

Well Planning Proposal FOR

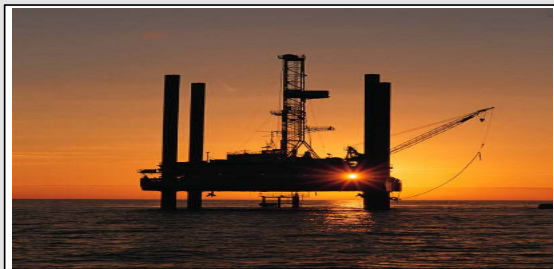
**Fram Operating LLC
Collard 24-12-98 M
Mesa Co., CO**

Well File: Design #1 (7/13/11)

Presented By:

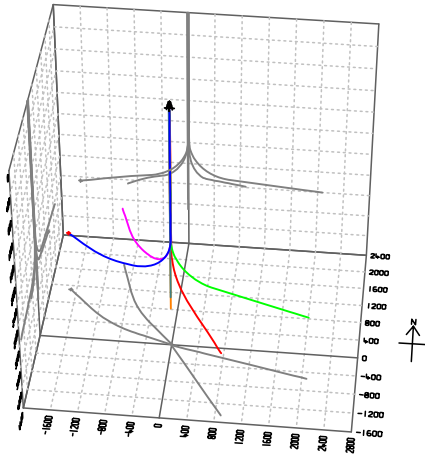
Pat Rasmussen
Regional Manager

Bret Wolford
Well Planner



Fram Operating, LLC

Project: Mesa Co., CO
Site: Sec.24-T12S-R98W
Well: Collard 24-12-98 M
Wellbore: Wellbore #1
Design: Design #1
Latitude: 38° 59' 15.469 N
Longitude: 108° 18' 7.479 W
Ground Level: 5968.00
WELL @ 5982.00usft (Frontier 4)



PROJECT DETAILS: Mesa Co., CO

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

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Collard 24-12-98 M, True North
Vertical (TVD) Reference: WELL @ 5982.00usft (Frontier 4)
Section (VS) Reference: Slot - (0.00N, 0.00E)
Measured Depth Reference: WELL @ 5982.00usft (Frontier 4)
Calculation Method: Minimum Curvature

WELL DETAILS: Collard 24-12-98 M

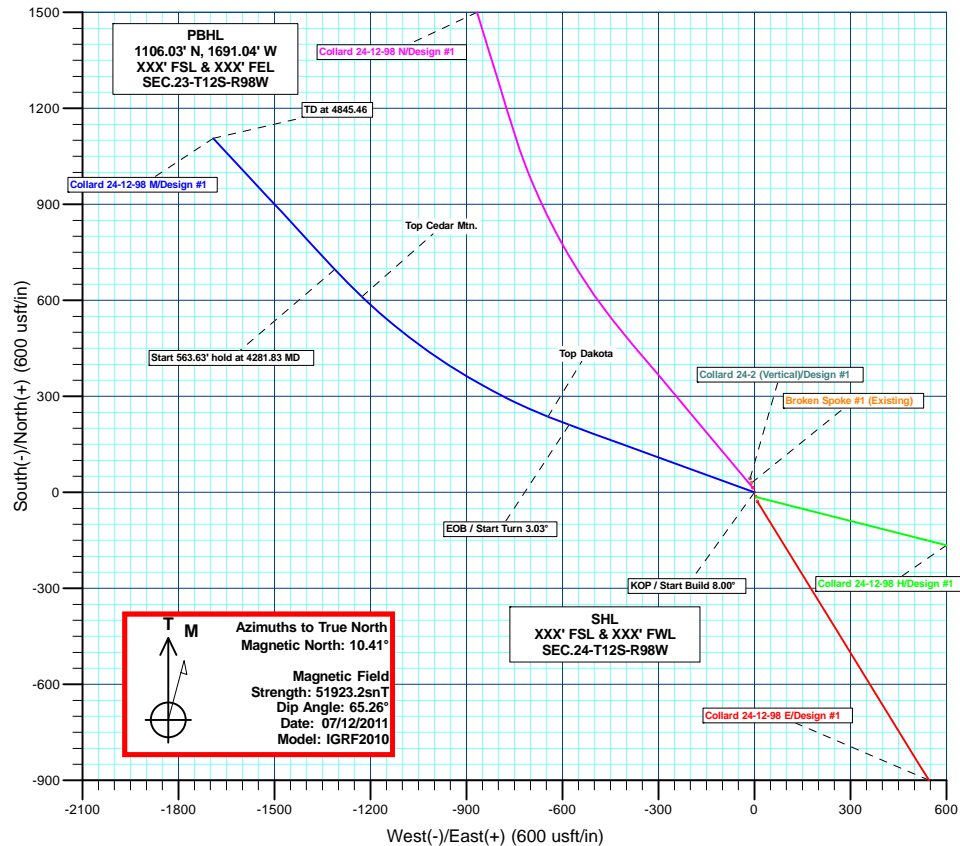
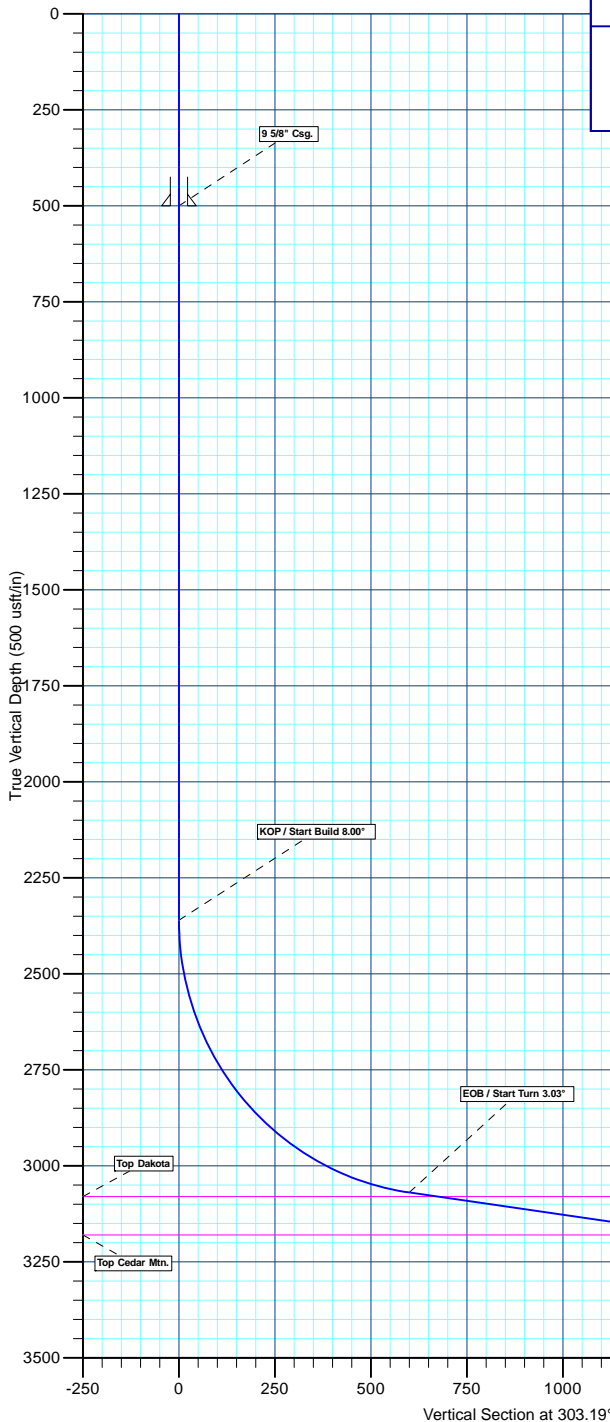
Ground Level: 5968.00
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.00 0.00 1432671.818 2203667.704 38° 59' 15.469 N 108° 18' 7.479 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Collard 24-M PBHL	3275.49	1106.03	-1691.04	1433829.475	2202011.581	38° 59' 26.401 N	108° 18' 28.897 W	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP / Start Build 8.00°
2360.77	0.00	0.00	2360.77	0.00	0.00	0.00	0.00	0.00	EOB / Start Turn 3.03°
3385.77	82.00	290.00	3070.00	210.86	-579.34	8.00	290.00	600.26	Start 563.63' hold at 4281.83 MD
4281.83	82.00	317.15	3197.04	696.83	-1311.46	3.00	91.92	1478.97	TD at 4845.46
4845.46	82.00	317.15	3275.49	1106.03	-1691.04	0.00	0.00	2020.62	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3080.00	3457.34	Top Dakota	0.00	
3180.00	4160.21	Top Cedar Mtn.	0.00	

CASING DETAILS

TVD	MD	Name	Size
500.00	500.00	9 5/8" Csg.	9-5/8

Plan: Design #1 (Collard 24-12-98 M/Wellbore #1)

Created By: Bret Wolford Date: 10:21, July 13 2011

Fram Operating, LLC

Mesa Co., CO

Sec.24-T12S-R98W

Collard 24-12-98 M

Wellbore #1

Plan: Design #1

Standard Planning Report

13 July, 2011



Great White Directional Services, LLC
Planning Report



Database:	EDM 5000.1 EDMDBBW	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Company:	Fram Operating, LLC	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Project:	Mesa Co., CO	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site:	Sec.24-T12S-R98W	North Reference:	True
Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Mesa Co., CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		Sec.24-T12S-R98W			
Site Position:		Northing:	1,432,701.128 usft	Latitude:	38° 59' 15.756 N
From:	Lat/Long	Easting:	2,203,659.335 usft	Longitude:	108° 18' 7.596 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	-1.77 °

Well	Collard 24-12-98 M					
Well Position	+N/-S	-29.04 usft	Northing:	1,432,671.818 usft	Latitude:	38° 59' 15.469 N
	+E/-W	9.27 usft	Easting:	2,203,667.704 usft	Longitude:	108° 18' 7.479 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,968.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	07/12/11	10.41	65.26	51,923

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	303.19

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,360.77	0.00	0.00	2,360.77	0.00	0.00	0.00	0.00	0.00	0.00	
3,385.77	82.00	290.00	3,070.00	210.86	-579.34	8.00	8.00	0.00	290.00	
4,281.83	82.00	317.15	3,197.04	696.83	-1,311.46	3.00	0.00	3.03	91.92	Collard 24-M PBHL
4,845.46	82.00	317.15	3,275.49	1,106.03	-1,691.04	0.00	0.00	0.00	0.00	Collard 24-M PBHL

Database:	EDM 5000.1 EDMDBBW	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Company:	Fram Operating, LLC	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Project:	Mesa Co., CO	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site:	Sec.24-T12S-R98W	North Reference:	True
Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
9 5/8" Csg.									
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
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
1,700.00	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
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP / Start Build 8.00°									
2,360.77	0.00	0.00	2,360.77	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	3.14	290.00	2,399.98	0.37	-1.01	1.05	8.00	8.00	0.00
2,450.00	7.14	290.00	2,449.77	1.90	-5.22	5.40	8.00	8.00	0.00
2,500.00	11.14	290.00	2,499.12	4.61	-12.68	13.13	8.00	8.00	0.00
2,550.00	15.14	290.00	2,547.81	8.50	-23.35	24.20	8.00	8.00	0.00
2,600.00	19.14	290.00	2,595.58	13.54	-37.20	38.54	8.00	8.00	0.00
2,650.00	23.14	290.00	2,642.20	19.70	-54.14	56.09	8.00	8.00	0.00
2,700.00	27.14	290.00	2,687.46	26.97	-74.09	76.77	8.00	8.00	0.00
2,750.00	31.14	290.00	2,731.12	35.29	-96.97	100.47	8.00	8.00	0.00
2,800.00	35.14	290.00	2,772.98	44.64	-122.65	127.08	8.00	8.00	0.00
2,850.00	39.14	290.00	2,812.83	54.96	-151.01	156.46	8.00	8.00	0.00
2,900.00	43.14	290.00	2,850.48	66.21	-181.91	188.48	8.00	8.00	0.00
2,950.00	47.14	290.00	2,885.74	78.33	-215.21	222.98	8.00	8.00	0.00
3,000.00	51.14	290.00	2,918.45	91.26	-250.73	259.79	8.00	8.00	0.00
3,050.00	55.14	290.00	2,948.44	104.94	-288.32	298.73	8.00	8.00	0.00
3,100.00	59.14	290.00	2,975.56	119.30	-327.78	339.61	8.00	8.00	0.00
3,150.00	63.14	290.00	2,999.69	134.27	-368.92	382.24	8.00	8.00	0.00
3,200.00	67.14	290.00	3,020.71	149.79	-411.54	426.40	8.00	8.00	0.00
3,250.00	71.14	290.00	3,038.51	165.76	-455.43	471.88	8.00	8.00	0.00
3,300.00	75.14	290.00	3,053.01	182.13	-500.39	518.46	8.00	8.00	0.00
3,350.00	79.14	290.00	3,064.14	198.80	-546.19	565.91	8.00	8.00	0.00
EOB / Start Turn 3.03°									
3,385.77	82.00	290.00	3,070.00	210.86	-579.34	600.26	8.00	8.00	0.00
3,400.00	81.99	290.43	3,071.98	215.73	-592.56	614.00	3.00	-0.10	3.03
Top Dakota									
3,457.34	81.93	292.17	3,080.00	236.35	-645.46	669.55	3.00	-0.09	3.03
3,500.00	81.90	293.46	3,086.00	252.73	-684.39	711.10	3.00	-0.08	3.03
3,600.00	81.84	296.49	3,100.15	294.52	-774.12	809.06	3.00	-0.06	3.03

Database:	EDM 5000.1 EDMDBBW	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Company:	Fram Operating, LLC	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Project:	Mesa Co., CO	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site:	Sec.24-T12S-R98W	North Reference:	True
Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,700.00	81.79	299.52	3,114.39	340.99	-861.50	907.63	3.00	-0.04	3.03
3,800.00	81.77	302.55	3,128.68	392.01	-946.30	1,006.52	3.00	-0.02	3.03
3,900.00	81.78	305.58	3,142.99	447.45	-1,028.27	1,105.47	3.00	0.00	3.03
4,000.00	81.80	308.61	3,157.27	507.14	-1,107.21	1,204.20	3.00	0.03	3.03
4,100.00	81.85	311.64	3,171.49	570.93	-1,182.88	1,302.45	3.00	0.05	3.03
Top Cedar Mtn.									
4,160.21	81.89	313.47	3,180.00	611.24	-1,226.78	1,361.26	3.00	0.07	3.03
4,200.00	81.92	314.67	3,185.60	638.64	-1,255.09	1,399.94	3.00	0.08	3.03
Start 563.63' hold at 4281.83 MD									
4,281.83	82.00	317.15	3,197.04	696.83	-1,311.46	1,478.97	3.00	0.09	3.03
4,300.00	82.00	317.15	3,199.57	710.02	-1,323.70	1,496.43	0.00	0.00	0.00
4,400.00	82.00	317.15	3,213.49	782.62	-1,391.04	1,592.53	0.00	0.00	0.00
4,500.00	82.00	317.15	3,227.41	855.22	-1,458.39	1,688.63	0.00	0.00	0.00
4,600.00	82.00	317.15	3,241.32	927.83	-1,525.73	1,784.73	0.00	0.00	0.00
4,700.00	82.00	317.15	3,255.24	1,000.43	-1,593.08	1,880.83	0.00	0.00	0.00
4,800.00	82.00	317.15	3,269.16	1,073.03	-1,660.42	1,976.93	0.00	0.00	0.00
TD at 4845.46 - Collard 24-M PBHL									
4,845.46	82.00	317.15	3,275.49	1,106.03	-1,691.04	2,020.62	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Collard 24-M PBHL	0.00	0.00	3,275.49	1,106.03	-1,691.04	1,433,829.475	2,202,011.581	38° 59' 26.401 N	108° 18' 28.897 W
- plan hits target center									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
500.00	500.00	9 5/8" Csg.	9-5/8	12-1/4

Formations				
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip Direction (°)
3,457.34	3,080.00	Top Dakota		0.00
4,160.21	3,180.00	Top Cedar Mtn.		0.00



Database:	EDM 5000.1 EDMDBBW	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Company:	Fram Operating, LLC	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Project:	Mesa Co., CO	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site:	Sec.24-T12S-R98W	North Reference:	True
Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,360.77	2,360.77	0.00	0.00	KOP / Start Build 8.00°
3,385.77	3,070.00	210.86	-579.34	EOB / Start Turn 3.03°
4,281.83	3,197.04	696.83	-1,311.46	Start 563.63' hold at 4281.83 MD
4,845.46	3,275.49	1,106.03	-1,691.04	TD at 4845.46

Fram Operating, LLC

Mesa Co., CO

Sec.24-T12S-R98W

Collard 24-12-98 M

Wellbore #1

Design #1

Anticollision Report

13 July, 2011



Great White Directional Services, LLC
Anticollision Report



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference	Design #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 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	07/12/11		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	4,845.46	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured	Offset Measured	Distance		Separation Factor	Warning
	Depth (usft)	Depth (usft)	Between Centres (usft)	Between Ellipses (usft)		
Sec.24-T12S-R98W						
Broken Spoke #1 (Existing) - Wellbore #1 - Wellbore #1	2,524.52	2,523.10	24.11	15.75	2.883	CC, ES, SF
Collard 24-12-98 E - Wellbore #1 - Design #1	2,360.77	2,360.77	29.99	19.63	2.896	CC, ES, SF
Collard 24-12-98 H - Wellbore #1 - Design #1	2,338.99	2,338.99	15.00	4.74	1.462	Level 3, CC
Collard 24-12-98 H - Wellbore #1 - Design #1	2,360.77	2,360.72	15.00	4.65	1.449	Level 3, ES, SF
Collard 24-12-98 N - Wellbore #1 - Design #1	2,360.77	2,360.77	15.00	4.64	1.448	Level 3, CC, ES, SF
Collard 24-2 (Vertical) - Wellbore #1 - Design #1	2,559.93	2,557.37	35.59	24.34	3.164	CC, ES, SF

Offset Design	Sec.24-T12S-R98W - Broken Spoke #1 (Existing) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.00 usft
Survey Program:	3705-MWD											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor	Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-17.71	29.03	-9.27	30.48				
100.00	100.00	100.00	100.00	0.10	0.11	-17.71	29.03	-9.27	30.48	30.27	0.21	146.096	
200.00	200.00	200.00	200.00	0.32	0.22	-17.71	29.03	-9.27	30.48	29.93	0.55	55.887	
300.00	300.00	300.00	300.00	0.55	0.34	-17.71	29.03	-9.27	30.48	29.59	0.88	34.552	
400.00	400.00	400.00	400.00	0.77	0.45	-17.71	29.03	-9.27	30.48	29.26	1.22	25.006	
500.00	500.00	500.00	500.00	1.00	0.56	-17.71	29.03	-9.27	30.48	28.92	1.56	19.593	
600.00	600.00	600.00	600.00	1.22	0.67	-17.71	29.03	-9.27	30.48	28.58	1.89	16.106	
700.00	700.00	700.00	700.00	1.45	0.78	-17.71	29.03	-9.27	30.48	28.25	2.23	13.673	
800.00	800.00	800.00	800.00	1.67	0.90	-17.71	29.03	-9.27	30.48	27.91	2.57	11.879	
900.00	900.00	900.00	900.00	1.89	1.01	-17.71	29.03	-9.27	30.48	27.57	2.90	10.501	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	1.12	-17.71	29.03	-9.27	30.48	27.24	3.24	9.409	
1,100.00	1,100.00	1,100.00	1,100.00	2.34	1.23	-17.71	29.03	-9.27	30.48	26.90	3.58	8.523	
1,200.00	1,200.00	1,200.00	1,200.00	2.57	1.34	-17.71	29.03	-9.27	30.48	26.56	3.91	7.789	
1,300.00	1,300.00	1,300.00	1,300.00	2.79	1.46	-17.71	29.03	-9.27	30.48	26.23	4.25	7.172	
1,400.00	1,400.00	1,400.00	1,400.00	3.02	1.57	-17.71	29.03	-9.27	30.48	25.89	4.59	6.646	
1,500.00	1,500.00	1,500.00	1,500.00	3.24	1.68	-17.71	29.03	-9.27	30.48	25.55	4.92	6.191	
1,600.00	1,600.00	1,600.00	1,600.00	3.47	1.79	-17.71	29.03	-9.27	30.48	25.22	5.26	5.795	
1,700.00	1,700.00	1,700.00	1,700.00	3.69	1.90	-17.71	29.03	-9.27	30.48	24.88	5.60	5.446	
1,800.00	1,800.00	1,800.00	1,800.00	3.92	2.02	-17.71	29.03	-9.27	30.48	24.54	5.93	5.137	
1,900.00	1,900.00	1,900.00	1,900.00	4.14	2.13	-17.71	29.03	-9.27	30.48	24.21	6.27	4.861	
2,000.00	2,000.00	2,000.00	2,000.00	4.37	2.24	-17.71	29.03	-9.27	30.48	23.87	6.61	4.613	

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

Great White Directional Services, LLC

Anticollision Report



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 3705-MWVD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
2,100.00	2,100.00	2,100.00	2,100.00	4.59	2.35	-17.71	29.03	-9.27	30.48	23.53	6.94	4.390		
2,200.00	2,200.00	2,200.00	2,200.00	4.82	2.46	-17.71	29.03	-9.27	30.48	23.20	7.28	4.186		
2,300.00	2,300.00	2,300.00	2,300.00	5.04	2.58	-17.71	29.03	-9.27	30.48	22.86	7.62	4.001		
2,360.77	2,360.77	2,360.77	2,360.77	5.18	2.64	-17.71	29.03	-9.27	30.48	22.66	7.82	3.897		
2,400.00	2,399.98	2,399.98	2,399.98	5.26	2.69	-16.07	29.03	-9.27	29.83	21.88	7.95	3.754		
2,450.00	2,449.77	2,449.77	2,449.77	5.37	2.74	-8.49	29.03	-9.27	27.44	19.33	8.10	3.386		
2,500.00	2,499.12	2,499.12	2,499.12	5.48	2.80	7.95	29.03	-9.27	24.66	16.38	8.27	2.980		
2,524.52	2,523.10	2,523.10	2,523.10	5.54	2.82	20.00	29.03	-9.27	24.11	15.75	8.36	2.883 CC, ES, SF		
2,550.00	2,547.81	2,547.81	2,547.81	5.60	2.85	34.45	29.03	-9.27	24.90	16.46	8.44	2.951		
2,600.00	2,595.58	2,595.58	2,595.58	5.74	2.91	60.98	29.03	-9.27	31.94	23.45	8.49	3.763		
2,650.00	2,642.20	2,642.20	2,642.20	5.90	2.96	78.25	29.03	-9.27	45.83	37.38	8.45	5.422		
2,700.00	2,687.46	2,687.46	2,687.46	6.10	3.01	88.17	29.03	-9.27	64.86	56.46	8.40	7.722		
2,750.00	2,731.12	2,731.12	2,731.12	6.35	3.06	94.08	29.03	-9.27	87.92	79.59	8.34	10.548		
2,800.00	2,772.98	2,772.98	2,772.98	6.66	3.10	97.84	29.03	-9.27	114.45	106.19	8.26	13.854		
2,850.00	2,812.83	2,812.83	2,812.83	7.05	3.15	100.37	29.03	-9.27	144.09	135.91	8.18	17.624		
2,900.00	2,850.48	2,850.48	2,850.48	7.51	3.19	102.15	29.03	-9.27	176.60	168.52	8.08	21.850		
2,950.00	2,885.74	2,885.74	2,885.74	8.08	3.23	103.46	29.03	-9.27	211.76	203.77	7.98	26.521		
3,000.00	2,918.45	2,918.45	2,918.45	8.73	3.27	104.45	29.03	-9.27	249.35	241.47	7.89	31.612		
3,050.00	2,948.44	2,948.44	2,948.44	9.49	3.30	105.22	29.03	-9.27	289.19	281.39	7.80	37.080		
3,100.00	2,975.56	2,975.56	2,975.56	10.33	3.33	105.82	29.03	-9.27	331.05	323.33	7.73	42.843		
3,150.00	2,999.69	2,999.69	2,999.69	11.26	3.36	106.31	29.03	-9.27	374.73	367.05	7.68	48.774		
3,200.00	3,020.71	3,020.71	3,020.71	12.27	3.38	106.71	29.03	-9.27	420.00	412.32	7.68	54.667		
3,250.00	3,038.51	3,038.51	3,038.51	13.35	3.40	107.04	29.03	-9.27	466.65	458.89	7.75	60.179		
3,300.00	3,053.01	3,053.01	3,053.01	14.49	3.42	107.31	29.03	-9.27	514.43	506.48	7.95	64.687		
3,350.00	3,064.14	3,064.14	3,064.14	15.67	3.43	107.55	29.03	-9.27	563.12	554.69	8.42	66.850		
3,385.77	3,070.00	3,070.00	3,070.00	16.55	3.44	107.69	29.03	-9.27	598.37	589.20	9.17	65.250		
3,400.00	3,071.98	3,071.98	3,071.98	16.90	3.44	107.75	29.03	-9.27	612.45	602.67	9.78	62.615		
3,500.00	3,086.00	3,086.00	3,086.00	19.36	3.46	108.33	29.03	-9.27	711.22	697.01	14.21	50.051		
3,600.00	3,100.15	3,100.15	3,100.15	21.87	3.47	109.14	29.03	-9.27	809.62	791.37	18.25	44.365		
3,700.00	3,114.39	3,114.39	3,114.39	24.39	3.49	110.11	29.03	-9.27	907.53	885.71	21.82	41.588		
3,800.00	3,128.68	3,128.68	3,128.68	26.90	3.50	111.18	29.03	-9.27	1,004.87	979.84	25.03	40.139		
3,900.00	3,142.99	3,142.99	3,142.99	29.38	3.52	112.32	29.03	-9.27	1,101.56	1,073.59	27.97	39.381		
4,000.00	3,157.27	3,157.27	3,157.27	31.84	3.53	113.53	29.03	-9.27	1,197.52	1,166.84	30.68	39.029		
4,100.00	3,171.49	3,171.49	3,171.49	34.25	3.55	114.78	29.03	-9.27	1,292.68	1,259.48	33.20	38.941		
4,200.00	3,185.60	3,185.60	3,185.60	36.61	3.57	116.07	29.03	-9.27	1,386.97	1,351.44	35.53	39.042		
4,281.83	3,197.04	3,197.04	3,197.04	38.50	3.58	117.15	29.03	-9.27	1,463.44	1,426.14	37.30	39.234		
4,300.00	3,199.57	3,199.57	3,199.57	38.91	3.58	117.39	29.03	-9.27	1,480.36	1,442.70	37.66	39.312		
4,400.00	3,213.49	3,213.49	3,213.49	41.22	3.60	118.61	29.03	-9.27	1,573.91	1,534.32	39.59	39.753		
4,500.00	3,227.41	3,227.41	3,227.41	43.55	3.61	119.69	29.03	-9.27	1,668.09	1,626.61	41.48	40.211		
4,600.00	3,241.32	3,241.32	3,241.32	45.90	3.63	120.65	29.03	-9.27	1,762.81	1,719.48	43.33	40.685		
4,700.00	3,255.24	3,255.24	3,255.24	48.26	3.64	121.52	29.03	-9.27	1,857.97	1,812.84	45.13	41.172		
4,800.00	3,269.16	3,269.16	3,269.16	50.63	3.66	122.30	29.03	-9.27	1,953.52	1,906.64	46.88	41.673		
4,845.46	3,275.49	3,275.49	3,275.49	51.71	3.67	122.64	29.03	-9.27	1,997.07	1,949.41	47.66	41.904		

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

Great White Directional Services, LLC

Anticollision Report



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	162.29	-28.57	9.12	29.99					
100.00	100.00	100.00	100.00	0.10	0.10	162.29	-28.57	9.12	29.99	29.80	0.19	155.150		
200.00	200.00	200.00	200.00	0.32	0.32	162.29	-28.57	9.12	29.99	29.35	0.64	46.653		
300.00	300.00	300.00	300.00	0.55	0.55	162.29	-28.57	9.12	29.99	28.90	1.09	27.455		
400.00	400.00	400.00	400.00	0.77	0.77	162.29	-28.57	9.12	29.99	28.45	1.54	19.450		
500.00	500.00	500.00	500.00	1.00	1.00	162.29	-28.57	9.12	29.99	28.00	1.99	15.060		
600.00	600.00	600.00	600.00	1.22	1.22	162.29	-28.57	9.12	29.99	27.55	2.44	12.286		
700.00	700.00	700.00	700.00	1.45	1.45	162.29	-28.57	9.12	29.99	27.10	2.89	10.376		
800.00	800.00	800.00	800.00	1.67	1.67	162.29	-28.57	9.12	29.99	26.65	3.34	8.979		
900.00	900.00	900.00	900.00	1.89	1.89	162.29	-28.57	9.12	29.99	26.20	3.79	7.914		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	162.29	-28.57	9.12	29.99	25.75	4.24	7.075		
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	162.29	-28.57	9.12	29.99	25.30	4.69	6.396		
1,200.00	1,200.00	1,200.00	1,200.00	2.57	2.57	162.29	-28.57	9.12	29.99	24.85	5.14	5.837		
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	162.29	-28.57	9.12	29.99	24.40	5.59	5.367		
1,400.00	1,400.00	1,400.00	1,400.00	3.02	3.02	162.29	-28.57	9.12	29.99	23.95	6.04	4.968		
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	162.29	-28.57	9.12	29.99	23.50	6.49	4.623		
1,600.00	1,600.00	1,600.00	1,600.00	3.47	3.47	162.29	-28.57	9.12	29.99	23.05	6.94	4.324		
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	162.29	-28.57	9.12	29.99	22.60	7.39	4.061		
1,800.00	1,800.00	1,800.00	1,800.00	3.92	3.92	162.29	-28.57	9.12	29.99	22.15	7.84	3.828		
1,900.00	1,900.00	1,900.00	1,900.00	4.14	4.14	162.29	-28.57	9.12	29.99	21.71	8.28	3.620		
2,000.00	2,000.00	2,000.00	2,000.00	4.37	4.37	162.29	-28.57	9.12	29.99	21.26	8.73	3.434		
2,100.00	2,100.00	2,100.00	2,100.00	4.59	4.59	162.29	-28.57	9.12	29.99	20.81	9.18	3.266		
2,200.00	2,200.00	2,200.00	2,200.00	4.82	4.82	162.29	-28.57	9.12	29.99	20.36	9.63	3.113		
2,300.00	2,300.00	2,300.00	2,300.00	5.04	5.04	162.29	-28.57	9.12	29.99	19.91	10.08	2.974		
2,360.77	2,360.77	2,360.77	2,360.77	5.18	5.18	162.29	-28.57	9.12	29.99	19.63	10.36	2.896 CC, ES, SF		
2,400.00	2,399.98	2,399.98	2,399.98	5.26	5.27	160.70	-28.57	9.12	30.66	20.13	10.52	2.913		
2,450.00	2,449.77	2,449.77	2,449.77	5.37	5.38	154.80	-28.57	9.12	33.67	22.96	10.71	3.143		
2,500.00	2,499.12	2,499.12	2,499.12	5.48	5.49	146.70	-28.57	9.12	39.70	28.84	10.86	3.656		
2,550.00	2,547.81	2,544.74	2,544.72	5.60	5.58	138.99	-29.51	9.70	50.46	39.52	10.94	4.613		
2,600.00	2,595.58	2,586.89	2,586.66	5.74	5.66	133.51	-33.05	11.88	68.25	57.28	10.97	6.221		
2,650.00	2,642.20	2,625.33	2,624.53	5.90	5.74	130.01	-38.55	15.27	92.32	81.35	10.97	8.419		
2,700.00	2,687.46	2,659.50	2,657.79	6.10	5.81	127.69	-45.26	19.39	121.81	110.87	10.93	11.143		
2,750.00	2,731.12	2,689.22	2,686.27	6.35	5.87	126.00	-52.45	23.82	155.88	145.01	10.87	14.337		
2,800.00	2,772.98	2,714.51	2,710.14	6.66	5.93	124.63	-59.55	28.20	193.80	182.99	10.81	17.930		
2,850.00	2,812.83	2,735.60	2,729.75	7.05	5.98	123.46	-66.16	32.26	234.86	224.09	10.77	21.810		
2,900.00	2,850.48	2,750.00	2,742.98	7.51	6.01	122.29	-71.02	35.26	278.48	267.68	10.80	25.779		
2,950.00	2,885.74	2,766.44	2,757.89	8.08	6.06	121.42	-76.92	38.88	324.05	313.08	10.98	29.524		
3,000.00	2,918.45	2,776.91	2,767.28	8.73	6.09	120.51	-80.86	41.31	371.17	359.71	11.46	32.402		
3,050.00	2,948.44	2,784.54	2,774.07	9.49	6.12	119.66	-83.82	43.14	419.40	406.91	12.50	33.561		
3,100.00	2,975.56	2,800.00	2,787.68	10.33	6.17	119.19	-90.07	46.98	468.59	454.56	14.03	33.404		
3,150.00	2,999.69	2,800.00	2,787.68	11.26	6.17	118.34	-90.07	46.98	517.93	501.08	16.84	30.748		
3,200.00	3,020.71	2,800.00	2,787.68	12.27	6.17	117.61	-90.07	46.98	567.51	549.49	18.02	31.487		
3,250.00	3,038.51	2,800.00	2,787.68	13.35	6.17	116.99	-90.07	46.98	617.08	601.32	15.76	39.152		
3,300.00	3,053.01	2,800.00	2,787.68	14.49	6.17	116.44	-90.07	46.98	666.41	653.30	13.11	50.831		
3,350.00	3,064.14	2,786.06	2,775.41	15.67	6.12	115.65	-84.42	43.51	715.06	704.50	10.56	67.702		
3,385.77	3,070.00	2,782.47	2,772.23	16.55	6.11	115.29	-83.01	42.64	749.59	739.85	9.74	76.954		
3,400.00	3,071.98	2,780.92	2,770.85	16.90	6.10	115.16	-82.41	42.26	763.26	753.76	9.50	80.319		
3,500.00	3,086.00	2,770.47	2,761.51	19.36	6.07	114.57	-78.42	39.81	859.89	851.67	8.22	104.562		
3,600.00	3,100.15	2,750.00	2,742.98	21.87	6.01	114.31	-71.02	35.26	957.23	947.45	9.78	97.891		
3,700.00	3,114.39	2,750.00	2,742.98	24.39	6.01	114.68	-71.02	35.26	1,054.45	1,040.35	14.10	74.784		
3,800.00	3,128.68	2,750.00	2,742.98	26.90	6.01	115.26	-71.02	35.26	1,151.79	1,132.29	19.50	59.078		
3,900.00	3,142.99	2,750.00	2,742.98	29.38	6.01	115.99	-71.02	35.26	1,248.96	1,224.23	24.74	50.485		

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



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.24-T12S-R98W - Collard 24-12-98 E - Wellbore #1 - Design #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,000.00	3,157.27	2,727.94	2,722.67	31.84	5.96	116.64	-63.69	30.74	1,345.23	1,316.74	28.49	47.220	
4,100.00	3,171.49	2,721.12	2,716.32	34.25	5.94	117.55	-61.56	29.43	1,441.15	1,408.96	32.19	44.770	
4,200.00	3,185.60	2,700.00	2,696.49	36.61	5.89	118.45	-55.37	25.62	1,536.58	1,501.67	34.91	44.021	
4,281.83	3,197.04	2,700.00	2,696.49	38.50	5.89	119.36	-55.37	25.62	1,613.73	1,576.36	37.37	43.179	
4,300.00	3,199.57	2,700.00	2,696.49	38.91	5.89	119.56	-55.37	25.62	1,630.82	1,593.06	37.75	43.197	
4,400.00	3,213.49	2,700.00	2,696.49	41.22	5.89	120.61	-55.37	25.62	1,725.24	1,685.38	39.85	43.292	
4,500.00	3,227.41	2,700.00	2,696.49	43.55	5.89	121.53	-55.37	25.62	1,820.25	1,778.30	41.96	43.385	
4,600.00	3,241.32	2,700.00	2,696.49	45.90	5.89	122.37	-55.37	25.62	1,915.78	1,871.71	44.06	43.476	
4,700.00	3,255.24	2,700.00	2,696.49	48.26	5.89	123.11	-55.37	25.62	2,011.73	1,965.56	46.18	43.565	
4,800.00	3,269.16	2,700.00	2,696.49	50.63	5.89	123.79	-55.37	25.62	2,108.07	2,059.77	48.30	43.650	
4,845.46	3,275.49	2,700.00	2,696.49	51.71	5.89	124.08	-55.37	25.62	2,151.97	2,102.71	49.26	43.687	

Great White Directional Services, LLC

Anticollision Report



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	162.29	-14.28	4.56	15.00					
100.00	100.00	100.00	100.00	0.10	0.10	162.29	-14.28	4.56	15.00	14.80	0.19	77.576		
200.00	200.00	200.00	200.00	0.32	0.32	162.29	-14.28	4.56	15.00	14.35	0.64	23.327		
300.00	300.00	300.00	300.00	0.55	0.55	162.29	-14.28	4.56	15.00	13.90	1.09	13.727		
400.00	400.00	400.00	400.00	0.77	0.77	162.29	-14.28	4.56	15.00	13.45	1.54	9.725		
500.00	500.00	500.00	500.00	1.00	1.00	162.29	-14.28	4.56	15.00	13.00	1.99	7.530		
600.00	600.00	600.00	600.00	1.22	1.22	162.29	-14.28	4.56	15.00	12.55	2.44	6.143		
700.00	700.00	700.00	700.00	1.45	1.45	162.29	-14.28	4.56	15.00	12.10	2.89	5.188		
800.00	800.00	800.00	800.00	1.67	1.67	162.29	-14.28	4.56	15.00	11.66	3.34	4.490		
900.00	900.00	900.00	900.00	1.89	1.89	162.29	-14.28	4.56	15.00	11.21	3.79	3.957		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	162.29	-14.28	4.56	15.00	10.76	4.24	3.537		
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	162.29	-14.28	4.56	15.00	10.31	4.69	3.198		
1,200.00	1,200.00	1,200.00	1,200.00	2.57	2.57	162.29	-14.28	4.56	15.00	9.86	5.14	2.918		
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	162.29	-14.28	4.56	15.00	9.41	5.59	2.684		
1,400.00	1,400.00	1,400.00	1,400.00	3.02	3.02	162.29	-14.28	4.56	15.00	8.96	6.04	2.484		
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	162.29	-14.28	4.56	15.00	8.51	6.49	2.312		
1,600.00	1,600.00	1,600.00	1,600.00	3.47	3.47	162.29	-14.28	4.56	15.00	8.06	6.94	2.162		
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	162.29	-14.28	4.56	15.00	7.61	7.39	2.030		
1,800.00	1,800.00	1,800.00	1,800.00	3.92	3.92	162.29	-14.28	4.56	15.00	7.16	7.84	1.914		
1,900.00	1,900.00	1,900.00	1,900.00	4.14	4.14	162.29	-14.28	4.56	15.00	6.71	8.28	1.810		
2,000.00	2,000.00	2,000.00	2,000.00	4.37	4.37	162.29	-14.28	4.56	15.00	6.26	8.73	1.717		
2,100.00	2,100.00	2,100.00	2,100.00	4.59	4.59	162.29	-14.28	4.56	15.00	5.81	9.18	1.633		
2,200.00	2,200.00	2,200.00	2,200.00	4.82	4.82	162.29	-14.28	4.56	15.00	5.36	9.63	1.557		
2,300.00	2,300.00	2,300.00	2,300.00	5.04	5.04	162.29	-14.28	4.56	15.00	4.91	10.08	1.487 Level 3		
2,338.99	2,338.99	2,338.99	2,338.99	5.13	5.13	162.29	-14.28	4.56	15.00	4.74	10.26	1.462 Level 3, CC		
2,360.77	2,360.77	2,360.72	2,360.72	5.18	5.18	162.25	-14.29	4.57	15.00	4.65	10.36	1.449 Level 3, ES, SF		
2,400.00	2,399.98	2,399.39	2,399.36	5.26	5.26	155.52	-14.60	5.80	16.46	5.94	10.52	1.565		
2,450.00	2,449.77	2,447.56	2,447.31	5.37	5.35	138.86	-15.71	10.16	23.50	12.83	10.68	2.201		
2,500.00	2,499.12	2,493.31	2,492.48	5.48	5.45	126.51	-17.49	17.18	37.74	26.95	10.79	3.497		
2,550.00	2,547.81	2,535.63	2,533.77	5.60	5.54	119.72	-19.76	26.16	58.71	47.86	10.85	5.409		
2,600.00	2,595.58	2,573.84	2,570.52	5.74	5.64	116.02	-22.33	36.27	85.51	74.65	10.87	7.870		
2,650.00	2,642.20	2,607.54	2,602.43	5.90	5.73	113.89	-24.99	46.76	117.30	106.48	10.82	10.841		
2,700.00	2,687.46	2,636.63	2,629.54	6.10	5.83	112.60	-27.58	56.98	153.33	142.61	10.72	14.301		
2,750.00	2,731.12	2,661.20	2,652.09	6.35	5.92	111.78	-29.98	66.43	192.89	182.32	10.57	18.248		
2,800.00	2,772.98	2,681.48	2,670.45	6.66	6.00	111.24	-32.10	74.80	235.34	224.97	10.37	22.692		
2,850.00	2,812.83	2,700.00	2,686.98	7.05	6.07	110.86	-34.15	82.87	280.14	270.01	10.13	27.642		
2,900.00	2,850.48	2,710.48	2,696.25	7.51	6.12	110.65	-35.36	87.63	326.73	316.87	9.86	33.146		
2,950.00	2,885.74	2,719.90	2,704.51	8.08	6.17	110.49	-36.47	92.01	374.71	365.15	9.56	39.205		
3,000.00	2,918.45	2,726.39	2,710.17	8.73	6.20	110.39	-37.25	95.09	423.66	414.42	9.24	45.828		
3,050.00	2,948.44	2,730.27	2,713.53	9.49	6.22	110.32	-37.72	96.96	473.25	464.31	8.94	52.925		
3,100.00	2,975.56	2,731.82	2,714.88	10.33	6.23	110.28	-37.92	97.71	523.17	513.87	9.30	56.232		
3,150.00	2,999.69	2,731.32	2,714.45	11.26	6.23	110.26	-37.85	97.47	573.15	564.83	8.33	68.835		
3,200.00	3,020.71	2,728.99	2,712.43	12.27	6.22	110.25	-37.57	96.34	622.96	614.98	7.99	78.015		
3,250.00	3,038.51	2,725.04	2,708.99	13.35	6.20	110.25	-37.09	94.45	672.38	664.66	7.73	87.028		
3,300.00	3,053.01	2,719.64	2,704.29	14.49	6.17	110.26	-36.44	91.89	721.23	713.71	7.52	95.940		
3,350.00	3,064.14	2,712.97	2,698.44	15.67	6.14	110.27	-35.65	88.77	769.33	761.97	7.37	104.437		
3,385.77	3,070.00	2,700.00	2,686.98	16.55	6.07	110.30	-34.15	82.87	803.28	795.98	7.30	110.008		
3,400.00	3,071.98	2,700.00	2,686.98	16.90	6.07	110.30	-34.15	82.87	816.63	809.23	7.39	110.464		
3,500.00	3,086.00	2,700.00	2,686.98	19.36	6.07	110.50	-34.15	82.87	911.16	902.24	8.92	102.187		
3,600.00	3,100.15	2,677.46	2,666.83	21.87	5.98	111.06	-31.67	73.10	1,005.96	994.38	11.58	86.908		
3,700.00	3,114.39	2,666.05	2,656.51	24.39	5.93	111.78	-30.48	68.39	1,101.06	1,085.95	15.11	72.868		
3,800.00	3,128.68	2,650.00	2,641.86	26.90	5.87	112.66	-28.86	62.03	1,196.19	1,177.40	18.78	63.692		

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

Great White Directional Services, LLC
Anticollision Report



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.24-T12S-R98W - Collard 24-12-98 H - Wellbore #1 - Design #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,900.00	3,142.99	2,650.00	2,641.86	29.38	5.87	113.60	-28.86	62.03	1,291.03	1,268.00	23.03	56.048	
4,000.00	3,157.27	2,650.00	2,641.86	31.84	5.87	114.63	-28.86	62.03	1,385.66	1,358.56	27.11	51.120	
4,100.00	3,171.49	2,632.27	2,625.51	34.25	5.81	115.78	-27.18	55.38	1,479.56	1,449.40	30.16	49.049	
4,200.00	3,185.60	2,626.09	2,619.77	36.61	5.79	116.95	-26.61	53.16	1,572.97	1,539.63	33.34	47.180	
4,281.83	3,197.04	2,621.56	2,615.56	38.50	5.78	117.94	-26.21	51.55	1,648.85	1,613.15	35.70	46.187	
4,300.00	3,199.57	2,620.61	2,614.67	38.91	5.78	118.17	-26.12	51.22	1,665.66	1,629.63	36.03	46.227	
4,400.00	3,213.49	2,600.00	2,595.34	41.22	5.71	119.35	-24.36	44.29	1,758.84	1,721.50	37.34	47.109	
4,500.00	3,227.41	2,600.00	2,595.34	43.55	5.71	120.34	-24.36	44.29	1,852.36	1,813.05	39.31	47.125	
4,600.00	3,241.32	2,600.00	2,595.34	45.90	5.71	121.24	-24.36	44.29	1,946.52	1,905.23	41.28	47.149	
4,700.00	3,255.24	2,600.00	2,595.34	48.26	5.71	122.04	-24.36	44.29	2,041.23	1,997.97	43.26	47.180	
4,800.00	3,269.16	2,600.00	2,595.34	50.63	5.71	122.77	-24.36	44.29	2,136.43	2,091.18	45.25	47.216	
4,845.46	3,275.49	2,600.00	2,595.34	51.71	5.71	123.08	-24.36	44.29	2,179.85	2,133.70	46.15	47.233	

Great White Directional Services, LLC

Anticollision Report



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-17.71	14.28	-4.56	15.00					
100.00	100.00	100.00	100.00	0.10	0.10	-17.71	14.28	-4.56	15.00	14.80	0.19	77.574		
200.00	200.00	200.00	200.00	0.32	0.32	-17.71	14.28	-4.56	15.00	14.35	0.64	23.327		
300.00	300.00	300.00	300.00	0.55	0.55	-17.71	14.28	-4.56	15.00	13.90	1.09	13.727		
400.00	400.00	400.00	400.00	0.77	0.77	-17.71	14.28	-4.56	15.00	13.45	1.54	9.725		
500.00	500.00	500.00	500.00	1.00	1.00	-17.71	14.28	-4.56	15.00	13.00	1.99	7.530		
600.00	600.00	600.00	600.00	1.22	1.22	-17.71	14.28	-4.56	15.00	12.55	2.44	6.143		
700.00	700.00	700.00	700.00	1.45	1.45	-17.71	14.28	-4.56	15.00	12.10	2.89	5.188		
800.00	800.00	800.00	800.00	1.67	1.67	-17.71	14.28	-4.56	15.00	11.66	3.34	4.490		
900.00	900.00	900.00	900.00	1.89	1.89	-17.71	14.28	-4.56	15.00	11.21	3.79	3.957		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-17.71	14.28	-4.56	15.00	10.76	4.24	3.537		
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	-17.71	14.28	-4.56	15.00	10.31	4.69	3.198		
1,200.00	1,200.00	1,200.00	1,200.00	2.57	2.57	-17.71	14.28	-4.56	15.00	9.86	5.14	2.918		
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	-17.71	14.28	-4.56	15.00	9.41	5.59	2.684		
1,400.00	1,400.00	1,400.00	1,400.00	3.02	3.02	-17.71	14.28	-4.56	15.00	8.96	6.04	2.484		
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	-17.71	14.28	-4.56	15.00	8.51	6.49	2.312		
1,600.00	1,600.00	1,600.00	1,600.00	3.47	3.47	-17.71	14.28	-4.56	15.00	8.06	6.94	2.162		
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	-17.71	14.28	-4.56	15.00	7.61	7.39	2.030		
1,800.00	1,800.00	1,800.00	1,800.00	3.92	3.92	-17.71	14.28	-4.56	15.00	7.16	7.84	1.914		
1,900.00	1,900.00	1,900.00	1,900.00	4.14	4.14	-17.71	14.28	-4.56	15.00	6.71	8.28	1.810		
2,000.00	2,000.00	2,000.00	2,000.00	4.37	4.37	-17.71	14.28	-4.56	15.00	6.26	8.73	1.717		
2,100.00	2,100.00	2,100.00	2,100.00	4.59	4.59	-17.71	14.28	-4.56	15.00	5.81	9.18	1.633		
2,200.00	2,200.00	2,200.00	2,200.00	4.82	4.82	-17.71	14.28	-4.56	15.00	5.36	9.63	1.557		
2,300.00	2,300.00	2,300.00	2,300.00	5.04	5.04	-17.71	14.28	-4.56	15.00	4.91	10.08	1.487 Level 3		
2,360.77	2,360.77	2,360.77	2,360.77	5.18	5.18	-17.71	14.28	-4.56	15.00	4.64	10.36	1.448 Level 3, CC, ES, SF		
2,400.00	2,399.98	2,399.25	2,399.23	5.26	5.26	-15.99	15.08	-5.22	15.32	4.80	10.52	1.456 Level 3		
2,450.00	2,449.77	2,448.22	2,448.00	5.37	5.38	-9.55	18.37	-7.99	16.80	6.07	10.72	1.566		
2,500.00	2,499.12	2,497.03	2,496.21	5.48	5.49	-0.56	24.18	-12.87	19.79	8.85	10.94	1.809		
2,550.00	2,547.81	2,545.61	2,543.56	5.60	5.61	8.42	32.46	-19.81	24.58	13.40	11.19	2.198		
2,600.00	2,595.58	2,593.87	2,589.77	5.74	5.74	15.99	43.09	-28.73	31.28	19.82	11.46	2.729		
2,650.00	2,642.20	2,641.74	2,634.59	5.90	5.88	21.93	55.97	-39.54	39.83	28.05	11.77	3.382		
2,700.00	2,687.46	2,689.18	2,677.79	6.10	6.05	26.54	70.96	-52.12	50.12	37.98	12.14	4.128		
2,750.00	2,731.12	2,736.14	2,719.19	6.35	6.25	30.18	87.93	-66.36	62.05	49.47	12.58	4.932		
2,800.00	2,772.98	2,782.58	2,758.61	6.66	6.50	33.14	106.72	-82.12	75.51	62.40	13.11	5.760		
2,850.00	2,812.83	2,828.49	2,795.94	7.05	6.80	35.61	127.18	-99.29	90.42	76.66	13.75	6.574		
2,900.00	2,850.48	2,873.85	2,831.08	7.51	7.15	37.73	149.15	-117.73	106.66	92.13	14.52	7.343		
2,950.00	2,885.74	2,918.69	2,863.95	8.08	7.56	39.59	172.50	-137.32	124.14	108.71	15.43	8.045		
3,000.00	2,918.45	2,963.00	2,894.50	8.73	8.03	41.24	197.09	-157.95	142.76	126.29	16.48	8.664		
3,050.00	2,948.44	3,006.84	2,922.71	9.49	8.55	42.72	222.78	-179.51	162.44	144.77	17.67	9.194		
3,100.00	2,975.56	3,050.00	2,948.44	10.33	9.13	44.10	249.32	-201.78	183.07	164.08	18.99	9.639		
3,150.00	2,999.69	3,093.21	2,972.05	11.26	9.77	45.22	277.04	-225.03	204.57	184.11	20.46	9.998		
3,200.00	3,020.71	3,135.85	2,993.17	12.27	10.46	46.27	305.41	-248.84	226.82	204.77	22.04	10.290		
3,250.00	3,038.51	3,178.23	3,011.94	13.35	11.20	47.19	334.51	-273.26	249.73	226.00	23.73	10.523		
3,300.00	3,053.01	3,220.40	3,028.37	14.49	11.97	47.98	364.26	-298.22	273.22	247.71	25.52	10.708		
3,350.00	3,064.14	3,262.46	3,042.43	15.67	12.79	48.65	394.62	-323.70	297.18	269.80	27.38	10.854		
3,385.77	3,070.00	3,292.52	3,051.05	16.55	13.39	49.04	416.68	-342.21	314.56	285.81	28.76	10.939		
3,400.00	3,071.98	3,304.53	3,054.16	16.90	13.64	49.18	425.56	-349.67	321.48	292.14	29.34	10.956		
3,500.00	3,086.00	3,390.23	3,070.62	19.36	15.45	49.80	489.96	-403.69	367.84	334.25	33.59	10.951		
3,600.00	3,100.15	3,464.89	3,081.05	21.87	17.01	52.02	547.62	-449.94	411.72	374.05	37.67	10.930		
3,700.00	3,114.39	3,538.65	3,091.42	24.39	18.56	54.22	606.33	-493.36	454.37	412.64	41.74	10.887		
3,800.00	3,128.68	3,611.58	3,101.72	26.90	20.10	56.39	665.99	-534.01	495.75	449.99	45.76	10.834		
3,900.00	3,142.99	3,683.75	3,111.95	29.38	21.62	58.55	726.53	-571.93	535.81	486.12	49.69	10.782		

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



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.24-T12S-R98W - Collard 24-12-98 N - Wellbore #1 - Design #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
4,000.00	3,157.27	3,755.21	3,122.09	31.84	23.11	60.69	787.86	-607.18	574.51	521.00	53.51	10.737	
4,100.00	3,171.49	3,826.03	3,132.14	34.25	24.57	62.81	849.90	-639.80	611.81	554.62	57.19	10.698	
4,200.00	3,185.60	3,900.00	3,142.63	36.61	26.09	64.59	915.97	-671.37	647.68	586.90	60.78	10.656	
4,281.83	3,197.04	3,953.30	3,150.17	38.50	27.15	66.63	964.31	-692.50	675.91	612.47	63.44	10.654	
4,300.00	3,199.57	3,965.90	3,151.95	38.91	27.40	67.01	975.83	-697.30	682.12	618.00	64.12	10.638	
4,400.00	3,213.49	4,034.13	3,161.56	41.22	28.74	69.06	1,038.72	-721.93	718.32	650.49	67.83	10.590	
4,500.00	3,227.41	4,100.00	3,170.79	43.55	30.02	71.08	1,100.25	-743.55	757.78	686.30	71.48	10.601	
4,600.00	3,241.32	4,173.68	3,181.06	45.90	31.41	72.34	1,169.86	-765.41	800.19	724.95	75.24	10.635	
4,700.00	3,255.24	4,263.90	3,193.61	48.26	33.13	72.36	1,255.28	-791.60	843.27	763.98	79.29	10.635	
4,800.00	3,269.16	4,354.13	3,206.17	50.63	34.87	72.38	1,340.70	-817.80	886.36	803.00	83.36	10.633	
4,845.46	3,275.49	4,395.14	3,211.88	51.71	35.66	72.38	1,379.53	-829.71	905.94	820.73	85.21	10.632	

Great White Directional Services, LLC

Anticollision Report



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-17.71	42.85	-13.68	44.99					
100.00	100.00	100.00	100.00	0.10	0.10	-17.71	42.85	-13.68	44.99	44.79	0.19	232.724		
200.00	200.00	200.00	200.00	0.32	0.32	-17.71	42.85	-13.68	44.99	44.34	0.64	69.980		
300.00	300.00	300.00	300.00	0.55	0.55	-17.71	42.85	-13.68	44.99	43.89	1.09	41.182		
400.00	400.00	400.00	400.00	0.77	0.77	-17.71	42.85	-13.68	44.99	43.44	1.54	29.175		
500.00	500.00	500.00	500.00	1.00	1.00	-17.71	42.85	-13.68	44.99	42.99	1.99	22.590		
600.00	600.00	600.00	600.00	1.22	1.22	-17.71	42.85	-13.68	44.99	42.54	2.44	18.429		
700.00	700.00	700.00	700.00	1.45	1.45	-17.71	42.85	-13.68	44.99	42.09	2.89	15.563		
800.00	800.00	800.00	800.00	1.67	1.67	-17.71	42.85	-13.68	44.99	41.65	3.34	13.469		
900.00	900.00	900.00	900.00	1.89	1.89	-17.71	42.85	-13.68	44.99	41.20	3.79	11.871		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-17.71	42.85	-13.68	44.99	40.75	4.24	10.612		
1,100.00	1,100.00	1,100.00	1,100.00	2.34	2.34	-17.71	42.85	-13.68	44.99	40.30	4.69	9.595		
1,200.00	1,200.00	1,200.00	1,200.00	2.57	2.57	-17.71	42.85	-13.68	44.99	39.85	5.14	8.755		
1,300.00	1,300.00	1,300.00	1,300.00	2.79	2.79	-17.71	42.85	-13.68	44.99	39.40	5.59	8.051		
1,400.00	1,400.00	1,400.00	1,400.00	3.02	3.02	-17.71	42.85	-13.68	44.99	38.95	6.04	7.451		
1,500.00	1,500.00	1,500.00	1,500.00	3.24	3.24	-17.71	42.85	-13.68	44.99	38.50	6.49	6.935		
1,600.00	1,600.00	1,600.00	1,600.00	3.47	3.47	-17.71	42.85	-13.68	44.99	38.05	6.94	6.486		
1,700.00	1,700.00	1,700.00	1,700.00	3.69	3.69	-17.71	42.85	-13.68	44.99	37.60	7.39	6.091		
1,800.00	1,800.00	1,800.00	1,800.00	3.92	3.92	-17.71	42.85	-13.68	44.99	37.15	7.84	5.741		
1,900.00	1,900.00	1,900.00	1,900.00	4.14	4.14	-17.71	42.85	-13.68	44.99	36.70	8.28	5.430		
2,000.00	2,000.00	2,000.00	2,000.00	4.37	4.37	-17.71	42.85	-13.68	44.99	36.25	8.73	5.150		
2,100.00	2,100.00	2,100.00	2,100.00	4.59	4.59	-17.71	42.85	-13.68	44.99	35.80	9.18	4.898		
2,200.00	2,200.00	2,200.00	2,200.00	4.82	4.82	-17.71	42.85	-13.68	44.99	35.35	9.63	4.670		
2,300.00	2,300.00	2,300.00	2,300.00	5.04	5.04	-17.71	42.85	-13.68	44.99	34.90	10.08	4.462		
2,360.77	2,360.77	2,360.77	2,360.77	5.18	5.18	-17.71	42.85	-13.68	44.99	34.63	10.36	4.344		
2,400.00	2,399.98	2,399.98	2,399.98	5.26	5.27	-16.61	42.85	-13.68	44.34	33.81	10.52	4.213		
2,450.00	2,449.77	2,449.77	2,449.77	5.37	5.38	-11.68	42.85	-13.68	41.82	31.09	10.73	3.898		
2,500.00	2,499.12	2,499.12	2,499.12	5.48	5.49	-1.51	42.85	-13.68	38.25	27.31	10.95	3.494		
2,550.00	2,547.81	2,547.81	2,547.81	5.60	5.60	15.73	42.85	-13.68	35.69	24.49	11.20	3.187		
2,559.93	2,557.37	2,557.37	2,557.37	5.63	5.62	20.00	42.85	-13.68	35.59	24.34	11.25	3.164 CC, ES, SF		
2,600.00	2,595.58	2,595.58	2,595.58	5.74	5.71	38.73	42.85	-13.68	37.58	26.19	11.39	3.300		
2,650.00	2,642.20	2,642.20	2,642.20	5.90	5.81	60.22	42.85	-13.68	46.61	35.23	11.38	4.095		
2,700.00	2,687.46	2,687.46	2,687.46	6.10	5.91	75.27	42.85	-13.68	62.46	51.23	11.24	5.558		
2,750.00	2,731.12	2,731.12	2,731.12	6.35	6.01	84.81	42.85	-13.68	83.63	72.58	11.05	7.571		
2,800.00	2,772.98	2,772.98	2,772.98	6.66	6.10	90.94	42.85	-13.68	108.98	98.15	10.83	10.060		
2,850.00	2,812.83	2,812.83	2,812.83	7.05	6.19	95.04	42.85	-13.68	137.86	127.26	10.60	13.003		
2,900.00	2,850.48	2,850.48	2,850.48	7.51	6.28	97.90	42.85	-13.68	169.84	159.49	10.35	16.403		
2,950.00	2,885.74	2,885.74	2,885.74	8.08	6.36	99.98	42.85	-13.68	204.62	194.53	10.09	20.271		
3,000.00	2,918.45	2,918.45	2,918.45	8.73	6.43	101.54	42.85	-13.68	241.94	232.11	9.83	24.611		
3,050.00	2,948.44	2,948.44	2,948.44	9.49	6.50	102.74	42.85	-13.68	281.57	271.99	9.57	29.407		
3,100.00	2,975.56	2,975.56	2,975.56	10.33	6.56	103.68	42.85	-13.68	323.26	313.92	9.34	34.601		
3,150.00	2,999.69	2,999.69	2,999.69	11.26	6.61	104.43	42.85	-13.68	366.81	357.65	9.16	40.052		
3,200.00	3,020.71	3,020.71	3,020.71	12.27	6.66	105.04	42.85	-13.68	411.98	402.92	9.06	45.479		
3,250.00	3,038.51	3,038.51	3,038.51	13.35	6.70	105.55	42.85	-13.68	458.53	449.43	9.10	50.365		
3,300.00	3,053.01	3,053.01	3,053.01	14.49	6.73	105.97	42.85	-13.68	506.24	496.83	9.42	53.764		
3,350.00	3,064.14	3,064.14	3,064.14	15.67	6.76	106.32	42.85	-13.68	554.87	544.59	10.28	53.981		
3,385.77	3,070.00	3,070.00	3,070.00	16.55	6.77	106.54	42.85	-13.68	590.08	578.43	11.65	50.661		
3,400.00	3,071.98	3,071.98	3,071.98	16.90	6.78	106.63	42.85	-13.68	604.15	591.79	12.36	48.898		
3,500.00	3,086.00	3,086.00	3,086.00	19.36	6.81	107.38	42.85	-13.68	702.78	685.71	17.07	41.166		
3,600.00	3,100.15	3,100.15	3,100.15	21.87	6.84	108.31	42.85	-13.68	801.00	779.81	21.19	37.794		
3,700.00	3,114.39	3,114.39	3,114.39	24.39	6.87	109.37	42.85	-13.68	898.71	873.89	24.82	36.204		
3,800.00	3,128.68	3,128.68	3,128.68	26.90	6.90	110.53	42.85	-13.68	995.83	967.74	28.09	35.450		

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

Great White Directional Services, LLC
Anticollision Report



Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Offset Design Sec.24-T12S-R98W - Collard 24-2 (Vertical) - Wellbore #1 - Design #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Azimuth from North (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,900.00	3,142.99	3,142.99	3,142.99	29.38	6.94	111.74	42.85	-13.68	1,092.29	1,061.20	31.08	35.142	
4,000.00	3,157.27	3,157.27	3,157.27	31.84	6.97	113.00	42.85	-13.68	1,188.00	1,154.16	33.84	35.102	
4,100.00	3,171.49	3,171.49	3,171.49	34.25	7.00	114.31	42.85	-13.68	1,282.92	1,246.52	36.41	35.240	
4,200.00	3,185.60	3,185.60	3,185.60	36.61	7.03	115.64	42.85	-13.68	1,376.97	1,338.19	38.78	35.507	
4,281.83	3,197.04	3,197.04	3,197.04	38.50	7.06	116.74	42.85	-13.68	1,453.24	1,412.65	40.59	35.802	
4,300.00	3,199.57	3,199.57	3,199.57	38.91	7.06	116.99	42.85	-13.68	1,470.12	1,429.17	40.94	35.905	
4,400.00	3,213.49	3,213.49	3,213.49	41.22	7.09	118.24	42.85	-13.68	1,563.45	1,520.58	42.87	36.470	
4,500.00	3,227.41	3,227.41	3,227.41	43.55	7.13	119.35	42.85	-13.68	1,657.44	1,612.69	44.75	37.039	
4,600.00	3,241.32	3,241.32	3,241.32	45.90	7.16	120.34	42.85	-13.68	1,751.99	1,705.41	46.58	37.612	
4,700.00	3,255.24	3,255.24	3,255.24	48.26	7.19	121.23	42.85	-13.68	1,847.01	1,798.64	48.37	38.189	
4,800.00	3,269.16	3,269.16	3,269.16	50.63	7.22	122.03	42.85	-13.68	1,942.42	1,892.32	50.10	38.770	
4,845.46	3,275.49	3,275.49	3,275.49	51.71	7.23	122.37	42.85	-13.68	1,985.92	1,935.04	50.87	39.036	

Company:	Fram Operating, LLC	Local Co-ordinate Reference:	Well Collard 24-12-98 M
Project:	Mesa Co., CO	TVD Reference:	WELL @ 5982.00usft (Frontier 4)
Reference Site:	Sec.24-T12S-R98W	MD Reference:	WELL @ 5982.00usft (Frontier 4)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Collard 24-12-98 M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 EDMDBBW
Reference Design:	Design #1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to WELL @ 5982.00usft (Frontier 4)

Offset Depths are relative to Offset Datum

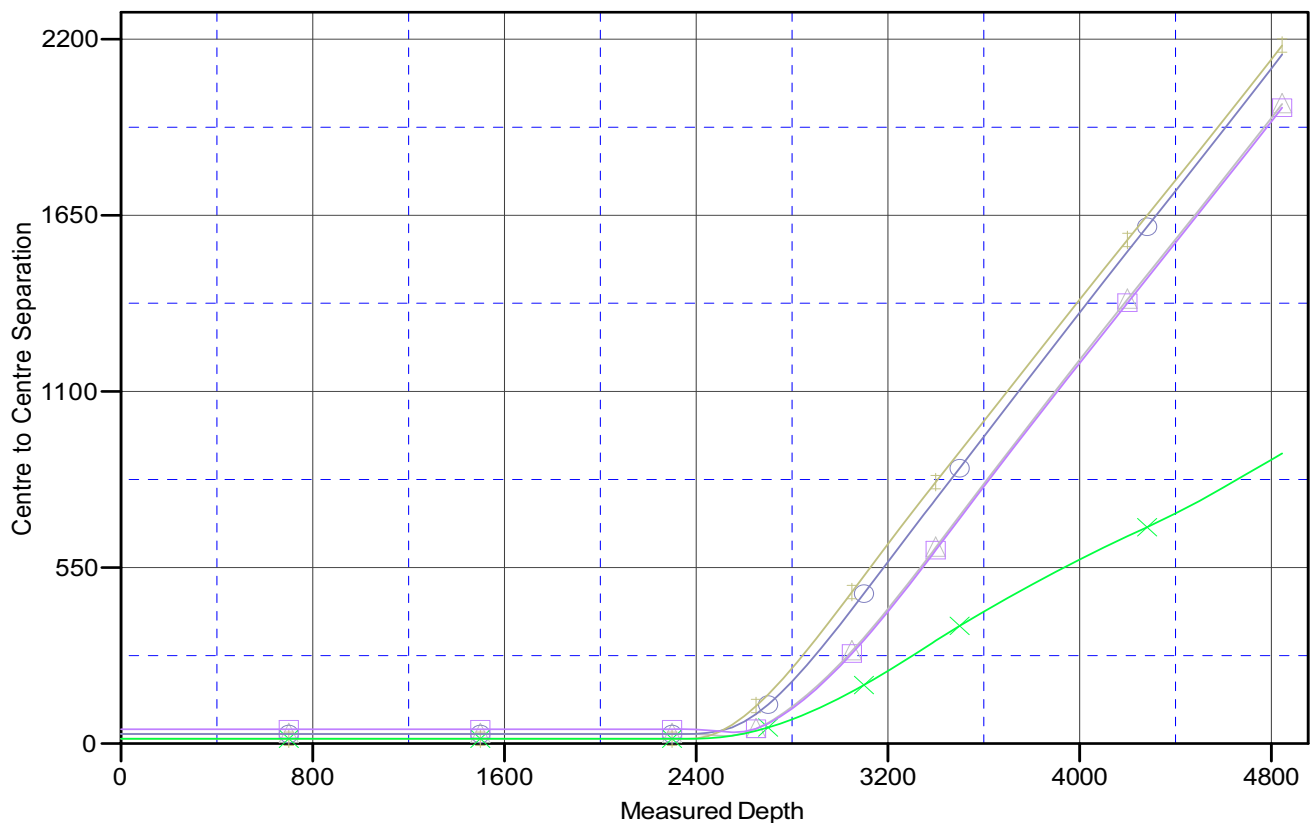
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Collard 24-12-98 M

Coordinate System is US State Plane 1983, Colorado Central Zone

Grid Convergence at Surface is: -1.77°

Ladder Plot



LEGEND

poke #1 (Existing), Wellbore #1, Wellbore #1 V0
 4-12-98 E, Wellbore #1, Design #1 V0

—◆— Collard 24-12-98 H, Wellbore #1, Design #1 V0
 —×— Collard 24-12-98 N, Wellbore #1, Design #1 V0

—□— Collard 24-2 (Vertical), Wellbore #1, Design #1 V0

Reference Depths are relative to WELL @ 5982.00usft (Frontier 4)	Coordinates are relative to: Collard 24-12-98 M
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Central Zone
Central Meridian is 105° 30' 0.000 W	Grid Convergence at Surface is: -1.77°

