	-6,155.13	104.20	6,155.88	0.00	0.00	0.00
19,500.00	89.71	180.00	13,361.73	-6,255.13	104.20	6,255.88	0.00	0.00	0.00
19,600.00	89.71	180.00	13,362.24	-6,355.13	104.20	6,355.87	0.00	0.00	0.00
19,700.00	89.71	180.00	13,362.75	-6,455.13	104.20	6,455.86	0.00	0.00	0.00
19,800.00	89.71	180.00	13,363.26	-6,555.13	104.20	6,555.86	0.00	0.00	0.00
19,900.00	89.71	180.00	13,363.78	-6,655.13	104.20	6,655.85	0.00	0.00	0.00
20,000.00	89.71	180.00	13,364.29	-6,755.13	104.20	6,755.84	0.00	0.00	0.00
20,100.00	89.71	180.00	13,364.80	-6,855.12	104.20	6,855.84	0.00	0.00	0.00
20,200.00	89.71	180.00	13,365.31	-6,955.12	104.20	6,955.83	0.00	0.00	0.00
20,300.00	89.71	180.00	13,365.82	-7,055.12	104.20	7,055.82	0.00	0.00	0.00
20,400.00	89.71	180.00	13,366.33	-7,155.12	104.20	7,155.82	0.00	0.00	0.00
20,500.00	89.71	180.00	13,366.84	-7,255.12	104.20	7,255.81	0.00	0.00	0.00
20,600.00	89.71	180.00	13,367.35	-7,355.12	104.20	7,355.80	0.00	0.00	0.00
20,700.00	89.71	180.00	13,367.86	-7,455.12	104.20	7,455.80	0.00	0.00	0.00

Database: RyanUSA_Compass
Company: Devon Energy Corporation
Project: Lea Co., NM
Site: SeaWolf 1-12
Well: Fed 91H
Wellbore: OH
Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
20,800.00	89.71	180.00	13,368.37	-7,555.11	104.20	7,555.79	0.00	0.00	0.00
20,900.00	89.71	180.00	13,368.88	-7,655.11	104.20	7,655.78	0.00	0.00	0.00
21,000.00	89.71	180.00	13,369.39	-7,755.11	104.20	7,755.78	0.00	0.00	0.00
21,100.00	89.71	180.00	13,369.90	-7,855.11	104.20	7,855.77	0.00	0.00	0.00
21,200.00	89.71	180.00	13,370.41	-7,955.11	104.20	7,955.76	0.00	0.00	0.00
21,300.00	89.71	180.00	13,370.92	-8,055.11	104.20	8,055.76	0.00	0.00	0.00
21,400.00	89.71	180.00	13,371.43	-8,155.11	104.20	8,155.75	0.00	0.00	0.00
21,500.00	89.71	180.00	13,371.94	-8,255.11	104.20	8,255.74	0.00	0.00	0.00
21,600.00	89.71	180.00	13,372.45	-8,355.10	104.20	8,355.74	0.00	0.00	0.00
21,700.00	89.71	180.00	13,372.96	-8,455.10	104.20	8,455.73	0.00	0.00	0.00
21,800.00	89.71	180.00	13,373.47	-8,555.10	104.20	8,555.72	0.00	0.00	0.00
21,900.00	89.71	180.00	13,373.98	-8,655.10	104.20	8,655.72	0.00	0.00	0.00
22,000.00	89.71	180.00	13,374.49	-8,755.10	104.20	8,755.71	0.00	0.00	0.00
22,100.00	89.71	180.00	13,375.00	-8,855.10	104.20	8,855.70	0.00	0.00	0.00
22,200.00	89.71	180.00	13,375.51	-8,955.10	104.20	8,955.70	0.00	0.00	0.00
22,300.00	89.71	180.00	13,376.03	-9,055.10	104.20	9,055.69	0.00	0.00	0.00
22,400.00	89.71	180.00	13,376.54	-9,155.09	104.20	9,155.68	0.00	0.00	0.00
22,500.00	89.71	180.00	13,377.05	-9,255.09	104.20	9,255.68	0.00	0.00	0.00
22,600.00	89.71	180.00	13,377.56	-9,355.09	104.20	9,355.67	0.00	0.00	0.00
22,700.00	89.71	180.00	13,378.07	-9,455.09	104.20	9,455.66	0.00	0.00	0.00
22,800.00	89.71	180.00	13,378.58	-9,555.09	104.20	9,555.66	0.00	0.00	0.00
22,900.00	89.71	180.00	13,379.09	-9,655.09	104.20	9,655.65	0.00	0.00	0.00
23,000.00	89.71	180.00	13,379.60	-9,755.09	104.20	9,755.64	0.00	0.00	0.00
23,100.00	89.71	180.00	13,380.11	-9,855.08	104.20	9,855.64	0.00	0.00	0.00
23,200.00	89.71	180.00	13,380.62	-9,955.08	104.20	9,955.63	0.00	0.00	0.00
23,274.76	89.71	180.00	13,381.00	-10,029.84	104.20	10,030.38	0.00	0.00	0.00

Fed 91H_BHL

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Fed 91H_KOP	0.00	0.00	12,759.00	150.00	104.20	393,613.510	789,162.390	32° 4' 46.54792 N	103° 31' 59.47258 W
- plan hits target center									
- Point									
Fed 91H_EOC	0.00	0.00	13,331.95	-420.03	104.20	393,043.478	789,162.390	32° 4' 40.90726 N	103° 31' 59.52172 W
- plan hits target center									
- Point									
Fed 91H_BHL	0.00	0.00	13,381.00	-10,029.84	104.20	383,433.690	789,162.390	32° 3' 5.81509 N	103° 32' 0.34954 W
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
950.00	950.00	13 3/8"	13-3/8	17-1/2



Database: RyanUSA_Compass
Company: Devon Energy Corporation
Project: Lea Co., NM
Site: SeaWolf 1-12
Well: Fed 91H
Wellbore: OH
Design: PN2

Local Co-ordinate Reference: Well Fed 91H
TVD Reference: RT=32 @ 3350.60ft (Nabors X-04)
MD Reference: RT=32 @ 3350.60ft (Nabors X-04)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
805.00	805.00	Rustler			
1,153.00	1,153.00	Top of Salt			
4,884.75	4,876.00	Base of Salt			
5,126.75	5,118.00	Delaware			
9,179.75	9,171.00	Lower Brushy Canyon			
9,359.75	9,351.00	1st BSPG Lime			
10,297.75	10,289.00	1st BSPG Sand			
10,572.75	10,564.00	2nd BSPG Lime			
10,845.75	10,837.00	2nd BSPG Sand			
11,339.75	11,331.00	3rd BSPG Lime			
11,923.75	11,915.00	3rd BSPG Sand			
12,409.75	12,401.00	Wolfcamp			
12,436.75	12,428.00	Wolfcamp X			
12,532.75	12,524.00	Wolfcamp Y			
12,593.75	12,585.00	Wolfcamp 100			
12,665.75	12,657.00	Wolfcamp 110			
12,742.75	12,734.00	Wolfcamp 120			
12,809.79	12,801.00	Wolfcamp 130			
12,930.95	12,920.00	Wolfcamp 200			
13,436.70	13,286.00	Wolfcamp 300			

VAM SG

Connection Data Sheet

O.D (In)	WEIGHT (lb/ft)	WALL (In)	GRADE	DRIFT	CONNECTION
5.500	20.00	0.361	VST P110EC	4.653	VAM® SG

PIPE PROPERTIES	
Material Grade	VST P110EC
Min. Yield Strength	125 ksi
Min. Tensile Strength	135 ksi
Nominal OD	5.500 in
Nominal ID	4.778 in
Nominal Area	5.828 sq. in
Yield Strength	729 kips
Ultimate Strength	787 kips
Min Internal Yield	14,360 psi
External Pressure	12,090 psi

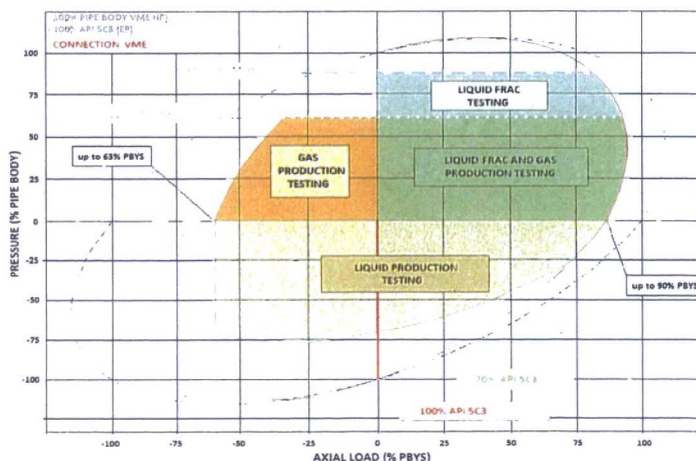
CONNECTION PROPERTIES	
Connection OD	5.697 in
Connection ID	4.711 in
Make up Loss	6.335 in
Connection Critical Area	5.071 sq. in
%PB Section Area	87.0%
Yield Strength	634 kips
Parting Load	685 kips
Min Internal Yield	14,360 psi
External Pressure	8,460 psi
Structural Collapse	12,090 psi
Working Compression	444 kips
Max. Bending w/ Sealability	40 °/100 ft

DOCUMENTATION	
Ref. Drawing	SI-PD 100954 Rev.A
Date	21-Jul-17
Time	3:19 PM
Email	tech.support@vam-usa.com

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

The single solution for Shale Play needs

VAM® SG brings VAM® premium sealing performance to a semi-flush connection with extremely high Tension performance and increased Torque capacity, validated to the specific Shale drilling requirements, while remaining highly competitive in North American Shale play economics.



All information is provided by VAM USA or its affiliates at user's sole risk, without liability for loss, damage or injury resulting from the use thereof, and on an "AS IS" basis without warranty or representation of any kind, whether express or implied, including without limitation any warranty of merchantability, fitness for purpose or completeness. This document and its contents are subject to change without notice. In no event shall VAM USA or its affiliates be responsible for any indirect, special, incidental, punitive, exemplary or consequential loss or damage (including without limitation, loss of use, loss of bargain, loss of revenue, profit or anticipated profit) however caused or arising, and whether such losses or damages were foreseeable or VAM USA or its affiliates was advised of the possibility of such damages.



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)	5.071 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	582 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	588 klb

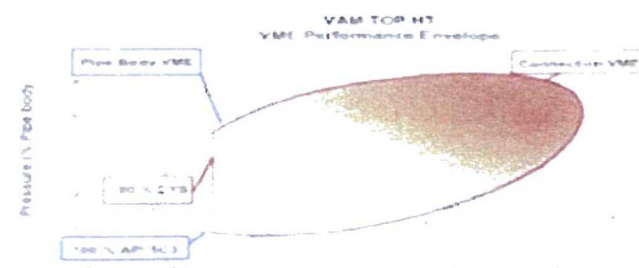
FIELD TORQUE VALUES

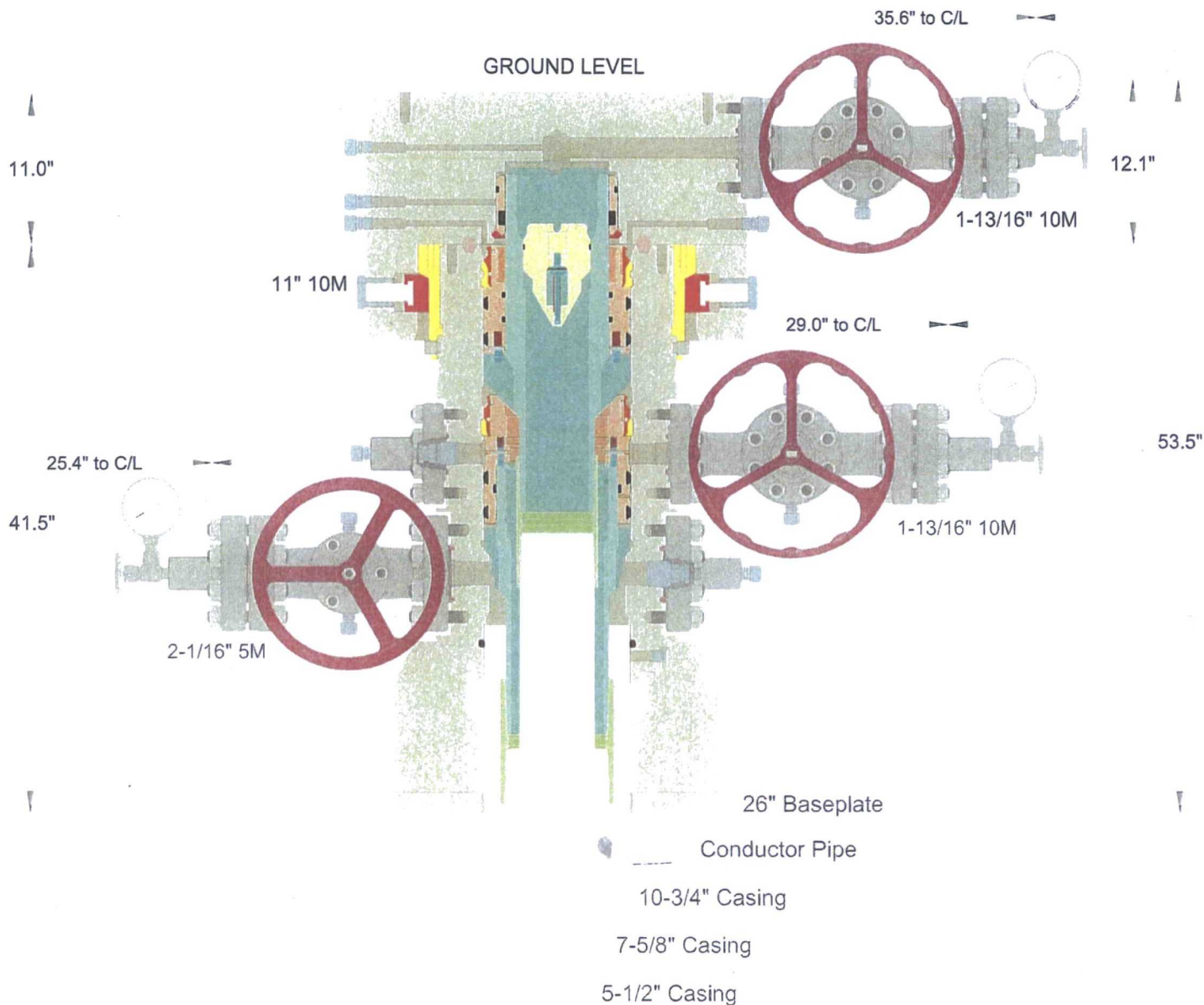
Min. Make-up torque	10850 ft.lb
Opt. Make-up torque	11950 ft.lb
Max. Make-up torque	13050 ft.lb
Field Liner Max.	15400 ft.lb

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 ISO 13679 CAL IV requirements.

VAM® TOP HT is interchangeable with VAM® TOP product line with the exception of 5 1/2" size.





INFORMATION CONTAINED HEREIN IS THE PROPERTY OF CACTUS WELLHEAD, LLC. REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PERMISSIBLE ONLY AS PROVIDED BY CONTRACT OR AS EXPRESSLY AUTHORIZED BY CACTUS WELLHEAD, LLC.

CACTUS WELLHEAD LLC

DEVON ENERGY CORPORATION

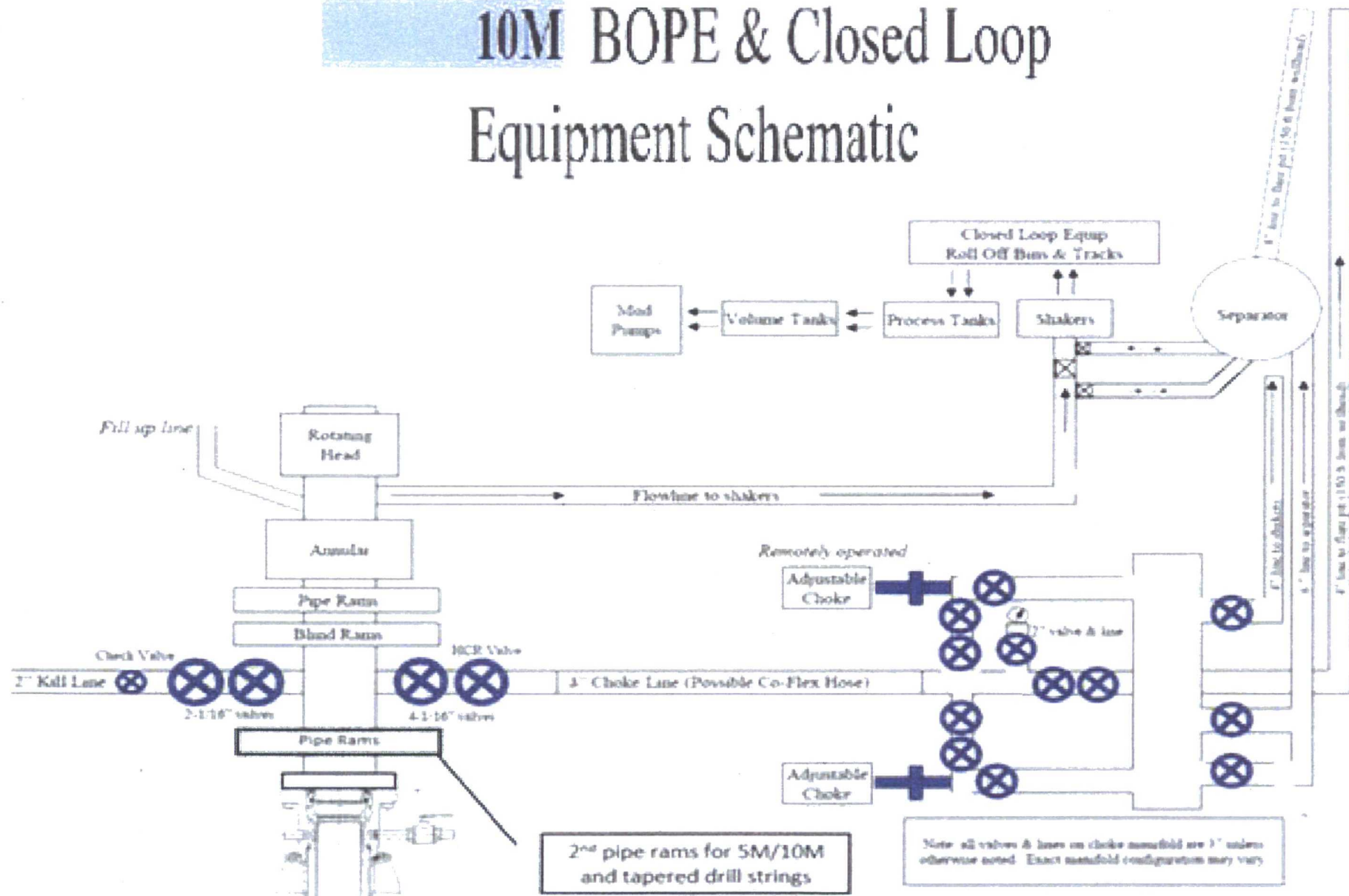
16" x 11-7/8" x 7-5/8" MBU-T Wellhead Assembly
With 7-5/8" & 5-1/2" Pin Bottom Mandrel Casing Hangers
And 11" 10M MBU-T-HPS-F TA Cap

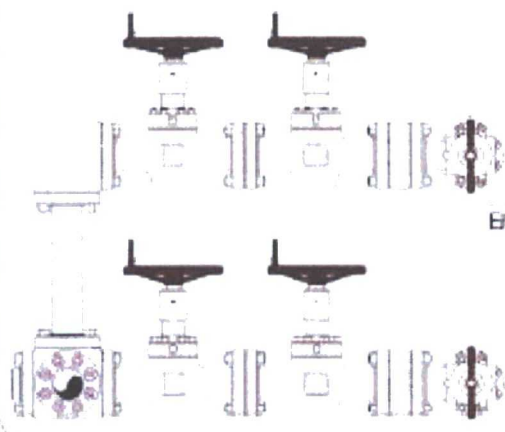
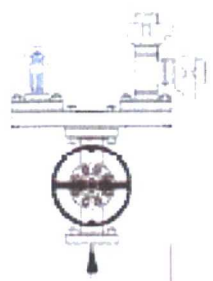
DRAWN DLE 29NOV17

APPRV

DRAWING NO. OKE0001764

10M BOPE & Closed Loop Equipment Schematic





End View

Top choke will be hydraulic.

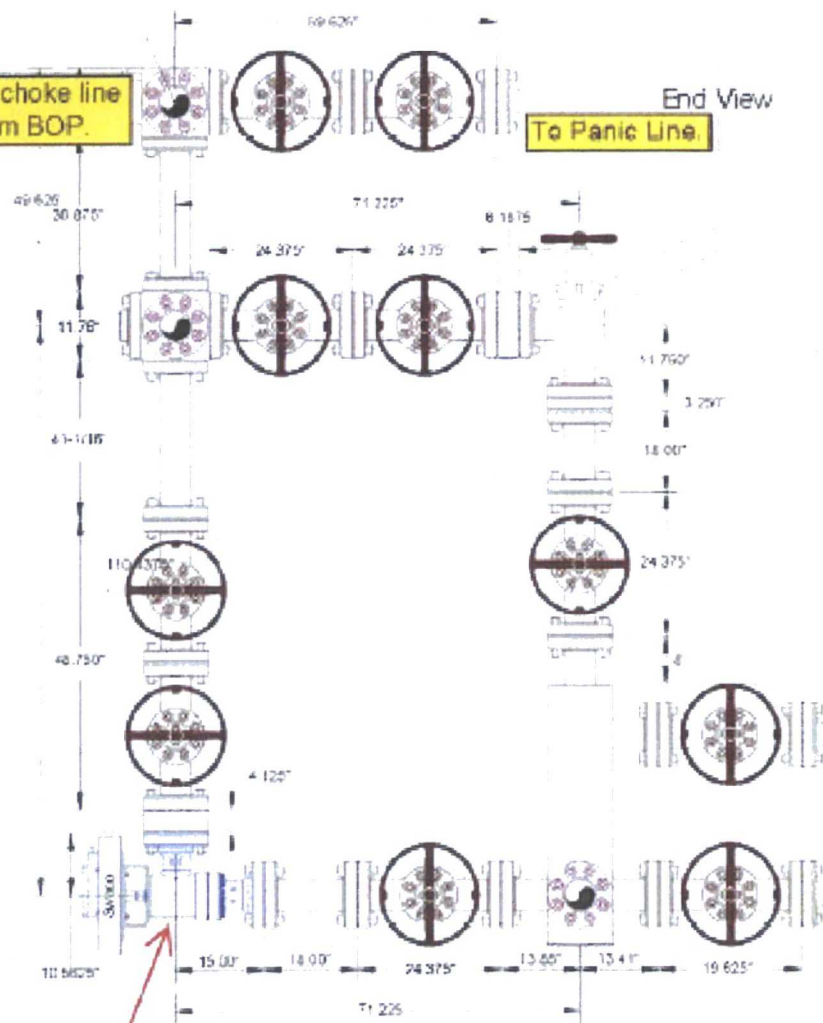
Bottom choke will be manu

Flexible choke line
input from BOP.

To Panic Line

End View

Side View



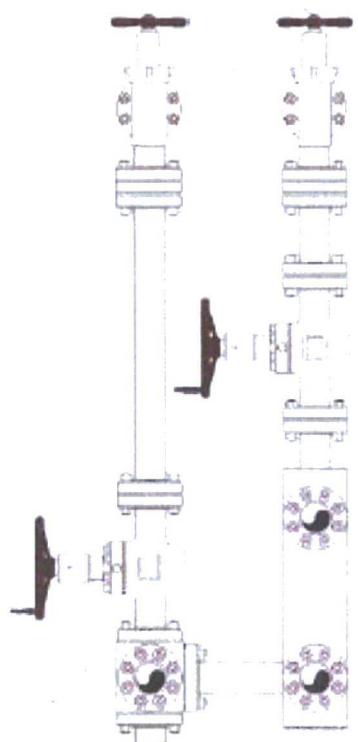
Hydraulic choke.

To Trip Tank.

To Shakers.

To Gas Buster

Side View



**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL**

HOBBS OCD
FEB 06 2018
RECEIVED

OPERATOR'S NAME:	Devon Energy Production Co, LP
LEASE NO.:	NMNM114988
WELL NAME & NO.:	91H-Seawolf 1 12 Fed
SURFACE HOLE FOOTAGE:	200'/N & 330'/W
BOTTOM HOLE FOOTAGE:	330'/S & 832'/W
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

1. 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. **Excess calculates to 23% - additional cement might be required.**

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.

- a. 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.
- b. Second stage above DV tool:

- Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 23% - additional cement might be required.**

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.