

# **MALLARD EXPLORATION**

**WELD COUNTY, COLORADO (NAD 83)**

**NW NE SEC. 22 T8N R60W 6th P.M.**

**BLUE TEAL 15-10-1HN**

**ORIGINAL WELLBORE**

**16 March, 2018**

**Plan: PROPOSAL #3**





Project: WELD COUNTY, COLORADO (NAD 83)  
Site: NW NE SEC. 22 T8N R60W 6th P.M.  
Well: BLUE TEAL 15-10-1HN  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #3

ANNOTATIONS										
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 600ft FNL & 2373ft FEL of Sec 22		
100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)		
1238.94	1271.30	23.43	286.19	65.83	-226.77	109.02	236.13	EOB TO 23.43° INC		
1555.00	1615.75	23.43	286.19	104.00	-358.28	172.25	373.07	SURFACE CASING		
5764.41	6203.28	23.43	286.19	612.44	-2109.80	1014.32	2196.90	KOP (10°/100ft DGLG)		
6238.25	7043.90	90.00	1.10	1186.05	-2297.10	1613.52	2828.64	HZ LP: 600ft FSL & 605ft FWL of Sec 15		
6238.20	16445.98	90.00	1.10	10586.41	-2117.33	10796.07	12230.72	BHL: 600ft FNL & 605ft FWL of Sec 10		

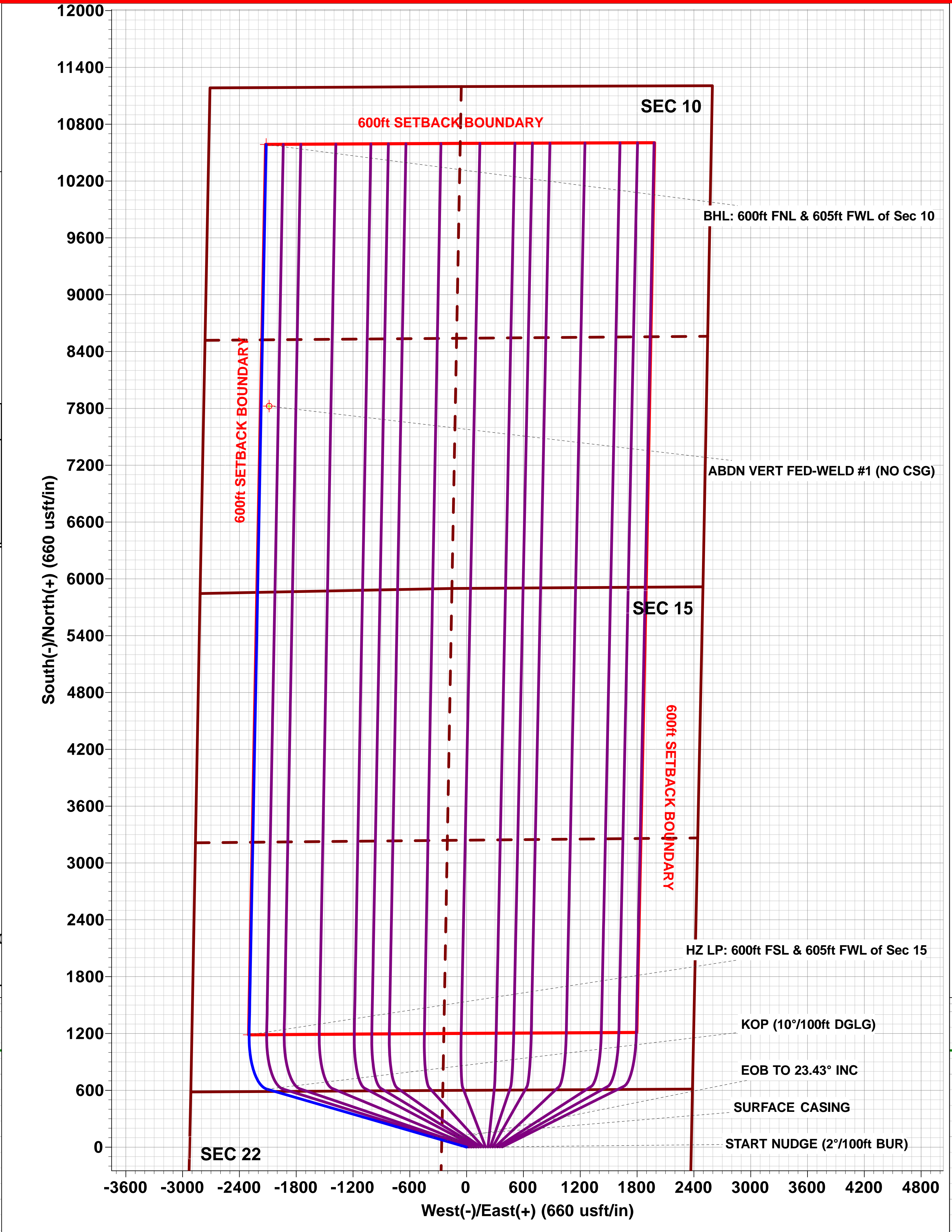
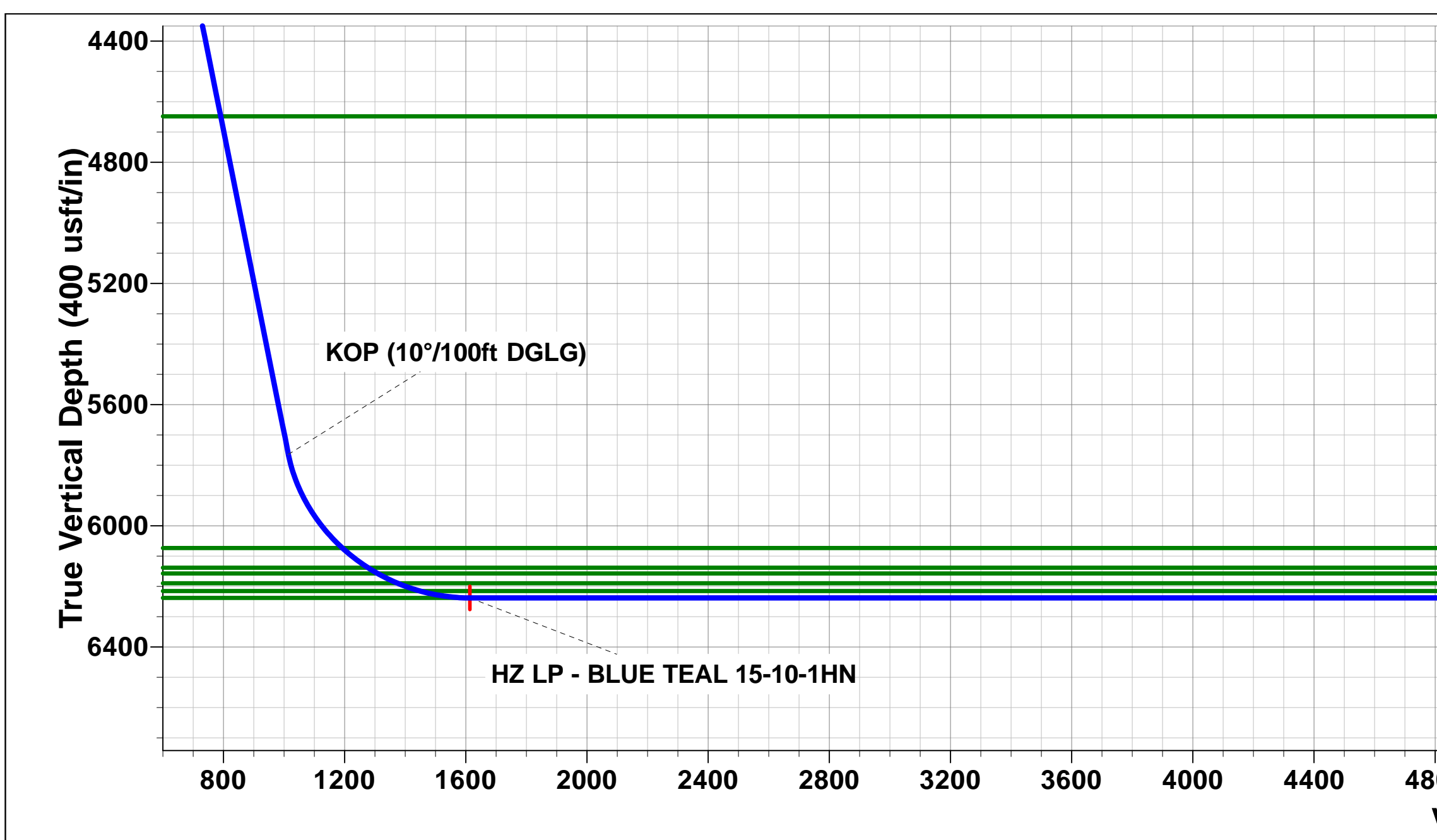
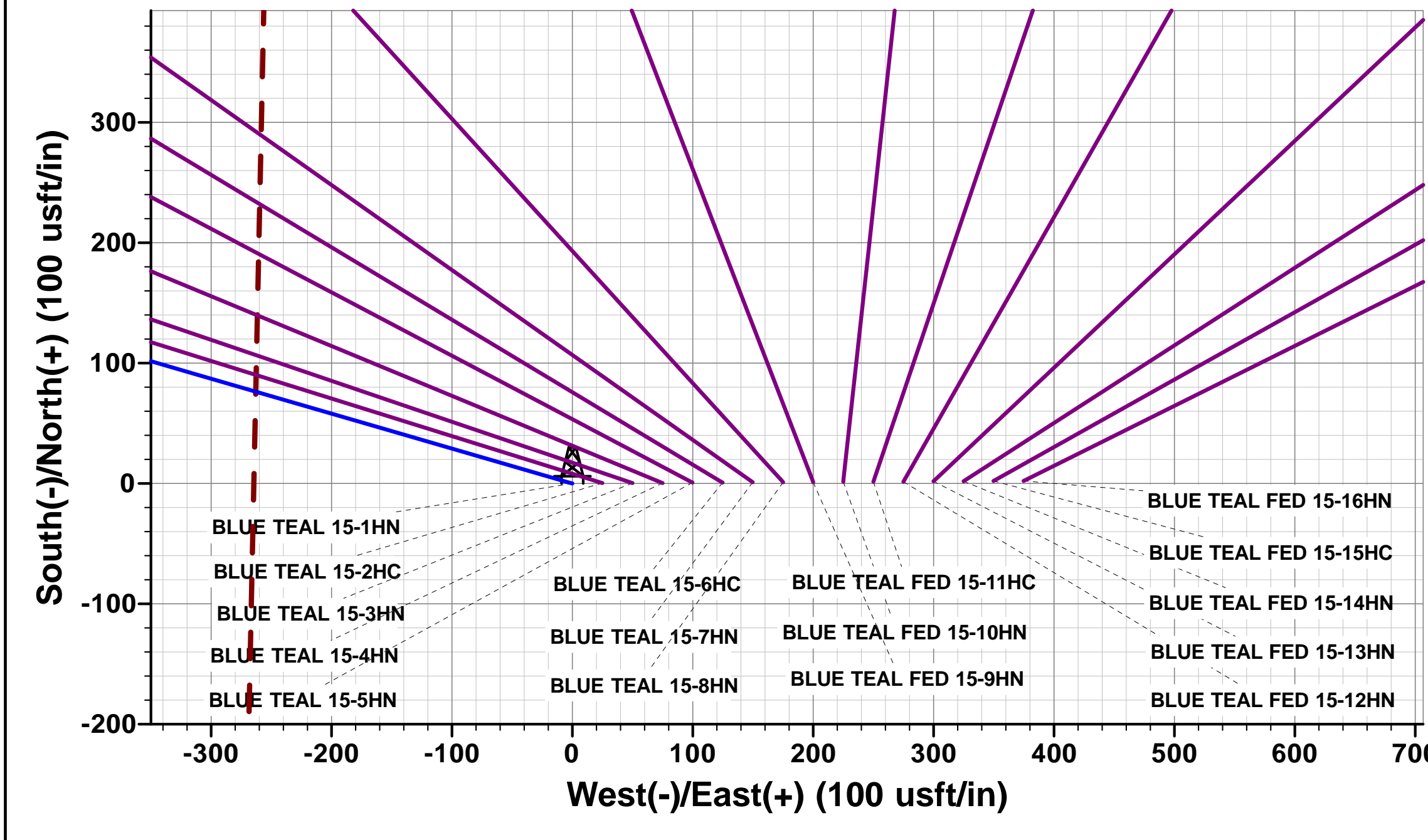
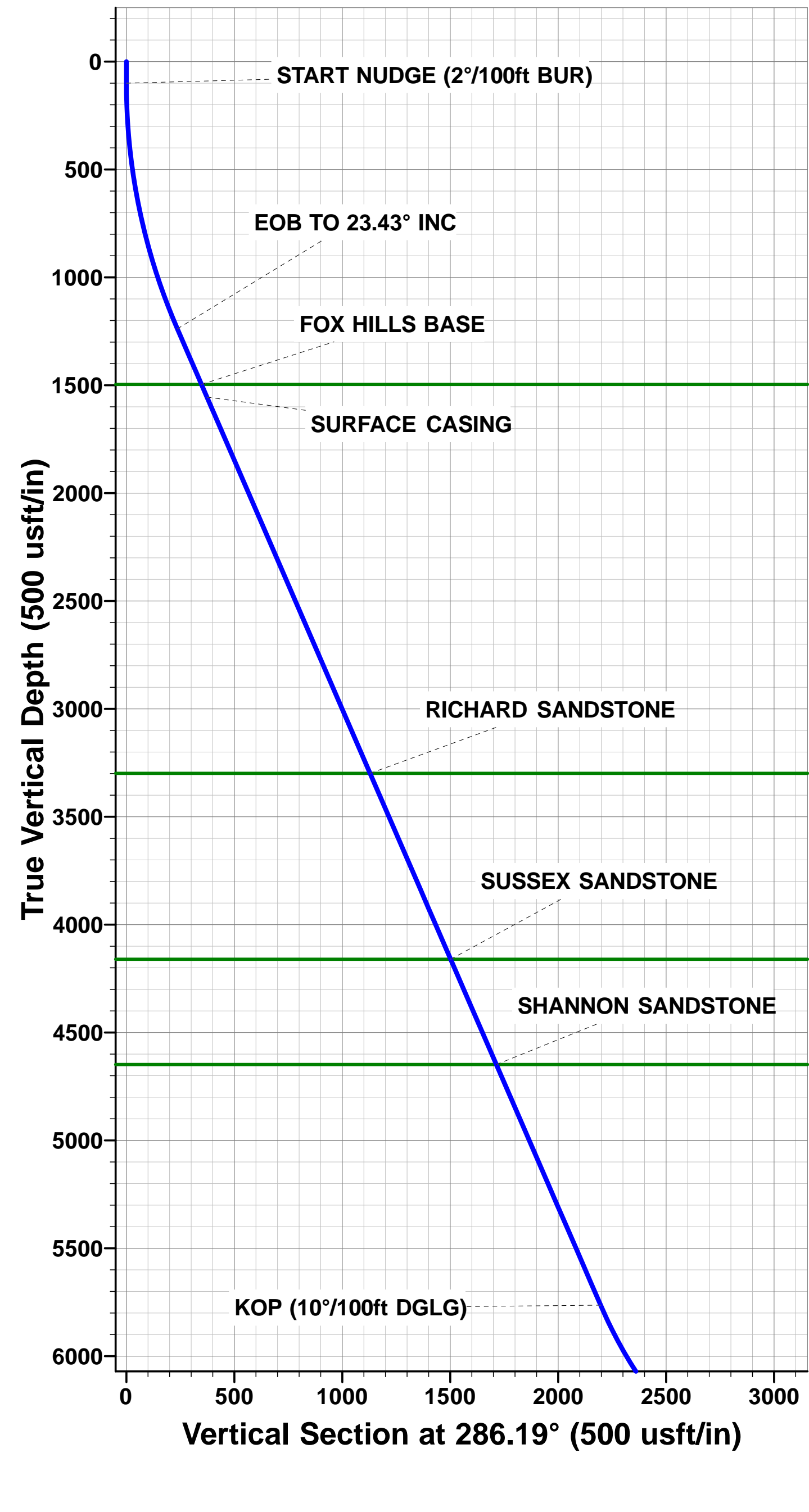
PROPOSED LOCAL COORDINATES:

SHL: 600ft FNL & 2373ft FEL Sec 22

HZ LP: 600ft FSL & 605ft FWL Sec 15

BHL: 600ft FNL & 605ft FWL of Sec 10

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
HZ LP - BLUE TEAL 15-10-1HN	6238.25	1186.01	-2297.10	40.656754	-104.084621
BHL - BLUE TEAL 15-10-1HN (P2)	6238.20	10586.41	-2117.33	40.682556	-104.083976



# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-1HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-1HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

<b>Project</b>	WELD COUNTY, COLORADO (NAD 83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		NW NE SEC. 22 T8N R60W 6th P.M.			
Site Position:		Northing:	1,484,083.08 usft	Latitude:	40.653499
From:	Lat/Long	Easting:	3,395,003.84 usft	Longitude:	-104.076342
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000 ft	Grid Convergence:	0.92 °

Well	BLUE TEAL 15-10-1HN					
Well Position	+N/-S	-0.01 usft	Northing:	1,484,083.06 usft	Latitude:	40.653499
	+E/-W	0.00 usft	Easting:	3,395,003.84 usft	Longitude:	-104.076342
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,896.00 usft

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	16/03/2018	7.78	67.14	52,508

<b>Design</b>	PROPOSAL #3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	348.69

<b>Plan Sections</b>											
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
0.00	0.00	0.00	0.00	-4,912.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	-4,812.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,271.29	23.43	286.19	1,238.93	-3,673.07	65.83	-226.77	2.00	2.00	0.00	286.19	
6,203.27	23.43	286.19	5,764.39	852.39	612.44	-2,109.80	0.00	0.00	0.00	0.00	
7,043.86	90.00	1.10	6,238.25	1,326.25	1,186.01	-2,297.10	10.00	7.92	8.91	76.10	HZ LP - BLUE TEAL 1
16,445.98	90.00	1.10	6,238.20	1,326.20	10,586.41	-2,117.33	0.00	0.00	0.00	0.00	BHL - BLUE TEAL 15

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-1HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-1HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

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)
<b>SHL: 600ft FNL &amp; 2373ft FEL of Sec 22</b>										
0.00	0.00	0.00	0.00	4,912.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>START NUDGE (2°/100ft BUR)</b>										
100.00	0.00	0.00	100.00	4,812.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	2.00	286.19	199.98	4,712.02	0.49	-1.68	0.81	2.00	2.00	0.00
300.00	4.00	286.19	299.84	4,612.16	1.95	-6.70	3.22	2.00	2.00	0.00
400.00	6.00	286.19	399.45	4,512.55	4.37	-15.07	7.25	2.00	2.00	0.00
500.00	8.00	286.19	498.70	4,413.30	7.77	-26.77	12.87	2.00	2.00	0.00
600.00	10.00	286.19	597.47	4,314.53	12.13	-41.80	20.09	2.00	2.00	0.00
700.00	12.00	286.19	695.62	4,216.38	17.45	-60.12	28.90	2.00	2.00	0.00
800.00	14.00	286.19	793.06	4,118.94	23.72	-81.72	39.29	2.00	2.00	0.00
900.00	16.00	286.19	889.64	4,022.36	30.94	-106.58	51.24	2.00	2.00	0.00
1,000.00	18.00	286.19	985.27	3,926.73	39.09	-134.65	64.74	2.00	2.00	0.00
1,100.00	20.00	286.19	1,079.82	3,832.18	48.16	-165.92	79.77	2.00	2.00	0.00
1,200.00	22.00	286.19	1,173.17	3,738.83	58.15	-200.33	96.31	2.00	2.00	0.00
1,271.29	23.43	286.19	1,238.93	3,673.07	65.83	-226.77	109.02	2.00	2.00	0.00
<b>EOB TO 23.43° INC</b>										
1,271.30	23.43	286.19	1,238.94	3,673.06	65.83	-226.77	109.02	0.00	0.00	0.00
1,300.00	23.43	286.19	1,265.27	3,646.73	69.01	-237.73	114.29	0.00	0.00	0.00
1,400.00	23.43	286.19	1,357.03	3,554.97	80.09	-275.91	132.65	0.00	0.00	0.00
1,500.00	23.43	286.19	1,448.79	3,463.21	91.17	-314.09	151.00	0.00	0.00	0.00
<b>FOX HILLS BASE</b>										
1,552.27	23.43	286.19	1,496.75	3,415.25	96.97	-334.05	160.60	0.00	0.00	0.00
1,600.00	23.43	286.19	1,540.54	3,371.46	102.26	-352.27	169.36	0.00	0.00	0.00
<b>SURFACE CASING</b>										
1,615.75	23.43	286.19	1,555.00	3,357.00	104.00	-358.28	172.25	0.00	0.00	0.00
1,700.00	23.43	286.19	1,632.30	3,279.70	113.34	-390.45	187.71	0.00	0.00	0.00
1,800.00	23.43	286.19	1,724.06	3,187.94	124.42	-428.63	206.07	0.00	0.00	0.00
1,900.00	23.43	286.19	1,815.82	3,096.18	135.51	-466.81	224.43	0.00	0.00	0.00
2,000.00	23.43	286.19	1,907.58	3,004.42	146.59	-504.99	242.78	0.00	0.00	0.00
2,100.00	23.43	286.19	1,999.33	2,912.67	157.67	-543.17	261.14	0.00	0.00	0.00
2,200.00	23.43	286.19	2,091.09	2,820.91	168.76	-581.35	279.49	0.00	0.00	0.00
2,300.00	23.43	286.19	2,182.85	2,729.15	179.84	-619.53	297.85	0.00	0.00	0.00
2,400.00	23.43	286.19	2,274.61	2,637.39	190.92	-657.71	316.20	0.00	0.00	0.00
2,500.00	23.43	286.19	2,366.36	2,545.64	202.00	-695.89	334.56	0.00	0.00	0.00
2,600.00	23.43	286.19	2,458.12	2,453.88	213.09	-734.07	352.91	0.00	0.00	0.00
2,700.00	23.43	286.19	2,549.88	2,362.12	224.17	-772.25	371.27	0.00	0.00	0.00
2,800.00	23.43	286.19	2,641.64	2,270.36	235.25	-810.43	389.63	0.00	0.00	0.00
2,900.00	23.43	286.19	2,733.39	2,178.61	246.34	-848.61	407.98	0.00	0.00	0.00
3,000.00	23.43	286.19	2,825.15	2,086.85	257.42	-886.79	426.34	0.00	0.00	0.00
3,100.00	23.43	286.19	2,916.91	1,995.09	268.50	-924.97	444.69	0.00	0.00	0.00
3,200.00	23.43	286.19	3,008.67	1,903.33	279.59	-963.15	463.05	0.00	0.00	0.00
3,300.00	23.43	286.19	3,100.42	1,811.58	290.67	-1,001.33	481.40	0.00	0.00	0.00
3,400.00	23.43	286.19	3,192.18	1,719.82	301.75	-1,039.51	499.76	0.00	0.00	0.00
3,500.00	23.43	286.19	3,283.94	1,628.06	312.83	-1,077.69	518.12	0.00	0.00	0.00
<b>RICHARD SANDSTONE</b>										
3,516.69	23.43	286.19	3,299.25	1,612.75	314.68	-1,084.06	521.18	0.00	0.00	0.00
3,600.00	23.43	286.19	3,375.70	1,536.30	323.92	-1,115.87	536.47	0.00	0.00	0.00
3,700.00	23.43	286.19	3,467.45	1,444.55	335.00	-1,154.05	554.83	0.00	0.00	0.00
3,800.00	23.43	286.19	3,559.21	1,352.79	346.08	-1,192.23	573.18	0.00	0.00	0.00
3,900.00	23.43	286.19	3,650.97	1,261.03	357.17	-1,230.41	591.54	0.00	0.00	0.00
4,000.00	23.43	286.19	3,742.73	1,169.27	368.25	-1,268.59	609.89	0.00	0.00	0.00
4,100.00	23.43	286.19	3,834.48	1,077.52	379.33	-1,306.77	628.25	0.00	0.00	0.00



# Planning Report



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<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-1HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

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)
4,200.00	23.43	286.19	3,926.24	985.76	390.41	-1,344.95	646.60	0.00	0.00	0.00
4,300.00	23.43	286.19	4,018.00	894.00	401.50	-1,383.13	664.96	0.00	0.00	0.00
4,400.00	23.43	286.19	4,109.76	802.24	412.58	-1,421.31	683.32	0.00	0.00	0.00
<b>SUSSEX SANDSTONE</b>										
<b>4,455.57</b>	<b>23.43</b>	<b>286.19</b>	<b>4,160.75</b>	<b>751.25</b>	<b>418.74</b>	<b>-1,442.53</b>	<b>693.52</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,500.00	23.43	286.19	4,201.51	710.49	423.66	-1,459.49	701.67	0.00	0.00	0.00
4,600.00	23.43	286.19	4,293.27	618.73	434.75	-1,497.67	720.03	0.00	0.00	0.00
4,700.00	23.43	286.19	4,385.03	526.97	445.83	-1,535.85	738.38	0.00	0.00	0.00
4,800.00	23.43	286.19	4,476.79	435.21	456.91	-1,574.03	756.74	0.00	0.00	0.00
4,900.00	23.43	286.19	4,568.54	343.46	468.00	-1,612.21	775.09	0.00	0.00	0.00
<b>SHANNON SANDSTONE</b>										
<b>4,987.41</b>	<b>23.43</b>	<b>286.19</b>	<b>4,648.75</b>	<b>263.25</b>	<b>477.68</b>	<b>-1,645.58</b>	<b>791.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,000.00	23.43	286.19	4,660.30	251.70	479.08	-1,650.39	793.45	0.00	0.00	0.00
5,100.00	23.43	286.19	4,752.06	159.94	490.16	-1,688.57	811.81	0.00	0.00	0.00
5,200.00	23.43	286.19	4,843.82	68.18	501.24	-1,726.75	830.16	0.00	0.00	0.00
5,300.00	23.43	286.19	4,935.58	-23.58	512.33	-1,764.93	848.52	0.00	0.00	0.00
5,400.00	23.43	286.19	5,027.33	-115.33	523.41	-1,803.11	866.87	0.00	0.00	0.00
5,500.00	23.43	286.19	5,119.09	-207.09	534.49	-1,841.29	885.23	0.00	0.00	0.00
5,600.00	23.43	286.19	5,210.85	-298.85	545.58	-1,879.47	903.58	0.00	0.00	0.00
5,700.00	23.43	286.19	5,302.61	-390.61	556.66	-1,917.65	921.94	0.00	0.00	0.00
5,800.00	23.43	286.19	5,394.36	-482.36	567.74	-1,955.83	940.29	0.00	0.00	0.00
5,900.00	23.43	286.19	5,486.12	-574.12	578.83	-1,994.01	958.65	0.00	0.00	0.00
6,000.00	23.43	286.19	5,577.88	-665.88	589.91	-2,032.19	977.01	0.00	0.00	0.00
6,100.00	23.43	286.19	5,669.64	-757.64	600.99	-2,070.37	995.36	0.00	0.00	0.00
6,203.27	23.43	286.19	5,764.39	-852.39	612.44	-2,109.80	1,014.32	0.00	0.00	0.00
<b>KOP (10°/100ft DGLG)</b>										
<b>6,203.28</b>	<b>23.43</b>	<b>286.19</b>	<b>5,764.41</b>	<b>-852.41</b>	<b>612.44</b>	<b>-2,109.80</b>	<b>1,014.32</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
6,250.00	24.94	297.00	5,807.04	-895.04	619.50	-2,127.51	1,024.72	10.00	3.24	23.14
6,300.00	27.32	307.01	5,851.95	-939.95	631.20	-2,146.08	1,039.83	10.00	4.75	20.02
6,350.00	30.29	315.36	5,895.78	-983.78	647.09	-2,164.11	1,058.95	10.00	5.95	16.71
6,400.00	33.71	322.26	5,938.19	-1,026.19	667.05	-2,181.47	1,081.92	10.00	6.83	13.80
6,450.00	37.44	327.98	5,978.86	-1,066.86	690.92	-2,198.03	1,108.58	10.00	7.47	11.44
6,500.00	41.41	332.78	6,017.48	-1,105.48	718.53	-2,213.66	1,138.72	10.00	7.93	9.60
6,550.00	45.55	336.87	6,053.76	-1,141.76	749.67	-2,228.25	1,172.12	10.00	8.27	8.17
<b>SHARON SPRINGS</b>										
<b>6,578.45</b>	<b>47.96</b>	<b>338.94</b>	<b>6,073.25</b>	<b>-1,161.25</b>	<b>768.87</b>	<b>-2,236.04</b>	<b>1,192.47</b>	<b>10.00</b>	<b>8.48</b>	<b>7.28</b>
6,600.00	49.81	340.40	6,087.42	-1,175.42	784.10	-2,241.67	1,208.51	10.00	8.59	6.80
6,650.00	54.17	343.52	6,118.21	-1,206.21	821.55	-2,253.84	1,247.62	10.00	8.72	6.23
<b>NIORARA A CHALK</b>										
<b>6,686.53</b>	<b>57.40</b>	<b>345.58</b>	<b>6,138.75</b>	<b>-1,226.75</b>	<b>850.66</b>	<b>-2,261.88</b>	<b>1,277.74</b>	<b>10.00</b>	<b>8.84</b>	<b>5.65</b>
6,700.00	58.60	346.30	6,145.89	-1,233.89	861.74	-2,264.65	1,289.15	10.00	8.90	5.37
<b>NIORARA A CHALK BASE</b>										
<b>6,722.46</b>	<b>60.61</b>	<b>347.47</b>	<b>6,157.25</b>	<b>-1,245.25</b>	<b>880.61</b>	<b>-2,269.05</b>	<b>1,308.51</b>	<b>10.00</b>	<b>8.94</b>	<b>5.19</b>
6,750.00	63.08	348.83	6,170.24	-1,258.24	904.37	-2,274.03	1,332.79	10.00	8.99	4.97
<b>NIORARA B1 CHALK TOP</b>										
<b>6,796.49</b>	<b>67.29</b>	<b>351.01</b>	<b>6,189.75</b>	<b>-1,277.75</b>	<b>945.91</b>	<b>-2,281.40</b>	<b>1,374.97</b>	<b>10.00</b>	<b>9.05</b>	<b>4.69</b>
6,800.00	67.61	351.17	6,191.10	-1,279.10	949.11	-2,281.90	1,378.20	10.00	9.09	4.52
6,850.00	72.17	353.36	6,208.28	-1,296.28	995.62	-2,288.20	1,425.05	10.00	9.12	4.38
<b>NIORARA B1 CHALK BASE</b>										
<b>6,874.21</b>	<b>74.38</b>	<b>354.38</b>	<b>6,215.25</b>	<b>-1,303.25</b>	<b>1,018.67</b>	<b>-2,290.67</b>	<b>1,448.14</b>	<b>10.00</b>	<b>9.15</b>	<b>4.21</b>
6,900.00	76.75	355.44	6,221.68	-1,309.68	1,043.55	-2,292.89	1,472.96	10.00	9.17	4.12
6,950.00	81.35	357.45	6,231.17	-1,319.17	1,092.53	-2,295.92	1,521.59	10.00	9.19	4.01
7,000.00	85.95	359.40	6,236.70	-1,324.70	1,142.19	-2,297.29	1,570.55	10.00	9.21	3.91

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-1HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-1HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

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)
<b>NIORARA B2 CHALK TOP</b>										
7,043.86	90.00	1.10	6,238.25	-1,326.25	1,186.01	-2,297.10	1,613.48	10.00	9.22	3.87
<b>HZ LP: 600ft FSL &amp; 605ft FWL of Sec 15</b>										
7,043.90	90.00	1.10	6,238.25	-1,326.25	1,186.05	-2,297.10	1,613.52	0.00	0.00	0.00
7,100.00	90.00	1.10	6,238.25	-1,326.25	1,242.14	-2,296.02	1,668.31	0.00	0.00	0.00
7,200.00	90.00	1.10	6,238.25	-1,326.25	1,342.12	-2,294.11	1,765.98	0.00	0.00	0.00
7,300.00	90.00	1.10	6,238.25	-1,326.25	1,442.10	-2,292.20	1,863.64	0.00	0.00	0.00
7,400.00	90.00	1.10	6,238.25	-1,326.25	1,542.08	-2,290.29	1,961.31	0.00	0.00	0.00
7,500.00	90.00	1.10	6,238.25	-1,326.25	1,642.07	-2,288.38	2,058.97	0.00	0.00	0.00
7,600.00	90.00	1.10	6,238.25	-1,326.25	1,742.05	-2,286.46	2,156.64	0.00	0.00	0.00
7,700.00	90.00	1.10	6,238.25	-1,326.25	1,842.03	-2,284.55	2,254.30	0.00	0.00	0.00
7,800.00	90.00	1.10	6,238.25	-1,326.25	1,942.01	-2,282.64	2,351.97	0.00	0.00	0.00
7,900.00	90.00	1.10	6,238.25	-1,326.25	2,041.99	-2,280.73	2,449.63	0.00	0.00	0.00
8,000.00	90.00	1.10	6,238.24	-1,326.24	2,141.97	-2,278.81	2,547.30	0.00	0.00	0.00
8,100.00	90.00	1.10	6,238.24	-1,326.24	2,241.96	-2,276.90	2,644.96	0.00	0.00	0.00
8,200.00	90.00	1.10	6,238.24	-1,326.24	2,341.94	-2,274.99	2,742.63	0.00	0.00	0.00
8,300.00	90.00	1.10	6,238.24	-1,326.24	2,441.92	-2,273.08	2,840.29	0.00	0.00	0.00
8,400.00	90.00	1.10	6,238.24	-1,326.24	2,541.90	-2,271.17	2,937.96	0.00	0.00	0.00
8,500.00	90.00	1.10	6,238.24	-1,326.24	2,641.88	-2,269.25	3,035.62	0.00	0.00	0.00
8,600.00	90.00	1.10	6,238.24	-1,326.24	2,741.86	-2,267.34	3,133.29	0.00	0.00	0.00
8,700.00	90.00	1.10	6,238.24	-1,326.24	2,841.85	-2,265.43	3,230.95	0.00	0.00	0.00
8,800.00	90.00	1.10	6,238.24	-1,326.24	2,941.83	-2,263.52	3,328.62	0.00	0.00	0.00
8,900.00	90.00	1.10	6,238.24	-1,326.24	3,041.81	-2,261.61	3,426.28	0.00	0.00	0.00
9,000.00	90.00	1.10	6,238.24	-1,326.24	3,141.79	-2,259.69	3,523.95	0.00	0.00	0.00
9,100.00	90.00	1.10	6,238.24	-1,326.24	3,241.77	-2,257.78	3,621.61	0.00	0.00	0.00
9,200.00	90.00	1.10	6,238.24	-1,326.24	3,341.75	-2,255.87	3,719.28	0.00	0.00	0.00
9,300.00	90.00	1.10	6,238.24	-1,326.24	3,441.74	-2,253.96	3,816.94	0.00	0.00	0.00
9,400.00	90.00	1.10	6,238.24	-1,326.24	3,541.72	-2,252.05	3,914.61	0.00	0.00	0.00
9,500.00	90.00	1.10	6,238.24	-1,326.24	3,641.70	-2,250.13	4,012.27	0.00	0.00	0.00
9,600.00	90.00	1.10	6,238.24	-1,326.24	3,741.68	-2,248.22	4,109.94	0.00	0.00	0.00
9,700.00	90.00	1.10	6,238.24	-1,326.24	3,841.66	-2,246.31	4,207.60	0.00	0.00	0.00
9,800.00	90.00	1.10	6,238.24	-1,326.24	3,941.64	-2,244.40	4,305.27	0.00	0.00	0.00
9,900.00	90.00	1.10	6,238.23	-1,326.23	4,041.63	-2,242.49	4,402.93	0.00	0.00	0.00
10,000.00	90.00	1.10	6,238.23	-1,326.23	4,141.61	-2,240.57	4,500.60	0.00	0.00	0.00
10,100.00	90.00	1.10	6,238.23	-1,326.23	4,241.59	-2,238.66	4,598.26	0.00	0.00	0.00
10,200.00	90.00	1.10	6,238.23	-1,326.23	4,341.57	-2,236.75	4,695.93	0.00	0.00	0.00
10,300.00	90.00	1.10	6,238.23	-1,326.23	4,441.55	-2,234.84	4,793.59	0.00	0.00	0.00
10,400.00	90.00	1.10	6,238.23	-1,326.23	4,541.53	-2,232.93	4,891.26	0.00	0.00	0.00
10,500.00	90.00	1.10	6,238.23	-1,326.23	4,641.52	-2,231.01	4,988.92	0.00	0.00	0.00
10,600.00	90.00	1.10	6,238.23	-1,326.23	4,741.50	-2,229.10	5,086.59	0.00	0.00	0.00
10,700.00	90.00	1.10	6,238.23	-1,326.23	4,841.48	-2,227.19	5,184.25	0.00	0.00	0.00
10,800.00	90.00	1.10	6,238.23	-1,326.23	4,941.46	-2,225.28	5,281.92	0.00	0.00	0.00
10,900.00	90.00	1.10	6,238.23	-1,326.23	5,041.44	-2,223.37	5,379.58	0.00	0.00	0.00
11,000.00	90.00	1.10	6,238.23	-1,326.23	5,141.43	-2,221.45	5,477.25	0.00	0.00	0.00
11,100.00	90.00	1.10	6,238.23	-1,326.23	5,241.41	-2,219.54	5,574.91	0.00	0.00	0.00
11,200.00	90.00	1.10	6,238.23	-1,326.23	5,341.39	-2,217.63	5,672.58	0.00	0.00	0.00
11,300.00	90.00	1.10	6,238.23	-1,326.23	5,441.37	-2,215.72	5,770.25	0.00	0.00	0.00
11,400.00	90.00	1.10	6,238.23	-1,326.23	5,541.35	-2,213.81	5,867.91	0.00	0.00	0.00
11,500.00	90.00	1.10	6,238.23	-1,326.23	5,641.33	-2,211.89	5,965.58	0.00	0.00	0.00
11,600.00	90.00	1.10	6,238.23	-1,326.23	5,741.32	-2,209.98	6,063.24	0.00	0.00	0.00
11,700.00	90.00	1.10	6,238.23	-1,326.23	5,841.30	-2,208.07	6,160.91	0.00	0.00	0.00
11,800.00	90.00	1.10	6,238.22	-1,326.22	5,941.28	-2,206.16	6,258.57	0.00	0.00	0.00
11,900.00	90.00	1.10	6,238.22	-1,326.22	6,041.26	-2,204.25	6,356.24	0.00	0.00	0.00
12,000.00	90.00	1.10	6,238.22	-1,326.22	6,141.24	-2,202.33	6,453.90	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-1HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-1HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

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)
12,100.00	90.00	1.10	6,238.22	-1,326.22	6,241.22	-2,200.42	6,551.57	0.00	0.00	0.00
12,200.00	90.00	1.10	6,238.22	-1,326.22	6,341.21	-2,198.51	6,649.23	0.00	0.00	0.00
12,300.00	90.00	1.10	6,238.22	-1,326.22	6,441.19	-2,196.60	6,746.90	0.00	0.00	0.00
12,400.00	90.00	1.10	6,238.22	-1,326.22	6,541.17	-2,194.69	6,844.56	0.00	0.00	0.00
12,500.00	90.00	1.10	6,238.22	-1,326.22	6,641.15	-2,192.77	6,942.23	0.00	0.00	0.00
12,600.00	90.00	1.10	6,238.22	-1,326.22	6,741.13	-2,190.86	7,039.89	0.00	0.00	0.00
12,700.00	90.00	1.10	6,238.22	-1,326.22	6,841.11	-2,188.95	7,137.56	0.00	0.00	0.00
12,800.00	90.00	1.10	6,238.22	-1,326.22	6,941.10	-2,187.04	7,235.22	0.00	0.00	0.00
12,900.00	90.00	1.10	6,238.22	-1,326.22	7,041.08	-2,185.13	7,332.89	0.00	0.00	0.00
13,000.00	90.00	1.10	6,238.22	-1,326.22	7,141.06	-2,183.21	7,430.55	0.00	0.00	0.00
13,100.00	90.00	1.10	6,238.22	-1,326.22	7,241.04	-2,181.30	7,528.22	0.00	0.00	0.00
13,200.00	90.00	1.10	6,238.22	-1,326.22	7,341.02	-2,179.39	7,625.88	0.00	0.00	0.00
13,300.00	90.00	1.10	6,238.22	-1,326.22	7,441.00	-2,177.48	7,723.55	0.00	0.00	0.00
13,400.00	90.00	1.10	6,238.22	-1,326.22	7,540.99	-2,175.57	7,821.21	0.00	0.00	0.00
13,500.00	90.00	1.10	6,238.22	-1,326.22	7,640.97	-2,173.65	7,918.88	0.00	0.00	0.00
13,600.00	90.00	1.10	6,238.22	-1,326.22	7,740.95	-2,171.74	8,016.54	0.00	0.00	0.00
13,700.00	90.00	1.10	6,238.21	-1,326.21	7,840.93	-2,169.83	8,114.21	0.00	0.00	0.00
13,800.00	90.00	1.10	6,238.21	-1,326.21	7,940.91	-2,167.92	8,211.87	0.00	0.00	0.00
13,900.00	90.00	1.10	6,238.21	-1,326.21	8,040.90	-2,166.01	8,309.54	0.00	0.00	0.00
14,000.00	90.00	1.10	6,238.21	-1,326.21	8,140.88	-2,164.09	8,407.20	0.00	0.00	0.00
14,100.00	90.00	1.10	6,238.21	-1,326.21	8,240.86	-2,162.18	8,504.87	0.00	0.00	0.00
14,200.00	90.00	1.10	6,238.21	-1,326.21	8,340.84	-2,160.27	8,602.53	0.00	0.00	0.00
14,300.00	90.00	1.10	6,238.21	-1,326.21	8,440.82	-2,158.36	8,700.20	0.00	0.00	0.00
14,400.00	90.00	1.10	6,238.21	-1,326.21	8,540.80	-2,156.45	8,797.86	0.00	0.00	0.00
14,500.00	90.00	1.10	6,238.21	-1,326.21	8,640.79	-2,154.53	8,895.53	0.00	0.00	0.00
14,600.00	90.00	1.10	6,238.21	-1,326.21	8,740.77	-2,152.62	8,993.19	0.00	0.00	0.00
14,700.00	90.00	1.10	6,238.21	-1,326.21	8,840.75	-2,150.71	9,090.86	0.00	0.00	0.00
14,800.00	90.00	1.10	6,238.21	-1,326.21	8,940.73	-2,148.80	9,188.52	0.00	0.00	0.00
14,900.00	90.00	1.10	6,238.21	-1,326.21	9,040.71	-2,146.88	9,286.19	0.00	0.00	0.00
15,000.00	90.00	1.10	6,238.21	-1,326.21	9,140.69	-2,144.97	9,383.85	0.00	0.00	0.00
15,100.00	90.00	1.10	6,238.21	-1,326.21	9,240.68	-2,143.06	9,481.52	0.00	0.00	0.00
15,200.00	90.00	1.10	6,238.21	-1,326.21	9,340.66	-2,141.15	9,579.18	0.00	0.00	0.00
15,300.00	90.00	1.10	6,238.21	-1,326.21	9,440.64	-2,139.24	9,676.85	0.00	0.00	0.00
15,400.00	90.00	1.10	6,238.21	-1,326.21	9,540.62	-2,137.32	9,774.51	0.00	0.00	0.00
15,500.00	90.00	1.10	6,238.21	-1,326.21	9,640.60	-2,135.41	9,872.18	0.00	0.00	0.00
15,600.00	90.00	1.10	6,238.20	-1,326.20	9,740.58	-2,133.50	9,969.84	0.00	0.00	0.00
15,700.00	90.00	1.10	6,238.20	-1,326.20	9,840.57	-2,131.59	10,067.51	0.00	0.00	0.00
15,800.00	90.00	1.10	6,238.20	-1,326.20	9,940.55	-2,129.68	10,165.17	0.00	0.00	0.00
15,900.00	90.00	1.10	6,238.20	-1,326.20	10,040.53	-2,127.76	10,262.84	0.00	0.00	0.00
16,000.00	90.00	1.10	6,238.20	-1,326.20	10,140.51	-2,125.85	10,360.50	0.00	0.00	0.00
16,100.00	90.00	1.10	6,238.20	-1,326.20	10,240.49	-2,123.94	10,458.17	0.00	0.00	0.00
16,200.00	90.00	1.10	6,238.20	-1,326.20	10,340.47	-2,122.03	10,555.83	0.00	0.00	0.00
16,300.00	90.00	1.10	6,238.20	-1,326.20	10,440.46	-2,120.12	10,653.50	0.00	0.00	0.00
16,400.00	90.00	1.10	6,238.20	-1,326.20	10,540.44	-2,118.20	10,751.16	0.00	0.00	0.00
<b>BHL: 600ft FNL &amp; 605ft FWL of Sec 10</b>										
<b>16,445.98</b>	<b>90.00</b>	<b>1.10</b>	<b>6,238.20</b>	<b>-1,326.20</b>	<b>10,586.41</b>	<b>-2,117.33</b>	<b>10,796.07</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-1HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4912.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-1HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,552.27	1,496.75	FOX HILLS BASE				
3,516.69	3,299.25	RICHARD SANDSTONE				
4,455.57	4,160.75	SUSSEX SANDSTONE				
4,987.41	4,648.75	SHANNON SANDSTONE				
6,578.45	6,073.25	SHARON SPRINGS				
6,686.53	6,138.75	NIOBRARA A CHALK				
6,722.46	6,157.25	NIOBRARA A CHALK BASE				
6,796.49	6,189.75	NIOBRARA B1 CHALK TOP				
6,874.21	6,215.25	NIOBRARA B1 CHALK BASE				
7,043.86	6,238.25	NIOBRARA B2 CHALK TOP				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 600ft FNL & 2373ft FEL of Sec 22
100.00	100.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,271.30	1,238.94	65.83	-226.77	EOB TO 23.43° INC
1,615.75	1,555.00	104.00	-358.28	SURFACE CASING
6,203.28	5,764.41	612.44	-2,109.80	KOP (10°/100ft DGLG)
7,043.90	6,238.25	1,186.05	-2,297.10	HZ LP: 600ft FSL & 605ft FWL of Sec 15
16,445.98	6,238.20	10,586.41	-2,117.33	BHL: 600ft FNL & 605ft FWL of Sec 10