List of Major Changes and Updates for PIT-W 2009

Input:

- The sampling frequency and the calibration factor used on the Pile Integrity Tester can now be displayed, and it is now possible to correct a calibration factor that was incorrectly entered during data collection.
- In two velocity option the gage locations for a selected range of records can now be changed. It is also possible to swap data between gages.
- When the cursor is on an input parameter the value can now be increased or decreased using the arrows keys or the page up and down keys. Also when the focus is on the plot side, shortcut keys have been added to quickly change the pile length, wave speed, pivot and other parameters.
- Many improvements have been made to the scaling of plots, including the saving of the auto scale type (ex. Positive Y = 2 x Negative Y, etc) and applying it to the whole project.

File and Data Import:

- If the Pile Integrity Tester is set to record the individual blows and not only the average, the PIT-W program now has the ability to read the individual blows or the average. This allows removing inconsistent blow data from the average, when reprocessing the data.
- A new data file format is used in PIT-W 2009 to allow for more information to be saved, but the option to save the file in PIT-W 2003 format is available for backward compatibility.
- An option has been added to choose how the file name appears in the output.

Edit:

- Windows cut (**Ctrl-X**), copy (**Ctrl-C**), paste (**Ctrl-V**) and undo (**Ctrl-Z**) shortcuts can be used to modify the project name or pile name from the tree list. Together with an improved cut and paste feature, this allows sharing of data between PIT-W and other programs.
- The mouse can now be used to drag and drop records between projects or between piles.
- All records for the whole project can now be selected or unselected with a click of the mouse.
- The Recall command has been improved, so that the backup is only applied to modified parameters, and the restoring procedure will only restore the last modified value.
- A reference pile list was added containing records that are averaged over different piles among the same group definition. It is similar to the averaged list except that the average is performed using records from different piles, instead of only a single pile.
- The records can now be sorted in ascending or descending order by clicking on the column header in the record list window. The piles can also be sorted by right clicking on any pile in the tree view.

Appearance:

- A vertical line showing the length or frequency at the cursor location can now be toggled on or off.
- A vertical line displaying the depth value can now be added to the time domain analysis graphs, with a click of the mouse. This line can also be toggled on or off the output plots. The comment entered by the user is shown together with the depth. If no vertical line is present, the comment is shown at a default location on the time domain and frequency domain analysis screens.
- The plots of selected/tagged records are now highlighted by a heavy blue border to distinguish them from unselected records and a choice is added that allows showing the selected records

only.

- The average plot can now be displayed in a separate box so that users can view the averaged plot and the original plots together. The averaged plot contains the records belonging to the same group and offers the choice of limiting it to the selected records within the same group. Copying of average data or plot to other applications is also possible.
- The location of the page number along the bottom of the page can now be changed.
- The total number of piles on the current project is shown at the lower right corner of the status bar.
- The same length scale can now be applied to single column output; previously this was only allowed for multiple column output.
- The number of decimal places displayed for some parameters can now be changed.
- The multiple column output now includes the values of **WL**, **HI** and **LO** for each pile.

Frequency Analysis:

- The frequency response curve can now be smoothened by averaging a selectable number of points; the default value is 3.
- The frequency peak search procedure has been improved to look for peaks starting from the highest. A **Peak Search Tolerance** can be entered, which allows the user to adjust the sensitivity of peak detection, thus avoiding the undesired detection of small peaks.
- Peaks can now be manually inserted with a click of the mouse and later deleted by typing the "Delete" key.
- The default frequency range for frequency analysis is set based on c/L (c = wave speed and L = pile length) and rounded to 1000, 1500, 2000, 3000 and 5000 Hz.
- It is now possible to move multiple peaks at the same time using the slider bar.

Profile Analysis:

- A check box allows toggling the reference line display on the output on or off. It is also possible to have different reference lines for different records.
- An improved input screen displays all editable vertical lines indicating time and reference positions as follows (from left to right):
    - 1st - (red) can be moved horizontally to indicate the pulse end; together with **T1** it defines the pulse width;
    - 2nd – (red) can be moved horizontally to indicate where the reference line starts to be different from the recorded velocity curve;
    - 3rd to 2nd from last – (blue) their bottom points can be moved vertically to move the reference line up or down;
    - Last – (red) can be moved horizontally to indicate where the **Profile** analysis should be stopped.
- When the 1st or 2nd indicators are moved horizontally to change input pulse width or final impact end point, the reference line will also be adjusted to reflect the new pulse width and/or starting point.
- The Construction Top Area Ratio input is now taken into consideration in the relative volume calculation.
- For a correct profile analysis **T1** should be the rise time instead of peak time; therefore a warning was added if **T1** is not at the rise time.
- A vertical line showing the length at the cursor location can now be toggled on or off.
- BETA indicators are no longer shown for locations past the toe of the pile.