Project: Mustang
Site: DD Section 08
Well: Guttersen DD17-745
Wellbore: Guttersen DD17-745
Design: Plan #1

Northern Region - DJ Basin

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

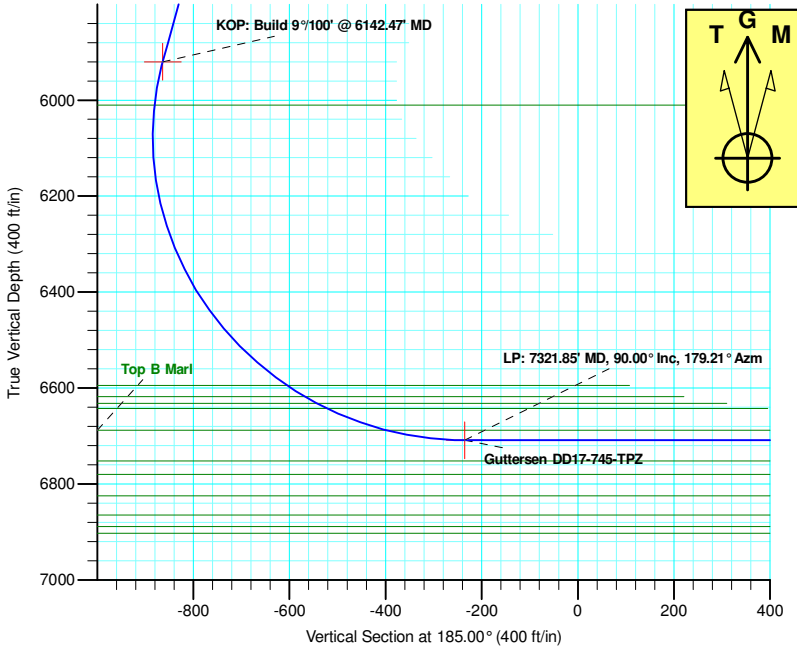
SECTION DETAILS

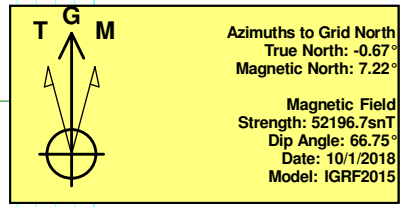
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	3268.66	21.37	318.94	3244.05	148.56	-129.41	2.00	318.94	-136.72	
4	6142.47	21.37	318.94	5920.21	938.29	-817.33	0.00	0.00	-863.49	
5	7321.85	90.00	179.21	6709.00	324.10	-1008.45	9.00	-137.71	-234.97	Guttersen DD17-745-TPZ
6	17564.69	90.00	179.21	6709.00	-9917.77	-867.67	0.00	0.00	9955.66	Guttersen DD17-745-BHL

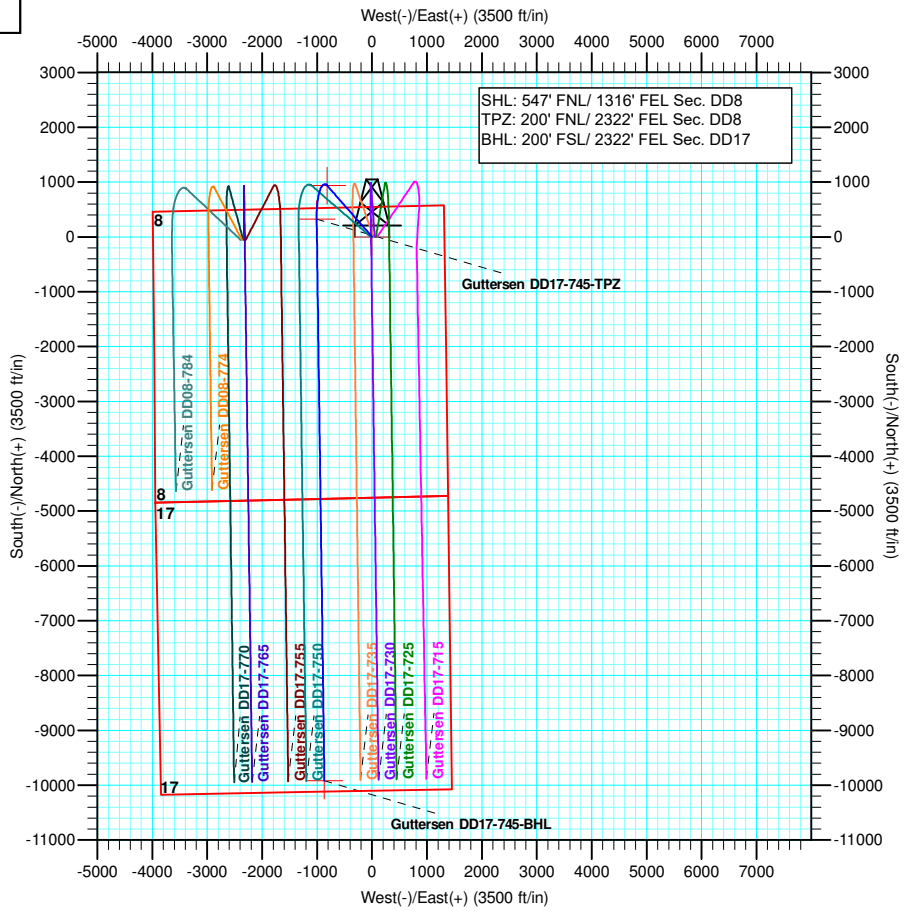
WELL DETAILS: Guttersen DD17-745

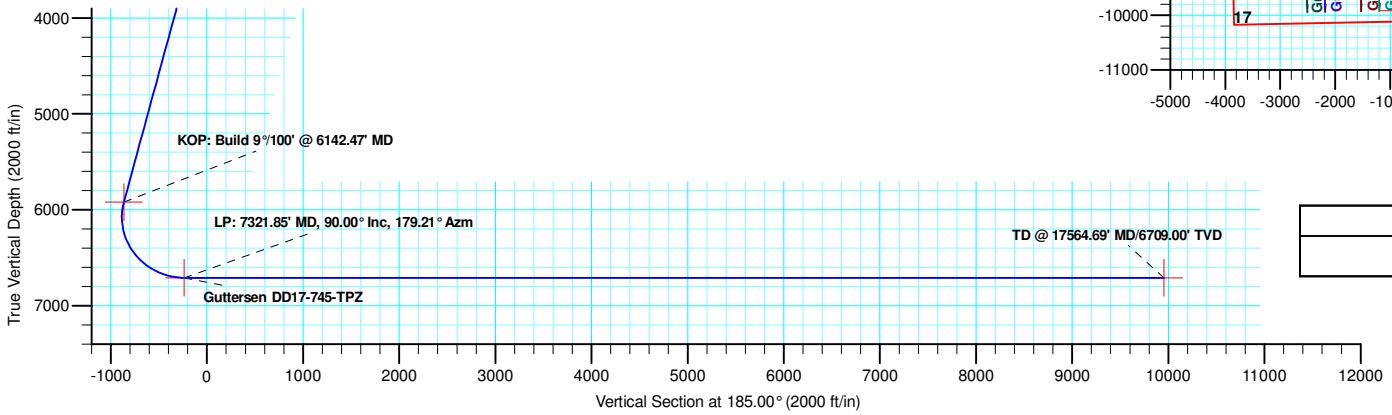
Ground Level: 4869.00

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.00	0.00	1334135.80	3291178.96	40.2459000	-104.4568600	









Plan: Plan #1 (Guttersen DD17-745/Guttersen DD17-745)

Created By: Keith Noack Date: 13:06, October 02 2018

Northern Region - DJ Basin

Mustang
DD Section 08
Guttersen DD17-745

Guttersen DD17-745

Plan: Plan #1

Standard Planning Report

02 October, 2018

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4899.00ft
Project:	Mustang	**MD Reference:**	Well @ 4899.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-745		
Design:	Plan #1		

Project Mustang, Weld County Colorado

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site DD Section 08

Site Position:		**Northing:**	1,330,053.01 usft	**Latitude:**	40.2347995
From:	Map	**Easting:**	3,287,864.30 usft	**Longitude:**	-104.4689036
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.67 °

Well Guttersen DD17-745

Well Position	**+N/-S**	4,082.80 ft	**Northing:**	1,334,135.80 usft	**Latitude:**	40.2459000
	+E/-W	3,314.66 ft	**Easting:**	3,291,178.96 usft	**Longitude:**	-104.4568600
Position Uncertainty		0.00 ft	**Wellhead Elevation:**		**Ground Level:**	4,869.00 ft

Wellbore Guttersen DD17-745

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/1/2018	7.90	66.75	52,196.67884537

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	185.00

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,268.66	21.37	318.94	3,244.05	148.56	-129.41	2.00	2.00	0.00	318.94	
6,142.47	21.37	318.94	5,920.21	938.29	-817.33	0.00	0.00	0.00	0.00	
7,321.85	90.00	179.21	6,709.00	324.10	-1,008.45	9.00	5.82	-11.85	-137.71	Guttersen DD17-74
17,564.69	90.00	179.21	6,709.00	-9,917.77	-867.67	0.00	0.00	0.00	0.00	Guttersen DD17-74

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4899.00ft
Project:	Mustang	**MD Reference:**	Well @ 4899.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-745		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
416.00	0.00	0.00	416.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
756.00	0.00	0.00	756.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,651.00	0.00	0.00	1,651.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Build: 2°/100'									
2,300.00	2.00	318.94	2,299.98	1.32	-1.15	-1.21	2.00	2.00	0.00
2,400.00	4.00	318.94	2,399.84	5.26	-4.58	-4.84	2.00	2.00	0.00
2,500.00	6.00	318.94	2,499.45	11.83	-10.31	-10.89	2.00	2.00	0.00
2,600.00	8.00	318.94	2,598.70	21.02	-18.31	-19.35	2.00	2.00	0.00
2,700.00	10.00	318.94	2,697.47	32.82	-28.59	-30.20	2.00	2.00	0.00
2,800.00	12.00	318.94	2,795.62	47.20	-41.12	-43.44	2.00	2.00	0.00
2,900.00	14.00	318.94	2,893.06	64.17	-55.89	-59.05	2.00	2.00	0.00
3,000.00	16.00	318.94	2,989.64	83.68	-72.89	-77.01	2.00	2.00	0.00
3,100.00	18.00	318.94	3,085.27	105.73	-92.10	-97.30	2.00	2.00	0.00
3,200.00	20.00	318.94	3,179.82	130.27	-113.48	-119.89	2.00	2.00	0.00
3,268.66	21.37	318.94	3,244.05	148.56	-129.41	-136.72	2.00	2.00	0.00
Hold: 21.37° Inc, 318.94° Azm									
3,300.00	21.37	318.94	3,273.23	157.17	-136.91	-144.64	0.00	0.00	0.00
3,400.00	21.37	318.94	3,366.35	184.65	-160.85	-169.93	0.00	0.00	0.00
3,500.00	21.37	318.94	3,459.48	212.14	-184.79	-195.22	0.00	0.00	0.00
3,600.00	21.37	318.94	3,552.60	239.62	-208.73	-220.51	0.00	0.00	0.00
3,700.00	21.37	318.94	3,645.72	267.10	-232.66	-245.80	0.00	0.00	0.00
3,800.00	21.37	318.94	3,738.84	294.58	-256.60	-271.09	0.00	0.00	0.00
3,856.01	21.37	318.94	3,791.00	309.97	-270.01	-285.26	0.00	0.00	0.00
Parkman									
3,900.00	21.37	318.94	3,831.97	322.06	-280.54	-296.38	0.00	0.00	0.00
4,000.00	21.37	318.94	3,925.09	349.54	-304.48	-321.67	0.00	0.00	0.00
4,100.00	21.37	318.94	4,018.21	377.02	-328.41	-346.96	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
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Project:	Mustang	**MD Reference:**	Well @ 4899.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-745		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,200.00	21.37	318.94	4,111.34	404.50	-352.35	-372.25	0.00	0.00	0.00
4,274.81	21.37	318.94	4,181.00	425.06	-370.26	-391.17	0.00	0.00	0.00
Sussex									
4,300.00	21.37	318.94	4,204.46	431.98	-376.29	-397.54	0.00	0.00	0.00
4,400.00	21.37	318.94	4,297.58	459.46	-400.23	-422.83	0.00	0.00	0.00
4,500.00	21.37	318.94	4,390.70	486.94	-424.16	-448.12	0.00	0.00	0.00
4,600.00	21.37	318.94	4,483.83	514.42	-448.10	-473.41	0.00	0.00	0.00
4,700.00	21.37	318.94	4,576.95	541.90	-472.04	-498.70	0.00	0.00	0.00
4,800.00	21.37	318.94	4,670.07	569.38	-495.98	-523.99	0.00	0.00	0.00
4,900.00	21.37	318.94	4,763.19	596.86	-519.92	-549.28	0.00	0.00	0.00
5,000.00	21.37	318.94	4,856.32	624.34	-543.85	-574.57	0.00	0.00	0.00
5,100.00	21.37	318.94	4,949.44	651.82	-567.79	-599.85	0.00	0.00	0.00
5,112.42	21.37	318.94	4,961.00	655.23	-570.76	-602.99	0.00	0.00	0.00
Shannon									
5,200.00	21.37	318.94	5,042.56	679.30	-591.73	-625.14	0.00	0.00	0.00
5,300.00	21.37	318.94	5,135.68	706.78	-615.67	-650.43	0.00	0.00	0.00
5,400.00	21.37	318.94	5,228.81	734.26	-639.60	-675.72	0.00	0.00	0.00
5,500.00	21.37	318.94	5,321.93	761.74	-663.54	-701.01	0.00	0.00	0.00
5,600.00	21.37	318.94	5,415.05	789.22	-687.48	-726.30	0.00	0.00	0.00
5,700.00	21.37	318.94	5,508.17	816.70	-711.42	-751.59	0.00	0.00	0.00
5,800.00	21.37	318.94	5,601.30	844.18	-735.35	-776.88	0.00	0.00	0.00
5,900.00	21.37	318.94	5,694.42	871.66	-759.29	-802.17	0.00	0.00	0.00
6,000.00	21.37	318.94	5,787.54	899.14	-783.23	-827.46	0.00	0.00	0.00
6,100.00	21.37	318.94	5,880.66	926.62	-807.17	-852.75	0.00	0.00	0.00
6,142.47	21.37	318.94	5,920.21	938.29	-817.33	-863.49	0.00	0.00	0.00
KOP: Build 9°/100' @ 6142.47' MD									
6,150.00	20.88	317.66	5,927.24	940.32	-819.14	-865.35	9.00	-6.59	-17.00
6,200.00	17.87	307.53	5,974.41	951.58	-831.23	-875.52	9.00	-6.01	-20.27
6,237.20	16.07	297.82	6,010.00	957.47	-840.31	-880.59	9.00	-4.83	-26.09
Teepee Buttes									
6,250.00	15.57	294.02	6,022.32	958.99	-843.45	-881.83	9.00	-3.92	-29.71
6,300.00	14.33	277.18	6,070.64	962.50	-855.73	-884.26	9.00	-2.49	-33.67
6,350.00	14.42	258.99	6,119.10	962.08	-867.98	-882.78	9.00	0.17	-36.39
6,400.00	15.81	242.51	6,167.40	957.75	-880.14	-877.40	9.00	2.79	-32.96
6,450.00	18.22	229.45	6,215.22	949.52	-892.13	-868.15	9.00	4.81	-26.11
6,500.00	21.29	219.69	6,262.29	937.45	-903.87	-855.11	9.00	6.15	-19.52
6,550.00	24.79	212.43	6,308.30	921.61	-915.29	-838.33	9.00	6.99	-14.52
6,600.00	28.55	206.92	6,352.98	902.10	-926.33	-817.93	9.00	7.53	-11.02
6,650.00	32.49	202.62	6,396.05	879.04	-936.91	-794.04	9.00	7.88	-8.60
6,700.00	36.54	199.17	6,437.24	852.57	-946.96	-766.79	9.00	8.11	-6.90
6,750.00	40.68	196.33	6,476.31	822.85	-956.44	-736.36	9.00	8.27	-5.68
6,800.00	44.88	193.93	6,513.00	790.08	-965.27	-702.94	9.00	8.39	-4.80
6,850.00	49.11	191.86	6,547.10	754.44	-973.41	-666.73	9.00	8.48	-4.13
6,900.00	53.39	190.05	6,578.39	716.16	-980.80	-627.96	9.00	8.54	-3.63
6,928.69	55.85	189.09	6,595.00	693.10	-984.68	-604.64	9.00	8.58	-3.32
Sharon Springs									
6,950.00	57.68	188.42	6,606.68	675.48	-987.40	-586.86	9.00	8.60	-3.16
6,971.74	59.56	187.76	6,618.00	657.11	-990.01	-568.33	9.00	8.62	-3.03
Top A Chalk									
7,000.00	62.00	186.94	6,631.80	632.65	-993.16	-543.69	9.00	8.64	-2.90
7,000.44	62.04	186.93	6,632.00	632.27	-993.21	-543.30	9.00	8.65	-2.83
Top A Marl									
7,024.74	64.14	186.26	6,643.00	610.74	-995.70	-521.64	9.00	8.65	-2.78

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
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Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-745		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Top B Chalk									
7,050.00	66.33	185.58	6,653.58	587.93	-998.06	-498.71	9.00	8.67	-2.68
7,100.00	70.67	184.30	6,671.91	541.59	-1,002.06	-452.20	9.00	8.68	-2.55
7,150.00	75.02	183.09	6,686.65	493.93	-1,005.13	-404.45	9.00	8.70	-2.42
7,155.29	75.48	182.97	6,688.00	488.82	-1,005.40	-399.34	9.00	8.71	-2.36
Top B Marl									
7,200.00	79.37	181.93	6,697.73	445.23	-1,007.27	-355.75	9.00	8.71	-2.32
7,250.00	83.73	180.80	6,705.08	395.80	-1,008.45	-306.41	9.00	8.72	-2.26
7,300.00	88.09	179.70	6,708.64	345.94	-1,008.66	-256.72	9.00	8.72	-2.22
7,321.85	90.00	179.21	6,709.00	324.10	-1,008.45	-234.97	9.00	8.73	-2.21
LP: 7321.85' MD, 90.00° Inc, 179.21° Azm									
7,400.00	90.00	179.21	6,709.00	245.96	-1,007.38	-157.22	0.00	0.00	0.00
7,500.00	90.00	179.21	6,709.00	145.97	-1,006.01	-57.73	0.00	0.00	0.00
7,600.00	90.00	179.21	6,709.00	45.98	-1,004.63	41.76	0.00	0.00	0.00
7,700.00	90.00	179.21	6,709.00	-54.02	-1,003.26	141.25	0.00	0.00	0.00
7,800.00	90.00	179.21	6,709.00	-154.01	-1,001.88	240.74	0.00	0.00	0.00
7,900.00	90.00	179.21	6,709.00	-254.00	-1,000.51	340.23	0.00	0.00	0.00
8,000.00	90.00	179.21	6,709.00	-353.99	-999.13	439.72	0.00	0.00	0.00
8,100.00	90.00	179.21	6,709.00	-453.98	-997.76	539.21	0.00	0.00	0.00
8,200.00	90.00	179.21	6,709.00	-553.97	-996.39	638.70	0.00	0.00	0.00
8,300.00	90.00	179.21	6,709.00	-653.96	-995.01	738.19	0.00	0.00	0.00
8,400.00	90.00	179.21	6,709.00	-753.95	-993.64	837.68	0.00	0.00	0.00
8,500.00	90.00	179.21	6,709.00	-853.94	-992.26	937.17	0.00	0.00	0.00
8,600.00	90.00	179.21	6,709.00	-953.93	-990.89	1,036.66	0.00	0.00	0.00
8,700.00	90.00	179.21	6,709.00	-1,053.92	-989.51	1,136.15	0.00	0.00	0.00
8,800.00	90.00	179.21	6,709.00	-1,153.91	-988.14	1,235.64	0.00	0.00	0.00
8,900.00	90.00	179.21	6,709.00	-1,253.90	-986.76	1,335.13	0.00	0.00	0.00
9,000.00	90.00	179.21	6,709.00	-1,353.89	-985.39	1,434.62	0.00	0.00	0.00
9,100.00	90.00	179.21	6,709.00	-1,453.88	-984.02	1,534.11	0.00	0.00	0.00
9,200.00	90.00	179.21	6,709.00	-1,553.87	-982.64	1,633.60	0.00	0.00	0.00
9,300.00	90.00	179.21	6,709.00	-1,653.86	-981.27	1,733.09	0.00	0.00	0.00
9,400.00	90.00	179.21	6,709.00	-1,753.85	-979.89	1,832.58	0.00	0.00	0.00
9,500.00	90.00	179.21	6,709.00	-1,853.85	-978.52	1,932.07	0.00	0.00	0.00
9,600.00	90.00	179.21	6,709.00	-1,953.84	-977.14	2,031.56	0.00	0.00	0.00
9,700.00	90.00	179.21	6,709.00	-2,053.83	-975.77	2,131.05	0.00	0.00	0.00
9,800.00	90.00	179.21	6,709.00	-2,153.82	-974.39	2,230.54	0.00	0.00	0.00
9,900.00	90.00	179.21	6,709.00	-2,253.81	-973.02	2,330.03	0.00	0.00	0.00
10,000.00	90.00	179.21	6,709.00	-2,353.80	-971.65	2,429.52	0.00	0.00	0.00
10,100.00	90.00	179.21	6,709.00	-2,453.79	-970.27	2,529.01	0.00	0.00	0.00
10,200.00	90.00	179.21	6,709.00	-2,553.78	-968.90	2,628.50	0.00	0.00	0.00
10,300.00	90.00	179.21	6,709.00	-2,653.77	-967.52	2,728.00	0.00	0.00	0.00
10,400.00	90.00	179.21	6,709.00	-2,753.76	-966.15	2,827.49	0.00	0.00	0.00
10,500.00	90.00	179.21	6,709.00	-2,853.75	-964.77	2,926.98	0.00	0.00	0.00
10,600.00	90.00	179.21	6,709.00	-2,953.74	-963.40	3,026.47	0.00	0.00	0.00
10,700.00	90.00	179.21	6,709.00	-3,053.73	-962.02	3,125.96	0.00	0.00	0.00
10,800.00	90.00	179.21	6,709.00	-3,153.72	-960.65	3,225.45	0.00	0.00	0.00
10,900.00	90.00	179.21	6,709.00	-3,253.71	-959.28	3,324.94	0.00	0.00	0.00
11,000.00	90.00	179.21	6,709.00	-3,353.70	-957.90	3,424.43	0.00	0.00	0.00
11,100.00	90.00	179.21	6,709.00	-3,453.69	-956.53	3,523.92	0.00	0.00	0.00
11,200.00	90.00	179.21	6,709.00	-3,553.68	-955.15	3,623.41	0.00	0.00	0.00
11,300.00	90.00	179.21	6,709.00	-3,653.68	-953.78	3,722.90	0.00	0.00	0.00
11,400.00	90.00	179.21	6,709.00	-3,753.67	-952.40	3,822.39	0.00	0.00	0.00
11,500.00	90.00	179.21	6,709.00	-3,853.66	-951.03	3,921.88	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4899.00ft
Project:	Mustang	**MD Reference:**	Well @ 4899.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-745		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,600.00	90.00	179.21	6,709.00	-3,953.65	-949.65	4,021.37	0.00	0.00	0.00
11,700.00	90.00	179.21	6,709.00	-4,053.64	-948.28	4,120.86	0.00	0.00	0.00
11,800.00	90.00	179.21	6,709.00	-4,153.63	-946.91	4,220.35	0.00	0.00	0.00
11,900.00	90.00	179.21	6,709.00	-4,253.62	-945.53	4,319.84	0.00	0.00	0.00
12,000.00	90.00	179.21	6,709.00	-4,353.61	-944.16	4,419.33	0.00	0.00	0.00
12,100.00	90.00	179.21	6,709.00	-4,453.60	-942.78	4,518.82	0.00	0.00	0.00
12,200.00	90.00	179.21	6,709.00	-4,553.59	-941.41	4,618.31	0.00	0.00	0.00
12,300.00	90.00	179.21	6,709.00	-4,653.58	-940.03	4,717.80	0.00	0.00	0.00
12,400.00	90.00	179.21	6,709.00	-4,753.57	-938.66	4,817.29	0.00	0.00	0.00
12,500.00	90.00	179.21	6,709.00	-4,853.56	-937.28	4,916.78	0.00	0.00	0.00
12,600.00	90.00	179.21	6,709.00	-4,953.55	-935.91	5,016.27	0.00	0.00	0.00
12,700.00	90.00	179.21	6,709.00	-5,053.54	-934.54	5,115.76	0.00	0.00	0.00
12,800.00	90.00	179.21	6,709.00	-5,153.53	-933.16	5,215.25	0.00	0.00	0.00
12,900.00	90.00	179.21	6,709.00	-5,253.52	-931.79	5,314.74	0.00	0.00	0.00
13,000.00	90.00	179.21	6,709.00	-5,353.51	-930.41	5,414.23	0.00	0.00	0.00
13,100.00	90.00	179.21	6,709.00	-5,453.51	-929.04	5,513.72	0.00	0.00	0.00
13,200.00	90.00	179.21	6,709.00	-5,553.50	-927.66	5,613.21	0.00	0.00	0.00
13,300.00	90.00	179.21	6,709.00	-5,653.49	-926.29	5,712.70	0.00	0.00	0.00
13,400.00	90.00	179.21	6,709.00	-5,753.48	-924.91	5,812.19	0.00	0.00	0.00
13,500.00	90.00	179.21	6,709.00	-5,853.47	-923.54	5,911.68	0.00	0.00	0.00
13,600.00	90.00	179.21	6,709.00	-5,953.46	-922.17	6,011.17	0.00	0.00	0.00
13,700.00	90.00	179.21	6,709.00	-6,053.45	-920.79	6,110.67	0.00	0.00	0.00
13,800.00	90.00	179.21	6,709.00	-6,153.44	-919.42	6,210.16	0.00	0.00	0.00
13,900.00	90.00	179.21	6,709.00	-6,253.43	-918.04	6,309.65	0.00	0.00	0.00
14,000.00	90.00	179.21	6,709.00	-6,353.42	-916.67	6,409.14	0.00	0.00	0.00
14,100.00	90.00	179.21	6,709.00	-6,453.41	-915.29	6,508.63	0.00	0.00	0.00
14,200.00	90.00	179.21	6,709.00	-6,553.40	-913.92	6,608.12	0.00	0.00	0.00
14,300.00	90.00	179.21	6,709.00	-6,653.39	-912.54	6,707.61	0.00	0.00	0.00
14,400.00	90.00	179.21	6,709.00	-6,753.38	-911.17	6,807.10	0.00	0.00	0.00
14,500.00	90.00	179.21	6,709.00	-6,853.37	-909.80	6,906.59	0.00	0.00	0.00
14,600.00	90.00	179.21	6,709.00	-6,953.36	-908.42	7,006.08	0.00	0.00	0.00
14,700.00	90.00	179.21	6,709.00	-7,053.35	-907.05	7,105.57	0.00	0.00	0.00
14,800.00	90.00	179.21	6,709.00	-7,153.34	-905.67	7,205.06	0.00	0.00	0.00
14,900.00	90.00	179.21	6,709.00	-7,253.34	-904.30	7,304.55	0.00	0.00	0.00
15,000.00	90.00	179.21	6,709.00	-7,353.33	-902.92	7,404.04	0.00	0.00	0.00
15,100.00	90.00	179.21	6,709.00	-7,453.32	-901.55	7,503.53	0.00	0.00	0.00
15,200.00	90.00	179.21	6,709.00	-7,553.31	-900.18	7,603.02	0.00	0.00	0.00
15,300.00	90.00	179.21	6,709.00	-7,653.30	-898.80	7,702.51	0.00	0.00	0.00
15,400.00	90.00	179.21	6,709.00	-7,753.29	-897.43	7,802.00	0.00	0.00	0.00
15,500.00	90.00	179.21	6,709.00	-7,853.28	-896.05	7,901.49	0.00	0.00	0.00
15,600.00	90.00	179.21	6,709.00	-7,953.27	-894.68	8,000.98	0.00	0.00	0.00
15,700.00	90.00	179.21	6,709.00	-8,053.26	-893.30	8,100.47	0.00	0.00	0.00
15,800.00	90.00	179.21	6,709.00	-8,153.25	-891.93	8,199.96	0.00	0.00	0.00
15,900.00	90.00	179.21	6,709.00	-8,253.24	-890.55	8,299.45	0.00	0.00	0.00
16,000.00	90.00	179.21	6,709.00	-8,353.23	-889.18	8,398.94	0.00	0.00	0.00
16,100.00	90.00	179.21	6,709.00	-8,453.22	-887.81	8,498.43	0.00	0.00	0.00
16,200.00	90.00	179.21	6,709.00	-8,553.21	-886.43	8,597.92	0.00	0.00	0.00
16,300.00	90.00	179.21	6,709.00	-8,653.20	-885.06	8,697.41	0.00	0.00	0.00
16,400.00	90.00	179.21	6,709.00	-8,753.19	-883.68	8,796.90	0.00	0.00	0.00
16,500.00	90.00	179.21	6,709.00	-8,853.18	-882.31	8,896.39	0.00	0.00	0.00
16,600.00	90.00	179.21	6,709.00	-8,953.17	-880.93	8,995.88	0.00	0.00	0.00
16,700.00	90.00	179.21	6,709.00	-9,053.17	-879.56	9,095.37	0.00	0.00	0.00
16,800.00	90.00	179.21	6,709.00	-9,153.16	-878.18	9,194.86	0.00	0.00	0.00
16,900.00	90.00	179.21	6,709.00	-9,253.15	-876.81	9,294.35	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4899.00ft
Project:	Mustang	**MD Reference:**	Well @ 4899.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-745		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,000.00	90.00	179.21	6,709.00	-9,353.14	-875.44	9,393.84	0.00	0.00	0.00
17,100.00	90.00	179.21	6,709.00	-9,453.13	-874.06	9,493.34	0.00	0.00	0.00
17,200.00	90.00	179.21	6,709.00	-9,553.12	-872.69	9,592.83	0.00	0.00	0.00
17,300.00	90.00	179.21	6,709.00	-9,653.11	-871.31	9,692.32	0.00	0.00	0.00
17,400.00	90.00	179.21	6,709.00	-9,753.10	-869.94	9,791.81	0.00	0.00	0.00
17,500.00	90.00	179.21	6,709.00	-9,853.09	-868.56	9,891.30	0.00	0.00	0.00
17,564.69	90.00	179.21	6,709.00	-9,917.77	-867.67	9,955.66	0.00	0.00	0.00
TD @ 17564.69' MD/6709.00' TVD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Guttersen DD17-745- - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,334,135.80	3,291,178.96	40.2459000	-104.4568600
Guttersen DD17-745- - plan hits target center - Point	0.00	0.00	5,920.21	938.29	-817.33	1,335,074.10	3,290,361.63	40.2485019	-104.4597484
Guttersen DD17-745- - plan hits target center - Point	0.00	0.00	6,709.00	-9,917.77	-867.67	1,324,218.05	3,290,311.29	40.2187046	-104.4603846
Guttersen DD17-745- - plan hits target center - Point	0.00	0.00	6,709.00	324.10	-1,008.45	1,334,459.90	3,290,170.51	40.2468221	-104.4604588

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
416.00	416.00	Pierre			
756.00	756.00	Upper Pierre Aquifer Top			
1,651.00	1,651.00	Upper Pierre Aquifer Base			
3,856.01	3,791.00	Parkman			
4,274.81	4,181.00	Sussex			
5,112.42	4,961.00	Shannon			
6,237.20	6,010.00	Teepee Buttes			
6,928.69	6,595.00	Sharon Springs			
6,971.74	6,618.00	Top A Chalk			
7,000.44	6,632.00	Top A Marl			
7,024.74	6,643.00	Top B Chalk			
7,155.29	6,688.00	Top B Marl			

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4899.00ft
Project:	Mustang	**MD Reference:**	Well @ 4899.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-745		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'
3,268.66	3,244.05	148.56	-129.41	Hold: 21.37° Inc, 318.94° Azm
6,142.47	5,920.21	938.29	-817.33	KOP: Build 9°/100' @ 6142.47' MD
7,321.85	6,709.00	324.10	-1,008.45	LP: 7321.85' MD, 90.00° Inc, 179.21° Azm
17,564.69	6,709.00	-9,917.77	-867.67	TD @ 17564.69' MD/6709.00' TVD

Northern Region - DJ Basin

Mustang
DD Section 08
Guttersen DD17-745

Guttersen DD17-745
Plan #1

Anticollision Summary Report

02 October, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Project:	Mustang	**TVD Reference:**	Well @ 4899.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4899.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-745	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00 ft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 10/1/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,564.69	Plan #1 (Guttersen DD17-745)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
DD Section 05						
Guttersen 1N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	3,923.55	3,806.00	393.78	368.55	15.603	CC, ES
Guttersen 1N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	4,000.00	3,861.79	396.91	371.28	15.490	SF
Guttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	4,767.57	4,623.68	191.41	158.02	5.732	CC, ES
Guttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	4,800.00	4,653.69	191.79	158.18	5.706	SF
Guttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	4,991.69	4,817.36	278.80	244.30	8.081	CC
Guttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	5,000.00	4,824.57	278.82	244.27	8.071	ES
Guttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	6,850.00	6,568.14	319.89	272.33	6.725	SF
Guttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	6,939.09	6,530.67	1,429.74	1,384.24	31.418	CC, ES
Guttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	6,950.00	6,528.31	1,429.80	1,384.28	31.411	SF
Guttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	7,052.20	6,175.01	2,394.10	2,346.33	50.115	CC, ES
Guttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	7,250.00	6,185.95	2,402.74	2,354.62	49.930	SF
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	6,695.50	6,379.30	2,105.90	2,059.71	45.597	CC
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	6,700.00	6,383.10	2,105.90	2,059.70	45.575	ES
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	6,900.00	6,557.62	2,122.53	2,075.49	45.118	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Project:	Mustang	**TVD Reference:**	Well @ 4899.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4899.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-745	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
DD Section 08						
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	7,775.01	6,690.00	328.14	169.10	2.063	CC, ES, SF
GUTTERSEN #32-8(PA) - GUTTERSEN #32-8 - No Surv	9,108.28	6,710.00	317.09	153.67	1.940	CC, ES, SF
GUTTERSEN #33-8 (PA) - GUTTERSEN #33-8 - No Sur	10,423.36	6,700.00	322.83	152.72	1.898	CC, ES, SF
GUTTERSEN #34-8(PA) - GUTTERSEN #34-8 - No Surv	11,731.27	6,690.00	381.62	203.29	2.140	CC, ES, SF
GUTTERSEN #42-8(PA) - GUTTERSEN #42-8 - No Surv	2,200.00	2,171.00	1,585.89	1,534.82	31.051	CC
GUTTERSEN #42-8(PA) - GUTTERSEN #42-8 - No Surv	9,103.65	6,680.00	1,659.86	1,497.07	10.196	ES
GUTTERSEN #42-8(PA) - GUTTERSEN #42-8 - No Surv	9,200.00	6,680.00	1,662.66	1,499.57	10.195	SF
GUTTERSEN #43-8 (PA) - GUTTERSEN #43-8 - No Sur	10,425.99	6,700.00	1,648.91	1,478.79	9.693	CC, ES
GUTTERSEN #43-8 (PA) - GUTTERSEN #43-8 - No Sur	10,500.00	6,700.00	1,650.57	1,480.16	9.686	SF
Guttersen 08C - Wellbore #1 - Wellbore #1 - As Drilled	0.00	0.00	772.53			
Guttersen 08C - Wellbore #1 - Wellbore #1 - As Drilled	2,223.21	2,219.98	780.64	765.35	51.039	ES
Guttersen 08C - Wellbore #1 - Wellbore #1 - As Drilled	8,417.00	6,683.07	1,046.40	996.71	21.059	SF
Guttersen 08D - Wellbore #1 - Wellbore #1 - As Drilled	11,104.85	6,707.52	950.81	887.30	14.972	CC, ES, SF
Guttersen 41-08 - Wellbore #1 - Wellbore #1 - As Drilled	100.00	75.81	850.36	850.11	3,324.695	CC
Guttersen 41-08 - Wellbore #1 - Wellbore #1 - As Drilled	300.00	272.70	851.01	849.70	649.110	ES
Guttersen 41-08 - Wellbore #1 - Wellbore #1 - As Drilled	7,700.00	6,680.12	1,877.01	1,829.72	39.693	SF
Guttersen 44-08 - Wellbore #1 - Wellbore #1 - As Drilled	11,792.83	6,711.61	1,705.45	1,550.89	11.034	CC
Guttersen 44-08 - Wellbore #1 - Wellbore #1 - As Drilled	11,800.00	6,711.67	1,705.47	1,550.87	11.032	ES
Guttersen 44-08 - Wellbore #1 - Wellbore #1 - As Drilled	11,900.00	6,712.58	1,708.82	1,553.76	11.021	SF
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	6,910.15	6,551.02	1,963.29	1,914.63	40.346	CC
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	12,300.00	12,243.71	1,974.85	1,878.90	20.583	ES
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	12,500.00	12,243.71	1,990.93	1,893.58	20.451	SF
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	3,702.43	3,153.96	2,338.95	2,315.29	98.856	CC, ES
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	12,700.00	12,287.22	2,668.22	2,568.46	26.747	SF
Guttersen DD17-715 - Guttersen DD17-715 - Plan #1	2,200.00	2,195.00	92.19	76.90	6.030	CC, ES
Guttersen DD17-715 - Guttersen DD17-715 - Plan #1	2,300.00	2,293.36	94.20	78.20	5.890	SF
Guttersen DD17-725 - Guttersen DD17-725 - Plan #1	2,200.00	2,204.00	69.88	54.56	4.561	CC, ES
Guttersen DD17-725 - Guttersen DD17-725 - Plan #1	2,300.00	2,304.02	71.09	55.06	4.433	SF
Guttersen DD17-730 - Guttersen DD17-730 - Plan #1	2,200.00	2,197.00	47.46	32.16	3.102	CC, ES
Guttersen DD17-730 - Guttersen DD17-730 - Plan #1	2,300.00	2,297.08	48.49	32.48	3.029	SF
Guttersen DD17-735 - Guttersen DD17-735 - Plan #1	2,200.00	2,198.00	25.12	9.82	1.642	CC
Guttersen DD17-735 - Guttersen DD17-735 - Plan #1	2,300.00	2,298.27	25.72	9.71	1.606	ES, SF
Guttersen DD17-750 - Guttersen DD17-750 - Plan #1	2,200.00	2,201.00	22.33	7.02	1.459	Level 3, CC
Guttersen DD17-750 - Guttersen DD17-750 - Plan #1	2,400.00	2,399.83	23.06	6.36	1.380	Level 3, ES
Guttersen DD17-750 - Guttersen DD17-750 - Plan #1	2,500.00	2,499.24	23.96	6.57	1.378	Level 3, SF
Guttersen DD17-755 - Guttersen DD17-755 - Plan #1	7,321.99	7,353.11	663.01	613.96	13.517	CC
Guttersen DD17-755 - Guttersen DD17-755 - Plan #1	17,564.69	17,585.55	663.15	486.58	3.756	ES, SF
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	7,321.83	7,205.63	1,314.56	1,265.57	26.833	CC
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	17,564.69	17,448.47	1,314.84	1,137.99	7.435	ES, SF
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	7,212.25	7,172.70	1,652.03	1,603.19	33.821	CC
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	17,564.69	17,623.68	1,652.84	1,476.87	9.393	ES, SF
Guttersen State DD08-11 - Wellbore #1 - Wellbore #1 - A	10,404.91	6,704.45	918.60	859.44	15.528	CC, ES
Guttersen State DD08-11 - Wellbore #1 - Wellbore #1 - A	10,500.00	6,705.08	923.50	863.57	15.408	SF
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	11,660.62	6,728.01	2,390.38	2,323.26	35.613	CC, ES
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	12,100.00	6,731.94	2,430.42	2,360.18	34.603	SF
L F RANCHES #1(DA) - L F RANCHES #1 - No Surveys	2,200.00	2,156.00	659.38	608.61	12.987	CC
L F RANCHES #1(DA) - L F RANCHES #1 - No Surveys	2,300.00	2,255.98	660.26	607.13	12.427	ES
L F RANCHES #1(DA) - L F RANCHES #1 - No Surveys	3,200.00	3,135.82	760.79	686.91	10.298	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Project:	Mustang	**TVD Reference:**	Well @ 4899.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4899.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-745	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
DD Section 17						
Guttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,647.36	6,664.51	1,100.42	1,003.83	11.392	CC, ES
Guttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,700.00	6,664.58	1,101.68	1,004.55	11.342	SF
Guttersen State DD17-78HN - Original Drilling - Original	17,564.69	6,685.03	2,328.28	2,219.12	21.329	CC, ES, SF
Guttersen State DD17-78HN - Original Drilling - ST01 - S	15,372.14	8,691.11	2,325.02	2,212.18	20.604	CC
Guttersen State DD17-78HN - Original Drilling - ST01 - S	16,500.00	16,500.00	2,346.99	2,139.07	11.288	ES, SF
Guttersen State DD17-79-1HN - Original Drilling - Origina	15,600.00	15,600.00	2,671.17	2,450.08	12.082	ES, SF
Guttersen State DD17-79-1HN - Original Drilling - Origina	16,123.89	7,900.00	2,645.00	2,535.95	24.254	CC
Guttersen State DD17-79HN - Original Drilling - Original	13,500.00	13,500.00	2,923.60	2,738.70	15.812	ES, SF
Guttersen State DD17-79HN - Original Drilling - Original	14,870.66	9,227.00	2,883.49	2,764.53	24.239	CC
Guttersen USX DD17-19 - Origianal Drilling - Original Dri	13,624.63	6,660.72	1,772.12	1,690.93	21.825	CC, ES
Guttersen USX DD17-19 - Origianal Drilling - Original Dri	13,900.00	6,660.11	1,793.39	1,710.10	21.532	SF
DD Section 18						
Guttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	16,519.83	6,715.04	4,388.09	4,285.67	42.844	CC, ES
Guttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,500.00	6,727.91	4,496.21	4,387.03	41.180	SF
Guttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,156.68	6,688.16	6,271.65	6,164.02	58.267	CC
Guttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,200.00	6,688.16	6,271.80	6,163.80	58.070	ES
Guttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,564.69	6,688.21	6,284.91	6,173.95	56.641	SF
Guttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,750.84	6,637.82	4,978.88	4,881.60	51.177	CC
Guttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,800.00	6,638.13	4,979.13	4,881.42	50.960	ES
Guttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,000.00	6,645.81	5,133.19	5,027.33	48.492	SF
Guttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,192.61	6,657.31	5,059.69	4,952.16	47.055	CC
Guttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,200.00	6,657.23	5,059.69	4,952.10	47.027	ES
Guttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,564.69	6,653.37	5,073.35	4,962.79	45.889	SF
Guttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,758.71	6,656.77	3,781.73	3,682.24	38.010	CC
Guttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,800.00	6,656.94	3,781.95	3,682.10	37.874	ES
Guttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	16,500.00	6,659.93	3,853.70	3,748.91	36.777	SF
Guttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,127.91	6,660.39	3,716.71	3,609.76	34.752	CC, ES
Guttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,564.69	6,659.57	3,742.29	3,631.94	33.913	SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	16,098.59	6,570.09	6,660.94	6,561.10	66.719	CC
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	16,200.00	6,570.28	6,661.71	6,561.03	66.164	ES
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,564.69	6,572.67	6,820.38	6,709.94	61.759	SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	15,713.58	6,649.26	7,797.78	7,696.49	76.985	CC
Karch Blue DD18-12 - Original Drilling - Original Drilling -	15,800.00	6,648.90	7,798.26	7,696.26	76.454	ES
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,564.69	6,641.57	8,014.48	7,899.90	69.949	SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,200.43	6,794.15	7,853.22	7,744.21	72.039	CC
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,300.00	6,792.32	7,853.85	7,744.01	71.502	ES
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,564.69	6,787.46	7,861.66	7,749.68	70.205	SF
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	17,564.69	6,615.93	2,396.25	2,295.76	23.846	CC, ES, SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	17,564.69	6,699.61	4,573.03	4,509.89	72.420	CC, ES, SF

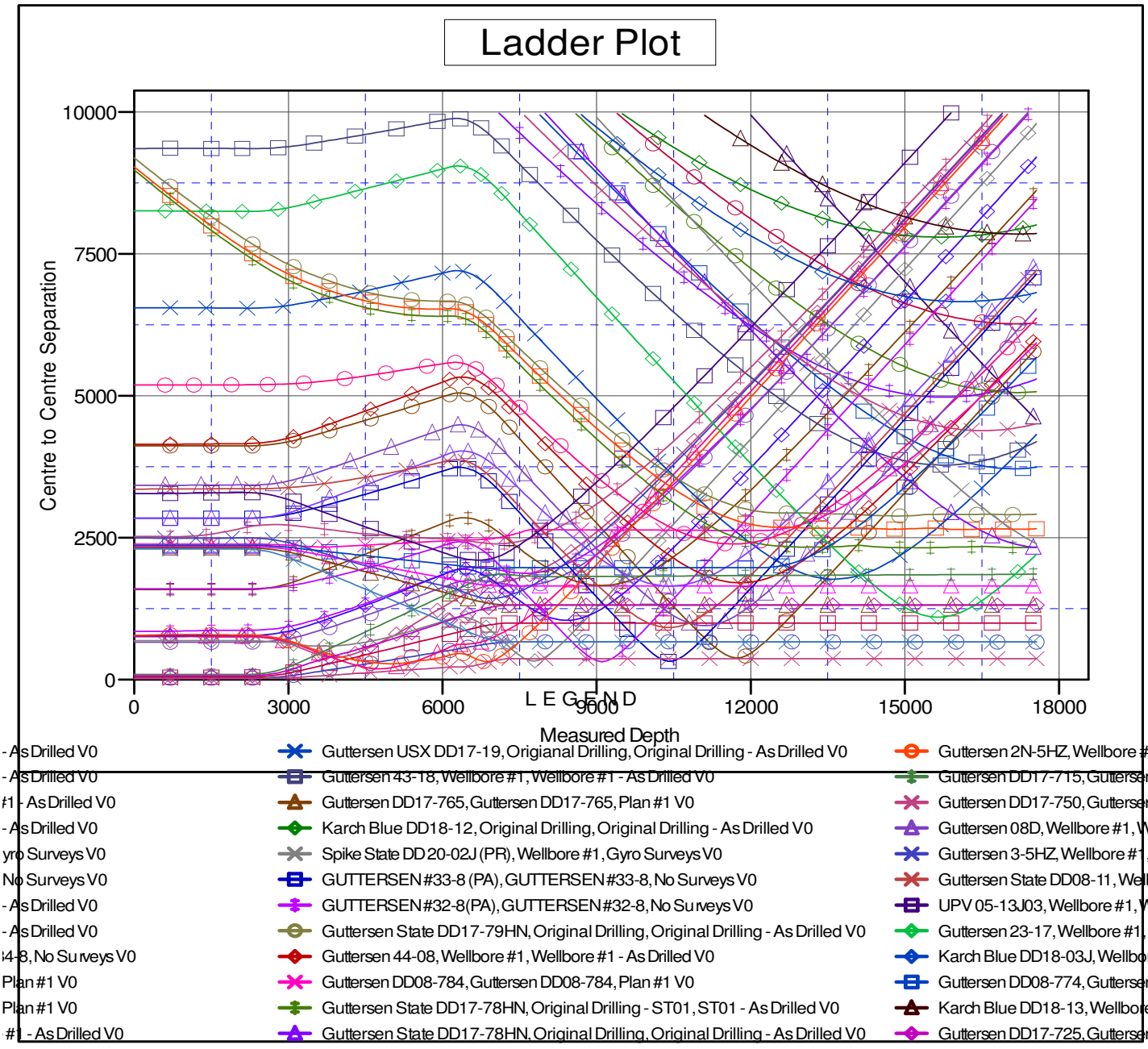
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Project:	Mustang	**TVD Reference:**	Well @ 4899.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4899.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-745	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to Well @ 4899.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen DD17-745
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.67°



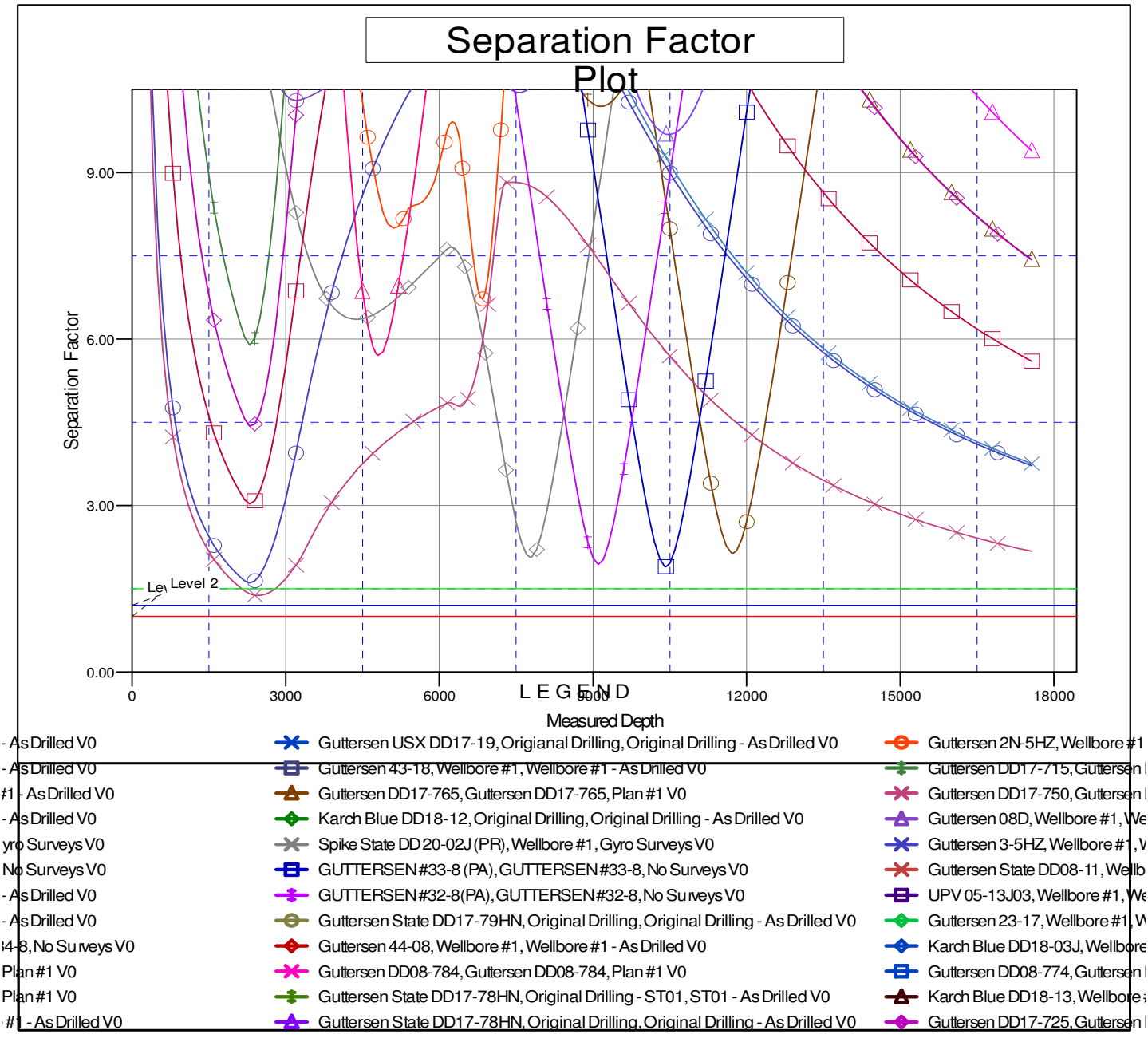
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-745
Project:	Mustang	**TVD Reference:**	Well @ 4899.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4899.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-745	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-745	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to Well @ 4899.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen DD17-745
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.67°



CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation