

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 August 1, 2011

HOBBS OGD

DEC 13 2012

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

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.)		WELL API NO. 30-025-40748
1. Type of Well: Oil Well ☐ Gas Well ☒ Other		5. Indicate Type of Lease STATE ☒ FEE ☐
2. Name of Operator Devon Energy Production Company, L.P.		6. State Oil & Gas Lease No.
3. Address of Operator 333 W. Sheridan, Oklahoma City, OK 73102 (405)552-7970		7. Lease Name or Unit Agreement Name Ironhouse 20 State Com
4. Well Location Unit Letter A: 500 feet from the North line and 200 feet from the East line Section 20 Township 18S Range 35E NMPM Lea County, NM		8. Well Number 2H
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3925.3' GL		9. OGRID Number 6137
		10. Pool name or Wildcat 97930 WC-025 G-06 S183518A; Bone Spring

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 ☐

SUBSEQUENT REPORT OF:

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

OTHER: To Change SHL/BHL ☒

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.

Proceed in drilling Per EW

Devon Energy Production Co., LP respectfully requests approval to change the following:

Current SHL: 500' FNL, 200' FEL, A - Section 20-T18S-R35E
BHL: 400' FNL, 330' FWL, D - Section 20-T18S-R35E

CHANGE TO NOW:

Proposed: SHL: 200' FSL, 660' FEL, P - Section 20-T18S-R35E
BHL: 330' FNL, 660' FEL, A - Section 20-T18S-R35E

Please see attached:

Revised C-102
Revised Directional Plan

Also Note: Change Property Name
& Property Code

OPER. OGRID NO. 6137
PROPERTY NO. 39596
POOL CODE 97930
EFF. DATE 12/01/12
API NO. 30-025-40748

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

SIGNATURE: Erin Workman TITLE: Regulatory Compliance Associate DATE: 12/12/12

Type or print name: Erin Workman E-mail address: Erin.workman@dmn.com PHONE: 405-552-7970

For State Use Only

APPROVED BY: [Signature] TITLE: Petroleum Engineer DATE: DEC 19 2012

Conditions of Approval (if any):

DEC 19 2012

Ironhouse 20 State Com 2H- APD DRILLING PLAN
KKS 5-28-12
12-12-12 Revised C-102 updated directional plan

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 – 1,825	13-3/8"	0 – 1,825	48#	STC	H-40
12-1/4"	1,825 – 3,200	9-5/8"	0 – 3,200	40#	LTC	J-55
8-3/4"	3,200– 9,000	5-1/2"	0 – 9,000	17#	LTC	HCP-110
8-3/4"	9,000 – 14,318	5-1/2"	9,000 – 14,308	17#	BTC	HCP-110

Max TVD in lateral: 9,795'

An 8-3/4" pilot hole will be drilled to 10,800 ft and plugged back to KOP with 670 sx's, Class H, 15.6 ppg, 1.18 cf/sk cement

Mud Program:

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>Fluid Loss</u>	<u>Type System</u>
0 – 1,825	8.4 – 9.0	30 – 34	N/C	FW
1,825 – 3,200	9.6 – 10.0	28 – 32	N/C	Brine
3,200 – 14,318	8.6 – 9.0	28 – 32	N/C-12	FW

Pressure Control Equipment:

The BOP system used to drill the intermediate hole will consist of a 13-5/8" 3M Triple Ram and Annular preventer. The BOP system will be tested as a 3M system prior to drilling out the surface casing shoe.

The BOP system used to drill the production hole will consist of a 13-5/8" 3M Triple Ram and Annular preventer. The BOP system will be tested as a 3M system prior to drilling out the intermediate casing shoe.

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.

Cementing Program

13-3/8" Surface Casing

FLUID SPECIFICATIONS

Spacer

20.0 bbls Fresh Water @ 8.34 ppg

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
Lead Slurry	2036	/ 1.97	= 1035 sacks (35:65) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 1% bwoc Sodium Metasilicate + 5% bwoc MPA-5 + 101.3% Fresh Water
Tail Slurry	534	/ 1.34	= 400 sacks Class C Cement + 1% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.2% Fresh Water

Displacement

280.3 bbls Mud @ 9 ppg

CEMENT PROPERTIES

	SLURRY NO.1	SLURRY NO.2
Slurry Weight (ppg)	12.80	14.80
Slurry Yield (cf/sack)	1.97	1.34
Amount of Mix Water (gps)	10.56	6.34
Estimated Pumping Time - 70 BC (HH:MM)	3:30	2:30
COMPRESSIVE STRENGTH		
72 hrs @ 80 ° F (psi)		2700
7 hrs @ 93 ° F (psi)		500
12 hrs @ 93 ° F (psi)	350	1000
17 hrs @ 93 ° F (psi)	500	
24 hrs @ 93 ° F (psi)	750	1600

ACTUAL CEMENT VOLUMES MAY VARY BASED ON FLUID CALIPER.

9-5/8" Intermediate

FLUID SPECIFICATIONS

Spacer

20.0 bbls Fresh Water @ 8.34. ppg

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
Lead Slurry	1239	/ 1.73	= 715 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 1% bwoc Sodium Metasilicate + 89.7% Fresh Water
Tail Slurry	413	/ 1.38	= 300 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 65.5% Fresh Water

Displacement

239.6 bbls Mud @ 10 ppg

CEMENT PROPERTIES

	SLURRY NO.1	SLURRY NO.2
Slurry Weight (ppg)	12.60	13.80
Slurry Yield (cf/sack)	1.73	1.38
Amount of Mix Water (gps)	8.82	6.44
Estimated Pumping Time - 70 BC (HH:MM)	3:30	2:30
COMPRESSIVE STRENGTH		
12 hrs @ 90 ° F (psi)	275	
24 hrs @ 90 ° F (psi)	875	
72 hrs @ 90 ° F (psi)	1600	
8 hrs @ 112 ° F (psi)		500
12 hrs @ 112 ° F (psi)		1400
24 hrs @ 112 ° F (psi)		2400

ACTUAL CEMENT VOLUMES MAY VARY BASED ON CALIPER.

5-1/2" Production-Single Stage

FLUID SPECIFICATIONS

Spacer	50.0 bbls Fresh Water @ 8.34 ppg
Spacer	1,500.0 gals Mud Clean II @ 8.45 ppg
Spacer	10.0 bbls Fresh Water @ 8.34 ppg
Spacer	40.0 bbls SealBond @ 8.75 ppg

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
1st Lead Slurry	1798	/ 2.3	= 785 sacks (50:50) Poz (Fly Ash):Class H Cement + 0.5% bwoc FL-52 + 0.3% bwoc ASA-301 + 10% bwoc Bentonite + 0.1% bwoc R-21 + 130.7% Fresh Water
Lead Slurry	1377	/ 2	= 690 sacks (35:65) Poz (Fly Ash):Class H Cement + 3% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.7% bwoc FL-52 + 6% bwoc Bentonite + 105.4% Fresh Water
Tail Slurry	1674	/ 1.28	= 1310 sacks (50:50) Poz (Fly Ash):Class H Cement + 5% bwow Sodium Chloride + 0.3% bwoc CD-32 + 0.5% bwoc FL-25 + 0.5% bwoc FL-52 + 0.4% bwoc Sodium Metasilicate + 57.2% Fresh Water
Displacement			331.7 bbls Displacement Fluid

CEMENT PROPERTIES

	<u>SLURRY NO.1</u>	<u>SLURRY NO.2</u>	<u>SLURRY NO.3</u>
Slurry Weight (ppg)	11.80	12.50	14.20
Slurry Yield (cf/sack)	2.30	2.00	1.28
Amount of Mix Water (gps)	13.16	10.99	5.76
Estimated Pumping Time - 70 BC (HH:MM)	4:00	5:00	3:30
Free Water (mls) @ ° F @ 90 ° Angle			0.0
Fluid Loss (cc/30min) at 1000 psi and ° F			50.0
<u>COMPRESSIVE STRENGTH</u>			
12 hrs @ 130 ° F (psi)	150		
24 hrs @ 130 ° F (psi)	250		
72 hrs @ 130 ° F (psi)	350		
12 hrs @ 140 ° F (psi)		175	
24 hrs @ 140 ° F (psi)		250	
72 hrs @ 140 ° F (psi)		700	
12 hrs @ 150 ° F (psi)			250
24 hrs @ 150 ° F (psi)			1500
72 hrs @ 150 ° F (psi)			2000

TOC for All Strings:

Surface:	0'
Intermediate:	0'
Production:	2,700'

ACTUAL CEMENT VOLUMES WILL BE ADJUSTED BASED ON FLUID CALIPER AND CALIPER LOG DATA.

Pilot Hole Plug Back Cement

FLUID SPECIFICATIONS

Spacer

= 15.0 bbls Mud Clean II

<u>PLUG NO.</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
1	791	/ 1.18	= 670 sacks Class H Cement + 0.2% bwoc R-3 + 46.4% Fresh Water

CEMENT PROPERTIES

	PLUG NO.1
Slurry Weight (ppg)	15.60
Slurry Yield (cf/sack)	1.18
Amount of Mix Water (gps)	5.22
Estimated Pumping Time - 70 BC (HH:MM)	2:15
COMPRESSIVE STRENGTH	
12 hrs @ 143 ° F (psi)	4850
24 hrs @ 143 ° F (psi)	7100

PLUG GEOMETRY

	PLUG TOP		PLUG BOTTOM	
1	9227 ft	to	10800 ft	with 8.75 inch Open Hole PDSqT = 143 ° F PDST = 166.4 ° F

DEVON ENERGY

Project: Lea County, NM (NAD-83)
 Site: Ironhouse "20" State
 Well: 2H
 Wellbore: OH
 Design: Plan #1



Azimuths to Grid North
 True North: -0.47°
 Magnetic North: 6.93°

Magnetic Field
 Strength: 48776.3snT
 Dip Angle: 60.63°
 Date: 12/12/2012
 Model: IGRF2010

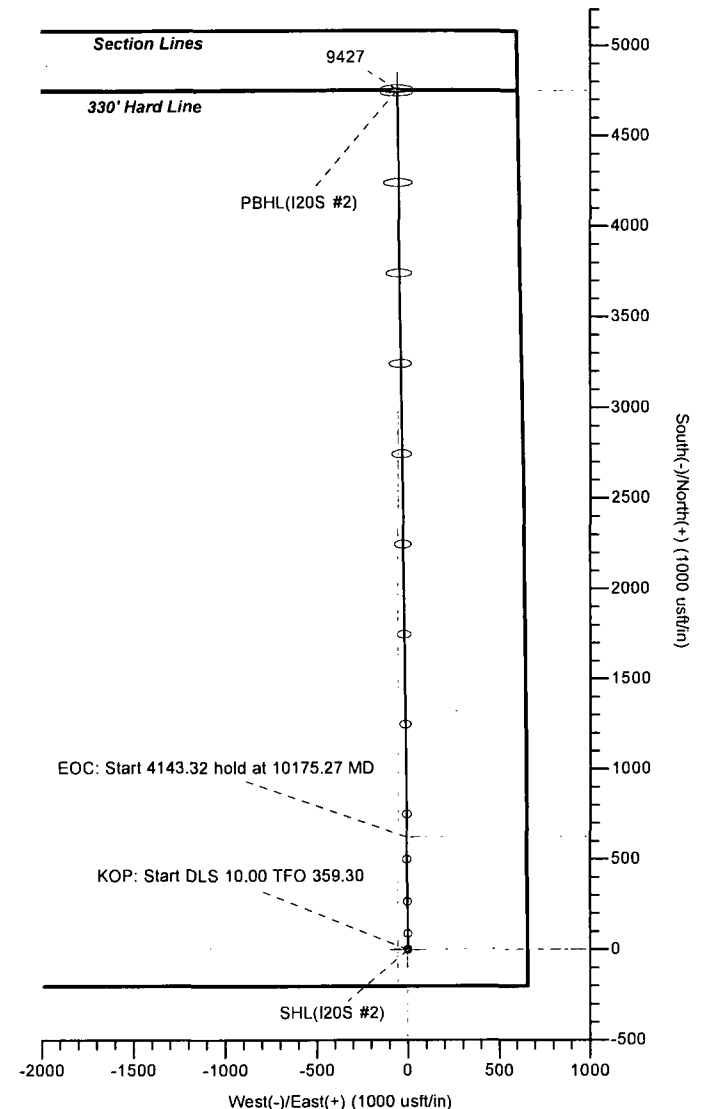
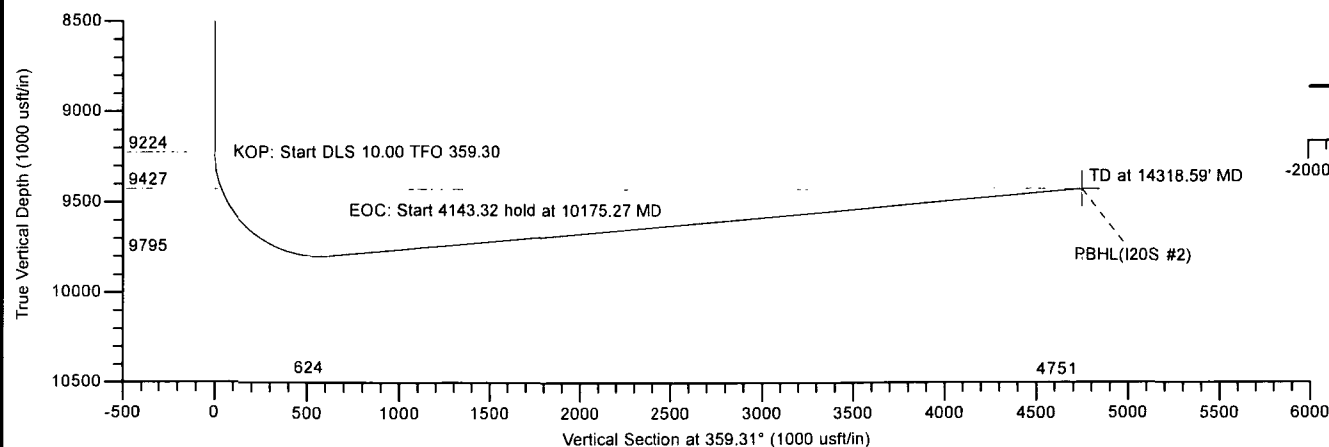


DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL(I20S #2)	0.00	0.00	0.00	629096.91	805858.91	32° 43' 35.312 N	103° 28' 23.404 W
PBHL(I20S #2)	9427.00	4750.44	-57.78	633847.35	805801.13	32° 44' 22.319 N	103° 28' 23.629 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	9224.31	0.00	0.00	9224.31	0.00	0.00	0.00	0.00	0.00	KOP: Start DLS 10.00 TFO 359.30
3	10175.27	95.10	359.30	9795.00	623.80	-7.59	10.00	359.30	623.85	EOC: Start 4143.32 hold at 10175.27 MD
4	14318.59	95.10	359.30	9427.00	4750.44	-57.78	0.00	0.00	4750.79	TD at 14318.59' MD



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

Plan: Plan #1 (2H/OH)
 Ironhouse "20" State
 Created By: Tyler Carlson
 Date: 15:43, December 12 2012
 Approved: _____
 Date: _____

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 2H
Company:	DEVON ENERGY	TVD Reference:	GE: 3928' + KB: 18' @ 3946.00usft (McVay #8)
Project:	Lea County, NM (NAD-83)	MD Reference:	GE: 3928' + KB: 18' @ 3946.00usft (McVay #8)
Site:	Ironhouse "20" State	North Reference:	Grid
Well:	2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	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	Ironhouse "20" State		
Site Position:		Northing:	629,096.41 usft
From:	Map	Easting:	804,539.12 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 43' 35.413 N
		Longitude:	103° 28' 38.853 W
		Grid Convergence:	0.46 °

Well	2H		
Well Position	+N/-S	0.50 usft	Northing:
	+E/-W	1,319.79 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level:
			3,928.00 usft
			Latitude:
			32° 43' 35.312 N
			Longitude:
			103° 28' 23.404 W

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	12/12/12	7.39
			Dip Angle
			(°)
			60.63
			Field Strength
			(nT)
			48,776

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			359.31

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	
9,224.31	0.00	0.00	9,224.31	0.00	0.00	0.00	0.00	0.00	0.00	
10,175.27	95.10	359.30	9,795.00	623.80	-7.59	10.00	10.00	-0.07	359.30	
14,318.59	95.10	359.30	9,427.00	4,750.44	-57.78	0.00	0.00	0.00	0.00	PBHL(120S #2)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 2H
Company:	DEVON ENERGY	TVD Reference:	GE: 3928' + KB: 18' @ 3946.00usft (McVay #8)
Project:	Lea County, NM (NAD-83)	MD Reference:	GE: 3928' + KB: 18' @ 3946.00usft (McVay #8)
Site:	Ironhouse "20" State	North Reference:	Grid
Well:	2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 2H
Company:	DEVON ENERGY	TVD Reference:	GE: 3928' + KB: 18' @ 3946.00usft (McVay #8)
Project:	Lea County, NM (NAD-83)	MD Reference:	GE: 3928' + KB: 18' @ 3946.00usft (McVay #8)
Site:	Ironhouse "20" State	North Reference:	Grid
Well:	2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	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)
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
6,200.00	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
7,500.00	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
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,224.31	0.00	0.00	9,224.31	0.00	0.00	0.00	0.00	0.00	0.00
KOP: Start DLS 10.00 TFO 359.30									
9,250.00	2.57	359.30	9,249.99	0.58	-0.01	0.58	10.00	10.00	0.00
9,300.00	7.57	359.30	9,299.78	4.99	-0.06	4.99	10.00	10.00	0.00
9,350.00	12.57	359.30	9,348.99	13.73	-0.17	13.73	10.00	10.00	0.00
9,400.00	17.57	359.30	9,397.26	26.72	-0.33	26.73	10.00	10.00	0.00
9,450.00	22.57	359.30	9,444.21	43.88	-0.53	43.88	10.00	10.00	0.00
9,500.00	27.57	359.30	9,489.48	65.05	-0.79	65.06	10.00	10.00	0.00
9,550.00	32.57	359.30	9,532.74	90.09	-1.10	90.10	10.00	10.00	0.00
9,600.00	37.57	359.30	9,573.65	118.81	-1.45	118.82	10.00	10.00	0.00
9,650.00	42.57	359.30	9,611.90	150.98	-1.84	151.00	10.00	10.00	0.00

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Site:	Ironhouse "20" State	North Reference:	Grid
Well:	2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	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)
9,700.00	47.57	359.30	9,647.20	186.37	-2.27	186.38	10.00	10.00	0.00
9,750.00	52.57	359.30	9,679.29	224.69	-2.73	224.71	10.00	10.00	0.00
9,800.00	57.57	359.30	9,707.91	265.67	-3.23	265.69	10.00	10.00	0.00
9,850.00	62.57	359.30	9,732.85	308.98	-3.76	309.01	10.00	10.00	0.00
9,900.00	67.57	359.30	9,753.92	354.31	-4.31	354.33	10.00	10.00	0.00
9,950.00	72.57	359.30	9,770.96	401.29	-4.88	401.32	10.00	10.00	0.00
10,000.00	77.57	359.30	9,783.84	449.59	-5.47	449.62	10.00	10.00	0.00
10,050.00	82.57	359.30	9,792.46	498.82	-6.07	498.86	10.00	10.00	0.00
10,100.00	87.57	359.30	9,796.75	548.61	-6.67	548.66	10.00	10.00	0.00
10,150.00	92.57	359.30	9,796.69	598.59	-7.28	598.64	10.00	10.00	0.00
10,175.27	95.10	359.30	9,795.00	623.80	-7.59	623.85	10.00	10.00	0.00
EOC: Start 4143.32 hold at 10175.27 MD									
10,200.00	95.10	359.30	9,792.81	648.43	-7.89	648.48	0.00	0.00	0.00
10,300.00	95.10	359.30	9,783.92	748.03	-9.10	748.09	0.00	0.00	0.00
10,400.00	95.10	359.30	9,775.04	847.63	-10.31	847.69	0.00	0.00	0.00
10,500.00	95.10	359.30	9,766.16	947.23	-11.52	947.30	0.00	0.00	0.00
10,600.00	95.10	359.30	9,757.28	1,046.82	-12.73	1,046.90	0.00	0.00	0.00
10,700.00	95.10	359.30	9,748.40	1,146.42	-13.94	1,146.51	0.00	0.00	0.00
10,800.00	95.10	359.30	9,739.52	1,246.02	-15.16	1,246.11	0.00	0.00	0.00
10,900.00	95.10	359.30	9,730.63	1,345.62	-16.37	1,345.72	0.00	0.00	0.00
11,000.00	95.10	359.30	9,721.75	1,445.21	-17.58	1,445.32	0.00	0.00	0.00
11,100.00	95.10	359.30	9,712.87	1,544.81	-18.79	1,544.93	0.00	0.00	0.00
11,200.00	95.10	359.30	9,703.99	1,644.41	-20.00	1,644.53	0.00	0.00	0.00
11,300.00	95.10	359.30	9,695.11	1,744.01	-21.21	1,744.14	0.00	0.00	0.00
11,400.00	95.10	359.30	9,686.22	1,843.60	-22.42	1,843.74	0.00	0.00	0.00
11,500.00	95.10	359.30	9,677.34	1,943.20	-23.64	1,943.35	0.00	0.00	0.00
11,600.00	95.10	359.30	9,668.46	2,042.80	-24.85	2,042.95	0.00	0.00	0.00
11,700.00	95.10	359.30	9,659.58	2,142.40	-26.06	2,142.55	0.00	0.00	0.00
11,800.00	95.10	359.30	9,650.70	2,241.99	-27.27	2,242.16	0.00	0.00	0.00
11,900.00	95.10	359.30	9,641.82	2,341.59	-28.48	2,341.76	0.00	0.00	0.00
12,000.00	95.10	359.30	9,632.93	2,441.19	-29.69	2,441.37	0.00	0.00	0.00
12,100.00	95.10	359.30	9,624.05	2,540.79	-30.90	2,540.97	0.00	0.00	0.00
12,200.00	95.10	359.30	9,615.17	2,640.38	-32.12	2,640.58	0.00	0.00	0.00
12,300.00	95.10	359.30	9,606.29	2,739.98	-33.33	2,740.18	0.00	0.00	0.00
12,400.00	95.10	359.30	9,597.41	2,839.58	-34.54	2,839.79	0.00	0.00	0.00
12,500.00	95.10	359.30	9,588.52	2,939.18	-35.75	2,939.39	0.00	0.00	0.00
12,600.00	95.10	359.30	9,579.64	3,038.77	-36.96	3,039.00	0.00	0.00	0.00
12,700.00	95.10	359.30	9,570.76	3,138.37	-38.17	3,138.60	0.00	0.00	0.00
12,800.00	95.10	359.30	9,561.88	3,237.97	-39.38	3,238.21	0.00	0.00	0.00
12,900.00	95.10	359.30	9,553.00	3,337.57	-40.60	3,337.81	0.00	0.00	0.00
13,000.00	95.10	359.30	9,544.12	3,437.16	-41.81	3,437.42	0.00	0.00	0.00
13,100.00	95.10	359.30	9,535.23	3,536.76	-43.02	3,537.02	0.00	0.00	0.00
13,200.00	95.10	359.30	9,526.35	3,636.36	-44.23	3,636.63	0.00	0.00	0.00
13,300.00	95.10	359.30	9,517.47	3,735.95	-45.44	3,736.23	0.00	0.00	0.00
13,400.00	95.10	359.30	9,508.59	3,835.55	-46.65	3,835.84	0.00	0.00	0.00
13,500.00	95.10	359.30	9,499.71	3,935.15	-47.86	3,935.44	0.00	0.00	0.00
13,600.00	95.10	359.30	9,490.82	4,034.75	-49.07	4,035.05	0.00	0.00	0.00
13,700.00	95.10	359.30	9,481.94	4,134.34	-50.29	4,134.65	0.00	0.00	0.00
13,800.00	95.10	359.30	9,473.06	4,233.94	-51.50	4,234.26	0.00	0.00	0.00
13,900.00	95.10	359.30	9,464.18	4,333.54	-52.71	4,333.86	0.00	0.00	0.00
14,000.00	95.10	359.30	9,455.30	4,433.14	-53.92	4,433.46	0.00	0.00	0.00
14,100.00	95.10	359.30	9,446.41	4,532.73	-55.13	4,533.07	0.00	0.00	0.00

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Wellbore:	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)
14,200.00	95.10	359.30	9,437.53	4,632.33	-56.34	4,632.67	0.00	0.00	0.00
14,300.00	95.10	359.30	9,428.65	4,731.93	-57.55	4,732.28	0.00	0.00	0.00
14,318.59	95.10	359.30	9,427.00	4,750.44	-57.78	4,750.79	0.00	0.00	0.00
TD at 14318.59' MD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL(120S #2)	0.00	0.00	0.00	0.00	0.00	629,096.91	805,858.91	32° 43' 35.312 N	103° 28' 23.404 W
- plan hits target center									
- Point									
PBHL(120S #2)	0.00	0.00	9,427.00	4,750.44	-57.78	633,847.35	805,801.13	32° 44' 22.319 N	103° 28' 23.629 W
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,224.31	9,224.31	0.00	0.00	KOP: Start DLS 10.00 TFO 359.30
10,175.27	9,795.00	623.80	-7.59	EOC: Start 4143.32 hold at 10175.27 MD
14,318.59	9,427.00	4,750.44	-57.78	TD at 14318.59' MD