

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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.

KO LANTA 9-4 FED COM 528H

2. Name of Operator

DEVON ENERGY PRODUCTION COMPANY

Contact: CHANCE BLAND

E-mail: chance.bland@devon.com

9. API Well No.

30-015-44865-00-X1

3a. Address

6488 SEVEN RIVERS HIGHWAY
ARTESIA, NM 88211

b. Phone No. (including area code)

PH: 405-693-9277

10. Field and Pool or Exploratory Area
LOS MEDANOS

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

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

11. County or Parish, State

EDDY COUNTY, NM

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

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

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

Devon Energy respectfully requests to amend the following items on the original APD for the Ko Lanta 9-4 Fed Com 528H:

- ? Update direction plan to include pilot hole
- ? Change set depth of intermediate casing
- ? Change weight / grade of intermediate casing
- ? Add pilot hole option to sundry document
- ? Add cement program for plugging back pilot hole
- ? Update cement volumes for deeper intermediate
- ? Update language in ?Other Facets of Operation? section to allow for option to batch drill / preset surface

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**SC 423-18
Accepted for record - NMOCD

RECEIVED

The following supporting documents are attached to this email:

'APR 19 2018

DISTRICT II ARTESIA O.C.D.

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

Electronic Submission #410261 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION COMPAN, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 04/05/2018 (18PP1440SE)

Name (Printed/Typed) CHANCE BLAND

Title AUTHORIZED REPRESENTATIVE

Signature (Electronic Submission)

Date 04/03/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS

Title PETROLEUM ENGINEER

Date 04/19/2018

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 ****

Additional data for EC transaction #410261 that would not fit on the form

32. Additional remarks, continued

- ? Pilot Hole Plan (interpolated survey points)
- ? ST01 Plan (interpolated survey points)
- ? ST01 Plan View
- ? APD Drilling Plan
- ? Wellbore Diagram

Devon Energy, Ko Lanta 9-4 528H

1. Geologic Formations

TVD of target	8,851'	Pilot hole depth	9,106'
MD at TD:	18,852'	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	9070		

*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 (lbs)	Grade	Conn.
	From	To				
17.5"	0	480'	13.375"	48	H-40	STC
12.25"	0	8,100'	9.625"	40	P110	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.	2227	12.5	10.654	1.94	31 hr 40 mn	35:65 Poz:C + Adds
	425	14.8	6.352	1.33	5 hr 48 mn	C + Adds
8-3/4" Pilot (Open Hole)	272	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%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure 3M
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure 3M
			Blind Ram		
			Pipe Ram		
			Double Ram	x	
			Other*		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

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

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

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
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Devon Energy, Ko Lanta 9-4 528H

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
Y	A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi. • Wellhead will be installed by wellhead representatives. • If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • Wellhead representative will install the test plug for the initial BOP test. • Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

Devon Energy, Ko Lanta 9-4 528H

	Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron. Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.
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5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	480'	FW Gel	8.5-8.8	28-34	N/C
480'	8100'	Saturated Brine / Diesel Brine Emulsion	10.0-10.2	28-34	N/C
5,100'	TD	Cut Brine	8.5-8.8	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

Logging, Coring and Testing	
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
x	Coring? If yes, explain Coring will be conducted from approximately 8500' – 8900' TVD

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

Devon Energy, Ko Lanta 9-4 528H

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4,227 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? Potentially

1. If operator elects, drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
2. The drilling rig will then batch drill the intermediate sections and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

1. Spudder rig will move in and drill surface hole.
 - a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
3. The wellhead will be installed and tested once the 10 3/4" surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nipped up and tested on the wellhead before drilling operations commences on each well.
 - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

- ☒ Directional Plan
☐ Other, describe

devon

Ko Lanta 9-4 Fed com 528H

County Eddy
Rig Cactus 168
API
WBS XX-125023.01.DRL

Formation	Depth (TVD)	Thickness (ft)
Rustler	478	301
Salado	779	10
Top of Salt	789	3077
Base of Salt	3866	337
Delaware	4203	856
Cherry Canyon	5059	1398
Brushy Canyon	6457	1142
Madera	7599	190
Lower Brushy	7789	284
1st BSG Lime	8073	93
LNRD A	8166	356
Leonard B	8522	333
Leonard C	8855	215
Pilot Hole TD	9070	

Surface
Hole: 17.5
MD: 480
Fluid: FW
Max MW: 8.6

Intermediate
Hole: 12.25
MD: 8,100
Fluid: Brine
Max MW: 8.6
FV: 28
API FL: NC

Prod Tangent
Fluid: Cut Brine
Max MW: 9.2
FV: 35 - 40
API FL: 10

MD KOP:
TVD 8,305
8,277

TD Pilot
MD 9070
TVD 9070

Science Information				
Type	Interval Top	Interval BTM	Formation	Vendor
ECS, Spec GR	Int Shoe	TD Pilot		
NMR		TD Pilot		
FMI		TD Pilot		
Qaud Combo		TD Pilot	Leo B / C	
Core	8500	8900	Leo B / C top	

Casing Program:								
Section	Size	Weight	Grade	Conn	Top	Shoe (APD)	Shoe (Plan)	
Surface	13 3/8	54.5	J-55	BTC	0	480	480	
Intermediate	9 5/8	40	J-55	BTC	0	8,100	8,100	
Production	5 1/2	17	P110RY	CDC HTQ	0	18,135	18,533	

Casing Mechanical Specifications:								
Size	Collapse	Burst	Jt Yield	Min	Opt	Max	ID	Drift
13 3/8	1130	2740	853		13380		12.615	12.459
9 5/8	4230	3950	630	3900	5200	6500	8.835	8.679
5 1/2	7460	10640	568	10000	12500	14000	4.892	4.767

Cementing Program:								
Section	Slurry	Top	Sacks	Gauge Vol (BBL)	Excess Vol (BBL)	Tot Vol w/ Excess (BBL)	Density (PPG)	Excess
Surface	Tail	Surf	528.8	65.9	125.3	125.3	14.8	100%
Inter	Lead	Surf	2227.2	400.3	769.6	870.4	12.5	100%
	Tail		425.5	59.0	100.8		14.8	75%
Pilot	Tail		8205.0	272.1	64.3	70.8	13.2	10%
	Lead		6100.0	162.1	102.1	103.0	10.5	10%
Prod	Tail		8305.0	1785.4	422.1	464.3	13.2	10%

*Cement volumes are rough estimates. Use volumes provided in cement proposals

Prod Curve
Fluid: Cut Brine
Max MW: 9.2
FV: 35 - 40
API FL: 25 - 30

Prod Lateral
Fluid: Cut Brine
Max MW: 9.2
FV: 35 - 40
API FL: 25 - 30

Expected BHP @ TVD:
4,227

LP:
9,205 MD
8,850 TVD

TD:
18,533 MD
8,835 TVD

Hole Size (Int CSG - LP): 8.75

Hole Size (LP - TD): 8.5

Whipstock

COMPANY Devon Energy
 FIELD Eddy County, NM (NAD-83)
 SITE Ko Lanta 9-4 Fed Com
 WELL Ko Lanta 9-4 Fed Com 528H
 WELLPATH OH
 DESIGN Plan #2
 DEPTHUNT (usft)

WELL INFO

MAP DATUM North American Datum 1983
 MAP SYSTEM US State Plane 1983
 MAP ZONE New Mexico Eastern Zone
 WELL LAT 32.313414
 WELL LON -103.774814
 WELL EW MAI 713881.47
 WELL NS MAP 478201.88
 CONVERGENC 0.3
 MAGMODEL HDGM
 DECLINATION 6.97
 NORTH REF Grid
 GROUND ELEV 3372.3
 KB ELEV 3395.5
 VS AZI 201.18

SURVEY PROGRAM

1 0.00 - 9105.57 PLAN #2 : LEAM MWD+HDGM

SURVEY LIST

Measured Depth MD	Inclination INC	Azimuth AZI	Course Length CL	True Vertical TVD	SubSea TVD SSTVD	Local N/-S NS
0.00	0.00	0.00	0.00	0.00	3395.50	0.00
100.00	0.00	0.00	100.00	100.00	3295.50	0.00
200.00	0.00	0.00	100.00	200.00	3195.50	0.00
300.00	0.00	0.00	100.00	300.00	3095.50	0.00
400.00	0.00	0.00	100.00	400.00	2995.50	0.00
500.00	0.00	0.00	100.00	500.00	2895.50	0.00
600.00	0.00	0.00	100.00	600.00	2795.50	0.00
700.00	0.00	0.00	100.00	700.00	2695.50	0.00
800.00	0.00	0.00	100.00	800.00	2595.50	0.00
900.00	0.00	0.00	100.00	900.00	2495.50	0.00
1000.00	0.00	0.00	100.00	1000.00	2395.50	0.00
1100.00	0.00	0.00	100.00	1100.00	2295.50	0.00
1200.00	0.00	0.00	100.00	1200.00	2195.50	0.00
1300.00	0.00	0.00	100.00	1300.00	2095.50	0.00

1400.00	0.00	0.00	100.00	1400.00	1995.50	0.00
1500.00	0.00	0.00	100.00	1500.00	1895.50	0.00
1600.00	0.00	0.00	100.00	1600.00	1795.50	0.00
1700.00	0.00	0.00	100.00	1700.00	1695.50	0.00
1800.00	0.00	0.00	100.00	1800.00	1595.50	0.00
1900.00	0.00	0.00	100.00	1900.00	1495.50	0.00
2000.00	0.00	0.00	100.00	2000.00	1395.50	0.00
2100.00	0.00	0.00	100.00	2100.00	1295.50	0.00
2200.00	0.00	0.00	100.00	2200.00	1195.50	0.00
2300.00	0.00	0.00	100.00	2300.00	1095.50	0.00
2400.00	0.00	0.00	100.00	2400.00	995.50	0.00
2420.00	0.00	0.00	20.00	2420.00	975.50	0.00
2500.00	1.20	201.18	80.00	2499.99	895.51	-0.78
2600.00	2.70	201.18	100.00	2599.93	795.57	-3.95
2700.00	4.20	201.18	100.00	2699.75	695.75	-9.57
2800.00	5.70	201.18	100.00	2799.37	596.13	-17.61
2886.72	7.00	201.18	86.72	2885.56	509.94	-26.55
2900.00	7.00	201.18	13.28	2898.74	496.76	-28.06
3000.00	7.00	201.18	100.00	2998.00	397.51	-39.43
3100.00	7.00	201.18	100.00	3097.25	298.25	-50.79
3200.00	7.00	201.18	100.00	3196.50	199.00	-62.16
3300.00	7.00	201.18	100.00	3295.76	99.74	-73.52
3400.00	7.00	201.18	100.00	3395.01	0.49	-84.89
3500.00	7.00	201.18	100.00	3494.27	-98.77	-96.25
3600.00	7.00	201.18	100.00	3593.52	-198.02	-107.62
3700.00	7.00	201.18	100.00	3692.78	-297.28	-118.98
3800.00	7.00	201.18	100.00	3792.03	-396.53	-130.35
3900.00	7.00	201.18	100.00	3891.29	-495.79	-141.71
4000.00	7.00	201.18	100.00	3990.54	-595.04	-153.08
4100.00	7.00	201.18	100.00	4089.79	-694.29	-164.44
4200.00	7.00	201.18	100.00	4189.05	-793.55	-175.81
4300.00	7.00	201.18	100.00	4288.30	-892.80	-187.17
4400.00	7.00	201.18	100.00	4387.56	-992.06	-198.54
4500.00	7.00	201.18	100.00	4486.81	-1091.31	-209.90
4600.00	7.00	201.18	100.00	4586.07	-1190.57	-221.27
4700.00	7.00	201.18	100.00	4685.32	-1289.82	-232.63
4800.00	7.00	201.18	100.00	4784.58	-1389.08	-244.00
4900.00	7.00	201.18	100.00	4883.83	-1488.33	-255.36
5000.00	7.00	201.18	100.00	4983.08	-1587.58	-266.73
5100.00	7.00	201.18	100.00	5082.34	-1686.84	-278.09
5200.00	7.00	201.18	100.00	5181.59	-1786.09	-289.46
5300.00	7.00	201.18	100.00	5280.85	-1885.35	-300.82
5400.00	7.00	201.18	100.00	5380.10	-1984.60	-312.18
5500.00	7.00	201.18	100.00	5479.36	-2083.86	-323.55

5600.00	7.00	201.18	100.00	5578.61	-2183.11	-334.91
5700.00	7.00	201.18	100.00	5677.87	-2282.37	-346.28
5800.00	7.00	201.18	100.00	5777.12	-2381.62	-357.64
5900.00	7.00	201.18	100.00	5876.37	-2480.87	-369.01
6000.00	7.00	201.18	100.00	5975.63	-2580.13	-380.37
6100.00	7.00	201.18	100.00	6074.88	-2679.38	-391.74
6200.00	7.00	201.18	100.00	6174.14	-2778.64	-403.10
6300.00	7.00	201.18	100.00	6273.39	-2877.89	-414.47
6400.00	7.00	201.18	100.00	6372.65	-2977.15	-425.83
6500.00	7.00	201.18	100.00	6471.90	-3076.40	-437.20
6600.00	7.00	201.18	100.00	6571.16	-3175.66	-448.56
6700.00	7.00	201.18	100.00	6670.41	-3274.91	-459.93
6800.00	7.00	201.18	100.00	6769.66	-3374.16	-471.29
6900.00	7.00	201.18	100.00	6868.92	-3473.42	-482.66
7000.00	7.00	201.18	100.00	6968.17	-3572.67	-494.02
7100.00	7.00	201.18	100.00	7067.43	-3671.93	-505.39
7200.00	7.00	201.18	100.00	7166.68	-3771.18	-516.75
7300.00	7.00	201.18	100.00	7265.94	-3870.44	-528.12
7346.90	7.00	201.18	46.90	7312.48	-3916.98	-533.45
7400.00	6.20	201.18	53.10	7365.23	-3969.73	-539.14
7500.00	4.70	201.18	100.00	7464.78	-4069.28	-548.00
7600.00	3.20	201.18	100.00	7564.54	-4169.04	-554.43
7700.00	1.70	201.18	100.00	7664.44	-4268.94	-558.43
7800.00	0.20	201.18	100.00	7764.43	-4368.93	-559.98
7813.61	0.00	0.00	13.61	7778.04	-4382.54	-560.00
7900.00	0.00	0.00	86.39	7864.43	-4468.93	-560.00
8000.00	0.00	0.00	100.00	7964.43	-4568.93	-560.00
8100.00	0.00	0.00	100.00	8064.43	-4668.93	-560.00
8200.00	0.00	0.00	100.00	8164.43	-4768.93	-560.00
8300.00	0.00	0.00	100.00	8264.43	-4868.93	-560.00
8400.00	0.00	0.00	100.00	8364.43	-4968.93	-560.00
8500.00	0.00	0.00	100.00	8464.43	-5068.93	-560.00
8600.00	0.00	0.00	100.00	8564.43	-5168.93	-560.00
8700.00	0.00	0.00	100.00	8664.43	-5268.93	-560.00
8800.00	0.00	0.00	100.00	8764.43	-5368.93	-560.00
8900.00	0.00	0.00	100.00	8864.43	-5468.93	-560.00
9000.00	0.00	0.00	100.00	8964.43	-5568.93	-560.00
9105.57	0.00	0.00	105.57	9070.00	-5674.50	-560.00

Output generated by LEAM DRILLING SYSTEMS, LLC. - 04/03/18

[illegible]

0.00	713881.47	478201.88	32.313414	-103.774814	0.00	0.00
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-0.30	713881.17	478201.10	32.313412	-103.774815	1.50	1.50
-1.53	713879.94	478197.93	32.313403	-103.774819	1.50	1.50
-3.71	713877.76	478192.32	32.313388	-103.774826	1.50	1.50
-6.82	713874.65	478184.27	32.313366	-103.774836	1.50	1.50
-10.29	713871.18	478175.33	32.313341	-103.774848	1.50	1.50
-10.88	713870.60	478173.82	32.313337	-103.774850	0.00	0.00
-15.28	713866.19	478162.45	32.313306	-103.774864	0.00	0.00
-19.68	713861.79	478151.09	32.313275	-103.774879	0.00	0.00
-24.09	713857.38	478139.72	32.313243	-103.774893	0.00	0.00
-28.49	713852.98	478128.36	32.313212	-103.774907	0.00	0.00
-32.89	713848.58	478116.99	32.313181	-103.774922	0.00	0.00
-37.30	713844.17	478105.63	32.313150	-103.774936	0.00	0.00
-41.70	713839.77	478094.26	32.313119	-103.774951	0.00	0.00
-46.11	713835.36	478082.90	32.313088	-103.774965	0.00	0.00
-50.51	713830.96	478071.53	32.313056	-103.774980	0.00	0.00
-54.91	713826.56	478060.17	32.313025	-103.774994	0.00	0.00
-59.32	713822.15	478048.80	32.312994	-103.775009	0.00	0.00
-63.72	713817.75	478037.44	32.312963	-103.775023	0.00	0.00
-68.13	713813.35	478026.07	32.312932	-103.775038	0.00	0.00
-72.53	713808.94	478014.71	32.312900	-103.775052	0.00	0.00
-76.93	713804.54	478003.34	32.312869	-103.775066	0.00	0.00
-81.34	713800.13	477991.98	32.312838	-103.775081	0.00	0.00
-85.74	713795.73	477980.61	32.312807	-103.775095	0.00	0.00
-90.14	713791.33	477969.25	32.312776	-103.775110	0.00	0.00
-94.55	713786.92	477957.89	32.312745	-103.775124	0.00	0.00
-98.95	713782.52	477946.52	32.312713	-103.775139	0.00	0.00
-103.36	713778.11	477935.16	32.312682	-103.775153	0.00	0.00
-107.76	713773.71	477923.79	32.312651	-103.775168	0.00	0.00
-112.16	713769.31	477912.43	32.312620	-103.775182	0.00	0.00
-116.57	713764.90	477901.06	32.312589	-103.775196	0.00	0.00
-120.97	713760.50	477889.70	32.312558	-103.775211	0.00	0.00
-125.38	713756.10	477878.33	32.312526	-103.775225	0.00	0.00

[illegible]

Vertical Section

VS

0.00

0.00

0.00

0.00

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0.00

0.00

0.00

0.00

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0.00

0.00

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0.00	66.66
0.00	78.85
0.00	91.04
0.00	103.23
0.00	115.42
0.00	127.60
0.00	139.79
0.00	151.98
0.00	164.17
0.00	176.36
0.00	188.54
0.00	200.73
0.00	212.92
0.00	225.11
0.00	237.30
0.00	249.49
0.00	261.67
0.00	273.86
0.00	286.05
0.00	298.24
0.00	310.43
0.00	322.62
0.00	334.80
0.00	346.99

[illegible]

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 #2

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

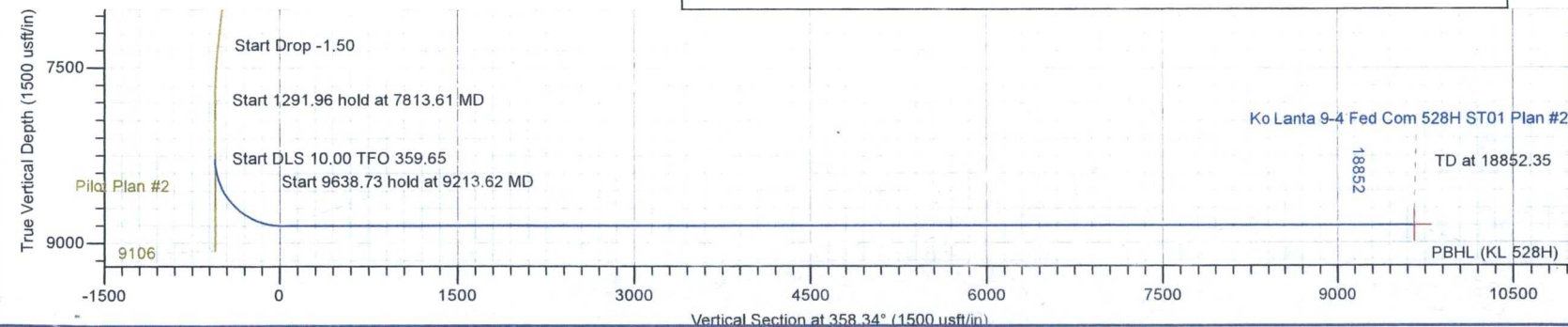
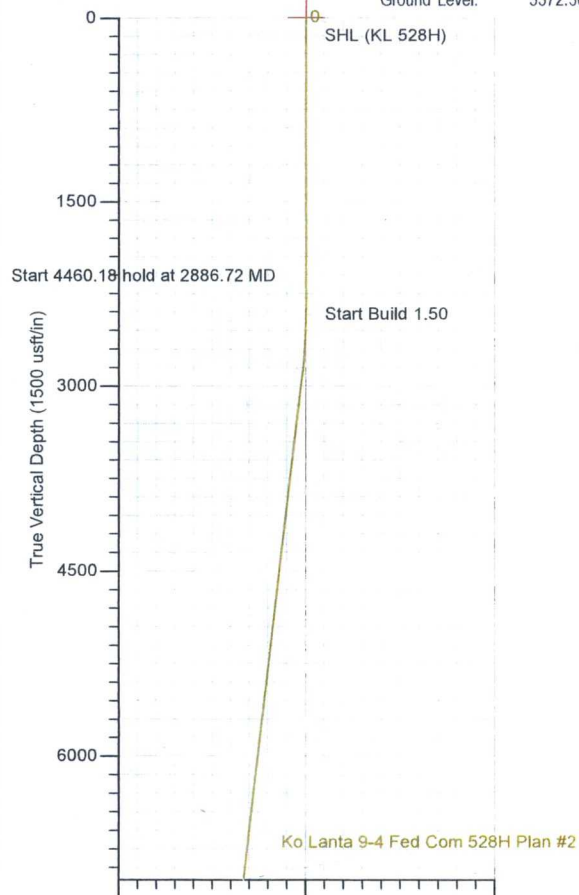


Azimuths to Grid North
 True North: -0.30°
 Magnetic North: 6.67°

Magnetic Field
 Strength: 48102.7snT
 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

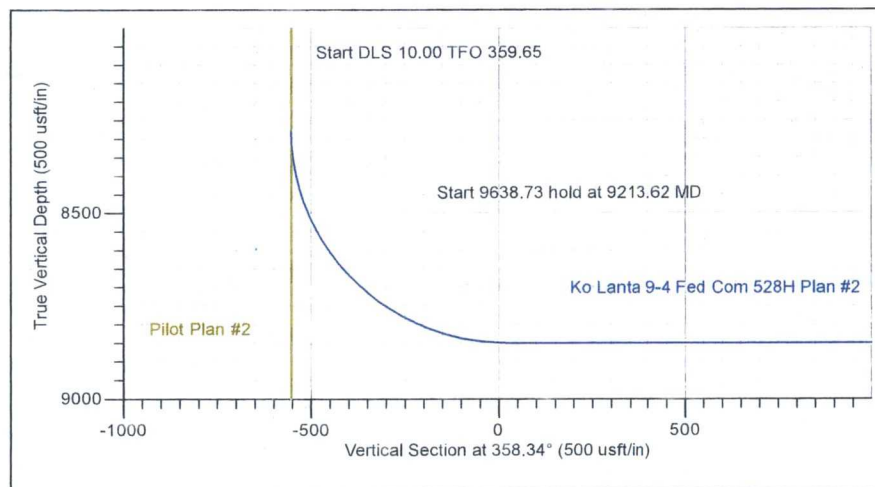


SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
8313.62	0.00	0.00	8278.05	-560.00	-217.00	0.00	0.00	-553.50	
9213.62	90.00	359.65	8851.00	12.95	-220.48	10.00	359.65	19.31	
18852.35	90.00	359.65	8851.00	9651.50	-278.95	0.00	0.00	9655.53	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL (KL 528H)	8851.00	9651.50	-278.95	32° 20' 23.8102 N	103° 46' 31.9956 W
SHL (KL 528H)	0.00	0.00	0.00	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 #2 (Ko Lanta 9-4 Fed Com 528H/ST01)
 Created By: Dustin Ault
 Date: 8:58, April 03 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 #2



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

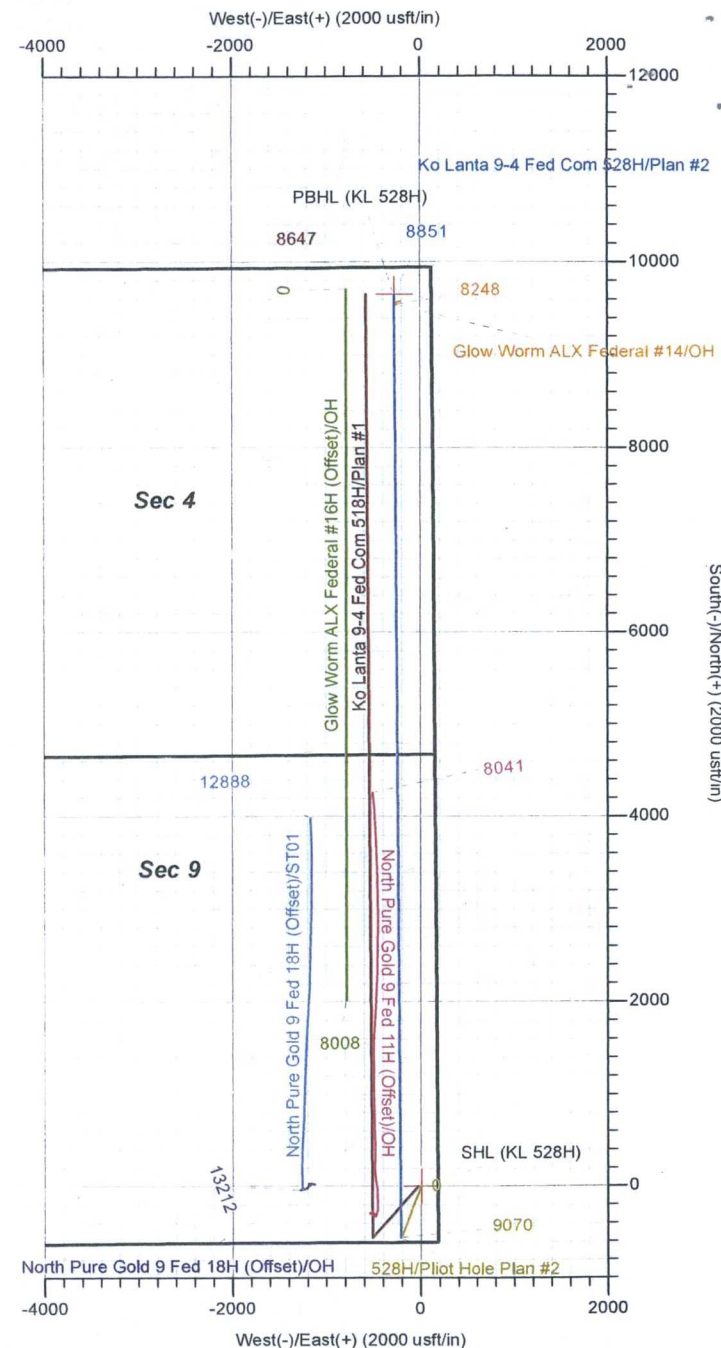
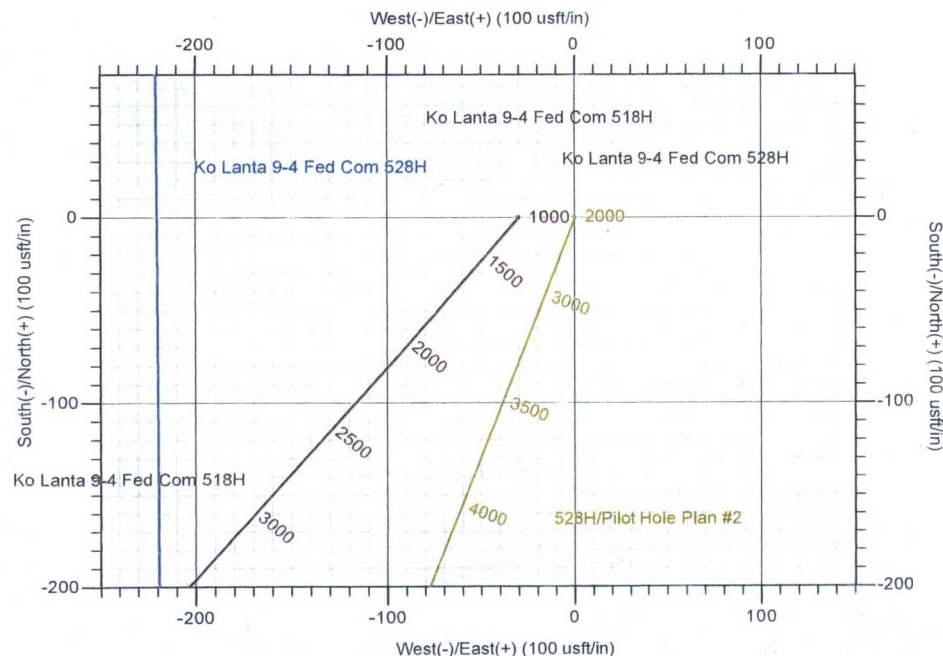


PROJECT DETAILS: Eddy County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
8313.62	0.00	0.00	8278.05	-560.00	-217.00	0.00	0.00	-553.50	
9213.62	90.00	359.65	8851.00	12.95	-220.48	10.00	359.65	19.31	
18852.35	90.00	359.65	8851.00	9651.50	-278.95	0.00	0.00	9655.53	PBHL (KL 528H)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (KL 528H)	8851.00	9651.50	-278.95	487853.38	713602.52	32° 20' 23.8102 N	103° 46' 31.9956 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 #2 (Ko Lanta 9-4 Fed Com 528H/ST01)
Ko Lanta 9-4 Fed Com
Created By: Dustin Ault Date: 9:01, April 03 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 #2

Standard Planning Report

03 April, 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 #2

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
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

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

Design: Plan #2
Audit Notes:
Version: Phase: PLAN Tie On Depth: 8,313.62
Vertical Section: Depth From (TVD) +N/-S +E/-W Direction
(usft) (usft) (usft) (°)
0.00 0.00 0.00 358.34

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
8,313.62	0.00	0.00	8,278.05	-560.00	-217.00	0.00	0.00	0.00	0.00	
9,213.62	90.00	359.65	8,851.00	12.95	-220.48	10.00	10.00	-0.04	359.65	
18,852.35	90.00	359.65	8,851.00	9,651.50	-278.95	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 #2

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
2,420.00	0.00	0.00	2,420.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	1.20	201.18	2,499.99	-0.78	-0.30	-0.77	1.50	1.50	0.00
2,600.00	2.70	201.18	2,599.93	-3.95	-1.53	-3.91	1.50	1.50	0.00
2,700.00	4.20	201.18	2,699.75	-9.56	-3.71	-9.45	1.50	1.50	0.00
2,800.00	5.70	201.18	2,799.37	-17.61	-6.82	-17.41	1.50	1.50	0.00
2,886.72	7.00	201.18	2,885.56	-26.55	-10.29	-26.25	1.50	1.50	0.00
2,900.00	7.00	201.18	2,898.74	-28.06	-10.87	-27.74	0.00	0.00	0.00
3,000.00	7.00	201.18	2,998.00	-39.43	-15.28	-38.97	0.00	0.00	0.00
3,100.00	7.00	201.18	3,097.25	-50.79	-19.68	-50.20	0.00	0.00	0.00
3,200.00	7.00	201.18	3,196.50	-62.16	-24.09	-61.44	0.00	0.00	0.00
3,300.00	7.00	201.18	3,295.76	-73.52	-28.49	-72.67	0.00	0.00	0.00
3,400.00	7.00	201.18	3,395.01	-84.89	-32.89	-83.90	0.00	0.00	0.00
3,500.00	7.00	201.18	3,494.27	-96.25	-37.30	-95.13	0.00	0.00	0.00
3,600.00	7.00	201.18	3,593.52	-107.62	-41.70	-106.37	0.00	0.00	0.00
3,700.00	7.00	201.18	3,692.78	-118.98	-46.11	-117.60	0.00	0.00	0.00
3,800.00	7.00	201.18	3,792.03	-130.35	-50.51	-128.83	0.00	0.00	0.00
3,900.00	7.00	201.18	3,891.29	-141.71	-54.91	-140.07	0.00	0.00	0.00
4,000.00	7.00	201.18	3,990.54	-153.08	-59.32	-151.30	0.00	0.00	0.00
4,100.00	7.00	201.18	4,089.79	-164.44	-63.72	-162.53	0.00	0.00	0.00
4,200.00	7.00	201.18	4,189.05	-175.81	-68.12	-173.76	0.00	0.00	0.00
4,300.00	7.00	201.18	4,288.30	-187.17	-72.53	-185.00	0.00	0.00	0.00
4,400.00	7.00	201.18	4,387.56	-198.54	-76.93	-196.23	0.00	0.00	0.00
4,500.00	7.00	201.18	4,486.81	-209.90	-81.34	-207.46	0.00	0.00	0.00
4,600.00	7.00	201.18	4,586.07	-221.27	-85.74	-218.70	0.00	0.00	0.00
4,700.00	7.00	201.18	4,685.32	-232.63	-90.14	-229.93	0.00	0.00	0.00
4,800.00	7.00	201.18	4,784.58	-244.00	-94.55	-241.16	0.00	0.00	0.00
4,900.00	7.00	201.18	4,883.83	-255.36	-98.95	-252.39	0.00	0.00	0.00
5,000.00	7.00	201.18	4,983.08	-266.73	-103.36	-263.63	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 #2

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Ko Lanta 9-4 Fed Com 528H
3372.3' GE + 23.2' KB @ 3395.50usft
3372.3' GE + 23.2' KB @ 3395.50usft
Grid
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	201.18	5,082.34	-278.09	-107.76	-274.86	0.00	0.00	0.00
5,200.00	7.00	201.18	5,181.59	-289.45	-112.16	-286.09	0.00	0.00	0.00
5,300.00	7.00	201.18	5,280.85	-300.82	-116.57	-297.33	0.00	0.00	0.00
5,400.00	7.00	201.18	5,380.10	-312.18	-120.97	-308.56	0.00	0.00	0.00
5,500.00	7.00	201.18	5,479.36	-323.55	-125.38	-319.79	0.00	0.00	0.00
5,600.00	7.00	201.18	5,578.61	-334.91	-129.78	-331.03	0.00	0.00	0.00
5,700.00	7.00	201.18	5,677.87	-346.28	-134.18	-342.26	0.00	0.00	0.00
5,800.00	7.00	201.18	5,777.12	-357.64	-138.59	-353.49	0.00	0.00	0.00
5,900.00	7.00	201.18	5,876.37	-369.01	-142.99	-364.72	0.00	0.00	0.00
6,000.00	7.00	201.18	5,975.63	-380.37	-147.39	-375.96	0.00	0.00	0.00
6,100.00	7.00	201.18	6,074.88	-391.74	-151.80	-387.19	0.00	0.00	0.00
6,200.00	7.00	201.18	6,174.14	-403.10	-156.20	-398.42	0.00	0.00	0.00
6,300.00	7.00	201.18	6,273.39	-414.47	-160.61	-409.66	0.00	0.00	0.00
6,400.00	7.00	201.18	6,372.65	-425.83	-165.01	-420.89	0.00	0.00	0.00
6,500.00	7.00	201.18	6,471.90	-437.20	-169.41	-432.12	0.00	0.00	0.00
6,600.00	7.00	201.18	6,571.16	-448.56	-173.82	-443.35	0.00	0.00	0.00
6,700.00	7.00	201.18	6,670.41	-459.93	-178.22	-454.59	0.00	0.00	0.00
6,800.00	7.00	201.18	6,769.66	-471.29	-182.63	-465.82	0.00	0.00	0.00
6,900.00	7.00	201.18	6,868.92	-482.66	-187.03	-477.05	0.00	0.00	0.00
7,000.00	7.00	201.18	6,968.17	-494.02	-191.43	-488.29	0.00	0.00	0.00
7,100.00	7.00	201.18	7,067.43	-505.39	-195.84	-499.52	0.00	0.00	0.00
7,200.00	7.00	201.18	7,166.68	-516.75	-200.24	-510.75	0.00	0.00	0.00
7,300.00	7.00	201.18	7,265.94	-528.12	-204.65	-521.98	0.00	0.00	0.00
7,346.90	7.00	201.18	7,312.48	-533.45	-206.71	-527.25	0.00	0.00	0.00
7,400.00	6.20	201.18	7,365.23	-539.14	-208.92	-532.88	1.50	-1.50	0.00
7,500.00	4.70	201.18	7,464.78	-548.00	-212.35	-541.64	1.50	-1.50	0.00
7,600.00	3.20	201.18	7,564.54	-554.43	-214.84	-547.99	1.50	-1.50	0.00
7,700.00	1.70	201.18	7,664.44	-558.42	-216.39	-551.94	1.50	-1.50	0.00
7,800.00	0.20	201.18	7,764.43	-559.98	-216.99	-553.47	1.50	-1.50	0.00
7,813.61	0.00	0.00	7,778.04	-560.00	-217.00	-553.50	1.50	-1.50	0.00
7,900.00	0.00	0.00	7,864.43	-560.00	-217.00	-553.50	0.00	0.00	0.00
8,000.00	0.00	0.00	7,964.43	-560.00	-217.00	-553.50	0.00	0.00	0.00
8,100.00	0.00	0.00	8,064.43	-560.00	-217.00	-553.50	0.00	0.00	0.00
8,200.00	0.00	0.00	8,164.43	-560.00	-217.00	-553.50	0.00	0.00	0.00
8,300.00	0.00	0.00	8,264.43	-560.00	-217.00	-553.50	0.00	0.00	0.00
8,313.62	0.00	0.00	8,278.05	-560.00	-217.00	-553.50	0.00	0.00	0.00
8,350.00	3.64	359.65	8,314.40	-558.85	-217.01	-552.34	10.00	10.00	0.00
8,400.00	8.64	359.65	8,364.10	-553.50	-217.04	-547.00	10.00	10.00	0.00
8,450.00	13.64	359.65	8,413.14	-543.85	-217.10	-537.35	10.00	10.00	0.00
8,500.00	18.64	359.65	8,461.16	-529.95	-217.18	-523.46	10.00	10.00	0.00
8,550.00	23.64	359.65	8,507.78	-511.93	-217.29	-505.44	10.00	10.00	0.00
8,600.00	28.64	359.65	8,552.65	-489.91	-217.43	-483.42	10.00	10.00	0.00
8,650.00	33.64	359.65	8,595.43	-464.06	-217.58	-457.58	10.00	10.00	0.00
8,700.00	38.64	359.65	8,635.80	-434.59	-217.76	-428.11	10.00	10.00	0.00
8,750.00	43.64	359.65	8,673.44	-401.70	-217.96	-395.24	10.00	10.00	0.00
8,800.00	48.64	359.65	8,708.08	-365.66	-218.18	-359.21	10.00	10.00	0.00
8,850.00	53.64	359.65	8,739.44	-326.74	-218.42	-320.30	10.00	10.00	0.00
8,900.00	58.64	359.65	8,767.29	-285.24	-218.67	-278.80	10.00	10.00	0.00
8,950.00	63.64	359.65	8,791.42	-241.46	-218.93	-235.04	10.00	10.00	0.00
9,000.00	68.64	359.65	8,811.64	-195.75	-219.21	-189.34	10.00	10.00	0.00
9,050.00	73.64	359.65	8,827.80	-148.45	-219.50	-142.05	10.00	10.00	0.00
9,100.00	78.64	359.65	8,839.78	-99.93	-219.79	-93.54	10.00	10.00	0.00
9,150.00	83.64	359.65	8,847.48	-50.54	-220.09	-44.16	10.00	10.00	0.00
9,200.00	88.64	359.65	8,850.84	-0.67	-220.39	5.70	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 #2

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)
9,213.62	90.00	359.65	8,851.00	12.95	-220.48	19.31	10.00	10.00	0.00
9,300.00	90.00	359.65	8,851.00	99.33	-221.00	105.67	0.00	0.00	0.00
9,400.00	90.00	359.65	8,851.00	199.32	-221.61	205.64	0.00	0.00	0.00
9,500.00	90.00	359.65	8,851.00	299.32	-222.21	305.62	0.00	0.00	0.00
9,600.00	90.00	359.65	8,851.00	399.32	-222.82	405.59	0.00	0.00	0.00
9,700.00	90.00	359.65	8,851.00	499.32	-223.43	505.56	0.00	0.00	0.00
9,800.00	90.00	359.65	8,851.00	599.32	-224.03	605.54	0.00	0.00	0.00
9,900.00	90.00	359.65	8,851.00	699.31	-224.64	705.51	0.00	0.00	0.00
10,000.00	90.00	359.65	8,851.00	799.31	-225.25	805.49	0.00	0.00	0.00
10,100.00	90.00	359.65	8,851.00	899.31	-225.85	905.46	0.00	0.00	0.00
10,200.00	90.00	359.65	8,851.00	999.31	-226.46	1,005.43	0.00	0.00	0.00
10,300.00	90.00	359.65	8,851.00	1,099.31	-227.07	1,105.41	0.00	0.00	0.00
10,400.00	90.00	359.65	8,851.00	1,199.31	-227.67	1,205.38	0.00	0.00	0.00
10,500.00	90.00	359.65	8,851.00	1,299.30	-228.28	1,305.36	0.00	0.00	0.00
10,600.00	90.00	359.65	8,851.00	1,399.30	-228.89	1,405.33	0.00	0.00	0.00
10,700.00	90.00	359.65	8,851.00	1,499.30	-229.49	1,505.30	0.00	0.00	0.00
10,800.00	90.00	359.65	8,851.00	1,599.30	-230.10	1,605.28	0.00	0.00	0.00
10,900.00	90.00	359.65	8,851.00	1,699.30	-230.71	1,705.25	0.00	0.00	0.00
11,000.00	90.00	359.65	8,851.00	1,799.29	-231.31	1,805.23	0.00	0.00	0.00
11,100.00	90.00	359.65	8,851.00	1,899.29	-231.92	1,905.20	0.00	0.00	0.00
11,200.00	90.00	359.65	8,851.00	1,999.29	-232.53	2,005.17	0.00	0.00	0.00
11,300.00	90.00	359.65	8,851.00	2,099.29	-233.13	2,105.15	0.00	0.00	0.00
11,400.00	90.00	359.65	8,851.00	2,199.29	-233.74	2,205.12	0.00	0.00	0.00
11,500.00	90.00	359.65	8,851.00	2,299.29	-234.35	2,305.10	0.00	0.00	0.00
11,600.00	90.00	359.65	8,851.00	2,399.28	-234.95	2,405.07	0.00	0.00	0.00
11,700.00	90.00	359.65	8,851.00	2,499.28	-235.56	2,505.04	0.00	0.00	0.00
11,800.00	90.00	359.65	8,851.00	2,599.28	-236.17	2,605.02	0.00	0.00	0.00
11,900.00	90.00	359.65	8,851.00	2,699.28	-236.77	2,704.99	0.00	0.00	0.00
12,000.00	90.00	359.65	8,851.00	2,799.28	-237.38	2,804.97	0.00	0.00	0.00
12,100.00	90.00	359.65	8,851.00	2,899.27	-237.99	2,904.94	0.00	0.00	0.00
12,200.00	90.00	359.65	8,851.00	2,999.27	-238.59	3,004.91	0.00	0.00	0.00
12,300.00	90.00	359.65	8,851.00	3,099.27	-239.20	3,104.89	0.00	0.00	0.00
12,400.00	90.00	359.65	8,851.00	3,199.27	-239.81	3,204.86	0.00	0.00	0.00
12,500.00	90.00	359.65	8,851.00	3,299.27	-240.41	3,304.84	0.00	0.00	0.00
12,600.00	90.00	359.65	8,851.00	3,399.27	-241.02	3,404.81	0.00	0.00	0.00
12,700.00	90.00	359.65	8,851.00	3,499.26	-241.63	3,504.78	0.00	0.00	0.00
12,800.00	90.00	359.65	8,851.00	3,599.26	-242.23	3,604.76	0.00	0.00	0.00
12,900.00	90.00	359.65	8,851.00	3,699.26	-242.84	3,704.73	0.00	0.00	0.00
13,000.00	90.00	359.65	8,851.00	3,799.26	-243.45	3,804.71	0.00	0.00	0.00
13,100.00	90.00	359.65	8,851.00	3,899.26	-244.05	3,904.68	0.00	0.00	0.00
13,200.00	90.00	359.65	8,851.00	3,999.25	-244.66	4,004.65	0.00	0.00	0.00
13,300.00	90.00	359.65	8,851.00	4,099.25	-245.27	4,104.63	0.00	0.00	0.00
13,400.00	90.00	359.65	8,851.00	4,199.25	-245.87	4,204.60	0.00	0.00	0.00
13,500.00	90.00	359.65	8,851.00	4,299.25	-246.48	4,304.57	0.00	0.00	0.00
13,600.00	90.00	359.65	8,851.00	4,399.25	-247.09	4,404.55	0.00	0.00	0.00
13,700.00	90.00	359.65	8,851.00	4,499.24	-247.69	4,504.52	0.00	0.00	0.00
13,800.00	90.00	359.65	8,851.00	4,599.24	-248.30	4,604.50	0.00	0.00	0.00
13,900.00	90.00	359.65	8,851.00	4,699.24	-248.91	4,704.47	0.00	0.00	0.00
14,000.00	90.00	359.65	8,851.00	4,799.24	-249.51	4,804.44	0.00	0.00	0.00
14,100.00	90.00	359.65	8,851.00	4,899.24	-250.12	4,904.42	0.00	0.00	0.00
14,200.00	90.00	359.65	8,851.00	4,999.24	-250.73	5,004.39	0.00	0.00	0.00
14,300.00	90.00	359.65	8,851.00	5,099.23	-251.33	5,104.37	0.00	0.00	0.00
14,400.00	90.00	359.65	8,851.00	5,199.23	-251.94	5,204.34	0.00	0.00	0.00
14,500.00	90.00	359.65	8,851.00	5,299.23	-252.55	5,304.31	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 #2

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well Ko Lanta 9-4 Fed Com 528H
 3372.3' GE + 23.2' KB @ 3395.50usft
 3372.3' GE + 23.2' KB @ 3395.50usft
 Grid
 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	90.00	359.65	8,851.00	5,399.23	-253.15	5,404.29	0.00	0.00	0.00
14,700.00	90.00	359.65	8,851.00	5,499.23	-253.76	5,504.26	0.00	0.00	0.00
14,800.00	90.00	359.65	8,851.00	5,599.22	-254.37	5,604.24	0.00	0.00	0.00
14,900.00	90.00	359.65	8,851.00	5,699.22	-254.97	5,704.21	0.00	0.00	0.00
15,000.00	90.00	359.65	8,851.00	5,799.22	-255.58	5,804.18	0.00	0.00	0.00
15,100.00	90.00	359.65	8,851.00	5,899.22	-256.19	5,904.16	0.00	0.00	0.00
15,200.00	90.00	359.65	8,851.00	5,999.22	-256.79	6,004.13	0.00	0.00	0.00
15,300.00	90.00	359.65	8,851.00	6,099.22	-257.40	6,104.11	0.00	0.00	0.00
15,400.00	90.00	359.65	8,851.00	6,199.21	-258.01	6,204.08	0.00	0.00	0.00
15,500.00	90.00	359.65	8,851.00	6,299.21	-258.61	6,304.05	0.00	0.00	0.00
15,600.00	90.00	359.65	8,851.00	6,399.21	-259.22	6,404.03	0.00	0.00	0.00
15,700.00	90.00	359.65	8,851.00	6,499.21	-259.83	6,504.00	0.00	0.00	0.00
15,800.00	90.00	359.65	8,851.00	6,599.21	-260.43	6,603.98	0.00	0.00	0.00
15,900.00	90.00	359.65	8,851.00	6,699.20	-261.04	6,703.95	0.00	0.00	0.00
16,000.00	90.00	359.65	8,851.00	6,799.20	-261.65	6,803.92	0.00	0.00	0.00
16,100.00	90.00	359.65	8,851.00	6,899.20	-262.25	6,903.90	0.00	0.00	0.00
16,200.00	90.00	359.65	8,851.00	6,999.20	-262.86	7,003.87	0.00	0.00	0.00
16,300.00	90.00	359.65	8,851.00	7,099.20	-263.47	7,103.85	0.00	0.00	0.00
16,400.00	90.00	359.65	8,851.00	7,199.20	-264.07	7,203.82	0.00	0.00	0.00
16,500.00	90.00	359.65	8,851.00	7,299.19	-264.68	7,303.79	0.00	0.00	0.00
16,600.00	90.00	359.65	8,851.00	7,399.19	-265.29	7,403.77	0.00	0.00	0.00
16,700.00	90.00	359.65	8,851.00	7,499.19	-265.89	7,503.74	0.00	0.00	0.00
16,800.00	90.00	359.65	8,851.00	7,599.19	-266.50	7,603.72	0.00	0.00	0.00
16,900.00	90.00	359.65	8,851.00	7,699.19	-267.11	7,703.69	0.00	0.00	0.00
17,000.00	90.00	359.65	8,851.00	7,799.18	-267.71	7,803.66	0.00	0.00	0.00
17,100.00	90.00	359.65	8,851.00	7,899.18	-268.32	7,903.64	0.00	0.00	0.00
17,200.00	90.00	359.65	8,851.00	7,999.18	-268.93	8,003.61	0.00	0.00	0.00
17,300.00	90.00	359.65	8,851.00	8,099.18	-269.53	8,103.58	0.00	0.00	0.00
17,400.00	90.00	359.65	8,851.00	8,199.18	-270.14	8,203.56	0.00	0.00	0.00
17,500.00	90.00	359.65	8,851.00	8,299.17	-270.75	8,303.53	0.00	0.00	0.00
17,600.00	90.00	359.65	8,851.00	8,399.17	-271.35	8,403.51	0.00	0.00	0.00
17,700.00	90.00	359.65	8,851.00	8,499.17	-271.96	8,503.48	0.00	0.00	0.00
17,800.00	90.00	359.65	8,851.00	8,599.17	-272.57	8,603.45	0.00	0.00	0.00
17,900.00	90.00	359.65	8,851.00	8,699.17	-273.17	8,703.43	0.00	0.00	0.00
18,000.00	90.00	359.65	8,851.00	8,799.17	-273.78	8,803.40	0.00	0.00	0.00
18,100.00	90.00	359.65	8,851.00	8,899.16	-274.39	8,903.38	0.00	0.00	0.00
18,200.00	90.00	359.65	8,851.00	8,999.16	-274.99	9,003.35	0.00	0.00	0.00
18,300.00	90.00	359.65	8,851.00	9,099.16	-275.60	9,103.32	0.00	0.00	0.00
18,400.00	90.00	359.65	8,851.00	9,199.16	-276.21	9,203.30	0.00	0.00	0.00
18,500.00	90.00	359.65	8,851.00	9,299.16	-276.81	9,303.27	0.00	0.00	0.00
18,600.00	90.00	359.65	8,851.00	9,399.15	-277.42	9,403.25	0.00	0.00	0.00
18,700.00	90.00	359.65	8,851.00	9,499.15	-278.03	9,503.22	0.00	0.00	0.00
18,800.00	90.00	359.65	8,851.00	9,599.15	-278.63	9,603.19	0.00	0.00	0.00
18,852.35	90.00	359.65	8,851.00	9,651.50	-278.95	9,655.53	0.00	0.00	0.00

PBHL (KL 528H)

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:	ST01		
Design:	Plan #2		

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	8,851.00	9,651.50	-278.95	487,853.38	713,602.52	32° 20' 23.8102 N	103° 46' 31.9956 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 #2

Anticollision Report

03 April, 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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2
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 2,000.00 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	4/3/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	8,313.62	Plan #2 (OH)	LEAM MWD+HDGM	MWD+HDGM	
8,313.62	18,852.35	Plan #2 (ST01)	LEAM MWD+HDGM	MWD+HDGM	

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Ko Lanta 9-4 Fed Com						
Glow Worm ALX Federal #14 (Offset) - OH - OH	18,400.00	8,250.00	693.29	579.96	6.117	SF
Glow Worm ALX Federal #14 (Offset) - OH - OH	18,742.20	8,250.00	602.96	519.97	7.266	CC
Glow Worm ALX Federal #14 (Offset) - OH - OH	18,800.00	8,250.00	605.72	518.46	6.941	ES
Glow Worm ALX Federal #16H (Offset) - OH - OH	11,213.68	12,525.00	1,011.87	982.38	34.311	CC, ES
Glow Worm ALX Federal #16H (Offset) - OH - OH	14,076.68	10,006.58	1,377.55	1,325.56	26.496	SF
Ko Lanta 9-4 Fed Com 518H - OH - Plan #1	1,009.17	1,008.67	30.08	25.82	7.064	CC
Ko Lanta 9-4 Fed Com 518H - OH - Plan #1	1,100.00	1,099.32	30.18	25.53	6.480	ES
Ko Lanta 9-4 Fed Com 518H - OH - Plan #1	18,852.35	18,654.25	363.01	126.87	1.537	SF
Ko Lanta 9-4 Fed Com 528H - OH - Plan #2	8,700.00	8,671.37	125.42	124.58	149.701	CC, ES, SF
North Pure Gold 9 Fed 11H (Offset) - OH - OH	6,910.97	6,885.81	347.22	330.46	20.718	CC
North Pure Gold 9 Fed 11H (Offset) - OH - OH	7,000.00	6,974.69	347.33	330.33	20.426	ES
North Pure Gold 9 Fed 11H (Offset) - OH - OH	13,500.00	12,400.00	854.48	768.60	9.949	SF
North Pure Gold 9 Fed 18H (Offset) - OH - OH	9,214.60	8,835.94	965.25	945.73	49.446	CC, ES
North Pure Gold 9 Fed 18H (Offset) - OH - OH	9,500.00	8,833.55	1,006.47	985.59	48.206	SF
North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01	9,214.60	8,835.94	965.25	945.73	49.446	CC, ES
North Pure Gold 9 Fed 18H (Offset) - ST01 - ST01	9,500.00	8,833.55	1,006.47	985.59	48.206	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		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	Warning
16,900.00	8,851.00	8,250.00	8,247.84	131.80	100.35	1.79	9,541.47	-259.44	1,938.36	1,814.11	124.26	15.600	
17,000.00	8,851.00	8,250.00	8,247.84	133.43	100.35	1.79	9,541.47	-259.44	1,843.59	1,719.10	124.49	14.809	
17,100.00	8,851.00	8,250.00	8,247.84	135.05	100.35	1.79	9,541.47	-259.44	1,749.39	1,624.66	124.74	14.025	
17,200.00	8,851.00	8,250.00	8,247.84	136.67	100.35	1.79	9,541.47	-259.44	1,655.88	1,530.89	124.99	13.246	
17,300.00	8,851.00	8,250.00	8,247.84	138.30	100.35	1.79	9,541.47	-259.44	1,563.17	1,437.93	125.24	12.481	
17,400.00	8,851.00	8,250.00	8,247.84	139.92	100.35	1.79	9,541.47	-259.44	1,471.41	1,345.93	125.49	11.726	
17,500.00	8,851.00	8,250.00	8,247.84	141.55	100.35	1.79	9,541.47	-259.44	1,380.80	1,255.09	125.71	10.984	
17,600.00	8,851.00	8,250.00	8,247.84	143.17	100.35	1.79	9,541.47	-259.44	1,291.58	1,165.69	125.89	10.260	
17,700.00	8,851.00	8,250.00	8,247.84	144.80	100.35	1.79	9,541.47	-259.44	1,204.05	1,078.06	125.99	9.557	
17,800.00	8,851.00	8,250.00	8,247.84	146.42	100.35	1.79	9,541.47	-259.44	1,118.61	992.66	125.95	8.881	
17,900.00	8,851.00	8,250.00	8,247.84	148.05	100.35	1.79	9,541.47	-259.44	1,035.79	910.10	125.69	8.241	

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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		Minimum Separation		Separation Factor		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
18,000.00	8,851.00	8,250.00	8,247.84	149.68	100.35	1.79	9,541.47	-259.44	956.25	831.18	125.07	7.646	
18,100.00	8,851.00	8,250.00	8,247.84	151.30	100.35	1.79	9,541.47	-259.44	880.89	757.02	123.88	7.111	
18,200.00	8,851.00	8,250.00	8,247.84	152.93	100.35	1.79	9,541.47	-259.44	810.89	689.06	121.83	6.656	
18,300.00	8,851.00	8,250.00	8,247.84	154.56	100.35	1.79	9,541.47	-259.44	747.73	629.24	118.49	6.311	
18,400.00	8,851.00	8,250.00	8,247.84	156.19	100.35	1.79	9,541.47	-259.44	693.29	579.96	113.33	6.117 SF	
18,500.00	8,851.00	8,250.00	8,247.84	157.82	100.35	1.79	9,541.47	-259.44	649.78	543.95	105.83	6.140	
18,600.00	8,851.00	8,250.00	8,247.84	159.44	100.35	1.79	9,541.47	-259.44	619.50	523.73	95.77	6.469	
18,700.00	8,851.00	8,250.00	8,247.84	161.07	100.35	1.79	9,541.47	-259.44	604.43	519.56	84.87	7.122	
18,742.20	8,851.00	8,250.00	8,247.84	161.76	100.35	1.79	9,541.47	-259.44	602.96	519.97	82.99	7.266 CC	
18,800.00	8,851.00	8,250.00	8,247.84	162.70	100.35	1.79	9,541.47	-259.44	605.72	518.46	87.26	6.941 ES	
18,852.35	8,851.00	8,250.00	8,247.84	163.55	100.35	1.79	9,541.47	-259.44	612.93	519.07	93.87	6.530	

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)						
9,500.00	8,851.00	12,525.00	8,032.13	21.05	1.01	-33.54	2,009.58	-791.71	1,990.12	1,972.23	17.89	111.249		
9,600.00	8,851.00	12,525.00	8,032.13	21.81	1.01	-33.54	2,009.58	-791.71	1,904.69	1,886.82	17.87	106.582		
9,700.00	8,851.00	12,525.00	8,032.13	22.66	1.01	-33.54	2,009.58	-791.71	1,820.75	1,802.86	17.89	101.800		
9,800.00	8,851.00	12,525.00	8,032.13	23.60	1.01	-33.54	2,009.58	-791.71	1,738.50	1,720.56	17.94	96.890		
9,900.00	8,851.00	12,525.00	8,032.13	24.61	1.01	-33.54	2,009.58	-791.71	1,658.20	1,640.15	18.05	91.842		
10,000.00	8,851.00	12,525.00	8,032.13	25.68	1.01	-33.54	2,009.58	-791.71	1,580.16	1,561.93	18.23	86.657		
10,100.00	8,851.00	12,525.00	8,032.13	26.82	1.01	-33.54	2,009.58	-791.71	1,504.72	1,486.22	18.50	81.343		
10,200.00	8,851.00	12,525.00	8,032.13	28.00	1.01	-33.54	2,009.58	-791.71	1,432.28	1,413.42	18.86	75.929		
10,300.00	8,851.00	12,525.00	8,032.13	29.22	1.01	-33.54	2,009.58	-791.71	1,363.34	1,343.99	19.35	70.464		
10,400.00	8,851.00	12,525.00	8,032.13	30.49	1.01	-33.54	2,009.58	-791.71	1,298.45	1,278.48	19.97	65.021		
10,500.00	8,851.00	12,525.00	8,032.13	31.79	1.01	-33.54	2,009.58	-791.71	1,238.23	1,217.49	20.74	59.697		
10,600.00	8,851.00	12,525.00	8,032.13	33.12	1.01	-33.54	2,009.58	-791.71	1,183.42	1,161.75	21.67	54.606		
10,700.00	8,851.00	12,525.00	8,032.13	34.47	1.01	-33.54	2,009.58	-791.71	1,134.79	1,112.03	22.76	49.865		
10,800.00	8,851.00	12,525.00	8,032.13	35.85	1.01	-33.54	2,009.58	-791.71	1,093.17	1,069.19	23.98	45.588		
10,900.00	8,851.00	12,525.00	8,032.13	37.25	1.01	-33.54	2,009.58	-791.71	1,059.38	1,034.07	25.30	41.866		
11,000.00	8,851.00	12,525.00	8,032.13	38.67	1.01	-33.54	2,009.58	-791.71	1,034.19	1,007.51	26.68	38.764		
11,100.00	8,851.00	12,525.00	8,032.13	40.11	1.01	-33.54	2,009.58	-791.71	1,018.24	990.19	28.04	36.311		
11,200.00	8,851.00	12,525.00	8,032.13	41.56	1.01	-33.54	2,009.58	-791.71	1,011.96	982.64	29.32	34.509		
11,213.68	8,851.00	12,525.00	8,032.13	41.76	1.01	-33.54	2,009.58	-791.71	1,011.87	982.38	29.49	34.311	CC, ES	
11,300.00	8,851.00	12,525.00	8,032.13	43.02	1.01	-33.54	2,009.58	-791.71	1,015.54	985.08	30.47	33.332		
11,400.00	8,851.00	12,525.00	8,032.13	44.50	1.01	-33.54	2,009.58	-791.71	1,028.88	997.45	31.43	32.739		
11,500.00	8,851.00	12,525.00	8,032.13	45.99	1.01	-33.54	2,009.58	-791.71	1,051.60	1,019.42	32.18	32.678		
11,600.00	8,851.00	12,525.00	8,032.13	47.48	1.01	-33.54	2,009.58	-791.71	1,083.11	1,050.38	32.73	33.095		
11,700.00	8,851.00	12,525.00	8,032.13	48.99	1.01	-33.54	2,009.58	-791.71	1,122.67	1,089.58	33.08	33.934		
11,800.00	8,851.00	12,525.00	8,032.13	50.51	1.01	-33.54	2,009.58	-791.71	1,169.46	1,136.19	33.28	35.144		
11,900.00	8,851.00	12,525.00	8,032.13	52.03	1.01	-33.54	2,009.58	-791.71	1,222.67	1,189.33	33.34	36.677		
12,000.00	8,851.00	12,525.00	8,032.13	53.56	1.01	-33.54	2,009.58	-791.71	1,281.47	1,248.18	33.29	38.490		
12,100.00	8,851.00	12,525.00	8,032.13	55.09	1.01	-33.54	2,009.58	-791.71	1,345.15	1,311.98	33.18	40.546		
12,200.00	8,851.00	12,525.00	8,032.13	56.64	1.01	-33.54	2,009.58	-791.71	1,413.05	1,380.04	33.01	42.811		
12,300.00	8,851.00	12,525.00	8,032.13	58.18	1.01	-33.54	2,009.58	-791.71	1,484.58	1,451.77	32.80	45.257		
12,400.00	8,851.00	12,525.00	8,032.13	59.74	1.01	-33.54	2,009.58	-791.71	1,559.24	1,526.66	32.58	47.858		
12,500.00	8,851.00	12,525.00	8,032.13	61.29	1.01	-33.54	2,009.58	-791.71	1,636.61	1,604.26	32.35	50.593		
12,600.00	8,851.00	12,525.00	8,032.13	62.85	1.01	-33.54	2,009.58	-791.71	1,716.32	1,684.21	32.11	53.444		
12,700.00	8,851.00	12,525.00	8,032.13	64.42	1.01	-33.54	2,009.58	-791.71	1,798.06	1,766.18	31.88	56.394		
12,800.00	8,851.00	12,525.00	8,032.13	65.99	1.01	-33.54	2,009.58	-791.71	1,881.56	1,849.90	31.66	59.428		
12,900.00	8,851.00	12,525.00	8,032.13	67.56	1.01	-33.54	2,009.58	-791.71	1,966.61	1,935.16	31.45	62.536		
14,076.68	8,851.00	10,006.58	7,685.43	86.25	0.95	-25.99	4,491.75	-827.72	1,377.55	1,325.56	51.99	26.496	SF	
14,100.00	8,851.00	9,987.52	7,679.64	86.62	0.95	-25.88	4,509.91	-827.93	1,384.02	1,331.92	52.10	26.565		
14,200.00	8,851.00	9,906.16	7,654.42	88.22	0.94	-25.43	4,587.25	-828.80	1,412.42	1,359.87	52.55	26.877		
14,300.00	8,851.00	9,825.39	7,628.55	89.82	0.94	-24.98	4,663.77	-829.65	1,441.86	1,388.87	52.99	27.211		
14,400.00	8,851.00	9,745.21	7,602.06	91.42	0.94	-24.54	4,739.43	-830.47	1,472.33	1,418.92	53.41	27.567		
14,500.00	8,851.00	9,665.65	7,574.96	93.03	0.94	-24.10	4,814.24	-831.26	1,503.84	1,450.02	53.81	27.945		
14,600.00	8,851.00	9,586.70	7,547.29	94.64	0.93	-23.66	4,888.18	-832.03	1,536.36	1,482.16	54.21	28.343		
14,700.00	8,851.00	9,508.37	7,519.07	96.24	0.93	-23.23	4,961.24	-832.78	1,569.90	1,515.32	54.58	28.761		
14,800.00	8,851.00	9,430.69	7,490.33	97.85	0.93	-22.81	5,033.40	-833.50	1,604.45	1,549.50	54.95	29.198		
14,900.00	8,851.00	9,353.65	7,461.09	99.46	0.93	-22.39	5,104.67	-834.20	1,639.99	1,584.69	55.31	29.653		
15,000.00	8,851.00	9,277.27	7,431.37	101.07	0.93	-21.99	5,175.03	-834.87	1,676.52	1,620.87	55.65	30.126		
15,100.00	8,851.00	9,201.56	7,401.20	102.68	0.92	-21.59	5,244.47	-835.53	1,714.03	1,658.05	55.99	30.616		
15,200.00	8,851.00	9,126.51	7,370.60	104.29	0.92	-21.19	5,313.00	-836.15	1,752.51	1,696.19	56.31	31.122		
15,300.00	8,851.00	9,052.13	7,339.61	105.91	0.92	-20.81	5,380.60	-836.76	1,791.94	1,735.31	56.63	31.644		
15,400.00	8,851.00	8,978.44	7,308.23	107.52	0.92	-20.43	5,447.28	-837.34	1,832.31	1,775.38	56.94	32.182		
15,500.00	8,851.00	8,905.44	7,276.50	109.13	0.92	-20.07	5,513.03	-837.91	1,873.62	1,816.39	57.24	32.734		

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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		
15,600.00	8,851.00	8,833.12	7,244.44	110.75	0.91	-19.71	5,577.85	-838.45	1,915.85	1,858.32	57.53	33.301		
15,700.00	8,851.00	8,761.50	7,212.07	112.37	0.91	-19.36	5,641.73	-838.96	1,958.99	1,901.17	57.82	33.881		

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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM, 8117-MWD+IFR1													Offset Well Error:	0.00 usft
Reference				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	99.50	99.50	0.09	0.09	-90.27	-0.14	-30.08	30.08	29.91	0.17	174.694		
200.00	200.00	199.50	199.50	0.31	0.31	-90.27	-0.14	-30.08	30.08	29.46	0.62	48.436		
300.00	300.00	299.50	299.50	0.54	0.53	-90.27	-0.14	-30.08	30.08	29.01	1.07	28.098		
400.00	400.00	399.50	399.50	0.76	0.76	-90.27	-0.14	-30.08	30.08	28.56	1.52	19.788		
500.00	500.00	499.50	499.50	0.99	0.98	-90.27	-0.14	-30.08	30.08	28.11	1.97	15.272		
600.00	600.00	599.50	599.50	1.21	1.21	-90.27	-0.14	-30.08	30.08	27.66	2.42	12.434		
700.00	700.00	699.50	699.50	1.43	1.43	-90.27	-0.14	-30.08	30.08	27.21	2.87	10.486		
800.00	800.00	799.50	799.50	1.66	1.66	-90.27	-0.14	-30.08	30.08	26.76	3.32	9.065		
900.00	900.00	899.50	899.50	1.88	1.88	-90.27	-0.14	-30.08	30.08	26.31	3.77	7.984		
1,000.00	1,000.00	999.50	999.50	2.11	2.11	-90.27	-0.14	-30.08	30.08	25.86	4.22	7.133		
1,009.17	1,009.17	1,008.67	1,008.67	2.13	2.13	-90.27	-0.14	-30.08	30.08	25.82	4.26	7.064 CC		
1,100.00	1,100.00	1,099.32	1,099.32	2.33	2.32	-90.49	-0.26	-30.18	30.18	25.53	4.66	6.480 ES		
1,200.00	1,200.00	1,198.75	1,198.72	2.56	2.50	-93.45	-1.91	-31.61	31.68	26.62	5.06	6.261		
1,300.00	1,300.00	1,298.00	1,297.86	2.78	2.69	-99.01	-5.51	-34.74	35.21	29.74	5.47	6.437		
1,400.00	1,400.00	1,396.94	1,396.52	3.01	2.88	-105.59	-11.03	-39.53	41.14	35.26	5.89	6.991		
1,500.00	1,500.00	1,495.43	1,494.52	3.23	3.09	-111.86	-18.44	-45.96	49.77	43.47	6.30	7.897		
1,600.00	1,600.00	1,594.26	1,592.64	3.46	3.32	-117.02	-27.40	-53.74	60.71	53.99	6.72	9.029		
1,700.00	1,700.00	1,693.52	1,691.15	3.68	3.55	-120.65	-36.53	-61.67	72.16	65.01	7.15	10.089		
1,800.00	1,800.00	1,792.77	1,789.67	3.91	3.80	-123.27	-45.67	-69.59	83.82	76.23	7.58	11.050		
1,900.00	1,900.00	1,892.03	1,888.18	4.13	4.05	-125.26	-54.80	-77.52	95.60	87.58	8.02	11.921		
2,000.00	2,000.00	1,991.28	1,986.70	4.36	4.31	-126.81	-63.93	-85.44	107.48	99.02	8.46	12.707		
2,100.00	2,100.00	2,090.54	2,085.22	4.58	4.58	-128.04	-73.06	-93.37	119.42	110.52	8.90	13.419		
2,200.00	2,200.00	2,189.79	2,183.73	4.81	4.84	-129.06	-82.20	-101.29	131.40	122.06	9.34	14.066		
2,300.00	2,300.00	2,289.05	2,282.25	5.03	5.12	-129.90	-91.33	-109.22	143.41	133.63	9.79	14.654		
2,400.00	2,400.00	2,388.30	2,380.76	5.26	5.39	-130.62	-100.46	-117.15	155.46	145.22	10.23	15.192		
2,500.00	2,499.99	2,487.65	2,479.37	5.46	5.67	27.66	-109.60	-125.08	166.78	156.12	10.66	15.649		
2,600.00	2,599.93	2,587.23	2,578.21	5.63	5.95	27.57	-118.77	-133.03	175.85	164.80	11.05	15.909		
2,700.00	2,699.75	2,687.00	2,677.23	5.81	6.24	27.87	-127.95	-141.00	182.61	171.16	11.46	15.939		
2,800.00	2,799.37	2,786.87	2,776.36	5.99	6.52	28.55	-137.13	-148.97	187.08	175.21	11.87	15.764		
2,900.00	2,898.74	2,886.78	2,875.53	6.17	6.81	29.59	-146.33	-156.95	189.32	177.03	12.29	15.408		
3,000.00	2,998.00	2,986.69	2,974.69	6.37	7.10	30.77	-155.52	-164.93	190.77	178.05	12.72	15.003		
3,100.00	3,097.25	3,086.60	3,073.86	6.58	7.39	31.94	-164.71	-172.91	192.30	179.15	13.15	14.622		
3,200.00	3,196.50	3,186.52	3,173.03	6.79	7.68	33.08	-173.91	-180.88	193.91	180.32	13.59	14.264		
3,300.00	3,295.76	3,286.43	3,272.20	7.01	7.97	34.21	-183.10	-188.86	195.60	181.55	14.04	13.926		
3,400.00	3,395.01	3,386.34	3,371.37	7.23	8.26	35.31	-192.29	-196.84	197.36	182.85	14.50	13.608		
3,500.00	3,494.27	3,486.25	3,470.54	7.47	8.56	36.40	-201.48	-204.82	199.19	184.22	14.97	13.309		
3,600.00	3,593.52	3,586.17	3,569.70	7.70	8.85	37.47	-210.68	-212.80	201.09	185.66	15.44	13.025		
3,700.00	3,692.78	3,686.08	3,668.87	7.94	9.15	38.51	-219.87	-220.77	203.07	187.15	15.92	12.758		
3,800.00	3,792.03	3,785.99	3,768.04	8.19	9.44	39.54	-229.06	-228.75	205.10	188.70	16.40	12.506		
3,900.00	3,891.29	3,885.90	3,867.21	8.44	9.74	40.54	-238.26	-236.73	207.21	190.32	16.89	12.267		
4,000.00	3,990.54	3,985.82	3,966.38	8.69	10.03	41.52	-247.45	-244.71	209.37	191.98	17.39	12.042		
4,100.00	4,089.79	4,085.73	4,065.54	8.94	10.33	42.49	-256.64	-252.69	211.60	193.71	17.89	11.828		
4,200.00	4,189.05	4,185.64	4,164.71	9.20	10.63	43.43	-265.84	-260.67	213.88	195.48	18.40	11.626		
4,300.00	4,288.30	4,285.55	4,263.88	9.46	10.93	44.36	-275.03	-268.64	216.22	197.31	18.91	11.434		
4,400.00	4,387.56	4,385.47	4,363.05	9.73	11.22	45.26	-284.22	-276.62	218.62	199.19	19.43	11.252		
4,500.00	4,486.81	4,485.38	4,462.22	9.99	11.52	46.14	-293.41	-284.60	221.07	201.12	19.95	11.080		
4,600.00	4,586.07	4,585.29	4,561.39	10.26	11.82	47.01	-302.61	-292.58	223.57	203.09	20.48	10.917		
4,700.00	4,685.32	4,685.20	4,660.55	10.53	12.12	47.85	-311.80	-300.56	226.12	205.11	21.01	10.762		
4,800.00	4,784.58	4,785.12	4,759.72	10.80	12.42	48.68	-320.99	-308.53	228.72	207.17	21.55	10.614		
4,900.00	4,883.83	4,885.03	4,858.89	11.07	12.72	49.48	-330.19	-316.51	231.36	209.27	22.09	10.474		
5,000.00	4,983.08	4,984.94	4,958.06	11.35	13.02	50.27	-339.38	-324.49	234.05	211.42	22.63	10.341		

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 8117-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			
5,100.00	5,082.34	5,084.85	5,057.23	11.62	13.31	51.04	-348.57	-332.47	236.79	213.60	23.18	10.214			
5,200.00	5,181.59	5,184.77	5,156.39	11.90	13.61	51.80	-357.77	-340.45	239.56	215.83	23.73	10.094			
5,300.00	5,280.85	5,284.68	5,255.56	12.18	13.91	52.53	-366.96	-348.43	242.38	218.09	24.29	9.979			
5,400.00	5,380.10	5,384.59	5,354.73	12.46	14.21	53.25	-376.15	-356.40	245.23	220.38	24.85	9.870			
5,500.00	5,479.36	5,484.50	5,453.90	12.74	14.51	53.95	-385.34	-364.38	248.12	222.72	25.41	9.765			
5,600.00	5,578.61	5,584.42	5,553.07	13.02	14.81	54.64	-394.54	-372.36	251.05	225.08	25.97	9.666			
5,700.00	5,677.87	5,684.33	5,652.24	13.30	15.11	55.31	-403.73	-380.34	254.02	227.48	26.54	9.571			
5,800.00	5,777.12	5,784.24	5,751.40	13.58	15.41	55.96	-412.92	-388.32	257.01	229.91	27.11	9.481			
5,900.00	5,876.37	5,884.15	5,850.57	13.87	15.72	56.60	-422.12	-396.29	260.05	232.36	27.68	9.394			
6,000.00	5,975.63	5,984.07	5,949.74	14.15	16.02	57.23	-431.31	-404.27	263.11	234.85	28.26	9.312			
6,100.00	6,074.88	6,083.98	6,048.91	14.44	16.32	57.84	-440.50	-412.25	266.20	237.37	28.83	9.233			
6,200.00	6,174.14	6,183.89	6,148.08	14.73	16.62	58.43	-449.69	-420.23	269.32	239.91	29.41	9.157			
6,300.00	6,273.39	6,283.80	6,247.25	15.01	16.92	59.01	-458.89	-428.21	272.47	242.48	29.99	9.085			
6,400.00	6,372.65	6,383.72	6,346.41	15.30	17.22	59.58	-468.08	-436.19	275.65	245.08	30.57	9.016			
6,500.00	6,471.90	6,483.63	6,445.58	15.59	17.52	60.14	-477.27	-444.16	278.86	247.70	31.16	8.950			
6,600.00	6,571.16	6,583.54	6,544.75	15.88	17.82	60.68	-486.47	-452.14	282.09	250.34	31.74	8.887			
6,700.00	6,670.41	6,683.45	6,643.92	16.17	18.12	61.21	-495.66	-460.12	285.34	253.01	32.33	8.826			
6,800.00	6,769.66	6,783.37	6,743.09	16.46	18.42	61.73	-504.85	-468.10	288.62	255.70	32.92	8.768			
6,900.00	6,868.92	6,883.28	6,842.25	16.75	18.73	62.24	-514.05	-476.08	291.92	258.42	33.51	8.712			
7,000.00	6,968.17	6,983.19	6,941.42	17.04	19.03	62.73	-523.24	-484.05	295.25	261.15	34.10	8.659			
7,100.00	7,067.43	7,083.10	7,040.59	17.33	19.33	63.22	-532.43	-492.03	298.59	263.90	34.69	8.608			
7,200.00	7,166.68	7,184.96	7,141.71	17.62	19.62	63.72	-541.69	-500.07	301.85	266.57	35.28	8.555			
7,300.00	7,265.94	7,290.85	7,247.07	17.91	19.84	64.53	-549.62	-506.95	303.62	267.77	35.85	8.489			
7,400.00	7,365.23	7,396.60	7,352.54	18.19	20.04	65.66	-555.33	-511.91	303.67	267.26	36.41	8.341			
7,500.00	7,464.78	7,502.22	7,458.06	18.41	20.22	66.75	-558.83	-514.95	302.85	265.97	36.89	8.211			
7,600.00	7,564.54	7,607.71	7,563.54	18.61	20.39	67.76	-560.13	-516.07	301.28	263.96	37.33	8.072			
7,700.00	7,664.44	7,708.12	7,663.94	18.80	20.55	68.50	-560.14	-516.08	299.70	261.95	37.75	7.939			
7,800.00	7,764.43	7,808.10	7,763.93	18.98	20.70	68.79	-560.14	-516.08	299.09	260.98	38.11	7.848			
7,879.09	7,843.52	7,887.19	7,843.02	19.12	20.82	68.82	-560.14	-516.08	299.03	260.64	38.38	7.791			
7,900.00	7,864.43	7,908.10	7,863.93	19.16	20.85	-90.03	-560.14	-516.08	299.08	260.63	38.45	7.778			
8,000.00	7,964.43	8,008.10	7,963.93	19.33	21.01	-90.03	-560.14	-516.08	299.08	260.29	38.79	7.711			
8,100.00	8,064.43	8,108.10	8,063.93	19.50	21.16	-90.03	-560.14	-516.08	299.08	259.96	39.12	7.646			
8,106.70	8,071.13	8,114.80	8,070.63	19.51	21.16	-90.03	-560.14	-516.08	299.08	259.94	39.14	7.642			
8,200.00	8,164.43	8,207.09	8,162.55	19.67	21.17	-88.68	-553.11	-516.12	299.21	259.79	39.41	7.592			
8,300.00	8,264.43	8,300.00	8,252.74	19.84	21.18	-84.51	-531.23	-516.26	300.85	260.93	39.91	7.537			
8,400.00	8,364.10	8,388.07	8,333.92	19.88	21.20	-78.32	-497.30	-516.47	306.10	265.89	40.21	7.613			
8,500.00	8,461.16	8,471.62	8,405.28	19.79	21.23	-73.01	-453.98	-516.73	313.96	273.93	40.03	7.843			
8,600.00	8,552.65	8,550.00	8,465.83	19.66	21.27	-68.45	-404.32	-517.04	323.34	283.93	39.40	8.206			
8,700.00	8,635.80	8,630.97	8,520.67	19.50	21.33	-64.43	-344.83	-517.40	333.14	294.54	38.60	8.631			
8,800.00	8,708.08	8,707.85	8,564.49	19.36	21.39	-61.26	-281.74	-517.79	342.47	304.86	37.62	9.104			
8,900.00	8,767.29	8,783.44	8,598.96	19.26	21.46	-58.81	-214.53	-518.21	350.56	313.86	36.70	9.552			
9,000.00	8,811.64	8,858.11	8,624.05	19.22	21.54	-57.08	-144.26	-518.64	356.81	320.80	36.01	9.908			
9,100.00	8,839.78	8,932.17	8,639.70	19.29	21.63	-56.03	-71.92	-519.08	360.82	325.14	35.68	10.113			
9,200.00	8,850.84	9,005.92	8,645.89	19.51	21.74	-55.64	1.52	-519.53	362.34	326.57	35.77	10.128			
9,300.00	8,851.00	9,101.89	8,646.00	19.88	21.90	-55.64	97.49	-520.12	362.36	326.00	36.36	9.966			
9,400.00	8,851.00	9,201.89	8,646.00	20.41	22.11	-55.64	197.48	-520.74	362.36	325.24	37.12	9.762			
9,500.00	8,851.00	9,301.89	8,646.00	21.05	22.35	-55.64	297.48	-521.35	362.37	324.35	38.02	9.532			
9,600.00	8,851.00	9,401.89	8,646.00	21.81	22.64	-55.64	397.48	-521.97	362.38	323.34	39.04	9.283			
9,700.00	8,851.00	9,501.89	8,646.00	22.66	22.98	-55.64	497.48	-522.59	362.38	322.21	40.17	9.022			
9,800.00	8,851.00	9,601.89	8,646.00	23.60	23.35	-55.64	597.48	-523.20	362.39	320.98	41.41	8.752			
9,900.00	8,851.00	9,701.89	8,646.00	24.61	23.76	-55.65	697.47	-523.82	362.40	319.66	42.74	8.480			
10,000.00	8,851.00	9,801.89	8,646.00	25.68	24.22	-55.65	797.47	-524.43	362.40	318.25	44.15	8.208			

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM, 8117-MWD+IFR1														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		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)							
10,100.00	8,851.00	9,901.89	8,646.00	26.82	24.71	-55.65	897.47	-525.05	362.41	316.77	45.64	7.940			
10,200.00	8,851.00	10,001.89	8,646.00	28.00	25.23	-55.65	997.47	-525.66	362.42	315.22	47.20	7.678			
10,300.00	8,851.00	10,101.89	8,646.00	29.22	25.78	-55.65	1,097.47	-526.28	362.43	313.60	48.82	7.423			
10,400.00	8,851.00	10,201.89	8,646.00	30.49	26.36	-55.65	1,197.47	-526.89	362.43	311.93	50.50	7.177			
10,500.00	8,851.00	10,301.89	8,646.00	31.79	26.97	-55.65	1,297.46	-527.51	362.44	310.22	52.22	6.940			
10,600.00	8,851.00	10,401.89	8,646.00	33.12	27.60	-55.65	1,397.46	-528.12	362.45	308.45	53.99	6.713			
10,700.00	8,851.00	10,501.89	8,646.00	34.47	28.25	-55.65	1,497.46	-528.74	362.45	306.65	55.80	6.495			
10,800.00	8,851.00	10,601.90	8,646.00	35.85	28.92	-55.65	1,597.46	-529.35	362.46	304.81	57.65	6.287			
10,900.00	8,851.00	10,701.90	8,646.00	37.25	29.61	-55.65	1,697.46	-529.97	362.47	302.93	59.53	6.089			
11,000.00	8,851.00	10,801.90	8,646.00	38.67	30.32	-55.65	1,797.45	-530.58	362.47	301.03	61.44	5.899			
11,100.00	8,851.00	10,901.90	8,646.00	40.11	31.04	-55.65	1,897.45	-531.20	362.48	299.10	63.38	5.719			
11,200.00	8,851.00	11,001.90	8,646.00	41.56	31.78	-55.66	1,997.45	-531.81	362.49	297.14	65.35	5.547			
11,300.00	8,851.00	11,101.90	8,646.00	43.02	32.52	-55.66	2,097.45	-532.43	362.49	295.16	67.33	5.384			
11,400.00	8,851.00	11,201.90	8,646.00	44.50	33.29	-55.66	2,197.45	-533.04	362.50	293.16	69.34	5.228			
11,500.00	8,851.00	11,301.90	8,646.00	45.99	34.06	-55.66	2,297.44	-533.66	362.51	291.14	71.36	5.080			
11,600.00	8,851.00	11,401.90	8,646.00	47.48	34.84	-55.66	2,397.44	-534.27	362.51	289.11	73.41	4.938			
11,700.00	8,851.00	11,501.90	8,646.00	48.99	35.63	-55.66	2,497.44	-534.89	362.52	287.05	75.47	4.804			
11,800.00	8,851.00	11,601.90	8,646.00	50.51	36.44	-55.66	2,597.44	-535.50	362.53	284.99	77.54	4.675			
11,900.00	8,851.00	11,701.90	8,646.00	52.03	37.25	-55.66	2,697.44	-536.12	362.54	282.90	79.63	4.553			
12,000.00	8,851.00	11,801.90	8,646.00	53.56	38.06	-55.66	2,797.43	-536.73	362.54	280.81	81.73	4.436			
12,100.00	8,851.00	11,901.90	8,646.00	55.09	38.89	-55.66	2,897.43	-537.35	362.55	278.70	83.85	4.324			
12,200.00	8,851.00	12,001.90	8,646.00	56.64	39.72	-55.66	2,997.43	-537.96	362.56	276.59	85.97	4.217			
12,300.00	8,851.00	12,101.90	8,646.00	58.18	40.56	-55.66	3,097.43	-538.58	362.56	274.46	88.11	4.115			
12,400.00	8,851.00	12,201.90	8,646.00	59.74	41.40	-55.66	3,197.43	-539.19	362.57	272.32	90.25	4.017			
12,500.00	8,851.00	12,301.90	8,646.00	61.29	42.25	-55.67	3,297.43	-539.81	362.58	270.17	92.40	3.924			
12,600.00	8,851.00	12,401.90	8,646.00	62.85	43.11	-55.67	3,397.42	-540.42	362.58	268.02	94.56	3.834			
12,700.00	8,851.00	12,501.90	8,646.00	64.42	43.97	-55.67	3,497.42	-541.04	362.59	265.86	96.73	3.748			
12,800.00	8,851.00	12,601.90	8,646.00	65.99	44.83	-55.67	3,597.42	-541.65	362.60	263.69	98.91	3.666			
12,900.00	8,851.00	12,701.90	8,646.00	67.56	45.70	-55.67	3,697.42	-542.27	362.60	261.51	101.09	3.587			
13,000.00	8,851.00	12,801.90	8,646.00	69.13	46.57	-55.67	3,797.42	-542.88	362.61	259.33	103.28	3.511			
13,100.00	8,851.00	12,901.90	8,646.00	70.71	47.45	-55.67	3,897.41	-543.50	362.62	257.14	105.47	3.438			
13,200.00	8,851.00	13,001.90	8,646.00	72.29	48.33	-55.67	3,997.41	-544.11	362.63	254.95	107.67	3.368			
13,300.00	8,851.00	13,101.90	8,646.00	73.88	49.21	-55.67	4,097.41	-544.73	362.63	252.75	109.88	3.300			
13,400.00	8,851.00	13,201.90	8,646.00	75.46	50.10	-55.67	4,197.41	-545.34	362.64	250.55	112.09	3.235			
13,500.00	8,851.00	13,301.90	8,646.00	77.05	50.99	-55.67	4,297.41	-545.96	362.65	248.34	114.31	3.173			
13,600.00	8,851.00	13,401.90	8,646.00	78.64	51.88	-55.67	4,397.40	-546.57	362.65	246.13	116.53	3.112			
13,700.00	8,851.00	13,501.90	8,646.00	80.23	52.78	-55.67	4,497.40	-547.19	362.66	243.91	118.75	3.054			
13,800.00	8,851.00	13,601.90	8,646.00	81.83	53.67	-55.67	4,597.40	-547.80	362.67	241.69	120.98	2.998			
13,900.00	8,851.00	13,701.90	8,646.00	83.42	54.57	-55.68	4,697.40	-548.42	362.67	239.46	123.21	2.944			
14,000.00	8,851.00	13,801.90	8,646.00	85.02	55.48	-55.68	4,797.40	-549.03	362.68	237.24	125.45	2.891			
14,100.00	8,851.00	13,901.90	8,646.00	86.62	56.38	-55.68	4,897.40	-549.65	362.69	235.00	127.68	2.841			
14,200.00	8,851.00	14,001.90	8,646.00	88.22	57.29	-55.68	4,997.39	-550.26	362.69	232.77	129.93	2.792			
14,300.00	8,851.00	14,101.90	8,646.00	89.82	58.20	-55.68	5,097.39	-550.88	362.70	230.53	132.17	2.744			
14,400.00	8,851.00	14,201.90	8,646.00	91.42	59.11	-55.68	5,197.39	-551.49	362.71	228.29	134.42	2.698			
14,500.00	8,851.00	14,301.90	8,646.00	93.03	60.02	-55.68	5,297.39	-552.11	362.71	226.05	136.67	2.654			
14,600.00	8,851.00	14,401.90	8,646.00	94.64	60.94	-55.68	5,397.39	-552.72	362.72	223.80	138.92	2.611			
14,700.00	8,851.00	14,501.90	8,646.00	96.24	61.86	-55.68	5,497.38	-553.34	362.73	221.55	141.18	2.569			
14,800.00	8,851.00	14,601.90	8,646.00	97.85	62.77	-55.68	5,597.38	-553.95	362.74	219.30	143.44	2.529			
14,900.00	8,851.00	14,701.90	8,646.00	99.46	63.69	-55.68	5,697.38	-554.57	362.74	217.05	145.70	2.490			
15,000.00	8,851.00	14,801.90	8,646.00	101.07	64.61	-55.68	5,797.38	-555.18	362.75	214.79	147.96	2.452			
15,100.00	8,851.00	14,901.90	8,646.00	102.68	65.54	-55.68	5,897.38	-555.80	362.76	212.53	150.22	2.415			
15,200.00	8,851.00	15,001.90	8,646.00	104.29	66.46	-55.69	5,997.37	-556.41	362.76	210.27	152.49	2.379			

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 518H - OH - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 8117-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
15,300.00	8,851.00	15,101.90	8,646.00	105.91	67.39	-55.69	6,097.37	-557.03	362.77	208.01	154.76	2.344	
15,400.00	8,851.00	15,201.90	8,646.00	107.52	68.31	-55.69	6,197.37	-557.64	362.78	205.75	157.03	2.310	
15,500.00	8,851.00	15,301.90	8,646.00	109.13	69.24	-55.69	6,297.37	-558.26	362.78	203.48	159.30	2.277	
15,600.00	8,851.00	15,401.90	8,646.00	110.75	70.17	-55.69	6,397.37	-558.87	362.79	201.22	161.58	2.245	
15,700.00	8,851.00	15,501.90	8,646.00	112.37	71.10	-55.69	6,497.36	-559.49	362.80	198.95	163.85	2.214	
15,800.00	8,851.00	15,601.90	8,646.00	113.98	72.03	-55.69	6,597.36	-560.10	362.80	196.68	166.13	2.184	
15,900.00	8,851.00	15,701.90	8,646.00	115.60	72.96	-55.69	6,697.36	-560.72	362.81	194.41	168.41	2.154	
16,000.00	8,851.00	15,801.90	8,646.00	117.22	73.90	-55.69	6,797.36	-561.33	362.82	192.13	170.69	2.126	
16,100.00	8,851.00	15,901.90	8,646.00	118.84	74.83	-55.69	6,897.36	-561.95	362.83	189.86	172.97	2.098	
16,200.00	8,851.00	16,001.90	8,646.00	120.45	75.77	-55.69	6,997.36	-562.56	362.83	187.58	175.25	2.070	
16,300.00	8,851.00	16,101.90	8,646.00	122.07	76.70	-55.69	7,097.35	-563.18	362.84	185.31	177.53	2.044	
16,400.00	8,851.00	16,201.90	8,646.00	123.69	77.64	-55.69	7,197.35	-563.79	362.85	183.03	179.82	2.018	
16,500.00	8,851.00	16,301.90	8,646.00	125.32	78.58	-55.70	7,297.35	-564.41	362.85	180.75	182.10	1.993	
16,600.00	8,851.00	16,401.90	8,646.00	126.94	79.51	-55.70	7,397.35	-565.02	362.86	178.47	184.39	1.968	
16,700.00	8,851.00	16,501.90	8,646.00	128.56	80.45	-55.70	7,497.35	-565.64	362.87	176.19	186.68	1.944	
16,800.00	8,851.00	16,601.90	8,646.00	130.18	81.39	-55.70	7,597.34	-566.25	362.87	173.90	188.97	1.920	
16,900.00	8,851.00	16,701.90	8,646.00	131.80	82.33	-55.70	7,697.34	-566.87	362.88	171.62	191.26	1.897	
17,000.00	8,851.00	16,801.90	8,646.00	133.43	83.27	-55.70	7,797.34	-567.48	362.89	169.33	193.55	1.875	
17,100.00	8,851.00	16,901.90	8,646.00	135.05	84.22	-55.70	7,897.34	-568.10	362.89	167.05	195.84	1.853	
17,200.00	8,851.00	17,001.90	8,646.00	136.67	85.16	-55.70	7,997.34	-568.71	362.90	164.76	198.14	1.832	
17,300.00	8,851.00	17,101.90	8,646.00	138.30	86.10	-55.70	8,097.33	-569.33	362.91	162.48	200.43	1.811	
17,400.00	8,851.00	17,201.90	8,646.00	139.92	87.05	-55.70	8,197.33	-569.94	362.91	160.19	202.73	1.790	
17,500.00	8,851.00	17,301.90	8,646.00	141.55	87.99	-55.70	8,297.33	-570.56	362.92	157.90	205.02	1.770	
17,600.00	8,851.00	17,401.90	8,646.00	143.17	88.93	-55.70	8,397.33	-571.17	362.93	155.61	207.32	1.751	
17,700.00	8,851.00	17,501.90	8,646.00	144.80	89.88	-55.70	8,497.33	-571.79	362.94	153.32	209.62	1.731	
17,800.00	8,851.00	17,601.90	8,646.00	146.42	90.83	-55.71	8,597.33	-572.40	362.94	151.03	211.92	1.713	
17,900.00	8,851.00	17,701.90	8,646.00	148.05	91.77	-55.71	8,697.32	-573.02	362.95	148.73	214.22	1.694	
18,000.00	8,851.00	17,801.90	8,646.00	149.68	92.72	-55.71	8,797.32	-573.63	362.96	146.44	216.52	1.676	
18,100.00	8,851.00	17,901.90	8,646.00	151.30	93.67	-55.71	8,897.32	-574.25	362.96	144.15	218.82	1.659	
18,200.00	8,851.00	18,001.90	8,646.00	152.93	94.61	-55.71	8,997.32	-574.86	362.97	141.85	221.12	1.642	
18,300.00	8,851.00	18,101.90	8,646.00	154.56	95.56	-55.71	9,097.32	-575.48	362.98	139.56	223.42	1.625	
18,400.00	8,851.00	18,201.90	8,646.00	156.19	96.51	-55.71	9,197.31	-576.09	362.98	137.26	225.72	1.608	
18,500.00	8,851.00	18,301.90	8,646.00	157.82	97.46	-55.71	9,297.31	-576.71	362.99	134.97	228.02	1.592	
18,600.00	8,851.00	18,401.90	8,646.00	159.44	98.41	-55.71	9,397.31	-577.32	363.00	132.67	230.33	1.576	
18,700.00	8,851.00	18,501.90	8,646.00	161.07	99.36	-55.71	9,497.31	-577.94	363.00	130.37	232.63	1.560	
18,800.00	8,851.00	18,601.90	8,646.00	162.70	100.31	-55.71	9,597.31	-578.56	363.01	128.07	234.94	1.545	
18,852.35	8,851.00	18,654.25	8,646.00	163.55	100.81	-55.71	9,649.66	-578.88	363.01	126.87	236.14	1.537 SF	

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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design Ko Lanta 9-4 Fed Com - Ko Lanta 9-4 Fed Com 528H - OH - Plan #2														Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
8,313.62	8,278.05	8,313.62	8,278.05	0.00	0.00	-180.00	-560.00	-217.00	0.14	0.14	0.00	N/A			
8,400.00	8,364.10	8,399.67	8,364.10	0.05	0.17	-180.00	-560.00	-217.00	6.50	6.27	0.23	28.299			
8,500.00	8,461.16	8,496.73	8,461.16	0.11	0.36	-180.00	-560.00	-217.00	30.05	29.61	0.43	69.363			
8,600.00	8,552.65	8,588.22	8,552.65	0.23	0.54	180.00	-560.00	-217.00	70.09	69.45	0.64	109.902			
8,700.00	8,635.80	8,671.37	8,635.80	0.41	0.70	180.00	-560.00	-217.00	125.42	124.58	0.84	149.701	CC, ES, SF		
8,800.00	8,708.08	8,743.65	8,708.08	0.64	0.84	180.00	-560.00	-217.00	194.34	193.31	1.03	189.458			
8,900.00	8,767.29	8,802.87	8,767.29	0.93	0.96	180.00	-560.00	-217.00	274.77	273.57	1.19	230.669			
9,000.00	8,811.64	8,847.21	8,811.64	1.28	1.04	180.00	-560.00	-217.00	364.25	362.93	1.32	275.749			
9,100.00	8,839.78	8,875.35	8,839.78	1.70	1.10	180.00	-560.00	-217.00	460.08	458.68	1.40	328.593			
9,200.00	8,850.84	8,886.42	8,850.84	2.20	1.12	180.00	-560.00	-217.00	559.34	557.93	1.41	395.905			
9,300.00	8,851.00	8,886.58	8,851.00	2.83	1.12	0.00	-560.00	-217.00	659.34	657.98	1.36	485.768			
9,400.00	8,851.00	8,886.58	8,851.00	3.74	1.12	0.00	-560.00	-217.00	759.34	758.15	1.19	638.236			
9,500.00	8,851.00	8,886.58	8,851.00	6.34	1.12	0.00	-560.00	-217.00	859.34	857.67	1.67	513.954			
9,600.00	8,851.00	8,886.58	8,851.00	7.46	1.12	0.00	-560.00	-217.00	959.34	957.54	1.80	532.816			
9,700.00	8,851.00	8,886.58	8,851.00	8.27	1.12	0.00	-560.00	-217.00	1,059.34	1,057.46	1.88	563.845			
9,800.00	8,851.00	8,886.58	8,851.00	9.00	1.12	0.00	-560.00	-217.00	1,159.34	1,157.40	1.94	598.004			
9,900.00	8,851.00	8,886.58	8,851.00	9.72	1.12	0.00	-560.00	-217.00	1,259.34	1,257.35	1.99	633.457			
10,000.00	8,851.00	8,886.58	8,851.00	10.46	1.12	0.00	-560.00	-217.00	1,359.34	1,357.31	2.03	669.561			
10,100.00	8,851.00	8,886.58	8,851.00	11.22	1.12	0.00	-560.00	-217.00	1,459.34	1,457.27	2.07	706.056			
10,200.00	8,851.00	8,886.58	8,851.00	12.03	1.12	0.00	-560.00	-217.00	1,559.34	1,557.24	2.10	742.840			
10,300.00	8,851.00	8,886.58	8,851.00	12.90	1.12	0.00	-560.00	-217.00	1,659.34	1,657.21	2.13	779.889			
10,400.00	8,851.00	8,886.58	8,851.00	13.82	1.12	0.00	-560.00	-217.00	1,759.34	1,757.19	2.15	817.226			
10,500.00	8,851.00	8,886.58	8,851.00	14.81	1.12	0.00	-560.00	-217.00	1,859.34	1,857.16	2.17	854.899			
10,600.00	8,851.00	8,886.58	8,851.00	15.85	1.12	0.00	-560.00	-217.00	1,959.34	1,957.14	2.19	892.980			

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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		Highside Toolface (°)	Distance		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	-122.35	-305.85	-482.95	571.65						
100.00	100.00	95.56	95.56	0.09	0.00	-122.32	-305.80	-483.37	571.99	571.90	0.09	6,247.512			
200.00	200.00	198.60	198.59	0.31	0.00	-122.29	-305.78	-483.93	572.44	572.13	0.31	1,838.593			
300.00	300.00	300.00	300.00	0.54	0.00	-122.25	-305.43	-483.99	572.31	571.78	0.54	1,067.638			
300.84	300.84	300.00	300.00	0.54	0.00	-122.25	-305.43	-483.99	572.31	571.77	0.54	1,063.909			
400.00	400.00	397.64	397.63	0.76	0.00	-122.26	-305.61	-484.22	572.60	571.84	0.76	752.509			
500.00	500.00	497.52	497.51	0.99	0.00	-122.25	-305.72	-484.55	572.94	571.95	0.99	581.269			
600.00	600.00	594.52	594.51	1.21	0.00	-122.22	-305.80	-485.19	573.54	572.33	1.21	473.699			
700.00	700.00	699.11	699.10	1.43	0.00	-122.19	-305.79	-485.82	574.05	572.61	1.44	400.002			
800.00	800.00	799.04	799.03	1.66	0.00	-122.18	-305.74	-485.94	574.12	572.46	1.66	345.881			
900.00	900.00	900.00	899.99	1.88	0.00	-122.17	-305.64	-485.98	574.11	572.22	1.88	304.624			
942.72	942.72	942.23	942.22	1.98	0.00	-122.16	-305.58	-486.00	574.08	572.10	1.98	289.846			
1,000.00	1,000.00	998.70	998.69	2.11	0.00	-122.15	-305.50	-486.10	574.13	572.02	2.11	272.174			
1,100.00	1,100.00	1,100.00	1,099.99	2.33	0.00	-122.12	-305.29	-486.22	574.12	571.79	2.33	245.965			
1,174.63	1,174.63	1,174.14	1,174.13	2.50	0.00	-122.11	-305.12	-486.27	574.07	571.57	2.50	229.451			
1,200.00	1,200.00	1,199.22	1,199.21	2.56	0.00	-122.10	-305.07	-486.31	574.07	571.52	2.56	224.341			
1,300.00	1,300.00	1,297.66	1,297.65	2.78	0.00	-122.08	-304.98	-486.58	574.26	571.48	2.78	206.293			
1,400.00	1,400.00	1,396.67	1,396.65	3.01	0.00	-122.06	-305.04	-487.02	574.67	571.66	3.01	191.017			
1,500.00	1,500.00	1,495.55	1,495.53	3.23	0.00	-122.04	-305.15	-487.64	575.26	572.03	3.23	177.922			
1,600.00	1,600.00	1,594.02	1,594.00	3.46	0.00	-121.99	-305.14	-488.60	576.08	572.63	3.46	166.596			
1,700.00	1,700.00	1,692.70	1,692.67	3.68	0.00	-121.90	-304.99	-489.94	577.15	573.47	3.68	156.721			
1,800.00	1,800.00	1,791.95	1,791.91	3.91	0.00	-121.79	-304.70	-491.58	578.41	574.50	3.91	148.029			
1,900.00	1,900.00	1,889.91	1,889.85	4.13	0.00	-121.67	-304.42	-493.46	579.89	575.75	4.13	140.340			
2,000.00	2,000.00	1,986.36	1,986.28	4.36	0.00	-121.55	-304.34	-495.72	581.84	577.49	4.36	133.560			
2,100.00	2,100.00	2,083.31	2,083.19	4.58	0.00	-121.42	-304.54	-498.49	584.38	579.80	4.58	127.575			
2,200.00	2,200.00	2,182.42	2,182.24	4.81	0.00	-121.28	-304.82	-501.68	587.28	582.47	4.81	122.218			
2,300.00	2,300.00	2,283.24	2,283.01	5.03	0.00	-121.12	-304.90	-505.03	590.16	585.13	5.03	117.330			
2,400.00	2,400.00	2,384.24	2,383.95	5.26	0.00	-120.93	-304.60	-508.40	592.87	587.62	5.26	112.826			
2,500.00	2,499.99	2,485.45	2,485.10	5.46	0.00	38.14	-304.04	-511.71	594.74	589.28	5.46	108.991			
2,600.00	2,599.93	2,589.84	2,589.44	5.63	0.00	38.61	-302.91	-514.90	594.16	588.53	5.63	105.574			
2,700.00	2,699.75	2,695.65	2,695.19	5.81	0.00	39.35	-300.66	-517.64	590.67	584.86	5.80	101.785			
2,800.00	2,799.37	2,794.38	2,793.84	5.99	0.00	40.30	-297.79	-520.09	584.78	578.80	5.98	97.757			
2,900.00	2,898.74	2,890.83	2,890.24	6.17	0.00	41.37	-295.48	-522.54	577.39	571.23	6.17	93.632			
3,000.00	2,998.00	2,987.06	2,986.41	6.37	0.00	42.43	-293.81	-525.19	569.95	563.60	6.36	89.675			
3,100.00	3,097.25	3,082.48	3,081.76	6.58	0.00	43.54	-291.99	-528.51	563.30	556.75	6.55	85.986			
3,200.00	3,196.50	3,177.53	3,176.70	6.79	0.00	44.72	-290.09	-532.58	557.58	550.83	6.75	82.576			
3,300.00	3,295.76	3,273.71	3,272.76	7.01	0.00	45.92	-288.49	-537.25	552.77	545.81	6.96	79.426			
3,400.00	3,395.01	3,377.27	3,376.19	7.23	0.00	47.20	-287.11	-542.15	548.25	541.07	7.18	76.410			
3,500.00	3,494.27	3,488.54	3,487.41	7.47	0.00	48.44	-286.44	-545.22	542.40	535.00	7.40	73.338			
3,600.00	3,593.52	3,588.31	3,587.18	7.70	0.00	49.41	-286.87	-546.14	535.37	527.75	7.62	70.262			
3,700.00	3,692.78	3,688.55	3,687.41	7.94	0.00	50.34	-287.86	-546.89	528.51	520.66	7.85	67.343			
3,800.00	3,792.03	3,798.69	3,797.51	8.19	0.00	51.21	-290.22	-546.10	520.77	512.69	8.08	64.472			
3,900.00	3,891.29	3,904.49	3,903.19	8.44	0.00	51.82	-294.10	-542.86	511.34	503.03	8.31	61.542			
4,000.00	3,990.54	4,005.68	4,004.21	8.69	0.00	52.34	-298.25	-538.80	501.18	492.63	8.55	58.649			
4,100.00	4,089.79	4,105.03	4,103.42	8.94	0.00	52.93	-301.78	-534.76	490.86	482.07	8.79	55.861			
4,200.00	4,189.05	4,200.00	4,198.30	9.20	0.00	53.63	-304.44	-531.62	481.12	472.08	9.04	53.238			
4,300.00	4,288.30	4,296.35	4,294.60	9.46	0.00	54.45	-306.60	-529.35	472.22	462.93	9.29	50.831			
4,400.00	4,387.56	4,394.92	4,393.14	9.73	0.00	55.39	-308.40	-527.51	463.81	454.27	9.55	48.589			
4,500.00	4,486.81	4,494.43	4,492.61	9.99	0.00	56.39	-310.08	-525.74	455.60	445.79	9.80	46.469			
4,600.00	4,586.07	4,593.32	4,591.47	10.26	0.00	57.42	-311.82	-523.99	447.55	437.48	10.07	44.456			
4,700.00	4,685.32	4,691.52	4,689.64	10.53	0.00	58.49	-313.40	-522.47	439.83	429.50	10.33	42.559			
4,800.00	4,784.58	4,791.10	4,789.21	10.80	0.00	59.67	-314.64	-521.11	432.40	421.79	10.60	40.774			

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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	4,883.83	4,890.64	4,888.74	11.07	0.00	60.92	-315.67	-519.71	425.09	414.21	10.88	39.075			
5,000.00	4,983.08	4,989.49	4,987.58	11.35	0.00	62.21	-316.62	-518.34	418.01	406.85	11.16	37.465			
5,100.00	5,082.34	5,088.74	5,086.81	11.62	0.00	63.57	-317.50	-517.06	411.22	399.78	11.44	35.950			
5,200.00	5,181.59	5,187.97	5,186.03	11.90	0.00	64.96	-318.37	-515.77	404.67	392.95	11.72	34.519			
5,300.00	5,280.85	5,287.33	5,285.37	12.18	0.00	66.42	-319.13	-514.49	398.38	386.37	12.01	33.168			
5,400.00	5,380.10	5,386.81	5,384.85	12.46	0.00	67.98	-319.56	-513.19	392.32	380.02	12.30	31.891			
5,500.00	5,479.36	5,486.17	5,484.20	12.74	0.00	69.60	-319.84	-511.83	386.51	373.92	12.60	30.685			
5,600.00	5,578.61	5,585.27	5,583.29	13.02	0.00	71.27	-320.10	-510.48	381.02	368.13	12.89	29.554			
5,700.00	5,677.87	5,684.54	5,682.54	13.30	0.00	72.98	-320.38	-509.14	375.88	362.69	13.19	28.496			
5,800.00	5,777.12	5,783.65	5,781.65	13.58	0.00	74.70	-320.80	-507.93	371.20	357.71	13.49	27.515			
5,900.00	5,876.37	5,883.51	5,881.51	13.87	0.00	76.46	-321.25	-506.97	367.12	353.33	13.79	26.619			
6,000.00	5,975.63	5,980.48	5,978.47	14.15	0.00	78.26	-321.68	-506.08	363.47	349.38	14.09	25.792			
6,100.00	6,074.88	6,079.17	6,077.16	14.44	0.00	80.07	-322.19	-505.32	360.31	345.91	14.39	25.033			
6,200.00	6,174.14	6,178.78	6,176.77	14.73	0.00	81.94	-322.68	-504.61	357.59	342.89	14.69	24.337			
6,300.00	6,273.39	6,278.77	6,276.75	15.01	0.00	83.86	-323.04	-503.70	355.09	340.09	14.99	23.685			
6,400.00	6,372.65	6,378.57	6,376.54	15.30	0.00	85.82	-323.39	-502.58	352.80	337.51	15.29	23.076			
6,500.00	6,471.90	6,477.80	6,475.76	15.59	0.00	87.79	-323.72	-501.38	350.85	335.26	15.58	22.514			
6,600.00	6,571.16	6,577.50	6,575.46	15.88	0.00	89.81	-324.02	-500.12	349.29	333.42	15.88	22.002			
6,700.00	6,670.41	6,676.51	6,674.46	16.17	0.00	91.81	-324.39	-498.81	348.09	331.92	16.16	21.535			
6,800.00	6,769.66	6,775.43	6,773.36	16.46	0.00	93.80	-324.89	-497.67	347.43	330.98	16.45	21.122			
6,900.00	6,868.92	6,874.88	6,872.81	16.75	0.00	95.79	-325.42	-496.58	347.23	330.50	16.73	20.756			
6,910.97	6,879.81	6,885.81	6,883.74	16.78	0.00	96.01	-325.48	-496.46	347.22	330.46	16.76	20.718 CC			
7,000.00	6,968.17	6,974.69	6,972.61	17.04	0.00	97.79	-326.03	-495.39	347.33	330.33	17.00	20.426 ES			
7,100.00	7,067.43	7,074.61	7,072.52	17.33	0.00	99.78	-326.76	-494.07	347.68	330.41	17.27	20.126			
7,200.00	7,166.68	7,173.42	7,171.32	17.62	0.00	101.72	-327.63	-492.77	348.38	330.84	17.54	19.861			
7,300.00	7,265.94	7,272.09	7,272.98	17.91	0.00	103.68	-328.69	-491.41	349.37	331.57	17.80	19.627			
7,400.00	7,365.23	7,373.81	7,371.66	18.19	0.00	105.51	-330.12	-489.74	350.15	332.10	18.04	19.408			
7,500.00	7,464.78	7,473.13	7,470.97	18.41	0.00	106.95	-331.53	-488.47	350.93	332.69	18.23	19.247			
7,600.00	7,564.54	7,573.37	7,571.07	18.61	0.24	108.41	-329.30	-486.06	352.60	333.95	18.65	18.908			
7,700.00	7,664.44	7,673.29	7,671.07	18.80	0.68	111.26	-315.73	-480.30	360.20	340.89	19.30	18.660			
7,800.00	7,764.43	7,773.34	7,771.07	18.98	1.05	114.74	-295.44	-472.81	375.62	355.64	19.98	18.799			
7,900.00	7,864.43	7,873.34	7,871.07	19.16	1.32	-40.96	-272.73	-466.35	401.44	381.00	20.44	19.636			
8,000.00	7,964.43	7,973.34	7,971.07	19.33	1.74	-38.24	-247.26	-463.49	439.72	419.05	20.67	21.269			
8,100.00	8,064.43	8,073.34	8,071.07	19.50	2.06	-36.64	-228.68	-463.39	488.86	468.28	20.58	23.758			
8,200.00	8,164.43	8,173.34	8,171.07	19.67	2.41	-34.99	-207.53	-463.74	546.97	526.58	20.40	26.818			
8,300.00	8,264.43	8,273.34	8,271.07	19.84	2.80	-33.34	-184.48	-464.00	612.13	591.92	20.22	30.279			
8,400.00	8,364.10	8,373.34	8,371.07	19.88	3.22	-27.79	-159.99	-464.43	678.76	658.90	19.86	34.174			
8,500.00	8,461.16	8,470.49	8,468.12	19.79	3.79	-23.57	-128.15	-465.51	738.38	718.73	19.65	37.573			
8,600.00	8,552.65	8,561.98	8,559.51	19.66	4.59	-20.60	-82.89	-467.71	788.98	769.34	19.64	40.177			
8,700.00	8,635.80	8,645.13	8,642.76	19.50	5.08	-18.82	-55.51	-469.14	830.20	810.81	19.39	42.814			
8,800.00	8,708.08	8,717.41	8,715.04	19.36	5.94	-17.60	-6.73	-472.18	861.27	841.79	19.48	44.221			
8,900.00	8,767.29	8,776.62	8,774.25	19.26	7.30	-17.49	71.96	-483.85	879.40	859.33	20.06	43.829			
9,000.00	8,811.64	8,820.97	8,818.60	19.22	8.04	-17.69	113.01	-489.86	884.35	864.08	20.26	43.641			
9,100.00	8,839.78	8,849.11	8,847.11	19.29	8.57	-18.06	142.92	-492.86	879.91	859.47	20.45	43.032			
9,200.00	8,850.84	8,860.17	8,858.17	19.51	9.12	-18.71	173.65	-494.76	866.14	845.33	20.80	41.634			
9,300.00	8,851.00	8,860.33	8,858.33	19.88	9.91	-19.04	217.64	-495.77	848.67	827.24	21.42	39.617			
9,400.00	8,851.00	8,860.33	8,858.33	20.41	10.53	-19.11	252.41	-495.77	838.28	816.22	22.06	37.992			
9,482.71	8,851.00	8,860.33	8,858.33	20.94	11.03	-19.08	280.37	-495.18	835.57	812.91	22.67	36.866			
9,500.00	8,851.00	8,860.33	8,858.33	21.05	11.13	-19.06	286.17	-495.03	835.69	812.90	22.79	36.665			
9,600.00	8,851.00	8,860.33	8,858.33	21.81	12.14	-18.88	342.86	-493.74	840.27	816.56	23.71	35.444			
9,700.00	8,851.00	8,860.33	8,858.33	22.66	13.65	-18.66	427.52	-493.29	847.74	822.91	24.83	34.141			
9,800.00	8,851.00	8,860.33	8,858.33	23.60	15.70	-18.48	555.06	-494.18	854.27	828.03	26.24	32.559			

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 #2

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		Highside Toolface (°)	Distance		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)							
9,900.00	8,851.00	8,817.00	8,036.97	24.61	17.75	-18.49	681.66	-496.62	857.98	830.24	27.74	30.928			
10,000.00	8,851.00	8,911.01	8,035.44	25.68	19.35	-18.58	775.62	-499.01	860.14	831.02	29.12	29.537			
10,100.00	8,851.00	9,012.73	8,033.32	26.82	21.07	-18.66	877.29	-501.73	862.77	832.19	30.59	28.208			
10,200.00	8,851.00	9,120.02	8,031.98	28.00	22.85	-18.73	984.54	-503.89	864.39	832.29	32.10	26.925			
10,300.00	8,851.00	9,218.49	8,030.46	29.22	24.55	-18.73	1,082.99	-505.07	866.04	832.46	33.59	25.786			
10,400.00	8,851.00	9,327.42	8,029.55	30.49	26.42	-18.82	1,191.89	-507.46	867.36	832.17	35.18	24.653			
10,500.00	8,851.00	9,433.81	8,028.73	31.79	28.22	-18.78	1,298.28	-507.75	868.00	831.27	36.73	23.631			
10,600.00	8,851.00	9,537.81	8,029.10	33.12	30.00	-18.75	1,402.28	-507.75	867.45	829.17	38.29	22.655			
10,700.00	8,851.00	9,637.17	8,028.75	34.47	31.70	-18.61	1,501.62	-506.16	867.08	827.29	39.79	21.793			
10,800.00	8,851.00	9,753.06	8,030.16	35.85	33.67	-18.35	1,617.43	-502.28	864.51	823.19	41.32	20.923			
10,900.00	8,851.00	9,859.99	8,031.03	37.25	35.49	-18.01	1,724.24	-497.33	862.12	819.35	42.76	20.160			
11,000.00	8,851.00	9,970.91	8,033.18	38.67	37.36	-17.62	1,834.97	-491.13	858.37	814.18	44.19	19.425			
11,100.00	8,851.00	10,073.21	8,036.45	40.11	39.10	-17.33	1,937.09	-486.17	853.67	808.04	45.63	18.709			
11,200.00	8,851.00	10,171.07	8,039.50	41.56	40.78	-17.04	2,034.78	-481.32	849.05	802.00	47.05	18.046			
11,300.00	8,851.00	10,257.51	8,041.24	43.02	42.26	-16.77	2,121.10	-477.18	845.54	797.11	48.44	17.457			
11,400.00	8,851.00	10,341.00	8,041.26	44.50	43.70	-16.49	2,204.50	-473.30	843.97	794.19	49.79	16.952			
11,406.93	8,851.00	10,341.00	8,041.26	44.60	43.70	-16.49	2,204.50	-473.30	843.95	794.08	49.86	16.926			
11,500.00	8,851.00	10,434.65	8,039.96	45.99	45.31	-16.18	2,298.06	-469.54	843.98	792.82	51.16	16.498			
11,539.75	8,851.00	10,474.23	8,039.53	46.58	45.99	-16.07	2,337.62	-468.21	843.96	792.24	51.72	16.318			
11,600.00	8,851.00	10,528.58	8,038.76	47.48	46.92	-15.93	2,391.95	-466.56	844.17	791.61	52.55	16.063			
11,700.00	8,851.00	10,632.98	8,037.05	48.99	48.71	-15.67	2,496.29	-463.75	844.85	790.86	54.00	15.646			
11,800.00	8,851.00	10,743.23	8,036.79	50.51	50.60	-15.46	2,606.51	-461.34	844.32	788.83	55.49	15.216			
11,900.00	8,851.00	10,842.55	8,037.49	52.03	52.33	-15.37	2,705.82	-460.37	843.22	786.21	57.01	14.790			
12,000.00	8,851.00	10,937.94	8,037.71	53.56	53.98	-15.29	2,801.21	-459.64	842.64	784.11	58.52	14.398			
12,100.00	8,851.00	11,041.32	8,038.04	55.09	55.77	-15.24	2,904.59	-459.30	842.09	782.00	60.09	14.014			
12,200.00	8,851.00	11,150.01	8,039.44	56.64	57.64	-15.23	3,013.27	-459.49	840.72	779.02	61.70	13.625			
12,300.00	8,851.00	11,235.98	8,040.72	58.18	59.14	-15.30	3,099.21	-460.79	839.55	776.25	63.30	13.262			
12,318.50	8,851.00	11,253.19	8,040.83	58.47	59.44	-15.33	3,116.42	-461.24	839.54	775.92	63.61	13.197			
12,400.00	8,851.00	11,331.92	8,041.16	59.74	60.79	-15.46	3,195.11	-463.69	839.75	774.74	65.01	12.917			
12,500.00	8,851.00	11,429.49	8,041.43	61.29	62.47	-15.63	3,292.64	-466.67	840.14	773.41	66.73	12.589			
12,600.00	8,851.00	11,520.10	8,040.77	62.85	64.04	-15.77	3,383.20	-469.61	841.53	773.11	68.42	12.299			
12,700.00	8,851.00	11,619.54	8,039.47	64.42	65.75	-15.86	3,482.60	-471.95	843.27	773.15	70.11	12.027			
12,800.00	8,851.00	11,728.17	8,038.23	65.99	67.64	-16.02	3,591.16	-475.48	845.14	773.22	71.92	11.751			
12,900.00	8,851.00	11,826.09	8,038.19	67.56	69.33	-16.20	3,689.03	-478.73	845.94	772.24	73.69	11.479			
13,000.00	8,851.00	11,923.02	8,037.91	69.13	70.99	-16.36	3,785.90	-481.96	846.98	771.51	75.47	11.223			
13,100.00	8,851.00	12,025.89	8,037.74	70.71	72.79	-16.63	3,886.67	-486.68	848.27	770.89	77.35	10.962			
13,200.00	8,851.00	12,125.00	8,038.37	72.29	74.53	-17.01	3,987.57	-492.99	849.33	769.91	79.42	10.694			
13,300.00	8,851.00	12,222.96	8,039.25	73.88	76.26	-17.48	4,085.23	-500.64	850.61	769.03	81.58	10.427			
13,400.00	8,851.00	12,319.90	8,039.95	75.46	77.96	-17.98	4,181.82	-508.77	852.30	768.51	83.79	10.172			
13,500.00	8,851.00	12,400.00	8,040.00	77.05	79.37	-18.42	4,261.59	-515.99	854.48	768.60	85.89	9.949 SF			
13,600.00	8,851.00	12,400.00	8,040.51	78.64	79.37	-18.42	4,261.59	-515.99	854.49	778.05	86.44	10.001			
13,700.00	8,851.00	12,400.00	8,040.51	80.23	79.37	-18.42	4,261.59	-515.99	885.75	799.75	86.00	10.299			
13,800.00	8,851.00	12,400.00	8,040.51	81.83	79.37	-18.42	4,261.59	-515.99	917.47	832.75	84.72	10.830			
13,900.00	8,851.00	12,400.00	8,040.51	83.42	79.37	-18.42	4,261.59	-515.99	958.62	875.82	82.80	11.578			
14,000.00	8,851.00	12,400.00	8,040.51	85.02	79.37	-18.42	4,261.59	-515.99	1,008.05	927.58	80.47	12.528			
14,100.00	8,851.00	12,400.00	8,040.51	86.62	79.37	-18.42	4,261.59	-515.99	1,064.60	986.69	77.91	13.665			
14,200.00	8,851.00	12,400.00	8,040.51	88.22	79.37	-18.42	4,261.59	-515.99	1,127.19	1,051.92	75.27	14.975			
14,300.00	8,851.00	12,400.00	8,040.51	89.82	79.37	-18.42	4,261.59	-515.99	1,194.89	1,122.23	72.66	16.444			
14,400.00	8,851.00	12,400.00	8,040.51	91.42	79.37	-18.42	4,261.59	-515.99	1,266.88	1,196.72	70.15	18.058			
14,500.00	8,851.00	12,400.00	8,040.51	93.03	79.37	-18.42	4,261.59	-515.99	1,342.45	1,274.67	67.78	19.805			
14,600.00	8,851.00	12,400.00	8,040.51	94.64	79.37	-18.42	4,261.59	-515.99	1,421.05	1,355.48	65.57	21.673			
14,700.00	8,851.00	12,400.00	8,040.51	96.24	79.37	-18.42	4,261.59	-515.99	1,502.19	1,438.68	63.52	23.650			

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

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
14,800.00	8,851.00	12,400.00	8,040.51	97.85	79.37	-18.42	4,261.59	-515.99	1,585.49	1,523.86	61.63	25.726	
14,900.00	8,851.00	12,400.00	8,040.51	99.46	79.37	-18.42	4,261.59	-515.99	1,670.63	1,610.73	59.90	27.891	
15,000.00	8,851.00	12,400.00	8,040.51	101.07	79.37	-18.42	4,261.59	-515.99	1,757.33	1,699.02	58.31	30.138	
15,100.00	8,851.00	12,400.00	8,040.51	102.68	79.37	-18.42	4,261.59	-515.99	1,845.37	1,788.52	56.86	32.457	
15,200.00	8,851.00	12,400.00	8,040.51	104.29	79.37	-18.42	4,261.59	-515.99	1,934.58	1,879.06	55.53	34.841	

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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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)					
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	0.09	0.00	-88.93	21.07	-1,133.18	1,133.41	1,133.32	0.09	N/A			
200.00	200.00	191.86	191.86	0.31	0.00	-88.94	20.97	-1,133.95	1,134.17	1,133.86	0.31	3,628.335			
300.00	300.00	289.90	289.89	0.54	0.00	-88.95	20.78	-1,134.69	1,134.92	1,134.38	0.54	2,112.735			
400.00	400.00	381.84	381.83	0.76	0.00	-88.96	20.71	-1,135.77	1,136.09	1,135.33	0.76	1,488.309			
500.00	500.00	474.75	474.72	0.99	0.00	-88.95	20.88	-1,137.51	1,137.97	1,136.99	0.99	1,150.463			
600.00	600.00	573.12	573.06	1.21	0.00	-88.93	21.19	-1,139.78	1,140.28	1,139.07	1.21	939.762			
700.00	700.00	675.25	675.16	1.43	0.00	-88.92	21.51	-1,142.07	1,142.53	1,141.09	1.44	795.042			
800.00	800.00	778.01	777.91	1.66	0.00	-88.90	21.99	-1,144.12	1,144.54	1,142.88	1.66	689.041			
900.00	900.00	880.01	879.89	1.88	0.00	-88.87	22.53	-1,145.94	1,146.33	1,144.44	1.89	608.007			
1,000.00	1,000.00	981.64	981.51	2.11	0.00	-88.85	23.02	-1,147.59	1,147.97	1,145.86	2.11	544.091			
1,100.00	1,100.00	1,082.90	1,082.75	2.33	0.00	-88.83	23.50	-1,149.11	1,149.48	1,147.14	2.33	492.393			
1,200.00	1,200.00	1,183.34	1,183.17	2.56	0.00	-88.80	24.09	-1,150.54	1,150.91	1,148.35	2.56	449.726			
1,300.00	1,300.00	1,284.18	1,284.00	2.78	0.00	-88.78	24.59	-1,151.93	1,152.29	1,149.51	2.78	413.927			
1,400.00	1,400.00	1,384.21	1,384.03	3.01	0.00	-88.76	25.01	-1,153.26	1,153.63	1,150.62	3.01	383.456			
1,500.00	1,500.00	1,483.27	1,483.08	3.23	0.00	-88.74	25.37	-1,154.61	1,155.01	1,151.77	3.23	357.231			
1,600.00	1,600.00	1,585.11	1,584.91	3.46	0.00	-88.73	25.69	-1,155.99	1,156.37	1,152.91	3.46	334.409			
1,700.00	1,700.00	1,684.88	1,684.67	3.68	0.00	-88.72	25.83	-1,157.24	1,157.62	1,153.94	3.68	314.344			
1,800.00	1,800.00	1,784.75	1,784.53	3.91	0.00	-88.72	25.90	-1,158.53	1,158.91	1,155.01	3.91	296.595			
1,900.00	1,900.00	1,884.40	1,884.17	4.13	0.00	-88.72	25.93	-1,159.83	1,160.22	1,156.09	4.13	280.781			
2,000.00	2,000.00	1,984.82	1,984.58	4.36	0.00	-88.72	26.03	-1,161.14	1,161.53	1,157.17	4.36	266.597			
2,100.00	2,100.00	2,084.77	2,084.53	4.58	0.00	-88.71	26.16	-1,162.42	1,162.81	1,156.23	4.58	253.800			
2,200.00	2,200.00	2,184.21	2,183.96	4.81	0.00	-88.71	26.14	-1,163.72	1,164.12	1,155.31	4.81	242.206			
2,300.00	2,300.00	2,282.09	2,281.83	5.03	0.00	-88.71	26.17	-1,165.10	1,165.53	1,160.50	5.03	231.673			
2,400.00	2,400.00	2,379.58	2,379.30	5.26	0.00	-88.72	26.17	-1,166.69	1,167.15	1,161.90	5.26	222.081			
2,500.00	2,499.99	2,476.43	2,476.13	5.46	0.00	70.12	26.19	-1,168.49	1,168.73	1,163.27	5.46	214.168			
2,600.00	2,599.93	2,578.04	2,577.73	5.63	0.00	70.28	26.39	-1,170.49	1,169.56	1,163.93	5.63	207.843			
2,700.00	2,699.75	2,671.32	2,670.99	5.81	0.00	70.54	26.54	-1,172.39	1,169.58	1,163.78	5.80	201.634			
2,800.00	2,799.37	2,761.73	2,761.37	5.99	0.00	70.91	26.72	-1,174.93	1,169.55	1,163.57	5.98	195.608			
2,872.86	2,871.81	2,827.50	2,827.09	6.12	0.00	71.23	26.79	-1,177.23	1,169.55	1,163.44	6.11	191.274			
2,900.00	2,898.74	2,851.97	2,851.54	6.17	0.00	71.37	26.81	-1,178.18	1,169.52	1,163.36	6.16	189.705			
3,000.00	2,998.00	2,947.39	2,946.88	6.37	0.00	71.91	26.83	-1,182.27	1,169.97	1,163.61	6.36	183.945			
3,100.00	3,097.25	3,049.01	3,048.40	6.58	0.00	72.47	26.88	-1,186.58	1,170.48	1,163.91	6.56	178.293			
3,200.00	3,196.50	3,157.41	3,156.72	6.79	0.00	73.08	26.94	-1,190.78	1,170.75	1,163.97	6.78	172.734			
3,300.00	3,295.76	3,276.80	3,276.07	7.01	0.00	73.76	27.18	-1,193.82	1,169.83	1,162.83	7.00	167.169			
3,400.00	3,395.01	3,398.25	3,397.52	7.23	0.00	74.46	27.25	-1,194.65	1,167.16	1,159.94	7.22	161.609			
3,500.00	3,494.27	3,498.69	3,497.95	7.47	0.00	75.04	27.18	-1,194.34	1,163.61	1,156.16	7.45	156.157			
3,600.00	3,593.52	3,611.23	3,610.49	7.70	0.00	75.70	27.19	-1,193.28	1,159.57	1,151.89	7.68	150.888			
3,700.00	3,692.78	3,722.06	3,721.30	7.94	0.00	76.35	26.98	-1,191.06	1,154.59	1,146.67	7.92	145.738			
3,800.00	3,792.03	3,830.29	3,829.48	8.19	0.00	76.98	26.27	-1,187.89	1,148.74	1,140.57	8.16	140.711			
3,900.00	3,891.29	3,929.83	3,928.96	8.44	0.00	77.55	25.27	-1,184.65	1,142.65	1,134.24	8.41	135.849			
4,000.00	3,990.54	4,024.85	4,023.93	8.69	0.00	78.09	24.33	-1,181.70	1,136.82	1,128.16	8.66	131.218			
4,100.00	4,089.79	4,115.19	4,114.24	8.94	0.00	78.61	23.49	-1,179.46	1,131.73	1,122.81	8.92	126.868			
4,200.00	4,189.05	4,205.26	4,204.29	9.20	0.00	79.14	22.84	-1,177.94	1,127.56	1,118.38	9.18	122.824			
4,300.00	4,288.30	4,301.94	4,300.96	9.46	0.00	79.72	22.38	-1,176.77	1,124.02	1,114.58	9.44	119.049			
4,400.00	4,387.56	4,400.00	4,399.02	9.73	0.00	80.31	21.99	-1,175.75	1,120.79	1,111.09	9.71	115.479			
4,500.00	4,486.81	4,497.18	4,496.19	9.99	0.00	80.90	21.64	-1,174.89	1,117.84	1,107.86	9.97	112.097			
4,600.00	4,586.07	4,593.71	4,592.73	10.26	0.00	81.49	21.40	-1,174.18	1,115.19	1,104.95	10.24	108.896			
4,700.00	4,685.32	4,689.41	4,688.42	10.53	0.00	82.09	21.33	-1,173.72	1,112.95	1,102.43	10.51	105.875			
4,800.00	4,784.58	4,790.70	4,789.71	10.80	0.00	82.73	21.38	-1,173.31	1,110.93	1,100.15	10.78	103.015			
4,900.00	4,883.83	4,889.93	4,888.94	11.07	0.00	83.36	21.39	-1,172.77	1,108.92	1,097.87	11.06	100.278			
5,000.00	4,983.08	4,986.42	4,985.43	11.35	0.00	83.97	21.43	-1,172.37	1,107.17	1,095.84	11.33	97.681			

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 #2

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		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)							
5,100.00	5,082.34	5,085.03	5,084.04	11.62	0.00	84.59	21.44	-1,172.15	1,105.74	1,094.12	11.61	95.223			
5,200.00	5,181.59	5,183.62	5,182.63	11.90	0.00	85.21	21.47	-1,171.97	1,104.47	1,092.58	11.89	92.885			
5,300.00	5,280.85	5,283.32	5,282.32	12.18	0.00	85.85	21.49	-1,171.80	1,103.36	1,091.19	12.17	90.658			
5,400.00	5,380.10	5,381.92	5,380.92	12.46	0.00	86.47	21.47	-1,171.65	1,102.38	1,089.93	12.45	88.534			
5,500.00	5,479.36	5,481.26	5,480.27	12.74	0.00	87.10	21.40	-1,171.55	1,101.57	1,088.84	12.73	86.510			
5,600.00	5,578.61	5,579.24	5,578.24	13.02	0.00	87.71	21.28	-1,171.50	1,100.93	1,087.92	13.02	84.582			
5,700.00	5,677.87	5,677.76	5,676.76	13.30	0.00	88.34	21.24	-1,171.55	1,100.54	1,087.24	13.30	82.749			
5,800.00	5,777.12	5,776.43	5,775.44	13.58	0.00	88.96	21.25	-1,171.63	1,100.33	1,086.75	13.58	81.003			
5,900.00	5,876.37	5,876.40	5,875.41	13.87	0.00	89.60	21.29	-1,171.71	1,100.27	1,086.40	13.87	79.335			
5,941.53	5,917.59	5,917.76	5,916.76	13.99	0.00	89.86	21.32	-1,171.71	1,100.26	1,086.27	13.99	78.663			
6,000.00	5,975.63	5,975.39	5,974.40	14.15	0.00	90.23	21.36	-1,171.72	1,100.29	1,086.14	14.15	77.738			
6,100.00	6,074.88	6,072.79	6,071.79	14.44	0.00	90.85	21.42	-1,171.84	1,100.54	1,086.10	14.44	76.219			
6,200.00	6,174.14	6,173.71	6,172.72	14.73	0.00	91.48	21.47	-1,172.05	1,101.00	1,086.28	14.73	74.770			
6,300.00	6,273.39	6,273.59	6,272.60	15.01	0.00	92.12	21.45	-1,172.09	1,101.41	1,086.40	15.01	73.373			
6,400.00	6,372.65	6,371.26	6,370.27	15.30	0.00	92.73	21.42	-1,172.19	1,102.02	1,086.72	15.30	72.039			
6,500.00	6,471.90	6,471.91	6,470.92	15.59	0.00	93.36	21.40	-1,172.36	1,102.82	1,087.24	15.58	70.768			
6,600.00	6,571.16	6,573.16	6,572.17	15.88	0.00	93.99	21.24	-1,172.38	1,103.55	1,087.68	15.87	69.537			
6,700.00	6,670.41	6,671.81	6,670.82	16.17	0.00	94.60	20.94	-1,172.37	1,104.34	1,088.18	16.16	68.353			
6,800.00	6,769.66	6,769.80	6,768.80	16.46	0.00	95.21	20.69	-1,172.47	1,105.36	1,088.92	16.44	67.226			
6,900.00	6,868.92	6,868.56	6,867.56	16.75	0.00	95.81	20.48	-1,172.64	1,106.61	1,089.88	16.73	66.151			
7,000.00	6,968.17	6,967.51	6,966.52	17.04	0.00	96.42	20.28	-1,172.84	1,108.01	1,090.99	17.01	65.121			
7,100.00	7,067.43	7,067.40	7,066.41	17.33	0.00	97.04	20.16	-1,173.01	1,109.54	1,092.24	17.30	64.135			
7,200.00	7,166.68	7,168.14	7,167.14	17.62	0.00	97.66	20.02	-1,173.07	1,111.09	1,093.51	17.59	63.183			
7,300.00	7,265.94	7,268.98	7,267.99	17.91	0.00	98.27	19.66	-1,173.09	1,112.63	1,094.76	17.87	62.261			
7,400.00	7,365.23	7,367.32	7,366.32	18.19	0.00	98.85	19.16	-1,173.13	1,114.18	1,096.04	18.14	61.429			
7,500.00	7,464.78	7,466.37	7,465.37	18.41	0.00	99.32	18.62	-1,173.33	1,115.59	1,097.24	18.35	60.789			
7,600.00	7,564.54	7,565.60	7,564.60	18.61	0.00	99.65	18.10	-1,173.54	1,116.64	1,098.09	18.55	60.184			
7,700.00	7,664.44	7,665.19	7,664.18	18.80	0.00	99.84	17.44	-1,173.91	1,117.34	1,098.60	18.74	59.614			
7,800.00	7,764.43	7,764.33	7,763.32	18.98	0.00	99.88	16.69	-1,174.36	1,117.63	1,098.71	18.92	59.074			
7,900.00	7,864.43	7,865.31	7,864.30	19.16	0.00	-58.98	15.91	-1,174.89	1,117.68	1,098.58	19.10	58.521			
8,000.00	7,964.43	7,966.13	7,965.11	19.33	0.00	-59.03	15.10	-1,175.26	1,117.59	1,098.32	19.27	57.994			
8,100.00	8,064.43	8,065.69	8,064.67	19.50	0.00	-59.07	14.31	-1,175.63	1,117.50	1,098.05	19.44	57.474			
8,145.67	8,110.09	8,110.62	8,109.59	19.58	0.00	-59.10	13.94	-1,175.83	1,117.48	1,097.95	19.52	57.239			
8,200.00	8,164.43	8,162.54	8,161.52	19.67	0.00	-59.12	13.53	-1,176.14	1,117.53	1,097.92	19.62	56.967			
8,300.00	8,264.43	8,260.31	8,259.28	19.84	0.00	-59.18	12.81	-1,176.97	1,117.89	1,098.10	19.79	56.482			
8,400.00	8,364.10	8,358.83	8,357.79	19.88	0.00	-59.42	12.05	-1,177.95	1,115.00	1,095.17	19.83	56.231			
8,500.00	8,461.16	8,452.34	8,451.29	19.79	0.00	-61.46	11.29	-1,179.08	1,103.76	1,084.00	19.76	55.861			
8,600.00	8,552.65	8,540.76	8,539.70	19.66	0.00	-64.86	10.68	-1,180.46	1,085.44	1,065.79	19.64	55.253			
8,700.00	8,635.80	8,622.69	8,621.62	19.50	0.00	-69.45	10.03	-1,181.88	1,061.79	1,042.29	19.50	54.451			
8,800.00	8,708.08	8,693.28	8,692.19	19.36	0.00	-74.70	9.50	-1,183.17	1,035.47	1,016.12	19.35	53.524			
8,900.00	8,767.29	8,753.68	8,752.57	19.26	0.00	-80.09	9.05	-1,184.26	1,009.54	990.32	19.22	52.524			
9,000.00	8,811.64	8,798.85	8,797.74	19.22	0.00	-84.72	8.69	-1,185.00	987.28	968.11	19.17	51.502			
9,100.00	8,839.78	8,825.68	8,824.57	19.29	0.00	-87.81	8.47	-1,185.42	971.81	952.57	19.24	50.504			
9,200.00	8,850.84	8,835.73	8,834.62	19.51	0.00	-89.05	8.39	-1,185.59	965.36	945.90	19.47	49.588			
9,214.60	8,851.16	8,835.94	8,834.82	19.56	0.00	-89.06	8.39	-1,185.59	965.25	945.73	19.52	49.446 CC, ES			
9,300.00	8,851.00	8,835.11	8,834.00	19.88	0.00	-89.02	8.40	-1,185.58	968.99	949.15	19.84	48.843			
9,400.00	8,851.00	8,834.33	8,833.22	20.41	0.00	-88.97	8.40	-1,185.56	982.83	962.51	20.32	48.358			
9,500.00	8,851.00	8,833.55	8,832.44	21.05	0.00	-88.93	8.41	-1,185.55	1,006.47	985.59	20.88	48.206 SF			
9,600.00	8,851.00	8,832.77	8,831.66	21.81	0.00	-88.88	8.42	-1,185.54	1,039.22	1,017.77	21.46	48.431			
9,700.00	8,851.00	8,831.99	8,830.87	22.66	0.00	-88.83	8.42	-1,185.53	1,080.28	1,058.25	22.03	49.046			
9,800.00	8,851.00	8,831.20	8,830.09	23.60	0.00	-88.79	8.43	-1,185.51	1,128.72	1,106.16	22.56	50.037			
9,900.00	8,851.00	8,830.42	8,829.31	24.61	0.00	-88.74	8.44	-1,185.50	1,183.64	1,160.61	23.04	51.375			

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
10,000.00	8,851.00	8,829.63	8,828.52	25.68	0.00	-88.70	8.44	-1,185.49	1,244.20	1,220.73	23.47	53.020	
10,100.00	8,851.00	8,828.85	8,827.73	26.82	0.00	-88.65	8.45	-1,185.47	1,309.59	1,285.75	23.84	54.934	
10,200.00	8,851.00	8,828.06	8,826.95	28.00	0.00	-88.60	8.46	-1,185.46	1,379.14	1,354.98	24.16	57.080	
10,300.00	8,851.00	8,827.27	8,826.16	29.22	0.00	-88.55	8.46	-1,185.45	1,452.25	1,427.81	24.44	59.423	
10,400.00	8,851.00	8,826.48	8,825.37	30.49	0.00	-88.51	8.47	-1,185.44	1,528.41	1,503.73	24.68	61.934	
10,500.00	8,851.00	8,825.70	8,824.58	31.79	0.00	-88.46	8.47	-1,185.42	1,607.18	1,582.30	24.88	64.587	
10,600.00	8,851.00	8,824.90	8,823.79	33.12	0.00	-88.41	8.48	-1,185.41	1,688.20	1,663.14	25.06	67.361	
10,700.00	8,851.00	8,824.11	8,823.00	34.47	0.00	-88.37	8.49	-1,185.40	1,771.17	1,745.95	25.22	70.237	
10,800.00	8,851.00	8,823.32	8,822.21	35.85	0.00	-88.32	8.49	-1,185.39	1,855.81	1,830.46	25.35	73.201	
10,900.00	8,851.00	8,822.53	8,821.42	37.25	0.00	-88.27	8.50	-1,185.37	1,941.91	1,916.44	25.47	76.237	

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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		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	0.09	0.00	-88.93	21.07	-1,133.18	1,133.41	1,133.32	0.09	N/A		
200.00	200.00	191.86	191.86	0.31	0.00	-88.94	20.97	-1,133.95	1,134.17	1,133.86	0.31	3,628.335		
300.00	300.00	289.90	289.89	0.54	0.00	-88.95	20.78	-1,134.69	1,134.92	1,134.38	0.54	2,112.735		
400.00	400.00	381.84	381.83	0.76	0.00	-88.96	20.71	-1,135.77	1,136.09	1,135.33	0.76	1,488.309		
500.00	500.00	474.75	474.72	0.99	0.00	-88.95	20.88	-1,137.51	1,137.97	1,136.99	0.99	1,150.463		
600.00	600.00	573.12	573.06	1.21	0.00	-88.93	21.19	-1,139.78	1,140.28	1,139.07	1.21	939.762		
700.00	700.00	675.25	675.16	1.43	0.00	-88.92	21.51	-1,142.07	1,142.53	1,141.09	1.44	795.042		
800.00	800.00	778.01	777.91	1.66	0.00	-88.90	22.99	-1,144.12	1,144.54	1,142.88	1.66	689.041		
900.00	900.00	880.01	879.89	1.88	0.00	-88.87	22.53	-1,145.94	1,146.33	1,144.44	1.89	608.007		
1,000.00	1,000.00	981.64	981.51	2.11	0.00	-88.85	23.02	-1,147.59	1,147.97	1,145.86	2.11	544.091		
1,100.00	1,100.00	1,082.90	1,082.75	2.33	0.00	-88.83	23.50	-1,149.11	1,149.48	1,147.14	2.33	492.393		
1,200.00	1,200.00	1,183.34	1,183.17	2.56	0.00	-88.80	24.09	-1,150.54	1,150.91	1,148.35	2.56	449.726		
1,300.00	1,300.00	1,284.18	1,284.00	2.78	0.00	-88.78	24.59	-1,151.93	1,152.29	1,149.51	2.78	413.927		
1,400.00	1,400.00	1,384.21	1,384.03	3.01	0.00	-88.76	25.01	-1,153.26	1,153.63	1,150.62	3.01	383.456		
1,500.00	1,500.00	1,483.27	1,483.08	3.23	0.00	-88.74	25.37	-1,154.61	1,155.01	1,151.77	3.23	357.231		
1,600.00	1,600.00	1,585.11	1,584.91	3.46	0.00	-88.73	25.69	-1,155.99	1,156.37	1,152.91	3.46	334.409		
1,700.00	1,700.00	1,684.88	1,684.67	3.68	0.00	-88.72	25.83	-1,157.24	1,157.62	1,153.94	3.68	314.344		
1,800.00	1,800.00	1,784.75	1,784.53	3.91	0.00	-88.72	25.90	-1,158.53	1,158.91	1,155.01	3.91	296.595		
1,900.00	1,900.00	1,884.40	1,884.17	4.13	0.00	-88.72	25.93	-1,159.83	1,160.22	1,156.09	4.13	280.781		
2,000.00	2,000.00	1,984.82	1,984.58	4.36	0.00	-88.72	26.03	-1,161.14	1,161.53	1,157.17	4.36	266.597		
2,100.00	2,100.00	2,084.77	2,084.53	4.58	0.00	-88.71	26.16	-1,162.42	1,162.81	1,158.23	4.58	253.800		
2,200.00	2,200.00	2,184.21	2,183.96	4.81	0.00	-88.71	26.14	-1,163.72	1,164.12	1,159.31	4.81	242.206		
2,300.00	2,300.00	2,282.09	2,281.83	5.03	0.00	-88.71	26.17	-1,165.10	1,165.53	1,160.50	5.03	231.673		
2,400.00	2,400.00	2,379.58	2,379.30	5.26	0.00	-88.72	26.17	-1,166.69	1,167.15	1,161.90	5.26	222.081		
2,500.00	2,499.99	2,476.43	2,476.13	5.46	0.00	70.12	26.19	-1,168.49	1,168.73	1,163.27	5.46	214.168		
2,600.00	2,599.93	2,578.04	2,577.73	5.63	0.00	70.26	26.39	-1,170.49	1,169.56	1,163.93	5.63	207.843		
2,700.00	2,699.75	2,671.32	2,670.99	5.81	0.00	70.54	26.54	-1,172.39	1,169.58	1,163.78	5.80	201.634		
2,800.00	2,799.37	2,761.73	2,761.37	5.99	0.00	70.91	26.72	-1,174.93	1,169.55	1,163.57	5.98	195.608		
2,872.86	2,871.81	2,827.50	2,827.09	6.12	0.00	71.23	26.79	-1,177.23	1,169.55	1,163.44	6.11	191.274		
2,900.00	2,898.74	2,851.97	2,851.54	6.17	0.00	71.37	26.81	-1,178.18	1,169.52	1,163.36	6.16	189.705		
3,000.00	2,998.00	2,947.39	2,946.88	6.37	0.00	71.91	26.83	-1,182.27	1,169.97	1,163.61	6.36	183.945		
3,100.00	3,097.25	3,049.01	3,048.40	6.58	0.00	72.47	26.88	-1,186.58	1,170.48	1,163.91	6.56	178.293		
3,200.00	3,196.50	3,157.41	3,156.72	6.79	0.00	73.08	26.94	-1,190.78	1,170.75	1,163.97	6.78	172.734		
3,300.00	3,295.76	3,276.80	3,276.07	7.01	0.00	73.76	27.18	-1,193.82	1,169.83	1,162.83	7.00	167.169		
3,400.00	3,395.01	3,398.25	3,397.52	7.23	0.00	74.46	27.25	-1,194.65	1,167.16	1,159.94	7.22	161.609		
3,500.00	3,494.27	3,498.69	3,497.95	7.47	0.00	75.04	27.18	-1,194.34	1,163.61	1,156.16	7.45	156.157		
3,600.00	3,593.52	3,611.23	3,610.49	7.70	0.00	75.70	27.19	-1,193.28	1,159.57	1,151.89	7.68	150.888		
3,700.00	3,692.78	3,722.06	3,721.30	7.94	0.00	76.35	26.98	-1,191.06	1,154.59	1,146.67	7.92	145.738		
3,800.00	3,792.03	3,830.29	3,829.48	8.19	0.00	76.98	26.27	-1,187.89	1,148.74	1,140.57	8.16	140.711		
3,900.00	3,891.29	3,929.83	3,928.96	8.44	0.00	77.55	25.27	-1,184.65	1,142.65	1,134.24	8.41	135.849		
4,000.00	3,990.54	4,024.85	4,023.93	8.69	0.00	78.09	24.33	-1,181.70	1,136.82	1,128.16	8.66	131.218		
4,100.00	4,089.79	4,115.19	4,114.24	8.94	0.00	78.61	23.49	-1,179.46	1,131.73	1,122.81	8.92	126.868		
4,200.00	4,189.05	4,205.26	4,204.29	9.20	0.00	79.14	22.84	-1,177.94	1,127.56	1,118.38	9.18	122.824		
4,300.00	4,288.30	4,301.94	4,300.96	9.46	0.00	79.72	22.38	-1,176.77	1,124.02	1,114.58	9.44	119.049		
4,400.00	4,387.56	4,400.00	4,399.02	9.73	0.00	80.31	21.99	-1,175.75	1,120.79	1,111.09	9.71	115.479		
4,500.00	4,486.81	4,497.18	4,496.19	9.99	0.00	80.90	21.64	-1,174.89	1,117.84	1,107.86	9.97	112.097		
4,600.00	4,586.07	4,593.71	4,592.73	10.26	0.00	81.49	21.40	-1,174.18	1,115.19	1,104.95	10.24	108.896		
4,700.00	4,685.32	4,689.41	4,688.42	10.53	0.00	82.09	21.33	-1,173.72	1,112.95	1,102.43	10.51	105.875		
4,800.00	4,784.58	4,790.70	4,789.71	10.80	0.00	82.73	21.38	-1,173.31	1,110.93	1,100.15	10.78	103.015		
4,900.00	4,883.83	4,889.93	4,888.94	11.07	0.00	83.36	21.39	-1,172.77	1,108.92	1,097.87	11.06	100.278		
5,000.00	4,983.08	4,986.42	4,985.43	11.35	0.00	83.97	21.43	-1,172.37	1,107.17	1,095.84	11.33	97.681		

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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
5,100.00	5,082.34	5,085.03	5,084.04	11.62	0.00	84.59	21.44	-1,172.15	1,105.74	1,094.12	11.61	95.223	
5,200.00	5,181.59	5,183.62	5,182.63	11.90	0.00	85.21	21.47	-1,171.97	1,104.47	1,092.58	11.89	92.885	
5,300.00	5,280.85	5,283.32	5,282.32	12.18	0.00	85.85	21.49	-1,171.80	1,103.36	1,091.19	12.17	90.658	
5,400.00	5,380.10	5,381.92	5,380.92	12.46	0.00	86.47	21.47	-1,171.65	1,102.38	1,089.93	12.45	88.534	
5,500.00	5,479.36	5,481.26	5,480.27	12.74	0.00	87.10	21.40	-1,171.55	1,101.57	1,088.84	12.73	86.510	
5,600.00	5,578.61	5,579.24	5,578.24	13.02	0.00	87.71	21.28	-1,171.50	1,100.93	1,087.92	13.02	84.582	
5,700.00	5,677.87	5,677.76	5,676.76	13.30	0.00	88.34	21.24	-1,171.55	1,100.54	1,087.24	13.30	82.749	
5,800.00	5,777.12	5,776.43	5,775.44	13.58	0.00	88.96	21.25	-1,171.63	1,100.33	1,086.75	13.58	81.003	
5,900.00	5,876.37	5,876.40	5,875.41	13.87	0.00	89.60	21.29	-1,171.71	1,100.27	1,086.40	13.87	79.335	
5,941.53	5,917.59	5,917.76	5,916.76	13.99	0.00	89.86	21.32	-1,171.71	1,100.26	1,086.27	13.99	78.663	
6,000.00	5,975.63	5,975.39	5,974.40	14.15	0.00	90.23	21.36	-1,171.72	1,100.29	1,086.14	14.15	77.738	
6,100.00	6,074.88	6,072.79	6,071.79	14.44	0.00	90.85	21.42	-1,171.84	1,100.54	1,086.10	14.44	76.219	
6,200.00	6,174.14	6,173.71	6,172.72	14.73	0.00	91.48	21.47	-1,172.05	1,101.00	1,086.28	14.73	74.770	
6,300.00	6,273.39	6,273.59	6,272.60	15.01	0.00	92.12	21.45	-1,172.09	1,101.41	1,086.40	15.01	73.373	
6,400.00	6,372.65	6,371.26	6,370.27	15.30	0.00	92.73	21.42	-1,172.19	1,102.02	1,086.72	15.30	72.039	
6,500.00	6,471.90	6,471.91	6,470.92	15.59	0.00	93.36	21.40	-1,172.36	1,102.82	1,087.24	15.58	70.768	
6,600.00	6,571.16	6,573.16	6,572.17	15.88	0.00	93.99	21.24	-1,172.38	1,103.55	1,087.68	15.87	69.537	
6,700.00	6,670.41	6,671.81	6,670.82	16.17	0.00	94.60	20.94	-1,172.37	1,104.34	1,088.18	16.16	68.353	
6,800.00	6,769.66	6,769.80	6,768.80	16.46	0.00	95.21	20.69	-1,172.47	1,105.36	1,088.92	16.44	67.226	
6,900.00	6,868.92	6,868.56	6,867.56	16.75	0.00	95.81	20.48	-1,172.64	1,106.61	1,089.88	16.73	66.151	
7,000.00	6,968.17	6,967.51	6,966.52	17.04	0.00	96.42	20.28	-1,172.84	1,108.01	1,090.99	17.01	65.121	
7,100.00	7,067.43	7,067.40	7,066.41	17.33	0.00	97.04	20.16	-1,173.01	1,109.54	1,092.24	17.30	64.135	
7,200.00	7,166.68	7,168.14	7,167.14	17.62	0.00	97.66	20.02	-1,173.07	1,111.09	1,093.51	17.59	63.183	
7,300.00	7,265.94	7,268.98	7,267.99	17.91	0.00	98.27	19.66	-1,173.09	1,112.63	1,094.76	17.87	62.261	
7,400.00	7,365.23	7,367.32	7,366.32	18.19	0.00	98.85	19.16	-1,173.13	1,114.18	1,096.04	18.14	61.429	
7,500.00	7,464.78	7,466.37	7,465.37	18.41	0.00	99.32	18.62	-1,173.33	1,115.59	1,097.24	18.35	60.789	
7,600.00	7,564.54	7,565.60	7,564.60	18.61	0.00	99.65	18.10	-1,173.54	1,116.64	1,098.09	18.55	60.184	
7,700.00	7,664.44	7,665.19	7,664.18	18.80	0.00	99.84	17.44	-1,173.91	1,117.34	1,098.60	18.74	59.614	
7,800.00	7,764.43	7,764.33	7,763.32	18.98	0.00	99.88	16.69	-1,174.36	1,117.63	1,098.71	18.92	59.074	
7,900.00	7,864.43	7,865.31	7,864.30	19.16	0.00	-58.98	15.91	-1,174.89	1,117.68	1,098.58	19.10	58.521	
8,000.00	7,964.43	7,966.13	7,965.11	19.33	0.00	-59.03	15.10	-1,175.26	1,117.59	1,098.32	19.27	57.994	
8,100.00	8,064.43	8,065.69	8,064.67	19.50	0.00	-59.07	14.31	-1,175.63	1,117.50	1,098.05	19.44	57.474	
8,145.67	8,110.09	8,110.62	8,109.59	19.58	0.00	-59.10	13.94	-1,175.83	1,117.48	1,097.95	19.52	57.239	
8,200.00	8,164.43	8,162.54	8,161.52	19.67	0.00	-59.12	13.53	-1,176.14	1,117.53	1,097.92	19.62	56.967	
8,300.00	8,264.43	8,260.31	8,259.28	19.84	0.00	-59.18	12.81	-1,176.97	1,117.89	1,098.10	19.79	56.482	
8,400.00	8,364.10	8,358.83	8,357.79	19.88	0.00	-59.42	12.05	-1,177.95	1,115.00	1,095.17	19.83	56.231	
8,500.00	8,461.16	8,452.34	8,451.29	19.79	0.00	-61.46	11.29	-1,179.08	1,103.76	1,084.00	19.76	55.861	
8,600.00	8,552.65	8,540.76	8,539.70	19.66	0.00	-64.86	10.68	-1,180.46	1,085.44	1,065.79	19.64	55.253	
8,700.00	8,635.80	8,622.69	8,621.62	19.50	0.00	-69.45	10.03	-1,181.88	1,061.79	1,042.29	19.50	54.451	
8,800.00	8,708.08	8,693.28	8,692.19	19.36	0.00	-74.70	9.50	-1,183.17	1,035.47	1,016.12	19.35	53.524	
8,900.00	8,767.29	8,753.68	8,752.57	19.26	0.00	-80.09	9.05	-1,184.26	1,009.54	990.32	19.22	52.524	
9,000.00	8,811.64	8,798.85	8,797.74	19.22	0.00	-84.72	8.69	-1,185.00	987.28	968.11	19.17	51.502	
9,100.00	8,839.78	8,825.68	8,824.57	19.29	0.00	-87.81	8.47	-1,185.42	971.81	952.57	19.24	50.504	
9,200.00	8,850.84	8,835.73	8,834.62	19.51	0.00	-89.05	8.39	-1,185.59	965.36	945.90	19.47	49.588	
9,214.60	8,851.16	8,835.94	8,834.82	19.56	0.00	-89.06	8.39	-1,185.59	965.25	945.73	19.52	49.446 CC, ES	
9,300.00	8,851.00	8,835.11	8,834.00	19.88	0.00	-89.02	8.40	-1,185.58	968.99	949.15	19.84	48.843	
9,400.00	8,851.00	8,834.33	8,833.22	20.41	0.00	-88.97	8.40	-1,185.56	982.83	962.51	20.32	48.358	
9,500.00	8,851.00	8,833.55	8,832.44	21.05	0.00	-88.93	8.41	-1,185.55	1,006.47	985.59	20.88	48.206 SF	
9,600.00	8,851.00	8,832.77	8,831.66	21.81	0.00	-88.88	8.42	-1,185.54	1,039.22	1,017.77	21.46	48.431	
9,700.00	8,851.00	8,831.99	8,830.87	22.66	0.00	-88.83	8.42	-1,185.53	1,080.28	1,058.25	22.03	49.046	
9,800.00	8,851.00	8,831.20	8,830.09	23.60	0.00	-88.79	8.43	-1,185.51	1,128.72	1,106.16	22.56	50.037	
9,900.00	8,851.00	8,830.42	8,829.31	24.61	0.00	-88.74	8.44	-1,185.50	1,183.64	1,160.61	23.04	51.375	

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	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	ST01	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #2	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	
10,000.00	8,851.00	8,829.63	8,828.52	25.68	0.00	-88.70	8.44	-1,185.49	1,244.20	1,220.73	23.47	53.020	
10,100.00	8,851.00	8,828.85	8,827.73	26.82	0.00	-88.65	8.45	-1,185.47	1,309.59	1,285.75	23.84	54.934	
10,200.00	8,851.00	8,828.06	8,826.95	28.00	0.00	-88.60	8.46	-1,185.46	1,379.14	1,354.98	24.16	57.080	
10,300.00	8,851.00	8,827.27	8,826.16	29.22	0.00	-88.55	8.46	-1,185.45	1,452.25	1,427.81	24.44	59.423	
10,400.00	8,851.00	8,826.48	8,825.37	30.49	0.00	-88.51	8.47	-1,185.44	1,528.41	1,503.73	24.68	61.934	
10,500.00	8,851.00	8,825.70	8,824.58	31.79	0.00	-88.46	8.47	-1,185.42	1,607.18	1,582.30	24.88	64.587	
10,600.00	8,851.00	8,824.90	8,823.79	33.12	0.00	-88.41	8.48	-1,185.41	1,688.20	1,663.14	25.06	67.361	
10,700.00	8,851.00	8,824.11	8,823.00	34.47	0.00	-88.37	8.49	-1,185.40	1,771.17	1,745.95	25.22	70.237	
10,800.00	8,851.00	8,823.32	8,822.21	35.85	0.00	-88.32	8.49	-1,185.39	1,855.81	1,830.46	25.35	73.201	
10,900.00	8,851.00	8,822.53	8,821.42	37.25	0.00	-88.27	8.50	-1,185.37	1,941.91	1,916.44	25.47	76.237	

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

LEAM Drilling Services

Anticollision Report

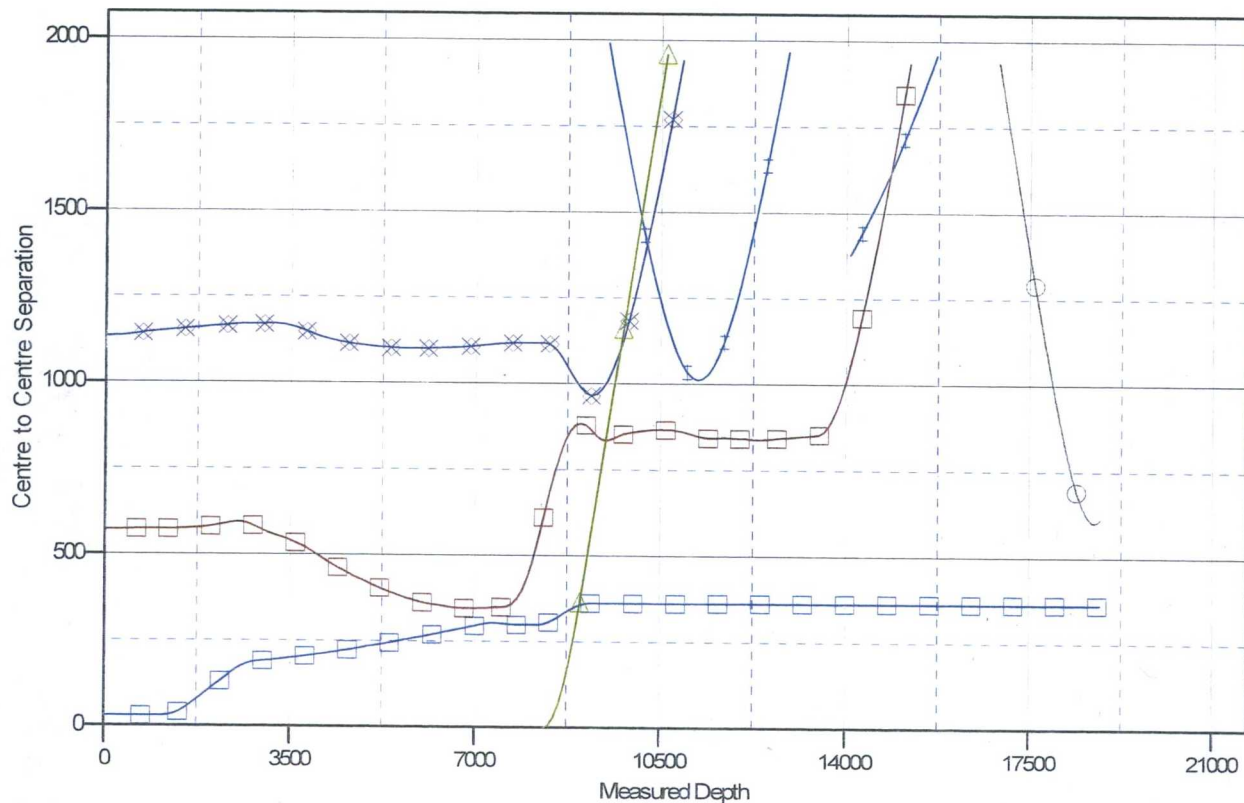
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Ko Lanta 9-4 Fed Com
Site Error: 0.00 usft
Reference Well: Ko Lanta 9-4 Fed Com 528H
Well Error: 0.00 usft
Reference Wellbore: ST01
Reference Design: Plan #2

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 518H, OH, Plan #1 V0
 Glow Worm ALX Federal #14 (Offset), OH, OH V0
 Glow Worm ALX Federal #16H (Offset), OH, OH V0
 North Pure Gold 9 Fed 18H (Offset), OH, OH V0
 North Pure Gold 9 Fed 18H (Offset), ST01, ST01 V0
 North Pure Gold 9 Fed 11H (Offset), OH, OH V0
 Ko Lanta 9-4 Fed Com 528H, OH, Plan #2 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: ST01
Reference Design: Plan #2

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

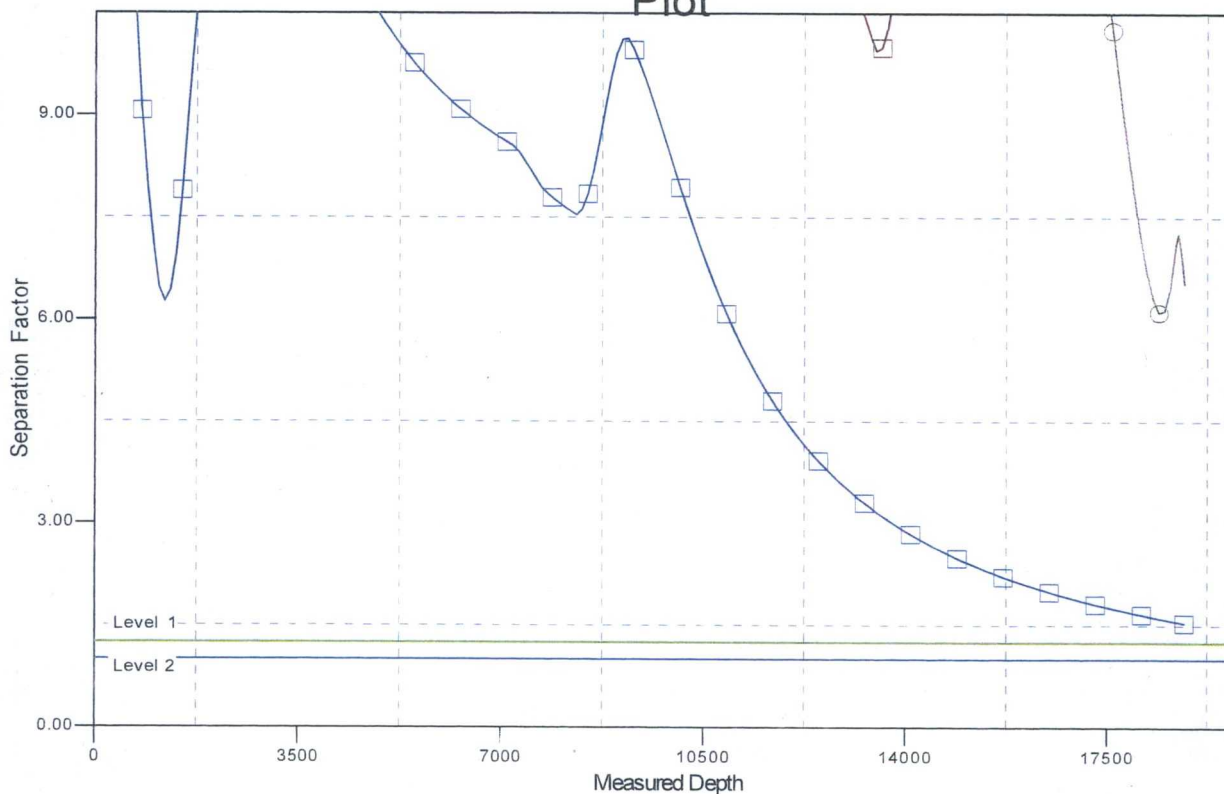
Central Meridian is 104° 19' 60.0000 W

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°

Separation Factor Plot



LEGEND

Ko Lanta 9-4 Fed Com 518H, OH, Plan #1V0 North Pure Gold 9 Fed 18H (Offset), OH, OH V0 Ko Lanta 9-4 Fed Com 528H, OH, Plan #2V0
 Glow Worm ALX Federal #14 (Offset), OH, OH V0 North Pure Gold 9 Fed 18H (Offset), ST01, ST01 V0
 Glow Worm ALX Federal #16H (Offset), OH, OH V0 North Pure Gold 9 Fed 11H (Offset), OH, OH V0

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

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 518H
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.

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 041918

R111P KFC

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors				SURFACE	
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 Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
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		Design Factors			INTERMEDIATE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	40.00	P 110	BUTT	3.91	0.99	2.22	8,100	324,000	
"B"							0	0	
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 Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	2652	4886	2586	89	10.20	2099	3M	1.31
Class 'H' tail cmt yld > 1.20									
ALT. COLLAPSE SF: .99*1.5=1.48									

5 1/2	casing inside the		9 5/8	Design Factors			PRODUCTION		
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:	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									