

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Form C-101
August 1, 2011

Permit 286952

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address LONGFELLOW ENERGY, LP 16803 North Dallas Parkway Addison, TX 75001		2. OGRID Number 372210
		3. API Number 30-015-47478
4. Property Code 329704	5. Property Name HENDRIX STATE COM 13 CD	6. Well No. 004H

7. Surface Location

UL - Lot P	Section 14	Township 17S	Range 28E	Lot Idn P	Feet From 1312	N/S Line S	Feet From 175	E/W Line E	County Eddy
---------------	---------------	-----------------	--------------	--------------	-------------------	---------------	------------------	---------------	----------------

8. Proposed Bottom Hole Location

UL - Lot P	Section 13	Township 17S	Range 28E	Lot Idn P	Feet From 835	N/S Line S	Feet From 20	E/W Line E	County Eddy
---------------	---------------	-----------------	--------------	--------------	------------------	---------------	-----------------	---------------	----------------

9. Pool Information

EMPIRE; GLORIETA-YESO	96210
-----------------------	-------

Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type State	15. Ground Level Elevation 3636
16. Multiple N	17. Proposed Depth 9865	18. Formation Paddock	19. Contractor	20. Spud Date 11/1/2020
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	9.625	36	1250	564	0
Prod	8.75	7	32	3800	1960	1050
Prod	8.75	5.5	20	9865	1990	1050

Casing/Cement Program: Additional Comments

--

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	3000	3000	TBD

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ if applicable. Signature:	OIL CONSERVATION DIVISION
Printed Name: Electronically filed by Ryan Culpepper	Approved By: Scott Cox
Title:	Title: Petroleum Engineer Supervisor
Email Address: ryan.culpepper@longfellowenergy.com	Approved Date: 9/29/2020 Expiration Date: 9/29/2022
Date: 9/25/2020 Phone: 972-590-9933	Conditions of Approval Attached

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

B Wood
9-25-20

Signature _____ Date _____
BRIAN WOOD
 Printed Name
brian@permitswest.com
 E-mail Address
505 466-8120

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 1, 2020

Date of Survey _____

Signature and Seal of Professional Engineer: _____
 Certificate Number: **WILLIAM F. JARAMILLO SPS 12797**
 PROFESSIONAL ENGINEER NO. 8445

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

GAS CAPTURE PLAN

Date: 9/29/2020

☒ Original

Operator & OGRID No.: [372210] LONGFELLOW ENERGY, LP

☐ Amended - Reason for
Amendment:

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
HENDRIX STATE COM 13 CD #004H	30-015-47478	P-14-17S-28E	1312S 0175E	100	Flared	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to FRONTIER FIELD SERVICES, LLC and will be connected to FRONTIER FIELD SERVICES, LLC Low Pressure gathering system located in Dona Ana County, New Mexico. It will require 300' of pipeline to connect the facility to Low Pressure gathering system. LONGFELLOW ENERGY, LP provides (periodically) to FRONTIER FIELD SERVICES, LLC a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, LONGFELLOW ENERGY, LP and FRONTIER FIELD SERVICES, LLC have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at FRONTIER FIELD SERVICES, LLC Processing Plant located in Sec. 14, Twn. 17S, Rng. 28E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on FRONTIER FIELD SERVICES, LLC system at that time. Based on current information, it is LONGFELLOW ENERGY, LP's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Form APD Comments

Permit 286952

PERMIT COMMENTS

Operator Name and Address: LONGFELLOW ENERGY, LP [372210] 16803 North Dallas Parkway Addison, TX 75001		API Number: 30-015-47478
		Well: HENDRIX STATE COM 13 CD #004H
Created By	Comment	Comment Date

District I

1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Form APD Conditions

Permit 286952

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: LONGFELLOW ENERGY, LP [372210] 16803 North Dallas Parkway Addison, TX 75001	API Number: 30-015-47478
	Well: HENDRIX STATE COM 13 CD #004H

OCD Reviewer	Condition
ksimmons	Will require a directional survey with the C-104
ksimmons	Cement is required to circulate on both surface and intermediate1 strings of casing
kpickford	Will require administrative order for non-standard spacing unit
kpickford	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
kpickford	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud
kpickford	1)- The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud 2)- Drilling Sundries Form C-103 (Casing and Cement test are to be submitted within 10 days 3)- Completion Reports & Logs are to be submitted within 45 days



Longfellow Energy

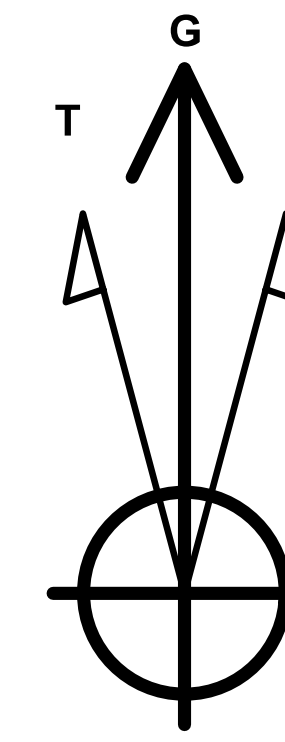
Hendrix State Com 13CD-004H

Eddy Co NM

Northing: 666500.73

Easting: 601030.35

Plan 1



Azimuths to Grid North
True North: -0.11°
Magnetic North: 7.03°

Magnetic Field
Strength: 47858.8nT
Dip Angle: 60.47°
Date: 9/13/2020
Model: HDGM_FILE

WELL DETAILS

Hendrix State Com 13CD-004H

3636.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	666500.73	601030.35	32.832086	-104.138993

PROJECT DETAILS: Eddy Co NM

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

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	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	
869.12	11.38	210.59	865.38	-48.50	-28.68	2.00	210.59	-24.75	
2979.87	11.38	210.59	2934.62	-407.09	-240.67	0.00	0.00	-207.75	
3548.99	0.00	0.00	3500.00	-455.59	-269.35	2.00	180.00	-232.50	
3926.52	0.00	0.00	3877.54	-455.59	-269.35	0.00	0.00	-232.50	
4426.52	60.00	89.71	4291.03	-454.38	-30.62	12.00	89.71	5.39	
4516.52	60.00	89.71	4336.03	-453.99	47.32	0.00	0.00	83.05	
4766.52	90.00	89.71	4400.00	-452.78	286.05	12.00	0.00	320.94	FTP Hendrix 13CD-004H
9784.61	90.00	89.71	4400.00	-427.40	5304.08	0.00	0.00	5321.27	LTP Hendrix 13CD-004H
9864.61	90.00	89.71	4400.00	-427.00	5384.08	0.00	0.00	5400.98	BH Hendrix 13CD-004H

SITE DETAILS: Sec 13/18-17S-29E

Site Centre Northing: 665375.40
Easting: 605413.55

Positional Uncertainty: 0.00
Convergence: 0.11
Local North: Grid

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
FTP Hendrix 13CD-004H	4400.00	-452.78	286.05	666047.95	601316.40
LTP Hendrix 13CD-004H	4400.00	-427.40	5304.08	666073.33	606334.43
BH Hendrix 13CD-004H	4400.00	-426.85	5384.09	666073.88	606414.44

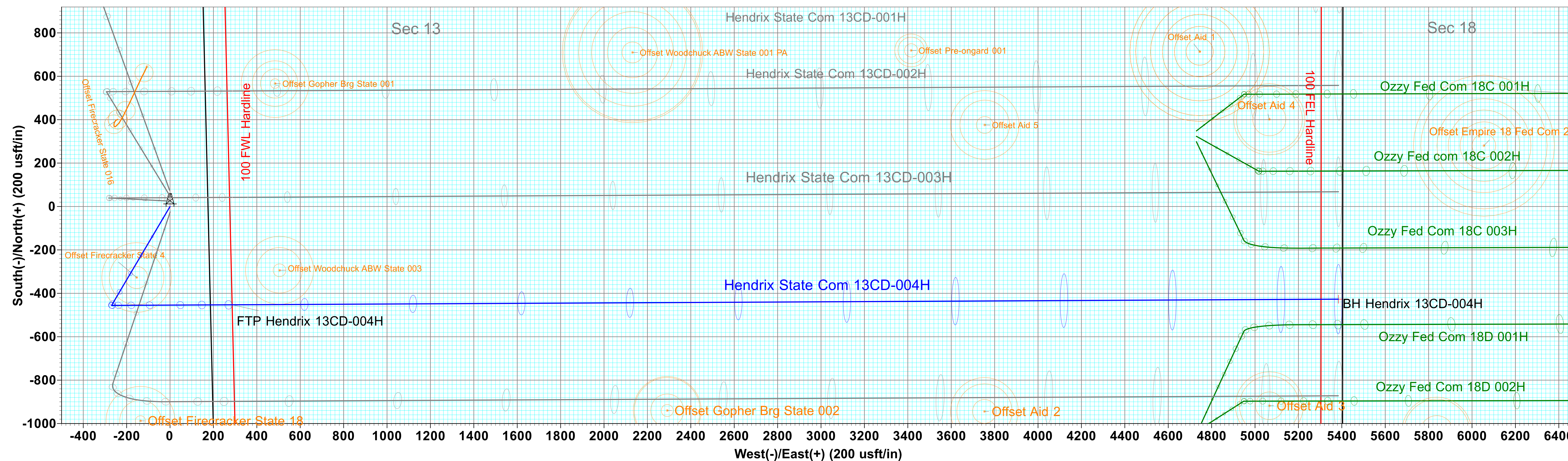
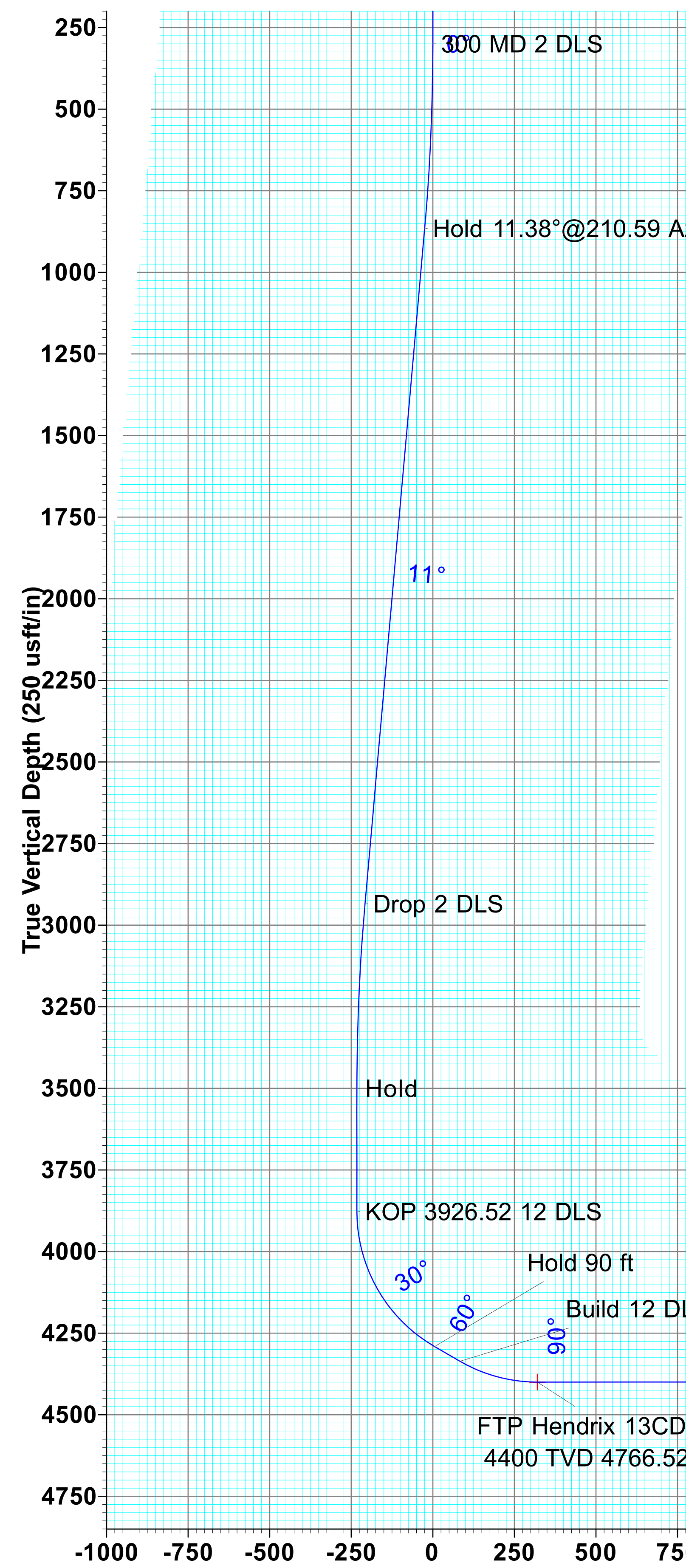
WELLBORE DETAILS: OH Wellbore

Section14/13-17S-28E

SHL: 1312 FSL 175 FEL (Sec14)

BH: 835 FSL 20 FEL (Sec 13)

3636 GL + 12 KB @ 3648.00usft
Gr: 3636.00



LEGEND

- Offset Aid 2, CH, As Drilled VO
- Offset Aid 1, CH, As Drilled VO
- Offset Aid 5, CH, As Drilled VO
- Offset Kool Aid 8, CH, As Drilled VO
- Offset Kool Aid 8, CH, As Drilled VO
- Offset Kool Aid 20, CH, As Drilled VO
- Offset Kool Aid 22, CH, As Drilled VO
- Offset Aid 1, CH, As Drilled VO
- Ozzy Fed Com 18C 001H, CH Wellbore, Plan 1 VO
- Offset Woodchuck ABW State 003, CH, As Drilled VO
- Offset Empire 18 Fed 6, CH, As Drilled VO
- Hendrix State Com 13CD-001H, CH Wellbore, Plan 1 VO
- Offset Firecracker State 18, CH, As Drilled VO
- Offset Empire 18 Fed Com 2, CH, As Drilled VO
- Offset Gopher Brg State 002, CH, As Drilled VO
- Offset Kool Aid 24, CH, As Drilled VO
- Offset Kool Aid 24, CH, As Drilled VO
- Ozzy Fed Com 18C 003H, CH Wellbore, Plan 1 VO
- Offset White Oak State 022, CH, As Drilled VO
- Ozzy Fed Com 18D 001H, CH Wellbore, Plan 1 VO
- Offset Woodchuck ABW State 001 PA, CH, As Drilled VO
- Ozzy Fed Com 18D 003H, CH Wellbore, Plan 1 VO
- Offset Gopher Brg State 001, CH, As Drilled VO
- Ozzy Fed Com 18D 001H, CH Wellbore, Plan 1 VO
- Offset Firecracker State 016, CH, As Drilled VO
- Hendrix State Com 13CD-003H, CH Wellbore, Plan 1 VO
- Offset Kool Aid 8, CH, As Drilled VO
- Offset Aid 4, CH, As Drilled VO
- Ozzy Fed Com 18C 001H, CH Wellbore, Plan 1 VO
- Offset Aid 3, CH, As Drilled VO
- Plan 1

Vertical Section at 94.53° (250 usft/in)



Scientific Drilling, Intl

Planning Report

Database:	Midland	Local Co-ordinate Reference:	Well Hendrix State Com 13CD-004H
Company:	Longfellow Energy	TVD Reference:	3636 GL + 12 KB @ 3648.00usft
Project:	Eddy Co NM	MD Reference:	3636 GL + 12 KB @ 3648.00usft
Site:	Sec 13/18-17S-29E	North Reference:	Grid
Well:	Hendrix State Com 13CD-004H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH Wellbore		
Design:	Plan 1		

Project	Eddy Co NM, Eddy County, New Mexico		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 13/18-17S-29E		
Site Position:		Northing:	665,375.41 usft
From:	Lat/Long	Easting:	605,413.56 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.828970
		Longitude:	-104.124730
		Grid Convergence:	0.11 °

Well	Hendrix State Com 13CD-004H, Upr Blinbry/Bench 2		
Well Position	+N/-S	1,125.33 usft	Northing: 666,500.73 usft
	+E/-W	-4,383.20 usft	Easting: 601,030.35 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,648.00 usft
		Latitude:	32.832086
		Longitude:	-104.138993
		Ground Level:	3,636.00 usft

Wellbore	OH Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	9/13/2020	7.13	60.47	47,858.80000000

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	94.53

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
869.12	11.38	210.59	865.38	-48.50	-28.68	2.00	2.00	0.00	210.59	
2,979.87	11.38	210.59	2,934.62	-407.09	-240.67	0.00	0.00	0.00	0.00	
3,548.99	0.00	0.00	3,500.00	-455.59	-269.35	2.00	-2.00	0.00	180.00	
3,926.52	0.00	0.00	3,877.54	-455.59	-269.35	0.00	0.00	0.00	0.00	
4,426.52	60.00	89.71	4,291.03	-454.38	-30.62	12.00	12.00	0.00	89.71	
4,516.52	60.00	89.71	4,336.03	-453.99	47.32	0.00	0.00	0.00	0.00	
4,766.52	90.00	89.71	4,400.00	-452.78	286.05	12.00	12.00	0.00	0.00	FTP Hendrix 13CD-
9,784.61	90.00	89.71	4,400.00	-427.40	5,304.08	0.00	0.00	0.00	0.00	LTP Hendrix 13CD-
9,864.62	90.00	89.71	4,400.00	-427.00	5,384.08	0.00	0.00	0.00	0.00	BH Hendrix 13CD-C



Scientific Drilling, Intl Planning Report

Database:	Midland	Local Co-ordinate Reference:	Well Hendrix State Com 13CD-004H
Company:	Longfellow Energy	TVD Reference:	3636 GL + 12 KB @ 3648.00usft
Project:	Eddy Co NM	MD Reference:	3636 GL + 12 KB @ 3648.00usft
Site:	Sec 13/18-17S-29E	North Reference:	Grid
Well:	Hendrix State Com 13CD-004H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH Wellbore		
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
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
300 MD 2 DLS									
400.00	2.00	210.59	399.98	-1.50	-0.89	-0.77	2.00	2.00	0.00
500.00	4.00	210.59	499.84	-6.01	-3.55	-3.07	2.00	2.00	0.00
600.00	6.00	210.59	599.45	-13.51	-7.99	-6.89	2.00	2.00	0.00
700.00	8.00	210.59	698.70	-24.00	-14.19	-12.25	2.00	2.00	0.00
800.00	10.00	210.59	797.47	-37.46	-22.15	-19.12	2.00	2.00	0.00
869.12	11.38	210.59	865.38	-48.50	-28.68	-24.75	2.00	2.00	0.00
Hold 11.38°@210.59 Az									
900.00	11.38	210.59	895.66	-53.75	-31.78	-27.43	0.00	0.00	0.00
1,000.00	11.38	210.59	993.69	-70.74	-41.82	-36.10	0.00	0.00	0.00
1,100.00	11.38	210.59	1,091.72	-87.73	-51.86	-44.77	0.00	0.00	0.00
1,200.00	11.38	210.59	1,189.76	-104.72	-61.91	-53.44	0.00	0.00	0.00
1,300.00	11.38	210.59	1,287.79	-121.70	-71.95	-62.11	0.00	0.00	0.00
1,400.00	11.38	210.59	1,385.82	-138.69	-82.00	-70.78	0.00	0.00	0.00
1,500.00	11.38	210.59	1,483.86	-155.68	-92.04	-79.45	0.00	0.00	0.00
1,600.00	11.38	210.59	1,581.89	-172.67	-102.08	-88.12	0.00	0.00	0.00
1,700.00	11.38	210.59	1,679.92	-189.66	-112.13	-96.79	0.00	0.00	0.00
1,800.00	11.38	210.59	1,777.96	-206.65	-122.17	-105.46	0.00	0.00	0.00
1,900.00	11.38	210.59	1,875.99	-223.64	-132.21	-114.13	0.00	0.00	0.00
2,000.00	11.38	210.59	1,974.02	-240.62	-142.26	-122.80	0.00	0.00	0.00
2,100.00	11.38	210.59	2,072.05	-257.61	-152.30	-131.47	0.00	0.00	0.00
2,200.00	11.38	210.59	2,170.09	-274.60	-162.35	-140.14	0.00	0.00	0.00
2,300.00	11.38	210.59	2,268.12	-291.59	-172.39	-148.81	0.00	0.00	0.00
2,400.00	11.38	210.59	2,366.15	-308.58	-182.43	-157.48	0.00	0.00	0.00
2,500.00	11.38	210.59	2,464.19	-325.57	-192.48	-166.15	0.00	0.00	0.00
2,600.00	11.38	210.59	2,562.22	-342.56	-202.52	-174.81	0.00	0.00	0.00
2,700.00	11.38	210.59	2,660.25	-359.55	-212.57	-183.48	0.00	0.00	0.00
2,800.00	11.38	210.59	2,758.29	-376.53	-222.61	-192.15	0.00	0.00	0.00
2,900.00	11.38	210.59	2,856.32	-393.52	-232.65	-200.82	0.00	0.00	0.00
2,979.87	11.38	210.59	2,934.62	-407.09	-240.67	-207.75	0.00	0.00	0.00
Drop 2 DLS									
3,000.00	10.98	210.59	2,954.37	-410.45	-242.66	-209.46	2.00	-2.00	0.00
3,100.00	8.98	210.59	3,052.85	-425.37	-251.48	-217.08	2.00	-2.00	0.00
3,200.00	6.98	210.59	3,151.88	-437.32	-258.54	-223.17	2.00	-2.00	0.00
3,300.00	4.98	210.59	3,251.33	-446.29	-263.85	-227.75	2.00	-2.00	0.00
3,400.00	2.98	210.59	3,351.08	-452.26	-267.38	-230.80	2.00	-2.00	0.00
3,500.00	0.98	210.59	3,451.02	-455.23	-269.14	-232.32	2.00	-2.00	0.00
3,548.99	0.00	0.00	3,500.00	-455.59	-269.35	-232.50	2.00	-2.00	0.00
Hold									
3,926.52	0.00	0.00	3,877.54	-455.59	-269.35	-232.50	0.00	0.00	0.00
KOP 3926.52 12 DLS									
4,000.00	8.82	89.71	3,950.72	-455.57	-263.71	-226.88	12.00	12.00	0.00
4,100.00	20.82	89.71	4,047.22	-455.44	-238.18	-201.44	12.00	12.00	0.00
4,200.00	32.82	89.71	4,136.30	-455.21	-193.15	-156.57	12.00	12.00	0.00
4,300.00	44.82	89.71	4,214.08	-454.89	-130.58	-94.22	12.00	12.00	0.00
4,400.00	56.82	89.71	4,277.14	-454.50	-53.21	-17.12	12.00	12.00	0.00
4,426.52	60.00	89.71	4,291.03	-454.38	-30.62	5.39	12.00	12.00	0.00
Hold 90 ft									
4,500.00	60.00	89.71	4,327.77	-454.06	33.01	68.79	0.00	0.00	0.00
4,516.52	60.00	89.71	4,336.03	-453.99	47.32	83.05	0.00	0.00	0.00
Build 12 DLS									



Scientific Drilling, Intl Planning Report

Database:	Midland	Local Co-ordinate Reference:	Well Hendrix State Com 13CD-004H
Company:	Longfellow Energy	TVD Reference:	3636 GL + 12 KB @ 3648.00usft
Project:	Eddy Co NM	MD Reference:	3636 GL + 12 KB @ 3648.00usft
Site:	Sec 13/18-17S-29E	North Reference:	Grid
Well:	Hendrix State Com 13CD-004H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH Wellbore		
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)
4,600.00	70.02	89.71	4,371.25	-453.61	122.89	158.35	12.00	12.00	0.00
4,700.00	82.02	89.71	4,395.37	-453.12	219.74	254.87	12.00	12.00	0.00
4,766.52	90.00	89.71	4,400.00	-452.78	286.05	320.94	12.00	12.00	0.00
4400 TVD 4766.52 MD - FTP Hendrix 13CD-004H									
4,800.00	90.00	89.71	4,400.00	-452.61	319.53	354.30	0.00	0.00	0.00
4,900.00	90.00	89.71	4,400.00	-452.11	419.53	453.95	0.00	0.00	0.00
5,000.00	90.00	89.71	4,400.00	-451.60	519.53	553.59	0.00	0.00	0.00
5,100.00	90.00	89.71	4,400.00	-451.09	619.52	653.24	0.00	0.00	0.00
5,200.00	90.00	89.71	4,400.00	-450.59	719.52	752.88	0.00	0.00	0.00
5,300.00	90.00	89.71	4,400.00	-450.08	819.52	852.53	0.00	0.00	0.00
5,400.00	90.00	89.71	4,400.00	-449.58	919.52	952.18	0.00	0.00	0.00
5,500.00	90.00	89.71	4,400.00	-449.07	1,019.52	1,051.82	0.00	0.00	0.00
5,600.00	90.00	89.71	4,400.00	-448.57	1,119.52	1,151.47	0.00	0.00	0.00
5,700.00	90.00	89.71	4,400.00	-448.06	1,219.52	1,251.11	0.00	0.00	0.00
5,800.00	90.00	89.71	4,400.00	-447.55	1,319.52	1,350.76	0.00	0.00	0.00
5,900.00	90.00	89.71	4,400.00	-447.05	1,419.51	1,450.40	0.00	0.00	0.00
6,000.00	90.00	89.71	4,400.00	-446.54	1,519.51	1,550.05	0.00	0.00	0.00
6,100.00	90.00	89.71	4,400.00	-446.04	1,619.51	1,649.70	0.00	0.00	0.00
6,200.00	90.00	89.71	4,400.00	-445.53	1,719.51	1,749.34	0.00	0.00	0.00
6,300.00	90.00	89.71	4,400.00	-445.03	1,819.51	1,848.99	0.00	0.00	0.00
6,400.00	90.00	89.71	4,400.00	-444.52	1,919.51	1,948.63	0.00	0.00	0.00
6,500.00	90.00	89.71	4,400.00	-444.01	2,019.51	2,048.28	0.00	0.00	0.00
6,600.00	90.00	89.71	4,400.00	-443.51	2,119.51	2,147.93	0.00	0.00	0.00
6,700.00	90.00	89.71	4,400.00	-443.00	2,219.50	2,247.57	0.00	0.00	0.00
6,800.00	90.00	89.71	4,400.00	-442.50	2,319.50	2,347.22	0.00	0.00	0.00
6,900.00	90.00	89.71	4,400.00	-441.99	2,419.50	2,446.86	0.00	0.00	0.00
7,000.00	90.00	89.71	4,400.00	-441.49	2,519.50	2,546.51	0.00	0.00	0.00
7,100.00	90.00	89.71	4,400.00	-440.98	2,619.50	2,646.16	0.00	0.00	0.00
7,200.00	90.00	89.71	4,400.00	-440.47	2,719.50	2,745.80	0.00	0.00	0.00
7,300.00	90.00	89.71	4,400.00	-439.97	2,819.50	2,845.45	0.00	0.00	0.00
7,400.00	90.00	89.71	4,400.00	-439.46	2,919.49	2,945.09	0.00	0.00	0.00
7,500.00	90.00	89.71	4,400.00	-438.96	3,019.49	3,044.74	0.00	0.00	0.00
7,600.00	90.00	89.71	4,400.00	-438.45	3,119.49	3,144.39	0.00	0.00	0.00
7,700.00	90.00	89.71	4,400.00	-437.95	3,219.49	3,244.03	0.00	0.00	0.00
7,800.00	90.00	89.71	4,400.00	-437.44	3,319.49	3,343.68	0.00	0.00	0.00
7,900.00	90.00	89.71	4,400.00	-436.93	3,419.49	3,443.32	0.00	0.00	0.00
8,000.00	90.00	89.71	4,400.00	-436.43	3,519.49	3,542.97	0.00	0.00	0.00
8,100.00	90.00	89.71	4,400.00	-435.92	3,619.49	3,642.62	0.00	0.00	0.00
8,200.00	90.00	89.71	4,400.00	-435.42	3,719.48	3,742.26	0.00	0.00	0.00
8,300.00	90.00	89.71	4,400.00	-434.91	3,819.48	3,841.91	0.00	0.00	0.00
8,400.00	90.00	89.71	4,400.00	-434.40	3,919.48	3,941.55	0.00	0.00	0.00
8,500.00	90.00	89.71	4,400.00	-433.90	4,019.48	4,041.20	0.00	0.00	0.00
8,600.00	90.00	89.71	4,400.00	-433.39	4,119.48	4,140.85	0.00	0.00	0.00
8,700.00	90.00	89.71	4,400.00	-432.89	4,219.48	4,240.49	0.00	0.00	0.00
8,800.00	90.00	89.71	4,400.00	-432.38	4,319.48	4,340.14	0.00	0.00	0.00
8,900.00	90.00	89.71	4,400.00	-431.88	4,419.48	4,439.78	0.00	0.00	0.00
9,000.00	90.00	89.71	4,400.00	-431.37	4,519.47	4,539.43	0.00	0.00	0.00
9,100.00	90.00	89.71	4,400.00	-430.86	4,619.47	4,639.08	0.00	0.00	0.00
9,200.00	90.00	89.71	4,400.00	-430.36	4,719.47	4,738.72	0.00	0.00	0.00
9,300.00	90.00	89.71	4,400.00	-429.85	4,819.47	4,838.37	0.00	0.00	0.00
9,400.00	90.00	89.71	4,400.00	-429.35	4,919.47	4,938.01	0.00	0.00	0.00
9,500.00	90.00	89.71	4,400.00	-428.84	5,019.47	5,037.66	0.00	0.00	0.00
9,600.00	90.00	89.71	4,400.00	-428.34	5,119.47	5,137.31	0.00	0.00	0.00
9,700.00	90.00	89.71	4,400.00	-427.83	5,219.47	5,236.95	0.00	0.00	0.00



Scientific Drilling, Intl

Planning Report

Database:	Midland	Local Co-ordinate Reference:	Well Hendrix State Com 13CD-004H
Company:	Longfellow Energy	TVD Reference:	3636 GL + 12 KB @ 3648.00usft
Project:	Eddy Co NM	MD Reference:	3636 GL + 12 KB @ 3648.00usft
Site:	Sec 13/18-17S-29E	North Reference:	Grid
Well:	Hendrix State Com 13CD-004H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH Wellbore		
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)
9,784.61	90.00	89.71	4,400.00	-427.40	5,304.08	5,321.27	0.00	0.00	0.00
LTP Hendrix 13CD-004H									
9,800.00	90.00	89.71	4,400.00	-427.33	5,319.46	5,336.60	0.00	0.00	0.00
9,864.61	90.00	89.71	4,400.00	-427.00	5,384.07	5,400.98	0.00	0.00	0.00
TD 4400 TVD 9864.61 MD - BH Hendrix 13CD-004H									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BH Hendrix 13CD-004	0.00	0.00	4,400.00	-426.85	5,384.09	666,073.88	606,414.44	32.830884	-104.121467
- hit/miss target									
- plan misses target center by 0.15usft at 9864.61usft MD (4400.00 TVD, -427.00 N, 5384.07 E)									
- Point									
FTP Hendrix 13CD-004	0.00	0.00	4,400.00	-452.78	286.05	666,047.95	601,316.40	32.830840	-104.138065
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	300 MD 2 DLS
869.12	865.38	-48.50	-28.68	Hold 11.38°@210.59 Az
2,979.87	2,934.62	-407.09	-240.67	Drop 2 DLS
3,548.99	3,500.00	-455.59	-269.35	Hold
3,926.52	3,877.54	-455.59	-269.35	KOP 3926.52 12 DLS
4,426.52	4,291.03	-454.38	-30.62	Hold 90 ft
4,516.52	4,336.03	-453.99	47.32	Build 12 DLS
4,766.52	4,400.00	-452.78	286.05	4400 TVD 4766.52 MD
9,864.61	4,400.00	-427.00	5,384.07	TD 4400 TVD 9864.61 MD