

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMCOO

Hobbs

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No.
NMNM20979

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.
Other _____

6. If Indian, Allottee or Tribe Name

7. Unit or CA Agreement Name and No.

2. Name of Operator
LEGACY RESERVES OPERATING LE-Mail: pdarden@legacyp.com

Contact: D. PATRICK DARDEN, PE

8. Lease Name and Well No.
LEA UNIT 38H

3. Address 303 W WALL ST STE 1800
MIDLAND, TX 79701

3a. Phone No. (include area code)
Ph: 432-689-5200 Ext: 5237

9. API Well No.
30-025-43077

4. Location of Well (Report location clearly and in accordance with Federal requirements)*

At surface 2270FSL 660FEL

At top prod interval reported below
Sec 13 T20S R34E Mer

At total depth 331FNL 698FEL

10. Field and Pool, or Exploratory
LEA; BONE SPRING

11. Sec., T., R., M., or Block and Survey
or Area Sec 24 T20S R34E Mer

12. County or Parish
LEA

13. State
NM

14. Date Spudded
11/03/2016

15. Date T.D. Reached
11/23/2016

16. Date Completed
☐ D & A ☒ Ready to Prod.
02/03/2017

17. Elevations (DF, KB, RT, GL)*
3674 GL

18. Total Depth: MD 18762
TVD 11026

19. Plug Back T.D.: MD 18762
TVD 11026

20. Depth Bridge Plug Set: MD
TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
GR/CCL

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☐ No ☒ Yes (Submit analysis)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cement Depth	No. of Sk. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17.500	13.375 J-55	54.5	0	1760		1500		0	
12.250	9.625 J-55	40.0	0	5575		1800		0	
8.750	5.500 HCP110	20.0	0	18762		3300		0	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	10430							

25. Producing Intervals

26. Perforation Record

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) BONE SPRING	11544	18680	11544 TO 18680		1050	PRODUCING
B)						
C)						
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
11544 TO 18680	TREAT WELL W/3,182 BBLs ACID, 10,783,240# SAND & 268,406 BBLs WTR

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
02/10/2017	05/04/2017	24	→	1513.0	1700.0	909.0	41.0	0.56	ELECTRIC PUMP SUB-SURFACE
Choke Size	Tbg. Press. Flwg.	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
SI	310	310.0	→	1513	1700	909	1124	POW	

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg.	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
SI			→						

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #384389 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **

Reclamation was due 8/10/17

ACCEPTED FOR RECORD

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

K3

KZ

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	

29. Disposition of Gas(Sold, used for fuel, vented, etc.)
SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top
					Meas. Depth
BONE SPRING 1ST	9489	10136		BELL CANYON	5567
BONE SPRING 2ND	10136	10868		BRUSHY CANYON	6569
BONE SPRING 3RD	10868	10996		BONE SPRING	8320
BONE SPRING	11270	18329		BONE SPRING 1ST	9489
				BONE SPRING 2ND	10136
				BONE SPRING 3RD	10868

32. Additional remarks (include plugging procedure):

Directional survey attached. Log will be mailed to BLM Carlsbad Office.

33. Circle enclosed attachments:

- | | | | |
|---|--------------------|---------------|-----------------------|
| 1. Electrical/Mechanical Logs (1 full set req'd.) | 2. Geologic Report | 3. DST Report | 4. Directional Survey |
| 5. Sundry Notice for plugging and cement verification | 6. Core Analysis | 7 Other: | |

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #384389 Verified by the BLM Well Information System.
For LEGACY RESERVES OPERATING LP, sent to the Hobbs
Committed to AFMSS for processing by DEBORAH HAM on 09/05/2017 ()

Name (please print) D. PATRICK DARDEN, PE

Title SR. ENGINEERING ADVISOR

Signature _____ (Electronic Submission)

Date 08/11/2017

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.

**** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ****

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 Bravos Rd., Artesia, NM 87410
Phone: (505) 334-6170 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

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

HOBBS OGD
AUG 16 2017
RECEIVED

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

"AS DRILLED"

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-43077	Pool Code 37570	Pool Name Lea; Bone Spring
Property Code 302802	Property Name LEA UNIT	Well Number 38H
GRID No. 240974	Operator Name LEGACY RESERVES OPERATING LP	Elevation 3674'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	24	20 S	34 E		2270	SOUTH	660	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	13	20 S	34 E		331	NORTH	698	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
240			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

As-Drilled Path based on Downhole Report provided by Terra Directional Services received May 11, 2017.
Prepared From Survey Dated: June 19, 2015

NOTE:
1) Plane Coordinates shown hereon are Transverse Mercator Grid and Conform to the New Mexico Coordinate System, New Mexico East Zone, North American Datum of 1983. Distances shown hereon are mean horizontal surface values.

Bottom Hole Location
M.D. = 18,762'
Last Take Point
M.D. = 18,680'

Scale
1" = 2000'

SURFACE LOCATION
Plane Coordinate (NAD '83)
X = 795,836.03
Y = 567,574.48
Geodetic Coordinate (NAD '83)
Latitude = 32.55760450° N
Longitude = 103.5073127° W

FIRST TAKE POINT LOCATION
Plane Coordinate (NAD '83)
X = 795,811.30
Y = 568,311.63
Geodetic Coordinate (NAD '83)
Latitude = 32.55963106° N
Longitude = 103.50737442° W

LAST TAKE POINT LOCATION
Plane Coordinate (NAD '83)
X = 795,745.27
Y = 575,442.68
Geodetic Coordinate (NAD '83)
Latitude = 32.57923195° N
Longitude = 103.50740910° W

BOTTOM HOLE LOCATION
Plane Coordinate (NAD '83)
X = 795,738.55
Y = 575,524.39
Geodetic Coordinate (NAD '83)
Latitude = 32.57945666° N
Longitude = 103.50742885° W

First Take Point
M.D. = 11,544'
#38H (SL)
M.D. = 0.0'

240974

13

24

698'

692'

413'

2269'

680'

660'

2270'

T-20-S, R-34-E
T-20-S, R-35-E

Total MD from FTP to LTP equals 4,452'

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 an undivided interest in the land including the proposed bottom hole location or has a right to drill this well of 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.

Laura Pina 08/10/17
Signature Date
Laura Pina
Printed Name
lpina@legacylp.com
E-mail Address

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.

June 24, 2015

Date of Survey SC
Signature & Seal of Professional Surveyor

05-22-17
LINDSAY GYGAX
NEW MEXICO
23263
PROFESSIONAL SURVEYOR

W.O. Num. 201500416
Certificate No. Lindsay Gygax 23263



Legacy Reserves

Lea County, NM (NAD-27 2015)

Lea Unit #38H

Lea Unit #38H

30-025-38718

OH

Design: OH

Standard Survey Report

25 November, 2016





TDS
Survey Report



Company: Legacy Reserves
Project: Lea County, NM (NAD-27 2015)
Site: Lea Unit #38H
Well: Lea Unit #38H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Lea Unit #38H
TVD Reference: KB @ 3692.00usft (McVay 4)
MD Reference: KB @ 3692.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project: Lea County, NM (NAD-27 2015)
Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site: Lea Unit #38H

Site Position: Northing: 567,512.00 usft Latitude: 32° 33' 26.931 N
From: Map Easting: 754,654.70 usft Longitude: 103° 30' 24.570 W
Position Uncertainty: 0.00 usft Slot Radius: 13.20 in Grid Convergence: 0.44 °

Well: Lea Unit #38H

Well Position: +N/-S 0.00 usft Northing: 567,512.00 usft Latitude: 32° 33' 26.931 N
+E/-W 0.00 usft Easting: 754,654.70 usft Longitude: 103° 30' 24.570 W
Position Uncertainty: 0.00 usft Wellhead Elevation: 0.00 usft Ground Level: 3,674.00 usft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/2/2015	7.14	60.40	48,327

Design: OH

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.57

Survey Program Date: 11/25/2016

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
200.00	18,762.00	TDS MWD #1 (OH)	MWD	MWD - Standard

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
200.00	0.40	207.10	200.00	-0.62	-0.32	-0.62	0.20	0.20	0.00
First TDS MWD Survey									
290.00	0.40	189.20	290.00	-1.21	-0.51	-1.21	0.14	0.00	-19.89
382.00	0.50	22.60	382.00	-1.16	-0.41	-1.15	0.97	0.11	-181.09
563.00	0.60	118.00	562.99	-0.87	0.73	-0.88	0.45	0.06	52.71
744.00	0.20	227.60	743.99	-1.53	1.34	-1.54	0.38	-0.22	60.55
835.00	0.60	337.30	834.98	-1.20	1.03	-1.21	0.76	0.44	120.55
927.00	0.10	12.60	926.98	-0.68	0.87	-0.68	0.57	-0.54	38.37
1,018.00	0.30	355.40	1,017.98	-0.36	0.86	-0.37	0.23	0.22	-18.90
1,109.00	0.20	349.10	1,108.98	0.03	0.81	0.03	0.11	-0.11	-6.92

Company: Legacy Reserves
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Site: Lea Unit #38H
Well: Lea Unit #38H
Wellbore: OH
Design: OH

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MD Reference: KB @ 3692.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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)
1,201.00	0.30	285.60	1,200.98	0.25	0.55	0.25	0.30	0.11	-69.02
1,292.00	0.40	271.10	1,291.98	0.32	0.01	0.32	0.15	0.11	-15.93
1,384.00	0.60	279.10	1,383.98	0.41	-0.79	0.41	0.23	0.22	8.70
1,476.00	1.00	277.80	1,475.97	0.59	-2.06	0.61	0.44	0.43	-1.41
1,570.00	1.60	290.40	1,569.94	1.16	-4.10	1.19	0.70	0.64	13.40
1,664.00	2.00	287.30	1,663.90	2.11	-6.90	2.16	0.44	0.43	-3.30
1,691.00	2.00	291.60	1,690.88	2.42	-7.79	2.48	0.56	0.00	15.93
1,790.00	2.00	294.30	1,789.82	3.77	-10.97	3.85	0.10	0.00	2.73
1,852.00	1.90	292.30	1,851.78	4.60	-12.91	4.70	0.20	-0.16	-3.23
1,947.00	1.50	298.90	1,946.74	5.80	-15.45	5.92	0.47	-0.42	6.95
2,041.00	1.50	305.90	2,040.71	7.12	-17.53	7.25	0.19	0.00	7.45
2,135.00	1.50	309.30	2,134.68	8.62	-19.47	8.76	0.09	0.00	3.62
2,229.00	1.50	311.60	2,228.64	10.21	-21.35	10.37	0.06	0.00	2.45
2,417.00	1.50	310.70	2,416.58	13.45	-25.05	13.64	0.01	0.00	-0.48
2,511.00	1.30	309.90	2,510.55	14.94	-26.80	15.14	0.21	-0.21	-0.85
2,606.00	1.10	314.20	2,605.53	16.26	-28.28	16.48	0.23	-0.21	4.53
2,700.00	1.00	318.20	2,699.52	17.51	-29.48	17.73	0.13	-0.11	4.26
2,794.00	1.00	318.80	2,793.50	18.73	-30.56	18.96	0.01	0.00	0.64
2,888.00	0.60	336.40	2,887.49	19.80	-31.30	20.04	0.49	-0.43	18.72
2,982.00	0.70	21.00	2,981.49	20.79	-31.29	21.02	0.53	0.11	47.45
3,076.00	0.90	44.90	3,075.48	21.85	-30.57	22.08	0.41	0.21	25.43
3,171.00	0.80	50.40	3,170.47	22.80	-29.53	23.02	0.14	-0.11	5.79
3,265.00	0.70	47.20	3,264.46	23.61	-28.60	23.82	0.12	-0.11	-3.40
3,359.00	0.90	31.40	3,358.45	24.63	-27.80	24.84	0.31	0.21	-16.81
3,453.00	0.90	32.50	3,452.44	25.88	-27.01	26.08	0.02	0.00	1.17
3,547.00	1.10	26.60	3,546.42	27.31	-26.21	27.51	0.24	0.21	-6.28
3,642.00	1.10	22.30	3,641.41	28.97	-25.46	29.16	0.09	0.00	-4.53
3,736.00	1.20	19.60	3,735.39	30.73	-24.79	30.92	0.12	0.11	-2.87
3,830.00	1.40	21.70	3,829.36	32.73	-24.03	32.90	0.22	0.21	2.23
3,924.00	1.50	23.30	3,923.33	34.92	-23.12	35.09	0.11	0.11	1.70
4,018.00	1.60	16.80	4,017.30	37.31	-22.25	37.47	0.22	0.11	-6.91
4,112.00	1.50	15.60	4,111.26	39.75	-21.54	39.91	0.11	-0.11	-1.28
4,206.00	1.80	17.20	4,205.23	42.35	-20.78	42.50	0.32	0.32	1.70
4,301.00	1.90	17.60	4,300.18	45.27	-19.86	45.42	0.11	0.11	0.42
4,395.00	1.80	18.50	4,394.13	48.16	-18.92	48.30	0.11	-0.11	0.96
4,489.00	1.50	21.70	4,488.09	50.70	-18.00	50.83	0.33	-0.32	3.40
4,584.00	1.50	25.90	4,583.05	52.97	-16.99	53.10	0.12	0.00	4.42
4,678.00	1.70	33.50	4,677.02	55.24	-15.69	55.36	0.31	0.21	8.09
4,772.00	1.70	31.70	4,770.98	57.59	-14.18	57.70	0.06	0.00	-1.91
4,866.00	1.80	26.70	4,864.93	60.10	-12.79	60.19	0.19	0.11	-5.32
4,960.00	1.30	17.30	4,958.90	62.43	-11.81	62.52	0.60	-0.53	-10.00
5,054.00	1.40	23.90	5,052.87	64.50	-11.03	64.58	0.20	0.11	7.02
5,149.00	1.40	20.30	5,147.84	66.65	-10.15	66.73	0.09	0.00	-3.79

Company: Legacy Reserves
Project: Lea County, NM (NAD-27 2015)
Site: Lea Unit #38H
Well: Lea Unit #38H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Lea Unit #38H
TVD Reference: KB @ 3692.00usft (McVay 4)
MD Reference: KB @ 3692.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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)
5,243.00	1.30	26.00	5,241.82	68.69	-9.29	68.76	0.18	-0.11	6.06
5,337.00	1.20	23.50	5,335.80	70.55	-8.43	70.61	0.12	-0.11	-2.66
5,431.00	1.40	19.90	5,429.77	72.53	-7.64	72.59	0.23	0.21	-3.83
5,517.00	1.50	20.30	5,515.74	74.57	-6.90	74.62	0.12	0.12	0.47
5,649.00	1.30	18.90	5,647.70	77.61	-5.81	77.65	0.15	-0.15	-1.06
5,744.00	0.30	221.50	5,742.70	78.44	-5.63	78.48	1.66	-1.05	-165.68
5,838.00	0.70	214.20	5,836.69	77.79	-6.11	77.83	0.43	0.43	-7.77
5,932.00	1.10	218.10	5,930.68	76.60	-6.99	76.65	0.43	0.43	4.15
6,026.00	1.20	223.20	6,024.66	75.17	-8.22	75.23	0.15	0.11	5.43
6,120.00	1.10	222.80	6,118.64	73.79	-9.51	73.86	0.11	-0.11	-0.43
6,215.00	1.10	223.10	6,213.63	72.46	-10.75	72.54	0.01	0.00	0.32
6,309.00	1.20	224.80	6,307.61	71.10	-12.06	71.19	0.11	0.11	1.81
6,403.00	1.10	223.50	6,401.59	69.75	-13.38	69.85	0.11	-0.11	-1.38
6,497.00	1.30	219.70	6,495.57	68.27	-14.68	68.38	0.23	0.21	-4.04
6,591.00	1.70	223.90	6,589.54	66.45	-16.33	66.57	0.44	0.43	4.47
6,686.00	1.80	228.30	6,684.49	64.44	-18.42	64.58	0.18	0.11	4.63
6,780.00	2.20	232.90	6,778.43	62.37	-20.96	62.53	0.46	0.43	4.89
6,874.00	1.70	224.80	6,872.38	60.29	-23.38	60.47	0.61	-0.53	-8.62
6,968.00	1.10	192.90	6,966.35	58.42	-24.57	58.61	1.02	-0.64	-33.94
7,062.00	1.40	183.20	7,060.33	56.40	-24.83	56.58	0.39	0.32	-10.32
7,156.00	1.50	182.20	7,154.30	54.02	-24.94	54.21	0.11	0.11	-1.06
7,251.00	1.60	187.70	7,249.27	51.46	-25.17	51.65	0.19	0.11	5.79
7,345.00	1.00	167.20	7,343.24	49.36	-25.16	49.55	0.80	-0.64	-21.81
7,439.00	0.90	162.80	7,437.23	47.86	-24.76	48.04	0.13	-0.11	-4.68
7,533.00	1.00	175.40	7,531.22	46.34	-24.48	46.52	0.25	0.11	13.40
7,628.00	1.10	181.80	7,626.20	44.60	-24.44	44.78	0.16	0.11	6.74
7,722.00	1.40	185.30	7,720.18	42.55	-24.57	42.74	0.33	0.32	3.72
7,817.00	1.70	187.60	7,815.14	40.00	-24.87	40.19	0.32	0.32	2.42
7,911.00	1.80	192.10	7,909.10	37.18	-25.36	37.36	0.18	0.11	4.79
8,005.00	1.30	170.30	8,003.06	34.68	-25.49	34.87	0.81	-0.53	-23.19
8,099.00	1.40	162.20	8,097.04	32.54	-24.96	32.72	0.23	0.11	-8.62
8,193.00	1.50	168.60	8,191.01	30.24	-24.37	30.42	0.20	0.11	6.81
8,288.00	1.40	181.00	8,285.98	27.86	-24.14	28.04	0.35	-0.11	13.05
8,382.00	1.00	201.30	8,379.96	25.95	-24.46	26.13	0.61	-0.43	21.60
8,476.00	0.70	237.30	8,473.95	24.87	-25.24	25.06	0.64	-0.32	38.30
8,570.00	1.20	265.00	8,567.94	24.48	-26.70	24.67	0.71	0.53	29.47
8,664.00	1.80	271.80	8,661.90	24.44	-29.16	24.65	0.66	0.64	7.23
8,759.00	2.20	267.60	8,756.84	24.41	-32.47	24.65	0.45	0.42	-4.42
8,853.00	1.80	258.70	8,850.79	24.04	-35.72	24.31	0.54	-0.43	-9.47
8,947.00	2.20	256.00	8,944.73	23.32	-38.92	23.61	0.44	0.43	-2.87
9,041.00	2.40	251.70	9,038.65	22.26	-42.54	22.58	0.28	0.21	-4.57
9,135.00	1.30	244.60	9,132.60	21.19	-45.37	21.53	1.19	-1.17	-7.55
9,230.00	1.70	289.70	9,227.57	21.20	-47.67	21.56	1.27	0.42	47.47

Company: Legacy Reserves
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Well: Lea Unit #38H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Lea Unit #38H
TVD Reference: KB @ 3692.00usft (McVay 4)
MD Reference: KB @ 3692.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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)
9,324.00	1.90	307.40	9,321.53	22.61	-50.22	22.99	0.63	0.21	18.83
9,418.00	2.30	318.40	9,415.47	24.97	-52.71	25.37	0.60	0.43	11.70
9,512.00	2.20	314.00	9,509.39	27.64	-55.26	28.05	0.21	-0.11	-4.68
9,607.00	1.50	286.90	9,604.35	29.26	-57.77	29.70	1.16	-0.74	-28.53
9,701.00	2.00	279.00	9,698.30	29.88	-60.56	30.33	0.59	0.53	-8.40
9,795.00	1.80	289.00	9,792.25	30.62	-63.58	31.09	0.41	-0.21	10.64
9,889.00	2.20	285.00	9,886.19	31.56	-66.72	32.06	0.45	0.43	-4.26
9,983.00	1.90	270.10	9,980.13	32.03	-70.02	32.56	0.65	-0.32	-15.85
10,077.00	1.20	242.70	10,074.10	31.58	-72.45	32.13	1.06	-0.74	-29.15
10,172.00	1.50	259.50	10,169.07	30.90	-74.56	31.46	0.52	0.32	17.68
10,266.00	2.10	241.40	10,263.03	29.85	-77.28	30.43	0.87	0.64	-19.26
10,360.00	1.50	254.10	10,356.98	28.69	-79.98	29.29	0.76	-0.64	13.51
10,453.00	1.50	247.40	10,449.95	27.89	-82.27	28.51	0.19	0.00	-7.20
10,500.00	1.10	348.00	10,496.94	28.09	-82.93	28.72	4.29	-0.85	214.04
10,548.00	5.80	7.80	10,544.84	30.95	-82.70	31.57	9.96	9.79	41.25
10,595.00	10.50	8.50	10,591.35	37.54	-81.74	38.15	10.00	10.00	1.49
10,642.00	15.40	6.70	10,637.14	47.98	-80.38	48.58	10.46	10.43	-3.83
10,689.00	19.30	2.80	10,682.00	61.94	-79.27	62.54	8.65	8.30	-8.30
10,736.00	23.50	5.50	10,725.75	79.04	-77.99	79.62	9.18	8.94	5.74
10,783.00	28.30	8.50	10,768.02	99.40	-75.45	99.96	10.58	10.21	6.38
10,830.00	33.10	9.70	10,808.42	123.08	-71.64	123.61	10.30	10.21	2.55
10,877.00	38.00	7.80	10,846.65	150.08	-67.51	150.58	10.69	10.43	-4.04
10,924.00	43.80	5.90	10,882.16	180.62	-63.87	181.09	12.62	12.34	-4.04
10,971.00	48.30	5.20	10,914.77	214.29	-60.61	214.74	9.63	9.57	-1.49
11,018.00	51.90	4.90	10,944.92	250.20	-57.43	250.63	7.68	7.66	-0.64
11,065.00	56.90	4.80	10,972.27	288.27	-54.21	288.67	10.64	10.64	-0.21
11,112.00	59.80	4.40	10,996.93	328.15	-51.00	328.52	6.21	6.17	-0.85
11,159.00	60.70	4.10	11,020.25	368.84	-47.98	369.19	1.99	1.91	-0.64
11,206.00	62.50	4.20	11,042.60	410.07	-44.98	410.40	3.83	3.83	0.21
11,253.00	67.00	4.00	11,062.64	452.46	-41.95	452.76	9.58	9.57	-0.43
11,300.00	73.30	4.40	11,078.60	496.53	-38.71	496.80	13.43	13.40	0.85
11,347.00	78.60	4.40	11,090.00	541.97	-35.21	542.22	11.28	11.28	0.00
11,394.00	81.70	3.70	11,098.04	588.16	-31.94	588.38	6.76	6.60	-1.49
11,427.00	84.00	2.90	11,102.15	620.84	-30.06	621.05	7.37	6.97	-2.42
11,474.00	84.40	2.40	11,106.90	667.55	-27.90	667.74	1.36	0.85	-1.06
11,500.00	84.23	2.51	11,109.47	693.40	-26.79	693.58	0.77	-0.64	0.43
AS-Drilled FTP									
11,521.00	84.10	2.60	11,111.61	714.27	-25.86	714.45	0.77	-0.64	0.43
11,568.00	84.00	3.30	11,116.48	760.96	-23.45	761.11	1.50	-0.21	1.49
11,615.00	85.50	2.60	11,120.78	807.70	-21.04	807.83	3.52	3.19	-1.49
11,662.00	87.60	2.00	11,123.61	854.57	-19.16	854.69	4.65	4.47	-1.28
11,709.00	88.30	2.00	11,125.29	901.51	-17.52	901.62	1.49	1.49	0.00
11,756.00	89.30	0.90	11,126.27	948.48	-16.33	948.58	3.16	2.13	-2.34
11,803.00	89.50	1.00	11,126.77	995.47	-15.55	995.56	0.48	0.43	0.21

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TVD Reference: KB @ 3692.00usft (McVay 4)
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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)
11,898.00	89.70	0.80	11,127.43	1,090.46	-14.06	1,090.54	0.30	0.21	-0.21
11,992.00	89.80	359.80	11,127.84	1,184.46	-13.57	1,184.53	1.07	0.11	-1.06
12,086.00	90.80	359.50	11,127.35	1,278.45	-14.14	1,278.52	1.11	1.06	-0.32
12,180.00	91.40	359.80	11,125.54	1,372.43	-14.72	1,372.50	0.71	0.64	0.32
12,275.00	91.80	0.60	11,122.89	1,467.39	-14.38	1,467.46	0.94	0.42	0.84
12,369.00	90.90	0.30	11,120.68	1,561.36	-13.65	1,561.42	1.01	-0.96	-0.32
12,463.00	89.80	359.70	11,120.10	1,655.36	-13.65	1,655.42	1.33	-1.17	-0.64
12,557.00	90.20	0.30	11,120.10	1,749.36	-13.65	1,749.41	0.77	0.43	0.64
12,652.00	89.30	0.50	11,120.52	1,844.36	-12.98	1,844.40	0.97	-0.95	0.21
12,746.00	89.10	0.70	11,121.83	1,938.34	-12.00	1,938.38	0.30	-0.21	0.21
12,840.00	89.80	0.10	11,122.73	2,032.33	-11.34	2,032.36	0.98	0.74	-0.64
12,934.00	89.20	359.20	11,123.55	2,126.33	-11.92	2,126.36	1.15	-0.64	-0.96
13,028.00	89.70	358.80	11,124.45	2,220.31	-13.56	2,220.35	0.68	0.53	-0.43
13,123.00	90.30	359.20	11,124.45	2,315.29	-15.22	2,315.34	0.76	0.63	0.42
13,217.00	90.90	359.50	11,123.47	2,409.28	-16.28	2,409.34	0.71	0.64	0.32
13,311.00	91.50	359.80	11,121.50	2,503.26	-16.86	2,503.31	0.71	0.64	0.32
13,405.00	91.50	359.80	11,119.04	2,597.23	-17.18	2,597.28	0.00	0.00	0.00
13,500.00	91.50	359.10	11,116.55	2,692.19	-18.10	2,692.25	0.74	0.00	-0.74
13,594.00	91.30	358.70	11,114.26	2,786.14	-19.90	2,786.21	0.48	-0.21	-0.43
13,688.00	91.50	359.10	11,111.96	2,880.10	-21.70	2,880.18	0.48	0.21	0.43
13,782.00	91.20	359.50	11,109.74	2,974.06	-22.85	2,974.15	0.53	-0.32	0.43
13,876.00	90.90	0.20	11,108.02	3,068.05	-23.10	3,068.13	0.81	-0.32	0.74
13,970.00	91.20	0.80	11,106.30	3,162.03	-22.28	3,162.10	0.71	0.32	0.64
14,064.00	91.60	1.90	11,104.00	3,255.97	-20.06	3,256.03	1.24	0.43	1.17
14,159.00	91.10	1.30	11,101.76	3,350.91	-17.41	3,350.94	0.82	-0.53	-0.63
14,253.00	91.00	1.80	11,100.04	3,444.86	-14.87	3,444.87	0.54	-0.11	0.53
14,347.00	90.90	1.70	11,098.48	3,538.80	-12.00	3,538.79	0.15	-0.11	-0.11
14,441.00	91.90	2.20	11,096.19	3,632.72	-8.80	3,632.68	1.19	1.06	0.53
14,536.00	92.50	2.10	11,092.54	3,727.58	-5.24	3,727.51	0.64	0.63	-0.11
14,630.00	90.80	1.30	11,089.83	3,821.49	-2.45	3,821.40	2.00	-1.81	-0.85
14,724.00	89.70	0.20	11,089.42	3,915.48	-1.22	3,915.38	1.65	-1.17	-1.17
14,818.00	90.10	0.10	11,089.59	4,009.48	-0.98	4,009.38	0.44	0.43	-0.11
14,913.00	90.30	359.20	11,089.26	4,104.48	-1.56	4,104.37	0.97	0.21	-0.95
15,007.00	90.00	359.90	11,089.01	4,198.47	-2.30	4,198.37	0.81	-0.32	0.74
15,101.00	90.10	0.00	11,088.93	4,292.47	-2.38	4,292.37	0.15	0.11	0.11
15,195.00	90.60	0.00	11,088.35	4,386.47	-2.38	4,386.37	0.53	0.53	0.00
15,289.00	91.00	0.50	11,087.04	4,480.46	-1.97	4,480.35	0.68	0.43	0.53
15,384.00	91.80	1.30	11,084.72	4,575.42	-0.48	4,575.29	1.19	0.84	0.84
15,478.00	92.20	1.40	11,081.44	4,669.34	1.74	4,669.19	0.44	0.43	0.11
15,572.00	92.10	0.70	11,077.91	4,763.25	3.46	4,763.09	0.75	-0.11	-0.74
15,665.00	93.40	1.60	11,073.45	4,856.12	5.32	4,855.95	1.70	1.40	0.97
15,759.00	93.60	2.00	11,067.71	4,949.90	8.27	4,949.70	0.48	0.21	0.43
15,854.00	91.40	0.30	11,063.57	5,044.78	10.17	5,044.57	2.93	-2.32	-1.79

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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)
15,948.00	91.80	358.90	11,060.94	5,138.74	9.52	5,138.53	1.55	0.43	-1.49
16,042.00	93.40	357.80	11,056.68	5,232.60	6.81	5,232.40	2.06	1.70	-1.17
16,136.00	91.90	358.00	11,052.33	5,326.44	3.37	5,326.26	1.61	-1.60	0.21
16,230.00	90.60	358.60	11,050.28	5,420.37	0.59	5,420.21	1.52	-1.38	0.64
16,324.00	90.50	357.50	11,049.38	5,514.31	-2.61	5,514.17	1.17	-0.11	-1.17
16,419.00	91.40	357.00	11,047.81	5,609.19	-7.17	5,609.08	1.08	0.95	-0.53
16,513.00	90.00	357.40	11,046.66	5,703.06	-11.76	5,702.99	1.55	-1.49	0.43
16,607.00	91.20	357.80	11,045.67	5,796.97	-15.70	5,796.93	1.35	1.28	0.43
16,702.00	90.20	357.60	11,044.51	5,891.89	-19.51	5,891.87	1.07	-1.05	-0.21
16,796.00	90.30	357.90	11,044.10	5,985.82	-23.20	5,985.82	0.34	0.11	0.32
16,890.00	91.80	358.80	11,042.38	6,079.76	-25.91	6,079.78	1.86	1.60	0.96
16,985.00	89.60	358.80	11,041.22	6,174.72	-27.90	6,174.76	2.32	-2.32	0.00
17,079.00	90.60	359.40	11,041.06	6,268.71	-29.37	6,268.75	1.24	1.06	0.64
17,173.00	90.00	359.30	11,040.56	6,362.70	-30.44	6,362.75	0.65	-0.64	-0.11
17,267.00	90.50	359.90	11,040.15	6,456.70	-31.10	6,456.75	0.83	0.53	0.64
17,362.00	91.80	359.90	11,038.25	6,551.68	-31.26	6,551.73	1.37	1.37	0.00
17,453.00	91.50	359.70	11,035.63	6,642.64	-31.58	6,642.69	0.40	-0.33	-0.22
17,548.00	90.20	357.80	11,034.22	6,737.60	-33.65	6,737.66	2.42	-1.37	-2.00
17,642.00	91.60	357.80	11,032.74	6,831.52	-37.26	6,831.60	1.49	1.49	0.00
17,736.00	92.00	358.20	11,029.79	6,925.41	-40.54	6,925.52	0.60	0.43	0.43
17,830.00	90.60	358.10	11,027.66	7,019.34	-43.57	7,019.47	1.49	-1.49	-0.11
17,925.00	90.20	357.30	11,026.99	7,114.26	-47.38	7,114.41	0.94	-0.42	-0.84
18,019.00	89.10	357.40	11,027.57	7,208.15	-51.73	7,208.34	1.18	-1.17	0.11
18,113.00	90.20	356.90	11,028.14	7,302.03	-56.40	7,302.25	1.29	1.17	-0.53
18,208.00	90.20	357.10	11,027.81	7,396.90	-61.38	7,397.16	0.21	0.00	0.21
18,302.00	90.30	357.10	11,027.40	7,490.78	-66.13	7,491.07	0.11	0.11	0.00
18,396.00	88.80	356.90	11,028.14	7,584.65	-71.05	7,584.97	1.61	-1.60	-0.21
18,491.00	89.20	356.40	11,029.79	7,679.47	-76.60	7,679.83	0.67	0.42	-0.53
18,585.00	90.50	355.70	11,030.04	7,773.24	-83.08	7,773.65	1.57	1.38	-0.74
18,679.00	91.40	355.30	11,028.48	7,866.94	-90.45	7,867.40	1.05	0.96	-0.43
Last TDS MWD Survey									
18,762.00	91.40	355.30	11,026.45	7,949.64	-97.25	7,950.14	0.00	0.00	0.00
Projection to Bit/TD - As-Drilled LTP									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.00	200.00	-0.62	-0.32	First TDS MWD Survey
11,500.00	11,109.47	693.40	-26.79	AS-Drilled FTP
18,679.00	11,028.48	7,866.94	-90.45	Last TDS MWD Survey
18,762.00	11,026.45	7,949.64	-97.25	Projection to Bit/TD
18,762.00	11,026.45	7,949.64	-97.25	As-Drilled LTP



TDS
Survey Report



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Design: OH

Local Co-ordinate Reference: Well Lea Unit #38H
TVD Reference: KB @ 3692.00usft (McVay 4)
MD Reference: KB @ 3692.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Checked By: _____ Approved By: _____ Date: _____