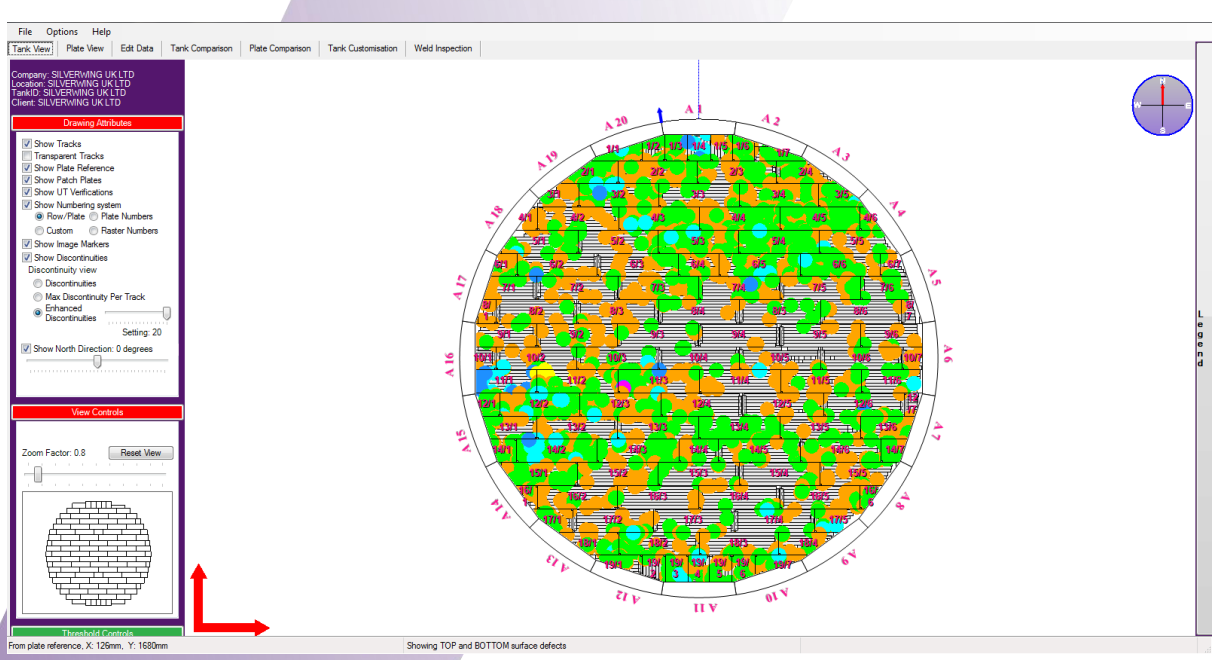
SILVERWING

# FLOORMAP

MFL Floor Scanner

# Section 4
# SIMS
# (Silverwing Inspection Mapping System)
# Software Manual

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## *DISTRIBUTOR:*

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This manual is part of the original documentation supplied with the Floormap system.

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# 1 Introduction

This section of the operating manual explains how to use the SIMS Software provided with the purchase of a Floormap system, designed and manufactured by Silverwing (UK) LTD. There are two versions of the reporting software exist, a **Full-Version** is licenced to the inspection organisation who purchased the Floormap system, and a **Read-Only** version for use by the end client / report viewer.

# 2 SIMS Software Licence Terms

The standard licence terms for the SIMS software allow a **maximum of three** activation keys per Floormap system. To obtain an activation key please refer to Section 3 of the SIMS installation manual for further information and please retain the supplied activation keys for future reference. Additional activation keys can be purchased if required by contacting the Silverwing (UK) Ltd.

The read only version of the SIMS software can be freely issued by the licensed owner's organisation to their inspection clients at the licensed owner's discretion.

# 3 Minimum System Requirements

The following specifications are the minimum recommended requirements for running the SIMS Software:

*Microsoft Windows Vista operating system*

- Microsoft® Windows® Vista Professional or Home compatible computer,
- **Operating system updates with Windows Vista Service Pack 2,**
- 2 GHz Intel or AMD processor, 32-bit (x86) or 64-bit (x64) capable CPU,
- NVidia GeForce with minimum 256 MB RAM or ATI Radeon with minimum 256 MB RAM
- 1024 x 768 display resolution (1440 x 900 or higher recommended),
- 4GB RAM,
- Microsoft .NET framework (supplied),
- Microsoft DirectX9 (supplied),
- Microsoft XNA framework (supplied),
- 100MB Hard disk space for installation, recommended 500GB for storage of tank data,
- Windows compatible mouse & keyboard,
- USB support for data transfer using the supplied high speed USB flash drive.

# 4 Recommended System Requirements

*Microsoft Windows Vista /7/8/8.1 32bit or 64bit operating system*

- Microsoft® Windows® 7 Ultimate, Professional, or Home Premium or Microsoft® Windows® Vista Professional or Home
- 2 GHz Intel or AMD processor, 32-bit (x86) or 64-bit (x64) capable CPU.
- NVidia GeForce with minimum 256 MB RAM or ATI Radeon with minimum 256 MB RAM
- 1024 x 768 display resolution (1440 x 900 or higher recommended)
- 4GB RAM (6GB recommended for 64-bit),
- Microsoft .NET framework (supplied),
- Microsoft DirectX9 (supplied),
- Microsoft XNA framework (supplied),
- 100MB Hard disk space for installation, recommended 500GB for storage of tank data.
- Windows compatible mouse & keyboard
- USB support for data transfer using the supplied high speed USB Flash Drive.

Recommended specification is based on performance issues of the software; the higher the specification of the computer, the quicker response time of data analysis and the rendering of the visual related elements.

## 4.1 Elements of the SIMS Software

The SIMS software consists of a single window with the ability to change the data context view using the tab page elements under the window's main menu.

# 5 SIMS Software

## 5.1 Loading the SIMS Software

To load the SIMS Software, either double click on the desktop icon or navigate through the windows start menu:

Start → All Programs → Silverwing (UK) Ltd → SIMS → SIMS

When the program is launched, a splash screen is revealed with the Silverwing (UK) Ltd logo and a disclaimer. The splash screen fades and disappears after a small period of time to open the main window of the application. Alternatively press any mouse button or keyboard key. Once the main application is loaded a Wizard window appears.

**Figure 1- Splash Logo**

## 5.2 Wizard

On loading the SIMS software the Wizard window appears. This provides entry to the software via six options:

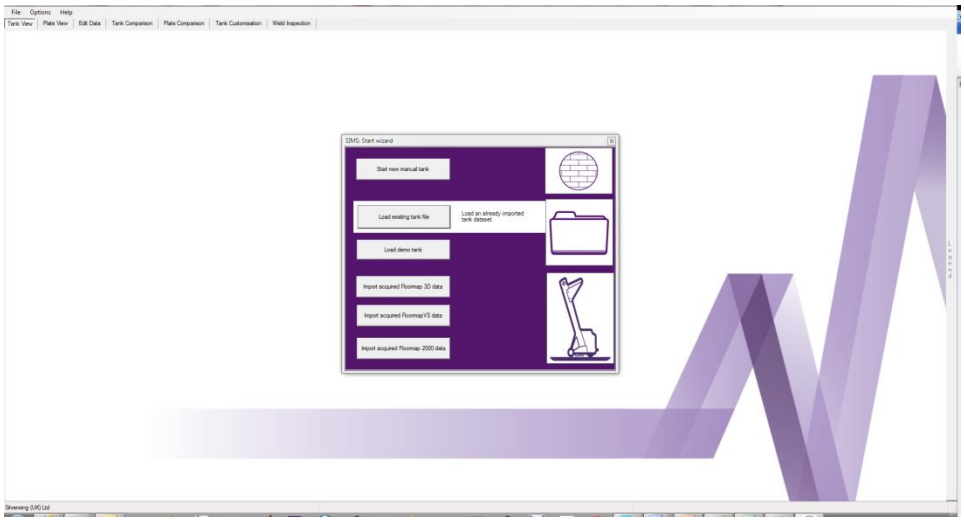



**Figure 2 - Wizard**

**Create new tank:** This allows a tank floor design to be manually created using the tank floor layout builder window. This option can be used if a tank floor has been scanned in a non Floormap mode.

**Load existing tank file:** This allows previous tank file saved from the SIMS software to be loaded.

**Import acquired Floormap3D data:** Data captured using the Floormap3D is imported using this option. When loading, navigate to the ***.fm3insp*** extension and double-click. This loads all files within the designated folder.

**Import acquired FloormapVS data:** Data captured using the FloormapVS2i, Floormap VS2 or Floormap VS is imported using this option. When loading, navigate to the ***.fm2*** extension and double-click on a single plate only, this loads all files within the designated folder.

**Import acquired Floormap 2000 data:** This software allows the import of data from a previous version of the Floormap system, the Floormap 2000. The data is converted to allow the addition of annular plates and the ability of data editing.

**Load demo tank:** This loads a built-in example tank to be used for practice, training or demonstration purposes.

## 5.2.1 Create new tank

If the Floormap system had been used to inspect a tank by means of a manual (non Floormap) inspection then a tank floor can be manually created for reporting purposes. The tank layout builder is used to create the tank floor by generated a list of each floor plate. The plate numbering system, plate dimensions, plate reference corner and plate orientation must be correctly entered for each plate.

### 5.2.1.1 Using the Tank Floor layout builder

Before creating a manual tank floor layout in the software ensure that:

- **Tank datum** location must be positioned in the bottom left hand corner of the tank;
- **Row** and **Plate** numbering system used for the Floormap system must be obeyed;
- **Length** and **Width** measurement of each plate must be known;
- **Plate Reference** corner for each plate must be known;
- **Plate Orientation** of each plate must be known.

#### 5.2.1.1.1 Generating a manual tank floor layout

To generate a manual tank floor layout:

1. Select ***Create new tank*** from the wizard window. This opens the Tank floor layout builder window. Displayed are details from the previously created tank.
2. To clear all displayed plate information and generate a new tank layout select ***Clear layout***.
3. Enter the information for each tank floor plate into the Plate Layout Builder window on a plate by plate basis. Each row of the tank floor builder contains information for one plate.

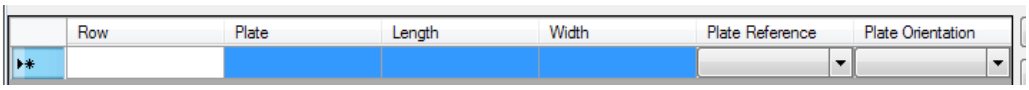



**Figure 3 - A blank row containing information for one plate**

a. Enter plate information by clicking in the required cell and entering the relevant information for the Row Number, Plate Number, Plate Length and Width.

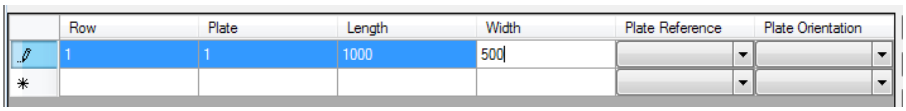



**Figure 4 - Entering plate information**

b. Select plate reference for the plate via the drop down menu.

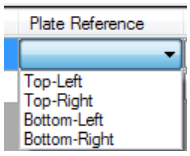



**Figure 5 - Plate Reference drop down box**

c. Select plate orientation for the plate via the drop down menu.

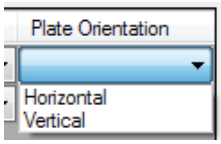



**Figure 6 - Plate Orientation dropdown box**

d. Repeat this by entering the information for all required tank floor plates.

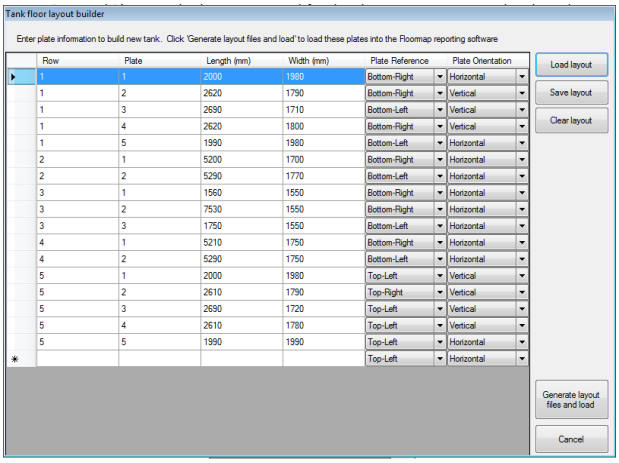



**Figure 7 - Tank floor layout builder**

4. To create the tank floor layout and load into the reporting software click ***Generate layout files and load***.

#### 5.2.1.1.2 Saving a manual tank floor layout

Before creating a tank floor layout in the reporting software, the manually entered data for the layout design can be saved by selecting ***Save layout***. Navigate to a suitable save location then enter a suitable file name and click ***Save***. The tank floor layout is saved as a *.tlf file which can only be opened using the tank floor layout builder.

#### 5.2.1.1.3 Loading a saved manual tank floor layout

To Load a saved design layout click ***Load layout***. Navigate to the location of the saved tank layout file. Select the file and click ***Open***. Additional plate information can be entered to a loaded layout.

### 5.2.2 Load existing tank file

This option allows pre-saved tank data to be loaded into the SIMS software. Once selected an Open window appears. All files are filtered for the ****.tkf*** extension. Navigate through the file system to locate the appropriate file. To begin loading the file, double-click on the desired file. A progress screen appears providing information on the progress of the data.

### 5.2.3 Import acquired Floormap3D data

This option allows the raw data captured by the Floormap3D to be imported into the reporting software. To begin the import and data conversion of acquired Floormap3D data, click on the ***Import acquired Floormap3D data*** button. An Import Options window appears. Here both the minimum import threshold percentage and minimum import resolution for the raw data can be selected. The Import threshold slider bar can be set so that discontinuities below a certain percentage are not imported into the reporting software. It is recommended that this value is set at 20% unless the tank size / corrosion levels within the tank have produced a set of data too large for the reporting computer to handle efficiently. The Import resolution dropdown menu is used to choose the minimum resolution for each discontinuity shown in the reporting software. Select from one of the available resolution options:

- 5mm by 6mm - Maximum Resolution of Floormap3D
- 10mm by 10mm - Half Resolution of Floormap3D
- 15mm by 15mm - Floormap VS2i Resolution
- 20mm by 20mm - Low Resolution

If the maximum resolution is selected, due to the amount of data the Floormap3D can capture, once the initial import of the raw data is complete the amount of memory used by the software may reach 1.5Gig. If this occurs the software is very slow to respond, and may appear that data is missing. An 'out of memory message' may also appear during use. To avoid this occurring select a lower resolution during the initial import. Once the data has been imported it is possible to alter the resolution using the Recover imported Floormap3D data function. However this must be done after the initial import on a lower resolution. To continue click ***Set*** to continue the import process.

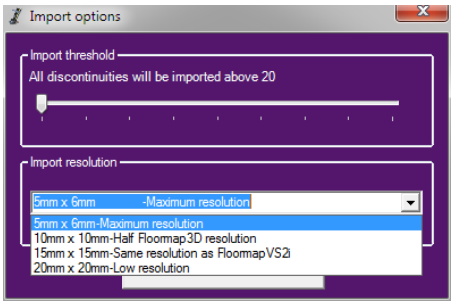



**Figure 8 - Set Import Discontinuity Threshold window**

An Open window appears. All files are filtered for the *.fm3insp extension. Navigate through the file system to locate the appropriate file.

The *.fm3insp file holds information corresponding to the Floormap3D inspection and within this folder is further folders for each saved plate.

Double-click on the ***.fm3insp*** files to begin data import.

A progress screen appears providing information on the progress of the data.

Please be patient when importing raw data as depending upon the amount of data may take some time.

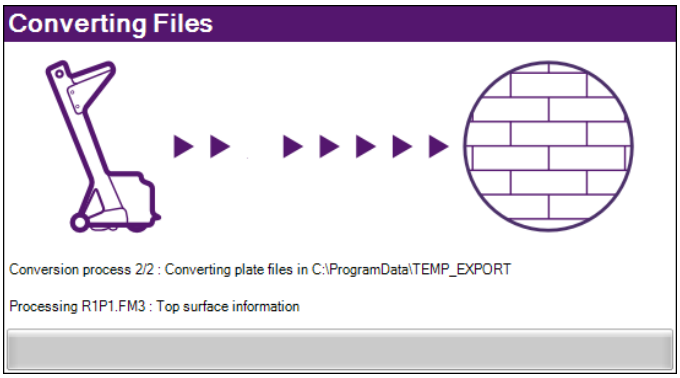



**Figure 9- Progress Screen**

Once the data has been imported, an Import log window is displayed. Click ***OK*** to continue.

Displayed next is the Annular Configuration wizard menu.

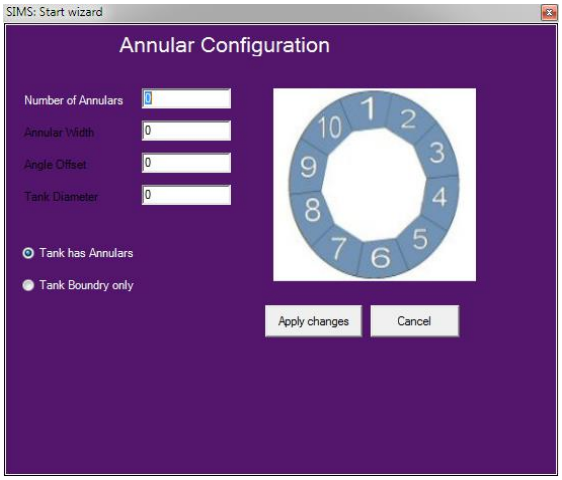



**Figure 10 - Annular Configuration Wizard**

If the set of data being imported contains annular plate data, the Annular plate width and the number of annular plates are shown automatically in the Annular configuration menu.

Information for number of annular plates, annular width, angle offset and tank diameter can all be entered manually if required. Click ***Apply Changes*** to import the annular plate data along with the inner plate data. Click ***Cancel*** to import the inner plate data only. Annular plate data can be imported later if required using the Import Additional Data tool.

**Note:** If one or more plates have not been inspected, an artificial plate is created in its place and is coloured orange. Once the plate has been inspected it can be imported from the EDIT DATA window.

### 5.2.3.1 Recover Imported Floormap3D data

There is a function in the software called **Recover imported Floormap3D data** which allows the import resolution for Floormap3D data to be altered after importing. This can only be done once after the initial import of the raw data. This function designed to avoid the software using over 1.5Gig of memory during the importing process which can cause the software to respond very slow and appear if data is missing after the import. The memory usage during the import can be monitored using Task Manager in the Microsoft operating system.

The recommended way to use this function is to:

1. During the initial import, select the 20mm by 20mm Low resolution
2. Once imported exit the reporting software (click ***No*** to saving)
3. Load the reporting software and close the start-up Wizard by selecting the cross.
4. Click ***File*** and select ***Import***
5. Click ***Recover imported Floormap3D data*** to load the Import window
6. Select the importing resolution and minimum threshold percentage
7. Click ***Import***

The system now uses less memory than the initial import process. Once imported save the data.

### 5.2.4 Import FloormapVS Data

This option allows the raw data captured by the FloormapVS2i, Floormap VS2 or Floormap VS to be imported into the reporting software. To begin the import and data conversion of acquired FloormapVS data, click the ***Import FloormapVS data*** button. An Import Options window appears. The Import threshold slider bar can be set so that discontinuities below a certain percentage are not imported into the reporting software. It is recommended that this value is set at 20% unless the tank size / corrosion levels within the tank have produced a set of data too large for the reporting computer to handle efficiently. The Import resolution dropdown menu is only used when importing Floormap3D data. When importing Floormap VS data the resolution is fixed at 15mm by15mm and cannot be changed. To continue click ***Set***.

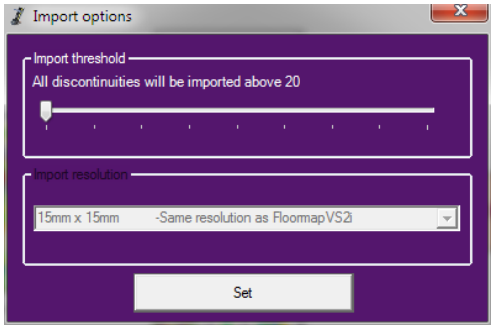



**Figure 11 - Set Import Discontinuity Threshold window**

An Open window appears. All files are filtered for the *.fm2 extension. Navigate through the file system to locate the appropriate file. One *.fm2 file holds information corresponding to one scanned plate, therefore within a single folder, many files might exist to represent an entire tank. Double-click on any of the ***.fm2*** files to begin data import.

A progress screen appears providing information on the progress of the data.

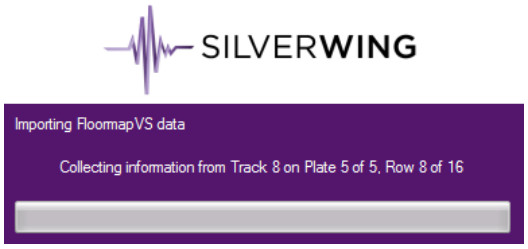



**Figure 12 - Progress Screen**

Once the data has been imported, an Import log window is displayed. Click ***OK*** to continue.

Displayed next is the FloormapVS import message. This is to inform that since all the imported raw data has been imported from the FloormapVS, then ALL the data is reported as bottom defects. This reported surface can be changed using the Edit Data tab. Click ***OK*** to continue.

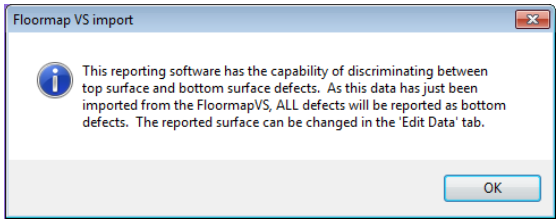



**Figure 13 - Floormap VS Import message**

Displayed next is the Annular Configuration wizard menu.

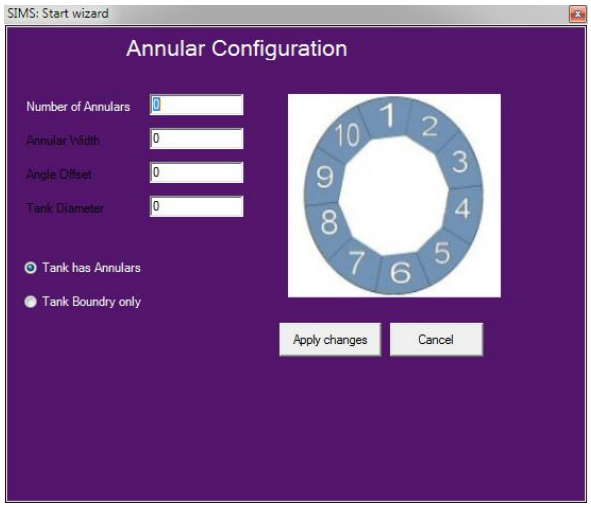



**Figure 14 - Annular Configuration Wizard**

If the set of data being imported contains annular plate data, the Annular plate width and the number of annular plates are shown automatically in the Annular configuration menu.

Information for number of annular plates, annular width, angle offset and tank diameter can all be entered manually if required. Click ***Apply Changes*** to import the annular plate data along with the inner plate data. Click ***Cancel*** to import the inner plate data only. Annular plate data can be imported later if required using the Import Additional Data tool.

**Note**: If a single plate is loaded, it must be of the name convention r1p1.fm2, where the first number represents the row number and the second corresponding to the plate number. If files are loaded without the proper incremental structure of the filenames that correspond to the plate layout of the tank, the tank representation may not be correct.

If one or more plates have not been inspected, a temporary artificial plate is created in its place. Once the plate has been inspected it can be imported from the EDIT DATA window.

### 5.2.5 Import Floormap 2000

To begin the import and data conversion of acquired Floormap2000 data, click on the ***Import Floormap 2000 data*** button. An import message appears to inform that since all the imported raw data has been imported from the Floormap2000, then ALL the data is reported as bottom defects. This reported surface can be changed using the Edit Data tab. Click ***OK*** to continue. An Import Options window appears. The Import threshold slider bar can be set so that discontinuities below a certain percentage are not imported into the reporting software. It is recommended that this value is set at 20% unless the tank size / corrosion levels within the tank have produced a set of data too large for the reporting computer to handle efficiently. The Import resolution dropdown menu is only used when importing Floormap3D data. When importing Floormap 2000 data the resolution is fixed at 15mm by15mm and cannot be changed. To continue click ***Set***. An Open window appears and the user can navigate the file system in order to locate the appropriate file. All files are filtered for the *.pla extension. One *.pla file holds a single orientation of track data corresponding to one scanned plate, therefore within a single folder, many files might exist to represent an entire tank. Double-click on any of the ****.pla*** files to begin data import.
A progress screen appears providing information on the progress of the data.

Once the data has been imported, the annular configuration menu does not appear. Annular data must be manually entered in the Annular Modifier menu box within the Tank View tab.

**Note**: If a single plate is loaded, it must be of the name r1p1.pla, where the first number represents the row number and the second corresponding to the plate number. If files are loaded without the proper incremental structure of the filenames that correspond to the plate structure of the tank, the tank representation may not be correct. The *.pla file only consists of track data corresponding to the orientation of the selected plate. Non-scanned sections of the plate are saved in the corresponding filename with the extension *.not and transverse data exists with the extension *.tr1 or *.tr2.

### 5.2.6 Annular Configuration in wizard

After either Floormap3D or FloormapVS2i data has been imported, the Annular Configuration wizard appears. Here information for a single annular ring for the tank can be entered. If annular plates have been scanned in Floormap mode then some data is automatically generated.

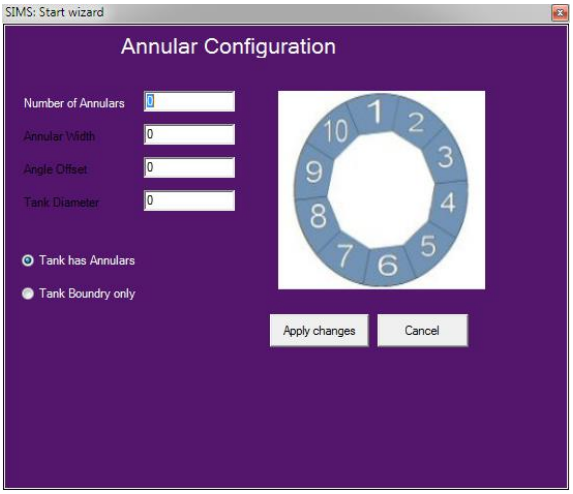



**Figure 15 - Annular Configuration Wizard**

**Number of Annulars:** If annular plates have been scanned in Floormap mode then the number scanned automatically appears. If no annular plates were scanned, then the total number of plates can be entered manually. The minimum number of annular plates required to generate an annular ring is 3 and any value entered above 3 allows the drawing to proceed in whole numbers only. When the ***Apply changes*** button is clicked, the software automatically calculates the best fit for the annular ring by determining the approximate diameter of the tank. This automatic operation only occurs of the ***Tank Diameter*** value is left at zero.

**Annular Width:** This defines the width of all the annular plates, at their join edge. If the annular plates were scanned in Floormap mode, this value corresponds to the value entered into the data acquisition software.

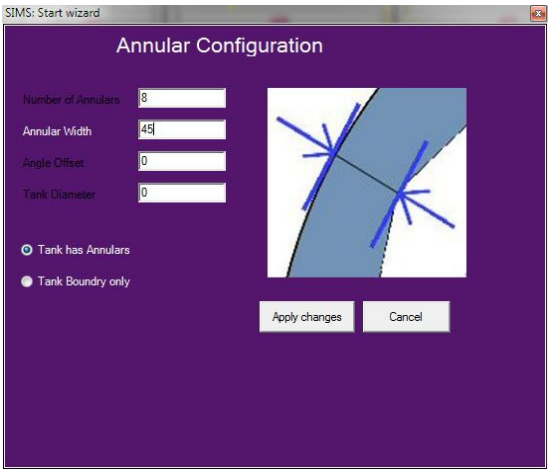



**Figure 16 - Annular Width**

**Angle Offset:** This define the angle orientation of the annular ring. The angle offset is between the centre vertical and the join between the topmost two annular plates. These annular plates are the last and first numbered annular plates.

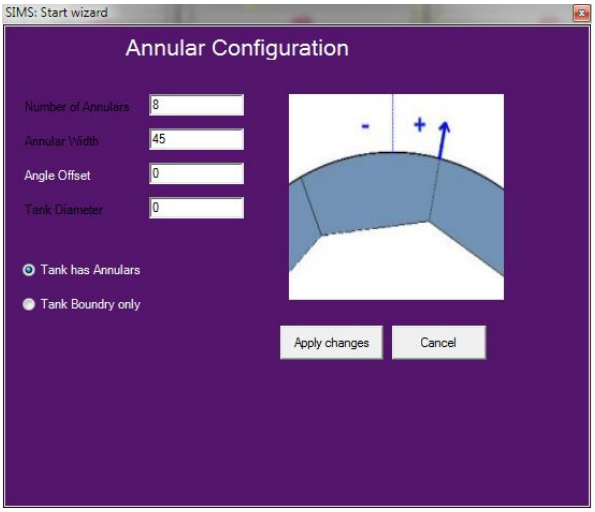



**Figure 17 - Annular angle offset**

**Tank diameter:** This defines the overall diameter of the tank, in millimetres. If this value is left at zero then the inbuilt approximation tool calculates the diameter of the tank in millimetres. If the inbuilt approximation is not accurate, the tank diameter can be modified in the Annular Modifier menu box within the Tank View tab.

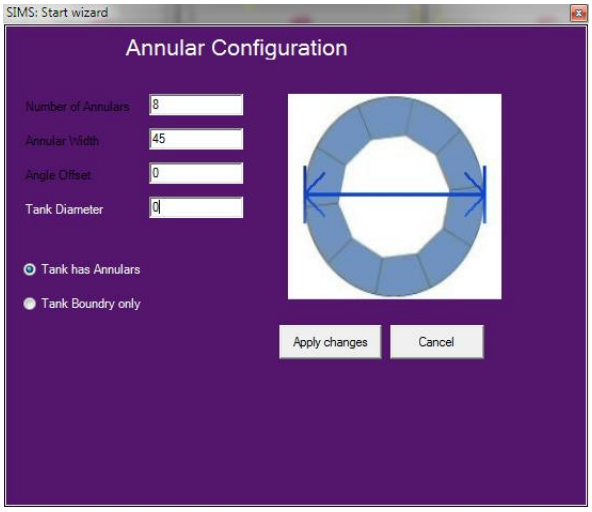



**Figure 18 - Tank Diameter**

**Tank has Annulars:** Select this option if the tank has an annular ring which is required for display.

**Tank Boundary Only:** Select this option if the tank had no annular plates but a boundary view to reflect a tank wall is required for display.

Click ***Apply changes*** to save and complete the process.

Click the ***Cancel*** button to exit the Annular Configurations wizard and apply no annular plates.

# 6 Menu Bar of the reporting software

## 6.1 File Menu

Contained in the file menu of the SIMS software are the following options:

**Create manual floor layout:** This allows a tank floor design to be manually created. This option can be used if a tank floor has been scanned in a non Floormap mode.

**Import:** This expands into further import option.

- **Floormap3D data:** Data captured using the Floormap3D is imported using this option. When loading, navigate to the ***.fm3insp*** extension and double-click. This loads all files within the designated folder.
- **Additional Floormap3D data:** Additional Floormap3D data can be imported into an existing tank file. Existing plates are not overwritten.
- **Recover imported Floormap3D data:** This allows the import resolution for Floormap3D data to be increased after importing. This can only be done after the initial import.
- **Floormap VS data:** Data captured using the FloormapVS2i, Floormap VS2 or Floormap VS is imported using this option. When loading, navigate to the ***.fm2*** extension and double-click on a single plate only, this loads all files within the designated folder.
- **Additional Floormap VS data:** Additional Floormap VS data can be imported into an existing tank file
- **Floormap 2000 data:** Data captured using the Floormap 2000 is imputed using this option. The data is converted to allow the addition of annular plates and the ability of data editing.

**Load:** This allows previous tank file saved from the SIMS software to be loaded.

**Load Demo Tank:** This loads a demo tank for practice, training or demonstration purposes.

**Save:** This allows the current tank and any modifications to be saved as a tank file.

**Open Wizard:** This opens the wizard that appears when the software is first loaded.

**Print Report:** An automatic report can be generated and printed for the current loaded tank.

**Print Current Plate:** This prints the current plate viewed in Plate View.

**Exit:** This exits the software. On exiting the software asks if you wish to save the tank.

## 6.2 Options Menu

This allows the units used in the software to be switched between Metric or Imperial.

**Units:** Select either Metric or Imperial. The tick denotes the selected option.

## 6.3 Help Menu

Contained in the help menu of the SIMS software are the following options:

**About:** This displays the splash screen that is shown when the software is loaded.

**Floormap documentation:** This displays the manual for the SIMS software

**Visit Silverwing (UK) LTD Website:** This loads www.silverwingndt.com in the web browser.

**Deactivate this software**: This deactivates the SIMS software.

# 7 Tank View

Once a tank file has been loaded, or raw data is imported into the reporting software the rendered tank is displayed in the tank view tab menu.

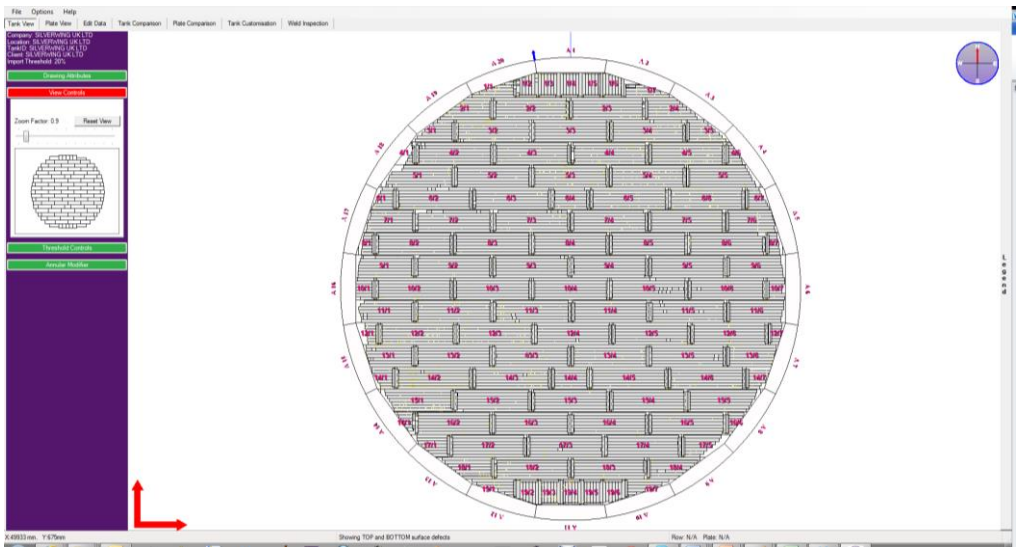


**Figure 19 - Tank View**

All options for modifying the view of the tank are available in the left-hand column and are split into different menu boxes which can be accessed by clicking on the relevant button. Doing so expands the menu box to reveal the various options. When expanded the button is shaded in red. Click the same button to close the menu box. The four menu boxes located on the within the Tank View tab menu are: Drawing Attributes, View Control, Threshold Control and Annular Modifier.

The information at the top of the column corresponds to the tank details information entered into the data acquisition software. Click on it to display the Silverwing logo and hide this information.

## 7.1 Distinguishing between Top and Bottom indications

The discontinuities displayed on screen can be changed to display either top and bottom surface discontinuities, top only surface discontinuities or bottom only surface discontinuities. To change between the available views right click on the tank view and select from one of the following options. Displayed at the bottom centre of the screen is the selected view option. This option is reflected in both the Tank View, Plate View and Edit Data tab menus.

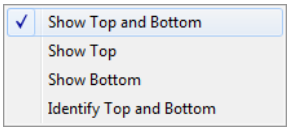



**Figure 20 - Discontinuity View**

**Show Top and Bottom:** This option displays both top and bottom surface discontinuities.

**Show Top:** This option displays only the top surface discontinuities.

**Show Bottom:** This option displays only the bottom surface discontinuities.

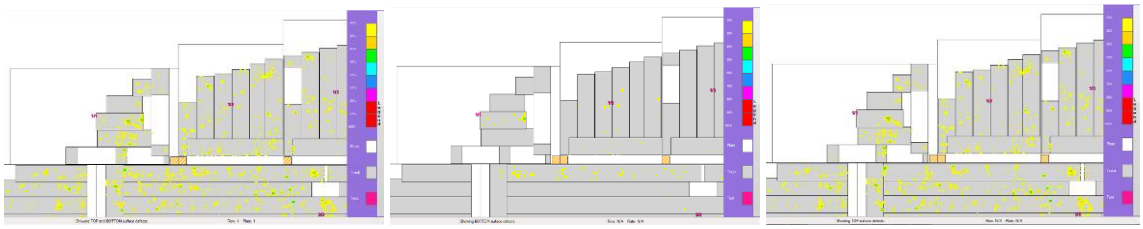


**Figure 21 - Show Top and Bottom, Bottom and Top discontinuity view**

**Identify Top and Bottom:** This option identifies which indications are located on the top surface, the bottom surface and both surfaces. This option changes the discontinuities into colours depending upon their location and the colour legend changes accordingly.

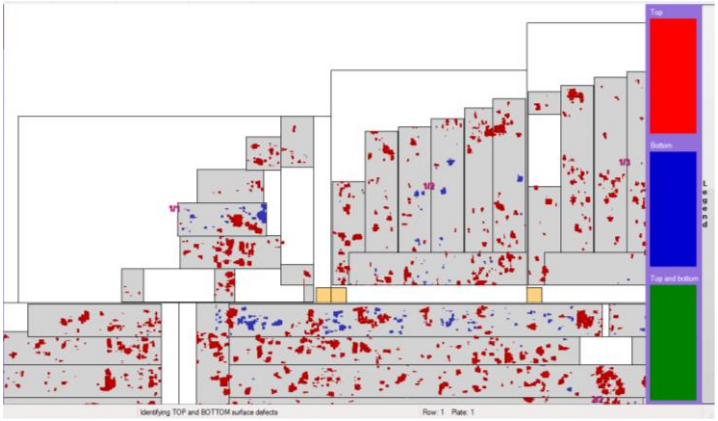


**Figure 22 - Identify Top and Bottom View**

## 7.2 Scrolling around the tank

To modify the view position of the tank, click and hold left mouse button anywhere on the tank view and move the mouse in the direction to move the tank. To stop scrolling, release the mouse button.

## 7.3 Drawing Attributes

Within the Drawing Attributes menu box are various options designed to modify the displayed options of the rendered tank. Each option had a tick box which can used to select or de-select the required option.

**Show Tracks:** This option allows the outline and shading of the scanned tracks to be displayed or hidden.

**Transparent tracks:** This option allows the tracks to be rendered as transparent tracks. Doing this allows discontinuities to be seen that would otherwise be hidden by overlapping tracks.

**Show Plate Reference:** This option allows the plate reference to be shown or hidden. The plate reference is the corner of a plate from which the inspection began. It is also the corner of the plate from which all positional measurements are taken. The orange circle on the corner of the plate represents the Plate reference.

**Show Patch Plates:** If patch plates have been added to the tank, this option allows the patch plates to be hidden or shown on the tank view only.

**Show UT Verifications**: If UT verifications have been added to the tank, this option allows the UT verifications to be hidden or shown.

**Show Numbering system:** This option allows the numbering system to be displayed on the tank view. Select from one of the four different numbering system options available

**Row/Plate:** Displays the plate numbering system by row and plate numbers. Row 1 is always shown at the top of the tank view; plate 1 is always shown at the left of the tank view. This option is only available if the ***Show Numbering System*** is selected.

**Plate Numbers:** Displays a sequential numbering system of plates, starting at row 1, plate 1. This option is only available if the ***Show Numbering system*** is selected.

**Raster numbers:** Displays a sequential numbering system of plates, starting at row 1, plate 1. This option is only available if the ***Show Numbering System*** is selected.

**Custom:** Displays the tank floor layout using the customisable plate numbering system manually set within the Tank Layout Modification tool. This option is only available if the ***Show Numbering System*** is selected.

**Show Image Markers:** If photographs or images have been added, then this option allows the image markers to be shown or hidden.

**Show Discontinuities:** This option displays or hides the discontinuities drawn on the tank.

**Discontinuities:** Floormap VS data displays the discontinuities on a 15mm x 15mm basis. Floormap3D data displays discontinuities depending upon the import resolution.

**Max Discontinuity per track:** Displays the maximum discontinuity encountered on a track by track basis and sets the colour of that track to the colour corresponding to the highest discontinuity value.

**Enhanced Discontinuity:** This is used to enhance the discontinuities displayed on a track. The slider bar can be used to increase or decrease the enhancement of the discontinuities.

**Show North Direction:** This option shows or hides the North direction symbol. The North direction can be altered by moving the slide bar.

## 7.4 View Controls

Within the View Controls menu box are various options designed to alter the drawing section view of the rendered tank. The thumbnail view of the tank below the zoom factor scroll bar allows selection of any part of the tank to view, mirrored in the large drawing section.

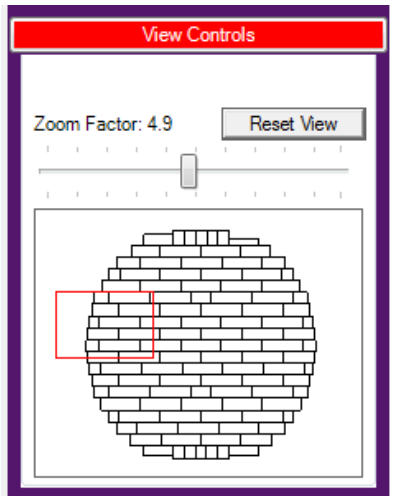



**Figure 23 - View Controls**

**Zoom factor scroll bar:** This option modifies the zoom factor of the tank. Scrolling to the right zooms in the view of the tank, and scrolling to the left zooms out the view.

**Reset View:** This button sets the zoom factor to its default value and re-positions the view of the tank to the centre of the screen.

## 7.5 Threshold controls

The Threshold Controls menu box contains two scroll bars, designed to adjust the displayed discontinuities on screen. Also displayed is the import threshold value.

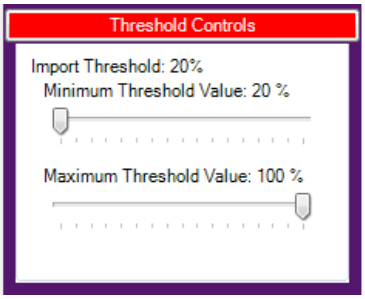



**Figure 24 - Threshold Control**

**Import Threshold:** This indicates the lowest percentage level which the raw data was imported into the software.

**Minimum Threshold Value:** This scrollbar alters the minimum percentage level of discontinuity to be displayed on the screen.

**Maximum Threshold Value:** This scrollbar alters the maximum percentage level of discontinuity to be displayed on the screen.

Selecting a value for both minimum threshold and maximum threshold shows only the discontinuities between the minimum and maximum percentages selected.

When modifying either threshold values in the Tank view reflects changes in the both threshold control in the Plate view and the threshold controls within the print menu.

**Note**: The maximum percentage value cannot be set lower than the corresponding minimum percentage value, and vice versa.

## 7.6 Annular Modifier

Within the Annular Modifier menu box are various options designed to modify the display options of the annular plates.

**No Outer Boundary:** This option allows the tank view to be displayed with no annular plates.

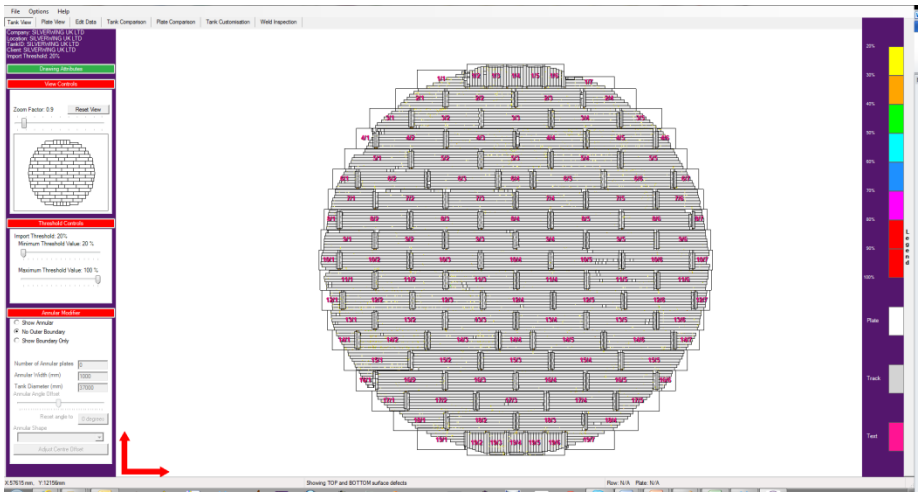


**Figure 25 - Tank view with no annular plates**

**Show Boundary Only:** This option allows the tank view to be displayed with a boundary ring that reflects the tank wall.

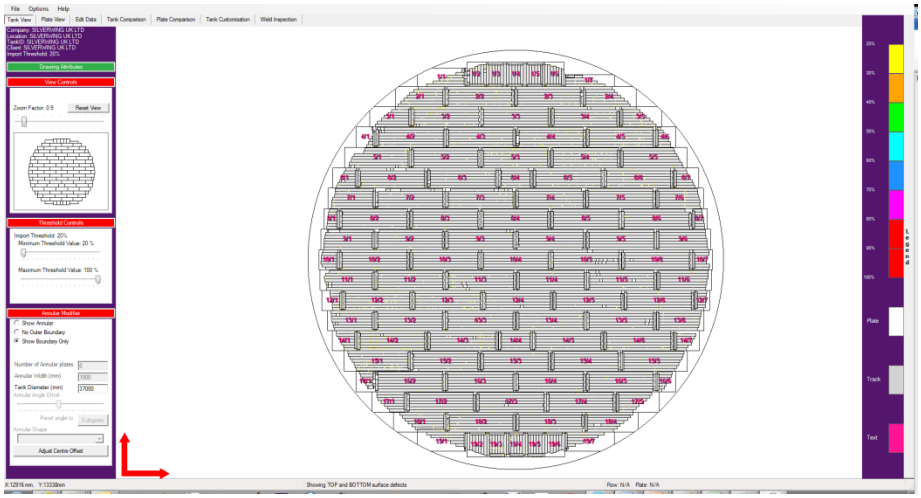


**Figure 26 - Tank view with a ring boundary**

**Show Annular:** This option allows the tank view to be displayed with annular plates. The annular configuration options must be correctly entered to display the required annular

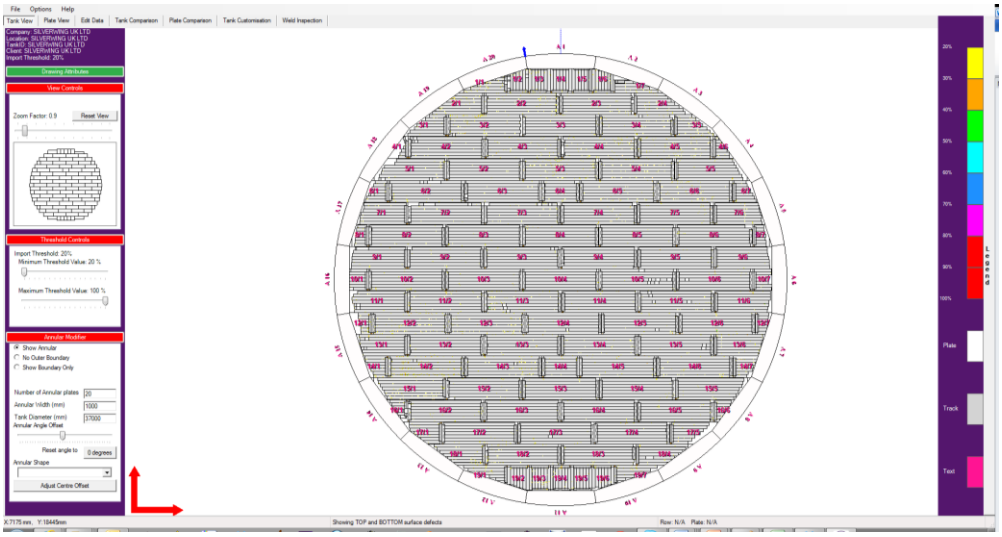


**Figure 27 - Tank view with annular plates**

## 7.6.1 Annular configuration options:

With all textbox entry methods, to confirm the value input, press the return (enter) key.

**Number of Annular plates:** Enter the total number of annular plates.

**Annular Width (mm):** This defines the width of all annular plates at their join edge.

**Tank diameter (mm):** Enter the diameter of the inspected tank.

**Annular Angle Offset:** This defines the angle orientation of the annular ring. The angle offset is between the centre vertical and the join between the last and first numbered annular plates, indicated by the blue arrow. To reset the angle value to zero click the ***0 degrees*** button below the angle scrollbar.

**Annular Shape:** This alters the shape of the inner edge of annular plates. Straight edge sets the inner edge of the annular plate to a straight line; Parallel edge sets the inner edge of the annular plate to a curve matching the outer edge of the annular plate.

**Annular Centre Offset:** If the tank annular centre does not correspond to the outline of a tank, its centre offset may be modified here. The scrollbars modify the annular centre offset in relation to the centre of the drawn tank in millimetres. The maximum adjustment ranges from -5000 to +5000 mm in both X and Y directions. A value of the adjustment can be entered manually into the corresponding textbox. To return to the previous window click the ***Close Offset Adjustment*** button.

## 7.7 Legend

The legend is located on the right hand size of the screen. To open the legend, click the ***legend*** button. The legend is located in this position throughout the application.

When viewing the discontinuities as percentages, the percentage bands relating to a discontinuity value can be modified by double-clicking on the appropriate colour, a colour box then appears. Select the desired colour window and click ***Ok*** to apply. Colour of the displayed Plate, Track and Text can also be modified.

When viewing the Identify Top and Bottom option the legend changes to show only the colours for indication found on the top, bottom or both top and bottom. It is not possible to alter the colours for these options.

**Note:** All colours revert back to the default colours when the software is restarted.

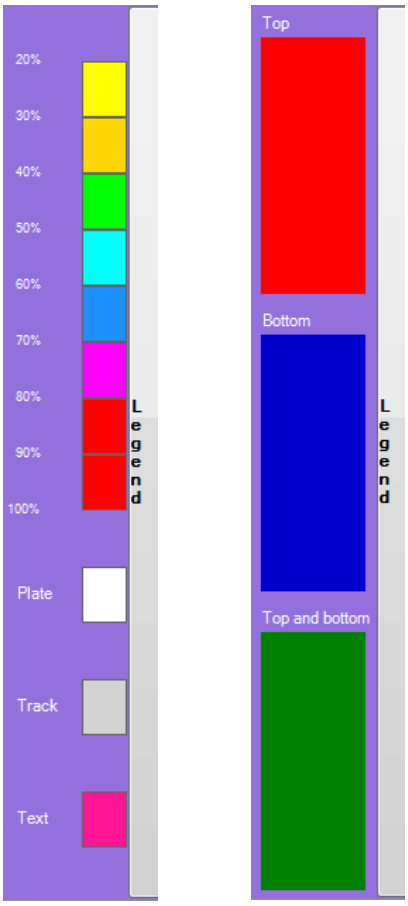



**Figure 28 - Standard and Top and Bottom legend views**

# 8 Plate View

The plate view tool allows discontinuity data to be viewed at plate level for both plates and annular plates scanned in Floormap mode. Corrosion severity is based on the colour percentage in correlation with the legend.

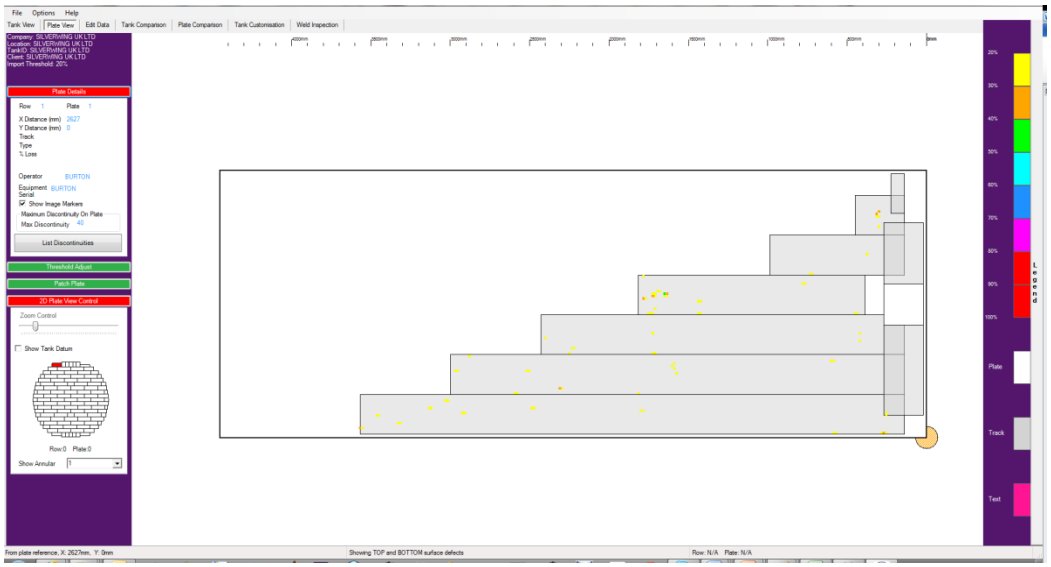


**Figure 29 - Plate View**

All options for modifying the view of a plate are available in the left-hand column and are split into different menu boxes which can be accessed by clicking on the relevant button. Doing so expands the menu box to reveal the various options. When expanded the button is shaded in red. Click the same button to close the menu box.

The four menu boxes located on the within the Plate View tab menu are: Plate Details, Threshold Adjust, Patch Plate and 2D Plate View Control.

## 8.1 Entering Plate View

Plate view can be accessed in two ways:

- By double-clicking on the relevant plate in tank view. This loads the relevant plate in the Plate view tab menu.
- Select the ***Plate View*** from the tab bar. By default, the plate loaded is Row 1, Plate 1, or the last plate that was viewed in plate view. To alter the number of the viewed plate use tank thumbnail in the 2D Plate View Control menu.

## 8.2 Navigating plates and annular plates in Plate View

Open the 2D Plate View Control menu box to reveal the Zoom Control function, a thumbnail image of the tank plate outline and a Show Annular drop down box. To view different plates, move the mouse cursor over the thumbnail image and click on the desired plate to view it. The selected plate becomes highlight in red and the plate number displayed in the bottom right hand

corner of the screen. To view different annular plates select the corresponding annular from the drop down list.

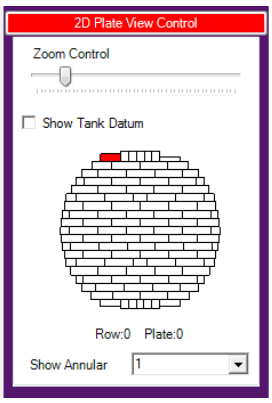



**Figure 30 - 2D Plate View Control**

## 8.3 Zoom Control for Plate View

Open the 2D Plate View Control menu to reveal the Zoom Control function. To zoom in, move the slider to the right. To zoom out, move the slider to the left. During the zooming process an outline of the plate is indicated by a red border.

## 8.4 Plate Reference

The plate reference is represented as an orange circle at the appropriate corner of the plate.

## 8.5 Scrolling around the plate

To modify the view position of the plate, click and hold left mouse button anywhere on the plate view and move the mouse in the direction to move the plate. To stop scrolling, release the mouse button.

## 8.6 Right-Click Menu

Right click on a plate or annular plate to display a context menu that allows for various display modifications to be made. Each option can be selected or de-selected as required. A selected option is displayed with a tick.

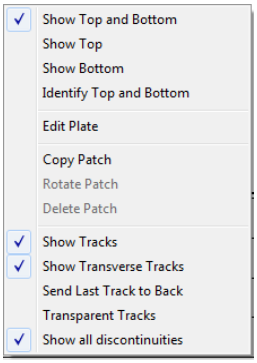



**Figure 31 - Plate View right click menu**

**Show Top and Bottom:** This option displays both top and bottom surface discontinuities.

**Show Top:** This option displays only the top surface discontinuities.

**Show Bottom:** This option displays only the bottom surface discontinuities.

**Identify Top and Bottom:** This option identifies which indications are located on the top surface, the bottom surface and both surfaces.

**Edit Plate (Not available in Read-only version)**: This is a shortcut to edit the current plate or annular in the Edit Data tab menu.

**Copy Patch:** This option allows the selected patch plate to be copied.

**Delete / Rotate patch:** This option allows the selected patch plate to be deleted or rotated in degrees. This option of only available after a patch plate has been selected.

**Show Tracks:** This option allows the outline and shading of the scanned tracks to be displayed or hidden.

**Show Transverse Tracks:** This option allows transverse tracks and the discontinuities located on them to be displayed or hidden. Annular plates do not have this option

**Send Last Plate to Back:** If the last track hides some contents of the latter track, this option allows the last plate scanned to be positioned behind the previous tank so the data on the underlying track can be viewed.

**Transparent tracks:** This option allows the tracks to be rendered as transparent tracks. Doing this allows discontinuities to be seen that would otherwise be hidden by overlapping tracks.

**Show All Discontinuities:** This option allows all discontinuities to be displayed even if hidden under other tracks. By default this is selected as on.

**Show UT Verifications:** This option allows all UT verifications to be displayed / hidden.

## 8.7 Threshold Adjust

As with the tank view, within the Threshold Control menu box by modifying either of the threshold scroll bars displays only the discontinuities between the maximum and minimum specified values on the plate view. These settings threshold settings are mirrored in all other threshold controls within the application.

## 8.8 Maximum discontinuity on a plate

The percentage found for the maximum discontinuity on the current viewed plate or annular is indicated at the bottom of the Plate Details menu box. To locate it within the plate set the minimum threshold percentage value to the same percentage value as the maximum discontinuity. Zoom into the plate and scroll around until the location of each is found. Once found remember to return the minimum threshold percentage to its original value.

## 8.9 Identifying a discontinuity on tracks of a plate

Identifying the attributes of a discontinuity found on the current viewed plate of annular is achieved by moving the mouse over the desired discontinuity. The information is shown in the Plate Details menu box which must be open in order to view the discontinuity data.

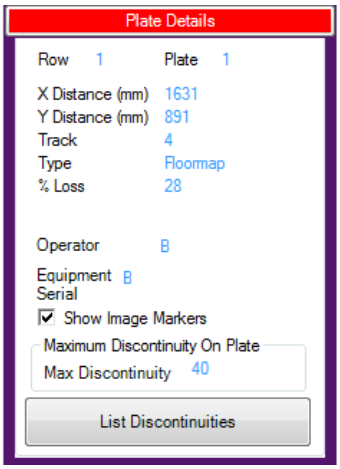



**Figure 32 - Plate Details menu box**

The information provided for the discontinuities include:

- **Row** and **Plate** number of the current plate;
- **X Distance (mm)** (horizontal) from the plate reference;
- **Y Distance (mm)** (vertical) from the plate reference;
- **Track** number to which the discontinuity is located;
- **Type** of discontinuity: Floormap3D, FloormapVS, Floormap2000, Visual Inspection or Ultrasound;
- **% Loss** of the discontinuity, ranging from 20% to 100%;
- **Operator** and **Equipment Serial** information provided from the inspection details created
- **Max Discontinuity** found on the plate:

**Note**: distance is measured in mm.

## 8.10 Identifying discontinuity areas on a plate

Identifying discontinuity areas for the current viewed plate or annular is achieved by selecting the ***List Discontinuities*** button within the Plate Details tab menu.

This displays a list of each discontinuity area on the right hand side of the plate view screen in a table. The table is split into the following columns:

- **ID** number for the area found on the plate;
- **X, Y (mm)** location on the plate for the area found. This co-ordinate is taken from centre of the found area;
- **Length (mm)** of the discontinuity, measured in the X direction;
- **Width (mm)** of the discontinuity, measured in the Y direction;

- **Area (mm2)** of the discontinuity;
- **Top/Bottom** location for the discontinuity area found on the plate;
- **Maximum Loss** for the discontinuity area found on the plate;
- **Defect Image** for the discontinuity area found on the plate.

When the defect image is selected, the location is highlighted on the plate.

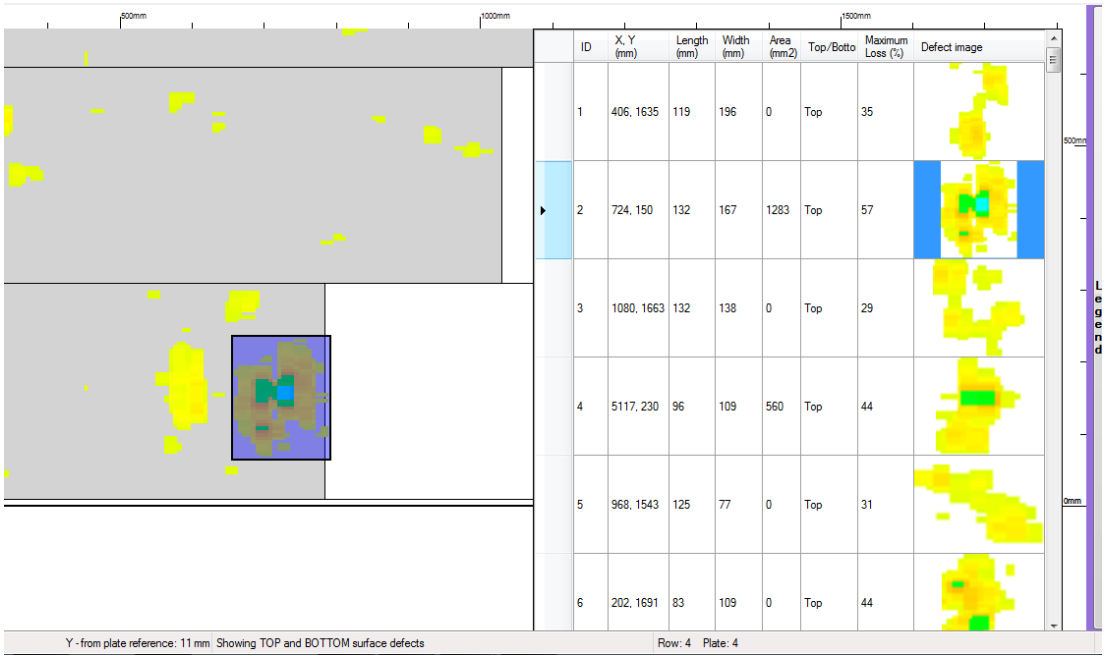



**Figure 33 - List Discontinuity function**

Note: This function is only available for Floormap3D data.

## 8.11 Manual Patch Plating

The Patch Plate menu box allows the addition of patch plates onto both floor and annular plates. The shape of the patch plates can be altered to suit to meet the needs of API patch plate requirements. The manway diameter measurement must be entered.

**Show Patches** option allows all added patch plates to be displayed on screen. To hide the patch plates uncheck this option.

**Measurement reference** is the location on the patch plate reference point and is either the top left corner or the centre position of a patch plate. The position of a patch plates is measured from the plate reference corner of tank floor plate to the patch plate reference point. If the patch plate has radius corners it may be difficult to locate the top left corner of the patch plate, therefore it may be easier to locate the patch centre position.

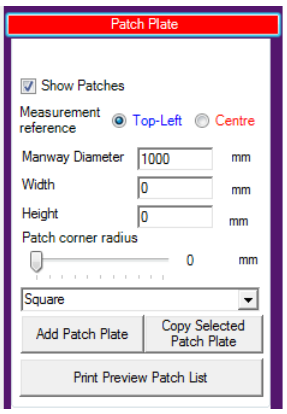



**Figure 34 - Patch Plate menu box**

## 8.11.1 Displaying a patch plate

To display patch plates on screen check the Show Patches option. To hide the patch plates uncheck the option.

## 8.11.2 Adding a patch plate

To add a patch plate:

1. Enter the manway diameter in mm.
2. Click the ***Add Patch Plate*** button.
3. Select the patch plate shape from the drop down menu. Options are Square or Tombstone.
4. Left click and hold the mouse button down anywhere within the confines of the plate area in the image.
5. Drag the mouse to identify the position and dimensions of the patch. The patch plate size is restricted by the value entered into the Manway Diameter field.
6. Release the mouse button to apply.

## 8.11.3 Moving a patch plate

To move an existing patch plate,

1. Select the required patch plate by left clicking and holding on the required patch plate.
2. Drag the cursor to the new position
3. Release the mouse button to place the patch.

## 8.11.4 Rotating a patch plate

To rotate a patch plate:

1. Right click on the desired patch.
2. Select the ***Rotate Patch*** option. This opens the Patch Rotation Tool window.
3. Slide the patch rotation tool to the required angle.
4. Click ***Close***.

### 8.11.5 Editing patch plate dimensions

To change the dimensions:

1. Select the patch plate by left clicking on the desired patch plate. The selected patch plate number is then displayed at the top of the Patch Plate menu box.
2. Enter new width and / or height dimensions.
3. Press the keyboard ***Enter*** button to apply the changes.

### 8.11.6 Editing patch plate corner radius

To radius the corners of a patch plate:

1. Select the patch plate by left clicking on the desired patch plate. The selected patch plate number is then displayed at the top of the Patch Plate menu box.
2. Slide the Patch Corner Radius control to the required amount.

### 8.11.7 Altering patch plate shape

The shape of a tombstone or square patch plate can be altered by editing the patch corner radius. Different types of tombstone patches can be altered by:

1. Selecting a tombstone patch plate which was added.
2. Increasing / decreasing the patch corner radius.

A square patch plate can also be changed into a circular patch plate by:

1. Selecting a square patch plate which was added.
2. Fully increasing the radius.

### 8.11.8 Copying a patch plate

To copy a patch plate:

1. Select the patch plate by left clicking on the desired patch plate. The selected patch plate number is then displayed at the top of the Patch Plate menu box.
2. Click ***Copy Selected Patch Plate*** in the Patch Plate menu box. This pastes a copy of the selected patch plate next to the previous. Alternatively right click on the desired patch and select the ***Copy Patch*** option. Move the new patch plate to required location.

To paste the copied patch onto a different plate or annular:

1. Select the patch plate by left clicking on the desired patch plate. The selected patch plate number is then displayed at the top of the Patch Plate menu box.
2. Open the 2D plate view menu box.
3. Select the required plate.
4. Click ***Copy Selected Patch Plate***

### 8.11.9 Deleting a patch plate

To delete a patch plate:

1. Position the cursor on the patch plate.
2. Right click and select the ***Delete Patch*** option.

### 8.11.10 Displaying the Patch Plate List Summary

A list of all added patch plates to the tank can be printed out separately or included in the report. To obtain a separate list of all added patch plates, click the ***Print Preview Patch List*** button. If a logo has not yet been applied in the Print Report window, then a message appears asking to select a custom logo. To choose a logo select ***Yes*** and choose required logo using the window. If no logo is required click ***Cancel***, or No. A logo can be applied at any time using the Print Report option.

1/1

**Patch plate summary**
**Tank: SILVERWING UK LTD**
**Date: 06-13-2002**

SILVERWING

All X and Y coordinates are taken perpendicular from the plate reference to the TOP-LEFT corner of the patch plate concerened. See each plate illustration for further details

METRIC (mm), Height and Width are rounded up to nearest 10 mm

| Row | Plate | Plate Ref. | Patch ID | X | Y | Height | Width | Rot (deg) | Radius | Type |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | Bottom-Right | 1/2/1 | 1243 | 1646 | 310 | 850 | 0 | 0 | Square |
| 1 | 2 | Bottom-Right | 1/2/2 | 1559 | 939 | 320 | 940 | 0 | 41 | Ellipse |
| 1 | 2 | Bottom-Right | 1/2/3 | 347 | 630 | 510 | 210 | 0 | 0 | Square |
| Total No Of Patches on Row 1 Plate 2 = 3 | | | | | | | | | | |
| 2 | 2 | Bottom-Left | 2/2/1 | 801 | 1250 | 780 | 1010 | 0 | 159 | Ellipse |
| 2 | 2 | Bottom-Left | 2/2/2 | 2788 | 1250 | 150 | 350 | 0 | 0 | Square |
| 2 | 2 | Bottom-Left | 2/2/3 | 3185 | 959 | 720 | 600 | 0 | 78 | Ellipse |
| Total No Of Patches on Row 2 Plate 2 = 3 | | | | | | | | | | |

**Figure 35 - Patch plate summary list**

The measurement reference for the patch plates are displayed above the list. If the measurement reference is set to Top-Left then the text appears in Blue, if set to Centre the text appears in Red.

The units for the measurements are stated in Red above the list and are either in Metric or Imperial units.

The patch plate summary list shows a breakdown of each patch plate added to each plate. Also includes in the list is information for:

- **Row** and **Plate** number and **Plate Ref** location for the plate;
- **Patch ID** number;
- **X Pos.** and **Y Pos.** coordinate values for the patch pate. These are perpendicular distances between the plate reference and the selected reference corner of the each patch plate.
- **Length** of the patch plate. This is considered as the vertical vector on the plate image.
- **Width** of the patch plate. This is considered as the horizontal vector on the plate image.

- **Rot (deg)** indicates the angle of rotation for the patch plate**.**
- **Radius** indicates the corner radius applied to the patch plate.
- **Type** indicates the type of patch, square or tombstone.

The patch plate summary list can be printed by clicking the ***Print*** button. To exit the print preview and return to the Reporting Software click the ***Close*** button.

# 9 Edit Data (Full Version Only)

Two versions of the reporting software exist, a Full Version for use by the inspection organisation and a Read Only version for use by the end client / report viewer. The Edit Data tool tab menu is only available when using the Full Version.

The Edit Data tool tab menu allows discontinuities to be added and manipulated, modification of the plate attributes and tank information, and the addition of photographs for both floor plates and annular plates.

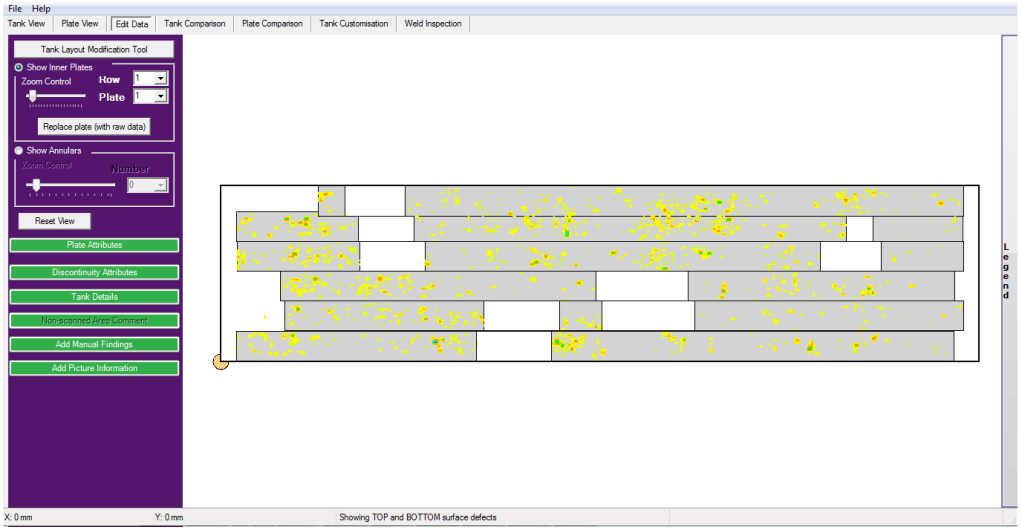



**Figure 36 - Edit Data**

All options for editing a plate are available in the left-hand column and are split into different menu boxes which can be accessed by clicking on the relevant button. Doing so expands the menu box to reveal the various options. When expanded the button is shaded in red. Click the same button to close the menu box.

The six menu boxes located on the within the Edit Data tab menu are: Plate Attributes, Discontinuity Attributes, Tank Details, Non-scanned Area Comments, Corrosion Areas and Add Picture Information.

## 9.1 Entering Plate View

Edit Data can be accessed in two ways:

- By right clicking on the relevant plate in plate view, and clicking ***Edit Plate***. This load the relevant plate in the Edit data tab menu.
- By selecting the ***Edit Data*** button on the tab bar. By default the plate loaded is Row 1, Plate 1, or the last plate that was viewed in edit data.

## 9.2 Viewing Inner Plates

To view an inner floor plate, select ***Show Inner Plates*** located in the right column below the Tank Layout Modification button. Select the corresponding row and plate number for the desired plate. This shows the corresponding plate image on screen.

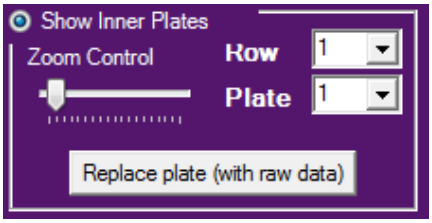



**Figure 37 - Show Inner Plates menu box**

**Note**: The on screen plate images are not drawn to scale with each other. The plates are sized to fit the screen area.

## 9.3 Zoom Control for Inner Plates

Located within the Show Inner Plates menu is the Zoom Control function. To zoom in, move the slider to the right. To zoom out, move the slider to the left. To reset the view of the plate so that it fit within the screen click the ***Reset View*** button below the Show Annular menu box.

## 9.4 Replacing plate (with raw data)

### 9.4.1 Floormap VS Plate Data

To import and replace individual plates:

1. Select the plate that is to be replaced using the Row / Plate selector.
2. Click on ***Replace Plate (with raw data)*** button in Show Inner Plate menu
3. In the Open window change the file extension option to ***VS2i Plate Files *.fm2***.

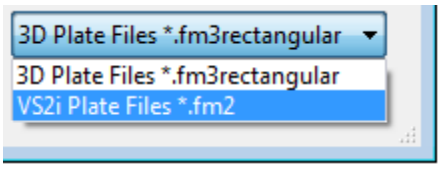



**Figure 38 - Plate File Extension selection**

4. Navigate to the inspection folder and select the required plate file

5. Click ***Open***. The original plate, selected in step 1, is now replaced with the new plate.

**Note:** The newly imported plate will replace the plate that was selected before the `Replace Plate (Import)' button was clicked and will assume the number of the original plate.

### 9.4.2 Floormap3D Plate Data

To import and replace individual plates:

1. Select the plate that is to be replaced using the Row / Plate selector.
2. Click on ***Replace Plate (with raw data)*** button in Show Inner Plate menu
3. In the Open window change the file extension option to 3D Plate Files ****.fm3rectangular***

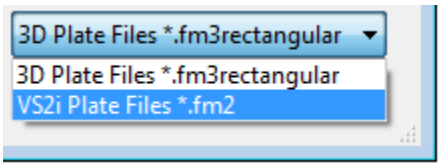



**Figure 39 - Plate File Extension selection**

4. Navigate to the inspection folder and open the required plate number folder. Select the required plate file.
5. Click ***Open***. The original plate, selected in step 1, is now replaced with the new plate.

**Note:** The newly imported plate will replace the plate that was selected before the `Replace Plate (Import)' button was clicked and will assume the number of the original plate.

## 9.5 Viewing Annular Plates

To view an annular plate, select ***Show Annulars*** located in the right column below the Show Inner Plates menu. Select the required annular number for the desired annular. This shows the corresponding annular image on screen.

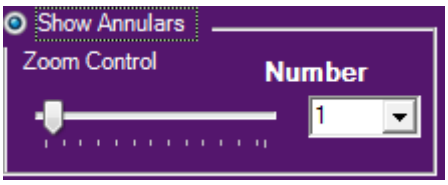



**Figure 40 - Show Annulars menu box**

**Note**: The on screen annular images are not drawn to scale with each other. The annular plates are sized to fit the screen area.

## 9.6 Zoom Control for Annular plates

Located within the Show Annulars menu is the Zoom Control function. To zoom in, move the slider to the right. To zoom out, move the slider to the left. To reset the view of the annular plate so that it fit within the screen click the ***Reset View*** button below the Show Annular menu.

## 9.7 Scrolling around the plate

To modify the view position of the plate, click and hold left mouse button anywhere on the plate view and move the mouse in the direction to move the plate. To stop scrolling, release the mouse button.

## 9.8 Right-Click Menu

Right click on a plate or annular plate to display a context menu that allows for various display modifications to be made. Each option can be selected or de-selected as required. A selected option is displayed with a tick. Unavailable options at the cursors location are displayed in a light grey colour.

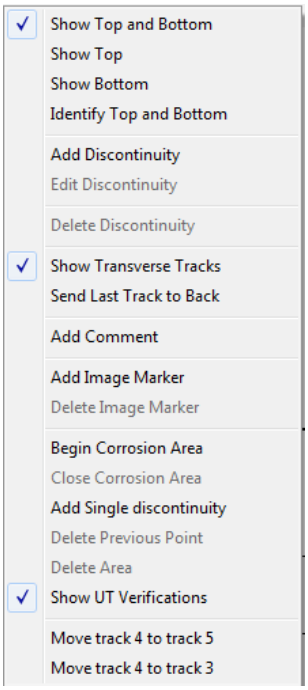



**Figure 41 - Edit Data right click menu**

**Show Top and Bottom:** This option displays both top and bottom surface discontinuities.

**Show Top:** This option displays only the top surface discontinuities.

**Show Bottom:** This option displays only the bottom surface discontinuities.

**Identify Top and Bottom:** This option identifies which indications are located on the top surface, the bottom surface and both surfaces.

**Add Discontinuity:** This option allows a new discontinuity to be added to the plate.

**Edit Discontinuity:** This option allows the attributes of the selected discontinuity to be edited.

**Delete Discontinuity:** This option allows the selected discontinuity to be deleted.

**Show Transverse Tracks:** This option allows transverse tracks and the discontinuities located on them to be displayed or hidden. Annular plates do not have this option

**Send Last Plate to Back:** If the last track hides some contents of the latter track, this option allows the last plate scanned to be positioned behind the previous tank so the data on the underlying track can be viewed.

**Add Comment:** This option allows a comment to be added to the non-scan area of a track.

**Add Image Marker:** This option allows an image marker to be added to the plate.

**Delete Image Marker:** This option allows the selected image marker to be deleted.

**Begin Corrosion Area:** This option allows a manual corrosion area to be added

**Close Corrosion Area:** This option allows a manual corrosion area to be closed and applied

**Add Single discontinuity:** This option allows for a manual single discontinuity to be added

**Delete previous point:** This option allows the point of the previous corrosion area to be deleted

**Delete Area:** This option allows the corrosion area to be deleted from the plate

**Show UT Verifications:** This shows or hides the UT verification indications

**Move track X to X:** This option allows the user to move tracks up and down the plate. This is helpful if the wrong track was scanned during the inspection

## 9.9 Plate Attributes

The Plate Attributes menu box allows modification of the selected plate attributes. These are the plate attributes entered by the operator into the Floormap data acquisition software at the time of scanning. The plate attributes of Annular plates cannot be changed due to the nature they are scanned.

**WARNING!**

It is recommended that these options are only altered if the plate attributes for the selected plate have been entered incorrectly during the inspection. When altering plate attributes all discontinuities located on the plate are moved accordingly

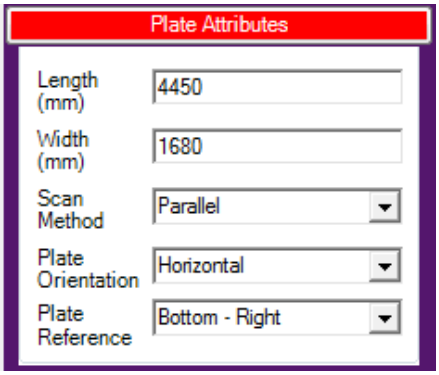



**Figure 42 - Plate Attributes menu box**

**Length / Width:** These refer to the dimension entered for the scanned plate.

**Scan method**: The option allows the scan method to be changed between scanned as ***Parallel*** format (all tracks are started from the plate reference side) or scanned as ***Raster*** format.

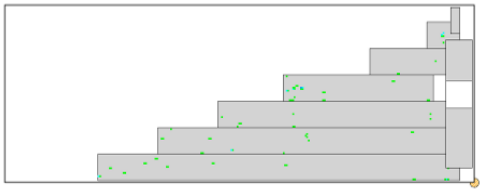


Figure 43 - Parallel Scan

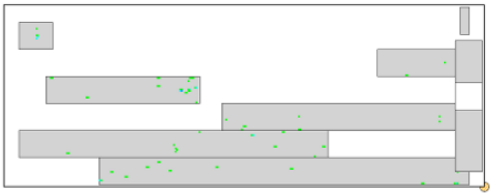


Figure 44 - Raster Scan

**Plate Orientation**: This option allows the plate orientation to be changed between either a horizontal plate, or a vertical plate.

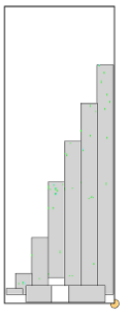


Figure 45 - Vertical Orientation

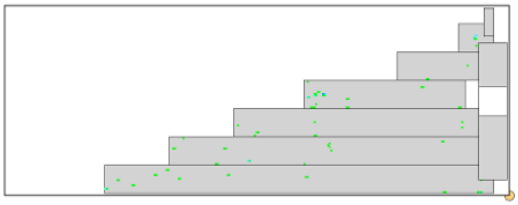


Figure 46 - Horizontal Orientation

**Plate reference**: This option allows the plate reference corner to be changed between either the Top-Left, Top-Right, Bottom-Left or the Bottom-Right corner.

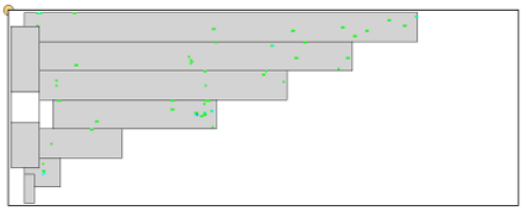


Figure 47 - Top Left Reference

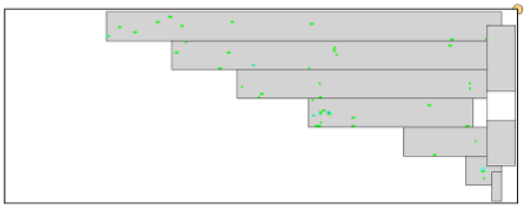


Figure 48 - Top Right Reference

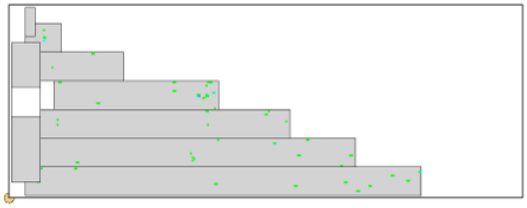


Figure 49 - Bottom Left Reference

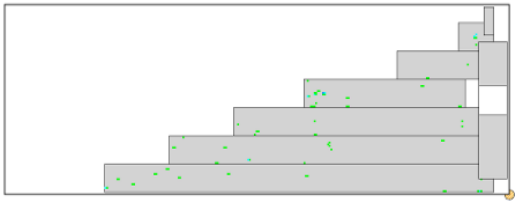


Figure 50 - Bottom Right Reference

## 9.10 Discontinuity Attributes

The Discontinuity Attributes menu box is used to alter the results of the discontinuities found during the Floormap inspection.

### 9.10.1 Modifying discontinuity surface origin for a plate or an annular

The surface origin of discontinuities found on a plate can altered so that it they are located on either the top surface, the bottom surface or on both surfaces. To modify:

1. Open the ***Discontinuity Attributes*** menu.
2. Click the ***Select area to set surface origin.***
3. Position the cursor onto the plate then left click, hold and drag a box over the area for modification then release the mouse button.
4. In the Select surface origin window, choose the required surface origin for the area to be located on.

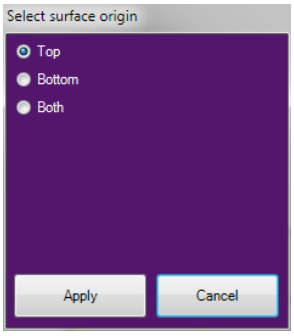



**Figure 51 - Select surface origin window**

5. Click the ***Apply*** button to accept the changes.

To cancel the surface selection process select ***Cancel***.

## 9.10.2 Modifying a discontinuity on a plate or an annular

The Percentage Loss, Type and Surface Origin for a discontinuity found by the Floormap inspection can be modified. To modify:

1. Position the cursor onto the discontinuity and right click.
2. Select ***Edit Discontinuity***.
3. The Discontinuity Attributes menu automatically opens and displays the attributes for the chosen discontinuity.

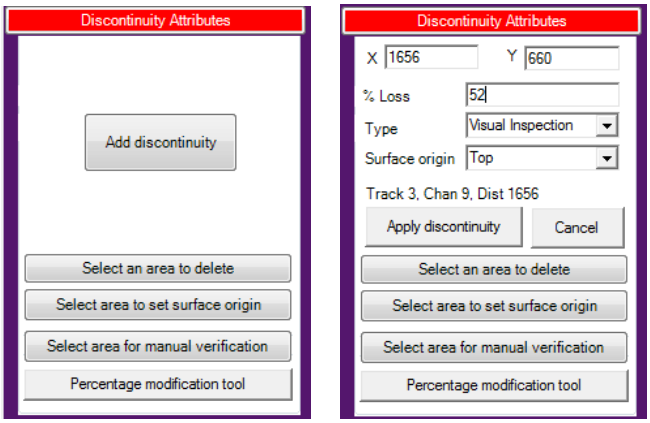



**Figure 52 - Discontinuity Attributes Menu for editing a discontinuity**

4. Modify the required discontinuity attributes
   - **% Loss:** Percentage loss of the discontinuity, between 0 and 100.
   - **Type:** Choose from the dropdown menu.

- **Surface Origin:** Choose from the dropdown menu.

5. Click ***Apply Discontinuity*** to apply the changes and update the image of the plate.

To cancel the modification process select ***Cancel***.

### 9.10.3 Deleting a discontinuity from a plate or an annular

A discontinuity found by Floormap inspection can be deleted and permanently removed from the plate. To delete:

1. Position the cursor onto the discontinuity and right click.
2. Select ***Delete Discontinuity***.
3. A message box appears warning that the discontinuity is to be permanently removed.
4. Click ***Yes*** to delete.

To cancel the deletion process select ***No***.

### 9.10.4 Deleting multiple discontinuities from a plate or an annular

An area of discontinuities found by Floormap inspection can be deleted and permanently removed from the plate. To delete:

1. Open the ***Discontinuity Attributes*** menu.
2. Click the ***Select an area to delete.***
3. Position the cursor onto the plate then left click, hold and drag a box over the area for deletion then release the mouse button.
4. A message box appears warning that the discontinuity is to be permanently removed.
5. Click ***Yes*** to delete.

To cancel the deletion process select ***No***.

### 9.10.5 Adding a discontinuity onto a plate or an annular

Discontinuities found by other inspection methods can be added onto plate or annular plate. To add a new discontinuity to the plate:

1. Position the cursor onto the plate and right click.
2. Select ***Add Discontinuity***.
3. The Discontinuity Attributes menu automatically opens and the position of the cursor on the plate is reflected in relation to the ***X*** and ***Y*** position from the plate reference.

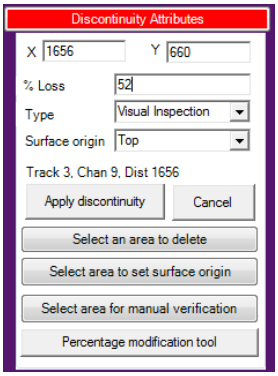



**Figure 53 - Discontinuity Attributes Menu for adding a discontinuity**

4. Enter the required discontinuity attributes
   - **X / Y:** Location of the discontinuity from the plate reference corner.
   - **% Loss:** Percentage loss of the discontinuity, between 0 and 100.
   - **Type:** Choose from the dropdown menu.
   - **Surface Origin:** Choose from the dropdown menu.
5. Click ***Apply Discontinuity*** to apply the changes and update the image of the plate.

To cancel the modification process select ***Cancel***.

**Note**: The discontinuity added is automatically set to a dimension of 6mm x 6mm.

### 9.10.6 Adding a manual prove-up area onto a plate or an annular

If any discontinuities require further investigation then a verification prove-up area can be added onto the plate. To add a prove up area:

1. Open the ***Discontinuity Attributes*** menu.
2. Click the ***Select area for manual verification.***
3. Position the cursor onto the plate then left click, hold and drag a box over the area for prove up then release the mouse button.
4. In the Apply prove-up window enter a comment relating to the prove-up reason.

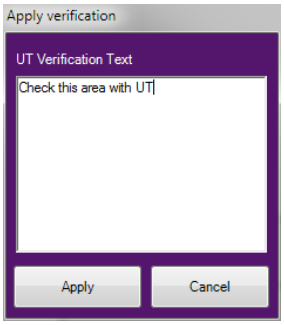



**Figure 54 - Apply prove-up window**

5. Click ***Apply*** to display the area on the plate.

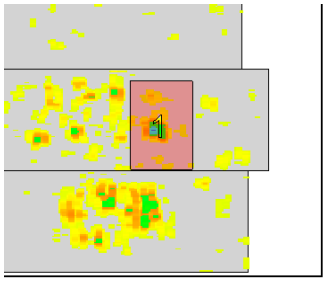



**Figure 55 - Applied prove-up area**

To cancel the prove-up process select ***Cancel***.

### 9.10.7 Validating the prove-up area on a plate or an annular

Once a prove-up area has been investigated further it can be marked as validated. To mark the area as validated:

1. Right click on prove-up area to validate
2. Select ***Validate Prove Up***.

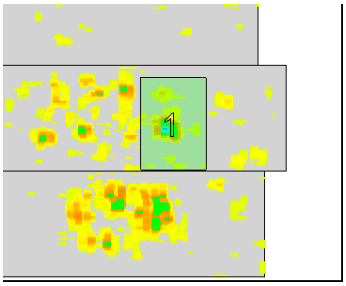



**Figure 56 - Applied prove-up area**

### 9.10.8 Editing prove-up comment

To modify the prove-up comment:

1. Right click on prove-up area to validate
2. Select ***Edit Comment.***
3. In the Apply prove-up window edit the comment relating to the prove-up reason.
4. Click ***Apply*** to display the area on the plate.

### 9.10.9 Deleting the prove-up area on a plate or an annular

To remove the prove-up area from the plate:

1. Right click on prove-up area to validate
2. Select ***Delete Prove Up***.

## 9.10.10 Tank Percentage Modification Tool

The Percentage Modification Tool provides adjustment to all discontinuities located on the top or bottom or both and on either as all inner floor plates, single plate, all annular plates or a single annular with a chosen percentage.

To adjust all discontinuities:

1. Open the Discontinuity Attributes menu.
2. Click on the ***Percentage Modification Tool*** button.

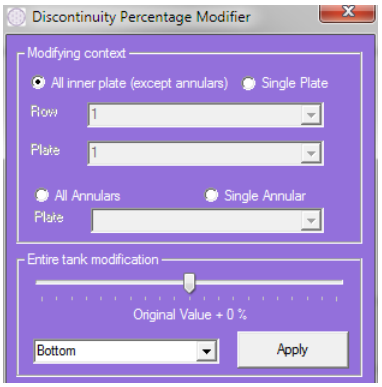



**Figure 57 - Discontinuity Percentage Modifier**

3. In the Discontinuity percentage modifier window select from one of the following options:
   - ***All inner plates (except annular)*** to choose the entire tank floor plates not including annular plates.
   - ***Single Plate*** and choose the appropriate plate number using the drop-down textboxes.
   - ***All Annulars*** to choose the entire annular ring.
   - ***Single Annular*** and choose the appropriate annular number using the drop-down textboxes.
4. Using the mouse cursor, click hold and move the scroll bar to modify the discontinuities by increasing or decreasing the original percentage value. The original values can be reset by setting the percentage increment offset to zero.
5. Specify which surface origin to adjust by selection from the drop down menu.
6. Click **Apply**.
7. A message box warns that the process may take a while. Click **Yes** to apply the modification. Select **No** to cancel the modification process

## 9.10.11 Discontinuity Data Removal

It is possible to permanently remove discontinuity scanned on both plates and annular outside of a pre-set range. This tool is available in the Percentage Modification Tool option found in the Discontinuity Attributes menu box from the Edit Data window.

To remove the data outside of a pre-set range:

1. Open the Discontinuity Attributes menu.
2. Click on the ***Percentage Modification Tool*** button.

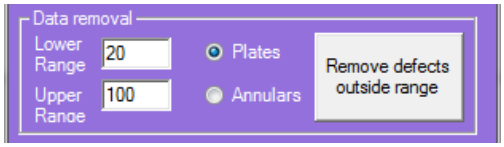



**Figure 58 - Data Removal options**

3. Select to remove data from either **Plates** or **Annulars**
4. Enter a **Lower Range** and **Upper Range** percentage values of discontinuities to keep.
5. Click **Remove defects outside range** button.
6. A message box warns that the discontinuities will be permanently deleted outside of the range set. Click **Yes** to remove the data. Select **No** to cancel the deletion process.

## 9.11 Tank Details

The Tank Details menu box allows modification of the tank details entered by the operator into the Floormap data acquisition software at the time of creating the inspection.

The tank details that can be changed include:

- Tank ID
- Location
- Client
- Company

Once the entered data has been changed, press the Enter key. The date cannot be modified. The information is only saved once the Tank file has been saved.

**Figure 59 - Tank Details Menu**

## 9.12 Non Scanned Area Comment

The Non Scanned Area Comments menu box is used add comments to any tracks that have un-scanned sections in them. A non-scanned area is a section of a track is where the resume function has been used in the data acquisition software. This menu box is greyed out and is only opened during the addition of a comment.

### 9.12.1 Adding Comments to un-scanned areas of tracks

To add a comment:

1. Right hand click in the non-scanned area
2. Select ***Add Comment***
3. The Non-Scanned Area Comment menu automatically opens.

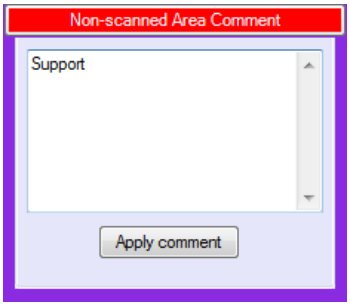



**Figure 60 - Non Scanned Area Comment box**

4. Enter the required text into the box.
5. Click ***Apply Comment***.

The commented non scanned area will be displayed in a red hatch.

### 9.12.2 Viewing the added comment

The comment can only be viewed in Plate View. To view the comment, position the cursor onto the hatched area and the comment then appears.

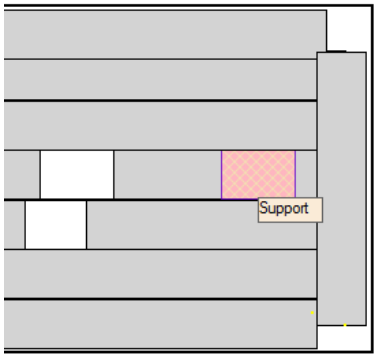



**Figure 61 - Non scanned area comment displayed on track with comment**

### 9.12.3 Modifying a comment to un-scanned areas of tracks

To modify a comment:

1. Right hand click in the commented non-scanned area
2. Select ***Modify Comment***
3. The Non-Scanned Area Comment menu automatically opens.
4. Modify the required text into the box.
5. Click ***Apply Comment***.

### 9.12.4 Deleting a comment to un-scanned areas of tracks

To modify a comment:

1. Right hand click in the commented non-scanned area
2. Select ***Modify Comment***
3. The Non-Scanned Area Comment menu automatically opens.
4. Delete all text from
5. Click ***Apply Comment***.

The non-scanned area display should switch from the red hatch back to white.

## 9.13 Add Manual Findings

The Add Manual Findings menu box allows any addition of any manual findings from an inspection on both plates and annular plates that have not been scanned in Floormap mode. The manual finding can be added as either corrosion areas or as single discontinuities. First navigate to the Edit Data tab menu and view the required inner floor plate or annular plate number. Since annular plates are considered to be the same throughout a tank, each annular template is identical.

### 9.13.1 Adding a manual single discontinuity

There are two methods for accessing the Add Manual Findings menu to add a single discontinuity.

<u>Method 1</u>

1. Open the Add Manual Findings menu
2. Click the ***Add Single Discontinuity*** button.

<u>Method 2</u>

1. Right hand click on the plate, or annular plate.
2. Select ***Add Single Discontinuity***.

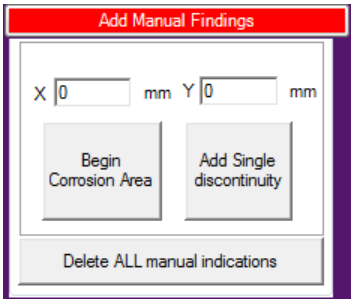



**Figure 62 - Add Manual Findings menu for adding single discontinuity.**

3. Enter the required information for the single discontinuity into the Add Manual Findings menu.
    - Change the X and Y co-ordinates.
    - Alter the width and the height of the discontinuity, if required.

4. Click ***Add***.
5. In the Area Condition window:
    - Set the percentage loss of the discontinuity using the slider bar. The percentage can be modified to a degree of 1% and is reflected by the colour legend.
    - Select the surface origin of the discontinuity to either Top, Bottom or Both by using the drop down menu
    - Add a comment to identify the nature of the discontinuity by typing into the textbox.

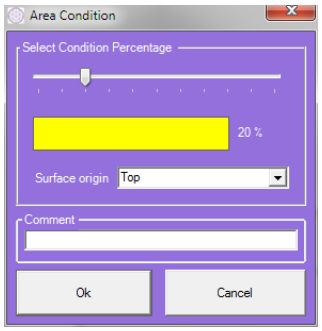



**Figure 63 - Area Condition window**

6. Click ***OK*** to apply the discontinuity to the plate, or annular plate.

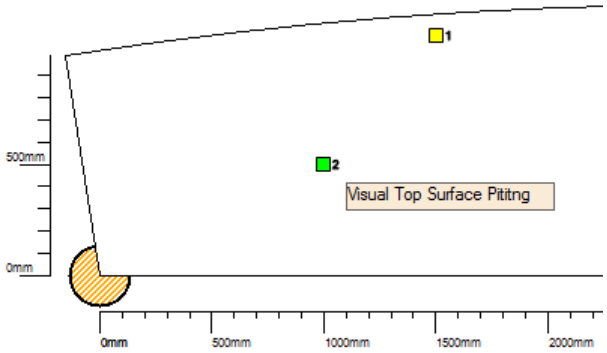



**Figure 64 - Added Single Discontinuities**

The discontinuity is now added into the appropriate position on the plate, or annular plate. A number appears next to the discontinuity to reference it. The comment (if added) can be viewed by moving the mouse cursor over the discontinuity. The comments are also shown on the annular plate print outs.

## 9.13.2 Adding a manual Corrosion Area

There are two methods for accessing the corrosion areas to add any shape or size of discontinuity area (confined to the boundary of the plate):

<u>Method 1</u>

1. Right hand click on the plate, or annular plate.
2. Select ***Begin Corrosion Area***.

3. Enter a co-ordinate into the X and Y field. A red marker is shown on screen.

Method 2

1. Open the Add Manual Findings menu.
2. Enter the initial co-ordinate's into the X and Y field.
3. Click the ***Begin Corrosion Area*** button.

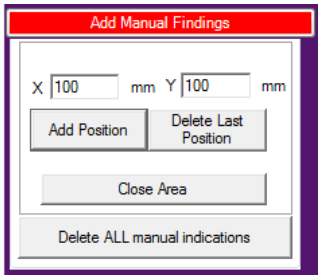



**Figure 65 - Add Manual Findings menu for adding area**

4. Click ***Add Position***. A straight line is then drawn from the previous position. It is also possible to add points by left clicking on the plate image at the desired location. If a position has been added incorrectly click ***Delete Last Position***, or right click and select ***Delete Previous point***.
5. Enter the next co-ordinate and repeat step 4 until the desired shape and size of the corroded area is shown.
6. Click ***Close Area***. Alternatively right click and select ***Close Corrosion Area***.
7. In the Area Condition window:
    - Set the percentage loss of the discontinuity using the slider bar. The percentage can be modified to a degree of 1% and is reflected by the colour legend.
    - Select the surface origin of the discontinuity to either Top, Bottom or Both by using the drop down menu
    - Add a comment to identify the nature of the discontinuity by typing into the textbox.

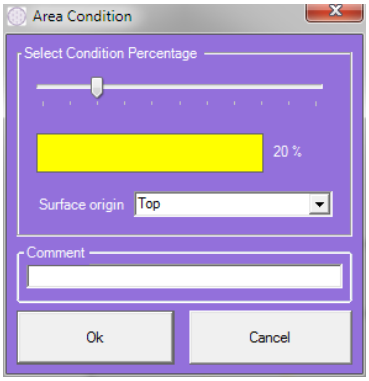



**Figure 66 - Area Condition window**

8. Click ***OK*** to apply the discontinuity to the plate, or annular plate.

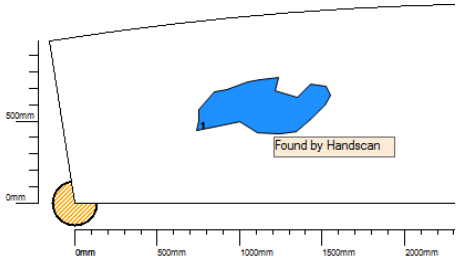



**Figure 67 - Corrosion area added to an Annular**

The discontinuity area is now added into the appropriate position on the plate, or annular plate. A number appears next to the discontinuity to reference it. The comment (if added) can be viewed by moving the mouse cursor over the discontinuity. The comments are also shown on the annular plate print outs.

### 9.13.3 Deleting added manual corrosion areas or single discontinuities

To remove and added individual discontinuities or area:

1. Right-click on the desired one to be deleted.
2. Select the ***Delete area.***

To remove all the discontinuities added to a plate or annular plate

1. Open the Add Manual Findings menu.
2. Click the ***Delete ALL manual indications*** button.

## 9.14 Add Picture Information

The Add Picture Information menu box allows digital photographs and images can be added to any area of floor or annular plate.

There are two methods for selecting the location of where to add an image on a plate:

<u>Method 1</u>

1. Position the cursor at the location of the required image and right click.
2. Select ***Add Image Marker***.

<u>Method 2</u>

1. Click ***Set Image Marker*** button in the Add Picture Information menu
2. Position the cursor at the location of the required image and left click.

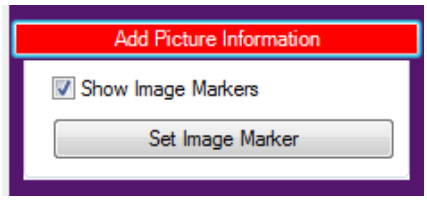



**Figure 68 - Add Picture Information menu**

3. In the Open window browse to the location of the photograph and click ***Open***.
4. In the Add Marker window a comment can be added to explain the image into the text box.
5. Click ***Save Comment.***

**Figure 69 - Photograph of corrosion area added to plate**

A pink image marker is displayed on the plate to identify an image marker. Double clicking on the image marker opens the photograph display the comment. All added photographs are included in a folder within the Tank File. Image markers are displayed in the Tank View tab, the Plate View tab and the Edit Data tab. If the image markers are not required, un-tick the Show Image Markers option.

To delete an image marker and corresponding photo right hand click on it and select ***Delete Image Marker***.

## 9.15 Tank layout modification

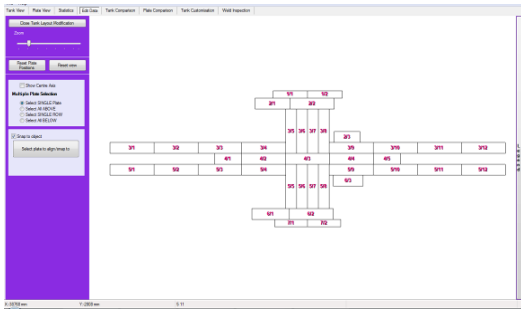
The Tank layout modification menu provides two useful functions:

1. Modifying the Tank floor layout
2. Generate a custom plate numbering system

### 9.15.1 Modifying the Tank Floor Layout

When an unusual tank design is encountered, the software may not always draw the floor plates in the correct positions. This usually occurs if there are combinations of vertical and horizontal plates on the same row. This software allows modification of the tank plate late layout by simply dragging the selected plate to a desired location.

To enter tank layout modification mode, click ***Tank Layout Modification*** button at the top of the Edit Data tab window.



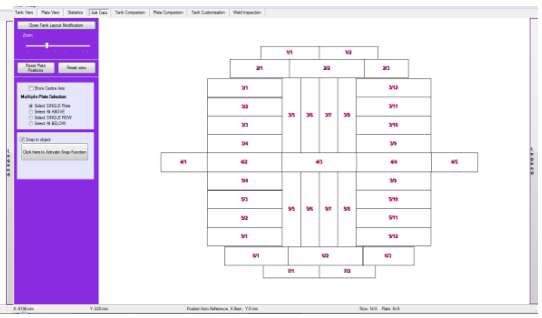


**Figure 70 - Loaded Plate Layout** **Figure 71 - Modified Plate Layout**

***Zoom:*** To zoom in and out, use the Zoom scroll bar to adjust the zoom view of the tank layout. To scroll around the tank in zoom mode, hold down the right mouse button on the plate image and drag the mouse to move the image to the desired location.

***Reset View:*** Resets the plate layout view.

***Show Centre Axis:*** Selecting this option displays a blue cross hairs at the centre of the screen. Once all layout modifications have been made the tank should be placed centrally on the screen using the blue centre axis.

***Reset Plate Positions:*** This reset all plate layout locations to the original setting. A message box confirms the clearing action. Click ***Yes*** to reset the position click ***No*** to cancel.

### 9.15.1.1 Modifying a single plate location

To modify a single plate location,

1. Choose ***Select Single Plate*** from the Multiple Plate Selection list.
2. Left-click and hold on the desired plate.
3. Drag the plate to the desired location.
4. Release to confirm the new location.

### 9.15.1.2 Multiple Plate Selection

In addition to the basic plate positioning controls, the following advanced features can be used to speed up the layout modification process:

**Multiple Plate Selection** - This allows either a single plate, all plates above the plate being moved, a single row or all plates below the plate being moved.

1. Choose the required option from the Multiple Plate Selection list.
2. Left-click and hold on the desired plate.
3. Drag the plate to the desired location.
4. Release to confirm the new location

### 9.15.1.3 Snap To Object

This allows a plate to be accurately positioned adjacent to other plates. This option is only available in when ***Select Single Plate*** is chosen.

To use the Snap to object controls:

1. Tick the ***Snap To Object***.
2. Click the ***Click here to Activate Snap Function*** button.
3. Left click on the plate to align other plates with.

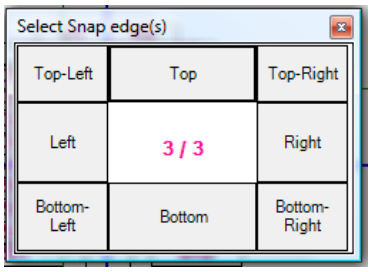



**Figure 72 - Snap Function edge selection**

4. In the Snap edge window, click on either the edge or a corner of the plate that other plates are to align too. A green cross hairs is displayed at the corner or edge selected.
5. Select and move the required plate toward green cross hairs. The plate should appear to snap to the green lines at the position.

## 9.15.2 Customise Plate Numbering

The numbering of the tank floor layout can be customised by manually entering a plate ID for each floor plate.

To customise the numbering:

1. Tick Customise plate numbering
2. Click on a plate of the tank to renumber. The selected plate is highlighted in Blue on the tank floor layout image and a text box opens to enter the new plate ID.
3. Enter the new plate ID into the box and click ***OK***

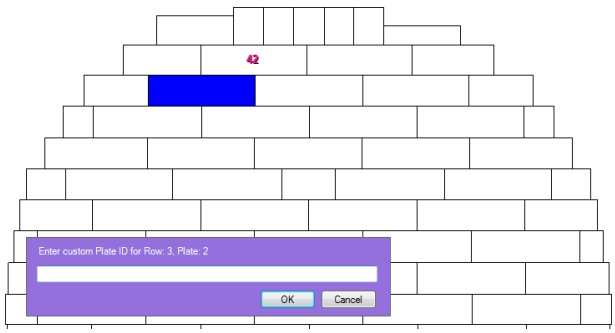



**Figure 73 - Entering the custom plate number**

4. Use either the Left or Right cursor button to select the next plates ID to change.
5. Press the Enter button to open the text box and customise the plate number.
6. Click OK to apply the new plate ID.

Alternatively click the cursor on the plate to change its ID.

Once the numbering has been customised in order to apply this to the report the Custom option must be selected for the Show Numbering System option in the Drawing Attributes Menu located in Tank View tab menu.

### 9.15.3 Exiting Tank Layout Modification

Click ***Close Tank Layout Modification*** button at the top of the window to exit back to the Edit Data plate view window.

# 10 Tank Comparison

The Tank Comparison tool provides the ability to compare two separate tank files tanks at either plate level or a tank level. At tank level, the software allows the opacity of the comparison tank to be changed for comparison against the primary loaded tank.

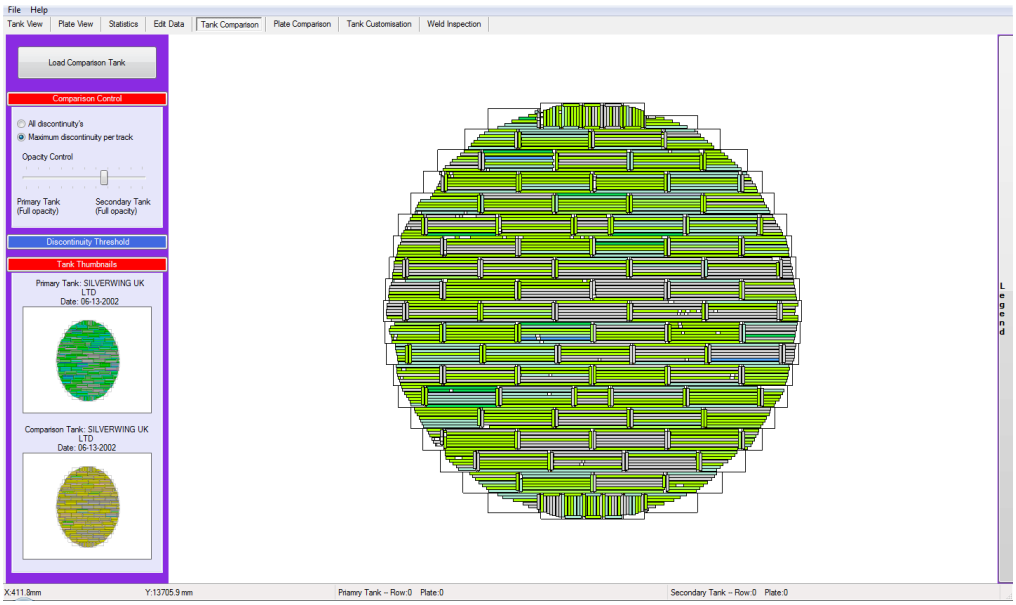



**Figure 74 - Tank Comparison**

All options for tank comparison are available in the left-hand column and are split into different menu boxes which can be accessed by clicking on the relevant button. Doing so expands the menu box to reveal the various options. When expanded the button is shaded in red. Click the same button to close the menu box.

The three menu boxes located on the within the Tank Comparison tab menu are: Comparison Control, Discontinuity Threshold and Tank Thumbnails.

## 10.1 Loading a comparison tank

In order to compare two separate tanks, first load the primary tank. The primary tank is the current one loaded using the previous load method. To access the tank comparison mode, select the ***Tank Comparison*** button on the tab bar. The second, comparison tank is loaded by clicking the ***Load Comparison Tank*** button located at the top of the sidebar. In the open window select the appropriate tank file to load as the comparison tank.

**Note**: Only pre-saved tank files ('.tnk' or '.tkf') may be loaded.

### 10.1.1 Comparison Control

**Opacity Control:** Use the scrollbar to modify the opacity between the primary and the comparison tank. The leftmost side corresponds to the image being 100% primary tank, whilst the rightmost side corresponds to the image being 100% of the secondary tank.

Select the discontinuities view by choosing either:
**Discontinuities:** This displays all the discontinuities found on the tank
**Maximum discontinuities per track:** Displays the maximum discontinuity encountered on a track by track basis and sets the colour of that track to the colour corresponding to the highest discontinuity value.
**Enhanced Discontinuities:** This is used to enhance the discontinuities displayed on a track.

### 10.1.2 Discontinuity Threshold Adjustment

The discontinuity threshold menu box contains two scroll bars, designed to adjust the displayed discontinuities on screen.

**Minimum Threshold Value:** This scrollbar alters the minimum percentage level of discontinuity to be displayed on the screen.
**Maximum Threshold Value:** This scrollbar alters the maximum percentage level of discontinuity to be displayed on the screen.

Selecting a value for both minimum threshold and maximum threshold shows only the discontinuities between the minimum and maximum percentages selected.

**Note**: the threshold value is mirrored with all other threshold controls in Tank View tab menu and the Plate View tab menu.

### 10.1.3 Tank Thumbnails

The loaded primary and comparison tank are represented as thumbnails. Details for both tanks are also shown.

### 10.1.4 Accessing Plate Comparison

To compare discontinuities on a plate by plate basis, double-click on the required plate to view in Plate Comparison view.

# 11 Plate Comparison Mode

The Plate comparison tool allows a higher detail of discontinuity analysis. Plate comparison allows the corroded areas to be analysed on a plate by plate basis in comparison with a previously scanned tank. Plate comparison tab menu is only accessed by selecting a plate from the Tank Comparison tab menu.

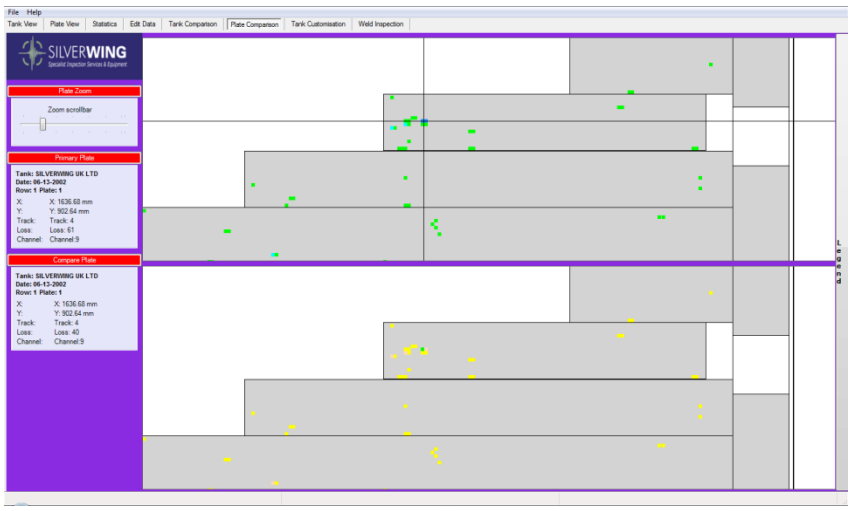



**Figure 75 - Plate Comparison**

## 11.1 Plate Zoom

Open the Plate Zoom menu to reveal the Zoom scrollbar for plate comparison. To zoom in, move the slider to the right. To zoom out, move the slider to the left. The zoom for both primary and comparison plate are adjusted simultaneously.

To scroll around the plate click and hold the left button on the plate. Move the cursor to adjust the plate position. Release the mouse button to stops the movement.

## 11.2 Comparing Discontinuity information

To compare discontinuities, place the crosshair over the desired discontinuity(s) on either the primary plate or the comparison plate. The Primary Plate and Compare Plate menu boxes contain all discontinuity comparison information. The Primary Plate and Compare Plate menu boxes can be opened / closed by clicking on them.

The discontinuity comparison information available within the Primary Plate / Compare Plate menu is:

- **X: / Y:** This displays the crosshair co-ordinates from the plate reference;
- **Track:** This displays the current track where the discontinuity(s) resides;
- **Loss:** This displays the maximum discontinuity percentage loss within the cross hair;
- **Channel:** This displays the channel number that located the maximum discontinuity within the crosshair.

The crosshair size can be altered by adjusting the Crosshair Size scroll bar in the Compare Plate menu. The larger the crosshair size, the larger the area of compared data:

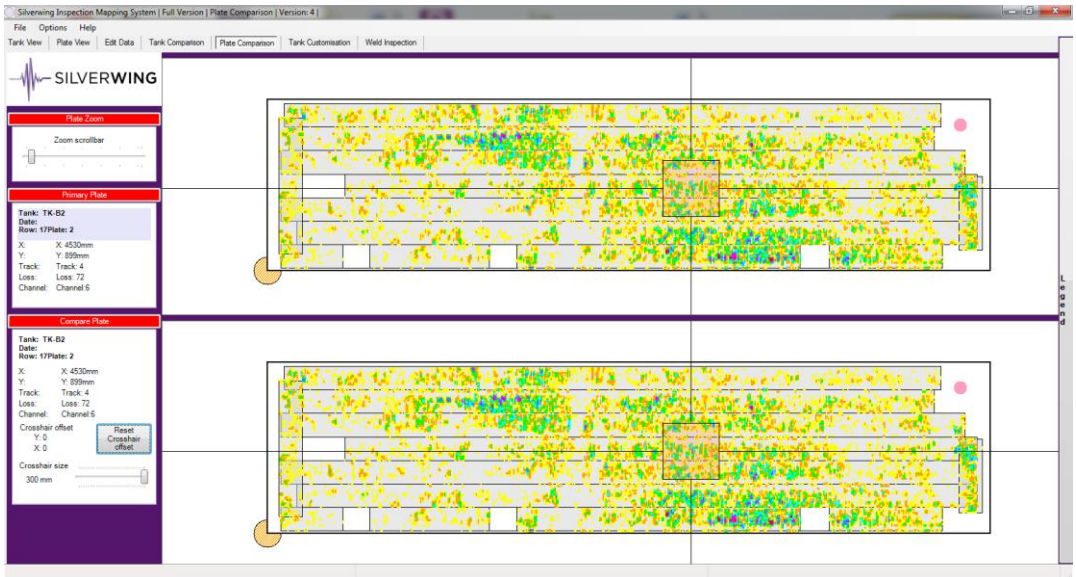



**Figure 76 - Large Crosshair Size**

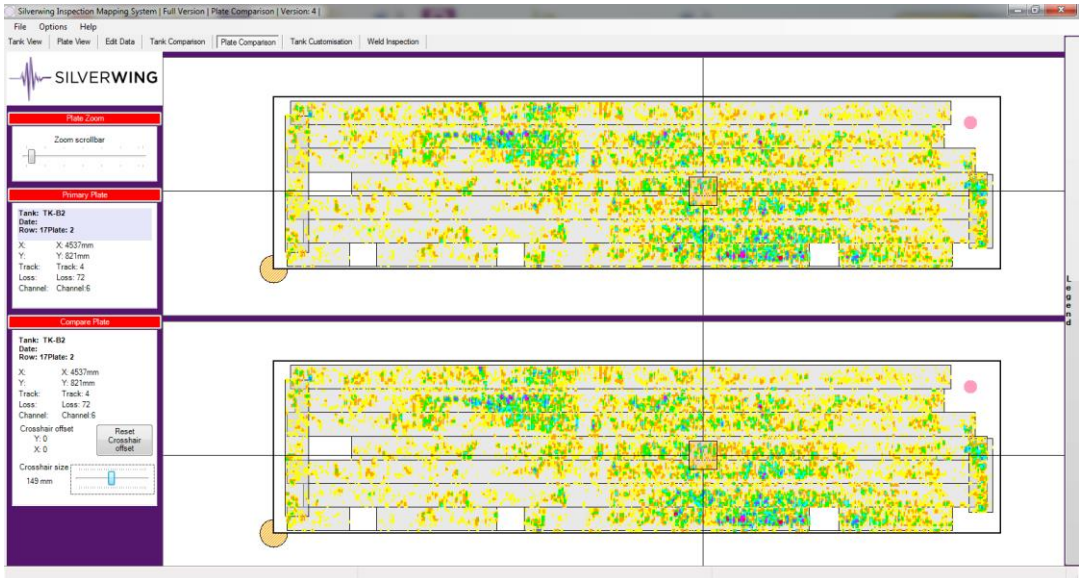



**Figure 77 - Medium Crosshair Size**

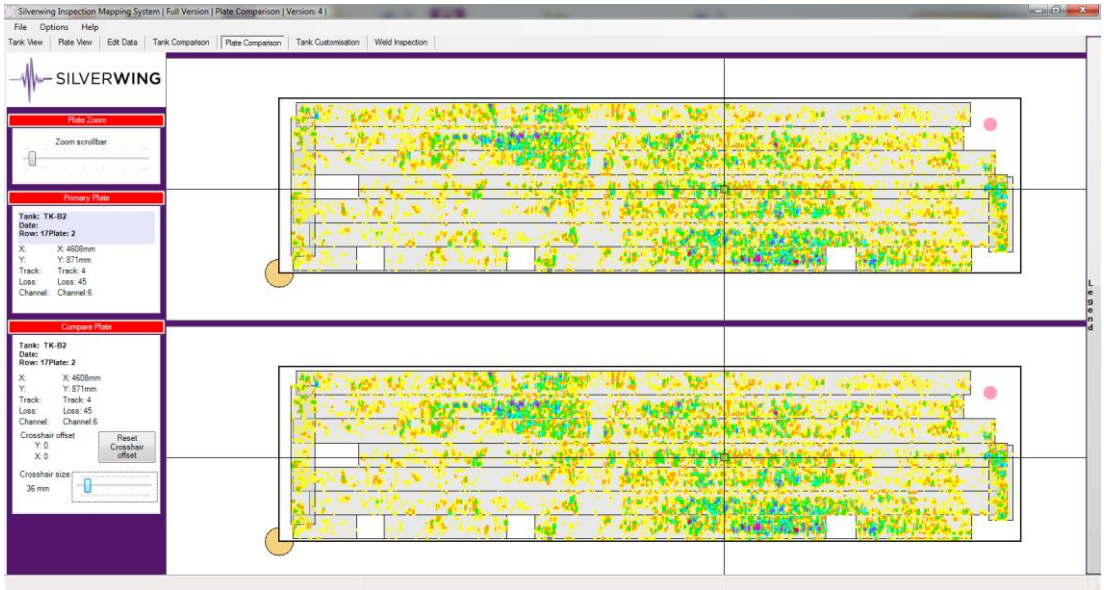



**Figure 78 - Small Crosshair Size**

The crosshair can also be offset if required. To offset the crosshair:

1. Hold down the right click on the mouse on the primary plate / comparison plate.
2. Move the crosshair to the required offset location.
3. Release the right click.

The crosshair offset can be reset by selecting the Reset Crosshair Offset button in the Compare Plate menu.

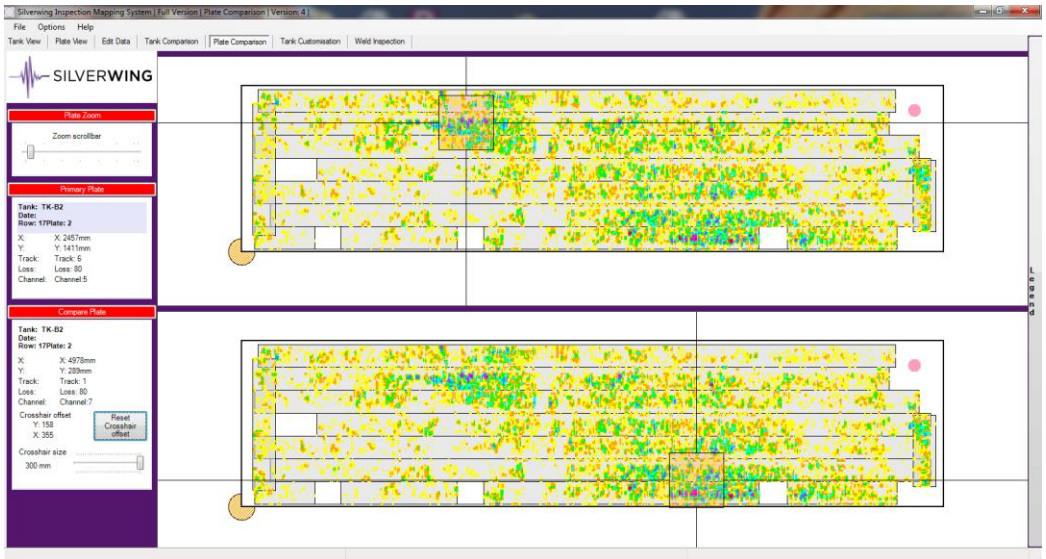



**Figure 79 - Crosshair Offset**

# 12 Tank Customisation

The tank customisation tool allows the addition of basic symbols that can be used to help generate a realistic view of the tank with various objects such as pipework, sumps and manways. These objects can be added to the image of the tank, using drag-and-drop techniques.

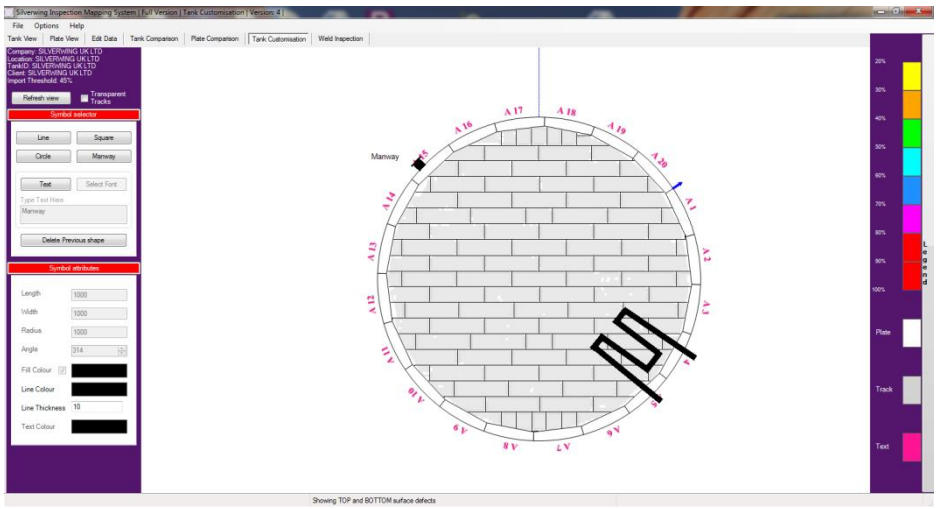



**Figure 80 - Tank Customisation**

All options for tank customisation are available in the left-hand column and are split into different menu boxes which can be accessed by clicking on the relevant button. Doing so expands the menu box to reveal the various options. When expanded the button is shaded in red. Click the same button to close the menu box.

The two menu boxes located on the within the Tank Customisation tab menu are: Symbol selector and Symbol attributes.

## 12.1 Selecting a symbol

To select a symbol open the Symbol Selection menu box. Here are the various symbols that can be placed onto the tank image. Click on the required symbol button then open the Symbol Attributes menu. Adjust the attributes of the selected symbol by modifying the length, width, fill colour, line colour, line width and rotation. Position the symbol onto the tank image by clicking the cursor at the required location.

### 12.1.1 Drawing a Line

1. Select the ***Line*** button in the Symbol Selector menu.
2. Open the Symbol attributes menu and set ***Line Thickness*** and ***Line colour.***
3. Position the cursor at the initial position then left click and hold then drag the cursor to generate the line.
4. Release the mouse button to place.

### 12.1.2 Drawing a Manway, Square or Circle

1. Select the appropriate symbol in the Symbol Selector menu.
2. The attributes of the symbol can be changed in the Symbol Attributes menu.
3. Once configured, use the left-mouse button to place the object on the image.

The manway angle rotates automatically around the centre position of the tank. If annular plates are present then the annular centre is used.

### 12.1.3 Placing text on the tank image

1. Select the ***Text*** button in the Symbol Selector menu.
2. The textbox below will become enabled, together with the font selector button. Use the textbox to enter the caption that is to be placed on the image and modify the font of the text by clicking on the ***Select Font*** button.
3. To place the text on the image, click on the desired position.

### 12.1.4 Deleting an object from the tank image

To delete an object:

1. Position the cursor on the intended object to delete
2. Right-click on an object within the image
3. Select ***Delete Object*** from the menu.

Alternatively use the ***Delete Previous shape*** button to remove the last symbol added.

### 12.1.5 Moving an object on the tank image

To move an object:

1. Position the cursor on the intended object to move.
2. Left click and hold then move the object to the intended location
3. Release the mouse button to place the object.

# 13 Weld Inspection

The Weld Inspection tab menu allows for the addition of results from other forms of inspection such as UT, Vacuum box, MPI etcetera to be included in the report. Weld results can be added to the floor to shell perimeter weld and the welds between the inner floor plates. To access the weld inspection result tools, click on ***Weld Inspection*** tab.

## 13.1 Floor to Shell (perimeter) weld

To add an area of weld discontinuities:

1. Position the cursor on the boundary of the tank perimeter at the start location of the discontinuity
2. Left click and hold mouse button.
3. Drag the mouse clockwise around the circumference of the tank ring to modify the length of the identified discontinuity area.
4. Release the mouse button to set the length.
5. A window appears, identifying the sweep angle of the discontinuity with a distance measured in millimetres. A comment can be added to identify the type of discontinuity and inspection used.

**Figure 81 - Floor to Shell weld Inspection**

6. Click ***OK*** to add the discontinuity to the tank image. The discontinuity is drawn in red.

The number of discontinuity areas that can be added is not limited.

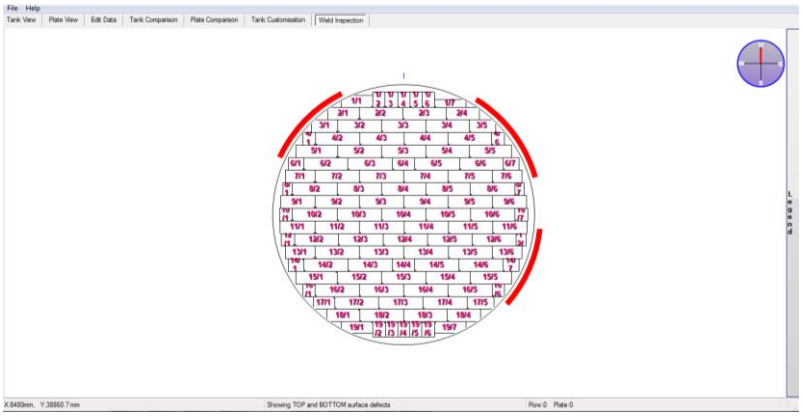


**Figure 82 - Floor to Shell weld Inspection**

### 13.1.1 Deleting a floor to shell weld discontinuity

To delete the last added floor to shell weld discontinuity right click on the discontinuity and select ***Delete previous 'Floor to Shell weld'.***

## 13.2 Plate Welds

To add weld discontinuities onto a plate:

1. Select the plate from the tank image.
2. Double click on the desired plate in the tank image. This alters the view to an empty plate.
3. Position the cursor to the outer edge of the plate. A rectangle is displayed along the length of the current side where a discontinuity can be applied.
4. Left click, hold and drag the cursor to extend the length of the discontinuity area.
5. Release the cursor to set the length.
6. A window appears, confirming positional length of the discontinuity (in relation to the plate reference). Modify the ***Start Distance*** and ***End Distance*** to suit. A comment can also be added for discontinuity identification.

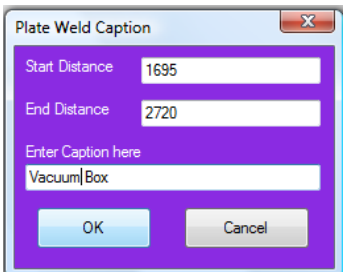



**Figure 83 - Floor to Shell weld Inspection**

7. Click ***OK*** to display the added discontinuity on the inside of the plate. When the cursor is positioned over the discontinuity the corresponding length and comment is displayed.
8. Click ***Return to Main view*** in the top right hand corner to return to the main tank view of weld inspection.

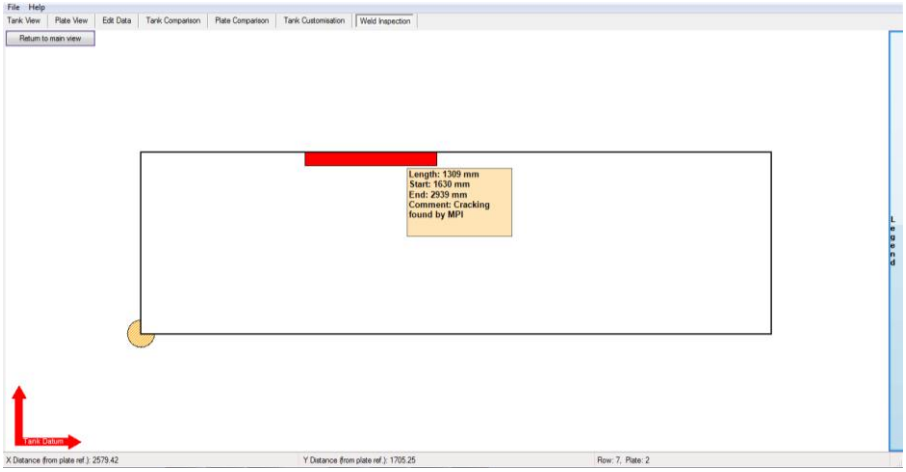



**Figure 84 - Floor to Shell weld Inspection**

### 13.2.1 Deleting weld discontinuity

To delete an added weld discontinuity on a plate

1. Position the cursor on the weld discontinuity to delete
2. Right click on the discontinuity and select ***Delete weld discontinuity.***

# 14 Saving a Tank File

After all modifications have been made to the tank it is necessary to save the data. The SIMS software saves modified data as a tank file.

To save the tank file:

1. Click ***File*** on the menu bar.
2. Select ***Save.***
3. A window appears informing that saving a tank file consists of numerous separate files. To continue click ***OK***.
4. Choose a suitable location and enter a suitable file name.
5. Click ***Save.***

A folder is created and named according to the file name entered. This folder contains one tank file (*.tkf), individual plate files (*.plf) and various data files (*.dat).

# 15 Importing Additional Data

The import additional data function allows additional data to be added to an existing tank file. This is particularly useful if an inspection is lasting many days as modification to the tank data can be made on a daily basis as the inspection progresses.

When importing additional data, any plate files which already exist in the tank file folder are not imported. This is to preserve previously saved modifications and also speed up the import process. Any missing plates or rows are drawn as a white square with red cross-hatching. These false plates are replaced automatically when the relevant data is imported. The Importing additional data function is split, depending upon what Floormap system the data was captured using.

## 15.1 Importing additional Floormap3D data

To import additional Floormap3D data

1. Load the required tank file
2. Click ***File*** on the menu bar.
3. Select the ***Import*** and click ***Import Additional Floormap3D data***.

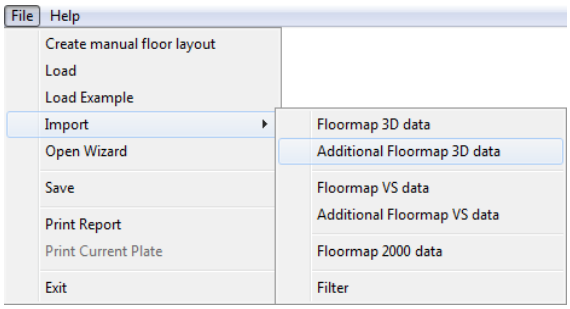



**Figure 85 - Import Additional Floormap3D data**

4. A window appears inform that importing additional pales adds more raw data and does not overwrite any existing plates. To continue the import click ***OK***.

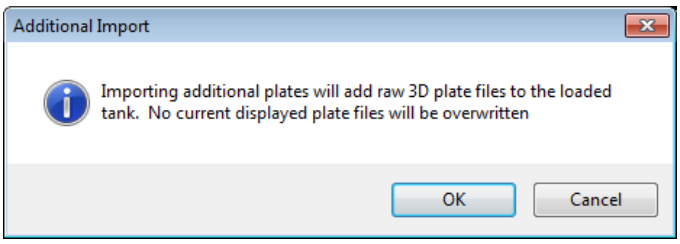



**Figure 86 - Additional Importing window for Floormap3D data**

5. A Set the import Discontinuity threshold window appears. Set the import percentage threshold level using the slider bar and click ***Set*** to continue.
6. Browse to the location of the Floormap3D inspection folder containing the additional data then click on the Floormap3D inspection file (*.fm3insp) to begin the import process.

## 15.2 Importing additional Floormap VS data

To import additional Floormap VS data captured using the FloormapVS2i, Floormap VS2 or Floormap VS:

1. Load the required tank file.
2. Click ***File*** on the menu bar.
3. Select the ***Import*** and click ***Import Additional Floormap VS data***.

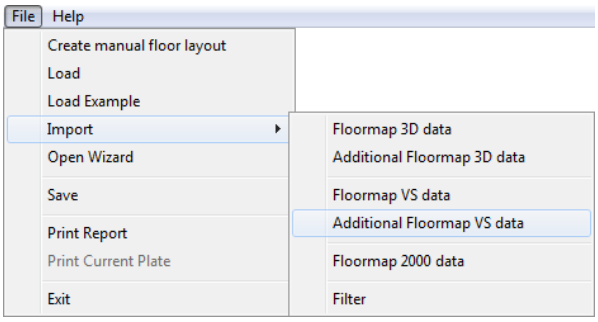



**Figure 87 - Import Additional Floormap VS data**

4. A window appears inform that importing additional pales adds more raw data and does not overwrite any existing plates. To continue the import click ***OK***.

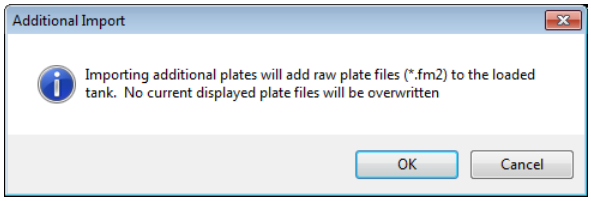



**Figure 88 - Additional Importing window for Floormap VS data**

5. A Set the import Discontinuity threshold window appears. Set the import percentage threshold level using the slider bar and click ***Set*** to continue.
6. Browse to the location of the Floormap inspection folder containing the additional data. Select any plate file (*.fm2 or *.fma) and click ***Open*** to begin the import process.

# 16 Print Report - Report Generation (Printing)

The reporting software allows an automatic report to be generated and printed based on the current loaded tank.

## 16.1 Report Configurations

To access the print menu,

1. Click on ***File*** in the menu bar
2. Select ***Print Report***.

The report configuration window appears showing the report printing options.

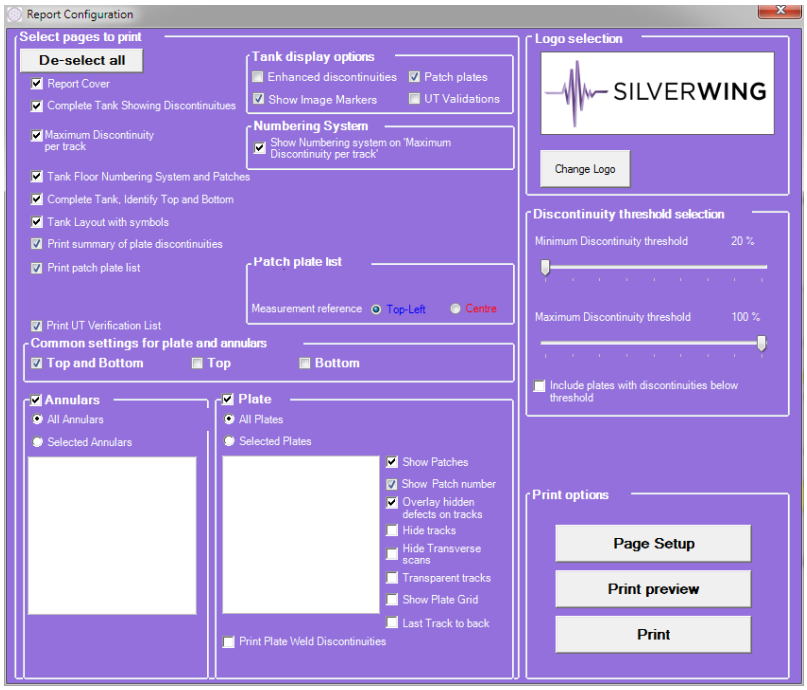



**Figure 89 - Print Report Configuration**

A printed report can consist of:

- Report cover page
- Tank Floor Layout Showing Discontinuities. A legend for the discontinuity loss percentage and the tank details are displayed on the side bar.
- Maximum Discontinuity Per Track. A tank layout displaying the maximum discontinuity per track, with a legend to show the corresponding percentage band colour.
- Tank Floor Numbering System. This is used to relate plates with their relative position in the tank.
- Complete tank, identify top and bottom indications. This view provides a simple representation showing defects coming from the top or defects coming from the bottom.
- Tank Floor Layout with Symbols. This shows the tank floor layout with added symbols.
- Plate Summary. This shows the Maximum and Minimum percentage value for each plate.

- Annular Plate Summary. This shows the Maximum and Minimum percentage values for each annular plate
- Patch Plate Summary. This shows a list of the added patch plates for the tank.
- Prove-up summary. This shows a list of the prove-up areas required for further investigation tank
- Annular Plate, showing discontinuities located only on the top, bottom and top and bottom.
    - A list of all the discontinuities for each annular can also be printed
- Plate, showing discontinuities located only on the top, bottom and top and bottom.
    - A list of all the discontinuities for each plate can also be printed
    - Plates showing the weld discontinuities

### 16.1.1 Printing Selecting

Within the print menu, each printable page has a check next to it by default, informing that that page it is to be printed. To remove a page from the printed report, de-select the corresponding box. To clear all printing options click the ***De-Select all*** button located at the top of the report configurations box.

To select a plate range to print:

1. Tick ***Plate***.
2. Select ***Selected Plates***.
3. Select the appropriate plate from the row and plate identification number.

Only the checked plates now print.

To select an annular range to print:

1. Tick ***Annulars***.
2. Select ***Selected Annulars***.
3. Select the appropriate annular plate numbers from the identification number.

Only the checked annular plates now print.

### 16.1.2 Printing Top and Bottom surface discontinuities

The plates an annular plates can be printed with the discontinuities shown as either on the top and bottom, top only and bottom only. Each option is printed as a separate page.

### 16.1.3 Changing the inspection logo

The inspection logo on the cover of the report and all pages can be modified. To change the logo:

1. Click the ***Change Logo***.
2. Using the open window, navigate and select the required image.
3. Click ***Open***.

**Note**: Only Bitmap or Jpegs can be used.

### 16.1.4 Discontinuity threshold adjust

Adjust the threshold to filter the appropriate discontinuities. This setting is defaulted to the thresholds set in the program. Only the plates with discontinuities between the set thresholds are printed.

To print out all plates, regardless of threshold, select the ***Include plates with discontinuities below threshold***. The set threshold only affects the discontinuities.

### 16.1.5 Patch Plate List

This option allows the list of the manually added patch plates to be printed. The option exists to view the measurements in Imperial or Metric and set the measurement reference to either top-left or centre of the patch plate.

### 16.1.6 Print Discontinuities List

This option is only available for printing with Floormap3D data. It allows a list of each discontinuity found on the plates to be printed. To print select the ***Print Defect List*** option for the plates and annular plates.

# 17 Printing

## 17.1 Page Setup

Here only the paper size can be modified.

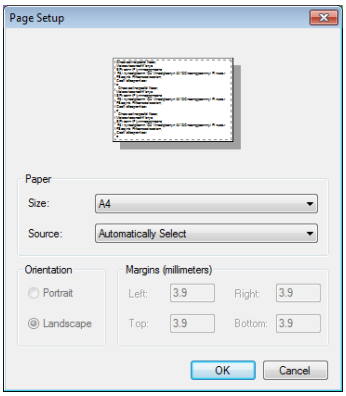



**Figure 90 - Page Setup**

## 17.2 Print Preview

Before printing a report it is recommended to first view the report in the Print Preview option. This allows the report to be viewed prior to printing and can avoid the problem of mass printing of unwanted pages.

To view, click ***Print Preview***. An information window appears informing of the progress with rendering the report. A full report can have a significant amount of pages. Once completed the print preview menu appears, allowing each page of the report to be checked. If the document is correct, click on the Printer icon (left most icon) on the Print Preview window to begin printing with the default printer.

## 17.3 Printing a single plate

To print a single plate, first view the plate in Plate view.

1. Click on ***File*** in the menu bar
2. Select ***Print Current Plate***.
3. The print preview window opens for the current plate.

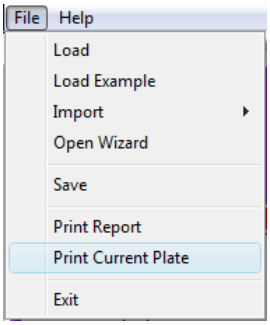



**Figure 91 - Print Current Plate**

## 17.4 Printing the report as a PDF document

In order to print the report in a PDF format then it is important that the default printer is set as the PDF printer.

This must be done in Microsoft Windows, and not using the SIMS software.

To change the default printer open Control Panel and navigate to Devices and Printer. Right click on the PDF printer and set as default.

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