

Submit 1 Copy To Appropriate District Office
District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised July 18, 2013

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

WELL API NO. 30-025-40719
5. Indicate Type of Lease STATE ☒ FEE ☐
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Thistle Unit
8. Well Number 34H
9. OGRID Number 6137
10. Pool name or Wildcat Brinninstool; Delaware
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3665'

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐

2. Name of Operator
Devon Energy Production Company, LP 405-228-7203

3. Address of Operator
333 West. Sheridan Avenue
Oklahoma City, OK 73102-5015 405-228-7203

4. Well Location
Unit Letter N : 350 feet from the SOUTH line and 2075 feet from the WEST line
Section 33 Township 23S Range 33E NMPM Lea County

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
3665'

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐
CLOSED-LOOP SYSTEM ☐

OTHER: Chg BHL/DV tool/Wellhead ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐

OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Devon Energy Production Co. L.P. respectfully requests to make the following changes to the Thistle Unit 34H:

- BHL Change (FROM: 1320' FNL & 1700' FWL TO: 330' FNL & 2032' FWL)
- Zone Change
- Add DV Tool
- Change the Wellhead to a Uni-Head
- Change Intermediate Casing and Production Casing
- Change Cement volumes accordingly

*Please see attachments for reference and procedures

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

Trina C. Couch

TITLE: Regulatory Analyst

DATE 9/25/2014

Type or print name: Trina C. Couch

E-mail address: trina.couch@devn.com

PHONE: 405-228-7203

For State Use Only

APPROVED BY:

[Signature]

TITLE

Petroleum Engineer

DATE

09/26/14

Conditions of Approval (if any):

SEP 26 2014

SEP 26 2014

Thistle Unit 34H – APD DRILLING PLAN
GRG 9-24-2014

RECEIVED

Casing Program

<u>Hole Size</u>	<u>Hole Interval</u>	<u>OD Csg</u>	<u>Casing Interval</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>
17-1/2"	0 – 1,350'	13-3/8"	0 – 1,350'	48#	STC	J-55
12-1/4"	1,350' – 5,100'	9-5/8"	0 – 4,300'	40#	BTC	J-55
12-1/4"		9-5/8"	4,300' – 5,100'	40#	BTC	HCK-55
Option #1						
8-3/4"	5,100' – 13,137'	5-1/2"	0 – 13,137'	17#	BTC	P-110
Option #2						
8-3/4"	5,100' – 13,137'	7"	0 – 8,206'	29#	BTC	P-110
8-3/4"		5-1/2"	8,206' – 13,137'	17#	BTC	P-110

Note: only new casing will be utilized

MAXIMUM TVD: 8,750'

Design Factors:

<u>Casing Size</u>	<u>Collapse Design Factor</u>	<u>Burst Design Factor</u>	<u>Tension Design Factor</u>
13-3/8", 48#, H-40, ST&C	1.28	2.87	4.97
9-5/8", 40#, J-55, BT&C	1.15	1.40	2.30
9-5/8", 40#, HCK-55, BT&C	1.90	2.83	4.37
Option # 1			
5-1/2" 17# P-110 BTC	1.79	2.55	2.10
Option #2			
7" 29# P-110 BTC	2.17	2.86	3.32
5-1/2" 17# P-110 BTC	1.79	2.55	4.36

Mud Program:

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>Fluid Loss</u>	<u>Type System</u>
0 – 1,350	8.4 – 9.0	30 – 34	N/C	FW
1,350 – 5,100	9.8 – 10.0	28 – 32	N/C	Brine
5,100 – 13,137	8.6 – 9.0	28 – 32	N/C-12	FW

Pressure Control Equipment:

Devon proposes using a multi-bowl wellhead (FMC Uni-head). 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.

- Wellhead will be installed by FMC's representatives.
- If the welding is performed by a third party, the FMC's representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- FMC representative will install the test plug for the initial BOP test.
- FMC 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 5M, 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 70% of burst 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 FMC Uni-head 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 FMC Uni-head.

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.

See attached schematic.

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.

Cementing Program (all cement volumes based on at least 25% excess)

String	Number of sx	Weight lbs/gal	Yield cf/sx	Water Volume g/sx	Stage; Lead/Tail	Slurry Description
13-3/8" Surface	690	13.5	1.72	9.07	Lead	Class C Cement + 0.125 lbs/sack Pol-E-Flake + 4% bwoc Bentonite
	550	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake
13-3/8" Surface Two Stage Option	450	13.5	1.72	9.07	Lead	Class C Cement + 0.125 lbs/sack Pol-E-Flake + 4% bwoc Bentonite
	550	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	DV Tool = 300ft					
	320	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake + 63.5% Fresh Water
9-5/8" Intermediate	1070	12.9	9.81	1.85	Lead	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	430	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake +

9-5/8" Intermediate Two Stage Option	960	12.9	9.81	1.85	Lead	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	220	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	DV Tool = 1400ft					
	170	12.9	9.81	1.85	Lead	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	140	14.8	6.32	1.33	Tail	Class C Cement + 0.125 lbs/sack Poly-E-Flake
7 x 5-1/2" Production Casing	220	10.4	16.9	3.17	Lead	Tuned Light ® + 0.125 lb/sk Pol-E-Flake
	1290	14.5	5.31	1.2	Tail	(50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% bwoc HR-601 + 2% bwoc Bentonite
5-1/2" Production Casing	220	11.9	12.89	2.26	Lead #1	(50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	330	12.5	10.86	1.96	Lead #2	(65:35) Class H Cement: Poz (Fly Ash) + 6% BWOC Bentonite + 0.25% BWOC HR-601 + 0.125 lbs/sack Poly-E-Flake
	1290	14.5	5.31	1.2	Tail	(50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% bwoc HR-601 + 2% bwoc Bentonite

TOC for all Strings:

13-3/8" Surface	0ft
13-3/8" Surface Two Stage	Stage #1 = 300ft Stage #2 = 0ft
9-5/8" Intermediate	0ft
9-5/8" Intermediate Two Stage	Stage #1 =1400ft Stage #2 = 0ft
7 x 5-1/2" Production	4600ft
5-1/2" Production Two Stage	4600ft

Notes:

- Cement volumes Surface 100%, Intermediate 75% and Production based on at least 25% excess
- DV tool 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.

DEVON ENERGY

Project: Lea County, NM (NAD-83)

Site: Thistle Unit

Well: 34H

Wellbore: 34H OH

Design: Plan #1



Azimuths to Grid North

True North: -0.40°

Magnetic North: 6.95°

Magnetic Field

Strength: 48265.3snT

Dip Angle: 60.13°

Date: 9/23/2014

Model: BGGM2014

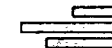
PROJECT DETAILS: Lea County, NM (NAD-83)

Geodetic System: US State Plane 1983

Datum: North American Datum 1983

Ellipsoid: GRS 1980

Zone: New Mexico Eastern Zone



devon

DESIGN TARGET DETAILS

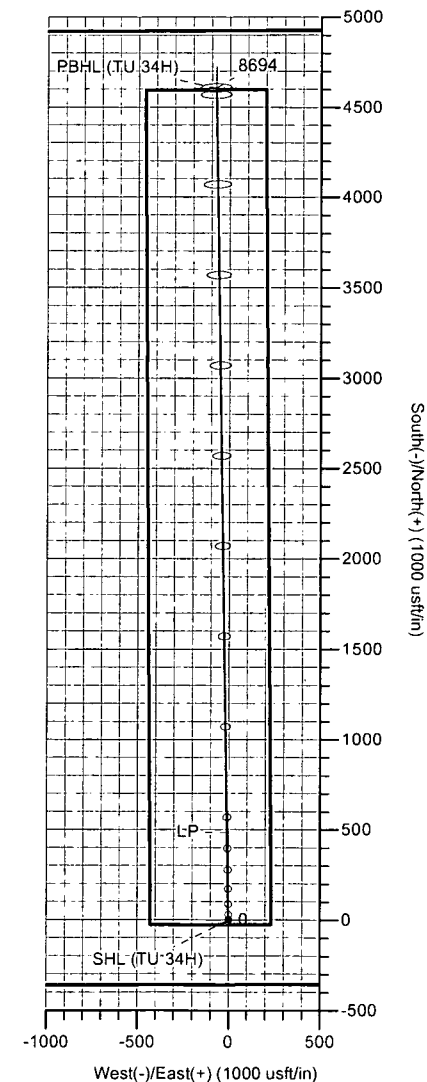
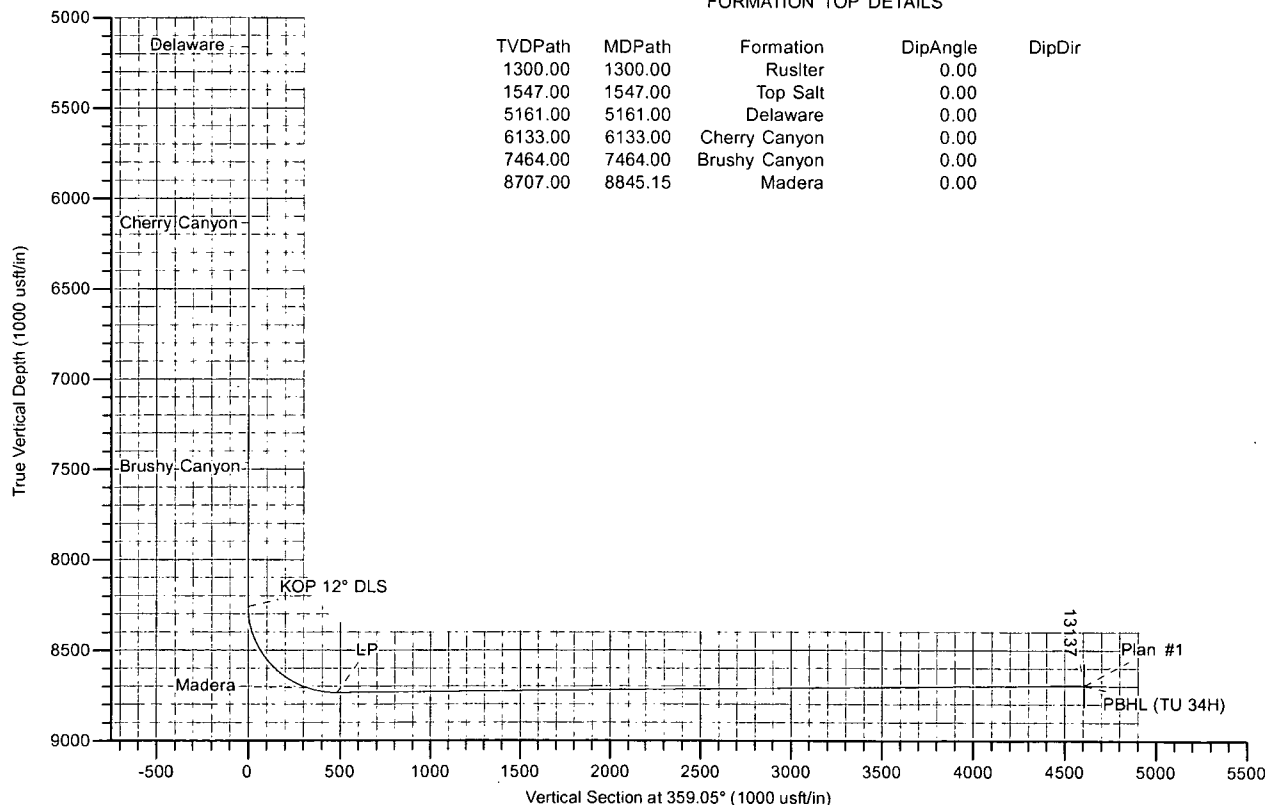
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (TU 34H)	0.00	0.00	0.00	457277.15	774497.92	32° 15' 17.563 N	103° 34' 44.722 W
PBHL (TU 34H)	8694.00	4606.98	-76.25	461884.13	774421.67	32° 16' 3.155 N	103° 34' 45.233 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	8256.56	0.00	0.00	8256.56	0.00	0.00	0.00	0.00	0.00	KOP 12° DLS
3	9011.19	90.56	359.05	8734.00	482.03	-7.98	12.00	359.05	482.09	LP
4	13136.90	90.56	359.05	8694.00	4606.98	-76.25	0.00	0.00	4607.61	TD

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1300.00	1300.00	Rusler	0.00	
1547.00	1547.00	Top Salt	0.00	
5161.00	5161.00	Delaware	0.00	
6133.00	6133.00	Cherry Canyon	0.00	
7464.00	7464.00	Brushy Canyon	0.00	
8707.00	8845.15	Madera	0.00	



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

Plan: Plan #1 (34H/34H OH)

Thistle Unit

Created By: Brady Deaver

Date: 8/34, September 23 2014

Date: _____

Date: _____

DEVON ENERGY

Lea County, NM (NAD-83)

Thistle Unit

34H

34H OH

Plan: Plan #1

Standard Planning Report

23 September, 2014

HOBBS OCD

SEP 26 2014

RECEIVED

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 34H
Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Site:	Thistle Unit	North Reference:	Grid
Well:	34H	Survey Calculation Method:	Minimum Curvature
Wellbore:	34H OH		
Design:	Plan #1		

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

Site	Thistle Unit		
Site Position:	Northings:	468,026.90 usft	Latitude: 32° 17' 3.494 N
From: Map	Easting:	780,722.56 usft	Longitude: 103° 33' 31.335 W
Position Uncertainty:	0.00 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.41 °

Well	34H, Madera Sand		
Well Position	+N/-S	-10,749.75 usft	Northings: 457,277.15 usft
	+E/-W	-6,224.64 usft	Easting: 774,497.91 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,690.00 usft
			Ground Level: 3,665.00 usft

Wellbore	34H OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	9/23/2014	7.35	60.13	48,265

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.05

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,256.56	0.00	0.00	8,256.56	0.00	0.00	0.00	0.00	0.00	0.00	
9,011.19	90.56	359.05	8,734.00	482.03	-7.98	12.00	12.00	-0.13	359.05	
13,136.90	90.56	359.05	8,694.00	4,606.98	-76.25	0.00	0.00	0.00	0.00	PBHL (TU 34H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 34H
Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Site:	Thistle Unit	North Reference:	Grid
Well:	34H	Survey Calculation Method:	Minimum Curvature
Wellbore:	34H OH		
Design:	Plan #1		

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 (TU 34H)									
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
Ruslter									
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
1,547.00	0.00	0.00	1,547.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 34H
Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Site:	Thistle Unit	North Reference:	Grid
Well:	34H	Survey Calculation Method:	Minimum Curvature
Wellbore:	34H OH		
Design:	Plan #1		

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)
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,161.00	0.00	0.00	5,161.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,133.00	0.00	0.00	6,133.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,464.00	0.00	0.00	7,464.00	0.00	0.00	0.00	0.00	0.00	0.00
Brushy Canyon									
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,256.56	0.00	0.00	8,256.56	0.00	0.00	0.00	0.00	0.00	0.00
KOP 12" DLS									
8,275.00	2.21	359.05	8,275.00	0.36	-0.01	0.36	12.00	12.00	0.00
8,300.00	5.21	359.05	8,299.94	1.97	-0.03	1.97	12.00	12.00	0.00
8,325.00	8.21	359.05	8,324.77	4.90	-0.08	4.90	12.00	12.00	0.00
8,350.00	11.21	359.05	8,349.40	9.11	-0.15	9.11	12.00	12.00	0.00
8,375.00	14.21	359.05	8,373.79	14.61	-0.24	14.61	12.00	12.00	0.00
8,400.00	17.21	359.05	8,397.85	21.38	-0.35	21.38	12.00	12.00	0.00
8,425.00	20.21	359.05	8,421.53	29.40	-0.49	29.40	12.00	12.00	0.00
8,450.00	23.21	359.05	8,444.75	38.65	-0.64	38.65	12.00	12.00	0.00

LEAM Drilling Systems LLC

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Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Site:	Thistle Unit	North Reference:	Grid
Well:	34H	Survey Calculation Method:	Minimum Curvature
Wellbore:	34H OH		
Design:	Plan #1		

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)
8,475.00	26.21	359.05	8,467.46	49.10	-0.81	49.10	12.00	12.00	0.00
8,500.00	29.21	359.05	8,489.59	60.72	-1.00	60.73	12.00	12.00	0.00
8,525.00	32.21	359.05	8,511.08	73.48	-1.22	73.49	12.00	12.00	0.00
8,550.00	35.21	359.05	8,531.87	87.36	-1.45	87.37	12.00	12.00	0.00
8,575.00	38.21	359.05	8,551.91	102.30	-1.69	102.31	12.00	12.00	0.00
8,600.00	41.21	359.05	8,571.14	118.27	-1.96	118.28	12.00	12.00	0.00
8,625.00	44.21	359.05	8,589.51	135.22	-2.24	135.24	12.00	12.00	0.00
8,650.00	47.21	359.05	8,606.96	153.11	-2.53	153.13	12.00	12.00	0.00
8,675.00	50.21	359.05	8,623.46	171.89	-2.84	171.92	12.00	12.00	0.00
8,700.00	53.21	359.05	8,638.95	191.51	-3.17	191.54	12.00	12.00	0.00
8,725.00	56.21	359.05	8,653.39	211.91	-3.51	211.94	12.00	12.00	0.00
8,750.00	59.21	359.05	8,666.74	233.04	-3.86	233.07	12.00	12.00	0.00
8,775.00	62.21	359.05	8,678.97	254.84	-4.22	254.88	12.00	12.00	0.00
8,800.00	65.21	359.05	8,690.04	277.25	-4.59	277.29	12.00	12.00	0.00
8,825.00	68.21	359.05	8,699.92	300.21	-4.97	300.25	12.00	12.00	0.00
8,845.15	70.63	359.05	8,707.00	319.07	-5.28	319.11	12.00	12.00	0.00
Madera									
8,850.00	71.21	359.05	8,708.59	323.65	-5.36	323.70	12.00	12.00	0.00
8,875.00	74.21	359.05	8,716.01	347.52	-5.75	347.56	12.00	12.00	0.00
8,900.00	77.21	359.05	8,722.18	371.74	-6.15	371.79	12.00	12.00	0.00
8,925.00	80.21	359.05	8,727.08	396.25	-6.56	396.30	12.00	12.00	0.00
8,950.00	83.21	359.05	8,730.68	420.98	-6.97	421.04	12.00	12.00	0.00
8,975.00	86.21	359.05	8,732.98	445.87	-7.38	445.93	12.00	12.00	0.00
9,000.00	89.21	359.05	8,733.98	470.84	-7.79	470.91	12.00	12.00	0.00
9,011.19	90.56	359.05	8,734.00	482.03	-7.98	482.09	12.00	12.00	0.00
LP									
9,100.00	90.56	359.05	8,733.14	570.82	-9.45	570.90	0.00	0.00	0.00
9,200.00	90.56	359.05	8,732.17	670.80	-11.10	670.90	0.00	0.00	0.00
9,300.00	90.56	359.05	8,731.20	770.79	-12.76	770.89	0.00	0.00	0.00
9,400.00	90.56	359.05	8,730.23	870.77	-14.41	870.89	0.00	0.00	0.00
9,500.00	90.56	359.05	8,729.26	970.75	-16.07	970.88	0.00	0.00	0.00
9,600.00	90.56	359.05	8,728.29	1,070.73	-17.72	1,070.88	0.00	0.00	0.00
9,700.00	90.56	359.05	8,727.32	1,170.71	-19.38	1,170.87	0.00	0.00	0.00
9,800.00	90.56	359.05	8,726.35	1,270.69	-21.03	1,270.87	0.00	0.00	0.00
9,900.00	90.56	359.05	8,725.38	1,370.68	-22.69	1,370.86	0.00	0.00	0.00
10,000.00	90.56	359.05	8,724.42	1,470.66	-24.34	1,470.86	0.00	0.00	0.00
10,100.00	90.56	359.05	8,723.45	1,570.64	-25.99	1,570.85	0.00	0.00	0.00
10,200.00	90.56	359.05	8,722.48	1,670.62	-27.65	1,670.85	0.00	0.00	0.00
10,300.00	90.56	359.05	8,721.51	1,770.60	-29.30	1,770.84	0.00	0.00	0.00
10,400.00	90.56	359.05	8,720.54	1,870.58	-30.96	1,870.84	0.00	0.00	0.00
10,500.00	90.56	359.05	8,719.57	1,970.56	-32.61	1,970.83	0.00	0.00	0.00
10,600.00	90.56	359.05	8,718.60	2,070.55	-34.27	2,070.83	0.00	0.00	0.00
10,700.00	90.56	359.05	8,717.63	2,170.53	-35.92	2,170.83	0.00	0.00	0.00
10,800.00	90.56	359.05	8,716.66	2,270.51	-37.58	2,270.82	0.00	0.00	0.00
10,900.00	90.56	359.05	8,715.69	2,370.49	-39.23	2,370.82	0.00	0.00	0.00
11,000.00	90.56	359.05	8,714.72	2,470.47	-40.89	2,470.81	0.00	0.00	0.00
11,100.00	90.56	359.05	8,713.75	2,570.45	-42.54	2,570.81	0.00	0.00	0.00
11,200.00	90.56	359.05	8,712.78	2,670.44	-44.20	2,670.80	0.00	0.00	0.00
11,300.00	90.56	359.05	8,711.81	2,770.42	-45.85	2,770.80	0.00	0.00	0.00
11,400.00	90.56	359.05	8,710.84	2,870.40	-47.51	2,870.79	0.00	0.00	0.00
11,500.00	90.56	359.05	8,709.87	2,970.38	-49.16	2,970.79	0.00	0.00	0.00
11,600.00	90.56	359.05	8,708.90	3,070.36	-50.82	3,070.78	0.00	0.00	0.00

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Site:	Thistle Unit	North Reference:	Grid
Well:	34H	Survey Calculation Method:	Minimum Curvature
Wellbore:	34H OH		
Design:	Plan #1		

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)
11,700.00	90.56	359.05	8,707.93	3,170.34	-52.47	3,170.78	0.00	0.00	0.00
11,800.00	90.56	359.05	8,706.96	3,270.33	-54.12	3,270.77	0.00	0.00	0.00
11,900.00	90.56	359.05	8,705.99	3,370.31	-55.78	3,370.77	0.00	0.00	0.00
12,000.00	90.56	359.05	8,705.02	3,470.29	-57.43	3,470.76	0.00	0.00	0.00
12,100.00	90.56	359.05	8,704.05	3,570.27	-59.09	3,570.76	0.00	0.00	0.00
12,200.00	90.56	359.05	8,703.08	3,670.25	-60.74	3,670.75	0.00	0.00	0.00
12,300.00	90.56	359.05	8,702.11	3,770.23	-62.40	3,770.75	0.00	0.00	0.00
12,400.00	90.56	359.05	8,701.15	3,870.22	-64.05	3,870.75	0.00	0.00	0.00
12,500.00	90.56	359.05	8,700.18	3,970.20	-65.71	3,970.74	0.00	0.00	0.00
12,600.00	90.56	359.05	8,699.21	4,070.18	-67.36	4,070.74	0.00	0.00	0.00
12,700.00	90.56	359.05	8,698.24	4,170.16	-69.02	4,170.73	0.00	0.00	0.00
12,800.00	90.56	359.05	8,697.27	4,270.14	-70.67	4,270.73	0.00	0.00	0.00
12,900.00	90.56	359.05	8,696.30	4,370.12	-72.33	4,370.72	0.00	0.00	0.00
13,000.00	90.56	359.05	8,695.33	4,470.11	-73.98	4,470.72	0.00	0.00	0.00
13,100.00	90.56	359.05	8,694.36	4,570.09	-75.64	4,570.71	0.00	0.00	0.00
13,136.90	90.56	359.05	8,694.00	4,606.98	-76.25	4,607.61	0.00	0.00	0.00
TD - PBHL (TU 34H)									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL (TU 34H)	0.00	0.00	0.00	0.00	0.00	457,277.15	774,497.91	32° 15' 17.563 N	103° 34' 44.722 W
- plan hits target center									
- Point									
PBHL (TU 34H)	0.00	0.00	8,694.00	4,606.98	-76.25	461,884.13	774,421.67	32° 16' 3.155 N	103° 34' 45.233 W
- plan hits target center									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,300.00	1,300.00	Ruslter		0.00	
1,547.00	1,547.00	Top Salt		0.00	
5,161.00	5,161.00	Delaware		0.00	
6,133.00	6,133.00	Cherry Canyon		0.00	
7,464.00	7,464.00	Brushy Canyon		0.00	
8,845.15	8,707.00	Madera		0.00	

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Company:	DEVON ENERGY	TVD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Project:	Lea County, NM (NAD-83)	MD Reference:	H&P 394: 3665' GL + 25' RKB @ 3690.00usft (Original Well Elev)
Site:	Thistle Unit	North Reference:	Grid
Well:	34H	Survey Calculation Method:	Minimum Curvature
Wellbore:	34H OH		
Design:	Plan #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,256.56	8,256.56	0.00	0.00	KOP 12" DLS
9,011.19	8,734.00	482.03	-7.98	LP
13,136.90	8,694.00	4,606.98	-76.25	TD