



XTO Energy Inc.

Lea County, NM
(Charro) Sec23_T24S_R32E
Charro Federal #1H
Original Wellbore

Design: Actual Wellbore

Custom Survey Report

01 November, 2015



FEB 15 2016



Custom Survey Report



Company: XTO Energy Inc. Project: Lea County, NM Site: (Charro) Sec23_T24S_R32E Well: Charro Federal #1H Wellbore: Original Wellbore Design: Actual Wellbore	Local Co-ordinate Reference: Well Charro Federal #1H TVD Reference: RKB @ 3609.0usft MD Reference: RKB @ 3609.0usft North Reference: Grid Survey Calculation Method: Minimum Curvature Database: EDM 5000.1 Single User Db
Project Lea County, NM	System Datum: Mean Sea Level
Map System: US State Plane 1927 (Exact solution) Geo Datum: NAD 1927 (NADCON CONUS) Map Zone: New Mexico East 3001	
Site (Charro) Sec23_T24S_R32E	
Site Position: Northing: 435,758.30 usft From: Easting: 710,957.00 usft Position Uncertainty: Map Slot Radius: 13-3/16 " 0.0 usft Latitude: 32° 11' 46.240 N Longitude: 103° 39' 4.918 W Grid Convergence: 0.36 °	
Well Charro Federal #1H	
Well Position +N/-S 0.0 usft +E/-W 0.0 usft Position Uncertainty 0.0 usft Northing: 435,758.30 usft Easting: 710,957.00 usft Wellhead Elevation: 0.0 usft Latitude: 32° 11' 46.240 N Longitude: 103° 39' 4.918 W Ground Level: 3,584.0 usft	
Wellbore Original Wellbore	
Magnetics Model Name Sample Date Declination (°) Dip Angle (°) Field Strength (nT) IGRF2015 10/21/2015 7.17 60.05 48,082	
Design Actual Wellbore	
Audit Notes: Version: 1.0 Phase: ACTUAL Tie On Depth: 0.0	
Vertical Section: Depth From (TVD) (usft) +N/-S (usft) +E/-W (usft) Direction (°) 0.0 0.0 0.0 359.68	



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Local Co-ordinate Reference: Well Charro Federal #1H
TVD Reference: RKB @ 3609.0usft
MD Reference: RKB @ 3609.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey Program **Date** 11/1/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	10,280.0	VES Gyro (Original Wellbore)	GYRO-NS	Gyrocompass Gyro
10,338.0	15,655.0	Intrepid MWD (Original Wellbore)	MWD	MWD - Standard

Survey	MD (usft)	Inc (°)	Azi (°)	CL (usft)	TVD (usft)	N/S (usft)	EW (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
	0.0	0.00	0.00	0.0	0.0	0.0	0.0	435,758.30	710,957.00	0.0	0.00
	100.0	0.17	286.53	100.0	100.0	0.0	0.0	435,758.34	710,956.86	0.0	0.17
	200.0	0.17	185.48	100.0	200.0	-0.1	-0.1	435,758.24	710,956.70	-0.1	0.26
	300.0	0.22	291.42	100.0	300.0	-0.1	-0.1	435,758.16	710,956.51	-0.1	0.31
	400.0	0.43	235.88	100.0	400.0	-0.3	-1.0	435,758.02	710,956.02	-0.3	0.36
	500.0	0.30	293.20	100.0	500.0	-0.4	-1.5	435,757.91	710,955.47	-0.4	0.37
	600.0	0.36	248.06	100.0	600.0	-0.4	-2.1	435,757.90	710,954.94	-0.4	0.26
	700.0	0.64	289.34	100.0	700.0	-0.3	-2.9	435,757.96	710,954.12	-0.3	0.44
	800.0	0.62	251.42	100.0	800.0	-0.3	-3.9	435,757.98	710,953.08	-0.3	0.41
	900.0	0.94	268.03	100.0	900.0	-0.5	-5.3	435,757.78	710,951.74	-0.5	0.39
	1,000.0	0.84	237.50	100.0	1,000.0	-0.9	-6.7	435,757.35	710,950.31	-0.9	0.48
	1,071.0	0.80	224.76	71.0	1,071.0	-1.6	-7.5	435,756.72	710,949.52	-1.5	0.26
Rustler											
	1,100.0	0.79	219.27	29.0	1,100.0	-1.9	-7.7	435,756.43	710,949.25	-1.8	0.26
	1,200.0	1.21	208.75	100.0	1,199.9	-3.3	-8.7	435,754.97	710,948.31	-3.3	0.46
	1,300.0	0.97	195.48	100.0	1,299.9	-5.1	-9.4	435,753.23	710,947.57	-5.0	0.35
	1,370.1	1.05	194.52	70.1	1,370.0	-6.3	-9.7	435,752.03	710,947.26	-6.2	0.11
Top Salt											
	1,400.0	1.08	194.15	29.9	1,399.9	-6.8	-9.9	435,751.50	710,947.12	-6.7	0.11
	1,500.0	1.13	190.74	100.0	1,499.9	-8.7	-10.3	435,749.61	710,946.70	-8.6	0.08
	1,600.0	1.22	176.08	100.0	1,599.9	-10.7	-10.4	435,747.58	710,946.59	-10.7	0.31
	1,700.0	0.95	189.56	100.0	1,699.8	-12.6	-10.5	435,745.70	710,946.53	-12.5	0.37



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MD Reference:

RKB @ 3609.0usft

North Reference:

Grid

Survey Calculation Method:

Minimum Curvature

Database:

EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
1,800.0	1.11	187.11	100.0	1,799.8	-14.4	-10.7	435,743.93	710,946.27	-14.3	0.17
1,900.0	0.96	171.08	100.0	1,899.8	-16.2	-10.7	435,742.14	710,946.28	-16.1	0.32
2,000.0	0.83	178.97	100.0	1,999.8	-17.7	-10.6	435,740.58	710,946.42	-17.7	0.18
2,100.0	0.97	167.24	100.0	2,099.8	-19.3	-10.4	435,739.03	710,946.62	-19.2	0.23
2,200.0	0.69	179.81	100.0	2,199.8	-20.7	-10.2	435,737.61	710,946.81	-20.6	0.33
2,300.0	0.85	168.05	100.0	2,299.8	-22.0	-10.0	435,736.28	710,946.97	-22.0	0.22
2,400.0	0.72	136.50	100.0	2,399.8	-23.2	-9.4	435,735.10	710,947.55	-23.1	0.44
2,500.0	0.69	133.14	100.0	2,499.8	-24.1	-8.6	435,734.23	710,948.43	-24.0	0.05
2,600.0	0.73	162.92	100.0	2,599.7	-25.1	-7.9	435,733.21	710,949.05	-25.0	0.37
2,700.0	0.80	123.96	100.0	2,699.7	-26.1	-7.2	435,732.21	710,949.82	-26.0	0.51
2,800.0	0.80	148.67	100.0	2,799.7	-27.1	-6.2	435,731.22	710,950.76	-27.0	0.34
2,900.0	0.78	129.89	100.0	2,899.7	-28.1	-5.4	435,730.19	710,951.65	-28.1	0.26
3,000.0	1.07	114.64	100.0	2,999.7	-28.9	-4.0	435,729.37	710,953.02	-28.9	0.38
3,100.0	1.31	100.42	100.0	3,099.7	-29.5	-2.0	435,728.77	710,954.99	-29.5	0.38
3,200.0	1.33	95.55	100.0	3,199.7	-29.8	0.3	435,728.45	710,957.27	-29.8	0.11
3,300.0	1.39	91.13	100.0	3,299.6	-30.0	2.6	435,728.31	710,959.64	-30.0	0.12
3,400.0	1.08	65.08	100.0	3,399.6	-29.6	4.7	435,728.69	710,961.70	-29.6	0.63
3,500.0	0.90	59.43	100.0	3,499.6	-28.8	6.2	435,729.48	710,963.23	-28.8	0.20
3,600.0	0.96	71.10	100.0	3,599.6	-28.1	7.7	435,730.16	710,964.70	-28.2	0.20
3,700.0	0.98	65.21	100.0	3,699.6	-27.5	9.3	435,730.79	710,966.27	-27.6	0.10
3,800.0	0.89	63.27	100.0	3,799.6	-26.8	10.7	435,731.49	710,967.74	-26.9	0.10
3,900.0	0.63	52.40	100.0	3,899.5	-26.1	11.9	435,732.18	710,968.87	-26.2	0.30
4,000.0	0.67	67.48	100.0	3,999.5	-25.6	12.8	435,732.74	710,969.85	-25.6	0.18
4,100.0	1.25	72.36	100.0	4,099.5	-25.0	14.4	435,733.29	710,971.43	-25.1	0.59
4,200.0	2.06	94.47	100.0	4,199.5	-24.8	17.3	435,733.48	710,974.26	-24.9	1.02
4,300.0	2.93	101.78	100.0	4,299.4	-25.5	21.6	435,732.82	710,978.55	-25.6	0.92
4,400.0	2.69	113.59	100.0	4,399.3	-26.9	26.2	435,731.36	710,983.20	-27.1	0.63



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
4,500.0	3.00	115.95	100.0	4,499.1	-29.0	30.7	435,729.28	710,987.71	-29.2	0.33
4,600.0	3.41	128.11	100.0	4,599.0	-32.0	35.4	435,726.29	710,992.40	-32.2	0.79
4,646.1	3.43	129.17	46.1	4,645.0	-33.7	37.5	435,724.58	710,994.55	-33.9	0.15
Base Salt										
4,700.0	3.46	130.40	53.9	4,698.8	-35.8	40.0	435,722.50	710,997.04	-36.0	0.15
4,800.0	2.79	129.96	100.0	4,798.7	-39.3	44.2	435,718.98	711,001.20	-39.6	0.67
4,885.4	2.21	123.36	85.4	4,884.0	-41.6	47.2	435,716.74	711,004.17	-41.8	0.75
Delaware										
4,900.0	2.12	121.88	14.6	4,898.6	-41.9	47.6	435,716.44	711,004.64	-42.1	0.75
5,000.0	1.07	93.80	100.0	4,998.5	-42.9	50.1	435,715.41	711,007.14	-43.2	1.28
5,100.0	0.34	22.63	100.0	5,098.5	-42.7	51.2	435,715.62	711,008.19	-43.0	1.01
5,200.0	0.31	346.50	100.0	5,198.5	-42.1	51.2	435,716.15	711,008.24	-42.4	0.20
5,300.0	0.21	308.13	100.0	5,298.5	-41.8	51.0	435,716.53	711,008.03	-42.0	0.20
5,400.0	0.21	287.05	100.0	5,398.5	-41.6	50.7	435,716.70	711,007.71	-41.9	0.08
5,500.0	0.05	303.16	100.0	5,498.5	-41.5	50.5	435,716.78	711,007.50	-41.8	0.16
5,600.0	0.08	351.16	100.0	5,598.5	-41.4	50.5	435,716.87	711,007.45	-41.7	0.06
5,700.0	0.02	354.00	100.0	5,698.5	-41.3	50.4	435,716.95	711,007.44	-41.6	0.06
5,800.0	0.09	333.13	100.0	5,798.5	-41.3	50.4	435,717.04	711,007.40	-41.5	0.07
5,822.5	0.08	332.27	22.5	5,821.0	-41.2	50.4	435,717.07	711,007.39	-41.5	0.02
Cherry Canyon										
5,900.0	0.07	329.21	77.5	5,898.5	-41.1	50.3	435,717.16	711,007.34	-41.4	0.02
6,000.0	0.13	305.87	100.0	5,998.5	-41.0	50.2	435,717.28	711,007.21	-41.3	0.07
6,100.0	0.15	301.48	100.0	6,098.5	-40.9	50.0	435,717.42	711,007.01	-41.2	0.02
6,200.0	0.12	279.15	100.0	6,198.5	-40.8	49.8	435,717.50	711,006.79	-41.1	0.06
6,300.0	0.21	206.93	100.0	6,298.5	-40.9	49.6	435,717.36	711,006.61	-41.2	0.21
6,400.0	0.17	196.98	100.0	6,398.5	-41.2	49.5	435,717.05	711,006.48	-41.5	0.05
6,500.0	0.14	165.67	100.0	6,498.5	-41.5	49.5	435,716.79	711,006.47	-41.8	0.09



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MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
6,600.0	0.10	100.89	100.0	6,598.5	-41.6	49.6	435,716.66	711,006.58	-41.9	0.13
6,700.0	0.19	93.41	100.0	6,698.5	-41.7	49.8	435,716.63	711,006.84	-41.9	0.09
6,800.0	0.14	13.39	100.0	6,798.5	-41.6	50.0	435,716.74	711,007.03	-41.8	0.22
6,900.0	0.14	20.81	100.0	6,898.5	-41.3	50.1	435,716.97	711,007.10	-41.6	0.02
7,000.0	0.11	129.23	100.0	6,998.5	-41.3	50.2	435,717.03	711,007.22	-41.6	0.20
7,100.0	0.08	125.15	100.0	7,098.5	-41.4	50.4	435,716.92	711,007.35	-41.7	0.03
7,200.0	0.13	201.29	100.0	7,198.5	-41.5	50.4	435,716.78	711,007.37	-41.8	0.14
7,300.0	0.08	189.41	100.0	7,298.5	-41.7	50.3	435,716.60	711,007.31	-42.0	0.05
7,400.0	0.05	224.99	100.0	7,398.5	-41.8	50.3	435,716.50	711,007.27	-42.1	0.05
7,500.0	0.11	186.41	100.0	7,498.5	-41.9	50.2	435,716.38	711,007.23	-42.2	0.08
7,566.5	0.09	144.87	66.5	7,565.0	-42.0	50.3	435,716.27	711,007.25	-42.3	0.11
Brushy Canyon										
7,600.0	0.10	123.29	33.5	7,598.5	-42.1	50.3	435,716.23	711,007.29	-42.3	0.11
7,700.0	0.09	156.90	100.0	7,698.5	-42.2	50.4	435,716.11	711,007.40	-42.5	0.06
7,800.0	0.14	58.29	100.0	7,798.5	-42.2	50.5	435,716.11	711,007.53	-42.5	0.18
7,900.0	0.08	184.97	100.0	7,898.5	-42.2	50.6	435,716.10	711,007.63	-42.5	0.20
8,000.0	0.10	85.93	100.0	7,998.5	-42.3	50.7	435,716.04	711,007.71	-42.5	0.14
8,100.0	0.15	60.85	100.0	8,098.5	-42.2	50.9	435,716.11	711,007.91	-42.5	0.07
8,200.0	0.15	300.41	100.0	8,198.5	-42.1	50.9	435,716.24	711,007.91	-42.3	0.26
8,300.0	0.14	347.40	100.0	8,298.5	-41.9	50.8	435,716.42	711,007.77	-42.2	0.12
8,400.0	0.16	320.20	100.0	8,398.5	-41.7	50.7	435,716.65	711,007.66	-41.9	0.07
8,500.0	0.14	38.82	100.0	8,498.5	-41.4	50.6	435,716.85	711,007.64	-41.7	0.19
8,566.5	0.16	43.20	66.5	8,565.0	-41.3	50.8	435,716.98	711,007.76	-41.6	0.03
Basal Brushy Canyon										
8,600.0	0.17	44.99	33.5	8,598.5	-41.2	50.8	435,717.05	711,007.83	-41.5	0.03
8,700.0	0.13	25.04	100.0	8,698.5	-41.0	51.0	435,717.26	711,007.98	-41.3	0.07
8,800.0	0.17	18.07	100.0	8,798.5	-40.8	51.1	435,717.50	711,008.07	-41.1	0.04



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8,826.5	0.15	13.79	26.5	8,825.0	-40.7	51.1	435,717.58	711,008.09	-41.0	0.08
Bone Spring										
8,900.0	0.11	355.11	73.5	8,898.5	-40.6	51.1	435,717.74	711,008.11	-40.8	0.08
9,000.0	0.12	337.16	100.0	8,998.5	-40.4	51.1	435,717.93	711,008.06	-40.6	0.04
9,100.0	0.06	243.11	100.0	9,098.5	-40.3	51.0	435,718.01	711,007.97	-40.6	0.14
9,200.0	0.25	174.59	100.0	9,198.5	-40.5	50.9	435,717.76	711,007.95	-40.8	0.23
9,300.0	0.15	172.31	100.0	9,298.5	-40.9	51.0	435,717.42	711,007.99	-41.2	0.10
9,400.0	0.14	192.27	100.0	9,398.5	-41.1	51.0	435,717.17	711,007.98	-41.4	0.05
9,500.0	0.03	201.85	100.0	9,498.5	-41.3	50.9	435,717.03	711,007.94	-41.6	0.11
9,600.0	0.11	296.08	100.0	9,598.5	-41.3	50.8	435,717.04	711,007.85	-41.5	0.12
9,700.0	0.44	348.41	100.0	9,698.5	-40.8	50.7	435,717.46	711,007.68	-41.1	0.38
9,791.5	0.32	347.43	91.5	9,790.0	-40.2	50.6	435,718.06	711,007.56	-40.5	0.13
1st Bone Spring Lm										
9,800.0	0.31	347.30	8.5	9,798.5	-40.2	50.5	435,718.10	711,007.55	-40.5	0.13
9,900.0	0.23	194.80	100.0	9,898.5	-40.1	50.4	435,718.17	711,007.44	-40.4	0.52
9,950.5	0.31	196.50	50.5	9,949.0	-40.4	50.4	435,717.94	711,007.37	-40.6	0.15
1st Bone Spring Ss										
10,000.0	0.38	197.51	49.5	9,998.5	-40.6	50.3	435,717.66	711,007.28	-40.9	0.15
10,100.0	0.26	226.34	100.0	10,098.5	-41.1	50.0	435,717.19	711,007.02	-41.4	0.20
10,164.5	0.20	258.73	64.5	10,163.0	-41.2	49.8	435,717.07	711,006.81	-41.5	0.22
2nd Bone Spring Lm										
10,200.0	0.20	281.27	35.5	10,198.5	-41.2	49.7	435,717.07	711,006.68	-41.5	0.22
10,280.0	0.20	308.87	80.0	10,278.5	-41.1	49.4	435,717.18	711,006.44	-41.4	0.12
10,338.0	0.10	250.60	58.0	10,336.5	-41.1	49.3	435,717.23	711,006.31	-41.3	0.29
10,369.0	0.70	304.00	31.0	10,367.5	-41.0	49.1	435,717.32	711,006.13	-41.2	2.08
10,401.0	5.10	337.70	32.0	10,399.5	-39.6	48.4	435,718.75	711,005.43	-39.8	14.17
10,432.0	7.30	0.60	31.0	10,430.3	-36.3	47.9	435,722.00	711,004.93	-36.6	10.55
10,464.0	10.50	5.70	32.0	10,461.9	-31.4	48.2	435,726.93	711,005.24	-31.6	10.29



Custom Survey Report

**Company:**

XTO Energy Inc.

Project:

Lea County, NM

Site:

(Charro) Sec23_T24S_R32E

Well:

Charro Federal #1H

Wellbore:

Original Wellbore

Design:

Actual Wellbore

Local Co-ordinate Reference:

Well Charro Federal #1H

TVD Reference:

RKB @ 3609.0usft

MD Reference:

RKB @ 3609.0usft

North Reference:

Grid

Survey Calculation Method:

Minimum Curvature

Database:

EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
10,469.2	11.07	4.80	5.2	10,467.0	-30.4	48.3	435,727.90	711,005.33	-30.7	11.35
2nd Bone Spring Ss										
10,495.0	13.90	1.40	25.8	10,492.2	-24.8	48.6	435,733.47	711,005.61	-25.1	11.35
10,527.0	17.00	356.30	32.0	10,523.0	-16.3	48.4	435,741.98	711,005.40	-16.6	10.57
10,559.0	20.20	355.90	32.0	10,553.3	-6.1	47.7	435,752.16	711,004.70	-6.4	10.01
10,590.0	23.40	355.00	31.0	10,582.1	5.3	46.8	435,763.63	711,003.78	5.1	10.38
10,622.0	26.40	355.00	32.0	10,611.1	18.8	45.6	435,777.05	711,002.61	18.5	9.37
10,654.0	30.60	355.00	32.0	10,639.3	34.0	44.3	435,792.26	711,001.28	33.7	13.12
10,685.0	34.50	355.00	31.0	10,665.4	50.6	42.8	435,808.87	710,999.83	50.3	12.58
10,717.0	36.60	354.60	32.0	10,691.4	69.1	41.1	435,827.40	710,998.14	68.9	6.60
10,748.0	40.10	355.10	31.0	10,715.7	88.3	39.4	435,846.56	710,996.41	88.0	11.33
10,780.0	43.00	355.50	32.0	10,739.7	109.4	37.7	435,867.71	710,994.68	109.2	9.10
10,811.0	45.60	356.00	31.0	10,761.9	131.0	36.1	435,889.30	710,993.08	130.8	8.46
10,838.9	47.60	356.96	27.9	10,781.0	151.2	34.8	435,909.50	710,991.84	151.0	7.61
2nd Bone Spring B Ss										
10,843.0	47.90	357.10	4.1	10,783.8	154.3	34.7	435,912.56	710,991.68	154.1	7.61
10,874.0	50.40	357.00	31.0	10,804.1	177.7	33.5	435,935.98	710,990.47	177.5	8.07
10,906.0	52.80	355.70	32.0	10,823.9	202.7	31.9	435,961.00	710,988.87	202.5	8.15
10,937.0	54.50	354.70	31.0	10,842.3	227.6	29.8	435,985.88	710,986.78	227.4	6.07
10,969.0	58.20	353.50	32.0	10,860.0	254.1	27.0	436,012.37	710,984.03	253.9	11.98
11,000.0	61.10	354.50	31.0	10,875.7	280.7	24.2	436,038.97	710,981.24	280.5	9.76
11,031.0	63.70	355.70	31.0	10,890.1	308.0	21.9	436,066.34	710,978.90	307.9	9.06
11,063.0	66.00	356.20	32.0	10,903.7	336.9	19.9	436,095.23	710,976.85	336.8	7.33
11,095.0	68.50	356.30	32.0	10,916.0	366.4	17.9	436,124.68	710,974.92	366.3	7.82
11,126.0	70.50	356.30	31.0	10,926.9	395.4	16.1	436,153.65	710,973.05	395.3	6.45
11,157.0	72.70	356.20	31.0	10,936.7	424.7	14.1	436,183.00	710,971.13	424.6	7.10
11,189.0	74.60	356.60	32.0	10,945.7	455.3	12.2	436,213.65	710,969.20	455.3	6.06



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	EW (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
11,220.0	77.10	356.60	31.0	10,953.3	485.4	10.4	436,243.65	710,967.42	485.3	8.06
11,232.9	78.43	356.76	12.9	10,956.0	498.0	9.7	436,256.26	710,966.69	497.9	10.39
10' Above										
11,252.0	80.40	357.00	19.1	10,959.5	516.7	8.7	436,274.98	710,965.67	516.6	10.39
11,284.0	83.30	357.70	32.0	10,964.0	548.3	7.2	436,306.62	710,964.20	548.3	9.32
11,315.0	86.50	358.00	31.0	10,966.8	579.2	6.0	436,337.47	710,963.04	579.1	10.37
11,347.0	87.70	358.10	32.0	10,968.4	611.1	5.0	436,369.41	710,961.96	611.1	3.76
11,378.0	87.70	358.10	31.0	10,969.7	642.1	3.9	436,400.37	710,960.93	642.0	0.00
11,410.0	89.90	358.10	32.0	10,970.3	674.0	2.9	436,432.35	710,959.87	674.0	6.87
11,436.1	90.89	358.35	26.1	10,970.1	700.1	2.1	436,458.43	710,959.06	700.1	3.93
FTP @ 11436.1' MD, 870' FSL, 666' FWL										
11,473.0	92.30	358.70	36.9	10,969.1	737.0	1.1	436,495.30	710,958.11	737.0	3.93
11,567.0	89.80	358.50	94.0	10,967.4	831.0	-1.2	436,589.25	710,955.81	830.9	2.67
11,662.0	90.20	358.40	95.0	10,967.4	925.9	-3.8	436,684.22	710,953.24	925.9	0.43
11,756.0	90.80	358.20	94.0	10,966.6	1,019.9	-6.5	436,778.17	710,950.46	1,019.9	0.67
11,851.0	89.10	358.80	95.0	10,966.7	1,114.8	-9.0	436,873.14	710,947.97	1,114.9	1.90
11,946.0	90.10	358.50	95.0	10,967.3	1,209.8	-11.3	436,968.11	710,945.73	1,209.8	1.10
12,040.0	89.70	357.80	94.0	10,967.5	1,303.8	-14.3	437,062.06	710,942.70	1,303.8	0.86
12,135.0	90.10	357.30	95.0	10,967.7	1,398.7	-18.4	437,156.97	710,938.64	1,398.7	0.67
12,229.0	89.60	356.60	94.0	10,967.9	1,492.5	-23.4	437,250.83	710,933.63	1,492.6	0.92
12,324.0	88.90	358.30	95.0	10,969.1	1,587.4	-27.6	437,345.73	710,929.41	1,587.6	1.94
12,418.0	88.80	358.00	94.0	10,971.0	1,681.4	-30.6	437,439.66	710,926.37	1,681.5	0.34
12,513.0	89.80	357.90	95.0	10,972.2	1,776.3	-34.0	437,534.59	710,922.98	1,776.5	1.06
12,607.0	89.90	359.60	94.0	10,972.4	1,870.3	-36.1	437,628.56	710,920.93	1,870.4	1.81
12,701.0	90.60	359.70	94.0	10,972.0	1,964.3	-36.6	437,722.56	710,920.35	1,964.4	0.75
12,796.0	90.30	359.20	95.0	10,971.3	2,059.3	-37.6	437,817.55	710,919.44	2,059.4	0.61
12,890.0	90.20	359.10	94.0	10,970.9	2,153.2	-39.0	437,911.54	710,918.05	2,153.4	0.15



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
12,985.0	90.20	358.50	95.0	10,970.5	2,248.2	-40.9	438,006.52	710,916.06	2,248.4	0.63
13,079.0	90.60	0.70	94.0	10,969.9	2,342.2	-41.6	438,100.51	710,915.40	2,342.4	2.38
13,174.0	90.80	0.30	95.0	10,968.7	2,437.2	-40.8	438,195.50	710,916.23	2,437.4	0.47
13,269.0	91.10	0.60	95.0	10,967.1	2,532.2	-40.0	438,290.48	710,916.97	2,532.4	0.45
13,363.0	92.40	2.50	94.0	10,964.3	2,626.1	-37.5	438,384.40	710,919.52	2,626.3	2.45
13,458.0	92.50	4.60	95.0	10,960.2	2,720.8	-31.6	438,479.12	710,925.39	2,721.0	2.21
13,553.0	90.60	3.70	95.0	10,957.6	2,815.5	-24.7	438,573.84	710,932.26	2,815.6	2.21
13,648.0	89.70	3.40	95.0	10,957.4	2,910.4	-18.9	438,668.65	710,938.15	2,910.4	1.00
13,742.0	90.60	3.30	94.0	10,957.1	3,004.2	-13.4	438,762.49	710,943.64	3,004.2	0.96
13,837.0	89.10	2.10	95.0	10,957.4	3,099.1	-8.9	438,857.38	710,948.11	3,099.1	2.02
13,931.0	90.40	2.10	94.0	10,957.8	3,193.0	-5.4	438,951.31	710,951.56	3,193.0	1.38
14,026.0	88.80	1.40	95.0	10,958.5	3,288.0	-2.5	439,046.26	710,954.46	3,287.9	1.84
14,120.0	90.30	1.20	94.0	10,959.2	3,381.9	-0.4	439,140.23	710,956.59	3,381.9	1.61
14,215.0	89.20	0.90	95.0	10,959.6	3,476.9	1.3	439,235.21	710,958.33	3,476.9	1.20
14,309.0	90.70	0.70	94.0	10,959.7	3,570.9	2.6	439,329.20	710,959.64	3,570.8	1.61
14,404.0	89.10	0.20	95.0	10,959.9	3,665.9	3.4	439,424.20	710,960.39	3,665.8	1.76
14,498.0	90.20	359.90	94.0	10,960.4	3,759.9	3.5	439,518.19	710,960.47	3,759.8	1.21
14,593.0	90.00	359.40	95.0	10,960.3	3,854.9	2.9	439,613.19	710,959.89	3,854.8	0.57
14,687.0	88.90	359.70	94.0	10,961.2	3,948.9	2.2	439,707.18	710,959.15	3,948.8	1.21
14,782.0	88.00	359.30	95.0	10,963.8	4,043.8	1.3	439,802.14	710,958.33	4,043.8	1.04
14,876.0	89.40	359.20	94.0	10,965.9	4,137.8	0.1	439,896.11	710,957.10	4,137.7	1.49
14,971.0	90.80	359.20	95.0	10,965.7	4,232.8	-1.2	439,991.10	710,955.77	4,232.7	1.47
15,066.0	88.90	359.20	95.0	10,966.0	4,327.8	-2.6	440,086.08	710,954.44	4,327.7	2.00
15,160.0	90.40	359.20	94.0	10,966.5	4,421.8	-3.9	440,180.07	710,953.13	4,421.7	1.60
15,255.0	88.70	358.70	95.0	10,967.3	4,516.7	-5.6	440,275.05	710,951.39	4,516.7	1.87
15,349.0	90.30	358.20	94.0	10,968.1	4,610.7	-8.2	440,369.00	710,948.85	4,610.7	1.78
15,443.0	88.20	357.40	94.0	10,969.3	4,704.6	-11.8	440,462.92	710,945.24	4,704.6	2.39



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Original Wellbore

Design:

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	E/W (usft)	Northing (usft)	Easting (usft)	V. Sec (usft)	DLeg (°/100usft)
15,518.3	88.91	357.24	75.3	10,971.2	4,779.8	-15.3	440,538.11	710,941.72	4,779.8	0.97
LTP @ 15518.3' MD, 330' FNL, 671' FWL										
15,538.0	89.10	357.20	19.7	10,971.6	4,799.5	-16.2	440,557.79	710,940.77	4,799.5	0.97
15,608.0	89.80	356.80	70.0	10,972.2	4,869.4	-19.9	440,627.69	710,937.10	4,869.4	1.15
Last Svy										
15,648.6	89.80	356.80	40.6	10,972.4	4,909.9	-22.2	440,668.25	710,934.83	4,910.0	0.00
#1H PBHL - Rev 3										
15,655.0	89.80	356.80	6.4	10,972.4	4,916.3	-22.5	440,674.62	710,934.48	4,916.4	0.00
PTD @ 15655' MD, 193' FNL, 664' FWL										

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
9,950.5	9,949.0	1st Bone Spring Ss			
7,566.5	7,565.0	Brushy Canyon			
4,885.4	4,884.0	Delaware			
9,791.5	9,790.0	1st Bone Spring Lm			
4,646.1	4,645.0	Base Salt			
8,566.5	8,565.0	Basal Brushy Canyon			
11,232.9	10,956.0	10' Above		0.00	
8,826.5	8,825.0	Bone Spring			
10,838.9	10,781.0	2nd Bone Spring B Ss			
10,469.2	10,467.0	2nd Bone Spring Ss			
5,822.5	5,821.0	Cherry Canyon			
10,164.5	10,163.0	2nd Bone Spring Lm			
1,370.1	1,370.0	Top Salt			
1,071.0	1,071.0	Rustler			



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RKB @ 3609.0usft

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Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
11,436.1	10,970.1	700.1	2.1	FTP @ 11436.1' MD, 870' FSL, 666' FWL
15,518.3	10,971.2	4,779.8	-15.3	LTP @ 15518.3' MD, 330' FNL, 671' FWL
15,608.0	10,972.2	4,869.4	-19.9	Last Svy
15,655.0	10,972.4	4,916.3	-22.5	PTD @ 15655' MD, 193' FNL, 664' FWL

Checked By: _____

Approved By: _____

Date: _____