



Cimarex Sandy Federal #21H XEM+MWD 0ft to 15711ft MD

(Def Survey)



Report Date: June 03, 2014 - 04:56 PM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cactus 137 / Cimarex Sandy Federal #21H
Well: Cimarex Sandy Federal #21H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Sandy Federal #21H XEM+MWD 0ft to 15711ft MD
Survey Date: April 24, 2014
Tort / AHD / DDI / ERD Ratio: 250.209 ° / 6481.937 ft / 6.410 / 0.654
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 17' 1.86523", W 103° 50' 37.49970"
Location Grid N/E Y/X: N 467343.200 ftUS, E 692633.900 ftUS
CRS Grid Convergence Angle: 0.2615 °
Grid Scale Factor: 0.99993531

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 34.584 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB
TVD Reference Elevation: 3318.000 ft above
Seabed / Ground Elevation: 3294.000 ft above
Magnetic Declination: 7.482 °
Total Gravity Field Strength: 998.5021mgn (9.80665 Based)
Total Magnetic Field Strength: 48313.019 nT
Magnetic Dip Angle: 60.109 °
Declination Date: April 24, 2014
Magnetic Declination Model: BGGM 2013
North Reference: Grid North
Grid Convergence Used: 0.2615 °

Total Corr Mag North->Grid North: 7.2206 °

Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	TVDSS (ft)	DLS (°/100ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
SHL Sandy Federal #21H	0.00	0.00	90.00	0.00	0.00	-3318.00	N/A	0.00	0.00	467343.20	692633.90	N 32 17 1.87	W 103 50 37.50
	140.15	0.09	7.91	140.15	0.10	-3177.85	0.06	0.11	0.02	467343.31	692633.92	N 32 17 1.87	W 103 50 37.50
	210.44	0.31	90.57	210.44	0.25	-3107.56	0.44	0.16	0.21	467343.36	692634.11	N 32 17 1.87	W 103 50 37.50
	241.66	0.40	6.95	241.66	0.40	-3076.34	1.53	0.27	0.31	467343.47	692634.21	N 32 17 1.87	W 103 50 37.50
	266.32	0.40	82.74	266.32	0.53	-3051.68	1.99	0.37	0.41	467343.57	692634.31	N 32 17 1.87	W 103 50 37.49
	303.76	0.40	113.24	303.76	0.64	-3014.24	0.56	0.33	0.66	467343.53	692634.56	N 32 17 1.87	W 103 50 37.49
	358.00	0.40	32.34	358.00	0.87	-2960.00	0.96	0.42	0.93	467343.62	692634.83	N 32 17 1.87	W 103 50 37.49
	438.89	0.09	333.37	438.89	1.18	-2879.11	0.45	0.71	1.05	467343.91	692634.95	N 32 17 1.87	W 103 50 37.49
	532.49	0.09	258.04	532.49	1.17	-2785.51	0.12	0.76	0.95	467343.96	692634.85	N 32 17 1.87	W 103 50 37.49
	623.61	0.09	157.94	623.61	1.07	-2694.39	0.15	0.68	0.91	467343.88	692634.81	N 32 17 1.87	W 103 50 37.49
	752.92	0.22	188.26	752.92	0.80	-2565.08	0.12	0.34	0.91	467343.54	692634.81	N 32 17 1.87	W 103 50 37.49
	848.39	0.00	164.13	848.39	0.63	-2469.61	0.23	0.16	0.88	467343.36	692634.78	N 32 17 1.87	W 103 50 37.49
	941.55	0.09	81.47	941.55	0.68	-2376.45	0.10	0.17	0.95	467343.37	692634.85	N 32 17 1.87	W 103 50 37.49
	1035.00	0.22	12.56	1034.99	0.90	-2283.01	0.22	0.36	1.07	467343.56	692634.97	N 32 17 1.87	W 103 50 37.49
	1222.00	0.22	65.65	1221.99	1.54	-2096.01	0.11	0.85	1.47	467344.05	692635.37	N 32 17 1.87	W 103 50 37.48
	1316.20	0.09	263.54	1316.19	1.64	-2001.81	0.33	0.92	1.56	467344.12	692635.46	N 32 17 1.87	W 103 50 37.48
	1403.37	0.22	25.13	1403.36	1.76	-1914.64	0.32	1.06	1.57	467344.26	692635.47	N 32 17 1.88	W 103 50 37.48
	1499.29	0.09	69.34	1499.28	2.01	-1818.72	0.17	1.26	1.71	467344.46	692635.61	N 32 17 1.88	W 103 50 37.48
	1596.00	0.09	268.15	1595.99	2.03	-1722.01	0.18	1.28	1.71	467344.48	692635.61	N 32 17 1.88	W 103 50 37.48
	1688.70	0.09	312.36	1688.69	1.99	-1629.31	0.07	1.33	1.58	467344.53	692635.48	N 32 17 1.88	W 103 50 37.48
	1786.11	0.09	141.85	1786.10	1.98	-1531.90	0.18	1.32	1.57	467344.52	692635.47	N 32 17 1.88	W 103 50 37.48
	1879.03	0.09	282.87	1879.02	1.93	-1438.98	0.18	1.28	1.55	467344.48	692635.45	N 32 17 1.88	W 103 50 37.48
	1974.94	0.22	40.03	1974.93	2.09	-1343.07	0.28	1.44	1.59	467344.64	692635.49	N 32 17 1.88	W 103 50 37.48
	2066.66	0.09	28.25	2066.65	2.33	-1251.35	0.15	1.64	1.74	467344.84	692635.64	N 32 17 1.88	W 103 50 37.48
	2162.78	0.09	320.14	2162.77	2.43	-1155.23	0.10	1.76	1.73	467344.96	692635.63	N 32 17 1.88	W 103 50 37.48
	2259.20	0.09	139.96	2259.19	2.43	-1058.81	0.19	1.76	1.73	467344.96	692635.63	N 32 17 1.88	W 103 50 37.48
	2355.42	0.09	13.14	2355.41	2.48	-962.59	0.17	1.78	1.79	467344.98	692635.69	N 32 17 1.88	W 103 50 37.48
	2447.24	0.22	34.54	2447.23	2.72	-870.77	0.15	1.99	1.91	467345.19	692635.81	N 32 17 1.88	W 103 50 37.48
	2543.74	0.22	357.27	2543.73	3.06	-774.27	0.15	2.33	2.01	467345.53	692635.91	N 32 17 1.89	W 103 50 37.48

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	TVDSS (ft)	DLS (°/100ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	2637.81	0.22	327.34	2637.80	3.27	-680.20	0.12	2.66	1.90	467345.86	692635.80	N 32 17 1.89	W 103 50 37.48
	2733.16	0.22	14.94	2733.15	3.51	-584.85	0.19	2.99	1.85	467346.19	692635.75	N 32 17 1.89	W 103 50 37.48
	2828.35	0.22	56.07	2828.34	3.85	-489.66	0.16	3.27	2.05	467346.47	692635.95	N 32 17 1.90	W 103 50 37.48
	2923.23	0.09	342.15	2923.22	4.07	-394.78	0.22	3.44	2.17	467346.64	692636.07	N 32 17 1.90	W 103 50 37.47
	3019.99	0.22	81.56	3019.98	4.24	-298.02	0.26	3.54	2.34	467346.74	692636.24	N 32 17 1.90	W 103 50 37.47
	3117.01	0.00	7.91	3117.00	4.37	-201.00	0.23	3.57	2.52	467346.77	692636.42	N 32 17 1.90	W 103 50 37.47
	3209.45	0.09	105.64	3209.44	4.39	-108.56	0.10	3.55	2.59	467346.75	692636.49	N 32 17 1.90	W 103 50 37.47
	3337.09	0.22	17.35	3337.08	4.66	19.08	0.18	3.76	2.76	467346.96	692636.66	N 32 17 1.90	W 103 50 37.47
	3400.15	0.09	129.24	3400.14	4.77	82.14	0.42	3.84	2.83	467347.04	692636.73	N 32 17 1.90	W 103 50 37.47
	3495.26	0.09	295.44	3495.25	4.75	177.25	0.19	3.83	2.82	467347.03	692636.72	N 32 17 1.90	W 103 50 37.47
	3591.11	0.09	244.24	3591.10	4.68	273.10	0.08	3.83	2.69	467347.03	692636.59	N 32 17 1.90	W 103 50 37.47
	3687.80	0.22	62.13	3687.79	4.77	369.79	0.32	3.88	2.78	467347.08	692636.68	N 32 17 1.90	W 103 50 37.47
	3760.03	0.09	291.13	3760.02	4.88	442.02	0.40	3.97	2.85	467347.16	692636.75	N 32 17 1.90	W 103 50 37.47
	3849.55	0.79	47.85	3849.53	5.47	531.53	0.93	4.40	3.25	467347.60	692637.15	N 32 17 1.91	W 103 50 37.46
	3944.34	0.70	21.53	3944.32	6.67	626.32	0.37	5.38	3.94	467348.58	692637.84	N 32 17 1.92	W 103 50 37.45
	4041.44	2.11	84.46	4041.39	8.40	723.39	1.95	6.11	5.94	467349.31	692639.84	N 32 17 1.93	W 103 50 37.43
	4138.35	3.21	96.15	4138.19	10.84	820.19	1.26	5.99	10.41	467349.19	692644.31	N 32 17 1.92	W 103 50 37.38
	4235.00	4.09	94.35	4234.65	13.86	916.65	0.92	5.44	16.54	467348.64	692650.44	N 32 17 1.92	W 103 50 37.31
	4324.03	5.19	89.25	4323.38	17.79	1005.38	1.32	5.25	23.73	467348.45	692657.63	N 32 17 1.92	W 103 50 37.22
	4420.75	5.41	93.47	4419.69	22.68	1101.69	0.46	5.03	32.66	467348.23	692666.56	N 32 17 1.91	W 103 50 37.12
	4517.07	5.58	93.73	4515.57	27.43	1197.57	0.18	4.45	41.86	467347.65	692675.76	N 32 17 1.91	W 103 50 37.01
	4614.04	5.01	94.65	4612.12	31.96	1294.12	0.59	3.80	50.79	467347.00	692684.69	N 32 17 1.90	W 103 50 36.91
	4710.34	5.01	94.35	4708.06	36.17	1390.06	0.03	3.14	59.17	467346.34	692693.07	N 32 17 1.89	W 103 50 36.81
	4797.66	4.61	95.27	4795.07	39.81	1477.07	0.47	2.53	66.47	467345.73	692700.36	N 32 17 1.89	W 103 50 36.73
	4893.60	5.41	98.74	4890.64	43.67	1572.64	0.89	1.49	74.78	467344.69	692708.67	N 32 17 1.88	W 103 50 36.63
	4986.91	5.01	97.73	4983.57	47.43	1665.57	0.44	0.27	83.16	467343.47	692717.06	N 32 17 1.86	W 103 50 36.53
	5084.17	5.10	98.57	5080.45	51.24	1762.45	0.12	-0.94	91.65	467342.26	692725.54	N 32 17 1.85	W 103 50 36.43
	5180.53	5.01	97.25	5176.43	55.05	1858.43	0.15	-2.11	100.05	467341.09	692733.95	N 32 17 1.84	W 103 50 36.33
	5272.92	4.92	97.64	5268.48	58.70	1950.48	0.10	-3.15	107.98	467340.05	692741.88	N 32 17 1.83	W 103 50 36.24
	5370.63	4.79	96.06	5365.84	62.55	2047.84	0.19	-4.14	116.19	467339.06	692750.09	N 32 17 1.82	W 103 50 36.15
	5463.95	4.79	95.84	5458.83	66.28	2140.83	0.02	-4.94	123.94	467338.26	692757.84	N 32 17 1.81	W 103 50 36.06
	5560.50	4.79	94.43	5555.04	70.24	2237.04	0.12	-5.67	131.97	467337.53	692765.86	N 32 17 1.80	W 103 50 35.96
	5652.94	4.79	93.95	5647.16	74.15	2329.16	0.04	-6.23	139.67	467336.97	692773.56	N 32 17 1.80	W 103 50 35.87
	5745.79	5.41	91.53	5739.64	78.51	2421.64	0.71	-6.61	147.91	467336.59	692781.80	N 32 17 1.79	W 103 50 35.78
	5841.88	5.49	89.25	5835.30	83.64	2517.30	0.24	-6.68	157.04	467336.53	692790.93	N 32 17 1.79	W 103 50 35.67
	5938.07	5.49	86.96	5931.05	89.11	2613.05	0.23	-6.37	166.23	467336.83	692800.12	N 32 17 1.79	W 103 50 35.56
	6031.00	5.41	86.96	6023.56	94.50	2705.56	0.09	-5.90	175.05	467337.30	692808.94	N 32 17 1.80	W 103 50 35.46
	6128.00	5.49	90.04	6120.12	99.92	2802.12	0.31	-5.66	184.25	467337.54	692818.14	N 32 17 1.80	W 103 50 35.35
	6219.48	5.19	90.66	6211.20	104.71	2893.20	0.33	-5.71	192.77	467337.49	692826.66	N 32 17 1.80	W 103 50 35.25
	6316.74	4.70	89.56	6308.10	109.45	2990.10	0.51	-5.73	201.15	467337.47	692835.04	N 32 17 1.80	W 103 50 35.16
	6415.61	3.78	91.75	6406.70	113.55	3088.70	0.94	-5.80	208.46	467337.40	692842.35	N 32 17 1.80	W 103 50 35.07
	6512.60	4.22	89.47	6503.45	117.33	3185.45	0.48	-5.87	215.22	467337.33	692849.11	N 32 17 1.80	W 103 50 34.99
	6609.37	4.70	84.24	6599.93	121.95	3281.93	0.65	-5.44	222.73	467337.76	692856.61	N 32 17 1.80	W 103 50 34.91
	6697.36	5.80	90.96	6687.55	126.74	3369.55	1.43	-5.15	230.76	467338.05	692864.65	N 32 17 1.80	W 103 50 34.81
	6792.51	5.10	93.95	6782.27	131.56	3464.27	0.79	-5.52	239.79	467337.68	692873.67	N 32 17 1.80	W 103 50 34.71
	6889.58	5.01	94.35	6878.96	135.89	3560.96	0.10	-6.14	248.32	467337.06	692882.20	N 32 17 1.79	W 103 50 34.61
	6985.05	4.31	97.95	6974.11	139.60	3656.11	0.79	-6.95	256.03	467336.25	692889.91	N 32 17 1.78	W 103 50 34.52
	7076.44	4.79	87.05	7065.22	143.46	3747.22	1.08	-7.23	263.24	467335.97	692897.12	N 32 17 1.78	W 103 50 34.43
	7174.28	4.92	89.34	7162.71	148.37	3844.71	0.24	-6.97	271.51	467336.23	692905.40	N 32 17 1.78	W 103 50 34.34
	7267.09	4.79	89.16	7255.18	152.92	3937.18	0.14	-6.87	279.37	467336.33	692913.25	N 32 17 1.78	W 103 50 34.25
	7364.44	4.61	94.43	7352.21	157.24	4034.21	0.48	-7.11	287.33	467336.09	692921.21	N 32 17 1.78	W 103 50 34.15
	7457.76	4.48	92.24	7445.23	161.07	4127.23	0.23	-7.54	294.71	467335.66	692928.59	N 32 17 1.78	W 103 50 34.07

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	TVDSS (ft)	DLS (°/100ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7554.48	5.01	93.47	7541.62	165.27	4223.62	0.56	-7.95	302.70	467335.25	692936.58	N 32 17 1.77	W 103 50 33.97
	7650.04	4.70	93.86	7636.84	169.43	4318.84	0.33	-8.46	310.78	467334.74	692944.65	N 32 17 1.77	W 103 50 33.88
	7746.78	4.00	95.45	7733.30	173.10	4415.30	0.73	-9.05	318.09	467334.15	692951.97	N 32 17 1.76	W 103 50 33.80
	7845.72	3.91	89.64	7832.00	176.71	4514.00	0.41	-9.36	324.90	467333.84	692958.78	N 32 17 1.76	W 103 50 33.72
	7932.96	3.30	88.37	7919.07	179.90	4601.07	0.71	-9.27	330.38	467333.93	692964.26	N 32 17 1.76	W 103 50 33.65
	8028.13	2.81	80.64	8014.11	183.13	4696.11	0.67	-8.81	335.42	467334.39	692969.30	N 32 17 1.76	W 103 50 33.59
	8120.23	3.60	86.57	8106.06	186.48	4788.06	0.93	-8.27	340.54	467334.93	692974.41	N 32 17 1.77	W 103 50 33.53
	8215.21	6.11	89.64	8200.69	191.21	4882.69	2.66	-8.06	348.57	467335.14	692982.44	N 32 17 1.77	W 103 50 33.44
	8313.02	5.89	95.14	8297.97	196.66	4979.97	0.63	-8.48	358.77	467334.72	692992.65	N 32 17 1.77	W 103 50 33.32
	8404.29	6.02	91.14	8388.75	201.60	5070.75	0.48	-8.99	368.22	467334.21	693002.10	N 32 17 1.76	W 103 50 33.21
	8497.66	5.49	80.94	8481.65	207.38	5163.65	1.23	-8.39	377.53	467334.82	693011.40	N 32 17 1.77	W 103 50 33.10
	8592.49	4.39	81.56	8576.12	212.99	5258.12	1.16	-7.14	385.60	467336.06	693019.47	N 32 17 1.78	W 103 50 33.01
	8690.39	5.58	83.05	8673.65	218.70	5355.65	1.22	-6.01	394.03	467337.19	693027.90	N 32 17 1.79	W 103 50 32.91
	8782.00	4.92	82.26	8764.88	224.30	5446.88	0.72	-4.94	402.34	467338.26	693036.22	N 32 17 1.80	W 103 50 32.81
	8878.00	5.89	81.73	8860.45	230.42	5542.45	1.01	-3.68	411.30	467339.52	693045.17	N 32 17 1.81	W 103 50 32.71
	8976.00	6.02	82.13	8957.92	237.31	5639.92	0.14	-2.25	421.36	467340.95	693055.23	N 32 17 1.82	W 103 50 32.59
	9069.96	5.71	84.63	9051.39	243.64	5733.39	0.43	-1.14	430.90	467342.06	693064.77	N 32 17 1.83	W 103 50 32.48
	9163.83	5.32	87.27	9144.82	249.28	5826.82	0.50	-0.50	439.89	467342.70	693073.76	N 32 17 1.84	W 103 50 32.38
	9259.46	4.70	85.34	9240.09	254.44	5922.09	0.67	0.03	448.23	467343.23	693082.10	N 32 17 1.85	W 103 50 32.28
Last XEM Survey	9353.49	4.00	91.45	9333.85	258.67	6015.85	0.89	0.26	455.35	467343.46	693089.21	N 32 17 1.85	W 103 50 32.20
	9400.00	4.40	89.78	9380.23	260.58	6062.23	0.90	0.23	458.75	467343.43	693092.62	N 32 17 1.85	W 103 50 32.16
	9462.00	10.97	88.30	9441.64	265.43	6123.64	10.60	0.41	467.03	467343.61	693100.90	N 32 17 1.85	W 103 50 32.06
	9493.00	13.55	89.10	9471.93	269.29	6153.93	8.34	0.56	473.62	467343.76	693107.48	N 32 17 1.85	W 103 50 31.98
	9525.00	15.54	88.92	9502.90	273.96	6184.90	6.22	0.70	481.65	467343.90	693115.52	N 32 17 1.85	W 103 50 31.89
	9556.00	18.37	86.25	9532.55	279.41	6214.55	9.47	1.09	490.68	467344.29	693124.55	N 32 17 1.85	W 103 50 31.78
	9587.00	22.58	84.53	9561.59	286.28	6243.59	13.72	1.98	501.48	467345.18	693135.35	N 32 17 1.86	W 103 50 31.66
	9619.00	26.89	82.49	9590.65	295.08	6272.65	13.73	3.51	514.78	467346.71	693148.64	N 32 17 1.88	W 103 50 31.50
	9650.00	31.37	80.70	9617.72	305.38	6299.72	14.72	5.73	529.70	467348.93	693163.56	N 32 17 1.90	W 103 50 31.33
	9681.00	35.29	80.60	9643.62	317.20	6325.62	12.65	8.50	546.50	467351.70	693180.37	N 32 17 1.92	W 103 50 31.13
	9713.00	38.39	80.66	9669.22	330.51	6351.22	9.69	11.62	565.43	467354.82	693199.29	N 32 17 1.95	W 103 50 30.91
	9744.00	41.52	81.14	9692.98	344.26	6374.98	10.15	14.77	585.09	467357.97	693218.95	N 32 17 1.98	W 103 50 30.68
	9775.00	44.04	81.91	9715.73	358.63	6397.73	8.30	17.87	605.91	467361.07	693239.77	N 32 17 2.01	W 103 50 30.44
	9807.00	46.29	83.53	9738.30	373.77	6420.30	7.89	20.74	628.42	467363.94	693262.28	N 32 17 2.04	W 103 50 30.18
	9838.00	48.91	85.99	9759.20	388.42	6441.20	10.28	22.82	651.21	467366.02	693285.07	N 32 17 2.06	W 103 50 29.91
	9868.00	52.09	86.70	9778.28	402.74	6460.28	10.76	24.29	674.31	467367.49	693308.16	N 32 17 2.08	W 103 50 29.64
	9900.00	55.21	87.28	9797.24	418.46	6479.24	9.86	25.64	700.04	467368.84	693333.90	N 32 17 2.09	W 103 50 29.34
	9932.00	58.18	87.73	9814.81	434.58	6496.81	9.36	26.80	726.76	467370.00	693360.61	N 32 17 2.10	W 103 50 29.03
	9963.00	60.90	88.36	9830.53	450.49	6512.53	8.95	27.71	753.46	467370.91	693387.31	N 32 17 2.11	W 103 50 28.72
	9995.00	63.96	89.02	9845.34	467.11	6527.34	9.74	28.36	781.82	467371.56	693415.66	N 32 17 2.11	W 103 50 28.39
	10027.00	68.23	88.98	9858.30	484.13	6540.30	13.34	28.87	811.06	467372.07	693444.91	N 32 17 2.11	W 103 50 28.05
	10058.00	71.84	88.05	9868.88	501.29	6550.88	11.98	29.63	840.18	467372.83	693474.03	N 32 17 2.12	W 103 50 27.71
	10090.00	75.75	87.95	9877.81	519.60	6559.81	12.22	30.70	870.89	467373.90	693504.73	N 32 17 2.13	W 103 50 27.35
	10122.00	79.21	86.26	9884.75	538.60	6566.75	11.98	32.28	902.08	467375.48	693535.92	N 32 17 2.14	W 103 50 26.99
	10154.00	81.99	84.06	9889.97	558.65	6571.97	11.02	34.95	933.53	467378.14	693567.37	N 32 17 2.17	W 103 50 26.62
	10186.00	84.28	81.56	9893.80	579.82	6575.80	10.55	38.92	965.05	467382.12	693598.88	N 32 17 2.21	W 103 50 26.26
	10217.00	86.18	77.72	9896.38	601.63	6578.38	13.78	44.48	995.43	467387.68	693629.26	N 32 17 2.26	W 103 50 25.90
	10304.00	90.28	72.86	9899.07	667.52	6581.07	7.31	66.55	1079.49	467409.75	693713.32	N 32 17 2.47	W 103 50 24.92
	10399.00	91.10	71.60	9897.92	742.74	6579.92	1.58	95.54	1169.95	467438.74	693803.77	N 32 17 2.76	W 103 50 23.87
	10494.00	91.21	69.40	9896.01	819.65	6578.01	2.32	127.25	1259.48	467470.44	693893.29	N 32 17 3.07	W 103 50 22.82
	10589.00	91.07	66.85	9894.12	898.81	6576.12	2.69	162.63	1347.61	467505.82	693981.42	N 32 17 3.41	W 103 50 21.79
	10684.00	90.90	64.28	9892.48	980.24	6574.48	2.71	201.92	1434.08	467545.11	694067.89	N 32 17 3.80	W 103 50 20.78
	10779.00	91.38	60.62	9890.59	1064.19	6572.59	3.88	245.84	1518.28	467589.03	694152.08	N 32 17 4.23	W 103 50 19.80
	10875.00	93.14	54.57	9886.80	1152.44	6568.80	6.56	297.22	1599.23	467640.40	694233.02	N 32 17 4.73	W 103 50 18.86

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	TVDSS (ft)	DLS (*/100ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	10970.00	91.21	49.04	9883.20	1243.08	6565.20	6.16	355.90	1673.80	467699.08	694307.59	N 32 17 5.31	W 103 50 17.98
	11065.00	89.46	43.73	9882.64	1336.03	6564.64	5.88	421.40	1742.55	467764.58	694376.34	N 32 17 5.96	W 103 50 17.18
	11160.00	89.11	39.99	9883.83	1430.24	6565.83	3.95	492.14	1805.93	467835.31	694439.71	N 32 17 6.65	W 103 50 16.44
	11254.00	88.91	37.60	9885.45	1523.97	6567.45	2.55	565.39	1864.81	467908.55	694498.59	N 32 17 7.37	W 103 50 15.75
	11349.00	88.90	36.62	9887.27	1618.85	6569.27	1.03	641.13	1922.12	467984.29	694555.89	N 32 17 8.12	W 103 50 15.08
	11444.00	89.01	35.61	9889.00	1713.80	6571.00	1.07	717.86	1978.10	468061.01	694611.87	N 32 17 8.88	W 103 50 14.42
	11538.00	88.73	34.33	9890.85	1807.78	6572.85	1.39	794.87	2031.97	468138.02	694665.73	N 32 17 9.64	W 103 50 13.79
	11633.00	88.73	33.88	9892.96	1902.75	6574.96	0.47	873.52	2085.22	468216.66	694718.98	N 32 17 10.41	W 103 50 13.16
	11728.00	89.15	32.68	9894.72	1997.71	6576.72	1.34	952.92	2137.34	468296.06	694771.10	N 32 17 11.20	W 103 50 12.55
	11823.00	89.01	30.69	9896.24	2092.57	6578.24	2.10	1033.75	2187.23	468376.88	694820.99	N 32 17 11.99	W 103 50 11.97
	11918.00	89.05	27.73	9897.85	2187.13	6579.85	3.12	1116.64	2233.58	468459.77	694867.33	N 32 17 12.81	W 103 50 11.42
	12012.00	89.70	25.37	9898.88	2280.20	6580.88	2.60	1200.72	2275.59	468543.84	694909.34	N 32 17 13.64	W 103 50 10.93
	12107.00	90.01	22.96	9899.12	2373.62	6581.12	2.56	1287.39	2314.48	468630.50	694948.22	N 32 17 14.50	W 103 50 10.47
	12201.00	90.11	20.01	9899.02	2465.17	6581.02	3.14	1374.85	2348.90	468717.96	694982.65	N 32 17 15.36	W 103 50 10.07
	12296.00	89.97	17.46	9898.95	2556.55	6580.95	2.69	1464.81	2379.41	468807.91	695013.15	N 32 17 16.25	W 103 50 9.70
	12390.00	89.97	15.35	9899.00	2645.85	6581.00	2.24	1554.97	2405.96	468898.07	695039.70	N 32 17 17.14	W 103 50 9.39
	12485.00	89.97	14.17	9899.05	2735.22	6581.05	1.24	1646.84	2430.16	468989.93	695063.90	N 32 17 18.05	W 103 50 9.10
	12578.00	89.80	14.73	9899.24	2822.54	6581.24	0.63	1736.90	2453.37	469079.98	695087.11	N 32 17 18.94	W 103 50 8.83
	12673.00	89.86	16.13	9899.52	2912.28	6581.52	1.48	1828.47	2478.64	469171.55	695112.38	N 32 17 19.84	W 103 50 8.53
	12767.00	89.69	18.15	9899.89	3001.95	6581.89	2.16	1918.29	2506.35	469261.36	695140.08	N 32 17 20.73	W 103 50 8.20
	12862.00	90.25	18.93	9899.94	3093.25	6581.94	1.01	2008.36	2536.55	469351.42	695170.28	N 32 17 21.62	W 103 50 7.84
	12957.00	89.60	17.03	9900.06	3184.28	6582.06	2.11	2098.71	2565.88	469441.77	695199.60	N 32 17 22.51	W 103 50 7.50
	13051.00	90.11	14.63	9900.30	3273.28	6582.30	2.61	2189.14	2591.51	469532.19	695225.24	N 32 17 23.41	W 103 50 7.19
	13145.00	89.94	13.49	9900.26	3361.31	6582.26	1.23	2280.32	2614.35	469623.37	695248.08	N 32 17 24.31	W 103 50 6.92
	13241.00	89.59	14.91	9900.65	3451.30	6582.65	1.52	2373.39	2637.90	469716.43	695271.62	N 32 17 25.23	W 103 50 6.64
	13336.00	89.90	15.56	9901.08	3540.93	6583.08	0.76	2465.05	2662.86	469808.08	695296.59	N 32 17 26.14	W 103 50 6.35
	13430.00	89.97	14.71	9901.18	3629.57	6583.18	0.91	2555.78	2687.41	469898.81	695321.13	N 32 17 27.03	W 103 50 6.06
	13526.00	89.59	13.04	9901.55	3719.36	6583.55	1.78	2648.98	2710.43	469992.00	695344.14	N 32 17 27.95	W 103 50 5.78
	13621.00	89.56	11.61	9902.26	3807.28	6584.26	1.51	2741.79	2730.70	470084.80	695364.42	N 32 17 28.87	W 103 50 5.54
	13716.00	90.14	11.72	9902.50	3894.78	6584.50	0.62	2834.82	2749.91	470177.83	695383.63	N 32 17 29.79	W 103 50 5.31
	13811.00	90.21	11.74	9902.21	3982.32	6584.21	0.08	2927.84	2769.22	470270.84	695402.94	N 32 17 30.71	W 103 50 5.08
	13906.00	89.49	14.59	9902.46	4070.75	6584.46	3.09	3020.33	2790.86	470363.33	695424.57	N 32 17 31.62	W 103 50 4.83
	14002.00	90.18	16.38	9902.74	4161.46	6584.74	2.00	3112.84	2816.49	470455.83	695450.20	N 32 17 32.54	W 103 50 4.52
	14096.00	89.56	16.10	9902.95	4250.68	6584.95	0.72	3203.09	2842.78	470546.08	695476.49	N 32 17 33.43	W 103 50 4.21
	14191.00	89.70	15.27	9903.57	4340.56	6585.57	0.89	3294.55	2868.46	470637.53	695502.17	N 32 17 34.33	W 103 50 3.91
	14286.00	89.70	14.12	9904.06	4429.89	6586.06	1.21	3386.44	2892.56	470729.41	695526.26	N 32 17 35.24	W 103 50 3.62
	14381.00	90.18	14.00	9904.16	4518.86	6586.16	0.52	3478.59	2915.64	470821.56	695549.34	N 32 17 36.15	W 103 50 3.35
	14475.00	90.35	12.99	9903.73	4606.56	6585.73	1.09	3570.00	2937.57	470912.96	695571.27	N 32 17 37.06	W 103 50 3.09
	14569.00	89.22	14.80	9904.08	4694.49	6586.08	2.27	3661.24	2960.14	471004.19	695593.85	N 32 17 37.96	W 103 50 2.82
	14663.00	88.73	15.80	9905.76	4783.21	6587.76	1.18	3751.89	2984.94	471094.84	695618.64	N 32 17 38.85	W 103 50 2.53
	14763.00	90.00	15.30	9906.87	4877.73	6588.87	1.36	3848.22	3011.75	471191.17	695645.45	N 32 17 39.81	W 103 50 2.21
	14857.00	91.00	14.97	9906.05	4966.36	6588.05	1.12	3938.96	3036.29	471281.89	695669.99	N 32 17 40.70	W 103 50 1.92
	14951.00	92.55	15.13	9903.14	5054.91	6585.14	1.66	4029.69	3060.69	471372.62	695694.38	N 32 17 41.60	W 103 50 1.63
	15044.00	94.37	14.96	9897.53	5142.39	6579.53	1.97	4119.33	3084.78	471462.26	695718.48	N 32 17 42.48	W 103 50 1.34
	15139.00	96.38	14.52	9888.63	5231.35	6570.63	2.17	4210.80	3108.85	471553.72	695742.54	N 32 17 43.39	W 103 50 1.06
	15234.00	97.31	14.97	9877.31	5320.07	6559.31	1.09	4302.01	3132.85	471644.92	695766.54	N 32 17 44.29	W 103 50 0.77
	15328.00	99.22	14.86	9863.79	5407.67	6545.79	2.04	4391.90	3156.79	471734.80	695790.48	N 32 17 45.18	W 103 50 0.49
	15423.00	102.06	14.43	9846.25	5495.43	6528.25	3.02	4482.22	3180.40	471825.12	695814.09	N 32 17 46.07	W 103 50 0.21
	15517.00	105.53	14.71	9823.84	5581.19	6505.84	3.70	4570.56	3203.36	471913.45	695837.04	N 32 17 46.94	W 103 49 59.94
	15611.00	109.72	14.49	9795.39	5665.36	6477.39	4.46	4657.23	3225.94	472000.12	695859.62	N 32 17 47.80	W 103 49 59.67
Final Survey	15661.00	111.02	14.28	9777.98	5709.35	6459.98	2.63	4702.64	3237.58	472045.52	695871.27	N 32 17 48.25	W 103 49 59.53
Proj to TD	15711.00	111.02	14.28	9760.05	5753.13	6442.05	0.00	4747.87	3249.09	472090.75	695882.78	N 32 17 48.70	W 103 49 59.40

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	TVDSS (ft)	DLS (°/100ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
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Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	24.000		30.000	30.000	SLB_MWD-POOR-Depth Only	Original Borehole / Cimarex Sandy Federal #21H XEM+MWD
	24.000	9353.490		30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Sandy Federal #21H XEM+MWD
	9353.490	15661.000		30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Sandy Federal #21H XEM+MWD
	15661.000	15711.000		30.000	30.000	SLB_BLIND+TREND	Original Borehole / Cimarex Sandy Federal #21H XEM+MWD