



30 025-43247



Lea Unit No. 62H(ST01)

Lea County, NM

April 12, 2017

Job No. LNM5132817

**HOBBS OCD
DEC 20 2017
RECEIVED**

Survey Completion Report



PRODIRECTIONAL

Survey Certification Letter

April 12, 2017



Operator Name: Legacy Reserves Lea
Well Name: Unit No. 62H(ST01)
County/Parish: Lea County,
State: NM
Rig Name: McVay 4
Job Number: LNM5132817

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

<u>Surveyor</u>	<u>Surveyed Depths</u>	<u>Projection to Bit</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
ProDirectional	10,851' MD – 18,878' MD	18,938' MD	02/09/17 – 03/18/17	MWD-OWSG

Sincerely,

Mike Coats
Well Planning
Professional Directional

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com



Legacy Reserves

Lea County, NM

Lea Unit

62H

ST01

Survey: ProDirectional

Survey Report

27 March, 2017





ProDirectional
Survey Report



Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Project Lea County, NM (NAD27)

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

Site Position:	From: Map	Northing:	567,540.50 usft	Latitude:	32° 33' 26.964 N
		Easting:	757,874.60 usft	Longitude:	103° 29' 46.949 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well 62H

Well Position	+N/-S	0.00 usft	Northing:	567,540.50 usft	Latitude:	32° 33' 26.964 N
	+E/-W	0.00 usft	Easting:	757,874.60 usft	Longitude:	103° 29' 46.949 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,688.00 usft

Wellbore ST01

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/20/2017	6.78	60.57	48,341.30

Design MWD-10851'-18878', Proj. 18938'

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 10,757.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	355.40



ProDirectional
Survey Report



Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey Program Date 3/27/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	5,400.00	Survey #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s
5,566.00	10,757.00	Survey #2 (OH)	MWD - OWSG	MWD - OWSG
10,851.00	18,938.00	Lateral (ST01)	MWD - OWSG	MWD - OWSG

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	567,540.50	757,874.60
100.00	0.77	46.44	100.00	0.42	0.46	0.49	0.67	46.44	567,540.96	757,875.09
200.00	0.73	31.94	199.99	1.36	1.47	1.31	1.97	41.79	567,541.97	757,875.91
300.00	0.68	44.55	299.98	2.26	2.43	2.06	3.19	40.34	567,542.93	757,876.66
400.00	0.22	44.78	399.98	2.77	2.99	2.62	3.97	41.19	567,543.49	757,877.22
500.00	0.20	273.82	499.98	2.92	3.14	2.58	4.06	39.40	567,543.64	757,877.18
600.00	0.26	225.39	599.98	2.80	2.99	2.24	3.74	36.86	567,543.49	757,876.84
700.00	0.49	230.05	699.97	2.41	2.56	1.75	3.10	34.43	567,543.06	757,876.35
800.00	0.56	238.71	799.97	1.94	2.03	1.01	2.26	26.40	567,542.53	757,875.61
900.00	0.56	256.67	899.97	1.65	1.66	0.11	1.66	3.90	567,542.16	757,874.71
1,000.00	0.74	246.66	999.96	1.36	1.29	-0.96	1.61	323.53	567,541.79	757,873.64
1,100.00	0.89	243.37	1,099.95	0.87	0.69	-2.24	2.35	287.06	567,541.19	757,872.36
1,200.00	1.09	249.20	1,199.93	0.31	0.00	-3.83	3.83	270.04	567,540.50	757,870.77
1,300.00	1.32	245.03	1,299.91	-0.36	-0.82	-5.76	5.82	261.88	567,539.68	757,868.84
1,400.00	1.59	241.54	1,399.88	-1.32	-1.97	-8.02	8.26	256.21	567,538.53	757,866.58
1,500.00	1.59	238.11	1,499.84	-2.52	-3.36	-10.42	10.95	252.11	567,537.14	757,864.18
1,600.00	1.49	240.36	1,599.80	-3.70	-4.74	-12.73	13.58	249.58	567,535.76	757,861.87
1,700.00	1.11	249.85	1,699.78	-4.51	-5.72	-14.77	15.84	248.84	567,534.78	757,859.83
1,800.00	1.12	259.20	1,799.76	-4.88	-6.23	-16.64	17.77	249.46	567,534.27	757,857.96
1,900.00	1.22	270.04	1,899.74	-4.90	-6.41	-18.66	19.73	251.03	567,534.09	757,855.94

Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
2,000.00	1.07	261.07	1,999.72	-4.88	-6.56	-20.65	21.67	252.38	567,533.94	757,853.95	
2,100.00	0.77	238.06	2,099.71	-5.26	-7.06	-22.14	23.24	252.32	567,533.44	757,852.46	
2,200.00	0.45	263.95	2,199.70	-5.58	-7.46	-23.10	24.28	252.11	567,533.04	757,851.50	
2,300.00	0.31	271.35	2,299.70	-5.56	-7.49	-23.76	24.92	252.50	567,533.01	757,850.84	
2,400.00	0.50	295.67	2,399.70	-5.31	-7.30	-24.43	25.49	253.37	567,533.20	757,850.17	
2,500.00	0.64	293.71	2,499.69	-4.83	-6.88	-25.33	26.25	254.80	567,533.62	757,849.27	
2,600.00	0.62	264.31	2,599.69	-4.57	-6.71	-26.38	27.22	255.73	567,533.79	757,848.22	
2,700.00	0.61	238.17	2,699.68	-4.83	-7.05	-27.37	28.26	255.56	567,533.45	757,847.23	
2,800.00	0.45	223.54	2,799.68	-5.33	-7.61	-28.09	29.11	254.84	567,532.89	757,846.51	
2,900.00	0.34	141.16	2,899.67	-5.84	-8.13	-28.18	29.33	253.91	567,532.37	757,846.42	
3,000.00	0.31	89.67	2,999.67	-6.11	-8.36	-27.72	28.95	253.23	567,532.14	757,846.88	
3,100.00	0.42	92.13	3,099.67	-6.17	-8.37	-27.09	28.35	252.83	567,532.13	757,847.51	
3,200.00	0.60	88.81	3,199.67	-6.24	-8.37	-26.20	27.50	252.28	567,532.13	757,848.40	
3,300.00	0.65	92.53	3,299.66	-6.34	-8.39	-25.11	26.47	251.53	567,532.11	757,849.49	
3,400.00	0.60	66.31	3,399.66	-6.24	-8.20	-24.06	25.42	251.18	567,532.30	757,850.54	
3,500.00	0.67	63.74	3,499.65	-5.86	-7.73	-23.06	24.32	251.46	567,532.77	757,851.54	
3,600.00	0.74	57.59	3,599.64	-5.34	-7.13	-21.99	23.11	252.04	567,533.37	757,852.61	
3,700.00	0.91	39.76	3,699.63	-4.47	-6.17	-20.93	21.82	253.58	567,534.33	757,853.67	
3,800.00	0.98	39.28	3,799.62	-3.29	-4.90	-19.88	20.48	256.16	567,535.60	757,854.72	
3,900.00	0.47	76.35	3,899.61	-2.61	-4.14	-18.94	19.39	257.68	567,536.36	757,855.66	
4,000.00	0.66	63.78	3,999.60	-2.33	-3.79	-18.03	18.42	258.14	567,536.71	757,856.57	
4,100.00	1.08	61.12	4,099.59	-1.73	-3.08	-16.69	16.97	259.55	567,537.42	757,857.91	
4,200.00	0.59	73.40	4,199.58	-1.23	-2.48	-15.37	15.57	260.85	567,538.02	757,859.23	
4,300.00	1.15	93.79	4,299.57	-1.27	-2.39	-13.87	14.08	260.21	567,538.11	757,860.73	
4,400.00	2.10	101.34	4,399.53	-1.92	-2.82	-11.08	11.43	255.71	567,537.68	757,863.52	
4,500.00	1.63	109.07	4,499.48	-3.00	-3.65	-7.93	8.73	245.32	567,536.85	757,866.67	
4,600.00	1.95	94.55	4,599.43	-3.84	-4.25	-4.89	6.48	229.06	567,536.25	757,869.71	



ProDirectional Survey Report



Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
4,700.00	1.91	87.10	4,699.37	-4.16	-4.30	-1.53	4.56	199.65	567,536.20	757,873.07	
4,800.00	1.46	91.26	4,799.33	-4.34	-4.24	1.40	4.47	161.68	567,536.26	757,876.00	
4,900.00	1.34	99.36	4,899.30	-4.75	-4.46	3.83	5.88	139.33	567,536.04	757,878.43	
5,000.00	2.89	78.01	4,999.23	-4.71	-4.12	7.45	8.52	118.97	567,536.38	757,882.05	
5,100.00	2.59	86.43	5,099.11	-4.43	-3.46	12.17	12.65	105.87	567,537.04	757,886.77	
5,200.00	2.15	91.55	5,199.03	-4.67	-3.37	16.30	16.65	101.68	567,537.13	757,890.90	
5,300.00	1.66	86.00	5,298.97	-4.88	-3.32	19.62	19.90	99.60	567,537.18	757,894.22	
5,400.00	1.81	75.03	5,398.93	-4.61	-2.81	22.59	22.77	97.09	567,537.69	757,897.19	
5,566.00	1.70	88.30	5,564.85	-4.27	-2.06	27.59	27.66	94.27	567,538.44	757,902.19	
5,755.00	1.50	87.00	5,753.78	-4.48	-1.85	32.86	32.91	93.22	567,538.65	757,907.46	
5,944.00	1.20	92.40	5,942.72	-4.79	-1.80	37.31	37.35	92.76	567,538.70	757,911.91	
6,039.00	1.10	94.00	6,037.70	-5.05	-1.91	39.21	39.26	92.78	567,538.59	757,913.81	
6,133.00	1.10	93.60	6,131.69	-5.31	-2.03	41.01	41.06	92.83	567,538.47	757,915.61	
6,228.00	1.10	92.00	6,226.67	-5.54	-2.12	42.83	42.88	92.83	567,538.38	757,917.43	
6,322.00	1.00	84.60	6,320.65	-5.64	-2.07	44.55	44.60	92.66	567,538.43	757,919.15	
6,417.00	1.10	77.10	6,415.64	-5.49	-1.79	46.26	46.30	92.21	567,538.71	757,920.86	
6,511.00	1.10	90.50	6,509.62	-5.44	-1.59	48.05	48.07	91.90	567,538.91	757,922.65	
6,606.00	0.80	84.40	6,604.61	-5.51	-1.54	49.62	49.64	91.78	567,538.96	757,924.22	
6,794.00	0.90	86.60	6,792.59	-5.52	-1.32	52.40	52.42	91.45	567,539.18	757,927.00	
6,889.00	0.30	283.20	6,887.58	-5.46	-1.22	52.90	52.92	91.32	567,539.28	757,927.50	
6,983.00	0.60	273.60	6,981.58	-5.31	-1.13	52.17	52.18	91.25	567,539.37	757,926.77	
7,077.00	0.60	273.20	7,075.58	-5.18	-1.08	51.19	51.20	91.20	567,539.42	757,925.79	
7,172.00	0.80	269.60	7,170.57	-5.06	-1.05	50.03	50.04	91.21	567,539.45	757,924.63	
7,266.00	0.90	256.00	7,264.56	-5.13	-1.24	48.66	48.67	91.46	567,539.26	757,923.26	
7,361.00	1.00	253.10	7,359.55	-5.43	-1.66	47.14	47.17	92.01	567,538.84	757,921.74	
7,455.00	0.90	249.50	7,453.53	-5.81	-2.15	45.66	45.71	92.70	567,538.35	757,920.26	
7,550.00	0.80	271.50	7,548.52	-5.94	-2.40	44.30	44.36	93.10	567,538.10	757,918.90	



ProDirectional Survey Report



Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
7,644.00	0.90	270.40	7,642.51	-5.81	-2.38	42.91	42.97	93.17	567,538.12	757,917.51	
7,738.00	1.00	275.60	7,736.50	-5.60	-2.29	41.35	41.41	93.17	567,538.21	757,915.95	
7,833.00	1.20	261.70	7,831.48	-5.52	-2.35	39.54	39.61	93.41	567,538.15	757,914.14	
7,927.00	1.10	267.30	7,925.46	-5.55	-2.54	37.67	37.75	93.85	567,537.96	757,912.27	
8,021.00	1.40	269.50	8,019.44	-5.44	-2.59	35.62	35.71	94.16	567,537.91	757,910.22	
8,116.00	1.40	279.70	8,114.41	-5.07	-2.41	33.31	33.40	94.13	567,538.09	757,907.91	
8,209.00	1.20	276.10	8,207.39	-4.61	-2.11	31.22	31.30	93.87	567,538.39	757,905.82	
8,304.00	1.30	280.50	8,302.37	-4.14	-1.81	29.18	29.23	93.55	567,538.69	757,903.78	
8,398.00	1.60	282.10	8,396.34	-3.49	-1.34	26.84	26.88	92.86	567,539.16	757,901.44	
8,492.00	1.80	283.00	8,490.29	-2.66	-0.73	24.12	24.13	91.74	567,539.77	757,898.72	
8,587.00	2.20	282.80	8,585.24	-1.67	0.01	20.89	20.89	89.98	567,540.51	757,895.49	
8,681.00	2.10	293.70	8,679.17	-0.31	1.10	17.55	17.59	86.41	567,541.60	757,892.15	
8,775.00	2.30	302.80	8,773.10	1.65	2.81	14.39	14.66	78.94	567,543.31	757,888.99	
8,870.00	1.00	281.10	8,868.06	3.03	4.01	11.98	12.63	71.50	567,544.51	757,886.58	
8,964.00	1.30	274.00	8,962.04	3.41	4.24	10.11	10.96	67.25	567,544.74	757,884.71	
9,058.00	1.50	272.10	9,056.01	3.72	4.36	7.81	8.95	60.85	567,544.86	757,882.41	
9,153.00	1.40	267.90	9,150.98	3.91	4.36	5.41	6.95	51.14	567,544.86	757,880.01	
9,247.00	1.30	269.70	9,244.96	4.04	4.31	3.20	5.37	36.55	567,544.81	757,877.80	
9,342.00	1.40	292.20	9,339.93	4.65	4.75	1.05	4.86	12.42	567,545.25	757,875.65	
9,436.00	1.70	304.50	9,433.90	6.04	5.97	-1.17	6.08	348.94	567,546.47	757,873.43	
9,530.00	1.60	308.00	9,527.86	7.81	7.57	-3.35	8.28	336.12	567,548.07	757,871.25	
9,625.00	1.60	328.60	9,622.82	9.89	9.52	-5.09	10.79	331.88	567,550.02	757,869.51	
9,719.00	1.90	337.20	9,716.78	12.55	12.07	-6.37	13.65	332.17	567,552.57	757,868.23	
9,813.00	1.90	342.80	9,810.73	15.55	15.00	-7.44	16.74	333.62	567,555.50	757,867.16	
9,908.00	1.90	338.00	9,905.67	18.59	17.96	-8.49	19.87	334.69	567,558.46	757,866.11	
10,002.00	1.70	322.40	9,999.63	21.24	20.51	-9.93	22.79	334.17	567,561.01	757,864.67	
10,096.00	1.30	308.10	10,093.60	23.13	22.27	-11.62	25.12	332.45	567,562.77	757,862.98	

Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
10,190.00	1.30	305.40	10,187.57	24.54	23.55	-13.33	27.06	330.50	567,564.05	757,861.27	
10,285.00	1.60	303.50	10,282.54	26.05	24.91	-15.31	29.24	328.42	567,565.41	757,859.29	
10,379.00	1.70	292.00	10,376.50	27.49	26.15	-17.70	31.58	325.91	567,566.65	757,856.90	
10,474.00	1.50	280.60	10,471.47	28.45	26.91	-20.23	33.66	323.07	567,567.41	757,854.37	
10,568.00	0.40	273.80	10,565.45	28.82	27.16	-21.76	34.80	321.29	567,567.66	757,852.84	
10,663.00	0.60	225.70	10,660.45	28.55	26.83	-22.45	34.99	320.08	567,567.33	757,852.15	
10,757.00	1.00	222.70	10,754.44	27.68	25.89	-23.36	34.87	317.94	567,566.39	757,851.24	
Tie-on to OH at 10757' MD											
10,851.00	1.60	244.80	10,848.41	26.66	24.72	-25.10	35.23	314.57	567,565.22	757,849.50	
First ST01 Survey: 10851' MD											
10,905.00	3.10	310.10	10,902.38	27.42	25.34	-26.90	36.96	313.29	567,565.84	757,847.70	
10,946.00	9.10	326.00	10,943.13	31.03	28.75	-29.57	41.24	314.20	567,569.25	757,845.03	
10,993.00	10.60	327.70	10,989.43	38.09	35.49	-33.95	49.11	316.26	567,575.99	757,840.65	
11,040.00	14.20	333.60	11,035.33	47.28	44.31	-38.83	58.91	318.77	567,584.81	757,835.77	
11,087.00	17.00	339.40	11,080.60	59.24	55.90	-43.81	71.03	321.91	567,596.40	757,830.79	
11,135.00	21.50	339.70	11,125.90	74.46	70.73	-49.33	86.24	325.10	567,611.23	757,825.27	
11,182.00	25.80	340.50	11,168.95	92.64	88.46	-55.74	104.55	327.78	567,628.96	757,818.86	
11,229.00	30.10	340.50	11,210.45	113.93	109.22	-63.09	126.13	329.99	567,649.72	757,811.51	
11,276.00	33.40	340.40	11,250.41	137.82	132.52	-71.37	150.52	331.70	567,673.02	757,803.23	
11,323.00	36.20	339.90	11,289.00	163.69	157.75	-80.48	177.09	332.97	567,698.25	757,794.12	
11,370.00	39.00	340.40	11,326.24	191.36	184.72	-90.21	205.57	333.97	567,725.22	757,784.39	
11,417.00	39.80	339.70	11,362.56	220.12	212.76	-100.39	235.25	334.74	567,753.26	757,774.21	
11,464.00	42.30	339.10	11,398.00	249.79	241.65	-111.25	266.03	335.28	567,782.15	757,763.35	
11,511.00	46.10	339.40	11,431.69	281.26	272.28	-122.86	298.72	335.71	567,812.78	757,751.74	
11,558.00	49.40	338.90	11,463.28	314.65	304.79	-135.24	333.45	336.07	567,845.29	757,739.36	
11,605.00	51.00	339.40	11,493.37	349.32	338.53	-148.09	369.51	336.37	567,879.03	757,726.51	
11,652.00	53.80	337.90	11,522.04	384.97	373.21	-161.66	406.71	336.58	567,913.71	757,712.94	



ProDirectional Survey Report



Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
11,699.00	58.50	338.60	11,548.22	422.26	409.45	-176.11	445.72	336.73	567,949.95	757,698.49	
11,746.00	65.50	339.80	11,570.27	462.09	448.23	-190.82	487.16	336.94	567,988.73	757,683.78	
11,794.00	73.10	341.50	11,587.22	505.48	490.56	-205.67	531.94	337.25	568,031.06	757,668.93	
11,841.00	80.40	342.70	11,597.99	549.97	534.07	-219.72	577.50	337.64	568,074.57	757,654.88	
11,888.00	87.90	344.70	11,602.78	595.72	578.91	-232.83	623.98	338.09	568,119.41	757,641.77	
11,904.00	89.70	345.30	11,603.11	611.45	594.36	-236.97	639.86	338.26	568,134.86	757,637.63	
11,998.00	92.10	346.00	11,601.64	704.08	685.41	-260.26	733.16	339.21	568,225.91	757,614.34	
12,009.00	92.12	346.04	11,601.23	714.92	696.08	-262.91	744.08	339.31	568,236.58	757,611.69	
FTP: 12009' MD, 11601' TVD											
12,092.00	92.30	346.30	11,598.03	796.79	776.61	-282.74	826.48	339.99	568,317.11	757,591.86	
12,188.00	91.80	345.80	11,594.59	891.45	869.72	-305.87	921.94	340.62	568,410.22	757,568.73	
12,280.00	91.60	345.90	11,591.86	982.14	958.89	-328.35	1,013.55	341.10	568,499.39	757,546.25	
12,374.00	91.90	347.00	11,588.99	1,074.95	1,050.23	-350.37	1,107.13	341.55	568,590.73	757,524.23	
12,469.00	92.30	349.10	11,585.51	1,169.10	1,143.10	-370.02	1,201.50	342.06	568,683.60	757,504.58	
12,563.00	91.50	350.50	11,582.39	1,262.59	1,235.56	-386.66	1,294.65	342.62	568,776.06	757,487.94	
12,657.00	92.00	353.50	11,579.52	1,356.37	1,328.59	-399.73	1,387.43	343.26	568,869.09	757,474.87	
12,751.00	92.10	356.10	11,576.16	1,450.30	1,422.14	-408.25	1,479.58	343.98	568,962.64	757,466.35	
12,845.00	91.70	357.60	11,573.04	1,544.22	1,515.94	-413.41	1,571.30	344.75	569,056.44	757,461.19	
12,940.00	92.00	358.00	11,569.98	1,639.08	1,610.82	-417.05	1,663.94	345.48	569,151.32	757,457.55	
13,034.00	91.60	358.10	11,567.02	1,732.93	1,704.72	-420.25	1,755.76	346.15	569,245.22	757,454.35	
13,128.00	91.60	357.60	11,564.40	1,826.81	1,798.62	-423.77	1,847.87	346.74	569,339.12	757,450.83	
13,222.00	92.50	357.10	11,561.04	1,920.70	1,892.46	-428.12	1,940.28	347.25	569,432.96	757,446.48	
13,317.00	93.20	359.00	11,556.31	2,015.47	1,987.28	-431.35	2,033.55	347.75	569,527.78	757,443.25	
13,411.00	93.90	0.30	11,550.49	2,109.03	2,081.10	-431.92	2,125.44	348.28	569,621.60	757,442.68	
13,505.00	94.20	0.20	11,543.85	2,202.46	2,174.86	-431.51	2,217.25	348.78	569,715.36	757,443.09	
13,599.00	93.30	359.50	11,537.71	2,295.98	2,268.66	-431.76	2,309.38	349.22	569,809.16	757,442.84	
13,693.00	93.50	359.30	11,532.13	2,389.58	2,362.49	-432.74	2,401.79	349.62	569,902.99	757,441.86	

Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
13,788.00	93.40	359.50	11,526.41	2,484.18	2,457.31	-433.73	2,495.29	349.99	569,997.81	757,440.87	
13,882.00	94.50	359.00	11,519.94	2,577.74	2,551.08	-434.96	2,587.89	350.32	570,091.58	757,439.64	
13,976.00	93.50	359.60	11,513.38	2,671.29	2,644.84	-436.11	2,680.55	350.64	570,185.34	757,438.49	
14,071.00	91.70	359.50	11,509.07	2,765.94	2,739.73	-436.85	2,774.34	350.94	570,280.23	757,437.75	
14,165.00	91.80	358.70	11,506.20	2,859.70	2,833.68	-438.33	2,867.38	351.21	570,374.18	757,436.27	
14,259.00	92.00	358.60	11,503.09	2,953.50	2,927.60	-440.54	2,960.56	351.44	570,468.10	757,434.06	
14,353.00	92.00	357.50	11,499.80	3,047.34	3,021.49	-443.74	3,053.90	351.65	570,561.99	757,430.86	
14,447.00	92.30	357.50	11,496.28	3,141.21	3,115.33	-447.83	3,147.35	351.82	570,655.83	757,426.77	
14,541.00	92.70	358.00	11,492.18	3,235.04	3,209.17	-451.52	3,240.78	351.99	570,749.67	757,423.08	
14,636.00	93.20	358.50	11,487.29	3,329.80	3,304.00	-454.42	3,335.10	352.17	570,844.50	757,420.18	
14,730.00	93.50	358.80	11,481.80	3,423.49	3,397.81	-456.63	3,428.36	352.35	570,938.31	757,417.97	
14,824.00	92.90	359.00	11,476.55	3,517.16	3,491.65	-458.43	3,521.61	352.52	571,032.15	757,416.17	
14,919.00	91.80	359.10	11,472.65	3,611.89	3,586.55	-460.00	3,615.93	352.69	571,127.05	757,414.60	
15,013.00	91.60	359.00	11,469.86	3,705.66	3,680.50	-461.56	3,709.33	352.85	571,221.00	757,413.04	
15,107.00	92.30	359.30	11,466.67	3,799.40	3,774.43	-462.96	3,802.72	353.01	571,314.93	757,411.64	
15,201.00	92.90	359.50	11,462.40	3,893.08	3,868.33	-463.94	3,896.05	353.16	571,408.83	757,410.66	
15,295.00	90.90	359.00	11,459.29	3,986.81	3,962.26	-465.17	3,989.48	353.30	571,502.76	757,409.43	
15,390.00	91.10	359.20	11,457.63	4,081.59	4,057.24	-466.66	4,083.99	353.44	571,597.74	757,407.94	
15,484.00	92.10	359.90	11,455.00	4,175.31	4,151.20	-467.40	4,177.43	353.58	571,691.70	757,407.20	
15,578.00	92.10	359.60	11,451.56	4,268.98	4,245.13	-467.81	4,270.83	353.71	571,785.63	757,406.79	
15,672.00	92.60	359.40	11,447.70	4,362.66	4,339.05	-468.63	4,364.28	353.84	571,879.55	757,405.97	
15,766.00	93.10	359.30	11,443.03	4,456.32	4,432.93	-469.69	4,457.74	353.95	571,973.43	757,404.91	
15,860.00	93.50	359.60	11,437.62	4,549.93	4,526.77	-470.59	4,551.16	354.06	572,067.27	757,404.01	
15,955.00	91.50	359.20	11,433.48	4,644.60	4,621.67	-471.59	4,645.66	354.17	572,162.17	757,403.01	
16,049.00	92.00	359.20	11,430.60	4,738.35	4,715.61	-472.90	4,739.27	354.27	572,256.11	757,401.70	
16,143.00	93.10	359.90	11,426.42	4,832.01	4,809.51	-473.64	4,832.78	354.38	572,350.01	757,400.96	
16,237.00	92.20	358.80	11,422.08	4,925.68	4,903.41	-474.70	4,926.33	354.47	572,443.91	757,399.90	

Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
16,331.00	92.00	357.80	11,418.63	5,019.50	4,997.30	-477.49	5,020.06	354.54	572,537.80	757,397.11
16,425.00	91.20	357.50	11,416.01	5,113.39	5,091.18	-481.34	5,113.89	354.60	572,631.68	757,393.26
16,519.00	90.90	357.90	11,414.28	5,207.30	5,185.09	-485.12	5,207.74	354.65	572,725.59	757,389.48
16,613.00	91.10	358.00	11,412.64	5,301.19	5,279.02	-488.48	5,301.57	354.71	572,819.52	757,386.12
16,707.00	90.70	356.50	11,411.17	5,395.12	5,372.89	-492.99	5,395.46	354.76	572,913.39	757,381.61
16,801.00	91.00	356.60	11,409.77	5,489.10	5,466.71	-498.64	5,489.41	354.79	573,007.21	757,375.96
16,896.00	90.70	356.60	11,408.36	5,584.06	5,561.54	-504.28	5,584.35	354.82	573,102.04	757,370.32
16,990.00	90.70	356.60	11,407.22	5,678.04	5,655.36	-509.85	5,678.30	354.85	573,195.86	757,364.75
17,084.00	90.80	356.70	11,405.99	5,772.01	5,749.19	-515.34	5,772.25	354.88	573,289.69	757,359.26
17,179.00	91.20	357.00	11,404.33	5,866.96	5,844.04	-520.56	5,867.18	354.91	573,384.54	757,354.04
17,273.00	90.70	356.70	11,402.77	5,960.92	5,937.88	-525.73	5,961.11	354.94	573,478.38	757,348.87
17,367.00	92.40	358.10	11,400.23	6,054.82	6,031.74	-529.99	6,054.98	354.98	573,572.24	757,344.61
17,461.00	91.20	357.30	11,397.27	6,148.70	6,125.62	-533.76	6,148.83	355.02	573,666.12	757,340.84
17,555.00	91.90	357.80	11,394.73	6,242.59	6,219.50	-537.78	6,242.70	355.06	573,760.00	757,336.82
17,650.00	93.10	358.90	11,390.59	6,337.37	6,314.37	-540.51	6,337.46	355.11	573,854.87	757,334.09
17,744.00	93.70	358.90	11,385.01	6,431.03	6,408.18	-542.31	6,431.09	355.16	573,948.68	757,332.29
17,838.00	95.40	358.60	11,377.56	6,524.57	6,501.86	-544.36	6,524.61	355.21	574,042.36	757,330.24
17,932.00	94.30	358.10	11,369.61	6,618.11	6,595.48	-547.05	6,618.13	355.26	574,135.98	757,327.55
18,027.00	94.20	358.40	11,362.57	6,712.73	6,690.18	-549.95	6,712.74	355.30	574,230.68	757,324.65
18,121.00	91.70	359.00	11,357.73	6,806.44	6,784.02	-552.07	6,806.45	355.35	574,324.52	757,322.53
18,216.00	90.90	358.60	11,355.58	6,901.25	6,878.97	-554.06	6,901.25	355.40	574,419.47	757,320.54
18,310.00	91.30	359.10	11,353.77	6,995.06	6,972.94	-555.95	6,995.07	355.44	574,513.44	757,318.65
18,404.00	91.70	359.50	11,351.31	7,088.81	7,066.90	-557.10	7,088.82	355.49	574,607.40	757,317.50
18,501.00	91.60	359.40	11,348.52	7,185.53	7,163.85	-558.03	7,185.55	355.55	574,704.35	757,316.57
18,595.00	90.40	359.00	11,346.88	7,279.31	7,257.83	-559.34	7,279.35	355.59	574,798.33	757,315.26
18,689.00	90.80	358.40	11,345.89	7,373.15	7,351.80	-561.47	7,373.21	355.63	574,892.30	757,313.13
18,784.00	91.50	359.00	11,343.99	7,467.97	7,446.75	-563.63	7,468.05	355.67	574,987.25	757,310.97

Company: Legacy Reserves
Project: Lea County, NM (NAD27)
Site: Lea Unit
Well: 62H
Wellbore: ST01
Design: MWD-10851'-18878', Proj. 18938'

Local Co-ordinate Reference: Well 62H
TVD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
MD Reference: GL 3688'+KB 20' @ 3708.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
18,878.00	91.70	358.60	11,341.36	7,561.77	7,540.70	-565.60	7,561.88	355.71	575,081.20	757,309.00
Last Survey: 18878' MD, 11341' TVD										
18,938.00	91.70	358.60	11,339.58	7,621.65	7,600.65	-567.06	7,621.78	355.73	575,141.15	757,307.54
PTB: 18938' MD, 11339.58' TVD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
10,757.00	10,754.44	25.89	-23.36	Tie-on to OH at 10757' MD	
10,851.00	10,848.41	24.72	-25.10	First ST01 Survey: 10851' MD	
12,009.00	11,601.23	696.08	-262.91	FTP: 12009' MD, 11601' TVD	
18,878.00	11,341.36	7,540.70	-565.60	Last Survey: 18878' MD, 11341' TVD	
18,938.00	11,339.58	7,600.65	-567.06	PTB: 18938' MD, 11339.58' TVD	