



# Velocity of Detonation Measurement System

# Hardware

- **SpeedVOD uses Time Domain Reflectometry (TDR) technology for determining VOD's.**
- **Features:**
  - Single channel
  - 5 micro-second pulse repetition rate (max 50 micro-second)
  - 500pS resolution
  - 256000 point recording depth
  - On-board storage of multiple events which are time stamped.
  - 50 or 75 ohm coaxial cable allowed.
  - 100m minimum cable length.
  - Up to 600m of cable
  - Over 4 hours of battery life.
  - Simple keypad and 40x4 LCD display
  - Fast upload using TCP/IP

# Hardware (cont...)



# Coaxial Cable Tips

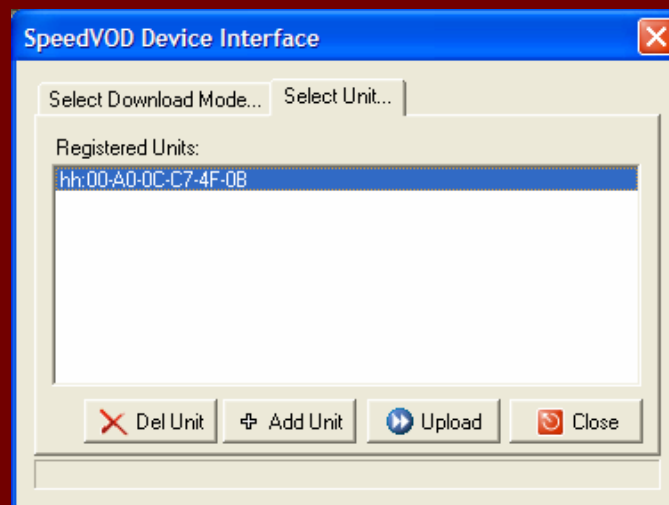
- RG6U (75ohm) cable will work up to about 650m. This cable crushes easily due to the foam dielectric and will give readings even in a hole that deflagrates at 500 m/s.
- RG59 (75ohm) cable will work on shorter lengths  $\pm 500$ m. This cable is more noisy and will not crush as easily as it has a very hard dielectric.
- RG58 (50ohm) cable can only be used in short lengths.

# Interface with Windows PC

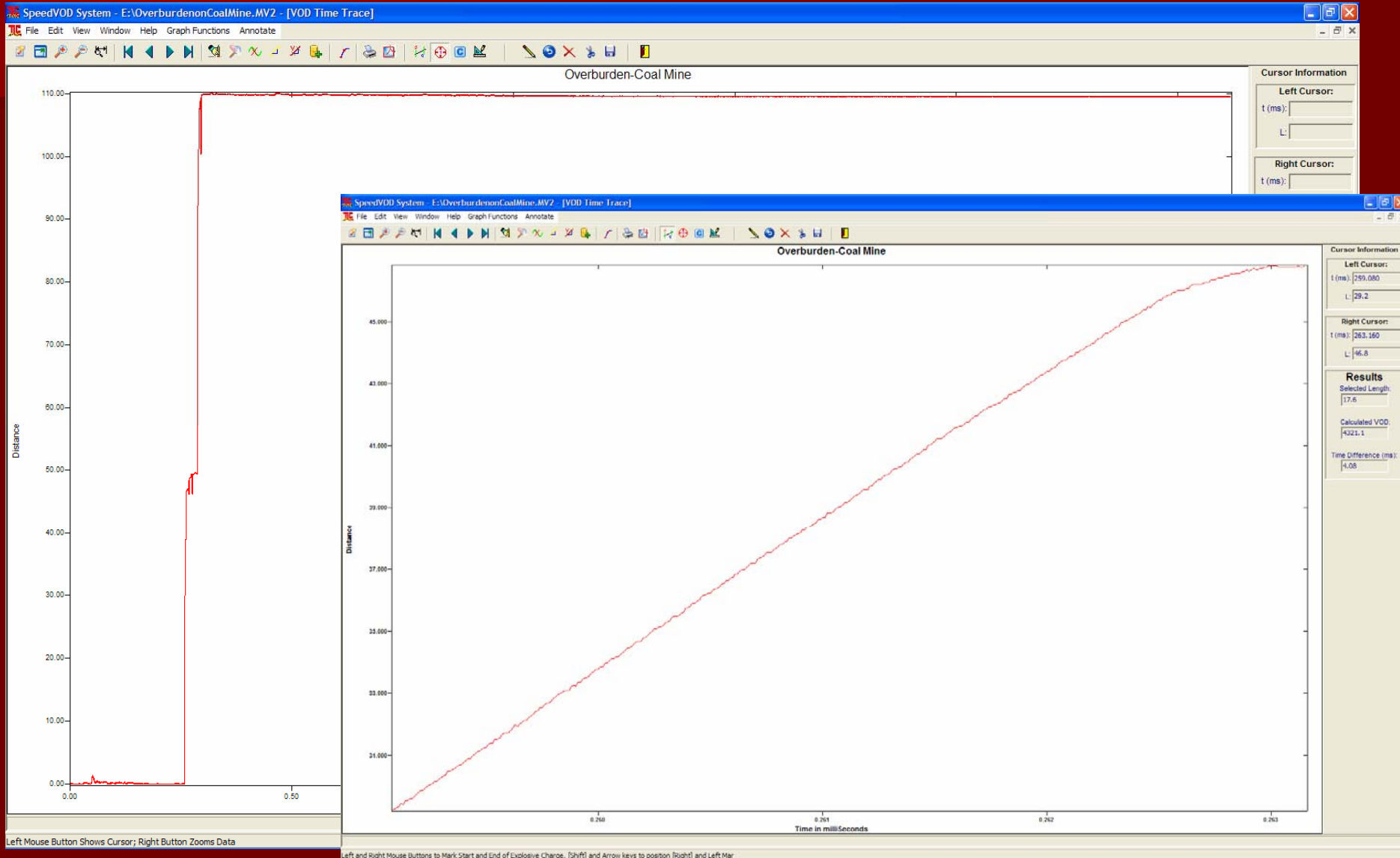
- Select download method:



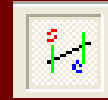
- Select registered unit:



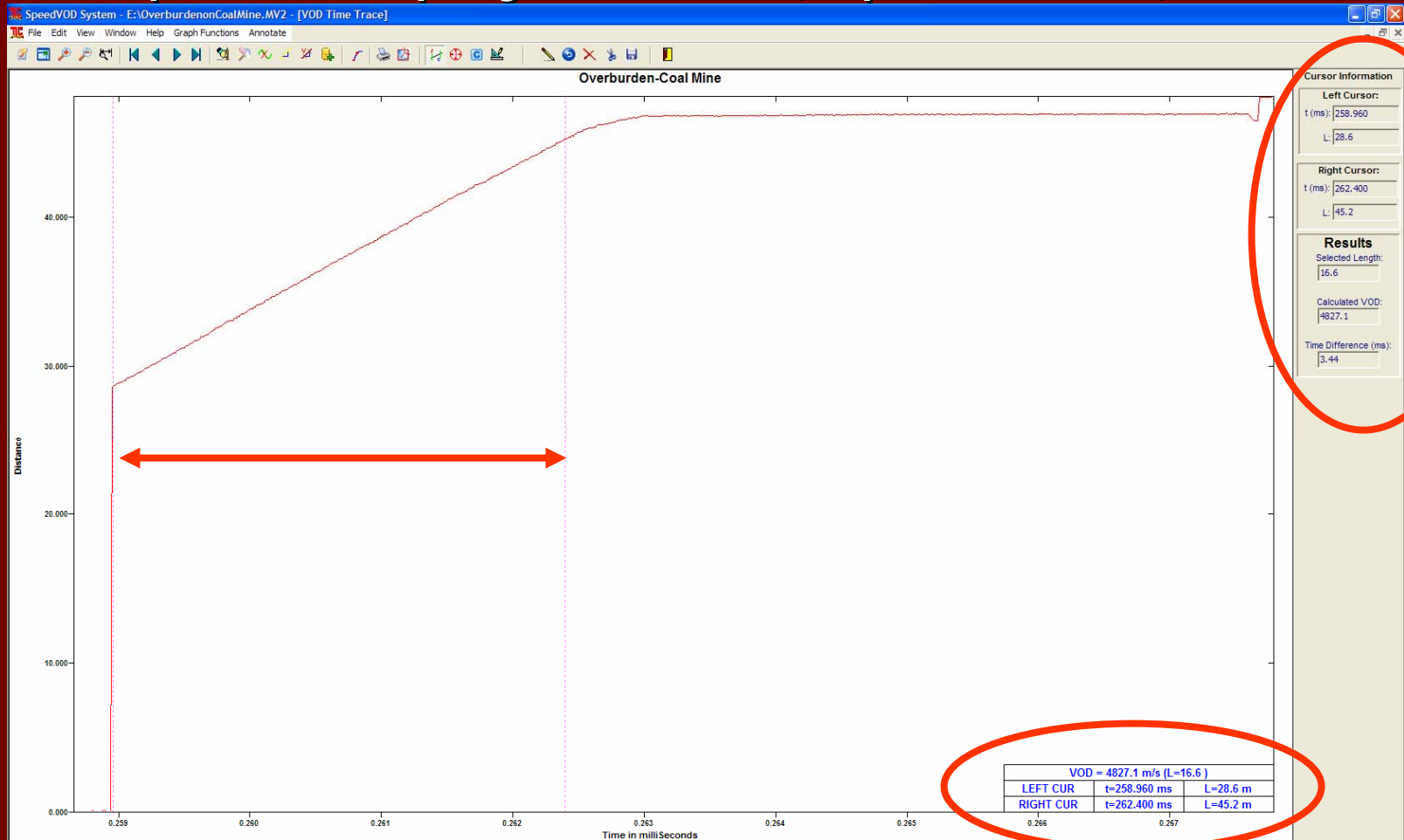
# Analysis and Display Software



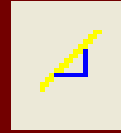
# Two Point VOD cursors



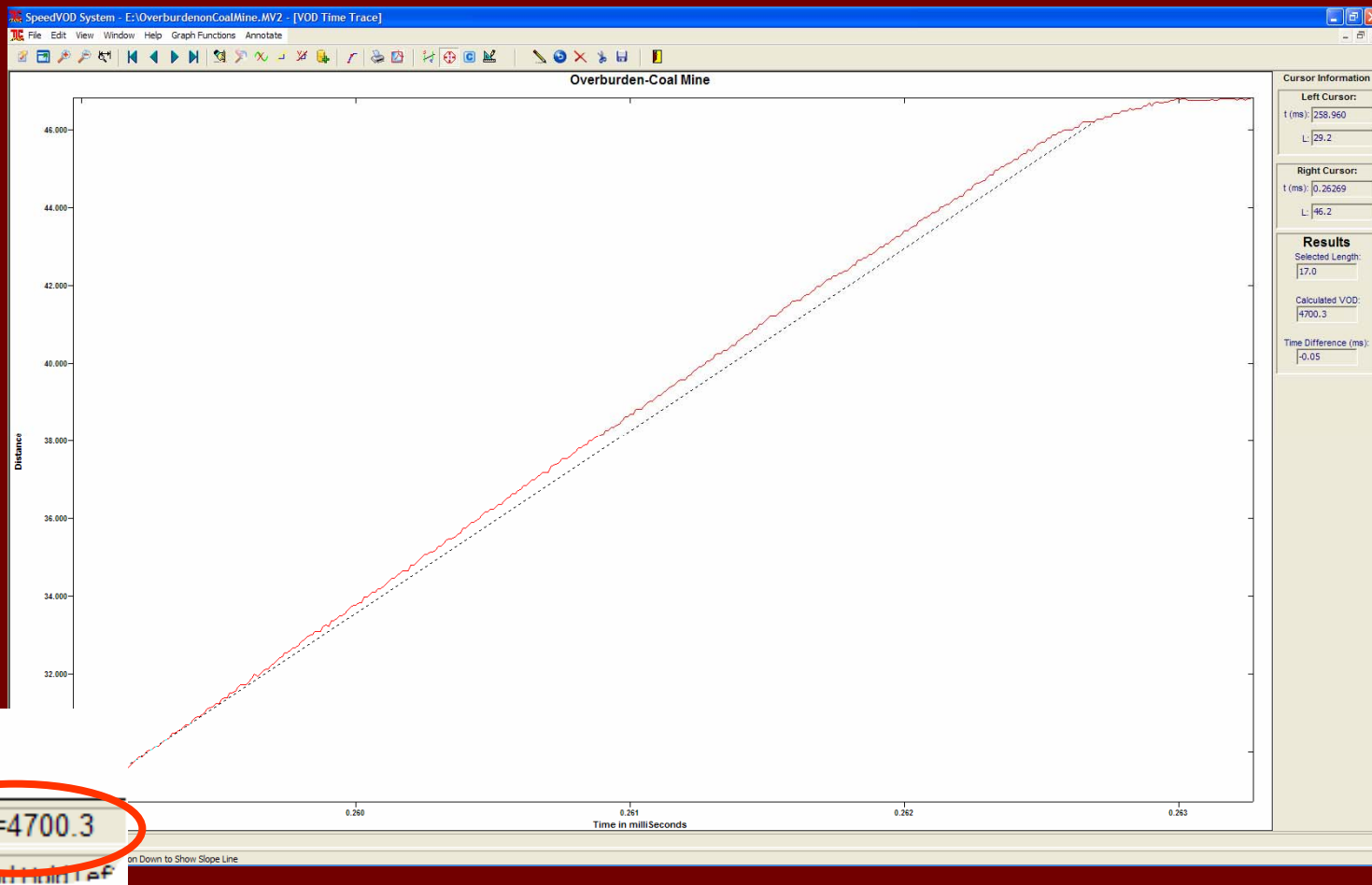
- Graphical display of VOD (2 point VOD)



# Visual VOD Tool



- VOD Line is displayed (dotted line)
- VOD Value is shown on bottom left of screen

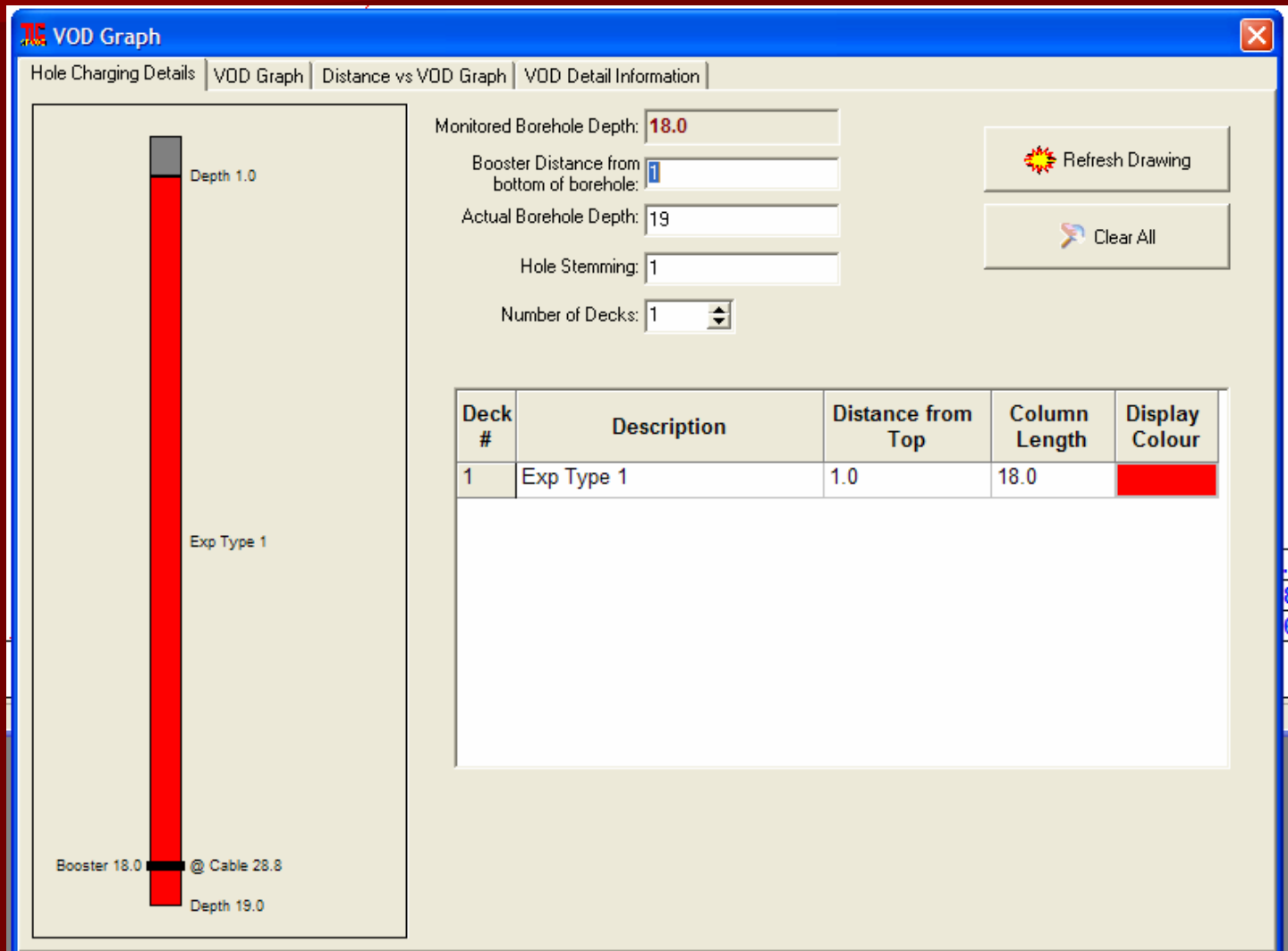




# VOD Regression and Display

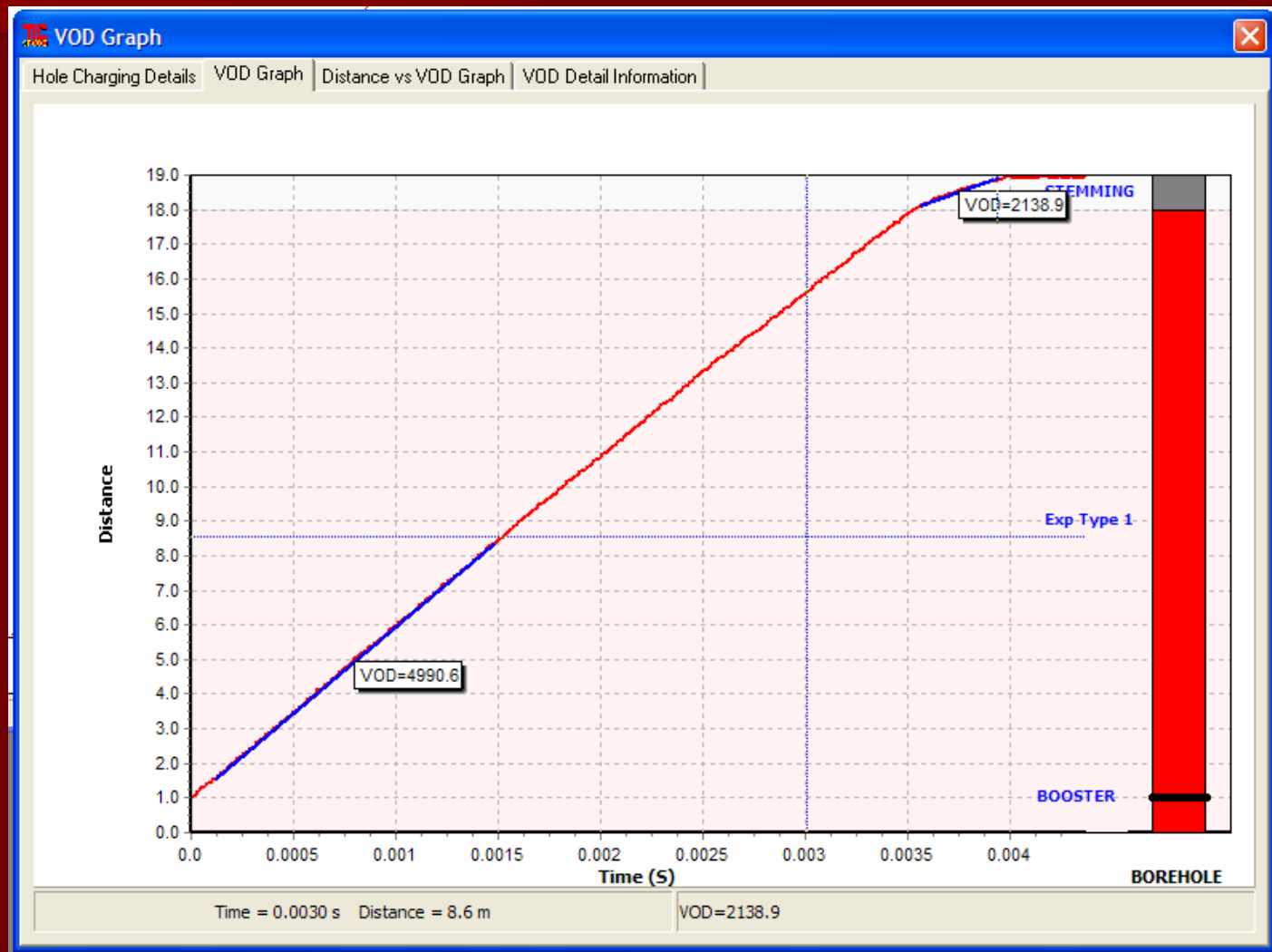


- Define Borehole charging:



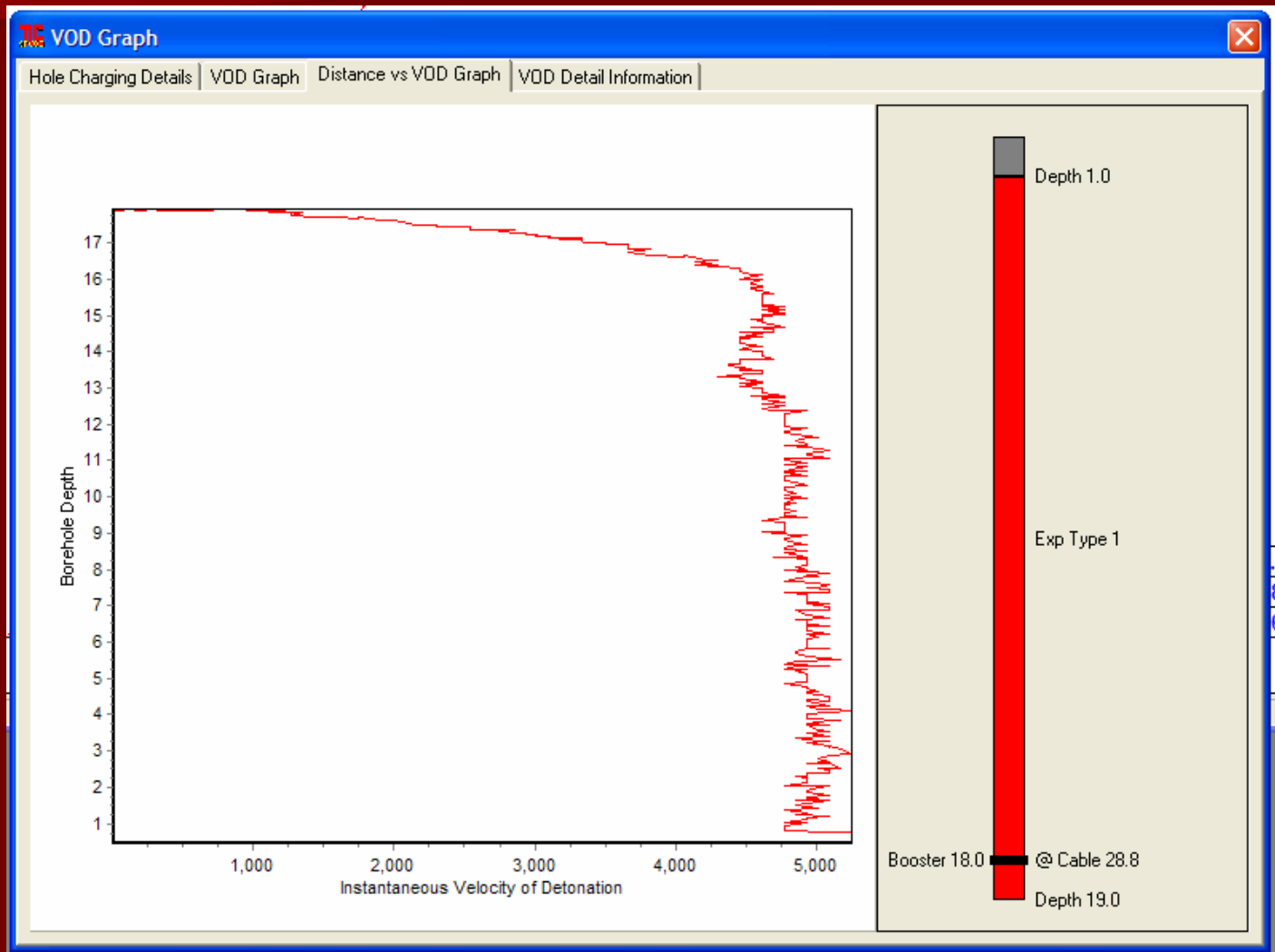
# VOD Regression and Display (cont...)

- Annotate graph (VOD values)



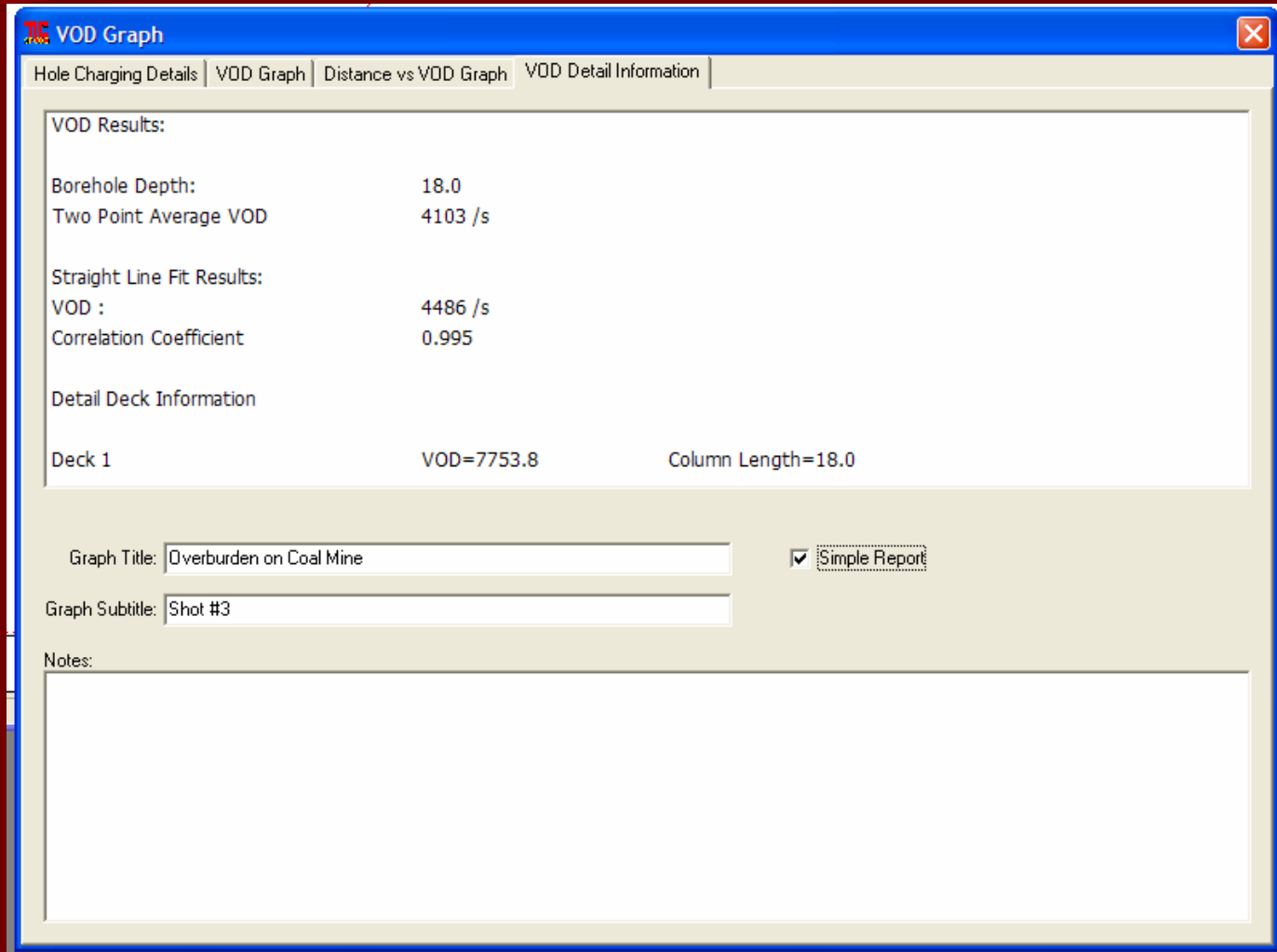
# VOD Regression and Display (cont...)

- Display instantaneous VOD at depth



# VOD Regression and Display (cont...)

- Add notes to be shown on report:



The screenshot shows a software window titled "VOD Graph" with a blue border and a close button in the top right corner. The window contains several tabs: "Hole Charging Details", "VOD Graph", "Distance vs VOD Graph", and "VOD Detail Information". The "VOD Detail Information" tab is active and displays the following data:

**VOD Results:**

Borehole Depth:	18.0
Two Point Average VOD	4103 /s

**Straight Line Fit Results:**

VOD :	4486 /s
Correlation Coefficient	0.995

**Detail Deck Information**

Deck 1	VOD=7753.8	Column Length=18.0
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Below the data, there are input fields for "Graph Title" (containing "Overburden on Coal Mine") and "Graph Subtitle" (containing "Shot #3"). A checkbox labeled "Simple Report" is checked. At the bottom, there is a "Notes:" label followed by a large empty text area for entering notes.

# VOD Borehole Report

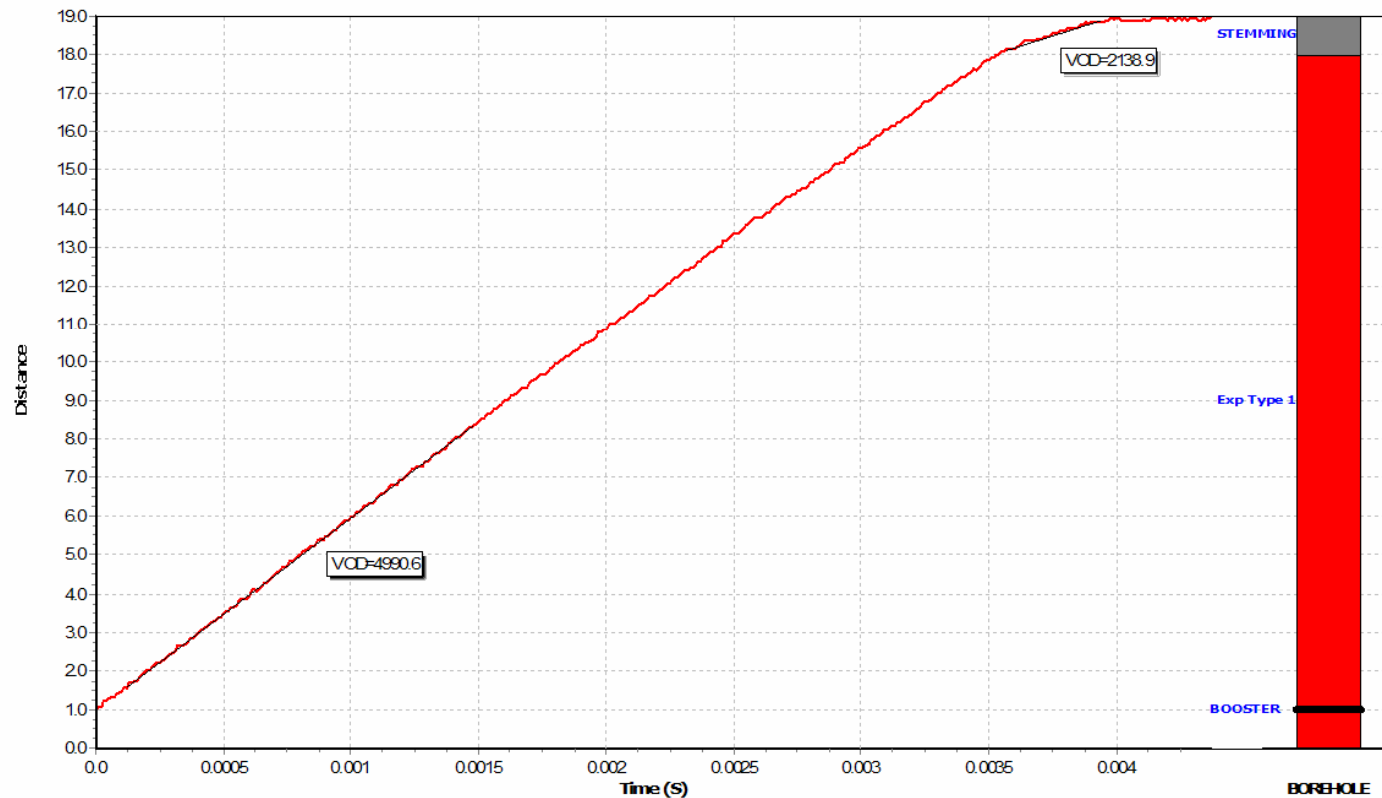


## SPEEDVOD Results

Test Description: Overburden-Coal Mine

Test Engineer:

Test Date: 22/12/10/05

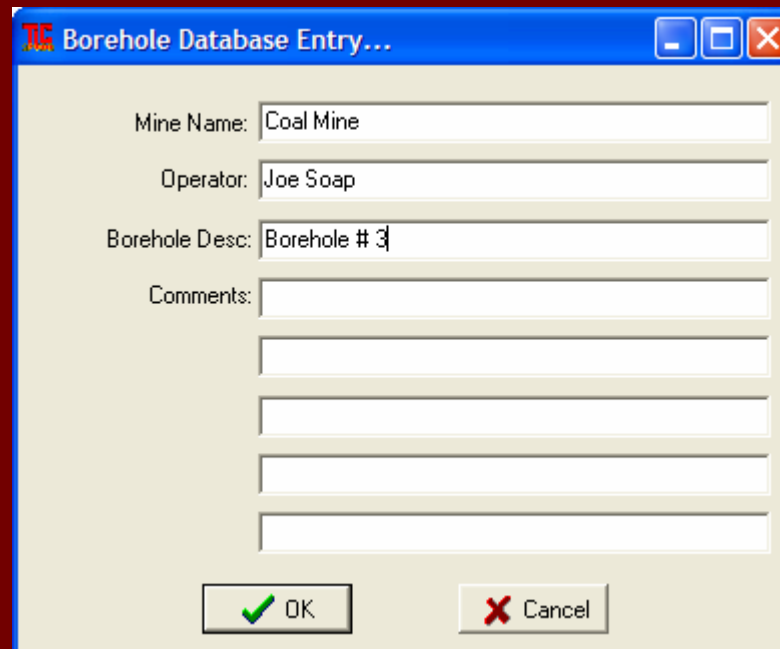


Report Date : 1/29/2006 3:15:50 PM

Developed by TLC Software cc

# VOD Results Database

- Each VOD trace (or part of a trace) can be stored in a database:



**Borehole Database Entry...**

Mine Name: Coal Mine

Operator: Joe Soap

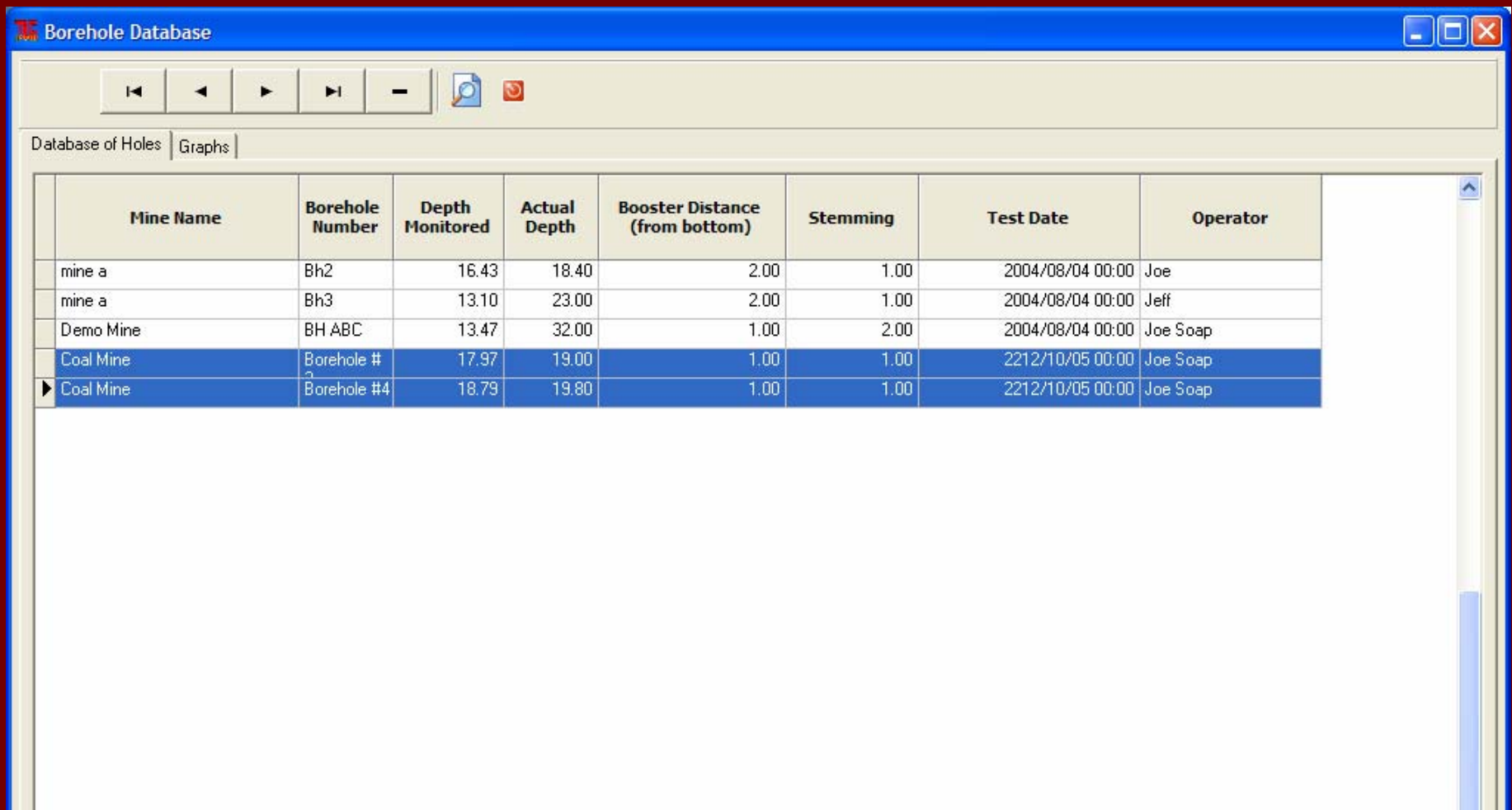
Borehole Desc: Borehole # 3

Comments:

OK Cancel

# Viewing Database Entries

- Select entries from database

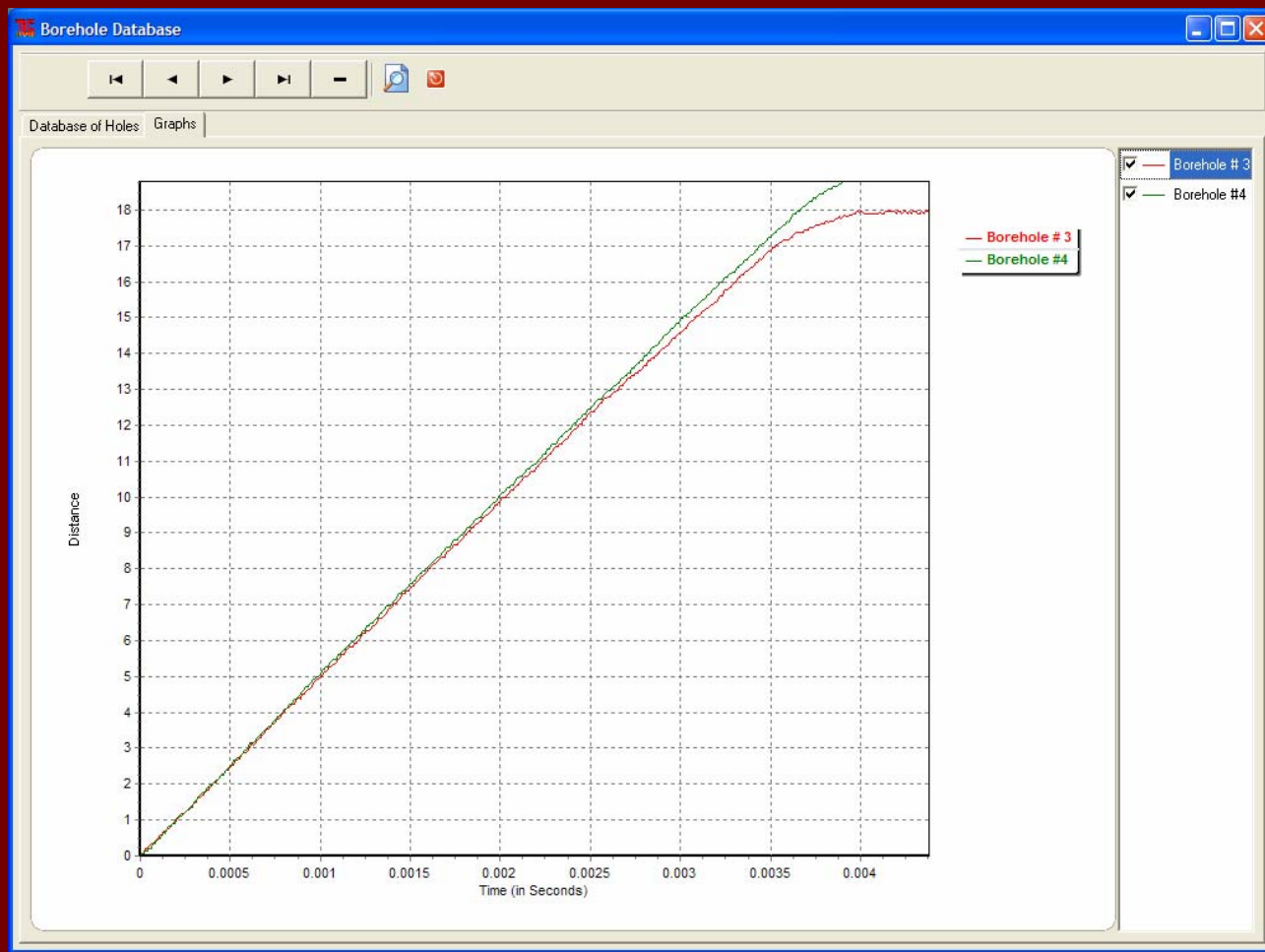


The screenshot shows a software window titled "Borehole Database". The window has a blue title bar and a toolbar with navigation buttons (back, forward, search, etc.). Below the toolbar, there are two tabs: "Database of Holes" (selected) and "Graphs". The main area displays a table with the following data:

Mine Name	Borehole Number	Depth Monitored	Actual Depth	Booster Distance (from bottom)	Stemming	Test Date	Operator
mine a	Bh2	16.43	18.40	2.00	1.00	2004/08/04 00:00	Joe
mine a	Bh3	13.10	23.00	2.00	1.00	2004/08/04 00:00	Jeff
Demo Mine	BH ABC	13.47	32.00	1.00	2.00	2004/08/04 00:00	Joe Soap
Coal Mine	Borehole #2	17.97	19.00	1.00	1.00	2212/10/05 00:00	Joe Soap
▶ Coal Mine	Borehole #4	18.79	19.80	1.00	1.00	2212/10/05 00:00	Joe Soap

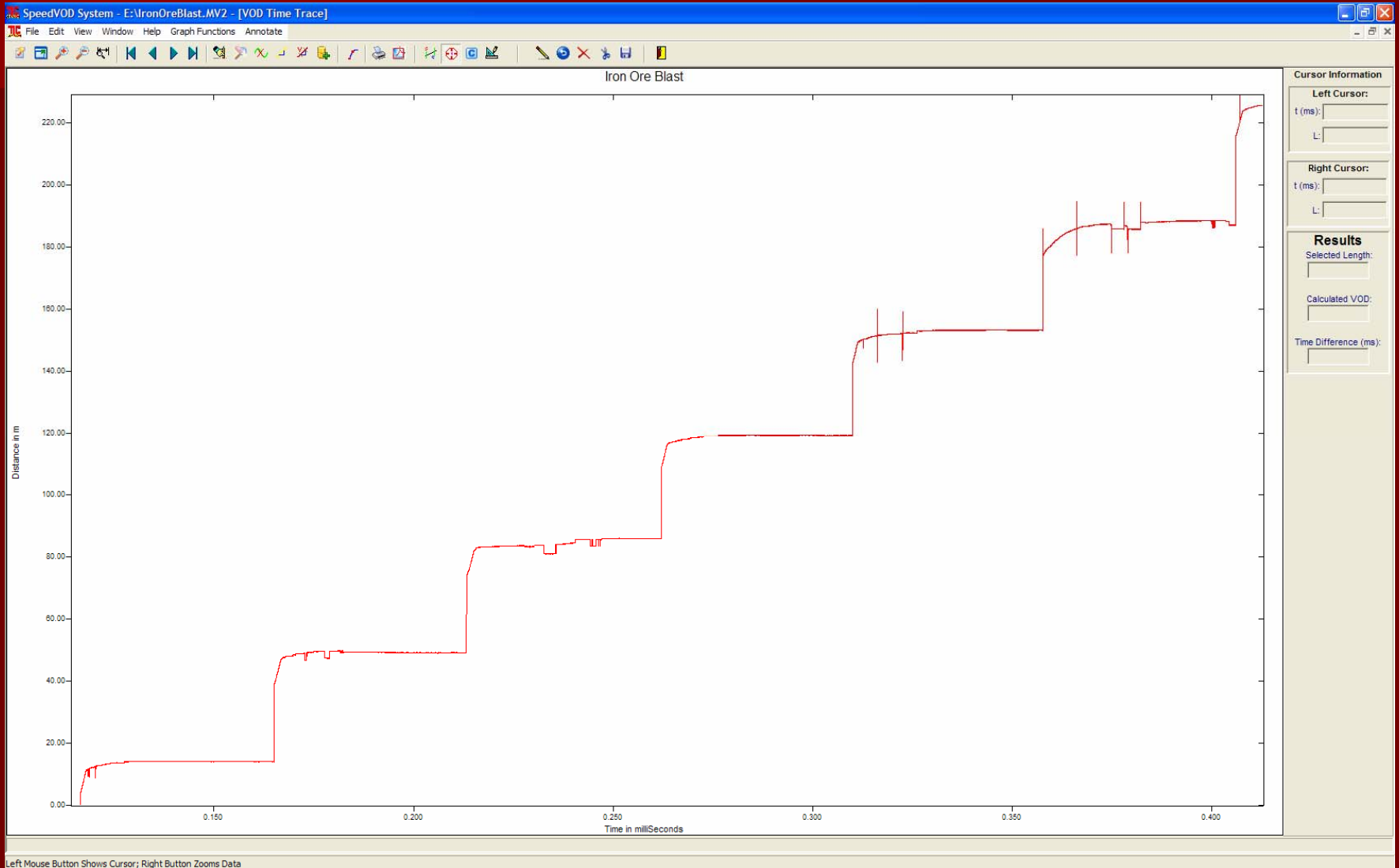
# Viewing Database Entries (cont...)

- Click on graphs tab to view selected traces

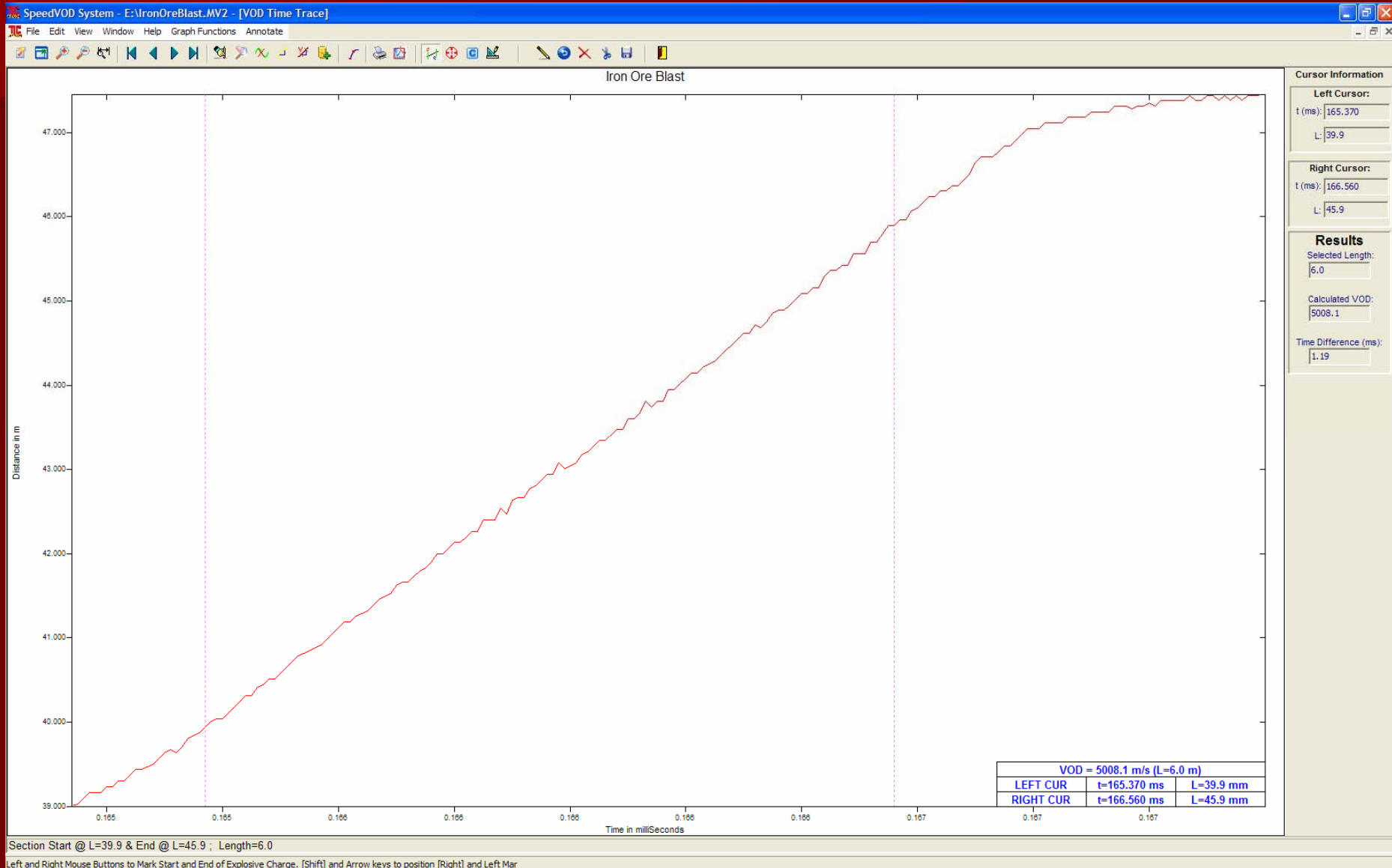




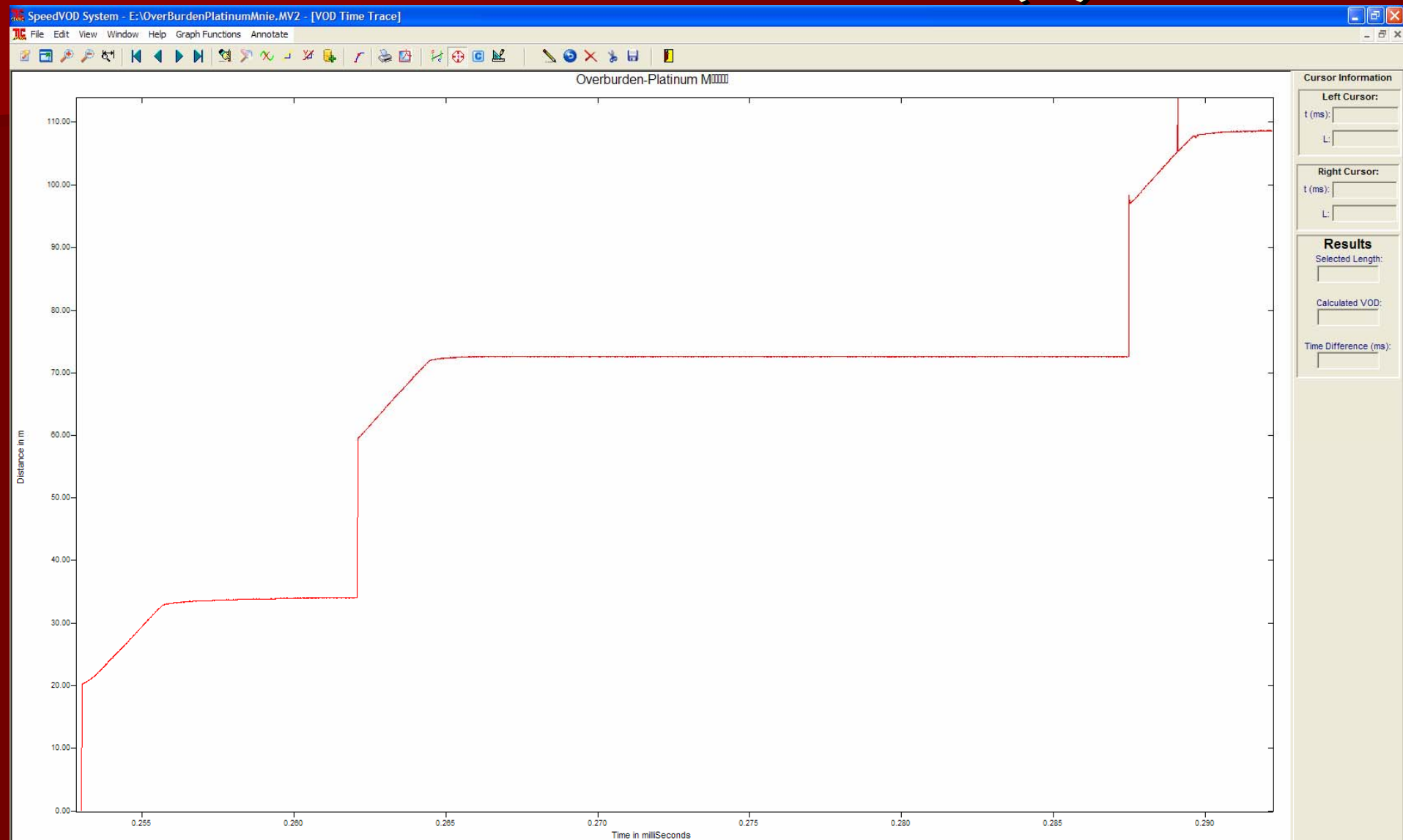
# VOD Field Results (1)



# VOD Field Results (1 Cont...)



# VOD Field Results (2)



# Contact Details:

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