

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM077046

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
KO LANTA 9-4 FED COM 528H9. API Well No.
30-015-44865-00-X110. Field and Pool or Exploratory Area
LOS MEDANOS11. County or Parish, State
EDDY COUNTY, NM**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@devon.com

3a. Address

6488 SEVEN RIVERS HIGHWAY
ARTESIA, NM 88211

3b. Phone No. (include area code)

Ph: 405-228-8429

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

Sec 9 T23S R31E 610FSL 180FEL
32.313416 N Lat, 103.774811 W Lon

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

TYPE OF SUBMISSION

☒ Notice of Intent☐ Subsequent Report☐ Final Abandonment Notice☐ Acidize☐ Alter Casing☐ Casing Repair☐ Change Plans☐ Convert to Injection☐ Deepen☐ Hydraulic Fracturing☐ New Construction☐ Plug and Abandon☐ Plug Back☐ Production (Start/Resume)☐ Reclamation☐ Recomplete☐ Temporarily Abandon☐ Water Disposal☐ Water Shut-Off☐ Well Integrity☒ Other
Change to Original A
PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompletable 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 recompletable 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 Production Co., L.P. respectfully requests to add a contingency for a DV tool / packer with a two stage cement job for the intermediate casing. In addition, a pilot hole depth change of approximately 400' for is requested.

Please see attached updated directional plan w/ new pilot hole TD and an updated drilling plan with the estimated depth of the DV tool / updated two - stage volumes.

RECEIVED

MAY 31 2018

SEE ATTACHED FOR
CONDITIONS OF APPROVALGC 6-4-18
Accepted for record - NMOCD

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

Electronic Submission #421749 verified by the BLM Well Information System

For DEVON ENERGY PRODUCTION COMPANY, sent to the Carlsbad

Committed to AFMSS for processing by ZOTA STEVENS on 05/30/2018 (18ZS0121SE)

Name (Printed/Typed) REBECCA DEAL

Title REGULATORY COMPLIANCE PROFESSI

Signature

(Electronic Submission)

Date 05/29/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS

Title PETROLEUM ENGINEER

Date 05/30/2018

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

Office Carlsbad

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

(Instructions on page 2)

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

Devon Energy, Ko Lanta 9-4 528H

1. Geologic Formations

TVD of target	8,829'	Pilot hole depth	9,536' MD
MD at TD:	18,824'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	478		
Salado	779		
Top of Salt	789		
Base of Salt	3866		
Delaware	4203		
Cherry Canyon	5059		
Brushy Canyon	6457		
Madera	7599		
Lower Brushy	7789		
1st BSPG Lime	8073		
LNRD A	8166		
Leonard B	8522		
Leonard C	8855		
Pilot Hole TD	9536		

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

Devon Energy, Ko Lanta 9-4 528H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (PPF)	Grade	Conn.
	From	To				
17.5"	0	480'	13.375"	48	H-40	STC
12.25"	0	4,500'	9.625"	40	J-55	BTC
	4,500'	8,100'	9.625"	40	P-110EC	BTC
8.75"	0	18,852	5.5"	17	P-110	BTC
BLM Minimum Safety Factor				Collapse: 1.125	Burst: 1.00	Tension: 1.6 Dry 1.8 Wet

- 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.
- Int casing shoe will be selected based on drilling data / gamma, setting depth with be revised accordingly if needed.

Must have table for contingency casing

	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, Ko Lanta 9-4 528H

3. Cementing Program

Casing	# Sks	Wt. lb/gal	H ₂ O gal/sk	Yld ft ³ /sack	500# Comp. Strength (hrs)	Slurry Description
13-3/8" Surface	528	14.8	6.352	1.33	5 hr 48 mn	C + Adds
9-5/8" Inter.	1248	10	10.654	1.94	17 hr 37 min	35:65 Poz:C + Adds
	219	14.8	6.42	1.33	5 hr 48 mn	C + Adds
9-5/8" Inter. Two Stage (~5000' TVD)	415	10	17.02	3.31	17 hr 37 min	1 st stage Lead: Class C Cement + additives
	219	14.8	6.42	1.33	5 hr 48 mn	1 st stage Tail: Class H / C + additives
	815	10	17.02	3.31	17 hr 37 min	2 nd stage Lead: Class C Cement + additives
	219	14.8	6.42	1.33	5 hr 48 mn	2 nd stage Tail: Class H / C + additives
8-3/4" Pilot (Open Hole)	380	13.2	11.315	1.46	5 hr 48 mn	C + Adds
5-1/2" Prod	161	9	15.442	3.569	19 hr 3 mn	C + Adds
	1840	13.2	5.175	1.46	9 hr 6 mn	50:50 Poz:H + Adds

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
13-3/8" Surface	0'	50%
9-5/8" Intermediate	0'	30%
8-3/4" Pilot (Open Hole)	~8200'	10%
5-1/2" Production Casing	6,100'	10%

Devon Energy

Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: ST01
 Design: Plan #4

3372.3' GE + 23.2' KB @ 3395.50usft
 Ground Level: 3372.30



Azimuths to Grid North
 True North: -0.30°
 Magnetic North: 6.67°
 Magnetic Field
 Strength: 48102.7nT
 Dip Angle: 60.08°
 Date: 3/26/2018
 Model: HDGM

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

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



0
 480
 SHL (KL 528H)

Ko Lanta 9-4 Fed Com 528H OH

True Vertical Depth (1500 usft/in)

1500
 3000
 4500
 6000

7500
 9000

Ko Lanta 9-4 Fed Com 528H Plan #4

Start DLS 10.00 TFO 359.65'

Start 9639.25 hold at 9185.31 MD

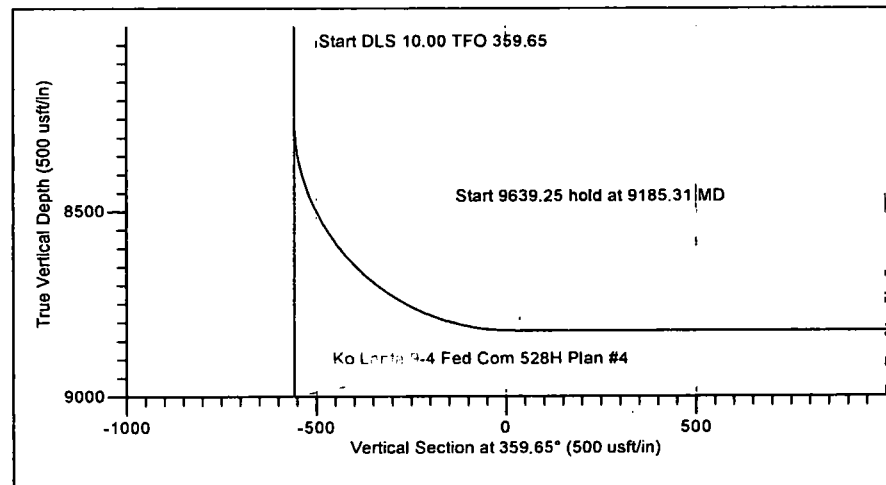
Ko Lanta 9-4 Fed Com 528H OH Plan #4

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Annotation
8285.61	0.00	0.00	8251.04	-560.00	-167.00	0.00	0.00	-558.97	
9185.31	89.97	359.65	8824.00	12.65	-170.48	10.00	359.65	13.69	
18824.56	89.97	359.65	8829.00	9651.72	-228.97	0.00	0.00	9652.94	

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Latitude	Longitude
PBHL (KL 528H)	8829.00	9651.72	-228.97	32° 20' 23.8098 N	103° 46' 31.4130 W
SHL (KL 528H)	0.00	0.00	0.00	32° 18' 48.2900 N	103° 46' 29.3305 W



Ko Lanta 9-4 Fed Com 528H Plan #4

Ko Lanta 9-4 Fed Com 528H ST01 Plan #4

18825

TD at 18824.56

PBHL (KL 528H)

Vertical Section at 359.65° (1500 usft/in)



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

Plan: Plan #4 (Ko Lanta 9-4 Fed Com 528H/ST01)
 Ko Lanta 9-4 Fed Com
 Created By: Dustin Ault
 Date: 10/18, May 24 2018
 Approved: _____
 Date: _____

Devon Energy

Project: Eddy County, NM (NAD-83)
Site: Ko Lanta 9-4 Fed Com
Well: Ko Lanta 9-4 Fed Com 528H
Wellbore: ST01
Design: Plan #4



Azimuths to Grid North
True North: -0.30°
Magnetic North: 6.67°

Magnetic Field
Strength: 48102.7nT
Dip Angle: 60.08°
Date: 3/26/2018
Model: HDGM



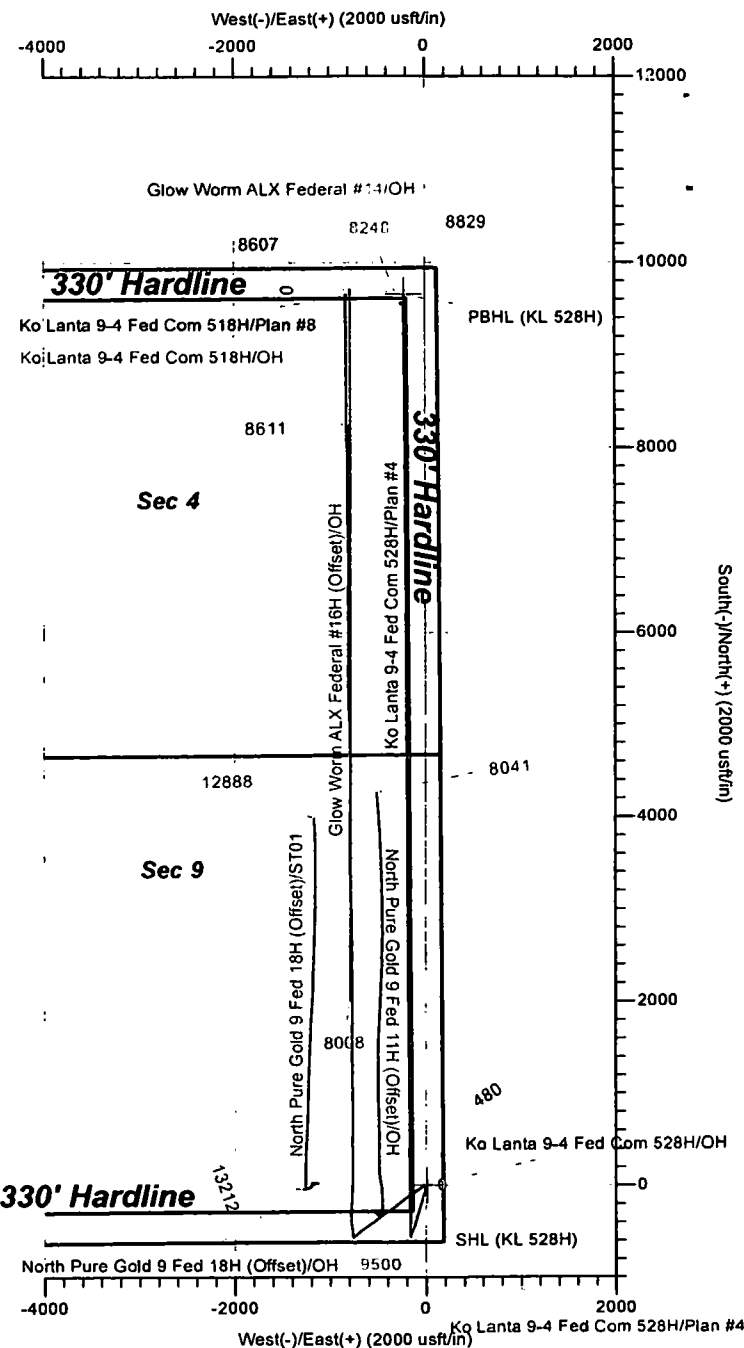
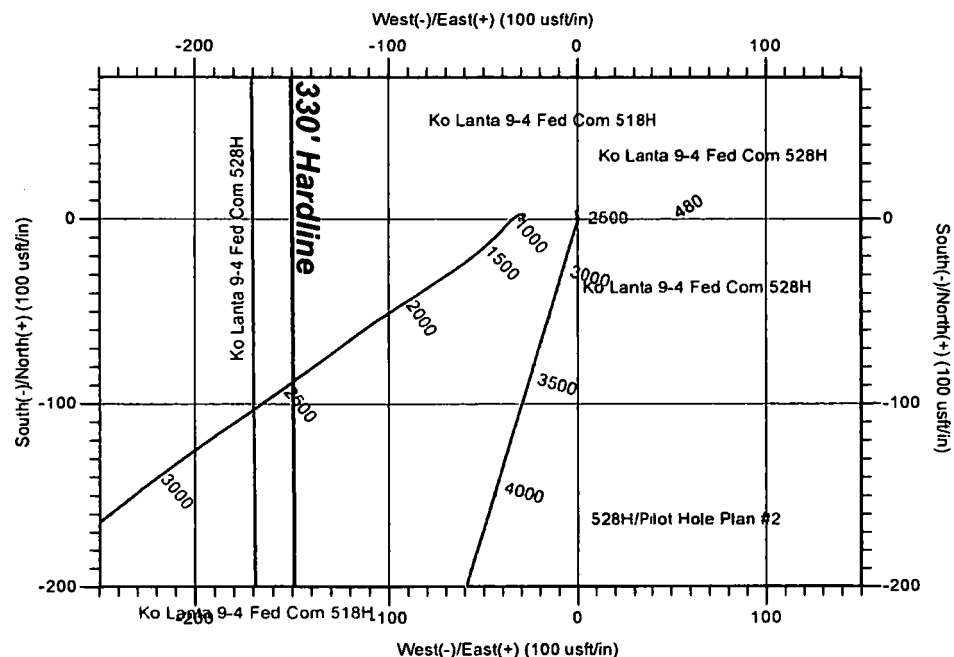
PROJECT DETAILS: Eddy County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
8285.61	0.00	0.00	8251.04	-560.00	-167.00	0.00	0.00	-558.97	
9185.31	89.97	359.65	8824.00	12.65	-170.48	10.00	359.65	13.69	
18824.56	89.97	359.65	8829.00	9651.72	-228.97	0.00	0.00	9652.94	PBHL (KL 528H)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (KL 528H)	8829.00	9651.72	-228.97	487853.60	713652.50	32° 20' 23.8098 N	103° 46' 31.4130 W
SHL (KL 528H)	0.00	0.00	0.00	478201.88	713881.47	32° 18' 48.2900 N	103° 46' 29.3305 W



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

Plan: Plan #4 (Ko Lanta 9-4 Fed Com 528H/ST01)
Ko Lanta 9-4 Fed Com
Created By: Dustin Ault Date: 10/19, May 24 2018
Date: _____
Approved: _____ Date: _____

Devon Energy

Eddy County, NM (NAD-83)

Ko Lanta 9-4 Fed Com

Ko Lanta 9-4 Fed Com 528H

ST01

Plan: Plan #4

Standard Planning Report

24 May, 2018

LEAM Drilling Services

Planning Report

Database: EDM 5000.1 Multi User Db
 Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: ST01
 Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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

Site	Ko Lanta 9-4 Fed Com		
Site Position:		Northing:	478,201.74 usft
From:	Map	Easting:	713,851.39 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 18' 48.2902 N
		Longitude:	103° 46' 29.6811 W
		Grid Convergence:	0.30 °

Well	Ko Lanta 9-4 Fed Com 528H		
Well Position	+N/-S	0.14 usft	Northing:
	+E/-W	30.08 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 18' 48.2900 N
		Longitude:	103° 46' 29.3306 W
		Ground Level:	3,372.30 usft

Wellbore	ST01		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	3/26/2018	6.97
			Dip Angle
			(°)
			60.08
			Field Strength
			(nT)
			48,103

Design	Plan #4		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			8,285.61
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			359.65

Plan Sections										
Measured			Vertical			Dogleg	Build	Turn		
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Rate	Rate	Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
8,285.61	0.00	0.00	8,251.04	-560.00	-167.00	0.00	0.00	0.00	0.00	
9,185.31	89.97	359.65	8,824.00	12.65	-170.48	10.00	10.00	-0.04	359.65	
18,824.56	89.97	359.65	8,829.00	9,651.72	-228.97	0.00	0.00	0.00	0.00	PBHL (KL 528H)

LEAM Drilling Services

Planning Report

Database: EDM 5000.1 Multi User Db
 Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: ST01
 Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (KL 528H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,550.00	0.00	0.00	2,550.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.75	196.61	2,600.00	-0.31	-0.09	-0.31	1.50	1.50	0.00
2,700.00	2.25	196.61	2,699.96	-2.82	-0.84	-2.82	1.50	1.50	0.00
2,800.00	3.75	196.61	2,799.82	-7.84	-2.34	-7.82	1.50	1.50	0.00
2,900.00	5.25	196.61	2,899.51	-15.36	-4.58	-15.33	1.50	1.50	0.00
3,000.00	6.75	196.61	2,998.96	-25.37	-7.57	-25.33	1.50	1.50	0.00
3,016.51	7.00	196.61	3,015.35	-27.27	-8.13	-27.22	1.50	1.50	0.00
3,100.00	7.00	196.61	3,098.22	-37.01	-11.04	-36.95	0.00	0.00	0.00
3,200.00	7.00	196.61	3,197.47	-48.69	-14.52	-48.60	0.00	0.00	0.00
3,300.00	7.00	196.61	3,296.73	-60.36	-18.00	-60.25	0.00	0.00	0.00
3,400.00	7.00	196.61	3,395.98	-72.04	-21.48	-71.90	0.00	0.00	0.00
3,500.00	7.00	196.61	3,495.24	-83.71	-24.96	-83.56	0.00	0.00	0.00
3,600.00	7.00	196.61	3,594.49	-95.39	-28.45	-95.21	0.00	0.00	0.00
3,700.00	7.00	196.61	3,693.75	-107.06	-31.93	-106.86	0.00	0.00	0.00
3,800.00	7.00	196.61	3,793.01	-118.74	-35.41	-118.52	0.00	0.00	0.00
3,900.00	7.00	196.61	3,892.26	-130.41	-38.89	-130.17	0.00	0.00	0.00
4,000.00	7.00	196.61	3,991.52	-142.09	-42.37	-141.82	0.00	0.00	0.00
4,100.00	7.00	196.61	4,090.77	-153.76	-45.85	-153.48	0.00	0.00	0.00
4,200.00	7.00	196.61	4,190.03	-165.44	-49.34	-165.13	0.00	0.00	0.00
4,300.00	7.00	196.61	4,289.28	-177.11	-52.82	-176.78	0.00	0.00	0.00
4,400.00	7.00	196.61	4,388.54	-188.78	-56.30	-188.44	0.00	0.00	0.00
4,500.00	7.00	196.61	4,487.79	-200.46	-59.78	-200.09	0.00	0.00	0.00
4,600.00	7.00	196.61	4,587.05	-212.13	-63.26	-211.74	0.00	0.00	0.00
4,700.00	7.00	196.61	4,686.30	-223.81	-66.74	-223.40	0.00	0.00	0.00
4,800.00	7.00	196.61	4,785.56	-235.48	-70.22	-235.05	0.00	0.00	0.00
4,900.00	7.00	196.61	4,884.81	-247.16	-73.71	-246.70	0.00	0.00	0.00
5,000.00	7.00	196.61	4,984.07	-258.83	-77.19	-258.36	0.00	0.00	0.00

LEAM Drilling Services

Planning Report

Database: EDM 5000.1 Multi User Db
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Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.00	7.00	196.61	5,083.32	-270.51	-80.67	-270.01	0.00	0.00	0.00
5,200.00	7.00	196.61	5,182.58	-282.18	-84.15	-281.66	0.00	0.00	0.00
5,300.00	7.00	196.61	5,281.83	-293.86	-87.63	-293.32	0.00	0.00	0.00
5,400.00	7.00	196.61	5,381.09	-305.53	-91.11	-304.97	0.00	0.00	0.00
5,500.00	7.00	196.61	5,480.34	-317.21	-94.60	-316.62	0.00	0.00	0.00
5,600.00	7.00	196.61	5,579.60	-328.88	-98.08	-328.28	0.00	0.00	0.00
5,700.00	7.00	196.61	5,678.85	-340.56	-101.56	-339.93	0.00	0.00	0.00
5,800.00	7.00	196.61	5,778.11	-352.23	-105.04	-351.58	0.00	0.00	0.00
5,900.00	7.00	196.61	5,877.36	-363.91	-108.52	-363.24	0.00	0.00	0.00
6,000.00	7.00	196.61	5,976.62	-375.58	-112.00	-374.89	0.00	0.00	0.00
6,100.00	7.00	196.61	6,075.87	-387.26	-115.49	-386.54	0.00	0.00	0.00
6,200.00	7.00	196.61	6,175.13	-398.93	-118.97	-398.20	0.00	0.00	0.00
6,300.00	7.00	196.61	6,274.38	-410.60	-122.45	-409.85	0.00	0.00	0.00
6,400.00	7.00	196.61	6,373.64	-422.28	-125.93	-421.50	0.00	0.00	0.00
6,500.00	7.00	196.61	6,472.89	-433.95	-129.41	-433.16	0.00	0.00	0.00
6,600.00	7.00	196.61	6,572.15	-445.63	-132.89	-444.81	0.00	0.00	0.00
6,700.00	7.00	196.61	6,671.40	-457.30	-136.37	-456.46	0.00	0.00	0.00
6,800.00	7.00	196.61	6,770.66	-468.98	-139.86	-468.12	0.00	0.00	0.00
6,900.00	7.00	196.61	6,869.91	-480.65	-143.34	-479.77	0.00	0.00	0.00
7,000.00	7.00	196.61	6,969.17	-492.33	-146.82	-491.42	0.00	0.00	0.00
7,100.00	7.00	196.61	7,068.42	-504.00	-150.30	-503.08	0.00	0.00	0.00
7,200.00	7.00	196.61	7,167.68	-515.68	-153.78	-514.73	0.00	0.00	0.00
7,300.00	7.00	196.61	7,266.93	-527.35	-157.26	-526.38	0.00	0.00	0.00
7,346.10	7.00	196.61	7,312.69	-532.73	-158.87	-531.75	0.00	0.00	0.00
7,400.00	6.19	196.61	7,366.23	-538.67	-160.64	-537.67	1.50	-1.50	0.00
7,500.00	4.69	196.61	7,465.78	-547.75	-163.35	-546.74	1.50	-1.50	0.00
7,600.00	3.19	196.61	7,565.54	-554.33	-165.31	-553.31	1.50	-1.50	0.00
7,700.00	1.69	196.61	7,665.45	-558.41	-166.53	-557.38	1.50	-1.50	0.00
7,800.00	0.19	196.61	7,765.43	-559.98	-166.99	-558.95	1.50	-1.50	0.00
7,812.61	0.00	0.00	7,778.04	-560.00	-167.00	-558.97	1.50	-1.50	0.00
7,900.00	0.00	0.00	7,865.43	-560.00	-167.00	-558.97	0.00	0.00	0.00
8,000.00	0.00	0.00	7,965.43	-560.00	-167.00	-558.97	0.00	0.00	0.00
8,100.00	0.00	0.00	8,065.43	-560.00	-167.00	-558.97	0.00	0.00	0.00
8,200.00	0.00	0.00	8,165.43	-560.00	-167.00	-558.97	0.00	0.00	0.00
8,285.61	0.00	0.00	8,251.04	-560.00	-167.00	-558.97	0.00	0.00	0.00
8,300.00	1.44	359.65	8,265.43	-559.82	-167.00	-558.79	10.00	10.00	0.00
8,350.00	6.44	359.65	8,315.30	-556.39	-167.02	-555.36	10.00	10.00	0.00
8,400.00	11.44	359.65	8,364.67	-548.62	-167.07	-547.59	10.00	10.00	0.00
8,450.00	16.44	359.65	8,413.19	-536.58	-167.14	-535.55	10.00	10.00	0.00
8,500.00	21.44	359.65	8,460.46	-520.36	-167.24	-519.32	10.00	10.00	0.00
8,550.00	26.44	359.65	8,506.15	-500.07	-167.36	-499.04	10.00	10.00	0.00
8,600.00	31.44	359.65	8,549.89	-475.89	-167.51	-474.86	10.00	10.00	0.00
8,650.00	36.44	359.65	8,591.36	-447.98	-167.68	-446.95	10.00	10.00	0.00
8,700.00	41.44	359.65	8,630.24	-416.57	-167.87	-415.54	10.00	10.00	0.00
8,750.00	46.44	359.65	8,666.23	-381.89	-168.08	-380.85	10.00	10.00	0.00
8,800.00	51.44	359.65	8,699.06	-344.20	-168.31	-343.16	10.00	10.00	0.00
8,850.00	56.44	359.65	8,728.49	-303.79	-168.55	-302.76	10.00	10.00	0.00
8,900.00	61.44	359.65	8,754.28	-260.98	-168.81	-259.94	10.00	10.00	0.00
8,950.00	66.44	359.65	8,776.24	-216.07	-169.09	-215.04	10.00	10.00	0.00
9,000.00	71.44	359.65	8,794.20	-169.43	-169.37	-168.39	10.00	10.00	0.00
9,050.00	76.44	359.65	8,808.03	-121.40	-169.66	-120.36	10.00	10.00	0.00
9,100.00	81.44	359.65	8,817.62	-72.34	-169.96	-71.30	10.00	10.00	0.00
9,150.00	86.44	359.65	8,822.89	-22.64	-170.26	-21.60	10.00	10.00	0.00
9,185.31	89.97	359.65	8,824.00	12.65	-170.48	13.69	10.00	10.00	0.00

LEAM Drilling Services

Planning Report

Database: EDM 5000.1 Multi User Db
 Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: ST01
 Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,200.00	89.97	359.65	8,824.01	27.34	-170.56	28.38	0.00	0.00	0.00
9,300.00	89.97	359.65	8,824.06	127.34	-171.17	128.38	0.00	0.00	0.00
9,400.00	89.97	359.65	8,824.11	227.33	-171.78	228.38	0.00	0.00	0.00
9,500.00	89.97	359.65	8,824.16	327.33	-172.38	328.38	0.00	0.00	0.00
9,600.00	89.97	359.65	8,824.22	427.33	-172.99	428.38	0.00	0.00	0.00
9,700.00	89.97	359.65	8,824.27	527.33	-173.60	528.38	0.00	0.00	0.00
9,800.00	89.97	359.65	8,824.32	627.33	-174.21	628.38	0.00	0.00	0.00
9,900.00	89.97	359.65	8,824.37	727.32	-174.81	728.38	0.00	0.00	0.00
10,000.00	89.97	359.65	8,824.42	827.32	-175.42	828.38	0.00	0.00	0.00
10,100.00	89.97	359.65	8,824.47	927.32	-176.03	928.38	0.00	0.00	0.00
10,200.00	89.97	359.65	8,824.53	1,027.32	-176.63	1,028.38	0.00	0.00	0.00
10,300.00	89.97	359.65	8,824.58	1,127.32	-177.24	1,128.38	0.00	0.00	0.00
10,400.00	89.97	359.65	8,824.63	1,227.31	-177.85	1,228.38	0.00	0.00	0.00
10,500.00	89.97	359.65	8,824.68	1,327.31	-178.45	1,328.38	0.00	0.00	0.00
10,600.00	89.97	359.65	8,824.73	1,427.31	-179.06	1,428.38	0.00	0.00	0.00
10,700.00	89.97	359.65	8,824.79	1,527.31	-179.67	1,528.38	0.00	0.00	0.00
10,800.00	89.97	359.65	8,824.84	1,627.31	-180.27	1,628.38	0.00	0.00	0.00
10,900.00	89.97	359.65	8,824.89	1,727.31	-180.88	1,728.38	0.00	0.00	0.00
11,000.00	89.97	359.65	8,824.94	1,827.30	-181.49	1,828.38	0.00	0.00	0.00
11,100.00	89.97	359.65	8,824.99	1,927.30	-182.09	1,928.38	0.00	0.00	0.00
11,200.00	89.97	359.65	8,825.05	2,027.30	-182.70	2,028.38	0.00	0.00	0.00
11,300.00	89.97	359.65	8,825.10	2,127.30	-183.31	2,128.38	0.00	0.00	0.00
11,400.00	89.97	359.65	8,825.15	2,227.30	-183.91	2,228.38	0.00	0.00	0.00
11,500.00	89.97	359.65	8,825.20	2,327.29	-184.52	2,328.38	0.00	0.00	0.00
11,600.00	89.97	359.65	8,825.25	2,427.29	-185.13	2,428.38	0.00	0.00	0.00
11,700.00	89.97	359.65	8,825.30	2,527.29	-185.74	2,528.38	0.00	0.00	0.00
11,800.00	89.97	359.65	8,825.36	2,627.29	-186.34	2,628.38	0.00	0.00	0.00
11,900.00	89.97	359.65	8,825.41	2,727.29	-186.95	2,728.38	0.00	0.00	0.00
12,000.00	89.97	359.65	8,825.46	2,827.29	-187.56	2,828.38	0.00	0.00	0.00
12,100.00	89.97	359.65	8,825.51	2,927.28	-188.16	2,928.38	0.00	0.00	0.00
12,200.00	89.97	359.65	8,825.56	3,027.28	-188.77	3,028.38	0.00	0.00	0.00
12,300.00	89.97	359.65	8,825.62	3,127.28	-189.38	3,128.38	0.00	0.00	0.00
12,400.00	89.97	359.65	8,825.67	3,227.28	-189.98	3,228.38	0.00	0.00	0.00
12,500.00	89.97	359.65	8,825.72	3,327.28	-190.59	3,328.38	0.00	0.00	0.00
12,600.00	89.97	359.65	8,825.77	3,427.27	-191.20	3,428.38	0.00	0.00	0.00
12,700.00	89.97	359.65	8,825.82	3,527.27	-191.80	3,528.38	0.00	0.00	0.00
12,800.00	89.97	359.65	8,825.88	3,627.27	-192.41	3,628.38	0.00	0.00	0.00
12,900.00	89.97	359.65	8,825.93	3,727.27	-193.02	3,728.38	0.00	0.00	0.00
13,000.00	89.97	359.65	8,825.98	3,827.27	-193.62	3,828.38	0.00	0.00	0.00
13,100.00	89.97	359.65	8,826.03	3,927.26	-194.23	3,928.38	0.00	0.00	0.00
13,200.00	89.97	359.65	8,826.08	4,027.26	-194.84	4,028.38	0.00	0.00	0.00
13,300.00	89.97	359.65	8,826.13	4,127.26	-195.44	4,128.38	0.00	0.00	0.00
13,400.00	89.97	359.65	8,826.19	4,227.26	-196.05	4,228.38	0.00	0.00	0.00
13,500.00	89.97	359.65	8,826.24	4,327.26	-196.66	4,328.38	0.00	0.00	0.00
13,600.00	89.97	359.65	8,826.29	4,427.26	-197.27	4,428.38	0.00	0.00	0.00
13,700.00	89.97	359.65	8,826.34	4,527.25	-197.87	4,528.38	0.00	0.00	0.00
13,800.00	89.97	359.65	8,826.39	4,627.25	-198.48	4,628.38	0.00	0.00	0.00
13,900.00	89.97	359.65	8,826.45	4,727.25	-199.09	4,728.38	0.00	0.00	0.00
14,000.00	89.97	359.65	8,826.50	4,827.25	-199.69	4,828.38	0.00	0.00	0.00
14,100.00	89.97	359.65	8,826.55	4,927.25	-200.30	4,928.38	0.00	0.00	0.00
14,200.00	89.97	359.65	8,826.60	5,027.24	-200.91	5,028.38	0.00	0.00	0.00
14,300.00	89.97	359.65	8,826.65	5,127.24	-201.51	5,128.38	0.00	0.00	0.00
14,400.00	89.97	359.65	8,826.70	5,227.24	-202.12	5,228.38	0.00	0.00	0.00
14,500.00	89.97	359.65	8,826.76	5,327.24	-202.73	5,328.38	0.00	0.00	0.00

LEAM Drilling Services

Planning Report

Database: EDM 5000.1 Multi User Db
 Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: ST01
 Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,600.00	89.97	359.65	8,826.81	5,427.24	-203.33	5,428.38	0.00	0.00	0.00
14,700.00	89.97	359.65	8,826.86	5,527.24	-203.94	5,528.38	0.00	0.00	0.00
14,800.00	89.97	359.65	8,826.91	5,627.23	-204.55	5,628.38	0.00	0.00	0.00
14,900.00	89.97	359.65	8,826.96	5,727.23	-205.15	5,728.38	0.00	0.00	0.00
15,000.00	89.97	359.65	8,827.02	5,827.23	-205.76	5,828.38	0.00	0.00	0.00
15,100.00	89.97	359.65	8,827.07	5,927.23	-206.37	5,928.38	0.00	0.00	0.00
15,200.00	89.97	359.65	8,827.12	6,027.23	-206.97	6,028.38	0.00	0.00	0.00
15,300.00	89.97	359.65	8,827.17	6,127.22	-207.58	6,128.38	0.00	0.00	0.00
15,400.00	89.97	359.65	8,827.22	6,227.22	-208.19	6,228.38	0.00	0.00	0.00
15,500.00	89.97	359.65	8,827.28	6,327.22	-208.80	6,328.38	0.00	0.00	0.00
15,600.00	89.97	359.65	8,827.33	6,427.22	-209.40	6,428.38	0.00	0.00	0.00
15,700.00	89.97	359.65	8,827.38	6,527.22	-210.01	6,528.38	0.00	0.00	0.00
15,800.00	89.97	359.65	8,827.43	6,627.21	-210.62	6,628.38	0.00	0.00	0.00
15,900.00	89.97	359.65	8,827.48	6,727.21	-211.22	6,728.38	0.00	0.00	0.00
16,000.00	89.97	359.65	8,827.53	6,827.21	-211.83	6,828.38	0.00	0.00	0.00
16,100.00	89.97	359.65	8,827.59	6,927.21	-212.44	6,928.38	0.00	0.00	0.00
16,200.00	89.97	359.65	8,827.64	7,027.21	-213.04	7,028.38	0.00	0.00	0.00
16,300.00	89.97	359.65	8,827.69	7,127.21	-213.65	7,128.38	0.00	0.00	0.00
16,400.00	89.97	359.65	8,827.74	7,227.20	-214.26	7,228.38	0.00	0.00	0.00
16,500.00	89.97	359.65	8,827.79	7,327.20	-214.86	7,328.38	0.00	0.00	0.00
16,600.00	89.97	359.65	8,827.85	7,427.20	-215.47	7,428.38	0.00	0.00	0.00
16,700.00	89.97	359.65	8,827.90	7,527.20	-216.08	7,528.38	0.00	0.00	0.00
16,800.00	89.97	359.65	8,827.95	7,627.20	-216.68	7,628.38	0.00	0.00	0.00
16,900.00	89.97	359.65	8,828.00	7,727.19	-217.29	7,728.38	0.00	0.00	0.00
17,000.00	89.97	359.65	8,828.05	7,827.19	-217.90	7,828.38	0.00	0.00	0.00
17,100.00	89.97	359.65	8,828.11	7,927.19	-218.50	7,928.38	0.00	0.00	0.00
17,200.00	89.97	359.65	8,828.16	8,027.19	-219.11	8,028.38	0.00	0.00	0.00
17,300.00	89.97	359.65	8,828.21	8,127.19	-219.72	8,128.38	0.00	0.00	0.00
17,400.00	89.97	359.65	8,828.26	8,227.19	-220.33	8,228.38	0.00	0.00	0.00
17,500.00	89.97	359.65	8,828.31	8,327.18	-220.93	8,328.38	0.00	0.00	0.00
17,600.00	89.97	359.65	8,828.36	8,427.18	-221.54	8,428.38	0.00	0.00	0.00
17,700.00	89.97	359.65	8,828.42	8,527.18	-222.15	8,528.38	0.00	0.00	0.00
17,800.00	89.97	359.65	8,828.47	8,627.18	-222.75	8,628.38	0.00	0.00	0.00
17,900.00	89.97	359.65	8,828.52	8,727.18	-223.36	8,728.38	0.00	0.00	0.00
18,000.00	89.97	359.65	8,828.57	8,827.17	-223.97	8,828.38	0.00	0.00	0.00
18,100.00	89.97	359.65	8,828.62	8,927.17	-224.57	8,928.38	0.00	0.00	0.00
18,200.00	89.97	359.65	8,828.68	9,027.17	-225.18	9,028.38	0.00	0.00	0.00
18,300.00	89.97	359.65	8,828.73	9,127.17	-225.79	9,128.38	0.00	0.00	0.00
18,400.00	89.97	359.65	8,828.78	9,227.17	-226.39	9,228.38	0.00	0.00	0.00
18,500.00	89.97	359.65	8,828.83	9,327.16	-227.00	9,328.38	0.00	0.00	0.00
18,600.00	89.97	359.65	8,828.88	9,427.16	-227.61	9,428.38	0.00	0.00	0.00
18,700.00	89.97	359.65	8,828.94	9,527.16	-228.21	9,528.38	0.00	0.00	0.00
18,800.00	89.97	359.65	8,828.99	9,627.16	-228.82	9,628.38	0.00	0.00	0.00
18,824.56	89.97	359.65	8,829.00	9,651.72	-228.97	9,652.94	0.00	0.00	0.00

PBHL (KL 528H)

LEAM Drilling Services

Planning Report

Database: EDM 5000.1 Multi User Db
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Ko Lanta 9-4 Fed Com
Well: Ko Lanta 9-4 Fed Com 528H
Wellbore: ST01
Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
SHL (KL 528H)	0.00	0.00	0.00	0.00	0.00	478,201.88	713,881.47	32° 18' 48.2900 N	103° 46' 29.3306 W
- plan hits target center									
- Point									
PBHL (KL 528H)	0.00	0.00	8,829.00	9,651.72	-228.97	487,853.60	713,652.50	32° 20' 23.8098 N	103° 46' 31.4130 W
- plan hits target center									
- Point									

Devon Energy

Eddy County, NM (NAD-83)

Ko Lanta 9-4 Fed Com

Ko Lanta 9-4 Fed Com 528H

ST01

Plan #4

Anticollision Report

24 May, 2018

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference	Plan #4
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.00usft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 2,174.65 usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program		Date	5/24/2018	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	8,285.61	Plan #4 (OH)	MWD+IFR1	OWSG MWD + IFR1
8,285.61	18,824.56	Plan #4 (ST01)	MWD+IFR1	OWSG MWD + IFR1

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Ko Lanta 9-4 Fed Com						
Glow Worm ALX Federal #14 (Offset) - OH - OH	18,400.00	8,250.00	660.90	543.42	5.626	SF
Glow Worm ALX Federal #14 (Offset) - OH - OH	18,714.19	8,250.00	581.44	492.42	6.532	CC
Glow Worm ALX Federal #14 (Offset) - OH - OH	18,800.00	8,250.00	587.74	491.02	6.077	ES
Glow Worm ALX Federal #16H (Offset) - OH - OH	11,185.55	12,525.00	1,019.39	990.28	35.015	CC
Glow Worm ALX Federal #16H (Offset) - OH - OH	11,200.00	12,525.00	1,019.49	990.26	34.873	ES
Glow Worm ALX Federal #16H (Offset) - OH - OH	14,067.16	9,985.53	1,383.53	1,336.24	29.260	SF
Ko Lanta 9-4 Fed Com 518H - OH - OH	364.02	363.53	28.56	26.48	13.755	CC
Ko Lanta 9-4 Fed Com 518H - OH - OH	1,000.00	999.21	31.54	24.97	4.800	ES
Ko Lanta 9-4 Fed Com 518H - OH - OH	17,400.00	17,215.71	629.55	454.09	3.588	SF
Ko Lanta 9-4 Fed Com 518H - OH - Plan #8	364.02	363.53	28.56	26.48	13.755	CC
Ko Lanta 9-4 Fed Com 518H - OH - Plan #8	1,000.00	999.21	31.54	24.97	4.800	ES
Ko Lanta 9-4 Fed Com 518H - OH - Plan #8	18,824.56	18,645.16	639.50	438.31	3.179	SF
Ko Lanta 9-4 Fed Com 528H - OH - OH	0.00	0.00	0.00			
Ko Lanta 9-4 Fed Com 528H - OH - OH	100.00	100.00	0.29	0.00	1.004	Level 2, SF
Ko Lanta 9-4 Fed Com 528H - OH - Plan #4	8,600.00	8,584.46	84.11	83.01	76.067	CC, ES, SF
North Pure Gold 9 Fed 11H (Offset) - OH - OH	6,814.08	6,790.80	385.74	361.75	16.074	CC
North Pure Gold 9 Fed 11H (Offset) - OH - OH	6,900.00	6,876.37	385.86	361.55	15.870	ES
North Pure Gold 9 Fed 11H (Offset) - OH - OH	13,500.00	12,400.00	850.22	762.65	9.710	SF
North Pure Gold 9 Fed 18H (Offset) - OH - OH	9,187.17	8,809.51	1,014.82	985.40	34.492	CC, ES
North Pure Gold 9 Fed 18H (Offset) - OH - OH	9,200.00	8,808.47	1,014.89	985.45	34.480	SF
North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01	9,187.17	8,809.51	1,014.82	985.40	34.492	CC, ES
North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01	9,200.00	8,808.47	1,014.89	985.45	34.480	SF

Offset Design Ko Lanta 9-4 Fed Com - Glow Worm ALX Federal #14 (Offset) - OH - OH											Offset Site Error:	0.00 usft	
Survey Program: 511-MWD-ISCWSA. 4241-INC-ONLY											Offset Well Error:	0.00 usft	
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	Offset Wellbore Centre +E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
16,700.00	8,827.90	8,250.00	8,247.84	81.76	100.35	-3.07	9,541.47	-259.44	2,098.44	1,964.64	131.79	15.907	
16,800.00	8,827.95	8,250.00	8,247.84	82.66	100.35	-3.07	9,541.47	-259.44	2,000.55	1,868.67	131.88	15.169	
16,900.00	8,828.00	8,250.00	8,247.84	83.57	100.35	-3.07	9,541.47	-259.44	1,905.09	1,773.12	131.97	14.435	
17,000.00	8,828.05	8,250.00	8,247.84	84.48	100.35	-3.07	9,541.47	-259.44	1,810.12	1,678.05	132.07	13.706	
17,100.00	8,828.11	8,250.00	8,247.84	85.39	100.35	-3.07	9,541.47	-259.44	1,715.72	1,583.56	132.16	12.982	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Glow Worm ALX Federal #14 (Offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 511-MWD-ISCWSA, 4241-INC-ONLY													Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Warning								
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
17,200.00	8,828.16	8,250.00	8,247.84	86.30	100.35	-3.07	9,541.47	-259.44	1,621.99	1,489.74	132.25	12.264		
17,300.00	8,828.21	8,250.00	8,247.84	87.22	100.35	-3.07	9,541.47	-259.44	1,529.06	1,398.72	132.34	11.554		
17,400.00	8,828.26	8,250.00	8,247.84	88.13	100.35	-3.07	9,541.47	-259.44	1,437.07	1,304.66	132.41	10.853		
17,500.00	8,828.31	8,250.00	8,247.84	89.05	100.35	-3.07	9,541.47	-259.44	1,346.23	1,213.79	132.44	10.164		
17,600.00	8,828.36	8,250.00	8,247.84	89.96	100.35	-3.07	9,541.47	-259.44	1,256.78	1,124.35	132.43	9.490		
17,700.00	8,828.42	8,250.00	8,247.84	90.88	100.35	-3.07	9,541.47	-259.44	1,169.04	1,036.71	132.33	8.834		
17,800.00	8,828.47	8,250.00	8,247.84	91.80	100.35	-3.07	9,541.47	-259.44	1,083.43	951.34	132.09	8.202		
17,900.00	8,828.52	8,250.00	8,247.84	92.72	100.35	-3.07	9,541.47	-259.44	1,000.49	868.88	131.61	7.602		
18,000.00	8,828.57	8,250.00	8,247.84	93.64	100.35	-3.07	9,541.47	-259.44	920.95	790.19	130.75	7.043		
18,100.00	8,828.62	8,250.00	8,247.84	94.56	100.35	-3.07	9,541.47	-259.44	845.76	716.45	129.31	6.541		
18,200.00	8,828.68	8,250.00	8,247.84	95.49	100.35	-3.07	9,541.47	-259.44	776.19	649.24	126.94	6.114		
18,300.00	8,828.73	8,250.00	8,247.84	96.41	100.35	-3.07	9,541.47	-259.44	713.88	590.69	123.19	5.795		
18,400.00	8,828.78	8,250.00	8,247.84	97.33	100.35	-3.07	9,541.47	-259.44	660.90	543.42	117.48	5.626 SF		
18,500.00	8,828.83	8,250.00	8,247.84	98.26	100.35	-3.07	9,541.47	-259.44	619.64	510.39	109.25	5.672		
18,600.00	8,828.88	8,250.00	8,247.84	99.19	100.35	-3.07	9,541.47	-259.44	592.55	494.02	98.52	6.014		
18,700.00	8,828.94	8,250.00	8,247.84	100.11	100.35	-3.07	9,541.47	-259.44	581.61	492.44	89.17	6.522		
18,714.19	8,828.94	8,250.00	8,247.84	100.25	100.35	-3.07	9,541.47	-259.44	581.44	492.42	89.02	6.532 CC		
18,800.00	8,828.99	8,250.00	8,247.84	101.04	100.35	-3.07	9,541.47	-259.44	587.74	491.02	96.72	6.077 ES		
18,824.56	8,829.00	8,250.00	8,247.84	101.27	100.35	-3.07	9,541.47	-259.44	591.82	491.88	99.94	5.922		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Glow Worm ALX Federal #16H (Offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 551-NS-GYRO-MS. 12525-Project													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
9,300.00	8,824.06	12,525.00	8,032.13	29.57	1.01	-36.69	2,009.58	-791.71	2,143.47	2,115.99	27.48	77.992		
9,400.00	8,824.11	12,525.00	8,032.13	29.73	1.01	-36.69	2,009.58	-791.71	2,056.05	2,028.73	27.32	75.249		
9,500.00	8,824.16	12,525.00	8,032.13	29.93	1.01	-36.69	2,009.58	-791.71	1,969.83	1,942.68	27.16	72.537		
9,600.00	8,824.22	12,525.00	8,032.13	30.15	1.01	-36.69	2,009.58	-791.71	1,884.98	1,857.99	26.98	69.860		
9,700.00	8,824.27	12,525.00	8,032.13	30.41	1.01	-36.69	2,009.58	-791.71	1,801.67	1,774.87	26.80	67.219		
9,800.00	8,824.32	12,525.00	8,032.13	30.69	1.01	-36.69	2,009.58	-791.71	1,720.15	1,693.53	26.62	64.618		
9,900.00	8,824.37	12,525.00	8,032.13	31.01	1.01	-36.69	2,009.58	-791.71	1,640.67	1,614.24	26.44	62.059		
10,000.00	8,824.42	12,525.00	8,032.13	31.34	1.01	-36.69	2,009.58	-791.71	1,563.55	1,537.29	26.26	59.543		
10,100.00	8,824.47	12,525.00	8,032.13	31.71	1.01	-36.69	2,009.58	-791.71	1,489.16	1,463.06	26.09	57.072		
10,200.00	8,824.53	12,525.00	8,032.13	32.10	1.01	-36.69	2,009.58	-791.71	1,417.91	1,391.96	25.95	54.646		
10,300.00	8,824.58	12,525.00	8,032.13	32.51	1.01	-36.69	2,009.58	-791.71	1,350.32	1,324.48	25.84	52.263		
10,400.00	8,824.63	12,525.00	8,032.13	32.95	1.01	-36.69	2,009.58	-791.71	1,286.96	1,261.18	25.78	49.924		
10,500.00	8,824.68	12,525.00	8,032.13	33.41	1.01	-36.69	2,009.58	-791.71	1,228.47	1,202.68	25.79	47.630		
10,600.00	8,824.73	12,525.00	8,032.13	33.89	1.01	-36.69	2,009.58	-791.71	1,175.60	1,149.70	25.90	45.387		
10,700.00	8,824.79	12,525.00	8,032.13	34.40	1.01	-36.69	2,009.58	-791.71	1,129.12	1,102.99	26.13	43.211		
10,800.00	8,824.84	12,525.00	8,032.13	34.92	1.01	-36.69	2,009.58	-791.71	1,089.87	1,063.37	26.50	41.134		
10,900.00	8,824.89	12,525.00	8,032.13	35.46	1.01	-36.69	2,009.58	-791.71	1,058.63	1,031.63	27.01	39.201		
11,000.00	8,824.94	12,525.00	8,032.13	36.02	1.01	-36.69	2,009.58	-791.71	1,036.14	1,008.49	27.65	37.472		
11,100.00	8,824.99	12,525.00	8,032.13	36.60	1.01	-36.69	2,009.58	-791.71	1,022.98	994.57	28.41	36.011		
11,185.55	8,825.04	12,525.00	8,032.13	37.10	1.01	-36.69	2,009.58	-791.71	1,019.39	990.28	29.11	35.015 CC		
11,200.00	8,825.05	12,525.00	8,032.13	37.19	1.01	-36.69	2,009.58	-791.71	1,019.49	990.26	29.23	34.873 ES		
11,300.00	8,825.10	12,525.00	8,032.13	37.80	1.01	-36.69	2,009.58	-791.71	1,025.80	995.71	30.08	34.098		
11,400.00	8,825.15	12,525.00	8,032.13	38.42	1.01	-36.69	2,009.58	-791.71	1,041.70	1,010.80	30.91	33.702		
11,500.00	8,825.20	12,525.00	8,032.13	39.06	1.01	-36.69	2,009.58	-791.71	1,066.79	1,035.12	31.67	33.683		
11,600.00	8,825.25	12,525.00	8,032.13	39.71	1.01	-36.69	2,009.58	-791.71	1,100.42	1,068.08	32.35	34.021		
11,700.00	8,825.30	12,525.00	8,032.13	40.37	1.01	-36.69	2,009.58	-791.71	1,141.85	1,108.93	32.92	34.685		
11,800.00	8,825.36	12,525.00	8,032.13	41.05	1.01	-36.69	2,009.58	-791.71	1,190.25	1,156.86	33.39	35.642		
11,900.00	8,825.41	12,525.00	8,032.13	41.73	1.01	-36.69	2,009.58	-791.71	1,244.83	1,211.05	33.78	36.855		
12,000.00	8,825.46	12,525.00	8,032.13	42.43	1.01	-36.69	2,009.58	-791.71	1,304.79	1,270.72	34.08	38.291		
12,100.00	8,825.51	12,525.00	8,032.13	43.14	1.01	-36.69	2,009.58	-791.71	1,369.44	1,335.14	34.31	39.918		
12,200.00	8,825.56	12,525.00	8,032.13	43.86	1.01	-36.69	2,009.58	-791.71	1,438.15	1,403.67	34.48	41.709		
12,300.00	8,825.62	12,525.00	8,032.13	44.59	1.01	-36.69	2,009.58	-791.71	1,510.35	1,475.74	34.61	43.641		
12,400.00	8,825.67	12,525.00	8,032.13	45.32	1.01	-36.69	2,009.58	-791.71	1,585.57	1,550.87	34.70	45.691		
12,500.00	8,825.72	12,525.00	8,032.13	46.07	1.01	-36.69	2,009.58	-791.71	1,663.41	1,628.64	34.77	47.844		
12,600.00	8,825.77	12,525.00	8,032.13	46.82	1.01	-36.69	2,009.58	-791.71	1,743.51	1,708.70	34.81	50.083		
12,700.00	8,825.82	12,525.00	8,032.13	47.59	1.01	-36.69	2,009.58	-791.71	1,825.57	1,790.73	34.84	52.397		
12,800.00	8,825.88	12,525.00	8,032.13	48.35	1.01	-36.69	2,009.58	-791.71	1,909.35	1,874.49	34.86	54.774		
12,900.00	8,825.93	12,525.00	8,032.13	49.13	1.01	-36.69	2,009.58	-791.71	1,994.61	1,959.75	34.87	57.205		
13,000.00	8,825.98	12,525.00	8,032.13	49.91	1.01	-36.69	2,009.58	-791.71	2,081.20	2,046.33	34.87	59.683		
13,100.00	8,826.03	12,525.00	8,032.13	50.70	1.01	-36.69	2,009.58	-791.71	2,168.93	2,134.06	34.87	62.200		
14,067.16	8,826.53	9,985.53	7,679.04	58.62	0.94	-28.27	4,511.81	-827.95	1,383.53	1,336.24	47.28	29.260 SF		
14,100.00	8,826.55	9,958.67	7,670.80	58.90	0.94	-28.11	4,537.36	-828.24	1,392.59	1,345.12	47.47	29.339		
14,200.00	8,826.60	9,877.29	7,645.27	59.74	0.94	-27.62	4,614.64	-829.10	1,420.88	1,372.86	48.02	29.592		
14,300.00	8,826.65	9,796.50	7,619.10	60.59	0.94	-27.13	4,691.07	-829.94	1,450.22	1,401.66	48.56	29.865		
14,400.00	8,826.70	9,716.31	7,592.31	61.44	0.94	-26.64	4,766.64	-830.76	1,480.59	1,431.50	49.10	30.157		
14,500.00	8,826.76	9,636.74	7,564.92	62.30	0.94	-26.16	4,841.35	-831.55	1,512.00	1,462.38	49.63	30.467		
14,600.00	8,826.81	9,557.80	7,536.97	63.15	0.93	-25.69	4,915.17	-832.31	1,544.44	1,494.29	50.15	30.795		
14,700.00	8,826.86	9,479.49	7,508.47	64.02	0.93	-25.22	4,988.11	-833.05	1,577.91	1,527.23	50.67	31.140		
14,800.00	8,826.91	9,401.83	7,479.46	64.88	0.93	-24.76	5,060.14	-833.77	1,612.38	1,561.20	51.18	31.501		
14,900.00	8,826.96	9,324.82	7,449.95	65.75	0.93	-24.31	5,131.26	-834.46	1,647.86	1,596.17	51.69	31.879		
15,000.00	8,827.02	9,248.48	7,419.98	66.62	0.93	-23.86	5,201.47	-835.12	1,684.33	1,632.14	52.19	32.273		
15,100.00	8,827.07	9,172.81	7,389.56	67.49	0.92	-23.43	5,270.76	-835.77	1,721.79	1,669.11	52.68	32.682		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Glow Worm ALX Federal #16H (Offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 551-NS-GYRO-MS 12525-Project													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,200.00	8,827.12	9,097.81	7,358.72	68.37	0.92	-23.00	5,339.12	-836.39	1,760.23	1,707.06	53.17	33.105	
15,300.00	8,827.17	9,023.50	7,327.49	69.25	0.92	-22.58	5,406.55	-836.99	1,799.62	1,745.97	53.65	33.543	
15,400.00	8,827.22	8,949.87	7,295.89	70.13	0.92	-22.17	5,473.05	-837.57	1,839.98	1,785.85	54.12	33.995	
15,500.00	8,827.28	8,876.93	7,263.94	71.01	0.92	-21.77	5,538.61	-838.12	1,881.27	1,826.68	54.59	34.461	
15,600.00	8,827.33	8,804.70	7,231.67	71.89	0.91	-21.38	5,603.24	-838.65	1,923.49	1,868.44	55.05	34.939	
15,700.00	8,827.38	8,733.16	7,199.10	72.78	0.91	-21.00	5,668.93	-839.17	1,966.83	1,911.12	55.51	35.431	
15,800.00	8,827.43	8,662.32	7,166.24	73.67	0.91	-20.63	5,729.68	-839.66	2,010.67	1,954.72	55.95	35.935	
15,900.00	8,827.48	8,592.19	7,133.13	74.56	0.91	-20.27	5,791.50	-840.13	2,055.61	1,999.21	56.39	36.450	
16,000.00	8,827.53	8,522.76	7,099.79	75.45	0.91	-19.92	5,852.39	-840.58	2,101.42	2,044.59	56.83	36.978	
16,100.00	8,827.59	8,454.05	7,066.22	76.35	0.91	-19.57	5,912.36	-841.01	2,148.10	2,090.84	57.26	37.517	

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 149-MWD+IFR1													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance		Minimum Separation		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-90.27	-0.14	-30.08	30.08				
100.00	100.00	99.66	99.66	0.14	0.15	-89.83	0.09	-29.82	29.82	29.53	0.29	102.649	
200.00	200.00	199.69	199.69	0.50	0.41	-88.58	0.72	-29.13	29.14	28.23	0.90	32.223	
300.00	300.00	299.59	299.58	0.85	0.77	-87.21	1.40	-28.62	28.66	27.04	1.62	17.896	
364.02	364.02	363.53	363.52	1.08	0.99	-86.36	1.81	-28.50	28.56	26.48	2.08	13.755 CC	
400.00	400.00	399.46	399.45	1.21	1.12	-85.97	2.01	-28.52	28.59	26.26	2.33	12.260	
500.00	500.00	499.36	499.34	1.57	1.47	-85.10	2.47	-28.88	28.99	25.95	3.04	9.536	
600.00	600.00	599.34	599.33	1.93	1.81	-85.10	2.52	-29.44	29.54	25.80	3.74	7.896	
700.00	700.00	699.40	699.38	2.29	2.15	-85.80	2.20	-29.96	30.04	25.60	4.44	6.763	
800.00	800.00	799.39	799.37	2.85	2.50	-85.97	2.14	-30.38	30.46	25.31	5.15	5.914	
900.00	900.00	899.37	899.36	3.01	2.86	-85.40	2.48	-30.78	30.88	25.02	5.86	5.268	
1,000.00	1,000.00	999.21	999.19	3.36	3.21	-86.40	1.98	-31.47	31.54	24.97	6.57	4.800 ES	
1,100.00	1,100.00	1,098.93	1,098.89	3.72	3.56	-88.05	1.12	-32.98	33.00	25.73	7.28	4.535	
1,200.00	1,200.00	1,198.71	1,198.63	4.08	3.91	-90.88	-0.54	-35.12	35.14	27.15	7.99	4.400	
1,300.00	1,300.00	1,298.29	1,298.13	4.44	4.26	-95.30	-3.52	-37.90	38.09	29.40	8.69	4.382	
1,400.00	1,400.00	1,397.49	1,397.16	4.80	4.61	-100.61	-7.82	-41.77	42.56	33.16	9.40	4.529	
1,500.00	1,500.00	1,496.75	1,496.16	5.16	4.96	-105.21	-12.78	-47.03	48.85	38.75	10.10	4.836	
1,600.00	1,600.00	1,596.31	1,595.41	5.51	5.32	-108.81	-18.00	-52.85	55.98	45.17	10.81	5.178	
1,700.00	1,700.00	1,695.26	1,694.01	5.87	5.67	-111.36	-23.18	-59.26	63.87	52.36	11.51	5.548	
1,800.00	1,800.00	1,793.71	1,792.01	6.23	6.03	-113.09	-28.58	-67.05	73.28	61.07	12.21	6.002	
1,900.00	1,900.00	1,891.97	1,889.65	6.59	6.39	-114.55	-34.76	-76.11	84.24	71.34	12.90	6.530	
2,000.00	2,000.00	1,990.18	1,987.10	6.95	6.74	-115.76	-41.60	-86.20	96.51	82.91	13.60	7.098	
2,100.00	2,100.00	2,087.91	2,083.93	7.31	7.10	-116.65	-48.85	-97.34	110.01	95.73	14.28	7.702	
2,200.00	2,200.00	2,185.32	2,180.24	7.67	7.46	-117.62	-57.18	-109.26	124.81	109.84	14.97	8.338	
2,300.00	2,300.00	2,282.65	2,276.28	8.02	7.83	-118.74	-66.79	-121.79	140.83	125.17	15.66	8.994	
2,400.00	2,400.00	2,381.08	2,373.30	8.38	8.19	-119.67	-76.87	-134.94	157.49	141.12	16.37	9.623	
2,500.00	2,500.00	2,480.99	2,471.87	8.74	8.57	-120.40	-86.81	-147.94	173.74	156.64	17.10	10.160	
2,600.00	2,600.00	2,580.74	2,570.37	9.09	8.94	42.40	-96.33	-160.40	189.12	171.30	17.82	10.613	
2,700.00	2,699.96	2,680.67	2,669.13	9.41	9.32	42.37	-105.36	-172.74	202.44	183.93	18.51	10.934	
2,800.00	2,799.82	2,780.04	2,767.39	9.74	9.69	42.88	-113.96	-184.74	213.43	194.23	19.20	11.114	
2,900.00	2,899.51	2,877.19	2,863.37	10.07	10.06	43.74	-122.78	-196.93	223.18	203.31	19.86	11.235	
3,000.00	2,998.96	2,975.37	2,960.19	10.40	10.43	44.87	-132.63	-209.91	232.19	211.65	20.54	11.303	
3,100.00	3,098.22	3,076.45	3,059.88	10.73	10.82	46.25	-142.93	-223.05	240.00	218.73	21.27	11.286	
3,200.00	3,197.47	3,177.38	3,159.55	11.06	11.20	47.57	-152.89	-235.45	247.12	225.13	21.99	11.238	
3,300.00	3,296.73	3,276.48	3,257.45	11.40	11.58	48.82	-162.45	-247.55	254.20	231.51	22.69	11.202	
3,400.00	3,395.98	3,377.39	3,357.10	11.74	11.96	49.96	-172.45	-259.80	261.44	238.02	23.42	11.163	
3,500.00	3,495.24	3,476.78	3,455.31	12.08	12.34	50.97	-182.39	-271.37	268.35	244.22	24.13	11.121	
3,600.00	3,594.49	3,574.33	3,551.60	12.42	12.72	51.79	-192.87	-282.95	275.82	251.00	24.82	11.112	
3,700.00	3,693.75	3,673.30	3,649.22	12.77	13.10	52.60	-203.59	-295.27	283.91	258.38	25.53	11.119	
3,800.00	3,793.01	3,773.33	3,749.89	13.12	13.49	53.35	-214.72	-307.61	291.76	265.47	26.28	11.100	
3,900.00	3,892.26	3,874.12	3,847.42	13.46	13.86	54.10	-225.08	-319.37	299.33	272.33	27.00	11.087	
4,000.00	3,991.52	3,974.37	3,946.44	13.81	14.25	55.00	-234.75	-331.73	307.09	279.36	27.73	11.074	
4,100.00	4,090.77	4,079.86	4,050.80	14.17	14.65	55.87	-244.67	-343.49	313.71	285.19	28.52	11.000	
4,200.00	4,190.03	4,181.14	4,151.18	14.52	15.03	56.76	-253.39	-353.67	319.11	289.85	29.26	10.906	
4,300.00	4,289.28	4,276.24	4,245.41	14.87	15.39	57.62	-261.41	-363.75	325.06	295.12	29.94	10.856	
4,400.00	4,388.54	4,368.04	4,336.10	15.23	15.74	58.45	-269.47	-375.44	333.25	302.67	30.58	10.896	
4,500.00	4,487.79	4,463.75	4,430.40	15.58	16.11	59.31	-278.12	-389.35	343.34	312.08	31.27	10.980	
4,600.00	4,587.05	4,564.46	4,529.63	15.94	16.50	60.19	-287.05	-404.11	353.59	321.57	32.02	11.042	
4,700.00	4,686.30	4,664.04	4,627.69	16.30	16.89	60.84	-296.87	-418.31	363.75	330.99	32.76	11.103	
4,800.00	4,785.56	4,763.37	4,725.42	16.66	17.28	61.24	-308.04	-432.13	373.89	340.39	33.50	11.162	
4,900.00	4,884.81	4,863.28	4,823.73	17.02	17.67	61.66	-319.08	-446.13	384.11	349.87	34.24	11.218	
5,000.00	4,984.07	4,962.77	4,921.66	17.38	18.05	62.04	-330.04	-459.83	394.10	359.12	34.98	11.266	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 149-MWD+IFR1													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,083.32	5,066.68	5,023.98	17.74	18.46	62.46	-341.21	-474.05	403.99	368.22	35.77	11.294	
5,200.00	5,182.58	5,172.69	5,128.73	18.10	18.86	63.04	-351.13	-486.97	412.14	375.56	36.58	11.268	
5,300.00	5,281.83	5,275.00	5,230.02	18.46	19.25	63.65	-359.93	-498.47	419.27	381.93	37.34	11.229	
5,400.00	5,381.09	5,376.22	5,330.26	18.82	19.64	64.23	-368.64	-509.40	426.00	387.91	38.09	11.184	
5,500.00	5,480.34	5,475.32	5,428.43	19.19	20.02	64.78	-377.12	-519.98	432.65	393.82	38.83	11.143	
5,600.00	5,579.60	5,575.82	5,528.00	19.55	20.40	65.36	-385.48	-530.71	439.30	399.73	39.57	11.101	
5,700.00	5,678.85	5,669.25	5,620.52	19.92	20.75	65.91	-393.04	-541.33	446.66	406.40	40.26	11.094	
5,800.00	5,778.11	5,769.49	5,719.72	20.28	21.13	66.54	-400.85	-553.41	454.70	413.89	41.01	11.088	
5,900.00	5,877.36	5,872.47	5,821.74	20.65	21.53	67.19	-408.51	-565.21	462.16	420.38	41.78	11.062	
6,000.00	5,976.62	5,968.77	5,917.11	21.01	21.89	67.78	-415.74	-576.40	469.85	427.36	42.49	11.057	
6,100.00	6,075.87	6,069.93	6,017.24	21.38	22.28	68.36	-423.48	-588.53	477.98	434.73	43.25	11.051	
6,200.00	6,175.13	6,173.43	6,119.86	21.74	22.67	68.97	-431.08	-599.65	484.88	440.83	44.03	11.012	
6,300.00	6,274.38	6,262.66	6,208.17	22.11	23.01	69.38	-438.51	-610.04	492.79	448.11	44.68	11.029	
6,400.00	6,373.64	6,350.41	6,294.54	22.48	23.35	69.54	-447.92	-622.36	503.27	457.97	45.30	11.110	
6,500.00	6,472.89	6,446.35	6,388.61	22.84	23.73	69.56	-459.61	-637.09	515.18	469.18	46.01	11.198	
6,600.00	6,572.15	6,548.23	6,488.51	23.21	24.14	69.57	-472.05	-652.79	527.17	480.38	46.79	11.268	
6,700.00	6,671.40	6,651.91	6,590.39	23.58	24.54	69.68	-483.84	-667.96	538.30	490.71	47.59	11.312	
6,800.00	6,770.66	6,752.61	6,689.46	23.95	24.94	69.82	-494.85	-682.27	548.99	500.64	48.35	11.355	
6,900.00	6,869.91	6,861.31	6,796.51	24.32	25.36	70.00	-506.46	-697.10	559.14	509.94	49.19	11.366	
7,000.00	6,969.17	6,975.68	6,909.89	24.69	25.80	70.35	-516.81	-709.93	566.72	516.66	50.06	11.321	
7,100.00	7,068.42	7,076.78	7,009.94	25.05	26.18	70.71	-525.31	-719.81	572.85	522.03	50.82	11.273	
7,200.00	7,167.68	7,181.82	7,114.18	25.42	26.58	71.13	-533.64	-729.64	578.57	526.98	51.60	11.214	
7,300.00	7,266.93	7,281.27	7,212.94	25.79	26.95	71.54	-541.24	-738.58	583.94	531.60	52.34	11.157	
7,400.00	7,366.23	7,389.67	7,320.66	26.16	27.35	71.99	-549.38	-747.47	588.66	535.53	53.13	11.080	
7,500.00	7,465.78	7,495.48	7,426.01	26.53	27.74	72.36	-555.92	-754.86	592.87	538.98	53.89	11.001	
7,600.00	7,565.54	7,603.05	7,533.24	26.89	28.13	72.57	-561.50	-761.38	596.96	542.32	54.64	10.925	
7,700.00	7,665.45	7,717.08	7,647.10	27.24	28.54	72.70	-565.22	-766.11	599.89	544.51	55.38	10.831	
7,800.00	7,765.43	7,828.43	7,758.42	27.60	28.93	72.72	-567.03	-768.28	601.36	545.27	56.09	10.722	
7,900.00	7,865.43	7,929.93	7,859.91	27.93	29.28	-90.74	-567.81	-769.17	602.24	545.48	56.77	10.609	
8,000.00	7,965.43	8,029.29	7,959.26	28.26	29.62	-90.81	-568.56	-770.04	603.13	545.68	57.45	10.499	
8,100.00	8,065.43	8,126.64	8,056.60	28.60	29.95	-90.75	-567.89	-771.20	604.31	546.19	58.12	10.397	
8,200.00	8,165.43	8,224.50	8,153.26	28.93	30.25	-89.42	-553.83	-772.62	605.77	546.97	58.80	10.303	
8,300.00	8,265.43	8,309.00	8,233.63	29.24	30.50	-86.58	-528.02	-774.66	609.30	549.87	59.43	10.253	
8,400.00	8,364.67	8,385.34	8,303.19	29.24	30.72	-83.78	-496.79	-777.83	615.98	556.38	59.61	10.334	
8,500.00	8,460.46	8,463.59	8,370.73	29.23	30.92	-81.27	-457.66	-782.37	624.72	565.06	59.66	10.472	
8,600.00	8,549.89	8,543.68	8,432.94	29.22	31.10	-78.84	-407.63	-787.44	634.46	574.85	59.61	10.644	
8,700.00	8,630.24	8,638.17	8,493.11	29.22	31.29	-76.09	-335.16	-791.50	643.60	583.99	59.60	10.798	
8,800.00	8,699.06	8,745.23	8,543.82	29.22	31.46	-73.15	-241.06	-788.35	647.33	587.75	59.58	10.865	
8,900.00	8,754.28	8,830.00	8,574.25	29.24	31.58	-71.40	-162.12	-783.83	648.26	588.92	59.34	10.925	
9,000.00	8,794.20	8,899.53	8,592.88	29.28	31.68	-70.59	-95.23	-780.64	647.67	588.58	59.09	10.960	
9,100.00	8,817.62	8,963.15	8,604.70	29.34	31.77	-70.41	-32.79	-778.46	645.72	586.69	59.03	10.938	
9,200.00	8,824.01	9,036.96	8,610.08	29.43	31.86	-70.62	40.79	-777.43	643.44	584.19	59.25	10.859	
9,300.00	8,824.06	9,129.72	8,610.44	29.57	31.98	-70.60	133.53	-776.28	641.57	581.99	59.58	10.768	
9,387.37	8,824.10	9,207.40	8,607.85	29.71	32.11	-70.32	211.16	-775.08	640.80	580.95	59.85	10.707	
9,400.00	8,824.11	9,218.34	8,607.32	29.73	32.13	-70.27	222.08	-774.97	640.82	580.93	59.89	10.700	
9,500.00	8,824.16	9,311.01	8,602.83	29.93	32.31	-69.87	314.64	-774.87	641.81	581.57	60.24	10.654	
9,600.00	8,824.22	9,407.05	8,599.74	30.15	32.53	-69.83	410.62	-776.09	643.56	582.87	60.69	10.604	
9,700.00	8,824.27	9,504.24	8,594.52	30.41	32.78	-69.20	507.66	-777.07	645.85	584.69	61.16	10.560	
9,800.00	8,824.32	9,618.39	8,589.65	30.69	33.10	-68.80	621.70	-777.93	647.57	585.85	61.72	10.492	
9,900.00	8,824.37	9,732.20	8,589.19	31.01	33.46	-68.72	735.50	-777.36	646.69	584.27	62.42	10.361	
10,000.00	8,824.42	9,832.78	8,590.70	31.34	33.80	-68.79	836.07	-776.45	644.75	581.59	63.17	10.207	
10,100.00	8,824.47	9,928.98	8,592.72	31.71	34.16	-68.93	932.24	-776.18	643.19	579.22	63.97	10.055	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - OH														Offset Site Error:	0.00 usft
Survey Program: 149-MWD+IFR1														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)							
10,200.00	8,824.53	10,025.58	8,595.04	32.10	34.53	-69.10	1,028.82	-776.42	642.01	577.18	64.83	9.903			
10,252.00	8,824.55	10,072.57	8,595.95	32.32	34.73	-69.18	1,075.80	-776.84	641.81	576.53	65.28	9.831			
10,300.00	8,824.58	10,117.63	8,596.58	32.51	34.91	-69.24	1,120.85	-777.50	641.85	576.25	65.71	9.770			
10,400.00	8,824.63	10,219.00	8,598.05	32.95	35.35	-69.40	1,222.19	-779.22	642.48	575.82	66.86	9.638			
10,500.00	8,824.68	10,323.96	8,600.14	33.41	35.84	-69.58	1,327.13	-780.18	642.08	574.41	67.87	9.488			
10,600.00	8,824.73	10,423.59	8,601.56	33.89	36.31	-69.70	1,426.74	-780.94	641.75	573.07	68.89	9.343			
10,700.00	8,824.79	10,524.87	8,602.04	34.40	36.81	-69.71	1,528.01	-780.96	641.05	571.33	69.72	9.195			
10,800.00	8,824.84	10,623.90	8,599.81	34.92	37.33	-69.48	1,627.02	-780.15	640.52	569.79	70.73	9.056			
10,900.00	8,824.89	10,724.25	8,597.29	35.46	37.86	-69.21	1,727.33	-779.22	639.89	568.23	71.76	8.918			
11,000.00	8,824.94	10,823.15	8,595.16	36.02	38.41	-68.99	1,826.21	-778.46	639.49	566.65	72.84	8.780			
11,100.00	8,824.99	10,924.91	8,594.01	36.60	38.99	-68.86	1,927.96	-778.13	639.04	565.07	73.97	8.639			
11,200.00	8,825.05	11,022.81	8,593.50	37.19	39.55	-68.79	2,025.86	-777.94	638.51	563.37	75.14	8.498			
11,300.00	8,825.10	11,124.43	8,592.80	37.80	40.16	-68.70	2,127.48	-777.79	638.07	561.73	76.34	8.358			
11,400.00	8,825.15	11,221.97	8,592.12	38.42	40.76	-68.61	2,225.01	-777.66	637.66	560.11	77.56	8.222			
11,421.15	8,825.16	11,241.93	8,592.02	38.55	40.88	-68.60	2,244.97	-777.72	637.64	559.83	77.82	8.194			
11,500.00	8,825.20	11,319.25	8,591.92	39.06	41.36	-68.60	2,322.28	-778.39	637.88	559.07	78.81	8.094			
11,600.00	8,825.25	11,428.62	8,592.25	39.71	42.06	-68.60	2,431.66	-778.35	637.17	557.02	80.15	7.950			
11,700.00	8,825.30	11,527.55	8,595.42	40.37	42.71	-68.85	2,530.53	-778.84	635.92	554.39	81.53	7.800			
11,800.00	8,825.36	11,624.08	8,599.53	41.05	43.35	-69.22	2,626.96	-780.19	635.16	552.21	82.95	7.657			
11,900.00	8,825.41	11,723.42	8,603.00	41.73	44.03	-69.54	2,726.23	-781.70	634.80	550.41	84.39	7.523			
11,962.71	8,825.44	11,783.73	8,605.10	42.17	44.44	-69.73	2,786.49	-782.63	634.60	549.31	85.29	7.441			
12,000.00	8,825.46	11,817.80	8,605.86	42.43	44.68	-69.81	2,820.55	-783.20	634.70	548.89	85.81	7.397			
12,100.00	8,825.51	11,913.73	8,606.66	43.14	45.35	-69.91	2,916.46	-785.02	635.64	548.42	87.22	7.288			
12,200.00	8,825.56	12,008.85	8,607.06	43.86	46.02	-69.99	3,011.56	-787.23	637.12	548.49	88.63	7.189			
12,300.00	8,825.62	12,102.84	8,606.78	44.59	46.70	-70.03	3,105.50	-790.06	639.50	549.46	90.04	7.102			
12,400.00	8,825.67	12,210.31	8,606.33	45.32	47.48	-70.07	3,212.91	-793.39	642.02	550.46	91.56	7.012			
12,500.00	8,825.72	12,315.40	8,606.17	46.07	48.25	-70.09	3,317.99	-795.34	643.27	550.20	93.07	6.912			
12,600.00	8,825.77	12,419.19	8,606.10	46.82	49.02	-70.10	3,421.77	-796.56	643.85	549.27	94.58	6.808			
12,700.00	8,825.82	12,520.62	8,606.40	47.59	49.78	-70.13	3,523.19	-797.48	644.04	547.94	96.09	6.702			
12,800.00	8,825.88	12,624.48	8,606.21	48.35	50.57	-70.10	3,627.06	-797.93	643.96	546.34	97.62	6.597			
12,900.00	8,825.93	12,728.20	8,605.87	49.13	51.35	-70.02	3,730.77	-797.09	642.75	543.60	99.15	6.483			
13,000.00	8,825.98	12,826.32	8,604.22	49.91	52.11	-69.85	3,828.87	-796.53	642.23	541.59	100.64	6.382			
13,100.00	8,826.03	12,936.57	8,604.57	50.70	52.96	-69.81	3,939.11	-795.23	640.44	538.22	102.22	6.266			
13,200.00	8,826.08	13,040.67	8,605.82	51.50	53.77	-69.83	4,043.19	-793.23	637.67	533.88	103.79	6.144			
13,300.00	8,826.13	13,133.98	8,606.70	52.30	54.50	-69.82	4,136.48	-791.34	634.91	529.57	105.34	6.027			
13,400.00	8,826.19	13,227.99	8,607.43	53.11	55.24	-69.85	4,230.48	-790.78	633.52	526.61	106.91	5.926			
13,500.00	8,826.24	13,326.49	8,608.33	53.92	56.03	-69.90	4,328.97	-790.74	632.62	524.11	108.51	5.830			
13,600.00	8,826.29	13,426.03	8,608.99	54.74	56.83	-69.93	4,428.51	-790.74	631.84	521.72	110.12	5.738			
13,692.10	8,826.34	13,513.39	8,609.50	55.50	57.54	-69.96	4,515.87	-791.00	631.41	519.82	111.59	5.658			
13,700.00	8,826.34	13,520.75	8,609.55	55.56	57.60	-69.97	4,523.23	-791.07	631.41	519.69	111.72	5.652			
13,800.00	8,826.39	13,616.03	8,610.17	56.39	58.37	-70.04	4,618.49	-792.36	631.91	518.58	113.33	5.576			
13,900.00	8,826.45	13,715.06	8,610.71	57.22	59.19	-70.12	4,717.51	-794.16	632.88	517.90	114.98	5.504			
14,000.00	8,826.50	13,814.76	8,611.20	58.06	60.01	-70.19	4,817.19	-795.99	633.88	517.25	116.64	5.435			
14,100.00	8,826.55	13,912.93	8,611.23	58.90	60.83	-70.23	4,915.35	-797.79	635.04	516.76	118.29	5.369			
14,200.00	8,826.60	14,008.79	8,610.60	59.74	61.63	-70.21	5,011.18	-799.78	636.67	516.76	119.91	5.310			
14,300.00	8,826.65	14,106.27	8,609.72	60.59	62.46	-70.19	5,108.63	-802.30	638.85	517.30	121.55	5.256			
14,400.00	8,826.70	14,205.00	8,608.45	61.44	63.29	-70.15	5,207.31	-805.02	641.33	518.12	123.21	5.205			
14,500.00	8,826.76	14,309.58	8,607.46	62.30	64.19	-70.12	5,311.85	-807.72	643.52	518.60	124.92	5.151			
14,600.00	8,826.81	14,413.24	8,606.68	63.15	65.07	-70.10	5,415.48	-809.83	645.15	518.51	126.63	5.095			
14,700.00	8,826.86	14,524.30	8,606.44	64.02	66.02	-70.09	5,526.53	-811.02	645.68	517.30	128.39	5.029			
14,800.00	8,826.91	14,631.10	8,608.02	64.88	66.93	-70.18	5,633.33	-810.71	644.33	514.20	130.13	4.951			
14,900.00	8,826.96	14,726.48	8,609.80	65.75	67.74	-70.31	5,728.68	-810.70	643.14	511.29	131.85	4.878			

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 149-MWD+IFR1													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,000.00	8,827.02	14,824.21	8,611.22	66.62	68.59	-70.42	5,826.40	-811.18	642.56	508.98	133.57	4.811		
15,100.00	8,827.07	14,921.77	8,612.99	67.49	69.43	-70.58	5,923.94	-812.12	642.31	508.99	135.31	4.747		
15,110.00	8,827.07	14,931.49	8,613.19	67.58	69.51	-70.60	5,933.67	-812.24	642.31	506.82	135.49	4.741		
15,200.00	8,827.12	15,022.10	8,614.57	68.37	70.30	-70.72	6,024.25	-813.30	642.34	505.27	137.07	4.686		
15,300.00	8,827.17	15,122.44	8,613.50	69.25	71.17	-70.61	6,124.59	-813.33	642.16	503.40	138.77	4.628		
15,400.00	8,827.22	15,232.10	8,611.48	70.13	72.13	-70.39	6,234.22	-812.46	641.50	501.03	140.47	4.567		
15,500.00	8,827.28	15,333.88	8,609.98	71.01	73.01	-70.18	6,335.97	-810.47	639.61	497.46	142.14	4.500		
15,600.00	8,827.33	15,433.84	8,610.00	71.89	73.88	-70.12	6,435.91	-809.03	637.69	493.83	143.85	4.433		
15,700.00	8,827.38	15,531.27	8,612.49	72.78	74.73	-70.30	6,533.30	-808.73	635.97	490.34	145.63	4.367		
15,800.00	8,827.43	15,629.95	8,614.58	73.67	75.60	-70.45	6,631.97	-808.56	634.55	487.14	147.41	4.305		
15,900.00	8,827.48	15,725.37	8,615.53	74.56	76.44	-70.50	6,727.38	-808.51	633.61	484.45	149.16	4.248		
15,980.51	8,827.52	15,802.20	8,615.70	75.28	77.12	-70.51	6,804.21	-808.79	633.38	482.83	150.55	4.207		
16,000.00	8,827.53	15,820.68	8,615.67	75.45	77.29	-70.51	6,822.69	-808.90	633.39	482.51	150.89	4.198		
16,100.00	8,827.59	15,914.31	8,616.09	76.35	78.12	-70.56	6,916.31	-810.26	634.06	481.45	152.61	4.155		
16,200.00	8,827.64	16,010.68	8,616.15	77.25	78.98	-70.61	7,012.65	-812.33	635.51	481.15	154.36	4.117		
16,300.00	8,827.69	16,107.10	8,615.48	78.15	79.85	-70.60	7,109.04	-814.74	637.54	481.45	156.09	4.084		
16,400.00	8,827.74	16,207.46	8,615.42	79.05	80.75	-70.67	7,209.35	-817.85	639.93	482.05	157.88	4.053		
16,500.00	8,827.79	16,318.54	8,615.62	79.95	81.75	-70.72	7,320.41	-819.92	641.05	481.29	159.76	4.013		
16,600.00	8,827.85	16,416.95	8,613.87	80.85	82.63	-70.56	7,418.80	-820.44	641.58	480.10	161.48	3.973		
16,700.00	8,827.90	16,513.77	8,610.49	81.76	83.51	-70.27	7,515.56	-820.95	642.69	479.54	163.15	3.939		
16,800.00	8,827.95	16,628.31	8,605.79	82.66	84.54	-69.85	7,630.00	-820.76	643.47	478.59	164.88	3.903		
16,900.00	8,828.00	16,740.13	8,602.18	83.57	85.53	-69.41	7,741.70	-817.26	641.05	474.52	166.52	3.850		
17,000.00	8,828.05	16,833.90	8,599.73	84.48	86.37	-69.09	7,835.40	-814.40	638.58	470.40	168.18	3.797		
17,100.00	8,828.11	16,949.73	8,601.12	85.39	87.41	-69.12	7,951.17	-812.29	635.96	466.02	169.94	3.742		
17,200.00	8,828.16	17,045.00	8,606.40	86.30	88.26	-69.48	8,046.28	-810.53	631.74	459.88	171.86	3.676		
17,300.00	8,828.21	17,127.64	8,609.90	87.22	89.01	-69.75	8,128.84	-810.15	629.33	455.61	173.72	3.623		
17,335.76	8,828.23	17,158.28	8,610.45	87.54	89.29	-69.80	8,159.47	-810.42	629.20	454.85	174.35	3.609		
17,400.00	8,828.26	17,215.71	8,610.53	88.13	89.81	-69.81	8,216.89	-811.12	629.55	454.09	175.46	3.588 SF		
17,500.00	8,828.31	17,234.00	8,610.30	89.05	89.98	-69.80	8,235.18	-811.39	635.94	460.62	175.32	3.627		
17,600.00	8,828.36	17,234.00	8,610.30	89.96	89.98	-69.80	8,235.18	-811.39	657.36	485.74	171.62	3.830		
17,700.00	8,828.42	17,234.00	8,610.30	90.88	89.98	-69.80	8,235.18	-811.39	692.70	527.36	165.33	4.190		
17,800.00	8,828.47	17,234.00	8,610.30	91.80	89.98	-69.80	8,235.18	-811.39	739.95	582.37	157.59	4.695		
17,900.00	8,828.52	17,234.00	8,610.30	92.72	89.98	-69.80	8,235.18	-811.39	797.02	647.65	149.37	5.336		
18,000.00	8,828.57	17,234.00	8,610.30	93.64	89.98	-69.80	8,235.18	-811.39	861.94	720.60	141.34	6.098		
18,100.00	8,828.62	17,234.00	8,610.30	94.56	89.98	-69.80	8,235.18	-811.39	933.09	799.20	133.88	6.969		
18,200.00	8,828.68	17,234.00	8,610.30	95.49	89.98	-69.80	8,235.18	-811.39	1,009.14	881.98	127.16	7.936		
18,300.00	8,828.73	17,234.00	8,610.30	96.41	89.98	-69.80	8,235.18	-811.39	1,089.06	967.87	121.20	8.986		
18,400.00	8,828.78	17,234.00	8,610.30	97.33	89.98	-69.80	8,235.18	-811.39	1,172.08	1,056.11	115.97	10.107		
18,500.00	8,828.83	17,234.00	8,610.30	98.26	89.98	-69.80	8,235.18	-811.39	1,257.57	1,146.16	111.40	11.288		
18,600.00	8,828.88	17,234.00	8,610.30	99.19	89.98	-69.80	8,235.18	-811.39	1,345.06	1,237.63	107.42	12.521		
18,700.00	8,828.94	17,234.00	8,610.30	100.11	89.98	-69.80	8,235.18	-811.39	1,434.18	1,330.23	103.95	13.796		
18,800.00	8,828.99	17,234.00	8,610.30	101.04	89.98	-69.80	8,235.18	-811.39	1,524.66	1,423.74	100.92	15.107		
18,824.56	8,829.00	17,234.00	8,610.30	101.27	89.98	-69.80	8,235.18	-811.39	1,547.06	1,446.82	100.24	15.433		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - Plan #8													Offset Site Error:	0.00 usft
Survey Program: 149-MWD+IFR1, 16005-MWD+IFR1													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-90.27	-0.14	-30.08	30.08					
100.00	100.00	99.66	99.66	0.14	0.15	-89.83	0.09	-29.82	29.82	29.53	0.29	102.649		
200.00	200.00	199.69	199.69	0.50	0.41	-88.58	0.72	-29.13	29.14	28.23	0.90	32.223		
300.00	300.00	299.59	299.58	0.85	0.77	-87.21	1.40	-28.62	28.66	27.04	1.62	17.696		
364.02	364.02	363.53	363.52	1.08	0.99	-86.36	1.81	-28.50	28.56	26.48	2.08	13.755	CC	
400.00	400.00	399.46	399.45	1.21	1.12	-85.97	2.01	-28.52	28.59	26.26	2.33	12.260		
500.00	500.00	499.36	499.34	1.57	1.47	-85.10	2.47	-28.88	28.99	25.95	3.04	9.536		
600.00	600.00	599.34	599.33	1.93	1.81	-85.10	2.52	-29.44	29.54	25.80	3.74	7.896		
700.00	700.00	699.40	699.38	2.29	2.15	-85.80	2.20	-29.96	30.04	25.60	4.44	6.763		
800.00	800.00	799.39	799.37	2.65	2.50	-85.97	2.14	-30.38	30.46	25.31	5.15	5.914		
900.00	900.00	899.37	899.36	3.01	2.86	-85.40	2.48	-30.78	30.88	25.02	5.86	5.268		
1,000.00	1,000.00	999.21	999.19	3.36	3.21	-86.40	1.98	-31.47	31.54	24.97	6.57	4.800	ES	
1,100.00	1,100.00	1,098.93	1,098.89	3.72	3.56	-88.05	1.12	-32.98	33.00	25.73	7.28	4.535		
1,200.00	1,200.00	1,198.71	1,198.63	4.08	3.91	-90.88	-0.54	-35.12	35.14	27.15	7.99	4.400		
1,300.00	1,300.00	1,298.29	1,298.13	4.44	4.26	-95.30	-3.52	-37.90	38.09	28.40	8.69	4.382		
1,400.00	1,400.00	1,397.49	1,397.16	4.80	4.61	-100.61	-7.82	-41.77	42.56	33.16	9.40	4.529		
1,500.00	1,500.00	1,496.75	1,496.16	5.16	4.96	-105.21	-12.78	-47.03	48.85	38.75	10.10	4.836		
1,600.00	1,600.00	1,596.31	1,595.41	5.51	5.32	-108.81	-18.00	-52.85	55.98	45.17	10.81	5.178		
1,700.00	1,700.00	1,695.26	1,694.01	5.87	5.67	-111.36	-23.18	-59.26	63.87	52.36	11.51	5.548		
1,800.00	1,800.00	1,793.71	1,792.01	6.23	6.03	-113.09	-28.58	-67.05	73.28	61.07	12.21	6.002		
1,900.00	1,900.00	1,891.87	1,889.65	6.59	6.39	-114.55	-34.76	-76.11	84.24	71.34	12.80	6.530		
2,000.00	2,000.00	1,990.18	1,987.10	6.95	6.74	-115.76	-41.60	-86.20	96.51	82.91	13.60	7.098		
2,100.00	2,100.00	2,087.91	2,083.93	7.31	7.10	-116.65	-48.85	-97.34	110.01	95.73	14.28	7.702		
2,200.00	2,200.00	2,185.32	2,180.24	7.67	7.46	-117.62	-57.18	-109.26	124.81	109.84	14.97	8.338		
2,300.00	2,300.00	2,282.65	2,276.28	8.02	7.83	-118.74	-66.79	-121.79	140.83	125.17	15.66	8.994		
2,400.00	2,400.00	2,381.08	2,373.30	8.38	8.19	-119.67	-76.87	-134.94	157.49	141.12	16.37	9.623		
2,500.00	2,500.00	2,480.99	2,471.87	8.74	8.57	-120.40	-86.81	-147.94	173.74	156.64	17.10	10.160		
2,600.00	2,600.00	2,580.74	2,570.37	9.09	8.94	-121.40	-96.33	-160.40	189.12	171.30	17.82	10.613		
2,700.00	2,699.96	2,680.67	2,669.13	9.41	9.32	-122.37	-105.36	-172.74	202.44	183.93	18.51	10.934		
2,800.00	2,799.82	2,780.04	2,767.39	9.74	9.69	-123.28	-113.96	-184.74	213.43	194.23	19.20	11.114		
2,900.00	2,899.51	2,877.19	2,863.37	10.07	10.06	-124.15	-122.78	-196.93	223.18	203.31	19.86	11.235		
3,000.00	2,998.96	2,975.37	2,960.19	10.40	10.43	-124.87	-132.63	-209.91	232.19	211.65	20.54	11.303		
3,100.00	3,098.22	3,076.45	3,059.88	10.73	10.82	-125.45	-142.93	-223.05	240.00	218.73	21.27	11.286		
3,200.00	3,197.47	3,177.38	3,159.55	11.06	11.20	-126.07	-152.89	-235.45	247.12	225.13	21.99	11.238		
3,300.00	3,296.73	3,276.48	3,257.45	11.40	11.58	-126.65	-162.45	-247.55	254.20	231.51	22.69	11.202		
3,400.00	3,395.98	3,377.39	3,357.10	11.74	11.96	-127.15	-172.45	-259.80	261.44	238.02	23.42	11.163		
3,500.00	3,495.24	3,476.78	3,455.31	12.08	12.34	-127.65	-182.39	-271.37	268.35	244.22	24.13	11.121		
3,600.00	3,594.49	3,574.33	3,551.60	12.42	12.72	-128.15	-192.87	-282.95	275.82	251.00	24.82	11.112		
3,700.00	3,693.75	3,673.30	3,649.22	12.77	13.10	-128.65	-203.59	-295.27	283.91	258.38	25.53	11.119		
3,800.00	3,793.01	3,773.33	3,749.89	13.12	13.49	-129.15	-214.72	-307.61	291.76	265.47	26.28	11.100		
3,900.00	3,892.26	3,874.12	3,847.42	13.46	13.86	-129.65	-225.08	-319.37	299.33	272.33	27.00	11.087		
4,000.00	3,991.52	3,974.37	3,946.44	13.81	14.25	-130.15	-234.75	-331.73	307.09	279.36	27.73	11.074		
4,100.00	4,090.77	4,079.86	4,050.80	14.17	14.65	-130.65	-244.67	-343.49	313.71	285.19	28.52	11.000		
4,200.00	4,190.03	4,181.14	4,151.18	14.52	15.03	-131.15	-253.39	-353.67	319.11	289.85	29.26	10.906		
4,300.00	4,289.28	4,276.24	4,245.41	14.87	15.39	-131.65	-261.41	-363.75	325.06	295.12	29.94	10.856		
4,400.00	4,388.54	4,368.04	4,336.10	15.23	15.74	-132.15	-269.47	-375.44	333.25	302.67	30.58	10.896		
4,500.00	4,487.79	4,463.75	4,430.40	15.58	16.11	-132.65	-278.12	-389.35	343.34	312.08	31.27	10.980		
4,600.00	4,587.05	4,564.46	4,529.63	15.94	16.50	-133.15	-287.05	-404.11	353.59	321.57	32.02	11.042		
4,700.00	4,686.30	4,664.04	4,627.69	16.30	16.89	-133.65	-296.87	-418.31	363.75	330.99	32.76	11.103		
4,800.00	4,785.56	4,763.37	4,725.42	16.66	17.28	-134.15	-308.04	-432.13	373.89	340.39	33.50	11.162		
4,900.00	4,884.81	4,863.28	4,823.73	17.02	17.67	-134.65	-319.08	-446.13	384.11	349.87	34.24	11.218		
5,000.00	4,984.07	4,962.77	4,921.66	17.38	18.05	-135.15	-330.04	-459.83	394.10	359.12	34.98	11.266		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - Plan #8													Offset Site Error: 0.00 usft
Survey Program: 149-MWD+IFR1, 16005-MWD+IFR1													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,083.32	5,066.68	5,023.98	17.74	18.46	62.46	-341.21	-474.05	403.99	368.22	35.77	11.294	
5,200.00	5,182.58	5,172.69	5,128.73	18.10	18.86	63.04	-351.13	-486.97	412.14	375.56	36.58	11.268	
5,300.00	5,281.83	5,275.00	5,230.02	18.46	19.25	63.65	-359.93	-498.47	419.27	381.93	37.34	11.229	
5,400.00	5,381.09	5,376.22	5,330.26	18.82	19.64	64.23	-368.64	-509.40	426.00	387.91	38.09	11.184	
5,500.00	5,480.34	5,475.32	5,428.43	19.19	20.02	64.78	-377.12	-519.98	432.65	393.82	38.83	11.143	
5,600.00	5,579.60	5,575.82	5,528.00	19.55	20.40	65.36	-385.48	-530.71	439.30	399.73	39.57	11.101	
5,700.00	5,678.85	5,669.25	5,620.52	19.92	20.75	65.91	-393.04	-541.33	446.66	406.40	40.26	11.094	
5,800.00	5,778.11	5,769.49	5,719.72	20.28	21.13	66.54	-400.85	-553.41	454.70	413.69	41.01	11.088	
5,900.00	5,877.36	5,872.47	5,821.74	20.65	21.53	67.19	-408.51	-565.21	462.16	420.38	41.78	11.062	
6,000.00	5,976.62	5,968.77	5,917.11	21.01	21.89	67.78	-415.74	-576.40	469.85	427.36	42.49	11.057	
6,100.00	6,075.87	6,069.93	6,017.24	21.38	22.28	68.36	-423.48	-588.53	477.98	434.73	43.25	11.051	
6,200.00	6,175.13	6,173.43	6,119.86	21.74	22.67	68.97	-431.08	-599.65	484.86	440.83	44.03	11.012	
6,300.00	6,274.38	6,262.66	6,208.17	22.11	23.01	69.38	-438.51	-610.04	492.79	448.11	44.68	11.029	
6,400.00	6,373.64	6,350.41	6,294.54	22.48	23.35	69.54	-447.92	-622.36	503.27	457.97	45.30	11.110	
6,500.00	6,472.89	6,446.35	6,388.61	22.84	23.73	69.56	-459.61	-637.09	515.18	469.18	46.01	11.198	
6,600.00	6,572.15	6,548.23	6,488.51	23.21	24.14	69.57	-472.05	-652.79	527.17	480.38	46.79	11.268	
6,700.00	6,671.40	6,651.91	6,590.39	23.58	24.54	69.68	-483.84	-667.96	538.30	490.71	47.59	11.312	
6,800.00	6,770.66	6,752.61	6,689.46	23.95	24.94	69.82	-494.85	-682.27	548.99	500.64	48.35	11.355	
6,900.00	6,869.91	6,861.31	6,796.51	24.32	25.36	70.00	-506.46	-697.10	559.14	509.94	49.19	11.366	
7,000.00	6,969.17	6,975.68	6,909.69	24.69	25.80	70.35	-516.81	-709.93	566.72	516.66	50.06	11.321	
7,100.00	7,068.42	7,076.78	7,009.94	25.05	26.18	70.71	-525.31	-719.81	572.85	522.03	50.82	11.273	
7,200.00	7,167.68	7,181.82	7,114.18	25.42	26.58	71.13	-533.64	-729.64	578.57	526.98	51.60	11.214	
7,300.00	7,266.93	7,281.27	7,212.94	25.79	26.95	71.54	-541.24	-738.58	583.94	531.60	52.34	11.157	
7,400.00	7,366.23	7,389.67	7,320.66	26.16	27.35	71.99	-549.38	-747.47	588.66	535.53	53.13	11.080	
7,500.00	7,465.78	7,495.48	7,426.01	26.53	27.74	72.36	-555.92	-754.86	592.87	538.98	53.89	11.001	
7,600.00	7,565.54	7,603.05	7,533.24	26.89	28.13	72.57	-561.50	-761.38	596.96	542.32	54.64	10.925	
7,700.00	7,665.45	7,717.08	7,647.10	27.24	28.54	72.70	-565.22	-766.11	599.89	544.51	55.38	10.831	
7,800.00	7,765.43	7,828.43	7,758.42	27.60	28.93	72.72	-567.03	-768.28	601.36	545.27	56.09	10.722	
7,900.00	7,865.43	7,929.93	7,859.91	27.93	29.28	-90.74	-567.81	-769.17	602.24	545.48	56.77	10.609	
8,000.00	7,965.43	8,029.29	7,959.26	28.26	29.62	-90.81	-568.56	-770.04	603.13	545.68	57.45	10.499	
8,100.00	8,065.43	8,126.64	8,056.60	28.60	29.95	-90.75	-567.89	-771.20	604.31	546.19	58.12	10.397	
8,200.00	8,165.43	8,224.50	8,153.26	28.93	30.25	-89.42	-553.83	-772.62	605.77	546.97	58.80	10.303	
8,300.00	8,265.43	8,309.00	8,233.63	29.24	30.50	-86.58	-528.02	-774.66	609.30	549.87	59.43	10.253	
8,400.00	8,364.67	8,385.34	8,303.19	29.24	30.72	-83.78	-496.79	-777.83	615.98	556.38	59.61	10.334	
8,500.00	8,460.46	8,463.59	8,370.73	29.23	30.92	-81.27	-457.66	-782.37	624.72	565.06	59.66	10.472	
8,600.00	8,549.89	8,543.68	8,432.94	29.22	31.10	-78.84	-407.63	-787.44	634.46	574.85	59.61	10.644	
8,700.00	8,630.24	8,638.17	8,493.11	29.22	31.29	-76.09	-335.16	-791.50	643.60	583.99	59.60	10.798	
8,800.00	8,699.06	8,745.23	8,543.82	29.22	31.46	-73.15	-241.06	-788.35	647.33	587.75	59.58	10.865	
8,900.00	8,754.28	8,830.00	8,574.25	29.24	31.58	-71.40	-162.12	-783.83	648.26	588.92	59.34	10.925	
9,000.00	8,794.20	8,899.53	8,592.88	29.28	31.68	-70.59	-85.23	-780.64	647.67	588.58	59.09	10.960	
9,100.00	8,817.62	8,963.15	8,604.70	29.34	31.77	-70.41	-32.79	-778.46	645.72	586.69	59.03	10.938	
9,200.00	8,824.01	9,036.96	8,610.08	29.43	31.86	-70.62	40.79	-777.43	643.44	584.19	59.25	10.859	
9,300.00	8,824.06	9,129.72	8,610.44	29.57	31.98	-70.60	133.53	-776.28	641.57	581.99	59.58	10.768	
9,387.37	8,824.10	9,207.40	8,607.85	29.71	32.11	-70.32	211.16	-775.08	640.80	580.95	59.85	10.707	
9,400.00	8,824.11	9,218.34	8,607.32	29.73	32.13	-70.27	222.08	-774.97	640.82	580.93	59.89	10.700	
9,500.00	8,824.16	9,311.01	8,602.83	29.93	32.31	-69.87	314.64	-774.87	641.81	581.57	60.24	10.654	
9,600.00	8,824.22	9,407.05	8,599.74	30.15	32.53	-69.63	410.62	-776.09	643.56	582.87	60.69	10.604	
9,700.00	8,824.27	9,504.24	8,594.52	30.41	32.78	-69.20	507.66	-777.07	645.85	584.69	61.16	10.560	
9,800.00	8,824.32	9,618.39	8,589.65	30.69	33.10	-68.80	621.70	-777.93	647.57	585.85	61.72	10.492	
9,900.00	8,824.37	9,732.20	8,589.19	31.01	33.46	-68.70	735.50	-777.36	646.69	584.27	62.42	10.361	
10,000.00	8,824.42	9,832.78	8,590.70	31.34	33.80	-68.79	836.07	-776.45	644.75	581.59	63.17	10.207	
10,100.00	8,824.47	9,928.98	8,592.72	31.71	34.16	-68.93	932.24	-776.18	643.19	579.22	63.97	10.055	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - Plan #8													Offset Site Error: 0.00 usft
Survey Program: 149-MWD+IFR1, 16005-MWD+IFR1													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,200.00	8,824.53	10,025.58	8,595.04	32.10	34.53	-69.10	1,028.82	-776.42	642.01	577.18	64.83	9.903	
10,252.00	8,824.55	10,072.57	8,595.95	32.32	34.73	-69.18	1,075.80	-776.84	641.81	576.53	65.28	9.831	
10,300.00	8,824.58	10,117.63	8,596.58	32.51	34.91	-69.24	1,120.85	-777.50	641.95	576.25	65.71	9.770	
10,400.00	8,824.63	10,219.00	8,598.05	32.95	35.35	-69.40	1,222.19	-779.22	642.48	575.82	66.66	9.638	
10,500.00	8,824.68	10,323.96	8,600.14	33.41	35.84	-69.58	1,327.13	-780.18	642.08	574.41	67.67	9.488	
10,600.00	8,824.73	10,423.59	8,601.56	33.89	36.31	-69.70	1,426.74	-780.94	641.75	573.07	68.69	9.343	
10,700.00	8,824.79	10,524.87	8,602.04	34.40	36.81	-69.71	1,528.01	-780.96	641.05	571.33	69.72	9.195	
10,800.00	8,824.84	10,623.90	8,599.81	34.92	37.33	-69.48	1,627.02	-780.15	640.52	569.79	70.73	9.056	
10,900.00	8,824.89	10,724.25	8,597.29	35.46	37.86	-69.21	1,727.33	-779.22	639.99	568.23	71.76	8.918	
11,000.00	8,824.94	10,823.15	8,595.16	36.02	38.41	-68.99	1,826.21	-778.46	639.49	566.65	72.84	8.780	
11,100.00	8,824.99	10,924.91	8,594.01	36.60	38.99	-68.86	1,927.96	-778.13	639.04	565.07	73.97	8.639	
11,200.00	8,825.05	11,022.81	8,593.50	37.19	39.55	-68.79	2,025.86	-777.94	638.51	563.37	75.14	8.498	
11,300.00	8,825.10	11,124.43	8,592.80	37.80	40.16	-68.70	2,127.48	-777.79	638.07	561.73	76.34	8.358	
11,400.00	8,825.15	11,221.97	8,592.12	38.42	40.76	-68.61	2,225.01	-777.66	637.66	560.11	77.56	8.222	
11,421.15	8,825.16	11,241.93	8,592.02	38.55	40.88	-68.60	2,244.97	-777.72	637.64	559.83	77.82	8.194	
11,500.00	8,825.20	11,319.25	8,591.92	39.06	41.36	-68.60	2,322.28	-778.39	637.88	559.07	78.81	8.094	
11,600.00	8,825.25	11,428.62	8,592.25	39.71	42.06	-68.60	2,431.66	-778.35	637.17	557.02	80.15	7.950	
11,700.00	8,825.30	11,527.55	8,595.42	40.37	42.71	-68.85	2,530.53	-778.84	635.92	554.39	81.53	7.800	
11,800.00	8,825.36	11,624.08	8,599.53	41.05	43.35	-69.22	2,626.96	-780.19	635.16	552.21	82.95	7.657	
11,900.00	8,825.41	11,723.42	8,603.00	41.73	44.03	-69.54	2,726.23	-781.70	634.80	550.41	84.39	7.523	
11,962.71	8,825.44	11,783.73	8,605.10	42.17	44.44	-69.73	2,786.49	-782.63	634.60	549.31	85.29	7.441	
12,000.00	8,825.46	11,817.80	8,605.86	42.43	44.68	-69.81	2,820.55	-783.20	634.70	548.89	85.81	7.397	
12,100.00	8,825.51	11,913.73	8,606.66	43.14	45.35	-69.91	2,916.46	-785.02	635.64	548.42	87.22	7.288	
12,200.00	8,825.56	12,008.85	8,607.06	43.86	46.02	-69.99	3,011.56	-787.23	637.12	548.49	88.63	7.189	
12,300.00	8,825.62	12,102.84	8,606.78	44.59	46.70	-70.03	3,105.50	-790.06	639.50	549.46	90.04	7.102	
12,400.00	8,825.67	12,210.31	8,606.33	45.32	47.48	-70.07	3,212.91	-793.39	642.02	550.46	91.56	7.012	
12,500.00	8,825.72	12,315.40	8,606.17	46.07	48.25	-70.09	3,317.99	-795.34	643.27	550.20	93.07	6.912	
12,600.00	8,825.77	12,419.19	8,606.10	46.82	49.02	-70.10	3,421.77	-796.56	643.85	549.27	94.58	6.808	
12,700.00	8,825.82	12,520.62	8,606.40	47.59	49.78	-70.13	3,523.19	-797.48	644.04	547.94	96.09	6.702	
12,800.00	8,825.88	12,624.48	8,606.21	48.35	50.57	-70.10	3,627.06	-797.93	643.96	546.34	97.62	6.597	
12,900.00	8,825.93	12,728.20	8,605.87	49.13	51.35	-70.02	3,730.77	-797.09	642.75	543.60	99.15	6.483	
13,000.00	8,825.98	12,826.32	8,604.22	49.91	52.11	-69.85	3,828.87	-796.53	642.23	541.59	100.64	6.382	
13,100.00	8,826.03	12,936.57	8,604.57	50.70	52.96	-69.81	3,939.11	-795.23	640.44	538.22	102.22	6.266	
13,200.00	8,826.08	13,040.67	8,605.82	51.50	53.77	-69.83	4,043.19	-793.23	637.67	533.88	103.79	6.144	
13,300.00	8,826.13	13,133.98	8,606.70	52.30	54.50	-69.82	4,136.48	-791.34	634.91	529.57	105.34	6.027	
13,400.00	8,826.19	13,227.99	8,607.43	53.11	55.24	-69.85	4,230.48	-790.78	633.52	526.61	106.91	5.926	
13,500.00	8,826.24	13,326.49	8,608.33	53.92	56.03	-69.90	4,328.97	-790.74	632.62	524.11	108.51	5.830	
13,600.00	8,826.29	13,426.03	8,608.99	54.74	56.83	-69.93	4,428.51	-790.74	631.84	521.72	110.12	5.738	
13,692.10	8,826.34	13,513.39	8,609.50	55.50	57.54	-69.96	4,515.87	-791.00	631.41	519.82	111.59	5.658	
13,700.00	8,826.34	13,520.75	8,609.55	55.56	57.60	-69.97	4,523.23	-791.07	631.41	519.69	111.72	5.652	
13,800.00	8,826.39	13,616.03	8,610.17	56.39	58.37	-70.04	4,618.49	-792.36	631.91	518.58	113.33	5.576	
13,900.00	8,826.45	13,715.06	8,610.71	57.22	59.19	-70.12	4,717.51	-794.16	632.88	517.90	114.98	5.504	
14,000.00	8,826.50	13,814.76	8,611.20	58.06	60.01	-70.19	4,817.19	-795.99	633.88	517.25	116.64	5.435	
14,100.00	8,826.55	13,912.93	8,611.23	58.90	60.83	-70.23	4,915.35	-797.79	635.04	516.76	118.29	5.369	
14,200.00	8,826.60	14,008.79	8,610.60	59.74	61.63	-70.21	5,011.18	-799.78	636.67	516.76	119.91	5.310	
14,300.00	8,826.65	14,106.27	8,609.72	60.59	62.46	-70.19	5,108.63	-802.30	638.85	517.30	121.55	5.256	
14,400.00	8,826.70	14,205.00	8,608.45	61.44	63.29	-70.15	5,207.31	-805.02	641.33	518.12	123.21	5.205	
14,500.00	8,826.76	14,309.58	8,607.46	62.30	64.19	-70.12	5,311.85	-807.72	643.52	518.60	124.92	5.151	
14,600.00	8,826.81	14,413.24	8,606.68	63.15	65.07	-70.10	5,415.48	-809.83	645.15	518.51	126.63	5.095	
14,700.00	8,826.86	14,524.30	8,606.44	64.02	66.02	-70.09	5,526.53	-811.02	645.68	517.30	128.39	5.029	
14,800.00	8,826.91	14,631.10	8,608.02	64.88	66.93	-70.18	5,633.33	-810.71	644.33	514.20	130.13	4.951	
14,900.00	8,826.96	14,726.48	8,609.80	65.75	67.74	-70.31	5,728.68	-810.70	643.14	511.29	131.85	4.878	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - Plan #8													Offset Site Error:	0.00 usft
Survey Program: 14B-MWD+IFR1, 16005-MWD+IFR1													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,000.00	8,827.02	14,824.21	8,611.22	66.62	68.59	-70.42	5,826.40	-811.18	642.56	508.98	133.57	4.811		
15,100.00	8,827.07	14,921.77	8,612.99	67.49	69.43	-70.58	5,923.94	-812.12	642.31	506.99	135.31	4.747		
15,110.00	8,827.07	14,931.49	8,613.19	67.58	69.51	-70.60	5,933.67	-812.24	642.31	506.82	135.49	4.741		
15,200.00	8,827.12	15,022.10	8,614.57	68.37	70.30	-70.72	6,024.25	-813.30	642.34	505.27	137.07	4.686		
15,300.00	8,827.17	15,122.44	8,613.50	69.25	71.17	-70.61	6,124.59	-813.33	642.16	503.40	138.77	4.628		
15,400.00	8,827.22	15,232.10	8,611.48	70.13	72.13	-70.39	6,234.22	-812.46	641.50	501.03	140.47	4.567		
15,500.00	8,827.28	15,333.88	8,609.98	71.01	73.01	-70.18	6,335.97	-810.47	639.61	497.46	142.14	4.500		
15,600.00	8,827.33	15,433.84	8,610.00	71.89	73.88	-70.12	6,435.91	-809.03	637.69	493.83	143.85	4.433		
15,700.00	8,827.38	15,531.27	8,612.49	72.78	74.73	-70.30	6,533.30	-808.73	635.97	490.34	145.63	4.367		
15,800.00	8,827.43	15,629.95	8,614.58	73.67	75.60	-70.45	6,631.97	-808.56	634.55	487.14	147.41	4.305		
15,900.00	8,827.48	15,725.37	8,615.53	74.56	76.44	-70.50	6,727.38	-808.51	633.61	484.45	149.16	4.248		
15,980.51	8,827.52	15,802.20	8,615.70	75.28	77.12	-70.51	6,804.21	-808.79	633.38	482.83	150.55	4.207		
16,000.00	8,827.53	15,820.68	8,615.67	75.45	77.29	-70.51	6,822.69	-808.90	633.39	482.51	150.89	4.198		
16,100.00	8,827.59	15,914.31	8,616.09	76.35	78.12	-70.56	6,916.31	-810.26	634.06	481.45	152.61	4.155		
16,200.00	8,827.64	16,010.89	8,616.15	77.25	78.98	-70.61	7,012.87	-812.34	635.51	481.15	154.36	4.117		
16,300.00	8,827.69	16,119.76	8,615.59	78.15	79.96	-70.60	7,121.71	-814.43	636.98	480.79	156.19	4.078		
16,400.00	8,827.74	16,226.94	8,616.58	79.05	80.91	-70.67	7,228.89	-814.68	636.31	478.30	158.01	4.027		
16,500.00	8,827.79	16,325.17	8,617.58	79.95	81.79	-70.73	7,327.11	-814.78	635.51	475.73	159.79	3.977		
16,527.85	8,827.81	16,349.65	8,617.64	80.20	82.01	-70.73	7,351.59	-814.87	635.43	475.17	160.26	3.965		
16,600.00	8,827.85	16,420.83	8,617.32	80.85	82.64	-70.70	7,422.57	-815.30	635.55	474.03	161.52	3.935		
16,700.00	8,827.90	16,520.63	8,616.86	81.76	83.54	-70.66	7,522.56	-815.91	635.72	472.44	163.29	3.893		
16,800.00	8,827.95	16,620.63	8,616.39	82.66	84.44	-70.62	7,622.56	-816.52	635.90	470.85	165.05	3.853		
16,900.00	8,828.00	16,720.63	8,615.93	83.57	85.34	-70.57	7,722.55	-817.13	636.07	469.26	166.82	3.813		
17,000.00	8,828.05	16,820.62	8,615.47	84.48	86.24	-70.53	7,822.55	-817.74	636.25	467.66	168.58	3.774		
17,100.00	8,828.11	16,920.62	8,615.00	85.39	87.15	-70.48	7,922.55	-818.35	636.42	466.07	170.35	3.736		
17,200.00	8,828.16	17,020.62	8,614.54	86.30	88.05	-70.44	8,022.54	-818.96	636.60	464.47	172.13	3.698		
17,300.00	8,828.21	17,120.62	8,614.08	87.22	88.96	-70.40	8,122.54	-819.57	636.77	462.87	173.90	3.662		
17,400.00	8,828.26	17,220.62	8,613.61	88.13	89.87	-70.35	8,222.53	-820.18	636.95	461.27	175.68	3.626		
17,500.00	8,828.31	17,320.62	8,613.15	89.05	90.78	-70.31	8,322.53	-820.79	637.13	459.67	177.46	3.590		
17,600.00	8,828.36	17,420.62	8,612.68	89.96	91.69	-70.27	8,422.52	-821.40	637.30	458.06	179.24	3.556		
17,700.00	8,828.42	17,520.62	8,612.22	90.88	92.60	-70.22	8,522.52	-822.01	637.48	456.46	181.02	3.522		
17,800.00	8,828.47	17,620.61	8,611.76	91.80	93.51	-70.18	8,622.52	-822.62	637.66	454.85	182.81	3.488		
17,900.00	8,828.52	17,720.61	8,611.29	92.72	94.43	-70.14	8,722.51	-823.23	637.84	453.24	184.60	3.455		
18,000.00	8,828.57	17,820.61	8,610.83	93.64	95.34	-70.09	8,822.51	-823.84	638.01	451.63	186.38	3.423		
18,100.00	8,828.62	17,920.61	8,610.37	94.56	96.26	-70.05	8,922.50	-824.45	638.19	450.02	188.17	3.392		
18,200.00	8,828.68	18,020.61	8,609.90	95.49	97.17	-70.01	9,022.50	-825.06	638.37	448.41	189.96	3.360		
18,300.00	8,828.73	18,120.61	8,609.44	96.41	98.09	-69.96	9,122.49	-825.67	638.55	446.79	191.76	3.330		
18,400.00	8,828.78	18,220.61	8,608.98	97.33	99.01	-69.92	9,222.49	-826.28	638.73	445.18	193.55	3.300		
18,500.00	8,828.83	18,320.60	8,608.51	98.26	99.93	-69.88	9,322.49	-826.89	638.91	443.56	195.35	3.271		
18,600.00	8,828.88	18,420.60	8,608.05	99.19	100.85	-69.83	9,422.48	-827.50	639.09	441.95	197.14	3.242		
18,700.00	8,828.94	18,520.60	8,607.59	100.11	101.78	-69.79	9,522.48	-828.11	639.27	440.33	198.94	3.213		
18,800.00	8,828.99	18,620.60	8,607.12	101.04	102.70	-69.75	9,622.47	-828.72	639.45	438.71	200.74	3.185		
18,824.56	8,829.00	18,645.16	8,607.01	101.27	102.93	-69.74	9,647.03	-828.87	639.50	438.31	201.18	3.179 SF		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 528H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	1.004 Level 2, SF	
100.00	100.00	100.00	100.00	0.14	0.15	-14.60	0.28	-0.07	0.29	0.00	0.29	1.236 Level 2	
200.00	200.00	199.99	199.99	0.50	0.41	-14.33	1.09	-0.28	1.12	0.21	0.91	1.347 Level 3	
300.00	300.00	299.98	299.97	0.85	0.77	-13.90	2.12	-0.52	2.19	0.56	1.62	1.451 Level 3	
400.00	400.00	399.98	399.96	1.21	1.13	-15.16	3.28	-0.89	3.39	1.05	2.34	1.451 Level 3	
400.09	400.09	400.07	400.05	1.21	1.13	-15.16	3.28	-0.89	3.40	1.06	2.34	1.451 Level 3	
500.00	500.00	480.00	479.98	1.57	1.41	-17.57	4.15	-1.31	20.49	12.68	7.81	2.623	
600.00	600.00	480.00	479.98	1.93	1.41	-17.57	4.15	-1.31	120.10	112.22	7.88	15.237	
700.00	700.00	480.00	479.98	2.29	1.41	-17.57	4.15	-1.31	220.07	212.27	7.80	28.218	
800.00	800.00	480.00	479.98	2.65	1.41	-17.57	4.15	-1.31	320.05	312.34	7.71	41.492	
900.00	900.00	480.00	479.98	3.01	1.41	-17.57	4.15	-1.31	420.05	412.42	7.63	55.057	
1,000.00	1,000.00	480.00	479.98	3.36	1.41	-17.57	4.15	-1.31	520.04	512.49	7.55	68.913	
1,100.00	1,100.00	480.00	479.98	3.72	1.41	-17.57	4.15	-1.31	620.04	612.57	7.46	83.063	
1,200.00	1,200.00	480.00	479.98	4.08	1.41	-17.57	4.15	-1.31	720.04	712.65	7.38	97.507	
1,300.00	1,300.00	480.00	479.98	4.44	1.41	-17.57	4.15	-1.31	820.03	812.73	7.31	112.244	
1,400.00	1,400.00	480.00	479.98	4.80	1.41	-17.57	4.15	-1.31	920.03	912.80	7.23	127.274	
1,500.00	1,500.00	480.00	479.98	5.16	1.41	-17.57	4.15	-1.31	1,020.03	1,012.88	7.15	142.593	
1,600.00	1,600.00	480.00	479.98	5.51	1.41	-17.57	4.15	-1.31	1,120.03	1,112.95	7.08	158.198	
1,700.00	1,700.00	480.00	479.98	5.87	1.41	-17.57	4.15	-1.31	1,220.03	1,213.02	7.01	174.083	
1,800.00	1,800.00	480.00	479.98	6.23	1.41	-17.57	4.15	-1.31	1,320.03	1,313.09	6.94	190.238	
1,900.00	1,900.00	480.00	479.98	6.59	1.41	-17.57	4.15	-1.31	1,420.03	1,413.16	6.87	206.654	
2,000.00	2,000.00	480.00	479.98	6.95	1.41	-17.57	4.15	-1.31	1,520.03	1,513.22	6.81	223.315	
2,100.00	2,100.00	480.00	479.98	7.31	1.41	-17.57	4.15	-1.31	1,620.03	1,613.28	6.74	240.205	
2,200.00	2,200.00	480.00	479.98	7.67	1.41	-17.57	4.15	-1.31	1,720.03	1,713.34	6.68	257.301	
2,300.00	2,300.00	480.00	479.98	8.02	1.41	-17.57	4.15	-1.31	1,820.03	1,813.40	6.63	274.578	
2,400.00	2,400.00	480.00	479.98	8.38	1.41	-17.57	4.15	-1.31	1,920.03	1,913.45	6.58	292.004	
2,500.00	2,500.00	480.00	479.98	8.74	1.41	-17.57	4.15	-1.31	2,020.03	2,013.50	6.53	309.544	
2,600.00	2,600.00	480.00	479.98	9.09	1.41	5.86	4.15	-1.31	2,120.03	2,113.55	6.48	327.160	

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 528H - OH - Plan #4													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
8,285.61	8,251.04	8,285.60	8,251.04	0.00	0.00	180.00	-560.00	-167.00	0.92	0.92	0.00	N/A	
8,300.00	8,265.43	8,300.00	8,265.43	0.05	0.05	180.00	-560.00	-167.00	0.18	0.09	0.09	1.917	
8,400.00	8,364.67	8,399.24	8,364.67	0.05	0.38	180.00	-560.00	-167.00	11.38	10.94	0.44	26.087	
8,500.00	8,460.46	8,495.03	8,460.46	0.07	0.71	180.00	-560.00	-167.00	39.64	38.87	0.78	51.029	
8,600.00	8,549.89	8,584.46	8,549.89	0.12	1.02	180.00	-560.00	-167.00	84.11	83.01	1.11	76.067	CC, ES, SF
8,700.00	8,630.24	8,664.81	8,630.24	0.19	1.29	180.00	-560.00	-167.00	143.43	142.02	1.41	101.547	
8,800.00	8,699.06	8,733.63	8,699.06	0.28	1.52	180.00	-560.00	-167.00	215.81	214.12	1.69	128.018	
8,900.00	8,754.28	8,788.84	8,754.28	0.40	1.71	180.00	-560.00	-167.00	299.03	297.12	1.91	156.282	
9,000.00	8,794.20	8,828.77	8,794.20	0.54	1.85	180.00	-560.00	-167.00	390.58	388.49	2.08	187.472	
9,100.00	8,817.62	8,852.18	8,817.62	0.70	1.93	180.00	-560.00	-167.00	487.67	485.48	2.19	223.165	
9,200.00	8,824.01	8,858.58	8,824.01	0.90	1.95	180.00	-560.00	-167.00	587.35	585.14	2.21	265.452	
9,300.00	8,824.06	8,858.63	8,824.06	1.14	1.95	180.00	-560.00	-167.00	687.35	685.14	2.21	311.265	
9,400.00	8,824.11	8,858.68	8,824.11	1.46	1.95	180.00	-560.00	-167.00	787.35	785.15	2.20	358.183	
9,500.00	8,824.16	8,858.73	8,824.16	1.88	1.95	180.00	-560.00	-167.00	887.35	885.18	2.16	410.096	
9,600.00	8,824.22	8,858.78	8,824.22	3.02	1.95	180.00	-560.00	-167.00	987.35	985.30	2.05	481.853	
9,700.00	8,824.27	8,858.83	8,824.27	3.41	1.95	180.00	-560.00	-167.00	1,087.35	1,085.22	2.12	511.891	
9,800.00	8,824.32	8,858.89	8,824.32	3.72	1.95	180.00	-560.00	-167.00	1,187.35	1,185.18	2.16	548.856	
9,900.00	8,824.37	8,858.94	8,824.37	4.01	1.95	180.00	-560.00	-167.00	1,287.35	1,285.16	2.19	587.802	
10,000.00	8,824.42	8,858.99	8,824.42	4.28	1.95	180.00	-560.00	-167.00	1,387.35	1,385.14	2.21	627.780	
10,100.00	8,824.47	8,859.04	8,824.47	4.56	1.95	180.00	-560.00	-167.00	1,487.35	1,485.12	2.22	668.498	
10,200.00	8,824.53	8,859.09	8,824.53	4.84	1.95	180.00	-560.00	-167.00	1,587.35	1,585.11	2.24	709.877	
10,300.00	8,824.58	8,859.15	8,824.58	5.14	1.95	180.00	-560.00	-167.00	1,687.35	1,685.10	2.24	751.937	
10,400.00	8,824.63	8,859.20	8,824.63	5.45	1.95	180.00	-560.00	-167.00	1,787.35	1,785.10	2.25	794.760	
10,500.00	8,824.68	8,859.25	8,824.68	5.79	1.95	180.00	-560.00	-167.00	1,887.35	1,885.10	2.25	838.478	
10,600.00	8,824.73	8,859.30	8,824.73	6.14	1.95	180.00	-560.00	-167.00	1,987.35	1,985.10	2.25	883.266	
10,700.00	8,824.79	8,859.35	8,824.79	6.52	1.95	180.00	-560.00	-167.00	2,087.35	2,085.10	2.25	929.372	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 11H (Offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-GYRO. 7543-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-122.35	-305.85	-482.95	571.65				
100.00	100.00	95.56	95.56	0.14	0.00	-122.32	-305.80	-483.37	571.99	571.85	0.14	4,054.774	
200.00	200.00	198.60	198.59	0.50	0.00	-122.29	-305.78	-483.93	572.44	571.95	0.50	1,153.260	
300.00	300.00	300.00	300.00	0.85	0.00	-122.25	-305.43	-483.99	572.31	571.46	0.85	669.524	
300.84	300.84	300.00	300.00	0.86	0.00	-122.25	-305.43	-483.99	572.31	571.45	0.86	667.181	
400.00	400.00	397.64	397.63	1.21	0.00	-122.26	-305.61	-484.22	572.60	571.39	1.21	471.922	
500.00	500.00	497.52	497.51	1.57	0.00	-122.25	-305.72	-484.55	572.94	571.36	1.57	364.512	
600.00	600.00	594.52	594.51	1.93	0.00	-122.22	-305.80	-485.19	573.54	571.61	1.93	297.103	
700.00	700.00	699.11	699.10	2.29	0.00	-122.19	-305.79	-485.82	574.05	571.78	2.29	250.820	
800.00	800.00	799.04	799.03	2.65	0.00	-122.18	-305.74	-485.94	574.12	571.47	2.65	216.881	
900.00	900.00	900.00	899.99	3.01	0.00	-122.17	-305.64	-485.98	574.11	571.10	3.01	191.011	
942.72	942.72	942.23	942.22	3.16	0.00	-122.16	-305.58	-486.00	574.08	570.93	3.16	181.744	
1,000.00	1,000.00	998.70	998.69	3.36	0.00	-122.15	-305.50	-486.10	574.13	570.76	3.36	170.663	
1,100.00	1,100.00	1,100.00	1,099.99	3.72	0.00	-122.12	-305.29	-486.22	574.12	570.40	3.72	154.228	
1,174.63	1,174.63	1,174.14	1,174.13	3.99	0.00	-122.11	-305.12	-486.27	574.07	570.08	3.99	143.873	
1,200.00	1,200.00	1,199.22	1,199.21	4.08	0.00	-122.10	-305.07	-486.31	574.07	569.99	4.08	140.669	
1,300.00	1,300.00	1,297.66	1,297.65	4.44	0.00	-122.08	-304.98	-486.58	574.26	569.82	4.44	129.353	
1,400.00	1,400.00	1,396.67	1,396.65	4.80	0.00	-122.06	-305.04	-487.02	574.67	569.87	4.80	119.774	
1,500.00	1,500.00	1,495.55	1,495.53	5.16	0.00	-122.04	-305.15	-487.64	575.26	570.11	5.16	111.563	
1,600.00	1,600.00	1,594.02	1,594.00	5.51	0.00	-121.99	-305.14	-488.60	576.08	570.57	5.51	104.462	
1,700.00	1,700.00	1,692.70	1,692.67	5.87	0.00	-121.90	-304.99	-489.94	577.15	571.28	5.87	98.271	
1,800.00	1,800.00	1,791.95	1,791.91	6.23	0.00	-121.79	-304.70	-491.58	578.41	572.17	6.23	92.820	
1,900.00	1,900.00	1,889.91	1,889.85	6.59	0.00	-121.67	-304.42	-493.46	579.89	573.30	6.59	88.000	
2,000.00	2,000.00	1,986.36	1,986.28	6.95	0.00	-121.55	-304.34	-495.72	581.84	574.89	6.95	83.751	
2,100.00	2,100.00	2,083.31	2,083.19	7.31	0.00	-121.42	-304.54	-498.49	584.38	577.08	7.30	79.999	
2,200.00	2,200.00	2,182.42	2,182.24	7.67	0.00	-121.28	-304.82	-501.68	587.28	579.61	7.66	76.640	
2,300.00	2,300.00	2,283.24	2,283.01	8.02	0.00	-121.12	-304.90	-505.03	590.16	582.14	8.02	73.573	
2,400.00	2,400.00	2,384.24	2,383.95	8.38	0.00	-120.93	-304.60	-508.40	592.87	584.49	8.38	70.748	
2,500.00	2,500.00	2,485.45	2,485.10	8.74	0.00	-120.72	-304.04	-511.71	595.39	586.66	8.74	68.132	
2,600.00	2,600.00	2,589.92	2,589.52	9.09	0.00	42.94	-302.91	-514.90	597.24	588.15	9.09	65.707	
2,700.00	2,699.96	2,696.01	2,695.54	9.41	0.00	43.45	-300.65	-517.65	596.50	587.09	9.41	63.364	
2,800.00	2,799.82	2,794.99	2,794.45	9.74	0.00	44.19	-297.77	-520.10	593.44	583.70	9.74	60.932	
2,900.00	2,899.51	2,891.65	2,891.05	10.07	0.00	45.06	-295.47	-522.56	588.93	578.86	10.07	58.507	
3,000.00	2,998.96	2,888.01	2,887.36	10.40	0.00	46.09	-293.80	-525.22	583.22	572.82	10.39	56.111	
3,100.00	3,098.22	3,083.38	3,082.64	10.73	0.00	47.25	-291.98	-528.54	577.10	566.37	10.72	53.817	
3,200.00	3,197.47	3,178.27	3,177.45	11.06	0.00	48.45	-290.08	-532.61	571.90	560.85	11.05	51.734	
3,300.00	3,296.73	3,274.33	3,273.38	11.40	0.00	49.68	-288.48	-537.28	567.64	556.25	11.39	49.842	
3,400.00	3,395.98	3,377.97	3,376.89	11.74	0.00	50.98	-287.10	-542.18	563.67	551.94	11.73	48.058	
3,500.00	3,495.24	3,489.47	3,488.34	12.08	0.00	52.25	-286.44	-545.23	558.41	546.33	12.07	46.257	
3,600.00	3,594.49	3,589.07	3,587.94	12.42	0.00	53.24	-286.88	-546.14	552.01	539.60	12.41	44.467	
3,700.00	3,693.75	3,689.30	3,688.16	12.77	0.00	54.20	-287.87	-546.89	545.81	533.05	12.76	42.782	
3,800.00	3,793.01	3,799.75	3,798.57	13.12	0.00	55.10	-290.25	-546.07	538.73	525.63	13.10	41.129	
3,900.00	3,892.26	3,905.63	3,904.33	13.46	0.00	55.73	-294.15	-542.81	530.01	516.57	13.44	39.433	
4,000.00	3,991.52	4,006.92	4,005.46	13.81	0.00	56.29	-298.30	-538.75	520.57	506.79	13.79	37.763	
4,100.00	4,090.77	4,106.30	4,104.69	14.17	0.00	56.91	-301.82	-534.72	510.99	496.86	14.13	36.153	
4,200.00	4,190.03	4,200.00	4,198.30	14.52	0.00	57.61	-304.44	-531.62	502.00	487.51	14.49	34.640	
4,300.00	4,289.28	4,297.49	4,295.74	14.87	0.00	58.47	-306.62	-529.33	493.85	479.00	14.85	33.265	
4,400.00	4,388.54	4,396.09	4,394.31	15.23	0.00	59.41	-308.42	-527.49	486.18	470.98	15.20	31.984	
4,500.00	4,487.79	4,495.63	4,493.82	15.58	0.00	60.42	-310.10	-525.72	478.71	463.15	15.56	30.774	
4,600.00	4,587.05	4,594.51	4,592.67	15.94	0.00	61.44	-311.84	-523.97	471.42	455.51	15.91	29.626	
4,700.00	4,686.30	4,692.68	4,690.81	16.30	0.00	62.51	-313.42	-522.45	464.46	448.19	16.27	28.546	
4,800.00	4,785.56	4,792.33	4,790.44	16.66	0.00	63.68	-314.65	-521.09	457.80	441.17	16.63	27.530	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 11H (Offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-GYRO, 7543-MWD-ISCWSA													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,900.00	4,884.81	4,891.90	4,890.00	17.02	0.00	64.91	-315.68	-519.69	451.25	434.26	16.99	26.563		
5,000.00	4,984.07	4,990.74	4,988.82	17.38	0.00	66.16	-316.63	-518.33	444.94	427.58	17.35	25.646		
5,100.00	5,083.32	5,090.01	5,088.08	17.74	0.00	67.48	-317.51	-517.04	438.93	421.21	17.71	24.783		
5,200.00	5,182.58	5,189.25	5,187.31	18.10	0.00	68.82	-318.38	-515.76	433.15	415.08	18.07	23.966		
5,300.00	5,281.83	5,288.65	5,286.69	18.46	0.00	70.23	-319.13	-514.48	427.62	409.19	18.44	23.194		
5,400.00	5,381.09	5,388.18	5,386.21	18.82	0.00	71.71	-319.57	-513.17	422.33	403.52	18.80	22.463		
5,500.00	5,480.34	5,487.56	5,485.59	19.19	0.00	73.24	-319.85	-511.81	417.27	398.10	19.17	21.771		
5,600.00	5,579.60	5,586.67	5,584.69	19.55	0.00	74.81	-320.10	-510.46	412.51	392.98	19.53	21.120		
5,700.00	5,678.85	5,685.95	5,683.95	19.92	0.00	76.42	-320.38	-509.12	408.10	388.20	19.90	20.509		
5,800.00	5,778.11	5,783.95	5,781.95	20.28	0.00	78.02	-320.80	-507.92	404.13	383.86	20.27	19.941		
5,900.00	5,877.36	5,882.80	5,880.80	20.65	0.00	79.65	-321.26	-506.96	400.74	380.10	20.63	19.421		
6,000.00	5,976.62	5,981.74	5,979.73	21.01	0.00	81.31	-321.68	-506.07	397.75	376.75	21.00	18.939		
6,100.00	6,075.87	6,080.38	6,078.36	21.38	0.00	82.97	-322.20	-505.31	395.23	373.86	21.37	18.494		
6,200.00	6,175.13	6,180.07	6,178.05	21.74	0.00	84.68	-322.68	-504.60	393.12	371.38	21.74	18.084		
6,300.00	6,274.38	6,280.16	6,278.13	22.11	0.00	86.43	-323.05	-503.68	391.18	369.08	22.11	17.696		
6,400.00	6,373.64	6,380.02	6,377.99	22.48	0.00	88.21	-323.40	-502.56	389.43	366.95	22.47	17.328		
6,500.00	6,472.89	6,479.26	6,477.22	22.84	0.00	89.99	-323.73	-501.36	387.97	365.12	22.84	16.985		
6,600.00	6,572.15	6,579.05	6,577.01	23.21	0.00	91.80	-324.03	-500.10	386.85	363.64	23.21	16.667		
6,700.00	6,671.40	6,677.99	6,675.94	23.58	0.00	93.60	-324.40	-498.79	386.05	362.47	23.58	16.373		
6,800.00	6,770.66	6,776.87	6,774.81	23.95	0.00	95.37	-324.90	-497.66	385.75	361.80	23.95	16.109		
6,814.08	6,784.63	6,790.80	6,788.73	24.00	0.00	95.62	-324.97	-497.51	385.74	361.75	24.00	16.074 CC		
6,900.00	6,869.91	6,876.37	6,874.30	24.32	0.00	97.15	-325.42	-496.56	385.86	361.55	24.31	15.870 ES		
7,000.00	6,969.17	6,976.25	6,974.17	24.69	0.00	98.93	-326.04	-495.37	386.23	361.55	24.68	15.649		
7,100.00	7,068.42	7,076.23	7,074.14	25.05	0.00	100.70	-326.77	-494.05	386.80	361.75	25.05	15.442		
7,200.00	7,167.68	7,174.95	7,172.84	25.42	0.00	102.42	-327.64	-492.75	387.67	362.26	25.41	15.254		
7,300.00	7,266.93	7,276.96	7,274.84	25.79	0.00	104.17	-328.71	-491.37	388.78	363.01	25.78	15.081		
7,400.00	7,366.23	7,375.43	7,373.28	26.16	0.00	105.78	-330.14	-489.72	389.66	363.51	26.15	14.903		
7,500.00	7,465.78	7,474.81	7,472.65	26.53	0.00	107.05	-331.55	-488.45	390.50	363.99	26.51	14.731		
7,600.00	7,565.54	7,560.11	7,557.79	26.89	0.26	108.41	-329.01	-485.91	391.93	364.84	27.09	14.469		
7,700.00	7,665.45	7,639.00	7,634.95	27.24	0.71	111.21	-314.27	-479.70	398.22	370.32	27.90	14.273		
7,800.00	7,765.43	7,702.00	7,693.77	27.60	1.09	114.53	-293.21	-472.04	411.44	382.74	28.70	14.335		
7,900.00	7,865.43	7,751.75	7,738.07	27.93	1.33	-46.02	-271.42	-466.09	434.55	405.45	29.09	14.936		
8,000.00	7,965.43	7,798.00	7,777.39	28.26	1.74	-43.47	-247.26	-463.49	469.98	440.86	29.12	16.140		
8,100.00	8,065.43	7,829.00	7,802.20	28.60	2.06	-41.82	-228.68	-463.39	516.38	487.78	28.60	18.057		
8,200.00	8,165.43	7,861.00	7,826.19	28.93	2.41	-40.09	-207.53	-463.74	571.87	543.91	27.96	20.453		
8,300.00	8,265.43	7,893.00	7,848.38	29.24	2.80	-37.26	-184.48	-464.00	634.51	607.26	27.25	23.285		
8,400.00	8,364.67	7,925.00	7,868.97	29.24	3.22	-31.53	-159.99	-464.43	696.19	669.86	26.33	26.441		
8,500.00	8,460.46	7,968.44	7,895.14	29.23	3.83	-27.21	-125.36	-465.63	751.05	725.40	25.65	29.276		
8,600.00	8,549.89	8,020.00	7,924.31	29.22	4.59	-24.19	-82.89	-467.71	797.05	771.88	25.17	31.671		
8,700.00	8,630.24	8,052.00	7,940.79	29.22	5.08	-22.33	-55.51	-469.14	834.13	809.85	24.29	34.345		
8,800.00	8,699.06	8,116.00	7,970.94	29.22	6.07	-21.09	0.78	-473.14	861.02	836.82	24.20	35.583		
8,900.00	8,754.28	8,205.68	8,012.19	29.24	7.44	-21.08	79.52	-485.01	875.14	850.31	24.83	35.242		
9,000.00	8,794.20	8,243.00	8,027.89	29.28	8.04	-21.33	113.01	-489.86	876.90	852.37	24.53	35.751		
9,100.00	8,817.62	8,275.00	8,038.83	29.34	8.57	-21.85	142.92	-492.86	869.67	845.29	24.38	35.670		
9,200.00	8,824.01	8,320.17	8,050.50	29.43	9.35	-22.72	166.47	-495.27	853.40	828.65	24.76	34.470		
9,300.00	8,824.06	8,360.59	8,057.53	29.57	10.06	-22.93	226.25	-495.82	837.84	812.60	25.25	33.186		
9,400.00	8,824.11	8,403.00	8,060.77	29.73	10.82	-22.98	268.51	-495.49	829.71	803.80	25.91	32.025		
9,455.41	8,824.14	8,415.67	8,060.81	29.84	11.04	-22.95	281.18	-495.16	828.42	802.14	26.28	31.521		
9,500.00	8,824.16	8,435.00	8,060.07	29.93	11.39	-22.89	300.49	-494.62	829.23	802.58	26.66	31.109		
9,600.00	8,824.22	8,499.00	8,055.44	30.15	12.52	-22.67	364.31	-493.51	834.83	807.21	27.62	30.221		
9,700.00	8,824.27	8,601.58	8,046.85	30.41	14.29	-22.40	466.53	-493.42	842.37	813.63	28.74	29.311		
9,800.00	8,824.32	8,723.02	8,039.76	30.69	16.22	-22.25	567.74	-494.70	847.96	817.99	29.97	28.293		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 11H (Offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-GYRO, 7543-MWD-ISCWSA													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,900.00	8,824.37	8,843.56	8,036.55	31.01	18.20	-22.27	708.21	-497.06	850.93	819.59	31.34	27.153		
10,000.00	8,824.42	8,936.70	8,034.91	31.34	19.79	-22.35	801.29	-499.74	853.46	820.79	32.67	26.122		
10,100.00	8,824.47	9,044.97	8,032.82	31.71	21.60	-22.43	909.51	-502.52	856.06	821.97	34.09	25.109		
10,200.00	8,824.53	9,147.14	8,031.56	32.10	23.32	-22.46	1,011.66	-504.15	857.62	822.12	35.50	24.161		
10,300.00	8,824.58	9,246.31	8,030.10	32.51	25.03	-22.48	1,110.81	-505.62	859.36	822.45	36.82	23.278		
10,400.00	8,824.63	9,354.31	8,029.41	32.95	26.87	-22.55	1,218.78	-507.83	860.54	822.12	38.42	22.395		
10,500.00	8,824.68	9,465.27	8,028.84	33.41	28.76	-22.50	1,329.73	-507.91	860.88	820.97	39.91	21.569		
10,600.00	8,824.73	9,564.81	8,029.09	33.89	30.46	-22.44	1,429.27	-507.50	860.31	818.95	41.36	20.800		
10,700.00	8,824.79	9,686.35	8,028.93	34.40	32.54	-22.22	1,550.78	-504.64	859.51	816.65	42.88	20.055		
10,800.00	8,824.84	9,780.73	8,030.31	34.92	34.14	-22.00	1,645.08	-501.13	856.59	812.36	44.23	19.366		
10,900.00	8,824.89	9,894.66	8,031.52	35.46	36.07	-21.62	1,758.85	-495.34	853.53	807.91	45.63	18.706		
11,000.00	8,824.94	10,003.67	8,034.16	36.02	37.91	-21.28	1,867.67	-489.53	849.16	802.13	47.02	18.058		
11,100.00	8,824.99	10,102.74	8,037.34	36.60	39.61	-21.01	1,966.57	-484.69	844.22	795.80	48.42	17.435		
11,200.00	8,825.05	10,196.33	8,040.16	37.19	41.22	-20.75	2,060.00	-480.09	839.51	789.70	49.81	16.856		
11,300.00	8,825.10	10,278.00	8,041.48	37.80	42.61	-20.50	2,141.58	-476.27	836.24	785.09	51.15	16.350		
11,400.00	8,825.15	10,364.57	8,040.87	38.42	44.11	-20.19	2,228.05	-472.17	835.10	782.63	52.47	15.915		
11,500.00	8,825.20	10,465.05	8,039.63	39.06	45.83	-19.89	2,328.45	-468.52	834.86	780.99	53.87	15.498		
11,527.45	8,825.21	10,490.12	8,039.34	39.23	46.26	-19.82	2,353.50	-467.71	834.82	780.57	54.25	15.388		
11,600.00	8,825.25	10,557.85	8,038.25	39.71	47.43	-19.64	2,421.20	-465.75	835.09	779.83	55.26	15.112		
11,700.00	8,825.30	10,666.83	8,036.77	40.37	49.29	-19.37	2,530.12	-462.82	835.34	778.62	56.72	14.728		
11,800.00	8,825.36	10,772.79	8,036.98	41.05	51.12	-19.21	2,636.07	-460.99	834.42	778.19	58.23	14.331		
11,900.00	8,825.41	10,869.15	8,037.62	41.73	52.79	-19.13	2,732.42	-460.14	833.36	773.61	59.74	13.949		
12,000.00	8,825.46	10,966.65	8,037.74	42.43	54.47	-19.05	2,829.92	-459.47	832.86	771.60	61.26	13.594		
12,100.00	8,825.51	11,071.92	8,038.30	43.14	56.30	-19.02	2,935.18	-459.34	832.17	769.32	62.85	13.241		
12,200.00	8,825.56	11,176.17	8,039.97	43.86	58.10	-19.03	3,039.42	-459.71	830.62	766.16	64.47	12.885		
12,269.20	8,825.60	11,232.00	8,040.70	44.36	59.07	-19.09	3,095.24	-460.69	830.06	764.51	65.55	12.662		
12,300.00	8,825.62	11,260.60	8,040.87	44.59	59.56	-19.13	3,123.82	-461.44	830.10	764.04	66.06	12.566		
12,400.00	8,825.67	11,358.67	8,041.25	45.32	61.25	-19.30	3,221.85	-464.50	830.61	762.85	67.76	12.259		
12,500.00	8,825.72	11,452.11	8,041.40	46.07	62.86	-19.46	3,315.24	-467.40	831.35	761.92	69.43	11.974		
12,600.00	8,825.77	11,547.79	8,040.41	46.82	64.51	-19.58	3,410.87	-470.25	833.16	762.05	71.10	11.718		
12,700.00	8,825.82	11,644.59	8,039.14	47.59	66.19	-19.67	3,507.64	-472.70	835.09	762.32	72.76	11.477		
12,800.00	8,825.88	11,756.63	8,038.29	48.35	68.13	-19.84	3,619.81	-476.39	836.78	762.23	74.56	11.223		
12,900.00	8,825.93	11,853.77	8,038.11	49.13	69.80	-20.01	3,716.69	-479.62	837.92	761.64	76.29	10.984		
13,000.00	8,825.98	11,948.79	8,037.79	49.91	71.44	-20.18	3,811.65	-483.04	839.32	761.30	78.02	10.758		
13,100.00	8,826.03	12,051.43	8,037.86	50.70	73.24	-20.47	3,914.16	-488.15	840.83	760.94	79.89	10.525		
13,200.00	8,826.08	12,148.94	8,038.55	51.50	74.96	-20.86	4,011.44	-494.72	842.38	760.54	81.83	10.294		
13,300.00	8,826.13	12,245.61	8,039.43	52.30	76.66	-21.34	4,107.80	-502.49	844.26	760.40	83.86	10.068		
13,400.00	8,826.19	12,342.68	8,040.11	53.11	78.37	-21.84	4,204.51	-510.79	846.58	760.66	85.92	9.853		
13,500.00	8,826.24	12,400.00	8,040.51	53.92	79.37	-22.16	4,261.59	-515.99	850.22	762.65	87.56	9.710 SF		
13,600.00	8,826.29	12,400.00	8,040.51	54.74	79.37	-22.16	4,261.59	-515.99	863.54	775.64	87.89	9.825		
13,700.00	8,826.34	12,400.00	8,040.51	55.56	79.37	-22.16	4,261.59	-515.99	887.99	800.82	87.37	10.163		
13,800.00	8,826.39	12,400.00	8,040.51	56.39	79.37	-22.16	4,261.59	-515.99	922.68	836.54	86.15	10.710		
13,900.00	8,826.45	12,400.00	8,040.51	57.22	79.37	-22.16	4,261.59	-515.99	966.53	882.12	84.41	11.450		
14,000.00	8,826.50	12,400.00	8,040.51	58.06	79.37	-22.16	4,261.59	-515.99	1,018.33	935.98	82.35	12.366		
14,100.00	8,826.55	12,400.00	8,040.51	58.90	79.37	-22.16	4,261.59	-515.99	1,076.95	996.83	80.12	13.442		
14,200.00	8,826.60	12,400.00	8,040.51	59.74	79.37	-22.16	4,261.59	-515.99	1,141.34	1,063.49	77.85	14.661		
14,300.00	8,826.65	12,400.00	8,040.51	60.59	79.37	-22.16	4,261.59	-515.99	1,210.57	1,134.95	75.62	16.009		
14,400.00	8,826.70	12,400.00	8,040.51	61.44	79.37	-22.16	4,261.59	-515.99	1,283.86	1,210.39	73.48	17.473		
14,500.00	8,826.76	12,400.00	8,040.51	62.30	79.37	-22.16	4,261.59	-515.99	1,360.56	1,289.10	71.46	19.039		
14,600.00	8,826.81	12,400.00	8,040.51	63.15	79.37	-22.16	4,261.59	-515.99	1,440.12	1,370.54	69.59	20.695		
14,700.00	8,826.86	12,400.00	8,040.51	64.02	79.37	-22.16	4,261.59	-515.99	1,522.10	1,454.25	67.85	22.433		
14,800.00	8,826.91	12,400.00	8,040.51	64.88	79.37	-22.16	4,261.59	-515.99	1,606.12	1,539.87	66.25	24.243		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 11H (Offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-GYRO 7543-MWD-ISCWSA													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,900.00	8,826.96	12,400.00	8,040.51	65.75	79.37	-22.16	4,261.59	-515.99	1,691.87	1,627.09	64.78	26.116		
15,000.00	8,827.02	12,400.00	8,040.51	66.62	79.37	-22.16	4,261.59	-515.99	1,779.12	1,715.68	63.44	28.045		
15,100.00	8,827.07	12,400.00	8,040.51	67.49	79.37	-22.16	4,261.59	-515.99	1,867.64	1,805.44	62.21	30.024		
15,200.00	8,827.12	12,400.00	8,040.51	68.37	79.37	-22.16	4,261.59	-515.99	1,957.27	1,896.20	61.08	32.046		
15,300.00	8,827.17	12,400.00	8,040.51	69.25	79.37	-22.16	4,261.59	-515.99	2,047.86	1,987.82	60.04	34.108		
15,400.00	8,827.22	12,400.00	8,040.51	70.13	79.37	-22.16	4,261.59	-515.99	2,139.29	2,080.20	59.09	36.203		

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-GYRO													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	-88.93	21.07	-1,132.84	1,133.03				
100.00	100.00	90.88	90.87	0.14	0.00	-88.93	21.07	-1,133.18	1,133.41	1,133.27	0.14	7,995.817	
200.00	200.00	191.86	191.86	0.50	0.00	-88.94	20.97	-1,133.95	1,134.17	1,133.68	0.50	2,281.389	
300.00	300.00	289.90	289.89	0.85	0.00	-88.95	20.78	-1,134.69	1,134.92	1,134.06	0.86	1,326.628	
400.00	400.00	381.84	381.83	1.21	0.00	-88.96	20.71	-1,135.77	1,136.09	1,134.88	1.21	935.233	
500.00	500.00	474.75	474.72	1.57	0.00	-88.95	20.88	-1,137.51	1,137.97	1,136.40	1.57	723.095	
600.00	600.00	573.12	573.06	1.93	0.00	-88.93	21.19	-1,139.78	1,140.28	1,138.35	1.93	590.270	
700.00	700.00	675.25	675.16	2.29	0.00	-88.92	21.51	-1,142.07	1,142.53	1,140.24	2.29	499.009	
800.00	800.00	778.01	777.91	2.65	0.00	-88.90	21.99	-1,144.12	1,144.54	1,141.89	2.65	432.290	
900.00	900.00	880.01	879.89	3.01	0.00	-88.87	22.53	-1,145.94	1,146.33	1,143.32	3.01	381.369	
1,000.00	1,000.00	981.64	981.51	3.36	0.00	-88.85	23.02	-1,147.59	1,147.97	1,144.60	3.36	341.236	
1,100.00	1,100.00	1,082.90	1,082.75	3.72	0.00	-88.83	23.50	-1,149.11	1,149.48	1,145.75	3.72	308.790	
1,200.00	1,200.00	1,183.34	1,183.17	4.08	0.00	-88.80	24.09	-1,150.54	1,150.91	1,148.83	4.08	282.022	
1,300.00	1,300.00	1,284.18	1,284.00	4.44	0.00	-88.78	24.59	-1,151.93	1,152.29	1,147.85	4.44	259.565	
1,400.00	1,400.00	1,384.21	1,384.03	4.80	0.00	-88.76	25.01	-1,153.26	1,153.63	1,148.83	4.80	240.453	
1,500.00	1,500.00	1,483.27	1,483.08	5.16	0.00	-88.74	25.37	-1,154.61	1,155.01	1,149.85	5.16	224.008	
1,600.00	1,600.00	1,585.11	1,584.91	5.51	0.00	-88.73	25.69	-1,155.99	1,156.37	1,150.85	5.51	209.691	
1,700.00	1,700.00	1,684.88	1,684.67	5.87	0.00	-88.72	25.83	-1,157.24	1,157.62	1,151.75	5.87	197.108	
1,800.00	1,800.00	1,784.75	1,784.53	6.23	0.00	-88.72	25.90	-1,158.53	1,158.91	1,152.68	6.23	185.978	
1,900.00	1,900.00	1,884.40	1,884.17	6.59	0.00	-88.72	25.93	-1,159.83	1,160.22	1,153.63	6.59	176.061	
2,000.00	2,000.00	1,984.82	1,984.58	6.95	0.00	-88.72	26.03	-1,161.14	1,161.53	1,154.58	6.95	167.166	
2,100.00	2,100.00	2,084.77	2,084.53	7.31	0.00	-88.71	26.16	-1,162.42	1,162.81	1,155.50	7.31	159.141	
2,200.00	2,200.00	2,184.21	2,183.96	7.67	0.00	-88.71	26.14	-1,163.72	1,164.12	1,156.45	7.67	151.671	
2,300.00	2,300.00	2,282.09	2,281.83	8.02	0.00	-88.71	26.17	-1,165.10	1,165.53	1,157.51	8.02	145.266	
2,400.00	2,400.00	2,379.58	2,379.30	8.38	0.00	-88.72	26.17	-1,166.69	1,167.15	1,158.77	8.38	139.253	
2,500.00	2,500.00	2,476.43	2,476.14	8.74	0.00	-88.72	26.19	-1,168.49	1,169.01	1,160.27	8.74	133.761	
2,600.00	2,600.00	2,578.09	2,577.78	9.09	0.00	74.69	26.39	-1,170.49	1,170.91	1,161.82	9.09	128.826	
2,700.00	2,699.96	2,671.46	2,671.13	9.41	0.00	74.79	26.54	-1,172.40	1,172.26	1,162.85	9.41	124.560	
2,800.00	2,799.82	2,762.02	2,761.65	9.74	0.00	75.00	26.72	-1,174.94	1,173.71	1,163.98	9.73	120.577	
2,900.00	2,899.51	2,852.45	2,852.02	10.07	0.00	75.31	26.81	-1,178.20	1,175.31	1,165.26	10.06	116.852	
3,000.00	2,998.96	2,948.04	2,947.53	10.40	0.00	75.75	26.83	-1,182.30	1,176.99	1,166.61	10.39	113.331	
3,100.00	3,098.22	3,049.64	3,049.03	10.73	0.00	76.32	26.88	-1,186.60	1,178.31	1,167.59	10.72	109.945	
3,200.00	3,197.47	3,158.18	3,157.50	11.06	0.00	76.94	26.94	-1,190.80	1,179.37	1,168.32	11.05	106.691	
3,300.00	3,296.73	3,277.81	3,277.09	11.40	0.00	77.63	27.19	-1,193.84	1,179.25	1,167.85	11.39	103.489	
3,400.00	3,395.98	3,399.45	3,398.72	11.74	0.00	78.34	27.25	-1,194.65	1,177.37	1,165.63	11.73	100.333	
3,500.00	3,495.24	3,499.72	3,498.98	12.08	0.00	78.92	27.18	-1,194.33	1,174.62	1,162.55	12.08	97.270	
3,600.00	3,594.49	3,612.53	3,611.79	12.42	0.00	79.58	27.18	-1,193.26	1,171.38	1,158.96	12.42	94.335	
3,700.00	3,693.75	3,723.50	3,722.74	12.77	0.00	80.24	26.98	-1,191.03	1,167.20	1,154.44	12.76	91.478	
3,800.00	3,793.01	3,831.67	3,830.86	13.12	0.00	80.86	26.26	-1,187.84	1,162.15	1,149.05	13.10	88.695	
3,900.00	3,892.26	3,931.17	3,930.30	13.46	0.00	81.43	25.26	-1,184.61	1,156.89	1,143.44	13.45	86.007	
4,000.00	3,991.52	4,026.08	4,025.16	13.81	0.00	81.97	24.32	-1,181.67	1,151.89	1,138.09	13.80	83.453	
4,100.00	4,090.77	4,116.33	4,115.38	14.17	0.00	82.49	23.48	-1,179.44	1,147.63	1,133.47	14.16	81.061	
4,200.00	4,190.03	4,206.40	4,205.43	14.52	0.00	83.01	22.83	-1,177.93	1,144.30	1,129.79	14.51	78.846	
4,300.00	4,289.28	4,303.07	4,302.10	14.87	0.00	83.59	22.37	-1,176.75	1,141.58	1,126.71	14.87	76.783	
4,400.00	4,388.54	4,400.00	4,399.02	15.23	0.00	84.17	21.99	-1,175.75	1,139.18	1,123.95	15.22	74.831	
4,500.00	4,487.79	4,498.29	4,497.31	15.58	0.00	84.76	21.64	-1,174.88	1,137.04	1,121.46	15.58	72.982	
4,600.00	4,587.05	4,594.78	4,593.80	15.94	0.00	85.35	21.39	-1,174.18	1,135.22	1,119.28	15.94	71.229	
4,700.00	4,686.30	4,690.44	4,689.45	16.30	0.00	85.93	21.33	-1,173.72	1,133.80	1,117.50	16.30	69.575	
4,800.00	4,785.56	4,791.84	4,790.85	16.66	0.00	86.56	21.37	-1,173.30	1,132.60	1,115.95	16.65	68.004	
4,900.00	4,884.81	4,891.05	4,890.06	17.02	0.00	87.18	21.39	-1,172.77	1,131.41	1,114.39	17.01	66.496	
5,000.00	4,984.07	4,987.44	4,986.45	17.38	0.00	87.78	21.43	-1,172.37	1,130.48	1,113.10	17.38	65.061	
5,100.00	5,083.32	5,088.07	5,085.08	17.74	0.00	88.40	21.44	-1,172.15	1,129.85	1,112.12	17.74	63.701	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-GYRO													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,200.00	5,182.58	5,184.65	5,183.65	18.10	0.00	89.01	21.47	-1,171.96	1,129.40	1,111.30	18.10	62.403	
5,300.00	5,281.83	5,284.36	5,283.37	18.46	0.00	89.63	21.49	-1,171.80	1,129.10	1,110.64	18.46	61.162	
5,400.00	5,381.09	5,382.93	5,381.93	18.82	0.00	90.24	21.47	-1,171.64	1,128.93	1,110.10	18.82	59.973	
5,447.54	5,428.27	5,430.03	5,429.04	19.00	0.00	90.53	21.45	-1,171.60	1,128.91	1,109.92	19.00	59.427	
5,500.00	5,480.34	5,482.27	5,481.27	19.19	0.00	90.85	21.40	-1,171.55	1,128.93	1,109.74	19.19	58.837	
5,600.00	5,579.60	5,580.20	5,579.21	19.55	0.00	91.45	21.28	-1,171.50	1,129.09	1,109.54	19.55	57.750	
5,700.00	5,678.85	5,678.72	5,677.72	19.92	0.00	92.06	21.24	-1,171.55	1,129.50	1,109.58	19.92	56.715	
5,800.00	5,778.11	5,777.38	5,776.38	20.28	0.00	92.67	21.25	-1,171.63	1,130.09	1,109.81	20.28	55.724	
5,900.00	5,877.36	5,877.40	5,876.41	20.65	0.00	93.28	21.29	-1,171.71	1,130.81	1,110.17	20.65	54.773	
6,000.00	5,976.62	5,976.36	5,975.37	21.01	0.00	93.90	21.36	-1,171.72	1,131.62	1,110.61	21.01	53.859	
6,100.00	6,075.87	6,073.68	6,072.68	21.38	0.00	94.49	21.42	-1,171.84	1,132.66	1,111.28	21.38	52.987	
6,200.00	6,175.13	6,174.70	6,173.71	21.74	0.00	95.11	21.47	-1,172.05	1,133.90	1,112.15	21.74	52.151	
6,300.00	6,274.38	6,274.56	6,273.57	22.11	0.00	95.72	21.45	-1,172.09	1,135.08	1,112.97	22.11	51.341	
6,400.00	6,373.64	6,372.16	6,371.16	22.48	0.00	96.32	21.42	-1,172.19	1,136.45	1,113.98	22.48	50.565	
6,500.00	6,472.89	6,472.90	6,471.91	22.84	0.00	96.93	21.40	-1,172.37	1,138.02	1,115.16	22.84	49.821	
6,600.00	6,572.15	6,574.17	6,573.18	23.21	0.00	97.53	21.23	-1,172.38	1,139.51	1,116.30	23.21	49.097	
6,700.00	6,671.40	6,672.77	6,671.77	23.58	0.00	98.12	20.93	-1,172.37	1,141.05	1,117.47	23.58	48.398	
6,800.00	6,770.66	6,770.71	6,769.72	23.95	0.00	98.70	20.69	-1,172.47	1,142.83	1,118.88	23.94	47.730	
6,900.00	6,869.91	6,869.46	6,868.46	24.32	0.00	99.28	20.48	-1,172.64	1,144.82	1,120.51	24.31	47.091	
7,000.00	6,969.17	6,968.41	6,967.42	24.69	0.00	99.86	20.28	-1,172.85	1,146.95	1,122.27	24.68	46.476	
7,100.00	7,068.42	7,068.36	7,067.37	25.05	0.00	100.45	20.16	-1,173.01	1,149.21	1,124.16	25.05	45.883	
7,200.00	7,167.68	7,169.13	7,168.13	25.42	0.00	101.04	20.02	-1,173.07	1,151.49	1,126.07	25.41	45.308	
7,300.00	7,266.93	7,270.00	7,269.00	25.79	0.00	101.63	19.65	-1,173.09	1,153.74	1,127.96	25.78	44.748	
7,400.00	7,366.23	7,368.23	7,367.23	26.16	0.00	102.19	19.15	-1,173.13	1,155.98	1,129.83	26.15	44.206	
7,500.00	7,465.78	7,467.28	7,466.28	26.53	0.00	102.64	18.62	-1,173.33	1,157.95	1,131.43	26.51	43.673	
7,600.00	7,565.54	7,566.45	7,565.45	26.89	0.00	102.96	18.10	-1,173.54	1,159.40	1,132.52	26.87	43.142	
7,700.00	7,665.45	7,665.99	7,664.98	27.24	0.00	103.14	17.43	-1,173.91	1,160.35	1,133.12	27.23	42.613	
7,800.00	7,765.43	7,765.06	7,764.06	27.60	0.00	103.18	16.68	-1,174.36	1,160.75	1,133.17	27.58	42.084	
7,900.00	7,865.43	7,866.11	7,865.10	27.93	0.00	-60.26	15.90	-1,174.89	1,160.82	1,132.90	27.92	41.582	
8,000.00	7,965.43	7,966.96	7,965.94	28.26	0.00	-60.30	15.09	-1,175.27	1,160.75	1,132.50	28.25	41.088	
8,100.00	8,065.43	8,066.48	8,065.46	28.60	0.00	-60.34	14.30	-1,175.63	1,160.67	1,132.09	28.58	40.606	
8,139.61	8,105.04	8,105.58	8,104.54	28.73	0.00	-60.36	13.98	-1,175.80	1,160.66	1,131.94	28.72	40.418	
8,200.00	8,165.43	8,163.17	8,162.14	28.93	0.00	-60.39	13.52	-1,176.14	1,160.73	1,131.82	28.92	40.140	
8,300.00	8,265.43	8,260.85	8,259.81	29.24	0.00	-60.10	12.81	-1,176.97	1,161.02	1,131.79	29.23	39.724	
8,400.00	8,364.67	8,358.83	8,357.79	29.24	0.00	-61.07	12.05	-1,177.95	1,155.97	1,126.75	29.23	39.554	
8,500.00	8,460.46	8,450.96	8,449.91	29.23	0.00	-63.44	11.30	-1,179.06	1,143.04	1,113.82	29.22	39.118	
8,600.00	8,549.89	8,537.10	8,536.04	29.22	0.00	-67.06	10.71	-1,180.40	1,123.79	1,094.57	29.21	38.467	
8,700.00	8,630.24	8,616.20	8,615.13	29.22	0.00	-71.72	10.09	-1,181.76	1,100.10	1,070.89	29.21	37.659	
8,800.00	8,699.06	8,683.34	8,682.25	29.22	0.00	-76.82	9.57	-1,182.99	1,074.70	1,045.49	29.22	36.785	
8,900.00	8,754.28	8,739.10	8,738.00	29.24	0.00	-81.81	9.16	-1,184.01	1,050.64	1,021.41	29.23	35.940	
9,000.00	8,794.20	8,779.75	8,778.64	29.28	0.00	-85.88	8.85	-1,184.69	1,030.97	1,001.70	29.27	35.222	
9,100.00	8,817.62	8,803.01	8,801.90	29.34	0.00	-88.42	8.66	-1,185.06	1,018.44	989.11	29.34	34.715	
9,187.17	8,824.97	8,809.51	8,808.40	29.42	0.00	-89.09	8.61	-1,185.17	1,014.82	985.40	29.42	34.492 CC. ES	
9,200.00	8,824.01	8,808.47	8,807.36	29.43	0.00	-89.09	8.61	-1,185.15	1,014.89	985.45	29.43	34.480 SF	
9,300.00	8,824.06	8,807.73	8,806.61	29.57	0.00	-89.05	8.62	-1,185.14	1,021.03	991.47	29.56	34.537	
9,400.00	8,824.11	8,806.98	8,805.87	29.73	0.00	-89.00	8.63	-1,185.13	1,036.83	1,007.12	29.72	34.892	
9,500.00	8,824.16	8,806.24	8,805.13	29.93	0.00	-88.96	8.63	-1,185.11	1,061.85	1,031.97	29.88	35.539	
9,600.00	8,824.22	8,805.49	8,804.38	30.15	0.00	-88.92	8.64	-1,185.10	1,095.46	1,065.42	30.04	36.462	
9,700.00	8,824.27	8,804.75	8,803.64	30.41	0.00	-88.88	8.65	-1,185.09	1,136.90	1,106.70	30.20	37.640	
9,800.00	8,824.32	8,804.00	8,802.89	30.69	0.00	-88.84	8.65	-1,185.08	1,185.35	1,155.00	30.36	39.049	
9,900.00	8,824.37	8,803.25	8,802.14	31.01	0.00	-88.79	8.66	-1,185.07	1,239.99	1,209.50	30.49	40.666	
10,000.00	8,824.42	8,802.50	8,801.39	31.34	0.00	-88.75	8.66	-1,185.06	1,300.03	1,269.41	30.61	42.465	

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

LEAM Drilling Services

Anticollision Report

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Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
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MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 100-GYRO													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
10,100.00	8,824.47	8,801.75	8,800.64	31.71	0.00	-88.71	8.67	-1,185.04	1,364.76	1,334.04	30.72	44.423		
10,200.00	8,824.53	8,801.00	8,799.90	32.10	0.00	-88.67	8.68	-1,185.03	1,433.56	1,402.74	30.82	46.518		
10,300.00	8,824.58	8,800.00	8,798.89	32.51	0.00	-88.61	8.68	-1,185.02	1,505.85	1,474.95	30.90	48.732		
10,400.00	8,824.63	8,799.48	8,798.38	32.95	0.00	-88.58	8.69	-1,185.01	1,581.17	1,550.19	30.97	51.048		
10,500.00	8,824.68	8,798.71	8,797.60	33.41	0.00	-88.54	8.70	-1,185.00	1,659.09	1,628.05	31.04	53.452		
10,600.00	8,824.73	8,797.94	8,796.83	33.89	0.00	-88.49	8.70	-1,184.98	1,739.28	1,708.18	31.10	55.931		
10,700.00	8,824.79	8,797.16	8,796.06	34.40	0.00	-88.45	8.71	-1,184.97	1,821.42	1,790.28	31.15	58.475		
10,800.00	8,824.84	8,796.39	8,795.29	34.92	0.00	-88.41	8.71	-1,184.96	1,905.28	1,874.08	31.20	61.075		
10,900.00	8,824.89	8,795.63	8,794.52	35.46	0.00	-88.36	8.72	-1,184.95	1,990.62	1,959.38	31.24	63.722		
11,000.00	8,824.94	8,794.86	8,793.75	36.02	0.00	-88.32	8.73	-1,184.94	2,077.28	2,046.00	31.28	66.410		
11,100.00	8,824.99	8,794.10	8,792.99	36.60	0.00	-88.28	8.73	-1,184.92	2,165.08	2,133.76	31.32	69.132		

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01													Offset Site Error:	0.00 usft
Survey Program: 100-GYRO 12334-MWD-ISCWSA, 16645-Project													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-88.93	21.07	-1,132.84	1,133.03					
100.00	100.00	90.88	90.87	0.14	0.00	-88.93	21.07	-1,133.18	1,133.41	1,133.27	0.14	7,995.817		
200.00	200.00	191.86	191.86	0.50	0.00	-88.94	20.97	-1,133.95	1,134.17	1,133.68	0.50	2,281.389		
300.00	300.00	289.90	289.89	0.85	0.00	-88.95	20.78	-1,134.69	1,134.92	1,134.06	0.86	1,326.628		
400.00	400.00	381.84	381.83	1.21	0.00	-88.96	20.71	-1,135.77	1,136.09	1,134.88	1.21	935.233		
500.00	500.00	474.75	474.72	1.57	0.00	-88.95	20.88	-1,137.51	1,137.97	1,138.40	1.57	723.095		
600.00	600.00	573.12	573.06	1.93	0.00	-88.93	21.19	-1,139.78	1,140.28	1,138.35	1.93	590.270		
700.00	700.00	675.25	675.16	2.29	0.00	-88.92	21.51	-1,142.07	1,142.53	1,140.24	2.29	499.009		
800.00	800.00	778.01	777.91	2.65	0.00	-88.90	21.99	-1,144.12	1,144.54	1,141.89	2.65	432.290		
900.00	900.00	880.01	879.89	3.01	0.00	-88.87	22.53	-1,145.94	1,146.33	1,143.32	3.01	381.369		
1,000.00	1,000.00	981.64	981.51	3.36	0.00	-88.85	23.02	-1,147.59	1,147.97	1,144.60	3.36	341.236		
1,100.00	1,100.00	1,082.90	1,082.75	3.72	0.00	-88.83	23.50	-1,149.11	1,149.48	1,145.75	3.72	308.790		
1,200.00	1,200.00	1,183.34	1,183.17	4.08	0.00	-88.80	24.09	-1,150.54	1,150.91	1,146.83	4.08	282.022		
1,300.00	1,300.00	1,284.18	1,284.00	4.44	0.00	-88.78	24.59	-1,151.93	1,152.29	1,147.85	4.44	259.565		
1,400.00	1,400.00	1,384.21	1,384.03	4.80	0.00	-88.76	25.01	-1,153.26	1,153.63	1,148.83	4.80	240.453		
1,500.00	1,500.00	1,483.27	1,483.08	5.16	0.00	-88.74	25.37	-1,154.61	1,155.01	1,149.85	5.16	224.006		
1,600.00	1,600.00	1,585.11	1,584.91	5.51	0.00	-88.73	25.69	-1,155.99	1,156.37	1,150.85	5.51	209.691		
1,700.00	1,700.00	1,684.88	1,684.67	5.87	0.00	-88.72	25.83	-1,157.24	1,157.62	1,151.75	5.87	197.108		
1,800.00	1,800.00	1,784.75	1,784.53	6.23	0.00	-88.72	25.90	-1,158.53	1,158.91	1,152.68	6.23	185.978		
1,900.00	1,900.00	1,884.40	1,884.17	6.59	0.00	-88.72	25.93	-1,159.83	1,160.22	1,153.63	6.59	176.061		
2,000.00	2,000.00	1,984.82	1,984.58	6.95	0.00	-88.72	26.03	-1,161.14	1,161.53	1,154.58	6.95	167.166		
2,100.00	2,100.00	2,084.77	2,084.53	7.31	0.00	-88.71	26.16	-1,162.42	1,162.81	1,155.50	7.31	159.141		
2,200.00	2,200.00	2,184.21	2,183.96	7.67	0.00	-88.71	26.14	-1,163.72	1,164.12	1,156.45	7.67	151.871		
2,300.00	2,300.00	2,282.09	2,281.83	8.02	0.00	-88.71	26.17	-1,165.10	1,165.53	1,157.51	8.02	145.266		
2,400.00	2,400.00	2,379.58	2,379.30	8.38	0.00	-88.72	26.17	-1,166.69	1,167.15	1,158.77	8.38	139.253		
2,500.00	2,500.00	2,476.43	2,476.14	8.74	0.00	-88.72	26.19	-1,168.49	1,169.01	1,160.27	8.74	133.761		
2,600.00	2,600.00	2,578.09	2,577.78	9.09	0.00	74.69	26.39	-1,170.49	1,170.91	1,161.82	9.09	128.826		
2,700.00	2,699.96	2,671.46	2,671.13	9.41	0.00	74.79	26.54	-1,172.40	1,172.26	1,162.85	9.41	124.560		
2,800.00	2,799.82	2,762.02	2,761.65	9.74	0.00	75.00	26.72	-1,174.94	1,173.71	1,163.98	9.73	120.577		
2,900.00	2,899.51	2,852.45	2,852.02	10.07	0.00	75.31	26.81	-1,178.20	1,175.31	1,165.26	10.06	116.852		
3,000.00	2,998.96	2,948.04	2,947.53	10.40	0.00	75.75	26.83	-1,182.30	1,176.99	1,166.61	10.39	113.331		
3,100.00	3,098.22	3,049.64	3,049.03	10.73	0.00	76.32	26.88	-1,186.60	1,178.31	1,167.59	10.72	109.945		
3,200.00	3,197.47	3,158.18	3,157.50	11.06	0.00	76.94	26.94	-1,190.80	1,179.37	1,168.32	11.05	106.691		
3,300.00	3,296.73	3,277.81	3,277.09	11.40	0.00	77.63	27.19	-1,193.84	1,179.25	1,167.85	11.39	103.489		
3,400.00	3,395.98	3,399.45	3,398.72	11.74	0.00	78.34	27.25	-1,194.65	1,177.37	1,165.63	11.73	100.333		
3,500.00	3,495.24	3,499.72	3,498.98	12.08	0.00	78.92	27.16	-1,194.33	1,174.62	1,162.55	12.08	97.270		
3,600.00	3,594.49	3,612.53	3,611.79	12.42	0.00	79.58	27.19	-1,193.26	1,171.38	1,158.86	12.42	94.335		
3,700.00	3,693.75	3,723.50	3,722.74	12.77	0.00	80.24	26.98	-1,191.03	1,167.20	1,154.44	12.76	91.478		
3,800.00	3,793.01	3,831.67	3,830.86	13.12	0.00	80.86	26.26	-1,187.84	1,162.15	1,149.05	13.10	88.695		
3,900.00	3,892.26	3,931.17	3,930.30	13.46	0.00	81.43	25.26	-1,184.61	1,156.89	1,143.44	13.45	86.007		
4,000.00	3,991.52	4,026.08	4,025.16	13.81	0.00	81.97	24.32	-1,181.67	1,151.89	1,138.09	13.80	83.453		
4,100.00	4,090.77	4,116.33	4,115.38	14.17	0.00	82.49	23.48	-1,179.44	1,147.63	1,133.47	14.16	81.061		
4,200.00	4,190.03	4,206.40	4,205.43	14.52	0.00	83.01	22.83	-1,177.93	1,144.30	1,129.79	14.51	78.846		
4,300.00	4,289.28	4,303.07	4,302.10	14.87	0.00	83.59	22.37	-1,176.75	1,141.58	1,126.71	14.87	76.783		
4,400.00	4,388.54	4,400.00	4,399.02	15.23	0.00	84.17	21.99	-1,175.75	1,139.18	1,123.95	15.22	74.831		
4,500.00	4,487.79	4,498.29	4,497.31	15.58	0.00	84.76	21.64	-1,174.88	1,137.04	1,121.46	15.58	72.982		
4,600.00	4,587.05	4,594.78	4,593.80	15.94	0.00	85.35	21.39	-1,174.18	1,135.22	1,119.28	15.94	71.229		
4,700.00	4,686.30	4,690.44	4,689.45	16.30	0.00	85.93	21.33	-1,173.72	1,133.80	1,117.50	16.30	69.575		
4,800.00	4,785.56	4,791.84	4,790.85	16.66	0.00	86.56	21.37	-1,173.30	1,132.60	1,115.95	16.65	68.004		
4,900.00	4,884.81	4,891.05	4,890.06	17.02	0.00	87.18	21.39	-1,172.77	1,131.41	1,114.39	17.01	66.496		
5,000.00	4,984.07	4,987.44	4,986.45	17.38	0.00	87.78	21.43	-1,172.37	1,130.48	1,113.10	17.38	65.061		
5,100.00	5,083.32	5,086.07	5,085.08	17.74	0.00	88.40	21.44	-1,172.15	1,129.85	1,112.12	17.74	63.701		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01														Offset Site Error: 0.00 usft
Survey Program: 100-GYRO 12334-MWD-ISCWGA, 16645-Project														Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,182.58	5,184.65	5,183.65	18.10	0.00	89.01	21.47	-1,171.96	1,129.40	1,111.30	18.10	62.403		
5,300.00	5,281.83	5,284.38	5,283.37	18.46	0.00	89.63	21.49	-1,171.80	1,129.10	1,110.64	18.46	61.162		
5,400.00	5,381.09	5,382.93	5,381.93	18.82	0.00	90.24	21.47	-1,171.64	1,128.93	1,110.10	18.82	59.973		
5,447.54	5,428.27	5,430.03	5,429.04	19.00	0.00	90.53	21.45	-1,171.60	1,128.91	1,109.92	19.00	59.427		
5,500.00	5,480.34	5,482.27	5,481.27	19.19	0.00	90.85	21.40	-1,171.55	1,128.93	1,109.74	19.19	58.837		
5,600.00	5,579.60	5,580.20	5,579.21	19.55	0.00	91.45	21.28	-1,171.50	1,129.09	1,109.54	19.55	57.750		
5,700.00	5,678.85	5,678.72	5,677.72	19.92	0.00	92.06	21.24	-1,171.55	1,129.50	1,109.58	19.92	56.715		
5,800.00	5,778.11	5,777.38	5,776.38	20.28	0.00	92.67	21.25	-1,171.63	1,130.09	1,109.81	20.28	55.724		
5,900.00	5,877.36	5,877.40	5,876.41	20.65	0.00	93.28	21.29	-1,171.71	1,130.81	1,110.17	20.65	54.773		
6,000.00	5,976.62	5,976.36	5,975.37	21.01	0.00	93.90	21.36	-1,171.72	1,131.62	1,110.61	21.01	53.859		
6,100.00	6,075.87	6,073.68	6,072.68	21.38	0.00	94.49	21.42	-1,171.84	1,132.66	1,111.28	21.38	52.987		
6,200.00	6,175.13	6,174.70	6,173.71	21.74	0.00	95.11	21.47	-1,172.05	1,133.90	1,112.15	21.74	52.151		
6,300.00	6,274.38	6,274.56	6,273.57	22.11	0.00	95.72	21.45	-1,172.09	1,135.08	1,112.97	22.11	51.341		
6,400.00	6,373.64	6,372.16	6,371.16	22.48	0.00	96.32	21.42	-1,172.19	1,136.45	1,113.98	22.48	50.565		
6,500.00	6,472.89	6,472.90	6,471.91	22.84	0.00	96.93	21.40	-1,172.37	1,138.02	1,115.18	22.84	49.821		
6,600.00	6,572.15	6,574.17	6,573.18	23.21	0.00	97.53	21.23	-1,172.38	1,139.51	1,116.30	23.21	49.097		
6,700.00	6,671.40	6,672.77	6,671.77	23.58	0.00	98.12	20.93	-1,172.37	1,141.05	1,117.47	23.58	48.398		
6,800.00	6,770.66	6,770.71	6,769.72	23.95	0.00	98.70	20.69	-1,172.47	1,142.83	1,118.88	23.94	47.730		
6,900.00	6,869.91	6,869.46	6,868.46	24.32	0.00	99.28	20.48	-1,172.64	1,144.82	1,120.51	24.31	47.091		
7,000.00	6,969.17	6,968.41	6,967.42	24.69	0.00	99.86	20.28	-1,172.85	1,146.95	1,122.27	24.68	46.476		
7,100.00	7,068.42	7,068.36	7,067.37	25.05	0.00	100.45	20.16	-1,173.01	1,149.21	1,124.16	25.05	45.883		
7,200.00	7,167.68	7,169.13	7,168.13	25.42	0.00	101.04	20.02	-1,173.07	1,151.49	1,126.07	25.41	45.308		
7,300.00	7,266.93	7,270.00	7,269.00	25.79	0.00	101.63	19.65	-1,173.09	1,153.74	1,127.96	25.78	44.748		
7,400.00	7,366.23	7,368.23	7,367.23	26.16	0.00	102.19	19.15	-1,173.13	1,155.98	1,129.83	26.15	44.206		
7,500.00	7,465.78	7,467.28	7,466.28	26.53	0.00	102.64	18.62	-1,173.33	1,157.95	1,131.43	26.51	43.673		
7,600.00	7,565.54	7,566.45	7,565.45	26.89	0.00	102.96	18.10	-1,173.54	1,159.40	1,132.52	26.87	43.142		
7,700.00	7,665.45	7,665.99	7,664.98	27.24	0.00	103.14	17.43	-1,173.91	1,160.35	1,133.12	27.23	42.613		
7,800.00	7,765.43	7,765.06	7,764.06	27.60	0.00	103.18	16.68	-1,174.36	1,160.75	1,133.17	27.58	42.084		
7,900.00	7,865.43	7,866.11	7,865.10	27.93	0.00	-60.26	15.90	-1,174.89	1,160.82	1,132.90	27.92	41.582		
8,000.00	7,965.43	7,966.96	7,965.94	28.26	0.00	-60.30	15.09	-1,175.27	1,160.75	1,132.50	28.25	41.088		
8,100.00	8,065.43	8,066.48	8,065.46	28.60	0.00	-60.34	14.30	-1,175.63	1,160.67	1,132.09	28.58	40.606		
8,139.61	8,105.04	8,105.56	8,104.54	28.73	0.00	-60.38	13.98	-1,175.80	1,160.66	1,131.94	28.72	40.418		
8,200.00	8,165.43	8,163.17	8,162.14	28.93	0.00	-60.39	13.52	-1,176.14	1,160.73	1,131.82	28.92	40.140		
8,300.00	8,265.43	8,260.85	8,259.81	29.24	0.00	-60.10	12.81	-1,176.97	1,161.02	1,131.79	29.23	39.724		
8,400.00	8,364.67	8,358.83	8,357.79	29.24	0.00	-61.07	12.05	-1,177.95	1,155.97	1,128.75	29.23	39.554		
8,500.00	8,460.46	8,450.96	8,449.91	29.23	0.00	-63.44	11.30	-1,179.06	1,143.04	1,113.82	29.22	39.118		
8,600.00	8,549.89	8,537.10	8,536.04	29.22	0.00	-67.06	10.71	-1,180.40	1,123.79	1,094.57	29.21	38.467		
8,700.00	8,630.24	8,616.20	8,615.13	29.22	0.00	-71.72	10.09	-1,181.76	1,100.10	1,070.89	29.21	37.659		
8,800.00	8,699.06	8,683.34	8,682.25	29.22	0.00	-76.82	9.57	-1,182.99	1,074.70	1,045.49	29.22	36.785		
8,900.00	8,754.28	8,739.10	8,738.00	29.24	0.00	-81.81	9.16	-1,184.01	1,050.64	1,021.41	29.23	35.940		
9,000.00	8,794.20	8,779.75	8,778.64	29.28	0.00	-85.88	8.85	-1,184.69	1,030.97	1,001.70	29.27	35.222		
9,100.00	8,817.62	8,803.01	8,801.90	29.34	0.00	-88.42	8.66	-1,185.06	1,018.44	989.11	29.34	34.715		
9,187.17	8,824.97	8,809.51	8,808.40	29.42	0.00	-89.09	8.61	-1,185.17	1,014.82	985.40	29.42	34.492 CC, ES		
9,200.00	8,824.01	8,808.47	8,807.36	29.43	0.00	-89.09	8.61	-1,185.15	1,014.89	985.45	29.43	34.480 SF		
9,300.00	8,824.06	8,807.73	8,806.61	29.57	0.00	-89.05	8.62	-1,185.14	1,021.03	991.47	29.56	34.537		
9,400.00	8,824.11	8,806.98	8,805.87	29.73	0.00	-89.00	8.63	-1,185.13	1,036.83	1,007.12	29.72	34.892		
9,500.00	8,824.16	8,806.24	8,805.13	29.93	0.00	-88.96	8.63	-1,185.11	1,061.85	1,031.97	29.88	35.539		
9,600.00	8,824.22	8,805.49	8,804.38	30.15	0.00	-88.92	8.64	-1,185.10	1,095.46	1,065.42	30.04	36.462		
9,700.00	8,824.27	8,804.75	8,803.64	30.41	0.00	-88.88	8.65	-1,185.09	1,136.90	1,106.70	30.20	37.640		
9,800.00	8,824.32	8,804.00	8,802.89	30.69	0.00	-88.84	8.65	-1,185.08	1,185.35	1,155.00	30.36	39.049		
9,900.00	8,824.37	8,803.25	8,802.14	31.01	0.00	-88.79	8.66	-1,185.07	1,239.99	1,209.50	30.49	40.666		
10,000.00	8,824.42	8,802.50	8,801.39	31.34	0.00	-88.75	8.66	-1,185.06	1,300.03	1,269.41	30.61	42.465		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01													Offset Site Error:	0.00 usft
Survey Program: 100-GYRO, 12334-MWD-ISCWSA, 16645-Project													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,100.00	8,824.47	8,801.75	8,800.64	31.71	0.00	-88.71	8.67	-1,185.04	1,364.76	1,334.04	30.72	44.423		
10,200.00	8,824.53	8,801.00	8,799.90	32.10	0.00	-88.67	8.68	-1,185.03	1,433.56	1,402.74	30.82	46.518		
10,300.00	8,824.58	8,800.00	8,798.89	32.51	0.00	-88.61	8.68	-1,185.02	1,505.85	1,474.95	30.90	48.732		
10,400.00	8,824.63	8,799.48	8,798.38	32.95	0.00	-88.58	8.69	-1,185.01	1,581.17	1,550.19	30.97	51.048		
10,500.00	8,824.68	8,798.71	8,797.60	33.41	0.00	-88.54	8.70	-1,185.00	1,659.09	1,628.05	31.04	53.452		
10,600.00	8,824.73	8,797.94	8,796.83	33.89	0.00	-88.49	8.70	-1,184.98	1,739.28	1,708.18	31.10	55.931		
10,700.00	8,824.79	8,797.16	8,796.06	34.40	0.00	-88.45	8.71	-1,184.97	1,821.42	1,790.28	31.15	58.475		
10,800.00	8,824.84	8,796.39	8,795.29	34.92	0.00	-88.41	8.71	-1,184.96	1,905.28	1,874.08	31.20	61.075		
10,900.00	8,824.89	8,795.63	8,794.52	35.46	0.00	-88.36	8.72	-1,184.95	1,990.62	1,959.38	31.24	63.722		
11,000.00	8,824.94	8,794.86	8,793.75	36.02	0.00	-88.32	8.73	-1,184.94	2,077.28	2,046.00	31.28	66.410		
11,100.00	8,824.99	8,794.10	8,792.99	36.60	0.00	-88.28	8.73	-1,184.92	2,165.08	2,133.76	31.32	69.132		

LEAM Drilling Services

Anticollision Report

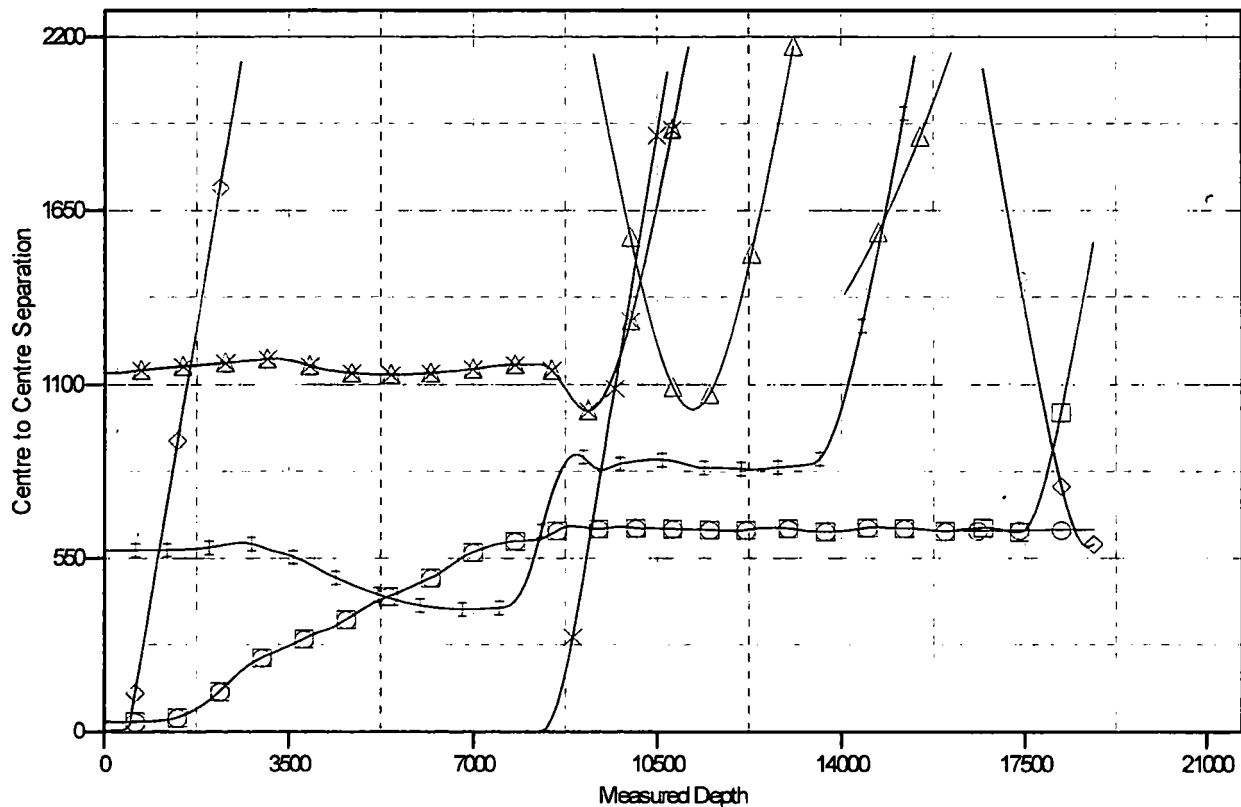
Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: ST01
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Reference Depths are relative to 3372.3' GE + 23.2' KB @ 3395.50usft
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 19' 60.0000 W

Coordinates are relative to: Ko Lanta 9-4 Fed Com 528H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.30°

Ladder Plot



LEGEND

Ko Lanta 9-4 Fed Com 528H, OH, OHV0	◆ Glow Worm ALX Federal#14 (Offset), OH, OHV0	▲ North Pure Gold 9 Fed 18H (Offset), ST01, STC
Ko Lanta 9-4 Fed Com 528H, OH, Plan #4V0	▲ Glow Worm ALX Federal#16H (Offset), OH, OHV0	◆ North Pure Gold 9 Fed 11H (Offset), OH, OHV0
Ko Lanta 9-4 Fed Com 518H, OH, Plan #8V0	✕ North Pure Gold 9 Fed 18H (Offset), OH, OHV0	□ Ko Lanta 9-4 Fed Com 518H, OH, OHV0

LEAM Drilling Services

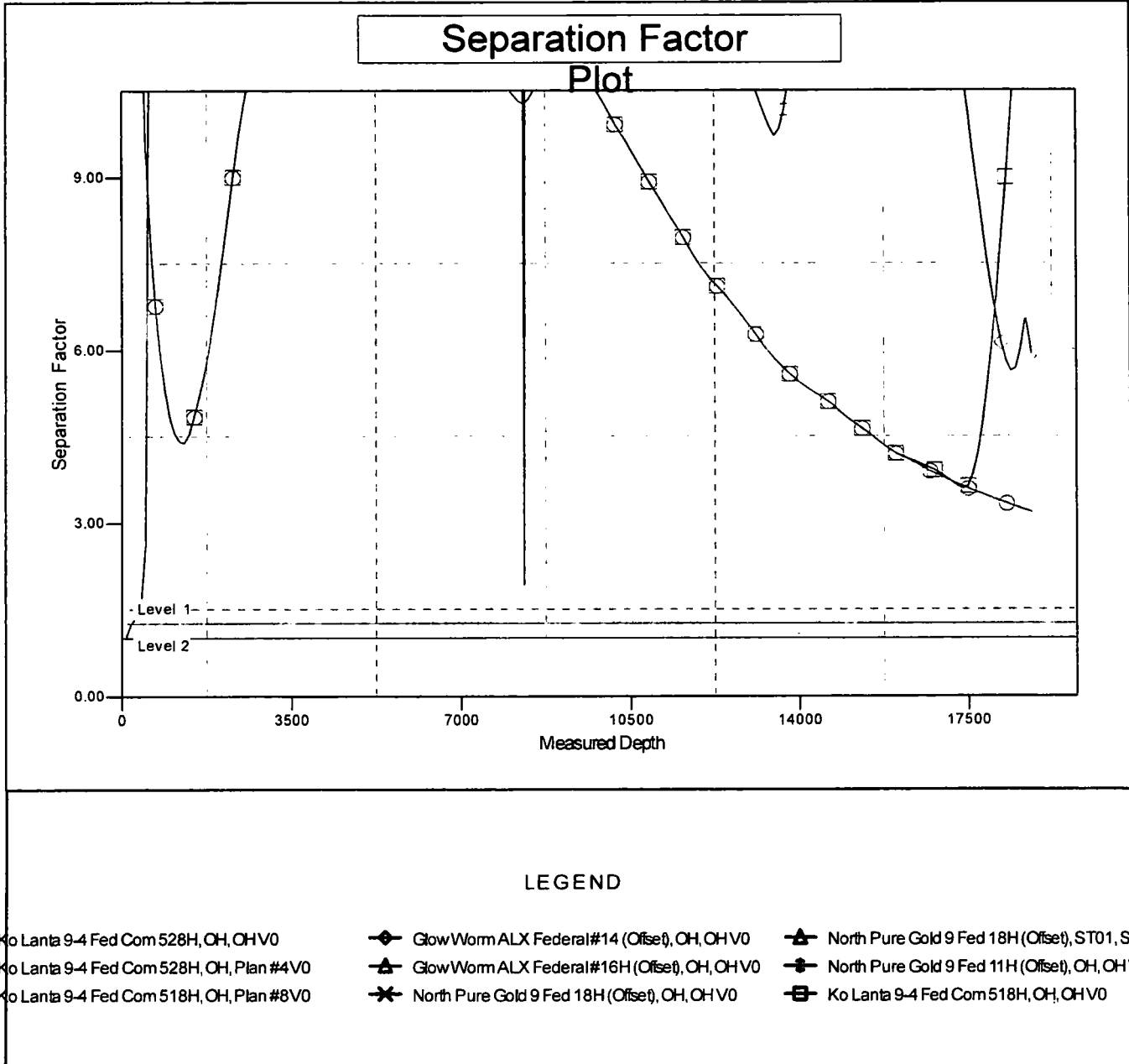
Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #4

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3372.3' GE + 23.2' KB @ 3395.50usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.0000 W

Coordinates are relative to: Ko Lanta 9-4 Fed Com 528H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.30°



Devon Energy

Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: OH
 Design: Plan #5

3372.3' GE + 23.2' KB @ 3395.50usft
 Ground Level: 3372.30

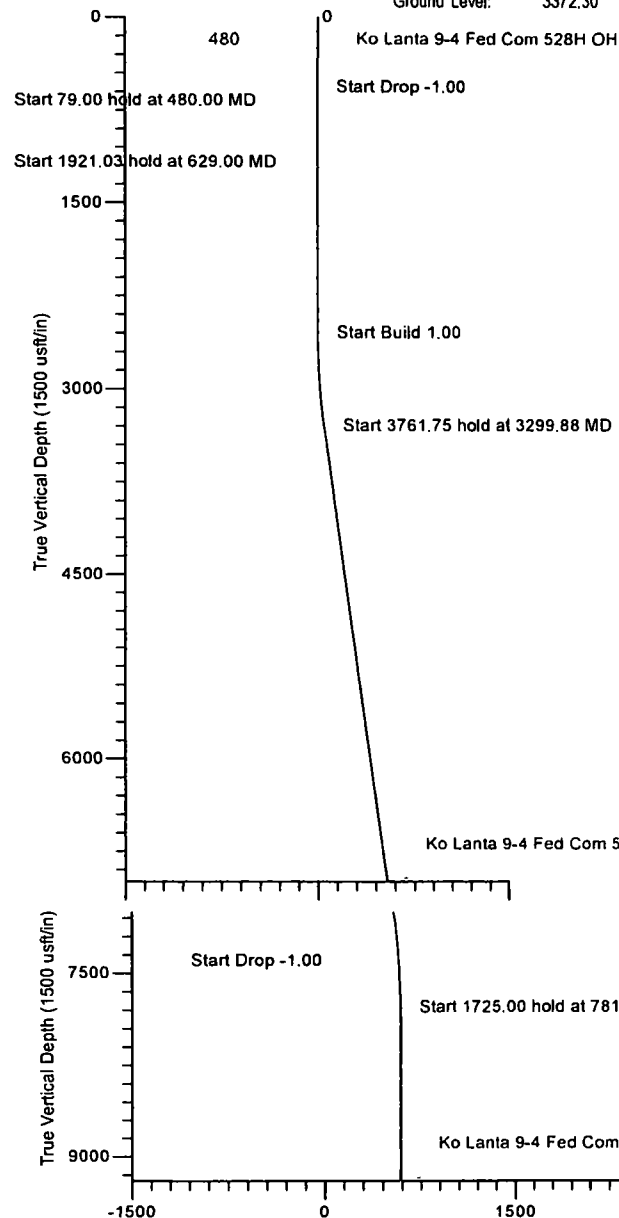


Azimuths to Grid North
 True North: -0.30°
 Magnetic North: 6.67°

Magnetic Field
 Strength: 48102.7nT
 Dip Angle: 60.08°
 Date: 3/26/2018
 Model: HDGM

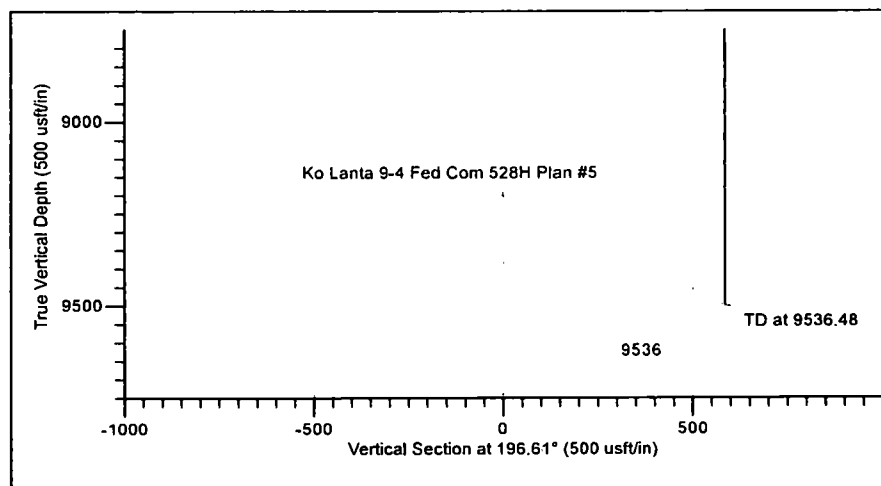
PROJECT DETAILS: Eddy County, NM (NAD-83)

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



SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Annotation
480.00	0.70	328.00	479.98	4.15	-1.31	0.00	0.00	-3.60	
559.00	0.70	328.00	558.97	4.97	-1.83	0.00	0.00	-4.24	
629.00	0.00	0.00	628.97	5.33	-2.05	1.00	180.00	-4.52	
2550.03	0.00	0.00	2550.00	5.33	-2.05	0.00	0.00	-4.52	
3299.88	7.50	196.27	3297.71	-41.70	-15.78	1.00	196.27	44.47	
7061.63	7.50	196.27	7027.29	-512.98	-153.28	0.00	0.00	535.37	
7811.48	0.00	0.00	7775.00	-560.00	-167.00	1.00	180.00	584.37	
9536.48	0.00	0.00	9500.00	-560.00	-167.00	0.00	0.00	584.37	



Vertical Section at 196.61° (1500 usf/in)



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

Plan: Plan #5 (Ko Lanta 9-4 Fed Com 528H/OH)
 Ko Lanta 9-4 Fed Com
 Created By: Dustin Audit Date: 13:56, May 28 2018
 Date: _____
 Approved: _____ Date: _____

Devon Energy

Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: OH
 Design: Plan #5



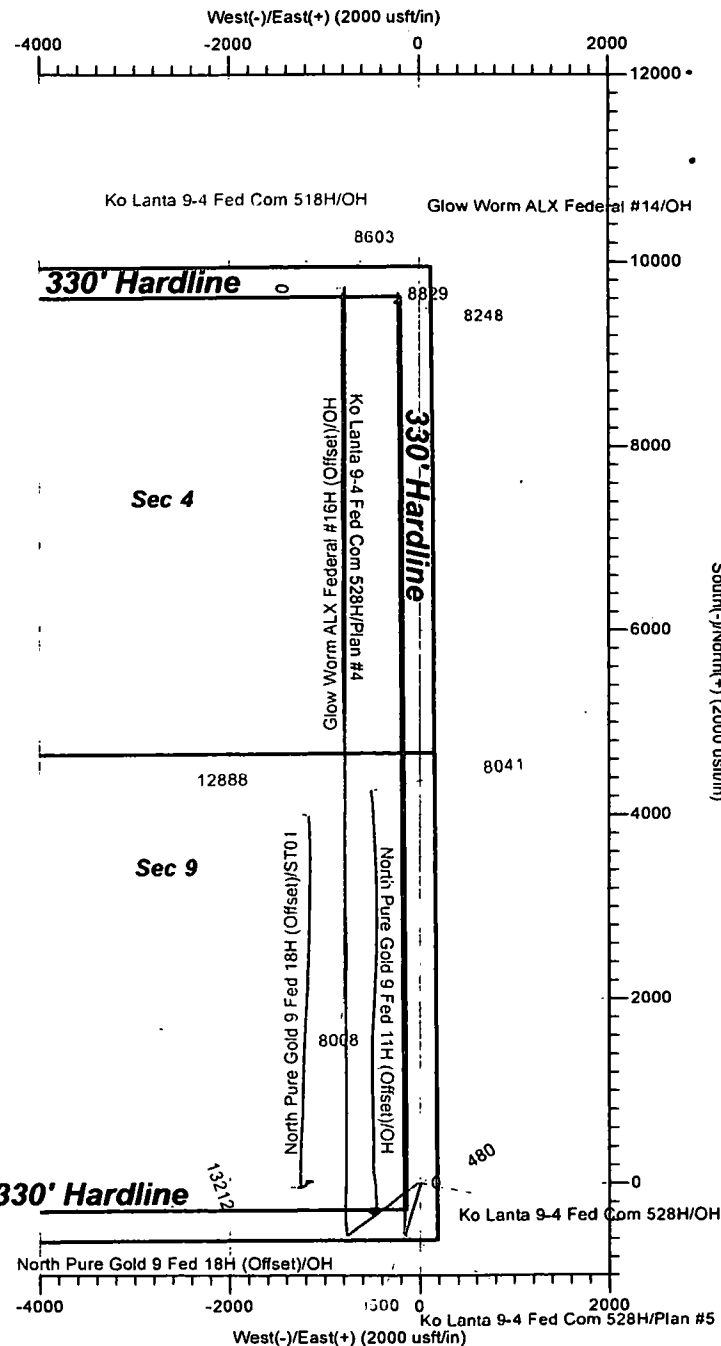
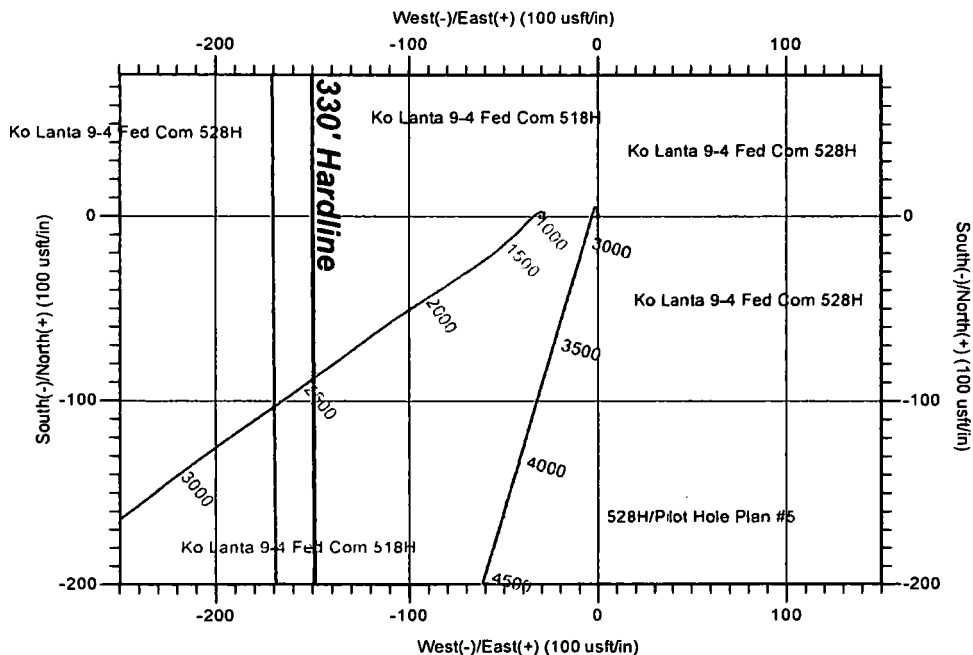
Azimuths to Grid North
 True North: -0.30°
 Magnetic North: 6.67°
 Magnetic Field
 Strength: 48102.7nT
 Dip Angle: 60.08°
 Date: 3/26/2018
 Model: HDGM

devon

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

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
480.00	0.70	328.00	479.98	4.15	-1.31	0.00	0.00	-3.60	
559.00	0.70	328.00	558.97	4.97	-1.83	0.00	0.00	-4.24	
629.00	0.00	0.00	628.97	5.33	-2.05	1.00	180.00	-4.52	
2550.03	0.00	0.00	2550.00	5.33	-2.05	0.00	0.00	-4.52	
3299.88	7.50	196.27	3297.71	-41.70	-15.78	1.00	196.27	44.47	
7061.63	7.50	196.27	7027.29	-512.96	-153.28	0.00	0.00	535.37	
7811.48	0.00	0.00	7775.00	-560.00	-167.00	1.00	180.00	584.37	
9536.48	0.00	0.00	9500.00	-560.00	-167.00	0.00	0.00	584.37	



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

Plan: Plan #5 (Ko Lanta 9-4 Fed Com 528H/OH)
 Ko Lanta 9-4 Fed Com
 Created By: Dustin Ault
 Date: 14:10, May 28 2018
 Approved: _____
 Date: _____

Devon Energy

Eddy County, NM (NAD-83)

Ko Lanta 9-4 Fed Com

Ko Lanta 9-4 Fed Com 528H

OH

Plan: Plan #5

RECEIVED

MAY 31 2018

DISTRICT II-ARTESIA O.C.D.

Standard Planning Report

28 May, 2018

LEAM Drilling Services

Planning Report

Database:	EDM 5000.1 Multi User Db	Local Co-ordinate Reference:	Well Ko Lanta 9-4 Fed Com 528H
Company:	Devon Energy	TVD Reference:	3372.3' GE + 23.2' KB @ 3395.50usft
Project:	Eddy County, NM (NAD-83)	MD Reference:	3372.3' GE + 23.2' KB @ 3395.50usft
Site:	Ko Lanta 9-4 Fed Com	North Reference:	Grid
Well:	Ko Lanta 9-4 Fed Com 528H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #5		

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

Site		Ko Lanta 9-4 Fed Com			
Site Position:		Northing:	478,201.74 usft	Latitude:	32° 18' 48.2902 N
From:	Map	Easting:	713,851.39 usft	Longitude:	103° 46' 29.6811 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.30 °

Well	Ko Lanta 9-4 Fed Com 528H					
Well Position	+N/-S	0.14 usft	Northing:	478,201.88 usft	Latitude:	32° 18' 48.2900 N
	+E/-W	30.08 usft	Easting:	713,881.47 usft	Longitude:	103° 46' 29.3306 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,372.30 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	3/26/2018	6.97	60.08	48,103

Design	Plan #5			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	480.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	196.61

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Buidl Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
480.00	0.70	328.00	479.98	4.15	-1.31	0.00	0.00	0.00	0.00	
559.00	0.70	328.00	558.97	4.97	-1.83	0.00	0.00	0.00	0.00	
629.00	0.00	0.00	628.97	5.33	-2.05	1.00	-1.00	0.00	180.00	
2,550.03	0.00	0.00	2,550.00	5.33	-2.05	0.00	0.00	0.00	0.00	
3,299.88	7.50	196.27	3,297.71	-41.70	-15.78	1.00	1.00	0.00	196.27	
7,061.63	7.50	196.27	7,027.29	-512.96	-153.28	0.00	0.00	0.00	0.00	
7,811.48	0.00	0.00	7,775.00	-560.00	-167.00	1.00	-1.00	0.00	180.00	
9,536.48	0.00	0.00	9,500.00	-560.00	-167.00	0.00	0.00	0.00	0.00	

LEAM Drilling Services

Planning Report

Database: EDM 5000.1 Multi User Db
 Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: OH
 Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
149.00	0.50	345.40	149.00	0.63	-0.16	-0.56	0.34	0.34	0.00
240.00	0.60	347.40	239.99	1.48	-0.37	-1.31	0.11	0.11	2.20
332.00	0.70	344.30	331.99	2.49	-0.63	-2.21	0.12	0.11	-3.37
423.00	0.70	336.90	422.98	3.54	-0.99	-3.10	0.10	0.00	-8.13
480.00	0.70	328.00	479.98	4.15	-1.31	-3.60	0.19	0.00	-15.61
500.00	0.70	328.00	499.98	4.36	-1.44	-3.76	0.00	0.00	0.00
559.00	0.70	328.00	558.97	4.97	-1.83	-4.24	0.00	0.00	0.00
600.00	0.29	328.00	599.97	5.27	-2.01	-4.48	1.00	-1.00	0.00
629.00	0.00	0.00	628.97	5.33	-2.05	-4.52	1.00	-1.00	0.00
700.00	0.00	0.00	699.97	5.33	-2.05	-4.52	0.00	0.00	0.00
800.00	0.00	0.00	799.97	5.33	-2.05	-4.52	0.00	0.00	0.00
900.00	0.00	0.00	899.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,000.00	0.00	0.00	999.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,100.00	0.00	0.00	1,099.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,200.00	0.00	0.00	1,199.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,300.00	0.00	0.00	1,299.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,400.00	0.00	0.00	1,399.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,500.00	0.00	0.00	1,499.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,600.00	0.00	0.00	1,599.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,700.00	0.00	0.00	1,699.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,800.00	0.00	0.00	1,799.97	5.33	-2.05	-4.52	0.00	0.00	0.00
1,900.00	0.00	0.00	1,899.97	5.33	-2.05	-4.52	0.00	0.00	0.00
2,000.00	0.00	0.00	1,999.97	5.33	-2.05	-4.52	0.00	0.00	0.00
2,100.00	0.00	0.00	2,099.97	5.33	-2.05	-4.52	0.00	0.00	0.00
2,200.00	0.00	0.00	2,199.97	5.33	-2.05	-4.52	0.00	0.00	0.00
2,300.00	0.00	0.00	2,299.97	5.33	-2.05	-4.52	0.00	0.00	0.00
2,400.00	0.00	0.00	2,399.97	5.33	-2.05	-4.52	0.00	0.00	0.00
2,500.00	0.00	0.00	2,499.97	5.33	-2.05	-4.52	0.00	0.00	0.00
2,550.03	0.00	0.00	2,550.00	5.33	-2.05	-4.52	0.00	0.00	0.00
2,600.00	0.50	196.27	2,599.97	5.12	-2.11	-4.31	1.00	1.00	0.00
2,700.00	1.50	196.27	2,699.95	3.45	-2.60	-2.56	1.00	1.00	0.00
2,800.00	2.50	196.27	2,799.89	0.10	-3.58	0.93	1.00	1.00	0.00
2,900.00	3.50	196.27	2,899.75	-4.92	-5.05	6.16	1.00	1.00	0.00
3,000.00	4.50	196.27	2,999.51	-11.62	-7.00	13.14	1.00	1.00	0.00
3,100.00	5.50	196.27	3,099.13	-19.99	-9.44	21.85	1.00	1.00	0.00
3,200.00	6.50	196.27	3,198.58	-30.02	-12.37	32.30	1.00	1.00	0.00
3,299.88	7.50	196.27	3,297.71	-41.70	-15.78	44.47	1.00	1.00	0.00
3,400.00	7.50	196.27	3,396.97	-54.25	-19.44	57.54	0.00	0.00	0.00
3,500.00	7.50	196.27	3,496.12	-66.77	-23.09	70.59	0.00	0.00	0.00
3,600.00	7.50	196.27	3,595.26	-79.30	-26.75	83.64	0.00	0.00	0.00
3,700.00	7.50	196.27	3,694.41	-91.83	-30.40	96.69	0.00	0.00	0.00
3,800.00	7.50	196.27	3,793.55	-104.36	-34.06	109.74	0.00	0.00	0.00
3,900.00	7.50	196.27	3,892.70	-116.89	-37.71	122.79	0.00	0.00	0.00
4,000.00	7.50	196.27	3,991.84	-129.41	-41.37	135.84	0.00	0.00	0.00
4,100.00	7.50	196.27	4,090.99	-141.94	-45.02	148.89	0.00	0.00	0.00
4,200.00	7.50	196.27	4,190.13	-154.47	-48.68	161.94	0.00	0.00	0.00
4,300.00	7.50	196.27	4,289.28	-167.00	-52.33	174.99	0.00	0.00	0.00
4,400.00	7.50	196.27	4,388.42	-179.52	-55.99	188.04	0.00	0.00	0.00
4,500.00	7.50	196.27	4,487.57	-192.05	-59.64	201.09	0.00	0.00	0.00
4,600.00	7.50	196.27	4,586.71	-204.58	-63.30	214.14	0.00	0.00	0.00
4,700.00	7.50	196.27	4,685.86	-217.11	-66.95	227.19	0.00	0.00	0.00
4,800.00	7.50	196.27	4,785.00	-229.63	-70.61	240.24	0.00	0.00	0.00
4,900.00	7.50	196.27	4,884.15	-242.16	-74.26	253.29	0.00	0.00	0.00

LEAM Drilling Services

Planning Report

Database: EDM 5000.1 Multi User Db
 Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Site: Ko Lanta 9-4 Fed Com
 Well: Ko Lanta 9-4 Fed Com 528H
 Wellbore: OH
 Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,000.00	7.50	196.27	4,983.29	-254.69	-77.92	266.34	0.00	0.00	0.00
5,100.00	7.50	196.27	5,082.44	-267.22	-81.57	279.39	0.00	0.00	0.00
5,200.00	7.50	196.27	5,181.58	-279.74	-85.23	292.44	0.00	0.00	0.00
5,300.00	7.50	196.27	5,280.73	-292.27	-88.89	305.48	0.00	0.00	0.00
5,400.00	7.50	196.27	5,379.87	-304.80	-92.54	318.53	0.00	0.00	0.00
5,500.00	7.50	196.27	5,479.02	-317.33	-96.20	331.58	0.00	0.00	0.00
5,600.00	7.50	196.27	5,578.16	-329.86	-99.85	344.63	0.00	0.00	0.00
5,700.00	7.50	196.27	5,677.31	-342.38	-103.51	357.68	0.00	0.00	0.00
5,800.00	7.50	196.27	5,776.45	-354.91	-107.16	370.73	0.00	0.00	0.00
5,900.00	7.50	196.27	5,875.60	-367.44	-110.82	383.78	0.00	0.00	0.00
6,000.00	7.50	196.27	5,974.74	-379.97	-114.47	396.83	0.00	0.00	0.00
6,100.00	7.50	196.27	6,073.88	-392.49	-118.13	409.88	0.00	0.00	0.00
6,200.00	7.50	196.27	6,173.03	-405.02	-121.78	422.93	0.00	0.00	0.00
6,300.00	7.50	196.27	6,272.17	-417.55	-125.44	435.98	0.00	0.00	0.00
6,400.00	7.50	196.27	6,371.32	-430.08	-129.09	449.03	0.00	0.00	0.00
6,500.00	7.50	196.27	6,470.46	-442.60	-132.75	462.08	0.00	0.00	0.00
6,600.00	7.50	196.27	6,569.61	-455.13	-136.40	475.13	0.00	0.00	0.00
6,700.00	7.50	196.27	6,668.75	-467.66	-140.06	488.18	0.00	0.00	0.00
6,800.00	7.50	196.27	6,767.90	-480.19	-143.71	501.23	0.00	0.00	0.00
6,900.00	7.50	196.27	6,867.04	-492.72	-147.37	514.28	0.00	0.00	0.00
7,000.00	7.50	196.27	6,966.19	-505.24	-151.02	527.33	0.00	0.00	0.00
7,061.63	7.50	196.27	7,027.29	-512.96	-153.28	535.37	0.00	0.00	0.00
7,100.00	7.11	196.27	7,065.35	-517.65	-154.64	540.25	1.00	-1.00	0.00
7,200.00	6.11	196.27	7,164.68	-528.71	-157.87	551.77	1.00	-1.00	0.00
7,300.00	5.11	196.27	7,264.20	-538.10	-160.61	561.56	1.00	-1.00	0.00
7,400.00	4.11	196.27	7,363.88	-545.82	-162.86	569.60	1.00	-1.00	0.00
7,500.00	3.11	196.27	7,463.68	-551.87	-164.63	575.91	1.00	-1.00	0.00
7,600.00	2.11	196.27	7,563.57	-556.25	-165.91	580.47	1.00	-1.00	0.00
7,700.00	1.11	196.27	7,663.53	-558.96	-166.70	583.29	1.00	-1.00	0.00
7,800.00	0.11	196.27	7,763.52	-559.99	-167.00	584.36	1.00	-1.00	0.00
7,811.48	0.00	0.00	7,775.00	-560.00	-167.00	584.37	1.00	-1.00	0.00
7,900.00	0.00	0.00	7,863.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,000.00	0.00	0.00	7,963.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,100.00	0.00	0.00	8,063.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,200.00	0.00	0.00	8,163.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,300.00	0.00	0.00	8,263.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,400.00	0.00	0.00	8,363.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,500.00	0.00	0.00	8,463.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,600.00	0.00	0.00	8,563.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,700.00	0.00	0.00	8,663.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,800.00	0.00	0.00	8,763.52	-560.00	-167.00	584.37	0.00	0.00	0.00
8,900.00	0.00	0.00	8,863.52	-560.00	-167.00	584.37	0.00	0.00	0.00
9,000.00	0.00	0.00	8,963.52	-560.00	-167.00	584.37	0.00	0.00	0.00
9,100.00	0.00	0.00	9,063.52	-560.00	-167.00	584.37	0.00	0.00	0.00
9,200.00	0.00	0.00	9,163.52	-560.00	-167.00	584.37	0.00	0.00	0.00
9,300.00	0.00	0.00	9,263.52	-560.00	-167.00	584.37	0.00	0.00	0.00
9,400.00	0.00	0.00	9,363.52	-560.00	-167.00	584.37	0.00	0.00	0.00
9,500.00	0.00	0.00	9,463.52	-560.00	-167.00	584.37	0.00	0.00	0.00
9,536.48	0.00	0.00	9,500.00	-560.00	-167.00	584.37	0.00	0.00	0.00

Devon Energy

Eddy County, NM (NAD-83)

Ko Lanta 9-4 Fed Com

Ko Lanta 9-4 Fed Com 528H

OH

Plan #5

RECEIVED

MAY 31 2018

DISTRICT II-ARTESIA O.C.D.

Anticollision Report

28 May, 2018

LEAM Drilling Services

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Ko Lanta 9-4 Fed Com 528H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3372.3' GE + 23.2' KB @ 3395.50usft
Reference Site:	Ko Lanta 9-4 Fed Com	MD Reference:	3372.3' GE + 23.2' KB @ 3395.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Ko Lanta 9-4 Fed Com 528H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #5	Offset TVD Reference:	Offset Datum

Reference	Plan #5
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.00usft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 2,174.65 usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic
Casing Method:	Not applied

Survey Tool Program	Date 5/28/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
149.00	480.00	Survey #1 (OH)	MWD+IFR1	OWSG MWD + IFR1
480.00	9,536.45	Plan #5 (OH)	MWD+IFR1	OWSG MWD + IFR1

Summary						
Site Name	Reference Depth (usft)	Offset Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Ko Lanta 9-4 Fed Com						
Glow Worm ALX Federal #14 (Offset) - OH - OH						Out of range
Glow Worm ALX Federal #16H (Offset) - OH - OH						Out of range
Ko Lanta 9-4 Fed Com 518H - OH - OH	519.15	518.50	27.49	24.50	9.191	CC
Ko Lanta 9-4 Fed Com 518H - OH - OH	900.00	899.36	28.87	23.96	5.872	ES
Ko Lanta 9-4 Fed Com 518H - OH - OH	1,200.00	1,198.61	33.60	26.77	4.919	SF
North Pure Gold 9 Fed 11H (Offset) - OH - OH	6,707.89	6,683.15	386.34	364.10	17.366	CC
North Pure Gold 9 Fed 11H (Offset) - OH - OH	6,800.00	6,774.14	386.57	363.98	17.114	ES
North Pure Gold 9 Fed 11H (Offset) - OH - OH	7,700.00	7,639.00	398.28	371.77	15.021	SF
North Pure Gold 9 Fed 18H (Offset) - OH - OH	5,396.73	5,378.51	1,127.35	1,109.93	64.727	CC
North Pure Gold 9 Fed 18H (Offset) - OH - OH	5,600.00	5,578.79	1,127.71	1,109.55	62.094	ES
North Pure Gold 9 Fed 18H (Offset) - OH - OH	9,536.48	9,490.22	1,170.97	1,138.96	36.581	SF
North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01	5,396.73	5,378.51	1,127.35	1,109.93	64.727	CC
North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01	5,600.00	5,578.79	1,127.71	1,109.55	62.094	ES
North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01	9,536.48	9,490.22	1,170.97	1,138.96	36.581	SF

Offset Design														Offset Site Error:	0.00 usft
Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - OH														Offset Well Error:	0.00 usft
Survey Program: 149-MWD+IFR1, 18853-Project															
Reference	Offset	Semi Major Axis			Distance						Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
0.00	0.00	0.00	0.00	0.00	0.00	-90.27	-0.14	-30.08	30.08						
100.00	100.00	99.66	99.66	0.14	0.15	-75.77	0.09	-29.82	29.74	29.45	0.29	102.596			
200.00	200.00	199.69	199.69	0.41	0.41	-77.34	0.72	-29.13	28.85	28.04	0.82	35.308			
300.00	299.99	299.60	299.59	0.77	0.77	-76.75	1.40	-28.62	28.11	26.57	1.53	18.354			
400.00	399.98	399.46	399.45	1.13	1.12	-71.39	2.01	-28.52	27.66	25.42	2.24	12.329			
500.00	499.98	499.36	499.34	1.45	1.47	-61.93	2.47	-28.88	27.50	24.59	2.92	9.434			
519.15	519.13	518.50	518.49	1.46	1.53	-62.20	2.53	-28.98	27.49	24.50	2.99	9.191	CC		
600.00	599.97	599.31	599.30	1.50	1.81	-63.72	2.52	-29.44	27.56	24.25	3.31	8.323			
700.00	699.97	699.36	699.34	1.63	2.15	-96.41	2.20	-29.96	28.08	24.30	3.78	7.422			
800.00	799.97	799.37	799.36	1.82	2.50	-96.43	2.14	-30.38	28.51	24.18	4.33	6.590			
900.00	899.97	899.36	899.35	2.06	2.86	-95.68	2.48	-30.78	28.87	23.96	4.92	5.872	ES		
1,000.00	999.97	999.16	999.13	2.33	3.21	-96.50	1.98	-31.47	29.61	24.08	5.54	5.350			
1,100.00	1,099.97	1,098.88	1,098.84	2.62	3.56	-97.75	1.12	-32.98	31.22	25.04	6.17	5.056			

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 149-MWD+IFR1, 18653-Project													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,200.00	1,199.97	1,198.61	1,198.53	2.93	3.91	-100.07	-0.54	-35.12	33.60	26.77	6.83	4.919 SF	
1,300.00	1,299.97	1,298.13	1,297.97	3.24	4.26	-103.86	-3.51	-37.90	36.95	29.45	7.49	4.930	
1,400.00	1,399.97	1,397.31	1,396.98	3.57	4.61	-108.32	-7.81	-41.76	41.80	33.74	8.17	5.132	
1,500.00	1,499.97	1,496.57	1,495.97	3.90	4.96	-111.93	-12.77	-47.02	48.60	39.75	8.84	5.496	
1,600.00	1,599.97	1,596.12	1,595.22	4.23	5.32	-114.67	-17.99	-52.83	56.04	46.51	9.53	5.882	
1,700.00	1,699.97	1,695.11	1,693.86	4.57	5.67	-116.49	-23.17	-59.25	64.15	53.94	10.21	6.282	
1,800.00	1,799.97	1,793.55	1,791.84	4.91	6.03	-117.55	-28.57	-67.04	73.70	62.80	10.89	6.765	
1,900.00	1,899.97	1,891.79	1,889.47	5.25	6.38	-118.43	-34.74	-76.09	84.78	73.20	11.57	7.325	
2,000.00	1,999.97	1,889.99	1,886.91	5.60	6.74	-119.15	-41.58	-86.17	97.14	84.88	12.26	7.924	
2,100.00	2,099.97	2,087.72	2,083.73	5.95	7.10	-119.62	-48.84	-97.31	110.71	97.77	12.94	8.557	
2,200.00	2,199.97	2,185.06	2,179.98	6.30	7.46	-120.24	-57.15	-109.23	125.58	111.97	13.62	9.224	
2,300.00	2,299.97	2,282.35	2,275.98	6.64	7.82	-121.06	-66.76	-121.75	141.69	127.39	14.30	9.912	
2,400.00	2,399.97	2,380.78	2,373.00	7.00	8.19	-121.74	-76.84	-134.90	158.43	143.43	15.00	10.565	
2,500.00	2,499.97	2,480.70	2,471.58	7.35	8.57	-122.27	-86.78	-147.91	174.75	159.02	15.72	11.115	
2,600.00	2,599.97	2,580.45	2,570.09	7.69	8.94	41.03	-96.31	-160.37	190.25	173.82	16.43	11.577	
2,700.00	2,699.95	2,680.32	2,668.78	8.01	9.32	40.99	-105.33	-172.70	204.22	187.10	17.12	11.927	
2,800.00	2,799.89	2,779.57	2,766.93	8.33	9.69	41.32	-113.92	-184.68	216.45	198.65	17.81	12.156	
2,900.00	2,899.75	2,876.51	2,862.70	8.66	10.06	41.85	-122.71	-196.84	228.02	209.56	18.46	12.350	
3,000.00	2,999.51	2,974.43	2,959.26	8.98	10.43	42.50	-132.54	-209.78	239.42	220.28	19.14	12.511	
3,100.00	3,099.13	3,075.40	3,058.85	9.31	10.82	43.34	-142.83	-222.92	249.49	229.63	19.85	12.566	
3,200.00	3,198.58	3,176.40	3,158.58	9.65	11.20	44.37	-152.79	-235.33	257.57	237.00	20.57	12.520	
3,300.00	3,297.83	3,275.47	3,256.44	9.98	11.58	45.63	-162.35	-247.42	264.35	243.08	21.27	12.428	
3,400.00	3,396.97	3,376.37	3,356.09	10.32	11.96	46.97	-172.35	-259.68	270.73	248.73	22.00	12.308	
3,500.00	3,496.12	3,475.66	3,454.21	10.66	12.34	48.17	-182.27	-271.24	276.83	254.13	22.70	12.193	
3,600.00	3,595.26	3,573.15	3,550.45	11.00	12.71	49.18	-192.74	-282.81	283.55	260.16	23.40	12.120	
3,700.00	3,694.41	3,672.14	3,648.07	11.34	13.09	50.18	-203.47	-295.12	290.93	266.82	24.11	12.068	
3,800.00	3,793.55	3,774.08	3,748.65	11.69	13.48	51.14	-214.58	-307.47	298.11	273.26	24.86	11.994	
3,900.00	3,892.70	3,873.07	3,846.39	12.04	13.86	52.07	-224.98	-319.25	305.03	279.46	25.57	11.928	
4,000.00	3,991.84	3,973.31	3,945.39	12.39	14.24	53.14	-234.65	-331.60	312.13	285.82	26.31	11.866	
4,100.00	4,090.99	4,078.88	4,049.83	12.74	14.65	54.20	-244.58	-343.39	318.14	291.05	27.09	11.743	
4,200.00	4,190.13	4,180.29	4,150.34	13.10	15.03	55.24	-253.32	-353.59	322.93	295.10	27.83	11.602	
4,300.00	4,289.28	4,275.39	4,244.57	13.45	15.39	56.25	-261.34	-363.65	328.29	299.76	28.52	11.510	
4,400.00	4,388.42	4,367.11	4,335.19	13.81	15.74	57.24	-269.39	-375.31	335.89	306.72	29.17	11.515	
4,500.00	4,487.57	4,462.73	4,429.40	14.17	16.11	58.25	-278.03	-389.20	345.44	315.58	29.86	11.569	
4,600.00	4,586.71	4,563.45	4,528.63	14.53	16.50	59.29	-286.96	-403.96	355.18	324.57	30.61	11.602	
4,700.00	4,685.86	4,662.91	4,626.59	14.89	16.88	60.10	-296.75	-418.15	364.88	333.52	31.35	11.638	
4,800.00	4,785.00	4,762.23	4,724.30	15.25	17.27	60.65	-307.91	-431.97	374.61	342.52	32.09	11.673	
4,900.00	4,884.15	4,862.14	4,822.60	15.61	17.66	61.21	-318.95	-445.97	384.43	351.59	32.84	11.707	
5,000.00	4,983.29	4,961.67	4,920.58	15.97	18.05	61.73	-329.92	-459.68	394.04	360.46	33.58	11.734	
5,100.00	5,082.44	5,065.49	5,022.81	16.34	18.45	62.29	-341.09	-473.90	403.57	369.20	34.37	11.741	
5,200.00	5,181.58	5,171.56	5,127.61	16.70	18.86	62.99	-351.03	-486.83	411.37	376.19	35.18	11.694	
5,300.00	5,280.73	5,273.89	5,228.91	17.06	19.25	63.73	-359.84	-498.35	418.16	382.22	35.94	11.634	
5,400.00	5,379.87	5,375.09	5,329.14	17.43	19.63	64.42	-368.54	-509.28	424.56	387.86	36.70	11.569	
5,500.00	5,479.02	5,474.20	5,427.32	17.79	20.01	65.08	-377.03	-519.86	430.90	393.46	37.44	11.510	
5,600.00	5,578.16	5,572.00	5,524.22	18.16	20.38	65.75	-385.17	-530.30	437.27	399.10	38.17	11.457	
5,700.00	5,677.31	5,668.10	5,619.38	18.53	20.75	66.43	-392.95	-541.19	444.33	405.45	38.88	11.428	
5,800.00	5,776.45	5,768.25	5,718.49	18.90	21.13	67.15	-400.76	-553.26	452.12	412.49	39.63	11.408	
5,900.00	5,875.60	5,871.28	5,820.56	19.26	21.52	67.92	-408.42	-565.08	459.36	418.95	40.41	11.368	
6,000.00	5,974.74	5,967.55	5,915.90	19.63	21.89	68.60	-415.65	-576.26	466.82	425.70	41.13	11.351	
6,100.00	6,073.88	6,068.52	6,015.84	20.00	22.27	69.28	-423.37	-588.37	474.76	432.87	41.89	11.335	
6,200.00	6,173.03	6,172.23	6,118.67	20.37	22.66	69.98	-430.99	-599.52	481.46	438.80	42.67	11.284	
6,300.00	6,272.17	6,261.67	6,207.20	20.74	23.01	70.48	-438.42	-609.91	489.19	445.86	43.33	11.291	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 149-MWD+IFR1, 18853-Project													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
6,400.00	6,371.32	6,349.56	6,293.70	21.11	23.35	70.72	-447.82	-622.23	499.45	455.49	43.96	11.363	
6,500.00	6,470.46	6,445.55	6,387.83	21.48	23.73	70.81	-459.51	-636.96	511.14	466.47	44.67	11.443	
6,600.00	6,569.61	6,547.35	6,487.64	21.85	24.13	70.90	-471.84	-652.66	522.91	477.46	45.45	11.505	
6,700.00	6,668.75	6,650.97	6,589.46	22.22	24.54	71.08	-483.74	-667.82	533.86	487.60	46.25	11.542	
6,800.00	6,767.90	6,751.66	6,688.52	22.59	24.93	71.29	-494.75	-682.13	544.36	497.34	47.02	11.577	
6,900.00	6,867.04	6,859.98	6,795.20	22.96	25.36	71.54	-506.33	-696.93	554.34	506.48	47.86	11.583	
7,000.00	6,966.19	6,974.06	6,908.08	23.33	25.79	71.97	-516.67	-709.77	561.83	513.10	48.73	11.530	
7,100.00	7,065.35	7,075.30	7,008.47	23.70	26.18	72.42	-525.18	-719.66	567.87	518.39	49.49	11.476	
7,200.00	7,164.68	7,180.20	7,112.57	24.07	26.57	72.82	-533.52	-729.50	573.97	523.71	50.26	11.419	
7,300.00	7,264.20	7,279.55	7,211.23	24.44	26.94	73.05	-541.11	-738.43	580.21	529.21	51.00	11.377	
7,400.00	7,363.88	7,387.88	7,318.88	24.80	27.35	73.14	-549.25	-747.34	586.18	534.40	51.78	11.321	
7,500.00	7,463.68	7,493.63	7,424.17	25.16	27.74	73.18	-555.82	-754.73	591.41	538.88	52.53	11.259	
7,600.00	7,563.57	7,600.96	7,531.16	25.52	28.13	73.14	-561.41	-761.27	596.24	542.97	53.27	11.192	
7,700.00	7,663.53	7,714.89	7,644.82	25.88	28.53	73.11	-565.17	-766.05	599.66	545.65	54.01	11.103	
7,800.00	7,763.52	7,826.32	7,756.31	26.23	28.92	73.06	-567.01	-768.26	601.34	546.63	54.71	10.991	
7,900.00	7,863.52	7,928.01	7,857.99	26.56	29.27	-90.74	-567.80	-769.16	602.23	546.84	55.39	10.873	
8,000.00	7,963.52	8,027.42	7,957.39	26.89	29.62	-90.81	-568.54	-770.02	603.11	547.05	56.06	10.758	
8,100.00	8,063.52	8,124.71	8,054.66	27.22	29.94	-90.76	-567.87	-771.17	604.28	547.55	56.73	10.651	
8,200.00	8,163.52	8,222.85	8,151.66	27.55	30.25	-89.45	-554.22	-772.60	605.73	548.33	57.40	10.552	
8,300.00	8,263.52	8,309.00	8,233.63	27.88	30.50	-86.99	-528.02	-774.66	609.21	551.15	58.06	10.492	
8,400.00	8,363.52	8,380.43	8,298.80	28.21	30.70	-84.29	-498.98	-777.58	616.98	558.41	58.56	10.535	
8,500.00	8,463.52	8,448.66	8,358.29	28.54	30.88	-81.29	-465.86	-781.44	630.38	571.56	58.82	10.717	
8,600.00	8,563.52	8,499.00	8,399.28	28.88	31.01	-78.72	-436.85	-784.65	650.74	592.22	58.52	11.120	
8,700.00	8,663.52	8,559.14	8,443.86	29.21	31.13	-75.28	-396.73	-788.33	678.78	620.79	57.99	11.705	
8,800.00	8,763.52	8,602.07	8,472.08	29.54	31.22	-72.59	-364.47	-790.55	715.33	658.54	56.79	12.597	
8,900.00	8,863.52	8,643.58	8,486.03	29.88	31.29	-69.83	-330.61	-791.55	759.84	704.60	55.24	13.755	
9,000.00	8,963.52	8,689.00	8,518.98	30.21	31.37	-66.71	-291.44	-790.80	811.44	757.85	53.59	15.142	
9,100.00	9,063.52	8,716.38	8,531.52	30.55	31.41	-64.81	-267.13	-789.69	869.49	817.96	51.53	16.874	
9,200.00	9,163.52	8,736.00	8,539.99	30.89	31.44	-63.46	-249.45	-788.80	933.40	884.02	49.39	18.900	
9,300.00	9,263.52	8,764.08	8,551.34	31.22	31.48	-61.55	-223.81	-787.38	1,002.20	954.65	47.55	21.077	
9,400.00	9,363.52	8,783.00	8,558.48	31.56	31.51	-60.27	-206.32	-786.34	1,075.16	1,029.45	45.71	23.523	
9,500.00	9,463.52	8,798.61	8,564.04	31.90	31.54	-59.23	-191.76	-785.47	1,151.64	1,107.64	44.00	26.176	
9,536.48	9,500.00	8,803.63	8,565.76	32.02	31.54	-58.90	-187.05	-785.20	1,180.31	1,136.90	43.41	27.190	

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 11H (Offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-GYRO. 7543-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-122.35	-305.85	-482.95	571.65				
100.00	100.00	95.56	95.56	0.14	0.00	-107.74	-305.80	-483.37	572.08	571.94	0.14	4,084.419	
200.00	200.00	198.59	198.59	0.41	0.00	-109.00	-305.78	-483.93	572.79	572.38	0.41	1,400.882	
300.00	299.99	300.00	300.00	0.77	0.00	-107.73	-305.43	-483.99	573.00	572.24	0.77	747.315	
400.00	399.98	397.62	397.61	1.13	0.00	-101.35	-305.81	-484.22	573.61	572.48	1.13	509.781	
500.00	499.98	497.49	497.49	1.45	0.00	-90.69	-305.72	-484.55	574.06	572.61	1.45	396.541	
600.00	599.97	594.51	594.50	1.50	0.00	-90.77	-305.80	-485.19	574.67	573.17	1.50	383.038	
700.00	699.97	699.08	699.07	1.63	0.00	-122.75	-305.79	-485.82	575.18	573.55	1.63	352.731	
800.00	799.97	799.02	799.01	1.82	0.00	-122.74	-305.74	-485.94	575.25	573.42	1.82	315.488	
900.00	899.97	900.00	899.99	2.06	0.00	-122.72	-305.64	-485.98	575.24	573.18	2.06	279.118	
943.44	943.41	942.92	942.91	2.18	0.00	-122.72	-305.58	-486.00	575.21	573.04	2.18	264.147	
1,000.00	999.97	998.68	998.67	2.33	0.00	-122.71	-305.50	-486.10	575.25	572.92	2.33	246.932	
1,100.00	1,099.97	1,100.00	1,099.99	2.82	0.00	-122.68	-305.29	-486.22	575.25	572.63	2.82	219.571	
1,175.88	1,175.85	1,175.36	1,175.35	2.85	0.00	-122.67	-305.12	-486.27	575.19	572.34	2.85	201.705	
1,200.00	1,199.97	1,199.20	1,199.19	2.83	0.00	-122.66	-305.07	-486.31	575.20	572.27	2.83	196.628	
1,300.00	1,299.97	1,297.64	1,297.63	3.24	0.00	-122.64	-304.88	-486.58	575.38	572.14	3.24	177.498	
1,400.00	1,399.97	1,396.64	1,396.63	3.57	0.00	-122.62	-305.04	-487.02	575.79	572.22	3.57	161.470	
1,500.00	1,499.97	1,495.53	1,495.52	3.90	0.00	-122.59	-305.15	-487.64	576.38	572.48	3.90	147.934	
1,600.00	1,599.97	1,594.01	1,593.99	4.23	0.00	-122.54	-305.14	-488.60	577.19	572.96	4.23	136.420	
1,700.00	1,699.97	1,692.71	1,692.68	4.57	0.00	-122.46	-304.99	-489.94	578.26	573.69	4.57	126.550	
1,800.00	1,799.97	1,791.97	1,791.93	4.91	0.00	-122.35	-304.70	-491.58	579.50	574.59	4.91	118.009	
1,900.00	1,899.97	1,889.93	1,889.87	5.25	0.00	-122.22	-304.42	-493.46	580.96	575.71	5.25	110.577	
2,000.00	1,899.97	1,886.38	1,886.29	5.60	0.00	-122.10	-304.34	-495.72	582.91	577.31	5.60	104.112	
2,100.00	2,099.97	2,083.33	2,083.20	5.95	0.00	-121.97	-304.54	-498.49	585.44	579.49	5.95	98.474	
2,200.00	2,199.97	2,182.44	2,182.27	6.30	0.00	-121.83	-304.83	-501.68	588.32	582.03	6.29	93.488	
2,300.00	2,299.97	2,283.29	2,283.05	6.64	0.00	-121.67	-304.90	-505.03	591.19	584.55	6.64	89.002	
2,400.00	2,399.97	2,384.30	2,384.01	7.00	0.00	-121.47	-304.60	-508.41	593.88	586.88	6.99	84.927	
2,500.00	2,499.97	2,485.53	2,485.18	7.35	0.00	-121.26	-304.04	-511.71	596.38	589.04	7.34	81.205	
2,600.00	2,599.97	2,590.03	2,589.63	7.69	0.00	42.74	-302.91	-514.91	598.28	590.59	7.69	77.820	
2,700.00	2,699.95	2,696.23	2,695.77	8.01	0.00	43.18	-300.65	-517.66	598.14	590.13	8.01	74.695	
2,800.00	2,799.89	2,795.32	2,794.78	8.33	0.00	43.78	-297.76	-520.11	596.28	587.95	8.33	71.586	
2,900.00	2,899.75	2,892.07	2,891.48	8.66	0.00	44.45	-295.46	-522.58	593.56	584.90	8.65	68.591	
3,000.00	2,999.51	2,988.76	2,988.11	8.98	0.00	45.20	-293.78	-525.24	590.18	581.20	8.98	65.723	
3,100.00	3,099.13	3,084.51	3,083.79	9.31	0.00	46.12	-291.95	-528.59	586.26	576.95	9.31	62.985	
3,200.00	3,198.58	3,179.56	3,178.73	9.65	0.00	47.20	-289.06	-532.67	581.99	572.35	9.64	60.386	
3,300.00	3,297.83	3,275.57	3,274.61	9.98	0.00	48.44	-288.46	-537.35	577.43	567.46	9.97	57.917	
3,400.00	3,396.97	3,379.16	3,378.08	10.32	0.00	49.78	-287.09	-542.23	572.60	562.29	10.31	55.546	
3,500.00	3,496.12	3,490.42	3,489.29	10.66	0.00	51.09	-286.45	-545.24	566.51	555.86	10.65	53.198	
3,600.00	3,595.26	3,589.71	3,588.57	11.00	0.00	52.12	-286.88	-546.15	559.38	548.39	10.99	50.896	
3,700.00	3,694.41	3,689.76	3,688.62	11.34	0.00	53.13	-287.87	-546.89	552.47	541.14	11.33	48.745	
3,800.00	3,793.55	3,799.89	3,798.71	11.69	0.00	54.08	-289.25	-546.07	544.74	533.07	11.68	46.657	
3,900.00	3,892.70	3,905.55	3,904.25	12.04	0.00	54.77	-294.15	-542.82	535.44	523.42	12.02	44.556	
4,000.00	3,991.84	4,006.79	4,005.32	12.39	0.00	55.38	-298.29	-538.75	525.46	513.09	12.36	42.501	
4,100.00	4,090.99	4,106.19	4,104.58	12.74	0.00	56.05	-301.82	-534.72	515.33	502.61	12.71	40.535	
4,200.00	4,190.13	4,200.00	4,198.30	13.10	0.00	56.82	-304.44	-531.62	505.77	492.70	13.07	38.695	
4,300.00	4,289.28	4,297.30	4,295.55	13.45	0.00	57.73	-306.61	-529.33	497.06	483.63	13.43	37.022	
4,400.00	4,388.42	4,395.83	4,394.05	13.81	0.00	58.74	-308.41	-527.49	488.84	475.06	13.78	35.470	
4,500.00	4,487.57	4,495.27	4,493.45	14.17	0.00	59.82	-310.09	-525.73	480.84	466.70	14.14	34.010	
4,600.00	4,586.71	4,594.05	4,592.20	14.53	0.00	60.92	-311.83	-523.98	473.04	458.54	14.50	32.631	
4,700.00	4,685.86	4,692.15	4,690.27	14.89	0.00	62.07	-313.41	-522.46	465.60	450.74	14.86	31.338	
4,800.00	4,785.00	4,791.71	4,789.82	15.25	0.00	63.32	-314.64	-521.10	458.47	443.25	15.22	30.128	
4,900.00	4,884.15	4,891.18	4,889.27	15.61	0.00	64.84	-315.67	-519.70	451.50	435.92	15.58	28.981	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Reference Site: Ko Lanta 9-4 Fed Com
 Site Error: 0.00 usft
 Reference Well: Ko Lanta 9-4 Fed Com 528H
 Well Error: 0.00 usft
 Reference Wellbore: OH
 Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
 TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM 5000.1 Multi User Db
 Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 11H (Offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-GYRO 7543-MWD-ISCWSA													Offset Well Error: 0.00 usft
Reference	Offset	Semi Major Axis		Distance		Warning							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,000.00	4,983.29	4,989.92	4,988.00	15.97	0.00	65.99	-316.62	-518.34	444.78	428.84	15.94	27.899	
5,100.00	5,082.44	5,089.09	5,087.16	16.34	0.00	67.40	-317.51	-517.05	438.40	422.09	16.31	26.885	
5,200.00	5,181.58	5,188.22	5,186.28	16.70	0.00	68.86	-318.37	-515.77	432.30	415.63	16.67	25.930	
5,300.00	5,280.73	5,287.51	5,285.56	17.06	0.00	70.37	-319.13	-514.49	426.49	409.45	17.04	25.032	
5,400.00	5,379.87	5,386.94	5,384.97	17.43	0.00	71.97	-319.56	-513.19	420.94	403.54	17.40	24.186	
5,500.00	5,479.02	5,486.21	5,484.24	17.79	0.00	73.62	-319.84	-511.83	415.68	397.91	17.77	23.389	
5,600.00	5,578.16	5,585.21	5,583.23	18.16	0.00	75.32	-320.10	-510.48	410.78	392.64	18.14	22.643	
5,700.00	5,677.31	5,684.38	5,682.39	18.53	0.00	77.05	-320.38	-509.14	406.27	387.76	18.51	21.948	
5,800.00	5,776.45	5,783.30	5,780.30	18.90	0.00	78.77	-320.79	-507.94	402.25	383.37	18.88	21.303	
5,900.00	5,875.60	5,881.03	5,879.02	19.26	0.00	80.54	-321.25	-506.98	398.87	379.61	19.25	20.717	
6,000.00	5,974.74	5,979.87	5,977.86	19.63	0.00	82.33	-321.67	-506.09	395.95	376.32	19.62	20.177	
6,100.00	6,073.88	6,078.41	6,076.40	20.00	0.00	84.13	-322.19	-505.33	393.54	373.55	20.00	19.682	
6,200.00	6,173.03	6,177.96	6,175.94	20.37	0.00	85.97	-322.67	-504.62	391.61	371.24	20.37	19.229	
6,300.00	6,272.17	6,277.92	6,275.90	20.74	0.00	87.86	-323.04	-503.71	389.92	369.18	20.74	18.804	
6,400.00	6,371.32	6,377.68	6,375.65	21.11	0.00	89.77	-323.39	-502.59	388.47	367.36	21.11	18.405	
6,500.00	6,470.46	6,476.82	6,474.78	21.48	0.00	91.69	-323.72	-501.39	387.37	365.89	21.48	18.038	
6,600.00	6,569.61	6,576.48	6,574.43	21.85	0.00	93.63	-324.02	-500.13	386.67	364.83	21.85	17.699	
6,700.00	6,668.75	6,675.36	6,673.31	22.22	0.00	95.55	-324.39	-498.82	386.35	364.13	22.22	17.389	
6,707.89	6,676.58	6,683.15	6,681.09	22.25	0.00	95.70	-324.43	-498.73	386.34	364.10	22.25	17.368 CC	
6,800.00	6,767.90	6,774.14	6,772.07	22.59	0.00	97.45	-324.89	-497.69	386.57	363.98	22.59	17.114 ES	
6,900.00	6,867.04	6,873.51	6,871.44	22.96	0.00	99.35	-325.41	-496.60	387.27	364.31	22.96	16.869	
7,000.00	6,966.19	6,973.28	6,971.20	23.33	0.00	101.24	-326.02	-495.41	388.27	364.95	23.33	16.646	
7,100.00	7,065.35	7,073.19	7,071.10	23.70	0.00	103.10	-326.75	-494.09	389.50	365.80	23.69	16.439	
7,200.00	7,164.68	7,172.04	7,169.94	24.07	0.00	104.72	-327.62	-492.79	390.69	366.63	24.06	16.239	
7,300.00	7,264.20	7,274.21	7,272.09	24.44	0.00	106.12	-328.67	-491.42	391.62	367.20	24.42	16.035	
7,400.00	7,363.88	7,373.20	7,371.05	24.80	0.00	107.19	-330.11	-489.75	391.72	366.94	24.78	15.807	
7,500.00	7,463.68	7,472.74	7,470.58	25.16	0.00	108.00	-331.52	-488.48	391.78	366.64	25.14	15.584	
7,536.98	7,500.61	7,508.14	7,505.97	25.30	0.03	108.24	-331.92	-487.95	391.68	366.40	25.28	15.492	
7,600.00	7,563.57	7,568.46	7,566.15	25.52	0.24	109.04	-329.19	-486.00	392.52	366.81	25.71	15.270	
7,700.00	7,663.53	7,639.00	7,634.95	25.88	0.71	111.67	-314.27	-479.70	398.28	371.77	26.52	15.021 SF	
7,800.00	7,763.52	7,702.00	7,693.77	26.23	1.09	114.89	-293.21	-472.04	411.12	383.78	27.34	15.035	
7,900.00	7,863.52	7,750.93	7,737.36	26.56	1.33	-46.07	-271.81	-466.17	433.99	406.21	27.78	15.623	
8,000.00	7,963.52	7,798.00	7,777.39	26.89	1.74	-43.47	-247.26	-463.49	469.22	441.35	27.88	16.831	
8,100.00	8,063.52	7,829.00	7,802.20	27.22	2.06	-41.82	-228.68	-463.39	515.41	487.97	27.45	18.779	
8,200.00	8,163.52	7,861.00	7,828.19	27.55	2.41	-40.09	-207.53	-463.74	570.74	543.84	26.89	21.223	
8,300.00	8,263.52	7,893.00	7,848.38	27.88	2.80	-38.34	-184.48	-464.00	633.37	607.04	26.33	24.055	
8,400.00	8,363.52	7,925.00	7,868.97	28.21	3.22	-36.63	-159.99	-464.43	701.83	676.00	25.83	27.175	
8,500.00	8,463.52	7,956.00	7,887.81	28.54	3.66	-35.08	-135.40	-465.21	774.65	749.26	25.39	30.506	
8,600.00	8,563.52	7,988.00	7,906.46	28.88	4.12	-33.60	-109.42	-466.36	850.71	825.63	25.08	33.919	
8,700.00	8,663.52	8,020.00	7,924.31	29.21	4.59	-32.22	-82.89	-467.71	929.38	904.52	24.86	37.381	
8,800.00	8,763.52	8,034.04	7,931.76	29.54	4.80	-31.64	-71.02	-468.33	1,010.39	986.01	24.38	41.442	
8,900.00	8,863.52	8,052.00	7,940.79	29.88	5.08	-30.92	-55.51	-469.14	1,093.76	1,069.70	24.06	45.458	
9,000.00	8,963.52	8,084.00	7,956.08	30.21	5.58	-29.68	-27.43	-470.52	1,178.85	1,154.76	24.08	48.947	
9,100.00	9,063.52	8,101.72	7,964.35	30.55	5.85	-29.06	-11.80	-471.64	1,265.07	1,241.16	23.91	52.912	
9,200.00	9,163.52	8,131.39	7,978.00	30.89	6.30	-28.21	14.31	-475.08	1,352.41	1,328.40	24.01	56.325	
9,300.00	9,263.52	8,177.37	7,999.16	31.22	7.00	-27.08	54.67	-481.21	1,440.10	1,415.68	24.42	58.963	
9,400.00	9,363.52	8,211.00	8,014.62	31.56	7.52	-26.33	84.19	-485.74	1,527.99	1,503.33	24.86	61.959	
9,500.00	9,463.52	8,211.00	8,014.62	31.90	7.52	-26.33	84.19	-485.74	1,616.93	1,592.53	24.40	66.273	
9,536.48	9,500.00	8,211.00	8,014.62	32.02	7.52	-26.33	84.19	-485.74	1,649.68	1,625.35	24.32	67.841	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-GYRO													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	-88.93	21.07	-1,132.84	1,133.03				
100.00	100.00	90.88	90.87	0.14	0.00	-74.35	21.07	-1,133.18	1,133.33	1,133.19	0.14	8,185.299	
200.00	200.00	191.85	191.85	0.41	0.00	-75.60	20.97	-1,133.95	1,133.88	1,133.47	0.41	2,774.091	
300.00	299.99	289.89	289.88	0.77	0.00	-74.33	20.78	-1,134.69	1,134.36	1,133.59	0.77	1,479.066	
400.00	399.98	381.84	381.83	1.13	0.00	-67.88	20.71	-1,135.77	1,135.15	1,134.03	1.13	1,008.269	
500.00	499.98	474.77	474.74	1.45	0.00	-57.16	20.88	-1,137.51	1,136.46	1,135.01	1.45	784.633	
600.00	599.97	573.15	573.09	1.50	0.00	-57.19	21.19	-1,139.78	1,138.18	1,136.68	1.50	758.301	
700.00	699.97	675.28	675.20	1.63	0.00	-89.19	21.51	-1,142.07	1,140.39	1,138.76	1.63	698.998	
800.00	799.97	778.05	777.94	1.82	0.00	-89.16	21.99	-1,144.12	1,142.39	1,140.57	1.82	626.407	
900.00	899.97	880.05	879.92	2.06	0.00	-89.14	22.53	-1,145.94	1,144.18	1,142.12	2.06	555.159	
1,000.00	999.97	981.67	981.53	2.33	0.00	-89.12	23.02	-1,147.59	1,145.82	1,143.49	2.33	491.868	
1,100.00	1,099.97	1,082.93	1,082.78	2.62	0.00	-89.09	23.50	-1,149.11	1,147.33	1,144.71	2.62	437.961	
1,200.00	1,199.97	1,183.36	1,183.20	2.93	0.00	-89.06	24.09	-1,150.54	1,148.76	1,145.83	2.93	392.728	
1,300.00	1,299.97	1,284.20	1,284.02	3.24	0.00	-89.04	24.59	-1,151.93	1,150.14	1,146.90	3.24	354.834	
1,400.00	1,399.97	1,384.23	1,384.05	3.57	0.00	-89.02	25.01	-1,153.26	1,151.47	1,147.91	3.57	322.940	
1,500.00	1,499.97	1,483.29	1,483.10	3.90	0.00	-89.00	25.37	-1,154.61	1,152.85	1,148.95	3.90	295.918	
1,600.00	1,599.97	1,585.12	1,584.92	4.23	0.00	-88.99	25.69	-1,155.99	1,154.21	1,149.98	4.23	272.816	
1,700.00	1,699.97	1,684.88	1,684.67	4.57	0.00	-88.98	25.83	-1,157.24	1,155.46	1,150.90	4.57	252.884	
1,800.00	1,799.97	1,784.75	1,784.53	4.91	0.00	-88.98	25.90	-1,158.53	1,156.75	1,151.84	4.91	235.571	
1,900.00	1,899.97	1,884.40	1,884.17	5.25	0.00	-88.98	25.93	-1,159.83	1,158.06	1,152.80	5.25	220.416	
2,000.00	1,999.97	1,884.82	1,884.59	5.60	0.00	-88.98	26.03	-1,161.14	1,159.37	1,153.77	5.60	207.051	
2,100.00	2,099.97	2,084.77	2,084.53	5.95	0.00	-88.97	26.16	-1,162.42	1,160.65	1,154.70	5.95	195.186	
2,200.00	2,199.97	2,184.21	2,183.95	6.30	0.00	-88.97	26.14	-1,163.72	1,161.96	1,155.66	6.29	184.596	
2,300.00	2,299.97	2,282.10	2,281.84	6.64	0.00	-88.97	26.17	-1,165.10	1,163.37	1,156.73	6.64	175.107	
2,400.00	2,399.97	2,379.58	2,379.30	7.00	0.00	-88.98	26.17	-1,166.69	1,164.99	1,158.00	6.99	166.575	
2,500.00	2,499.97	2,476.45	2,476.15	7.35	0.00	-88.98	26.19	-1,168.49	1,166.85	1,159.51	7.34	158.874	
2,600.00	2,599.97	2,578.10	2,577.79	7.69	0.00	74.77	26.39	-1,170.49	1,168.77	1,161.09	7.69	152.033	
2,700.00	2,699.95	2,671.51	2,671.17	8.01	0.00	74.83	26.54	-1,172.40	1,170.36	1,162.36	8.01	146.195	
2,800.00	2,799.89	2,762.13	2,761.76	8.33	0.00	74.97	26.72	-1,174.94	1,172.27	1,163.94	8.33	140.808	
2,900.00	2,899.75	2,852.69	2,852.26	8.66	0.00	75.17	26.81	-1,178.21	1,174.53	1,165.88	8.65	135.828	
3,000.00	2,999.51	2,948.58	2,948.06	8.98	0.00	75.46	26.83	-1,182.32	1,177.05	1,168.08	8.97	131.182	
3,100.00	3,099.13	3,050.51	3,049.90	9.31	0.00	75.86	26.89	-1,186.64	1,179.14	1,169.84	9.30	126.755	
3,200.00	3,198.58	3,159.41	3,158.72	9.65	0.00	76.37	26.94	-1,190.85	1,180.51	1,170.87	9.64	122.500	
3,300.00	3,297.83	3,279.17	3,278.44	9.98	0.00	77.07	27.19	-1,193.86	1,180.24	1,170.27	9.97	118.322	
3,400.00	3,396.97	3,400.53	3,399.79	10.32	0.00	77.82	27.25	-1,194.65	1,178.04	1,167.73	10.31	114.230	
3,500.00	3,496.12	3,500.70	3,499.96	10.66	0.00	78.44	27.18	-1,194.33	1,175.01	1,164.36	10.65	110.300	
3,600.00	3,595.26	3,613.41	3,612.67	11.00	0.00	79.15	27.18	-1,193.24	1,171.49	1,160.49	10.99	106.559	
3,700.00	3,694.41	3,724.22	3,723.46	11.34	0.00	79.85	26.97	-1,191.01	1,167.05	1,155.71	11.34	102.951	
3,800.00	3,793.55	3,832.14	3,831.33	11.69	0.00	80.52	26.25	-1,187.83	1,161.77	1,150.09	11.68	99.467	
3,900.00	3,892.70	3,931.49	3,930.62	12.04	0.00	81.12	25.26	-1,184.60	1,156.30	1,144.27	12.03	96.128	
4,000.00	3,991.84	4,026.30	4,025.38	12.39	0.00	81.70	24.31	-1,181.66	1,151.11	1,138.73	12.38	92.974	
4,100.00	4,090.99	4,116.45	4,115.50	12.74	0.00	82.26	23.47	-1,179.43	1,146.68	1,133.94	12.74	90.031	
4,200.00	4,190.13	4,206.45	4,205.48	13.10	0.00	82.82	22.83	-1,177.93	1,143.19	1,130.10	13.09	87.314	
4,300.00	4,289.28	4,303.04	4,302.06	13.45	0.00	83.44	22.37	-1,176.75	1,140.33	1,126.88	13.45	84.789	
4,400.00	4,388.42	4,400.00	4,399.02	13.81	0.00	84.06	21.99	-1,175.75	1,137.81	1,124.00	13.81	82.412	
4,500.00	4,487.57	4,498.05	4,497.06	14.17	0.00	84.69	21.64	-1,174.88	1,135.57	1,121.40	14.16	80.169	
4,600.00	4,586.71	4,594.44	4,593.46	14.53	0.00	85.32	21.39	-1,174.18	1,133.65	1,119.13	14.52	78.053	
4,700.00	4,685.86	4,690.01	4,689.03	14.89	0.00	85.95	21.33	-1,173.72	1,132.16	1,117.28	14.88	76.062	
4,800.00	4,785.00	4,791.27	4,790.28	15.25	0.00	86.63	21.37	-1,173.30	1,130.92	1,115.67	15.25	74.179	
4,900.00	4,884.15	4,890.38	4,889.39	15.61	0.00	87.29	21.39	-1,172.77	1,129.69	1,114.09	15.61	72.380	
5,000.00	4,983.29	4,986.69	4,985.70	15.97	0.00	87.93	21.43	-1,172.37	1,128.75	1,112.78	15.97	70.675	
5,100.00	5,082.44	5,085.18	5,084.19	16.34	0.00	88.59	21.44	-1,172.15	1,128.13	1,111.80	16.33	69.065	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-GYRO													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,200.00	5,181.58	5,183.66	5,182.67	16.70	0.00	89.24	21.47	-1,171.97	1,127.71	1,111.01	16.70	67.533	
5,300.00	5,280.73	5,283.25	5,282.25	17.06	0.00	89.91	21.49	-1,171.80	1,127.46	1,110.40	17.06	66.074	
5,396.73	5,376.63	5,378.51	5,377.52	17.42	0.00	90.54	21.47	-1,171.65	1,127.35	1,109.93	17.42	64.727 CC	
5,400.00	5,379.87	5,381.72	5,380.73	17.43	0.00	90.56	21.47	-1,171.65	1,127.35	1,109.92	17.43	64.683	
5,500.00	5,479.02	5,480.94	5,479.94	17.79	0.00	91.22	21.40	-1,171.55	1,127.44	1,109.64	17.79	63.357	
5,600.00	5,578.16	5,578.79	5,577.79	18.16	0.00	91.86	21.28	-1,171.50	1,127.71	1,109.55	18.16	62.094 ES	
5,700.00	5,677.31	5,677.18	5,676.19	18.53	0.00	92.51	21.24	-1,171.54	1,128.24	1,109.71	18.53	60.893	
5,800.00	5,776.45	5,775.73	5,774.74	18.90	0.00	93.16	21.25	-1,171.63	1,128.97	1,110.08	18.90	59.749	
5,900.00	5,875.60	5,875.61	5,874.61	19.26	0.00	93.82	21.29	-1,171.71	1,129.87	1,110.60	19.26	58.654	
6,000.00	5,974.74	5,974.49	5,973.50	19.63	0.00	94.48	21.36	-1,171.72	1,130.86	1,111.23	19.63	57.606	
6,100.00	6,073.88	6,071.74	6,070.74	20.00	0.00	95.12	21.42	-1,171.84	1,132.10	1,112.10	20.00	56.607	
6,200.00	6,173.03	6,172.54	6,171.54	20.37	0.00	95.78	21.47	-1,172.05	1,133.56	1,113.19	20.37	55.654	
6,300.00	6,272.17	6,272.36	6,271.37	20.74	0.00	96.43	21.45	-1,172.08	1,134.98	1,114.25	20.74	54.733	
6,400.00	6,371.32	6,369.89	6,368.90	21.11	0.00	97.07	21.42	-1,172.16	1,136.61	1,115.51	21.11	53.854	
6,500.00	6,470.46	6,470.41	6,469.41	21.48	0.00	97.72	21.40	-1,172.36	1,138.46	1,116.99	21.48	53.013	
6,600.00	6,569.61	6,571.61	6,570.62	21.85	0.00	98.37	21.24	-1,172.38	1,140.25	1,118.41	21.84	52.198	
6,700.00	6,668.75	6,670.19	6,669.19	22.22	0.00	98.99	20.94	-1,172.37	1,142.10	1,119.89	22.21	51.413	
6,800.00	6,767.90	6,768.02	6,767.02	22.59	0.00	99.61	20.69	-1,172.46	1,144.21	1,121.62	22.58	50.665	
6,900.00	6,867.04	6,866.63	6,865.63	22.96	0.00	100.23	20.49	-1,172.64	1,146.54	1,123.59	22.95	49.951	
7,000.00	6,966.19	6,965.47	6,964.48	23.33	0.00	100.85	20.28	-1,172.84	1,149.04	1,125.72	23.32	49.266	
7,100.00	7,065.35	7,065.27	7,064.27	23.70	0.00	101.48	20.17	-1,173.01	1,151.65	1,127.96	23.69	48.607	
7,200.00	7,164.68	7,166.12	7,165.12	24.07	0.00	102.08	20.03	-1,173.07	1,154.01	1,129.95	24.06	47.961	
7,300.00	7,264.20	7,267.27	7,266.27	24.44	0.00	102.55	19.67	-1,173.09	1,155.95	1,131.52	24.43	47.323	
7,400.00	7,363.88	7,365.96	7,364.96	24.80	0.00	102.92	19.16	-1,173.12	1,157.51	1,132.73	24.79	46.695	
7,500.00	7,463.68	7,465.19	7,464.19	25.16	0.00	103.21	18.63	-1,173.33	1,158.85	1,133.71	25.15	46.081	
7,600.00	7,563.57	7,564.51	7,563.51	25.52	0.00	103.41	18.11	-1,173.53	1,159.83	1,134.33	25.50	45.476	
7,700.00	7,663.53	7,664.08	7,663.07	25.88	0.00	103.51	17.45	-1,173.90	1,160.48	1,134.62	25.86	44.879	
7,800.00	7,763.52	7,763.18	7,762.17	26.23	0.00	103.52	16.70	-1,174.35	1,160.75	1,134.54	26.21	44.290	
7,900.00	7,863.52	7,864.16	7,863.15	26.56	0.00	-60.26	15.91	-1,174.88	1,160.82	1,134.28	26.54	43.741	
8,000.00	7,963.52	7,965.05	7,964.03	26.89	0.00	-60.30	15.11	-1,175.26	1,160.75	1,133.88	26.87	43.200	
8,100.00	8,063.52	8,064.59	8,063.57	27.22	0.00	-60.34	14.31	-1,175.63	1,160.67	1,133.47	27.20	42.673	
8,141.52	8,105.04	8,105.56	8,104.54	27.35	0.00	-60.36	13.98	-1,175.80	1,160.66	1,133.32	27.34	42.458	
8,200.00	8,163.52	8,161.34	8,160.32	27.55	0.00	-60.39	13.54	-1,176.13	1,160.73	1,133.20	27.53	42.163	
8,300.00	8,263.52	8,258.96	8,257.92	27.88	0.00	-60.44	12.82	-1,176.96	1,161.10	1,133.24	27.86	41.675	
8,400.00	8,363.52	8,357.78	8,356.74	28.21	0.00	-60.50	12.06	-1,177.94	1,161.59	1,133.39	28.19	41.202	
8,500.00	8,463.52	8,454.13	8,453.08	28.54	0.00	-60.56	11.28	-1,179.10	1,162.24	1,133.72	28.52	40.746	
8,600.00	8,563.52	8,551.24	8,550.18	28.88	0.00	-60.62	10.61	-1,180.63	1,163.28	1,134.42	28.86	40.312	
8,700.00	8,663.52	8,649.99	8,648.91	29.21	0.00	-60.70	9.82	-1,182.37	1,164.42	1,135.23	29.19	39.890	
8,800.00	8,763.52	8,751.03	8,749.93	29.54	0.00	-60.78	9.07	-1,184.21	1,165.65	1,136.12	29.53	39.478	
8,900.00	8,863.52	8,851.64	8,850.52	29.88	0.00	-60.85	8.27	-1,185.85	1,166.68	1,136.82	29.86	39.069	
9,000.00	8,963.52	8,949.59	8,948.45	30.21	0.00	-60.92	7.52	-1,187.57	1,167.85	1,137.65	30.20	38.674	
9,100.00	9,063.52	9,054.96	9,053.81	30.55	0.00	-60.99	6.86	-1,189.34	1,169.02	1,138.48	30.54	38.282	
9,200.00	9,163.52	9,158.31	9,157.15	30.89	0.00	-61.03	6.44	-1,190.16	1,169.50	1,138.63	30.88	37.878	
9,300.00	9,263.52	9,260.04	9,258.89	31.22	0.00	-61.03	6.62	-1,190.65	1,170.02	1,138.80	31.21	37.484	
9,400.00	9,363.52	9,360.96	9,359.80	31.56	0.00	-61.03	6.87	-1,190.79	1,170.26	1,138.71	31.55	37.090	
9,500.00	9,463.52	9,456.21	9,455.05	31.90	0.00	-61.03	7.02	-1,191.17	1,170.69	1,138.80	31.89	36.712	
9,536.48	9,500.00	9,490.22	9,489.05	32.02	0.00	-61.05	6.78	-1,191.61	1,170.97	1,138.96	32.01	36.581 SF	

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01													Offset Site Error:	0.00 usft
Survey Program: 100-GYRO, 12334-MWD-ISCWSA, 16645-Project													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance		Warning						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/S (usft)	+E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-88.93	21.07	-1,132.84	1,133.03					
100.00	100.00	90.88	90.87	0.14	0.00	-74.35	21.07	-1,133.18	1,133.33	1,133.19	0.14	8,185.299		
200.00	200.00	191.85	191.85	0.41	0.00	-75.60	20.97	-1,133.95	1,133.88	1,133.47	0.41	2,774.091		
300.00	299.99	289.89	289.88	0.77	0.00	-74.33	20.78	-1,134.69	1,134.36	1,133.59	0.77	1,479.066		
400.00	399.98	381.84	381.83	1.13	0.00	-67.88	20.71	-1,135.77	1,135.15	1,134.03	1.13	1,008.269		
500.00	499.98	474.77	474.74	1.45	0.00	-57.16	20.88	-1,137.51	1,136.46	1,135.01	1.45	784.833		
600.00	599.97	573.15	573.09	1.50	0.00	-57.19	21.10	-1,139.78	1,138.18	1,136.68	1.50	758.301		
700.00	699.97	675.28	675.20	1.63	0.00	-89.19	21.51	-1,142.07	1,140.39	1,138.76	1.63	698.998		
800.00	799.97	778.05	777.94	1.82	0.00	-89.16	21.99	-1,144.12	1,142.39	1,140.57	1.82	626.407		
900.00	899.97	880.05	879.92	2.06	0.00	-89.14	22.53	-1,145.94	1,144.18	1,142.12	2.06	555.159		
1,000.00	999.97	981.67	981.53	2.33	0.00	-89.12	23.02	-1,147.59	1,145.82	1,143.49	2.33	491.868		
1,100.00	1,099.97	1,082.93	1,082.78	2.62	0.00	-89.09	23.50	-1,149.11	1,147.33	1,144.71	2.62	437.961		
1,200.00	1,199.97	1,183.36	1,183.20	2.93	0.00	-89.06	24.09	-1,150.54	1,148.76	1,145.83	2.93	392.728		
1,300.00	1,299.97	1,284.20	1,284.02	3.24	0.00	-89.04	24.59	-1,151.93	1,150.14	1,146.90	3.24	354.834		
1,400.00	1,399.97	1,384.23	1,384.05	3.57	0.00	-89.02	25.01	-1,153.26	1,151.47	1,147.91	3.57	322.940		
1,500.00	1,499.97	1,483.29	1,483.10	3.90	0.00	-89.00	25.37	-1,154.61	1,152.85	1,148.95	3.90	295.918		
1,600.00	1,599.97	1,585.12	1,584.92	4.23	0.00	-88.99	25.69	-1,155.99	1,154.21	1,149.98	4.23	272.816		
1,700.00	1,699.97	1,684.88	1,684.67	4.57	0.00	-88.98	25.83	-1,157.24	1,155.46	1,150.90	4.57	252.884		
1,800.00	1,799.97	1,784.75	1,784.53	4.91	0.00	-88.98	25.90	-1,158.53	1,156.75	1,151.84	4.91	235.571		
1,900.00	1,899.97	1,884.40	1,884.17	5.25	0.00	-88.98	25.93	-1,159.83	1,158.06	1,152.80	5.25	220.416		
2,000.00	1,899.97	1,884.82	1,884.59	5.60	0.00	-88.98	26.03	-1,161.14	1,159.37	1,153.77	5.60	207.051		
2,100.00	2,099.97	2,084.77	2,084.53	5.95	0.00	-88.97	26.16	-1,162.42	1,160.65	1,154.70	5.95	195.186		
2,200.00	2,199.97	2,184.21	2,183.95	6.30	0.00	-88.97	26.14	-1,163.72	1,161.96	1,155.66	6.29	184.596		
2,300.00	2,299.97	2,282.10	2,281.84	6.64	0.00	-88.97	26.17	-1,165.10	1,163.37	1,156.73	6.64	175.107		
2,400.00	2,399.97	2,379.58	2,379.30	7.00	0.00	-88.98	26.17	-1,166.69	1,164.99	1,158.00	6.99	166.575		
2,500.00	2,499.97	2,476.45	2,476.15	7.35	0.00	-88.98	26.19	-1,168.49	1,166.85	1,159.51	7.34	158.874		
2,600.00	2,599.97	2,578.10	2,577.79	7.69	0.00	74.77	26.39	-1,170.49	1,168.77	1,161.09	7.69	152.033		
2,700.00	2,699.95	2,671.51	2,671.17	8.01	0.00	74.83	26.54	-1,172.40	1,170.36	1,162.36	8.01	146.195		
2,800.00	2,799.89	2,762.13	2,761.76	8.33	0.00	74.97	26.72	-1,174.94	1,172.27	1,163.94	8.33	140.808		
2,900.00	2,899.75	2,852.69	2,852.26	8.66	0.00	75.17	26.81	-1,178.21	1,174.53	1,165.88	8.65	135.828		
3,000.00	2,999.51	2,948.58	2,948.06	8.98	0.00	75.46	26.83	-1,182.32	1,177.05	1,168.08	8.97	131.182		
3,100.00	3,099.13	3,050.51	3,049.90	9.31	0.00	75.86	26.89	-1,186.64	1,179.14	1,169.84	9.30	126.755		
3,200.00	3,198.58	3,159.41	3,158.72	9.85	0.00	76.37	26.94	-1,190.85	1,180.51	1,170.87	9.64	122.500		
3,300.00	3,297.83	3,279.17	3,278.44	9.98	0.00	77.07	27.19	-1,193.86	1,180.24	1,170.27	9.97	118.322		
3,400.00	3,396.97	3,400.53	3,399.79	10.32	0.00	77.82	27.25	-1,194.65	1,178.04	1,167.73	10.31	114.230		
3,500.00	3,496.12	3,500.70	3,499.96	10.66	0.00	78.44	27.18	-1,194.33	1,175.01	1,164.36	10.65	110.300		
3,600.00	3,595.26	3,613.41	3,612.67	11.00	0.00	79.15	27.18	-1,193.24	1,171.49	1,160.49	10.99	106.559		
3,700.00	3,694.41	3,724.22	3,723.46	11.34	0.00	79.85	26.97	-1,191.01	1,167.05	1,155.71	11.34	102.951		
3,800.00	3,793.55	3,832.14	3,831.33	11.69	0.00	80.52	26.25	-1,187.83	1,161.77	1,150.09	11.68	99.467		
3,900.00	3,892.70	3,931.49	3,930.62	12.04	0.00	81.12	25.26	-1,184.60	1,156.30	1,144.27	12.03	96.128		
4,000.00	3,991.84	4,026.30	4,025.38	12.39	0.00	81.70	24.31	-1,181.66	1,151.11	1,138.73	12.38	92.974		
4,100.00	4,090.99	4,116.45	4,115.50	12.74	0.00	82.26	23.47	-1,179.43	1,146.68	1,133.94	12.74	90.031		
4,200.00	4,190.13	4,206.45	4,205.48	13.10	0.00	82.82	22.83	-1,177.93	1,143.19	1,130.10	13.09	87.314		
4,300.00	4,289.28	4,303.04	4,302.06	13.45	0.00	83.44	22.37	-1,176.75	1,140.33	1,126.88	13.45	84.789		
4,400.00	4,388.42	4,400.00	4,399.02	13.81	0.00	84.06	21.99	-1,175.75	1,137.81	1,124.00	13.81	82.412		
4,500.00	4,487.57	4,498.05	4,497.06	14.17	0.00	84.69	21.64	-1,174.88	1,135.57	1,121.40	14.16	80.169		
4,600.00	4,586.71	4,594.44	4,593.46	14.53	0.00	85.32	21.39	-1,174.18	1,133.65	1,119.13	14.52	78.053		
4,700.00	4,685.86	4,690.01	4,689.03	14.89	0.00	85.95	21.33	-1,173.72	1,132.16	1,117.28	14.88	76.062		
4,800.00	4,785.00	4,791.27	4,790.28	15.25	0.00	86.63	21.37	-1,173.30	1,130.92	1,115.67	15.25	74.179		
4,900.00	4,884.15	4,890.38	4,889.39	15.61	0.00	87.29	21.39	-1,172.77	1,129.69	1,114.09	15.61	72.380		
5,000.00	4,983.29	4,986.69	4,985.70	15.97	0.00	87.93	21.43	-1,172.37	1,128.75	1,112.78	15.97	70.675		
5,100.00	5,082.44	5,085.18	5,084.19	16.34	0.00	88.59	21.44	-1,172.15	1,128.13	1,111.80	16.33	69.065		

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

LEAM Drilling Services

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01														Offset Site Error:	0.00 usft
Survey Program: 100-GYRO 12334-MWD-ISCWSA, 16645-Project														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
5,200.00	5,181.58	5,183.66	5,182.67	16.70	0.00	89.24	21.47	-1,171.97	1,127.71	1,111.01	16.70	67.533			
5,300.00	5,280.73	5,283.25	5,282.25	17.06	0.00	89.91	21.49	-1,171.80	1,127.46	1,110.40	17.06	66.074			
5,396.73	5,376.63	5,378.51	5,377.52	17.42	0.00	90.54	21.47	-1,171.65	1,127.35	1,109.93	17.42	64.727 CC			
5,400.00	5,379.87	5,381.72	5,380.73	17.43	0.00	90.56	21.47	-1,171.65	1,127.35	1,109.92	17.43	64.683			
5,500.00	5,479.02	5,480.94	5,479.94	17.79	0.00	91.22	21.40	-1,171.55	1,127.44	1,109.64	17.79	63.357			
5,600.00	5,578.16	5,578.79	5,577.79	18.16	0.00	91.86	21.28	-1,171.50	1,127.71	1,109.55	18.16	62.094 ES			
5,700.00	5,677.31	5,677.18	5,676.19	18.53	0.00	92.51	21.24	-1,171.54	1,128.24	1,109.71	18.53	60.893			
5,800.00	5,776.45	5,775.73	5,774.74	18.90	0.00	93.16	21.25	-1,171.63	1,128.97	1,110.08	18.90	59.749			
5,900.00	5,875.60	5,875.61	5,874.61	19.26	0.00	93.82	21.29	-1,171.71	1,129.87	1,110.60	19.26	58.654			
6,000.00	5,974.74	5,974.49	5,973.50	19.63	0.00	94.48	21.36	-1,171.72	1,130.86	1,111.23	19.63	57.606			
6,100.00	6,073.88	6,071.74	6,070.74	20.00	0.00	95.12	21.42	-1,171.84	1,132.10	1,112.10	20.00	56.607			
6,200.00	6,173.03	6,172.54	6,171.54	20.37	0.00	95.78	21.47	-1,172.05	1,133.56	1,113.19	20.37	55.654			
6,300.00	6,272.17	6,272.36	6,271.37	20.74	0.00	96.43	21.45	-1,172.08	1,134.98	1,114.25	20.74	54.733			
6,400.00	6,371.32	6,369.89	6,368.90	21.11	0.00	97.07	21.42	-1,172.18	1,136.61	1,115.51	21.11	53.854			
6,500.00	6,470.46	6,470.41	6,469.41	21.48	0.00	97.72	21.40	-1,172.36	1,138.46	1,116.99	21.48	53.013			
6,600.00	6,569.61	6,571.61	6,570.62	21.85	0.00	98.37	21.24	-1,172.38	1,140.25	1,118.41	21.84	52.198			
6,700.00	6,668.75	6,670.19	6,669.19	22.22	0.00	98.99	20.94	-1,172.37	1,142.10	1,119.89	22.21	51.413			
6,800.00	6,767.90	6,768.02	6,767.02	22.59	0.00	99.61	20.69	-1,172.46	1,144.21	1,121.62	22.58	50.665			
6,900.00	6,867.04	6,866.63	6,865.63	22.96	0.00	100.23	20.49	-1,172.64	1,146.54	1,123.59	22.95	49.951			
7,000.00	6,966.19	6,965.47	6,964.48	23.33	0.00	100.85	20.28	-1,172.84	1,149.04	1,125.72	23.32	49.266			
7,100.00	7,065.35	7,065.27	7,064.27	23.70	0.00	101.48	20.17	-1,173.01	1,151.65	1,127.96	23.69	48.607			
7,200.00	7,164.68	7,166.12	7,165.12	24.07	0.00	102.06	20.03	-1,173.07	1,154.01	1,129.95	24.06	47.961			
7,300.00	7,264.20	7,267.27	7,266.27	24.44	0.00	102.55	19.67	-1,173.09	1,155.95	1,131.52	24.43	47.323			
7,400.00	7,363.88	7,365.96	7,364.96	24.80	0.00	102.92	19.16	-1,173.12	1,157.51	1,132.73	24.79	46.695			
7,500.00	7,463.68	7,465.19	7,464.19	25.16	0.00	103.21	18.63	-1,173.33	1,158.85	1,133.71	25.15	46.081			
7,600.00	7,563.57	7,564.51	7,563.51	25.52	0.00	103.41	18.11	-1,173.53	1,159.83	1,134.33	25.50	45.476			
7,700.00	7,663.53	7,664.08	7,663.07	25.88	0.00	103.51	17.45	-1,173.90	1,160.48	1,134.62	25.86	44.879			
7,800.00	7,763.52	7,763.18	7,762.17	26.23	0.00	103.52	16.70	-1,174.35	1,160.75	1,134.54	26.21	44.290			
7,900.00	7,863.52	7,864.16	7,863.15	26.56	0.00	-60.26	15.91	-1,174.88	1,160.82	1,134.28	26.54	43.741			
8,000.00	7,963.52	7,965.05	7,964.03	26.89	0.00	-60.30	15.11	-1,175.26	1,160.75	1,133.88	26.87	43.200			
8,100.00	8,063.52	8,064.59	8,063.57	27.22	0.00	-60.34	14.31	-1,175.63	1,160.67	1,133.47	27.20	42.673			
8,141.52	8,105.04	8,105.56	8,104.54	27.35	0.00	-60.36	13.98	-1,175.80	1,160.66	1,133.32	27.34	42.458			
8,200.00	8,163.52	8,161.34	8,160.32	27.55	0.00	-60.39	13.54	-1,176.13	1,160.73	1,133.20	27.53	42.163			
8,300.00	8,263.52	8,258.96	8,257.92	27.88	0.00	-60.44	12.82	-1,176.96	1,161.10	1,133.24	27.86	41.675			
8,400.00	8,363.52	8,357.78	8,356.74	28.21	0.00	-60.50	12.06	-1,177.94	1,161.59	1,133.39	28.19	41.202			
8,500.00	8,463.52	8,454.13	8,453.08	28.54	0.00	-60.56	11.28	-1,179.10	1,162.24	1,133.72	28.52	40.746			
8,600.00	8,563.52	8,551.24	8,550.18	28.88	0.00	-60.62	10.61	-1,180.63	1,163.28	1,134.42	28.86	40.312			
8,700.00	8,663.52	8,649.99	8,648.91	29.21	0.00	-60.70	9.82	-1,182.37	1,164.42	1,135.23	29.19	39.890			
8,800.00	8,763.52	8,751.03	8,749.93	29.54	0.00	-60.78	9.07	-1,184.21	1,165.65	1,136.12	29.53	39.478			
8,900.00	8,863.52	8,851.64	8,850.52	29.88	0.00	-60.85	8.27	-1,185.85	1,166.68	1,136.82	29.86	39.069			
9,000.00	8,963.52	8,949.59	8,948.45	30.21	0.00	-60.92	7.52	-1,187.57	1,167.85	1,137.65	30.20	38.674			
9,100.00	9,063.52	9,054.96	9,053.81	30.55	0.00	-60.99	6.86	-1,189.34	1,169.02	1,138.48	30.54	38.282			
9,200.00	9,163.52	9,158.31	9,157.15	30.89	0.00	-61.03	6.44	-1,190.16	1,169.50	1,138.63	30.88	37.878			
9,300.00	9,263.52	9,260.04	9,258.89	31.22	0.00	-61.03	6.62	-1,190.65	1,170.02	1,138.80	31.21	37.484			
9,400.00	9,363.52	9,360.96	9,359.80	31.56	0.00	-61.03	6.87	-1,190.79	1,170.26	1,138.71	31.55	37.090			
9,500.00	9,463.52	9,456.21	9,455.05	31.90	0.00	-61.03	7.02	-1,191.17	1,170.69	1,138.80	31.89	36.712			
9,536.48	9,500.00	9,490.22	9,489.05	32.02	0.00	-61.05	6.78	-1,191.81	1,170.97	1,138.96	32.01	36.581 SF			

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

LEAM Drilling Services

Anticollision Report

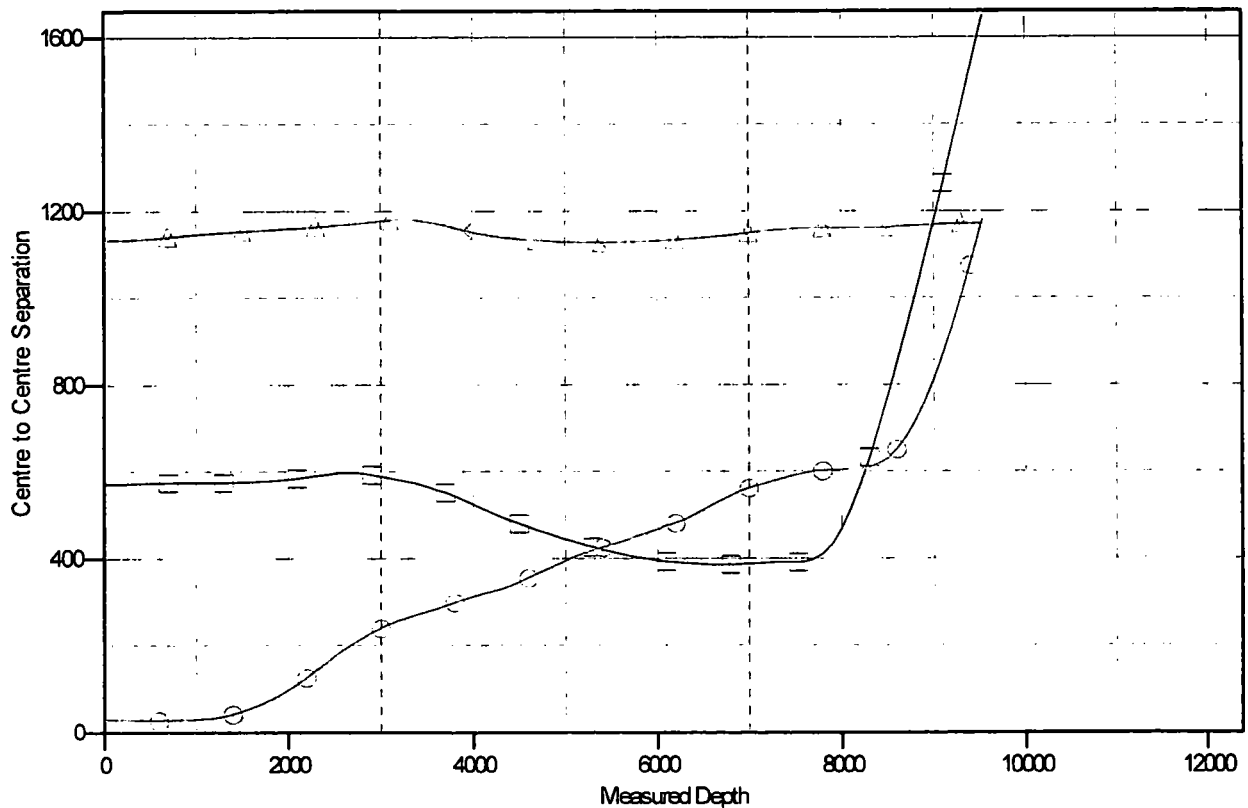
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3372.3' GE + 23.2' KB @ 3395.50usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.0000 W

Coordinates are relative to: Ko Lanta 9-4 Fed Com 528H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.30°

Ladder Plot



LEGEND

North Pure Gold 9 Fed 18H (Offset), OH, OH V0 —□— North Pure Gold 9 Fed 11H (Offset), OH, OH V0
North Pure Gold 9 Fed 18H (Offset), ST01, ST01 V0 —○— Ko Lanta 9-4 Fed Com 518H, OH, OH V0

LEAM Drilling Services

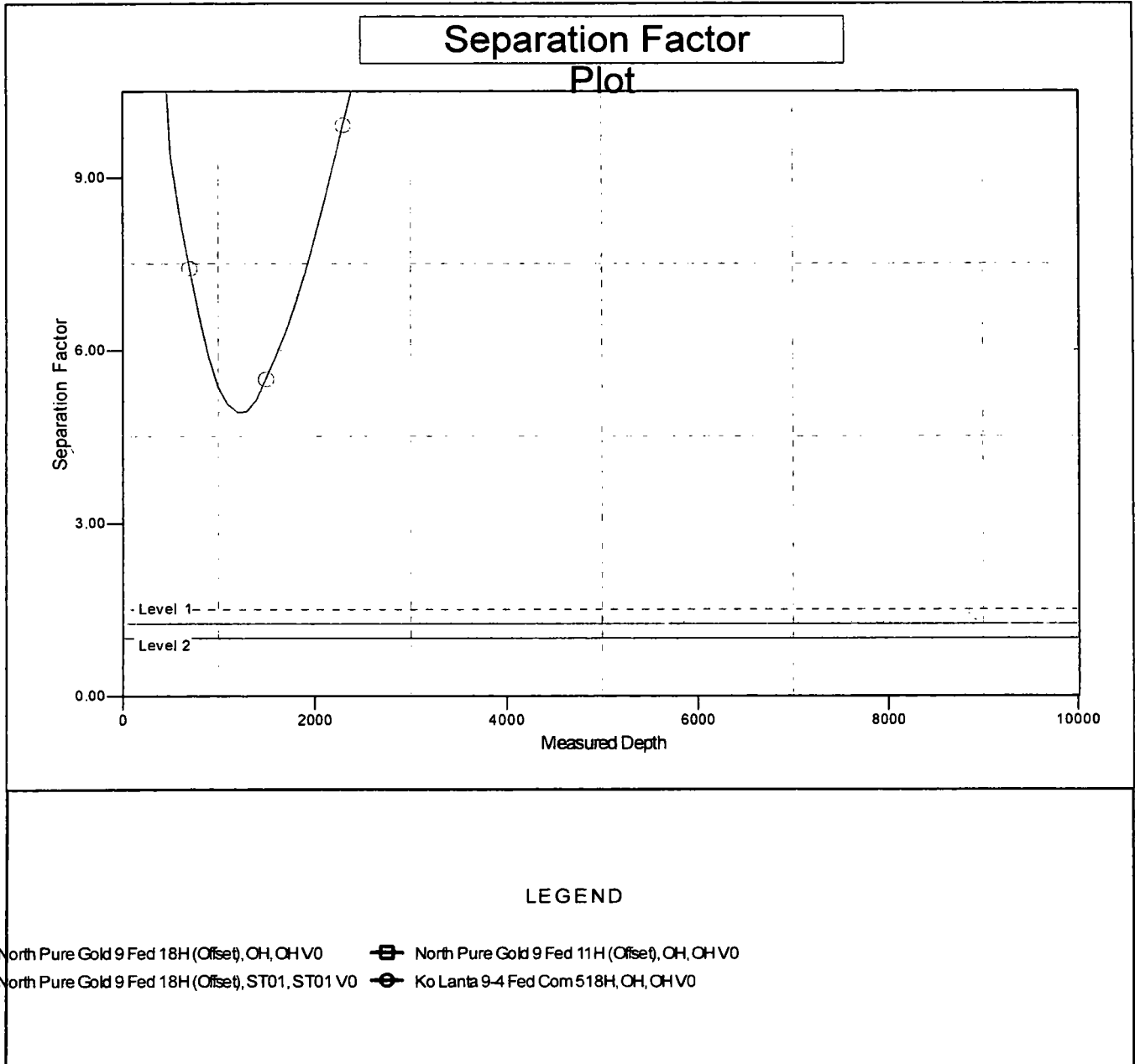
Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #5

Local Co-ordinate Reference: Well Ko Lanta 9-4 Fed Com 528H
TVD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
MD Reference: 3372.3' GE + 23.2' KB @ 3395.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3372.3' GE + 23.2' KB @ 3395.50usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.0000 W

Coordinates are relative to: Ko Lanta 9-4 Fed Com 528H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.30°



PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENEGRY PRODCUTION CO
LEASE NO.:	NMNM077046
WELL NAME & NO.:	KO LANTA 9-4 FED COM 528H
SURFACE HOLE FOOTAGE:	610' FSL & 180' FEL
BOTTOM HOLE FOOTAGE:	290' FNL & 400' FEL
LOCATION:	Section 9, T. 23 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

All previous COA still apply except the following:

H2S	☒ Yes	☐ No	
Potash	☐ None	☒ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **480** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Operator shall filled 1/3rd casing with fluid while running intermediate casing to maintain collapse safety factor.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

Operator has proposed a contingency plan to use a DV tool but will adjust cement proportionately if moved. Operator will contact BLM before proceeding with contingency plan. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

The pilot hole plugging procedure is approved as written. Note plug tops on subsequent drilling report.

Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which must be a minimum of 200' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug. Note plug tops on subsequent drilling report.

During drilling of intermediate hole from 250-1900 feet fresh water will be used unless lost circulation is encountered then air may be used concurrently to lighten the hydrostatic pressure.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is: Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Additional cement maybe required. Excess calculates to 14%.**

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) psi.**
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 intermediate casing shoe shall be **3000 (3M) psi.**

GENERAL REQUIREMENTS

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

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

☒ Chaves and Roosevelt Counties

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

☒ Lea County

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all

times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

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. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
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. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
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: The flex line must meet the requirements of API 16C. 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. 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.
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, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
 - 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. 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.
 - f. 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. This test shall be performed prior to the test at full stack pressure.
 - g. 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.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

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

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

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 053018

R111P KFC

13 3/8	surface csg in a	17 1/2	inch hole.	<u>Design Factors</u>		<u>SURFACE</u>		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	48.00	H 40	ST&C	13.98	3.51	0.4	480	23,040
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,002				Tail Cmt	does	circ to sfc.	Totals:	480 23,040

Comparison of Proposed to Minimum Required Cement Volumes

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	528	702	388	81	8.80	2510	3M	1.56

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

9 5/8	casing inside the	13 3/8	<u>Design Factors</u>		<u>INTERMEDIATE</u>			
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	40.00	J 55	BUTT	3.91	1.77	2.22	4,500	180,000
"B"	40.00	P 110	BUTT	8.79	0.99	2.22	3,600	144,000
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	8,100	324,000

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 480 overlap.

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
12 1/4	0.3132	1467	2712	2586	5	10.20	2099	3M	1.31

D V Tool(s):			4500				sum of sx	Σ CuFt	Σ%excess
t by stage % :		45	108				1668	4654	80

Class 'H' tail cmt yld > 1.20

ALT. COLLAPSE SF: .99*1.5=1.48

5 1/2	casing inside the	9 5/8	<u>Design Factors</u>		<u>PRODUCTION</u>			
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	Weight
"A"	17.00	P 110	BUTT	3.63	1.97	2.63	8,313	141,321
"B"	17.00	P 110	BUTT	8.03	1.65	2.63	10,539	179,163
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,829						Totals:	18,852	320,484

B would be: 59.68 1.85 if it were a vertical wellbore.

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	18852	8851	8851	8313	90	10	9214

The cement volume(s) are intended to achieve a top of 7600 ft from surface or a 500 overlap.

Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
8 3/4	0.2526	2001	3261	2852	14	8.80			1.35

Class 'H' tail cmt yld > 1.20