MALLARD EXPLORATION

WELD COUNTY, COLORADO (NAD 83)
SE SW SEC. 34 T8N R60W 6th P.M.
GREEN TEAL FED 34-27-4HN

ORIGINAL WELLBORE

06 September, 2017

Plan: PROPOSAL 1

MALLARD EXPLORATION

Project: WELD COUNTY, COLORADO (NAD 83)
Site: SE SW SEC. 34 T8N R60W 6th P.M.
Well: GREEN TEAL FED 34-27-4HN
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 500ft FSL & 1742ft FWL of Sec 34
400.0	400.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)
995.6	1000.0	12.00	220.64	-47.5	-40.8	-46.6	62.6	EOB TO 12° INC
3343.5	3400.4	12.00	220.64	-426.2	-365.8	-418.4	561.7	END OF TANGENT
3939.2	4000.4	0.00	0.00	-473.7	-406.6	-465.0	624.3	EOD TO VERTICAL
5702.0	5763.2	0.00	0.00	-473.7	-406.6	-465.0	624.3	KOP (10°/100ft BUR)
6275.0	6663.2	90.00	1.18	99.1	-394.8	107.5	1197.2	HZ LP: 600ft FSL & 1345ft FWL of Sec 34
6275.0	16057.6	90.00	1.19	9491.5	-200.7	9493.6	10591.6	BHL: 600ft FNL & 1345ft FWL of Sec 27

PROPOSED LOCAL COORDINATES:

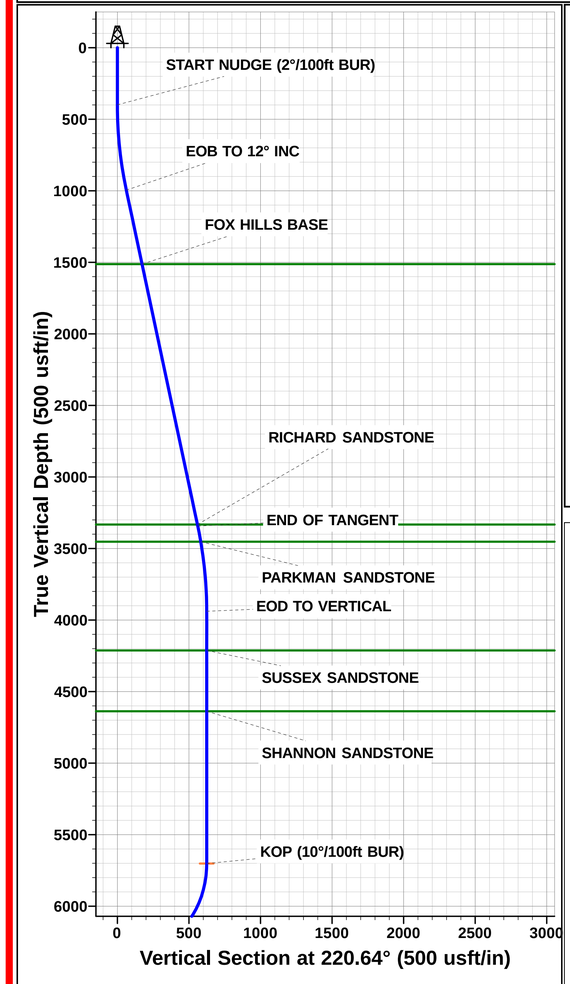
SHL: 500ft FSL & 1742ft FWL Sec 34

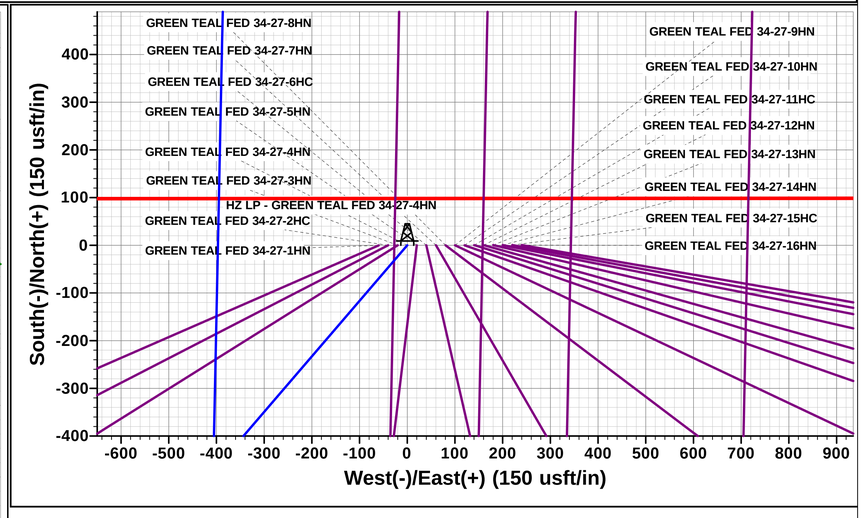
HZ LP: 600ft FSL & 1345ft FWL Sec 34

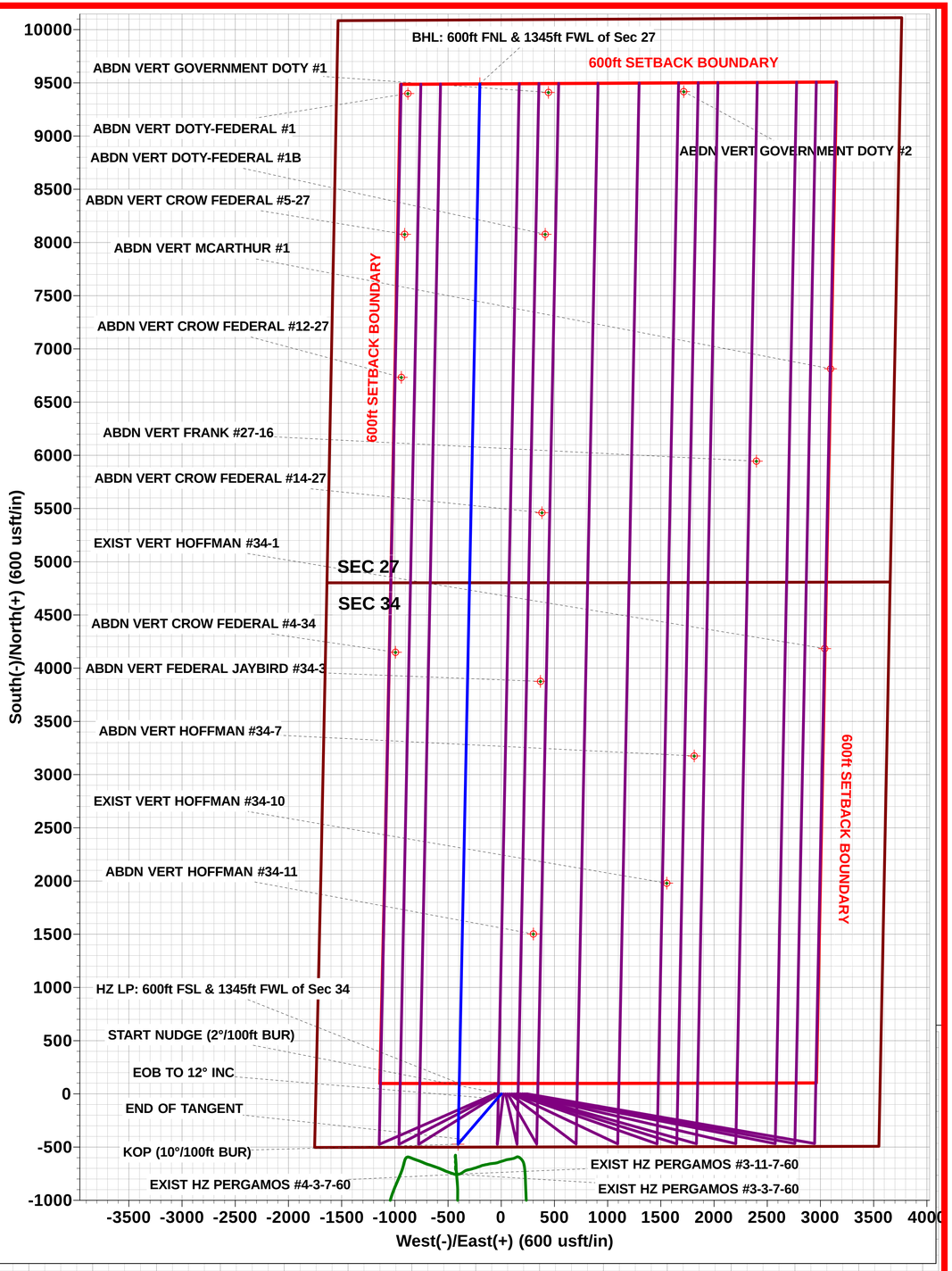
BHL: 600ft FNL & 1345ft FWL of Sec 27

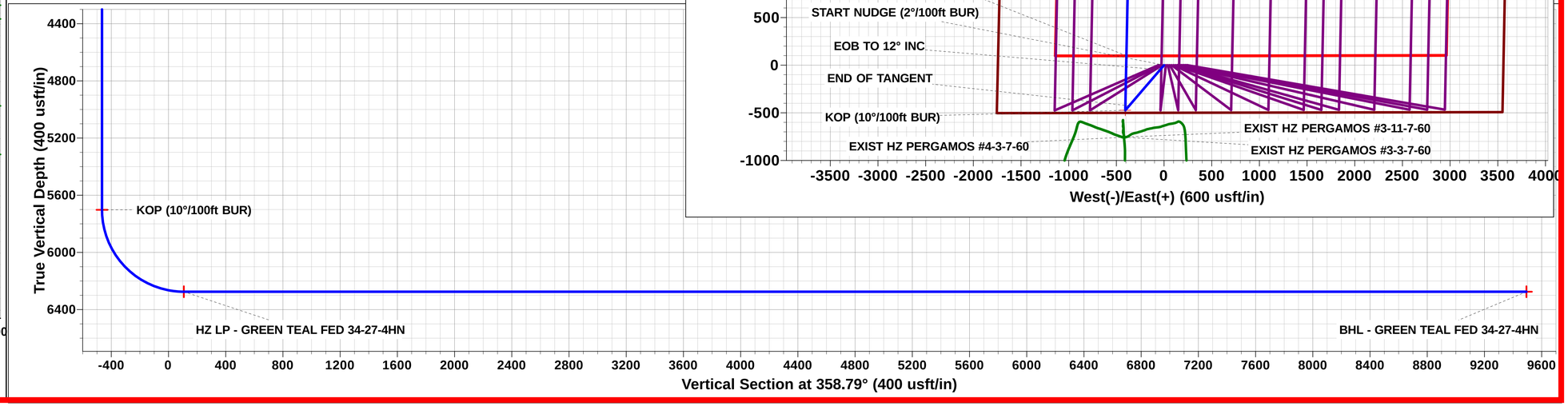
WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - GREEN TEAL FED 34-27-4HN	5702.0	-473.7	-406.6	40.611576	-104.083155
HZ LP - GREEN TEAL FED 34-27-4HN	6275.0	99.1	-394.8	40.613148	-104.083113
BHL - GREEN TEAL FED 34-27-4HN	6275.0	9491.5	-200.7	40.638928	-104.082414









Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well GREEN TEAL FED 34-27-4HN
Company:	MALLARD EXPLORATION	**TVD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	**MD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Site:	SE SW SEC. 34 T8N R60W 6th P.M.	**North Reference:**	True
Well:	GREEN TEAL FED 34-27-4HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Project WELD COUNTY, COLORADO (NAD 83)

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

Site SE SW SEC. 34 T8N R60W 6th P.M.

Site Position:		**Northing:**	1,469,260.15 usft	**Latitude:**	40.612875
From:	Lat/Long	**Easting:**	3,393,696.59 usft	**Longitude:**	-104.081907
Position Uncertainty:	0.0 usft	**Slot Radius:**	1.10000 ft	**Grid Convergence:**	0.92 °

Well GREEN TEAL FED 34-27-4HN

Well Position	**+N/-S**	0.3 usft	**Northing:**	1,469,261.44 usft	**Latitude:**	40.612876
	+E/-W	60.0 usft	**Easting:**	3,393,756.55 usft	**Longitude:**	-104.081691
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	4,923.0 usft

Wellbore ORIGINAL WELLBORE

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	06/09/2017	7.83	67.12	52,546

Design PROPOSAL 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	358.79

Plan Sections

MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf	Build Rate (°/100usf	Turn Rate (°/100usf	TFO (°)	Target
0.0	0.00	0.00	0.0	-4,939.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	-4,539.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	12.00	220.64	995.6	-3,943.4	-47.5	-40.8	2.00	2.00	0.00	220.64	
3,400.4	12.00	220.64	3,343.5	-1,595.5	-426.2	-365.8	0.00	0.00	0.00	0.00	
4,000.4	0.00	0.00	3,939.2	-999.8	-473.7	-406.6	2.00	-2.00	0.00	180.00	
5,763.2	0.00	0.00	5,702.0	763.0	-473.7	-406.6	0.00	0.00	0.00	0.00	KOP - GREEN TEA
6,663.2	90.00	1.18	6,275.0	1,336.0	99.1	-394.8	10.00	10.00	0.13	1.18	HZ LP - GREEN TE
16,057.6	90.00	1.19	6,275.0	1,336.0	9,491.5	-200.7	0.00	0.00	0.00	44.78	BHL - GREEN TEA

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Project:	WELD COUNTY, COLORADO (NAD 83)	**MD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Site:	SE SW SEC. 34 T8N R60W 6th P.M.	**North Reference:**	True
Well:	GREEN TEAL FED 34-27-4HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHL: 500ft FSL & 1742ft FWL of Sec 34										
0.0	***0.00***	***0.00***	***0.0***	***4,939.00***	***0.0***	***0.0***	***0.0***	***0.00***	***0.00***	***0.00***
100.0	0.00	0.00	100.0	4,839.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,739.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,639.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
400.0	***0.00***	***0.00***	***400.0***	***4,539.00***	***0.0***	***0.0***	***0.0***	***0.00***	***0.00***	***0.00***
500.0	2.00	220.64	500.0	4,439.02	-1.3	-1.1	-1.3	2.00	2.00	0.00
600.0	4.00	220.64	599.8	4,339.16	-5.3	-4.5	-5.2	2.00	2.00	0.00
700.0	6.00	220.64	699.5	4,239.55	-11.9	-10.2	-11.7	2.00	2.00	0.00
800.0	8.00	220.64	798.7	4,140.30	-21.2	-18.2	-20.8	2.00	2.00	0.00
900.0	10.00	220.64	897.5	4,041.53	-33.0	-28.3	-32.4	2.00	2.00	0.00
EOB TO 12° INC										
1,000.0	***12.00***	***220.64***	***995.6***	***3,943.38***	***-47.5***	***-40.8***	***-46.6***	***2.00***	***2.00***	***0.00***
1,100.0	12.00	220.64	1,093.4	3,845.56	-63.3	-54.3	-62.1	0.00	0.00	0.00
1,200.0	12.00	220.64	1,191.3	3,747.75	-79.1	-67.9	-77.6	0.00	0.00	0.00
1,300.0	12.00	220.64	1,289.1	3,649.93	-94.8	-81.4	-93.1	0.00	0.00	0.00
1,400.0	12.00	220.64	1,386.9	3,552.12	-110.6	-94.9	-108.6	0.00	0.00	0.00
1,500.0	12.00	220.64	1,484.7	3,454.30	-126.4	-108.5	-124.1	0.00	0.00	0.00
FOX HILLS BASE										
1,528.9	***12.00***	***220.64***	***1,513.0***	***3,426.00***	***-131.0***	***-112.4***	***-128.5***	***0.00***	***0.00***	***0.00***
1,600.0	12.00	220.64	1,582.5	3,356.49	-142.2	-122.0	-139.6	0.00	0.00	0.00
1,700.0	12.00	220.64	1,680.3	3,258.67	-157.9	-135.6	-155.0	0.00	0.00	0.00
1,800.0	12.00	220.64	1,778.1	3,160.86	-173.7	-149.1	-170.5	0.00	0.00	0.00
1,900.0	12.00	220.64	1,876.0	3,063.04	-189.5	-162.6	-186.0	0.00	0.00	0.00
2,000.0	12.00	220.64	1,973.8	2,965.23	-205.3	-176.2	-201.5	0.00	0.00	0.00
2,100.0	12.00	220.64	2,071.6	2,867.41	-221.0	-189.7	-217.0	0.00	0.00	0.00
2,200.0	12.00	220.64	2,169.4	2,769.60	-236.8	-203.3	-232.5	0.00	0.00	0.00
2,300.0	12.00	220.64	2,267.2	2,671.78	-252.6	-216.8	-248.0	0.00	0.00	0.00
2,400.0	12.00	220.64	2,365.0	2,573.97	-268.4	-230.4	-263.4	0.00	0.00	0.00
2,500.0	12.00	220.64	2,462.8	2,476.16	-284.1	-243.9	-278.9	0.00	0.00	0.00
2,600.0	12.00	220.64	2,560.7	2,378.34	-299.9	-257.4	-294.4	0.00	0.00	0.00
2,700.0	12.00	220.64	2,658.5	2,280.53	-315.7	-271.0	-309.9	0.00	0.00	0.00
2,800.0	12.00	220.64	2,756.3	2,182.71	-331.5	-284.5	-325.4	0.00	0.00	0.00
2,900.0	12.00	220.64	2,854.1	2,084.90	-347.3	-298.1	-340.9	0.00	0.00	0.00
3,000.0	12.00	220.64	2,951.9	1,987.08	-363.0	-311.6	-356.4	0.00	0.00	0.00
3,100.0	12.00	220.64	3,049.7	1,889.27	-378.8	-325.1	-371.9	0.00	0.00	0.00
3,200.0	12.00	220.64	3,147.5	1,791.45	-394.6	-338.7	-387.3	0.00	0.00	0.00
3,300.0	12.00	220.64	3,245.4	1,693.64	-410.4	-352.2	-402.8	0.00	0.00	0.00
RICHARD SANDSTONE										
3,389.6	***12.00***	***220.64***	***3,333.0***	***1,606.00***	***-424.5***	***-364.4***	***-416.7***	***0.00***	***0.00***	***0.00***
3,400.0	12.00	220.64	3,343.2	1,595.82	-426.1	-365.8	-418.3	0.00	0.00	0.00
END OF TANGENT										
3,400.4	***12.00***	***220.64***	***3,343.5***	***1,595.45***	***-426.2***	***-365.8***	***-418.4***	***0.00***	***0.00***	***0.00***
3,500.0	10.01	220.64	3,441.3	1,497.67	-440.6	-378.2	-432.5	2.00	-2.00	0.00
PARKMAN SANDSTONE										
3,511.8	***9.77***	***220.64***	***3,453.0***	***1,486.00***	***-442.2***	***-379.5***	***-434.0***	***2.00***	***-2.00***	***0.00***
3,600.0	8.01	220.64	3,540.1	1,398.91	-452.5	-388.4	-444.2	2.00	-2.00	0.00
3,700.0	6.01	220.64	3,639.3	1,299.66	-461.8	-396.4	-453.3	2.00	-2.00	0.00
3,800.0	4.01	220.64	3,739.0	1,200.04	-468.4	-402.0	-459.8	2.00	-2.00	0.00
3,900.0	2.01	220.64	3,838.8	1,100.19	-472.4	-405.5	-463.7	2.00	-2.00	0.00
4,000.0	0.01	220.64	3,938.8	1,000.21	-473.7	-406.6	-465.0	2.00	-2.00	0.00
EOD TO VERTICAL										

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Well:	GREEN TEAL FED 34-27-4HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,000.4	***0.00***	***0.00***	***3,939.2***	***999.83***	***-473.7***	***-406.6***	***-465.0***	***2.00***	***-2.00***	***0.00***
4,100.0	0.00	0.00	4,038.8	900.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,138.8	800.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
SUSSEX SANDSTONE										
4,274.2	***0.00***	***0.00***	***4,213.0***	***726.00***	***-473.7***	***-406.6***	***-465.0***	***0.00***	***0.00***	***0.00***
4,300.0	0.00	0.00	4,238.8	700.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,338.8	600.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,438.8	500.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,538.8	400.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
SHANNON SANDSTONE										
4,699.2	***0.00***	***0.00***	***4,638.0***	***301.00***	***-473.7***	***-406.6***	***-465.0***	***0.00***	***0.00***	***0.00***
4,700.0	0.00	0.00	4,638.8	300.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,738.8	200.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,838.8	100.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
5,000.0	0.00	0.00	4,938.8	0.21	-473.7	-406.6	-465.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,038.8	-99.79	-473.7	-406.6	-465.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,138.8	-199.79	-473.7	-406.6	-465.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,238.8	-299.79	-473.7	-406.6	-465.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,338.8	-399.79	-473.7	-406.6	-465.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,438.8	-499.79	-473.7	-406.6	-465.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,538.8	-599.79	-473.7	-406.6	-465.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,638.8	-699.79	-473.7	-406.6	-465.0	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,763.2	***0.00***	***0.00***	***5,702.0***	***-763.00***	***-473.7***	***-406.6***	***-465.0***	***0.00***	***0.00***	***0.00***
5,800.0	3.68	1.18	5,738.8	-799.77	-472.5	-406.6	-463.8	10.00	10.00	0.00
5,900.0	13.68	1.18	5,837.5	-898.50	-457.5	-406.3	-448.8	10.00	10.00	0.00
6,000.0	23.68	1.18	5,932.1	-993.11	-425.5	-405.6	-416.8	10.00	10.00	0.00
6,100.0	33.68	1.18	6,019.7	-1,080.73	-377.6	-404.6	-368.9	10.00	10.00	0.00
6,200.0	43.68	1.18	6,097.7	-1,158.70	-315.2	-403.3	-306.6	10.00	10.00	0.00
SHARON SPRINGS										
6,204.6	***44.13***	***1.18***	***6,101.0***	***-1,162.00***	***-312.0***	***-403.3***	***-303.4***	***10.00***	***10.00***	***0.00***
6,300.0	53.68	1.18	6,163.7	-1,224.65	-240.2	-401.8	-231.6	10.00	10.00	0.00
NIOBRARA A CHALK										
6,312.6	***54.93***	***1.18***	***6,171.0***	***-1,232.00***	***-229.9***	***-401.6***	***-221.4***	***10.00***	***10.00***	***0.00***
NIOBRARA A CHALK BASE										
6,364.8	***60.15***	***1.18***	***6,199.0***	***-1,260.00***	***-185.9***	***-400.7***	***-177.4***	***10.00***	***10.00***	***0.00***
6,400.0	63.67	1.18	6,215.6	-1,276.57	-154.9	-400.0	-146.4	10.00	10.00	0.00
NIOBRARA B1 CHALK TOP										
6,424.6	***66.13***	***1.18***	***6,226.0***	***-1,287.00***	***-132.6***	***-399.6***	***-124.1***	***10.00***	***10.00***	***0.00***
6,500.0	73.67	1.18	6,251.9	-1,312.89	-61.9	-398.1	-53.4	10.00	10.00	0.00
NIOBRARA B1 CHALK BASE										
6,504.0	***74.07***	***1.18***	***6,253.0***	***-1,314.00***	***-58.0***	***-398.0***	***-49.6***	***10.00***	***10.00***	***0.00***
6,600.0	83.67	1.18	6,271.5	-1,332.51	36.0	-396.1	44.4	10.00	10.00	0.00
HZ LP: 600ft FSL & 1345ft FWL of Sec 34 - NIOBRARA B2 CHALK TOP										
6,663.2	***90.00***	***1.18***	***6,275.0***	***-1,336.00***	***99.1***	***-394.8***	***107.5***	***10.00***	***10.00***	***0.00***
6,700.0	90.00	1.18	6,275.0	-1,336.00	135.9	-394.0	144.2	0.00	0.00	0.00
6,800.0	90.00	1.18	6,275.0	-1,336.01	235.9	-392.0	244.1	0.00	0.00	0.00
6,900.0	90.00	1.18	6,275.0	-1,336.02	335.9	-389.9	344.0	0.00	0.00	0.00
7,000.0	90.00	1.18	6,275.0	-1,336.03	435.8	-387.9	443.9	0.00	0.00	0.00
7,100.0	90.00	1.18	6,275.0	-1,336.03	535.8	-385.8	543.8	0.00	0.00	0.00
7,200.0	90.00	1.18	6,275.0	-1,336.04	635.8	-383.8	643.8	0.00	0.00	0.00
7,300.0	90.00	1.18	6,275.0	-1,336.05	735.8	-381.7	743.7	0.00	0.00	0.00
7,400.0	90.00	1.18	6,275.1	-1,336.06	835.7	-379.6	843.6	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well GREEN TEAL FED 34-27-4HN
Company:	MALLARD EXPLORATION	**TVD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	**MD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Site:	SE SW SEC. 34 T8N R60W 6th P.M.	**North Reference:**	True
Well:	GREEN TEAL FED 34-27-4HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,500.0	90.00	1.18	6,275.1	-1,336.06	935.7	-377.6	943.5	0.00	0.00	0.00
7,600.0	90.00	1.18	6,275.1	-1,336.07	1,035.7	-375.5	1,043.4	0.00	0.00	0.00
7,700.0	90.00	1.18	6,275.1	-1,336.08	1,135.7	-373.5	1,143.3	0.00	0.00	0.00
7,800.0	90.00	1.18	6,275.1	-1,336.08	1,235.7	-371.4	1,243.2	0.00	0.00	0.00
7,900.0	90.00	1.18	6,275.1	-1,336.09	1,335.6	-369.3	1,343.2	0.00	0.00	0.00
8,000.0	90.00	1.18	6,275.1	-1,336.09	1,435.6	-367.3	1,443.1	0.00	0.00	0.00
8,100.0	90.00	1.18	6,275.1	-1,336.10	1,535.6	-365.2	1,543.0	0.00	0.00	0.00
8,200.0	90.00	1.18	6,275.1	-1,336.11	1,635.6	-363.2	1,642.9	0.00	0.00	0.00
8,300.0	90.00	1.18	6,275.1	-1,336.11	1,735.6	-361.1	1,742.8	0.00	0.00	0.00
8,400.0	90.00	1.18	6,275.1	-1,336.12	1,835.5	-359.0	1,842.7	0.00	0.00	0.00
8,500.0	90.00	1.18	6,275.1	-1,336.12	1,935.5	-357.0	1,942.6	0.00	0.00	0.00
8,600.0	90.00	1.18	6,275.1	-1,336.13	2,035.5	-354.9	2,042.5	0.00	0.00	0.00
8,700.0	90.00	1.18	6,275.1	-1,336.13	2,135.5	-352.8	2,142.5	0.00	0.00	0.00
8,800.0	90.00	1.18	6,275.1	-1,336.14	2,235.5	-350.8	2,242.4	0.00	0.00	0.00
8,900.0	90.00	1.18	6,275.1	-1,336.14	2,335.4	-348.7	2,342.3	0.00	0.00	0.00
9,000.0	90.00	1.18	6,275.1	-1,336.14	2,435.4	-346.7	2,442.2	0.00	0.00	0.00
9,100.0	90.00	1.18	6,275.1	-1,336.15	2,535.4	-344.6	2,542.1	0.00	0.00	0.00
9,200.0	90.00	1.18	6,275.2	-1,336.15	2,635.4	-342.5	2,642.0	0.00	0.00	0.00
9,300.0	90.00	1.18	6,275.2	-1,336.16	2,735.3	-340.5	2,741.9	0.00	0.00	0.00
9,400.0	90.00	1.18	6,275.2	-1,336.16	2,835.3	-338.4	2,841.8	0.00	0.00	0.00
9,500.0	90.00	1.18	6,275.2	-1,336.16	2,935.3	-336.3	2,941.8	0.00	0.00	0.00
9,600.0	90.00	1.18	6,275.2	-1,336.17	3,035.3	-334.3	3,041.7	0.00	0.00	0.00
9,700.0	90.00	1.18	6,275.2	-1,336.17	3,135.3	-332.2	3,141.6	0.00	0.00	0.00
9,800.0	90.00	1.18	6,275.2	-1,336.17	3,235.2	-330.1	3,241.5	0.00	0.00	0.00
9,900.0	90.00	1.18	6,275.2	-1,336.17	3,335.2	-328.1	3,341.4	0.00	0.00	0.00
10,000.0	90.00	1.18	6,275.2	-1,336.18	3,435.2	-326.0	3,441.3	0.00	0.00	0.00
10,100.0	90.00	1.18	6,275.2	-1,336.18	3,535.2	-324.0	3,541.2	0.00	0.00	0.00
10,200.0	90.00	1.18	6,275.2	-1,336.18	3,635.2	-321.9	3,641.1	0.00	0.00	0.00
10,300.0	90.00	1.18	6,275.2	-1,336.18	3,735.1	-319.8	3,741.1	0.00	0.00	0.00
10,400.0	90.00	1.18	6,275.2	-1,336.18	3,835.1	-317.8	3,841.0	0.00	0.00	0.00
10,500.0	90.00	1.18	6,275.2	-1,336.19	3,935.1	-315.7	3,940.9	0.00	0.00	0.00
10,600.0	90.00	1.18	6,275.2	-1,336.19	4,035.1	-313.6	4,040.8	0.00	0.00	0.00
10,700.0	90.00	1.18	6,275.2	-1,336.19	4,135.0	-311.6	4,140.7	0.00	0.00	0.00
10,800.0	90.00	1.18	6,275.2	-1,336.19	4,235.0	-309.5	4,240.6	0.00	0.00	0.00
10,900.0	90.00	1.18	6,275.2	-1,336.19	4,335.0	-307.4	4,340.5	0.00	0.00	0.00
11,000.0	90.00	1.18	6,275.2	-1,336.19	4,435.0	-305.4	4,440.4	0.00	0.00	0.00
11,100.0	90.00	1.18	6,275.2	-1,336.19	4,535.0	-303.3	4,540.4	0.00	0.00	0.00
11,200.0	90.00	1.18	6,275.2	-1,336.19	4,634.9	-301.2	4,640.3	0.00	0.00	0.00
11,300.0	90.00	1.18	6,275.2	-1,336.19	4,734.9	-299.2	4,740.2	0.00	0.00	0.00
11,400.0	90.00	1.18	6,275.2	-1,336.19	4,834.9	-297.1	4,840.1	0.00	0.00	0.00
11,500.0	90.00	1.18	6,275.2	-1,336.19	4,934.9	-295.0	4,940.0	0.00	0.00	0.00
11,600.0	90.00	1.18	6,275.2	-1,336.19	5,034.9	-293.0	5,039.9	0.00	0.00	0.00
11,700.0	90.00	1.18	6,275.2	-1,336.19	5,134.8	-290.9	5,139.8	0.00	0.00	0.00
11,800.0	90.00	1.18	6,275.2	-1,336.19	5,234.8	-288.8	5,239.7	0.00	0.00	0.00
11,900.0	90.00	1.18	6,275.2	-1,336.19	5,334.8	-286.8	5,339.7	0.00	0.00	0.00
12,000.0	90.00	1.18	6,275.2	-1,336.19	5,434.8	-284.7	5,439.6	0.00	0.00	0.00
12,100.0	90.00	1.18	6,275.2	-1,336.19	5,534.7	-282.6	5,539.5	0.00	0.00	0.00
12,200.0	90.00	1.19	6,275.2	-1,336.19	5,634.7	-280.6	5,639.4	0.00	0.00	0.00
12,300.0	90.00	1.19	6,275.2	-1,336.18	5,734.7	-278.5	5,739.3	0.00	0.00	0.00
12,400.0	90.00	1.19	6,275.2	-1,336.18	5,834.7	-276.4	5,839.2	0.00	0.00	0.00
12,500.0	90.00	1.19	6,275.2	-1,336.18	5,934.7	-274.4	5,939.1	0.00	0.00	0.00
12,600.0	90.00	1.19	6,275.2	-1,336.18	6,034.6	-272.3	6,039.0	0.00	0.00	0.00
12,700.0	90.00	1.19	6,275.2	-1,336.18	6,134.6	-270.2	6,139.0	0.00	0.00	0.00
12,800.0	90.00	1.19	6,275.2	-1,336.17	6,234.6	-268.2	6,238.9	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well GREEN TEAL FED 34-27-4HN
Company:	MALLARD EXPLORATION	**TVD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	**MD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Site:	SE SW SEC. 34 T8N R60W 6th P.M.	**North Reference:**	True
Well:	GREEN TEAL FED 34-27-4HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,900.0	90.00	1.19	6,275.2	-1,336.17	6,334.6	-266.1	6,338.8	0.00	0.00	0.00
13,000.0	90.00	1.19	6,275.2	-1,336.17	6,434.6	-264.0	6,438.7	0.00	0.00	0.00
13,100.0	90.00	1.19	6,275.2	-1,336.17	6,534.5	-261.9	6,538.6	0.00	0.00	0.00
13,200.0	90.00	1.19	6,275.2	-1,336.16	6,634.5	-259.9	6,638.5	0.00	0.00	0.00
13,300.0	90.00	1.19	6,275.2	-1,336.16	6,734.5	-257.8	6,738.4	0.00	0.00	0.00
13,400.0	90.00	1.19	6,275.2	-1,336.16	6,834.5	-255.7	6,838.3	0.00	0.00	0.00
13,500.0	90.00	1.19	6,275.2	-1,336.15	6,934.4	-253.7	6,938.3	0.00	0.00	0.00
13,600.0	90.00	1.19	6,275.1	-1,336.15	7,034.4	-251.6	7,038.2	0.00	0.00	0.00
13,700.0	90.00	1.19	6,275.1	-1,336.14	7,134.4	-249.5	7,138.1	0.00	0.00	0.00
13,800.0	90.00	1.19	6,275.1	-1,336.14	7,234.4	-247.5	7,238.0	0.00	0.00	0.00
13,900.0	90.00	1.19	6,275.1	-1,336.14	7,334.4	-245.4	7,337.9	0.00	0.00	0.00
14,000.0	90.00	1.19	6,275.1	-1,336.13	7,434.3	-243.3	7,437.8	0.00	0.00	0.00
14,100.0	90.00	1.19	6,275.1	-1,336.13	7,534.3	-241.2	7,537.7	0.00	0.00	0.00
14,200.0	90.00	1.19	6,275.1	-1,336.12	7,634.3	-239.2	7,637.6	0.00	0.00	0.00
14,300.0	90.00	1.19	6,275.1	-1,336.12	7,734.3	-237.1	7,737.6	0.00	0.00	0.00
14,400.0	90.00	1.19	6,275.1	-1,336.11	7,834.3	-235.0	7,837.5	0.00	0.00	0.00
14,500.0	90.00	1.19	6,275.1	-1,336.11	7,934.2	-233.0	7,937.4	0.00	0.00	0.00
14,600.0	90.00	1.19	6,275.1	-1,336.10	8,034.2	-230.9	8,037.3	0.00	0.00	0.00
14,700.0	90.00	1.19	6,275.1	-1,336.10	8,134.2	-228.8	8,137.2	0.00	0.00	0.00
14,800.0	90.00	1.19	6,275.1	-1,336.09	8,234.2	-226.7	8,237.1	0.00	0.00	0.00
14,900.0	90.00	1.19	6,275.1	-1,336.08	8,334.1	-224.7	8,337.0	0.00	0.00	0.00
15,000.0	90.00	1.19	6,275.1	-1,336.08	8,434.1	-222.6	8,436.9	0.00	0.00	0.00
15,100.0	90.00	1.19	6,275.1	-1,336.07	8,534.1	-220.5	8,536.9	0.00	0.00	0.00
15,200.0	90.00	1.19	6,275.1	-1,336.06	8,634.1	-218.4	8,636.8	0.00	0.00	0.00
15,300.0	90.00	1.19	6,275.1	-1,336.06	8,734.1	-216.4	8,736.7	0.00	0.00	0.00
15,400.0	90.00	1.19	6,275.1	-1,336.05	8,834.0	-214.3	8,836.6	0.00	0.00	0.00
15,500.0	90.00	1.19	6,275.0	-1,336.04	8,934.0	-212.2	8,936.5	0.00	0.00	0.00
15,600.0	90.00	1.19	6,275.0	-1,336.04	9,034.0	-210.1	9,036.4	0.00	0.00	0.00
15,700.0	90.00	1.19	6,275.0	-1,336.03	9,134.0	-208.1	9,136.3	0.00	0.00	0.00
15,800.0	90.00	1.19	6,275.0	-1,336.02	9,234.0	-206.0	9,236.2	0.00	0.00	0.00
15,900.0	90.00	1.19	6,275.0	-1,336.01	9,333.9	-203.9	9,336.2	0.00	0.00	0.00
16,000.0	90.00	1.19	6,275.0	-1,336.00	9,433.9	-201.9	9,436.1	0.00	0.00	0.00
BHL: 600ft FNL & 1345ft FWL of Sec 27										
16,057.6	***90.00***	***1.19***	***6,275.0***	***-1,336.00***	***9,491.5***	***-200.7***	***9,493.6***	***0.00***	***0.00***	***0.00***

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well GREEN TEAL FED 34-27-4HN
Company:	MALLARD EXPLORATION	**TVD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	**MD Reference:**	KB-EST @ 4939.0usft (Original Well Elev)
Site:	SE SW SEC. 34 T8N R60W 6th P.M.	**North Reference:**	True
Well:	GREEN TEAL FED 34-27-4HN	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Formations

MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,528.9	1,513.0	FOX HILLS BASE			
3,389.6	3,333.0	RICHARD SANDSTONE			
3,511.8	3,453.0	PARKMAN SANDSTONE			
4,274.2	4,213.0	SUSSEX SANDSTONE			
4,699.2	4,638.0	SHANNON SANDSTONE			
6,204.6	6,101.0	SHARON SPRINGS			
6,312.6	6,171.0	NIOBRARA A CHALK			
6,364.8	6,199.0	NIOBRARA A CHALK BASE			
6,424.6	6,226.0	NIOBRARA B1 CHALK TOP			
6,504.0	6,253.0	NIOBRARA B1 CHALK BASE			
6,663.2	6,275.0	NIOBRARA B2 CHALK TOP			

Plan Annotations

MD (usft)	TVD (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
0.0	0.0	0.0	0.0	SHL: 500ft FSL & 1742ft FWL of Sec 34
400.0	400.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,000.0	995.6	-47.5	-40.8	EOB TO 12° INC
3,400.4	3,343.5	-426.2	-365.8	END OF TANGENT
4,000.4	3,939.2	-473.7	-406.6	EOD TO VERTICAL
5,763.2	5,702.0	-473.7	-406.6	KOP (10°/100ft BUR)
6,663.2	6,275.0	99.1	-394.8	HZ LP: 600ft FSL & 1345ft FWL of Sec 34
16,057.6	6,275.0	9,491.5	-200.7	BHL: 600ft FNL & 1345ft FWL of Sec 27