

MALLARD EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

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

BLUE TEAL FED 15-10-12HN

ORIGINAL WELLBORE

19 March, 2018

Plan: PROPOSAL #3





Project: WELD COUNTY, COLORADO (NAD 83)
Site: NW NE SEC. 22 T8N R60W 6th P.M.
Well: BLUE TEAL FED 15-10-12HN
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #3

ANNOTATIONS

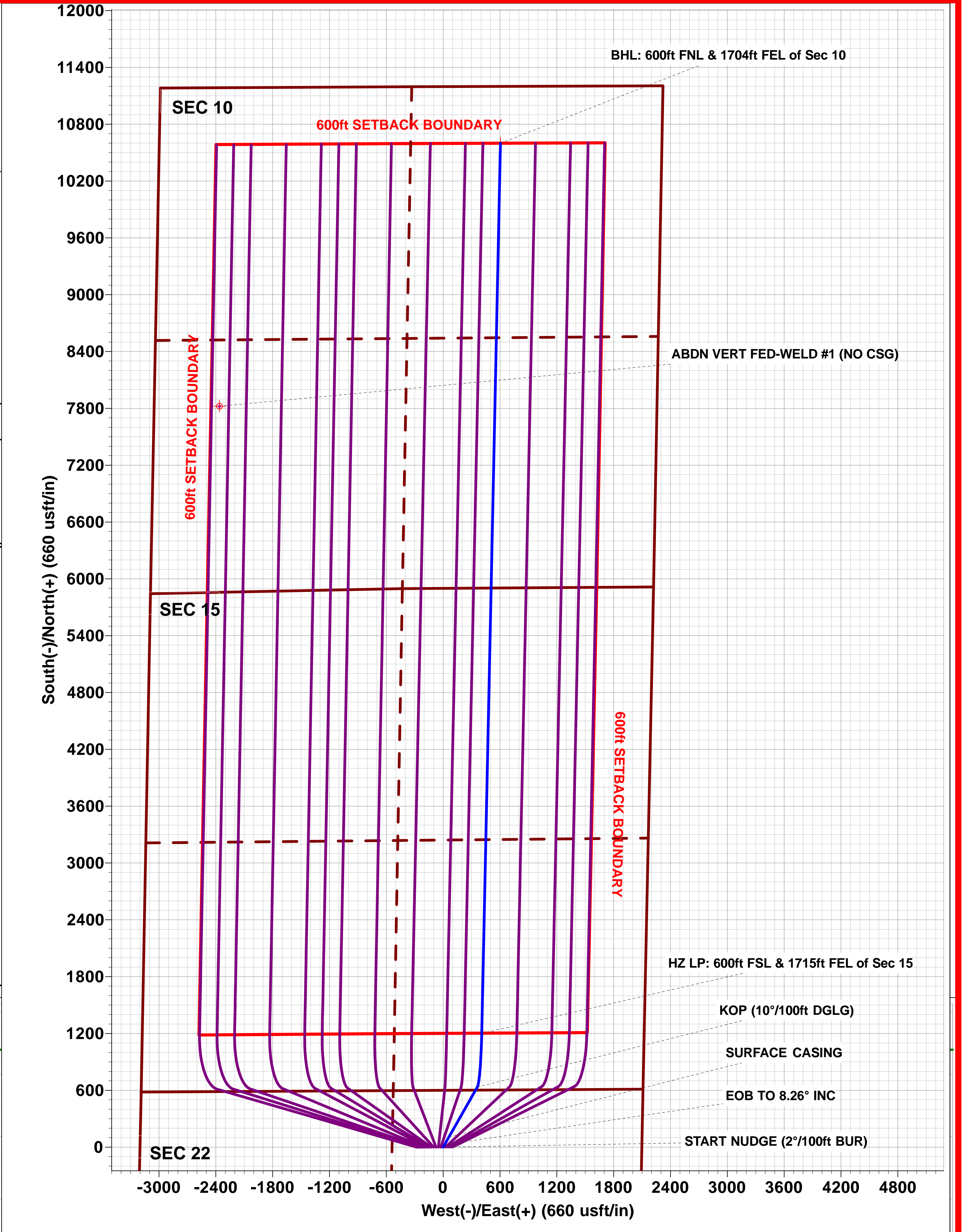
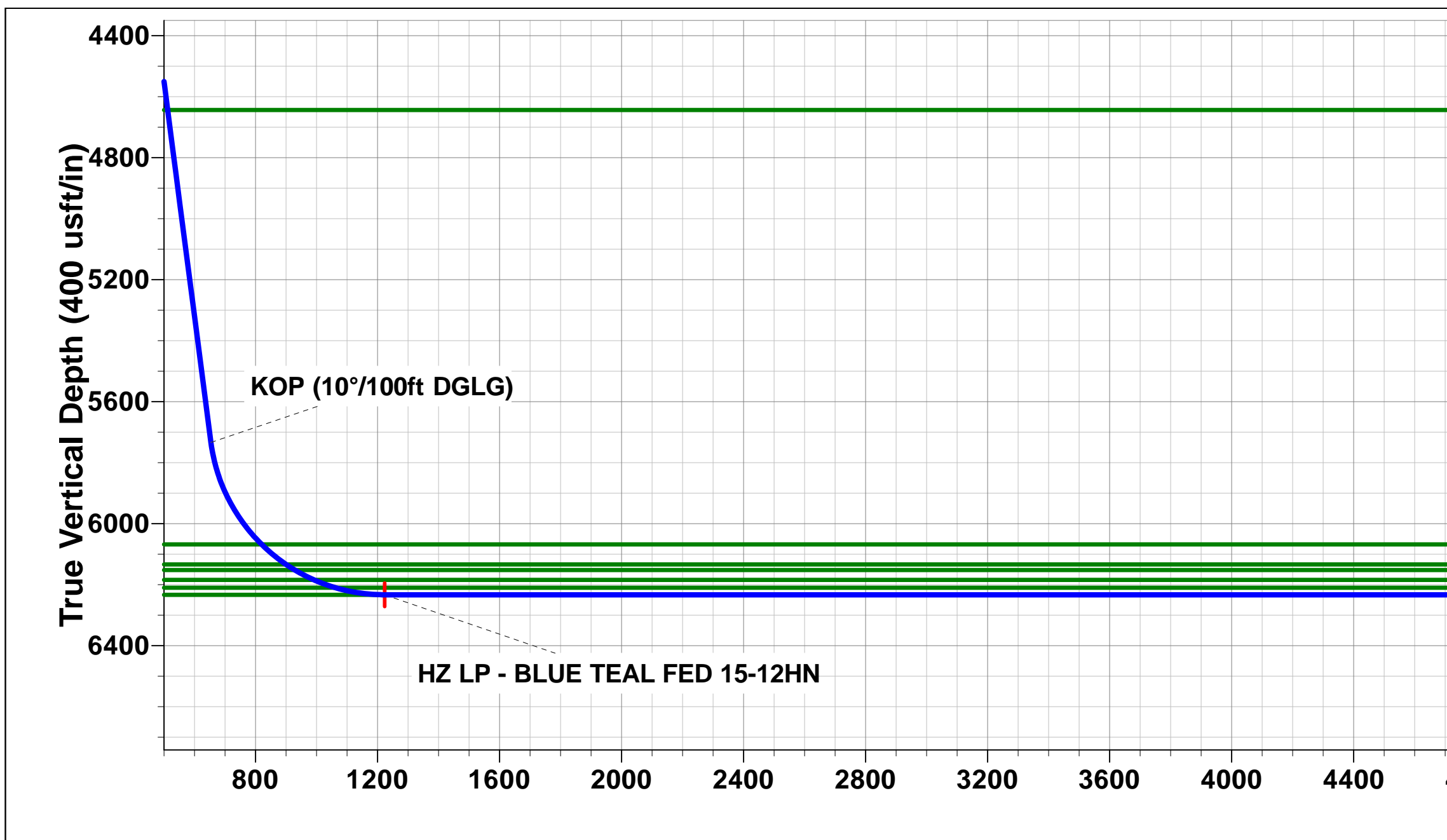
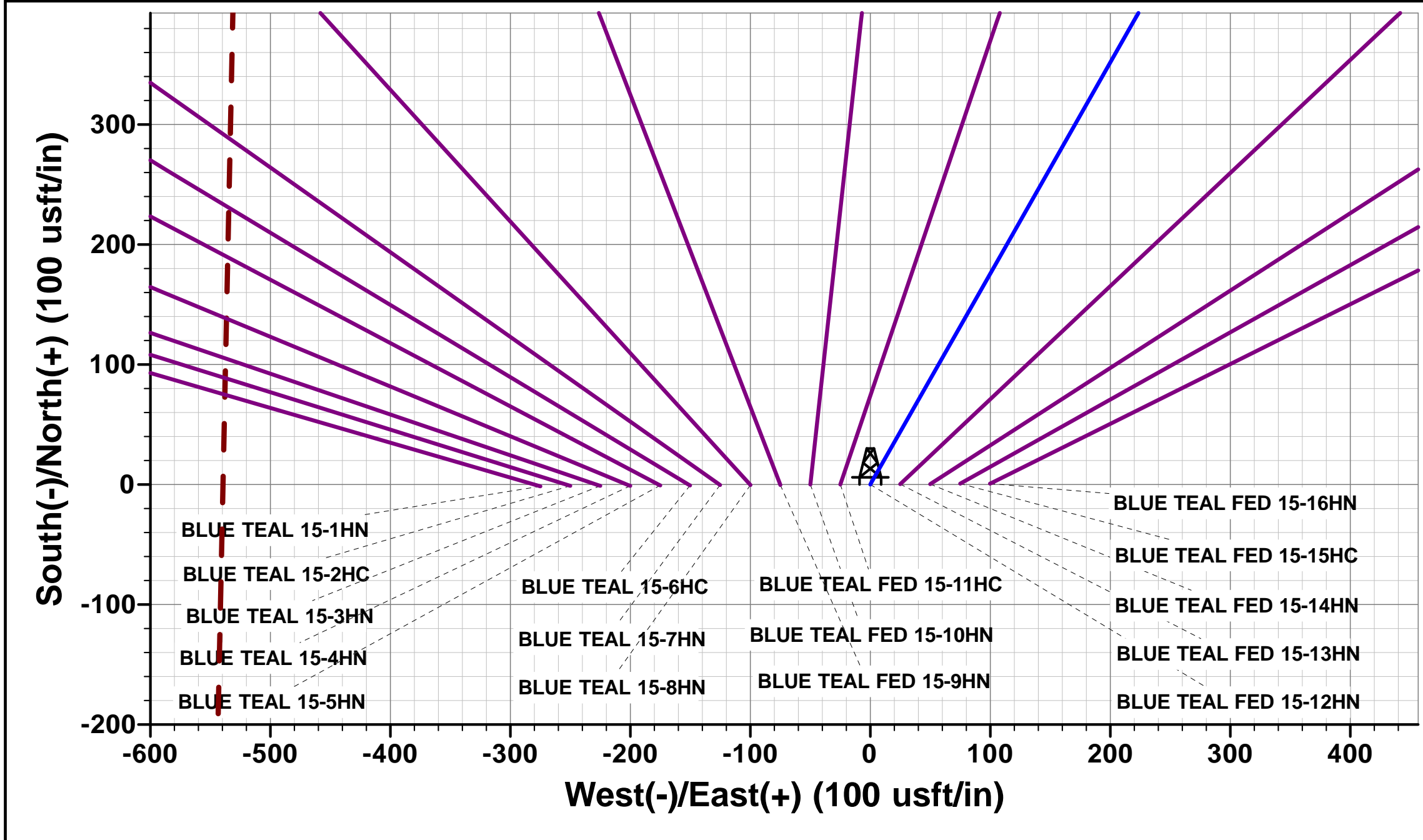
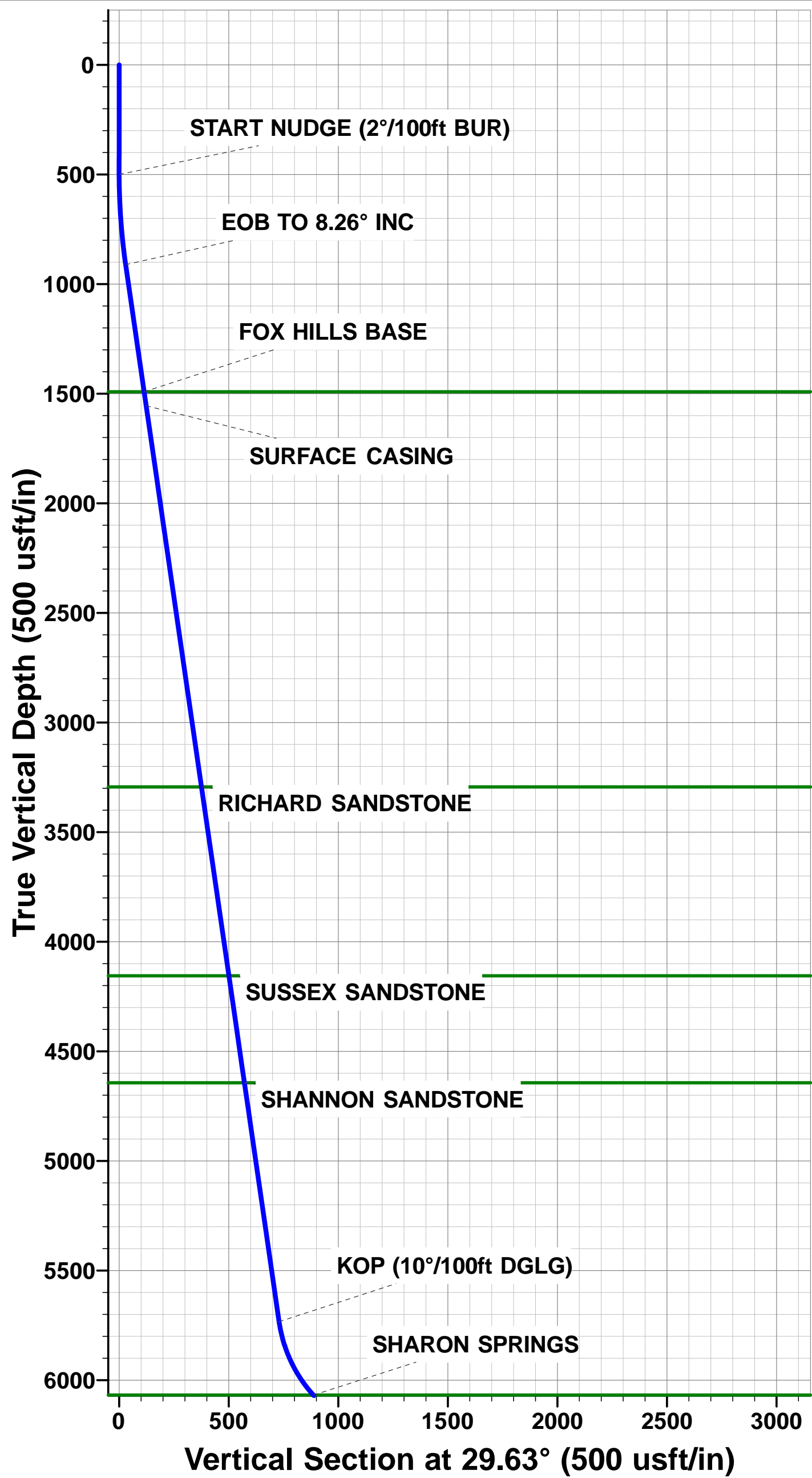
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 600ft FNL & 2098ft FEL of Sec 22
500.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
911.63	913.06	8.26	29.63	25.84	14.70	26.63	29.73	EOB TO 8.26° INC
1555.00	1563.18	8.26	29.63	107.04	60.88	110.33	123.14	SURFACE CASING
5733.88	5785.88	8.26	29.63	634.44	360.86	653.97	729.89	KOP (10°/100ft DGLG)
6233.25	6613.29	90.00	1.20	1201.96	407.31	1223.22	1300.65	HZ LP: 600ft FSL & 1715ft FEL of Sec 15
6233.20	16012.50	90.00	1.20	10599.10	604.91	10616.34	10699.86	BHL: 600ft FNL & 1704ft FEL of Sec 10

PROPOSED LOCAL COORDINATES:

SHL: 600ft FNL & 2098ft FEL Sec 22
HZ LP: 600ft FSL & 1715ft FEL Sec 15
BHL: 600ft FNL & 1704ft FEL of Sec 10

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
HZ LP - BLUE TEAL FED 15-12HN	6233.25	1201.96	407.31	40.656802	-104.073883
BHL - BLUE TEAL FED 15-12HN (P2)	6233.20	10599.11	604.91	40.682595	-104.073170



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-10-12HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4907.00usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4907.00usft (Original Well Elev)
Site:	NW NE SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	BLUE TEAL FED 15-10-12HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

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		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 FED 15-10-12HN					
Well Position	+N/-S	1.42 usft	Northing:	1,484,088.91 usft	Latitude:	40.653503
	+E/-W	274.98 usft	Easting:	3,395,278.75 usft	Longitude:	-104.075351
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,891.00 usft

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

Design	PROPOSAL #3			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	3.27

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
0.00	0.00	0.00	0.00	-4,907.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	-4,407.00	0.00	0.00	0.00	0.00	0.00	0.00	
913.06	8.26	29.63	911.63	-3,995.37	25.84	14.70	2.00	2.00	0.00	29.63	
5,785.88	8.26	29.63	5,733.88	826.88	634.44	360.86	0.00	0.00	0.00	0.00	
6,613.29	90.00	1.20	6,233.25	1,326.25	1,201.96	407.31	10.00	9.88	-3.44	-28.68	HZ LP - BLUE TEAL F
16,012.51	90.00	1.20	6,233.20	1,326.20	10,599.11	604.91	0.00	0.00	0.00	0.00	BHL - BLUE TEAL FE

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4907.00usft (Original Well Elev)
Site:	NW NE SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	BLUE TEAL FED 15-10-12HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
SHL: 600ft FNL & 2098ft FEL of Sec 22										
0.00	0.00	0.00	0.00	4,907.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,807.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,707.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,607.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,507.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
500.00	0.00	0.00	500.00	4,407.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	29.63	599.98	4,307.02	1.52	0.86	1.56	2.00	2.00	0.00
700.00	4.00	29.63	699.84	4,207.16	6.07	3.45	6.25	2.00	2.00	0.00
800.00	6.00	29.63	799.45	4,107.55	13.64	7.76	14.06	2.00	2.00	0.00
900.00	8.00	29.63	898.70	4,008.30	24.23	13.78	24.98	2.00	2.00	0.00
EOB TO 8.26° INC										
913.06	8.26	29.63	911.63	3,995.37	25.84	14.70	26.63	2.00	2.00	0.00
913.06	8.26	29.63	911.63	3,995.37	25.84	14.70	26.64	2.00	2.00	0.00
1,000.00	8.26	29.63	997.67	3,909.33	36.70	20.87	37.83	0.00	0.00	0.00
1,100.00	8.26	29.63	1,096.63	3,810.37	49.19	27.98	50.70	0.00	0.00	0.00
1,200.00	8.26	29.63	1,195.59	3,711.41	61.68	35.08	63.58	0.00	0.00	0.00
1,300.00	8.26	29.63	1,294.56	3,612.44	74.17	42.18	76.45	0.00	0.00	0.00
1,400.00	8.26	29.63	1,393.52	3,513.48	86.66	49.29	89.33	0.00	0.00	0.00
FOX HILLS BASE										
1,499.26	8.26	29.63	1,491.75	3,415.25	99.06	56.34	102.10	0.00	0.00	0.00
1,500.00	8.26	29.63	1,492.48	3,414.52	99.15	56.39	102.20	0.00	0.00	0.00
SURFACE CASING										
1,563.18	8.26	29.63	1,555.00	3,352.00	107.04	60.88	110.33	0.00	0.00	0.00
1,600.00	8.26	29.63	1,591.44	3,315.56	111.64	63.50	115.07	0.00	0.00	0.00
1,700.00	8.26	29.63	1,690.40	3,216.60	124.13	70.60	127.95	0.00	0.00	0.00
1,800.00	8.26	29.63	1,789.37	3,117.63	136.62	77.70	140.82	0.00	0.00	0.00
1,900.00	8.26	29.63	1,888.33	3,018.67	149.11	84.81	153.70	0.00	0.00	0.00
2,000.00	8.26	29.63	1,987.29	2,919.71	161.60	91.91	166.57	0.00	0.00	0.00
2,100.00	8.26	29.63	2,086.25	2,820.75	174.09	99.02	179.44	0.00	0.00	0.00
2,200.00	8.26	29.63	2,185.22	2,721.78	186.58	106.12	192.32	0.00	0.00	0.00
2,300.00	8.26	29.63	2,284.18	2,622.82	199.07	113.22	205.19	0.00	0.00	0.00
2,400.00	8.26	29.63	2,383.14	2,523.86	211.56	120.33	218.07	0.00	0.00	0.00
2,500.00	8.26	29.63	2,482.10	2,424.90	224.04	127.43	230.94	0.00	0.00	0.00
2,600.00	8.26	29.63	2,581.07	2,325.93	236.53	134.54	243.82	0.00	0.00	0.00
2,700.00	8.26	29.63	2,680.03	2,226.97	249.02	141.64	256.69	0.00	0.00	0.00
2,800.00	8.26	29.63	2,778.99	2,128.01	261.51	148.74	269.56	0.00	0.00	0.00
2,900.00	8.26	29.63	2,877.95	2,029.05	274.00	155.85	282.44	0.00	0.00	0.00
3,000.00	8.26	29.63	2,976.91	1,930.09	286.49	162.95	295.31	0.00	0.00	0.00
3,100.00	8.26	29.63	3,075.88	1,831.12	298.98	170.06	308.19	0.00	0.00	0.00
3,200.00	8.26	29.63	3,174.84	1,732.16	311.47	177.16	321.06	0.00	0.00	0.00
3,300.00	8.26	29.63	3,273.80	1,633.20	323.96	184.26	333.94	0.00	0.00	0.00
RICHARD SANDSTONE										
3,320.66	8.26	29.63	3,294.25	1,612.75	326.54	185.73	336.60	0.00	0.00	0.00
3,400.00	8.26	29.63	3,372.76	1,534.24	336.45	191.37	346.81	0.00	0.00	0.00
3,500.00	8.26	29.63	3,471.73	1,435.27	348.94	198.47	359.68	0.00	0.00	0.00
3,600.00	8.26	29.63	3,570.69	1,336.31	361.43	205.57	372.56	0.00	0.00	0.00
3,700.00	8.26	29.63	3,669.65	1,237.35	373.92	212.68	385.43	0.00	0.00	0.00
3,800.00	8.26	29.63	3,768.61	1,138.39	386.41	219.78	398.31	0.00	0.00	0.00
3,900.00	8.26	29.63	3,867.58	1,039.42	398.90	226.89	411.18	0.00	0.00	0.00
4,000.00	8.26	29.63	3,966.54	940.46	411.39	233.99	424.06	0.00	0.00	0.00
4,100.00	8.26	29.63	4,065.50	841.50	423.88	241.09	436.93	0.00	0.00	0.00

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Well:	BLUE TEAL FED 15-10-12HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
SUSSEX SANDSTONE										
4,191.20	8.26	29.63	4,155.75	751.25	435.27	247.57	448.67	0.00	0.00	0.00
4,200.00	8.26	29.63	4,164.46	742.54	436.37	248.20	449.80	0.00	0.00	0.00
4,300.00	8.26	29.63	4,263.42	643.58	448.86	255.30	462.68	0.00	0.00	0.00
4,400.00	8.26	29.63	4,362.39	544.61	461.35	262.41	475.55	0.00	0.00	0.00
4,500.00	8.26	29.63	4,461.35	445.65	473.84	269.51	488.43	0.00	0.00	0.00
4,600.00	8.26	29.63	4,560.31	346.69	486.33	276.61	501.30	0.00	0.00	0.00
SHANNON SANDSTONE										
4,684.31	8.26	29.63	4,643.75	263.25	496.86	282.60	512.16	0.00	0.00	0.00
4,700.00	8.26	29.63	4,659.27	247.73	498.82	283.72	514.18	0.00	0.00	0.00
4,800.00	8.26	29.63	4,758.24	148.76	511.31	290.82	527.05	0.00	0.00	0.00
4,900.00	8.26	29.63	4,857.20	49.80	523.80	297.93	539.92	0.00	0.00	0.00
5,000.00	8.26	29.63	4,956.16	-49.16	536.29	305.03	552.80	0.00	0.00	0.00
5,100.00	8.26	29.63	5,055.12	-148.12	548.78	312.13	565.67	0.00	0.00	0.00
5,200.00	8.26	29.63	5,154.09	-247.09	561.27	319.24	578.55	0.00	0.00	0.00
5,300.00	8.26	29.63	5,253.05	-346.05	573.76	326.34	591.42	0.00	0.00	0.00
5,400.00	8.26	29.63	5,352.01	-445.01	586.25	333.44	604.29	0.00	0.00	0.00
5,500.00	8.26	29.63	5,450.97	-543.97	598.74	340.55	617.17	0.00	0.00	0.00
5,600.00	8.26	29.63	5,549.93	-642.93	611.23	347.65	630.04	0.00	0.00	0.00
5,700.00	8.26	29.63	5,648.90	-741.90	623.72	354.76	642.92	0.00	0.00	0.00
KOP (10°/100ft DGLG)										
5,785.88	8.26	29.63	5,733.88	-826.88	634.44	360.86	653.97	0.00	0.00	0.00
5,800.00	9.52	25.53	5,747.84	-840.84	636.38	361.86	655.96	10.00	8.94	-29.02
5,850.00	14.22	17.03	5,796.76	-889.76	645.99	365.45	665.76	10.00	9.39	-17.00
5,900.00	19.07	12.74	5,844.65	-937.65	659.84	369.05	679.80	10.00	9.70	-8.59
5,950.00	23.98	10.14	5,891.15	-984.15	677.82	372.64	697.95	10.00	9.82	-5.19
6,000.00	28.92	8.39	5,935.90	-1,028.90	699.80	376.20	720.09	10.00	9.88	-3.50
6,050.00	33.88	7.11	5,978.57	-1,071.57	725.60	379.69	746.06	10.00	9.91	-2.55
6,100.00	38.84	6.13	6,018.82	-1,111.82	755.04	383.09	775.64	10.00	9.93	-1.97
6,150.00	43.81	5.34	6,056.36	-1,149.36	787.88	386.38	808.62	10.00	9.95	-1.59
SHARON SPRINGS										
6,166.72	45.48	5.10	6,068.25	-1,161.25	799.58	387.44	820.36	10.00	9.95	-1.40
6,200.00	48.79	4.67	6,090.89	-1,183.89	823.88	389.52	844.74	10.00	9.96	-1.28
6,250.00	53.77	4.11	6,122.15	-1,215.15	862.77	392.50	883.73	10.00	9.96	-1.13
NIOBRARA A CHALK										
6,270.11	55.78	3.90	6,133.75	-1,226.75	879.15	393.65	900.15	10.00	9.96	-1.03
6,300.00	58.75	3.61	6,149.91	-1,242.91	904.24	395.29	925.29	10.00	9.97	-0.97
NIOBRARA A CHALK BASE										
6,304.54	59.21	3.57	6,152.25	-1,245.25	908.12	395.53	929.18	10.00	9.97	-0.94
6,350.00	63.74	3.16	6,173.96	-1,266.96	947.98	397.87	969.11	10.00	9.97	-0.89
NIOBRARA B1 CHALK TOP										
6,375.55	66.29	2.94	6,184.75	-1,277.75	971.11	399.10	992.27	10.00	9.97	-0.84
6,400.00	68.72	2.75	6,194.10	-1,287.10	993.67	400.23	1,014.86	10.00	9.97	-0.81
6,450.00	73.71	2.36	6,210.20	-1,303.20	1,040.94	402.33	1,062.18	10.00	9.97	-0.77
NIOBRARA B1 CHALK BASE										
6,450.19	73.71	2.36	6,210.25	-1,303.25	1,041.13	402.34	1,062.36	0.00	0.00	0.00
6,500.00	78.70	2.00	6,222.11	-1,315.11	1,089.45	404.18	1,110.71	10.04	10.01	-0.73
6,550.00	83.69	1.64	6,229.77	-1,322.77	1,138.82	405.74	1,160.09	10.00	9.98	-0.71
6,600.00	88.67	1.30	6,233.10	-1,326.10	1,188.68	407.02	1,209.94	10.00	9.98	-0.69
HZ LP: 600ft FSL & 1715ft FEL of Sec 15 - NIOBRARA B2 CHALK TOP										
6,613.29	90.00	1.20	6,233.25	-1,326.25	1,201.96	407.31	1,223.22	10.00	9.98	-0.69
6,700.00	90.00	1.20	6,233.25	-1,326.25	1,288.65	409.13	1,309.87	0.00	0.00	0.00
6,800.00	90.00	1.20	6,233.25	-1,326.25	1,388.63	411.24	1,409.81	0.00	0.00	0.00

Planning Report



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Design:	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)
6,900.00	90.00	1.20	6,233.25	-1,326.25	1,488.61	413.34	1,509.74	0.00	0.00	0.00
7,000.00	90.00	1.20	6,233.25	-1,326.25	1,588.59	415.44	1,609.68	0.00	0.00	0.00
7,100.00	90.00	1.20	6,233.25	-1,326.25	1,688.57	417.54	1,709.61	0.00	0.00	0.00
7,200.00	90.00	1.20	6,233.25	-1,326.25	1,788.54	419.65	1,809.55	0.00	0.00	0.00
7,300.00	90.00	1.20	6,233.25	-1,326.25	1,888.52	421.75	1,909.48	0.00	0.00	0.00
7,400.00	90.00	1.20	6,233.25	-1,326.25	1,988.50	423.85	2,009.42	0.00	0.00	0.00
7,500.00	90.00	1.20	6,233.25	-1,326.25	2,088.48	425.95	2,109.36	0.00	0.00	0.00
7,600.00	90.00	1.20	6,233.24	-1,326.24	2,188.46	428.06	2,209.29	0.00	0.00	0.00
7,700.00	90.00	1.20	6,233.24	-1,326.24	2,288.43	430.16	2,309.23	0.00	0.00	0.00
7,800.00	90.00	1.20	6,233.24	-1,326.24	2,388.41	432.26	2,409.16	0.00	0.00	0.00
7,900.00	90.00	1.20	6,233.24	-1,326.24	2,488.39	434.36	2,509.10	0.00	0.00	0.00
8,000.00	90.00	1.20	6,233.24	-1,326.24	2,588.37	436.46	2,609.03	0.00	0.00	0.00
8,100.00	90.00	1.20	6,233.24	-1,326.24	2,688.35	438.57	2,708.97	0.00	0.00	0.00
8,200.00	90.00	1.20	6,233.24	-1,326.24	2,788.32	440.67	2,808.90	0.00	0.00	0.00
8,300.00	90.00	1.20	6,233.24	-1,326.24	2,888.30	442.77	2,908.84	0.00	0.00	0.00
8,400.00	90.00	1.20	6,233.24	-1,326.24	2,988.28	444.87	3,008.77	0.00	0.00	0.00
8,500.00	90.00	1.20	6,233.24	-1,326.24	3,088.26	446.98	3,108.71	0.00	0.00	0.00
8,600.00	90.00	1.20	6,233.24	-1,326.24	3,188.23	449.08	3,208.64	0.00	0.00	0.00
8,700.00	90.00	1.20	6,233.24	-1,326.24	3,288.21	451.18	3,308.58	0.00	0.00	0.00
8,800.00	90.00	1.20	6,233.24	-1,326.24	3,388.19	453.28	3,408.51	0.00	0.00	0.00
8,900.00	90.00	1.20	6,233.24	-1,326.24	3,488.17	455.39	3,508.45	0.00	0.00	0.00
9,000.00	90.00	1.20	6,233.24	-1,326.24	3,588.15	457.49	3,608.38	0.00	0.00	0.00
9,100.00	90.00	1.20	6,233.24	-1,326.24	3,688.12	459.59	3,708.32	0.00	0.00	0.00
9,200.00	90.00	1.20	6,233.24	-1,326.24	3,788.10	461.69	3,808.25	0.00	0.00	0.00
9,300.00	90.00	1.20	6,233.24	-1,326.24	3,888.08	463.79	3,908.19	0.00	0.00	0.00
9,400.00	90.00	1.20	6,233.24	-1,326.24	3,988.06	465.90	4,008.12	0.00	0.00	0.00
9,500.00	90.00	1.20	6,233.23	-1,326.23	4,088.04	468.00	4,108.06	0.00	0.00	0.00
9,600.00	90.00	1.20	6,233.23	-1,326.23	4,188.01	470.10	4,208.00	0.00	0.00	0.00
9,700.00	90.00	1.20	6,233.23	-1,326.23	4,287.99	472.20	4,307.93	0.00	0.00	0.00
9,800.00	90.00	1.20	6,233.23	-1,326.23	4,387.97	474.31	4,407.87	0.00	0.00	0.00
9,900.00	90.00	1.20	6,233.23	-1,326.23	4,487.95	476.41	4,507.80	0.00	0.00	0.00
10,000.00	90.00	1.20	6,233.23	-1,326.23	4,587.93	478.51	4,607.74	0.00	0.00	0.00
10,100.00	90.00	1.20	6,233.23	-1,326.23	4,687.90	480.61	4,707.67	0.00	0.00	0.00
10,200.00	90.00	1.20	6,233.23	-1,326.23	4,787.88	482.71	4,807.61	0.00	0.00	0.00
10,300.00	90.00	1.20	6,233.23	-1,326.23	4,887.86	484.82	4,907.54	0.00	0.00	0.00
10,400.00	90.00	1.20	6,233.23	-1,326.23	4,987.84	486.92	5,007.48	0.00	0.00	0.00
10,500.00	90.00	1.20	6,233.23	-1,326.23	5,087.81	489.02	5,107.41	0.00	0.00	0.00
10,600.00	90.00	1.20	6,233.23	-1,326.23	5,187.79	491.12	5,207.35	0.00	0.00	0.00
10,700.00	90.00	1.20	6,233.23	-1,326.23	5,287.77	493.23	5,307.28	0.00	0.00	0.00
10,800.00	90.00	1.20	6,233.23	-1,326.23	5,387.75	495.33	5,407.22	0.00	0.00	0.00
10,900.00	90.00	1.20	6,233.23	-1,326.23	5,487.73	497.43	5,507.15	0.00	0.00	0.00
11,000.00	90.00	1.20	6,233.23	-1,326.23	5,587.70	499.53	5,607.09	0.00	0.00	0.00
11,100.00	90.00	1.20	6,233.23	-1,326.23	5,687.68	501.64	5,707.02	0.00	0.00	0.00
11,200.00	90.00	1.20	6,233.23	-1,326.23	5,787.66	503.74	5,806.96	0.00	0.00	0.00
11,300.00	90.00	1.20	6,233.23	-1,326.23	5,887.64	505.84	5,906.89	0.00	0.00	0.00
11,400.00	90.00	1.20	6,233.22	-1,326.22	5,987.62	507.94	6,006.83	0.00	0.00	0.00
11,500.00	90.00	1.20	6,233.22	-1,326.22	6,087.59	510.04	6,106.77	0.00	0.00	0.00
11,600.00	90.00	1.20	6,233.22	-1,326.22	6,187.57	512.15	6,206.70	0.00	0.00	0.00
11,700.00	90.00	1.20	6,233.22	-1,326.22	6,287.55	514.25	6,306.64	0.00	0.00	0.00
11,800.00	90.00	1.20	6,233.22	-1,326.22	6,387.53	516.35	6,406.57	0.00	0.00	0.00
11,900.00	90.00	1.20	6,233.22	-1,326.22	6,487.51	518.45	6,506.51	0.00	0.00	0.00
12,000.00	90.00	1.20	6,233.22	-1,326.22	6,587.48	520.56	6,606.44	0.00	0.00	0.00
12,100.00	90.00	1.20	6,233.22	-1,326.22	6,687.46	522.66	6,706.38	0.00	0.00	0.00
12,200.00	90.00	1.20	6,233.22	-1,326.22	6,787.44	524.76	6,806.31	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-10-12HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4907.00usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4907.00usft (Original Well Elev)
Site:	NW NE SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	BLUE TEAL FED 15-10-12HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
12,300.00	90.00	1.20	6,233.22	-1,326.22	6,887.42	526.86	6,906.25	0.00	0.00	0.00
12,400.00	90.00	1.20	6,233.22	-1,326.22	6,987.39	528.96	7,006.18	0.00	0.00	0.00
12,500.00	90.00	1.20	6,233.22	-1,326.22	7,087.37	531.07	7,106.12	0.00	0.00	0.00
12,600.00	90.00	1.20	6,233.22	-1,326.22	7,187.35	533.17	7,206.05	0.00	0.00	0.00
12,700.00	90.00	1.20	6,233.22	-1,326.22	7,287.33	535.27	7,305.99	0.00	0.00	0.00
12,800.00	90.00	1.20	6,233.22	-1,326.22	7,387.31	537.37	7,405.92	0.00	0.00	0.00
12,900.00	90.00	1.20	6,233.22	-1,326.22	7,487.28	539.48	7,505.86	0.00	0.00	0.00
13,000.00	90.00	1.20	6,233.22	-1,326.22	7,587.26	541.58	7,605.79	0.00	0.00	0.00
13,100.00	90.00	1.20	6,233.22	-1,326.22	7,687.24	543.68	7,705.73	0.00	0.00	0.00
13,200.00	90.00	1.20	6,233.21	-1,326.21	7,787.22	545.78	7,805.66	0.00	0.00	0.00
13,300.00	90.00	1.20	6,233.21	-1,326.21	7,887.20	547.89	7,905.60	0.00	0.00	0.00
13,400.00	90.00	1.20	6,233.21	-1,326.21	7,987.17	549.99	8,005.54	0.00	0.00	0.00
13,500.00	90.00	1.20	6,233.21	-1,326.21	8,087.15	552.09	8,105.47	0.00	0.00	0.00
13,600.00	90.00	1.20	6,233.21	-1,326.21	8,187.13	554.19	8,205.41	0.00	0.00	0.00
13,700.00	90.00	1.20	6,233.21	-1,326.21	8,287.11	556.29	8,305.34	0.00	0.00	0.00
13,800.00	90.00	1.20	6,233.21	-1,326.21	8,387.09	558.40	8,405.28	0.00	0.00	0.00
13,900.00	90.00	1.20	6,233.21	-1,326.21	8,487.06	560.50	8,505.21	0.00	0.00	0.00
14,000.00	90.00	1.20	6,233.21	-1,326.21	8,587.04	562.60	8,605.15	0.00	0.00	0.00
14,100.00	90.00	1.20	6,233.21	-1,326.21	8,687.02	564.70	8,705.08	0.00	0.00	0.00
14,200.00	90.00	1.20	6,233.21	-1,326.21	8,787.00	566.81	8,805.02	0.00	0.00	0.00
14,300.00	90.00	1.20	6,233.21	-1,326.21	8,886.97	568.91	8,904.95	0.00	0.00	0.00
14,400.00	90.00	1.20	6,233.21	-1,326.21	8,986.95	571.01	9,004.89	0.00	0.00	0.00
14,500.00	90.00	1.20	6,233.21	-1,326.21	9,086.93	573.11	9,104.82	0.00	0.00	0.00
14,600.00	90.00	1.20	6,233.21	-1,326.21	9,186.91	575.22	9,204.76	0.00	0.00	0.00
14,700.00	90.00	1.20	6,233.21	-1,326.21	9,286.89	577.32	9,304.69	0.00	0.00	0.00
14,800.00	90.00	1.20	6,233.21	-1,326.21	9,386.86	579.42	9,404.63	0.00	0.00	0.00
14,900.00	90.00	1.20	6,233.21	-1,326.21	9,486.84	581.52	9,504.56	0.00	0.00	0.00
15,000.00	90.00	1.20	6,233.21	-1,326.21	9,586.82	583.62	9,604.50	0.00	0.00	0.00
15,100.00	90.00	1.20	6,233.20	-1,326.20	9,686.80	585.73	9,704.43	0.00	0.00	0.00
15,200.00	90.00	1.20	6,233.20	-1,326.20	9,786.78	587.83	9,804.37	0.00	0.00	0.00
15,300.00	90.00	1.20	6,233.20	-1,326.20	9,886.75	589.93	9,904.31	0.00	0.00	0.00
15,400.00	90.00	1.20	6,233.20	-1,326.20	9,986.73	592.03	10,004.24	0.00	0.00	0.00
15,500.00	90.00	1.20	6,233.20	-1,326.20	10,086.71	594.14	10,104.18	0.00	0.00	0.00
15,600.00	90.00	1.20	6,233.20	-1,326.20	10,186.69	596.24	10,204.11	0.00	0.00	0.00
15,700.00	90.00	1.20	6,233.20	-1,326.20	10,286.67	598.34	10,304.05	0.00	0.00	0.00
15,800.00	90.00	1.20	6,233.20	-1,326.20	10,386.64	600.44	10,403.98	0.00	0.00	0.00
15,900.00	90.00	1.20	6,233.20	-1,326.20	10,486.62	602.54	10,503.92	0.00	0.00	0.00
16,000.00	90.00	1.20	6,233.20	-1,326.20	10,586.60	604.65	10,603.85	0.00	0.00	0.00
BHL: 600ft FNL & 1704ft FEL of Sec 10										
16,012.50	90.00	1.20	6,233.20	-1,326.20	10,599.10	604.91	10,616.34	0.00	0.00	0.00
16,012.51	90.00	1.20	6,233.20	-1,326.20	10,599.11	604.91	10,616.35	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-10-12HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4907.00usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4907.00usft (Original Well Elev)
Site:	NW NE SEC. 22 T8N R60W 6th P.M.	North Reference:	True
Well:	BLUE TEAL FED 15-10-12HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,499.26	1,491.75	FOX HILLS BASE				
3,320.66	3,294.25	RICHARD SANDSTONE				
4,191.20	4,155.75	SUSSEX SANDSTONE				
4,684.31	4,643.75	SHANNON SANDSTONE				
6,166.72	6,068.25	SHARON SPRINGS				
6,270.11	6,133.75	NIOBRARA A CHALK				
6,304.54	6,152.25	NIOBRARA A CHALK BASE				
6,375.55	6,184.75	NIOBRARA B1 CHALK TOP				
6,450.19	6,210.25	NIOBRARA B1 CHALK BASE				
6,613.29	6,233.25	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 & 2098ft FEL of Sec 22
500.00	500.00	0.00	0.00	START NUDGE (2°/100ft BUR)
913.06	911.63	25.84	14.70	EOB TO 8.26° INC
1,563.18	1,555.00	107.04	60.88	SURFACE CASING
5,785.88	5,733.88	634.44	360.86	KOP (10°/100ft DGLG)
6,613.29	6,233.25	1,201.96	407.31	HZ LP: 600ft FSL & 1715ft FEL of Sec 15
16,012.50	6,233.20	10,599.10	604.91	BHL: 600ft FNL & 1704ft FEL of Sec 10