

KellyDown Tips

Periodic tips to help you use KellyDown more effectively

Anti-Collision settings

Problem: When I compare anti-collision scan in KellyDown with those in other directional drilling applications, the results can sometimes be quite different. What am I doing wrong?

Cause: It is important to make sure that the settings in KellyDown match those of other applications with which you are comparing results. One must also make sure that the IPM files used to calculate uncertainty ellipses in KellyDown are identical to those used in the other application. Finally, there are certain configuration settings that may differ between applications.

Solution: The most common mistake is to assume that the Closest Approach scanning method in KellyDown is the same as the **Closest Approach** scanning method in the Compass application.

This is not the case. The **Closest Approach** scanning method in KellyDown is a special scanning method devised by John Thorogood of BP where each adjacent well is scanned at regular intervals instead of the reference well. This method results in a scan where the closest point on the adjacent well is always perpendicular to the scan depth on the reference well except at the beginning and end of the reference well. This makes it easier to visualise the comparison on travelling cylinder plots where the adjacent wells always lie on a common perpendicular plane. This scanning method is not necessarily available in other applications.

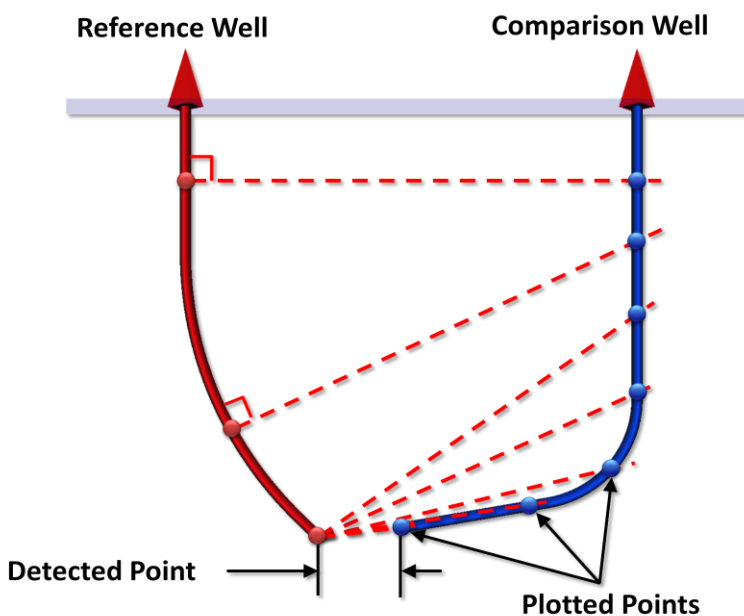


Figure 1 - Closest Approach Scanning Method

The **Closest Approach** scanning method in Compass is actually the same as the **Minimum Distance** scanning method in KellyDown. You should therefore select the **Minimum Distance** scanning method in KellyDown to compare results against those of the Compass application.

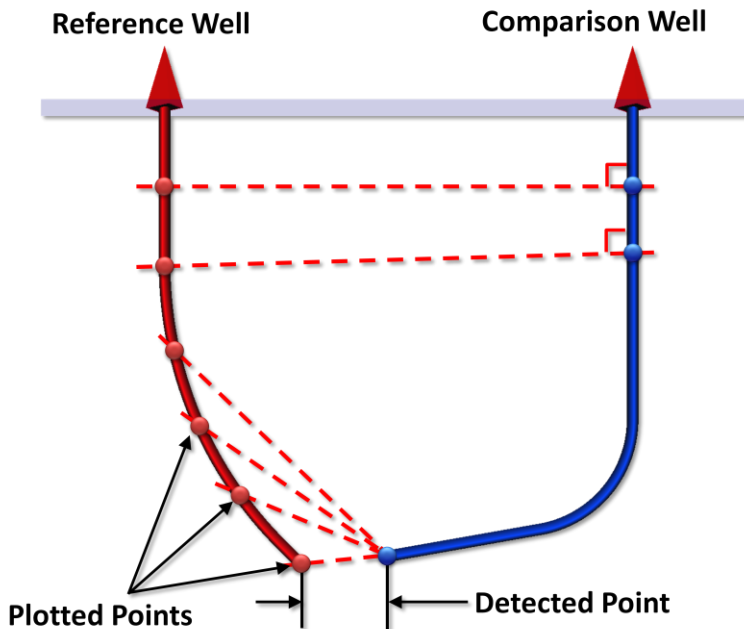


Figure 2 - Minimum Distance Scanning Method

Instrument Performance Model (IPM) files are files having a .IPM file extension that contain the parameters and algorithms used in the creation of uncertainty ellipses in both KellyDown and Compass. The original manifestations of these files were defined by the **Industry Steering Committee for Wellbore Survey Accuracy (ISCWSA)**. However, it is possible to edit these files to more closely represent specific survey instruments. The problem has been that many of these modifications are not globally distributed and/or ratified by the ISCWSA, a situation that is in the process of being addressed.

KellyDown is distributed with only the basic generic IPM files originally defined by the ISCWSA plus one or two additional files. The **ISCWSA MWD** file is the standard one originally defined by the ISCWSA to represent a generic standard MWD tool. However, certain modifications have been made to the parameters that have been globally accepted by the industry, and these are contained in an IPM file named **ISCWSA New MWD**. The parameters in this file appear to most closely match the ones in the **STANDARD MWD** file in Compass so you should use this tool to compare results from Compass where the standard MWD tool has been used.

The best method of ensuring proper comparisons is to export the IPM files from Compass and import them into KellyDown. Instructions on how to import IPM files into KellyDown are described in the KellyDown Help and in the User Guide.

In some applications, seabed completions are assumed to have no errors associated with the well from the RKB to the seabed, particularly where seabed templates are used. In KellyDown, this is not automatically assumed. Instead, there is a special IPM file called **ISCWSA No Errors** that may be used to define sections of hole where no errors are assumed. This allows additional flexibility in defining particular hole sections.

Important: Magnetic parameters can seriously affect the anti-collision calculations, particularly the Earth's Total File value otherwise called BTotal. When entering user-defined magnetic parameters into KellyDown it is especially important to ensure they are entered correctly. BTotal values should always be between 25 μ T and 65 μ T (25,000 nT and 65,000 nT).

You should ideally set the minimum and maximum allowable values for Magnetic Field Strength to 25,000 nT and 65,000 nT respectively in Administration, Units to prevent you from entering values outside of this range in the future.

Finally, it must be understood that in KellyDown, and in many other applications, that the size of the casing is not automatically considered when performing proximity scans. The popular method of allowing for casing sizes is to include the radius of the surface casing in the **Well Position Error** under **Well Properties**.

Relative to:	Global Origin (Grid North)	Project Origin (Grid North)	Site Origin (Grid North)	Geographical Origin
Well Elevation:	629.61	6.16	1.60	
Northings:	6,789,330.21 N	317.87 N	27.80 S	29° 01' 18.2999\" S
Eastings:	572,493.04 E	4,602.92 E	35.03 E	62° 15' 20.1773\" W

Slot Name: Slot #09
Lease/Block:
Vertical Ref. Description: RKB
Horizontal Ref. Description: Well
Well Position Error: 1.50
Ground Level: 628.01
RKB to Ground: 1.60
Grid Convergence: -0.36°
Scale Factor: 0.999665
Creation Date: 05/06/2012
Last Update Date: 11/03/2013
Update User ID: Admin

One reason for handling casing sizes in this manner is so that it is not absolutely necessary to define casing programs for all wells in a project where there is no reason for doing so other than for anti-collision scanning. It also makes it much faster for the application to scan huge numbers of wells for proximity and because only the larger surface casing size is considered, an additional degree of safety is incorporated into the anti-collision scan.

Tip: If your surface casing diameter is say 30", then the radius is 15" and you may enter **15"** into the **Well Position Error** field even if you are working in metres.

If you have a question you would like answered in KellyDown Tips, reply to this email with your question.
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