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…)

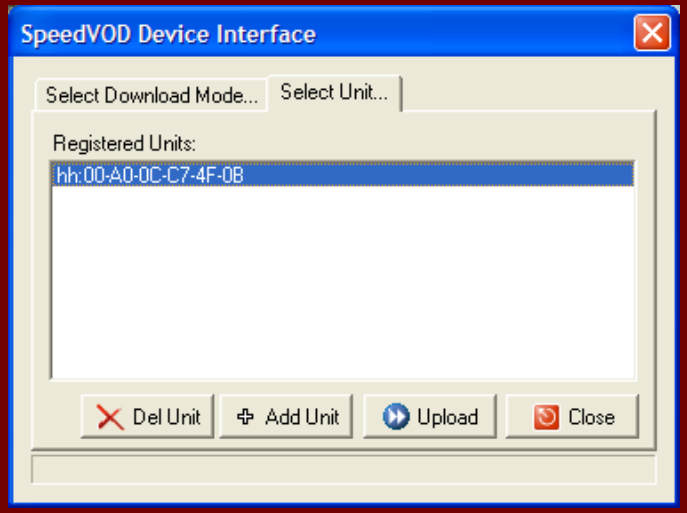
Coaxial Cable Tips

- 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 ±500m. 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.

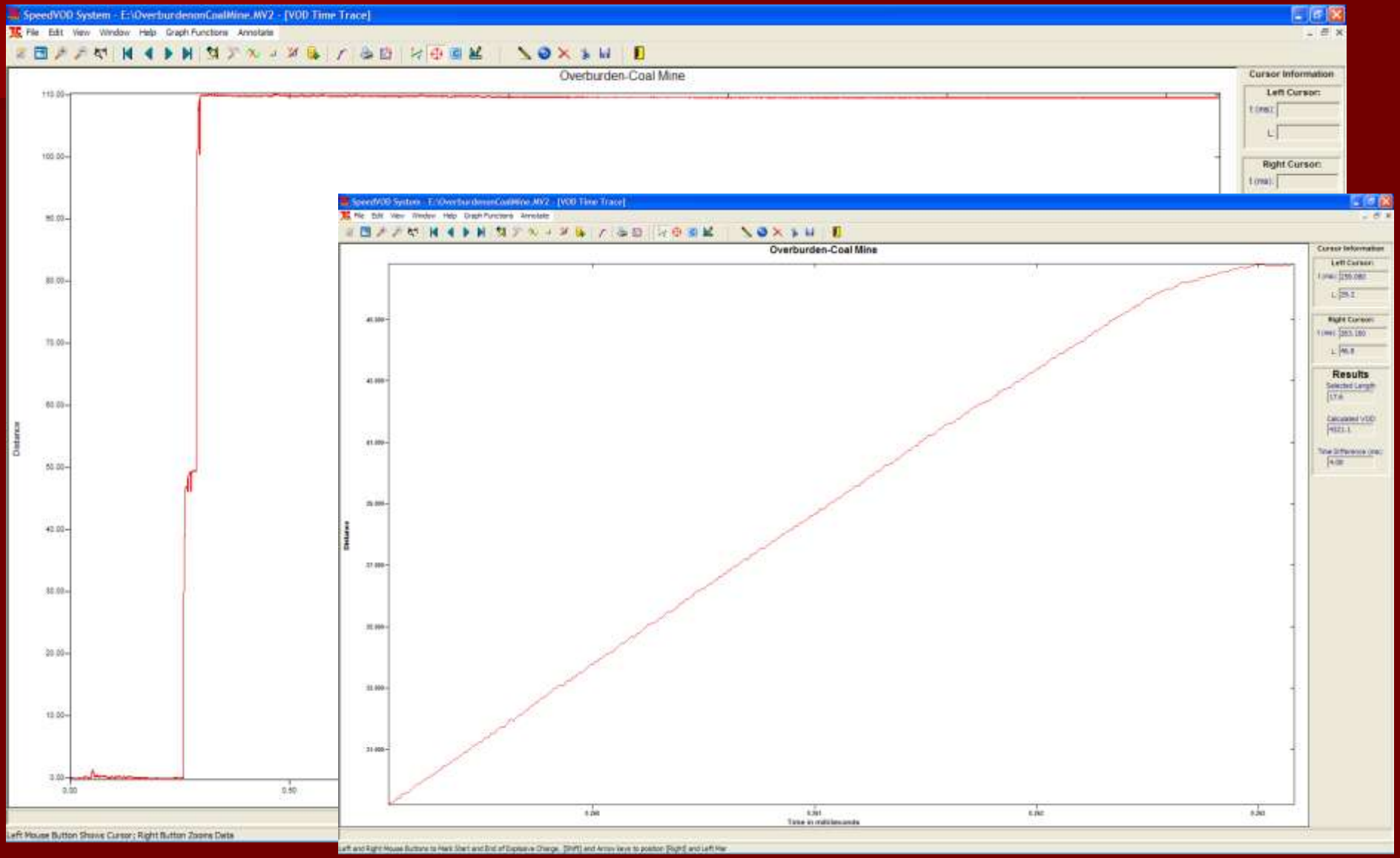
Interface with Windows PC

- Select download method:

- Select registered unit:

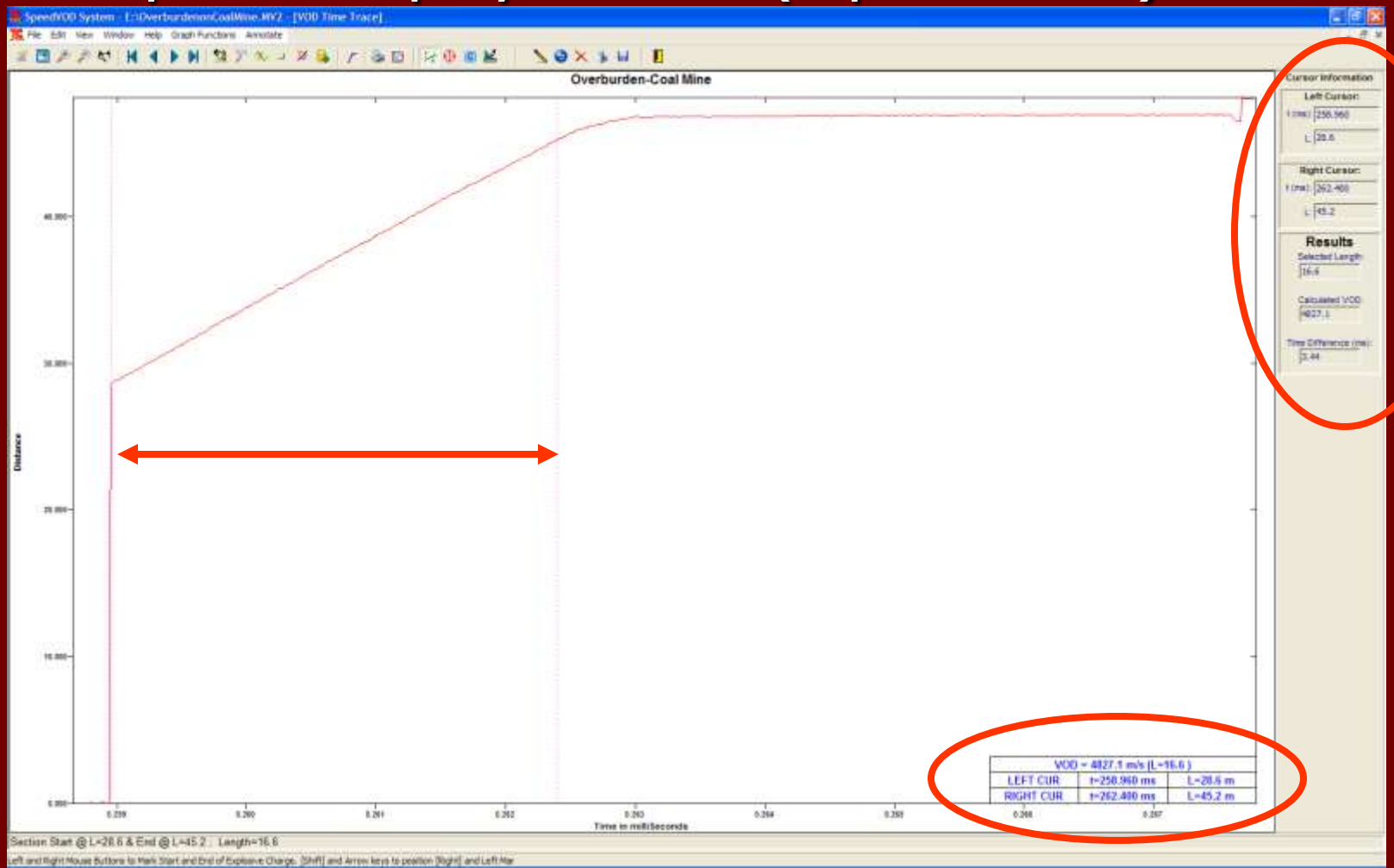


Analysis and Display Software



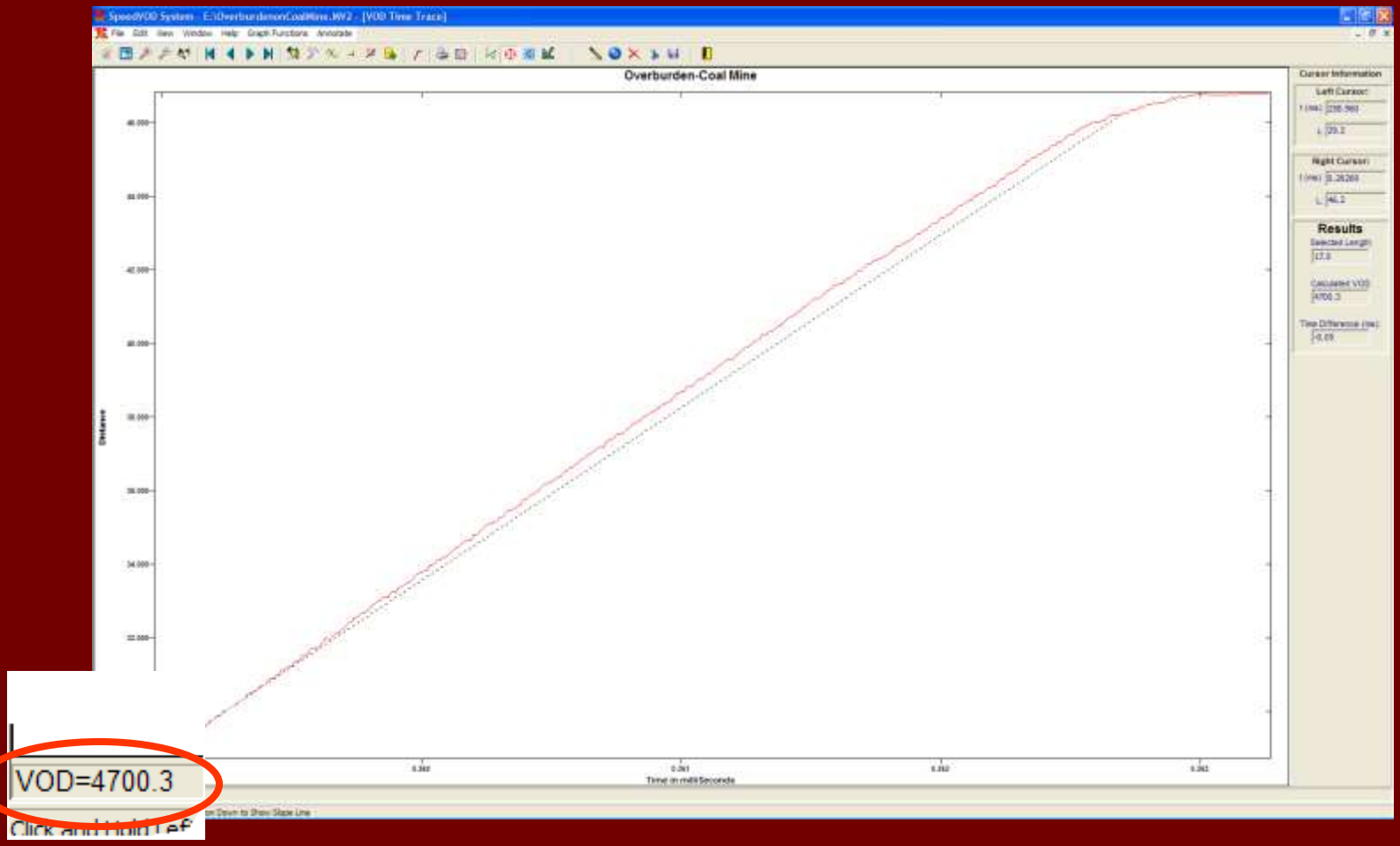
Two Point VOD cursors

- Graphical display of VOD (2 point VOD)



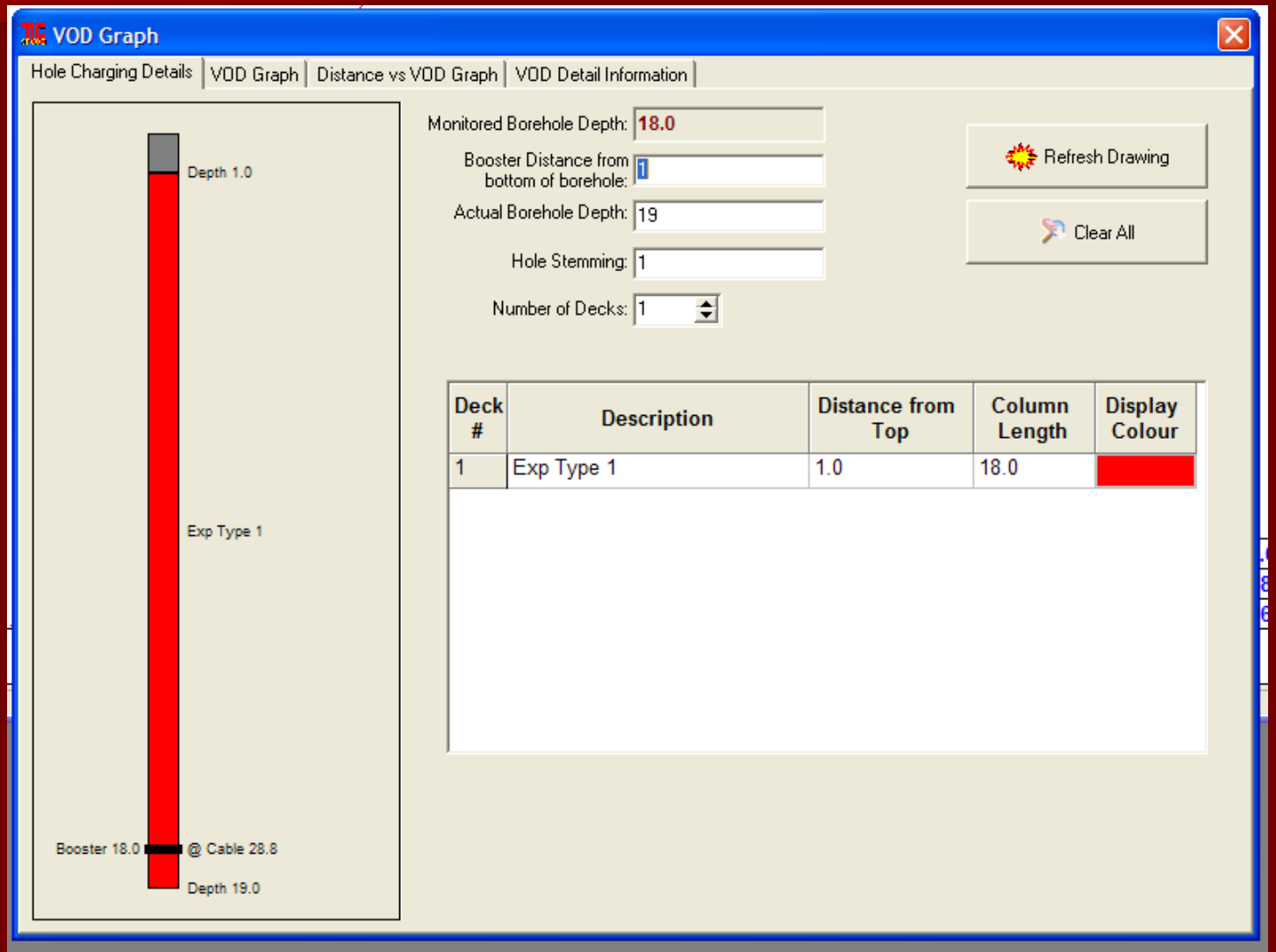
Visual VOD Tool

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



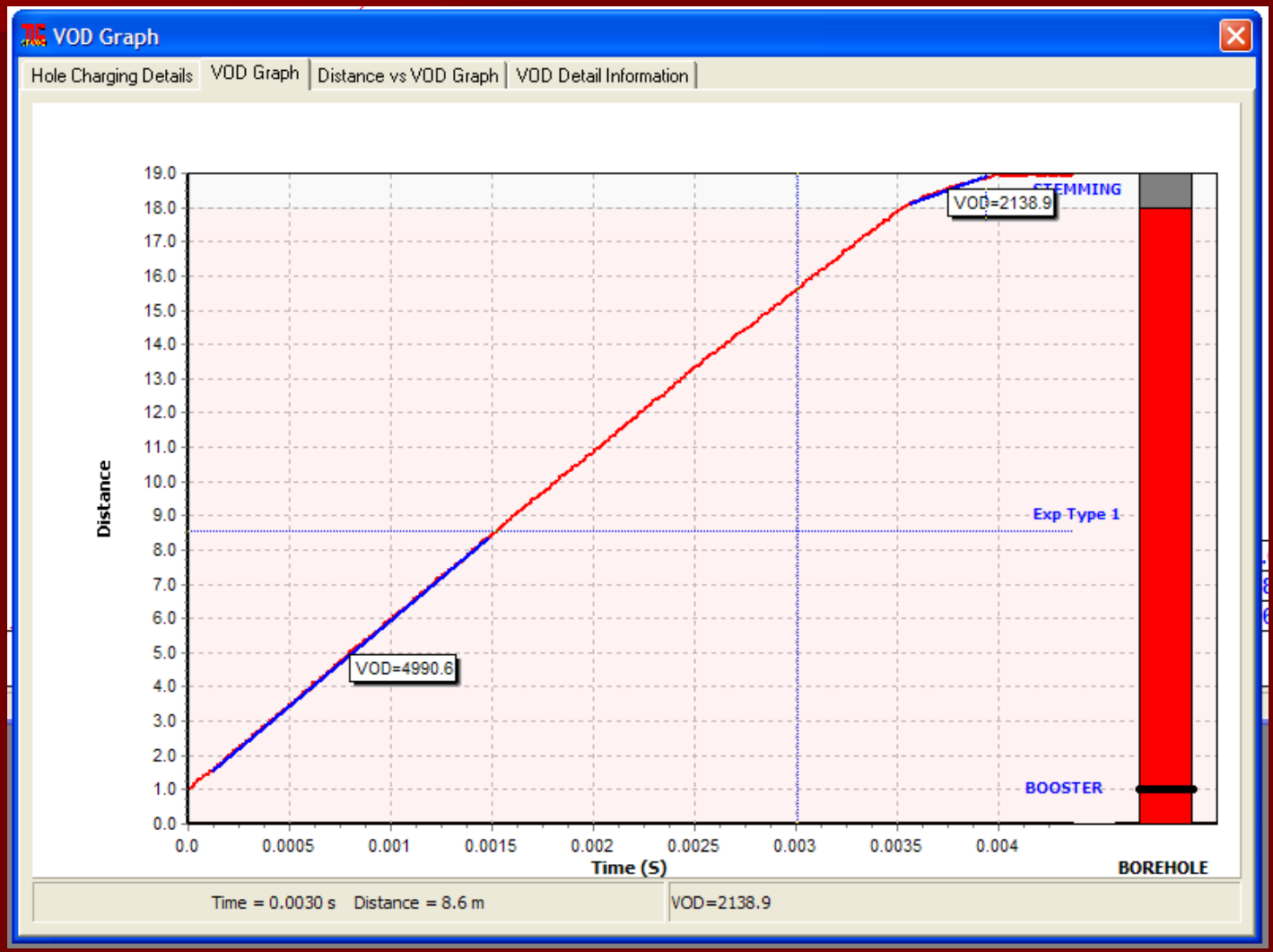
VOD Regression and Display

- Define Borehole charging:



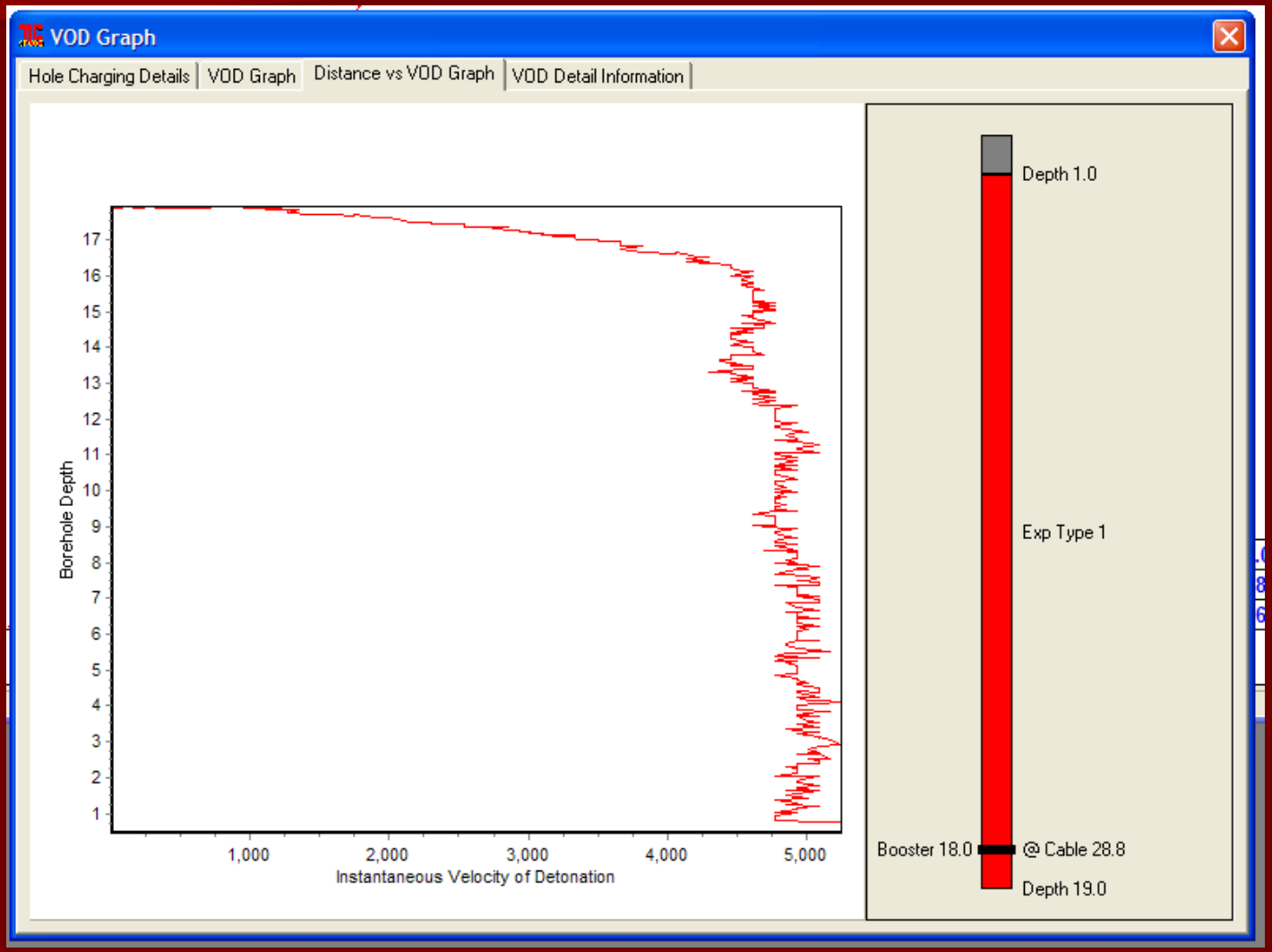
VOD Regression and Display (cont…)

- Annotate graph (VOD values)



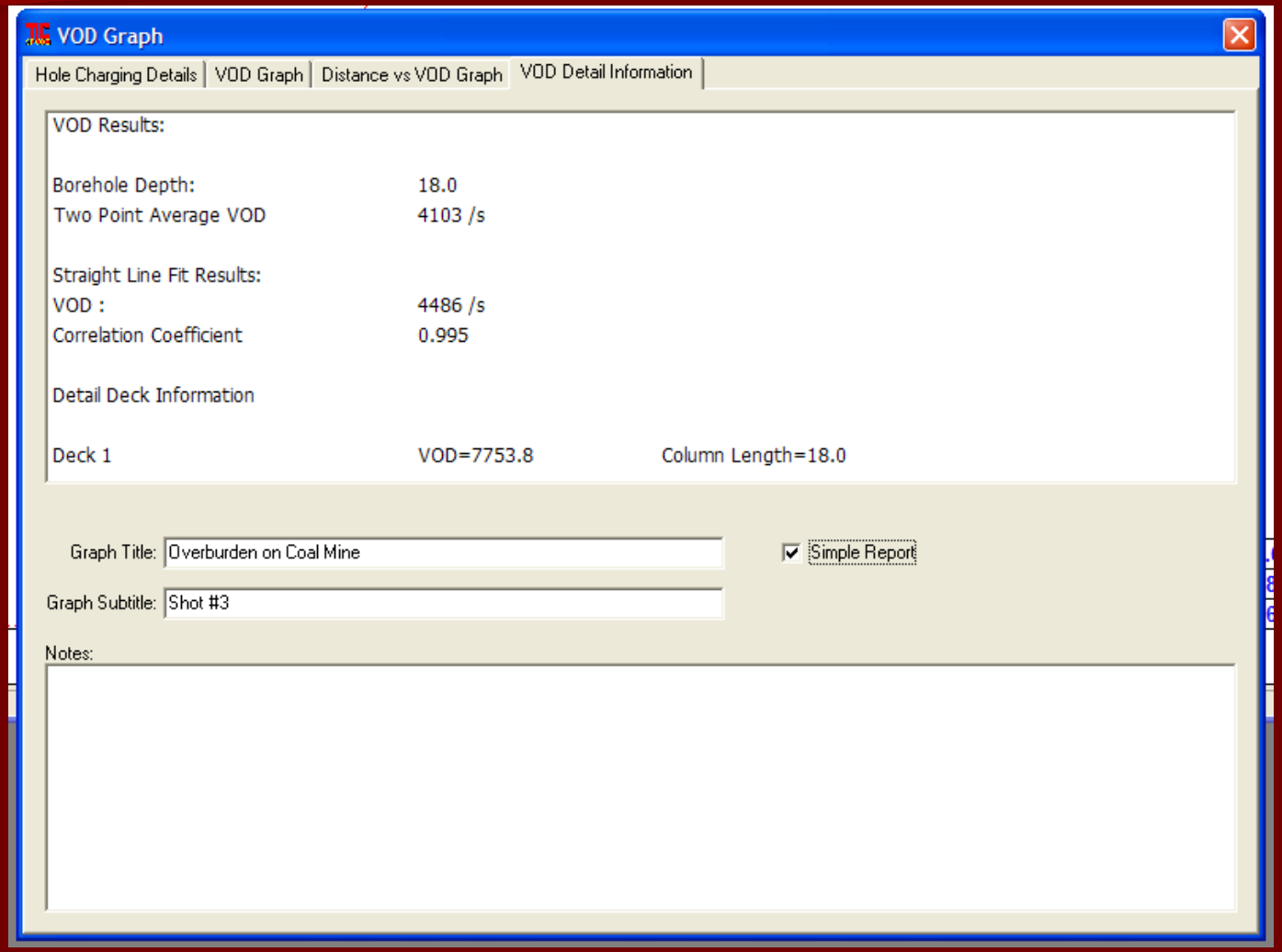
VOD Regression and Display (cont…)

- Display instantaneous VOD at depth

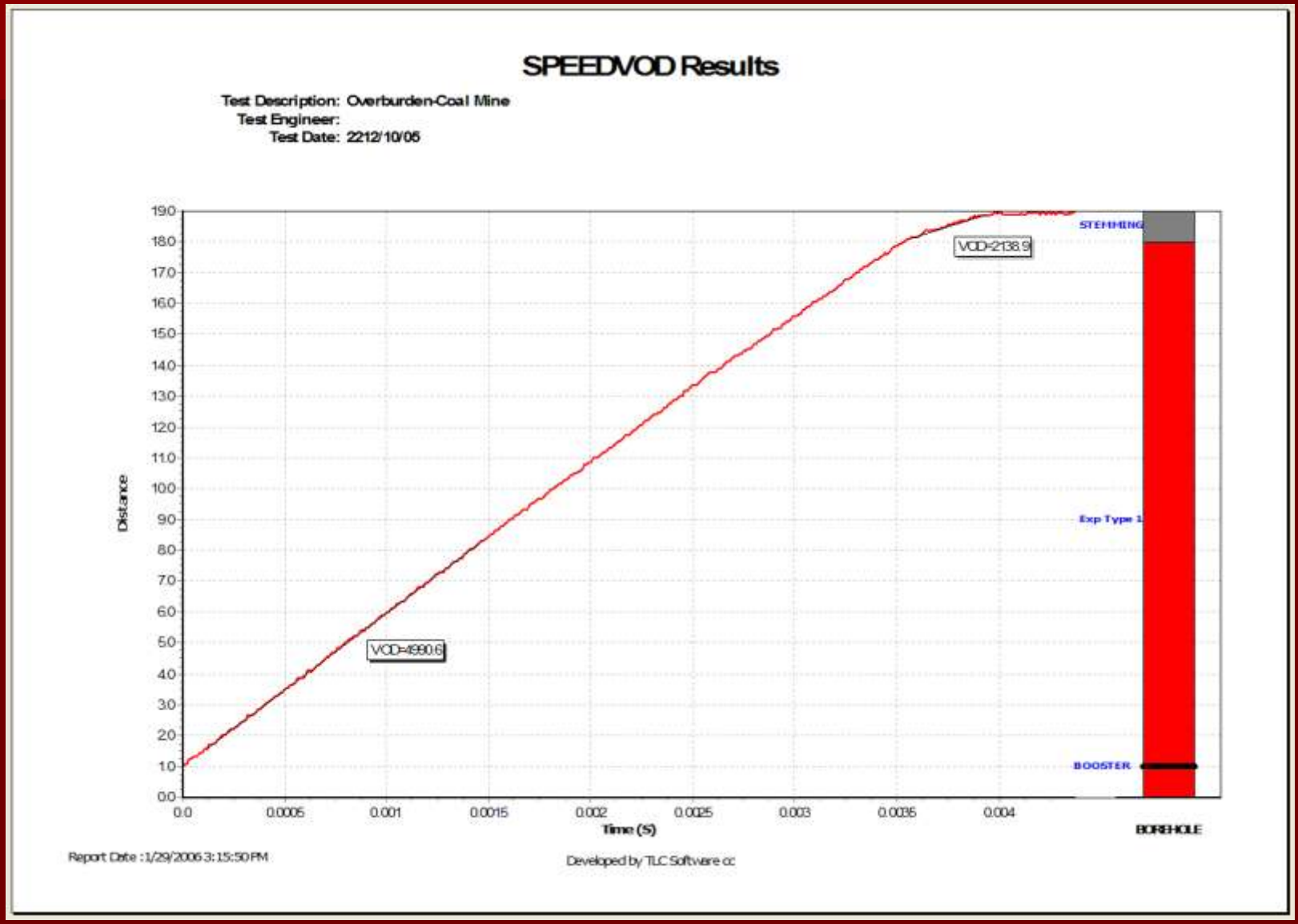


VOD Regression and Display (cont…)

- Add notes to be shown on report:

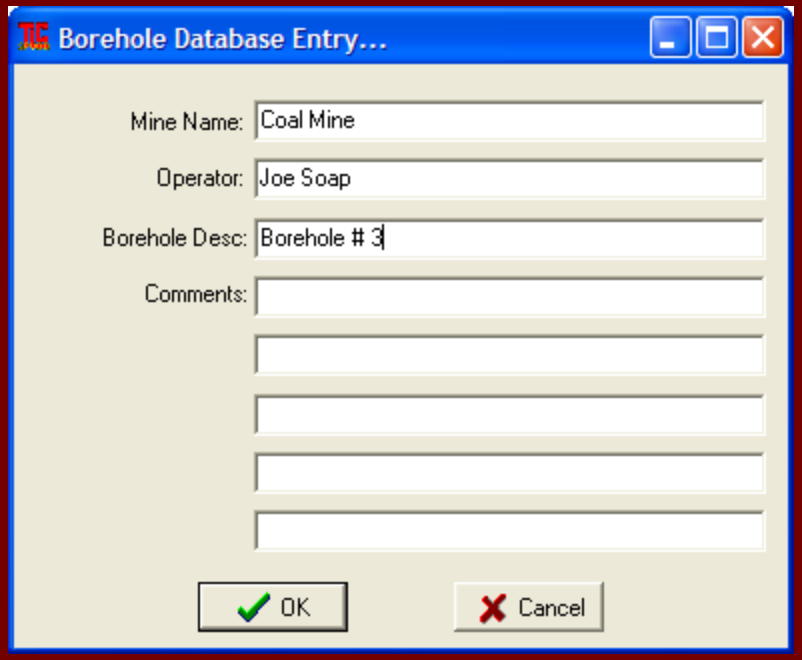


VOD Borehole Report



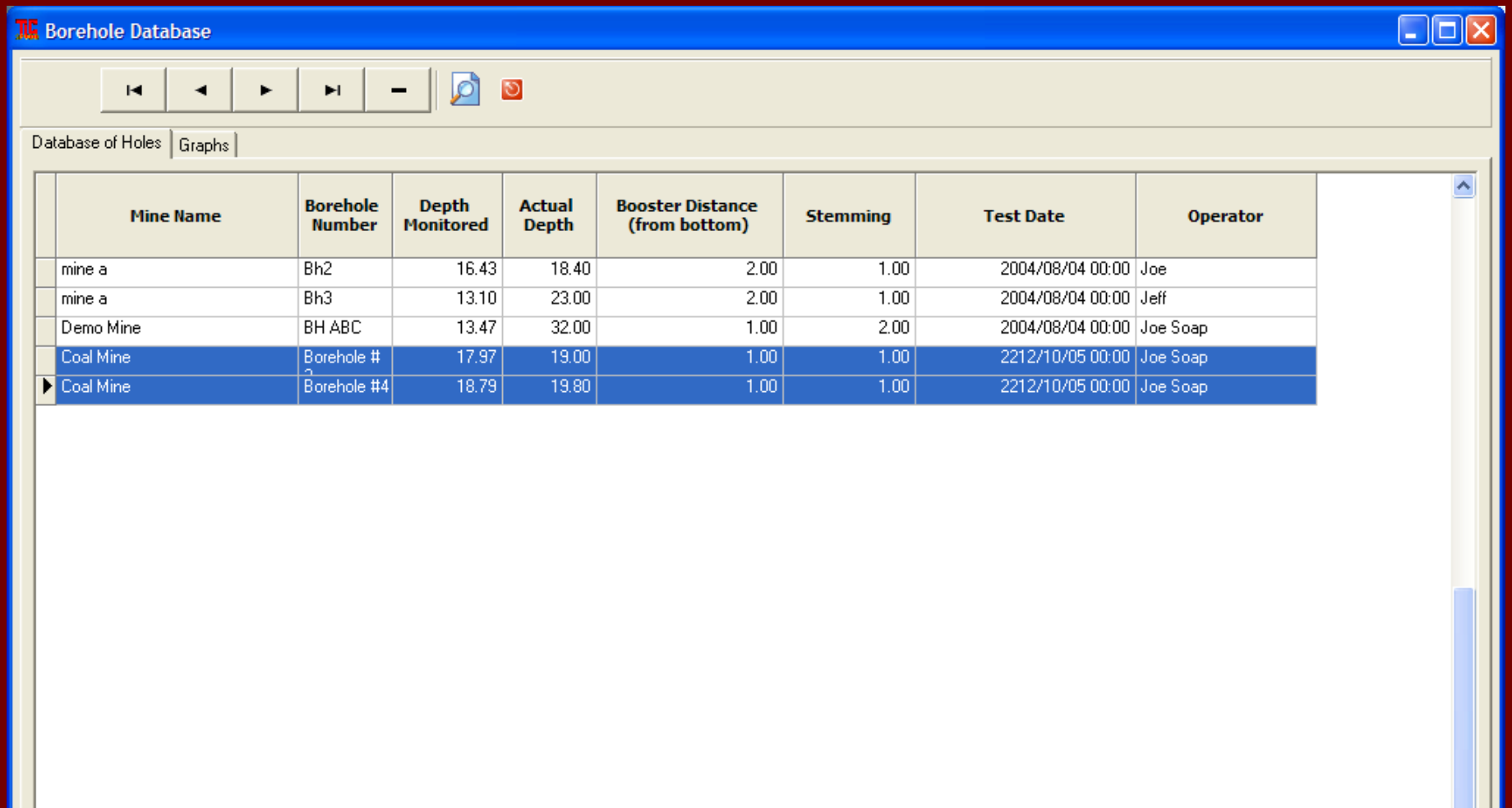
VOD Results Database

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



Viewing Database Entries

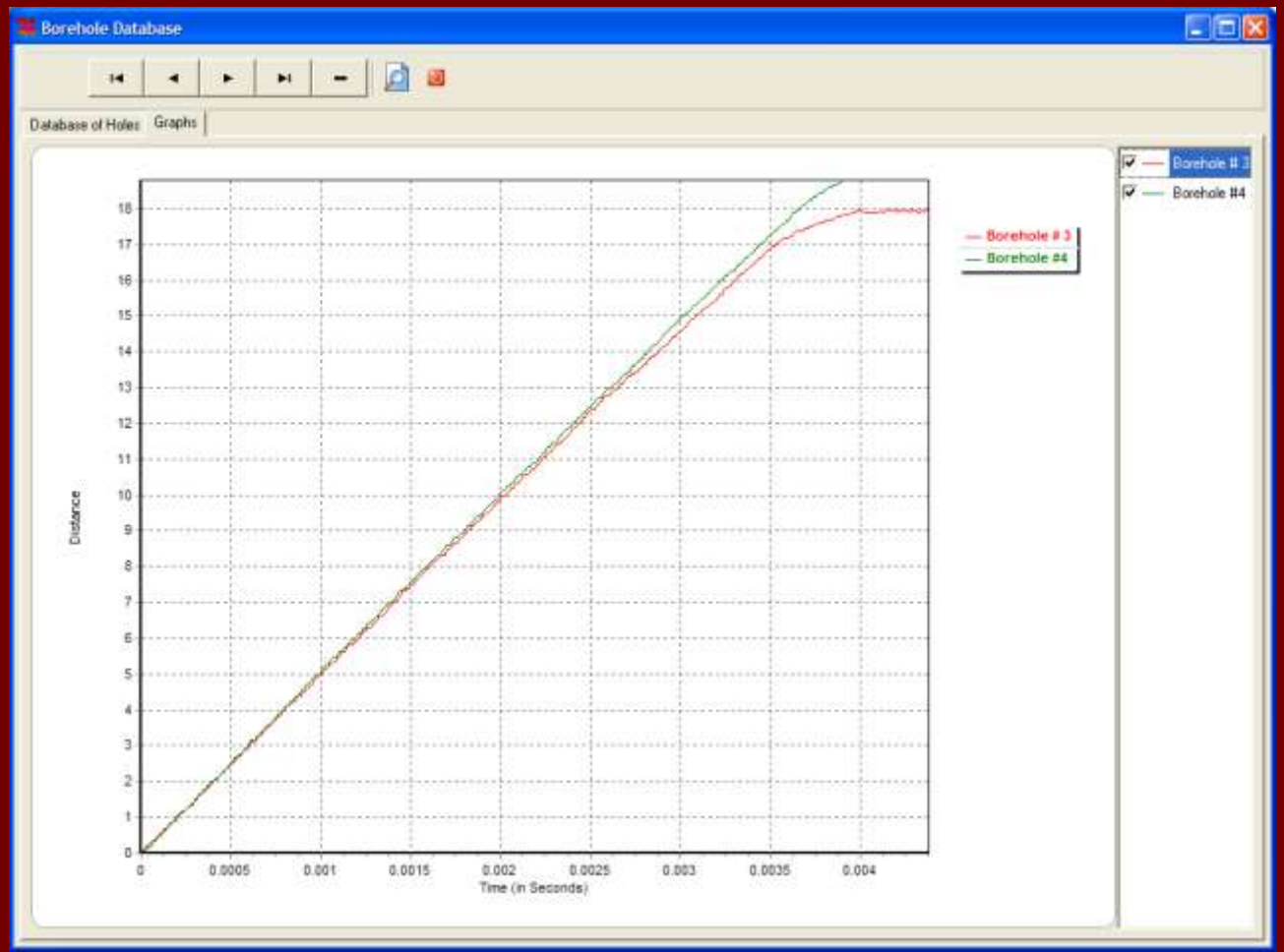
- Select entries from database



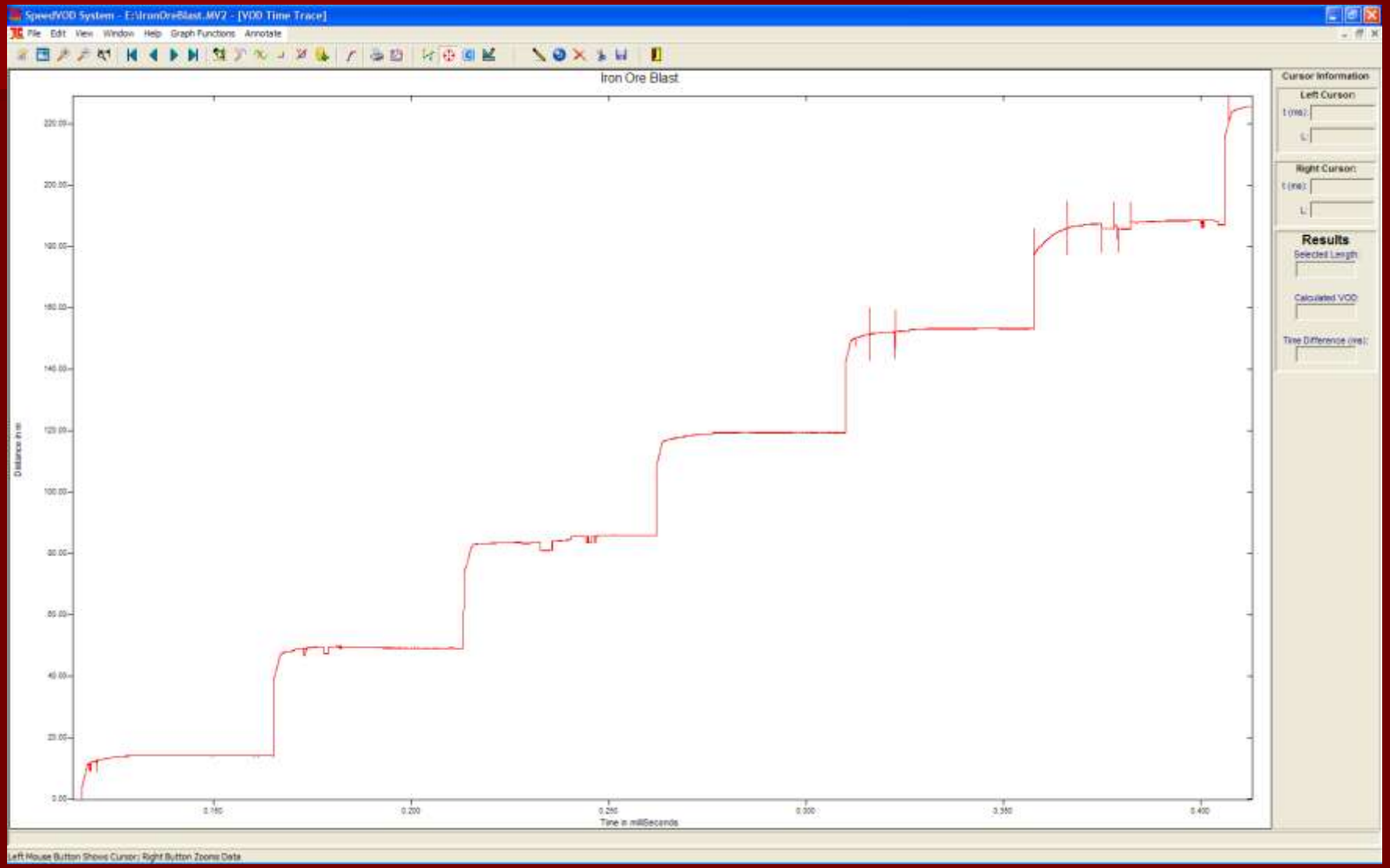
Mine Name	Borehole Number	Depth Monitored	Actual Depth	Booster Distance (from bottom)	Stemming	Test Date	Operator
mine a	Bh2	16.43	18.40	2.00	1.00	2004/08/04 00:00	Joe
mine a	Bh3	13.10	23.00	2.00	1.00	2004/08/04 00:00	Jeff
Demo Mine	BH ABC	13.47	32.00	1.00	2.00	2004/08/04 00:00	Joe Soap
Coal Mine	Borehole # 3	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…)

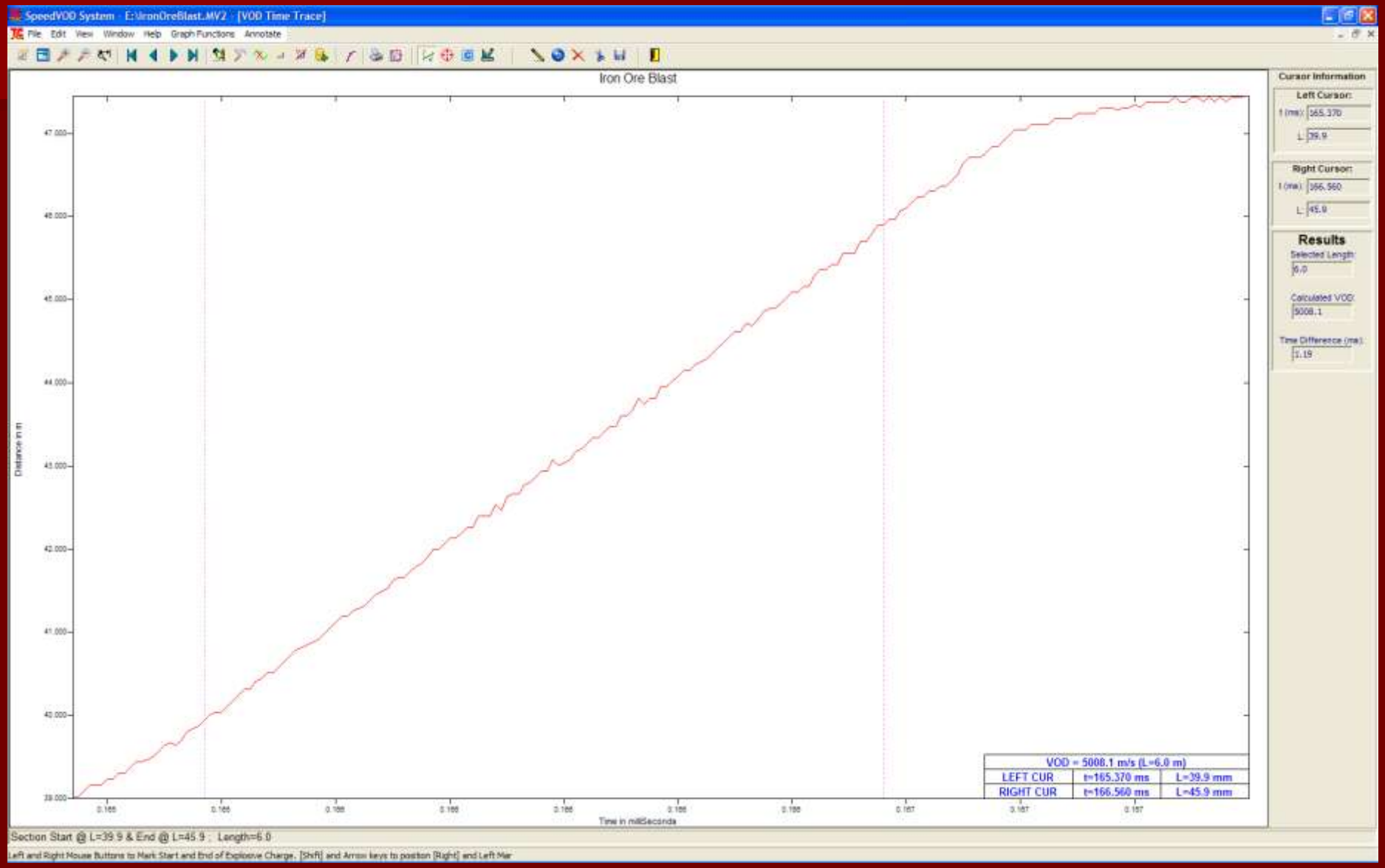
- Click on graphs tab to view selected traces



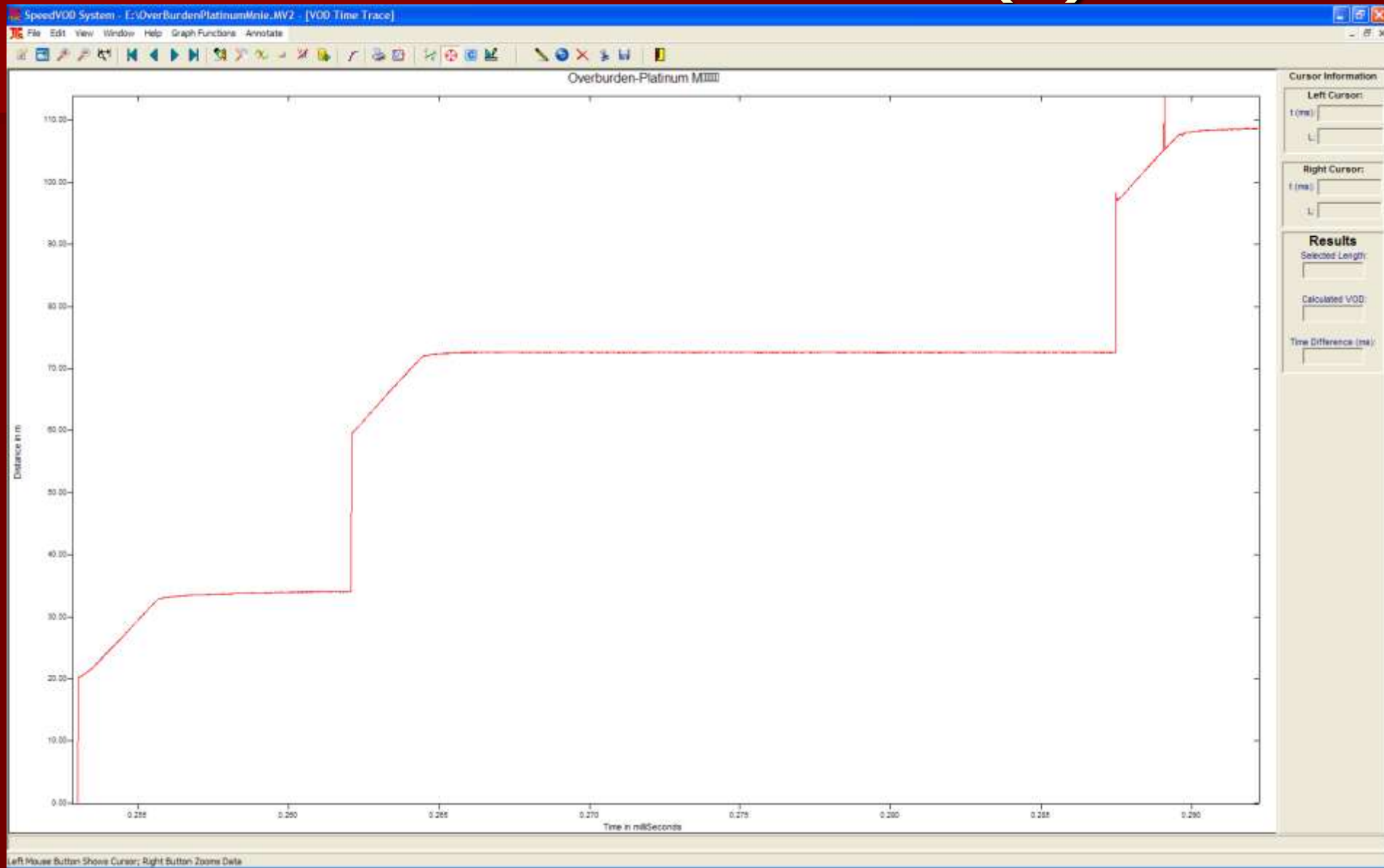
VOD Field Results (1)



VOD Field Results (1 Cont…)



VOD Field Results (2)



Contact Details:

- TLC ENGINEERING SOLUTIONS (Johannesburg, South Africa)
  - Luis Valentim, Terry Cousins
  - sales@tlc.co.za or luis@tlc.co.za
  - www.tlc.co.za
  - Tel:+27 11 4633860

- Vibronics (Evansville, Indiana, USA)
  - John Wiegand, Jeff Baker, John Smith
  - sales@vibronics.com or jbaker@vibronics.com
  - www.vibronics.com
  - Tel: (812) 853 2300