



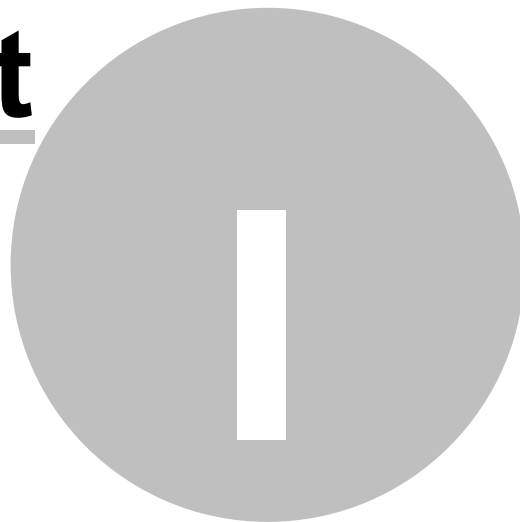
Ground Vibration Predictor Training Manual

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Top Level Intro

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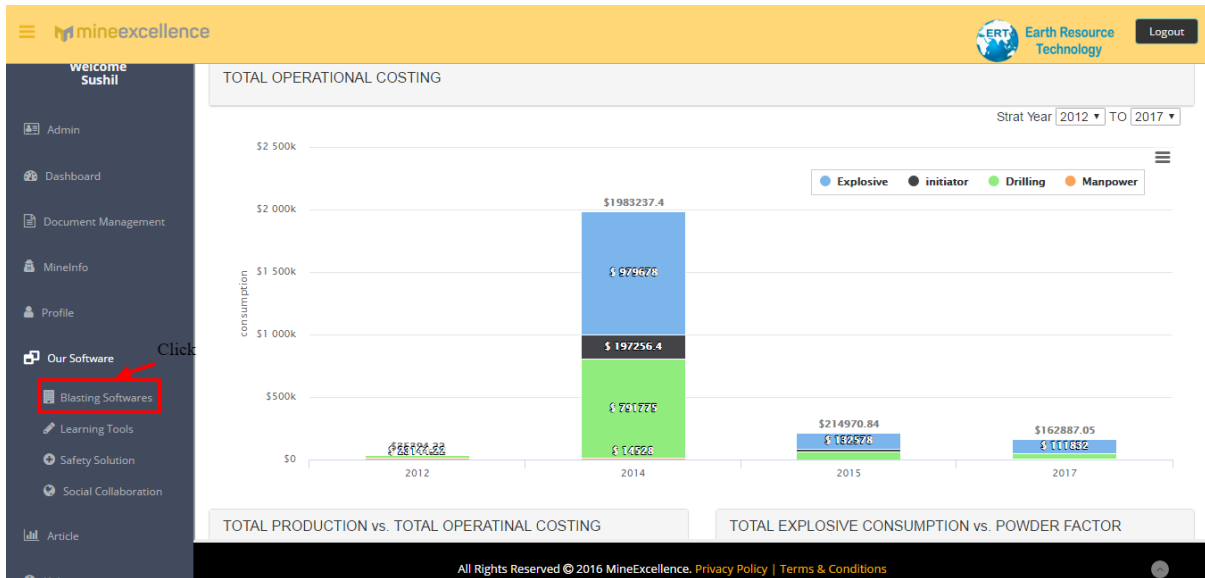


1 Start the Application

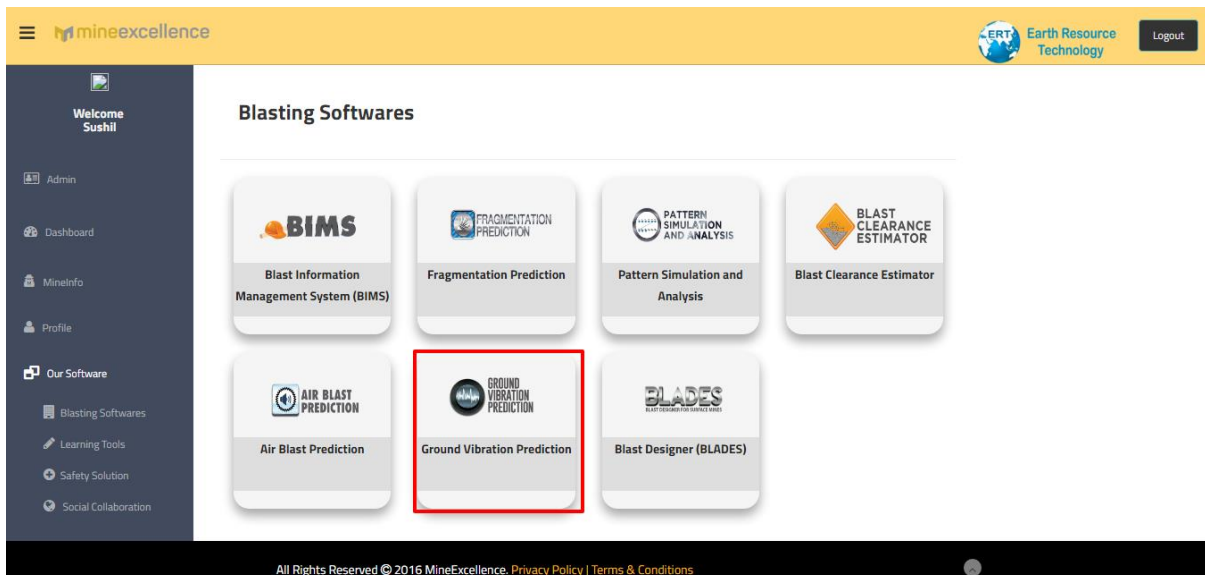
You can start the Ground Vibration software by once logging in from the Mine Excellence Site.

1.1 Ground Vibration Architecture

Once you login from the Mineexcellence site, a dashboard will be displayed as shown in figure below.



On Click of Blasting Software link available on the left side of the dashboard you will be redirected to the list of software available in the Mineexcellence as shown in fig.



On click of Ground Vibration Prediction, you will be redirected to Ground Vibration Prediction page as shown in figure below.

Site Law Generation | Vibration Table | Vibration Plot | Vibration Limit Table | Contour

Sno	Charge (Kg)	Distance From Blast(m)	PPV (mm/s)	Plot Symbol	Supress	Date	Monitor
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	dd-mm-yyyy	<input type="text"/>

Regression Analysis
 Coefficient Values
 Forced Exponent
 Confidence Interval 95% 99%

For Site Law generation, fill data in table and **Refresh Chart.**

Blasting Predictors & Control Tools 3.3.0 Developed by Continuous Excellence

1.1.1 Menu Bar

This is top most part of the screen. This bar displays menu items defining the basic functionality of the software. Following are menu items are present in the menu bar:

Home Mine Details Logout MINE NAME - ABC | BLAST NAME - 123 → Title Bar

1. Home - Redirect user to the Home Page of the website
2. Mine Detail - Here we can edit the Mine Name and the Blast location
3. Logout - User can logout by click of this button
4. Mine Name - Name of the mine
5. Blast Name - Name of the blast

Top Level Intro

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2. General Functions

Ground Vibration incorporates several functions

2.1 Mine Details

This function allow user to save mine details which include Mine Name and Blast Location. This information has to be filled as it is needed for generating report. To save mine details, click on Edit Mine details. Once Mine Details are saved, we can close this pop up by clicking simply on Close button.



Mine name	<input type="text" value="ABC"/>
Blast location	<input type="text" value="123"/>
<input type="button" value="Edit Mine Details"/> <input type="button" value="Close"/>	

2.2 Design Parameters

Following parameters are required to predict the Ground Vibration .These includes:

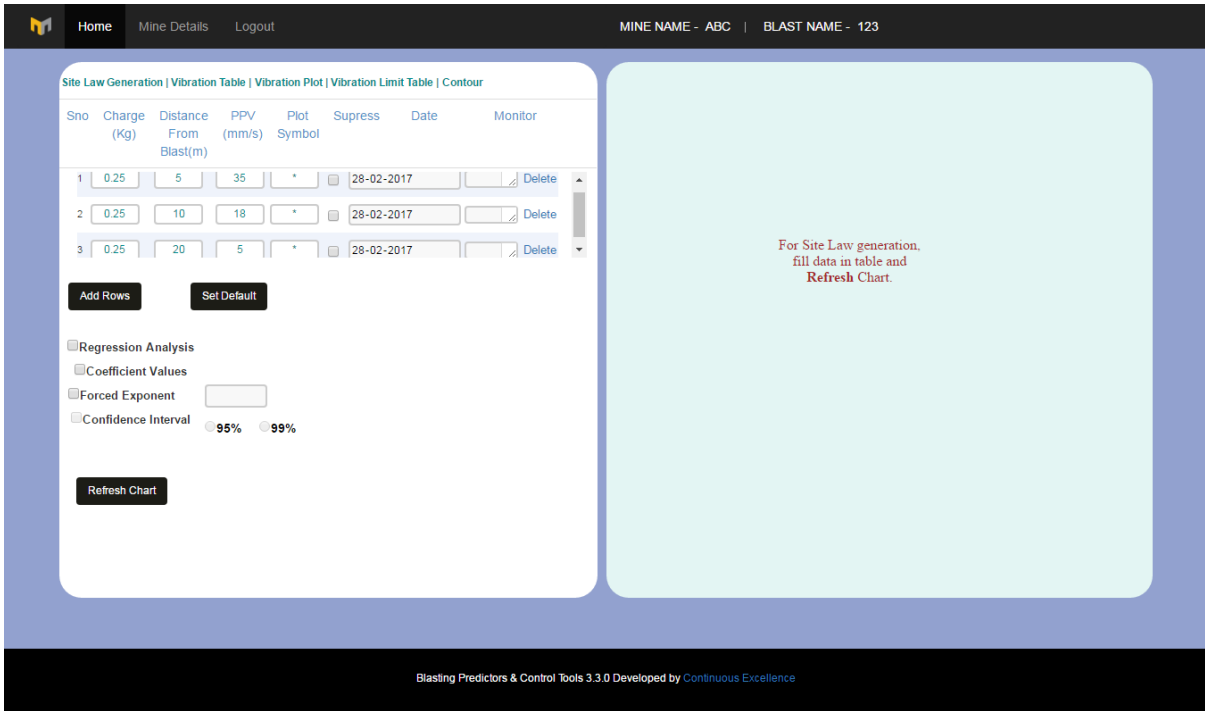
- a. Site Law Generation- This module is to use the ground vibration measurement to generate Site Laws for a particular site and to produce graphs for predictions especially for the limiting the blasting nuisances. Inputs are:

- Charge
- Distance From Blast
- PPV
- Plot symbol
- Suppress
- Date
- Monitor

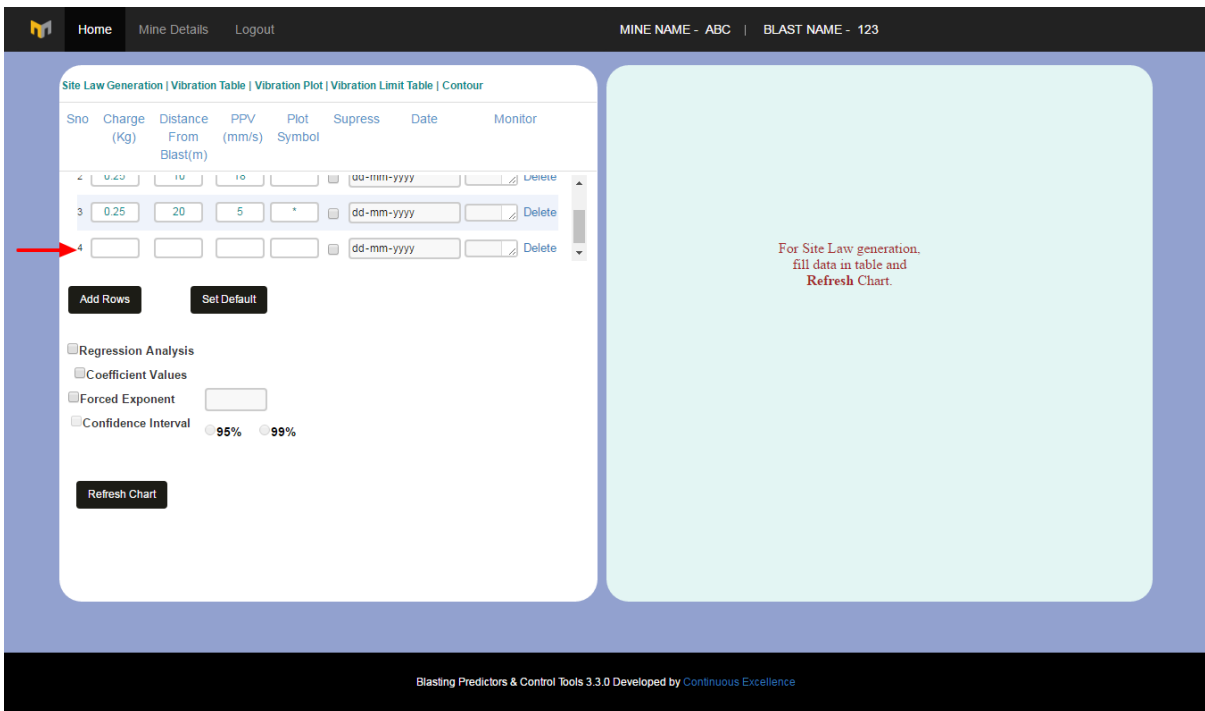
Whenever user click on Site Law Generation a page will be displayed as shown below:

The screenshot shows a web application interface for Site Law Generation. The top navigation bar includes 'Home', 'Mine Details', and 'Logout'. The user's current context is 'MINE NAME - ABC' and 'BLAST NAME - 123'. The main content area is divided into two panels. The left panel contains a table with columns: Sno, Charge (Kg), Distance From Blast (m), PPV (mm/s), Plot Symbol, Suppress, Date, and Monitor. A single row is visible with a 'Delete' button. Below the table are buttons for 'Add Rows' and 'Set Default'. There are also checkboxes for 'Regression Analysis', 'Coefficient Values', 'Forced Exponent', and 'Confidence Interval' (with radio buttons for 95% and 99%). A 'Refresh Chart' button is at the bottom of the left panel. The right panel is a large light blue area with the text: 'For Site Law generation, fill data in table and Refresh Chart.' The footer of the application reads 'Blasting Predictors & Control Tools 3.3.0 Developed by Continuous Excellence'.

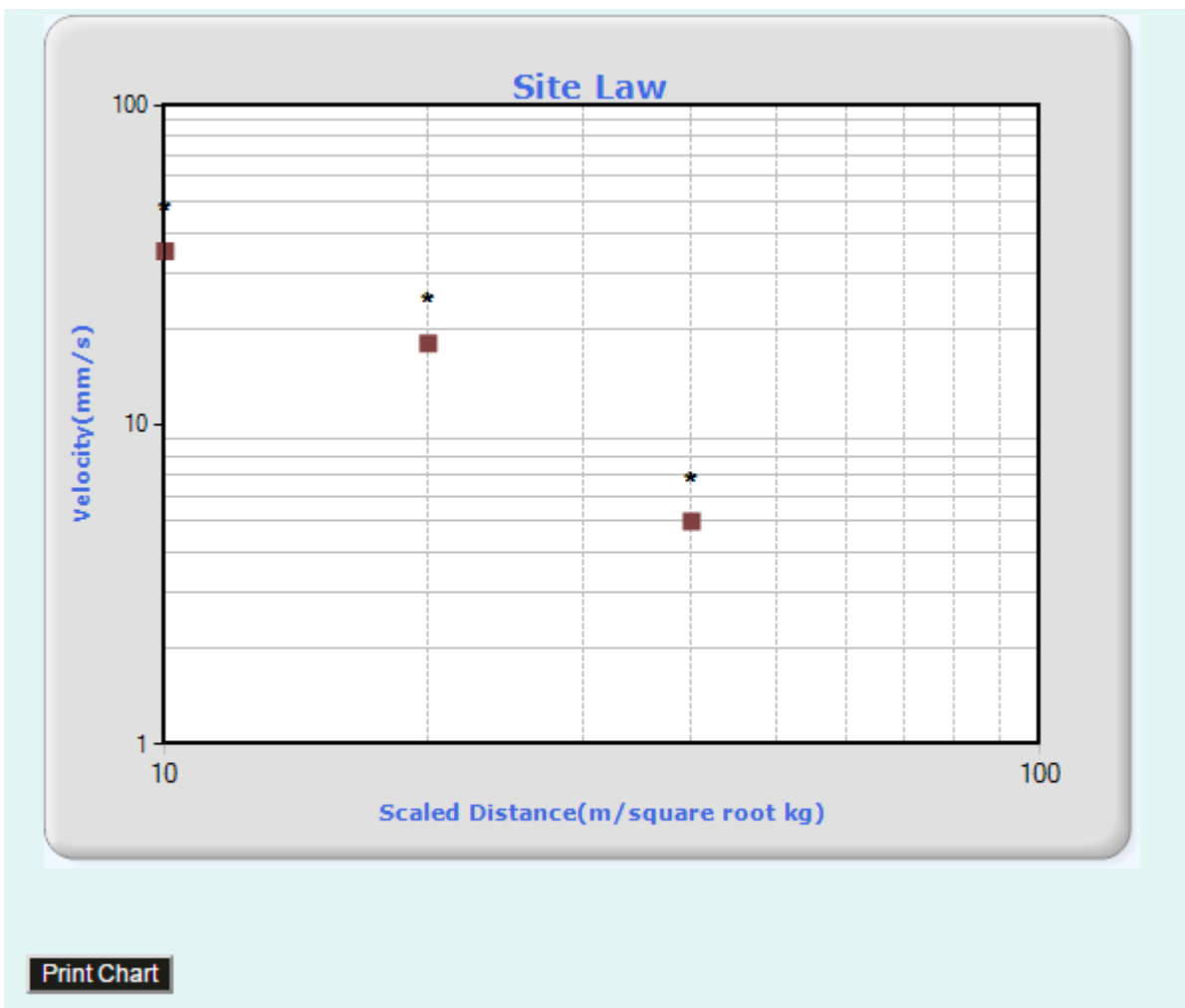
The user can use the default parameters by clicking on Set Default button and edit these parameters as per their operational requirement.



If a User wants to add rows he can add the same by clicking simply on ADD ROWS button, as shown:
 For deleting any row, click on delete button.



After clicking on Refresh Chart button, the result will be displayed in the graph format. In which x-axis defines the Scaled Distance (m/square root kg) and y axis will show the Velocity (mm/s).

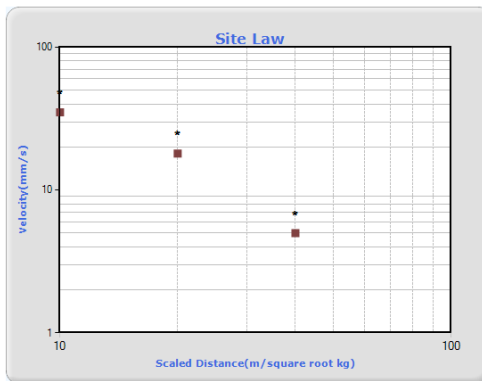


On clicking print chart button, chart will be display.



Print Cancel

Mine Name : ABC
 Exponent : 0
 Constant : 0

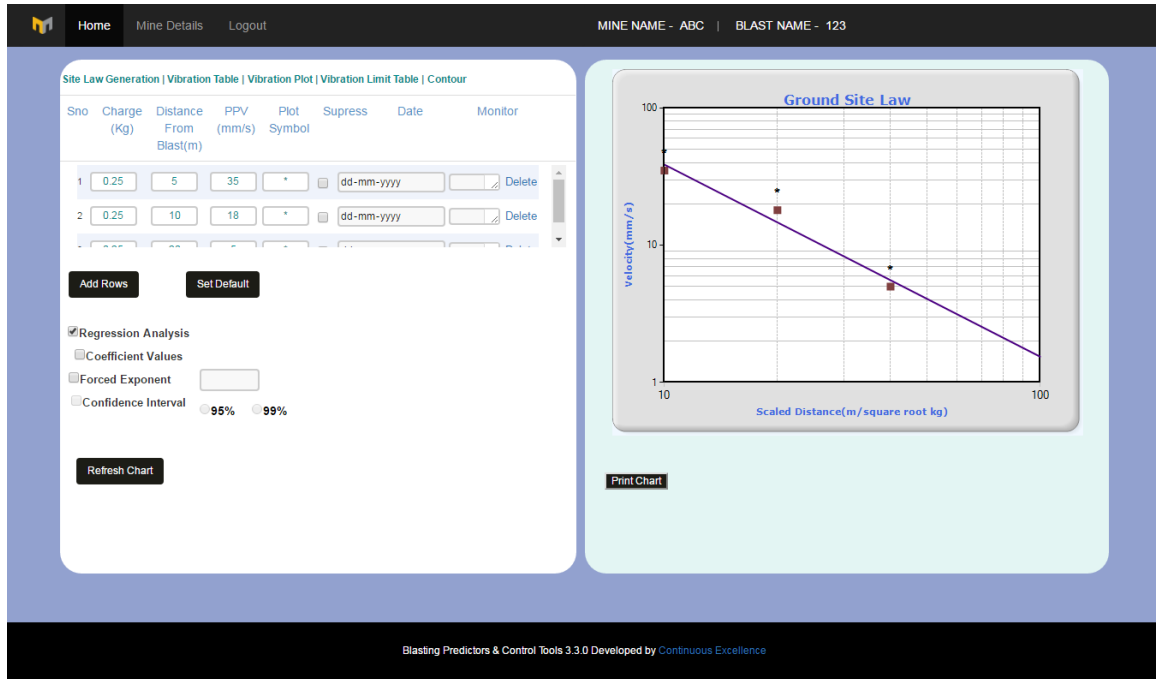


Ground Vibration Predictor © Earth Resource Technology
 Designed By: <http://earthresourcetechnology.com/>

2.2.1 Regression Analysis

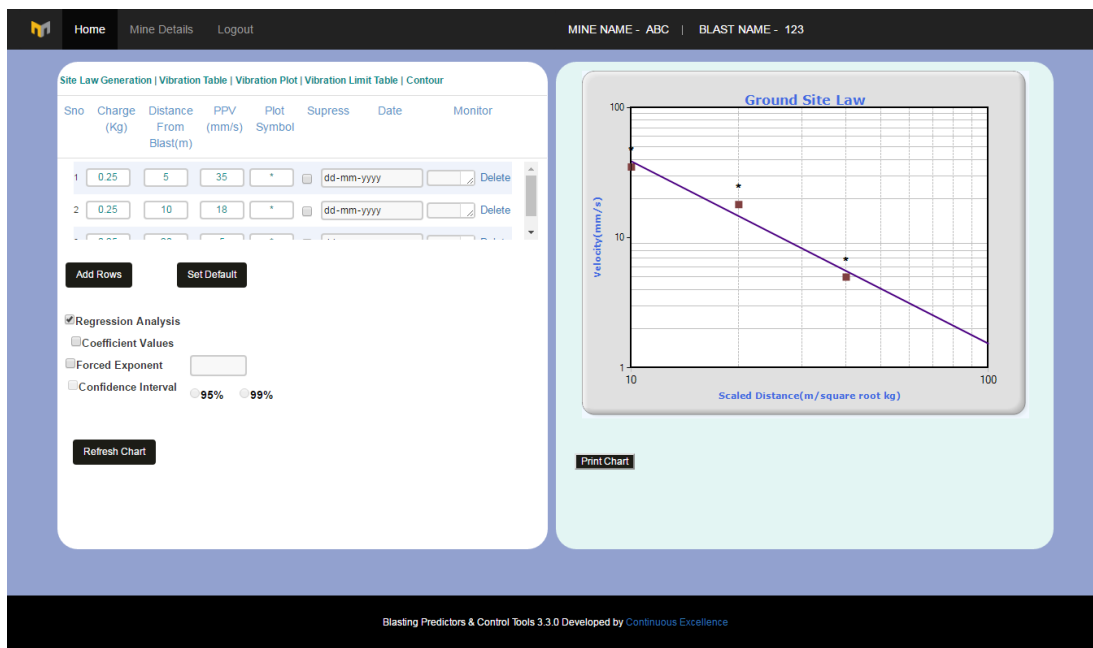
Regression Analysis check box is provided. When user check the regression analysis check box and click on refresh chart button, chart will be displayed.

In the graph, x-axis defines the Scaled Distance (in m/square root kg) and y axis will show the Velocity (in mm/s).



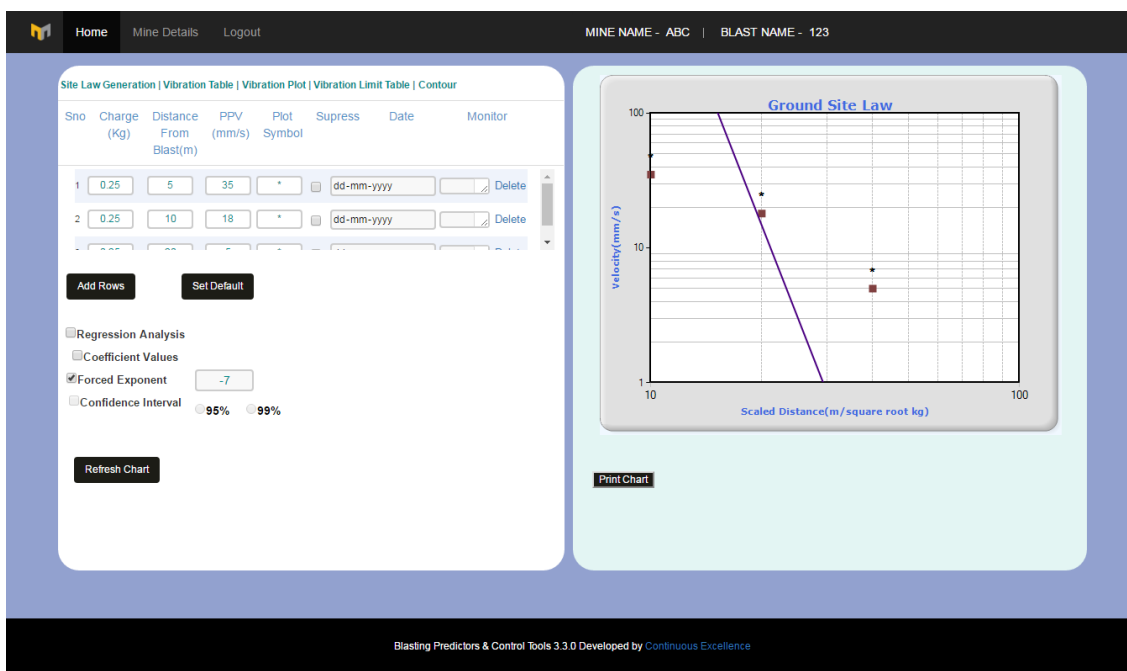
2.2.2 Coefficient Values

Coefficient values check box is provided. When user check the Coefficient values check box and click on refresh chart button, chart will be displayed.



2.2.3 Forced Exponent

When user check the forced exponent check box, a text box will appear in front of it and that should have negative value. After clicking on refresh chart button, chart will be displayed as shown.



In the graph, x-axis defines the Scaled Distance (in m/square root kg) and y axis will show the Sound Intensity (in mm/s).

2.2 Vibration Table

- Site Law Exponent
- Site Law Constant
- Range

On click of Display button, result will be displayed in the Table format. A user can use the default parameters by clicking on Set Default button and edit these parameters as per their operational requirement. User can select either high range or low range. If user select low range and click on display button result will be displayed for that of Low Range.

The screenshot shows the 'High Range' selected. The table displays PPV (mm/s) values for various distances (5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000) across different charge weights (0.25, 0.5, 0.75, 1, 1.5, 2.5, 5, 7.5, 10, 15 kg).

Charge (kg)	Distance(m)									
	5	10	20	50	100	200	500	1000	2000	5000
0.25	1876.35	14.66	0.11	0	0	0	0	0	0	0
0.5	21228.46	165.85	1.3	0	0	0	0	0	0	0
0.75	87748.13	685.53	5.36	0.01	0	0	0	0	0	0
1	240172.6	1876.35	14.66	0.02	0	0	0	0	0	0
1.5	992756.78	7755.91	60.59	0.1	0	0	0	0	0	0
2.5	5933534.71	46355.74	362.15	0.59	0	0	0	0	0	0
5	67130282.13	524455.33	4097.31	6.71	0.05	0	0	0	0	0
7.5	277483957.04	2167843.41	16936.28	27.75	0.22	0	0	0	0	0
10	759492443.46	5933534.71	46355.74	75.95	0.59	0	0	0	0	0
15	3139372603.09	24526348.46	191612.1	313.94	2.45	0.02	0	0	0	0

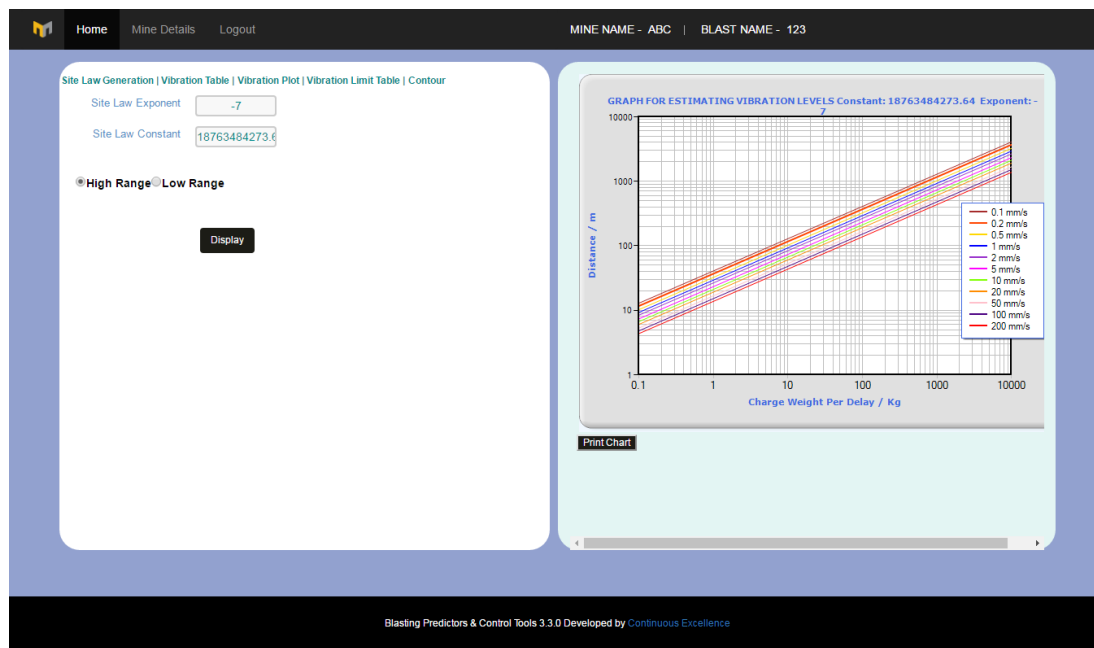
The screenshot shows the 'Low Range' selected. The table displays PPV (mm/s) values for various distances (0.5, 1, 2, 5, 10, 20, 50) across different charge weights (0.025, 0.05, 0.075, 0.1, 0.15, 0.25, 0.5, 0.75, 1, 1.5 kg).

Charge (kg)	Distance(m)						
	0.5	1	2	5	10	20	50
0.025	5933534.71	46355.74	362.15	0.59	0	0	0
0.05	67130282.13	524455.33	4097.31	6.71	0.05	0	0
0.075	277483957.04	2167843.41	16936.28	27.75	0.22	0	0
0.1	759492443.46	5933534.71	46355.74	75.95	0.59	0	0
0.15	3139372603.09	24526348.46	191612.1	313.94	2.45	0.02	0
0.25	18763484273.64	146589720.89	1145232.19	1876.35	14.66	0.11	0
0.5	212284591497.25	1658473371.07	12956823.21	21228.46	165.85	1.3	0
0.75	877481318402.03	6855322800.02	53557209.38	87748.13	685.53	5.36	0
1	2401725987025.92	18763484273.64	146589720.89	240172.6	1876.35	14.66	0
1.5	9927567849705.4	77559123825.82	605930654.89	992756.78	7755.91	60.59	0

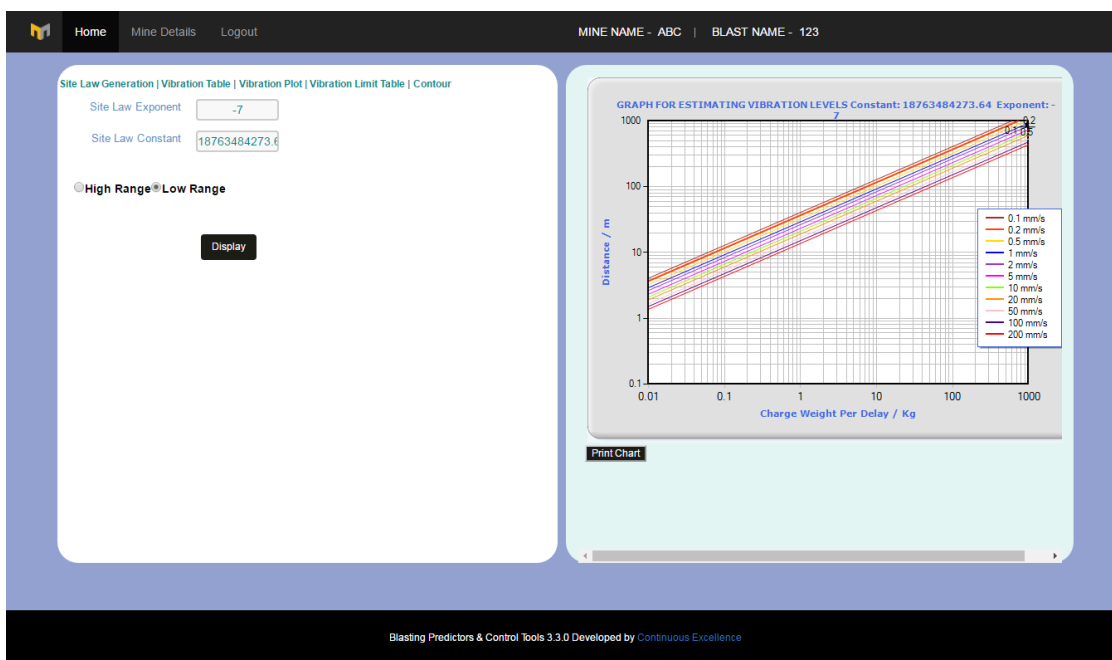
2.3 Vibration Plot

- Site Law Exponent

- Site Law Constant
- Range



On click of Display button, the results will be displayed in the graph format, in which x-axis define the Charge Weight per Delay (in kg) and y axis will shows the Distance (in meters). The user can use the default parameters and edit these parameters as per their operational requirement. User can select either high range or low range.



2.4 Vibration Limit Table

- Site Law Exponent
- Site Law Constant
- PPV
- Range

The screenshot shows a web-based interface for generating vibration limit tables. On the left, there are three input fields: 'Site Law Exponent' with a value of -7, 'Site Law Constant' with a value of 18763484273.6, and 'PPV' with a value of 2. Below these fields is a 'Display' button. On the right, a table titled 'Vibration Limit Table' is displayed. The table has two columns: 'Distance(m)' and 'Charge(kg)'. The data rows are as follows:

Distance(m)	Charge(kg)
10	0.14
15	0.32
20	0.57
30	1.27
50	3.54
70	6.93
100	14.15
150	31.84
200	56.6
300	127.36

Below the table is a 'Print Table' button. At the bottom of the interface, there is a footer that reads: 'Blasting Predictors & Control Tools 3.3.0 Developed by Continuous Excellence'.

The user can use the default parameters and edit these parameters as per their operational requirement. User can select High Range or Low Range, as per their operational requirement.