



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

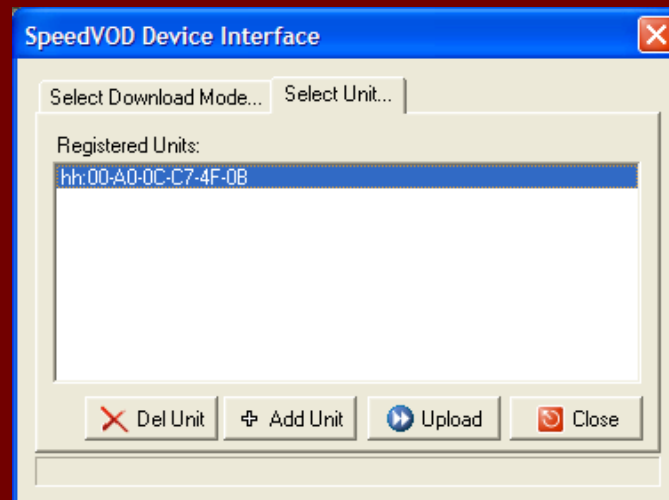
- RG6U (75ohm) cable will work up to about 650m. This cable crushes easily due to the foam dielectric and will give readings even in a hole that deflagrates at 500 m/s.
- RG59 (75ohm) cable will work on shorter lengths ± 500 m. This cable is more noisy and will not crush as easily as it has a very hard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

Interface with Windows PC

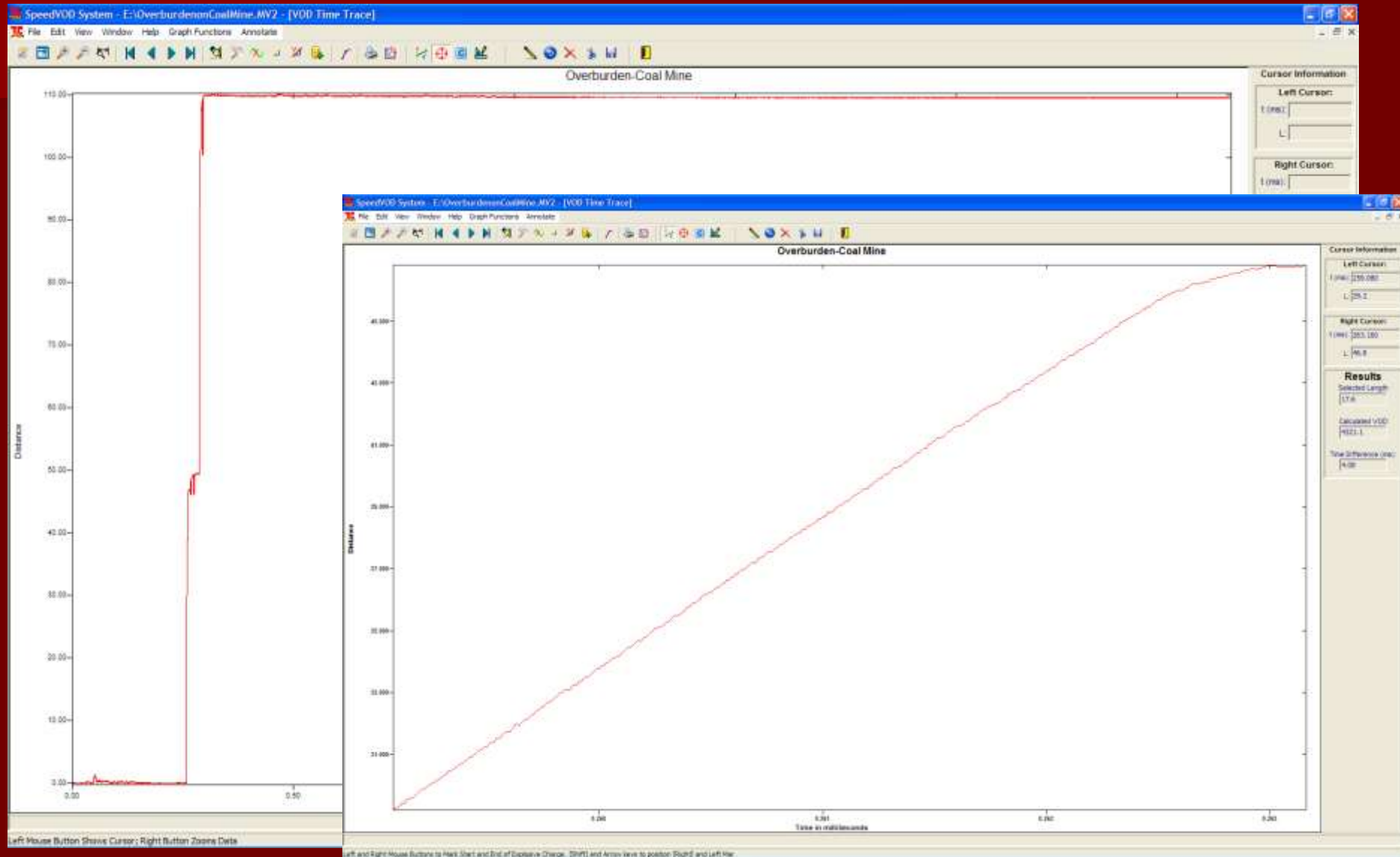
- Select download method:



- Select registered unit:



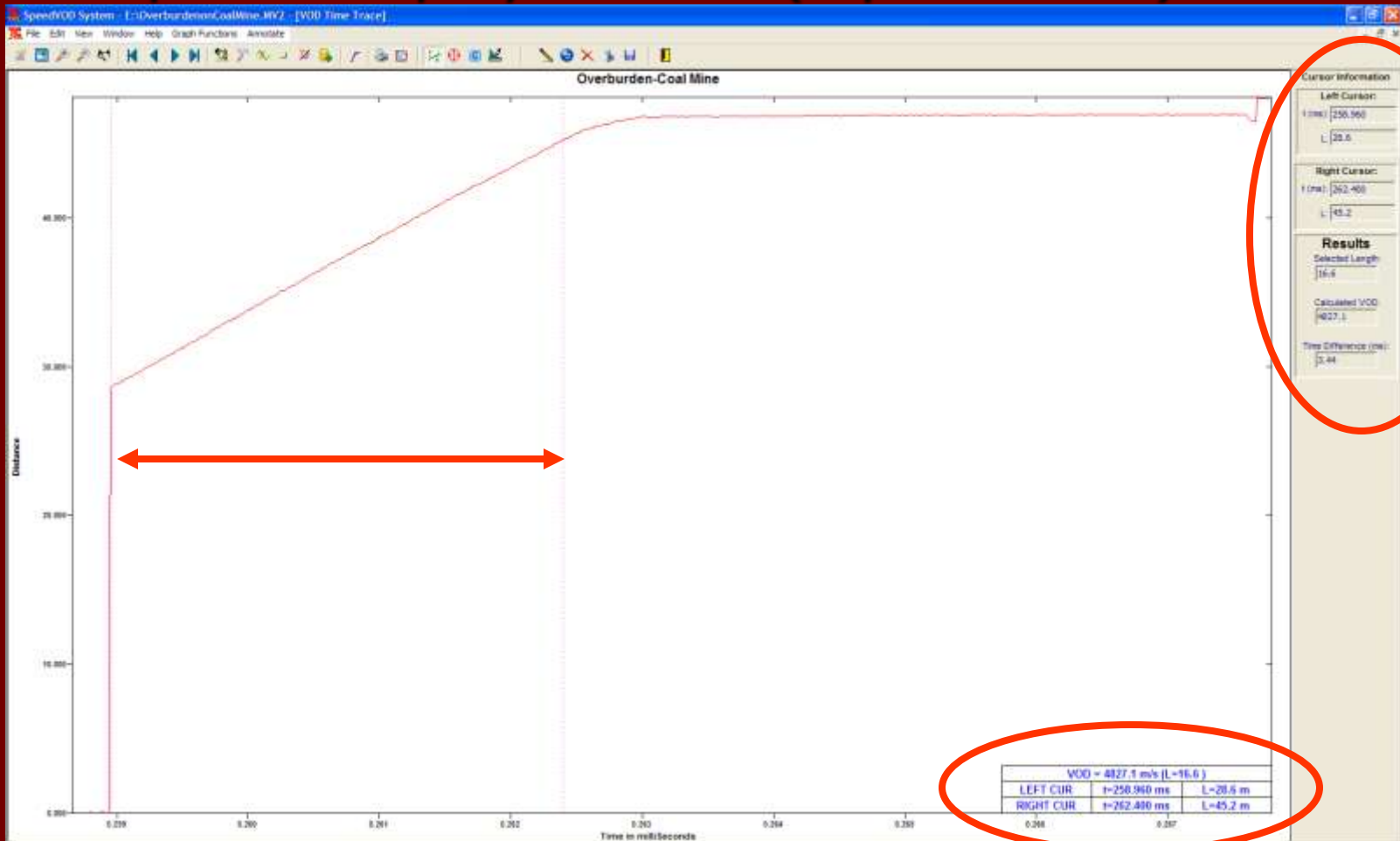
Analysis and Display Software



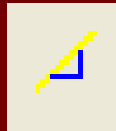
Two Point VOD cursors



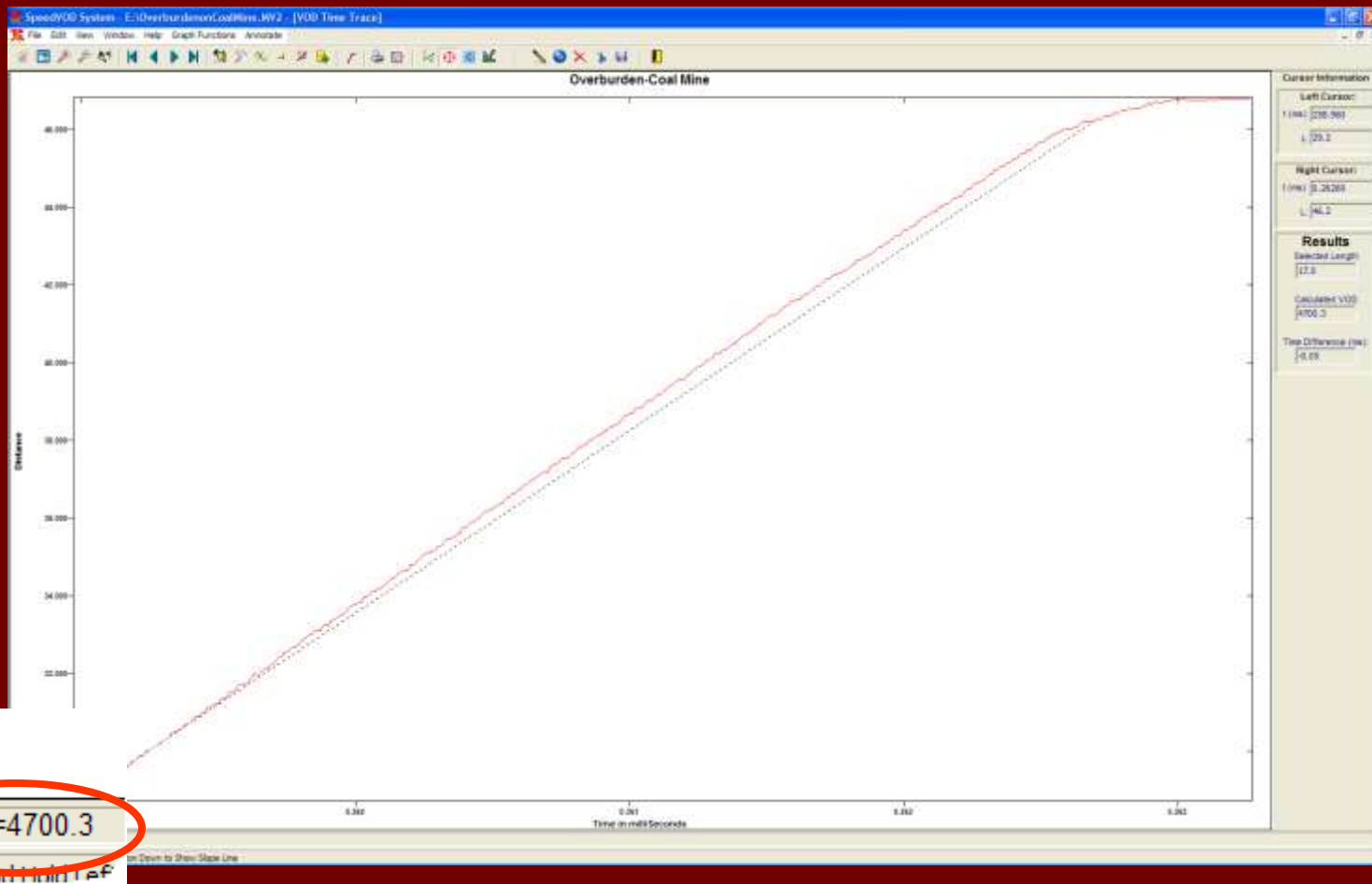
- Graphical display of VOD (2 point VOD)



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 Graph

Hole Charging Details | VOD Graph | Distance vs VOD Graph | VOD Detail Information

Monitored Borehole Depth: 18.0

Booster Distance from bottom of borehole: 1

Actual Borehole Depth: 19

Hole Stenning: 1

Number of Decks: 1

Refresh Drawing

Clear All

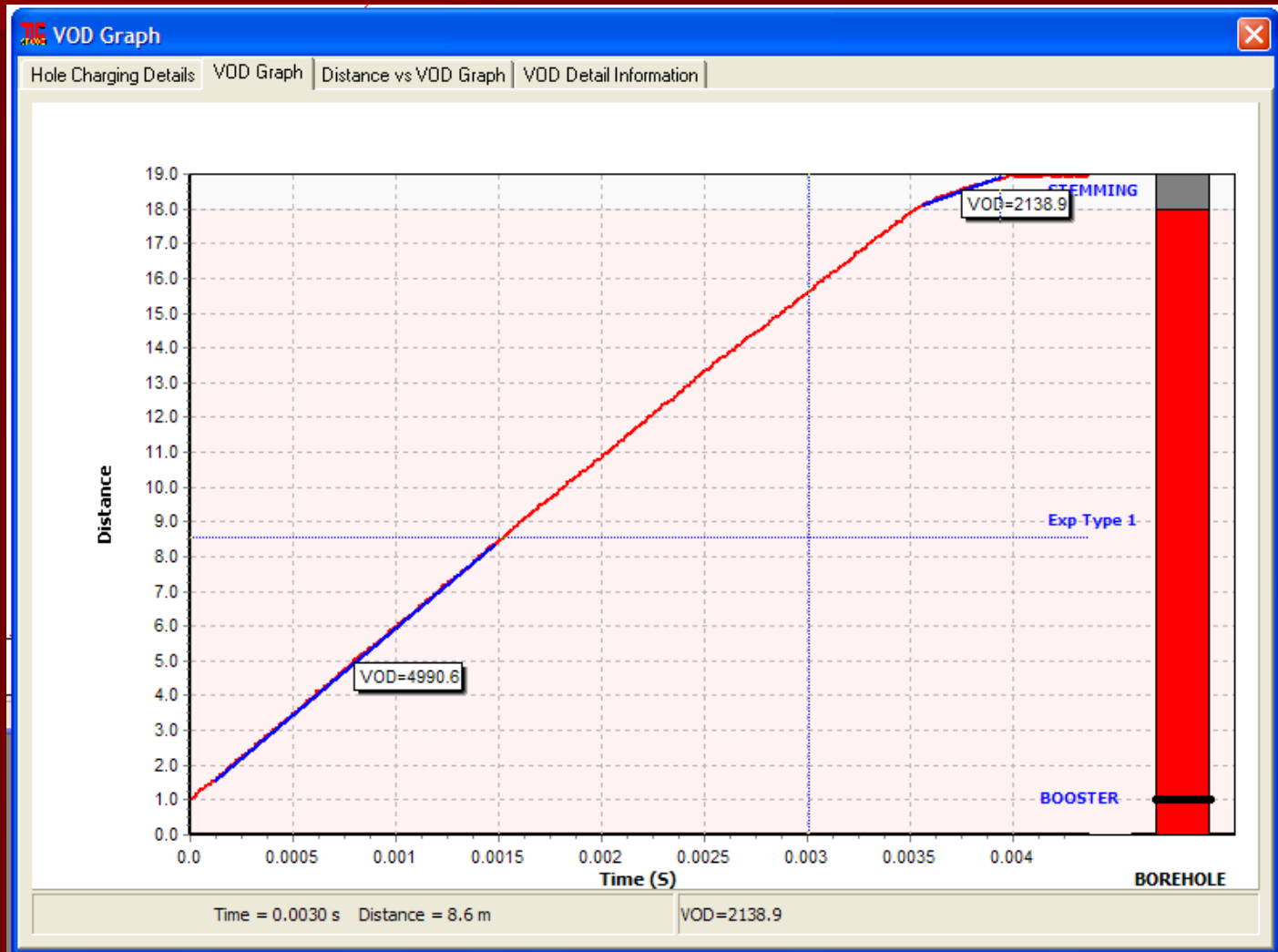
Deck #	Description	Distance from Top	Column Length	Display Colour
1	Exp Type 1	1.0	18.0	Red

Booster 18.0 @ Cable 28.8

Depth 19.0

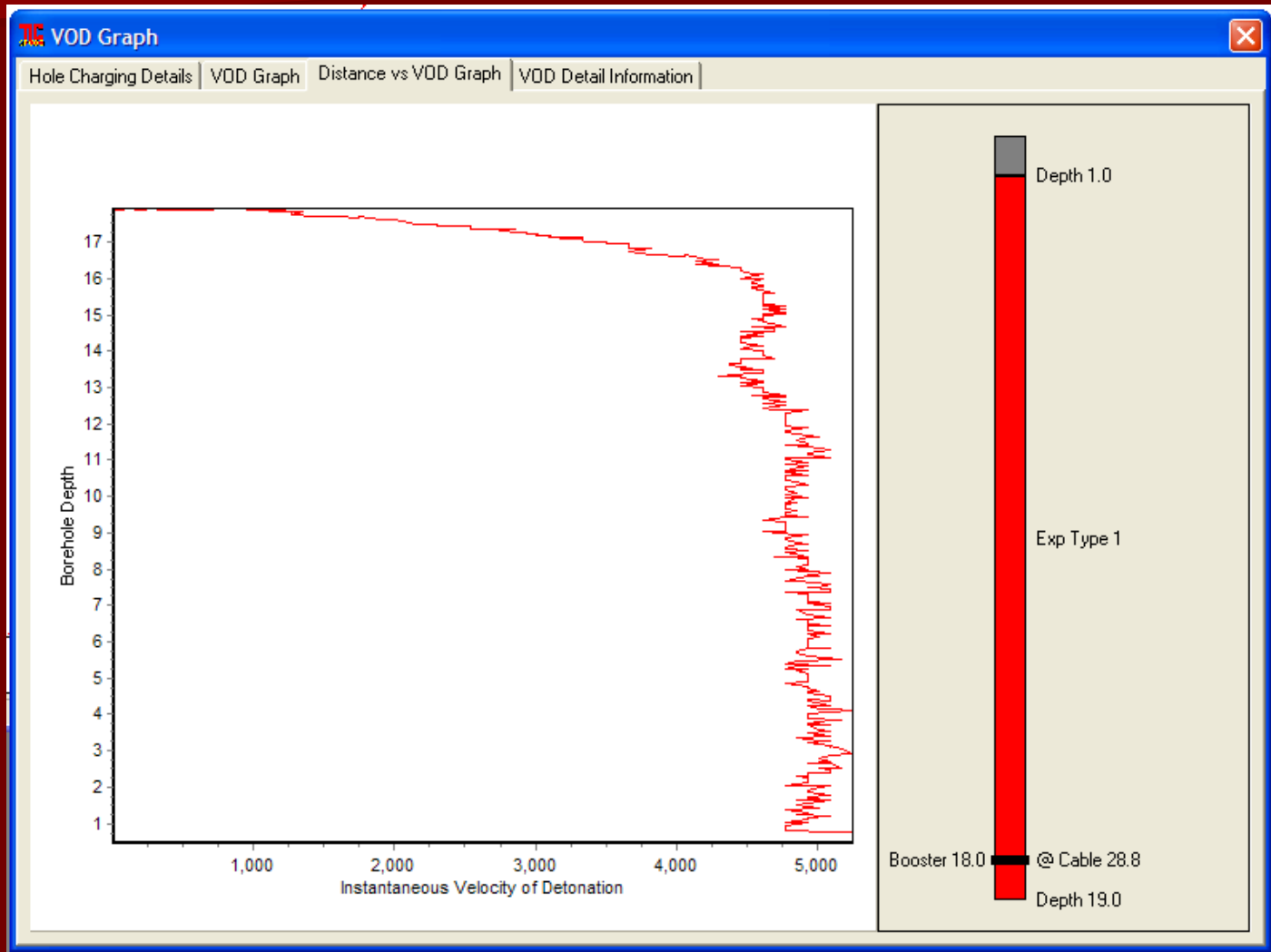
VOD Regression and Display (cont...)

- Annotate graph (VOD values)



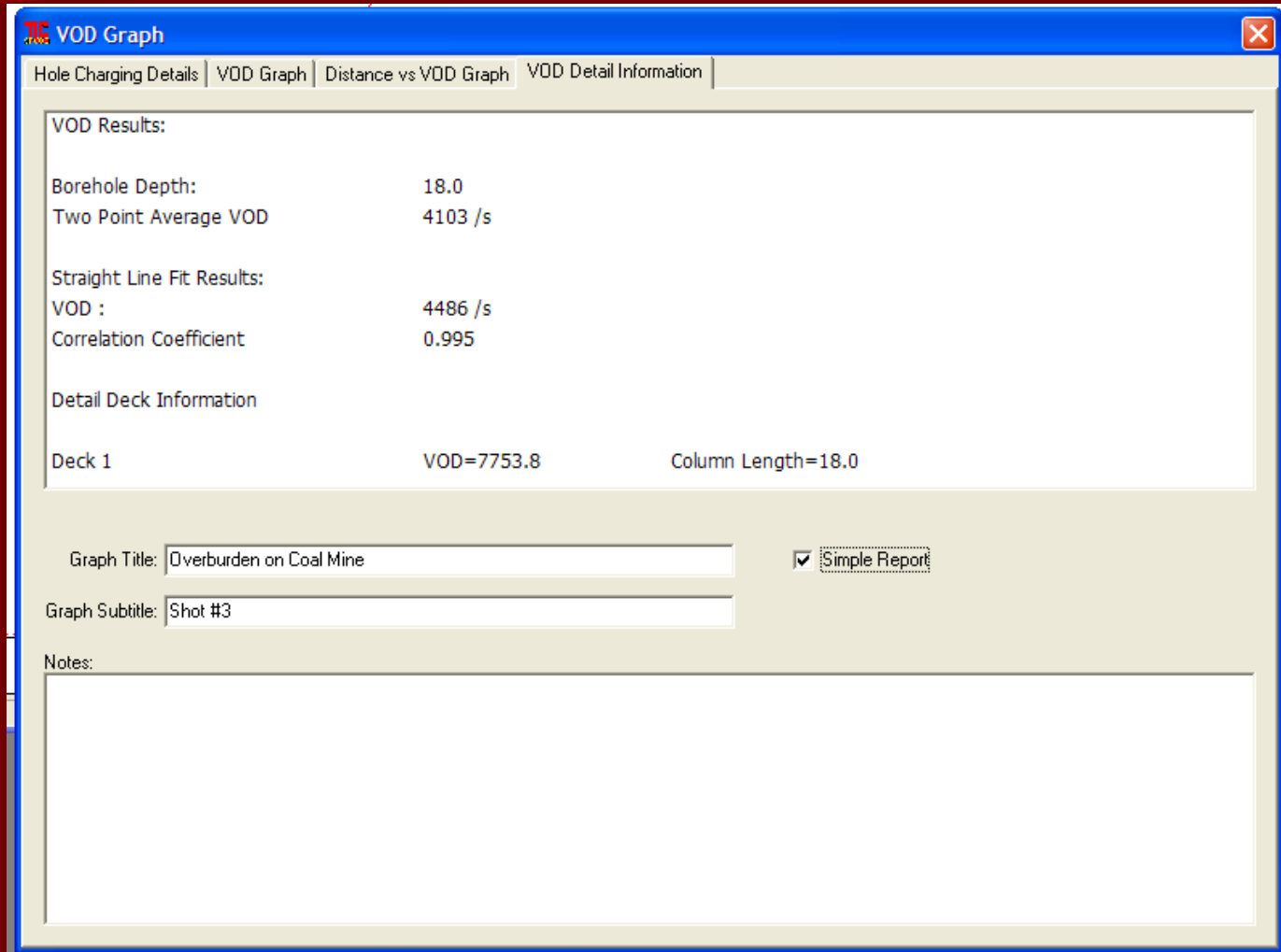
VOD Regression and Display (cont...)

- 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

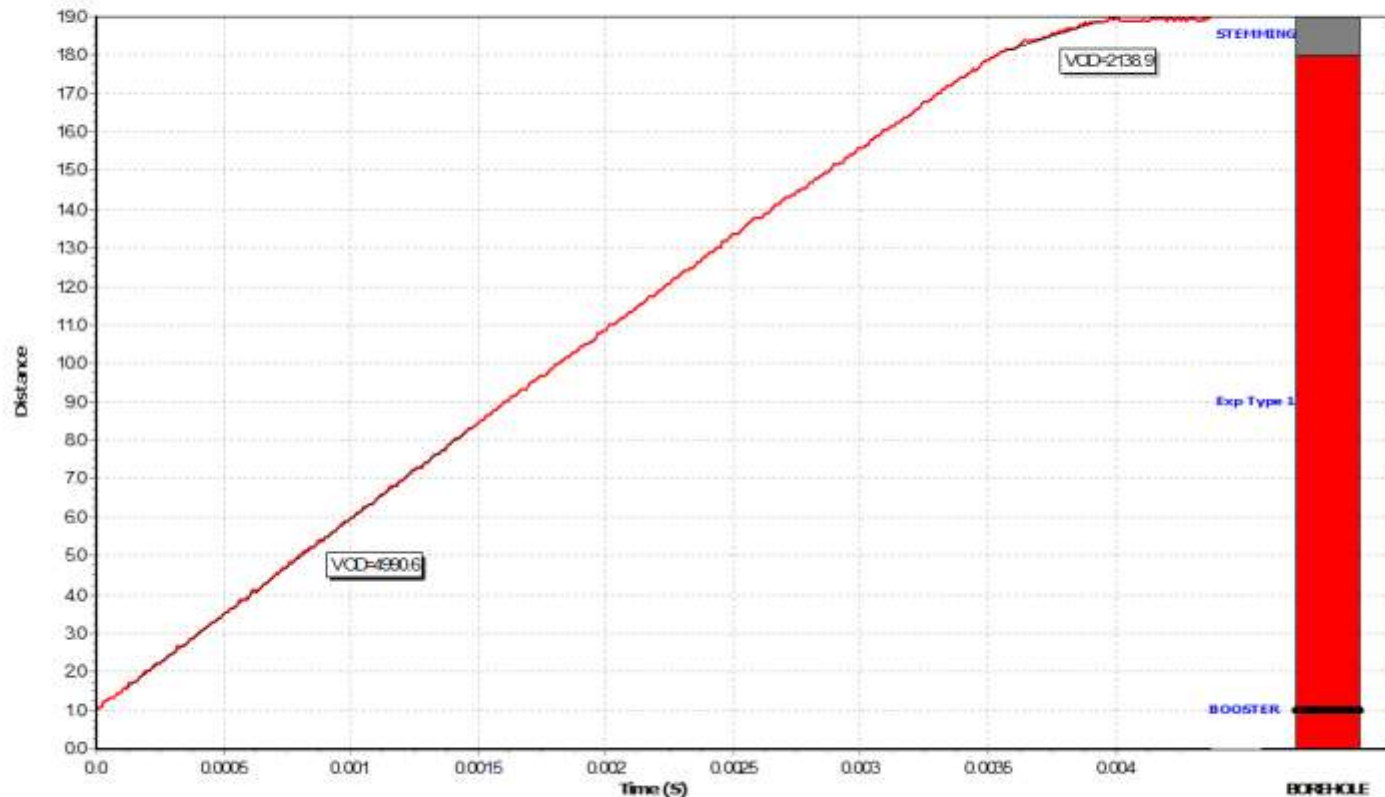
Deck 1	VOD=7753.8	Column Length=18.0
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Below the data, there are input fields for "Graph Title" (containing "Overburden on Coal Mine") and "Graph Subtitle" (containing "Shot #3"). A checkbox labeled "Simple Report" is checked. At the bottom, there is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

VOD Borehole Report

SPEEDVOD Results

Test Description: Overburden-Coal Mine
Test Engineer:
Test Date: 22/12/10/05

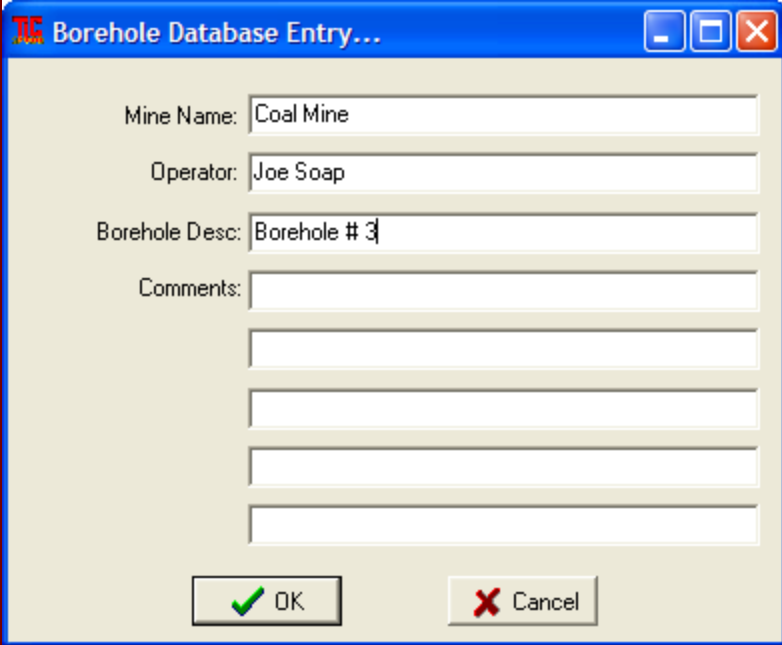


Report Date :1/29/2006 3:15:50 PM

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:

Operator:

Borehole Desc:

Comments:

Viewing Database Entries



- Select entries from database

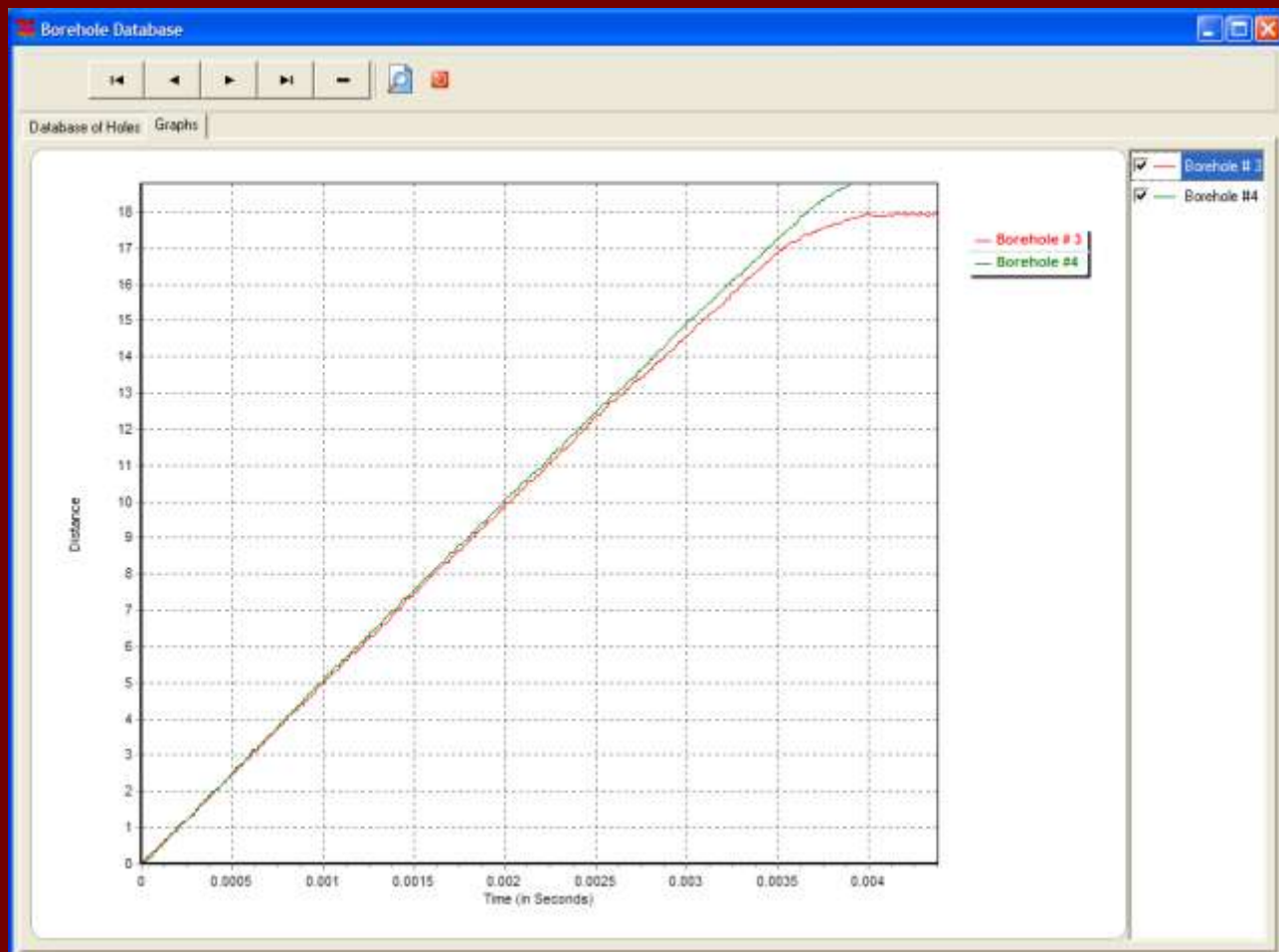
Borehole Database

Database of Holes | Graphs

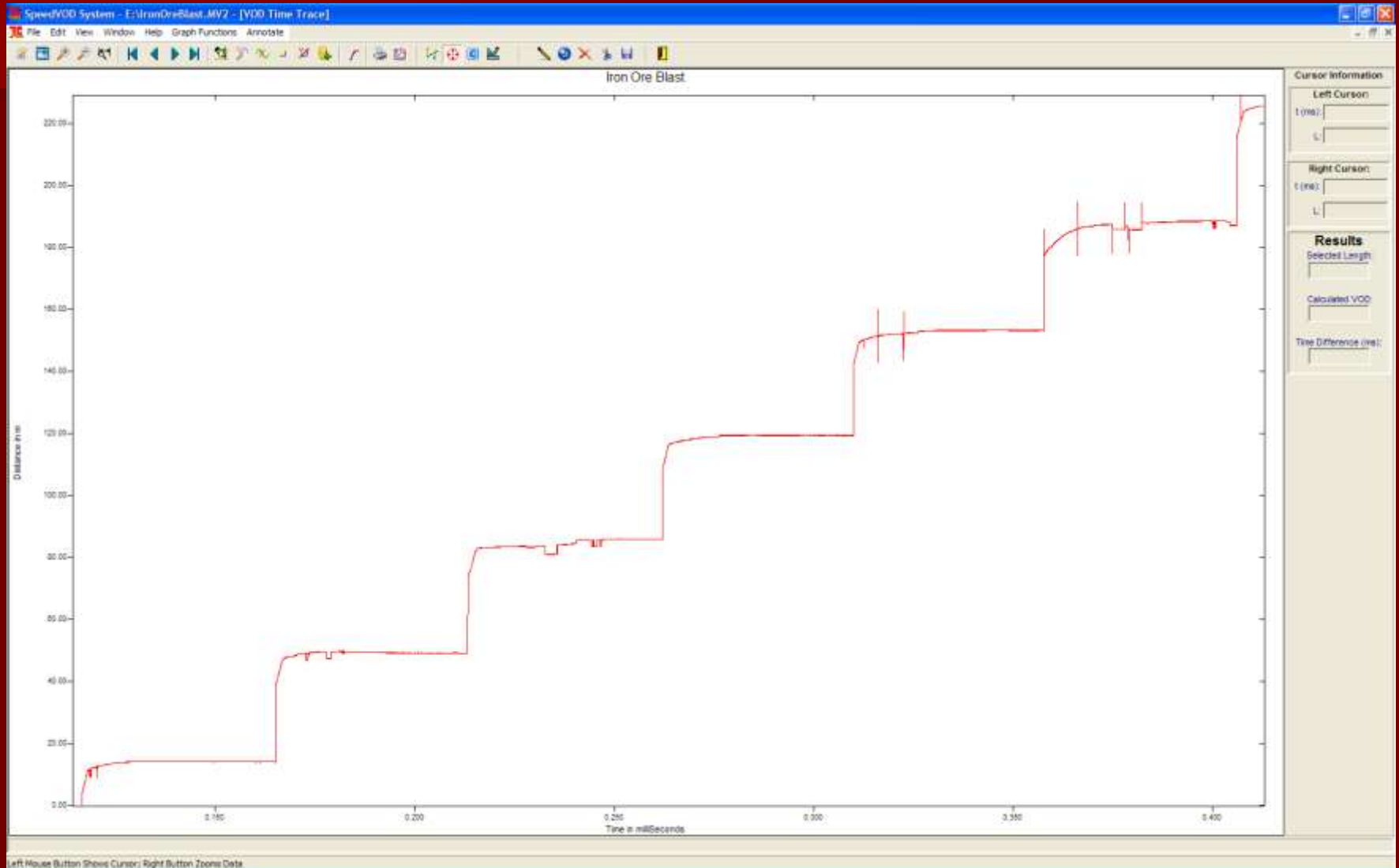
Mine Name	Borehole Number	Depth Monitored	Actual Depth	Booster Distance (from bottom)	Stemming	Test Date	Operator
mine a	Bh2	16.43	18.40	2.00	1.00	2004/08/04 00:00	Joe
mine a	Bh3	13.10	23.00	2.00	1.00	2004/08/04 00:00	Jeff
Demo Mine	BH ABC	13.47	32.00	1.00	2.00	2004/08/04 00:00	Joe Soap
Coal Mine	Borehole #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...)

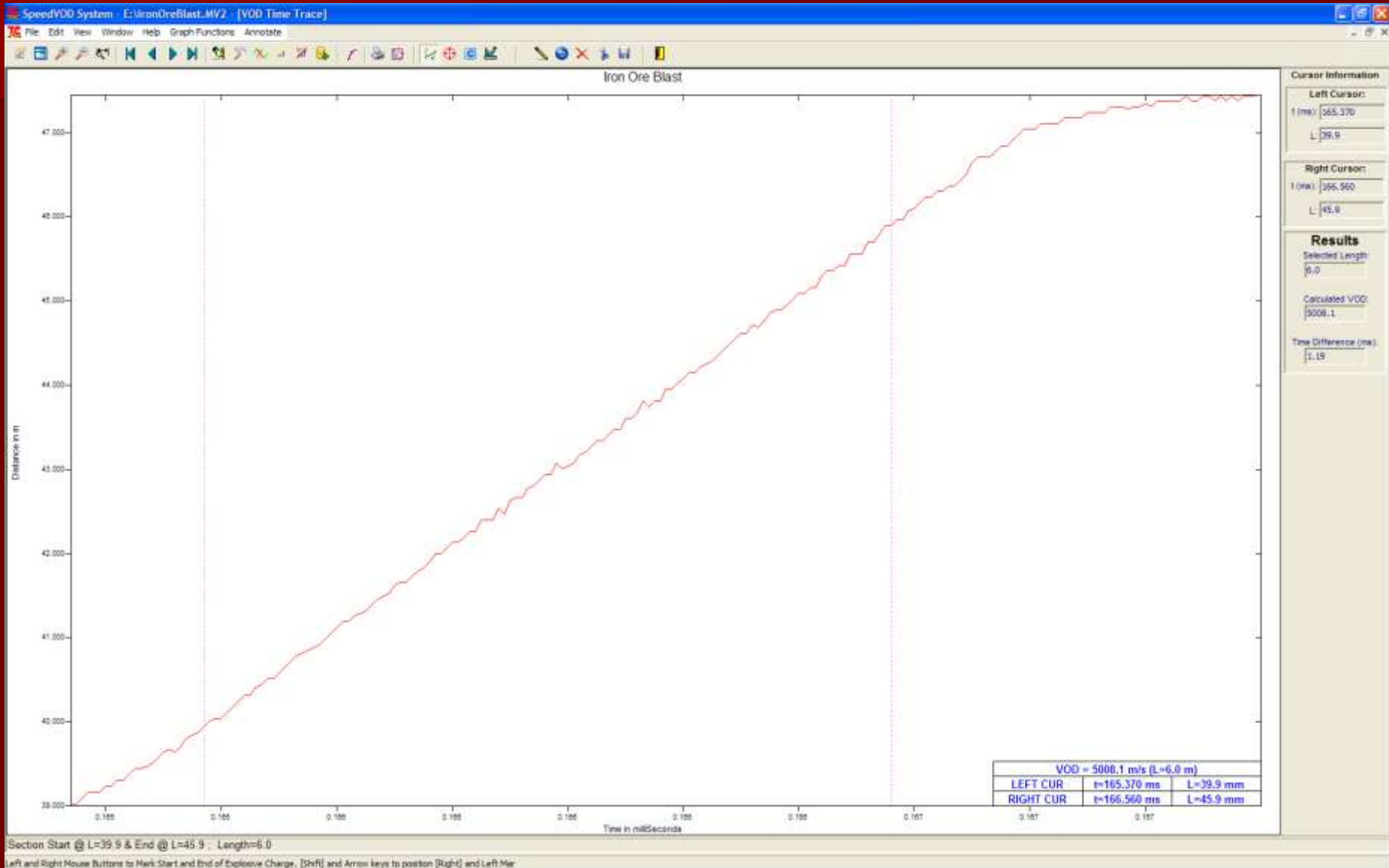
- Click on graphs tab to view selected traces



VOD Field Results (1)



VOD Field Results (1 Cont...)



VOD Field Results (2)



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