30-025-41495

CIMAREX

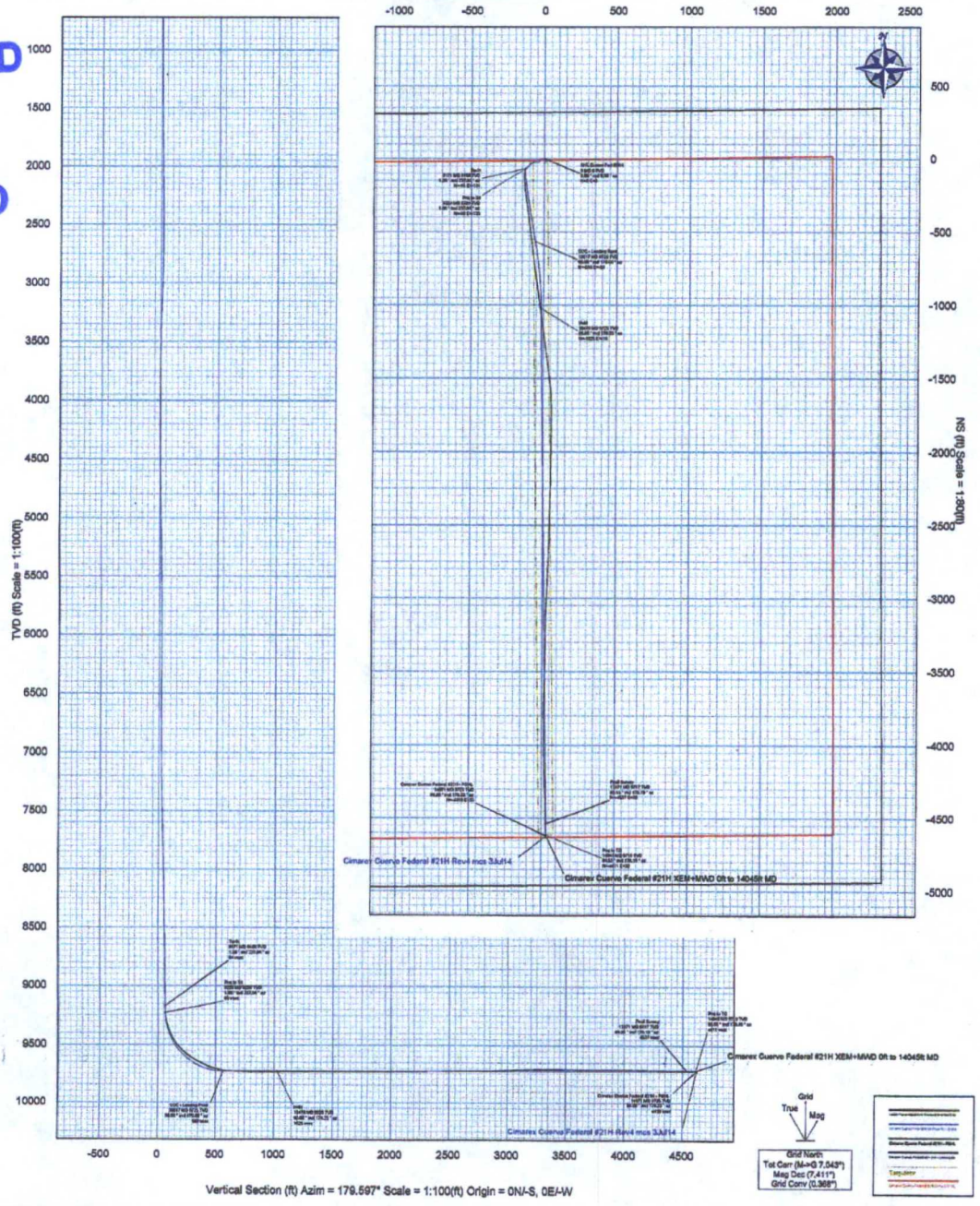
Scandrill Eagle

Cimarex

FINAL PvA

PATHFINDER
A Schlumberger Company

Borehole:	Well:	Field:	Structure:
Original Borehole	Cuervo Federal #21H	Lea County, NM	Scandrill Eagle



Vertical Section (ft) Azim = 179.597° Scale = 1:100(ft) Origin = 0N/-S, 0E/-W

CIMAREX

Cimarex Cuervo Federal #21H XEM+MWD 0ft to 14045ft MD Survey
Geodetic Report
(Def Survey)

PATHFINDER
A Schlumberger Company

Report Date:	July 23, 2014 - 05:07 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	179.597 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Cuervo Federal #21H / Cimarex Cuervo Federal #21H	**TVD Reference Datum:**	RKB
Well:	Cimarex Cuervo Federal #21H	**TVD Reference Elevation:**	3758.000 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3728.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.411 °
Survey Name:	Cimarex Cuervo Federal #21H XEM+MWD 0ft to 14045ft MD	**Total Gravity Field Strength:**	998.4373mgn (9.80665 Based)
Survey Date:	June 24, 2014	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	151.414 ° / 4776.228 ft / 6.019 / 0.491	**Total Magnetic Field Strength:**	48321.707 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	60.174 °
Location Lat / Long:	N 32° 18' 39.88548", W 103° 38' 39.60481"	**Declination Date:**	June 24, 2014
Location Grid N/E Y/X:	N 477587.100 ftUS, E 754189.100 ftUS	**Magnetic Declination Model:**	BGGM 2014
CRS Grid Convergence Angle:	0.3683 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996098	**Grid Convergence Used:**	0.3683 °
Version / Patch:	2.7.1043.0	**Total Corr Mag North->Grid North:**	7.0427 °
		Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure Azimuth (°)	Closure (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	TF (°)
SHL Cuervo Fed #21H	0.00	0.00	0.00	0.00	-3758.00	0.00	0.00	0.00	N/A	0.00	0.00	477587.10	754189.10	N 32 18 39.89	W 103 38 39.99	33.96M
	143.00	0.48	33.96	143.00	-3615.00	-0.49	0.50	0.33	0.34	33.96	0.60	477587.60	754189.43	N 32 18 39.89	W 103 38 39.69	159.56M
	201.00	0.88	159.56	201.00	-3557.00	-0.28	0.28	0.63	2.11	65.82	0.69	477587.38	754189.73	N 32 18 39.89	W 103 38 39.69	152.83M
	324.00	0.48	152.83	323.99	-3434.01	1.07	-1.06	1.19	0.33	131.74	1.60	477586.04	754190.29	N 32 18 39.87	W 103 38 39.68	153.45M
	443.00	0.48	153.45	442.98	-3315.02	1.96	-1.95	1.64	0.00	139.94	2.55	477585.15	754190.74	N 32 18 39.87	W 103 38 39.68	158.24M
	563.00	0.48	158.24	562.98	-3195.02	2.88	-2.87	2.05	0.03	144.41	3.53	477584.23	754191.15	N 32 18 39.86	W 103 38 39.67	159.73M
	689.00	0.40	159.73	688.98	-3069.02	3.79	-3.77	2.40	0.06	147.52	4.47	477583.33	754191.50	N 32 18 39.85	W 103 38 39.67	168.74M
	879.00	0.31	168.74	878.97	-2879.03	4.92	-4.90	2.73	0.06	150.86	5.61	477582.20	754191.83	N 32 18 39.84	W 103 38 39.66	156.13M
	974.00	0.31	156.13	973.97	-2784.03	5.40	-5.38	2.88	0.07	151.82	6.11	477581.72	754191.98	N 32 18 39.83	W 103 38 39.66	173.53M
	1069.00	0.48	173.53	1068.97	-2689.03	6.04	-6.01	3.03	0.22	153.24	6.74	477581.09	754192.13	N 32 18 39.83	W 103 38 39.66	177.35M
	1164.00	0.48	177.35	1163.96	-2594.04	6.83	-6.81	3.10	0.03	155.54	7.48	477580.29	754192.20	N 32 18 39.82	W 103 38 39.66	165.8M
	1265.00	0.48	165.80	1264.96	-2493.04	7.66	-7.64	3.22	0.10	157.15	8.29	477579.46	754192.32	N 32 18 39.81	W 103 38 39.66	166.28M
	1402.00	0.48	166.26	1401.96	-2356.04	8.75	-8.72	3.59	0.06	157.62	9.43	477578.38	754192.69	N 32 18 39.80	W 103 38 39.65	168.17M
	1497.00	0.62	168.17	1496.95	-2261.05	9.62	-9.59	3.86	0.19	158.09	10.34	477577.51	754192.96	N 32 18 39.79	W 103 38 39.65	169.76M
	1592.00	0.70	169.75	1591.95	-2166.05	10.69	-10.66	4.07	0.09	159.13	11.41	477576.44	754193.17	N 32 18 39.78	W 103 38 39.65	175.47M
	1687.00	0.62	175.47	1686.94	-2071.06	11.78	-11.75	4.21	0.11	160.28	12.48	477575.35	754193.31	N 32 18 39.77	W 103 38 39.65	177.05M
	1782.00	0.48	177.05	1781.93	-1976.07	12.69	-12.66	4.27	0.15	161.35	13.36	477574.44	754193.37	N 32 18 39.76	W 103 38 39.65	167.73M
	1877.00	0.62	167.73	1876.93	-1881.07	13.59	-13.56	4.40	0.17	162.01	14.25	477573.54	754193.50	N 32 18 39.75	W 103 38 39.64	173.84M
	1972.00	0.62	173.84	1971.92	-1786.08	14.60	-14.57	4.57	0.07	162.60	15.27	477572.53	754193.67	N 32 18 39.74	W 103 38 39.64	174.15M
	2067.00	0.62	174.15	2066.92	-1691.08	15.62	-15.59	4.67	0.00	163.32	16.28	477571.51	754193.77	N 32 18 39.73	W 103 38 39.64	186.36M
	2162.00	0.79	186.36	2161.91	-1596.09	16.79	-16.75	4.85	0.24	164.48	17.39	477570.35	754193.75	N 32 18 39.72	W 103 38 39.64	186.14M
	2257.00	0.79	186.14	2256.90	-1501.10	18.09	-18.06	4.51	0.00	165.98	18.61	477569.04	754193.61	N 32 18 39.71	W 103 38 39.64	118.95M
	2351.00	0.88	118.95	2350.90	-1407.10	19.09	-19.05	5.07	0.99	165.09	19.71	477568.05	754194.17	N 32 18 39.70	W 103 38 39.64	121.94M
	2446.00	0.79	121.94	2445.89	-1312.11	19.79	-19.75	6.27	0.11	162.40	20.72	477567.35	754195.37	N 32 18 39.69	W 103 38 39.62	117.55M
	2541.00	0.62	117.55	2540.88	-1217.12	20.38	-20.33	7.28	0.19	160.31	21.60	477566.77	754196.38	N 32 18 39.68	W 103 38 39.61	64.24M
	2636.00	1.01	64.24	2635.87	-1122.13	20.27	-20.21	8.49	0.85	157.22	21.92	477566.89	754197.59	N 32 18 39.68	W 103 38 39.60	65.16M
	2731.00	1.10	65.16	2730.85	-1027.15	19.53	-19.46	10.07	0.10	152.84	21.91	477567.64	754199.17	N 32 18 39.69	W 103 38 39.58	66.06M
	2826.00	1.32	66.06	2825.83	-932.17	18.73	-18.64	11.90	0.23	147.45	22.12	477568.46	754201.00	N 32 18 39.70	W 103 38 39.56	60.15M
	2921.00	1.32	60.15	2920.81	-837.19	17.76	-17.67	13.86	0.16	141.89	22.45	477569.43	754202.95	N 32 18 39.71	W 103 38 39.53	37.26M
	3016.00	2.02	37.26	3015.77	-742.23	15.90	-15.79	15.82	1.00	134.95	22.35	477571.31	754204.92	N 32 18 39.73	W 103 38 39.51	3.24M
	3111.00	2.29	3.24	3110.70	-647.30	12.66	-12.56	16.94	1.35	126.56	21.09	477574.54	754208.04	N 32 18 39.76	W 103 38 39.50	341.75M
	3206.00	2.20	341.75	3205.63	-552.37	9.05	-8.93	16.48	0.89	118.47	18.74	477578.17	754205.57	N 32 18 39.80	W 103 38 39.50	316.34M
	3301.00	2.11	315.34	3300.57	-457.43	6.06	-5.96	14.67	1.04	112.10	15.84	477581.14	754203.77	N 32 18 39.83	W 103 38 39.52	292.36M
	3396.00	2.11	292.36	3395.50	-362.50	4.13	-4.05	11.83	0.88	108.90	12.50	477583.05	754200.93	N 32 18 39.84	W 103 38 39.56	279.44M
	3490.00	2.20	279.44	3489.44	-268.56	3.15	-3.10	8.45	0.52	110.12	9.00	477584.01	754197.55	N 32 18 39.85	W 103 38 39.60	279.04M
	3585.00	2.20	279.04	3584.37	-173.63	2.54	-2.51	4.85	0.02	117.36	5.46	477584.59	754193.95	N 32 18 39.86	W 103 38 39.64	276.54M
	3680.00	2.20	276.54	3679.30	-78.70	2.02	-2.02	1.24	0.10	148.47	2.36	477585.08	754190.34	N 32 18 39.87	W 103 38 39.68	277.84M
	3775.00	2.20	277.84	3774.23	16.23	1.55	-1.57	-2.38	0.04	238.70	2.85	477585.53	754186.72	N 32 18 39.87	W 103 38 39.72	273.55M

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure Azimuth (°)	Closure (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	TF (°)
	3870.00	2.20	273.55	3869.16	111.16	1.17	-1.21	-8.01	0.17	258.62	6.13	477585.89	754183.09	N 32 18 39.87	W 103 38 39.79	276.45M
	3965.00	2.20	276.45	3964.09	206.09	0.82	-0.89	-9.64	0.12	264.71	9.68	477588.21	754179.46	N 32 18 39.88	W 103 38 39.81	271.13M
	4059.00	2.02	271.13	4058.02	300.02	0.56	-0.66	-13.09	0.28	267.13	13.11	477588.44	754176.01	N 32 18 39.88	W 103 38 39.85	264.76M
	4155.00	1.71	264.76	4153.97	395.97	0.64	-0.75	-16.21	0.39	267.34	16.23	477588.35	754172.89	N 32 18 39.88	W 103 38 39.88	253.64M
	4249.00	1.49	253.64	4247.94	489.94	1.09	-1.23	-18.78	0.40	266.26	18.82	477585.87	754170.32	N 32 18 39.87	W 103 38 39.91	255.45M
	4345.00	1.49	255.45	4343.91	585.91	1.74	-1.89	-21.18	0.05	264.90	21.27	477585.21	754167.92	N 32 18 39.87	W 103 38 39.94	243.93M
	4440.00	1.32	243.93	4438.88	680.88	2.62	-2.68	-23.36	0.35	263.45	23.52	477584.42	754165.74	N 32 18 39.86	W 103 38 39.97	233.74M
	4536.00	1.19	233.74	4534.85	776.85	3.58	-3.76	-25.16	0.27	261.50	25.44	477583.34	754163.94	N 32 18 39.85	W 103 38 39.99	219.85M
	4631.00	1.19	219.85	4629.83	871.83	4.91	-5.10	-26.59	0.30	259.14	27.07	477582.00	754162.51	N 32 18 39.84	W 103 38 40.00	210.45M
	4727.00	1.19	210.45	4725.81	967.81	6.53	-6.72	-27.73	0.20	256.37	28.53	477580.38	754161.37	N 32 18 39.82	W 103 38 40.02	205.26M
	4706.00	1.32	205.26	4794.80	1036.80	7.86	-8.06	-28.43	0.25	254.17	29.55	477579.04	754160.67	N 32 18 39.81	W 103 38 40.03	209.65M
	4925.00	1.19	209.65	4923.77	1165.77	10.36	-10.57	-29.73	0.13	250.43	31.55	477576.53	754159.37	N 32 18 39.78	W 103 38 40.04	217.34M
	5020.00	1.49	217.34	5018.74	1260.74	12.19	-12.41	-30.97	0.37	248.17	33.36	477574.69	754158.13	N 32 18 39.76	W 103 38 40.06	220.3M
	5116.00	1.49	220.30	5114.71	1356.71	14.12	-14.35	-32.53	0.08	246.19	35.56	477572.75	754156.57	N 32 18 39.75	W 103 38 40.07	223.94M
	5211.00	1.49	223.94	5209.67	1451.67	15.94	-16.18	-34.19	0.10	244.67	37.82	477570.92	754154.91	N 32 18 39.73	W 103 38 40.09	230.97M
	5306.00	1.41	230.97	5304.64	1546.64	17.56	-17.81	-35.95	0.21	243.65	40.12	477569.29	754153.15	N 32 18 39.71	W 103 38 40.12	235.76M
	5401.00	1.32	235.76	5399.62	1641.62	18.89	-19.16	-37.76	0.15	243.10	42.35	477567.94	754151.34	N 32 18 39.70	W 103 38 40.14	240.32M
	5592.00	1.32	240.32	5590.57	1832.57	21.19	-21.49	-41.49	0.05	242.62	46.73	477565.61	754147.61	N 32 18 39.68	W 103 38 40.18	248.08M
	5687.00	1.49	248.08	5685.54	1927.54	22.18	-22.49	-43.56	0.27	242.71	49.05	477564.61	754145.51	N 32 18 39.67	W 103 38 40.20	259.44M
	5783.00	1.58	259.44	5781.50	2023.50	22.88	-23.20	-46.05	0.33	243.26	51.56	477563.90	754143.05	N 32 18 39.66	W 103 38 40.23	265.95M
	5878.00	1.58	265.95	5876.47	2118.47	23.19	-23.53	-48.64	0.19	244.16	54.04	477563.57	754140.46	N 32 18 39.66	W 103 38 40.26	269.33M
	5973.00	1.80	269.33	5971.43	2213.43	23.28	-23.64	-51.44	0.25	245.32	56.61	477563.46	754137.66	N 32 18 39.65	W 103 38 40.30	271.97M
	6069.00	1.71	271.97	6067.38	2309.38	23.23	-23.61	-54.38	0.13	246.53	59.29	477563.49	754134.72	N 32 18 39.66	W 103 38 40.33	271.75M
	6164.00	1.49	271.75	6162.34	2404.34	23.12	-23.52	-57.03	0.23	247.59	61.69	477563.58	754132.07	N 32 18 39.66	W 103 38 40.36	273.64M
	6260.00	1.58	273.64	6258.31	2500.31	22.98	-23.40	-59.60	0.11	248.56	64.03	477563.70	754129.50	N 32 18 39.66	W 103 38 40.39	271.97M
	6355.00	1.71	271.97	6353.27	2595.27	22.83	-23.27	-62.32	0.15	249.53	66.53	477563.83	754126.78	N 32 18 39.66	W 103 38 40.42	272.54M
	6450.00	1.58	272.54	6448.23	2690.23	22.71	-23.16	-65.05	0.14	250.40	69.05	477563.94	754124.05	N 32 18 39.66	W 103 38 40.45	269.77M
	6546.00	1.49	269.77	6544.20	2786.20	22.63	-23.11	-67.62	0.12	251.13	71.46	477563.99	754121.48	N 32 18 39.66	W 103 38 40.48	263.66M
	6642.00	1.41	263.66	6640.17	2882.17	22.75	-23.24	-70.04	0.18	251.84	73.80	477563.86	754119.06	N 32 18 39.66	W 103 38 40.51	258.83M
	6737.00	1.58	258.83	6735.13	2977.13	23.12	-23.63	-72.49	0.22	251.95	76.24	477563.47	754116.61	N 32 18 39.66	W 103 38 40.54	255.14M
	6833.00	1.58	255.14	6831.10	3073.10	23.69	-24.22	-75.07	0.11	252.12	78.88	477562.88	754114.04	N 32 18 39.65	W 103 38 40.57	259.27M
	6928.00	1.49	259.27	6926.08	3168.06	24.24	-24.79	-77.55	0.15	252.27	81.41	477562.31	754111.56	N 32 18 39.65	W 103 38 40.60	255.53M
	7023.00	1.49	255.53	7021.03	3263.03	24.76	-25.33	-79.95	0.10	252.42	83.87	477561.77	754109.15	N 32 18 39.64	W 103 38 40.63	252.24M
	7119.00	1.58	252.24	7117.00	3359.00	25.46	-26.04	-82.42	0.13	252.46	86.44	477561.06	754106.68	N 32 18 39.63	W 103 38 40.66	245.25M
	7214.00	2.02	245.25	7211.95	3453.95	26.54	-27.14	-85.19	0.52	252.33	89.41	477559.96	754103.91	N 32 18 39.62	W 103 38 40.69	242.44M
	7310.00	2.20	242.44	7307.89	3549.89	28.08	-28.70	-88.36	0.22	252.00	92.91	477558.40	754100.74	N 32 18 39.61	W 103 38 40.73	237.47M
	7405.00	2.11	237.47	7402.82	3644.82	29.84	-30.49	-91.45	0.22	251.58	96.40	477556.61	754097.65	N 32 18 39.59	W 103 38 40.76	235.45M
	7501.00	2.11	235.45	7498.75	3740.75	31.78	-32.44	-94.40	0.08	251.03	99.82	477554.66	754094.71	N 32 18 39.57	W 103 38 40.80	227.06M
	7596.00	2.11	227.06	7593.69	3835.69	33.94	-34.62	-97.12	0.32	250.38	103.11	477552.48	754091.99	N 32 18 39.55	W 103 38 40.83	220.07M
	7691.00	2.02	220.07	7688.63	3930.63	36.40	-37.10	-99.48	0.28	249.55	106.17	477550.00	754089.63	N 32 18 39.52	W 103 38 40.86	214.27M
	7786.00	2.02	214.27	7783.57	4025.57	39.05	-39.76	-101.50	0.22	248.61	109.01	477547.34	754087.61	N 32 18 39.50	W 103 38 40.88	217.17M
	7881.00	2.11	217.17	7878.51	4120.51	41.81	-42.54	-103.50	0.15	247.66	111.90	477544.56	754085.61	N 32 18 39.47	W 103 38 40.90	216.66M
	7977.00	1.80	216.66	7974.45	4216.45	44.38	-45.13	-105.51	0.33	246.84	114.75	477541.98	754083.60	N 32 18 39.45	W 103 38 40.93	211.06M
	8072.00	2.22	211.06	8069.39	4311.39	47.11	-47.87	-107.39	0.52	245.98	117.57	477539.24	754081.72	N 32 18 39.42	W 103 38 40.95	226.16M
	8168.00	1.49	226.16	8165.34	4407.34	49.52	-50.29	-109.28	0.95	245.29	120.29	477536.81	754079.83	N 32 18 39.39	W 103 38 40.97	241.03M
	8263.00	1.49	241.03	8260.31	4502.31	50.93	-51.71	-111.28	0.35	245.07	122.71	477535.39	754077.83	N 32 18 39.38	W 103 38 41.00	226.97M
	8358.00	1.58	226.97	8355.28	4597.28	52.41	-53.21	-113.32	0.41	244.85	125.19	477533.90	754075.79	N 32 18 39.37	W 103 38 41.02	225.34M
	8454.00	1.71	225.34	8451.24	4693.24	54.30	-55.12	-115.30	0.14	244.45	127.80	477531.99	754073.80	N 32 18 39.35	W 103 38 41.04	225.17M
	8549.00	2.90	225.17	8546.16	4788.16	56.97	-57.81	-118.01	1.25	243.90	131.41	477529.30	754071.09	N 32 18 39.32	W 103 38 41.07	247.44M
	8644.00	0.88	247.44	8641.10	4883.10	58.93	-59.78	-120.39	2.22	243.59	134.42	477527.32	754068.71	N 32 18 39.30	W 103 38 41.10	244.24M
	8739.00	1.10	244.24	8736.09	4978.09	59.60	-60.46	-121.89	0.24	243.62	136.06	477526.65	754067.22	N 32 18 39.30	W 103 38 41.12	243.54M
	8834.00	1.10	243.54	8831.07	5073.07	60.39	-61.28	-123.53	0.01	243.62	137.88	477525.84	754065.58	N 32 18 39.29	W 103 38 41.14	251.75M
	8929.00	1.19	251.75	8926.05	5168.05	61.09	-61.97	-125.28	0.20	243.68	139.77	477525.13	754063.83	N 32 18 39.28	W 103 38 41.16	246.13M
	9024.00	1.71	246.13	9021.02	5263.02	61.96	-62.86	-127.51	0.57	243.76	142.16	477524.25	754061.59	N 32 18 39.27	W 103 38 41.19	233.17M
	9120.00	1.58	233.17	9116.98	5358.98	63.32	-64.23	-129.68	0.41	243.69	144.90	477522.87	754059.22	N 32 18 39.26	W 103 38 41.21	237.96M
	9171.00	1.80	237.96	9167.96	5409.96	64.15	-65.08	-131.12	0.51	243.60	146.38	477522.03	754057.98	N 32 18 39.25	W 103 38 41.23	241.13M
	9214.00	2.29	241.13	9210.93	5452.93	64.92	-65.85	-132.45	1.17	243.56	147.91	477521.25	754056.66	N 32 18 39.24	W 103 38 41.24	206.76M
	9246.00	4.13	206.76	9242.88	5484.88	66.25	-67.19	-133.53	8.08	243.29	149.48	477519.92	754055.58	N 32 18 39.23	W 103 38 41.26	189.25M
	9277.00	9.15	189.25	9273.67	5515.67	69.67	-70.62	-134.43	17.28	242.29	151.85	477516.48	754054.68	N 32 18 39.20	W 103 38 41.27	6.3L
	9309.00	14.25	186.97	9304.99	5546.99	76.09	-77.04	-135.31	16.00	240.34	155.71	477510.06	754053.79	N 32 18 39.13	W 103 38 41.28	9.05L
	9341.00	18.47	184.86	9335.69	5577.69	85.05	-86.01	-136.22	13.32	237.73	161.10	477501.09	754052.88	N 32 18 39.04	W 103 38 41.29	7.01R
	9373.00	20.75	185.65	9365.83	5607.83	95.73	-96.70	-137.21	7.17	234.82	167.86	477490.40	754051.90	N 32 18 38.94	W 103 38 41.30	23.75L

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure Azimuth (°)	Closure (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	TF (°)
	9404.00	23.21	182.93	9394.58	5636.58	107.30	-109.27	-138.06	8.59	231.90	175.45	477478.84	754051.04	N 32 18 38.82	W 103 38 41.31	31.2L
	9436.00	26.91	178.09	9423.56	5665.56	120.84	-121.81	-138.14	13.21	228.60	184.18	477465.29	754050.96	N 32 18 38.69	W 103 38 41.31	13.42L
	9468.00	30.69	176.33	9451.60	5693.60	136.23	-137.20	-137.38	12.10	225.04	194.16	477449.90	754051.73	N 32 18 38.54	W 103 38 41.31	8.33L
	9500.00	35.96	175.02	9478.33	5720.33	153.76	-154.73	-136.04	16.62	221.32	206.03	477432.38	754053.07	N 32 18 38.36	W 103 38 41.29	1.84L
	9532.00	40.01	174.84	9503.55	5745.55	173.39	-174.34	-134.30	12.66	217.81	220.07	477412.77	754054.81	N 32 18 38.17	W 103 38 41.27	0.97R
	9564.00	43.70	174.93	9527.38	5769.38	194.67	-195.60	-132.40	11.53	214.09	236.20	477391.51	754056.71	N 32 18 37.96	W 103 38 41.25	14.75L
	9596.00	47.40	173.61	9549.78	5791.78	217.41	-218.33	-130.11	11.93	210.79	254.15	477368.78	754059.00	N 32 18 37.73	W 103 38 41.23	12.97L
	9627.00	51.27	172.47	9569.98	5811.98	240.76	-241.66	-127.25	12.79	207.77	273.12	477345.45	754061.85	N 32 18 37.50	W 103 38 41.20	12.12L
	9659.00	54.26	171.68	9589.34	5831.34	266.01	-266.89	-123.74	9.55	204.87	294.18	477320.22	754065.37	N 32 18 37.25	W 103 38 41.16	7.56R
	9691.00	56.98	172.11	9607.41	5849.41	292.18	-293.03	-120.01	8.57	202.27	316.66	477294.08	754069.09	N 32 18 36.99	W 103 38 41.12	2.99R
	9723.00	59.97	172.29	9624.14	5866.14	319.23	-320.06	-116.31	9.36	199.97	340.54	477267.06	754072.79	N 32 18 36.73	W 103 38 41.07	7.71R
	9755.00	62.26	172.64	9639.60	5881.60	347.03	-347.83	-112.64	7.22	197.94	365.02	477239.28	754076.46	N 32 18 36.45	W 103 38 41.03	5.66R
	9787.00	64.83	172.90	9653.90	5895.90	375.45	-376.23	-109.04	7.44	196.16	391.71	477210.89	754080.07	N 32 18 36.17	W 103 38 40.99	15.44R
	9818.00	66.39	173.43	9666.75	5908.75	403.48	-404.24	-105.68	5.89	194.65	417.82	477182.88	754083.42	N 32 18 35.89	W 103 38 40.96	10.55L
	9850.00	68.59	172.99	9679.00	5921.00	432.86	-433.59	-102.19	6.99	193.26	445.47	477153.53	754086.92	N 32 18 35.60	W 103 38 40.92	12.76L
	9882.00	71.14	172.38	9690.02	5932.02	462.68	-463.39	-98.36	8.17	191.98	473.71	477123.73	754090.74	N 32 18 35.31	W 103 38 40.88	HS
	9914.00	73.16	172.38	9699.82	5941.82	492.90	-493.57	-94.32	6.31	190.82	502.51	477093.55	754094.78	N 32 18 35.01	W 103 38 40.83	0.44L
	9946.00	75.71	172.36	9708.41	5950.41	523.48	-524.13	-90.23	7.97	189.77	531.84	477063.00	754098.88	N 32 18 34.71	W 103 38 40.79	9.76R
	9978.00	78.79	172.90	9715.47	5957.47	554.45	-555.07	-86.23	9.76	188.83	561.73	477032.05	754102.88	N 32 18 34.40	W 103 38 40.74	0.46R
	10010.00	83.71	172.94	9720.34	5962.34	585.86	-586.45	-82.33	15.38	187.99	592.20	477000.67	754106.77	N 32 18 34.09	W 103 38 40.70	1.25L
	10042.00	86.00	172.89	9723.21	5965.21	617.51	-618.08	-78.40	7.16	187.23	623.03	476969.05	754110.70	N 32 18 33.77	W 103 38 40.65	8.73R
	10073.00	86.26	172.93	9725.30	5967.30	648.23	-648.77	-74.58	0.85	186.56	653.04	476938.36	754114.52	N 32 18 33.47	W 103 38 40.61	26.72L
	10144.00	87.59	172.26	9729.11	5971.11	718.60	-719.07	-65.44	2.10	185.20	722.05	476868.06	754123.66	N 32 18 32.77	W 103 38 40.51	13.23L
	10239.00	89.59	171.79	9731.45	5973.45	812.73	-813.12	-52.27	2.16	183.68	814.80	476774.01	754136.83	N 32 18 31.84	W 103 38 40.36	36.53L
	10334.00	89.86	171.59	9731.90	5973.90	906.83	-907.12	-38.54	0.35	182.43	907.94	476680.01	754150.56	N 32 18 30.91	W 103 38 40.21	16.86R
	10429.00	90.52	171.79	9731.89	5973.89	1000.93	-1001.12	-24.81	0.73	181.42	1001.43	476586.02	754164.29	N 32 18 29.98	W 103 38 40.06	78.69R
	10525.00	90.62	172.29	9730.83	5972.83	1096.09	-1096.19	-11.51	0.53	180.60	1096.26	476490.95	754177.59	N 32 18 29.04	W 103 38 39.91	176.19L
	10620.00	90.17	172.26	9729.98	5971.98	1190.31	-1190.33	1.26	0.47	179.94	1190.33	476396.82	754190.36	N 32 18 28.11	W 103 38 39.77	33.69R
	10715.00	90.38	172.40	9729.52	5971.52	1284.55	-1284.48	13.93	0.27	179.38	1284.55	476302.67	754203.03	N 32 18 27.17	W 103 38 39.63	84.66L
	10811.00	90.48	171.33	9728.80	5970.80	1379.67	-1379.51	27.52	1.12	178.86	1379.78	476207.65	754216.62	N 32 18 26.23	W 103 38 39.48	107.3R
	10906.00	90.10	172.55	9728.32	5970.32	1473.82	-1473.57	40.84	1.35	178.41	1474.13	476113.59	754229.94	N 32 18 25.30	W 103 38 39.33	97.54R
	11001.00	89.76	175.12	9728.44	5970.44	1568.33	-1568.01	51.04	2.73	178.14	1568.84	476019.15	754240.14	N 32 18 24.37	W 103 38 39.22	79.44R
	11097.00	90.31	178.07	9728.38	5970.38	1664.19	-1663.83	56.74	3.13	178.05	1664.80	475923.34	754245.84	N 32 18 23.42	W 103 38 39.16	86.54R
	11192.00	90.38	180.83	9727.80	5969.80	1759.16	-1758.81	57.65	2.91	178.12	1759.76	475828.36	754246.75	N 32 18 22.48	W 103 38 39.15	158.4L
	11286.00	89.90	180.64	9727.57	5969.57	1853.16	-1852.81	56.45	0.55	178.25	1853.67	475734.37	754245.54	N 32 18 21.55	W 103 38 39.16	48.01R
	11381.00	90.17	180.94	9727.52	5969.52	1948.14	-1947.80	55.14	0.42	178.38	1948.58	475639.38	754244.23	N 32 18 20.61	W 103 38 39.20	31.43L
	11476.00	90.35	180.83	9727.09	5969.09	2043.11	-2042.78	53.67	0.22	178.50	2043.49	475544.40	754242.77	N 32 18 19.67	W 103 38 39.22	104.22L
	11571.00	90.17	180.12	9726.85	5968.85	2138.10	-2137.78	52.88	0.77	178.58	2138.43	475449.41	754241.98	N 32 18 18.73	W 103 38 39.24	70.4R
	11665.00	90.59	181.30	9726.03	5968.03	2232.08	-2231.77	51.72	1.33	178.67	2232.37	475355.42	754240.82	N 32 18 17.80	W 103 38 39.26	150.94L
	11760.00	90.14	181.05	9725.43	5967.43	2327.04	-2326.75	49.77	0.54	178.77	2327.28	475260.45	754238.87	N 32 18 16.86	W 103 38 39.29	40.91L
	11855.00	90.59	180.66	9724.82	5966.82	2422.01	-2421.73	48.35	0.63	178.86	2422.22	475165.47	754237.45	N 32 18 15.92	W 103 38 39.31	81.66R
	11950.00	90.72	181.55	9723.73	5965.73	2516.97	-2516.71	46.52	0.95	178.94	2517.14	475070.49	754235.62	N 32 18 14.98	W 103 38 39.34	63.1R
	12044.00	91.07	182.24	9722.27	5964.27	2610.89	-2610.64	43.41	0.82	179.05	2611.01	474976.56	754232.51	N 32 18 14.05	W 103 38 39.38	161.57R
	12139.00	90.62	182.39	9720.87	5962.87	2705.77	-2705.56	39.57	0.50	179.16	2705.85	474881.85	754228.67	N 32 18 13.11	W 103 38 39.44	117.76L
	12234.00	90.52	182.20	9719.92	5961.92	2800.66	-2800.48	35.77	0.23	179.27	2800.70	474786.74	754224.87	N 32 18 12.17	W 103 38 39.49	10.74R
	12329.00	91.89	182.46	9717.92	5959.92	2895.53	-2895.37	31.91	1.47	179.37	2895.55	474691.85	754221.01	N 32 18 11.23	W 103 38 39.54	87.87L
	12423.00	91.50	182.19	9714.81	5956.81	2989.37	-2989.24	28.10	0.29	179.46	2989.38	474597.98	754217.20	N 32 18 10.31	W 103 38 39.59	49.3L
	12517.00	92.51	181.48	9711.20	5953.20	3083.13	-3083.13	25.09	1.00	179.53	3083.23	474504.10	754214.19	N 32 18 9.38	W 103 38 39.63	150.04L
	12611.00	91.07	180.65	9708.26	5950.26	3177.15	-3177.08	23.34	1.77	179.58	3177.15	474410.17	754212.44	N 32 18 8.45	W 103 38 39.66	171.08L
	12706.00	89.86	180.46	9707.49	5949.49	3272.13	-3272.05	22.42	1.29	179.61	3272.13	474315.18	754211.52	N 32 18 7.51	W 103 38 39.68	64.49R
	12801.00	90.07	180.90	9707.55	5949.55	3367.11	-3367.04	21.30	0.51	179.64	3367.11	474220.19	754210.40	N 32 18 6.57	W 103 38 39.70	108.2R
	12895.00	89.83	181.63	9707.63	5949.63	3461.07	-3461.02	19.22	0.82	179.68	3461.07	474126.22	754208.32	N 32 18 5.64	W 103 38 39.73	121.26L
	12990.00	89.66	181.35	9708.05	5950.05	3556.02	-3555.99	16.75	0.34	179.73	3556.03	474031.26	754205.85	N 32 18 4.70	W 103 38 39.77	151.3R
	13084.00	89.24	181.58	9708.96	5950.96	3649.96	-3649.95	14.35	0.51	179.77	3649.98	473937.30	754203.45	N 32 18 3.77	W 103 38 39.80	77.44L
	13179.00	89.59	180.01	9709.93	5951.93	3744.93	-3744.93	13.03	1.89	179.80	3744.96	473842.32	754202.13	N 32 18 2.83	W 103 38 39.82	93.52L
	13274.00	89.55	179.36	9710.64	5952.64	3839.93	-3839.93	13.55	0.69	179.80	3839.95	473747.33	754202.65	N 32 18 1.89	W 103 38 39.82	3.01L
	13368.00	89.93	179.34	9711.07	5953.07	3933.93	-3933.92	14.62	0.40	179.79	3933.95	473653.34	754203.72	N 32 18 0.96	W 103 38 39.82	131.19L
	13463.00	89.79	179.18	9711.30	5953.30	4028.93	-4028.91	15.85	0.22	179.77	4028.95	473558.35	754204.95	N 32 18 0.02	W 103 38 39.81	139.28L
	13557.00	89.14	178.62	9712.17	5954.17	4122.91	-4122.89	17.65	0.91	179.75	4122.93	473464.38	754206.75	N 32 17 59.09	W 103 38 39.80	72.1L
	13652.00	89.35	177.97	9713.43	5955.43	4217.88	-4217.84	20.48	0.72	179.72	4217.89	473369.43	754209.56	N 32 17 58.15	W 103 38 39.77	165.97R
	13747.00	89.07	178.04	9714.74	5956.74	4312.84	-4312.77	23.78	0.30	179.68	4312.84	473274.50	754212.88	N 32 17 57.21	W 103 38 39.74	64.99R
	13842.00	89.42	178.79	9715.99	5957.99	4407.81	-4407.73	26.41	0.87	179.66	4407.81	473179.55	754215.51	N 32 17 56.27	W 103 38 39.72	79.7L
	13937.00	89.48	178.46	9716.90	5958.90	4502.79	-4502.70	28.69	0.35	179.63	4502.79	473084.59	754217.79	N 32 17 55.33	W 103 38 39.70	75.47L

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure Azimuth (°)	Closure (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	TF (°)
Final Survey	13971.00	89.55	178.19	9717.19	5959.19	4536.78	-4536.68	29.68	0.82	179.63	4536.78	473050.60	754218.78	N 32 17 54.99	W 103 38 39.69	HS
Proj to TD	14045.00	89.55	178.19	9717.77	5959.77	4610.75	-4610.64	32.02	0.00	179.60	4610.75	472976.65	754221.12	N 32 17 54.26	W 103 38 39.67	

Survey Type: Def Survey

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

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	30.000	Act Stns	17.500	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Cimarex Cuervo Federal #21H XEM+MWD
	1	30.000	13971.000	Act Stns	17.500	30.000	SLB_MWD-STD	Original Borehole / Cimarex Cuervo Federal #21H XEM+MWD
	1	13971.000	14045.000	Act Stns	17.500	30.000	SLB_BLIND+TREND	Original Borehole / Cimarex Cuervo Federal #21H XEM+MWD

SCHLUMBERGER
Survey Report 21-Sep-2016

Client.....: Cimarex Energy Co.
Field.....: Diamondtail, Bone Spring

Well.....: Cuervo Federal 21H
API number.....: 30-025-41495
Engineer.....: R. Ortiz

County:.....: Lea
State:.....: New Mexico
Rig:.....: Scandrill Eagle

Spud date.....: 22-Jun-14
Last survey date.....: 12-Jul-14
Total accepted surveys...: .
MD of first survey.....: 10144.00 ft
MD of last survey.....: 13971.00 ft

Latitude.....: 32∞ 18' 39.88" N
Longitude....: 103∞ 38' 39.69" W

----- Survey calculation methods----------
Method for positions...: Minimum curvature
Method for DLS.....: Lubinski

----- Depth reference ----------
Permanent datum.....: MSL
Depth reference.....: Driller's Depth
GL above permanent.....: 3728.00
KB above permanent.....: 3758.00
DF above permanent.....: 3758.00

----- Vertical section origin----------
Latitude (+N/S-).....: 0.00 ft
Departure (+E/W-).....: 0.00 ft

----- Grid Coordinates ----------
NAD27 Texas State Plane, Central Zone, US Feet
X.....: 754189.10 ft
Y.....: 477587.10 ft

Azimuth from Vsect Origin to target: 179.59 degrees

----------MWD Survey Reference Criteria----------

-----Run1----- Calculation Date: 8-Jul-2014
Location G....: 998.94325 mgn Tolerance G...: 2.50 mgn
Location B....: 48361 nT Tolerance B...: 300.00 nT
Magnetic Dip: 60.17 degrees Tolerance Dip: 0.45 degrees

-----Run2----- Calculation Date: 11-Jul-2014
Location G....: 998.94325 mgn Tolerance G...: 2.50 mgn
Location B....: 48361 nT Tolerance B...: 300.00 nT
Magnetic Dip: 60.17 degrees Tolerance Dip: 0.45 degrees

BGGM Model: 2014

------Run1------
Magnetic dec (+E/W-).....: 7.3657 degrees
Grid Conv (+E/W-).....: 0.3657 degrees
Total Azim Corr (+E/W-)..: 7 degrees

------Run2------
Magnetic dec (+E/W-).....: 7.3648 degrees
Grid Conv (+E/W-).....: 0.3648 degrees
Total Azim Corr (+E/W-)..: 7 degrees

----------Survey Correction Index Description----------
0 = Uncorrected 1 = Sag Corrected
2 = DMAG Corrected 3 = Sag + DMAG Corrected

========== Survey List ==========

Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/-S (ft)	E/-W (ft)	Closure (ft)	at Azi (deg)	DLS (deg/100ft)	Tool	Correction
1	0.00	0.00	0.00	-999.25	0.00	0.00	0.00	0.00	0	90.00	0.00	TIP	0
2	143.00	0.48	33.96	143.00	143.00	-0.49	0.50	0.33	0.6	33.96	0.34	Other	0
3	201.00	0.88	159.56	58.00	201.00	-0.28	0.28	0.63	0.69	65.82	2.11	Other	0
4	324.00	0.48	152.83	123.00	323.99	1.07	-1.06	1.19	1.6	131.74	0.33	Other	0
5	443.00	0.48	153.45	119.00	442.98	1.96	-1.95	1.64	2.55	139.94	0.00	Other	0
6	563.00	0.48	158.24	120.00	562.98	2.88	-2.87	2.05	3.53	144.41	0.03	Other	0
7	689.00	0.40	159.73	126.00	688.98	3.79	-3.77	2.40	4.47	147.52	0.06	Other	0
8	879.00	0.31	168.74	190.00	878.97	4.92	-4.90	2.73	5.61	150.86	0.06	Other	0
9	974.00	0.31	156.13	95.00	973.97	5.40	-5.38	2.88	6.11	151.82	0.07	Other	0
10	1069.00	0.48	173.53	95.00	1068.97	6.04	-6.01	3.03	6.74	153.24	0.22	Other	0
11	1164.00	0.48	177.35	95.00	1163.96	6.83	-6.81	3.10	7.48	155.54	0.03	Other	0
12	1265.00	0.48	165.80	101.00	1264.96	7.66	-7.64	3.22	8.29	157.15	0.10	Other	0

13	1402.00	0.48	156.26	137.00	1401.96	8.75	-8.72	3.59	9.43	157.62	0.06	Other	0
14	1497.00	0.62	168.17	95.00	1496.95	9.62	-9.59	3.86	10.34	158.09	0.19	Other	0
15	1592.00	0.70	169.75	95.00	1591.95	10.69	-10.66	4.07	11.41	159.13	0.09	Other	0
16	1687.00	0.62	175.47	95.00	1686.94	11.78	-11.75	4.21	12.48	160.28	0.11	Other	0
17	1782.00	0.48	177.05	95.00	1781.93	12.69	-12.66	4.27	13.36	161.35	0.15	Other	0
18	1877.00	0.62	167.73	95.00	1876.93	13.59	-13.56	4.40	14.25	162.01	0.17	Other	0
19	1972.00	0.62	173.84	95.00	1971.92	14.60	-14.57	4.57	15.27	162.60	0.07	Other	0
20	2067.00	0.62	174.15	95.00	2066.92	15.63	-15.59	4.67	16.28	163.32	0.00	Other	0
21	2162.00	0.79	186.36	95.00	2161.91	16.79	-16.75	4.65	17.39	164.48	0.24	Other	0
22	2257.00	0.79	186.14	95.00	2256.90	18.09	-18.06	4.51	18.61	165.98	0.00	Other	0
23	2351.00	0.88	118.95	94.00	2350.90	19.09	-19.05	5.07	19.71	165.09	0.99	Other	0
24	2446.00	0.79	121.94	95.00	2445.89	19.79	-19.75	6.27	20.72	162.40	0.11	Other	0
25	2541.00	0.62	117.55	95.00	2540.88	20.39	-20.33	7.28	21.6	160.31	0.19	Other	0
26	2636.00	1.01	64.24	95.00	2635.87	20.27	-20.21	8.49	21.92	157.22	0.85	Other	0
27	2731.00	1.10	65.16	95.00	2730.85	19.53	-19.46	10.07	21.91	152.64	0.10	Other	0
28	2826.00	1.32	66.66	95.00	2825.83	18.73	-18.64	11.90	22.12	147.45	0.23	Other	0
29	2921.00	1.32	60.15	95.00	2920.81	17.76	-17.67	13.86	22.45	141.89	0.16	Other	0
30	3016.00	2.02	37.26	95.00	3015.77	15.90	-15.79	15.82	22.35	134.95	1.00	Other	0
31	3111.00	2.29	3.24	95.00	3110.70	12.68	-12.56	16.94	21.09	126.56	1.35	Other	0
32	3206.00	2.20	341.75	95.00	3205.63	9.05	-8.93	16.48	18.74	118.47	0.89	Other	0
33	3301.00	2.11	315.34	95.00	3300.57	6.06	-5.96	14.67	15.84	112.10	1.04	Other	0
34	3396.00	2.11	292.36	95.00	3395.50	4.13	-4.05	11.83	12.5	108.90	0.88	Other	0
35	3490.00	2.20	279.44	94.00	3489.44	3.16	-3.10	8.45	9	110.12	0.52	Other	0
36	3585.00	2.20	279.04	95.00	3584.37	2.54	-2.51	4.85	5.46	117.36	0.02	Other	0
37	3680.00	2.20	276.54	95.00	3679.30	2.02	-2.02	1.24	2.36	148.47	0.10	Other	0
38	3775.00	2.20	277.64	95.00	3774.23	1.55	-1.57	-2.38	2.85	236.70	0.04	Other	0
39	3870.00	2.20	273.55	95.00	3869.16	1.17	-1.21	-6.01	6.13	258.62	0.17	Other	0
40	3965.00	2.20	276.45	95.00	3964.09	0.82	-0.89	-9.64	9.68	264.71	0.12	Other	0
41	4059.00	2.02	271.13	94.00	4058.02	0.56	-0.66	-13.09	13.11	267.13	0.28	Other	0
42	4155.00	1.71	264.76	96.00	4153.97	0.64	-0.75	-16.21	16.23	267.34	0.39	Other	0
43	4249.00	1.49	253.64	94.00	4247.94	1.09	-1.23	-18.78	18.82	266.26	0.40	Other	0
44	4345.00	1.49	255.45	96.00	4343.91	1.74	-1.89	-21.18	21.27	264.90	0.05	Other	0
45	4440.00	1.32	243.93	95.00	4438.88	2.52	-2.68	-23.36	23.52	263.45	0.35	Other	0
46	4536.00	1.19	233.74	96.00	4534.85	3.58	-3.76	-25.16	25.44	261.50	0.27	Other	0
47	4631.00	1.19	219.85	95.00	4629.83	4.91	-5.10	-26.59	27.07	259.14	0.30	Other	0
48	4727.00	1.19	210.45	96.00	4725.81	6.53	-6.72	-27.73	28.53	256.37	0.20	Other	0
49	4796.00	1.32	205.26	69.00	4794.80	7.86	-8.06	-28.43	29.55	254.17	0.25	Other	0
50	4925.00	1.19	209.65	129.00	4923.77	10.36	-10.57	-29.73	31.55	250.43	0.13	Other	0
51	5020.00	1.49	217.34	95.00	5018.74	12.19	-12.41	-30.97	33.36	248.17	0.37	Other	0
52	5116.00	1.49	220.30	96.00	5114.71	14.12	-14.35	-32.53	35.56	246.19	0.08	Other	0
53	5211.00	1.49	223.94	95.00	5209.67	15.94	-16.18	-34.19	37.82	244.67	0.10	Other	0
54	5306.00	1.41	230.97	95.00	5304.64	17.55	-17.81	-35.95	40.12	243.65	0.21	Other	0
55	5401.00	1.32	235.76	95.00	5399.62	18.89	-19.16	-37.76	42.35	243.10	0.15	Other	0
56	5592.00	1.32	240.32	191.00	5590.57	21.19	-21.49	-41.49	46.73	242.62	0.05	Other	0
57	5687.00	1.49	248.06	95.00	5685.54	22.18	-22.49	-43.59	49.05	242.71	0.27	Other	0
58	5783.00	1.58	259.44	96.00	5781.50	22.87	-23.20	-46.05	51.56	243.26	0.33	Other	0
59	5878.00	1.58	265.95	95.00	5876.47	23.18	-23.53	-48.64	54.04	244.18	0.19	Other	0
60	5973.00	1.80	269.33	95.00	5971.43	23.27	-23.64	-51.44	56.61	245.32	0.25	Other	0
61	6069.00	1.71	271.97	96.00	6067.38	23.22	-23.61	-54.38	59.29	246.53	0.13	Other	0
62	6164.00	1.49	271.75	95.00	6162.34	23.12	-23.52	-57.03	61.69	247.59	0.23	Other	0
63	6260.00	1.58	273.64	96.00	6258.31	22.97	-23.40	-59.60	64.03	248.56	0.11	Other	0
64	6355.00	1.71	271.97	95.00	6353.27	22.82	-23.27	-62.32	66.53	249.53	0.15	Other	0
65	6450.00	1.58	272.54	95.00	6448.23	22.70	-23.16	-65.05	69.05	250.40	0.14	Other	0
66	6546.00	1.49	269.77	96.00	6544.20	22.63	-23.11	-67.62	71.46	251.13	0.12	Other	0
67	6642.00	1.41	263.66	96.00	6640.17	22.74	-23.24	-70.04	73.8	251.64	0.18	Other	0
68	6737.00	1.58	258.83	95.00	6735.13	23.11	-23.63	-72.49	76.24	251.95	0.22	Other	0
69	6833.00	1.58	255.14	96.00	6831.10	23.69	-24.22	-75.07	78.88	252.12	0.11	Other	0
70	6928.00	1.49	259.27	95.00	6926.06	24.23	-24.79	-77.55	81.41	252.27	0.15	Other	0
71	7023.00	1.49	255.53	95.00	7021.03	24.76	-25.33	-79.95	83.87	252.42	0.10	Other	0
72	7119.00	1.58	252.24	96.00	7117.00	25.45	-26.04	-82.42	86.44	252.46	0.13	Other	0
73	7214.00	2.02	245.25	95.00	7211.95	26.53	-27.14	-85.19	89.41	252.33	0.52	Other	0
74	7310.00	2.20	242.44	96.00	7307.89	28.07	-28.70	-88.36	92.91	252.00	0.22	Other	0
75	7405.00	2.11	237.47	95.00	7402.82	29.83	-30.49	-91.45	96.4	251.56	0.22	Other	0
76	7501.00	2.11	235.45	96.00	7498.75	31.77	-32.44	-94.40	99.82	251.03	0.08	Other	0
77	7596.00	2.11	227.06	95.00	7593.69	33.93	-34.62	-97.12	103.11	250.38	0.32	Other	0
78	7691.00	2.02	220.07	95.00	7688.63	36.38	-37.10	-99.48	106.17	249.55	0.28	Other	0
79	7786.00	2.02	214.27	95.00	7783.57	39.04	-39.76	-101.50	109.01	248.61	0.22	Other	0
80	7881.00	2.11	217.17	95.00	7878.51	41.80	-42.54	-103.50	111.9	247.66	0.15	Other	0
81	7977.00	1.80	218.66	96.00	7974.45	44.37	-45.13	-105.51	114.75	246.84	0.33	Other	0
82	8072.00	2.22	211.06	95.00	8069.39	47.10	-47.87	-107.39	117.57	245.98	0.52	Other	0
83	8168.00	1.49	228.16	96.00	8165.34	49.51	-50.29	-109.28	120.29	245.29	0.95	Other	0
84	8263.00	1.49	241.03	95.00	8260.31	50.92	-51.71	-111.28	122.71	245.07	0.35	Other	0
85	8358.00	1.58	226.97	95.00	8355.28	52.39	-53.21	-113.32	125.19	244.85	0.41	Other	0
86	8454.00	1.71	225.34	96.00	8451.24	54.29	-55.12	-115.30	127.8	244.45	0.14	Other	0
87	8549.00	2.90	225.17	95.00	8546.16	56.96	-57.81	-118.01	131.41	243.90	1.25	Other	0
88	8644.00	0.88	247.44	95.00	8641.10	58.92	-59.78	-120.39	134.42	243.59	2.22	Other	0
89	8739.00	1.10	244.24	95.00	8736.09	59.58	-60.46	-121.89	136.06	243.62	0.24	Other	0
90	8834.00	1.10	243.54	95.00	8831.07	60.37	-61.26	-123.53	137.88	243.62	0.01	Other	0
91	8929.00	1.19	251.75	95.00	8926.05	61.08	-61.97	-125.28	139.77	243.68	0.20	Other	0
92	9024.00	1.71	246.13	95.00	9021.02	61.94	-62.86	-127.51	142.16	243.76	0.57	Other	0
93	9120.00	1.58	233.17	96.00	9116.98	63.30	-64.23	-129.88	144.9	243.69	0.41	Other	0
94	9171.00	1.80	237.96	51.00	9167.96	64.14	-65.08	-131.12	146.38	243.60	0.51	Other	0
95	9214.00	2.29	241.13	43.00	9210.93	64.90	-65.85	-132.45	147.91	243.56	1.17	Other	0
96	9246.00	4.13	206.76	32.00	9242.88	66.23	-67.19	-133.53	149.48	243.29	8.08	Other	0
97	9277.00	9.15	189.25	31.00	9273.67	69.66	-70.62	-134.43	151.85	242.29	17.28	Other	0

98	9309.00	14.25	186.97	32.00	9304.99	76.07	-77.04	-135.31	155.71	240.34	16.00	Other	0
99	9341.00	18.47	184.86	32.00	9335.69	85.03	-86.01	-136.22	161.1	237.73	13.32	Other	0
100	9373.00	20.75	185.65	32.00	9365.83	95.72	-96.70	-137.21	167.86	234.82	7.17	Other	0
101	9404.00	23.21	182.93	31.00	9394.58	107.28	-108.27	-138.06	175.45	231.90	8.59	Other	0
102	9436.00	26.91	178.09	32.00	9423.56	120.82	-121.81	-138.14	184.18	228.60	13.21	Other	0
103	9468.00	30.69	176.33	32.00	9451.60	136.22	-137.20	-137.38	194.16	225.04	12.10	Other	0
104	9500.00	35.96	175.02	32.00	9478.33	153.75	-154.73	-136.04	206.03	221.32	16.62	Other	0
105	9532.00	40.01	174.84	32.00	9503.55	173.37	-174.34	-134.30	220.07	217.61	12.66	Other	0
106	9564.00	43.70	174.93	32.00	9527.38	194.65	-195.60	-132.40	236.2	214.09	11.53	Other	0
107	9596.00	47.40	173.61	32.00	9549.78	217.39	-218.33	-130.11	254.15	210.79	11.93	Other	0
108	9627.00	51.27	172.47	31.00	9569.98	240.74	-241.66	-127.25	273.12	207.77	12.79	Other	0
109	9659.00	54.26	171.68	32.00	9589.34	266.00	-266.89	-123.74	294.18	204.87	9.55	Other	0
110	9691.00	56.98	172.11	32.00	9607.41	292.17	-293.03	-120.01	316.66	202.27	8.57	Other	0
111	9723.00	59.97	172.29	32.00	9624.14	319.22	-320.06	-116.31	340.54	199.97	9.36	Other	0
112	9755.00	62.26	172.64	32.00	9639.60	347.02	-347.83	-112.64	365.62	197.94	7.22	Other	0
113	9787.00	64.63	172.90	32.00	9653.90	375.44	-376.23	-109.04	391.71	196.16	7.44	Other	0
114	9818.00	66.39	173.43	31.00	9666.75	403.47	-404.24	-105.68	417.82	194.65	5.89	Other	0
115	9850.00	68.59	172.99	32.00	9679.00	432.85	-433.59	-102.19	445.47	193.26	6.99	Other	0
116	9882.00	71.14	172.38	32.00	9690.02	462.67	-463.39	-98.36	473.71	191.98	8.17	Other	0
117	9914.00	73.16	172.38	32.00	9699.82	492.89	-493.57	-94.32	502.51	190.82	6.31	Other	0
118	9946.00	75.71	172.36	32.00	9708.41	523.47	-524.13	-90.23	531.84	189.77	7.97	Other	0
119	9978.00	78.79	172.90	32.00	9715.47	554.44	-555.07	-86.23	561.73	188.83	9.76	Other	0
120	10010.00	83.71	172.94	32.00	9720.34	585.85	-586.45	-82.33	592.2	187.99	15.38	Other	0
121	10042.00	86.00	172.89	32.00	9723.21	617.50	-618.08	-78.40	623.03	187.23	7.16	Other	0
122	10073.00	86.26	172.93	31.00	9725.30	648.22	-648.77	-74.58	653.04	186.56	0.85	Other	0
123	10144.00	87.59	172.26	71.00	9729.11	718.59	-719.07	-65.44	722.05	185.20	2.10	SlimPulse	1
124	10239.00	89.59	171.79	95.00	9731.45	812.73	-813.12	-52.27	814.8	183.68	2.16	SlimPulse	1
125	10334.00	89.86	171.59	95.00	9731.90	906.82	-907.12	-38.54	907.94	182.43	0.35	SlimPulse	1
126	10429.00	90.52	171.79	95.00	9731.59	1000.92	-1001.12	-24.81	1001.43	181.42	0.73	SlimPulse	1
127	10525.00	90.62	172.29	96.00	9730.63	1096.08	-1096.19	-11.51	1096.26	180.60	0.53	SlimPulse	1
128	10620.00	90.17	172.26	95.00	9729.98	1190.31	-1190.33	1.26	1190.33	179.94	0.47	SlimPulse	1
129	10715.00	90.38	172.40	95.00	9729.52	1284.55	-1284.48	13.93	1284.55	179.38	0.27	SlimPulse	1
130	10811.00	90.48	171.33	96.00	9728.80	1379.67	-1379.51	27.52	1379.78	178.86	1.12	SlimPulse	1
131	10906.00	90.10	172.55	95.00	9728.32	1473.82	-1473.57	40.84	1474.13	178.41	1.35	SlimPulse	1
132	11001.00	89.76	175.12	95.00	9728.44	1568.34	-1568.01	51.04	1568.84	178.14	2.73	SlimPulse	1
133	11097.00	90.31	178.07	96.00	9728.38	1664.19	-1663.83	56.74	1664.8	178.05	3.13	SlimPulse	1
134	11192.00	90.38	180.83	95.00	9727.80	1759.18	-1758.81	57.65	1759.76	178.12	2.91	SlimPulse	1
135	11286.00	89.90	180.64	94.00	9727.57	1853.16	-1852.81	56.45	1853.67	178.25	0.55	SlimPulse	1
136	11381.00	90.17	180.94	95.00	9727.52	1948.14	-1947.80	55.14	1948.58	178.38	0.42	SlimPulse	1
137	11476.00	90.35	180.83	95.00	9727.09	2043.12	-2042.78	53.67	2043.49	178.50	0.22	SlimPulse	1
138	11571.00	90.17	180.12	95.00	9726.65	2138.10	-2137.78	52.88	2138.43	178.58	0.77	SlimPulse	1
139	11665.00	90.59	181.30	94.00	9726.03	2232.08	-2231.77	51.72	2232.37	178.67	1.33	SlimPulse	1
140	11760.00	90.14	181.05	95.00	9725.43	2327.04	-2326.75	49.77	2327.28	178.77	0.54	SlimPulse	1
141	11855.00	90.59	180.66	95.00	9724.82	2422.02	-2421.73	48.35	2422.22	178.86	0.63	SlimPulse	1
142	11950.00	90.72	181.55	95.00	9723.73	2516.98	-2516.71	46.52	2517.14	178.94	0.95	SlimPulse	1
143	12044.00	91.07	182.24	94.00	9722.27	2610.89	-2610.64	43.41	2611.01	179.05	0.82	SlimPulse	1
144	12139.00	90.62	182.39	95.00	9720.87	2705.77	-2705.56	39.57	2705.85	179.16	0.50	SlimPulse	1
145	12234.00	90.52	182.20	95.00	9719.92	2800.66	-2800.48	35.77	2800.7	179.27	0.23	SlimPulse	1
146	12329.00	91.89	182.46	95.00	9717.92	2895.53	-2895.37	31.91	2895.55	179.37	1.47	SlimPulse	1
147	12423.00	91.90	182.19	94.00	9714.81	2989.37	-2989.24	28.10	2989.38	179.46	0.29	SlimPulse	1
148	12517.00	92.51	181.48	94.00	9711.20	3083.23	-3083.13	25.09	3083.23	179.53	1.00	SlimPulse	0
149	12611.00	91.07	180.65	94.00	9708.26	3177.15	-3177.06	23.35	3177.15	179.58	1.77	SlimPulse	0
150	12706.00	89.86	180.46	95.00	9707.49	3272.13	-3272.05	22.43	3272.13	179.61	1.28	SlimPulse	0
151	12801.00	90.07	180.90	95.00	9707.55	3367.11	-3367.04	21.31	3367.11	179.64	0.50	SlimPulse	0
152	12895.00	89.83	181.63	94.00	9707.64	3461.07	-3461.02	19.23	3461.07	179.68	0.82	SlimPulse	0
153	12990.00	89.66	181.35	95.00	9708.06	3556.02	-3555.99	16.76	3556.03	179.73	0.35	SlimPulse	0
154	13084.00	89.24	181.58	94.00	9708.97	3649.96	-3649.95	14.36	3649.98	179.77	0.50	SlimPulse	0
155	13179.00	89.59	180.01	95.00	9709.94	3744.93	-3744.94	13.05	3744.96	179.80	1.69	SlimPulse	0
156	13274.00	89.55	179.36	95.00	9710.65	3839.93	-3839.93	13.57	3839.95	179.80	0.68	SlimPulse	0
157	13368.00	89.93	179.34	94.00	9711.07	3933.93	-3933.92	14.63	3933.95	179.79	0.40	SlimPulse	0
158	13463.00	89.79	179.18	95.00	9711.30	4028.93	-4028.92	15.86	4028.95	179.77	0.22	SlimPulse	0
159	13557.00	89.14	178.62	94.00	9712.17	4122.91	-4122.89	17.66	4122.93	179.75	0.91	SlimPulse	0
160	13652.00	89.35	177.97	95.00	9713.43	4217.88	-4217.84	20.48	4217.89	179.72	0.73	SlimPulse	0
161	13747.00	89.07	178.04	95.00	9714.74	4312.84	-4312.78	23.79	4312.84	179.68	0.30	SlimPulse	0
162	13842.00	89.42	178.79	95.00	9715.99	4407.81	-4407.73	26.42	4407.81	179.66	0.87	SlimPulse	0
163	13937.00	89.48	178.46	95.00	9716.90	4502.79	-4502.70	28.70	4502.79	179.63	0.35	SlimPulse	0
164	13971.00	89.55	178.19	34.00	9717.19	4536.78	-4536.68	29.69	4536.78	179.63	0.83	SlimPulse	0
165	14045.00	89.55	178.19	74.00	9717.77	4610.75	-4610.64	32.03	4610.75	179.60	0.00	Other	7