INTRODUCES

VIBRATION ASSISTANT VERSION 8.0

When you want to do detailed analysis on site specific vibration and air overpressure data, this is the software needed. The software performs a linear regression analysis of blast data and will predict peak particle velocity for a given distance from the blast. A table showing the maximum charge weight per delay for various distances can also be produced. Three items of input data are needed per blast: the distance from the blast, the maximum charge weight of explosive per delay, and the measured peak particle velocity for all three components, and the measured air blast overpressure. Information concerning the goodness of fit of the data collected is also provided. The software provides a graphical output on the screen, which can also be obtained on a hard copy. A minimum of 30 data pairs are needed for reliable analysis, but for non-critical purposes it is possible to derive results from a lesser number as few as three data points.

A linear regression analysis can also be performed on air blast data. The software will produce tables showing maximum charge weight per delay at various distances for air blast control.

The site specific propagation equation for prediction of peak particle velocity and maximum air blast overpressure are determined.

The software provides choices to calculate the charge weight per delay for a given distance, scaled distance for any maximum particle velocity (maximum air overpressure), maximum particle velocity (maximum air overpressure) for any scaled distance.

You have a choice of plotting graphs of peak particle velocity (maximum air pressure) versus scaled distance, peak particle velocity versus frequency and charge weight per delay versus distance.

This software offers a unique feature, which helps the user determine if the vibration is at normal expected levels, or if levels are much higher than anticipated. Commonly users only look at whether or not the vibration exceeded the specified vibration limits. At great distances, however, the vibration may be within limits but at much higher levels than were previously recorded. This normally would not be obvious since vibration level depends on distance and charge weight per delay. When higher than normal readings occur, something has changed in the blasting process. It is imperative that the user be aware of this immediately so that he can determine what has changed -- ground conditions or procedures employed on the blast. The software automatically puts an asterisk next to the data to show the user it is time to reevaluate the blasting procedure. The user then has the choice to either use this data in further analysis or to disregard the data from the analysis. The data will remain within the data file, but will not be used for calculation since it is an anomaly and is not something that is normally occurring.
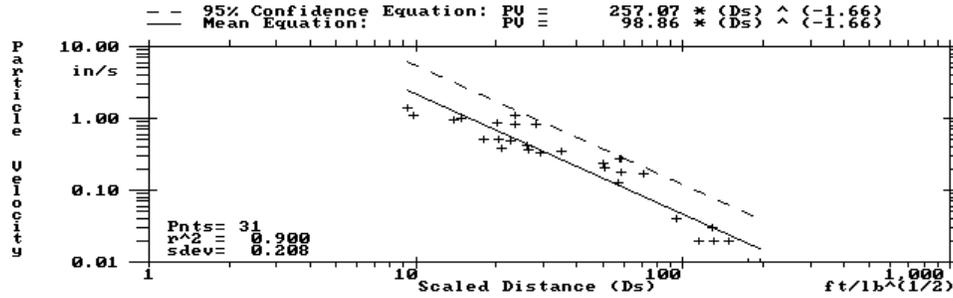
If both the blast and monitoring coordinates are considered, the software will automatically calculate the distance from the blast as well as the azimuth from the blast to the seismograph. This helps to maintain accurate distances between monitoring points, and also to exactly locate the monitoring points for future reference.

The software allows the use of data from all three components; vertical, radial, and transverse as well as peak vector sum. You can run an analysis using the data from any of these three components, vector sum, or the software will select the maximum vibration level from any of the 3 components.
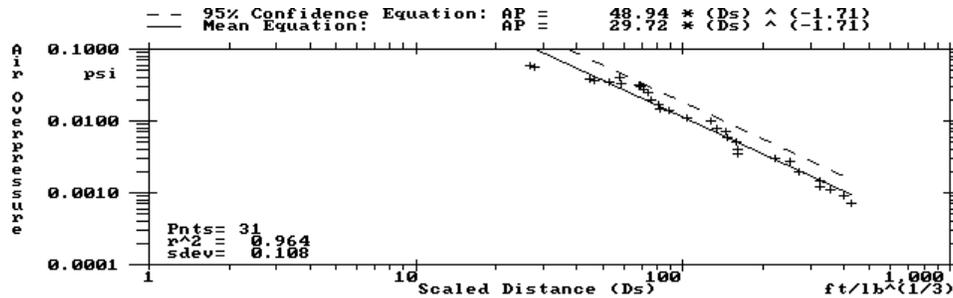
The software will accept the U.S. Customary or the S.I. ("Systeme International d'Unites" - Metric) measurement units. The software will also automatically convert from one set of units to the other.

PRECISION BLASTING SERVICES
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OUTPUT GRAPHS FOR PEAK PARTICLE VELOCITY

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- - 95% Confidence Equation:  PV =    257.07 * (Ds) ^ (-1.66)
    Mean Equation:           PV =     98.86 * (Ds) ^ (-1.66)
```

P a r t i c l e   V e l o c i t y

| 10.00 in/s |
| 1.00 |
| 0.10 |
| 0.01 |

```
Pnts= 31
r^2   0.900
sdev= 0.208
```

1   10   Scaled Distance (Ds)   100   1,000   ft/lb^(1/2)

OUTPUT GRAPHS FOR AIR OVERPRESSURE

```
- - 95% Confidence Equation:  AP =     48.94 * (Ds) ^ (-1.71)
    Mean Equation:           AP =     29.72 * (Ds) ^ (-1.71)
```

Air Overpressure

| 0.1000 psi |
| 0.0100 |
| 0.0010 |
| 0.0001 |

```
Pnts= 31
r^2   0.964
sdev= 0.108
```

1   10   Scaled Distance (Ds)   100   1,000   ft/lb^(1/3)

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