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ConePlot for CPTSND

Processing and Graphing Software for CPT data acquired using CPTSND or CPTDAS

Revision 1.0

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Revision Log

Date	Revision	Section	Change	Responsible Person
4/14/2020	1.0	All	Update to multiple sections	Carl Tracy

Table of Contents

Revision Log 2
List of Figures 3
Introduction 5
1. Program Setup 6
2. General Settings 7
3. Processing Sounding (Single) 9
4. Processing Dissipations 24
5. Processing Seismic Tests 28
6. Verification Plots 35
7. CPT Equations Used 36
8. Processing Soundings in BATCH mode 39

List of Figures

Figure 1 Opening Screen 5
Figure 2 Program Setup Menu 6
Figure 3 General Settings 7
Figure 4 Selecting a File 9
Figure 5 Selecting Channels to Plot/List 10
Figure 6 Plotting Templates 11
Figure 7 Graphical Plot (watermark logo) 11
Figure 8 Sample LIST option 12
Figure 9 Plot Options Toolbar 12
Figure 10 Sounding Print Settings Style 1 13
Figure 11 Sounding Print Settings Style 2 14
Figure 12 Sounding Print Settings Style 3 14
Figure 13 Set Custom Headers Screen 15
Figure 14 Scale Setting Screen 16
Figure 15 Sounding in Header Style 1 (logo on header) 16
Figure 16 Sounding in Header Style 1 (logo Watermark) 17
Figure 17 Add Comments Screen 17
Figure 18 Change Water Table Screen 18
Figure 19 Sounding with Water Table Added 18
Figure 20 Wet Density Change 19
Figure 21 Remove Rod Breaks 20
Figure 22 Sample After Removing Rod Break 21
Figure 23 EDIT Data Screen 22
Figure 24 Selecting COMBINE option 23
Figure 25 Combine Files Warning 23
Figure 26 Combine Offset 23
Figure 27 Selecting Dissipation File 24
Figure 28 Choosing Dissipation Plot Depths 24
Figure 29 Dissipation Linear Plot Sample 25

Figure 30 Dissipation Logarithmic Plot Sample 25
Figure 31 Dissipation LIST sample 26
Figure 32 Edit Dissipation Screen 27
Figure 33 Seismic 'WATERFALL' sample 28
Figure 34 Seismic Arrival Time Selection 29
Figure 35 Seismic Waterfall with Arrival Times 30
Figure 36 Seismic Profile Options 30
Figure 37 Add Data (Profile) to Plot 31
Figure 38 Choosing File to ADD 31
Figure 39 Data Added to Plot Choices 32
Figure 40 Sounding Plot with Seismic Velocity Added 33
Figure 41 Seismic COMBINE file selection 33
Figure 42 Seismic Combine Warning 33
Figure 43 Seismic Combine Depth Offset 34
Figure 44 Verification Sample Plot 35
Figure 45 ConePlot Home Screen 39
Figure 46 Selecting Batch Processing 40
Figure 47 Batch Configuration Screen 40
Figure 48 Batch Processing Screen 41
Figure 49 Graphic Batch Plots Output 42
Figure 50 Batch List Output Format 43
Figure 51 Batch Export Setup Screen 44
Figure 52 Exported Files from Batch Processing 45
Figure 53 Batch Screen with COMBINED selected 46
Figure 54 Sample Combined Plot 46
Figure 55 Side by Side Selection 47
Figure 56 Side by Side Sample Plot 47

Introduction

The VERTEK division of Applied Research Associates Inc., is proud to announce the release of this updated version of ConePlot for CPTSND. This version encompasses far greater flexibility in plotting and provides more options for a wide range of needs. This users guide is only intended to show the use of the software and does not have any instructions on data meaning and interpretation.

Figure 1 shows the opening screen. There are five types of tests that Coneplot can plot/process: cone soundings, pore pressure dissipations, seismic tests, video, and cone verifications. To plot/process a test, press the appropriate button listed in the middle of the screen. If ConePlot is being started for the first time, enter program set up and select general settings.

Figure 1 Opening Screen

1. Program Setup

The program setup screen is shown in Figure 2.

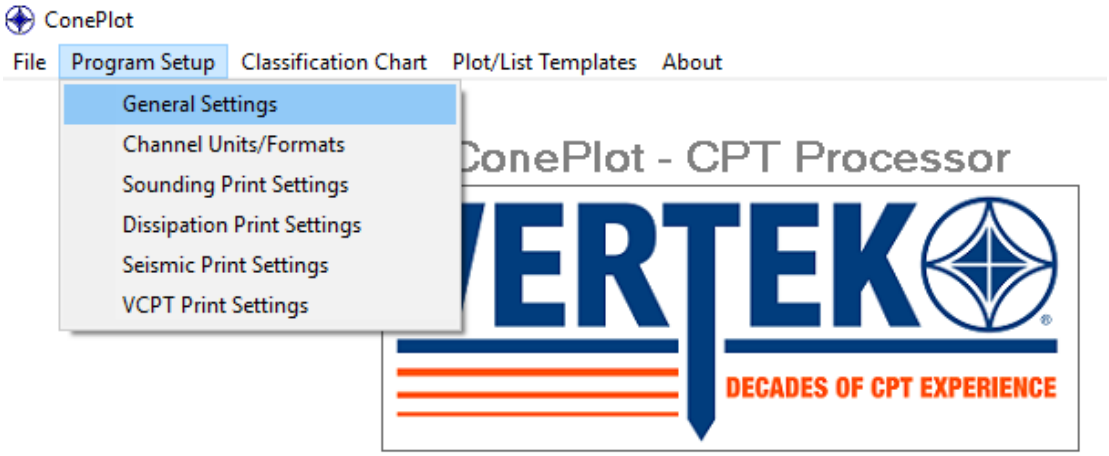


Figure 2 Program Setup Menu

The Channel Units/Formats tab allows users to set different units and formats on the graphs and on the different export options available in the LIST function.
The various print settings allow user to customize each type of report with different styles and configuration of the headers and associated information with different looks available for plots and list with the same data. This will be covered later in this manual.

2. General Settings

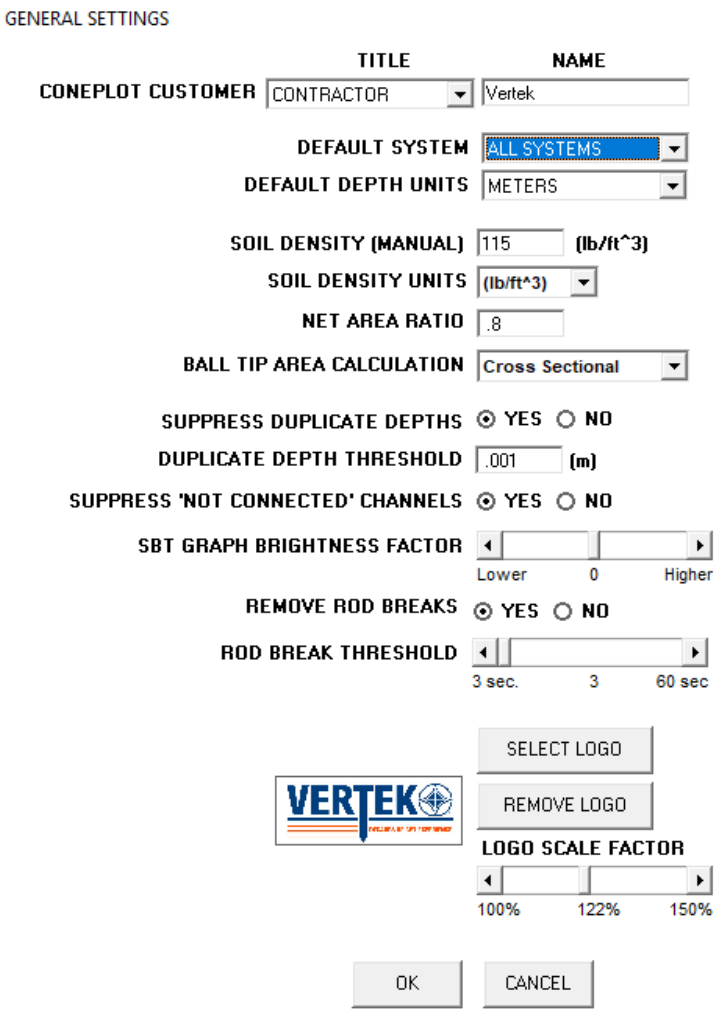


Figure 3 General Settings

Following is a brief explanation of the fields and how to set them up:

- **ConePlot Customer**: Intended to allow for customizing reports with either the users or clients information
- **Default System**: Coneplot will process files from either our VTK series or the HT series cone systems. This allow user choice.
- **Default Depth Units: S**elect either meters or feet

- **Soil Density:** Normally set between 100 and 120 lbs/cu ft. (this can be changed to suit local conditions)

- **Net Area Ratio:** All Vertek cones are designed with 0.80 net area ratio

- **Ball Tip Area Calculation:** Select either Cross Sectional or Half Sphere – this changes the area used in calculation
- **Suppress Duplicate Depths:** Suppresses plotting of duplicate depth entries in data files

- **Duplicate Depth Tolerance:** Defines the distance minimum for duplicate

- **Suppress 'Not Connected' Channels:** Keeps not connected channels from displaying in
  "LIST" function

- **SBT Graph Brightness Factor:** Allows adjustment of colors on graph (some pdf writers do not provide the expected color response for the soil behavior type graphing)

- **Remove Rod Breaks: YES / NO 'Yes'** will automatically remove obvious rod spikes. **'No'** will allow user to remove them manually. This only works for .dat files (VTK series)

- **Rod Break Threshold:** Greatly reduces rod change spikes caused by the release of pressure when adding rods. Best results are found with smaller settings

- **Select / Remove Logo:** Opens a browser window to allow searching for a jpg Logo file to insert / and allows Logo to be removed easily.

  Click OK to return to main screen

3. Processing Sounding (Single)

Select Processing Option, 'Process Sounding (Single)'. (BATCH Processing is covered in Section 8 starting on page 37)

This will open a browser window. Navigate to the directory the test files are saved in and select the appropriate test. Note that the system setting in General Settings limits the file types seen on screen.

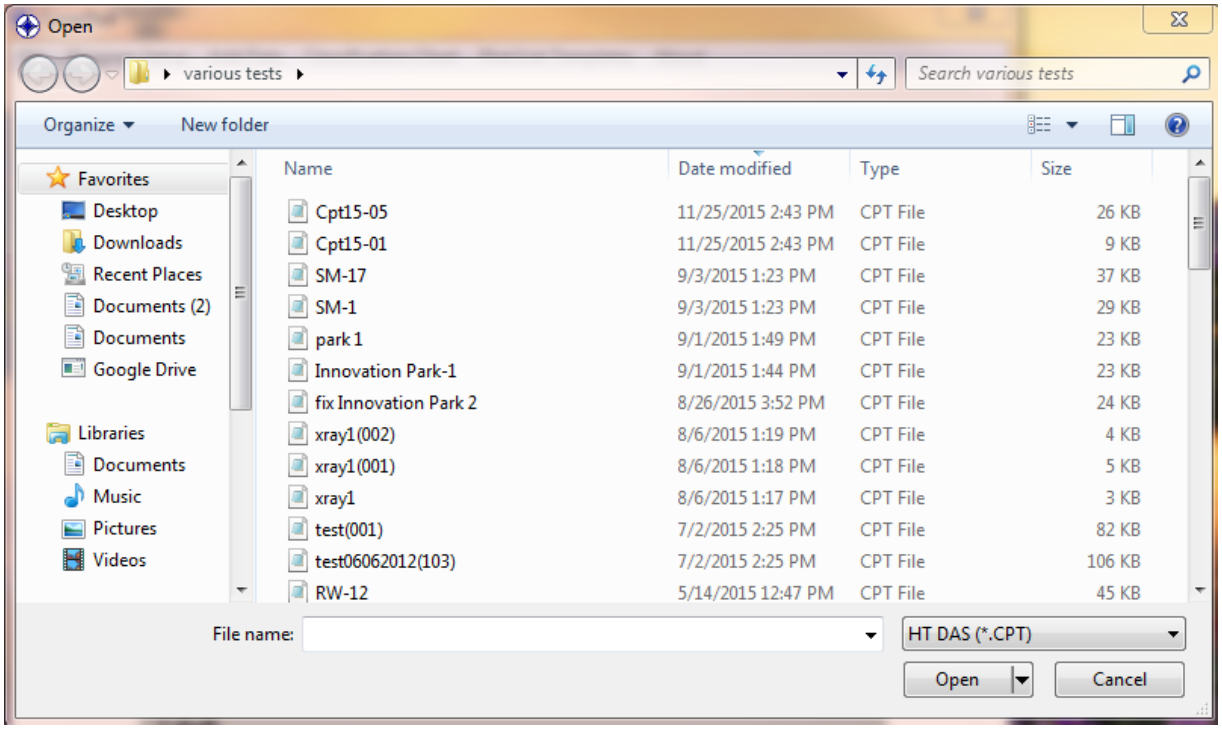


Figure 4 Selecting a File

Click open

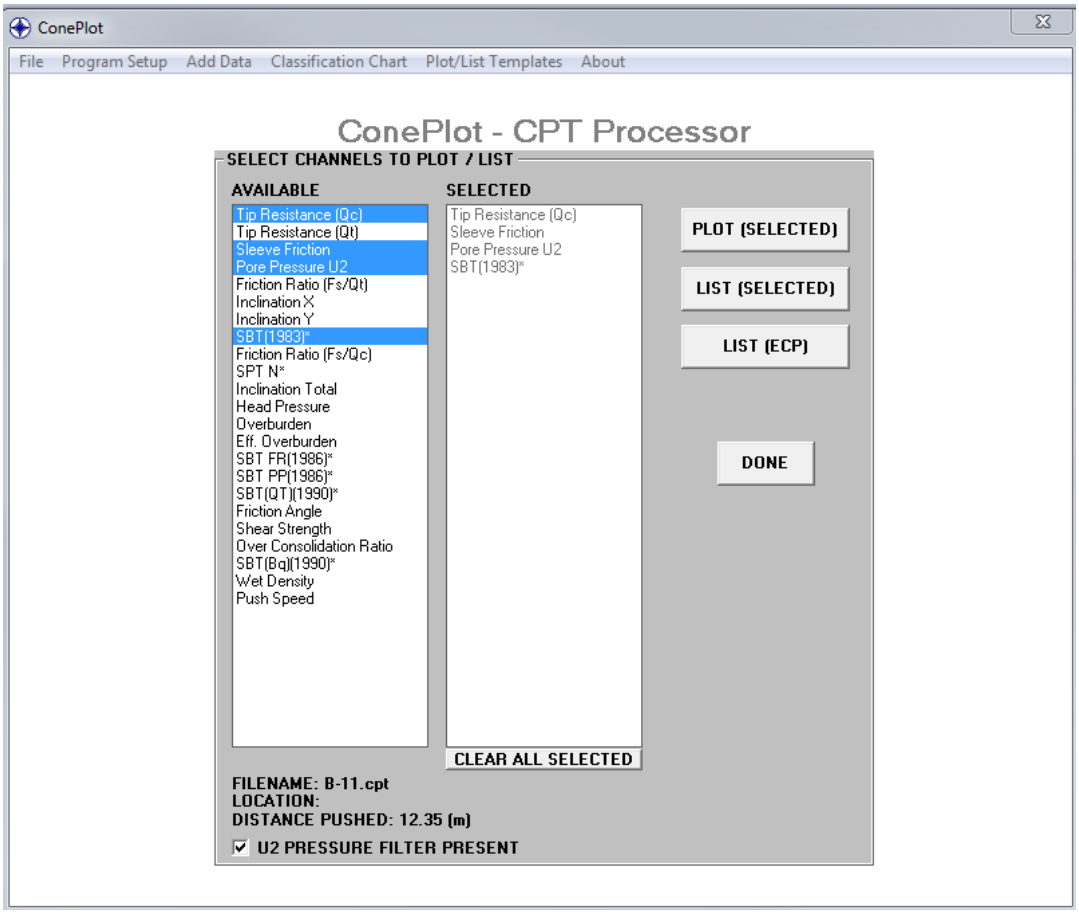


Figure 5 Selecting Channels to Plot/List

ConePlot imports the data file and displays the channels available to process or display. Additional file data can be added to this list by clicking on **ADD DATA** in the tool bar and browsing to a compatible file. See **Section 6** for a seismic example. **Figure 5** shows the automatic selection that was chosen in a template.

Highlight the channels desired for graphing and click on template to save the settings so that each sounding can be presented the same way if desired. Clicking again on channel will unselect it. Graphs are arranged in the order selected. **Select Plot** to display a graphical view of the data selected. See **Figure 7**. Selecting List will provide the results shown in **Figure 8**. Selecting **EDIT** will be discussed later.

Figure 6 shows the template save/selection screens.

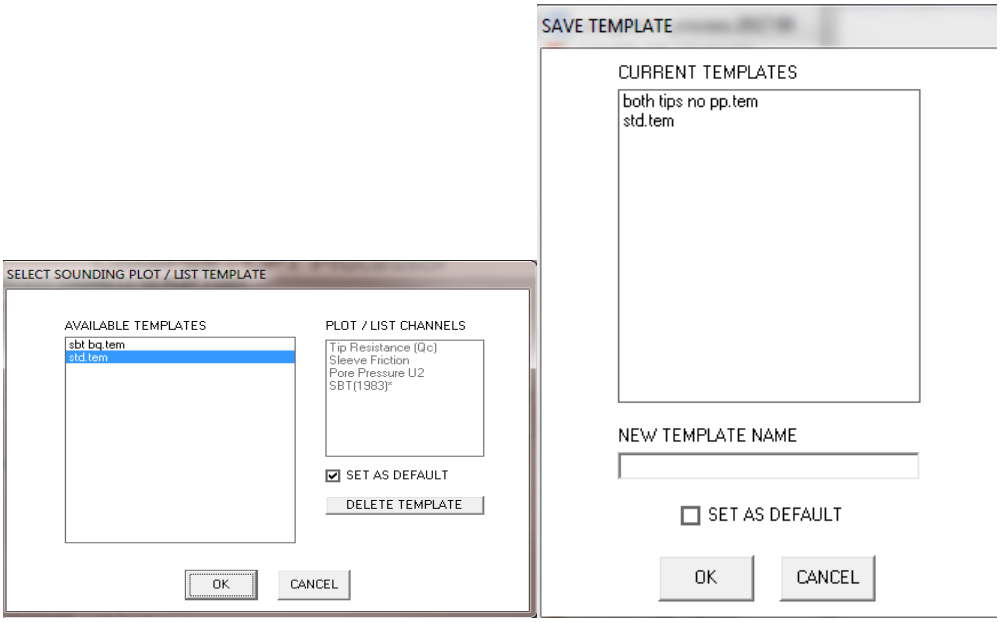


Figure 6 Plotting Templates

This provides the initial graphical plot (**Figure 7**) on the screen with the parameters chosen in the previous step. (Logo shown using the watermark selection)

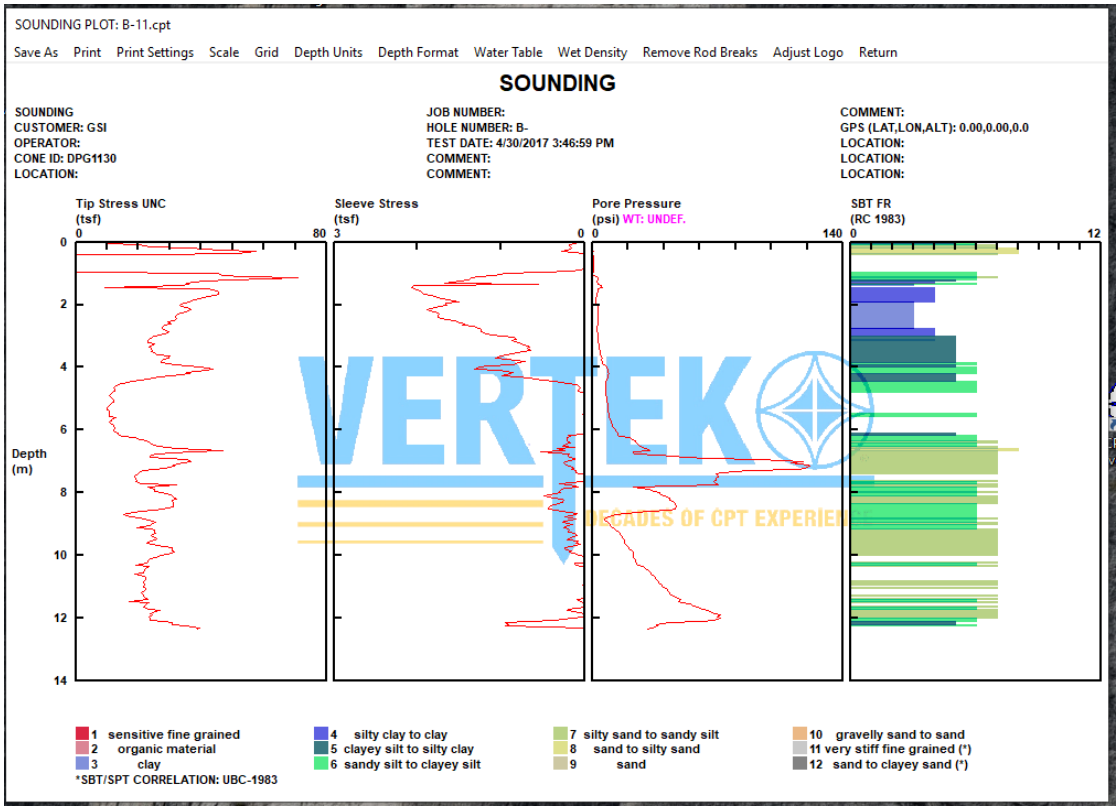


Figure 7 Graphical Plot (watermark logo)

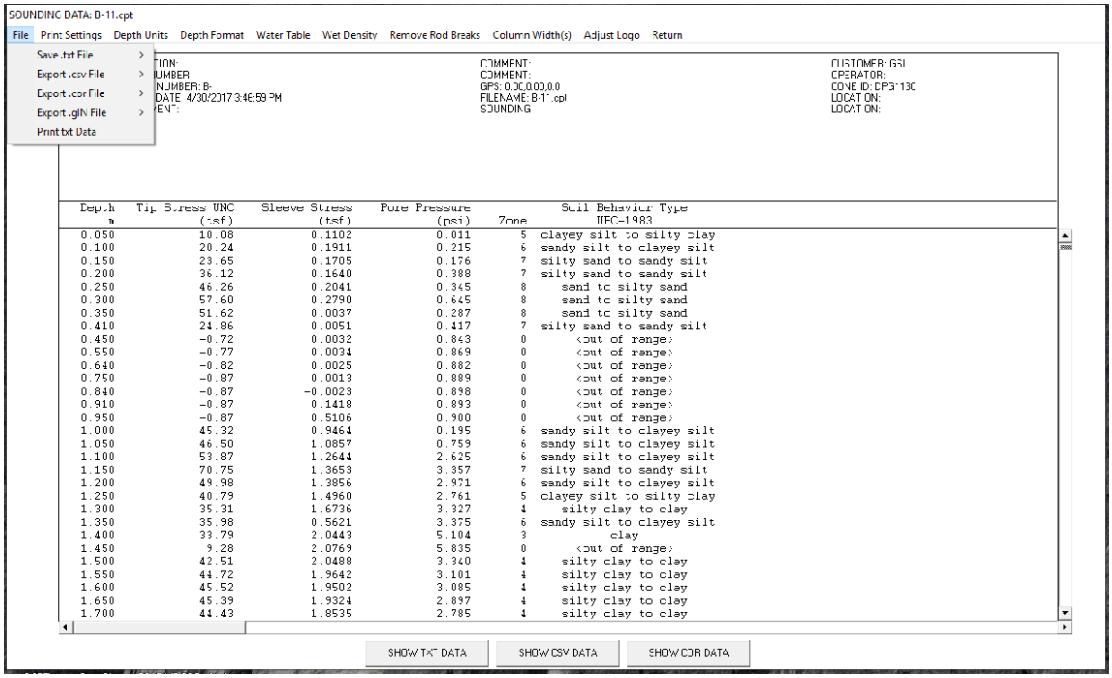


Figure 8 Sample LIST option

From the list screen you can export the data in different formats for third party software use or .csv for standard spread sheet use. Units can be set and saved for each output type (from the main screen select program setup, then Channel Units/Formats)

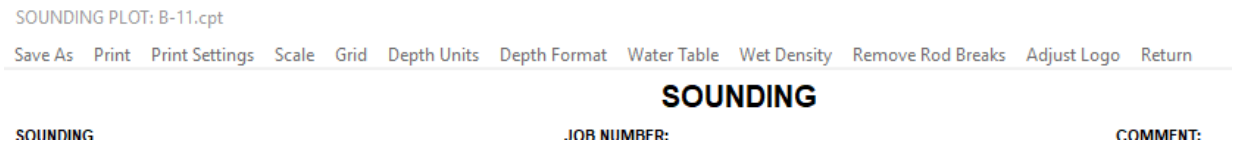


Figure 9 Plot Options Toolbar

Across the top of the plot screen (**Figure 9**) there are tabs to complete the following selections:

PRINT: to access the PRINT SETTINGS
SCALE: for each graph or depth
Add or remove **GRID** lines to the display
Change the **DEPTH UNITS** (feet or meters
Change the **DEPTH FORMAT** from normal to elevation
Input a **WATER TABLE** depth (to change the hydrostatic blue line
Change **WET DENSITY**
Access the **REMOVE ROD BREAKS** function
Adjust **LOGO**
RETURN to previous screen

PRINT: The same as any program, provides user with available print options. CPT graphs usually print best to PDF format so they can be used electronically in reports. Not all PDF printers are created equally! This software may not work with some free PDF printer options available and some older versions of PDF printers may need to be updated.

PRINT SETTINGS or **SCREEN SET UP** (a.k.a **Headers**)

Screen setup can be modified to three different styles (header layouts) by entering into print settings. Print settings can be accessed from Figure 9 example screen or from the initial screen under **Program Setup**.

See Figure 10 -12 depict screen shots of the three styles available for this function. The drop down boxes allow arranging the multiple available fields in sequences to suit individual requirements. This information is primarily entered in each individual test set up for this purpose.

Please note that the logo selection can be used as a **small header** field or as a **watermark** background. To change the intensity of the watermark logo requires altering the JPG file imported. This program does not have the capability to change the image.

The upper section of this screen is for the appearance of the **LIST** headers and the lower section is for the appearance of the **PLOT** headers. In the plot section on the right side of the screen are some alignment and display options to allow for customizing the view to suit individual preferences.

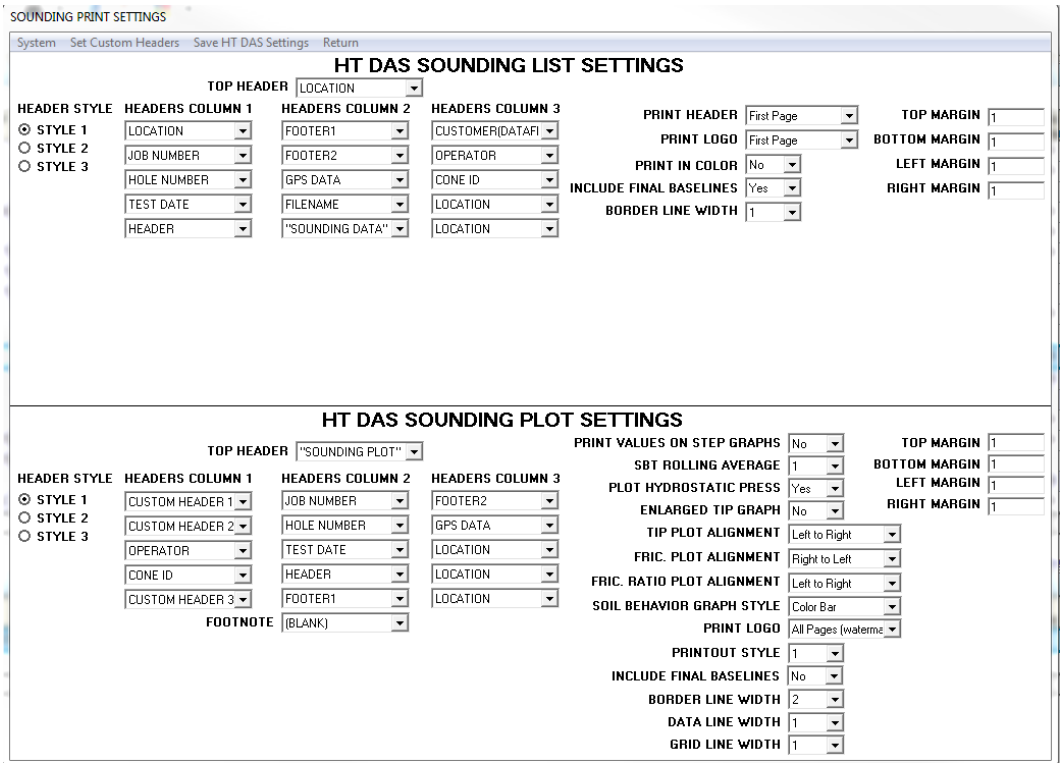


Figure 10 Sounding Print Settings Style 1

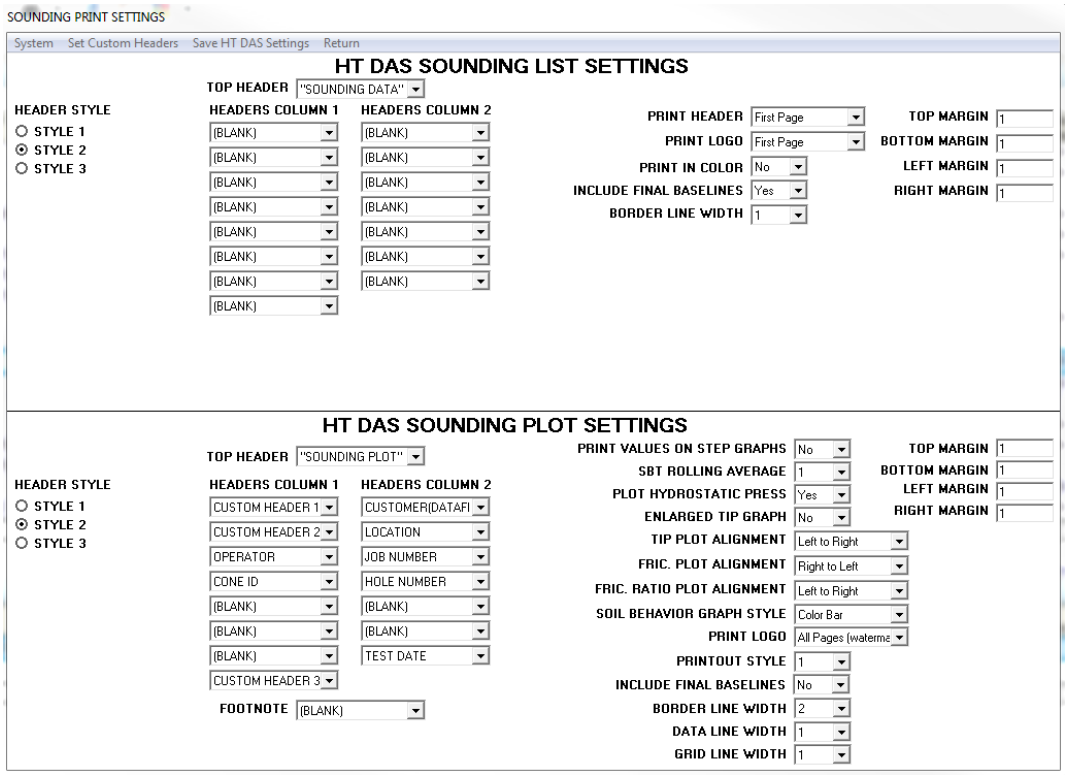


Figure 11 Sounding Print Settings Style 2

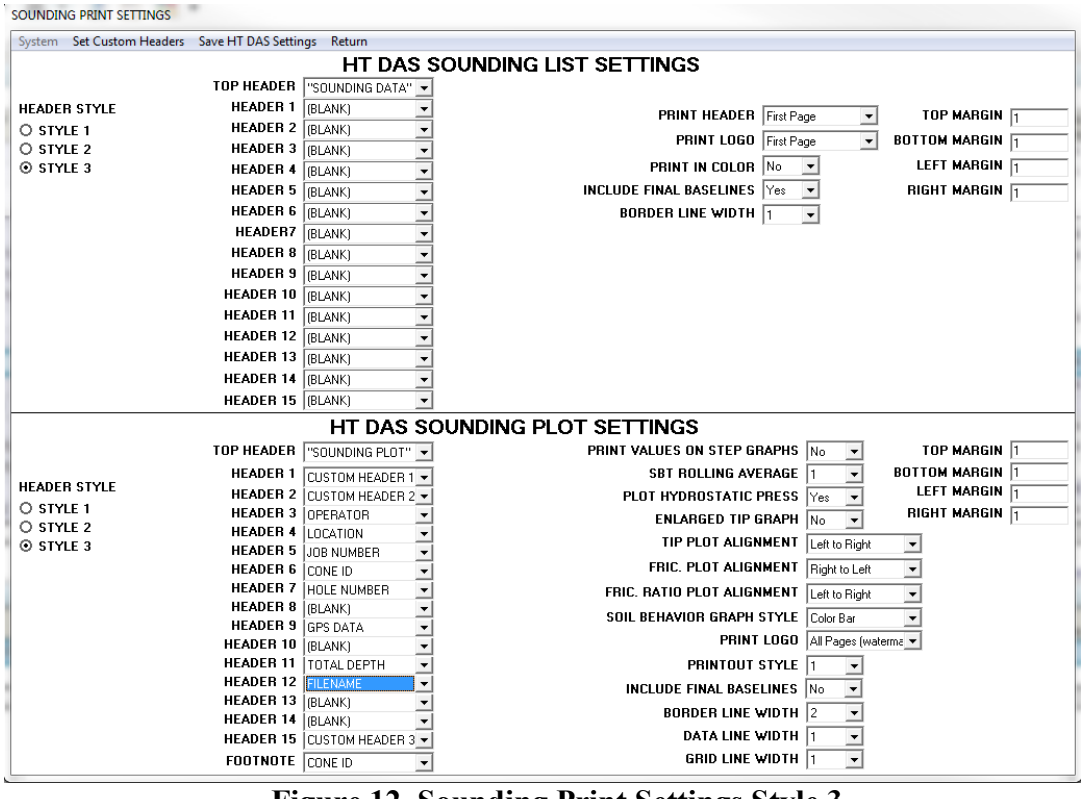


Figure 12 Sounding Print Settings Style 3

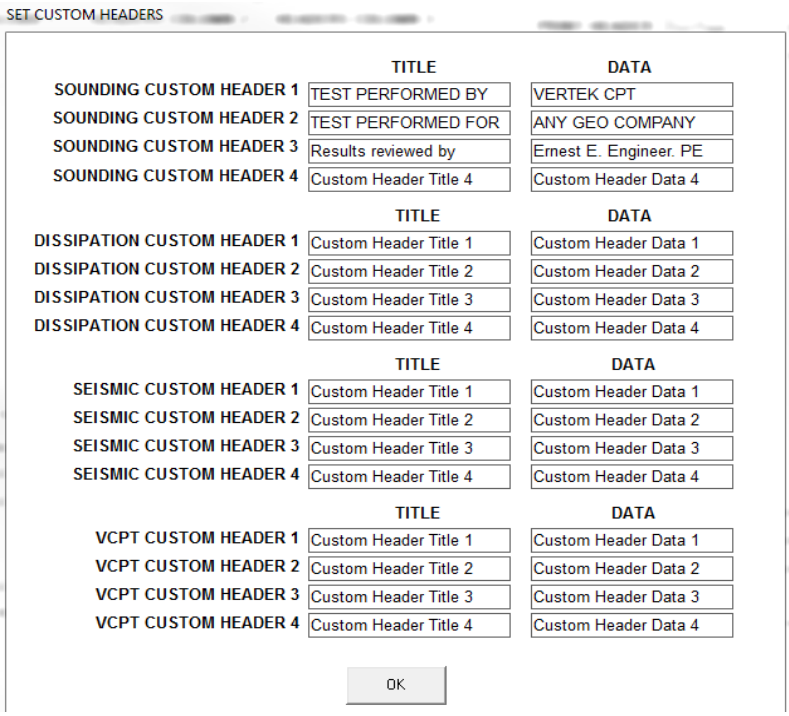


Figure 13 Set Custom Headers Screen

Custom header selections (**Figure 13**) are choices in all of the drop downs for the various fields that can be used in **CONEPLOT**. These custom headers are designed to allow more user control over the use of the fields available. Three sample customizations shown in **Figure 13**.

SCALE

Changes can be made to the appearance of the plot screen using the 'SCALE' tab (**Figure 14**) in the **DEPTH PLOT** screen tool bar. Notice that this plot has auto-scaled during the plot, but scaling can be changed here. The minimum can be set to less than zero should it be necessary to display readings that indicate negative from the baseline taken; and that maximum can be set to allow for uniform scaling when required. **Minor ticks** can be checked to provide more scale marks on the selected channels for enhanced interpretations but this may make the graph too cluttered.

Chose to **Load Scale** and **Save Scale** at the top of this page make it a simple matter to have multiple tests in one project be plotted on the same scale for uniformity.

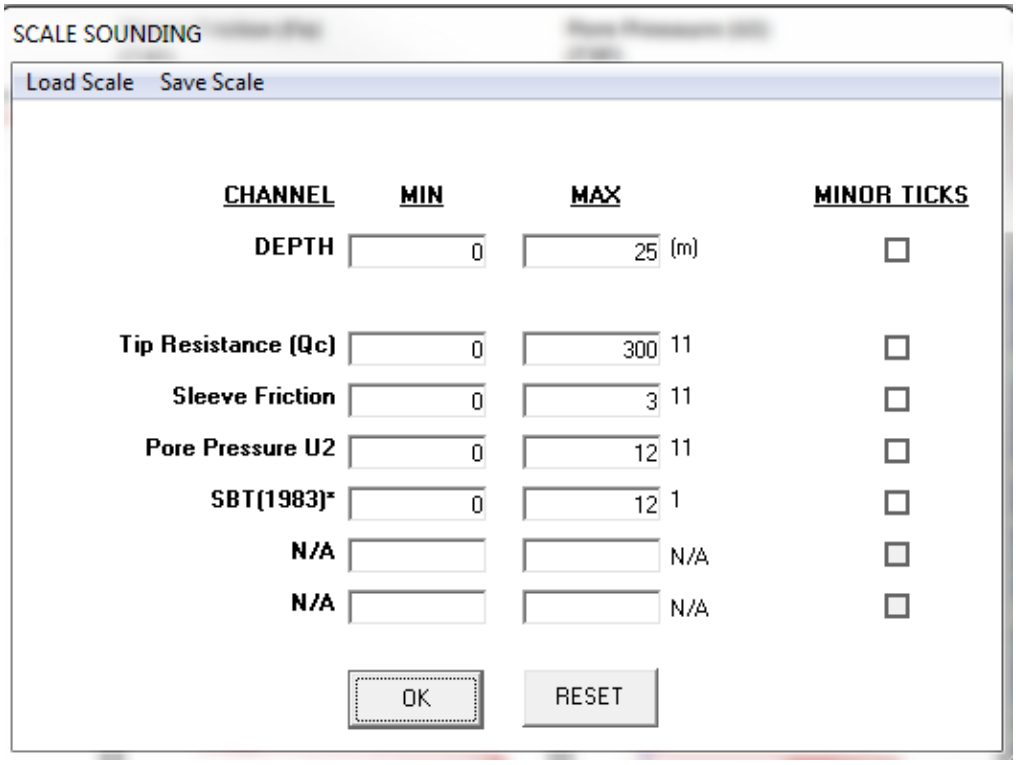


Figure 14 Scale Setting Screen

Figure 15 shows a depth plot with minor ticks selected using **HEADER STYLE 1** and **PRINTOUT STYLE 2** with the logo on "first page only".

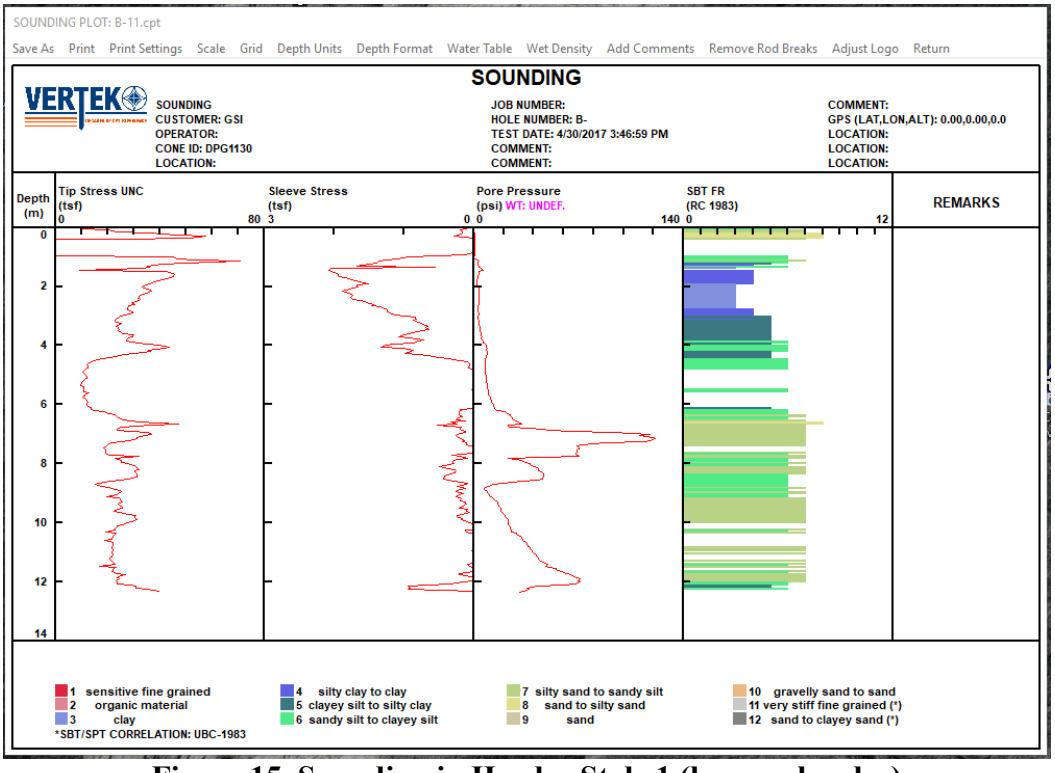


Figure 15 Sounding in Header Style 1 (logo on header)

Figure 16 is the same but using logo selection “watermark”

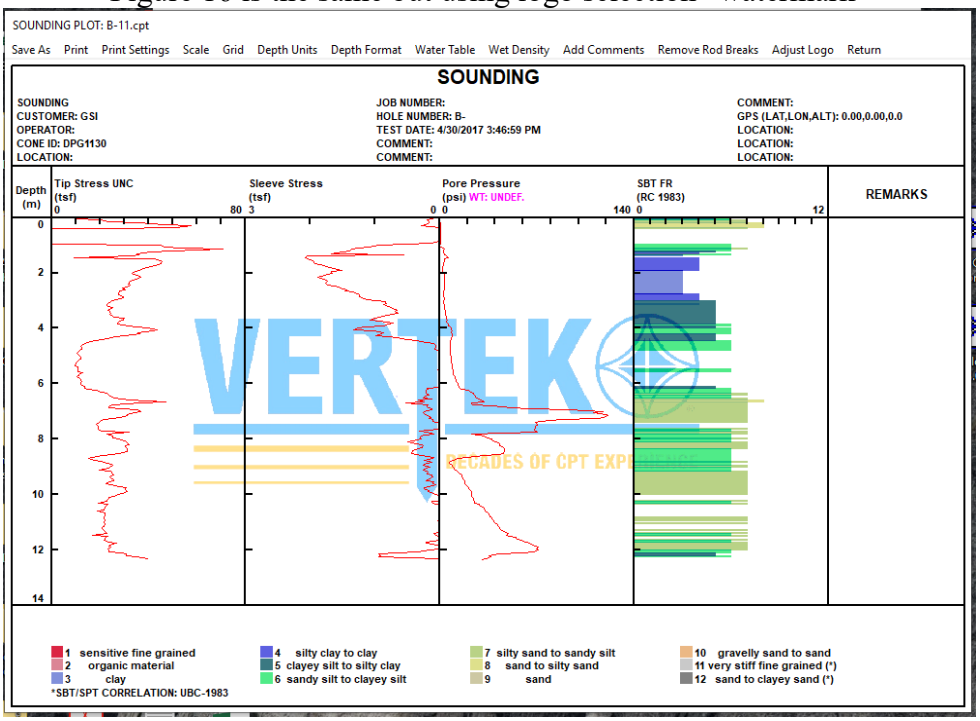


Figure 16 Sounding in Header Style 1 (logo Watermark)

Notice that in **PRINTOUT STYLE 2** there is a remarks column and the “add comments” tab (**Figure 16**) at the top allows user to enter text to apply to any depth chosen(**Figure 17**).

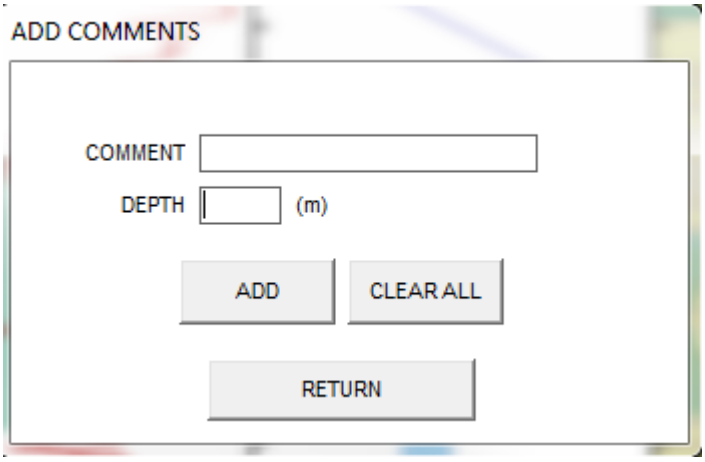


Figure 17 Add Comments Screen

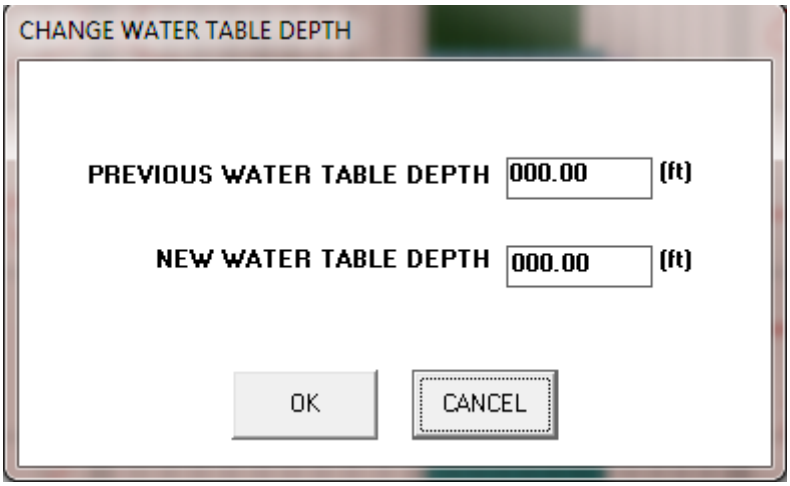


Figure 18 Change Water Table Screen

Water Table

The estimated water table depth can be manually entered on the plots by adding values to the drop down selection as shown on **Figure 18**. This will place a blue line on the plot at the depth entered and this hydrostatic plot line will increase with depth. See updated plot (**Figure 19**) below with an arbitrary water table of 12 feet selected.

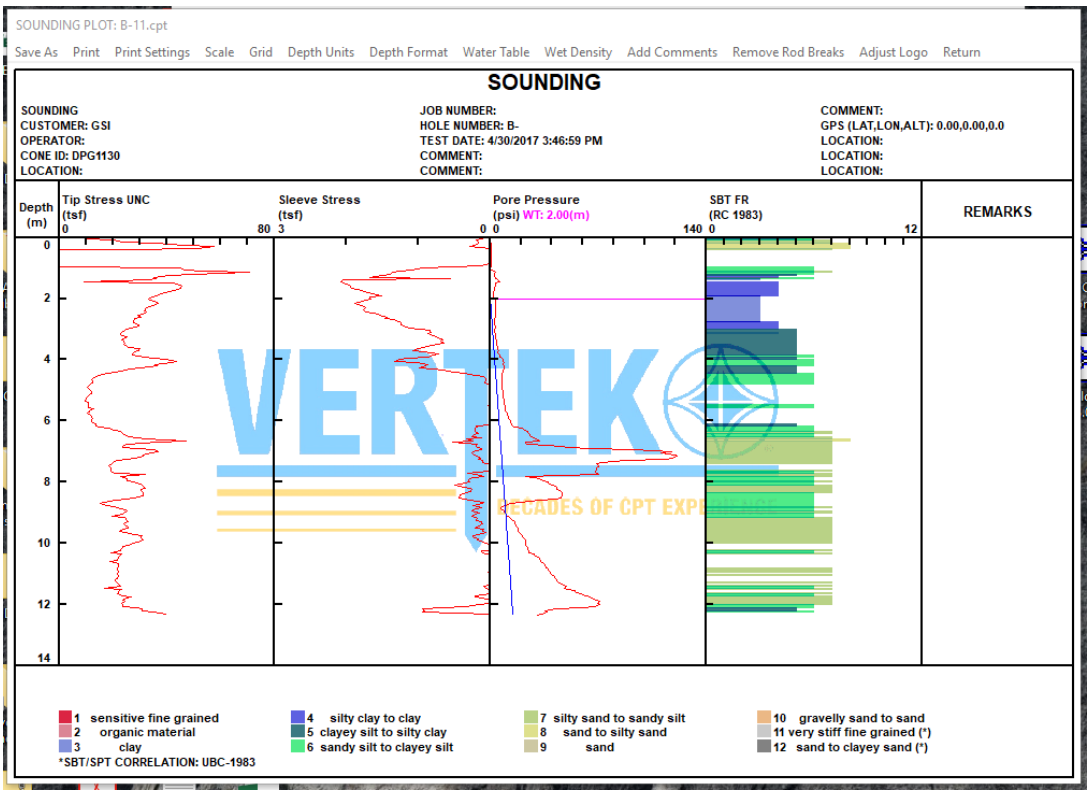


Figure 19 Sounding with Water Table Added

Wet Density

Adjusting the wet density calculation can be updated from the standard default. To update the wet density this option allows the selection of a different wet density value for the selected test without the need to start over and go back to GENERAL SETTINGS. The new setting can be used as a new default or just for the selected test.

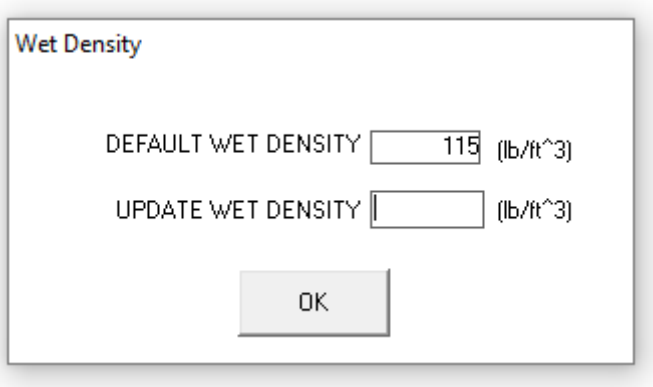


Figure 20 Wet Density Change

Remove Rod Breaks

As shown on **Figure 21** displays the rod break removal screen with a rod break spike selected for deletion. The left side of this screen shows the plotted tip and friction for a one meter section of the push. The two blue lines on the right side indicate which meter of the push is displayed on the left.

The rod break is selected by positioning the mouse and clicking above and then below the spike area to be 'smoothed'. After selection simply hit the **DELETE** button on the keyboard and the spike will be smoothed out. (see **Figure 22** for results)

NOTE: care needs to be taken to only delete spikes and not real data. True rod break spikes should follow the pattern of rod additions to the CPT test.

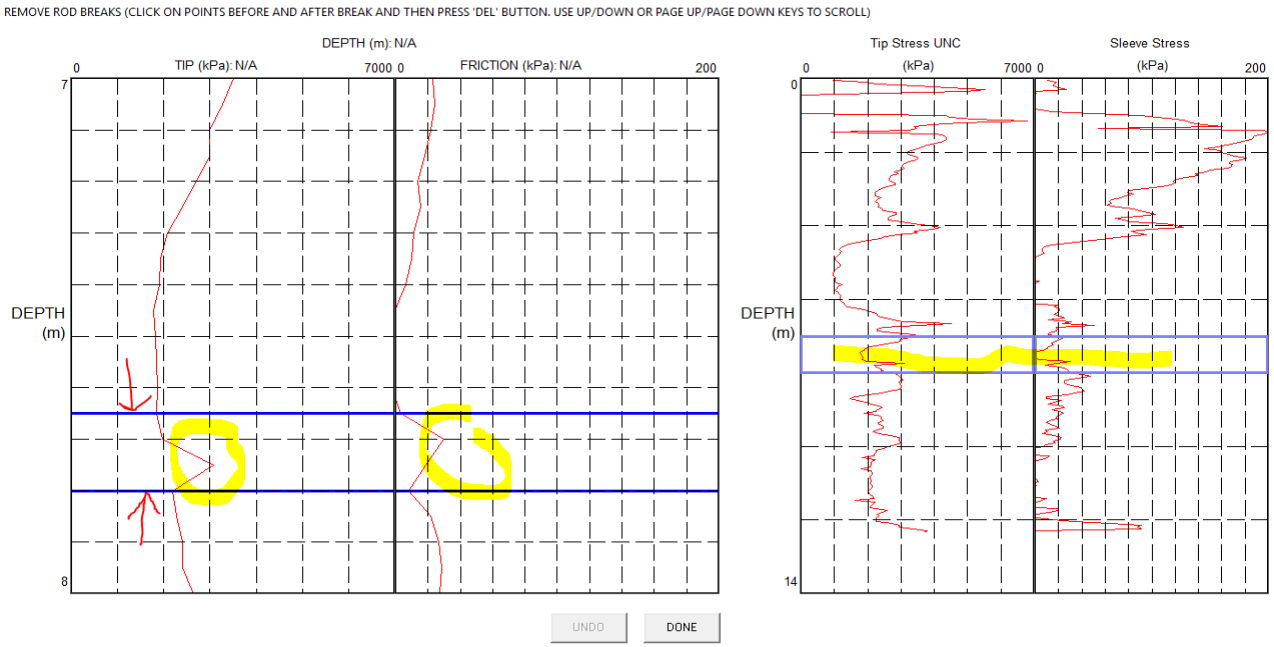


Figure 21 Remove Rod Breaks

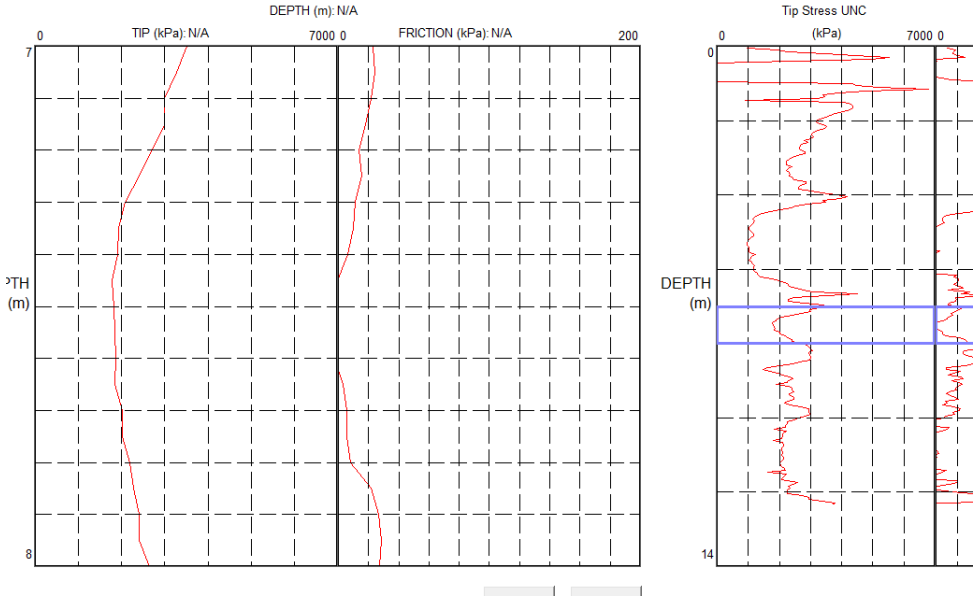


Figure 22 Sample After Removing Rod Break

Edit Data

The remaining Depth Plot tab is **EDIT DATA** (**Figure 20**) and is only shown when processing **.DAT** files. This feature allows for user editing of raw data to remove errors or make other corrections required. This edited data should always be saved as a different file name to prevent loss of original data.

NOTE: HT file (*.cpt) editing still requires use of DIGITAL CLEANUP and Edit Data tab is not shown when processing .cpt files.

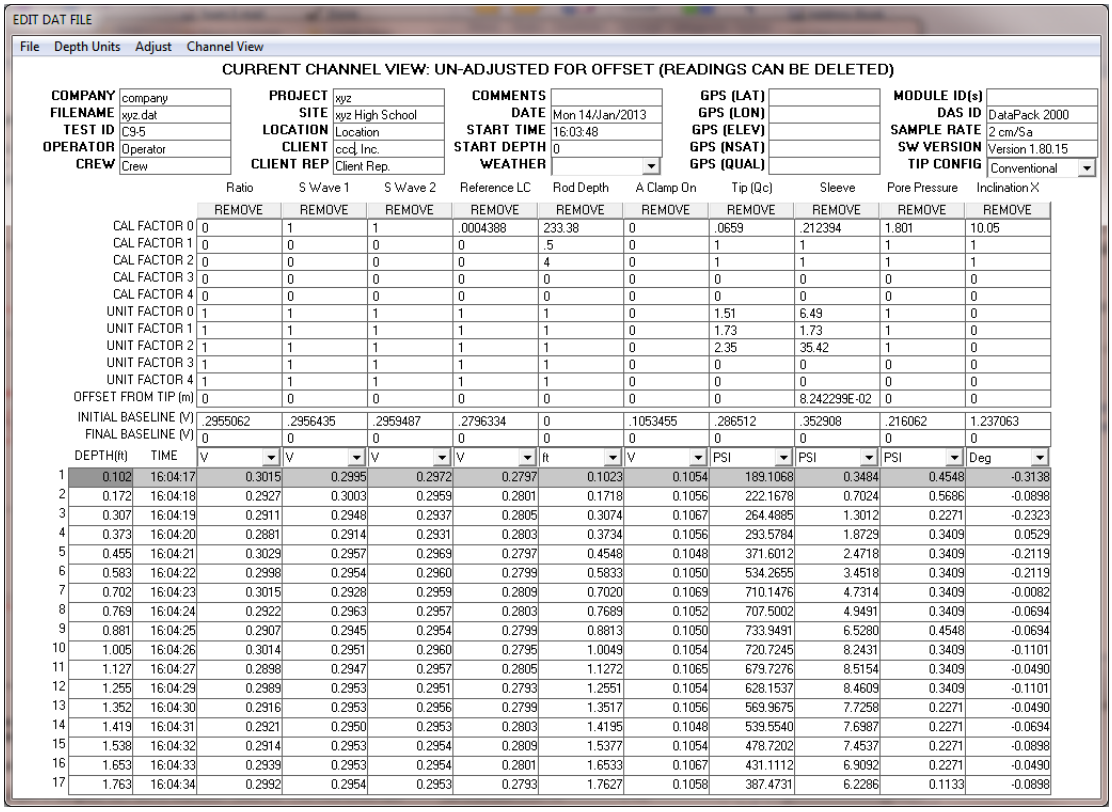


Figure 23 EDIT Data Screen

With this tool it is possible to correct minor errors in a sounding (such as rod change data spikes or an incorrect baseline).

Data can be changed at a specific depth or for an entire column. To navigate in the data field click on the depth reading and then up/down arrow.

To change a single reading double click to make the box green, make your change and then click the box again to turn off the green highlight.

For edits involving shifting channels or removing negatives, click on **ADJUST** in the top tool bar.

Original data files should always be maintained. ***VERTEK strongly recommends saving original data files separately from edited data files to avoid any potential loss of original data.*** It is highly recommended to save any changed files with new file names.

The **EDIT DATA** screen is where files can be combined if necessary (only for .DAT files. HT series users with .CPT files can combine files using **DIGITAL CLEANUP**.

Combining files should only be done when the same cone is being used on test that is done to complete a previous test to depth (perhaps after having to drill through a hard layer or after a malfunction of some sort.) It would be preferable to pause the previous test and resume but that is not always possible.

Combining Data Files

To combine a test with another open the first test (that started at the surface) in **CONEPLOT** and then select **EDIT DATA**.

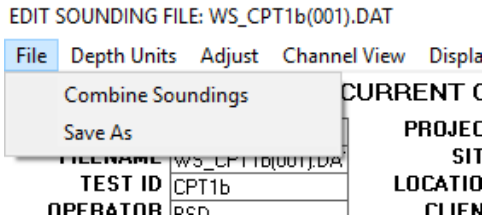


Figure 24 Selecting COMBINE option

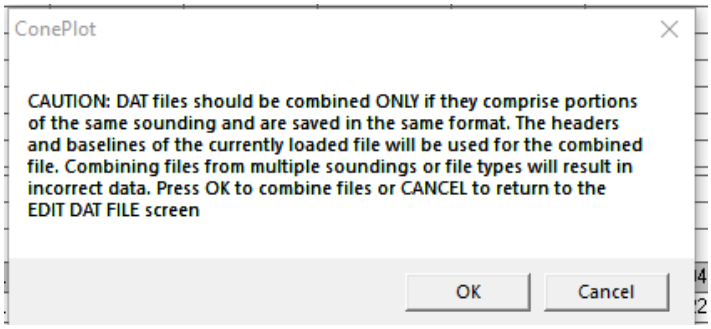


Figure 25 Combine Files Warning

The system the prompts you to choose the file to add and will ask for the **OFFSET** depth between files. (note: this would be if there is a difference between the ending depth and the new start depth. If no offset leave at zero "0".

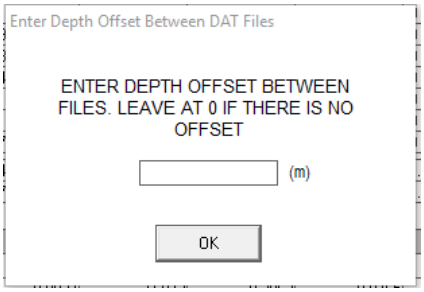


Figure 26 Combine Offset

Select OK and the data files will be combined. **BE SURE TO "SAVE AS" a new file name!!**The combined file can now be plotted or listed as any other file.

4. Processing Dissipations

Clicking on Process Dissipation(s) will bring up a file selection screen

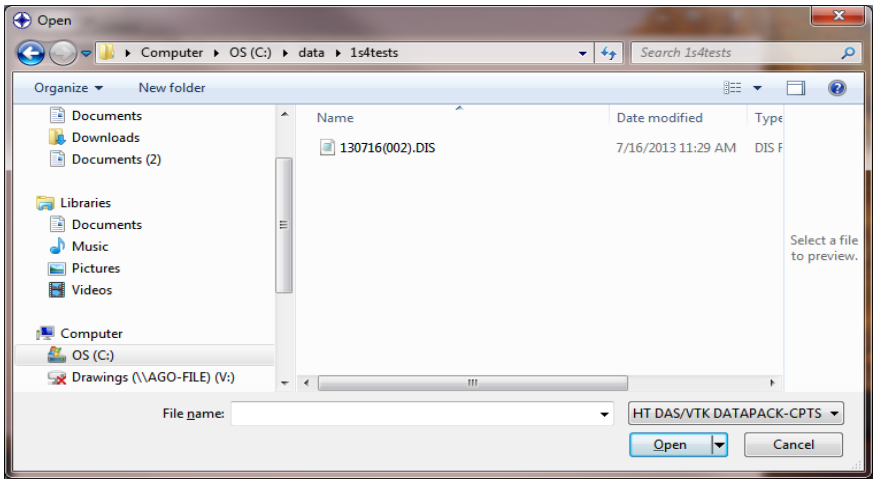


Figure 27 Selecting Dissipation File

Again, the file types displayed are limited by the system selected and to dissipation files. Once a file is selected the following screen appears.

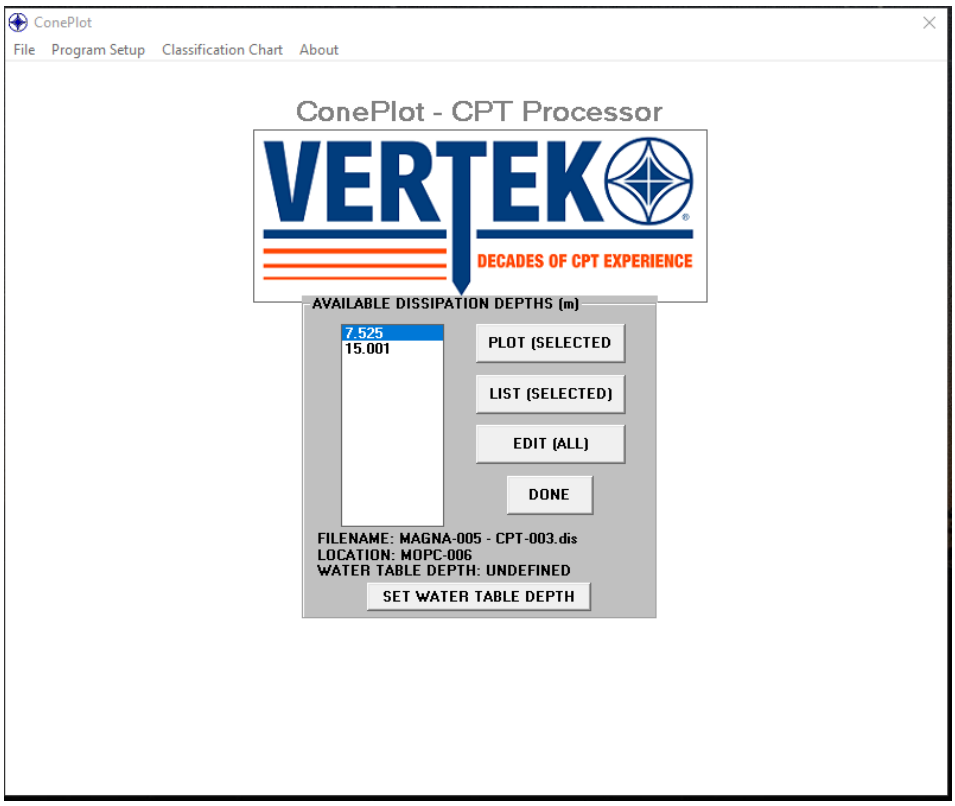


Figure 28 Choosing Dissipation Plot Depths

Click on the depth desired to plot and click on **PLOT SELECTED**. One or all of the

depths can be selected (multiples will be displayed on the same graph with different colors. Figures 29-30 show the two styles of plot - Linear / Logarithmic, respectively.

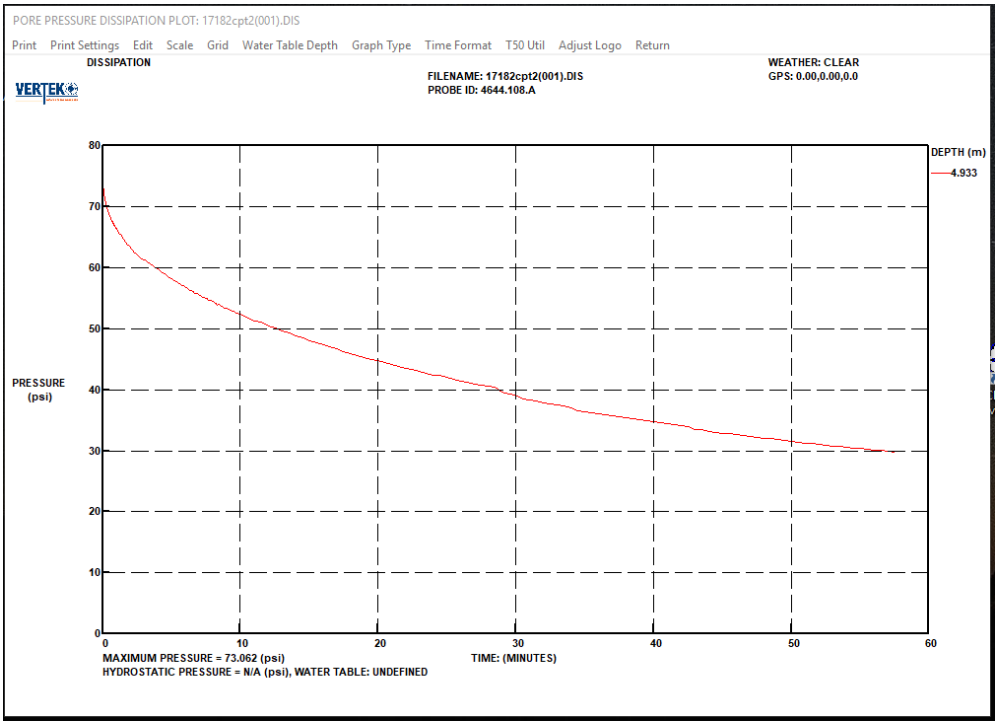


Figure 29 Dissipation Linear Plot Sample

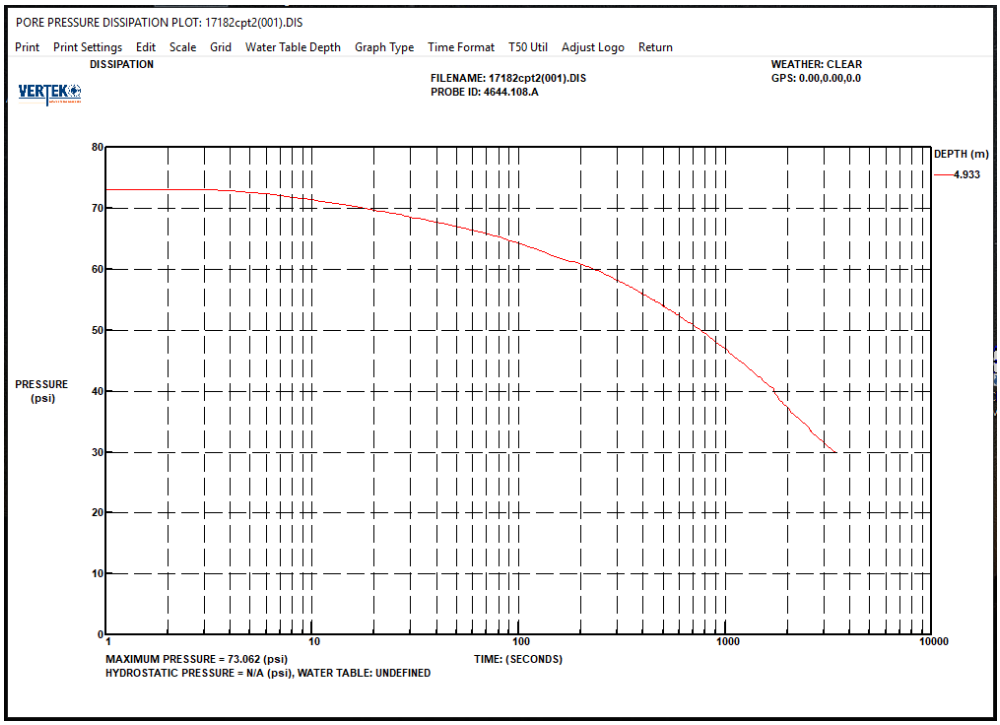
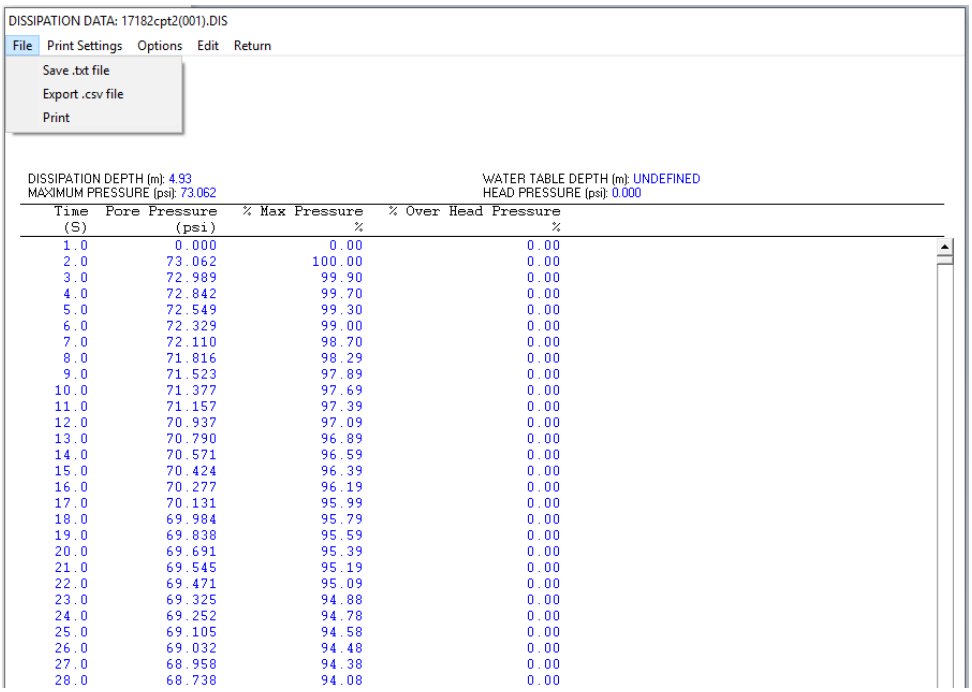


Figure 30 Dissipation Logarithmic Plot Sample

NOTE: This manual is not intended to provide details on the meaning of the data, just to familiarize the operator with the software capability.

Figure 31below shows the appearance of the list function (in the drop down is shown two options for the data, save as **.txt** or export as **.csv**. or the data can be printed.



Time (S)	Pore Pressure (psi)	% Max Pressure %	% Over Head Pressure %
1.0	0.000	0.00	0.00
2.0	73.062	100.00	0.00
3.0	72.989	99.90	0.00
4.0	72.842	99.70	0.00
5.0	72.549	99.30	0.00
6.0	72.329	99.00	0.00
7.0	72.110	98.70	0.00
8.0	71.816	98.29	0.00
9.0	71.523	97.89	0.00
10.0	71.377	97.69	0.00
11.0	71.157	97.39	0.00
12.0	70.937	97.09	0.00
13.0	70.790	96.89	0.00
14.0	70.571	96.59	0.00
15.0	70.424	96.39	0.00
16.0	70.277	96.19	0.00
17.0	70.131	95.99	0.00
18.0	69.984	95.79	0.00
19.0	69.838	95.59	0.00
20.0	69.691	95.39	0.00
21.0	69.545	95.19	0.00
22.0	69.471	95.09	0.00
23.0	69.325	94.88	0.00
24.0	69.252	94.78	0.00
25.0	69.105	94.58	0.00
26.0	69.032	94.48	0.00
27.0	68.958	94.38	0.00
28.0	68.738	94.08	0.00

Figure 31 Dissipation LIST sample

Should it be necessary to edit the dissipation data this can be done by selecting **EDIT** from the dissipation tool bar.

The **Select Dissipation Depth** drop down lets you edit any of the test depths shown on the main screen. This depth reading can be manually changed by using the edit depth drop down button. As always, if the data is changed, it is strongly recommended to rename the new file so the original data is never lost.

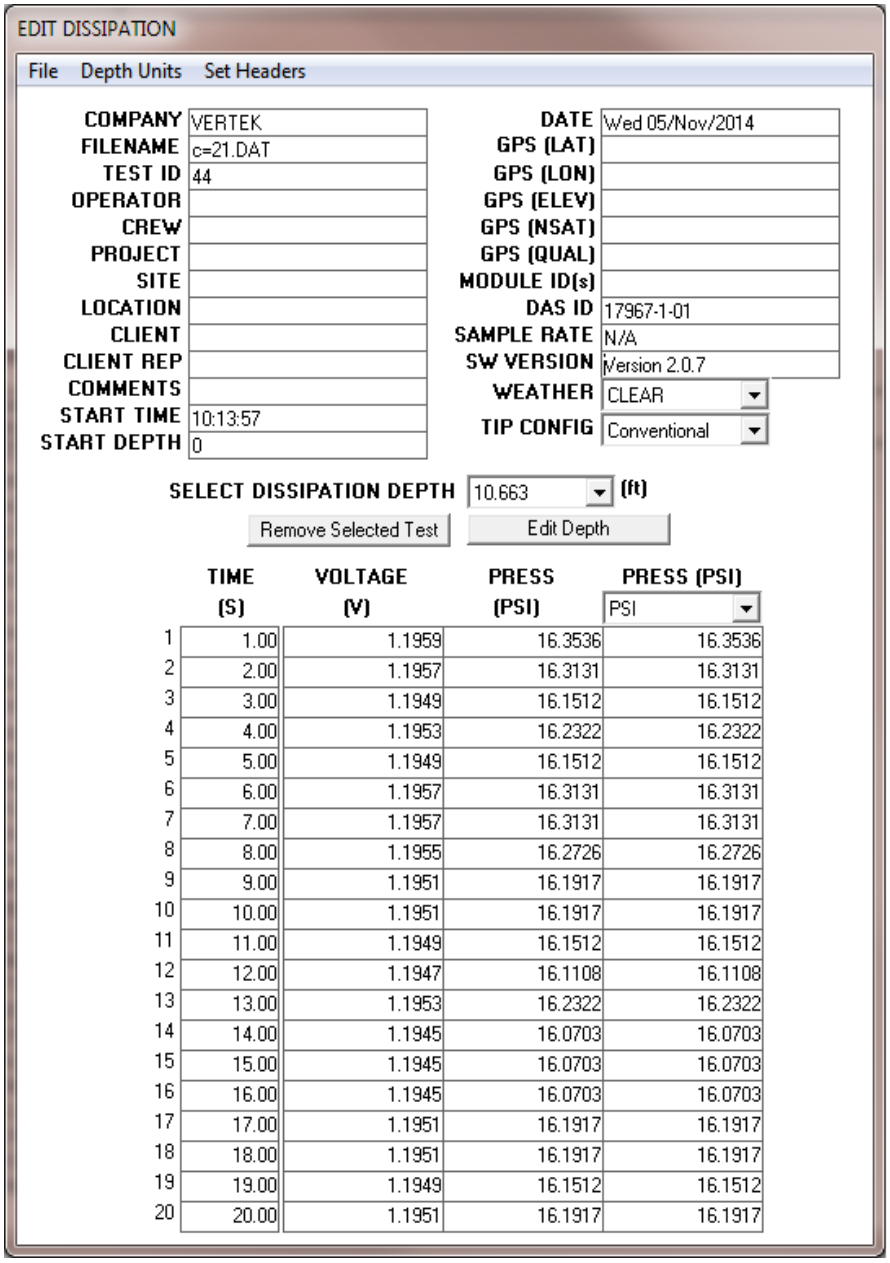


Figure 32 Edit Dissipation Screen

5. Processing Seismic Tests

Select on the '**PROCESS SEISMIC**' option which will display similar to the home screen and select the test to be processed (same procedure as for dissipations and soundings). Any test in Mode 1 with multiple depths will then display a 'waterfall' plot like Figure 33 below.

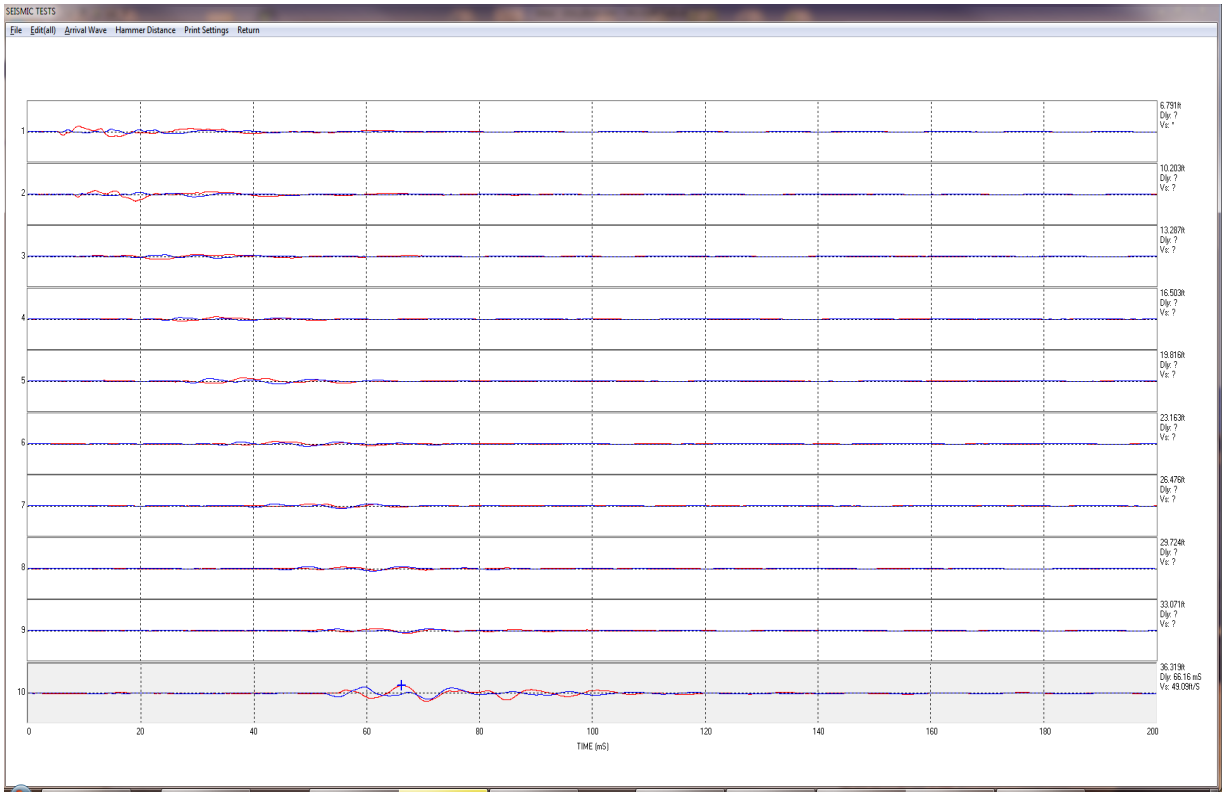


Figure 33 Seismic 'WATERFALL' sample

Each depth can then be highlighted (selected) individually to enhance the visible arrival wave and to select an arrival time.

Click on the arrival wave you are going to set and, using the mouse, move the cross mark where you want to set the arrival and **Left Click** to set. Alternately, the arrival time mark can be '**Snapped**' to the peak by dragging the mark close to the top and then using **shift and left click** in combination. If used on all the depths on the same wave form this will ensure consistent placement of the arrival mark.

The zoom box in the upper corner is helpful on noisy or bumpy waves and simply provides a visual of the detail.Shown in Figure 34 is an arrival time at the peak of the largest A strike wave.

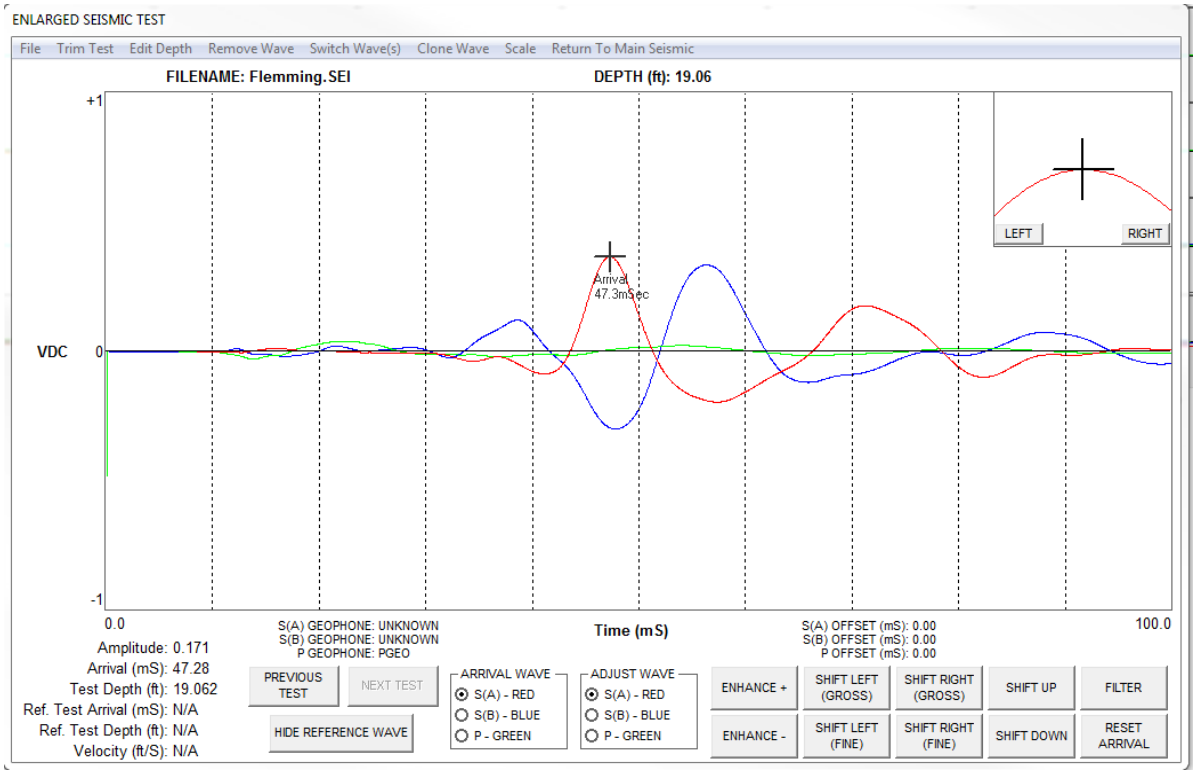


Figure 34 Seismic Arrival Time Selection

It is then a simple matter to click previous graph to enhance the view, and select the similar point for arrival times and repeat until the top test is reached (**Figure 35**)

The buttons on bottom right of this screen allow the wave to be enhanced and filtered for best appearance. Since seismic tests for CPT are designed for arrival time information (to determine individual layer composition). The software allows user to make the waves more pronounced so that arrival times can be determined more consistently from surface to completion of test.

Many users will start near the bottom of the waterfall and process up to ensure good arrival time determinations. Clicking outside of the box shown on Figure 31 will

return to the waterfall, or simply click on previous or next test.

Figure 35 shows the waterfall with all arrival times selected

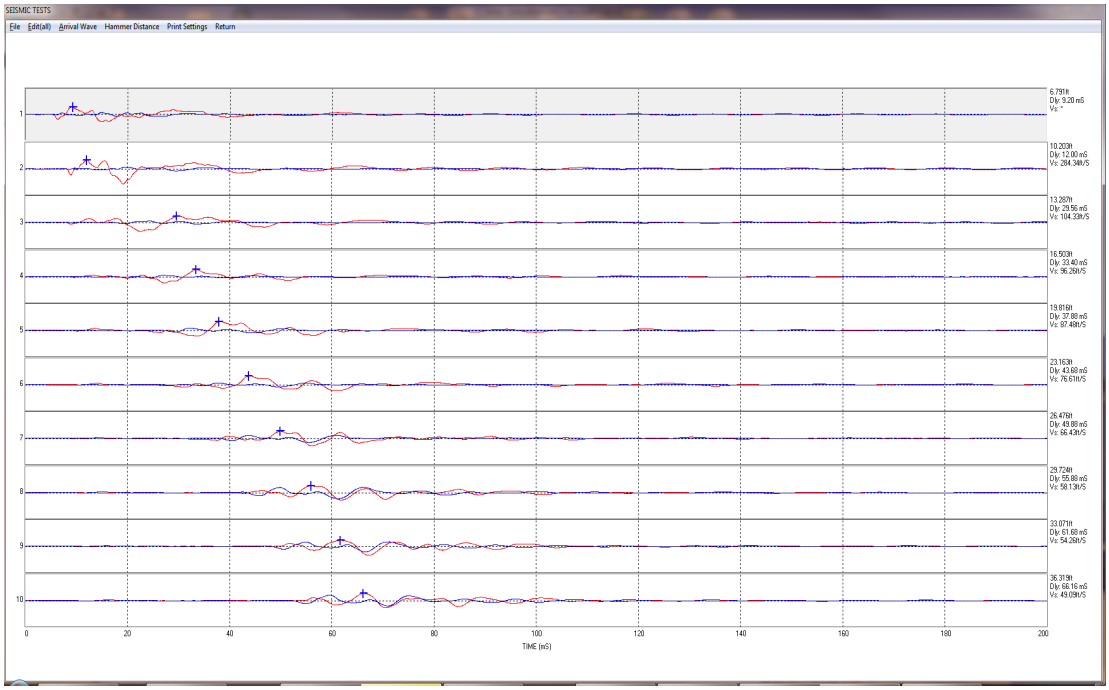


Figure 35 Seismic Waterfall with Arrival Times

At this point a velocity profile can be generated by clicking '**File**', then '**Generate Profile**' and selecting **Velocity**. (**Figure 36**)

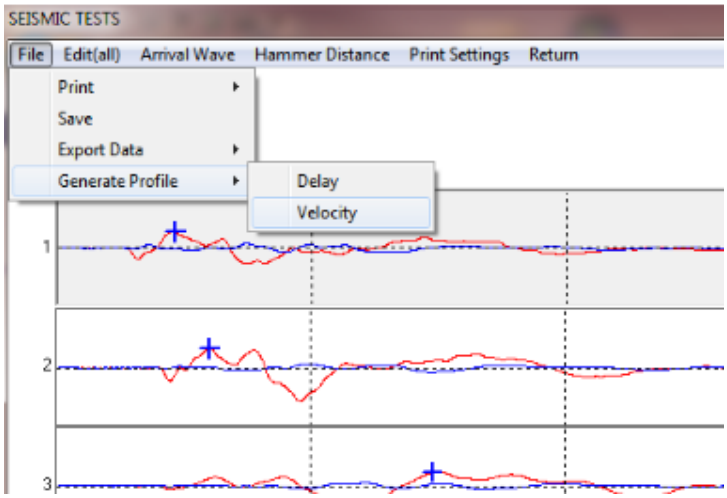


Figure 36 Seismic Profile Options

The velocity profile will save as a**<u>*.vss file</u>**. It is recommended to save it in the same directory the seismic files are in and to name it referencing the particular CPT test name.

To put the velocity profile into the CPT plot simply click **'Add Data'** in the tool bar (**Figure 37**) and select velocity profile (**Figure 38**)

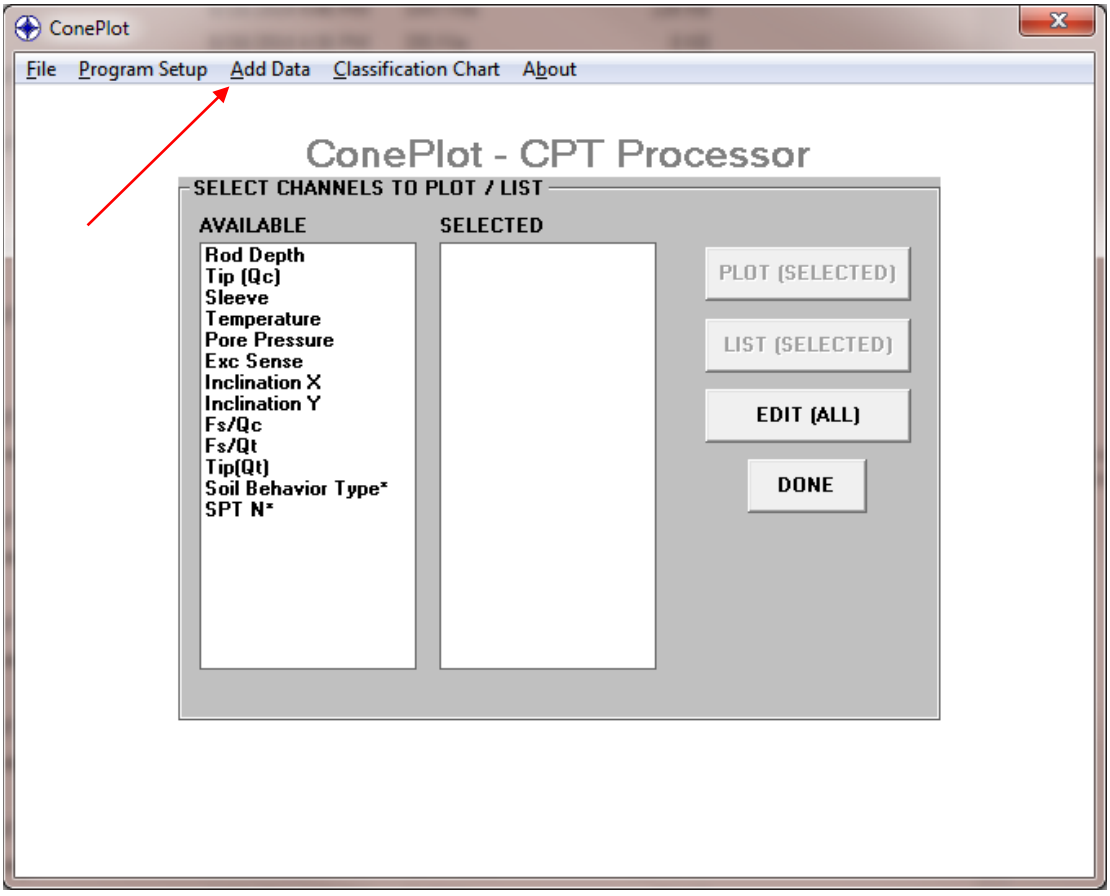


Figure 37 Add Data (Profile) to Plot

As seen below in **Figure 38** when named the same as the CPT test the profile is easy to find. Click on "Open" and the profile then becomes another option on the processing selection.

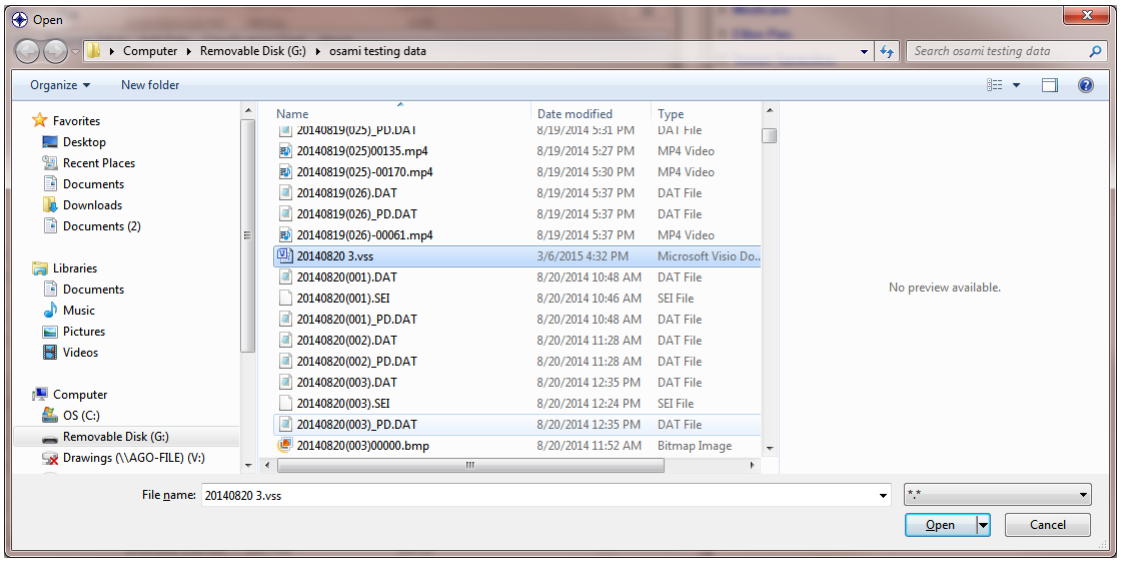


Figure 38 Choosing File to ADD

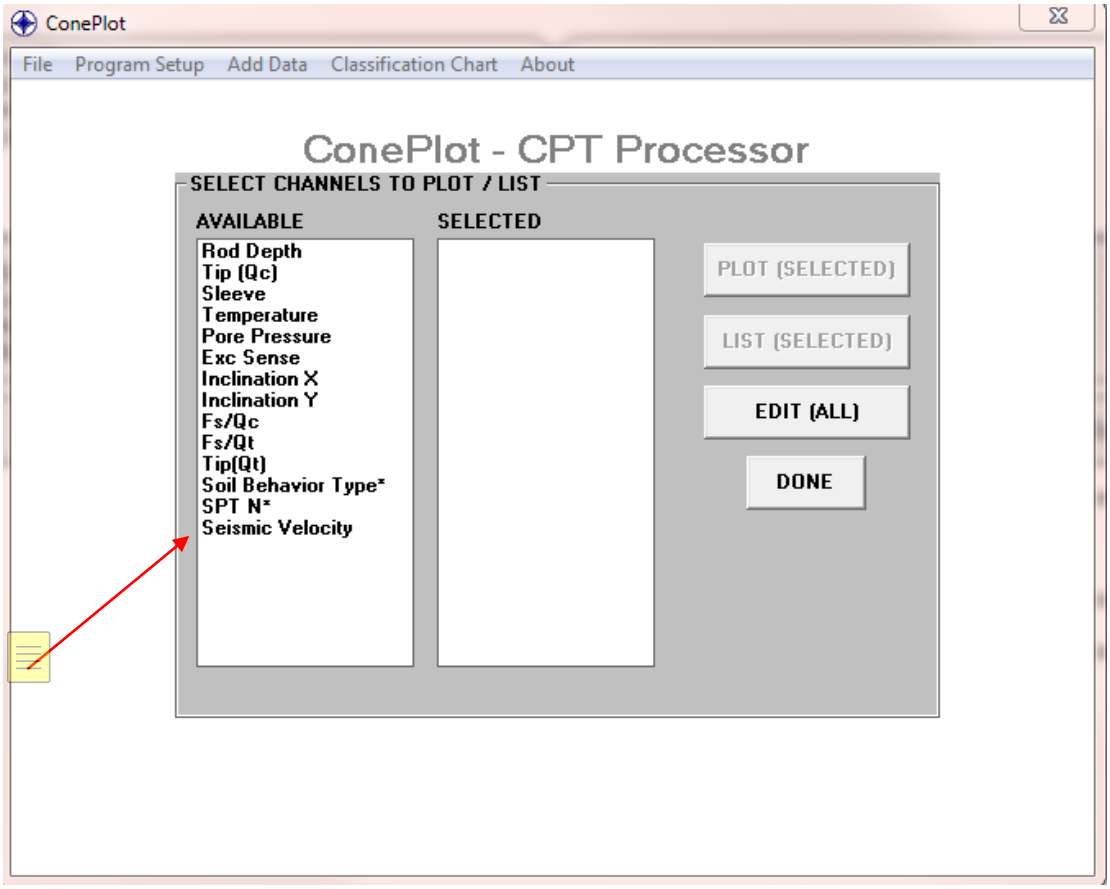


Figure 39 Data Added to Plot Choices

The processed **Seismic Velocity** can then be included and plotted on the standard CPT graph along with tip, sleeve, pore pressure etc. (Figure 40)

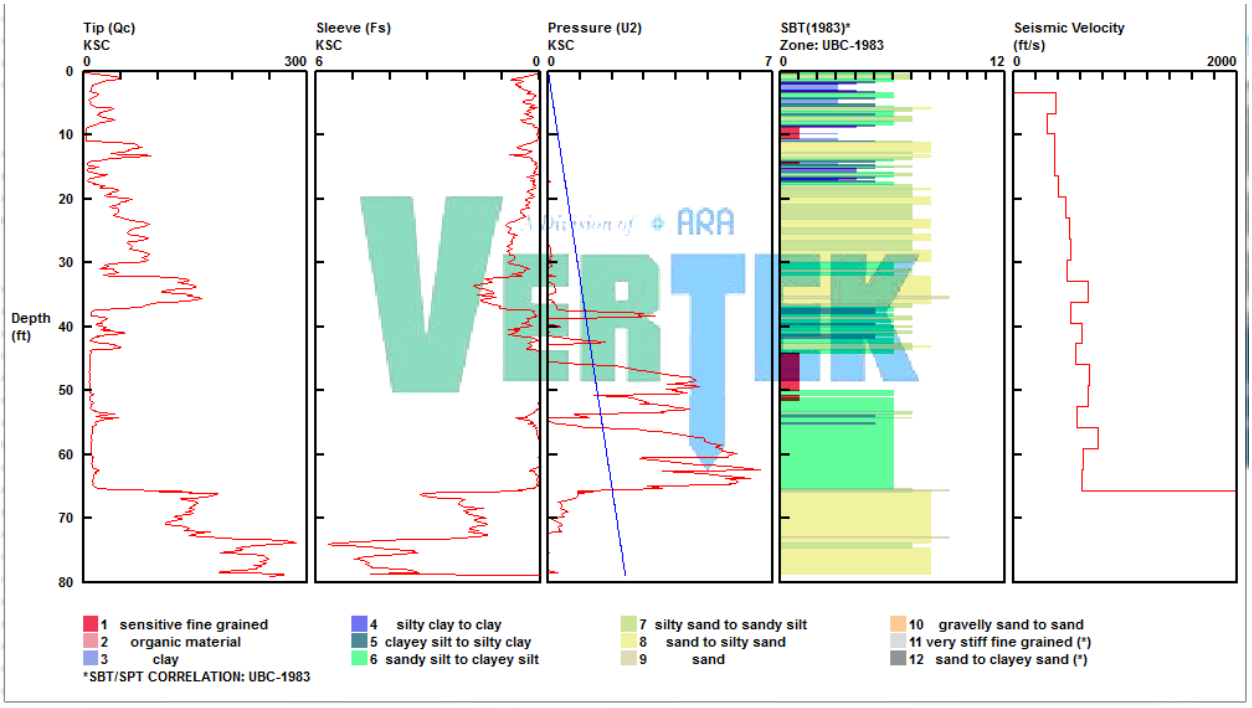


Figure 40 Sounding Plot with Seismic Velocity Added

Combining Seismic files can be done in CONEPLOT by selecting the appropriate **COMBINE** option (**Figure 41**) by clicking on **FILE** at the top left of the toolbar once the beginning file has been selected

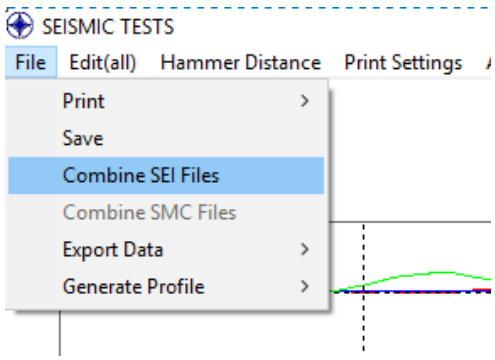


Figure 41 Seismic COMBINE file selection

This will bring up a warning/reminder:

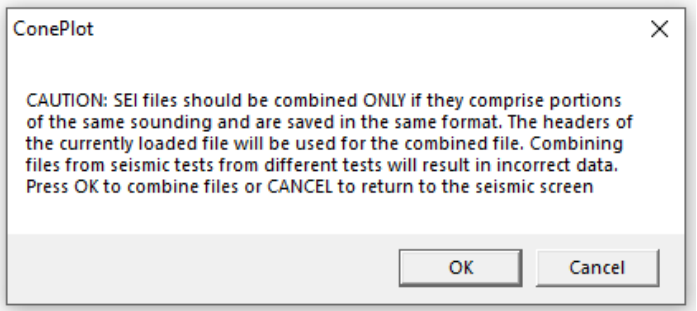


Figure 42 Seismic Combine Warning

After selecting OK you will be prompted to select the subsequent seismic test file to be combined with the original selection.

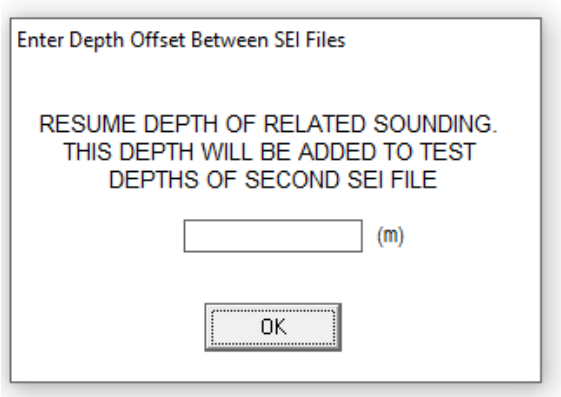


Figure 43 Seismic Combine Depth Offset

A depth offset can entered if a break between tests was due to drilling a hard layer and the CPT test was continued with a depth difference. If the test was just restarted at the same depth the previous one ended, enter zero “0” and select OK.

This will combine the tests which can then be processed as a normal seismic test. **Be sure to save this combined test with a new name so as to not lose the original data!**

6. Verification Plots

Data obtained with the CPT SND verification program and independent load cells can be obtained here and printed for record keeping purposes as some clients have requirements for cone equipment verification documentation.

The following procedure enables the user to use CPT SND to verify your CPT equipment (Load Cell and Pressure Transducer equipment required).

Select Process Verification on the main screen and select the ***.vrf** file to be processed (**Note:** as with other files, these can be opened in notepad and exported as text).

Figure 44 shows the tip screen of the selected **.vrf** file (**note:** that the pore pressure tab is greyed out, this indicates that the pore pressure verification data was not saved in this example. There is no other processing in ConePlot for this, just the choice to print all or current page.

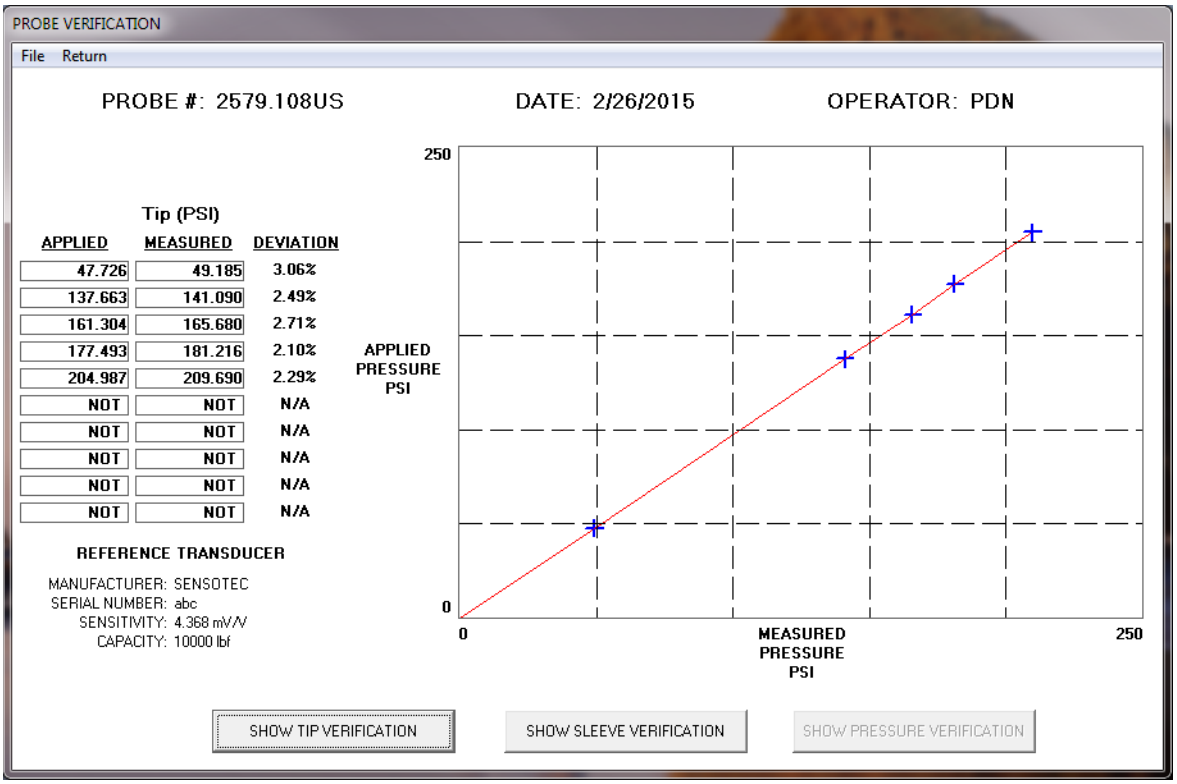


Figure 44 Verification Sample Plot

7. CPT Equations Used

Parameter	Description	Symbol / Equation	Reference
Depth	Depth of the centroid of the sensor		
Elevation	Elevation of centroid of the sensor	Ground Surface - Depth	
Sleeve Stress	Sleeve Stress – interpolated to the depth of the tip	f_s	
Tip Stress, Uncorrected	Measured Tip Stress	q_c	
Tip Stress, Corrected	Tip Stress, corrected for probe geometry	$q_t = q_c + u_2 \times (1 - a)$	
Friction Ratio	Friction Ratio	$R_f = \frac{f_s}{q_t} \times 100\%$	
Pore Pressure	Measured Pore Pressure	u_2	
Inclination X	Measured probe inclination in the X axis		
Inclination Y	Measured probe inclination in the Y axis		
Resistivity	Measured Soil Resistivity		
Soil Behavior Type	Soil Behavior Type Options • R_f Robertson 1986 • B_q Roberson 1986 • F_r Robertson 1990 • B_q Robertson 1990	SBT	Lunne, Roberson and Powell, 1997, Figures 5.7 and 5.8
Classification Index		$I_c = \sqrt{(1.95 - \log_{10} Q_t)^2 + (\log_{10} F_r + 1.78)^2}$	Frank Syms, Bechtel Corporation

Overburden		$\sigma_{vo} = \sum_{i=1}^{n} \gamma_t \times h_i$	
Effective Overburden		$\sigma'_{vo} = \sigma_{vo} - u_o$	
Normalized Tip Stress		$Q_t = \frac{q_t - \sigma_{vo}}{\sigma'_{vo}}$	Lunne, Roberson and Powell, 1997, Equation 5.4
Parameter	**Description**	**Symbol / Equation**	**Reference**
Normalized Friction Ratio		$F_r = \frac{f_s}{q_t - \sigma_{vo}}$	Lunne, Roberson and Powell, 1997, Equation 5.5
Normalized Pore Pressure		$B_q = \frac{\Delta u}{q_t - \sigma_{vo}}$ where $\Delta u = u_2 - u_o$	Lunne, Roberson and Powell, 1997, Equation 5.6
Over Consolidation Ratio		$OCR = 0.33 \times \left(\frac{\Delta u}{\sigma'_{vo}} \right)^{1.42}$	InSitu '86, Mayne Equation 8, pg. 789
Undrained Shear Strength		$S_u = \frac{q_c - \sigma_{vo}}{N_k}$ where $N_k = 15$	Lunne, Roberson and Powell, 1997, Equation 5.16
Friction Angle		$\phi = \arctan\left[0.38 \times \log_{10}\left(\frac{q_c}{\sigma_{vo}} \right) + 0.1 \right] \times \frac{180}{\pi}$	Robertson and Campanella, 1988, pg. 94.

SPT Calculation

Reference(s):

Equation:

if (SBT = 1, 5 or 12)	SPTRAT = 2.00
if (SBT = 2, 3 or 11)	SPTRAT = 1.00
if (SBT = 4)	SPTRAT = 1.50
if (SBT = 6)	SPTRAT = 2.50
if (SBT = 7)	SPTRAT = 3.00
if (SBT = 8)	SPTRAT = 4.00
if (SBT = 9)	SPTRAT = 5.00
if (SBT = 10)	SPTRAT = 6.00

$$N_{60} = \frac{q_t}{SPTRAT}$$

$$N_{60}Cor = N_{60} \times \sqrt{\left(\frac{1.0}{\sigma_{ve}}\right)}$$

Where:

SBT	= Soil Behavior Type (Friction Ratio, Robertson 1986)
SPTRAT	= SPT Ratio (used in calculation)
Q_t	= Corrected Tip Stress (tsf)
σ_{ve}	= Overburden (tsf)

8. Processing Soundings in BATCH mode

Figure 45 ConePlot Home Screen

Selecting Batch Processing

Simply select on **PROCESS SOUNDING (BATCH)** shown in Figure 46

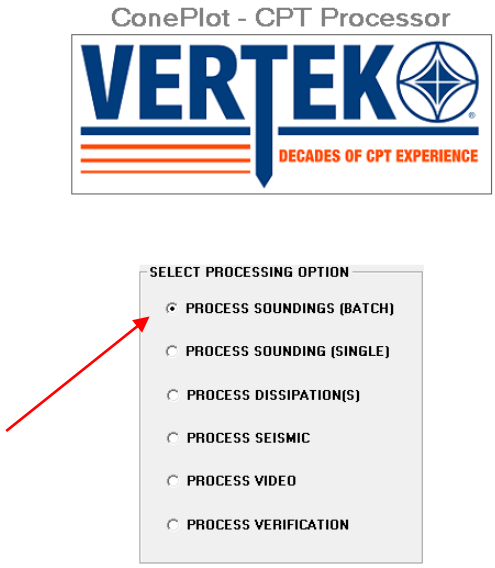


Figure 46 Selecting Batch Processing

This will bring up the following screen in **Figure 47**

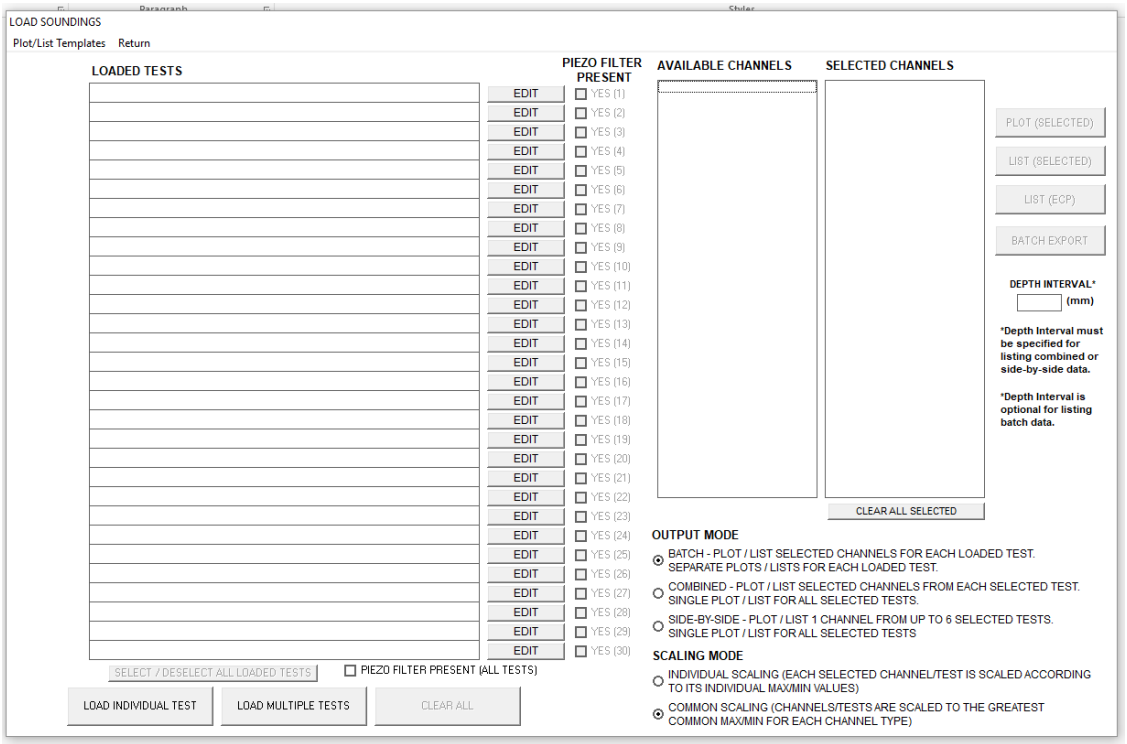


Figure 47 Batch Configuration Screen

Batch Processing Screen Setup

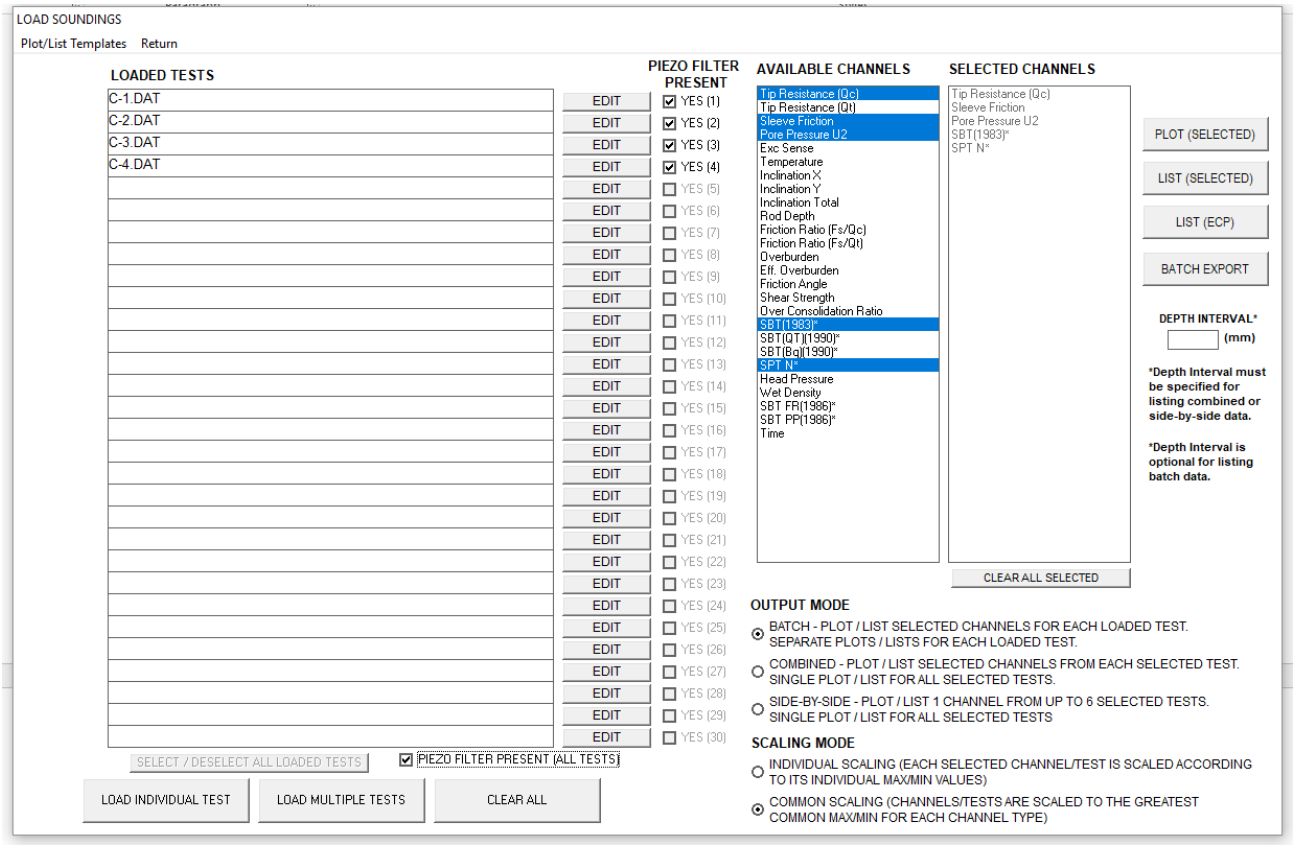


Figure 48 Batch Processing Screen

Directions for Batch PLOT Configuration Screen

1. Top LEFT
    a. Plot/List Templates - works the same as in single file processing
    b. Return – returns to previous screen
2. Bottom Left
    a. Clicking on LOAD MULTIPLE TESTS allows for file selection (note: batch processing requires all selected files be selected from the same file location)
    b. Clicking on LOAD INDIVIDUAL TEST will provide the same operation as clicking on PROCESS SOUNDING (single) on the previous page
3. On the Right side of the page:
    a. PLOT SELECTED will generate a plot for each file selected and the user can tab through them using the PREVIOUS TEST / NEXT TEST buttons at the bottom of the plots (**Figure 49** for sample in BATCH OUTPUT MODE)
    b. LIST SELECTED will generate a list for each file selected and the user can tab through them using the PREVIOUS TEST / NEXT TEST buttons at the bottom of the plots (**Figure 50**)
    c. LIST ECP works as above.

d. BATCH EXPORT See Page 44
e. DEPTH INTERVAL allows the list files to be shorter by selecting intervals for lines of data at greater increments than the data files

4. Bottom Right
    a. OUTPUT MODE
        i. BATCH – See Figure 49
        ii. COMBINED – See Figure 9
        iii. SIDE BY SIDE – See Figure 11
    b. SCALING MODE – for plotting
        i. INDIVIDUAL SCALING – Each test is scaled according to its individual results (same as normal processing in single mode)
        ii. COMMON SCALING – All selected tests are plotted using the same scales (determined by the greatest values in the group of files selected. (Common scaling is very useful for visual comparisons)

Batch Graphic Format

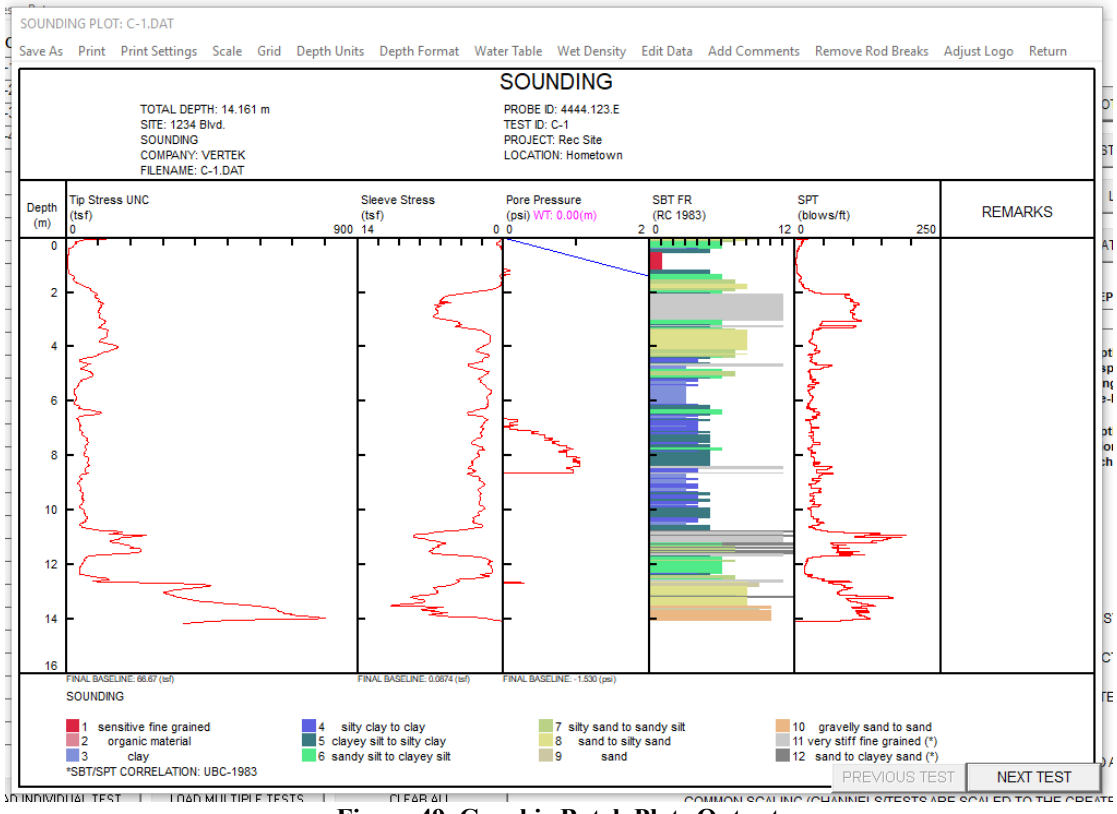
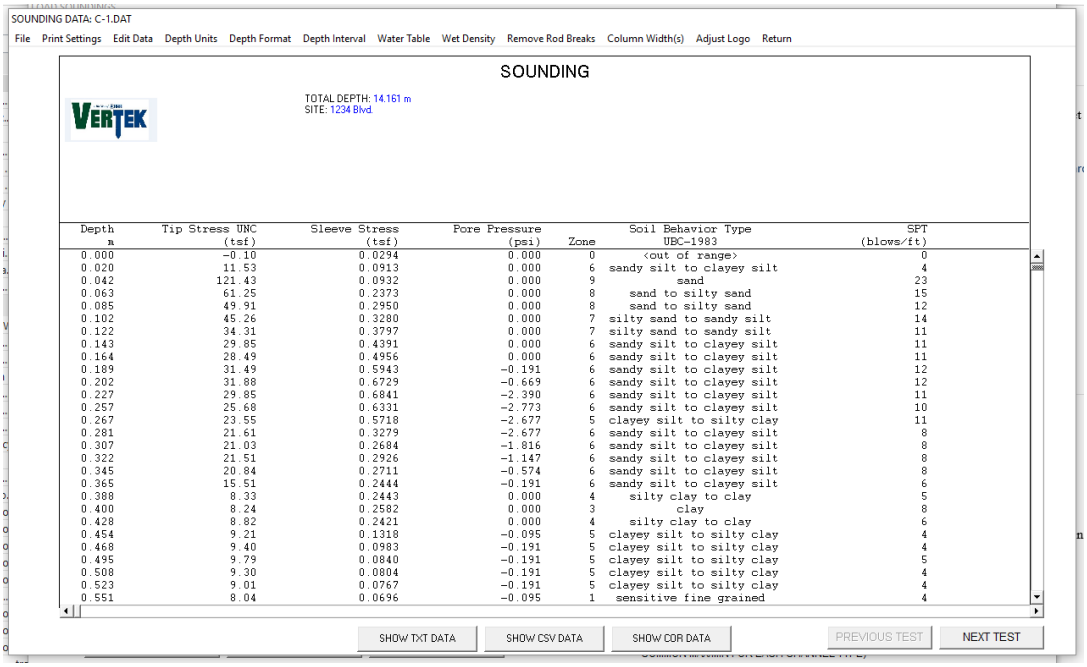


Figure 49 Graphic Batch Plots Output

Batch List Format



Depth m	Tip Stress UNC (tsf)	Sleeve Stress (tsf)	Pore Pressure (psi)	Zone	Soil Behavior Type UBC-1983	SPT (blows/ft)
0.000	-0.10	0.0294	0.000	0	<out of range>	0
0.020	11.53	0.0913	0.000	6	sandy silt to clayey silt	4
0.042	121.43	0.0932	0.000	9	sand	23
0.063	61.25	0.2373	0.000	8	sand to silty sand	15
0.085	49.91	0.2950	0.000	8	sand to silty sand	12
0.102	45.26	0.3280	0.000	7	silty sand to sandy silt	14
0.122	34.31	0.3797	0.000	7	silty sand to sandy silt	11
0.143	29.85	0.4391	0.000	6	sandy silt to clayey silt	11
0.164	28.49	0.4956	0.000	6	sandy silt to clayey silt	11
0.189	31.49	0.5943	-0.191	6	sandy silt to clayey silt	12
0.202	31.88	0.6729	-0.669	6	sandy silt to clayey silt	12
0.227	29.85	0.6841	-2.390	6	sandy silt to clayey silt	11
0.257	25.68	0.6331	-2.773	6	sandy silt to clayey silt	10
0.267	23.55	0.5718	-2.677	5	clayey silt to silty clay	11
0.281	21.61	0.3279	-2.677	6	sandy silt to clayey silt	8
0.307	21.03	0.2684	-1.816	6	sandy silt to clayey silt	8
0.322	21.51	0.2926	-1.147	6	sandy silt to clayey silt	8
0.345	20.84	0.2711	-0.574	6	sandy silt to clayey silt	8
0.365	15.51	0.2444	-0.191	6	sandy silt to clayey silt	6
0.388	8.33	0.2443	0.000	4	silty clay to clay	5
0.400	8.24	0.2582	0.000	3	clay	8
0.428	8.82	0.2421	0.000	4	silty clay to clay	6
0.454	9.21	0.1318	-0.095	5	clayey silt to silty clay	4
0.468	9.40	0.0983	-0.191	5	clayey silt to silty clay	4
0.495	9.79	0.0840	-0.191	5	clayey silt to silty clay	5
0.508	9.30	0.0804	-0.191	5	clayey silt to silty clay	4
0.523	9.01	0.0767	-0.191	5	clayey silt to silty clay	4
0.551	8.04	0.0696	-0.095	1	sensitive fine grained	4

Figure 50 Batch List Output Format

BATCH EXPORT

This function is the real time saver in the batch processing capability. This function allows up to 30 files to be exported in multiple formats and various units at the same time. It is also possible to release up to 30 plots to a printer at the same time. The options for this function are shown in **Figure 51**.

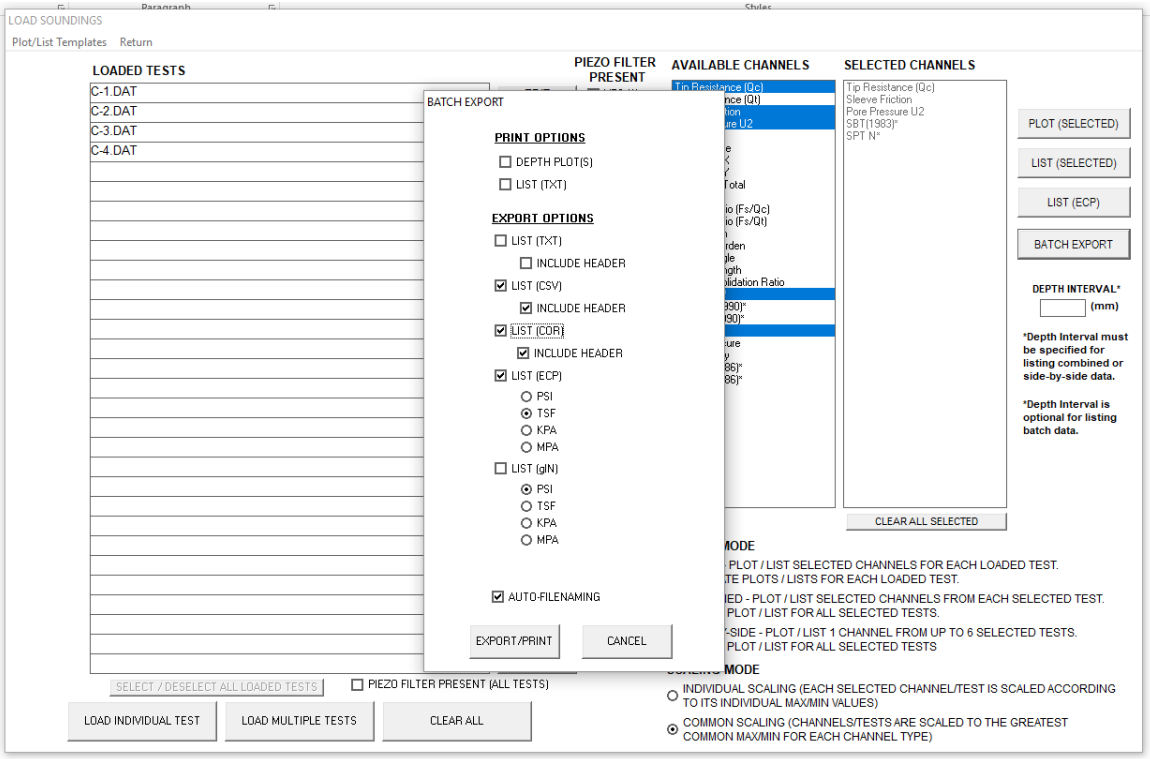


Figure 51 Batch Export Setup Screen

NOTE: The exported files will be placed in the same folder the CPT files originated from see **Figure 52**

With AUTO FILE NAMING checked the exports will have the same name as the original files (using the appropriate file extension)

1. PRINT OPTIONS
    a. DEPTH PLOTS – Select this and Auto File Naming to enable printing all of the plots created from the selected files by clicking EXPORT/PRINT
    b. LIST (TXT) - Select this and Auto File Naming to enable printing all of the lists created from the selected files by clicking EXPORT/PRINT

(note: AutoFileNaming should be checked for any of these functions to reduce operator involvement in approving printers or in naming each export)

2. EXPORT OPTIONS (note: for a,b,c the units are selected in CONEPLOT PROGRAM SETTINGS (channel units and formats)
    a. LIST (TXT) – Click this to create a text file for each selected test
        i. Include Header – user choice- some clients do not want the header info
    b. LIST (CSV) – Click this to create a CSV file for each selected test
        i. Include Header – user choice- some clients do not want the header info
    c. LIST (COR) – Click this to create a COR file (used for CPet-it) for each test
        i. Include Header – user choice- some clients do not want the header info
    d. LIST (ECP) – Click this to create an ECP file for each selected test

i. Select the units for this export here (only one selection accepted)

e. LIST (gIN) – Click this create a gIN file (used by GINT)
   i. Select the units for this export here (only one selection accepted)
f. AUTO-FILENAMING – Check this to save a lot of keystrokes (see notes above)
g. EXPORT / PRINT – Click on this and any or all of the above selections will be printed or exported. Note: this may take a few minutes depending on the size and number of files.

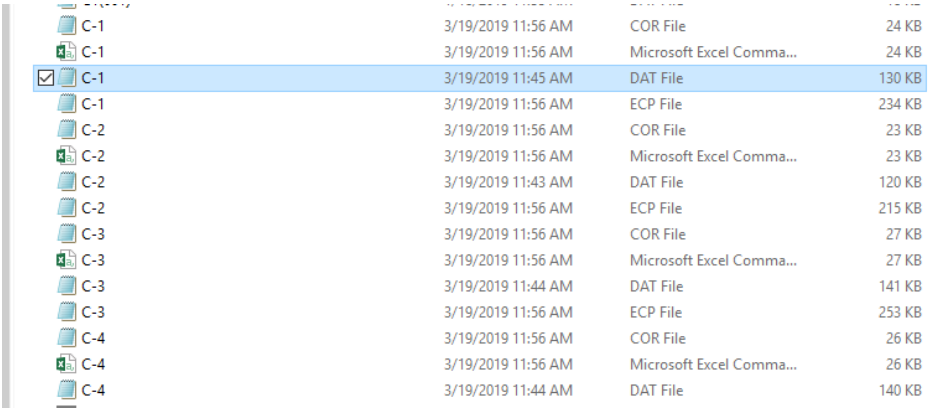


Figure 52 Exported Files from Batch Processing

Combined Plots

Selecting Combined in the lower right side of the Batch Screen (**Figure 53**) will allow multiple tests to plotted on the same graph (**Figure 54** for a sample plot). The selected channels will be plotted and common scaling is the default setting for this feature.

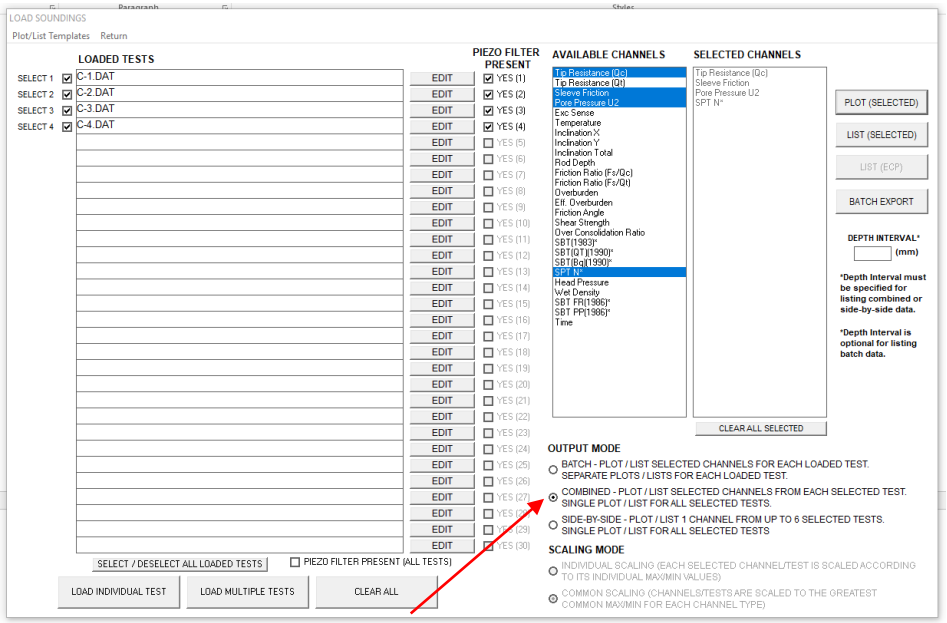


Figure 53 Batch Screen with COMBINED selected

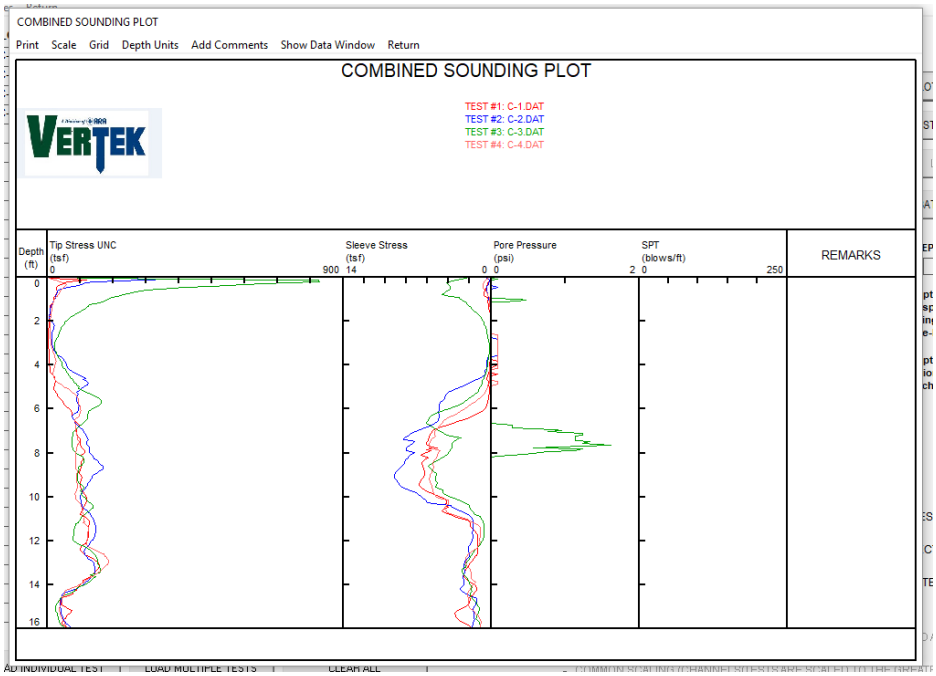


Figure 54 Sample Combined Plot

Overlay of Multiple Soundings or Side by Side Plots

To plot side by side comparison plots for a given channel select SIDE BY SIDE and select the files to be included. The default scaling for this option is common. Click on plot (or list to create a file of the readings- like any other list)

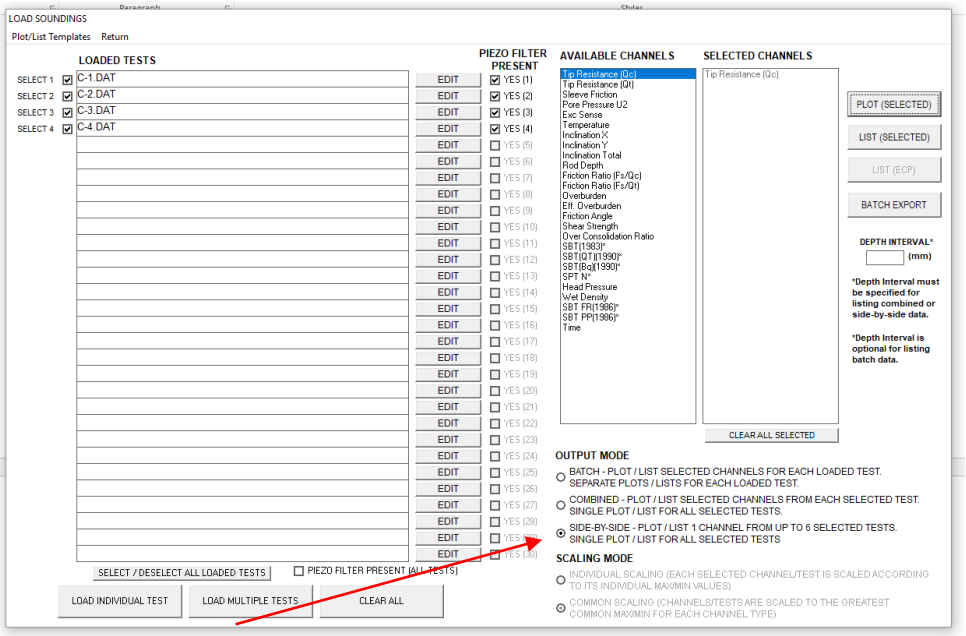


Figure 55 Side by Side Selection

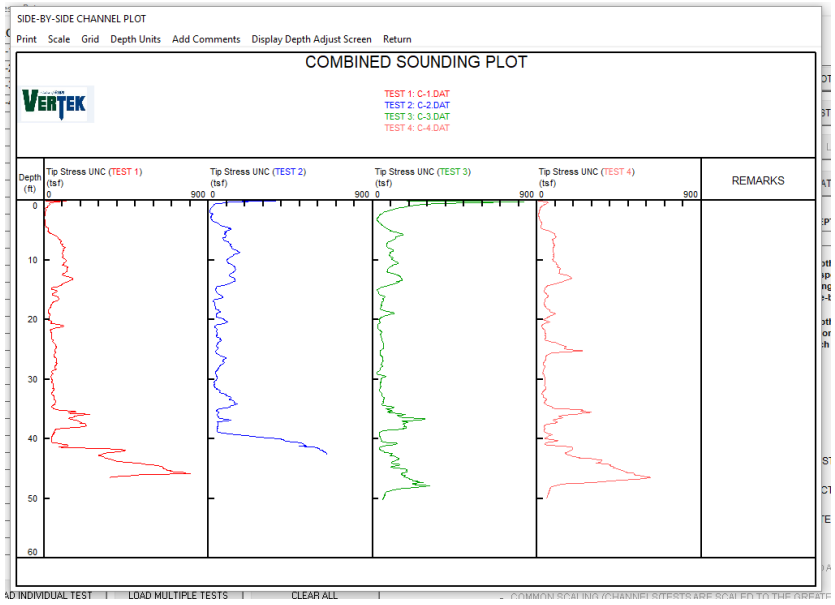


Figure 56 Side by Side Sample Plot