

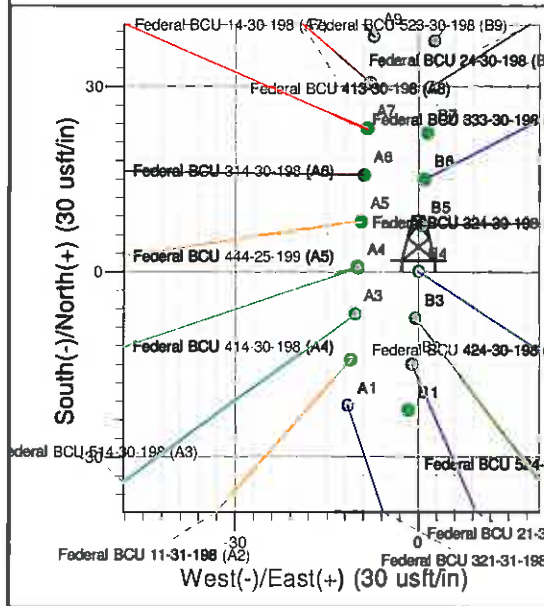
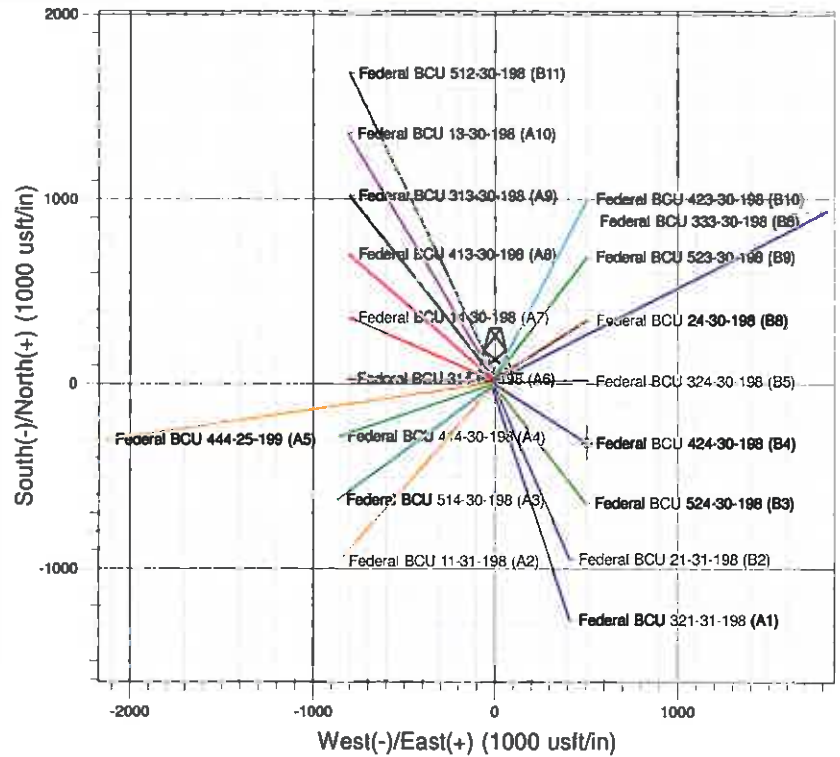
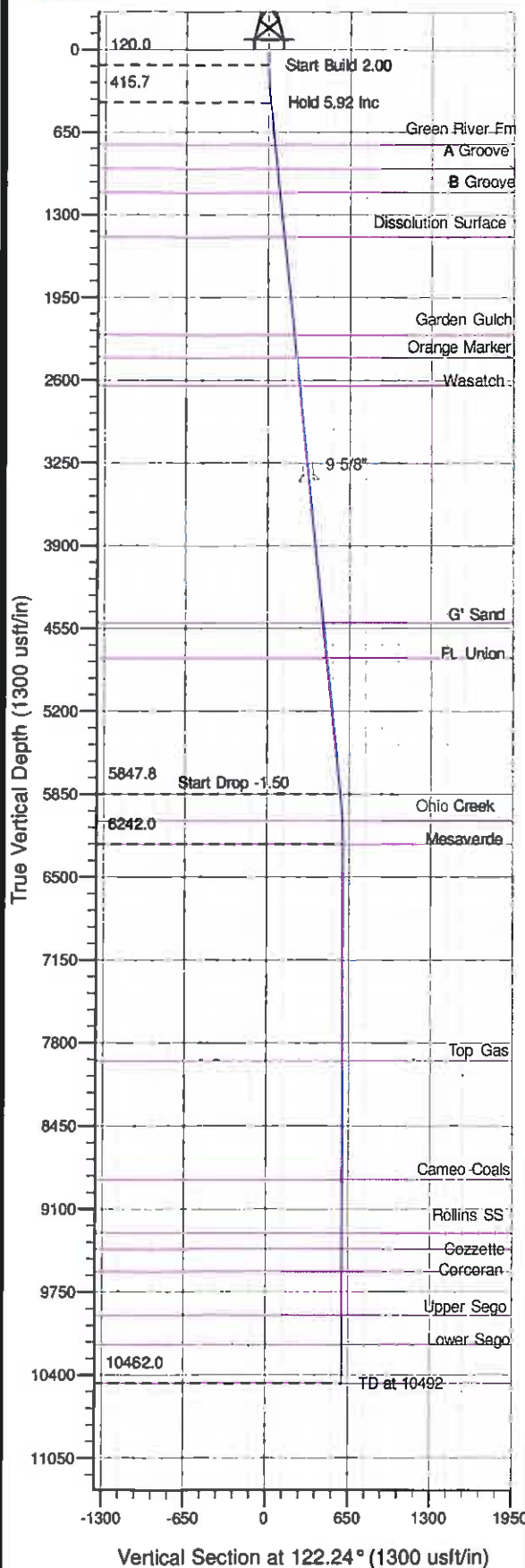


Well Name: Federal BCU 424-30-198
 Surface Location: BCU 24-30-198 Pad
 North American Datum 1983 , US State Plane 1983 , Colorado Central Zone
 Ground Elevation: 6740.0
 Northing 1810281.96 Easting 2177115.16 Latitude 40° 1' 17.405 N 108° 26' 18.267 W
 KELLY BUSHING @ 6762.0usft (Frontier 10 (22' RKB) jib)

+N/-S
0.0

+E/-W
0.0

Slot
B4



Project: BC 30-01N-098W
 Site: BCU 24-30-198 Pad
 Well: Federal BCU 424-30-198
 Design #1 14Oct10 jib

Azimuths to True North
 Magnetic North: 10.71°
 Magnetic Field
 Strength: 52538.0snT
 Dip Angle: 66.11°
 Date: 10/14/2010
 Model: IGRF2010

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
120.0	120.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 2.00
415.7	418.2	5.92	122.24	-8.2	12.9	15.3	15.3	Hold 5.92 Inc
5847.8	5877.5	5.92	122.24	-308.8	489.7	579.0	579.0	Start Drop -1.50
6242.0	6272.4	0.00	0.00	-319.7	508.9	599.4	599.4	Vertical
10482.0	10492.4	0.00	0.00	-319.7	508.9	599.4	599.4	TD at 10492

PICEANCE HL NAD 83

BC 30-01N-098W

BCU 24-30-198 Pad

Federal BCU 424-30-198 - Slot B4

Wellbore #1

Plan: Design #1 14oct10 jjb

Standard Planning Report - Geographic

10 November, 2010

Williams
Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal BCU 424-30-198 (B4) - Slot B4
Company:	PICEANCE HL NAD 83	TVD Reference:	KELLY BUSHING @ 6762.0usft (Frontier 10 (22' RKB) jlb)
Project:	BC 30-01N-098W	MD Reference:	KELLY BUSHING @ 6762.0usft (Frontier 10 (22' RKB) jlb)
Site:	BCU 24-30-198 Pad	North Reference:	True
Well:	Federal BCU 424-30-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 14oct10 jlb		

Project	BC 30-01N-098W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	BCU 24-30-198 Pad			
Site Position:		Northing:	1,810,274.50 usft	Latitude: 40° 1' 17.331 N
From:	Map	Easting:	2,177,114.40 usft	Longitude: 108° 26' 18.274 W
Position Uncertainty:	0.0 usft	Slot Radius:	13.200 in	Grid Convergence: -1.853 °

Well	Federal BCU 424-30-198 - Slot B4			
Well Position	+N/-S	0.0 usft	Northing: 1,810,281.96 usft	Latitude: 40° 1' 17.405 N
	+E/-W	0.0 usft	Easting: 2,177,115.16 usft	Longitude: 108° 26' 18.267 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level: 6,740.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/14/2010	10.706	66.107	52,538

Design	Design #1 14oct10 jlb			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	122.24

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.000	
120.0	0.00	0.00	120.0	0.0	0.0	0.00	0.00	0.00	0.000	
416.2	5.92	122.24	415.7	-8.2	12.9	2.00	2.00	0.00	122.240	
5,877.5	5.92	122.24	5,847.8	-308.9	489.7	0.00	0.00	0.00	0.000	
6,272.4	0.00	0.00	6,242.0	-319.7	506.9	1.50	-1.50	0.00	180.000	Mesaverde (25' Radil
10,492.4	0.00	0.00	10,462.0	-319.7	506.9	0.00	0.00	0.00	0.000	

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Planning Report - Geographic

Database:	Compass R5000 WIN AUTH	Local Co-ordinate Reference:	Well Federal BCU 424-30-198 (B4) - Slot B4
Company:	PICEANCE HL NAD 83	TVD Reference:	KELLY BUSHING @ 6762.0usft (Frontier 10 (22' RKB) jlb)
Project:	BC 30-01N-098W	MD Reference:	KELLY BUSHING @ 6762.0usft (Frontier 10 (22' RKB) jlb)
Site:	BCU 24-30-198 Pad	North Reference:	True
Well:	Federal BCU 424-30-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 14oct10 jlb		

Planned Survey									
Measured Depth (usft)	Inclination (")	Azimuth (")	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,810,281.96	2,177,115.16	40° 1' 17.405 N	108° 26' 18.267 W
120.0	0.00	0.00	120.0	0.0	0.0	1,810,281.96	2,177,115.16	40° 1' 17.405 N	108° 26' 18.267 W
416.2	5.92	122.24	415.7	-8.2	12.9	1,810,273.39	2,177,127.83	40° 1' 17.325 N	108° 26' 18.101 W
5,877.5	5.92	122.24	5,847.8	-308.9	489.7	1,809,957.43	2,177,594.61	40° 1' 14.353 N	108° 26' 11.973 W
6,272.4	0.00	0.00	6,242.0	-319.7	506.9	1,809,946.00	2,177,611.50	40° 1' 14.246 N	108° 26' 11.751 W
10,492.4	0.00	0.00	10,462.0	-319.7	506.9	1,809,946.00	2,177,611.50	40° 1' 14.246 N	108° 26' 11.751 W

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									
Mesaverde (25' Radius)	0.00	0.00	6,242.0	-319.7	506.9	1,809,946.00	2,177,611.50	40° 1' 14.246 N	108° 26' 11.751 W
- plan hits target center									
- Circle (radius 25.0)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,405.0	3,388.5	9 5/8"	8.625	13.500	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")
744.3	742.0	Green River Fm			
935.3	932.0	A Groove			
1,126.3	1,122.0	B Groove			
1,478.2	1,472.0	Dissolution Surface			
2,252.3	2,242.0	Garden Gulch			
2,433.3	2,422.0	Orange Marker			
2,654.5	2,642.0	Wasatch			
4,524.5	4,502.0	G' Sand			
4,806.0	4,782.0	Ft. Union			
6,092.3	6,062.0	Ohio Creek			
6,272.4	6,242.0	Mesaverde			
7,972.4	7,942.0	Top Gas			
8,902.4	8,872.0	Cameo Coals			
9,322.4	9,292.0	Rollins SS			
9,447.4	9,417.0	Cozzette			
9,622.4	9,592.0	Corcoran			
9,962.4	9,932.0	Upper Sego			
10,192.4	10,162.0	Lower Sego			
10,492.4	10,462.0	TD		0.000	

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Site:	BCU 24-30-198 Pad	North Reference:	True
Well:	Federal BCU 424-30-198	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 14oct10 jlb		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.0	120.0	0.0	0.0	Start Build 2.00
416.2	415.7	-8.2	12.9	Hold 5.92 Inc
5,877.5	5,847.6	-308.9	489.7	Start Drop -1.50
6,272.4	6,242.0	-319.7	506.9	Vertical
10,492.4	10,462.0	-319.7	506.9	TD at 10492