Correlating a Deviated Well with a VSP Stack

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The VSP Stack

It may be the case that the VSP file is a single trace, as in this example. We can therefore use the concatenation operation to repeat the traces for correlation with our deviated well.

If your VSP data has multiple traces and they encompass the whole of the deviated path please go to slide 6.
Step 1: Creating the VSP Volume

Select the Concatenate operation from **Utilities**
Step 2: Concatenating the VSP

Select the number of times to repeat the VSP trace for both the inline and crossline directions, so that the well is encompassed by this volume.

The Pseudo 3D option will repeat the traces to form a 3D volume encompassing the well.
The Concatenated VSP Stack

The result of the concatenation process
Step 3: Locating the Well on the VSP
Locating the Well on the VSP

As 01-17 is our deviated well, we need to set the X and Y locations as the origin (1,1) to locate the well within the VSP volume.

Take a screen grab of this window, since we need to change the location of the deviated well in order to correlate it with the repeated VSP volume.
Step 4: The Base Map of the VSP

We view the base map to confirm that the well path is completely within the volume's grid.

If the deviated path has too major an offset, then this method should not be used.
Step 5: Displaying the VSP Volume

The deviation path is shown on the volume.
Step 6: Correlating the Log Data
Correlating the Log Data

1) Select the VSP volume

2) Use the nearest neighbor option to use the 9 traces adjacent to the well path

Capture Option: Neighbours
Neighborhood Radius: 1

3) Finally, click OK
Correlating the Log Data

The Result
You can now correlate the well log data with the repeated_VSP data.
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