

COG PRODUCTION LLC

**LEA COUNTY, NM
AVALON SHALE
AZORES FEDERAL #9H**

OWB

Plan: DWD Plan 1

Survey Report - Geographic

15 November, 2016

COG PRODUCTION LLC

Survey Report - Geographic

Company:	COG PRODUCTION LLC	Local Co-ordinate Reference:	Well AZORES FEDERAL #9H
Project:	LEA COUNTY, NM	TVD Reference:	3501 + 20 = 3521 RKB @ 3521.0usft (PATRIOT 2)
Site:	AVALON SHALE	MD Reference:	3501 + 20 = 3521 RKB @ 3521.0usft (PATRIOT 2)
Well:	AZORES FEDERAL #9H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	DWD Plan 1	Database:	EDM_Users

Project	LEA COUNTY, NM		
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	AVALON SHALE				
Site Position:		Northing:	419,780.50 usft	Latitude:	32° 9' 6.058 N
From:	Map	Easting:	741,734.30 usft	Longitude:	103° 33' 8.114 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well	AZORES FEDERAL #9H					
Well Position	+N/-S	0.0 usft	Northing:	430,354.80 usf	Latitude:	32° 10' 53.735 N
	+E/-W	0.0 usft	Easting:	694,935.60 usf	Longitude:	103° 42' 11.731 W
Position Uncertainty		3.0 usft	Wellhead Elevation:	0.0 usf	Ground Level:	3,501.0 usf

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM2015	8/21/2016	7.12	60.00	47,974

Design	DWD Plan 1				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	358.15	

Survey Tool Program	Date	11/15/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,007.8	DWD Plan 1 (OWB)	MWD	OWSG MWD - Standard	

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
100.0	0.00	0.00	100.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
200.0	0.00	0.00	200.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
300.0	0.00	0.00	300.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
400.0	0.00	0.00	400.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
500.0	0.00	0.00	500.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
600.0	0.00	0.00	600.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
700.0	0.00	0.00	700.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
800.0	0.00	0.00	800.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
900.0	0.00	0.00	900.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W

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Company: COG PRODUCTION LLC
Project: LEA COUNTY, NM
Site: AVALON SHALE
Well: AZORES FEDERAL #9H
Wellbore: OWB
Design: DWD Plan 1

Local Co-ordinate Reference: Well AZORES FEDERAL #9H
TVD Reference: 3501 + 20 = 3521 RKB @ 3521.0usft (PATRIOT 2)
MD Reference: 3501 + 20 = 3521 RKB @ 3521.0usft (PATRIOT 2)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,000.0	0.00	0.01	1,000.0	0.0	0.0	430,354.80	694,935.60	32° 10' 53.735 N	103° 42' 11.731 W
1,074.3	1.49	215.45	1,074.3	-0.8	-0.6	430,354.01	694,935.04	32° 10' 53.727 N	103° 42' 11.738 W
1,100.0	1.49	215.45	1,100.0	-1.3	-0.9	430,353.47	694,934.65	32° 10' 53.722 N	103° 42' 11.742 W
1,200.0	1.49	215.45	1,199.9	-3.4	-2.4	430,351.36	694,933.15	32° 10' 53.701 N	103° 42' 11.760 W
1,300.0	1.49	215.45	1,299.9	-5.6	-4.0	430,349.25	694,931.64	32° 10' 53.680 N	103° 42' 11.777 W
1,400.0	1.49	215.45	1,399.9	-7.7	-5.5	430,347.13	694,930.14	32° 10' 53.659 N	103° 42' 11.795 W
1,500.0	1.49	215.45	1,499.8	-9.8	-7.0	430,345.02	694,928.63	32° 10' 53.638 N	103° 42' 11.813 W
1,600.0	1.49	215.45	1,599.8	-11.9	-8.5	430,342.91	694,927.13	32° 10' 53.618 N	103° 42' 11.830 W
1,700.0	1.49	215.45	1,699.8	-14.0	-10.0	430,340.80	694,925.63	32° 10' 53.597 N	103° 42' 11.848 W
1,800.0	1.49	215.45	1,799.7	-16.1	-11.5	430,338.68	694,924.12	32° 10' 53.576 N	103° 42' 11.866 W
1,900.0	1.49	215.45	1,899.7	-18.2	-13.0	430,336.57	694,922.62	32° 10' 53.555 N	103° 42' 11.883 W
2,000.0	1.49	215.45	1,999.7	-20.3	-14.5	430,334.46	694,921.12	32° 10' 53.534 N	103° 42' 11.901 W
2,100.0	1.49	215.45	2,099.6	-22.5	-16.0	430,332.35	694,919.61	32° 10' 53.514 N	103° 42' 11.919 W
2,200.0	1.49	215.45	2,199.6	-24.6	-17.5	430,330.24	694,918.11	32° 10' 53.493 N	103° 42' 11.936 W
2,300.0	1.49	215.45	2,299.6	-26.7	-19.0	430,328.12	694,916.60	32° 10' 53.472 N	103° 42' 11.954 W
2,400.0	1.49	215.45	2,399.5	-28.8	-20.5	430,326.01	694,915.10	32° 10' 53.451 N	103° 42' 11.972 W
2,500.0	1.49	215.45	2,499.5	-30.9	-22.0	430,323.90	694,913.60	32° 10' 53.430 N	103° 42' 11.989 W
2,600.0	1.49	215.45	2,599.5	-33.0	-23.5	430,321.79	694,912.09	32° 10' 53.409 N	103° 42' 12.007 W
2,700.0	1.49	215.45	2,699.4	-35.1	-25.0	430,319.67	694,910.59	32° 10' 53.389 N	103° 42' 12.024 W
2,800.0	1.49	215.45	2,799.4	-37.2	-26.5	430,317.56	694,909.08	32° 10' 53.368 N	103° 42' 12.042 W
2,900.0	1.49	215.45	2,899.4	-39.4	-28.0	430,315.45	694,907.58	32° 10' 53.347 N	103° 42' 12.060 W
3,000.0	1.49	215.45	2,999.3	-41.5	-29.5	430,313.34	694,906.08	32° 10' 53.326 N	103° 42' 12.077 W
3,100.0	1.49	215.45	3,099.3	-43.6	-31.0	430,311.22	694,904.57	32° 10' 53.305 N	103° 42' 12.095 W
3,200.0	1.49	215.45	3,199.3	-45.7	-32.5	430,309.11	694,903.07	32° 10' 53.285 N	103° 42' 12.113 W
3,300.0	1.49	215.45	3,299.2	-47.8	-34.0	430,307.00	694,901.56	32° 10' 53.264 N	103° 42' 12.130 W
3,400.0	1.49	215.45	3,399.2	-49.9	-35.5	430,304.89	694,900.06	32° 10' 53.243 N	103° 42' 12.148 W
3,500.0	1.49	215.45	3,499.2	-52.0	-37.0	430,302.77	694,898.56	32° 10' 53.222 N	103° 42' 12.166 W
3,600.0	1.49	215.45	3,599.1	-54.1	-38.5	430,300.66	694,897.05	32° 10' 53.201 N	103° 42' 12.183 W
3,700.0	1.49	215.45	3,699.1	-56.3	-40.0	430,298.55	694,895.55	32° 10' 53.180 N	103° 42' 12.201 W
3,800.0	1.49	215.45	3,799.1	-58.4	-41.6	430,296.44	694,894.05	32° 10' 53.160 N	103° 42' 12.219 W
3,900.0	1.49	215.45	3,899.0	-60.5	-43.1	430,294.32	694,892.54	32° 10' 53.139 N	103° 42' 12.236 W
4,000.0	1.49	215.45	3,999.0	-62.6	-44.6	430,292.21	694,891.04	32° 10' 53.118 N	103° 42' 12.254 W
4,100.0	1.49	215.45	4,099.0	-64.7	-46.1	430,290.10	694,889.53	32° 10' 53.097 N	103° 42' 12.271 W
4,200.0	1.49	215.45	4,198.9	-66.8	-47.6	430,287.99	694,888.03	32° 10' 53.076 N	103° 42' 12.289 W
4,300.0	1.49	215.45	4,298.9	-68.9	-49.1	430,285.87	694,886.53	32° 10' 53.056 N	103° 42' 12.307 W
4,400.0	1.49	215.45	4,398.9	-71.0	-50.6	430,283.76	694,885.02	32° 10' 53.035 N	103° 42' 12.324 W
4,500.0	1.49	215.45	4,498.8	-73.2	-52.1	430,281.65	694,883.52	32° 10' 53.014 N	103° 42' 12.342 W
4,600.0	1.49	215.45	4,598.8	-75.3	-53.6	430,279.54	694,882.01	32° 10' 52.993 N	103° 42' 12.360 W
4,700.0	1.49	215.45	4,698.8	-77.4	-55.1	430,277.42	694,880.51	32° 10' 52.972 N	103° 42' 12.377 W
4,800.0	1.49	215.45	4,798.7	-79.5	-56.6	430,275.31	694,879.01	32° 10' 52.952 N	103° 42' 12.395 W
4,900.0	1.49	215.45	4,898.7	-81.6	-58.1	430,273.20	694,877.50	32° 10' 52.931 N	103° 42' 12.413 W
5,000.0	1.49	215.45	4,998.7	-83.7	-59.6	430,271.09	694,876.00	32° 10' 52.910 N	103° 42' 12.430 W
5,100.0	1.49	215.45	5,098.6	-85.8	-61.1	430,268.97	694,874.49	32° 10' 52.889 N	103° 42' 12.448 W
5,200.0	1.49	215.45	5,198.6	-87.9	-62.6	430,266.86	694,872.99	32° 10' 52.868 N	103° 42' 12.466 W
5,300.0	1.49	215.45	5,298.6	-90.0	-64.1	430,264.75	694,871.49	32° 10' 52.847 N	103° 42' 12.483 W
5,400.0	1.49	215.45	5,398.5	-92.2	-65.6	430,262.64	694,869.98	32° 10' 52.827 N	103° 42' 12.501 W
5,500.0	1.49	215.45	5,498.5	-94.3	-67.1	430,260.53	694,868.48	32° 10' 52.806 N	103° 42' 12.518 W
5,600.0	1.49	215.45	5,598.5	-96.4	-68.6	430,258.41	694,866.98	32° 10' 52.785 N	103° 42' 12.536 W
5,700.0	1.49	215.45	5,698.4	-98.5	-70.1	430,256.30	694,865.47	32° 10' 52.764 N	103° 42' 12.554 W
5,800.0	1.49	215.45	5,798.4	-100.6	-71.6	430,254.19	694,863.97	32° 10' 52.743 N	103° 42' 12.571 W
5,900.0	1.49	215.45	5,898.4	-102.7	-73.1	430,252.08	694,862.46	32° 10' 52.723 N	103° 42' 12.589 W
6,000.0	1.49	215.45	5,998.3	-104.8	-74.6	430,249.96	694,860.96	32° 10' 52.702 N	103° 42' 12.607 W
6,100.0	1.49	215.45	6,098.3	-106.9	-76.1	430,247.85	694,859.46	32° 10' 52.681 N	103° 42' 12.624 W

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,200.0	1.49	215.45	6,198.3	-109.1	-77.6	430,245.74	694,857.95	32° 10' 52.660 N	103° 42' 12.642 W
6,300.0	1.49	215.45	6,298.2	-111.2	-79.1	430,243.63	694,856.45	32° 10' 52.639 N	103° 42' 12.660 W
6,400.0	1.49	215.45	6,398.2	-113.3	-80.7	430,241.51	694,854.94	32° 10' 52.618 N	103° 42' 12.677 W
6,500.0	1.49	215.45	6,498.2	-115.4	-82.2	430,239.40	694,853.44	32° 10' 52.598 N	103° 42' 12.695 W
6,600.0	1.49	215.45	6,598.1	-117.5	-83.7	430,237.29	694,851.94	32° 10' 52.577 N	103° 42' 12.712 W
6,700.0	1.49	215.45	6,698.1	-119.6	-85.2	430,235.18	694,850.43	32° 10' 52.556 N	103° 42' 12.730 W
6,800.0	1.49	215.45	6,798.1	-121.7	-86.7	430,233.06	694,848.93	32° 10' 52.535 N	103° 42' 12.748 W
6,900.0	1.49	215.45	6,898.0	-123.8	-88.2	430,230.95	694,847.42	32° 10' 52.514 N	103° 42' 12.765 W
7,000.0	1.49	215.45	6,998.0	-126.0	-89.7	430,228.84	694,845.92	32° 10' 52.494 N	103° 42' 12.783 W
7,100.0	1.49	215.45	7,098.0	-128.1	-91.2	430,226.73	694,844.42	32° 10' 52.473 N	103° 42' 12.801 W
7,200.0	1.49	215.45	7,197.9	-130.2	-92.7	430,224.61	694,842.91	32° 10' 52.452 N	103° 42' 12.818 W
7,300.0	1.49	215.45	7,297.9	-132.3	-94.2	430,222.50	694,841.41	32° 10' 52.431 N	103° 42' 12.836 W
7,400.0	1.49	215.45	7,397.9	-134.4	-95.7	430,220.39	694,839.90	32° 10' 52.410 N	103° 42' 12.854 W
7,500.0	1.49	215.45	7,497.8	-136.5	-97.2	430,218.28	694,838.40	32° 10' 52.389 N	103° 42' 12.871 W
7,600.0	1.49	215.45	7,597.8	-138.6	-98.7	430,216.16	694,836.90	32° 10' 52.369 N	103° 42' 12.889 W
7,700.0	1.49	215.45	7,697.8	-140.7	-100.2	430,214.05	694,835.39	32° 10' 52.348 N	103° 42' 12.907 W
7,800.0	1.49	215.45	7,797.7	-142.9	-101.7	430,211.94	694,833.89	32° 10' 52.327 N	103° 42' 12.924 W
7,900.0	1.49	215.45	7,897.7	-145.0	-103.2	430,209.83	694,832.39	32° 10' 52.306 N	103° 42' 12.942 W
8,000.0	1.49	215.45	7,997.7	-147.1	-104.7	430,207.71	694,830.88	32° 10' 52.285 N	103° 42' 12.959 W
8,100.0	1.49	215.45	8,097.6	-149.2	-106.2	430,205.60	694,829.38	32° 10' 52.265 N	103° 42' 12.977 W
8,200.0	1.49	215.45	8,197.6	-151.3	-107.7	430,203.49	694,827.87	32° 10' 52.244 N	103° 42' 12.995 W
8,300.0	1.49	215.45	8,297.6	-153.4	-109.2	430,201.38	694,826.37	32° 10' 52.223 N	103° 42' 13.012 W
8,400.0	1.49	215.45	8,397.5	-155.5	-110.7	430,199.27	694,824.87	32° 10' 52.202 N	103° 42' 13.030 W
8,500.0	1.49	215.45	8,497.5	-157.6	-112.2	430,197.15	694,823.36	32° 10' 52.181 N	103° 42' 13.048 W
8,600.0	1.49	215.45	8,597.5	-159.8	-113.7	430,195.04	694,821.86	32° 10' 52.160 N	103° 42' 13.065 W
8,695.1	1.49	215.45	8,692.6	-161.8	-115.2	430,193.03	694,820.43	32° 10' 52.141 N	103° 42' 13.082 W
8,700.0	1.07	234.14	8,697.4	-161.8	-115.2	430,192.95	694,820.35	32° 10' 52.140 N	103° 42' 13.083 W
8,800.0	11.41	355.24	8,796.8	-152.5	-116.8	430,202.30	694,818.77	32° 10' 52.232 N	103° 42' 13.101 W
8,900.0	23.40	357.55	8,892.0	-122.7	-118.5	430,232.11	694,817.10	32° 10' 52.528 N	103° 42' 13.118 W
9,000.0	35.39	358.34	8,979.0	-73.7	-120.2	430,281.06	694,815.40	32° 10' 53.012 N	103° 42' 13.135 W
9,100.0	47.39	358.76	9,053.9	-7.8	-121.8	430,347.04	694,813.76	32° 10' 53.665 N	103° 42' 13.149 W
9,200.0	59.38	359.05	9,113.4	72.3	-123.4	430,427.14	694,812.24	32° 10' 54.458 N	103° 42' 13.161 W
9,300.0	71.38	359.27	9,155.0	163.1	-124.7	430,517.88	694,810.92	32° 10' 55.356 N	103° 42' 13.171 W
9,400.0	83.38	359.46	9,176.8	260.5	-125.8	430,615.28	694,809.84	32° 10' 56.320 N	103° 42' 13.177 W
9,455.2	90.00	359.56	9,180.0	315.5	-126.2	430,670.32	694,809.38	32° 10' 56.864 N	103° 42' 13.178 W
9,500.0	90.00	359.56	9,180.0	360.4	-126.6	430,715.16	694,809.03	32° 10' 57.308 N	103° 42' 13.179 W
9,600.0	90.00	359.56	9,180.0	460.4	-127.3	430,815.15	694,808.27	32° 10' 58.298 N	103° 42' 13.181 W
9,700.0	90.00	359.56	9,180.0	560.3	-128.1	430,915.15	694,807.51	32° 10' 59.287 N	103° 42' 13.183 W
9,800.0	90.00	359.56	9,180.0	660.3	-128.9	431,015.15	694,806.75	32° 11' 0.277 N	103° 42' 13.185 W
9,900.0	90.00	359.56	9,180.0	760.3	-129.6	431,115.14	694,805.98	32° 11' 1.267 N	103° 42' 13.187 W
10,000.0	90.00	359.56	9,180.0	860.3	-130.4	431,215.14	694,805.22	32° 11' 2.256 N	103° 42' 13.189 W
10,100.0	90.00	359.56	9,180.0	960.3	-131.1	431,315.14	694,804.46	32° 11' 3.246 N	103° 42' 13.192 W
10,200.0	90.00	359.56	9,180.0	1,060.3	-131.9	431,415.13	694,803.69	32° 11' 4.235 N	103° 42' 13.194 W
10,300.0	90.00	359.56	9,180.0	1,160.3	-132.7	431,515.13	694,802.93	32° 11' 5.225 N	103° 42' 13.196 W
10,400.0	90.00	359.56	9,180.0	1,260.3	-133.4	431,615.13	694,802.17	32° 11' 6.215 N	103° 42' 13.198 W
10,500.0	90.00	359.56	9,180.0	1,360.3	-134.2	431,715.13	694,801.41	32° 11' 7.204 N	103° 42' 13.200 W
10,600.0	90.00	359.56	9,180.0	1,460.3	-135.0	431,815.12	694,800.64	32° 11' 8.194 N	103° 42' 13.202 W
10,700.0	90.00	359.56	9,180.0	1,560.3	-135.7	431,915.12	694,799.88	32° 11' 9.183 N	103° 42' 13.204 W
10,800.0	90.00	359.56	9,180.0	1,660.3	-136.5	432,015.12	694,799.12	32° 11' 10.173 N	103° 42' 13.206 W
10,900.0	90.00	359.56	9,180.0	1,760.3	-137.2	432,115.11	694,798.36	32° 11' 11.163 N	103° 42' 13.208 W
11,000.0	90.00	359.56	9,180.0	1,860.3	-138.0	432,215.11	694,797.59	32° 11' 12.152 N	103° 42' 13.210 W
11,100.0	90.00	359.56	9,180.0	1,960.3	-138.8	432,315.11	694,796.83	32° 11' 13.142 N	103° 42' 13.212 W
11,200.0	90.00	359.56	9,180.0	2,060.3	-139.5	432,415.11	694,796.07	32° 11' 14.131 N	103° 42' 13.214 W

COG PRODUCTION LLC

Survey Report - Geographic

Company: COG PRODUCTION LLC
 Project: LEA COUNTY, NM
 Site: AVALON SHALE
 Well: AZORES FEDERAL #9H
 Wellbore: OWB
 Design: DWD Plan 1

Local Co-ordinate Reference: Well AZORES FEDERAL #9H
 TVD Reference: 3501 + 20 = 3521 RKB @ 3521.0usft (PATRIOT 2)
 MD Reference: 3501 + 20 = 3521 RKB @ 3521.0usft (PATRIOT 2)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM_Users

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,300.0	90.00	359.56	9,180.0	2,160.3	-140.3	432,515.10	694,795.30	32° 11' 15.121 N	103° 42' 13.216 W
11,400.0	90.00	359.56	9,180.0	2,260.3	-141.1	432,615.10	694,794.54	32° 11' 16.111 N	103° 42' 13.218 W
11,500.0	90.00	359.56	9,180.0	2,360.3	-141.8	432,715.10	694,793.78	32° 11' 17.100 N	103° 42' 13.220 W
11,600.0	90.00	359.56	9,180.0	2,460.3	-142.6	432,815.09	694,793.02	32° 11' 18.090 N	103° 42' 13.222 W
11,700.0	90.00	359.56	9,180.0	2,560.3	-143.3	432,915.09	694,792.25	32° 11' 19.079 N	103° 42' 13.225 W
11,800.0	90.00	359.56	9,180.0	2,660.3	-144.1	433,015.09	694,791.49	32° 11' 20.069 N	103° 42' 13.227 W
11,900.0	90.00	359.56	9,180.0	2,760.3	-144.9	433,115.09	694,790.73	32° 11' 21.059 N	103° 42' 13.229 W
12,000.0	90.00	359.56	9,180.0	2,860.3	-145.6	433,215.08	694,789.97	32° 11' 22.048 N	103° 42' 13.231 W
12,100.0	90.00	359.56	9,180.0	2,960.3	-146.4	433,315.08	694,789.20	32° 11' 23.038 N	103° 42' 13.233 W
12,200.0	90.00	359.56	9,180.0	3,060.3	-147.2	433,415.08	694,788.44	32° 11' 24.027 N	103° 42' 13.235 W
12,300.0	90.00	359.56	9,180.0	3,160.3	-147.9	433,515.07	694,787.68	32° 11' 25.017 N	103° 42' 13.237 W
12,400.0	90.00	359.56	9,180.0	3,260.3	-148.7	433,615.07	694,786.92	32° 11' 26.007 N	103° 42' 13.239 W
12,500.0	90.00	359.56	9,180.0	3,360.3	-149.4	433,715.07	694,786.15	32° 11' 26.996 N	103° 42' 13.241 W
12,600.0	90.00	359.56	9,180.0	3,460.3	-150.2	433,815.07	694,785.39	32° 11' 27.986 N	103° 42' 13.243 W
12,700.0	90.00	359.56	9,180.0	3,560.3	-151.0	433,915.06	694,784.63	32° 11' 28.975 N	103° 42' 13.245 W
12,800.0	90.00	359.56	9,180.0	3,660.3	-151.7	434,015.06	694,783.86	32° 11' 29.965 N	103° 42' 13.247 W
12,900.0	90.00	359.56	9,180.0	3,760.3	-152.5	434,115.06	694,783.10	32° 11' 30.955 N	103° 42' 13.249 W
13,000.0	90.00	359.56	9,180.0	3,860.3	-153.3	434,215.05	694,782.34	32° 11' 31.944 N	103° 42' 13.251 W
13,100.0	90.00	359.56	9,180.0	3,960.3	-154.0	434,315.05	694,781.58	32° 11' 32.934 N	103° 42' 13.253 W
13,200.0	90.00	359.56	9,180.0	4,060.2	-154.8	434,415.05	694,780.81	32° 11' 33.923 N	103° 42' 13.255 W
13,300.0	90.00	359.56	9,180.0	4,160.2	-155.5	434,515.04	694,780.05	32° 11' 34.913 N	103° 42' 13.258 W
13,400.0	90.00	359.56	9,180.0	4,260.2	-156.3	434,615.04	694,779.29	32° 11' 35.903 N	103° 42' 13.260 W
13,500.0	90.00	359.56	9,180.0	4,360.2	-157.1	434,715.04	694,778.53	32° 11' 36.892 N	103° 42' 13.262 W
13,600.0	90.00	359.56	9,180.0	4,460.2	-157.8	434,815.04	694,777.76	32° 11' 37.882 N	103° 42' 13.264 W
13,700.0	90.00	359.56	9,180.0	4,560.2	-158.6	434,915.03	694,777.00	32° 11' 38.871 N	103° 42' 13.266 W
13,800.0	90.00	359.56	9,180.0	4,660.2	-159.4	435,015.03	694,776.24	32° 11' 39.861 N	103° 42' 13.268 W
13,900.0	90.00	359.56	9,180.0	4,760.2	-160.1	435,115.03	694,775.47	32° 11' 40.851 N	103° 42' 13.270 W
14,000.0	90.00	359.56	9,180.0	4,860.2	-160.9	435,215.02	694,774.71	32° 11' 41.840 N	103° 42' 13.272 W
14,007.8	90.00	359.56	9,180.0	4,868.0	-160.9	435,222.81	694,774.65	32° 11' 41.917 N	103° 42' 13.272 W

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Azores Federal	0.00	0.00	0.0	4,868.0	-161.3	435,222.80	694,774.30	32° 11' 41.917 N	103° 42' 13.276 W
- plan misses target center by 4870.7usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									
Azores Federal	0.00	0.00	0.0	0.0	-0.1	430,354.80	694,935.50	32° 10' 53.735 N	103° 42' 11.732 W
- plan misses target center by 0.1usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									
Azores Federal	0.00	0.00	9,180.0	315.5	-126.2	430,670.32	694,809.38	32° 10' 56.864 N	103° 42' 13.178 W
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____