

Main Plot:

Signal (total fluorescence) versus depth where signal is relative to the Reference Emitter (RE). The total area of the waveform is divided by the total area of the Reference Emitter yielding the %RE. This %RE scales with the NAPL fluorescence. The fill color is based on relative contribution of each channel's area to the total waveform area (see callout waveform). The channel-to-color relationship and corresponding wavelengths are given in the upper right corner of the main plot.

Callouts:

Waveforms from selected depths or depth ranges showing the multi-wavelength waveform for that depth. The four peaks are due to fluorescence at four wavelengths and referred to as "channels." Each channel is assigned a color.

Various NAPLs will have a unique waveform "fingerprint" due to the relative amplitude of the four channels and/or broadening of one or more channels. Basic waveform statistics and any operator notes are given below the callout.

Conductivity Plot:

The Electrical Conductivity (EC) of the soil can be logged simultaneously with the TarGOST data. EC often provides insight into the stratigraphy.

Scatter Plot:

Scatter versus depth where intensity is relative to the scatter level of the Reference Emitter.

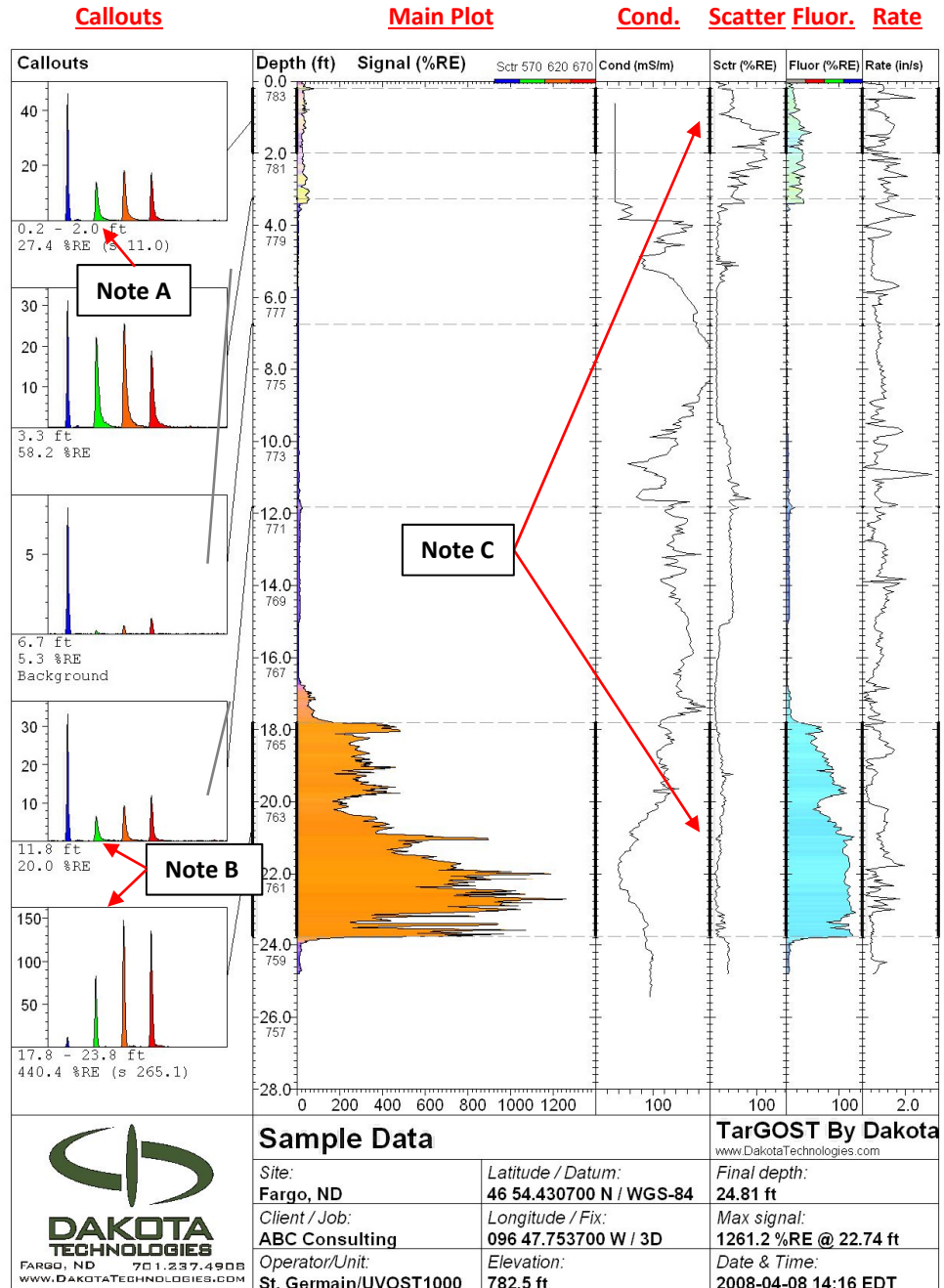
Fluorescence Plot:

A plot of the fluorescence signal alone versus depth. The scatter channel is not used in the calculation of signal intensity or coloring. Note the coloring key at the top of the plot. Intensity unit is percent of Reference Emitter fluorescence.

Varying soil or product can often be visually pulled-out from the background based on the fill color of this plot if scatter dominates the color of the main plot.

Rate Plot:

The rate of probe advancement. Approx. 0.8 inches (2cm) per second is preferred. A noticeable decrease in the rate of advancement may be indicative of difficult probing conditions (gravel, angular sands, etc.) such as that seen here at approx. 5 ft.



Note A:

Time is along the x axis. No scale is given on callouts, but it is constant and is 250ns wide. The y axis is in mV and directly corresponds to the amount of light striking the photodetector.

Note B:

These two waveforms show two different products, each with a unique waveform.

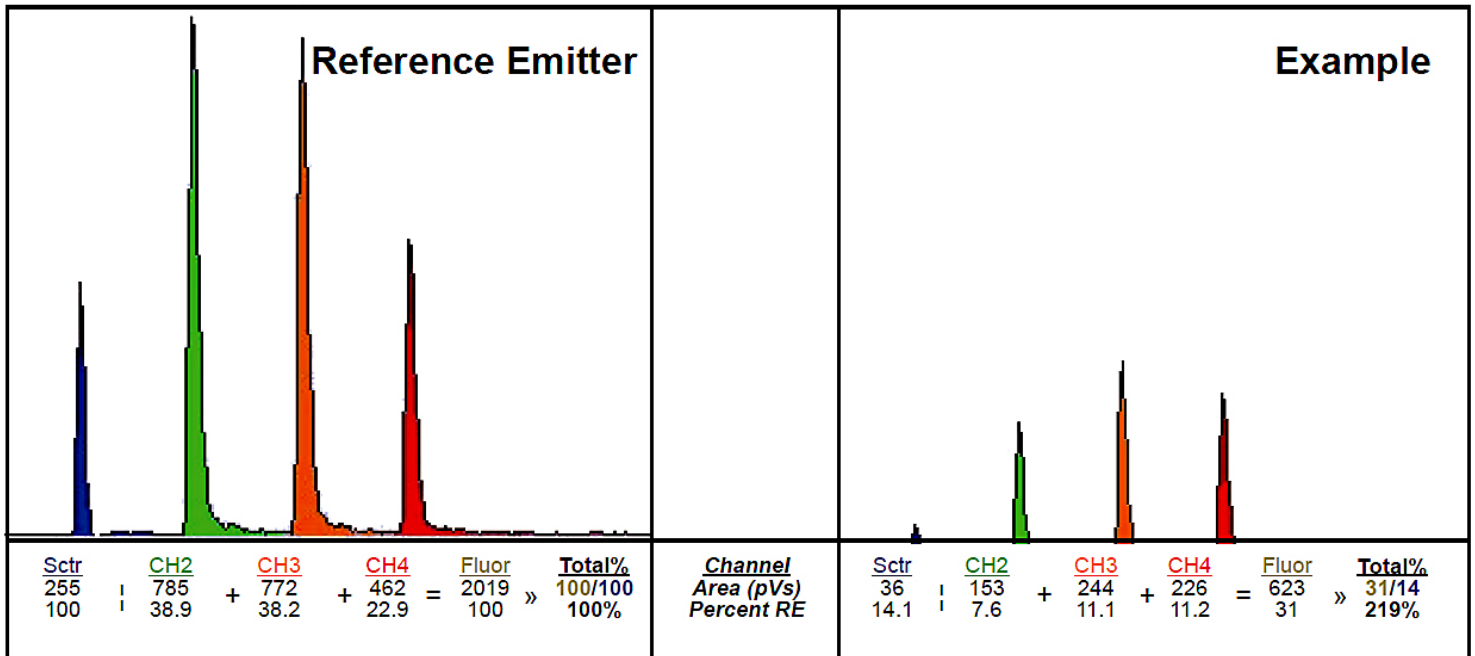
Note C:

The top zone has moderate fluorescence, but high scatter while the bottom zone has high fluorescence and low scatter. Note how this impacts the main signal plot.

Sample Data		TarGOST By Dakota www.DakotaTechnologies.com
Site: Fargo, ND	Latitude / Datum: 46 54.430700 N / WGS-84	Final depth: 24.81 ft
Client / Job: ABC Consulting	Longitude / Fix: 096 47.753700 W / 3D	Max signal: 1261.2 %RE @ 22.74 ft
Operator/Unit: St. Germain/UVOST1000	Elevation: 782.5 ft	Date & Time: 2008-04-08 14:16 EDT



Waveform Signal Calculation



Data Files

*.lif.raw.bin	Raw data file. Header is ASCII format and contains information stored when the file was initially written (e.g. date, total depth, max signal, GPS, etc., and any information entered by the operator). All Raw waveforms are appended to the bottom of the file in a binary format.
*.lif.plt	Stores the plot scheme history (e.g. callout depths) for associated Raw file. Transfer along with the Raw file in order to recall previous plots.
*.lif.jpg	A .jpg image of the OST log including the main signal vs. depth plot, callouts, information, etc.
*.lif.dat.txt	Data export of a single Raw file. Tab delimited format. No string header is provided for the columns to make importing into some programs easier. Each row is a unique depth reading. The columns are: 1-Depth; 2-Total Signal (%RE); 3-CH1%; 4-Ch2%; 5-CH3%; 6-Ch4%; 7-Rate; 8-EC Depth; 9-EC Signal; 10-Hammer Rate Depth; 11-Hammer Rate; 12-Color (RRGGBB). Summing channels 1 to 4 yields the Total Signal.
*.lif.sum.txt	A summary file for a number of Raw files. ASCII tab delimited format. The file contains a string header. The summary includes one row for each Raw file and contains information for each file including: the file name, GPS coordinates, max depth, max signal, and depth at which the max signal occurred.
*.lif.log.txt	An activity log generated automatically is located in the OST application directory in the 'log' subfolder. Each OST unit the computer operates will generate a separate log file per month. A log file contains much of the header information contained within each separate Raw file, including: data rate, total depth, max signal, etc.

Non Linear Fluorescence

Due to self-absorption, fluorescence levels (channels 2-4) are not linear with concentration, requiring the use of scatter (channel 1) correction. Creosote on sand, y-axis scaling is equal.

