

Whiting Oil and Gas Corporation

Weld County, CO
Sec. 26-T10N-R58W
Razor #26K-2306B

Sidetrack 1
Rev D0

Sperry Drilling Services

Clearance Summary Anticollision Report

21 January, 2014

Closest Approach 3D Proximity Scan on Current Survey Data (Highside Reference)
Reference Design: Sec. 26-T10N-R58W - Razor #26K-2306B - Sidetrack 1 - Rev D0

Well Coordinates: 1,541,853.17 N, 3,460,994.18 E (40° 48' 31.99" N, 103° 50' 04.72" W)
Datum Height: KB 22 ft @ 4759.50usft (Frontier 26)

Scan Range: 0.00 to 13,228.87 usft. Measured Depth.
Scan Radius is 9,999.98 usft . Clearance Factor cutoff is Unlimited. Max Ellipse Separation is Unlimited

Geodetic Scale Factor Applied
Version: 5000.1 Build: 70

HALLIBURTON

Anticollision Report for Razor #26K-2306B - Rev D0

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Site Name	Measured Depth (usft)	Minimum Distance (usft)	@Measured Depth (usft)	Ellipse Separation (usft)	@Measured Depth usft	Clearance Factor	Summary Based on Minimum
Comparison Well Name - Wellbore Name - Design							
Sec. 26-T10N-R58W							
Razor #26-3524H - Wellbore #1 - Actual	100.00	60.45	100.00	60.36	94.48	688.734	Ellipse Separation
Razor #26-3524H - Wellbore #1 - Actual	1,200.00	104.87	1,200.00	102.48	1,193.12	43.865	Clearance Factor
Razor #26K-2305A - Plan A - Rev A0	2,359.18	28.81	2,359.18	21.36	2,355.42	3.867	Centre Distance
Razor #26K-2305A - Plan A - Rev A0	4,344.91	29.50	4,344.91	15.59	4,340.68	2.121	Clearance Factor
Razor #26K-2306B - Plan B - Actual Field Surveys	9,400.00	0.00	9,400.00	-29.03	9,400.00	0.000	Clearance Factor
Razor #26K-2306B - Plan B - Actual Field Surveys	9,800.00	9.68	9,800.00	-65.95	9,799.85	0.128	Ellipse Separation
Razor #26K-2307A - Plan A - Rev A0	683.25	119.85	683.25	117.19	681.42	45.055	Centre Distance
Razor #26K-2307A - Plan A - Rev A0	2,800.00	124.98	2,800.00	116.29	2,795.13	14.377	Ellipse Separation
Razor #26K-2307A - Plan A - Rev A0	13,228.87	336.95	13,228.87	206.94	13,153.23	2.592	Clearance Factor
Razor #26K-2308B - Plan A - Rev A0	400.00	65.08	400.00	63.65	399.99	45.665	Ellipse Separation
Razor #26K-2308B - Plan A - Rev A0	13,228.87	660.60	13,228.87	527.65	13,384.20	4.969	Clearance Factor
Razor #26K-3505A - Plan A - Rev A0	1,421.88	12.29	1,421.88	6.41	1,419.69	2.089	Clearance Factor
Razor #26K-3507A - Plan A - Rev A0	900.00	82.06	900.00	78.53	900.74	23.225	Ellipse Separation
Razor #26K-3507A - Plan A - Rev A0	1,300.00	98.31	1,300.00	93.01	1,296.11	18.558	Clearance Factor
Razor #26K-3508B - Plan A - Rev A0	400.00	98.28	400.00	96.85	399.99	68.961	Ellipse Separation
Razor #26K-3508B - Plan A - Rev A0	1,200.00	119.56	1,200.00	114.63	1,195.55	24.270	Clearance Factor
Razor #26L-2304B - Plan A - Rev A0	11,176.77	627.19	11,176.77	527.52	11,446.28	6.292	Centre Distance
Razor #26L-2304B - Plan A - Rev A0	13,228.87	659.73	13,228.87	525.61	13,498.12	4.919	Clearance Factor
Razor #26L-3504B - Plan A - Rev A0	2,415.04	1,241.88	2,415.04	1,234.31	2,422.95	164.027	Centre Distance
Razor #26L-3504B - Plan A - Rev A0	3,357.45	1,243.73	3,357.45	1,233.21	3,357.13	118.285	Ellipse Separation
Razor #26L-3504B - Plan A - Rev A0	5,300.00	1,307.36	5,300.00	1,289.17	5,250.00	71.860	Clearance Factor
Razor Federal #26J-2309A - Plan A - Rev A0	9,100.00	976.81	9,100.00	908.19	9,246.52	14.235	Centre Distance
Razor Federal #26J-2309A - Plan A - Rev A0	13,228.87	1,041.33	13,228.87	907.57	13,373.02	7.785	Clearance Factor
Razor Federal #26J-3509A - Plan A - Rev A0	400.00	1,324.99	400.00	1,323.59	388.09	947.537	Centre Distance
Razor Federal #26J-3509A - Plan A - Rev A0	800.00	1,326.18	800.00	1,323.07	808.19	426.947	Ellipse Separation
Razor Federal #26J-3509A - Plan A - Rev A0	5,300.00	1,506.40	5,300.00	1,488.38	5,200.00	83.562	Clearance Factor

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Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
173.00	1,490.00		MWD+IFR1+MS+sag
1,576.00	6,049.00		MWD+IFR1+MS+sag
6,119.00	9,466.00		MWD+IFR1+MS+sag
9,466.00	13,228.87	Rev D0	MWD+IFR1+MS+sag

Anticollision Info

Error Model: ISCSWA
Scan Method: Closest Approach 3D

Output errors are at 2.00 sigma

Ellipse error terms are correlated across survey tool tie-on points.

Calculated ellipses incorporate surface errors.

Separation is the actual distance between ellipsoids.

Distance Between centres is the straight line distance between wellbore centres.

Clearance Factor = Distance Between Profiles / (Distance Between Profiles - Ellipse Separation).

All station coordinates were calculated using the Minimum Curvature method.

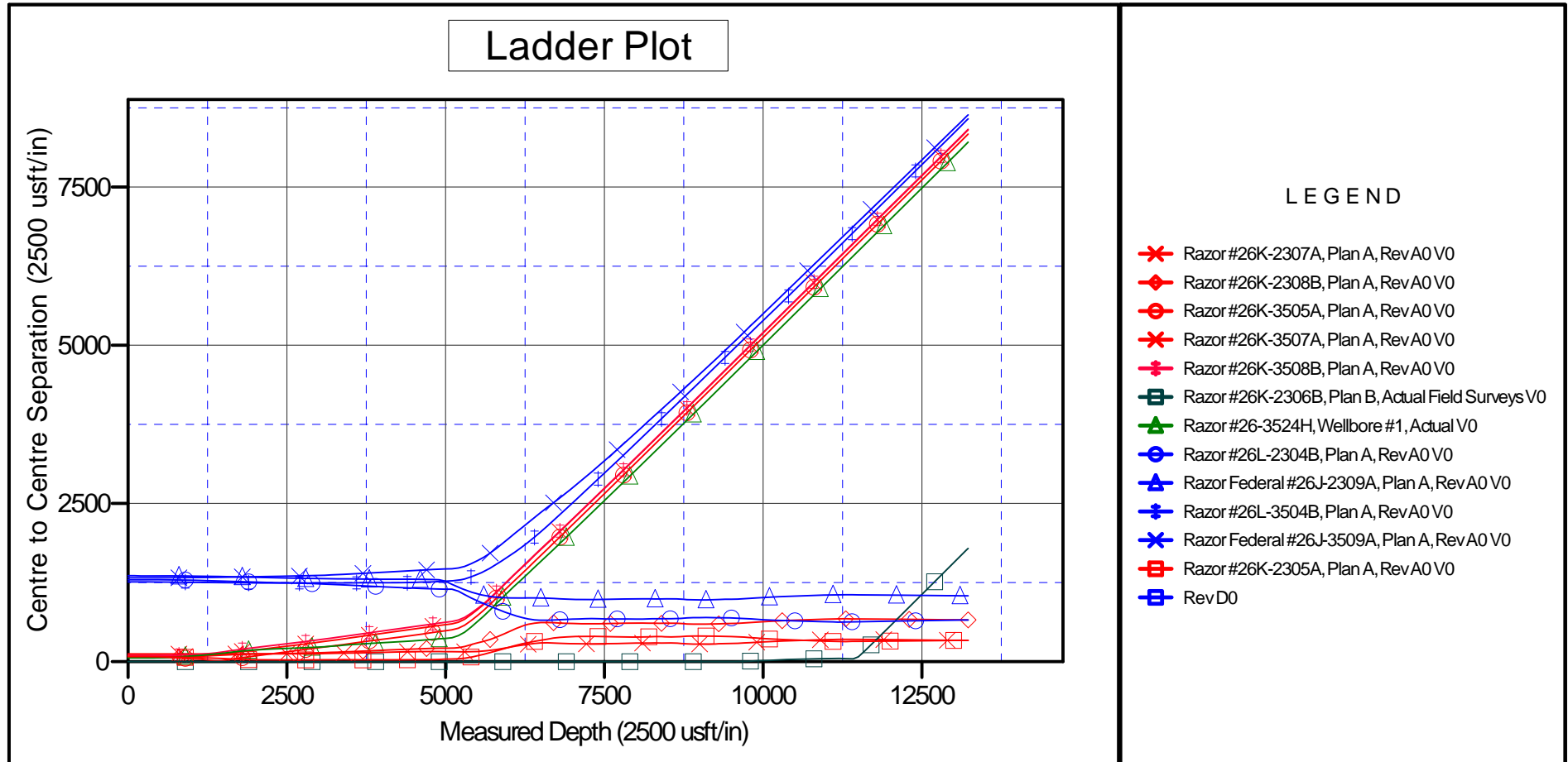
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Direction and Coordinates are relative to True North Reference.

Vertical Depths are relative to KB 22 ft @ 4759.50usft (Frontier 26). Northing and Easting are relative to Razor #26K-2306B.

Coordinate System is US State Plane 1983, Colorado Northern Zone.

Central Meridian is -105.00°, Grid Convergence at Surface is: 1.08 °.



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Clearance Factor Plot: Measured Depth versus Separation(Clearance) Factor

