

COG

SURVEY REPORT

VAST STATE #24H

NORAM 23

4/15/2017

HOBBS OCD

OCT 12 2017

RECEIVED



The Ultimate Partner In Wellbore Placement

CUSTOMER
PROJECT
FIELD

COG
Vast State #24H
N/A

SDI JOB NO.
SDI DISTRICT
SDI KIT/UNIT

OP.000000
Midland

SITE INFORMATION

Site Name
Lat/Long
Northing
Easting

Vast State #24H
32.0367106° N, 103.5917228° W

Section
Township
Range

MAP INFORMATION

North Reference
Grid Correction
System
Datum
Map Zone

Grid North
-0.39 deg
US State Plane 1927
North American Datum 1927 (Clarke 1866)
New Mexico East: 3001



WELL INFORMATION

Lat/Long
Northing
Easting
UWI

32.0367106° N, 103.5917228° W
30-025-43545

DEPTH AND ELEVATION REFERENCE

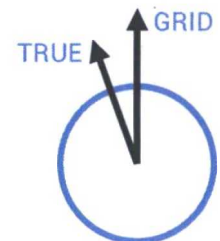
Ground Level
Reference Datum
Reference Height
Reference Elevation

3262 ft above Mean Sea Level
KB
28 ft above G.L.
3290 ft

VERTICAL SECTION REFERENCE

+N/-S
+E/-W
Proposal Direction
Calculation Method

0 ft
0 ft
359.56°
Minimum Curvature



LOCAL GRAVITY REFERENCE INFORMATION

Local Gravity
True to Grid

998.498 mG [computed]
subtract 0.39°

WELL NOTES

OPERATORS

Grayson Wegner

SDI Operator Name (Printed)

SIGNATURE

DATE

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.21	178.85	100.00	-0.19	-0.19	0.00	0.21	0.19	178.85
125.00	0.27	135.07	125.00	-0.28	-0.28	0.05	0.75	0.28	170.47
150.00	0.25	174.18	150.00	-0.37	-0.37	0.09	0.70	0.38	165.91
175.00	0.18	161.68	175.00	-0.46	-0.46	0.11	0.35	0.48	166.51
200.00	0.20	129.87	200.00	-0.53	-0.53	0.16	0.43	0.55	163.41
225.00	0.24	150.34	225.00	-0.60	-0.60	0.22	0.34	0.64	160.17
250.00	0.19	159.64	250.00	-0.69	-0.69	0.26	0.24	0.73	159.45
275.00	0.20	166.76	275.00	-0.77	-0.77	0.28	0.11	0.82	159.85
300.00	0.12	139.00	300.00	-0.83	-0.83	0.31	0.44	0.88	159.59
325.00	0.15	198.68	325.00	-0.88	-0.88	0.31	0.55	0.93	160.31
350.00	0.16	149.60	350.00	-0.94	-0.94	0.32	0.51	0.99	161.11
375.00	0.20	169.51	375.00	-1.01	-1.01	0.35	0.30	1.07	161.09
400.00	0.24	204.78	400.00	-1.10	-1.10	0.33	0.55	1.15	163.21
425.00	0.20	173.66	425.00	-1.20	-1.19	0.32	0.50	1.23	165.19
450.00	0.21	177.62	450.00	-1.28	-1.28	0.32	0.06	1.32	165.88
475.00	0.24	186.46	475.00	-1.38	-1.38	0.32	0.20	1.41	167.00
500.00	0.23	162.84	500.00	-1.48	-1.48	0.33	0.39	1.51	167.53
525.00	0.24	180.71	525.00	-1.58	-1.58	0.34	0.29	1.61	167.80
550.00	0.22	179.12	550.00	-1.68	-1.68	0.34	0.06	1.71	168.51
575.00	0.27	200.58	575.00	-1.78	-1.78	0.32	0.42	1.81	169.79
600.00	0.29	185.00	600.00	-1.90	-1.90	0.29	0.31	1.92	171.19
625.00	0.36	184.56	625.00	-2.04	-2.04	0.28	0.27	2.06	172.11
650.00	0.43	193.30	650.00	-2.21	-2.21	0.25	0.38	2.22	173.42
675.00	0.39	199.64	674.99	-2.38	-2.38	0.20	0.24	2.39	175.09
700.00	0.39	202.21	699.99	-2.54	-2.54	0.14	0.08	2.54	176.76
725.00	0.52	194.64	724.99	-2.73	-2.73	0.08	0.60	2.73	178.26
750.00	0.44	195.93	749.99	-2.93	-2.93	0.03	0.35	2.93	179.45
775.00	0.49	194.73	774.99	-3.12	-3.12	-0.03	0.20	3.12	180.46
800.00	0.48	188.91	799.99	-3.33	-3.33	-0.07	0.20	3.33	181.18
825.00	0.47	187.66	824.99	-3.53	-3.53	-0.10	0.06	3.54	181.59
850.00	0.60	199.81	849.99	-3.76	-3.76	-0.16	0.68	3.76	182.37

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
875.00	0.60	195.23	874.99	-4.00	-4.01	-0.23	0.19	4.01	183.34
900.00	0.64	192.37	899.99	-4.26	-4.27	-0.30	0.20	4.28	184.00
925.00	0.73	195.80	924.98	-4.55	-4.56	-0.37	0.42	4.57	184.66
950.00	0.61	183.99	949.98	-4.84	-4.84	-0.42	0.74	4.86	185.01
975.00	0.64	185.25	974.98	-5.11	-5.12	-0.45	0.13	5.14	184.99
1000.00	0.68	186.24	999.98	-5.40	-5.40	-0.48	0.15	5.42	185.03
1025.00	0.74	194.33	1024.98	-5.70	-5.70	-0.53	0.46	5.73	185.32
1050.00	0.76	196.11	1049.98	-6.01	-6.02	-0.62	0.14	6.05	185.85
1075.00	0.71	198.26	1074.97	-6.32	-6.33	-0.71	0.24	6.37	186.42
1100.00	0.69	203.74	1099.97	-6.60	-6.61	-0.82	0.28	6.66	187.07
1125.00	0.71	186.57	1124.97	-6.89	-6.90	-0.90	0.84	6.96	187.42
1150.00	0.76	176.38	1149.97	-7.21	-7.22	-0.91	0.57	7.28	187.15
1175.00	0.74	165.99	1174.97	-7.54	-7.54	-0.86	0.55	7.59	186.47
1200.00	0.77	171.99	1199.96	-7.86	-7.87	-0.79	0.34	7.91	185.76
1225.00	0.68	158.31	1224.96	-8.17	-8.17	-0.71	0.78	8.20	185.00
1250.00	0.78	165.88	1249.96	-8.47	-8.48	-0.62	0.55	8.50	184.17
1275.00	0.78	169.46	1274.96	-8.80	-8.81	-0.55	0.20	8.83	183.54
1300.00	0.78	160.51	1299.95	-9.13	-9.14	-0.46	0.49	9.15	182.86
1325.00	0.82	169.63	1324.95	-9.47	-9.47	-0.37	0.54	9.48	182.22
1350.00	0.77	164.07	1349.95	-9.81	-9.81	-0.29	0.38	9.82	181.69
1375.00	0.83	163.67	1374.95	-10.15	-10.15	-0.19	0.25	10.15	181.09
1400.00	0.81	143.40	1399.94	-10.46	-10.46	-0.04	1.16	10.46	180.20
1425.00	1.03	134.29	1424.94	-10.76	-10.76	0.23	1.03	10.76	178.77
1450.00	1.21	115.67	1449.94	-11.04	-11.03	0.63	1.62	11.05	176.74
1475.00	1.22	119.72	1474.93	-11.29	-11.28	1.10	0.34	11.33	174.44
1500.00	1.30	118.09	1499.93	-11.56	-11.54	1.58	0.35	11.65	172.21
1525.00	1.39	117.03	1524.92	-11.83	-11.82	2.10	0.38	12.00	169.93
1550.00	1.25	118.21	1549.91	-12.10	-12.08	2.61	0.55	12.36	167.81
1575.00	1.21	116.42	1574.91	-12.35	-12.33	3.09	0.25	12.71	165.95
1600.00	1.17	117.01	1599.90	-12.59	-12.56	3.55	0.16	13.05	164.23
1625.00	1.24	117.49	1624.90	-12.83	-12.80	4.01	0.28	13.42	162.59
1650.00	1.14	117.21	1649.89	-13.07	-13.04	4.47	0.40	13.78	161.07

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS %/100ft	CLOSURE DIST ft	CLOSURE DIR deg
1675.00	1.18	116.34	1674.88	-13.30	-13.27	4.92	0.19	14.15	159.64
1700.00	1.18	117.89	1699.88	-13.54	-13.50	5.38	0.13	14.53	158.27
1725.00	1.18	115.67	1724.87	-13.78	-13.73	5.84	0.18	14.92	156.96
1750.00	1.14	116.51	1749.87	-14.00	-13.96	6.30	0.19	15.31	155.72
1775.00	1.20	112.97	1774.86	-14.22	-14.17	6.76	0.39	15.70	154.49
1800.00	1.28	110.95	1799.86	-14.43	-14.37	7.26	0.34	16.10	153.19
1825.00	1.18	120.89	1824.85	-14.66	-14.60	7.74	0.94	16.53	152.06
1850.00	1.13	113.11	1849.85	-14.89	-14.83	8.19	0.66	16.94	151.09
1875.00	1.16	115.70	1874.84	-15.10	-15.04	8.65	0.23	17.35	150.10
1900.00	1.09	117.30	1899.84	-15.33	-15.26	9.09	0.28	17.76	149.23
1925.00	1.12	114.30	1924.83	-15.54	-15.47	9.52	0.25	18.16	148.39
1950.00	1.07	116.34	1949.83	-15.75	-15.67	9.95	0.24	18.57	147.58
1975.00	1.07	116.10	1974.82	-15.96	-15.88	10.37	0.03	18.97	146.85
2000.00	1.04	112.37	1999.82	-16.15	-16.07	10.79	0.30	19.35	146.11
2025.00	0.97	113.96	2024.82	-16.32	-16.24	11.19	0.29	19.72	145.42
2050.00	0.66	102.64	2049.81	-16.44	-16.36	11.53	1.40	20.01	144.82
2075.00	0.45	79.40	2074.81	-16.46	-16.37	11.76	1.22	20.16	144.30
2100.00	0.55	41.54	2099.81	-16.35	-16.26	11.94	1.34	20.18	143.71
2125.00	0.52	31.75	2124.81	-16.17	-16.08	12.08	0.38	20.11	143.08
2150.00	0.55	24.85	2149.81	-15.97	-15.87	12.19	0.28	20.01	142.48
2175.00	0.61	24.77	2174.81	-15.74	-15.64	12.30	0.26	19.90	141.83
2200.00	0.42	29.55	2199.81	-15.54	-15.44	12.40	0.81	19.80	141.24
2225.00	0.54	22.50	2224.81	-15.35	-15.25	12.49	0.57	19.71	140.69
2250.00	0.60	14.65	2249.80	-15.11	-15.02	12.56	0.38	19.58	140.08
2275.00	0.64	16.84	2274.80	-14.85	-14.76	12.64	0.20	19.43	139.42
2300.00	0.44	357.54	2299.80	-14.62	-14.53	12.67	1.06	19.28	138.89
2325.00	0.57	346.37	2324.80	-14.40	-14.31	12.64	0.64	19.09	138.54
2350.00	0.67	357.65	2349.80	-14.14	-14.04	12.61	0.62	18.87	138.09
2375.00	0.64	346.21	2374.80	-13.86	-13.76	12.57	0.53	18.64	137.60
2400.00	0.59	343.30	2399.80	-13.60	-13.50	12.50	0.21	18.40	137.22
2425.00	0.66	340.02	2424.79	-13.34	-13.25	12.41	0.30	18.15	136.86
2450.00	0.68	341.13	2449.79	-13.06	-12.97	12.31	0.10	17.88	136.49

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
2475.00	0.61	345.10	2474.79	-12.79	-12.70	12.23	0.33	17.63	136.08
2500.00	0.66	338.97	2499.79	-12.53	-12.44	12.14	0.34	17.38	135.68
2525.00	0.62	350.51	2524.79	-12.26	-12.17	12.07	0.54	17.14	135.23
2550.00	0.58	343.36	2549.79	-12.00	-11.91	12.01	0.35	16.92	134.76
2575.00	0.63	340.87	2574.79	-11.75	-11.66	11.93	0.24	16.68	134.34
2600.00	0.57	338.19	2599.78	-11.50	-11.41	11.84	0.29	16.45	133.95
2625.00	0.54	351.62	2624.78	-11.27	-11.18	11.78	0.53	16.24	133.52
2650.00	0.53	344.29	2649.78	-11.05	-10.96	11.73	0.27	16.05	133.05
2675.00	0.52	337.95	2674.78	-10.83	-10.74	11.65	0.23	15.85	132.67
2700.00	0.47	342.72	2699.78	-10.63	-10.54	11.58	0.25	15.66	132.31
2725.00	0.49	345.03	2724.78	-10.43	-10.34	11.52	0.13	15.48	131.90
2750.00	0.55	334.93	2749.78	-10.22	-10.13	11.45	0.42	15.28	131.50
2775.00	0.52	346.42	2774.78	-10.00	-9.91	11.37	0.44	15.08	131.08
2800.00	0.44	352.92	2799.78	-9.79	-9.70	11.33	0.41	14.92	130.58
2825.00	0.43	333.62	2824.78	-9.61	-9.52	11.28	0.58	14.76	130.19
2850.00	0.41	334.75	2849.77	-9.45	-9.36	11.20	0.11	14.59	129.90
2875.00	0.45	337.89	2874.77	-9.27	-9.19	11.12	0.21	14.43	129.56
2900.00	0.28	330.22	2899.77	-9.13	-9.05	11.05	0.73	14.28	129.29
2925.00	0.30	335.66	2924.77	-9.02	-8.93	11.00	0.14	14.17	129.09
2950.00	0.22	342.62	2949.77	-8.91	-8.83	10.96	0.31	14.07	128.86
2975.00	0.19	359.76	2974.77	-8.82	-8.74	10.94	0.28	14.00	128.61
3000.00	0.19	324.91	2999.77	-8.75	-8.66	10.92	0.46	13.94	128.43
3025.00	0.23	341.93	3024.77	-8.66	-8.58	10.88	0.28	13.86	128.27
3050.00	0.14	335.45	3049.77	-8.59	-8.51	10.85	0.36	13.79	128.10
3075.00	0.12	299.25	3074.77	-8.55	-8.47	10.81	0.33	13.73	128.06
3100.00	0.15	339.96	3099.77	-8.50	-8.42	10.78	0.40	13.68	128.00
3125.00	0.21	334.60	3124.77	-8.43	-8.35	10.75	0.25	13.61	127.84
3150.00	0.11	297.87	3149.77	-8.38	-8.29	10.71	0.56	13.54	127.77
3175.00	0.07	285.96	3174.77	-8.36	-8.28	10.67	0.18	13.50	127.81
3200.00	0.14	302.21	3199.77	-8.34	-8.26	10.63	0.31	13.46	127.85
3225.00	0.21	325.76	3224.77	-8.28	-8.20	10.57	0.39	13.38	127.80
3250.00	0.10	338.93	3249.77	-8.23	-8.14	10.54	0.47	13.32	127.69

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
3275.00	0.17	276.15	3274.77	-8.20	-8.12	10.50	0.62	13.27	127.73
3300.00	0.16	299.53	3299.77	-8.18	-8.10	10.43	0.27	13.20	127.84
3325.00	0.14	349.95	3324.77	-8.13	-8.05	10.39	0.52	13.15	127.77
3350.00	0.14	300.09	3349.77	-8.09	-8.01	10.36	0.48	13.09	127.70
3375.00	0.21	323.38	3374.77	-8.03	-7.95	10.31	0.38	13.02	127.66
3400.00	0.17	345.53	3399.77	-7.96	-7.88	10.27	0.32	12.94	127.50
3425.00	0.06	351.44	3424.77	-7.91	-7.83	10.26	0.48	12.91	127.36
3450.00	0.26	20.81	3449.77	-7.84	-7.77	10.28	0.86	12.88	127.08
3475.00	0.48	57.90	3474.77	-7.74	-7.66	10.39	1.25	12.90	126.40
3500.00	0.47	52.71	3499.77	-7.62	-7.54	10.56	0.17	12.97	125.53
3525.00	0.71	59.46	3524.77	-7.48	-7.40	10.77	0.99	13.07	124.47
3550.00	0.70	71.43	3549.77	-7.35	-7.27	11.05	0.59	13.23	123.34
3575.00	0.90	68.63	3574.76	-7.24	-7.15	11.38	0.82	13.44	122.14
3600.00	1.04	73.41	3599.76	-7.10	-7.01	11.78	0.67	13.71	120.77
3625.00	1.16	71.31	3624.76	-6.96	-6.87	12.24	0.49	14.03	119.30
3650.00	1.25	73.69	3649.75	-6.81	-6.71	12.74	0.41	14.40	117.78
3675.00	1.47	74.29	3674.74	-6.65	-6.55	13.31	0.87	14.83	116.19
3700.00	1.47	74.16	3699.74	-6.48	-6.37	13.92	0.01	15.31	114.59
3725.00	1.41	70.87	3724.73	-6.29	-6.18	14.52	0.39	15.78	113.06
3750.00	1.57	66.38	3749.72	-6.06	-5.94	15.13	0.79	16.25	111.45
3775.00	1.68	60.81	3774.71	-5.75	-5.63	15.76	0.75	16.74	109.65
3800.00	1.69	57.62	3799.70	-5.38	-5.25	16.39	0.38	17.21	107.77
3825.00	1.69	60.16	3824.69	-5.00	-4.87	17.02	0.30	17.71	105.97
3850.00	1.67	55.68	3849.68	-4.62	-4.48	17.64	0.53	18.21	104.26
3875.00	1.64	47.82	3874.67	-4.18	-4.04	18.21	0.92	18.65	102.50
3900.00	1.48	51.91	3899.66	-3.74	-3.60	18.73	0.78	19.07	100.88
3925.00	1.24	44.90	3924.65	-3.36	-3.21	19.17	1.15	19.44	99.51
3950.00	0.97	38.71	3949.64	-3.00	-2.85	19.50	1.16	19.70	98.33
3975.00	0.75	13.26	3974.64	-2.68	-2.53	19.67	1.75	19.83	97.32
4000.00	0.61	356.38	3999.64	-2.39	-2.23	19.70	0.99	19.82	96.47
4025.00	0.70	354.16	4024.64	-2.10	-1.95	19.67	0.36	19.77	95.66
4050.00	0.60	5.64	4049.64	-1.82	-1.67	19.67	0.63	19.74	94.85

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS %/100ft	CLOSURE DIST ft	CLOSURE DIR deg
4075.00	0.63	351.30	4074.64	-1.55	-1.40	19.66	0.63	19.71	94.07
4100.00	0.74	353.25	4099.63	-1.25	-1.10	19.62	0.43	19.65	93.22
4125.00	0.66	2.68	4124.63	-0.95	-0.80	19.61	0.56	19.63	92.33
4150.00	0.61	352.04	4149.63	-0.67	-0.52	19.60	0.51	19.60	91.53
4175.00	0.69	357.29	4174.63	-0.39	-0.24	19.57	0.41	19.57	90.71
4200.00	0.58	3.18	4199.63	-0.12	0.04	19.57	0.50	19.57	89.90
4225.00	0.50	18.62	4224.63	0.12	0.27	19.61	0.67	19.62	89.22
4250.00	0.56	37.09	4249.63	0.32	0.47	19.72	0.72	19.73	88.64
4275.00	0.69	43.14	4274.62	0.52	0.68	19.90	0.56	19.91	88.06
4300.00	0.73	48.44	4299.62	0.74	0.89	20.12	0.32	20.14	87.47
4325.00	0.63	44.13	4324.62	0.94	1.10	20.34	0.45	20.37	86.92
4350.00	0.47	37.90	4349.62	1.12	1.28	20.50	0.71	20.54	86.44
4375.00	0.58	0.00	4374.62	1.32	1.48	20.56	1.41	20.61	85.88
4400.00	0.55	357.92	4399.62	1.57	1.73	20.55	0.12	20.63	85.20
4425.00	0.51	347.82	4424.62	1.80	1.96	20.53	0.41	20.62	84.55
4450.00	0.61	341.77	4449.61	2.03	2.19	20.46	0.45	20.58	83.89
4475.00	0.55	317.67	4474.61	2.25	2.41	20.34	0.99	20.48	83.26
4500.00	0.25	354.41	4499.61	2.39	2.55	20.25	1.50	20.41	82.83
4525.00	0.17	271.60	4524.61	2.45	2.60	20.21	1.14	20.38	82.66
4550.00	0.17	226.48	4549.61	2.43	2.58	20.15	0.52	20.31	82.70
4575.00	0.25	172.46	4574.61	2.35	2.50	20.13	0.81	20.28	82.92
4600.00	0.52	156.23	4599.61	2.19	2.34	20.18	1.15	20.32	83.37
4625.00	0.67	150.03	4624.61	1.96	2.11	20.30	0.67	20.41	84.05
4650.00	0.66	158.96	4649.61	1.70	1.85	20.42	0.42	20.51	84.81
4675.00	0.67	152.51	4674.61	1.43	1.59	20.54	0.30	20.60	85.58
4700.00	0.53	156.98	4699.61	1.19	1.35	20.66	0.59	20.70	86.25
4725.00	0.20	173.74	4724.61	1.05	1.20	20.71	1.38	20.74	86.67
4750.00	0.08	263.87	4749.61	1.00	1.16	20.69	0.85	20.73	86.79
4775.00	0.07	352.68	4774.61	1.01	1.17	20.67	0.41	20.71	86.76
4800.00	0.13	349.98	4799.60	1.05	1.21	20.67	0.24	20.70	86.64
4825.00	0.06	8.05	4824.60	1.09	1.25	20.66	0.29	20.70	86.53
4850.00	0.14	313.91	4849.60	1.13	1.29	20.64	0.47	20.68	86.43

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
4875.00	0.12	17.25	4874.60	1.17	1.33	20.63	0.55	20.67	86.30
4900.00	0.16	330.15	4899.60	1.23	1.39	20.62	0.47	20.67	86.15
4925.00	0.23	342.94	4924.60	1.31	1.47	20.59	0.34	20.64	85.93
4950.00	0.07	15.31	4949.60	1.37	1.53	20.58	0.70	20.63	85.75
4975.00	0.26	322.60	4974.60	1.43	1.59	20.55	0.91	20.61	85.58
5000.00	0.20	262.27	4999.60	1.47	1.63	20.47	0.95	20.53	85.45
5025.00	0.45	30.41	5024.60	1.55	1.71	20.48	2.37	20.55	85.23
5050.00	0.14	7.99	5049.60	1.67	1.82	20.53	1.30	20.61	84.92
5075.00	0.27	358.96	5074.60	1.76	1.91	20.53	0.54	20.62	84.67
5100.00	0.21	26.73	5099.60	1.86	2.01	20.55	0.53	20.65	84.40
5125.00	0.24	7.27	5124.60	1.95	2.11	20.58	0.32	20.69	84.16
5150.00	0.27	3.40	5149.60	2.06	2.22	20.59	0.16	20.71	83.86
5175.00	0.33	351.08	5174.60	2.19	2.35	20.58	0.33	20.71	83.50
5200.00	0.19	31.17	5199.60	2.29	2.45	20.59	0.88	20.74	83.22
5225.00	0.27	359.76	5224.60	2.39	2.54	20.61	0.60	20.77	82.96
5250.00	0.27	1.38	5249.60	2.50	2.66	20.61	0.03	20.78	82.64
5275.00	0.18	8.72	5274.60	2.60	2.76	20.62	0.37	20.80	82.38
5300.00	0.16	319.89	5299.60	2.67	2.83	20.60	0.57	20.80	82.19
5325.00	0.26	6.44	5324.60	2.75	2.91	20.59	0.77	20.79	81.95
5350.00	0.20	15.21	5349.60	2.85	3.01	20.61	0.29	20.82	81.69
5375.00	0.13	311.00	5374.60	2.91	3.07	20.60	0.74	20.82	81.52
5400.00	0.26	0.22	5399.60	2.99	3.14	20.57	0.80	20.81	81.31
5425.00	0.22	5.21	5424.60	3.09	3.25	20.58	0.19	20.83	81.03
5450.00	0.14	331.92	5449.60	3.16	3.32	20.57	0.50	20.84	80.83
5475.00	0.22	310.88	5474.60	3.22	3.38	20.52	0.40	20.80	80.65
5500.00	0.20	357.50	5499.60	3.30	3.45	20.48	0.66	20.77	80.43
5525.00	0.22	10.22	5524.60	3.39	3.54	20.49	0.20	20.79	80.19
5550.00	0.12	15.23	5549.60	3.46	3.62	20.50	0.41	20.82	80.00
5575.00	0.17	317.63	5574.60	3.51	3.67	20.48	0.58	20.81	79.85
5600.00	0.05	277.95	5599.60	3.54	3.70	20.45	0.54	20.78	79.75
5625.00	0.16	332.49	5624.60	3.57	3.73	20.42	0.54	20.76	79.65
5650.00	0.19	7.17	5649.60	3.64	3.80	20.41	0.44	20.76	79.45

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS %/100ft	CLOSURE DIST ft	CLOSURE DIR deg
5675.00	0.20	9.93	5674.60	3.73	3.89	20.42	0.06	20.79	79.23
5700.00	0.10	220.01	5699.60	3.76	3.91	20.42	1.20	20.79	79.15
5725.00	0.14	330.05	5724.60	3.77	3.92	20.39	0.80	20.76	79.11
5750.00	0.14	327.93	5749.60	3.82	3.97	20.36	0.02	20.74	78.95
5775.00	0.10	318.14	5774.60	3.86	4.01	20.33	0.17	20.72	78.83
5800.00	0.17	322.65	5799.60	3.90	4.06	20.29	0.28	20.69	78.68
5825.00	0.04	240.27	5824.60	3.93	4.09	20.26	0.67	20.67	78.60
5850.00	0.12	324.11	5849.60	3.95	4.10	20.24	0.50	20.65	78.54
5875.00	0.16	0.54	5874.60	4.01	4.16	20.22	0.39	20.65	78.37
5900.00	0.05	26.87	5899.60	4.05	4.21	20.23	0.50	20.66	78.25
5925.00	0.04	263.40	5924.60	4.06	4.21	20.22	0.32	20.66	78.23
5950.00	0.19	352.83	5949.60	4.10	4.25	20.21	0.78	20.65	78.11
5975.00	0.04	350.42	5974.60	4.15	4.30	20.20	0.63	20.65	77.98
6000.00	0.10	304.72	5999.60	4.17	4.32	20.18	0.31	20.64	77.91
6025.00	0.15	4.89	6024.60	4.21	4.37	20.17	0.54	20.63	77.78
6050.00	0.07	146.81	6049.60	4.23	4.39	20.18	0.85	20.65	77.73
6075.00	0.12	32.71	6074.60	4.24	4.40	20.20	0.65	20.67	77.72
6100.00	0.06	3.81	6099.60	4.28	4.43	20.22	0.30	20.70	77.63
6125.00	0.15	27.20	6124.60	4.32	4.48	20.23	0.41	20.72	77.53
6150.00	0.17	71.09	6149.60	4.36	4.52	20.28	0.48	20.78	77.44
6175.00	0.17	58.29	6174.60	4.39	4.55	20.35	0.15	20.85	77.40
6200.00	0.33	48.43	6199.60	4.46	4.62	20.43	0.67	20.95	77.27
6225.00	0.31	63.54	6224.60	4.54	4.70	20.55	0.35	21.08	77.13
6250.00	0.23	69.22	6249.60	4.58	4.74	20.66	0.34	21.19	77.07
6275.00	0.25	73.37	6274.60	4.62	4.78	20.75	0.09	21.30	77.04
6300.00	0.25	41.09	6299.60	4.67	4.83	20.84	0.56	21.40	76.94
6325.00	0.35	59.47	6324.60	4.75	4.91	20.94	0.53	21.51	76.80
6350.00	0.32	93.76	6349.60	4.79	4.95	21.08	0.80	21.65	76.79
6375.00	0.25	72.41	6374.60	4.80	4.96	21.20	0.51	21.77	76.83
6400.00	0.40	76.69	6399.60	4.83	5.00	21.34	0.59	21.91	76.82
6425.00	0.24	79.92	6424.60	4.86	5.02	21.47	0.61	22.05	76.83
6450.00	0.37	64.52	6449.60	4.90	5.07	21.60	0.59	22.19	76.79

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
6475.00	0.30	76.19	6474.59	4.95	5.12	21.73	0.39	22.33	76.75
6500.00	0.32	67.18	6499.59	4.99	5.16	21.86	0.20	22.46	76.72
6525.00	0.30	100.58	6524.59	5.01	5.18	21.99	0.71	22.59	76.75
6550.00	0.35	58.14	6549.59	5.03	5.20	22.12	0.96	22.72	76.76
6575.00	0.43	70.39	6574.59	5.11	5.28	22.27	0.45	22.89	76.67
6600.00	0.30	73.98	6599.59	5.15	5.33	22.42	0.51	23.05	76.64
6625.00	0.44	65.94	6624.59	5.21	5.38	22.58	0.58	23.21	76.59
6650.00	0.35	83.79	6649.59	5.26	5.43	22.74	0.60	23.38	76.57
6675.00	0.37	73.79	6674.59	5.29	5.46	22.89	0.26	23.53	76.58
6700.00	0.43	70.24	6699.59	5.34	5.52	23.06	0.28	23.71	76.55
6725.00	0.38	83.95	6724.59	5.38	5.56	23.23	0.45	23.88	76.55
6750.00	0.28	74.46	6749.59	5.40	5.58	23.37	0.43	24.03	76.57
6775.00	0.46	73.85	6774.59	5.45	5.63	23.53	0.72	24.19	76.55
6800.00	0.42	90.05	6799.59	5.47	5.65	23.71	0.52	24.38	76.59
6825.00	0.42	73.57	6824.59	5.50	5.68	23.89	0.48	24.56	76.63
6850.00	0.41	85.88	6849.59	5.53	5.71	24.07	0.36	24.74	76.65
6875.00	0.45	97.53	6874.59	5.52	5.71	24.26	0.39	24.92	76.76
6900.00	0.43	100.08	6899.59	5.49	5.68	24.45	0.11	25.10	76.93
6925.00	0.49	99.01	6924.58	5.45	5.64	24.64	0.24	25.28	77.10
6950.00	0.46	106.82	6949.58	5.41	5.60	24.84	0.29	25.47	77.30
6975.00	0.46	112.61	6974.58	5.34	5.53	25.03	0.18	25.63	77.54
7000.00	0.51	120.24	6999.58	5.24	5.44	25.22	0.33	25.80	77.84
7025.00	0.57	103.64	7024.58	5.16	5.35	25.44	0.67	25.99	78.12
7050.00	0.74	116.92	7049.58	5.05	5.25	25.70	0.90	26.23	78.46
7075.00	0.82	123.20	7074.58	4.88	5.08	25.99	0.47	26.48	78.95
7100.00	0.89	125.10	7099.57	4.67	4.87	26.30	0.31	26.75	79.51
7125.00	1.08	125.97	7124.57	4.41	4.62	26.65	0.74	27.05	80.17
7150.00	1.14	129.85	7149.57	4.11	4.32	27.03	0.40	27.38	80.92
7175.00	1.76	136.84	7174.56	3.67	3.88	27.49	2.56	27.76	81.96
7200.00	1.88	137.75	7199.55	3.08	3.30	28.02	0.49	28.22	83.29
7225.00	2.06	140.85	7224.53	2.43	2.65	28.58	0.86	28.71	84.71
7250.00	2.06	136.41	7249.51	1.75	1.97	29.18	0.64	29.24	86.13

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
7275.00	2.25	138.80	7274.50	1.05	1.28	29.81	0.86	29.84	87.54
7300.00	2.27	138.82	7299.48	0.30	0.54	30.46	0.09	30.46	88.99
7325.00	2.32	138.37	7324.46	-0.45	-0.22	31.12	0.19	31.12	90.40
7350.00	2.39	132.75	7349.44	-1.19	-0.95	31.84	0.96	31.85	91.70
7375.00	2.53	131.21	7374.41	-1.91	-1.66	32.64	0.62	32.68	92.92
7400.00	2.47	132.89	7399.39	-2.65	-2.39	33.45	0.37	33.53	94.09
7425.00	2.46	132.12	7424.37	-3.38	-3.12	34.24	0.13	34.38	95.21
7450.00	2.60	129.44	7449.34	-4.11	-3.84	35.08	0.73	35.29	96.25
7475.00	2.58	129.65	7474.32	-4.84	-4.56	35.95	0.09	36.24	97.23
7500.00	2.63	130.11	7499.29	-5.57	-5.29	36.82	0.21	37.20	98.18
7525.00	2.80	128.49	7524.26	-6.33	-6.04	37.74	0.76	38.22	99.09
7550.00	3.18	124.37	7549.23	-7.11	-6.81	38.79	1.73	39.38	99.96
7575.00	3.43	123.46	7574.19	-7.92	-7.62	39.98	1.04	40.70	100.78
7600.00	3.52	122.51	7599.14	-8.76	-8.44	41.26	0.42	42.11	101.56
7625.00	3.75	122.81	7624.09	-9.62	-9.30	42.59	0.90	43.59	102.31
7650.00	4.18	120.45	7649.03	-10.54	-10.20	44.06	1.86	45.23	103.03
7675.00	4.22	120.96	7673.96	-11.49	-11.14	45.64	0.23	46.98	103.71
7700.00	4.30	121.89	7698.89	-12.47	-12.11	47.22	0.41	48.75	104.38
7725.00	4.33	121.64	7723.82	-13.47	-13.10	48.82	0.14	50.55	105.01
7750.00	4.30	120.08	7748.75	-14.45	-14.06	50.44	0.48	52.36	105.58
7775.00	4.24	120.99	7773.68	-15.41	-15.01	52.04	0.37	54.16	106.09
7800.00	4.39	121.08	7798.61	-16.39	-15.98	53.65	0.59	55.98	106.58
7825.00	4.31	119.43	7823.54	-17.35	-16.93	55.29	0.60	57.82	107.03
7850.00	4.27	119.30	7848.47	-18.28	-17.85	56.92	0.16	59.65	107.41
7875.00	4.10	117.56	7873.40	-19.16	-18.71	58.52	0.85	61.44	107.73
7900.00	4.14	118.25	7898.34	-20.02	-19.55	60.10	0.25	63.21	108.02
7925.00	4.14	117.12	7923.27	-20.87	-20.39	61.70	0.33	64.98	108.29
7950.00	4.22	117.38	7948.21	-21.71	-21.23	63.32	0.32	66.78	108.53
7975.00	4.32	116.61	7973.14	-22.57	-22.07	64.98	0.46	68.62	108.76
8000.00	4.79	118.11	7998.06	-23.50	-22.98	66.74	1.96	70.59	109.00
8025.00	4.87	117.64	8022.97	-24.50	-23.97	68.60	0.37	72.67	109.26
8050.00	4.90	117.50	8047.88	-25.50	-24.96	70.49	0.13	74.78	109.50

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8075.00	4.90	117.09	8072.79	-26.49	-25.94	72.39	0.14	76.90	109.71
8100.00	4.93	118.58	8097.70	-27.51	-26.94	74.28	0.52	79.02	109.93
8125.00	4.92	117.41	8122.60	-28.53	-27.94	76.18	0.40	81.14	110.14
8150.00	5.06	118.29	8147.51	-29.56	-28.96	78.10	0.62	83.30	110.34
8175.00	5.02	118.97	8172.41	-30.63	-30.01	80.03	0.27	85.47	110.56
8200.00	5.20	117.07	8197.31	-31.69	-31.06	82.00	0.97	87.68	110.75
8225.00	5.39	116.89	8222.21	-32.75	-32.10	84.05	0.76	89.97	110.90
8250.00	5.35	117.01	8247.10	-33.83	-33.16	86.14	0.16	92.30	111.06
8275.00	5.34	116.64	8271.99	-34.89	-34.22	88.21	0.15	94.62	111.20
8300.00	5.49	116.44	8296.88	-35.96	-35.27	90.32	0.60	96.97	111.33
8325.00	5.34	116.67	8321.76	-37.03	-36.32	92.43	0.59	99.31	111.45
8350.00	5.27	116.27	8346.66	-38.08	-37.35	94.50	0.32	101.62	111.57
8375.00	5.19	116.01	8371.55	-39.10	-38.36	96.55	0.34	103.89	111.67
8400.00	5.14	115.48	8396.45	-40.09	-39.33	98.58	0.27	106.13	111.75
8425.00	5.02	115.67	8421.35	-41.06	-40.29	100.57	0.47	108.34	111.83
8450.00	5.01	116.17	8446.26	-42.03	-41.25	102.54	0.18	110.53	111.91
8475.00	4.91	116.42	8471.16	-43.01	-42.20	104.48	0.42	112.68	112.00
8500.00	4.96	115.31	8496.07	-43.96	-43.14	106.41	0.44	114.83	112.07
8525.00	4.92	115.59	8520.98	-44.90	-44.07	108.36	0.18	116.98	112.13
8550.00	4.91	116.29	8545.89	-45.85	-45.00	110.28	0.25	119.11	112.20
8575.00	4.77	118.39	8570.80	-46.83	-45.97	112.16	0.89	121.21	112.29
8600.00	4.58	122.12	8595.71	-47.87	-47.00	113.92	1.44	123.23	112.42
8625.00	4.76	118.44	8620.63	-48.91	-48.02	115.67	1.40	125.24	112.55
8650.00	4.78	117.01	8645.55	-49.89	-48.99	117.51	0.48	127.31	112.63
8675.00	4.97	118.65	8670.45	-50.89	-49.98	119.39	0.93	129.43	112.72
8700.00	4.90	117.35	8695.36	-51.92	-50.99	121.29	0.53	131.57	112.80
8725.00	4.84	118.28	8720.27	-52.92	-51.98	123.16	0.39	133.68	112.88
8750.00	4.79	119.25	8745.18	-53.95	-52.99	125.00	0.39	135.77	112.97
8775.00	4.69	119.16	8770.10	-54.97	-54.00	126.81	0.36	137.82	113.06
8800.00	4.72	119.36	8795.01	-55.98	-55.00	128.59	0.11	139.86	113.16
8825.00	4.74	119.53	8819.93	-57.01	-56.01	130.39	0.11	141.91	113.25
8850.00	4.72	120.00	8844.84	-58.05	-57.03	132.18	0.18	143.96	113.34

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
8875.00	4.78	119.19	8869.76	-59.08	-58.06	133.98	0.36	146.02	113.43
8900.00	4.85	119.91	8894.67	-60.13	-59.09	135.80	0.39	148.10	113.52
8925.00	4.74	119.75	8919.58	-61.19	-60.13	137.62	0.47	150.18	113.60
8950.00	4.81	119.58	8944.50	-62.23	-61.16	139.43	0.32	152.25	113.69
8975.00	4.59	119.55	8969.41	-63.26	-62.17	141.21	0.89	154.29	113.76
9000.00	4.32	121.53	8994.34	-64.25	-63.16	142.88	1.27	156.22	113.85
9025.00	4.23	120.64	9019.27	-65.23	-64.12	144.48	0.43	158.07	113.93
9050.00	4.09	119.17	9044.20	-66.15	-65.03	146.05	0.70	159.87	114.00
9075.00	3.87	120.22	9069.14	-67.02	-65.88	147.56	0.94	161.60	114.06
9100.00	3.77	120.08	9094.08	-67.86	-66.72	149.00	0.38	163.25	114.12
9125.00	3.74	118.64	9119.03	-68.68	-67.53	150.43	0.39	164.89	114.18
9150.00	3.38	119.66	9143.98	-69.44	-68.28	151.78	1.49	166.43	114.22
9175.00	3.14	119.81	9168.94	-70.16	-68.99	153.02	0.95	167.85	114.27
9200.00	3.00	119.61	9193.91	-70.83	-69.65	154.18	0.56	169.18	114.31
9225.00	2.96	117.02	9218.87	-71.46	-70.27	155.32	0.56	170.48	114.34
9250.00	2.85	118.73	9243.84	-72.06	-70.86	156.44	0.57	171.74	114.37
9275.00	2.95	113.88	9268.81	-72.63	-71.42	157.58	1.06	173.01	114.38
9300.00	3.32	108.68	9293.77	-73.13	-71.91	158.85	1.88	174.37	114.36
9325.00	3.66	106.42	9318.72	-73.60	-72.37	160.30	1.45	175.88	114.30
9350.00	3.68	106.64	9343.67	-74.06	-72.82	161.84	0.11	177.47	114.23
9375.00	3.81	107.01	9368.62	-74.55	-73.30	163.40	0.53	179.09	114.16
9400.00	3.67	107.44	9393.57	-75.04	-73.78	164.96	0.58	180.71	114.10
9425.00	3.64	106.79	9418.52	-75.52	-74.25	166.48	0.20	182.29	114.04
9450.00	3.53	107.50	9443.47	-76.00	-74.71	167.97	0.46	183.84	113.98
9475.00	3.61	107.63	9468.42	-76.48	-75.18	169.46	0.32	185.39	113.92
9500.00	3.76	107.29	9493.37	-76.97	-75.66	170.99	0.61	186.98	113.87
9525.00	3.81	108.59	9518.31	-77.49	-76.17	172.56	0.40	188.63	113.82
9550.00	3.85	108.54	9543.26	-78.04	-76.70	174.15	0.15	190.29	113.77
9575.00	3.86	108.91	9568.20	-78.59	-77.24	175.74	0.11	191.96	113.73
9600.00	3.77	107.51	9593.14	-79.12	-77.76	177.32	0.54	193.62	113.68
9625.00	3.79	107.58	9618.09	-79.63	-78.26	178.89	0.10	195.26	113.63
9650.00	3.80	106.61	9643.03	-80.13	-78.74	180.47	0.26	196.90	113.57

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS %/100ft	CLOSURE DIST ft	CLOSURE DIR deg
9675.00	3.83	106.31	9667.98	-80.61	-79.22	182.07	0.12	198.55	113.51
9700.00	3.83	106.63	9692.92	-81.10	-79.69	183.67	0.08	200.21	113.45
9725.00	3.89	107.23	9717.87	-81.60	-80.18	185.28	0.31	201.88	113.40
9750.00	3.87	107.49	9742.81	-82.12	-80.68	186.89	0.10	203.57	113.35
9775.00	3.72	109.26	9767.75	-82.65	-81.21	188.47	0.77	205.22	113.31
9800.00	3.68	108.43	9792.70	-83.18	-81.73	189.99	0.27	206.83	113.28
9825.00	3.61	108.15	9817.65	-83.69	-82.23	191.50	0.31	208.41	113.24
9850.00	3.45	108.28	9842.60	-84.19	-82.71	192.96	0.64	209.94	113.20
9875.00	3.50	107.42	9867.56	-84.66	-83.17	194.40	0.31	211.45	113.16
9900.00	3.62	108.57	9892.51	-85.15	-83.65	195.88	0.55	213.00	113.12
9925.00	3.53	107.85	9917.46	-85.65	-84.14	197.36	0.42	214.55	113.09
9950.00	3.56	106.57	9942.41	-86.12	-84.60	198.84	0.34	216.09	113.05
9975.00	3.46	107.68	9967.37	-86.58	-85.05	200.30	0.46	217.61	113.01
10000.00	3.53	109.27	9992.32	-87.08	-85.53	201.75	0.47	219.13	112.97
10025.00	3.54	106.68	10017.27	-87.56	-86.00	203.21	0.64	220.66	112.94
10050.00	3.67	106.10	10042.22	-88.02	-86.45	204.72	0.56	222.23	112.89
10075.00	3.56	107.58	10067.17	-88.49	-86.90	206.23	0.60	223.79	112.85
10100.00	3.64	106.35	10092.12	-88.95	-87.36	207.73	0.46	225.35	112.81
10125.00	3.63	106.33	10117.07	-89.41	-87.81	209.25	0.06	226.93	112.76
10150.00	3.75	106.76	10142.02	-89.88	-88.27	210.79	0.49	228.53	112.72
10175.00	3.75	108.24	10166.97	-90.39	-88.76	212.35	0.39	230.16	112.68
10200.00	3.75	106.71	10191.92	-90.89	-89.25	213.91	0.40	231.78	112.65
10225.00	3.70	106.92	10216.86	-91.37	-89.72	215.46	0.20	233.40	112.61
10250.00	3.69	106.53	10241.81	-91.84	-90.18	217.01	0.11	235.00	112.57
10275.00	3.58	105.96	10266.76	-92.30	-90.62	218.53	0.45	236.57	112.52
10300.00	3.57	105.68	10291.71	-92.74	-91.05	220.03	0.08	238.12	112.48
10325.00	3.49	105.18	10316.66	-93.16	-91.46	221.51	0.34	239.65	112.43
10350.00	3.42	104.28	10341.62	-93.55	-91.84	222.97	0.37	241.14	112.39
10375.00	3.35	103.04	10366.58	-93.91	-92.19	224.40	0.39	242.60	112.33
10400.00	3.21	102.47	10391.53	-94.24	-92.51	225.80	0.58	244.01	112.28
10425.00	2.99	100.67	10416.50	-94.52	-92.78	227.12	0.95	245.34	112.22
10450.00	2.92	97.23	10441.46	-94.73	-92.98	228.40	0.77	246.60	112.15

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	"/100ft	ft	deg
10475.00	2.86	99.72	10466.43	-94.93	-93.16	229.64	0.55	247.82	112.08
10500.00	2.91	98.52	10491.40	-95.13	-93.36	230.88	0.33	249.05	112.02
10525.00	3.12	99.04	10516.37	-95.35	-93.57	232.18	0.81	250.33	111.95
10550.00	3.76	100.37	10541.32	-95.61	-93.82	233.66	2.59	251.79	111.88
10575.00	4.06	103.96	10566.26	-95.99	-94.18	235.33	1.56	253.47	111.81
10600.00	4.09	103.84	10591.20	-96.43	-94.61	237.05	0.11	255.23	111.76
10625.00	4.17	104.03	10616.13	-96.87	-95.04	238.80	0.33	257.02	111.70
10650.00	4.23	103.74	10641.07	-97.32	-95.48	240.58	0.25	258.83	111.65
10675.00	4.28	102.18	10666.00	-97.75	-95.90	242.38	0.50	260.66	111.59
10700.00	4.13	105.65	10690.93	-98.21	-96.34	244.16	1.17	262.48	111.53
10725.00	4.16	105.47	10715.87	-98.70	-96.82	245.90	0.11	264.27	111.49
10750.00	3.99	105.56	10740.80	-99.19	-97.29	247.61	0.68	266.04	111.45
10775.00	3.99	105.03	10765.74	-99.66	-97.75	249.29	0.15	267.77	111.41
10800.00	3.94	107.73	10790.68	-100.16	-98.24	250.94	0.77	269.49	111.38
10825.00	4.04	106.69	10815.62	-100.69	-98.75	252.61	0.48	271.22	111.35
10850.00	3.95	106.70	10840.56	-101.20	-99.25	254.27	0.36	272.96	111.32
10875.00	4.02	107.04	10865.50	-101.72	-99.76	255.94	0.29	274.69	111.29
10900.00	3.88	109.56	10890.44	-102.27	-100.30	257.57	0.89	276.41	111.28
10925.00	3.68	111.46	10915.39	-102.86	-100.88	259.12	0.94	278.06	111.27
10950.00	3.66	112.45	10940.34	-103.47	-101.47	260.60	0.26	279.66	111.28
10975.00	3.61	114.30	10965.29	-104.11	-102.10	262.06	0.52	281.24	111.29
11000.00	3.55	114.21	10990.24	-104.76	-102.74	263.48	0.23	282.80	111.30
11025.00	3.51	116.48	11015.19	-105.43	-103.40	264.87	0.58	284.34	111.33
11050.00	3.47	118.30	11040.14	-106.14	-104.10	266.22	0.47	285.85	111.36
11075.00	3.19	121.17	11065.10	-106.87	-104.82	267.48	1.32	287.29	111.40
11100.00	3.08	121.29	11090.06	-107.59	-105.53	268.65	0.44	288.64	111.45
11125.00	3.03	122.98	11115.03	-108.31	-106.24	269.78	0.40	289.95	111.49
11150.00	2.94	124.64	11139.99	-109.04	-106.96	270.86	0.50	291.22	111.55
11175.00	2.80	125.29	11164.96	-109.77	-107.68	271.89	0.57	292.44	111.61
11200.00	2.74	123.51	11189.93	-110.46	-108.37	272.89	0.42	293.62	111.66
11225.00	2.68	122.87	11214.91	-111.11	-109.01	273.88	0.29	294.78	111.70
11250.00	2.72	121.60	11239.88	-111.75	-109.64	274.88	0.30	295.94	111.75

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
11275.00	2.73	120.60	11264.85	-112.37	-110.26	275.90	0.19	297.11	111.78
11300.00	2.76	118.31	11289.82	-112.97	-110.85	276.94	0.45	298.30	111.81
11325.00	2.71	117.92	11314.79	-113.54	-111.41	277.99	0.19	299.48	111.84
11350.00	2.59	115.87	11339.77	-114.07	-111.93	279.02	0.63	300.63	111.86
11375.00	2.45	116.77	11364.74	-114.56	-112.42	280.00	0.58	301.73	111.87
11400.00	2.38	118.06	11389.72	-115.05	-112.90	280.94	0.35	302.77	111.89
11425.00	2.21	121.46	11414.70	-115.56	-113.40	281.80	0.86	303.76	111.92
11450.00	2.21	122.41	11439.68	-116.07	-113.91	282.62	0.15	304.71	111.95
11475.00	2.08	121.86	11464.66	-116.58	-114.40	283.41	0.53	305.63	111.98
11500.00	2.00	119.45	11489.65	-117.04	-114.86	284.18	0.45	306.51	112.01
11525.00	2.04	116.32	11514.63	-117.45	-115.27	284.96	0.46	307.39	112.02
11550.00	1.97	113.39	11539.62	-117.83	-115.64	285.75	0.49	308.26	112.03
11575.00	1.97	110.38	11564.60	-118.15	-115.96	286.55	0.41	309.12	112.03
11600.00	1.92	109.81	11589.59	-118.45	-116.25	287.34	0.22	309.97	112.03
11625.00	1.71	105.60	11614.57	-118.70	-116.49	288.10	1.00	310.76	112.02
11650.00	2.09	92.73	11639.56	-118.83	-116.61	288.91	2.28	311.56	111.98
11661.00	1.76	100.86	11650.55	-118.87	-116.65	289.28	3.86	311.91	111.96



Concho Operating

Lea County, NM (Nad 27)

VAST State

VAST State 24H

VAST St 24H

Design: VAST St 24H

Survey Report - Geographic

12 June, 2017

HOBBS OCD

OCT 12 2017

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Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

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

Site	VAST State		
Site Position:		Northing:	377,870.10 usft
From:	Map	Easting:	729,806.50 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	32.037°N
		Longitude:	103.592°W
		Grid Convergence:	0.39 °

Well	VAST State 24H		
Well Position	+N/-S	0.00 ft	Northing: 377,870.10 usft
	+E/-W	0.00 ft	Easting: 729,806.50 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	32.037°N
		Longitude:	103.592°W
		Ground Level:	3,262.00 ft

Wellbore	VAST St 24H		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	3/20/2017	6.98
			Dip Angle (°)
			59.89
			Field Strength (nT)
			47,850.75198346

Design	VAST St 24H		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°)
			359.56

Survey Program	Date 6/12/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name
100.00	11,661.00	Keeper Gyro Surveys (VAST St 24H)	GYRO-NS-CT
11,782.00	17,248.00	DrilTech MWD (VAST St 24H)	MWD+IFR1+MS
			Description
			XYZ Accel with XY Static and Continuous Gyro
			OWSG MWD + IFR1 + Multi-Station Correction

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	377,870.10	729,806.50	32.037°N	103.592°W
100.00	0.21	178.85	100.00	-0.18	0.00	377,869.92	729,806.50	32.037°N	103.592°W
100'MD: Begin Scientific Keeper Gyro									
125.00	0.27	135.07	125.00	-0.27	0.05	377,869.83	729,806.54	32.037°N	103.592°W
150.00	0.25	174.18	150.00	-0.37	0.09	377,869.73	729,806.59	32.037°N	103.592°W
175.00	0.18	161.68	175.00	-0.46	0.11	377,869.64	729,806.61	32.037°N	103.592°W
200.00	0.20	129.87	200.00	-0.52	0.16	377,869.57	729,806.65	32.037°N	103.592°W
225.00	0.24	150.34	225.00	-0.60	0.22	377,869.50	729,806.71	32.037°N	103.592°W
250.00	0.19	159.64	250.00	-0.68	0.26	377,869.42	729,806.75	32.037°N	103.592°W
275.00	0.20	166.76	275.00	-0.76	0.28	377,869.34	729,806.78	32.037°N	103.592°W
300.00	0.12	139.00	300.00	-0.82	0.31	377,869.27	729,806.80	32.037°N	103.592°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
325.00	0.15	198.68	325.00	-0.88	0.32	377,869.22	729,806.81	32.037°N	103.592°W
350.00	0.16	149.60	350.00	-0.94	0.32	377,869.16	729,806.82	32.037°N	103.592°W
375.00	0.20	169.51	375.00	-1.01	0.35	377,869.09	729,806.84	32.037°N	103.592°W
400.00	0.24	204.78	400.00	-1.10	0.33	377,869.00	729,806.83	32.037°N	103.592°W
425.00	0.20	173.66	425.00	-1.19	0.32	377,868.91	729,806.81	32.037°N	103.592°W
450.00	0.21	177.62	450.00	-1.28	0.32	377,868.82	729,806.82	32.037°N	103.592°W
475.00	0.24	186.46	475.00	-1.38	0.32	377,868.72	729,806.82	32.037°N	103.592°W
500.00	0.23	162.84	500.00	-1.48	0.33	377,868.62	729,806.82	32.037°N	103.592°W
525.00	0.24	180.71	525.00	-1.58	0.34	377,868.52	729,806.84	32.037°N	103.592°W
550.00	0.22	179.12	550.00	-1.68	0.34	377,868.42	729,806.84	32.037°N	103.592°W
575.00	0.27	200.58	575.00	-1.78	0.32	377,868.32	729,806.82	32.037°N	103.592°W
600.00	0.29	185.00	600.00	-1.90	0.30	377,868.20	729,806.79	32.037°N	103.592°W
625.00	0.36	184.56	625.00	-2.04	0.28	377,868.06	729,806.78	32.037°N	103.592°W
650.00	0.43	193.30	650.00	-2.21	0.26	377,867.89	729,806.75	32.037°N	103.592°W
675.00	0.39	199.64	674.99	-2.38	0.21	377,867.72	729,806.70	32.037°N	103.592°W
700.00	0.39	202.21	699.99	-2.54	0.15	377,867.56	729,806.64	32.037°N	103.592°W
725.00	0.52	194.64	724.99	-2.73	0.09	377,867.37	729,806.58	32.037°N	103.592°W
750.00	0.44	195.93	749.99	-2.93	0.03	377,867.17	729,806.53	32.037°N	103.592°W
775.00	0.49	194.73	774.99	-3.13	-0.02	377,866.97	729,806.47	32.037°N	103.592°W
800.00	0.48	188.91	799.99	-3.33	-0.07	377,866.76	729,806.43	32.037°N	103.592°W
825.00	0.47	187.66	824.99	-3.54	-0.10	377,866.56	729,806.40	32.037°N	103.592°W
850.00	0.60	199.81	849.99	-3.76	-0.15	377,866.33	729,806.34	32.037°N	103.592°W
875.00	0.60	195.23	874.99	-4.01	-0.23	377,866.08	729,806.26	32.037°N	103.592°W
900.00	0.64	192.37	899.99	-4.28	-0.30	377,865.82	729,806.20	32.037°N	103.592°W
925.00	0.73	195.80	924.98	-4.57	-0.37	377,865.53	729,806.13	32.037°N	103.592°W
950.00	0.61	183.99	949.98	-4.85	-0.42	377,865.25	729,806.07	32.037°N	103.592°W
975.00	0.64	185.25	974.98	-5.12	-0.45	377,864.97	729,806.05	32.037°N	103.592°W
1,000.00	0.68	186.24	999.98	-5.41	-0.47	377,864.69	729,806.02	32.037°N	103.592°W
1,025.00	0.74	194.33	1,024.98	-5.71	-0.53	377,864.38	729,805.97	32.037°N	103.592°W
1,050.00	0.76	196.11	1,049.98	-6.03	-0.62	377,864.07	729,805.88	32.037°N	103.592°W
1,075.00	0.71	198.26	1,074.97	-6.34	-0.71	377,863.76	729,805.79	32.037°N	103.592°W
1,100.00	0.69	203.74	1,099.97	-6.62	-0.82	377,863.48	729,805.68	32.037°N	103.592°W
1,125.00	0.71	186.57	1,124.97	-6.91	-0.90	377,863.19	729,805.60	32.037°N	103.592°W
1,150.00	0.76	176.38	1,149.97	-7.23	-0.91	377,862.87	729,805.59	32.037°N	103.592°W
1,175.00	0.74	165.99	1,174.97	-7.55	-0.86	377,862.54	729,805.64	32.037°N	103.592°W
1,200.00	0.77	171.99	1,199.96	-7.88	-0.79	377,862.22	729,805.70	32.037°N	103.592°W
1,225.00	0.68	158.31	1,224.96	-8.18	-0.72	377,861.92	729,805.78	32.037°N	103.592°W
1,250.00	0.78	165.88	1,249.96	-8.48	-0.62	377,861.61	729,805.88	32.037°N	103.592°W
1,275.00	0.78	169.46	1,274.96	-8.82	-0.55	377,861.28	729,805.95	32.037°N	103.592°W
1,300.00	0.78	160.51	1,299.95	-9.14	-0.46	377,860.95	729,806.04	32.037°N	103.592°W
1,325.00	0.82	169.63	1,324.95	-9.48	-0.37	377,860.62	729,806.13	32.037°N	103.592°W
1,350.00	0.77	164.07	1,349.95	-9.82	-0.29	377,860.28	729,806.20	32.037°N	103.592°W
1,375.00	0.83	163.67	1,374.95	-10.15	-0.19	377,859.94	729,806.30	32.037°N	103.592°W
1,400.00	0.81	143.40	1,399.94	-10.47	-0.04	377,859.63	729,806.46	32.037°N	103.592°W
1,425.00	1.03	134.29	1,424.94	-10.77	0.23	377,859.33	729,806.72	32.037°N	103.592°W
1,450.00	1.21	115.67	1,449.94	-11.04	0.63	377,859.06	729,807.12	32.037°N	103.592°W
1,475.00	1.22	119.72	1,474.93	-11.29	1.10	377,858.81	729,807.59	32.037°N	103.592°W
1,500.00	1.30	118.09	1,499.93	-11.55	1.58	377,858.55	729,808.07	32.037°N	103.592°W
1,525.00	1.39	117.03	1,524.92	-11.82	2.10	377,858.28	729,808.59	32.037°N	103.592°W
1,550.00	1.25	118.21	1,549.91	-12.09	2.61	377,858.01	729,809.10	32.037°N	103.592°W
1,575.00	1.21	116.42	1,574.91	-12.34	3.08	377,857.76	729,809.58	32.037°N	103.592°W
1,600.00	1.17	117.01	1,599.90	-12.57	3.55	377,857.53	729,810.04	32.037°N	103.592°W
1,625.00	1.24	117.49	1,624.89	-12.81	4.02	377,857.29	729,810.51	32.037°N	103.592°W
1,650.00	1.14	117.21	1,649.89	-13.05	4.48	377,857.05	729,810.97	32.037°N	103.592°W
1,675.00	1.18	116.34	1,674.88	-13.28	4.93	377,856.82	729,811.42	32.037°N	103.592°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,700.00	1.18	117.89	1,699.88	-13.51	5.39	377,856.59	729,811.88	32.037°N	103.592°W
1,725.00	1.18	115.67	1,724.87	-13.74	5.85	377,856.36	729,812.34	32.037°N	103.592°W
1,750.00	1.14	116.51	1,749.87	-13.97	6.30	377,856.13	729,812.80	32.037°N	103.592°W
1,775.00	1.20	112.97	1,774.86	-14.18	6.76	377,855.92	729,813.26	32.037°N	103.592°W
1,800.00	1.28	110.95	1,799.86	-14.38	7.27	377,855.72	729,813.76	32.037°N	103.592°W
1,825.00	1.18	120.89	1,824.85	-14.61	7.75	377,855.49	729,814.24	32.037°N	103.592°W
1,850.00	1.13	113.11	1,849.85	-14.84	8.20	377,855.26	729,814.69	32.037°N	103.592°W
1,875.00	1.16	115.70	1,874.84	-15.05	8.65	377,855.05	729,815.15	32.037°N	103.592°W
1,900.00	1.09	117.30	1,899.84	-15.27	9.09	377,854.83	729,815.59	32.037°N	103.592°W
1,925.00	1.12	114.30	1,924.83	-15.48	9.52	377,854.62	729,816.02	32.037°N	103.592°W
1,950.00	1.07	116.34	1,949.83	-15.68	9.96	377,854.42	729,816.45	32.037°N	103.592°W
1,975.00	1.07	116.10	1,974.82	-15.89	10.37	377,854.21	729,816.87	32.037°N	103.592°W
2,000.00	1.04	112.37	1,999.82	-16.08	10.79	377,854.02	729,817.29	32.037°N	103.592°W
2,025.00	0.97	113.96	2,024.82	-16.25	11.20	377,853.85	729,817.69	32.037°N	103.592°W
2,050.00	0.66	102.64	2,049.81	-16.37	11.53	377,853.73	729,818.03	32.037°N	103.592°W
2,075.00	0.45	79.40	2,074.81	-16.38	11.77	377,853.72	729,818.26	32.037°N	103.592°W
2,100.00	0.55	41.54	2,099.81	-16.27	11.94	377,853.83	729,818.44	32.037°N	103.592°W
2,125.00	0.52	31.75	2,124.81	-16.08	12.08	377,854.01	729,818.58	32.037°N	103.592°W
2,150.00	0.55	24.85	2,149.81	-15.88	12.19	377,854.22	729,818.69	32.037°N	103.592°W
2,175.00	0.61	24.77	2,174.81	-15.65	12.30	377,854.45	729,818.80	32.037°N	103.592°W
2,200.00	0.42	29.55	2,199.81	-15.45	12.40	377,854.65	729,818.90	32.037°N	103.592°W
2,225.00	0.54	22.50	2,224.81	-15.26	12.49	377,854.84	729,818.99	32.037°N	103.592°W
2,250.00	0.60	14.65	2,249.80	-15.02	12.57	377,855.07	729,819.07	32.037°N	103.592°W
2,275.00	0.64	16.84	2,274.80	-14.76	12.64	377,855.33	729,819.14	32.037°N	103.592°W
2,300.00	0.44	357.54	2,299.80	-14.53	12.68	377,855.56	729,819.17	32.037°N	103.592°W
2,325.00	0.57	346.37	2,324.80	-14.32	12.65	377,855.78	729,819.14	32.037°N	103.592°W
2,350.00	0.67	357.65	2,349.80	-14.05	12.61	377,856.05	729,819.11	32.037°N	103.592°W
2,375.00	0.64	346.21	2,374.80	-13.77	12.57	377,856.33	729,819.07	32.037°N	103.592°W
2,400.00	0.59	343.30	2,399.80	-13.51	12.50	377,856.59	729,819.00	32.037°N	103.592°W
2,425.00	0.66	340.02	2,424.79	-13.25	12.41	377,856.85	729,818.91	32.037°N	103.592°W
2,450.00	0.68	341.13	2,449.79	-12.98	12.32	377,857.12	729,818.81	32.037°N	103.592°W
2,475.00	0.61	345.10	2,474.79	-12.71	12.23	377,857.39	729,818.73	32.037°N	103.592°W
2,500.00	0.66	338.97	2,499.79	-12.44	12.15	377,857.65	729,818.65	32.037°N	103.592°W
2,525.00	0.62	350.51	2,524.79	-12.18	12.08	377,857.92	729,818.57	32.037°N	103.592°W
2,550.00	0.58	343.36	2,549.79	-11.92	12.02	377,858.18	729,818.51	32.037°N	103.592°W
2,575.00	0.63	340.87	2,574.79	-11.67	11.94	377,858.43	729,818.43	32.037°N	103.592°W
2,600.00	0.57	338.19	2,599.78	-11.43	11.84	377,858.67	729,818.34	32.037°N	103.592°W
2,625.00	0.54	351.62	2,624.78	-11.19	11.78	377,858.90	729,818.28	32.037°N	103.592°W
2,650.00	0.53	344.29	2,649.78	-10.97	11.73	377,859.13	729,818.23	32.037°N	103.592°W
2,675.00	0.52	337.95	2,674.78	-10.75	11.66	377,859.35	729,818.15	32.037°N	103.592°W
2,700.00	0.47	342.72	2,699.78	-10.55	11.59	377,859.55	729,818.08	32.037°N	103.592°W
2,725.00	0.49	345.03	2,724.78	-10.35	11.53	377,859.75	729,818.02	32.037°N	103.592°W
2,750.00	0.55	334.93	2,749.78	-10.13	11.45	377,859.97	729,817.94	32.037°N	103.592°W
2,775.00	0.52	346.42	2,774.78	-9.91	11.37	377,860.18	729,817.87	32.037°N	103.592°W
2,800.00	0.44	352.92	2,799.78	-9.71	11.33	377,860.39	729,817.83	32.037°N	103.592°W
2,825.00	0.43	333.62	2,824.78	-9.53	11.28	377,860.57	729,817.78	32.037°N	103.592°W
2,850.00	0.41	334.75	2,849.77	-9.36	11.20	377,860.73	729,817.70	32.037°N	103.592°W
2,875.00	0.45	337.89	2,874.77	-9.19	11.12	377,860.91	729,817.62	32.037°N	103.592°W
2,900.00	0.28	330.22	2,899.77	-9.05	11.06	377,861.05	729,817.55	32.037°N	103.592°W
2,925.00	0.30	335.66	2,924.77	-8.94	11.00	377,861.16	729,817.50	32.037°N	103.592°W
2,950.00	0.22	342.62	2,949.77	-8.83	10.96	377,861.27	729,817.45	32.037°N	103.592°W
2,975.00	0.19	359.76	2,974.77	-8.74	10.94	377,861.36	729,817.44	32.037°N	103.592°W
3,000.00	0.19	324.91	2,999.77	-8.67	10.92	377,861.43	729,817.42	32.037°N	103.592°W
3,025.00	0.23	341.93	3,024.77	-8.59	10.88	377,861.51	729,817.38	32.037°N	103.592°W
3,050.00	0.14	335.45	3,049.77	-8.51	10.85	377,861.59	729,817.35	32.037°N	103.592°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,075.00	0.12	299.25	3,074.77	-8.47	10.82	377,861.63	729,817.31	32.037°N	103.592°W
3,100.00	0.15	339.96	3,099.77	-8.43	10.78	377,861.67	729,817.28	32.037°N	103.592°W
3,125.00	0.21	334.60	3,124.77	-8.35	10.75	377,861.74	729,817.25	32.037°N	103.592°W
3,150.00	0.11	297.87	3,149.77	-8.30	10.71	377,861.80	729,817.21	32.037°N	103.592°W
3,175.00	0.07	285.96	3,174.77	-8.29	10.67	377,861.81	729,817.17	32.037°N	103.592°W
3,200.00	0.14	302.21	3,199.77	-8.27	10.63	377,861.83	729,817.13	32.037°N	103.592°W
3,225.00	0.21	325.76	3,224.77	-8.21	10.58	377,861.89	729,817.08	32.037°N	103.592°W
3,250.00	0.10	338.93	3,249.77	-8.15	10.55	377,861.94	729,817.05	32.037°N	103.592°W
3,275.00	0.17	276.15	3,274.77	-8.13	10.50	377,861.97	729,817.00	32.037°N	103.592°W
3,300.00	0.16	299.53	3,299.77	-8.11	10.44	377,861.99	729,816.93	32.037°N	103.592°W
3,325.00	0.14	349.95	3,324.77	-8.06	10.40	377,862.04	729,816.90	32.037°N	103.592°W
3,350.00	0.14	300.09	3,349.77	-8.02	10.37	377,862.08	729,816.87	32.037°N	103.592°W
3,375.00	0.21	323.38	3,374.77	-7.96	10.32	377,862.14	729,816.81	32.037°N	103.592°W
3,400.00	0.17	345.53	3,399.77	-7.89	10.28	377,862.21	729,816.78	32.037°N	103.592°W
3,425.00	0.06	351.44	3,424.77	-7.84	10.27	377,862.26	729,816.76	32.037°N	103.592°W
3,450.00	0.26	20.81	3,449.77	-7.78	10.29	377,862.32	729,816.78	32.037°N	103.592°W
3,475.00	0.48	57.90	3,474.77	-7.67	10.40	377,862.43	729,816.89	32.037°N	103.592°W
3,500.00	0.47	52.71	3,499.77	-7.55	10.57	377,862.55	729,817.06	32.037°N	103.592°W
3,525.00	0.71	59.46	3,524.77	-7.41	10.78	377,862.69	729,817.28	32.037°N	103.592°W
3,550.00	0.70	71.43	3,549.77	-7.28	11.06	377,862.82	729,817.55	32.037°N	103.592°W
3,575.00	0.90	68.63	3,574.76	-7.16	11.39	377,862.94	729,817.88	32.037°N	103.592°W
3,600.00	1.04	73.41	3,599.76	-7.02	11.79	377,863.07	729,818.28	32.037°N	103.592°W
3,625.00	1.16	71.31	3,624.76	-6.88	12.24	377,863.22	729,818.74	32.037°N	103.592°W
3,650.00	1.25	73.69	3,649.75	-6.72	12.75	377,863.38	729,819.24	32.037°N	103.592°W
3,675.00	1.47	74.29	3,674.74	-6.56	13.32	377,863.54	729,819.81	32.037°N	103.592°W
3,700.00	1.47	74.16	3,699.73	-6.38	13.93	377,863.72	729,820.43	32.037°N	103.592°W
3,725.00	1.41	70.87	3,724.73	-6.20	14.53	377,863.90	729,821.03	32.037°N	103.592°W
3,750.00	1.57	66.38	3,749.72	-5.96	15.14	377,864.14	729,821.63	32.037°N	103.592°W
3,775.00	1.68	60.81	3,774.71	-5.64	15.77	377,864.46	729,822.27	32.037°N	103.592°W
3,800.00	1.69	57.62	3,799.70	-5.27	16.40	377,864.83	729,822.90	32.037°N	103.592°W
3,825.00	1.69	60.16	3,824.69	-4.88	17.03	377,865.21	729,823.53	32.037°N	103.592°W
3,850.00	1.67	55.68	3,849.68	-4.50	17.65	377,865.60	729,824.15	32.037°N	103.592°W
3,875.00	1.64	47.82	3,874.67	-4.05	18.22	377,866.05	729,824.72	32.037°N	103.592°W
3,900.00	1.48	51.91	3,899.66	-3.61	18.74	377,866.49	729,825.23	32.037°N	103.592°W
3,925.00	1.24	44.90	3,924.65	-3.22	19.18	377,866.88	729,825.68	32.037°N	103.592°W
3,950.00	0.97	38.71	3,949.64	-2.86	19.51	377,867.24	729,826.00	32.037°N	103.592°W
3,975.00	0.75	13.26	3,974.64	-2.54	19.68	377,867.56	729,826.17	32.037°N	103.592°W
4,000.00	0.61	356.38	3,999.64	-2.25	19.71	377,867.85	729,826.20	32.037°N	103.592°W
4,025.00	0.70	354.16	4,024.64	-1.96	19.68	377,868.14	729,826.18	32.037°N	103.592°W
4,050.00	0.60	5.64	4,049.64	-1.68	19.68	377,868.42	729,826.18	32.037°N	103.592°W
4,075.00	0.63	351.30	4,074.64	-1.41	19.67	377,868.69	729,826.17	32.037°N	103.592°W
4,100.00	0.74	353.25	4,099.63	-1.12	19.63	377,868.98	729,826.13	32.037°N	103.592°W
4,125.00	0.66	2.68	4,124.63	-0.81	19.62	377,869.29	729,826.12	32.037°N	103.592°W
4,150.00	0.61	352.04	4,149.63	-0.54	19.61	377,869.56	729,826.10	32.037°N	103.592°W
4,175.00	0.69	357.29	4,174.63	-0.26	19.58	377,869.84	729,826.08	32.037°N	103.592°W
4,200.00	0.58	3.18	4,199.63	0.02	19.58	377,870.12	729,826.08	32.037°N	103.592°W
4,225.00	0.50	18.62	4,224.63	0.25	19.62	377,870.35	729,826.12	32.037°N	103.592°W
4,250.00	0.56	37.09	4,249.63	0.45	19.73	377,870.55	729,826.23	32.037°N	103.592°W
4,275.00	0.69	43.14	4,274.62	0.66	19.91	377,870.76	729,826.40	32.037°N	103.592°W
4,300.00	0.73	48.44	4,299.62	0.87	20.13	377,870.97	729,826.63	32.037°N	103.592°W
4,325.00	0.63	44.13	4,324.62	1.08	20.35	377,871.18	729,826.84	32.037°N	103.592°W
4,350.00	0.47	37.90	4,349.62	1.26	20.50	377,871.36	729,827.00	32.037°N	103.592°W
4,375.00	0.58	0.00	4,374.62	1.47	20.57	377,871.56	729,827.06	32.037°N	103.592°W
4,400.00	0.55	357.92	4,399.62	1.71	20.56	377,871.81	729,827.06	32.037°N	103.592°W
4,425.00	0.51	347.82	4,424.62	1.94	20.53	377,872.04	729,827.03	32.037°N	103.592°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,450.00	0.61	341.77	4,449.61	2.18	20.47	377,872.27	729,826.97	32.037°N	103.592°W
4,475.00	0.55	317.67	4,474.61	2.39	20.35	377,872.49	729,826.84	32.037°N	103.592°W
4,500.00	0.25	354.41	4,499.61	2.53	20.26	377,872.63	729,826.76	32.037°N	103.592°W
4,525.00	0.17	271.60	4,524.61	2.59	20.22	377,872.69	729,826.72	32.037°N	103.592°W
4,550.00	0.17	226.48	4,549.61	2.57	20.15	377,872.66	729,826.65	32.037°N	103.592°W
4,575.00	0.25	172.46	4,574.61	2.49	20.14	377,872.58	729,826.63	32.037°N	103.592°W
4,600.00	0.52	156.23	4,599.61	2.33	20.19	377,872.43	729,826.68	32.037°N	103.592°W
4,625.00	0.67	150.03	4,624.61	2.10	20.31	377,872.20	729,826.80	32.037°N	103.592°W
4,650.00	0.66	158.96	4,649.61	1.84	20.43	377,871.93	729,826.93	32.037°N	103.592°W
4,675.00	0.67	152.51	4,674.61	1.57	20.55	377,871.67	729,827.05	32.037°N	103.592°W
4,700.00	0.53	156.98	4,699.61	1.34	20.66	377,871.43	729,827.16	32.037°N	103.592°W
4,725.00	0.20	173.74	4,724.61	1.19	20.71	377,871.28	729,827.21	32.037°N	103.592°W
4,750.00	0.08	263.87	4,749.60	1.14	20.70	377,871.24	729,827.20	32.037°N	103.592°W
4,775.00	0.07	352.68	4,774.60	1.15	20.68	377,871.25	729,827.18	32.037°N	103.592°W
4,800.00	0.13	349.98	4,799.60	1.20	20.67	377,871.30	729,827.17	32.037°N	103.592°W
4,825.00	0.06	8.05	4,824.60	1.24	20.67	377,871.34	729,827.17	32.037°N	103.592°W
4,850.00	0.14	313.91	4,849.60	1.27	20.65	377,871.37	729,827.15	32.037°N	103.592°W
4,875.00	0.12	17.25	4,874.60	1.32	20.64	377,871.42	729,827.13	32.037°N	103.592°W
4,900.00	0.16	330.15	4,899.60	1.37	20.63	377,871.47	729,827.12	32.037°N	103.592°W
4,925.00	0.23	342.94	4,924.60	1.45	20.60	377,871.55	729,827.09	32.037°N	103.592°W
4,950.00	0.07	15.31	4,949.60	1.51	20.58	377,871.61	729,827.08	32.037°N	103.592°W
4,975.00	0.26	322.60	4,974.60	1.57	20.55	377,871.67	729,827.05	32.037°N	103.592°W
5,000.00	0.20	262.27	4,999.60	1.61	20.48	377,871.71	729,826.97	32.037°N	103.592°W
5,025.00	0.45	30.41	5,024.60	1.69	20.48	377,871.79	729,826.98	32.037°N	103.592°W
5,050.00	0.14	7.99	5,049.60	1.81	20.54	377,871.91	729,827.03	32.037°N	103.592°W
5,075.00	0.27	358.96	5,074.60	1.90	20.54	377,872.00	729,827.04	32.037°N	103.592°W
5,100.00	0.21	26.73	5,099.60	2.00	20.56	377,872.10	729,827.06	32.037°N	103.592°W
5,125.00	0.24	7.27	5,124.60	2.09	20.59	377,872.19	729,827.08	32.037°N	103.592°W
5,150.00	0.27	3.40	5,149.60	2.20	20.60	377,872.30	729,827.09	32.037°N	103.592°W
5,175.00	0.33	351.08	5,174.60	2.33	20.59	377,872.43	729,827.09	32.037°N	103.592°W
5,200.00	0.19	31.17	5,199.60	2.44	20.60	377,872.54	729,827.10	32.037°N	103.592°W
5,225.00	0.27	359.76	5,224.60	2.53	20.62	377,872.63	729,827.12	32.037°N	103.592°W
5,250.00	0.27	1.38	5,249.60	2.65	20.62	377,872.75	729,827.12	32.037°N	103.592°W
5,275.00	0.18	8.72	5,274.60	2.75	20.63	377,872.85	729,827.13	32.037°N	103.592°W
5,300.00	0.16	319.89	5,299.60	2.81	20.61	377,872.91	729,827.11	32.037°N	103.592°W
5,325.00	0.26	6.44	5,324.60	2.90	20.60	377,872.99	729,827.09	32.037°N	103.592°W
5,350.00	0.20	15.21	5,349.60	2.99	20.61	377,873.09	729,827.11	32.037°N	103.592°W
5,375.00	0.13	311.00	5,374.60	3.05	20.60	377,873.15	729,827.10	32.037°N	103.592°W
5,400.00	0.26	0.22	5,399.60	3.13	20.58	377,873.23	729,827.08	32.037°N	103.592°W
5,425.00	0.22	5.21	5,424.60	3.23	20.59	377,873.33	729,827.08	32.037°N	103.592°W
5,450.00	0.14	331.92	5,449.60	3.31	20.58	377,873.41	729,827.07	32.037°N	103.592°W
5,475.00	0.22	310.88	5,474.60	3.37	20.53	377,873.47	729,827.02	32.037°N	103.592°W
5,500.00	0.20	357.50	5,499.60	3.44	20.49	377,873.54	729,826.99	32.037°N	103.592°W
5,525.00	0.22	10.22	5,524.60	3.53	20.50	377,873.63	729,826.99	32.037°N	103.592°W
5,550.00	0.12	15.23	5,549.60	3.61	20.51	377,873.70	729,827.01	32.037°N	103.592°W
5,575.00	0.17	317.63	5,574.60	3.66	20.49	377,873.76	729,826.99	32.037°N	103.592°W
5,600.00	0.05	277.95	5,599.60	3.69	20.46	377,873.79	729,826.95	32.037°N	103.592°W
5,625.00	0.16	332.49	5,624.60	3.72	20.43	377,873.82	729,826.93	32.037°N	103.592°W
5,650.00	0.19	7.17	5,649.60	3.79	20.42	377,873.89	729,826.92	32.037°N	103.592°W
5,675.00	0.20	9.93	5,674.60	3.88	20.43	377,873.97	729,826.93	32.037°N	103.592°W
5,700.00	0.10	220.01	5,699.60	3.90	20.43	377,874.00	729,826.92	32.037°N	103.592°W
5,725.00	0.14	330.05	5,724.60	3.91	20.40	377,874.01	729,826.89	32.037°N	103.592°W
5,750.00	0.14	327.93	5,749.60	3.96	20.36	377,874.06	729,826.86	32.037°N	103.592°W
5,775.00	0.10	318.14	5,774.60	4.01	20.33	377,874.10	729,826.83	32.037°N	103.592°W
5,800.00	0.17	322.65	5,799.60	4.05	20.30	377,874.15	729,826.79	32.037°N	103.592°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,825.00	0.04	240.27	5,824.60	4.08	20.27	377,874.18	729,826.76	32.037°N	103.592°W	
5,850.00	0.12	324.11	5,849.60	4.09	20.24	377,874.19	729,826.74	32.037°N	103.592°W	
5,875.00	0.16	0.54	5,874.60	4.15	20.23	377,874.25	729,826.73	32.037°N	103.592°W	
5,900.00	0.05	26.87	5,899.60	4.19	20.23	377,874.29	729,826.73	32.037°N	103.592°W	
5,925.00	0.04	263.40	5,924.60	4.20	20.23	377,874.30	729,826.73	32.037°N	103.592°W	
5,950.00	0.19	352.83	5,949.60	4.24	20.22	377,874.34	729,826.71	32.037°N	103.592°W	
5,975.00	0.04	350.42	5,974.60	4.29	20.21	377,874.39	729,826.71	32.037°N	103.592°W	
6,000.00	0.10	304.72	5,999.60	4.31	20.19	377,874.41	729,826.69	32.037°N	103.592°W	
6,025.00	0.15	4.89	6,024.60	4.36	20.18	377,874.46	729,826.67	32.037°N	103.592°W	
6,050.00	0.07	146.81	6,049.60	4.38	20.19	377,874.48	729,826.68	32.037°N	103.592°W	
6,075.00	0.12	32.71	6,074.60	4.39	20.21	377,874.49	729,826.71	32.037°N	103.592°W	
6,100.00	0.06	3.81	6,099.60	4.42	20.22	377,874.52	729,826.72	32.037°N	103.592°W	
6,125.00	0.15	27.20	6,124.60	4.47	20.24	377,874.56	729,826.74	32.037°N	103.592°W	
6,150.00	0.17	71.09	6,149.60	4.51	20.29	377,874.61	729,826.79	32.037°N	103.592°W	
6,175.00	0.17	58.29	6,174.60	4.54	20.36	377,874.64	729,826.85	32.037°N	103.592°W	
6,200.00	0.33	48.43	6,199.60	4.61	20.44	377,874.70	729,826.94	32.037°N	103.592°W	
6,225.00	0.31	63.54	6,224.60	4.68	20.56	377,874.78	729,827.05	32.037°N	103.592°W	
6,250.00	0.23	69.22	6,249.60	4.73	20.66	377,874.83	729,827.16	32.037°N	103.592°W	
6,275.00	0.25	73.37	6,274.60	4.77	20.76	377,874.86	729,827.26	32.037°N	103.592°W	
6,300.00	0.25	41.09	6,299.60	4.82	20.85	377,874.92	729,827.35	32.037°N	103.592°W	
6,325.00	0.35	59.47	6,324.60	4.90	20.95	377,875.00	729,827.45	32.037°N	103.592°W	
6,350.00	0.32	93.76	6,349.60	4.94	21.09	377,875.03	729,827.58	32.037°N	103.592°W	
6,375.00	0.25	72.41	6,374.60	4.95	21.21	377,875.05	729,827.71	32.037°N	103.592°W	
6,400.00	0.40	76.69	6,399.60	4.98	21.35	377,875.08	729,827.84	32.037°N	103.592°W	
6,425.00	0.24	79.92	6,424.60	5.01	21.48	377,875.11	729,827.98	32.037°N	103.592°W	
6,450.00	0.37	64.52	6,449.60	5.06	21.61	377,875.16	729,828.10	32.037°N	103.592°W	
6,475.00	0.30	76.19	6,474.59	5.11	21.74	377,875.21	729,828.24	32.037°N	103.592°W	
6,500.00	0.32	67.18	6,499.59	5.15	21.87	377,875.25	729,828.37	32.037°N	103.592°W	
6,525.00	0.30	100.58	6,524.59	5.17	22.00	377,875.26	729,828.50	32.037°N	103.592°W	
6,550.00	0.35	58.14	6,549.59	5.19	22.13	377,875.29	729,828.63	32.037°N	103.592°W	
6,575.00	0.43	70.39	6,574.59	5.27	22.28	377,875.36	729,828.78	32.037°N	103.592°W	
6,600.00	0.30	73.98	6,599.59	5.32	22.43	377,875.41	729,828.93	32.037°N	103.592°W	
6,625.00	0.44	65.94	6,624.59	5.37	22.58	377,875.47	729,829.08	32.037°N	103.592°W	
6,650.00	0.35	83.79	6,649.59	5.42	22.75	377,875.52	729,829.24	32.037°N	103.592°W	
6,675.00	0.37	73.79	6,674.59	5.45	22.90	377,875.55	729,829.40	32.037°N	103.592°W	
6,700.00	0.43	70.24	6,699.59	5.50	23.07	377,875.60	729,829.56	32.037°N	103.592°W	
6,725.00	0.38	83.95	6,724.59	5.55	23.24	377,875.64	729,829.73	32.037°N	103.592°W	
6,750.00	0.28	74.46	6,749.59	5.57	23.38	377,875.67	729,829.88	32.037°N	103.592°W	
6,775.00	0.46	73.85	6,774.59	5.61	23.54	377,875.71	729,830.03	32.037°N	103.592°W	
6,800.00	0.42	90.05	6,799.59	5.64	23.72	377,875.74	729,830.22	32.037°N	103.592°W	
6,825.00	0.42	73.57	6,824.59	5.67	23.90	377,875.77	729,830.40	32.037°N	103.592°W	
6,850.00	0.41	85.88	6,849.59	5.70	24.08	377,875.80	729,830.58	32.037°N	103.592°W	
6,875.00	0.45	97.53	6,874.59	5.69	24.27	377,875.79	729,830.76	32.037°N	103.592°W	
6,900.00	0.43	100.08	6,899.59	5.66	24.46	377,875.76	729,830.95	32.037°N	103.592°W	
6,925.00	0.49	99.01	6,924.58	5.63	24.65	377,875.73	729,831.15	32.037°N	103.592°W	
6,950.00	0.46	106.82	6,949.58	5.59	24.86	377,875.68	729,831.35	32.037°N	103.592°W	
6,975.00	0.46	112.61	6,974.58	5.52	25.04	377,875.62	729,831.54	32.037°N	103.592°W	
7,000.00	0.51	120.24	6,999.58	5.42	25.23	377,875.52	729,831.73	32.037°N	103.592°W	
7,025.00	0.57	103.64	7,024.58	5.34	25.45	377,875.44	729,831.95	32.037°N	103.592°W	
7,050.00	0.74	116.92	7,049.58	5.24	25.71	377,875.33	729,832.21	32.037°N	103.592°W	
7,075.00	0.82	123.20	7,074.58	5.06	26.01	377,875.16	729,832.50	32.037°N	103.592°W	
7,100.00	0.89	125.10	7,099.57	4.86	26.32	377,874.95	729,832.81	32.037°N	103.592°W	
7,125.00	1.08	125.97	7,124.57	4.61	26.67	377,874.70	729,833.16	32.037°N	103.592°W	
7,150.00	1.14	129.85	7,149.57	4.31	27.05	377,874.41	729,833.54	32.037°N	103.592°W	
7,175.00	1.76	136.84	7,174.56	3.87	27.50	377,873.97	729,834.00	32.037°N	103.592°W	



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,200.00	1.88	137.75	7,199.54	3.28	28.04	377,873.38	729,834.54	32.037°N	103.592°W
7,225.00	2.06	140.85	7,224.53	2.63	28.60	377,872.73	729,835.10	32.037°N	103.592°W
7,250.00	2.06	136.41	7,249.51	1.96	29.19	377,872.06	729,835.69	32.037°N	103.592°W
7,275.00	2.25	138.80	7,274.50	1.26	29.83	377,871.36	729,836.32	32.037°N	103.592°W
7,300.00	2.27	138.82	7,299.48	0.52	30.48	377,870.62	729,836.97	32.037°N	103.592°W
7,325.00	2.32	138.37	7,324.46	-0.23	31.14	377,869.87	729,837.63	32.037°N	103.592°W
7,350.00	2.39	132.75	7,349.44	-0.96	31.86	377,869.14	729,838.35	32.037°N	103.592°W
7,375.00	2.53	131.21	7,374.41	-1.68	32.65	377,868.42	729,839.15	32.037°N	103.592°W
7,400.00	2.47	132.89	7,399.39	-2.41	33.46	377,867.69	729,839.96	32.037°N	103.592°W
7,425.00	2.46	132.12	7,424.37	-3.13	34.26	377,866.96	729,840.75	32.037°N	103.592°W
7,450.00	2.60	129.44	7,449.34	-3.85	35.09	377,866.24	729,841.59	32.037°N	103.592°W
7,475.00	2.58	129.65	7,474.32	-4.57	35.96	377,865.52	729,842.46	32.037°N	103.592°W
7,500.00	2.63	130.11	7,499.29	-5.30	36.84	377,864.80	729,843.33	32.037°N	103.592°W
7,525.00	2.80	128.49	7,524.26	-6.05	37.75	377,864.05	729,844.25	32.037°N	103.592°W
7,550.00	3.18	124.37	7,549.23	-6.82	38.80	377,863.27	729,845.30	32.037°N	103.592°W
7,575.00	3.43	123.46	7,574.19	-7.63	40.00	377,862.47	729,846.49	32.037°N	103.592°W
7,600.00	3.52	122.51	7,599.14	-8.45	41.27	377,861.65	729,847.77	32.037°N	103.592°W
7,625.00	3.75	122.81	7,624.09	-9.31	42.60	377,860.79	729,849.10	32.037°N	103.592°W
7,650.00	4.18	120.45	7,649.03	-10.21	44.08	377,859.89	729,850.57	32.037°N	103.592°W
7,675.00	4.22	120.96	7,673.96	-11.15	45.65	377,858.95	729,852.15	32.037°N	103.592°W
7,700.00	4.30	121.89	7,698.89	-12.12	47.24	377,857.98	729,853.73	32.037°N	103.592°W
7,725.00	4.33	121.64	7,723.82	-13.11	48.83	377,856.99	729,855.33	32.037°N	103.592°W
7,750.00	4.30	120.08	7,748.75	-14.07	50.45	377,856.03	729,856.95	32.037°N	103.592°W
7,775.00	4.24	120.99	7,773.68	-15.02	52.05	377,855.08	729,858.55	32.037°N	103.592°W
7,800.00	4.39	121.08	7,798.61	-15.99	53.66	377,854.11	729,860.16	32.037°N	103.592°W
7,825.00	4.31	119.43	7,823.54	-16.94	55.30	377,853.16	729,861.80	32.037°N	103.592°W
7,850.00	4.27	119.30	7,848.47	-17.86	56.93	377,852.24	729,863.43	32.037°N	103.592°W
7,875.00	4.10	117.56	7,873.40	-18.73	58.54	377,851.37	729,865.03	32.037°N	103.592°W
7,900.00	4.14	118.25	7,898.34	-19.57	60.12	377,850.53	729,866.62	32.037°N	103.592°W
7,925.00	4.14	117.12	7,923.27	-20.41	61.72	377,849.69	729,868.22	32.037°N	103.592°W
7,950.00	4.22	117.38	7,948.21	-21.24	63.34	377,848.86	729,869.84	32.037°N	103.592°W
7,975.00	4.32	116.61	7,973.14	-22.09	65.00	377,848.01	729,871.50	32.037°N	103.592°W
8,000.00	4.79	118.11	7,998.06	-23.00	66.76	377,847.10	729,873.26	32.037°N	103.592°W
8,025.00	4.87	117.64	8,022.97	-23.98	68.62	377,846.11	729,875.12	32.037°N	103.591°W
8,050.00	4.90	117.50	8,047.88	-24.97	70.51	377,845.13	729,877.01	32.037°N	103.591°W
8,075.00	4.90	117.09	8,072.79	-25.95	72.41	377,844.15	729,878.90	32.037°N	103.591°W
8,100.00	4.93	118.58	8,097.70	-26.95	74.30	377,843.15	729,880.80	32.037°N	103.591°W
8,125.00	4.92	117.41	8,122.60	-27.96	76.20	377,842.14	729,882.69	32.037°N	103.591°W
8,150.00	5.06	118.29	8,147.51	-28.97	78.12	377,841.13	729,884.62	32.037°N	103.591°W
8,175.00	5.02	118.97	8,172.41	-30.02	80.05	377,840.07	729,886.54	32.037°N	103.591°W
8,200.00	5.20	117.07	8,197.31	-31.07	82.01	377,839.03	729,888.51	32.037°N	103.591°W
8,225.00	5.39	116.89	8,222.21	-32.12	84.07	377,837.98	729,890.56	32.037°N	103.591°W
8,250.00	5.35	117.01	8,247.10	-33.18	86.15	377,836.92	729,892.65	32.037°N	103.591°W
8,275.00	5.34	116.64	8,271.99	-34.23	88.23	377,835.87	729,894.73	32.037°N	103.591°W
8,300.00	5.49	116.44	8,296.88	-35.28	90.34	377,834.82	729,896.84	32.037°N	103.591°W
8,325.00	5.34	116.67	8,321.76	-36.34	92.45	377,833.76	729,898.95	32.037°N	103.591°W
8,350.00	5.27	116.27	8,346.66	-37.37	94.52	377,832.73	729,901.02	32.037°N	103.591°W
8,375.00	5.19	116.01	8,371.55	-38.37	96.57	377,831.73	729,903.06	32.037°N	103.591°W
8,400.00	5.14	115.48	8,396.45	-39.35	98.60	377,830.75	729,905.09	32.037°N	103.591°W
8,425.00	5.02	115.67	8,421.35	-40.30	100.59	377,829.79	729,907.09	32.037°N	103.591°W
8,450.00	5.01	116.17	8,446.26	-41.26	102.56	377,828.84	729,909.05	32.037°N	103.591°W
8,475.00	4.91	116.42	8,471.16	-42.22	104.50	377,827.88	729,910.99	32.037°N	103.591°W
8,500.00	4.96	115.31	8,496.07	-43.15	106.43	377,826.94	729,912.93	32.037°N	103.591°W
8,525.00	4.92	115.59	8,520.98	-44.08	108.37	377,826.02	729,914.87	32.037°N	103.591°W
8,550.00	4.91	116.29	8,545.89	-45.02	110.30	377,825.08	729,916.80	32.037°N	103.591°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,575.00	4.77	118.39	8,570.80	-45.98	112.17	377,824.11	729,918.67	32.037°N	103.591°W
8,600.00	4.58	122.12	8,595.71	-47.01	113.93	377,823.09	729,920.43	32.037°N	103.591°W
8,625.00	4.76	118.44	8,620.63	-48.03	115.69	377,822.06	729,922.19	32.037°N	103.591°W
8,650.00	4.78	117.01	8,645.54	-49.00	117.53	377,821.10	729,924.03	32.037°N	103.591°W
8,675.00	4.97	118.65	8,670.45	-49.99	119.41	377,820.10	729,925.91	32.037°N	103.591°W
8,700.00	4.90	117.35	8,695.36	-51.00	121.31	377,819.10	729,927.80	32.037°N	103.591°W
8,725.00	4.84	118.28	8,720.27	-51.99	123.19	377,818.10	729,929.68	32.037°N	103.591°W
8,750.00	4.79	119.25	8,745.18	-53.00	125.03	377,817.10	729,931.52	32.037°N	103.591°W
8,775.00	4.69	119.16	8,770.10	-54.01	126.83	377,816.09	729,933.32	32.037°N	103.591°W
8,800.00	4.72	119.36	8,795.01	-55.01	128.62	377,815.08	729,935.11	32.037°N	103.591°W
8,825.00	4.74	119.53	8,819.93	-56.03	130.41	377,814.07	729,936.91	32.037°N	103.591°W
8,850.00	4.72	120.00	8,844.84	-57.05	132.20	377,813.05	729,938.70	32.037°N	103.591°W
8,875.00	4.78	119.19	8,869.76	-58.07	134.00	377,812.03	729,940.50	32.037°N	103.591°W
8,900.00	4.85	119.91	8,894.67	-59.11	135.83	377,810.99	729,942.32	32.037°N	103.591°W
8,925.00	4.74	119.75	8,919.58	-60.15	137.64	377,809.95	729,944.14	32.037°N	103.591°W
8,950.00	4.81	119.58	8,944.49	-61.18	139.45	377,808.92	729,945.95	32.037°N	103.591°W
8,975.00	4.59	119.55	8,969.41	-62.19	141.23	377,807.91	729,947.73	32.037°N	103.591°W
9,000.00	4.32	121.53	8,994.34	-63.17	142.90	377,806.92	729,949.40	32.037°N	103.591°W
9,025.00	4.23	120.64	9,019.27	-64.14	144.50	377,805.96	729,951.00	32.037°N	103.591°W
9,050.00	4.09	119.17	9,044.20	-65.04	146.07	377,805.06	729,952.57	32.037°N	103.591°W
9,075.00	3.87	120.22	9,069.14	-65.90	147.58	377,804.20	729,954.07	32.037°N	103.591°W
9,100.00	3.77	120.08	9,094.08	-66.74	149.02	377,803.36	729,955.52	32.037°N	103.591°W
9,125.00	3.74	118.64	9,119.03	-67.54	150.45	377,802.56	729,956.94	32.037°N	103.591°W
9,150.00	3.38	119.66	9,143.98	-68.29	151.80	377,801.80	729,958.30	32.037°N	103.591°W
9,175.00	3.14	119.81	9,168.94	-69.00	153.04	377,801.10	729,959.53	32.037°N	103.591°W
9,200.00	3.00	119.61	9,193.91	-69.66	154.20	377,800.44	729,960.70	32.037°N	103.591°W
9,225.00	2.96	117.02	9,218.87	-70.28	155.34	377,799.82	729,961.84	32.037°N	103.591°W
9,250.00	2.85	118.73	9,243.84	-70.87	156.46	377,799.23	729,962.96	32.037°N	103.591°W
9,275.00	2.95	113.88	9,268.81	-71.43	157.60	377,798.67	729,964.09	32.037°N	103.591°W
9,300.00	3.32	108.68	9,293.77	-71.92	158.87	377,798.18	729,965.37	32.037°N	103.591°W
9,325.00	3.66	106.42	9,318.72	-72.38	160.32	377,797.72	729,966.82	32.037°N	103.591°W
9,350.00	3.68	106.64	9,343.67	-72.84	161.86	377,797.26	729,968.35	32.037°N	103.591°W
9,375.00	3.81	107.01	9,368.62	-73.31	163.42	377,796.79	729,969.91	32.037°N	103.591°W
9,400.00	3.67	107.44	9,393.57	-73.79	164.98	377,796.31	729,971.47	32.037°N	103.591°W
9,425.00	3.64	106.79	9,418.52	-74.26	166.50	377,795.84	729,973.00	32.037°N	103.591°W
9,450.00	3.53	107.50	9,443.47	-74.72	167.99	377,795.38	729,974.49	32.037°N	103.591°W
9,475.00	3.61	107.63	9,468.42	-75.19	169.48	377,794.91	729,975.97	32.036°N	103.591°W
9,500.00	3.76	107.29	9,493.37	-75.67	171.01	377,794.43	729,977.51	32.036°N	103.591°W
9,525.00	3.81	108.59	9,518.31	-76.18	172.58	377,793.92	729,979.08	32.036°N	103.591°W
9,550.00	3.85	108.54	9,543.26	-76.71	174.16	377,793.39	729,980.66	32.036°N	103.591°W
9,575.00	3.86	108.91	9,568.20	-77.25	175.75	377,792.85	729,982.25	32.036°N	103.591°W
9,600.00	3.77	107.51	9,593.14	-77.77	177.33	377,792.33	729,983.83	32.036°N	103.591°W
9,625.00	3.79	107.58	9,618.09	-78.27	178.91	377,791.83	729,985.40	32.036°N	103.591°W
9,650.00	3.80	106.61	9,643.03	-78.76	180.49	377,791.34	729,986.98	32.036°N	103.591°W
9,675.00	3.83	106.31	9,667.98	-79.23	182.08	377,790.87	729,988.58	32.036°N	103.591°W
9,700.00	3.83	106.63	9,692.92	-79.70	183.68	377,790.40	729,990.18	32.036°N	103.591°W
9,725.00	3.89	107.23	9,717.87	-80.19	185.29	377,789.91	729,991.79	32.036°N	103.591°W
9,750.00	3.87	107.49	9,742.81	-80.70	186.91	377,789.40	729,993.40	32.036°N	103.591°W
9,775.00	3.72	109.26	9,767.75	-81.22	188.48	377,788.88	729,994.98	32.036°N	103.591°W
9,800.00	3.68	108.43	9,792.70	-81.74	190.01	377,788.36	729,996.50	32.036°N	103.591°W
9,825.00	3.61	108.15	9,817.65	-82.24	191.51	377,787.86	729,998.01	32.036°N	103.591°W
9,850.00	3.45	108.28	9,842.60	-82.72	192.98	377,787.38	729,999.47	32.036°N	103.591°W
9,875.00	3.50	107.42	9,867.56	-83.18	194.42	377,786.92	730,000.92	32.036°N	103.591°W
9,900.00	3.62	108.57	9,892.51	-83.66	195.90	377,786.44	730,002.39	32.036°N	103.591°W
9,925.00	3.53	107.85	9,917.46	-84.15	197.38	377,785.95	730,003.87	32.036°N	103.591°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,950.00	3.56	106.57	9,942.41	-84.61	198.85	377,785.49	730,005.35	32.036°N	103.591°W
9,975.00	3.46	107.68	9,967.37	-85.06	200.32	377,785.04	730,006.81	32.036°N	103.591°W
10,000.00	3.53	109.27	9,992.32	-85.54	201.76	377,784.56	730,008.26	32.036°N	103.591°W
10,025.00	3.54	106.68	10,017.27	-86.02	203.23	377,784.08	730,009.72	32.036°N	103.591°W
10,050.00	3.67	106.10	10,042.22	-86.46	204.73	377,783.64	730,011.23	32.036°N	103.591°W
10,075.00	3.56	107.58	10,067.17	-86.92	206.24	377,783.18	730,012.74	32.036°N	103.591°W
10,100.00	3.64	106.35	10,092.12	-87.37	207.74	377,782.73	730,014.24	32.036°N	103.591°W
10,125.00	3.63	106.33	10,117.07	-87.82	209.27	377,782.28	730,015.76	32.036°N	103.591°W
10,150.00	3.75	106.76	10,142.02	-88.28	210.81	377,781.82	730,017.30	32.036°N	103.591°W
10,175.00	3.75	108.24	10,166.97	-88.77	212.37	377,781.33	730,018.86	32.036°N	103.591°W
10,200.00	3.75	106.71	10,191.92	-89.26	213.93	377,780.84	730,020.42	32.036°N	103.591°W
10,225.00	3.70	106.92	10,216.86	-89.73	215.48	377,780.37	730,021.98	32.036°N	103.591°W
10,250.00	3.69	106.53	10,241.81	-90.19	217.02	377,779.91	730,023.52	32.036°N	103.591°W
10,275.00	3.58	105.96	10,266.76	-90.64	218.55	377,779.46	730,025.04	32.036°N	103.591°W
10,300.00	3.57	105.68	10,291.71	-91.06	220.05	377,779.04	730,026.54	32.036°N	103.591°W
10,325.00	3.49	105.18	10,316.66	-91.47	221.53	377,778.63	730,028.03	32.036°N	103.591°W
10,350.00	3.42	104.28	10,341.62	-91.85	222.99	377,778.24	730,029.48	32.036°N	103.591°W
10,375.00	3.35	103.04	10,366.57	-92.20	224.42	377,777.90	730,030.92	32.036°N	103.591°W
10,400.00	3.21	102.47	10,391.53	-92.52	225.82	377,777.58	730,032.31	32.036°N	103.591°W
10,425.00	2.99	100.67	10,416.50	-92.79	227.14	377,777.31	730,033.64	32.036°N	103.591°W
10,450.00	2.92	97.23	10,441.46	-92.99	228.41	377,777.11	730,034.91	32.036°N	103.591°W
10,475.00	2.86	99.72	10,466.43	-93.18	229.66	377,776.92	730,036.16	32.036°N	103.591°W
10,500.00	2.91	98.52	10,491.40	-93.38	230.90	377,776.72	730,037.40	32.036°N	103.591°W
10,525.00	3.12	99.04	10,516.37	-93.58	232.20	377,776.52	730,038.70	32.036°N	103.591°W
10,550.00	3.76	100.37	10,541.32	-93.83	233.68	377,776.27	730,040.18	32.036°N	103.591°W
10,575.00	4.06	103.96	10,566.26	-94.19	235.34	377,775.91	730,041.84	32.036°N	103.591°W
10,600.00	4.09	103.84	10,591.20	-94.62	237.07	377,775.48	730,043.57	32.036°N	103.591°W
10,625.00	4.17	104.03	10,616.13	-95.05	238.82	377,775.05	730,045.31	32.036°N	103.591°W
10,650.00	4.23	103.74	10,641.07	-95.49	240.59	377,774.61	730,047.09	32.036°N	103.591°W
10,675.00	4.28	102.18	10,666.00	-95.91	242.40	377,774.19	730,048.90	32.036°N	103.591°W
10,700.00	4.13	105.65	10,690.93	-96.35	244.18	377,773.75	730,050.68	32.036°N	103.591°W
10,725.00	4.16	105.47	10,715.87	-96.83	245.92	377,773.27	730,052.42	32.036°N	103.591°W
10,750.00	3.99	105.56	10,740.80	-97.31	247.63	377,772.79	730,054.13	32.036°N	103.591°W
10,775.00	3.99	105.03	10,765.74	-97.77	249.31	377,772.33	730,055.81	32.036°N	103.591°W
10,800.00	3.94	107.73	10,790.68	-98.25	250.97	377,771.84	730,057.46	32.036°N	103.591°W
10,825.00	4.04	106.69	10,815.62	-98.77	252.63	377,771.33	730,059.13	32.036°N	103.591°W
10,850.00	3.95	106.70	10,840.56	-99.27	254.30	377,770.83	730,060.79	32.036°N	103.591°W
10,875.00	4.02	107.04	10,865.50	-99.77	255.96	377,770.33	730,062.46	32.036°N	103.591°W
10,900.00	3.88	109.56	10,890.44	-100.31	257.60	377,769.79	730,064.09	32.036°N	103.591°W
10,925.00	3.68	111.46	10,915.39	-100.89	259.14	377,769.21	730,065.64	32.036°N	103.591°W
10,950.00	3.66	112.45	10,940.34	-101.49	260.62	377,768.61	730,067.12	32.036°N	103.591°W
10,975.00	3.61	114.30	10,965.29	-102.12	262.08	377,767.98	730,068.57	32.036°N	103.591°W
11,000.00	3.55	114.21	10,990.24	-102.76	263.50	377,767.34	730,070.00	32.036°N	103.591°W
11,025.00	3.51	116.48	11,015.19	-103.42	264.89	377,766.68	730,071.39	32.036°N	103.591°W
11,050.00	3.47	118.30	11,040.14	-104.12	266.24	377,765.98	730,072.74	32.036°N	103.591°W
11,075.00	3.19	121.17	11,065.10	-104.84	267.51	377,765.26	730,074.00	32.036°N	103.591°W
11,100.00	3.08	121.29	11,090.06	-105.54	268.67	377,764.55	730,075.17	32.036°N	103.591°W
11,125.00	3.03	122.98	11,115.03	-106.25	269.80	377,763.85	730,076.30	32.036°N	103.591°W
11,150.00	2.94	124.64	11,139.99	-106.98	270.88	377,763.12	730,077.38	32.036°N	103.591°W
11,175.00	2.80	125.29	11,164.96	-107.69	271.91	377,762.40	730,078.41	32.036°N	103.591°W
11,200.00	2.74	123.51	11,189.93	-108.38	272.91	377,761.72	730,079.40	32.036°N	103.591°W
11,225.00	2.68	122.87	11,214.91	-109.02	273.90	377,761.08	730,080.39	32.036°N	103.591°W
11,250.00	2.72	121.60	11,239.88	-109.65	274.89	377,760.45	730,081.39	32.036°N	103.591°W
11,275.00	2.73	120.60	11,264.85	-110.27	275.91	377,759.83	730,082.41	32.036°N	103.591°W
11,300.00	2.76	118.31	11,289.82	-110.85	276.95	377,759.24	730,083.45	32.036°N	103.591°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,325.00	2.71	117.92	11,314.79	-111.42	278.00	377,758.68	730,084.50	32.036°N	103.591°W
11,350.00	2.59	115.87	11,339.77	-111.94	279.04	377,758.16	730,085.53	32.036°N	103.591°W
11,375.00	2.45	116.77	11,364.74	-112.43	280.02	377,757.67	730,086.52	32.036°N	103.591°W
11,400.00	2.38	118.06	11,389.72	-112.91	280.96	377,757.19	730,087.45	32.036°N	103.591°W
11,425.00	2.21	121.46	11,414.70	-113.41	281.83	377,756.69	730,088.32	32.036°N	103.591°W
11,450.00	2.21	122.41	11,439.68	-113.92	282.64	377,756.18	730,089.14	32.036°N	103.591°W
11,475.00	2.08	121.86	11,464.66	-114.41	283.44	377,755.68	730,089.93	32.036°N	103.591°W
11,500.00	2.00	119.45	11,489.65	-114.87	284.20	377,755.23	730,090.70	32.036°N	103.591°W
11,525.00	2.04	116.32	11,514.63	-115.28	284.98	377,754.82	730,091.48	32.036°N	103.591°W
11,550.00	1.97	113.39	11,539.62	-115.65	285.77	377,754.45	730,092.27	32.036°N	103.591°W
11,575.00	1.97	110.38	11,564.60	-115.97	286.57	377,754.13	730,093.07	32.036°N	103.591°W
11,600.00	1.92	109.81	11,589.59	-116.26	287.37	377,753.84	730,093.86	32.036°N	103.591°W
11,625.00	1.71	105.60	11,614.57	-116.50	288.12	377,753.60	730,094.62	32.036°N	103.591°W
11,650.00	2.09	92.73	11,639.56	-116.62	288.93	377,753.47	730,095.43	32.036°N	103.591°W
11,661.00	1.76	100.86	11,650.55	-116.67	289.30	377,753.43	730,095.80	32.036°N	103.591°W
11661'MD: Final Gyro reading - 11661'MD -Tie into Keeper Gyro									
11,782.00	1.76	89.64	11,771.50	-117.00	292.98	377,753.09	730,099.48	32.036°N	103.591°W
11782'MD: Begin DrilTech MWD									
11,845.00	1.58	84.19	11,834.47	-116.91	294.82	377,753.19	730,101.31	32.036°N	103.591°W
11,940.00	1.85	102.47	11,929.43	-117.11	297.62	377,752.99	730,104.11	32.036°N	103.591°W
11,987.00	1.85	73.99	11,976.41	-117.06	299.09	377,753.04	730,105.58	32.036°N	103.591°W
12,033.00	3.96	26.88	12,022.35	-115.44	300.52	377,754.66	730,107.01	32.036°N	103.591°W
12,080.00	10.11	22.58	12,068.97	-110.18	302.84	377,759.92	730,109.33	32.036°N	103.591°W
12,128.00	14.33	12.29	12,115.88	-100.48	305.72	377,769.62	730,112.22	32.036°N	103.591°W
12,175.00	16.00	13.61	12,161.24	-88.50	308.48	377,781.60	730,114.98	32.036°N	103.591°W
12,222.00	18.20	13.52	12,206.16	-75.07	311.72	377,795.03	730,118.22	32.036°N	103.591°W
12,269.00	26.12	11.24	12,249.66	-57.76	315.46	377,812.34	730,121.96	32.037°N	103.591°W
12,316.00	30.78	14.23	12,290.97	-35.94	320.44	377,834.16	730,126.93	32.037°N	103.591°W
12,363.00	38.34	11.33	12,329.65	-9.95	326.27	377,860.15	730,132.76	32.037°N	103.591°W
12,409.00	46.52	7.90	12,363.58	20.63	331.37	377,890.73	730,137.87	32.037°N	103.591°W
12,456.00	52.06	5.44	12,394.23	56.00	335.48	377,926.10	730,141.97	32.037°N	103.591°W
12,503.00	58.83	4.29	12,420.87	94.55	338.74	377,964.64	730,145.24	32.037°N	103.591°W
12,533.10	63.18	3.96	12,435.46	120.80	340.63	377,990.90	730,147.13	32.037°N	103.591°W
12533'MD: Hardline Crossing @ 330' FSL									
12,551.00	65.77	3.77	12,443.17	136.91	341.72	378,007.01	730,148.22	32.037°N	103.591°W
12,598.00	73.25	2.27	12,459.61	180.85	344.03	378,050.95	730,150.52	32.037°N	103.591°W
12,645.00	82.22	0.87	12,469.58	226.71	345.27	378,096.81	730,151.77	32.037°N	103.591°W
12,692.00	91.19	1.13	12,472.28	273.58	346.09	378,143.67	730,152.59	32.037°N	103.591°W
12,707.00	91.01	358.85	12,471.99	288.57	346.09	378,158.67	730,152.58	32.037°N	103.591°W
12,801.00	90.13	357.53	12,471.06	382.52	343.12	378,252.62	730,149.62	32.038°N	103.591°W
12,894.00	90.92	359.72	12,470.21	475.48	340.89	378,345.58	730,147.38	32.038°N	103.591°W
12,988.00	91.54	0.08	12,468.19	569.46	340.72	378,439.56	730,147.22	32.038°N	103.591°W
13,082.00	91.19	0.69	12,465.95	663.43	341.36	378,533.53	730,147.85	32.039°N	103.591°W
13,176.00	90.13	359.72	12,464.87	757.42	341.69	378,627.52	730,148.19	32.039°N	103.591°W
13,270.00	89.43	359.37	12,465.23	851.42	340.95	378,721.51	730,147.44	32.039°N	103.591°W
13,364.00	90.31	0.60	12,465.44	945.41	340.92	378,815.51	730,147.42	32.039°N	103.591°W
13,458.00	91.45	1.92	12,464.00	1,039.38	342.99	378,909.47	730,149.48	32.040°N	103.591°W
13,552.00	91.54	2.19	12,461.55	1,133.28	346.36	379,003.38	730,152.85	32.040°N	103.591°W
13,645.00	93.39	3.50	12,457.55	1,226.08	350.97	379,096.17	730,157.46	32.040°N	103.591°W
13,739.00	91.63	359.81	12,453.43	1,319.93	353.68	379,190.02	730,160.17	32.040°N	103.591°W
13,833.00	91.01	359.55	12,451.26	1,413.90	353.15	379,284.00	730,159.65	32.041°N	103.591°W
13,927.00	90.22	358.49	12,450.25	1,507.88	351.55	379,377.97	730,158.04	32.041°N	103.591°W
14,022.00	91.89	359.99	12,448.50	1,602.85	350.29	379,472.94	730,156.78	32.041°N	103.591°W
14,116.00	91.36	359.37	12,445.84	1,696.81	349.76	379,566.90	730,156.26	32.041°N	103.591°W
14,210.00	91.36	359.72	12,443.61	1,790.78	349.01	379,660.87	730,155.51	32.042°N	103.591°W



Survey Report - Geographic

Company:	Concho Operating	Local Co-ordinate Reference:	Well VAST State 24H
Project:	Lea County, NM (Nad 27)	TVD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Site:	VAST State	MD Reference:	GL 3262' + 28' RKB @ 3290.00ft (Noram 23)
Well:	VAST State 24H	North Reference:	Grid
Wellbore:	VAST St 24H	Survey Calculation Method:	Minimum Curvature
Design:	VAST St 24H	Database:	EDM 5000.14 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,305.00	90.22	359.29	12,442.30	1,885.76	348.19	379,755.86	730,154.69	32.042°N	103.591°W
14,399.00	89.43	357.88	12,442.58	1,979.73	345.87	379,849.83	730,152.37	32.042°N	103.591°W
14,492.00	90.84	355.07	12,442.37	2,072.54	340.16	379,942.64	730,146.65	32.042°N	103.591°W
14,587.00	93.12	356.38	12,439.08	2,167.22	333.08	380,037.31	730,139.57	32.043°N	103.591°W
14,682.00	93.74	357.79	12,433.40	2,261.92	328.25	380,132.01	730,134.75	32.043°N	103.591°W
14,776.00	93.47	358.05	12,427.49	2,355.67	324.85	380,225.77	730,131.35	32.043°N	103.591°W
14,870.00	93.91	358.85	12,421.44	2,449.44	322.31	380,319.53	730,128.81	32.043°N	103.591°W
14,964.00	94.18	358.85	12,414.81	2,543.19	320.43	380,413.28	730,126.93	32.044°N	103.591°W
15,058.00	92.24	358.58	12,409.54	2,637.01	318.33	380,507.11	730,124.82	32.044°N	103.591°W
15,152.00	92.42	358.67	12,405.72	2,730.91	316.07	380,601.00	730,122.57	32.044°N	103.591°W
15,247.00	91.28	358.41	12,402.66	2,825.83	313.65	380,695.92	730,120.15	32.044°N	103.591°W
15,341.00	92.68	358.23	12,399.41	2,919.73	310.90	380,789.82	730,117.39	32.045°N	103.591°W
15,409.00	92.24	355.86	12,396.49	2,987.57	307.40	380,857.66	730,113.89	32.045°N	103.591°W
15,503.00	93.47	352.43	12,391.81	3,080.95	297.82	380,951.04	730,104.32	32.045°N	103.591°W
15,597.00	98.93	352.25	12,381.66	3,173.53	285.37	381,043.62	730,091.87	32.045°N	103.591°W
15,692.00	100.68	355.95	12,365.48	3,266.62	275.74	381,136.71	730,082.24	32.046°N	103.591°W
15,786.00	97.34	1.04	12,350.75	3,359.39	273.32	381,229.48	730,079.82	32.046°N	103.591°W
15,880.00	92.95	2.36	12,342.32	3,452.94	276.11	381,323.03	730,082.60	32.046°N	103.591°W
15,975.00	92.51	0.95	12,337.79	3,547.79	278.85	381,417.88	730,085.34	32.046°N	103.591°W
16,069.00	91.10	359.11	12,334.83	3,641.74	278.89	381,511.83	730,085.39	32.047°N	103.591°W
16,163.00	90.92	0.43	12,333.18	3,735.72	278.52	381,605.81	730,085.01	32.047°N	103.591°W
16,258.00	90.66	358.85	12,331.87	3,830.71	277.92	381,700.80	730,084.42	32.047°N	103.591°W
16,352.00	92.95	1.39	12,328.90	3,924.65	278.12	381,794.74	730,084.61	32.047°N	103.591°W
16,446.00	90.66	357.18	12,325.94	4,018.56	276.94	381,888.65	730,083.44	32.048°N	103.591°W
16,540.00	91.28	357.18	12,324.35	4,112.44	272.32	381,982.53	730,078.81	32.048°N	103.591°W
16,634.00	91.71	357.26	12,321.90	4,206.29	267.76	382,076.38	730,074.26	32.048°N	103.591°W
16,729.00	92.07	358.67	12,318.77	4,301.18	264.39	382,171.27	730,070.88	32.049°N	103.591°W
16,822.00	91.10	357.53	12,316.19	4,394.09	261.31	382,264.18	730,067.80	32.049°N	103.591°W
16,916.00	95.50	0.87	12,310.78	4,487.89	259.99	382,357.98	730,066.49	32.049°N	103.591°W
17,010.00	96.20	1.31	12,301.20	4,581.38	261.77	382,451.47	730,068.26	32.049°N	103.591°W
17,104.00	96.90	2.01	12,290.48	4,674.73	264.47	382,544.82	730,070.97	32.050°N	103.591°W
17,175.49	97.53	2.44	12,281.50	4,745.60	267.22	382,615.69	730,073.72	32.050°N	103.591°W
17176'MD: Hardline Crossing @ 330' FNL									
17,193.00	97.69	2.54	12,279.18	4,762.94	267.98	382,633.03	730,074.47	32.050°N	103.591°W
17104'MD:Final MWD Survey Depth									
17,248.00	97.69	2.54	12,271.82	4,817.39	270.39	382,687.48	730,076.89	32.050°N	103.591°W
17248'MD: Projected to Total Depth									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
100.00	100.00	-0.18	0.00	100'MD: Begin Scientific Keeper Gyro
11,661.00	11,650.55	-116.67	289.30	11661'MD: Final Gyro reading
11,661.00	11,650.55	-116.67	289.30	11661'MD -Tie into Keeper Gyro
11,782.00	11,771.50	-117.00	292.98	11782'MD: Begin DrilTech MWD
12,533.10	12,435.46	120.80	340.63	12533'MD: Hardline Crossing @ 330' FSL
17,175.49	12,281.50	4,745.60	267.22	17176'MD: Hardline Crossing @ 330' FNL
17,193.00	12,279.18	4,762.94	267.98	17104'MD:Final MWD Survey Depth
17,248.00	12,271.82	4,817.39	270.39	17248'MD: Projected to Total Depth