

**BROWARD COUNTY BLASTING MONITORING DATA  
FOR CITY OF MIRAMAR  
BLASTING OCCURRING IN MIAMI-DADE COUNTY  
OCTOBER 2018**

**LOCATION #1: Riviera Isles (NE)  
LOCATION #2: Riviera Isles (SW)  
LOCATION #3: Hungtinton South**

DATE	STATION LOCATION	TIME	READING (PPV)*
07/16/2018	LOCATION #2	1:30 PM	0.120
07/16/2018	LOCATION #3	1:31 PM	0.100
07/18/2018	LOCATION #2	11:00 AM	0.135
07/18/2018	LOCATION #3	11:00 AM	0.128
07/20/2018	LOCATION #2	1:16 PM	0.135
07/20/2018	LOCATION #3	9:15 AM	0.380
07/20/2018	LOCATION #3	1:16 PM	0.118
07/25/2018	LOCATION #2	1:15 PM	0.148
07/25/2018	LOCATION #3	1:15 PM	0.110
07/26/2018	LOCATION #2	11:00 AM	0.140
07/26/2018	LOCATION #3	11:00 AM	0.138
07/27/2018	LOCATION #2	1:16 PM	0.135
07/27/2018	LOCATION #3	1:16 PM	0.140
07/28/2018	LOCATION #3	1:47 PM	0.100
07/31/2018	LOCATION #2	1:47 PM	0.150
08/03/2018	LOCATION #2	1:31 PM	0.188
08/03/2018	LOCATION #3	1:31 PM	0.158
08/07/2018	LOCATION #2	11:58 AM	0.090
08/07/2018	LOCATION #3	11:58 AM	0.088
08/14/2018	LOCATION #2	10:43 AM	0.078
08/14/2018	LOCATION #2	12:42 PM	0.078
08/14/2018	LOCATION #2	12:52 PM	0.200
08/15/2018	LOCATION #2	1:17 PM	0.053
08/15/2018	LOCATION #3	1:16 PM	0.073
08/17/2018	LOCATION #2	11:33 AM	0.103

**BROWARD COUNTY BLASTING MONITORING DATA  
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OCTOBER 2018**

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**LOCATION #2: Riviera Isles (SW)**

**LOCATION #3: Hungtinton South**

DATE	STATION LOCATION	TIME	READING (PPV)*
08/17/2018	LOCATION #3	11:32 AM	0.125
08/17/2018	LOCATION #3	1:11 PM	0.220
08/20/2018	LOCATION #1	1:16 PM	0.068
08/21/2018	LOCATION #1	1:15 PM	0.073
08/21/2018	LOCATION #2	1:16 PM	0.098
08/21/2018	LOCATION #3	1:15 PM	0.060
08/22/2018	LOCATION #1	2:16 PM	0.050
08/23/2018	LOCATION #1	11:45 AM	0.225
08/23/2018	LOCATION #2	11:45 AM	0.113
08/23/2018	LOCATION #3	11:45 AM	0.085
08/24/2018	LOCATION #1	11:31 AM	0.063
08/28/2018	LOCATION #1	1:16 PM	0.133
08/28/2018	LOCATION #2	1:16 PM	0.063
08/28/2018	LOCATION #3	1:15 PM	0.053
08/29/2018	LOCATION #1	11:16 AM	0.228
08/29/2018	LOCATION #2	11:16 AM	0.125
08/30/2018	LOCATION #1	1:46 PM	0.158
08/30/2018	LOCATION #2	1:46 PM	0.055
09/04/2018	LOCATION #1	2:31 PM	0.060
09/05/2018	LOCATION #1	11:31 AM	0.143
09/05/2018	LOCATION #2	11:31 AM	0.080
09/05/2018	LOCATION #3	11:31 AM	0.058
09/11/2018	LOCATION #2	11:32 AM	0.085
09/12/2018	LOCATION #2	11:32 AM	0.125

**BROWARD COUNTY BLASTING MONITORING DATA  
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OCTOBER 2018**

**LOCATION #1: Riviera Isles (NE)  
LOCATION #2: Riviera Isles (SW)  
LOCATION #3: Hungtinton South**

<b>DATE</b>	<b>STATION LOCATION</b>	<b>TIME</b>	<b>READING (PPV)*</b>
09/13/2018	LOCATION #2	11:32 AM	0.055

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 07/16/2018 13:30:02  
**Event No:** 1  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

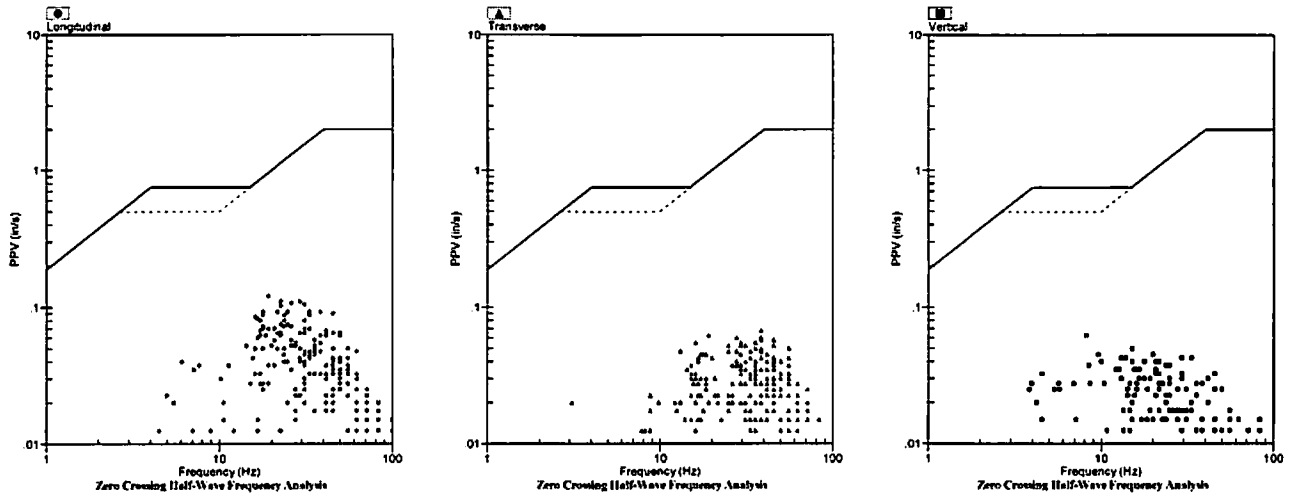
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.120	0.068	0.063
<b>FREQ (Hz)</b>	19.2	38.5	8.2
<b>PD (.001")</b>	1.09	1.10	1.23
<b>PPA (g)</b>	0.072	0.046	0.033
<b>Peak Vector Sum:</b>	0.133 in/s		
<b>Peak Air Pressure:</b>	103 db		
	0.00048 PSI @ 5.6 Hz		

### Additional Info:

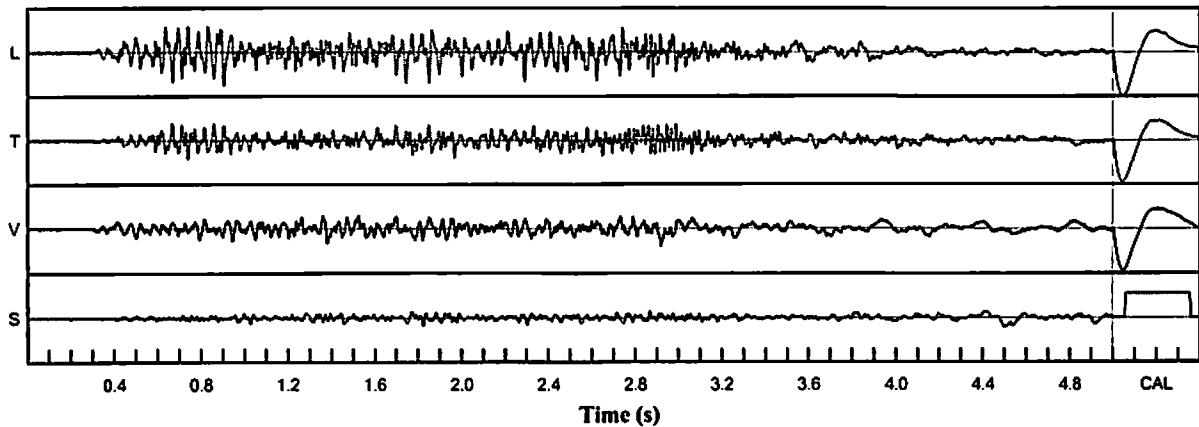
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 1



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 07/18/2018 10:59:42  
**Event No:** 2  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

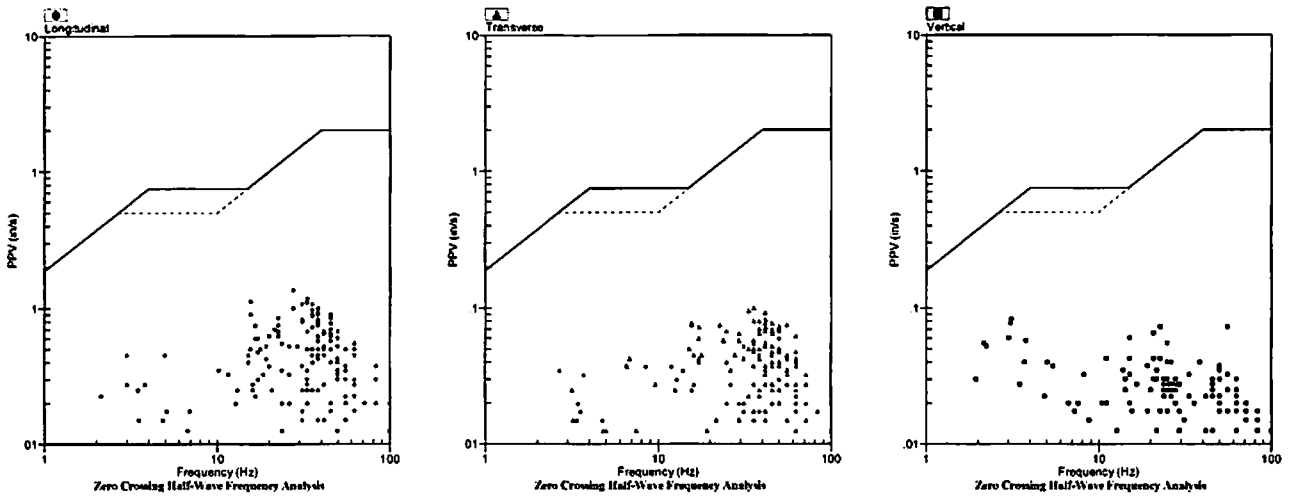
### Summary Data

	L	T	V
PPV (in/s)	0.135	0.100	0.083
FREQ (Hz)	27.8	35.7	3.1
PD (.001")	1.50	1.64	3.93
PPA (g)	0.078	0.065	0.046
Peak Vector Sum:	0.145 in/s		
Peak Air Pressure:	103 db		
	0.00048 PSI @ 41.7 Hz		

### Additional Info:

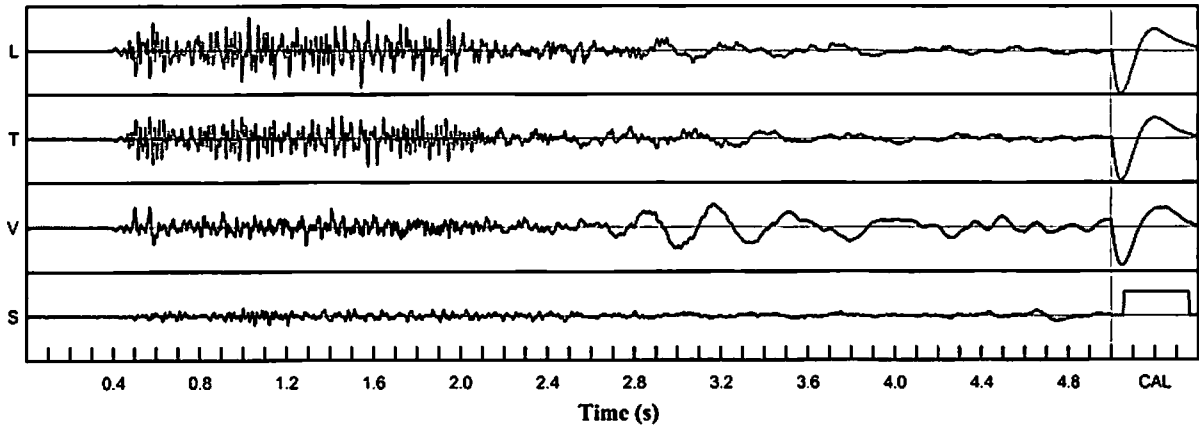
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 2



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 07/20/2018 13:15:32  
**Event No:** 3  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

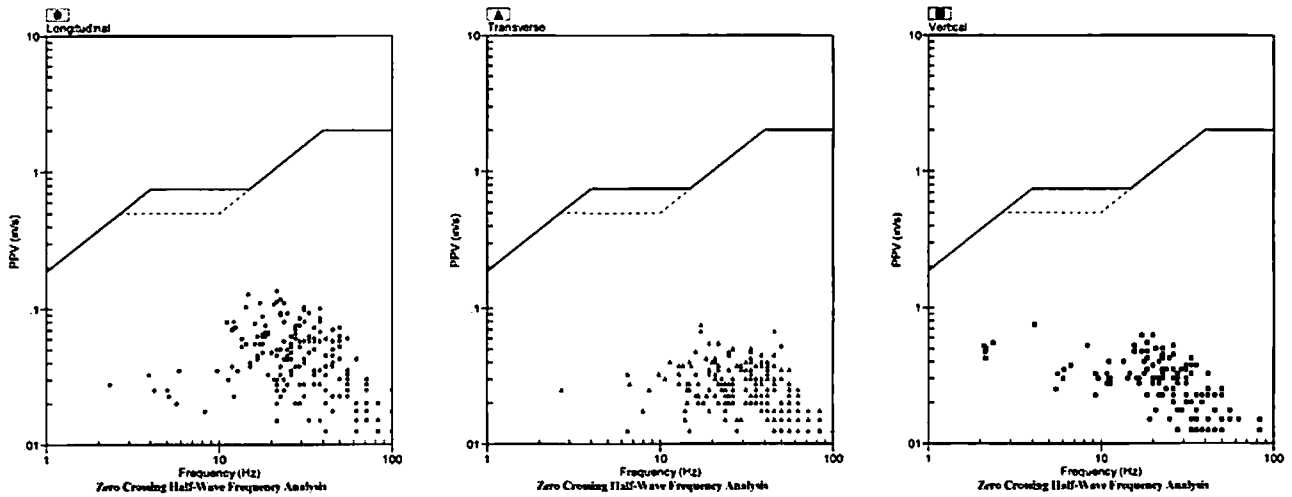
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.135	0.075	0.075
<b>FREQ (Hz)</b>	21.7	17.2	4.1
<b>PD (.001")</b>	1.72	1.25	3.68
<b>PPA (g)</b>	0.078	0.046	0.033
<b>Peak Vector Sum:</b>	0.138 in/s		
<b>Peak Air Pressure:</b>	104 db		
	0.00052 PSI @ 29.4 Hz		

### Additional Info:

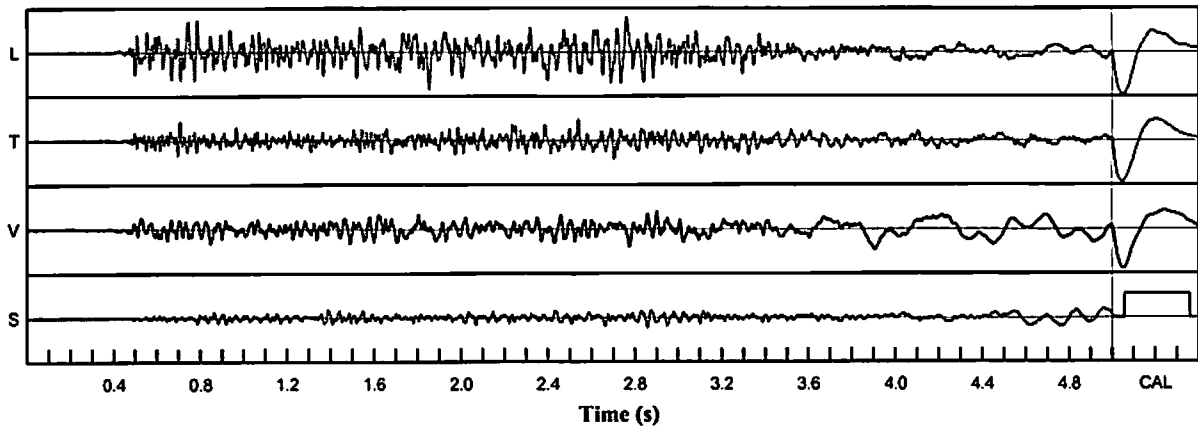
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 3



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

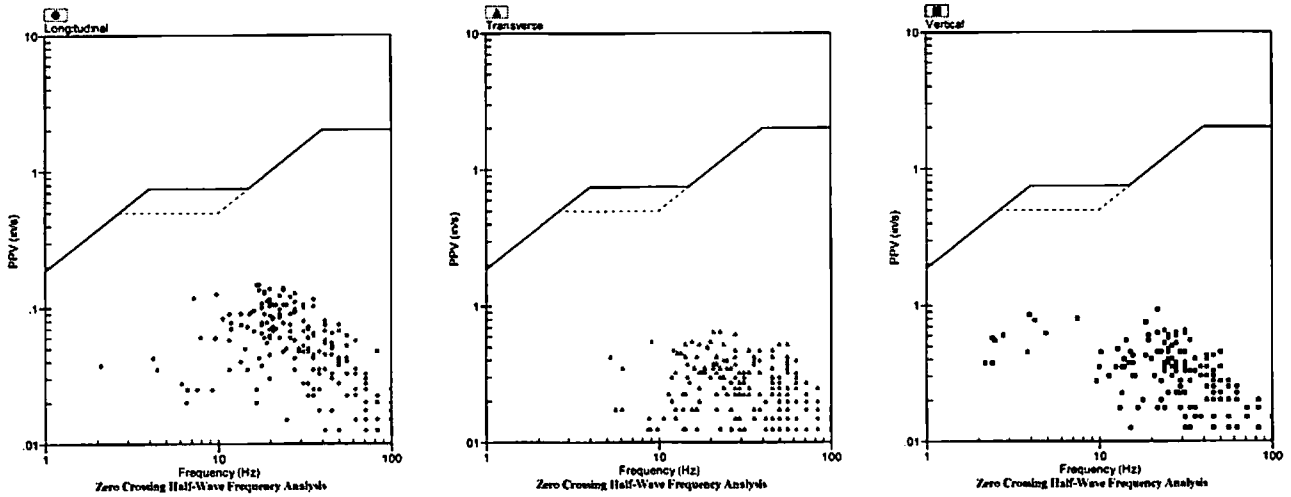
**Serial No:** 5149 v3.67  
**Date:** 07/25/2018 13:15:08  
**Event No:** 4  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

Summary Data			
	L	T	V
PPV (in/s)	0.148	0.065	0.093
FREQ (Hz)	17.2	22.7	21.7
PD (.001")	1.88	1.40	3.51
PPA (g)	0.078	0.046	0.052
Peak Vector Sum:	0.148 in/s		
Peak Air Pressure:	105 db		
	0.00059 PSI @ 4.6 Hz		

**Additional Info:**

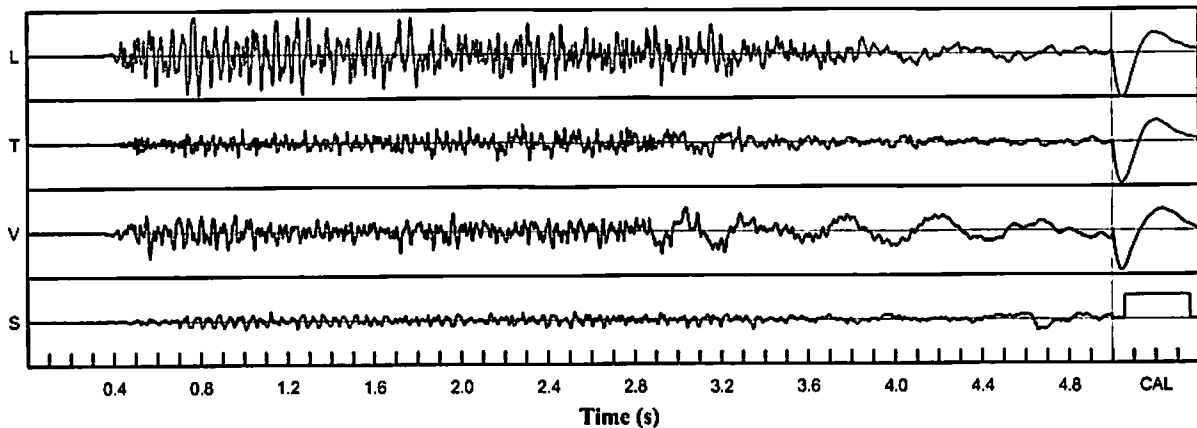
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 4



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 07/26/2018 11:00:08  
**Event No:** 5  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

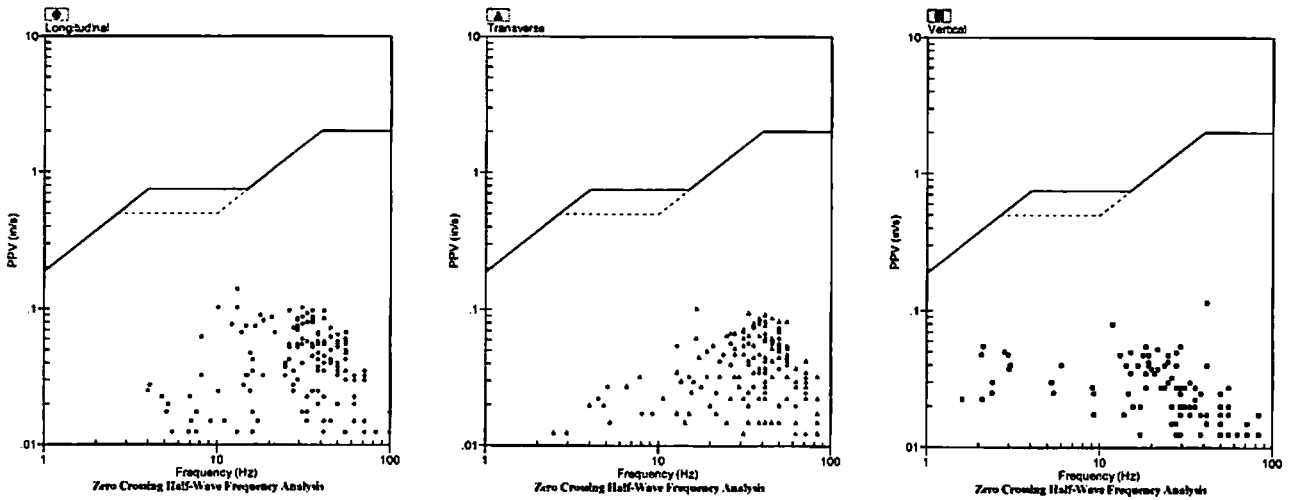
### Summary Data

	L	T	V
PPV (in/s)	0.140	0.103	0.115
FREQ (Hz)	13.2	16.7	18.5
PD (.001")	1.41	1.16	2.90
PPA (g)	0.072	0.065	0.052
Peak Vector Sum:	0.173 in/s		
Peak Air Pressure:	110 db		
	0.00093 PSI @ 4.7 Hz		

### Additional Info:

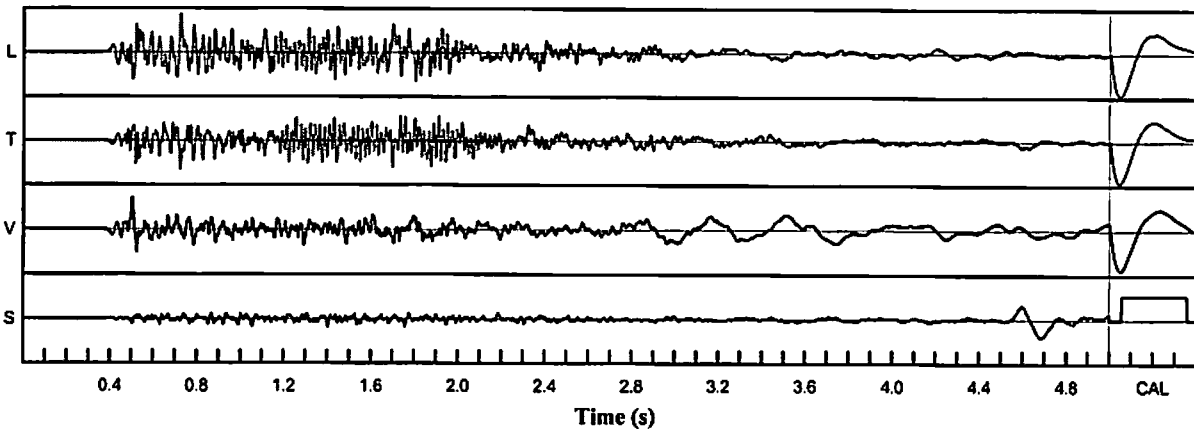
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 5



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 07/27/2018 13:15:49  
**Event No:** 6  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

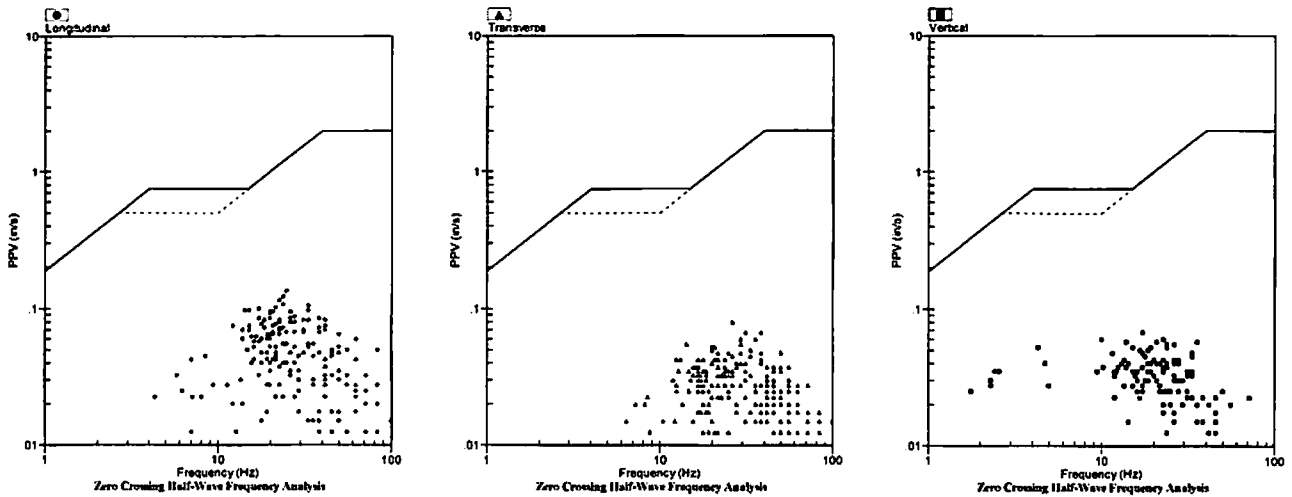
### Summary Data

	L	T	V
PPV (in/s)	0.135	0.080	0.068
FREQ (Hz)	25.0	26.3	17.2
PD (.001")	1.23	0.94	2.23
PPA (g)	0.072	0.052	0.033
Peak Vector Sum:	0.145 in/s		
Peak Air Pressure:	111 db		
	0.00110 PSI @ 5.6 Hz		

### Additional Info:

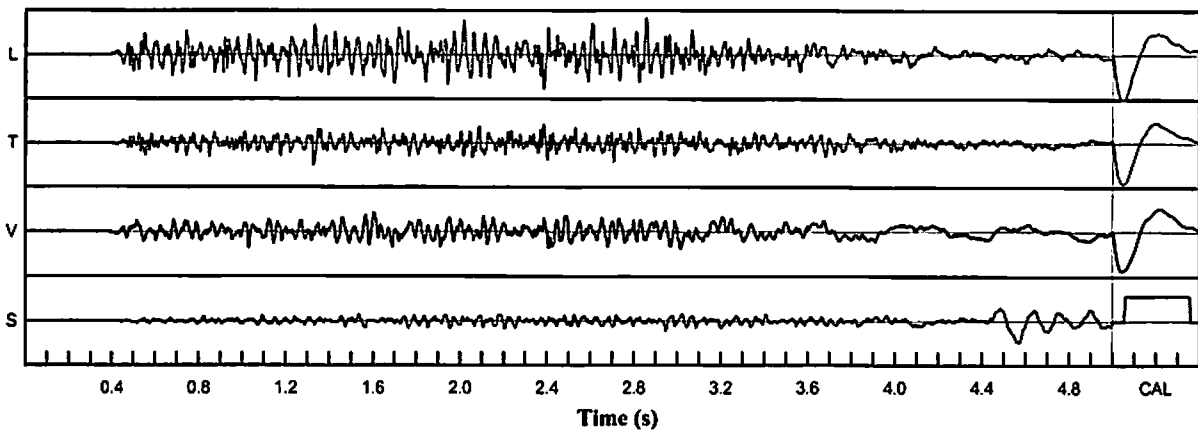
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 6



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 07/31/2018 13:46:49  
**Event No:** 7  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

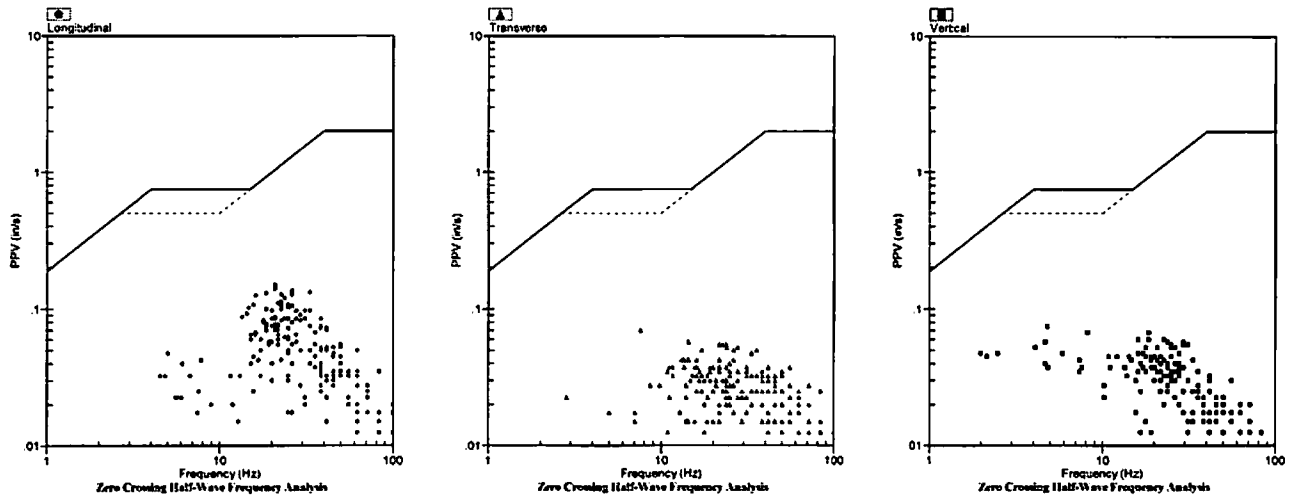
### Summary Data

	L	T	V
PPV (in/s)	0.150	0.070	0.075
FREQ (Hz)	20.8	7.6	4.8
PD (.001")	1.61	1.42	3.05
PPA (g)	0.078	0.052	0.046
Peak Vector Sum:	0.155 in/s		
Peak Air Pressure:	105 db		
	0.00059 PSI @ 5.1 Hz		

### Additional Info:

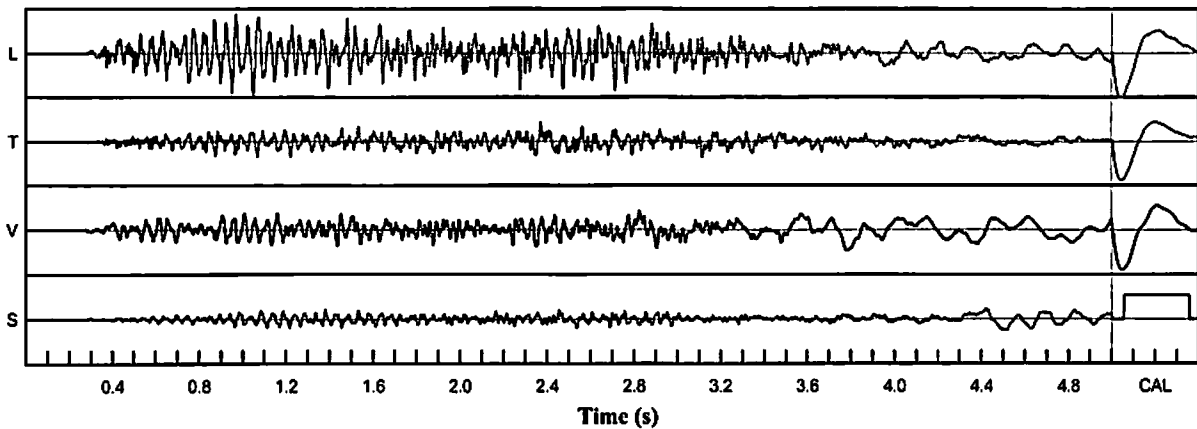
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 7



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/03/2018 13:31:11  
**Event No:** 8  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

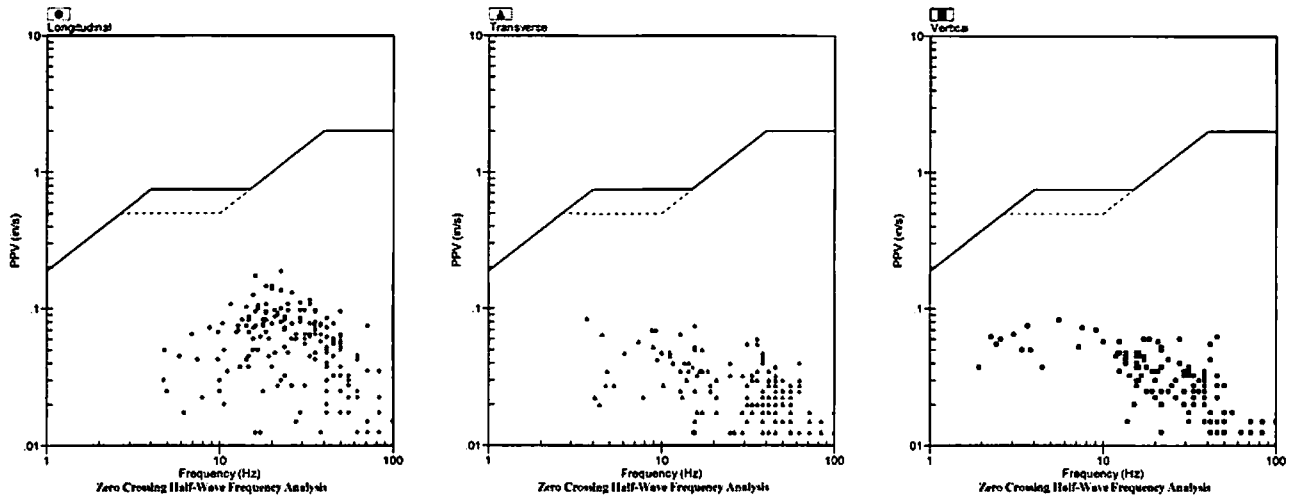
### Summary Data

	L	T	V
PPV (in/s)	0.188	0.085	0.083
FREQ (Hz)	22.7	3.7	5.6
PD (.001")	1.96	1.96	3.61
PPA (g)	0.098	0.046	0.039
Peak Vector Sum:	0.190 in/s		
Peak Air Pressure:	106 db		
	0.00062 PSI @ 2.9 Hz		

### Additional Info:

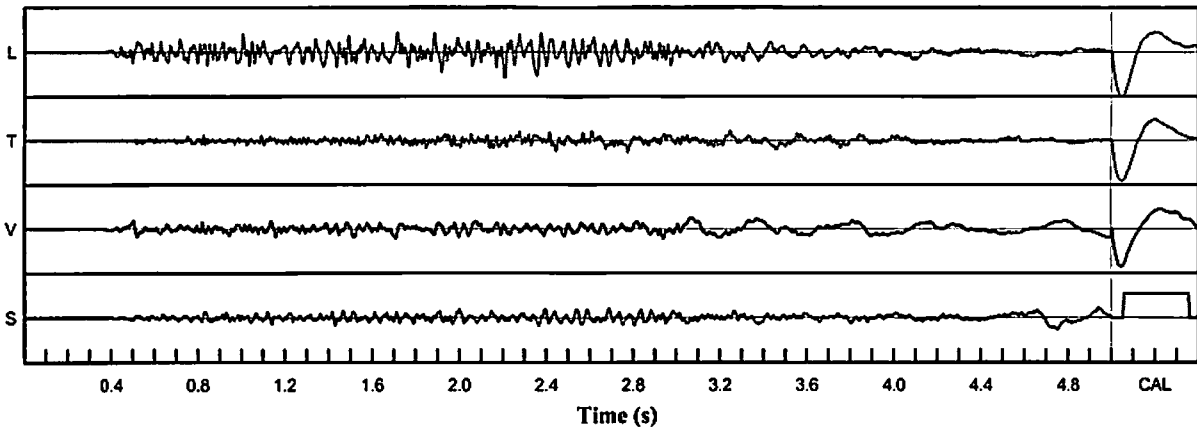
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 8



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/07/2018 11:58:03  
**Event No:** 9  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

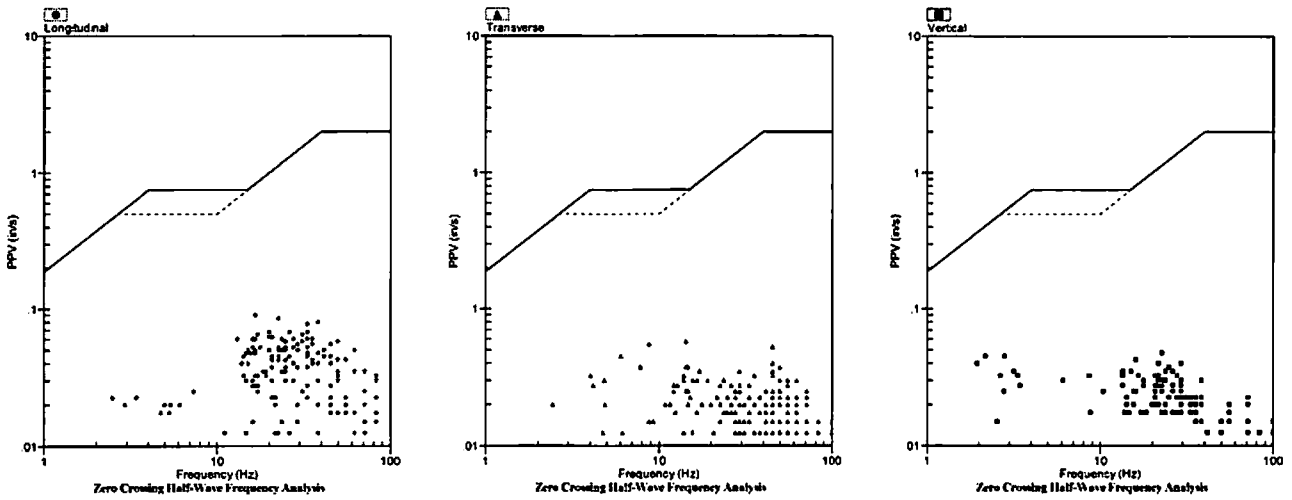
### Summary Data

	L	T	V
PPV (in/s)	0.090	0.058	0.048
FREQ (Hz)	16.7	14.3	22.7
PD (.001")	1.30	1.50	2.50
PPA (g)	0.052	0.039	0.033
Peak Vector Sum:	0.090 in/s		
Peak Air Pressure:	102 db		
	0.00039 PSI @ 7.9 Hz		

### Additional Info:

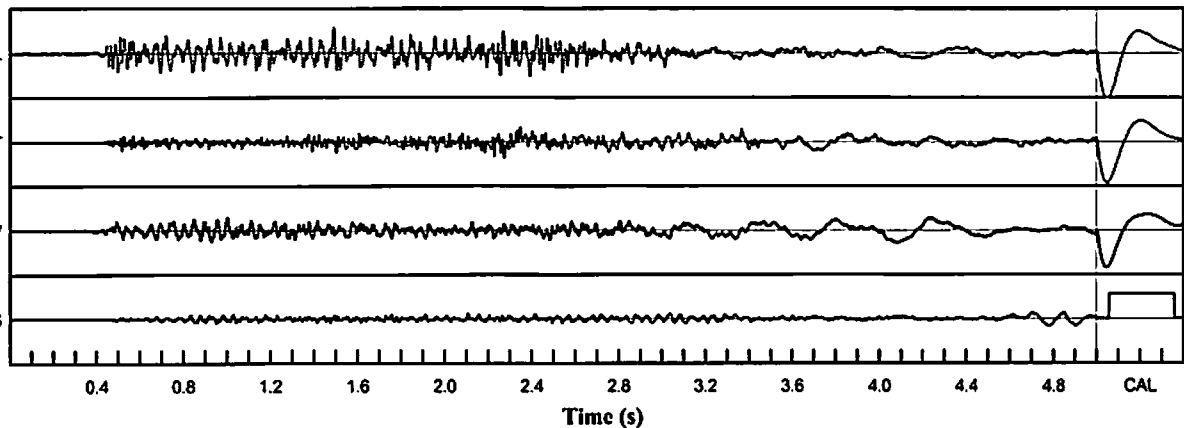
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 9



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/14/2018 10:43:03  
**Event No:** 10  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

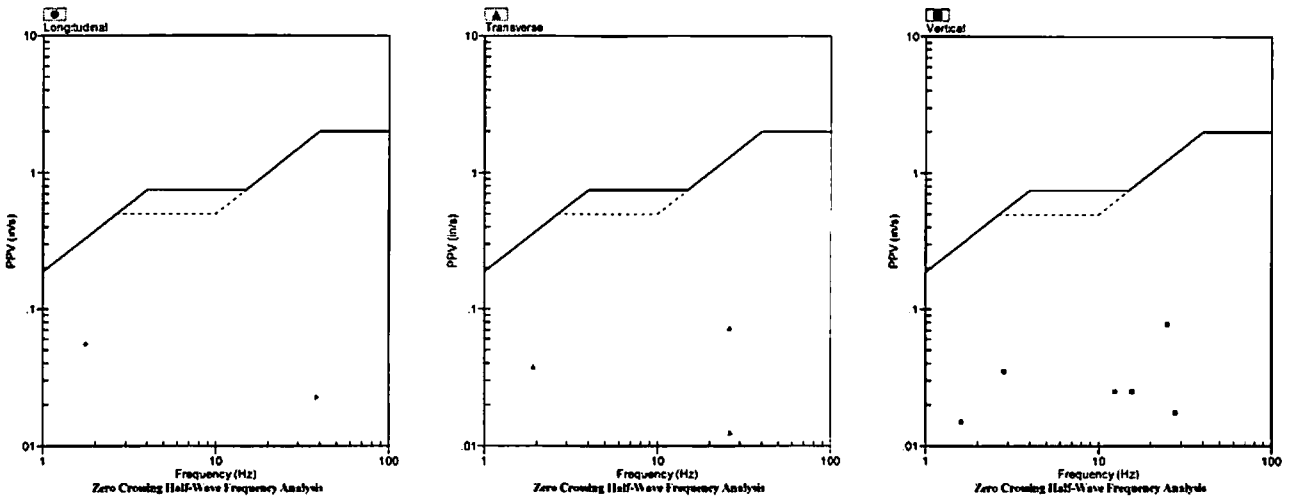
### Summary Data

	L	T	V
PPV (in/s)	0.055	0.073	0.078
FREQ (Hz)	1.8	12.8	12.5
PD (.001")	7.04	5.34	1.86
PPA (g)	0.020	0.026	0.026
Peak Vector Sum:	0.105 in/s		
Peak Air Pressure:	78 db		
	0.00004 PSI @ 1.0 Hz		

### Additional Info:

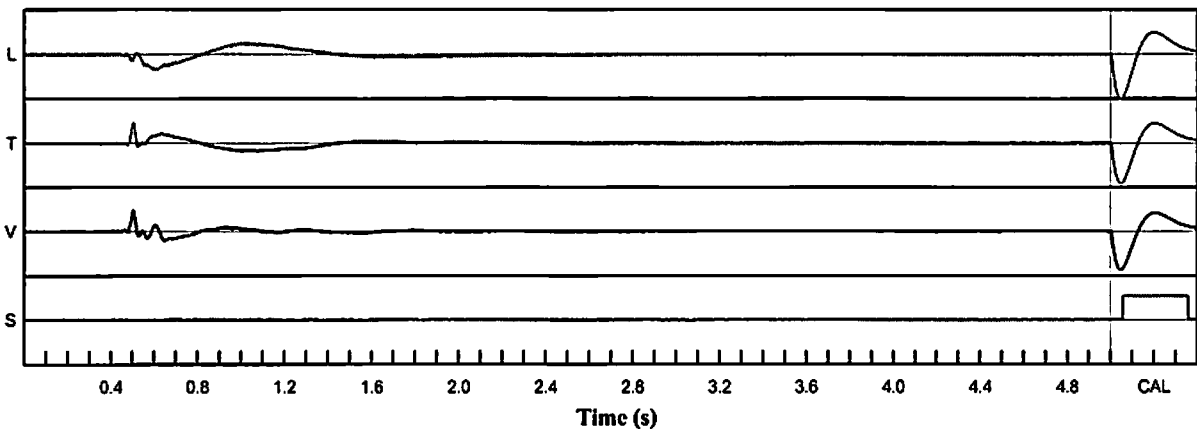
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 10



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/14/2018 12:42:22  
**Event No:** 12  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

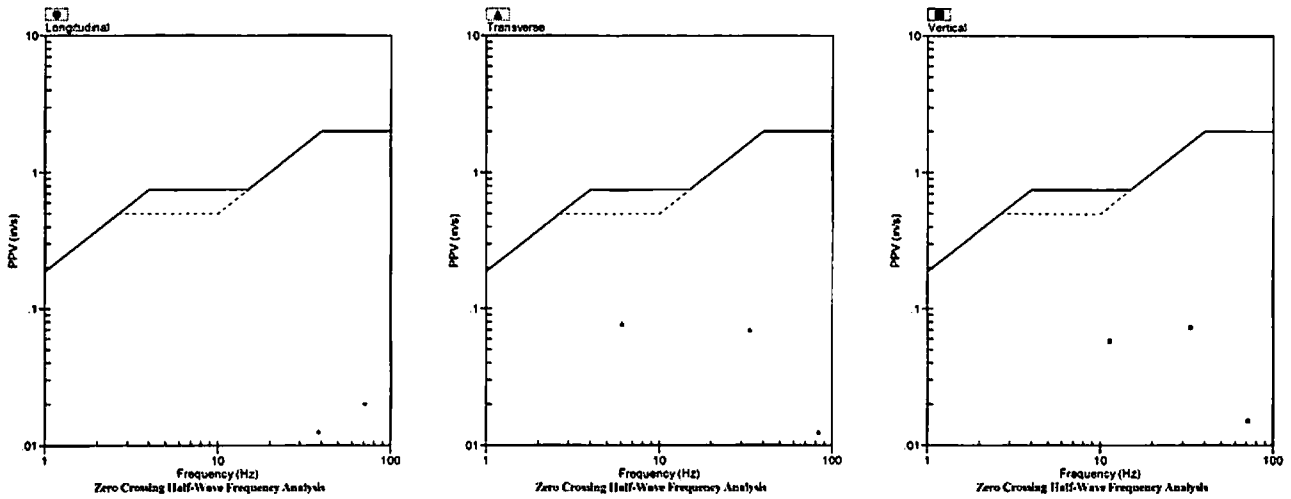
### Summary Data

	L	T	V
PPV (in/s)	0.020	0.078	0.073
FREQ (Hz)	71.4	6.1	18.5
PD (.001")	0.17	0.98	0.70
PPA (g)	0.046	0.052	0.052
Peak Vector Sum:	0.100 in/s		
Peak Air Pressure:	79 db		
	0.00005 PSI @ 1.0 Hz		

### Additional Info:

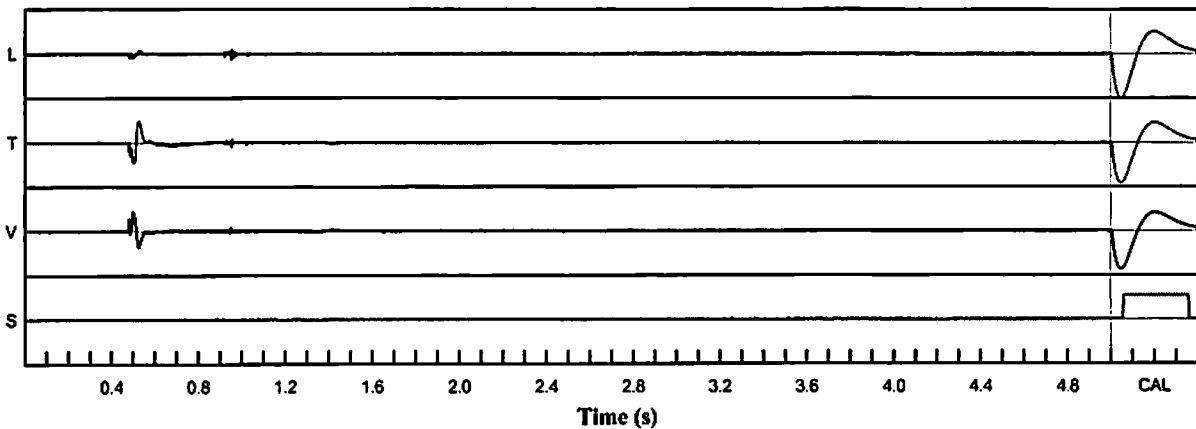
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 12



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/14/2018 12:52:20  
**Event No:** 13  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

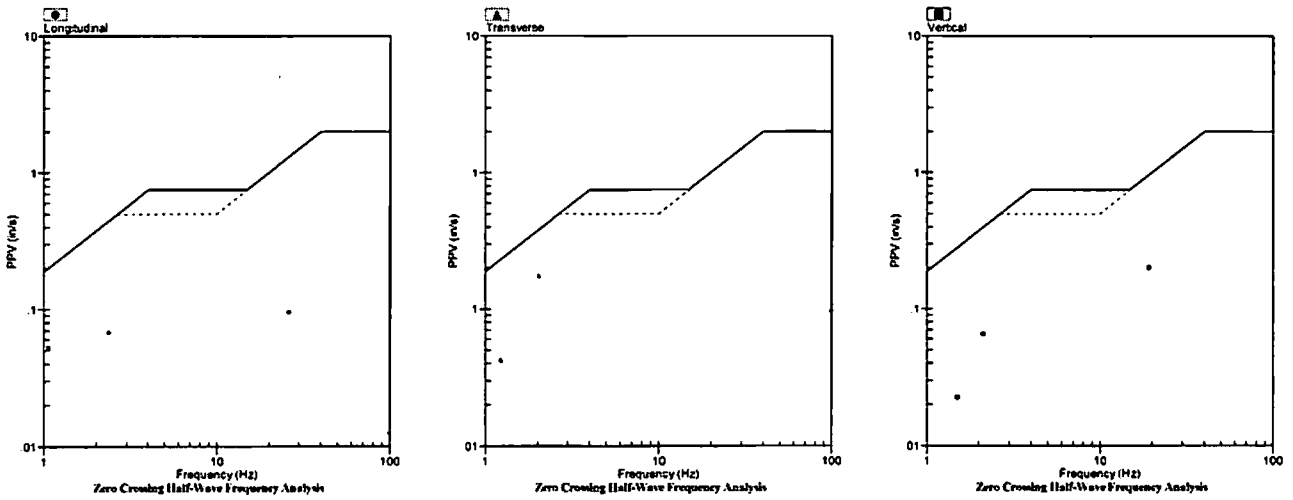
### Summary Data

	L	T	V
PPV (in/s)	0.095	0.175	0.200
FREQ (Hz)	26.3	2.0	19.2
PD (.001")	7.11	4.87	2.57
PPA (g)	0.124	0.117	0.117
Peak Vector Sum:	0.245 in/s		
Peak Air Pressure:	120 db		
	0.00308 PSI @ 100.0 Hz		

### Additional Info:

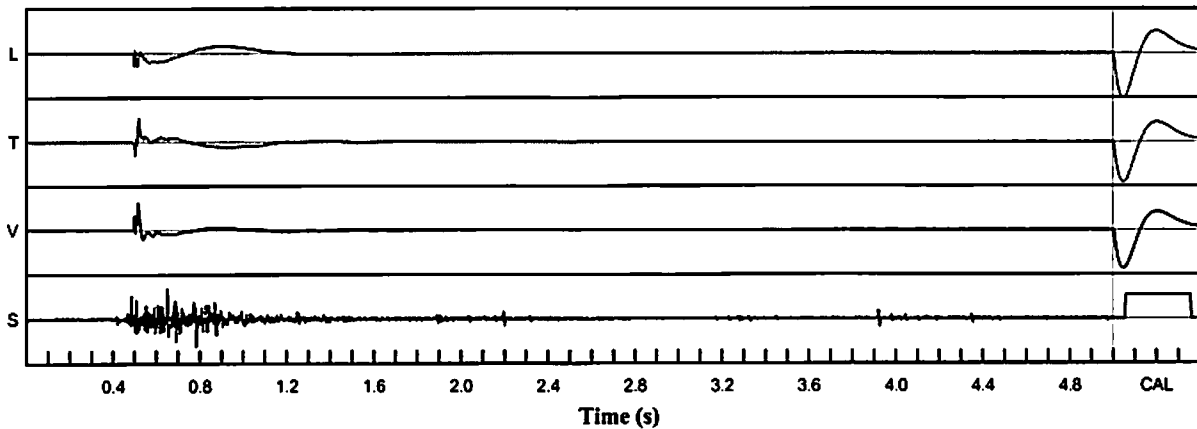
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 13



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0045 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/14/2018 10:45:41  
**Event No:** 11  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

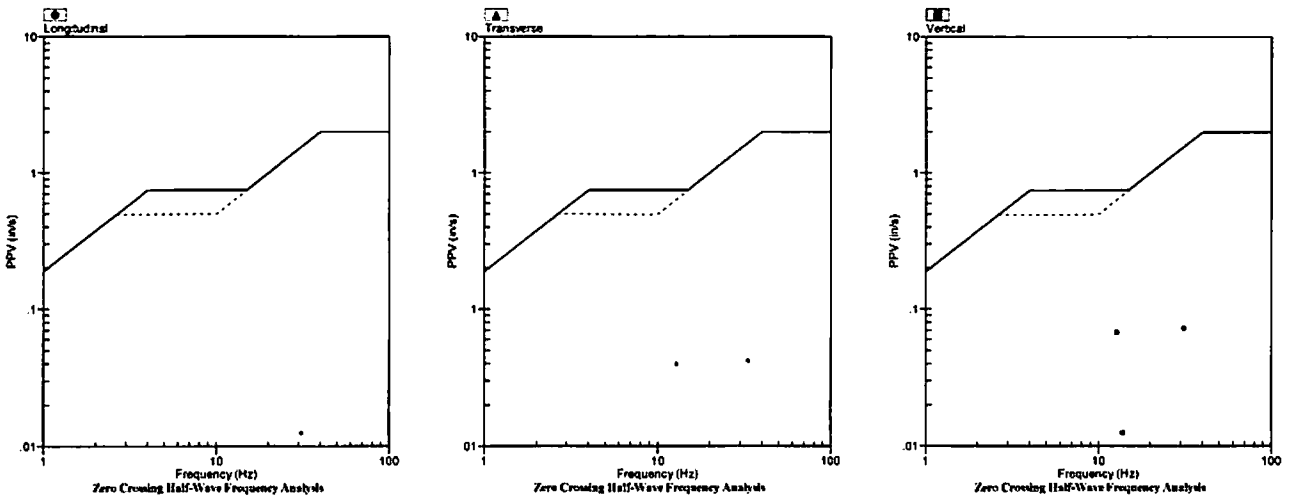
### Summary Data

	L	T	V
PPV (in/s)	0.013	0.043	0.073
FREQ (Hz)	15.2	17.9	16.7
PD (.001")	0.21	0.59	0.93
PPA (g)	0.020	0.039	0.052
Peak Vector Sum:	0.083 in/s		
Peak Air Pressure:	79 db		
	0.00005 PSI @ 1.0 Hz		

### Additional Info:

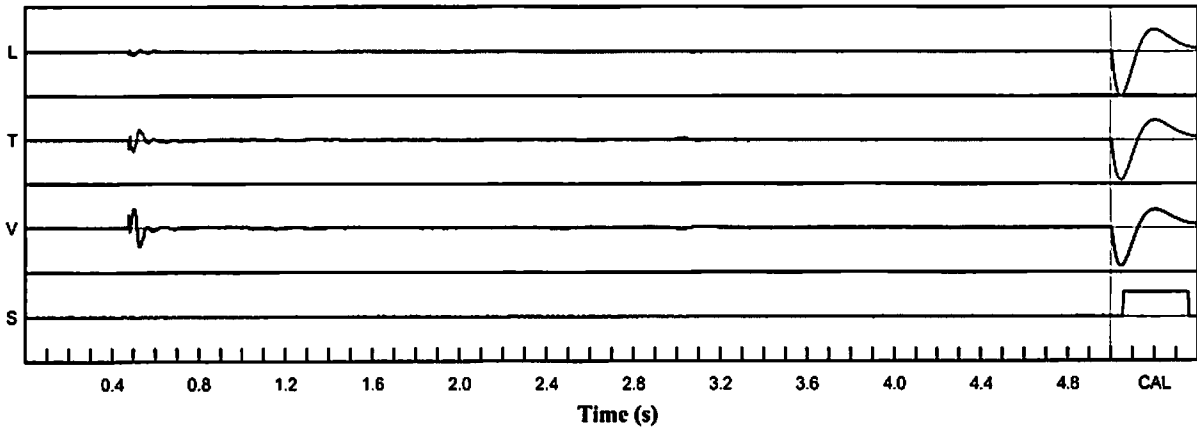
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 11



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/15/2018 13:16:36  
**Event No:** 14  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

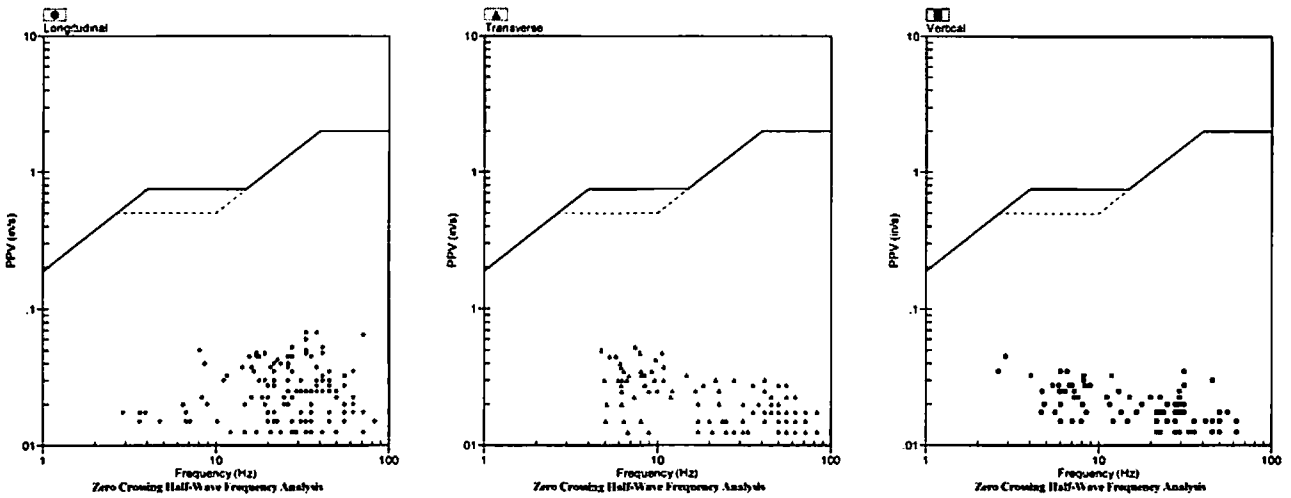
### Summary Data

	L	T	V
PPV (in/s)	0.068	0.053	0.045
FREQ (Hz)	31.3	7.5	2.9
PD (.001")	1.12	1.47	2.12
PPA (g)	0.052	0.033	0.026
Peak Vector Sum:	0.075 in/s		
Peak Air Pressure:	100 db		
	0.00029 PSI @ 31.3 Hz		

### Additional Info:

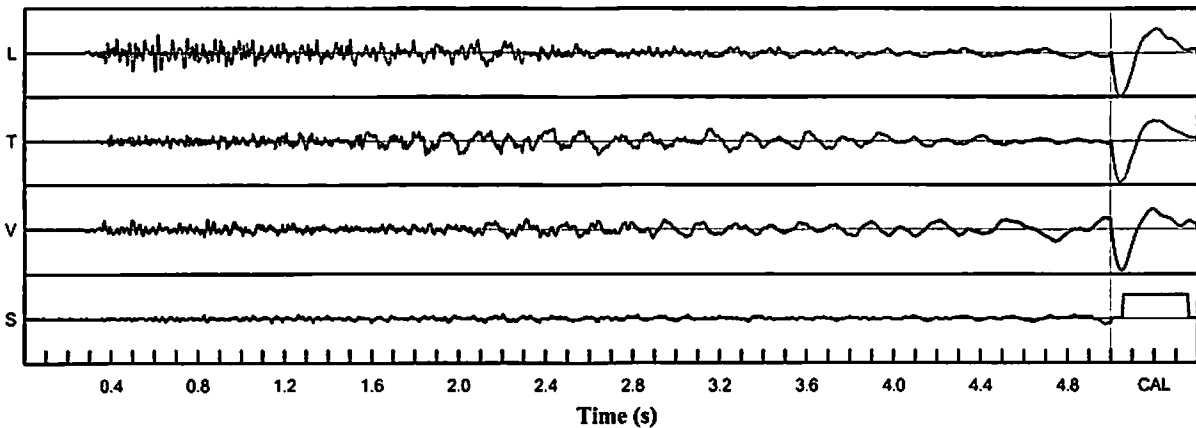
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 14



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/17/2018 11:32:44  
**Event No:** 15  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

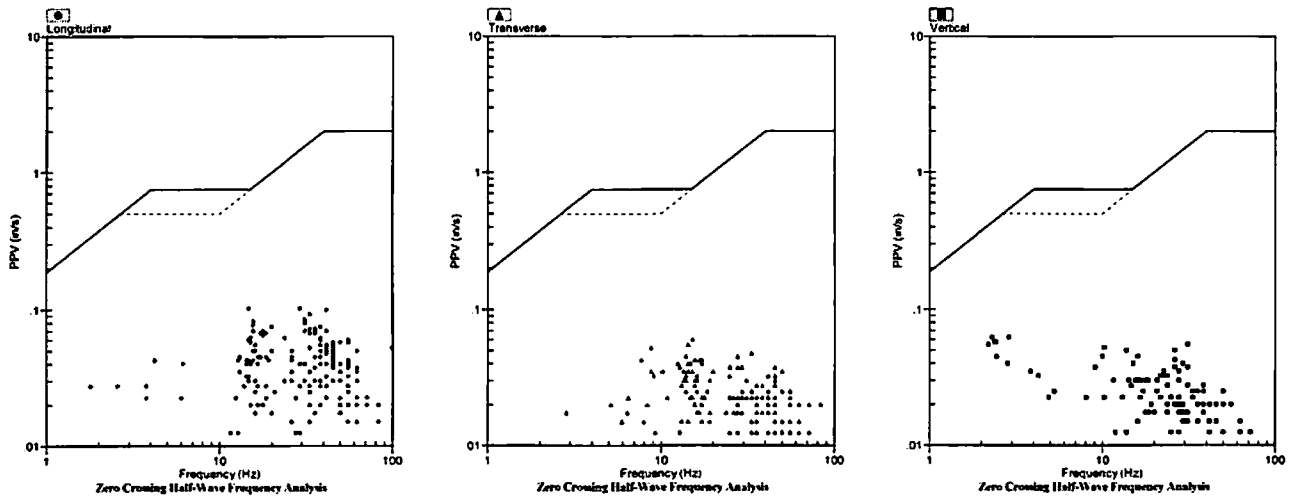
### Summary Data

	L	T	V
PPV (in/s)	0.103	0.060	0.063
FREQ (Hz)	29.4	15.2	2.9
PD (.001")	1.84	1.41	3.92
PPA (g)	0.065	0.039	0.033
Peak Vector Sum:	0.110 in/s		
Peak Air Pressure:	103 db		
	0.00046 PSI @ 21.7 Hz		

### Additional Info:

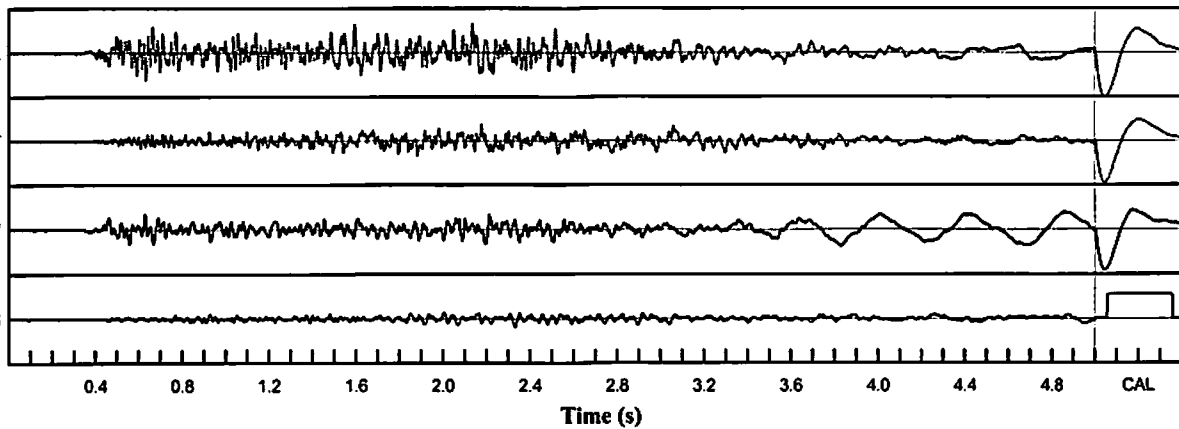
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 15



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/01/1980 04:19:56  
**Event No:** 1  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

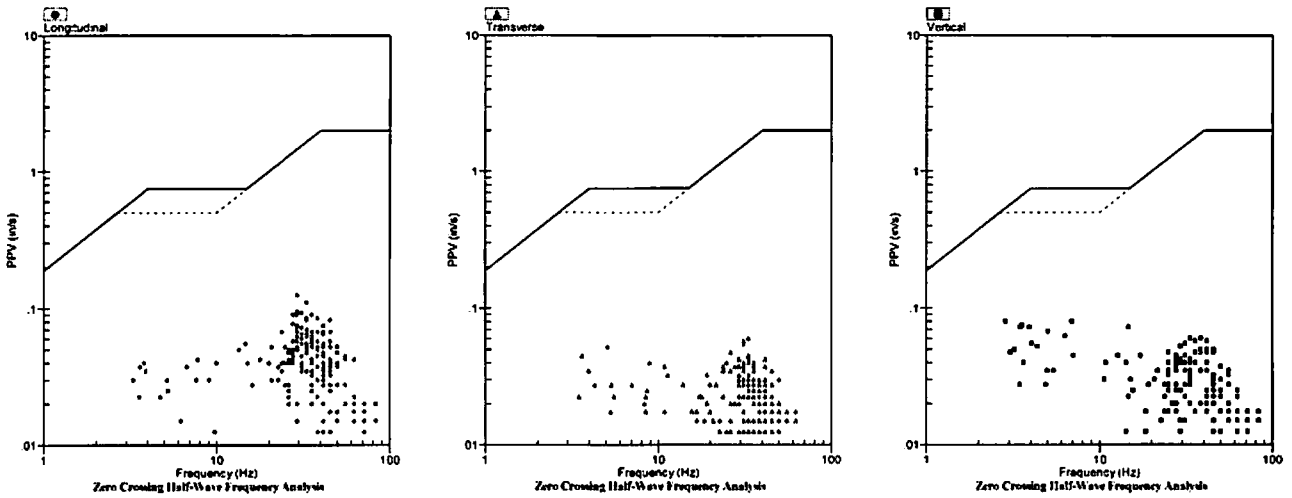
### Summary Data

	L	T	V
PPV (in/s)	0.125	0.060	0.080
FREQ (Hz)	29.4	33.3	6.9
PD (.001")	1.47	1.49	3.88
PPA (g)	0.065	0.033	0.046
Peak Vector Sum:	0.130 in/s		
Peak Air Pressure:	103 db		
	0.00050 PSI @ 3.8 Hz		

### Additional Info:

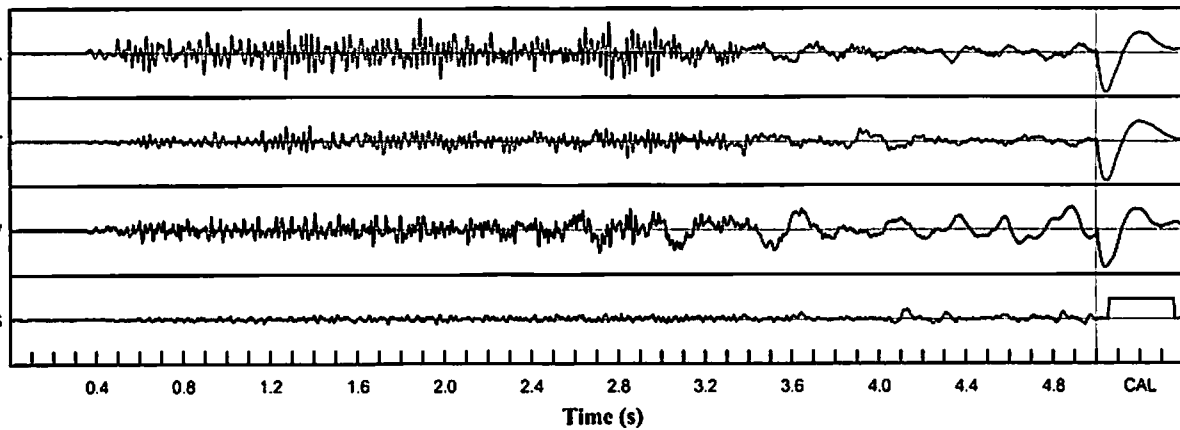
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 1



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/02/1980 01:49:34  
**Event No:** 2  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

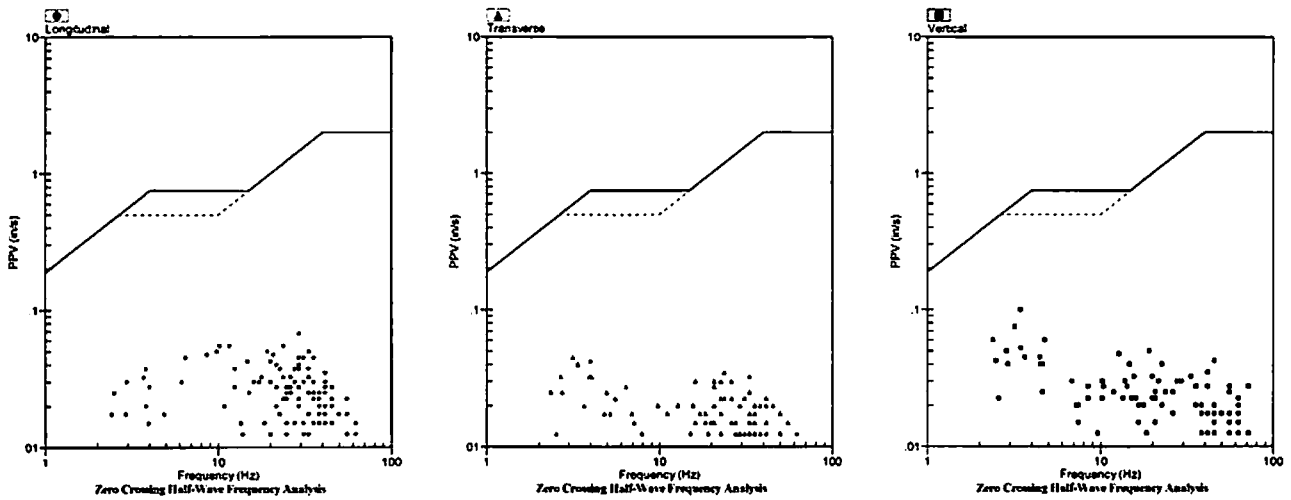
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.068	0.045	0.100
<b>FREQ (Hz)</b>	29.4	3.2	3.4
<b>PD (.001")</b>	1.43	1.61	4.09
<b>PPA (g)</b>	0.033	0.020	0.033
<b>Peak Vector Sum:</b>	0.108 in/s		
<b>Peak Air Pressure:</b>	91 db		
	0.00025 PSI @ 4.7 Hz		

### Additional Info:

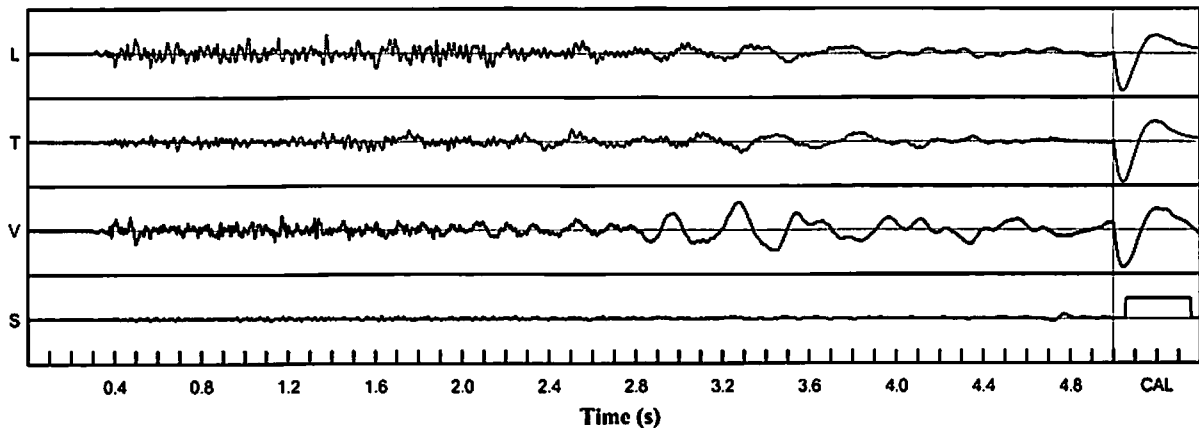
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 2



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/04/1980 04:05:22  
**Event No:** 3  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

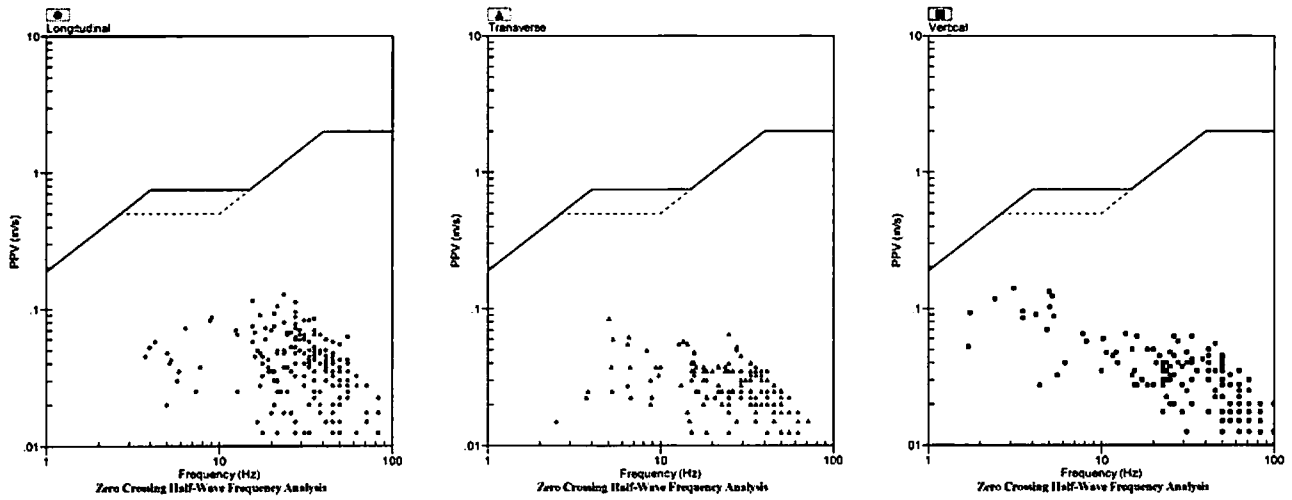
### Summary Data

	L	T	V
PPV (in/s)	0.128	0.085	0.140
FREQ (Hz)	23.8	5.1	3.1
PD (.001")	2.45	1.95	6.91
PPA (g)	0.065	0.033	0.046
Peak Vector Sum:	0.145 in/s		
Peak Air Pressure:	101 db		
	0.00046 PSI @ 5.6 Hz		

### Additional Info:

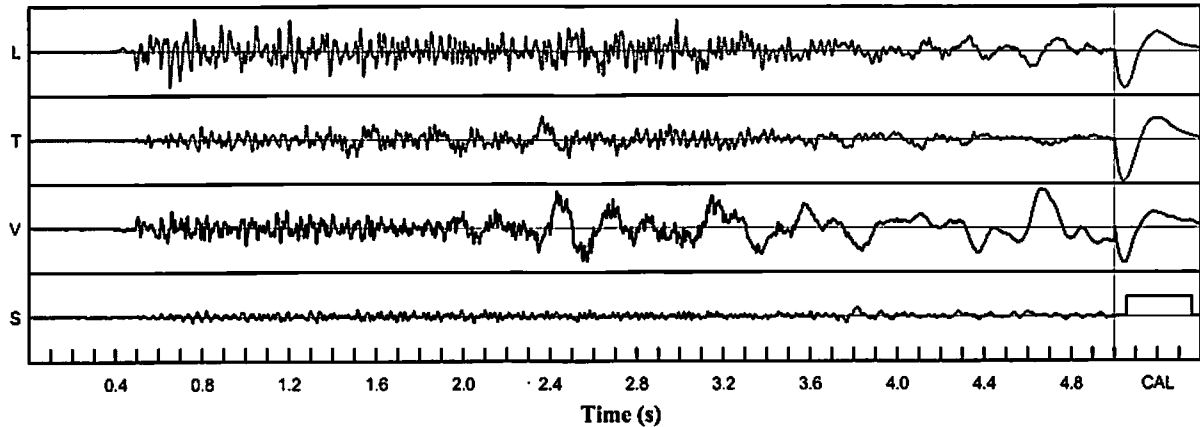
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 3



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/07/1980 04:05:27  
**Event No:** 4  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

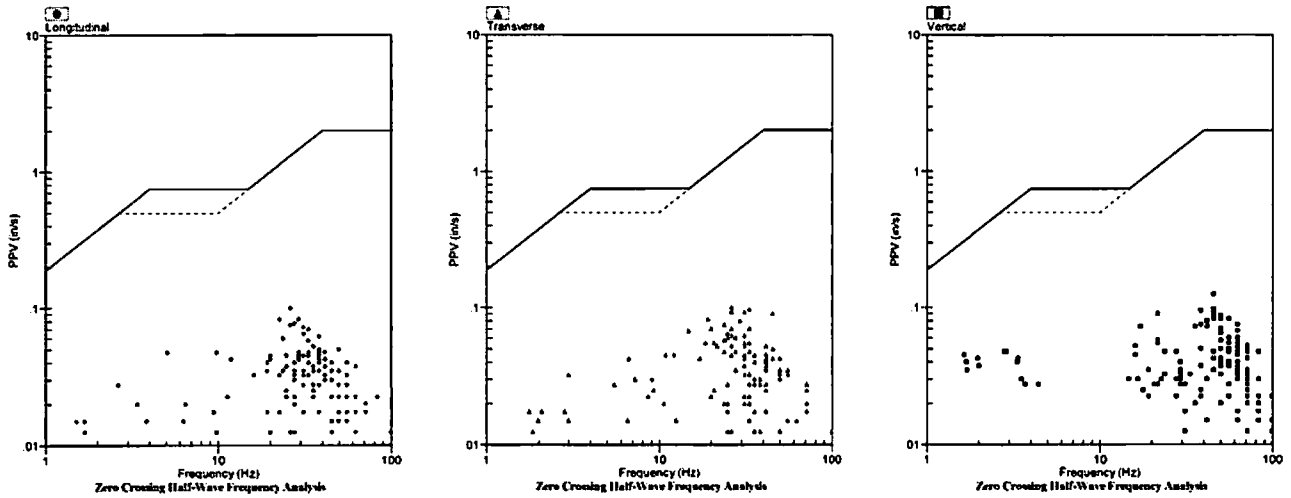
### Summary Data

	L	T	V
PPV (in/s)	0.100	0.100	0.125
FREQ (Hz)	26.3	26.3	45.5
PD (.001")	1.56	1.66	4.14
PPA (g)	0.052	0.072	0.098
Peak Vector Sum:	0.138 in/s		
Peak Air Pressure:	106 db		
	0.00057 PSI @ 12.8 Hz		

### Additional Info:

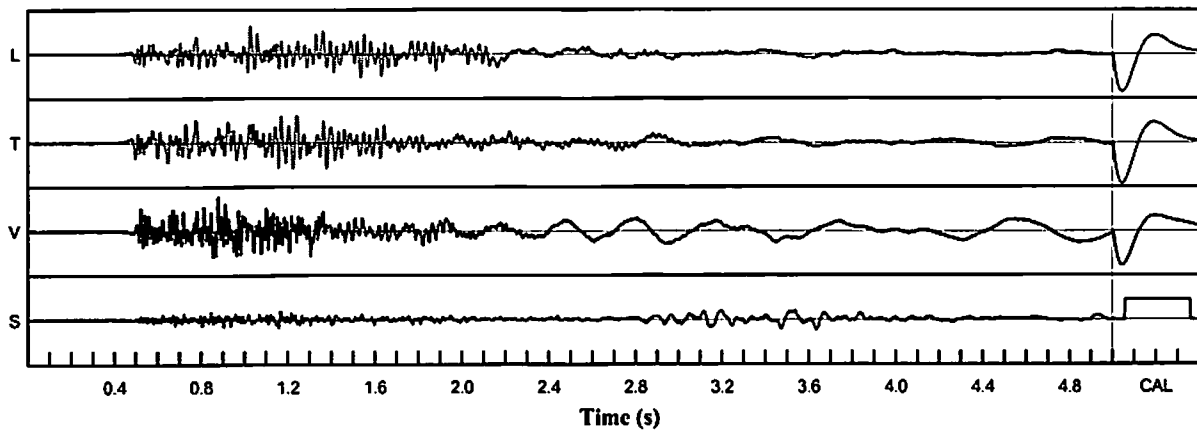
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 4



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/09/1980 04:04:53  
**Event No:** 5  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

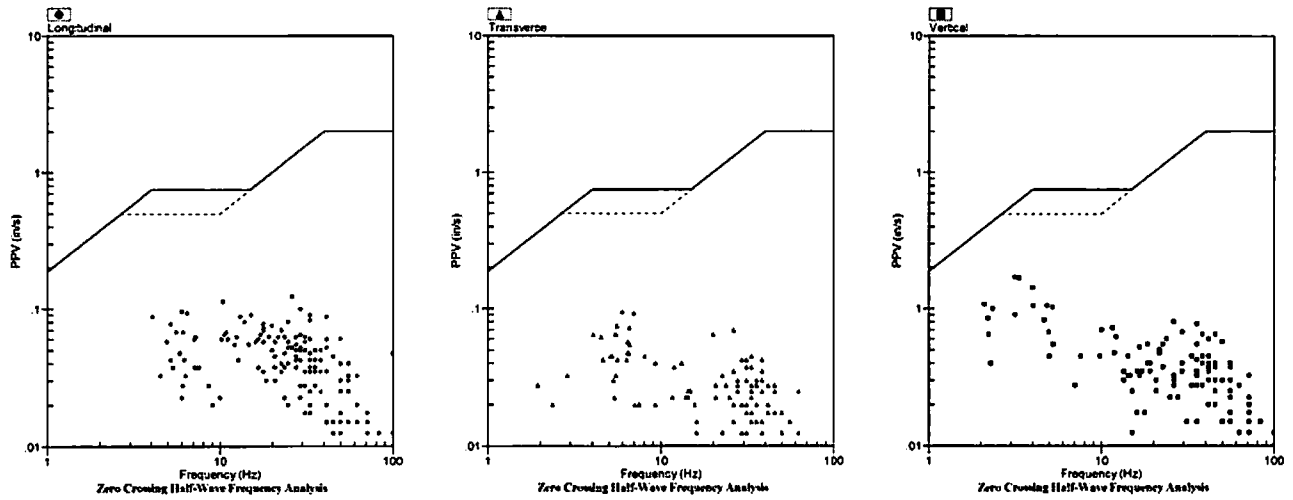
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.123	0.095	0.170
<b>FREQ (Hz)</b>	26.3	6.0	3.2
<b>PD (.001")</b>	2.59	2.83	7.39
<b>PPA (g)</b>	0.072	0.039	0.046
<b>Peak Vector Sum:</b>	0.193 in/s		
<b>Peak Air Pressure:</b>	108 db		
	0.00082 PSI @ 4.8 Hz		

### Additional Info:

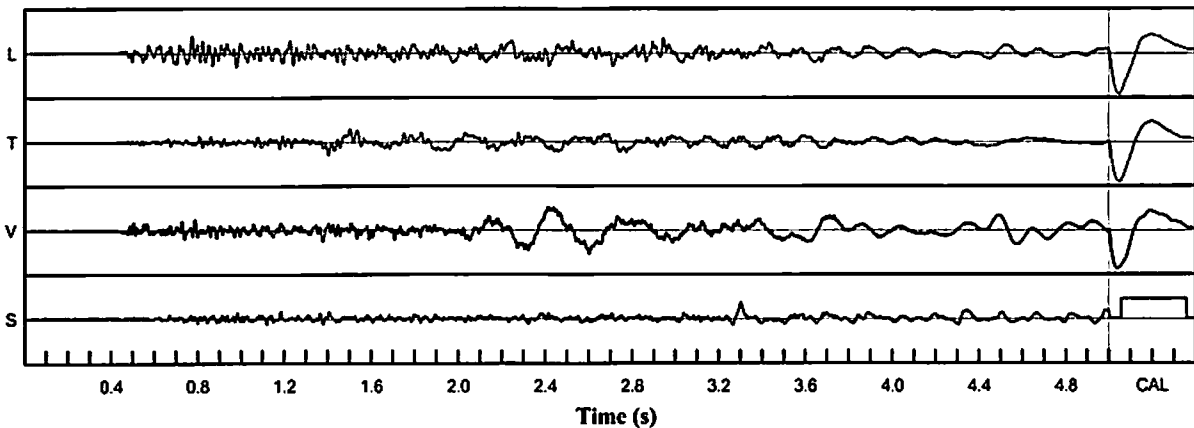
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 5



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/10/1980 01:49:52  
**Event No:** 6  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

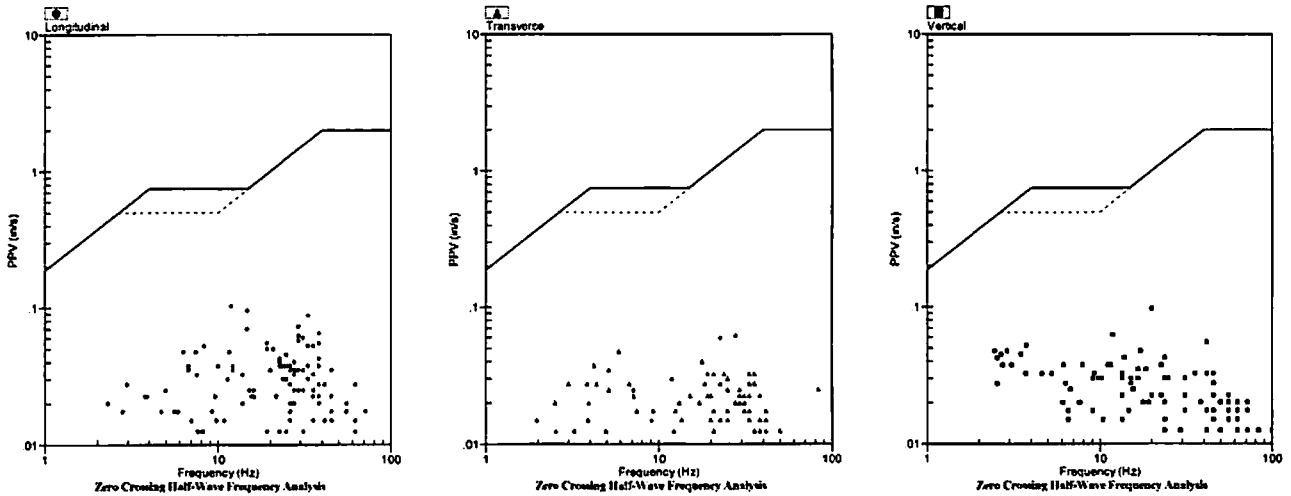
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.103	0.063	0.098
<b>FREQ (Hz)</b>	11.9	27.8	15.6
<b>PD (.001")</b>	1.45	1.70	3.14
<b>PPA (g)</b>	0.046	0.033	0.039
<b>Peak Vector Sum:</b>	0.130 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00057 PSI @ 6.2 Hz		

### Additional Info:

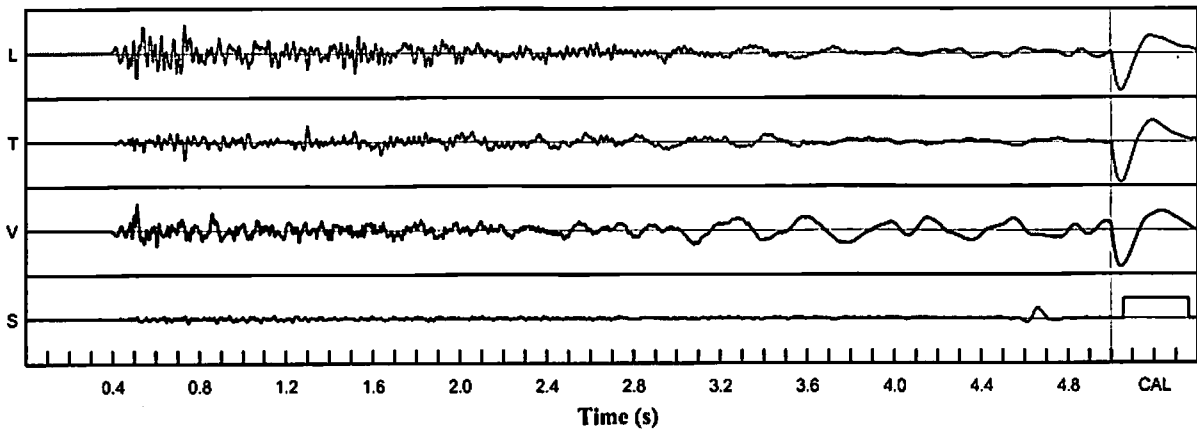
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
**TEL:** 724.934.2900 **FAX:** 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 6



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/11/1980 04:05:31  
**Event No:** 7  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

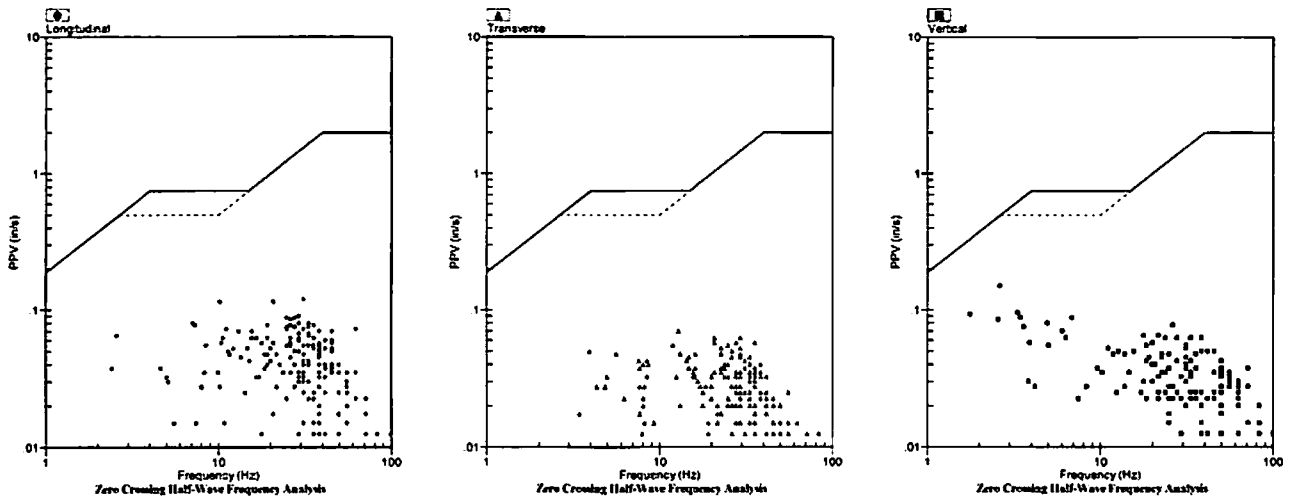
### Summary Data

	L	T	V
PPV (in/s)	0.120	0.070	0.150
FREQ (Hz)	31.3	12.8	2.6
PD (.001")	2.14	1.60	6.50
PPA (g)	0.072	0.039	0.046
Peak Vector Sum:	0.153 in/s		
Peak Air Pressure:	111 db		
	0.00121 PSI @ 9.8 Hz		

### Additional Info:

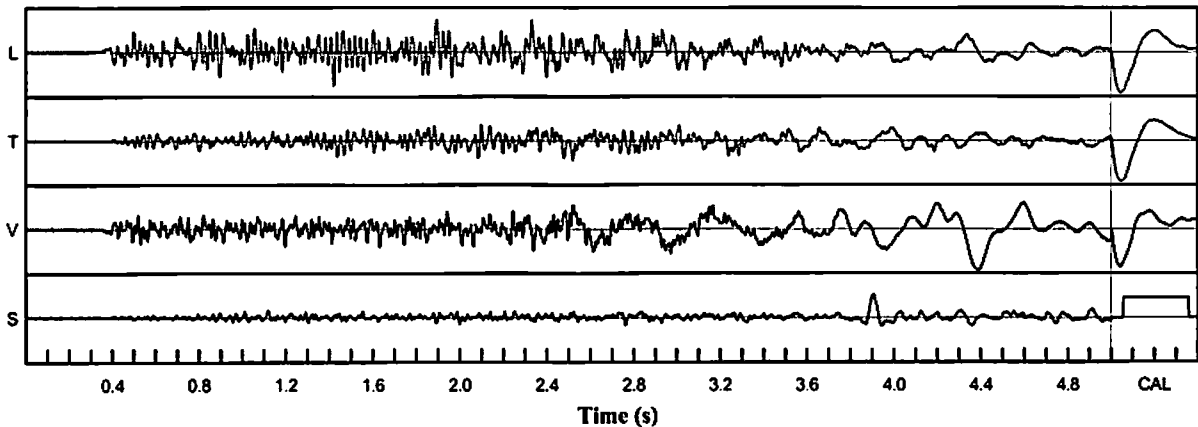
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 7



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/15/1980 04:36:27  
**Event No:** 8  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

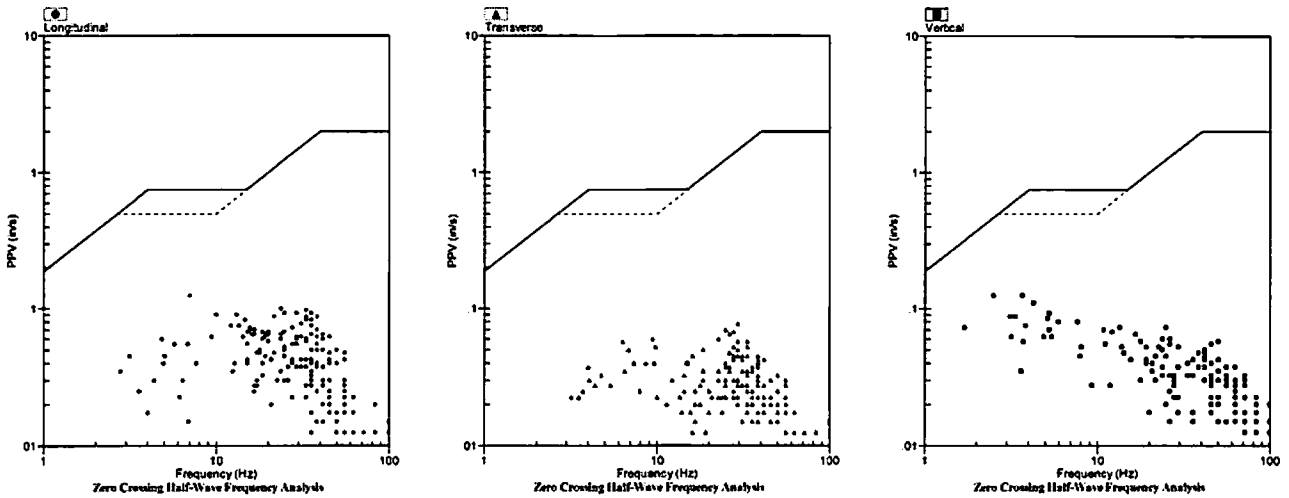
### Summary Data

	L	T	V
PPV (in/s)	0.125	0.078	0.125
FREQ (Hz)	7.0	29.4	2.5
PD (.001")	1.92	1.53	5.68
PPA (g)	0.059	0.039	0.052
Peak Vector Sum:	0.128 in/s		
Peak Air Pressure:	106 db		
	0.00064 PSI @ 8.5 Hz		

### Additional Info:

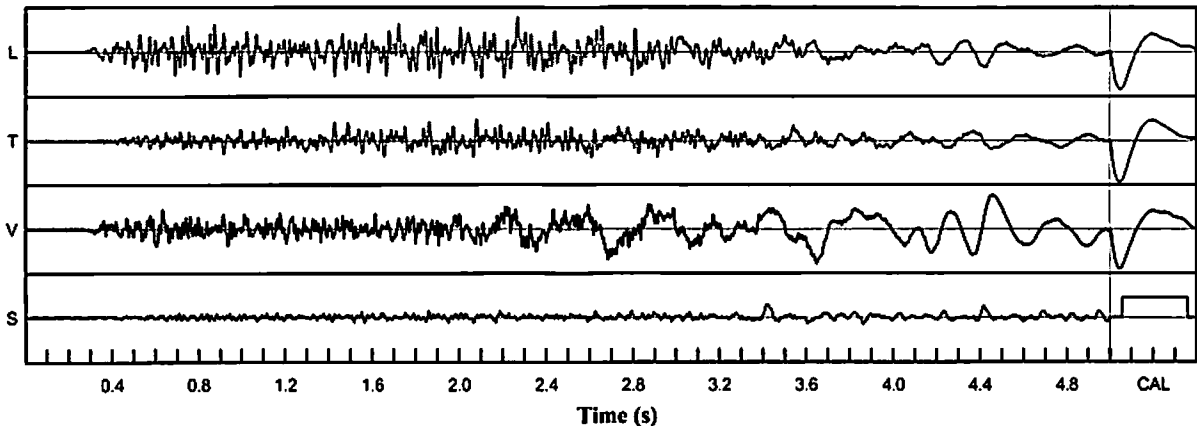
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 8



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/18/1980 04:20:46  
**Event No:** 9  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

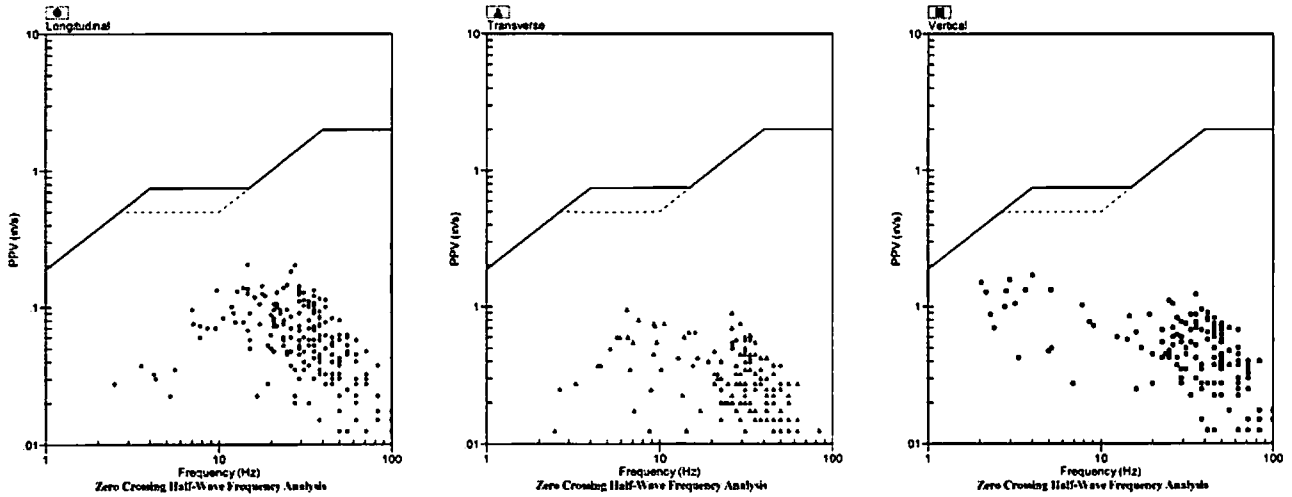
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.205	0.095	0.170
<b>FREQ (Hz)</b>	14.7	6.5	4.0
<b>PD (.001")</b>	3.38	1.87	7.23
<b>PPA (g)</b>	0.091	0.046	0.078
<b>Peak Vector Sum:</b>	0.215 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00064 PSI @ 7.8 Hz		

### Additional Info:

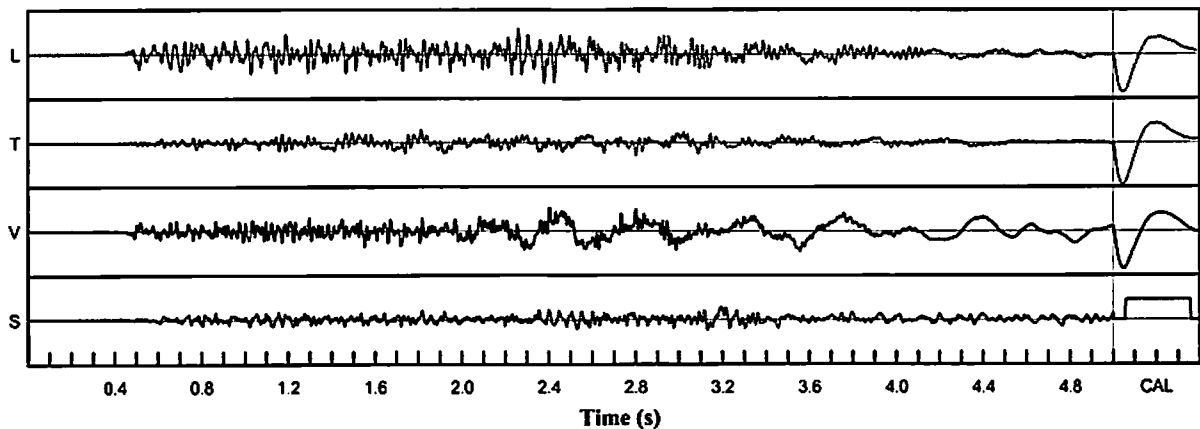
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 9



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/22/1980 02:47:33  
**Event No:** 10  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

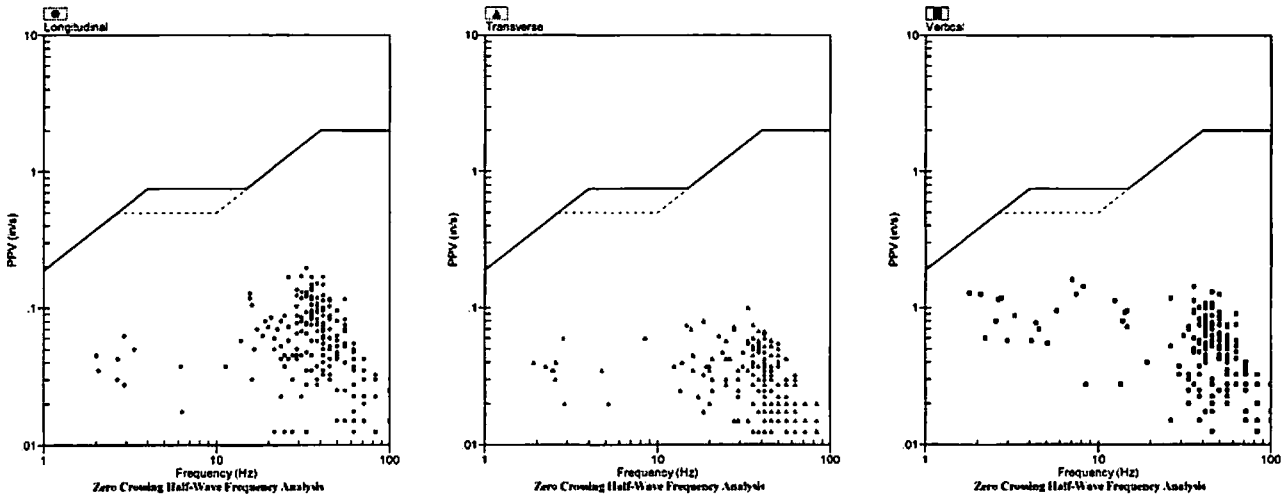
### Summary Data

	L	T	V
PPV (in/s)	0.195	0.100	0.160
FREQ (Hz)	33.3	33.3	7.0
PD (.001")	3.16	2.86	11.03
PPA (g)	0.117	0.059	0.098
Peak Vector Sum:	0.220 in/s		
Peak Air Pressure:	106 db		
	0.00057 PSI @ 41.7 Hz		

### Additional Info:

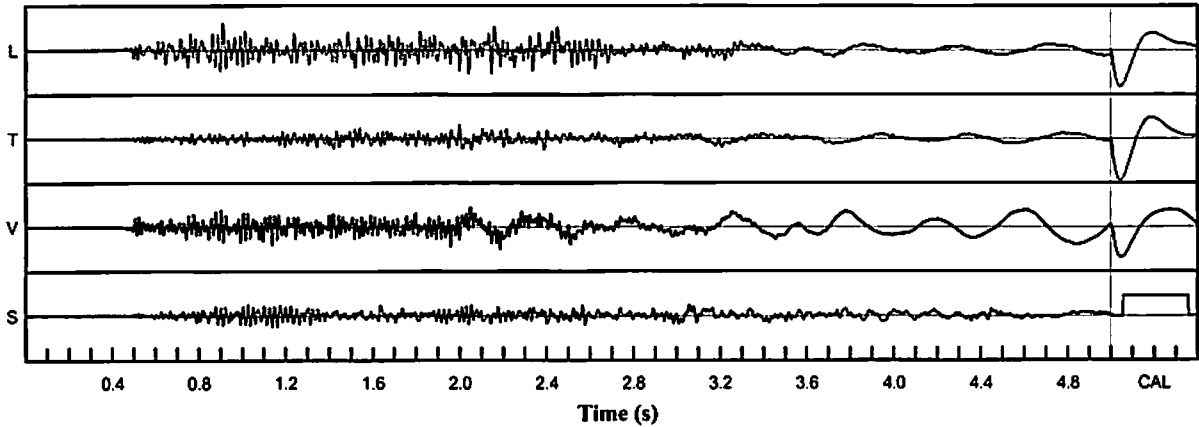
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 10



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

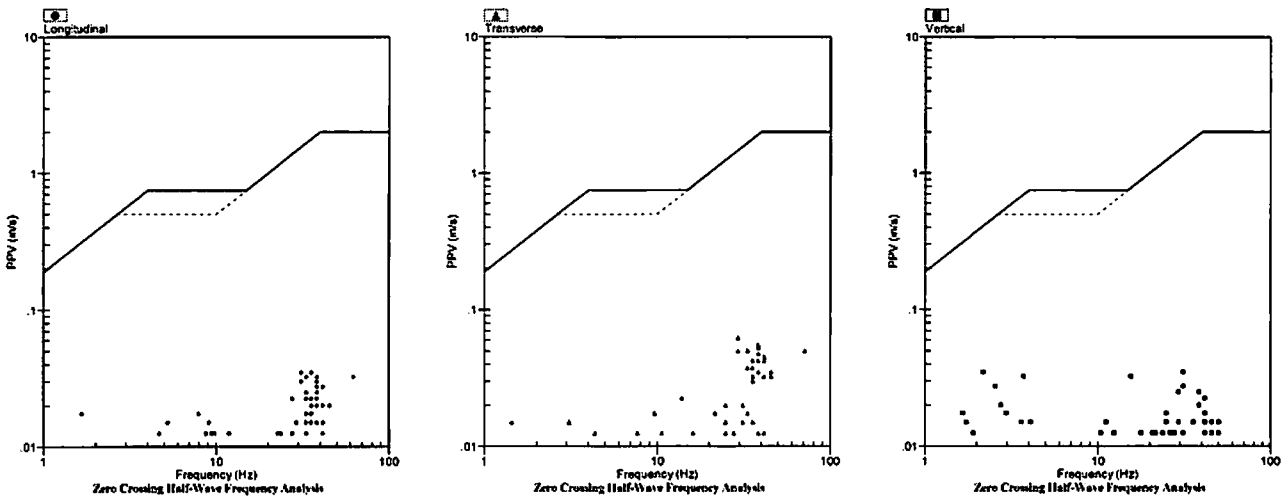
**Serial No:** 5148 v3.67  
**Date:** 01/24/1980 04:21:17  
**Event No:** 11  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.035	0.063	0.035
<b>FREQ (Hz)</b>	31.3	29.4	31.3
<b>PD (.001")</b>	0.93	0.89	2.14
<b>PPA (g)</b>	0.026	0.046	0.026
<b>Peak Vector Sum:</b>	0.073 in/s		
<b>Peak Air Pressure:</b>	93 db		
	0.00028 PSI @ 3.2 Hz		

**Additional Info:**

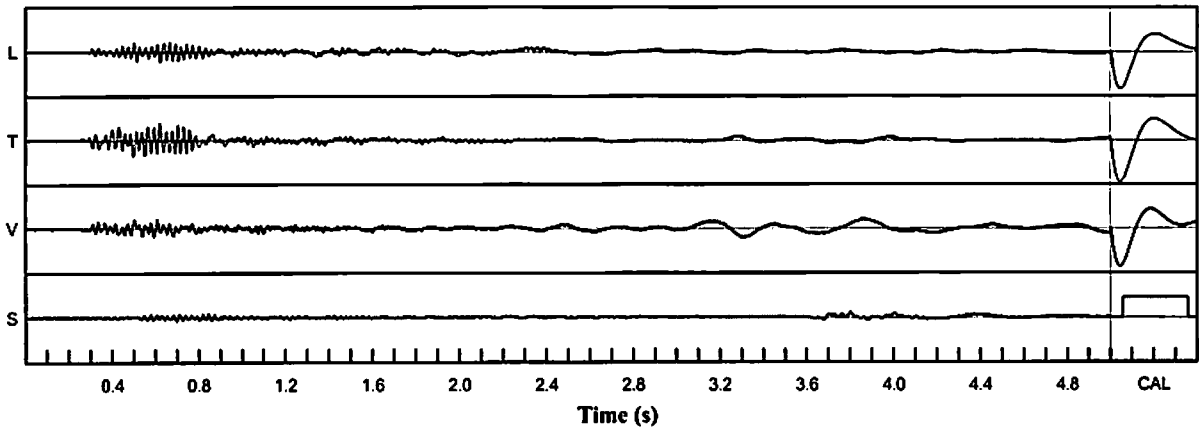
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 11



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

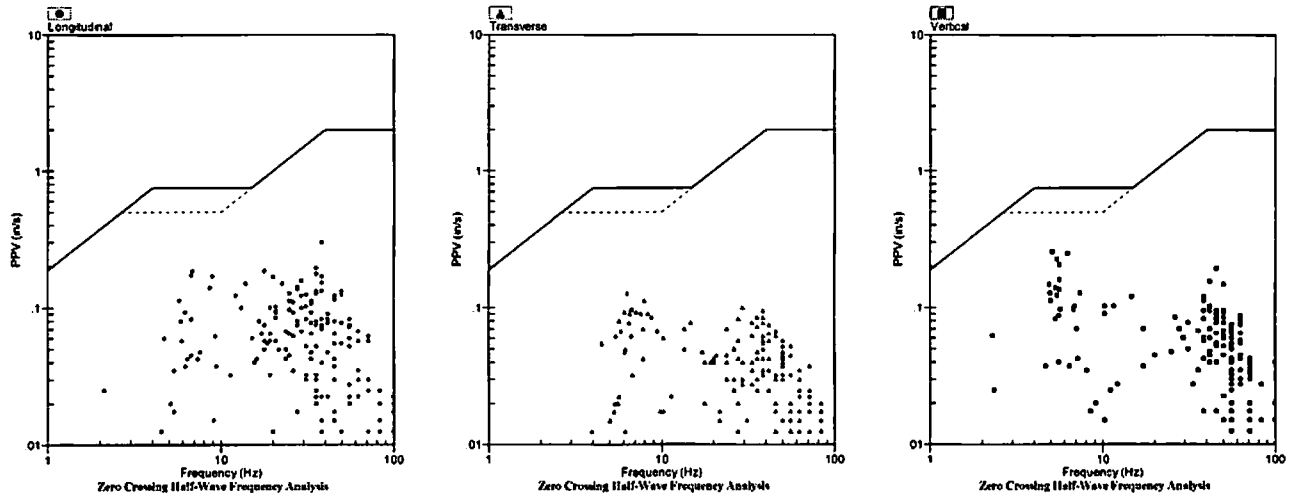
**Serial No:** 5148 v3.67  
**Date:** 01/30/1980 04:05:58  
**Event No:** 12  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.300	0.128	0.255
<b>FREQ (Hz)</b>	38.5	6.3	5.1
<b>PD (.001")</b>	3.71	2.88	6.50
<b>PPA (g)</b>	0.176	0.065	0.150
<b>Peak Vector Sum:</b>	0.303 in/s		
<b>Peak Air Pressure:</b>	108 db		
	0.00078 PSI @ 9.8 Hz		

**Additional Info:**

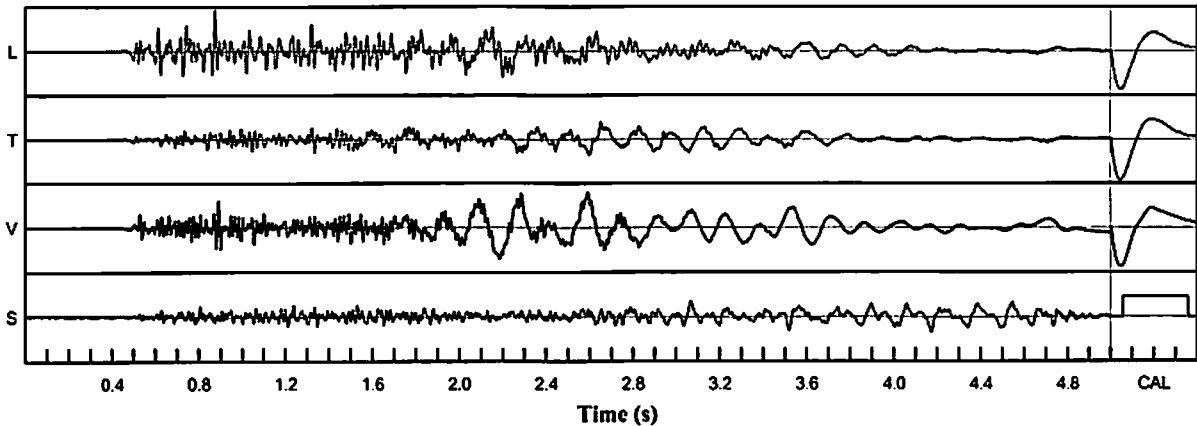
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 12



**Velocity Waveform Graph Scale**

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

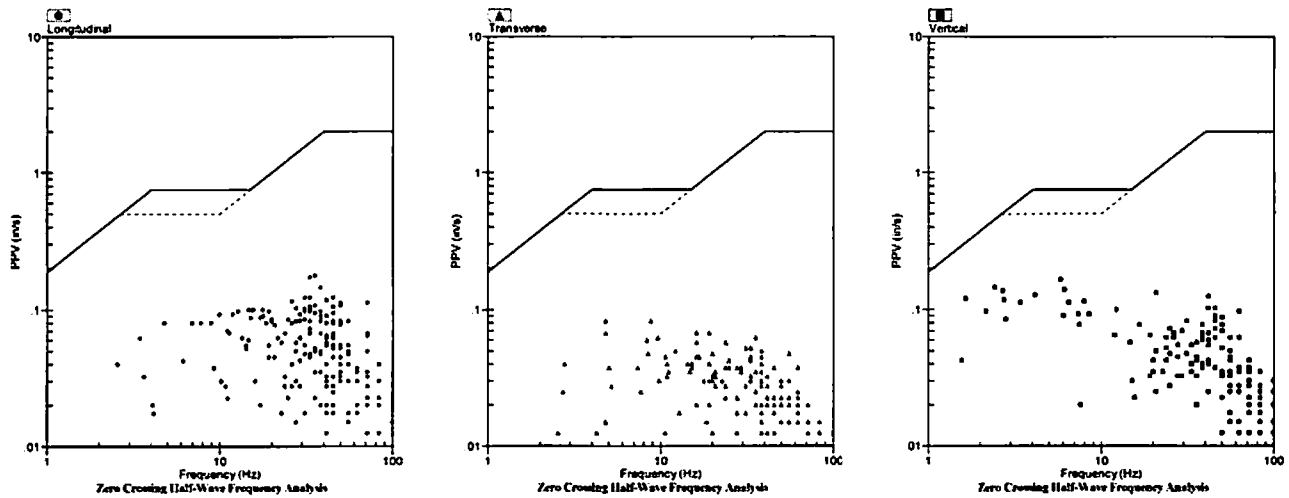
**Serial No:** 5148 v3.67  
**Date:** 01/02/1980 02:22:04  
**Event No:** 13  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.178	0.083	0.165
<b>FREQ (Hz)</b>	35.7	8.8	5.8
<b>PD (.001")</b>	2.72	2.56	9.64
<b>PPA (g)</b>	0.098	0.046	0.098
<b>Peak Vector Sum:</b>	0.180 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00057 PSI @ 10.0 Hz		

**Additional Info:**

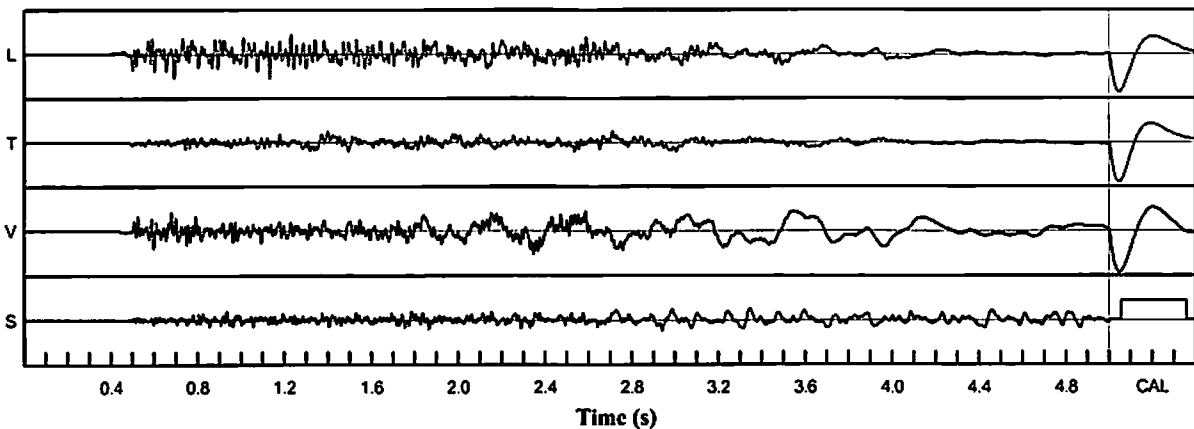
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 13



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 07/16/2018 13:30:41  
**Event No:** 1  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

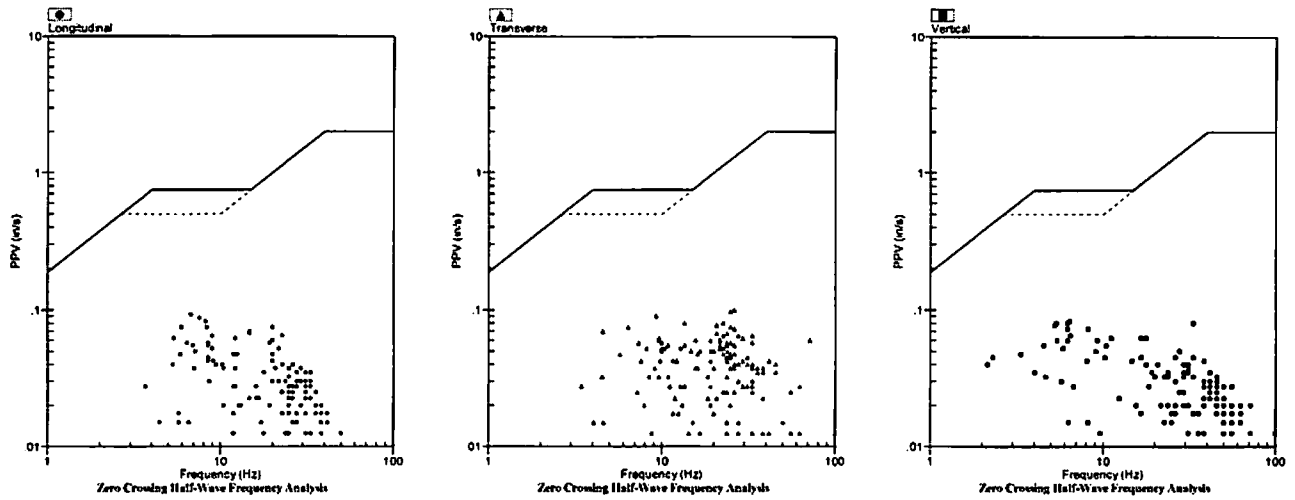
### Summary Data

	L	T	V
PPV (in/s)	0.093	0.100	0.083
FREQ (Hz)	6.8	26.3	6.4
PD (.001")	1.83	1.91	3.22
PPA (g)	0.033	0.046	0.046
Peak Vector Sum:	0.110 in/s		
Peak Air Pressure:	112 db		
	0.00119 PSI @ 2.0 Hz		

### Additional Info:

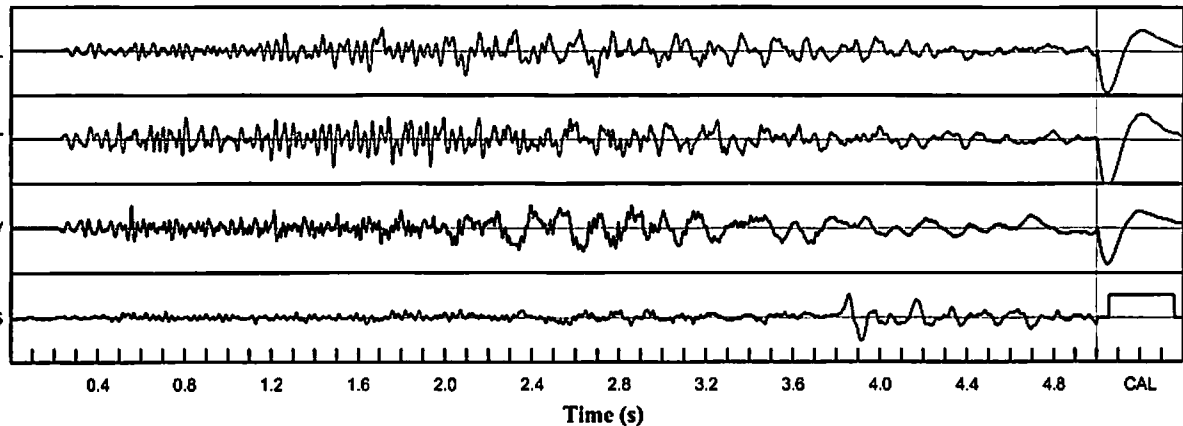
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 1



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 07/18/2018 11:00:18  
**Event No:** 2  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

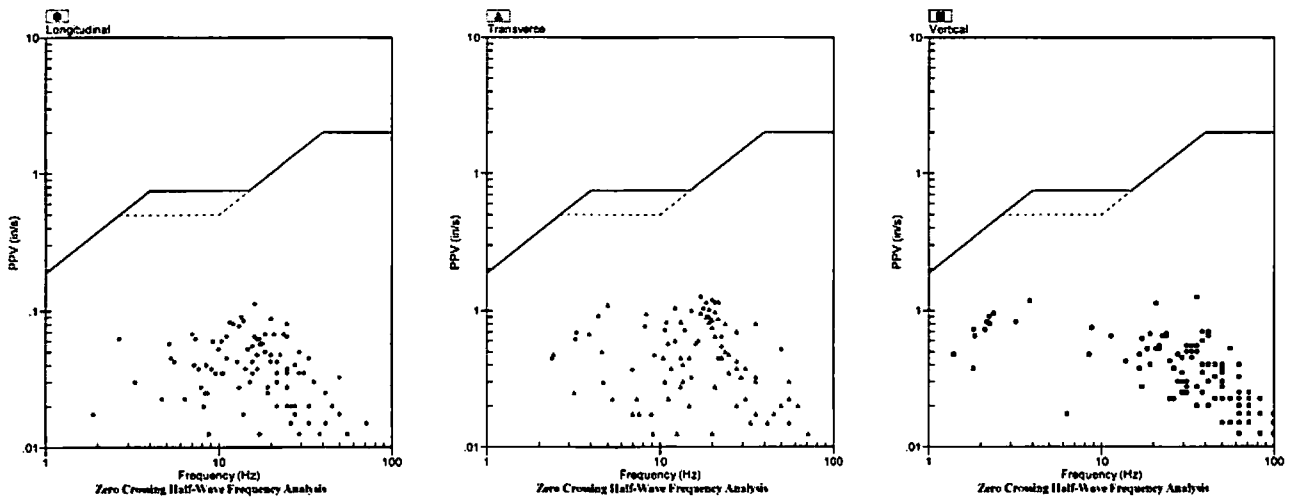
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.113	0.128	0.125
<b>FREQ (Hz)</b>	16.1	17.2	35.7
<b>PD (.001")</b>	2.56	2.99	6.45
<b>PPA (g)</b>	0.046	0.052	0.065
<b>Peak Vector Sum:</b>	0.150 in/s		
<b>Peak Air Pressure:</b>	110 db		
	0.00093 PSI @ 4.8 Hz		

### Additional Info:

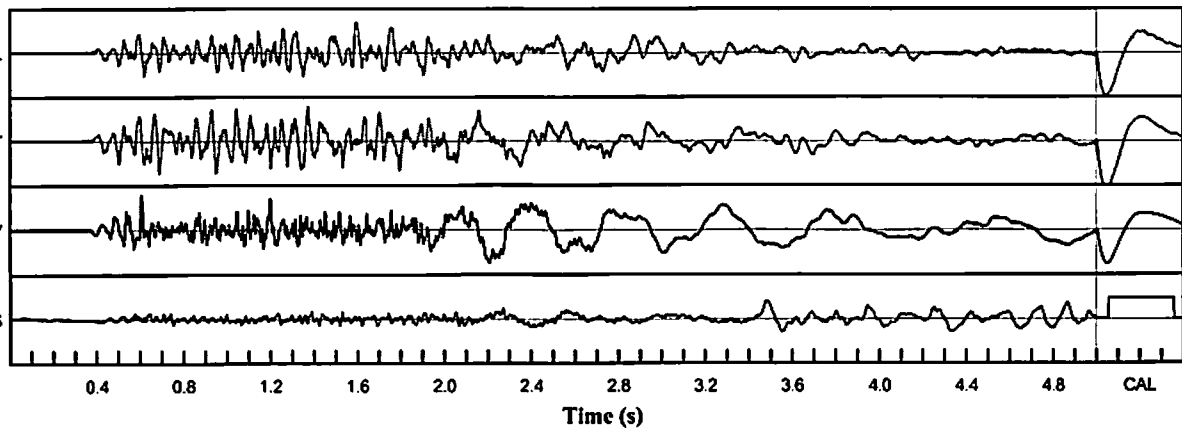
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 2



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 07/20/2018 13:16:04  
**Event No:** 4  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

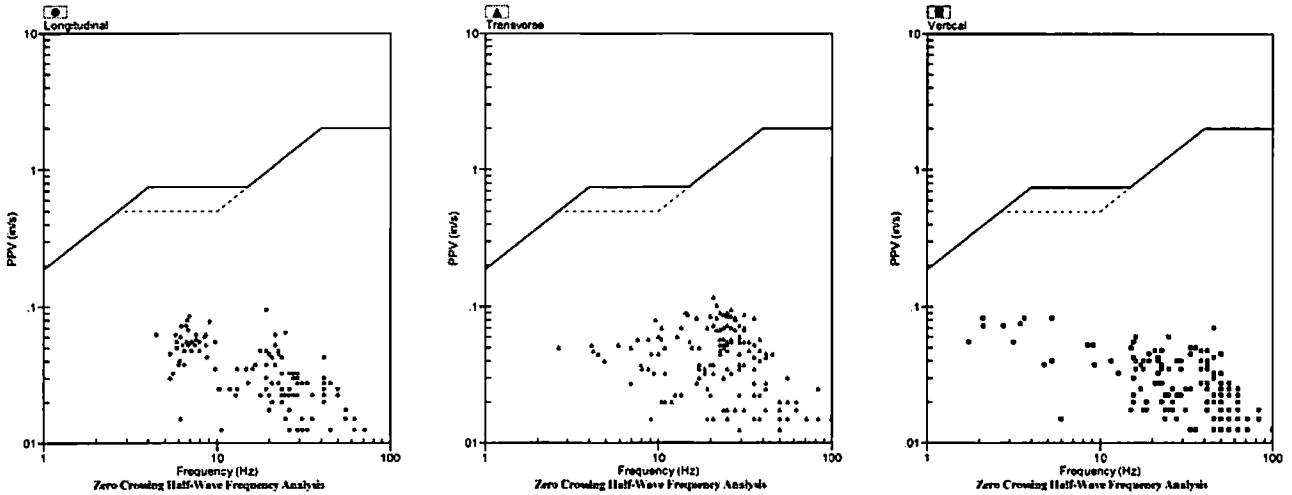
### Summary Data

	L	T	V
PPV (in/s)	0.095	0.118	0.083
FREQ (Hz)	19.2	20.8	5.3
PD (.001")	2.40	2.14	4.65
PPA (g)	0.033	0.059	0.059
Peak Vector Sum:	0.123 in/s		
Peak Air Pressure:	109 db		
	0.00084 PSI @ 6.8 Hz		

### Additional Info:

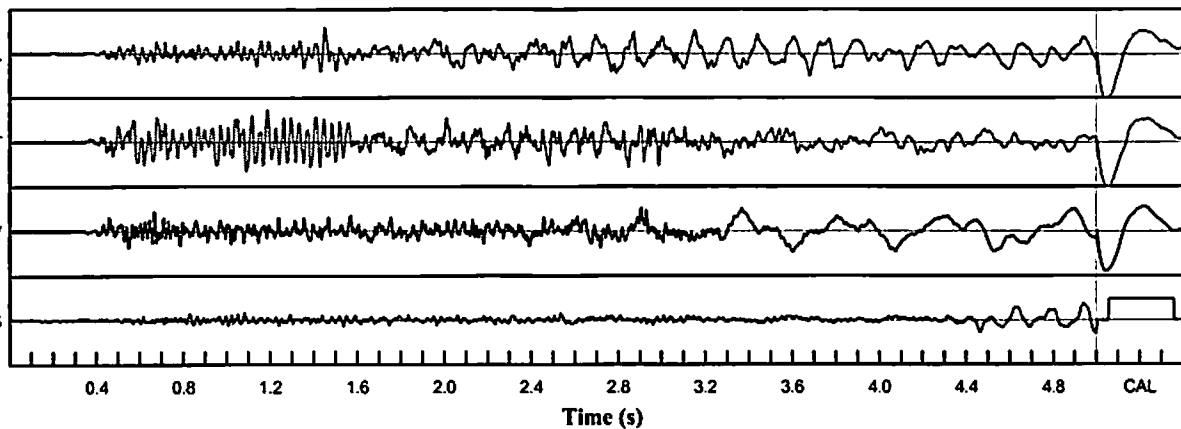
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 4



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 07/20/2018 09:15:09  
**Event No:** 3  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

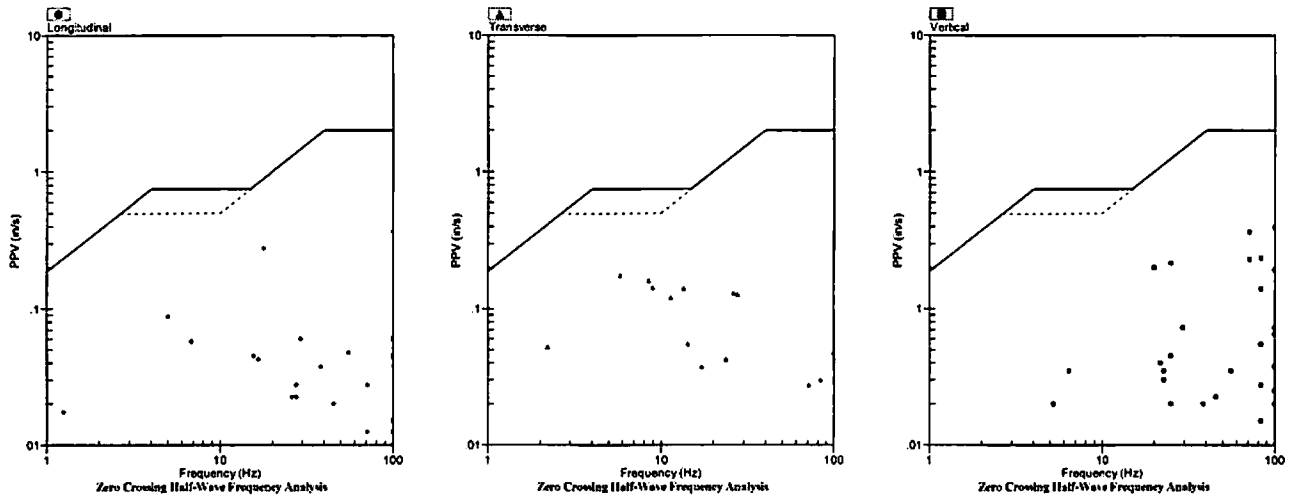
### Summary Data

	L	T	V
PPV (in/s)	0.380	0.195	0.545
FREQ (Hz)	250.0	166.7	166.7
PD (.001")	3.17	8.07	2.57
PPA (g)	1.159	0.690	1.693
Peak Vector Sum:	0.598 in/s		
Peak Air Pressure:	97 db		
	0.00025 PSI @ 26.3 Hz		

### Additional Info:

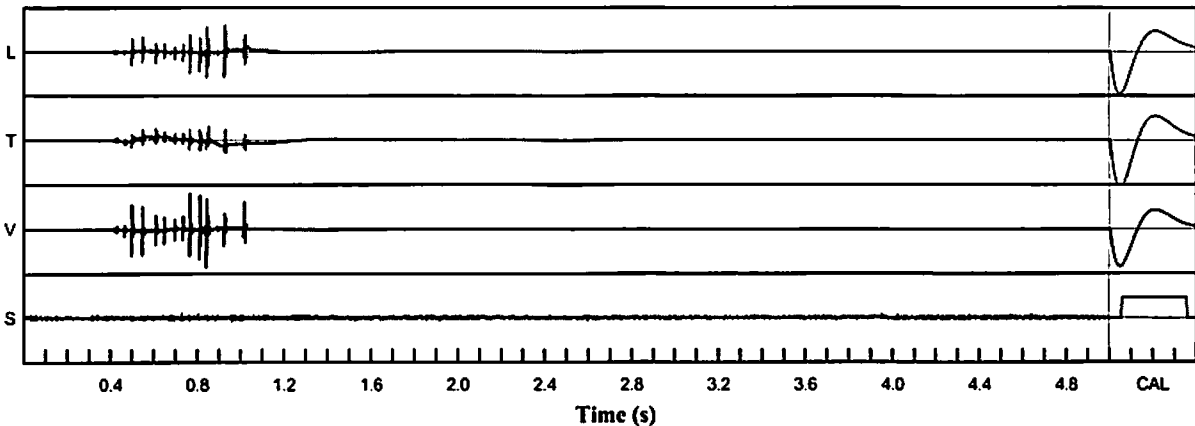
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 3



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.640 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 07/25/2018 13:15:29  
**Event No:** 5  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

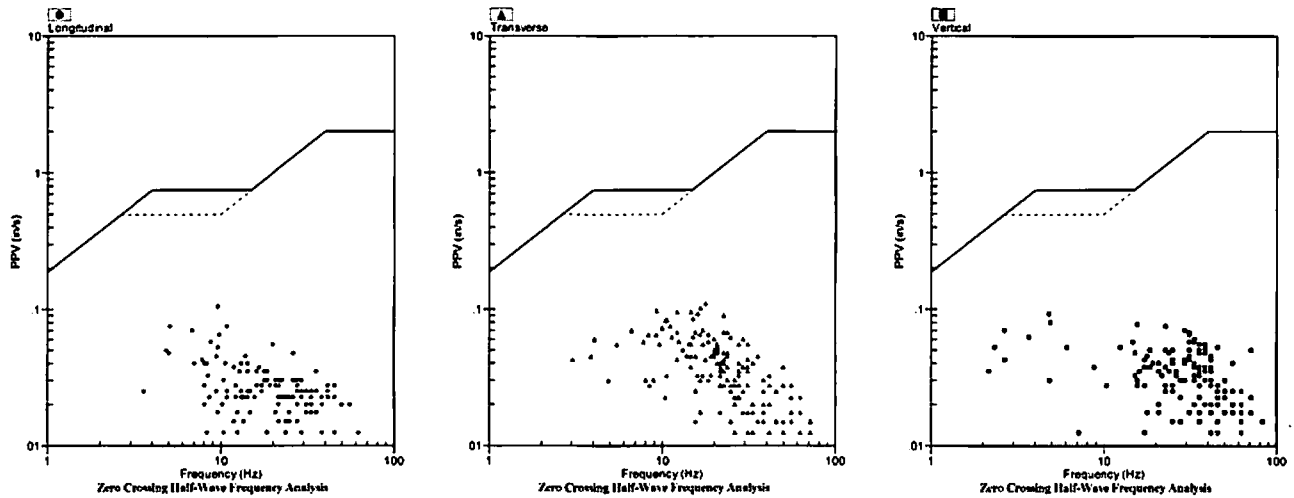
### Summary Data

	L	T	V
PPV (in/s)	0.105	0.110	0.093
FREQ (Hz)	9.6	17.9	4.8
PD (.001")	2.05	2.06	3.27
PPA (g)	0.033	0.046	0.046
Peak Vector Sum:	0.125 in/s		
Peak Air Pressure:	105 db		
	0.00059 PSI @ 2.5 Hz		

### Additional Info:

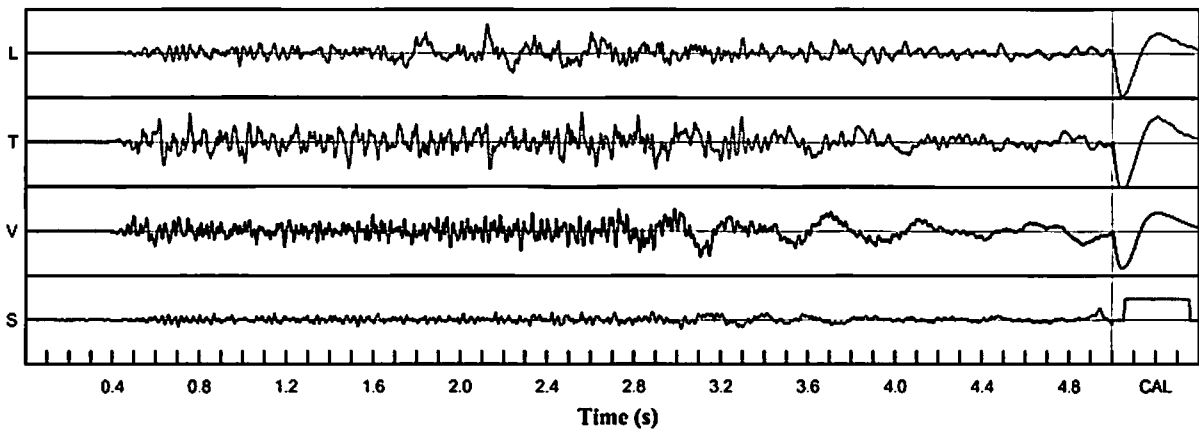
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 5



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

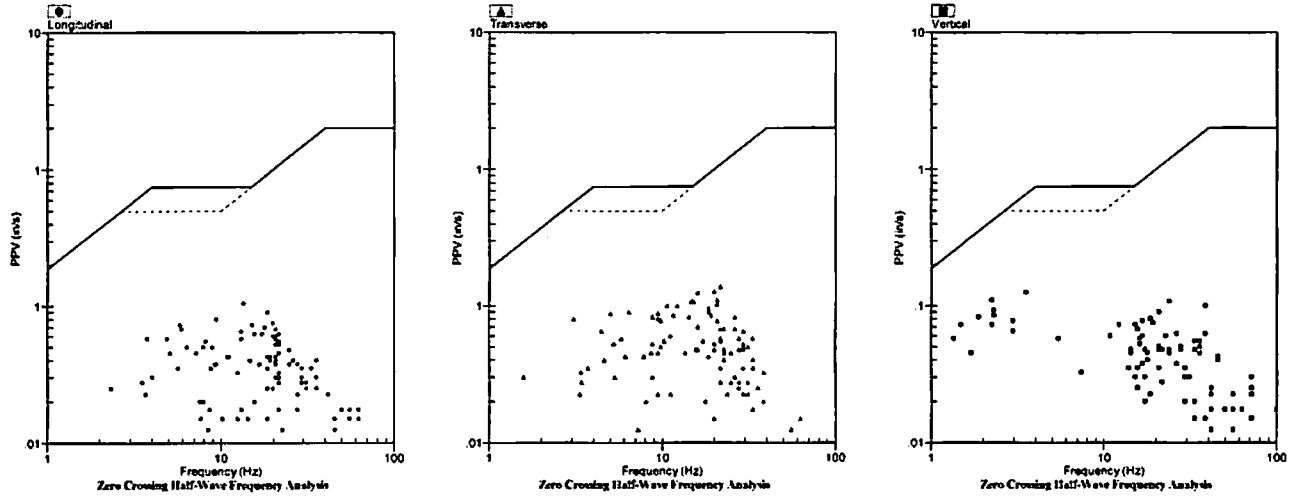
**Serial No:** 5150 v3.67  
**Date:** 07/26/2018 11:00:27  
**Event No:** 6  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.105	0.138	0.125
<b>FREQ (Hz)</b>	13.5	21.7	3.5
<b>PD (.001")</b>	2.67	3.44	6.06
<b>PPA (g)</b>	0.033	0.046	0.078
<b>Peak Vector Sum:</b>	0.150 in/s		
<b>Peak Air Pressure:</b>	112 db		
	0.00128 PSI @ 4.9 Hz		

**Additional Info:**

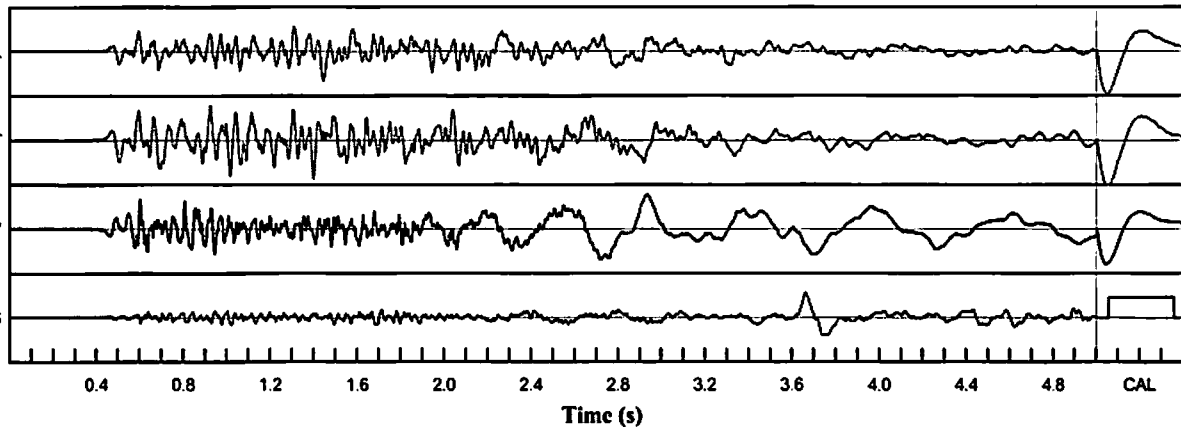
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 6



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 07/27/2018 13:16:06  
**Event No:** 7  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

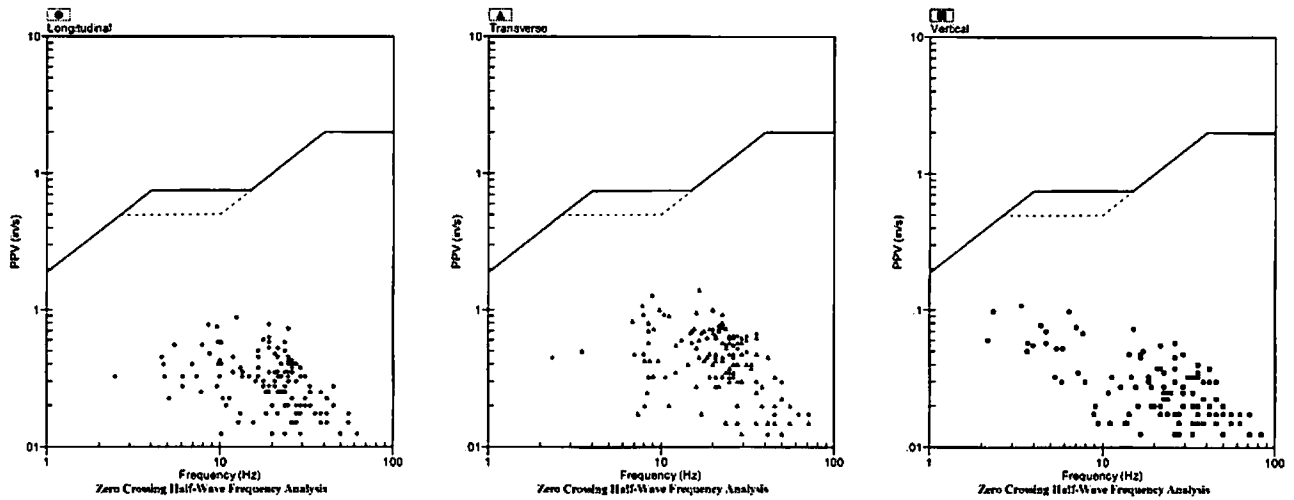
### Summary Data

	L	T	V
PPV (in/s)	0.088	0.140	0.108
FREQ (Hz)	12.5	16.7	3.4
PD (.001")	2.03	3.03	4.88
PPA (g)	0.039	0.052	0.039
Peak Vector Sum:	0.140 in/s		
Peak Air Pressure:	112 db		
	0.00125 PSI @ 8.3 Hz		

### Additional Info:

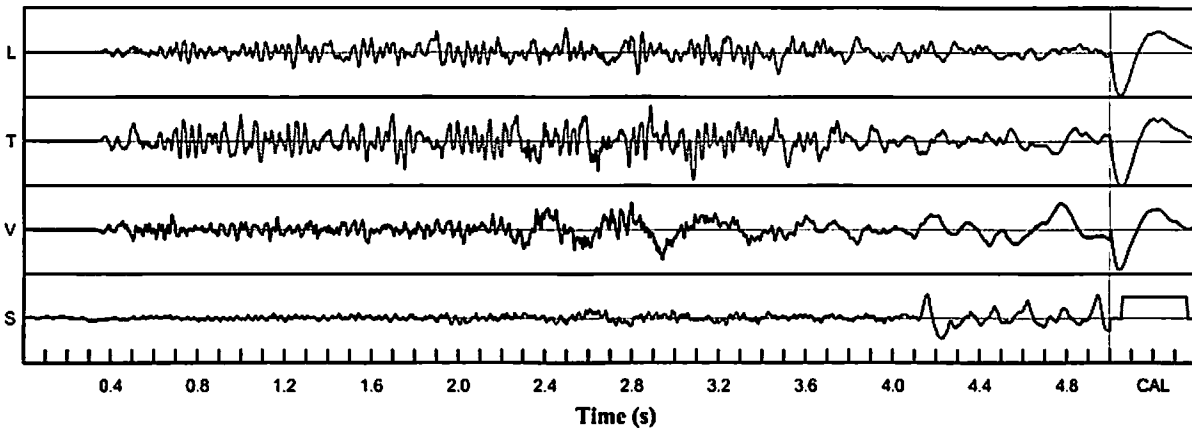
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 7



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

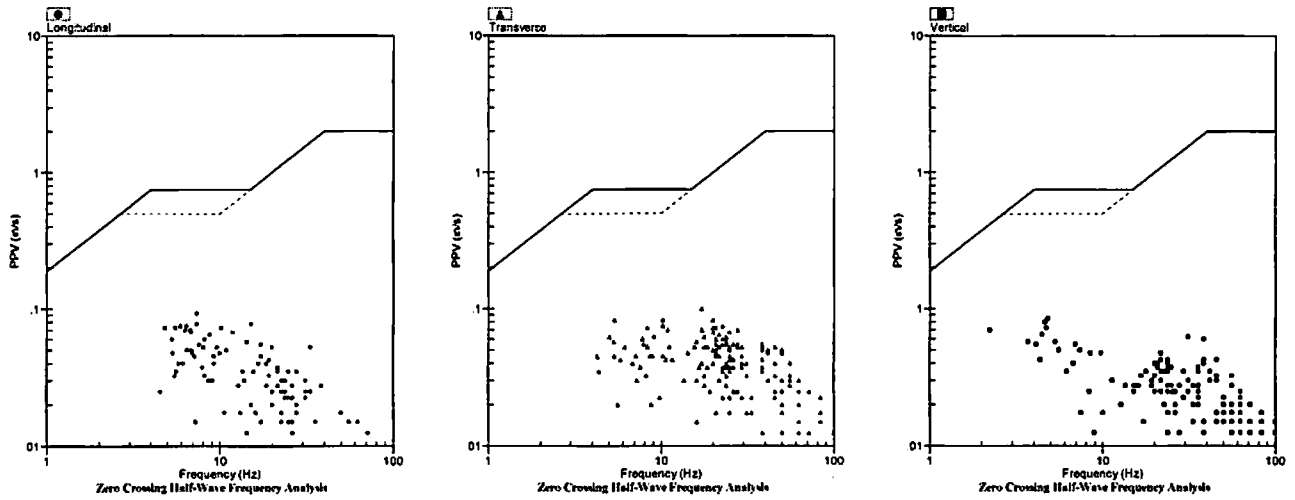
**Serial No:** 5150 v3.67  
**Date:** 07/31/2018 13:46:58  
**Event No:** 8  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.093	0.100	0.085
<b>FREQ (Hz)</b>	7.4	17.2	4.8
<b>PD (.001")</b>	2.30	2.43	3.83
<b>PPA (g)</b>	0.039	0.052	0.039
<b>Peak Vector Sum:</b>	0.110 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00064 PSI @ 5.4 Hz		

**Additional Info:**

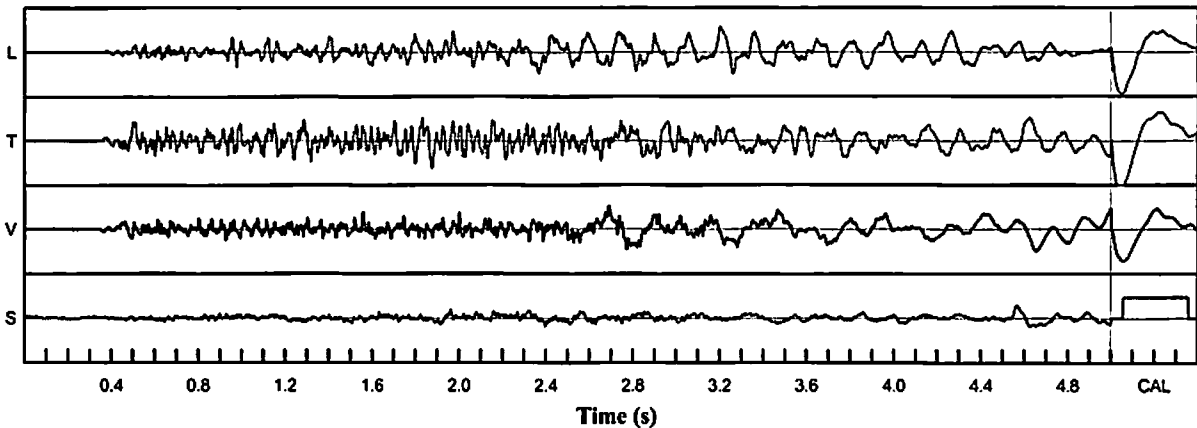
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 8



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

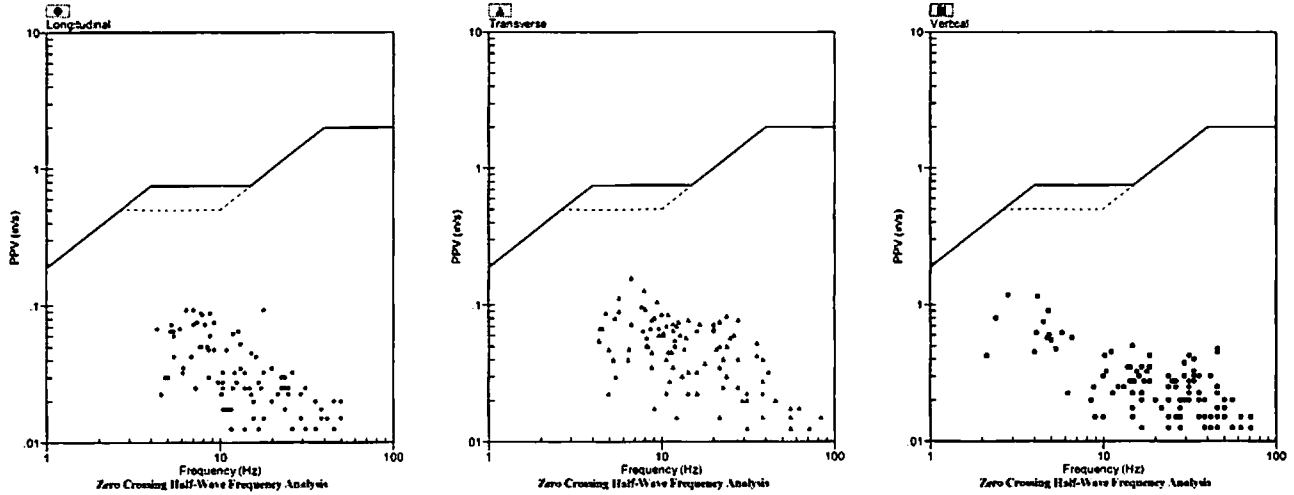
**Serial No:** 5150 v3.67  
**Date:** 08/03/2018 13:31:14  
**Event No:** 9  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.093	0.158	0.118
<b>FREQ (Hz)</b>	17.9	6.7	2.8
<b>PD (.001")</b>	2.61	3.18	3.99
<b>PPA (g)</b>	0.026	0.046	0.033
<b>Peak Vector Sum:</b>	0.163 in/s		
<b>Peak Air Pressure:</b>	103 db		
	0.00046 PSI @ 4.6 Hz		

**Additional Info:**

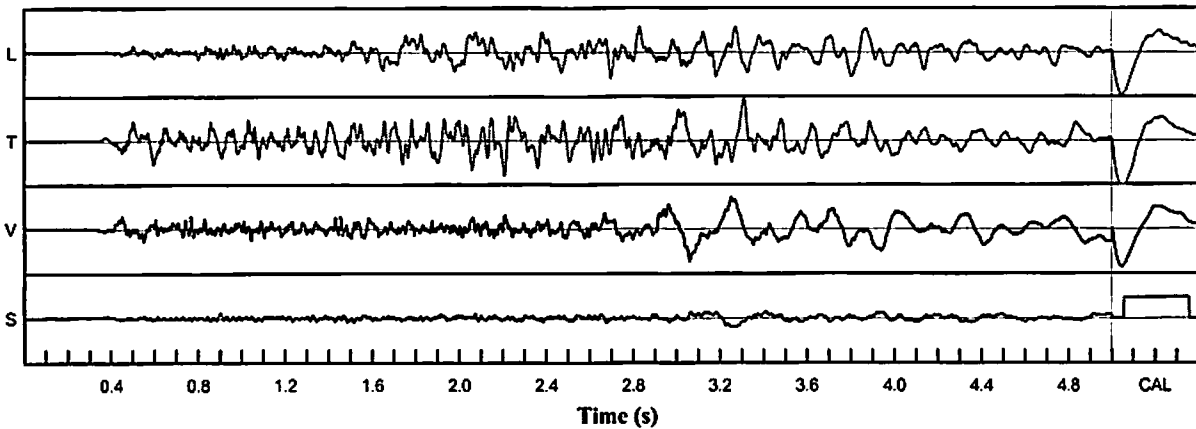
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 9



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 08/07/2018 11:57:57  
**Event No:** 10  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

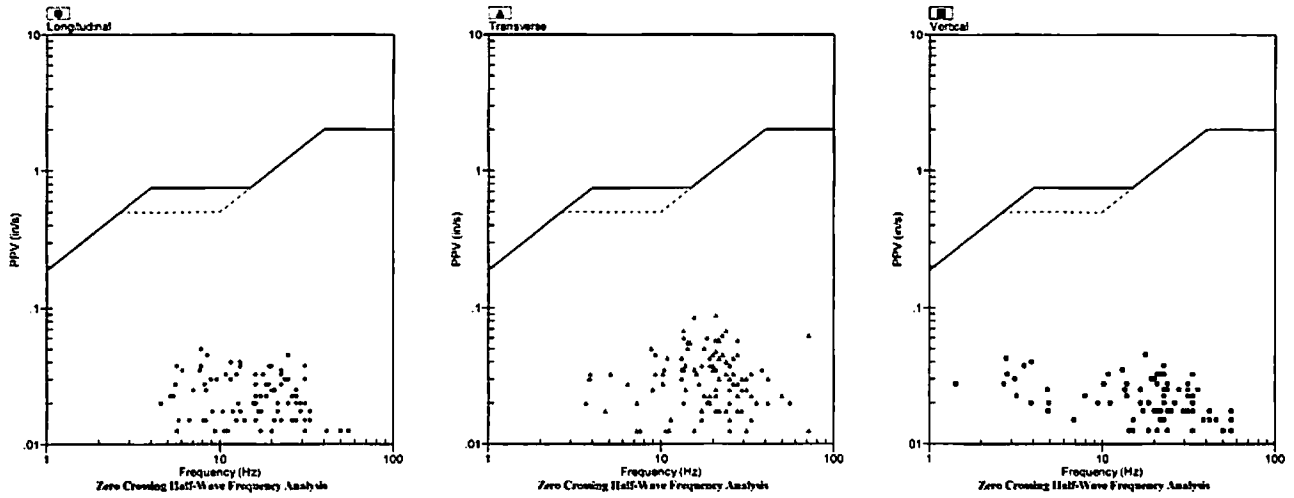
### Summary Data

	L	T	V
PPV (in/s)	0.050	0.088	0.045
FREQ (Hz)	7.8	20.8	17.9
PD (.001")	1.10	1.42	2.08
PPA (g)	0.026	0.039	0.026
Peak Vector Sum:	0.095 in/s		
Peak Air Pressure:	101 db		
	0.00037 PSI @ 4.2 Hz		

### Additional Info:

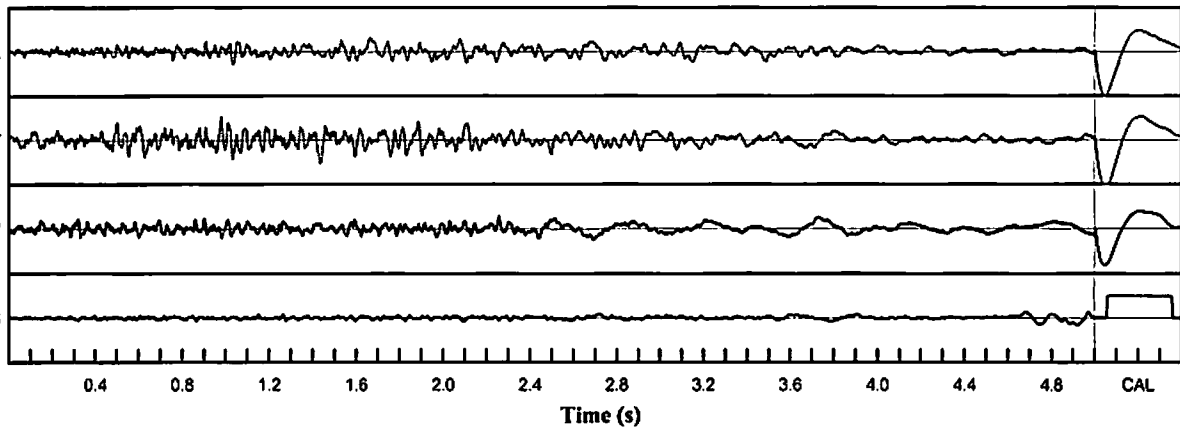
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 10



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

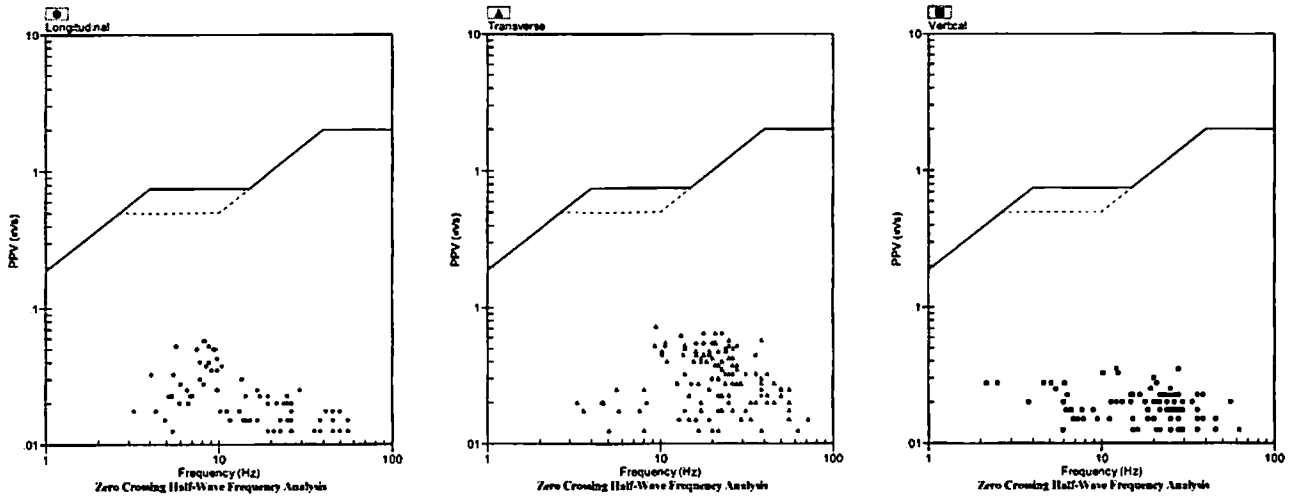
**Serial No:** 5150 v3.67  
**Date:** 08/15/2018 13:16:14  
**Event No:** 11  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.058	0.073	0.035
<b>FREQ (Hz)</b>	8.3	9.4	27.8
<b>PD (.001")</b>	1.31	1.05	1.44
<b>PPA (g)</b>	0.020	0.039	0.020
<b>Peak Vector Sum:</b>	0.075 in/s		
<b>Peak Air Pressure:</b>	95 db		
	0.00023 PSI @ 9.1 Hz		

**Additional Info:**

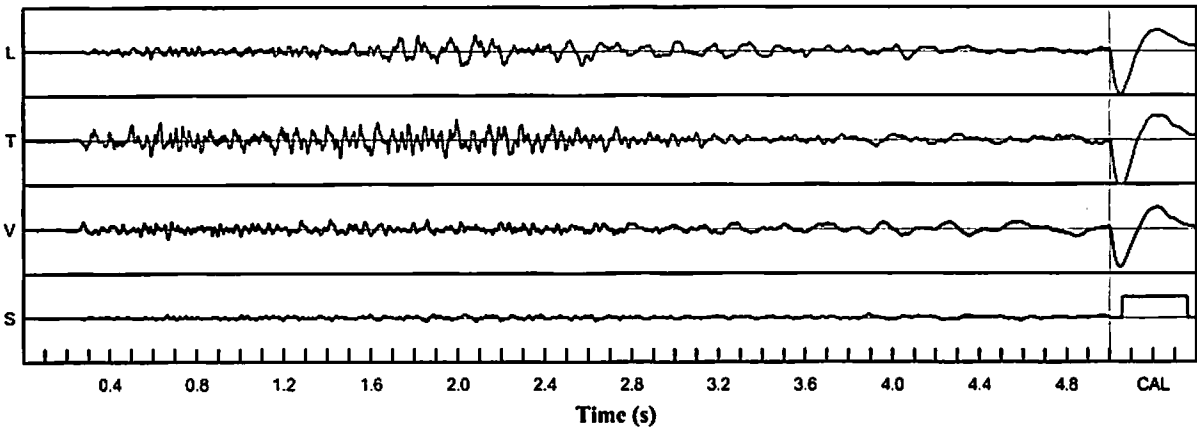
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 11



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 08/17/2018 13:11:20  
**Event No:** 13  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

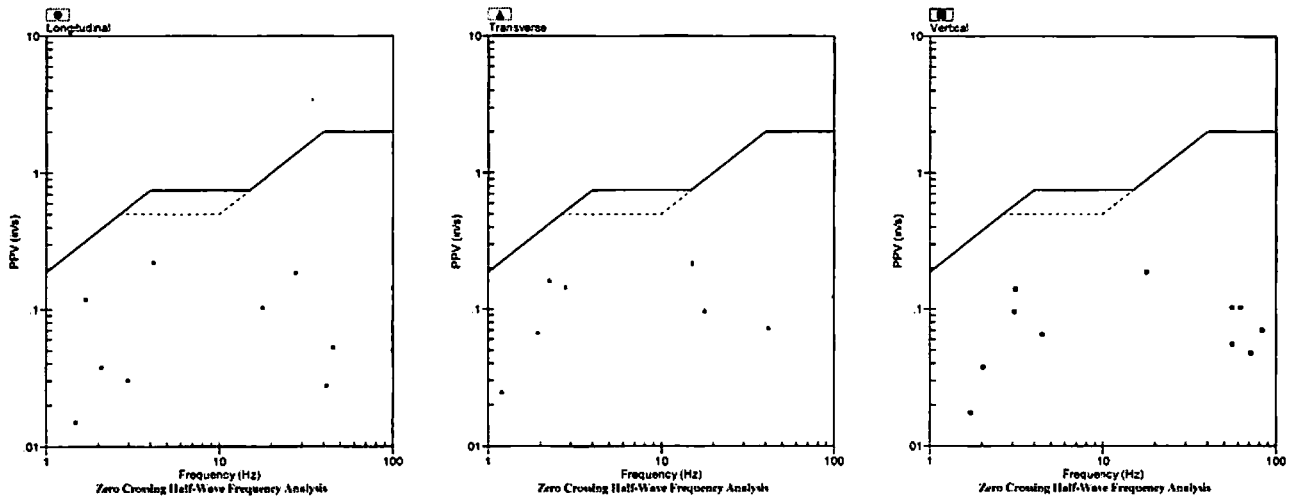
### Summary Data

	L	T	V
PPV (in/s)	0.220	0.218	0.188
FREQ (Hz)	4.2	15.2	10.4
PD (.001")	7.90	10.07	4.49
PPA (g)	0.293	0.202	0.280
Peak Vector Sum:	0.275 in/s		
Peak Air Pressure:	102 db		
	0.00043 PSI @ 100.0 Hz		

### Additional Info:

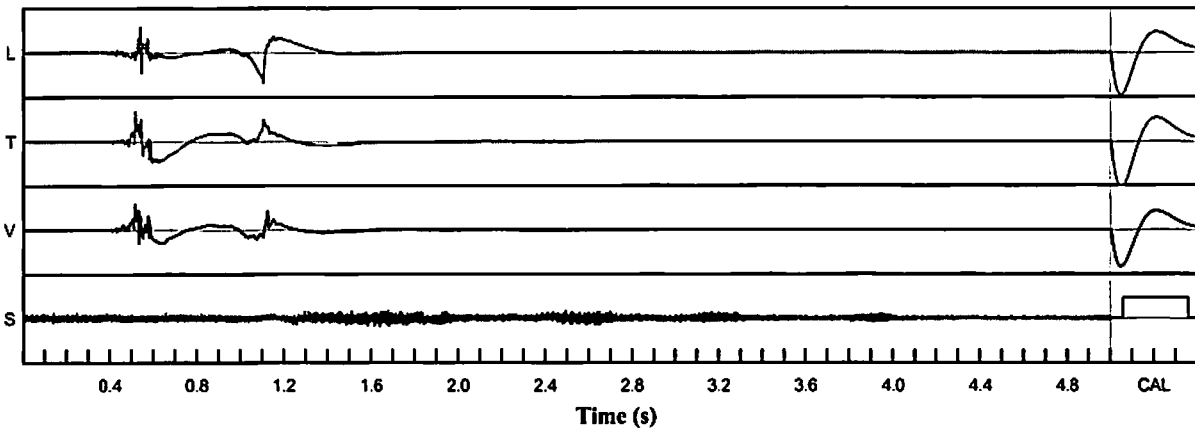
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 13



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 08/17/2018 11:32:17  
**Event No:** 12  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

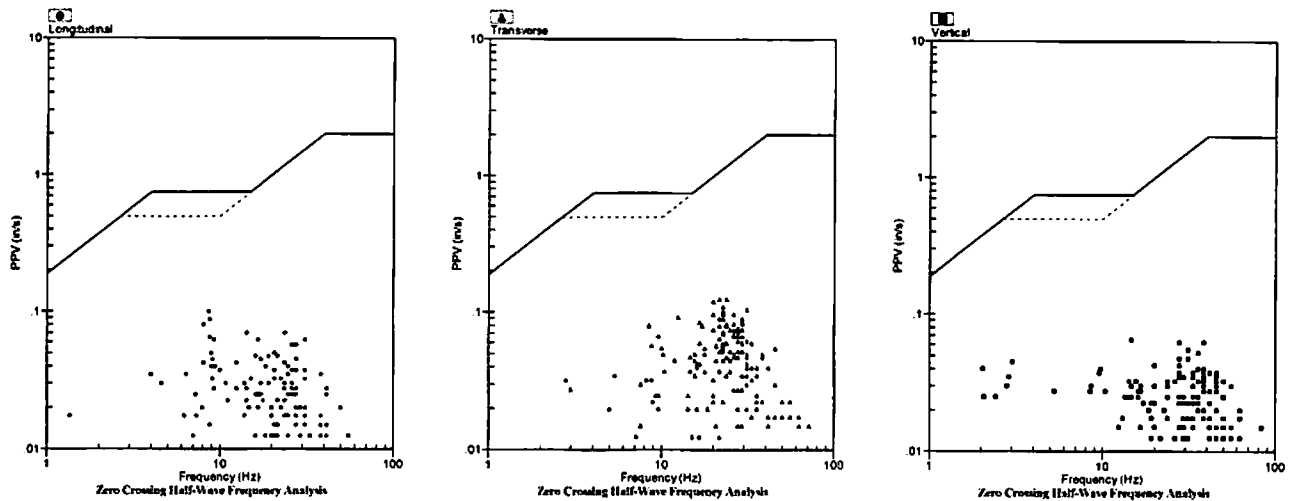
### Summary Data

	L	T	V
PPV (in/s)	0.100	0.125	0.065
FREQ (Hz)	8.6	23.8	14.7
PD (.001")	2.06	1.41	2.39
PPA (g)	0.039	0.065	0.046
Peak Vector Sum:	0.140 in/s		
Peak Air Pressure:	100 db		
	0.00029 PSI @ 15.2 Hz		

### Additional Info:

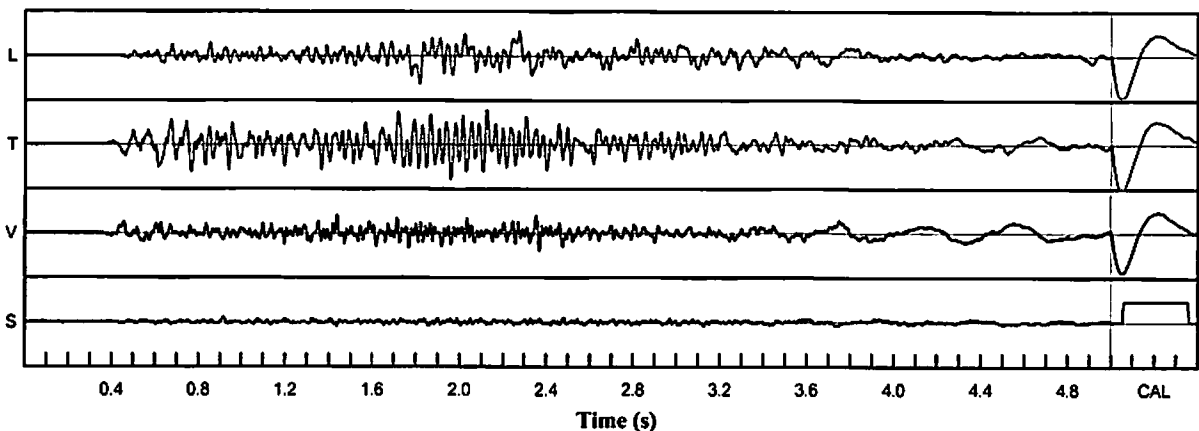
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 12



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 08/21/2018 13:15:24  
**Event No:** 14  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 5276 SW 152 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

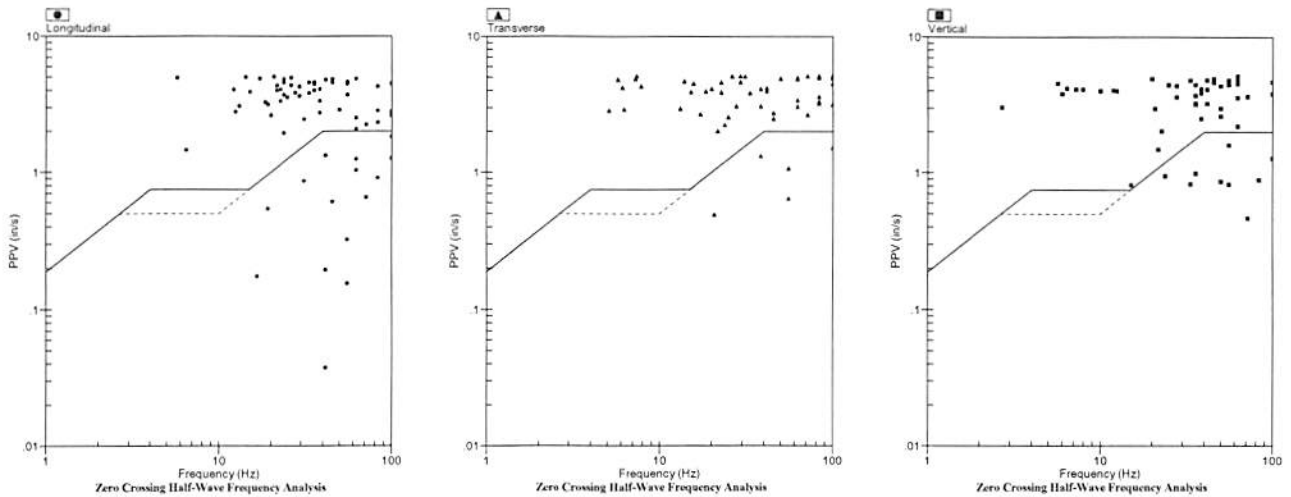
### Summary Data

	L	T	V
PPV (in/s)	0.023	0.060	0.050
FREQ (Hz)	16.1	12.5	25.0
PD (.001")	0.41	1.01	1.43
PPA (g)	0.020	0.026	0.020
Peak Vector Sum:	0.078 in/s		
Peak Air Pressure:	101 db		
	0.00032 PSI @ 8.8 Hz		

### Additional Info:

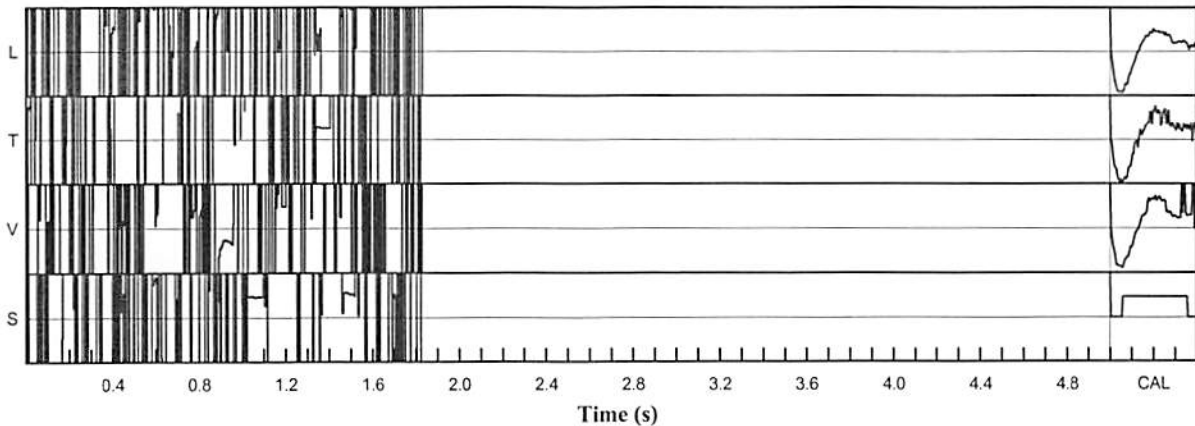
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 14



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 08/23/2018 11:45:09  
**Event No:** 15  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 5276 SW 152 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

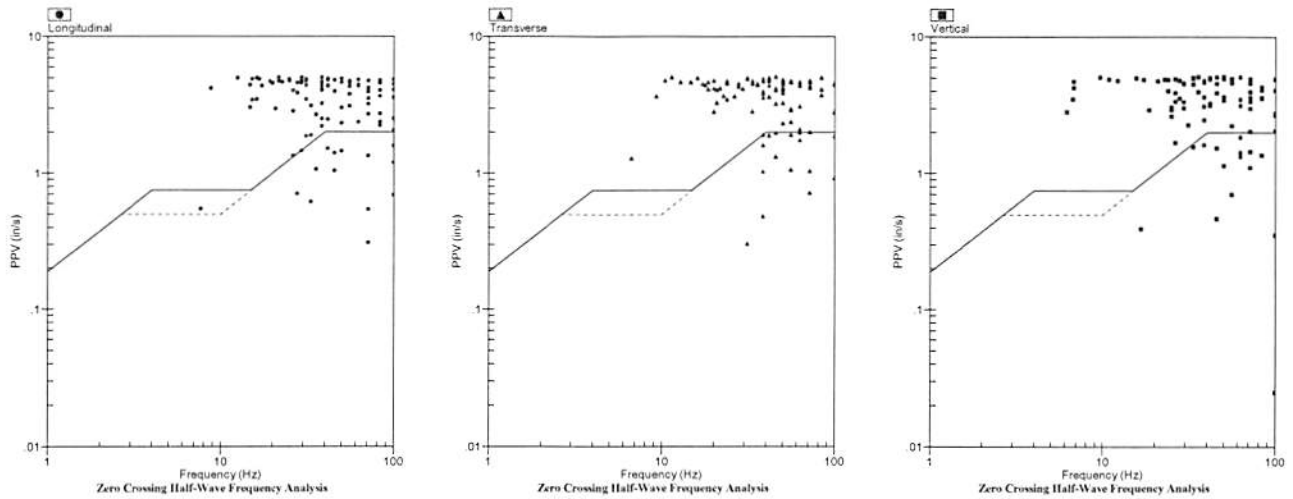
### Summary Data

	L	T	V
PPV (in/s)	0.065	0.085	0.055
FREQ (Hz)	5.7	22.7	12.8
PD (.001")	1.63	1.61	2.31
PPA (g)	0.026	0.046	0.020
Peak Vector Sum:	0.088 in/s		
Peak Air Pressure:	100 db		
	0.00029 PSI @ 500.0 Hz		

### Additional Info:

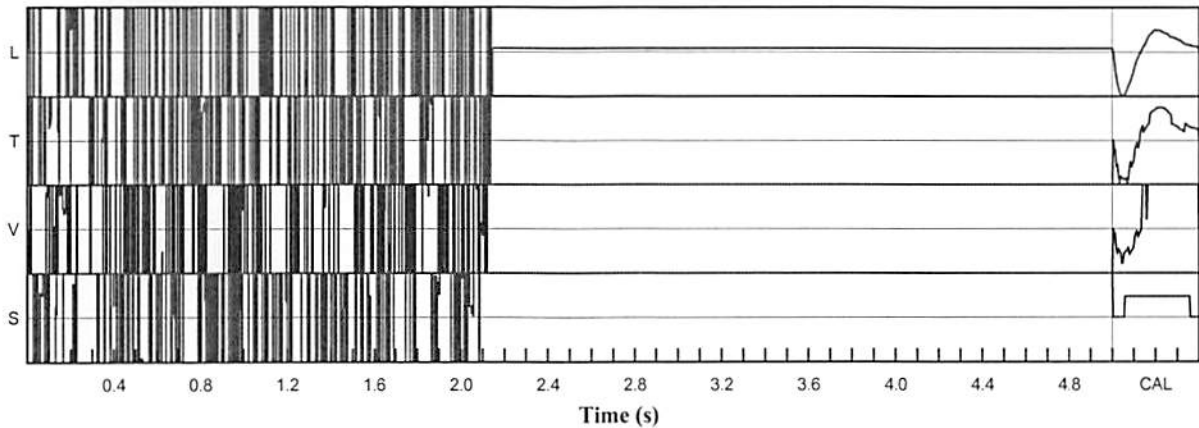
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 15



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 08/28/2018 13:15:29  
**Event No:** 16  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 5276 SW 152 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

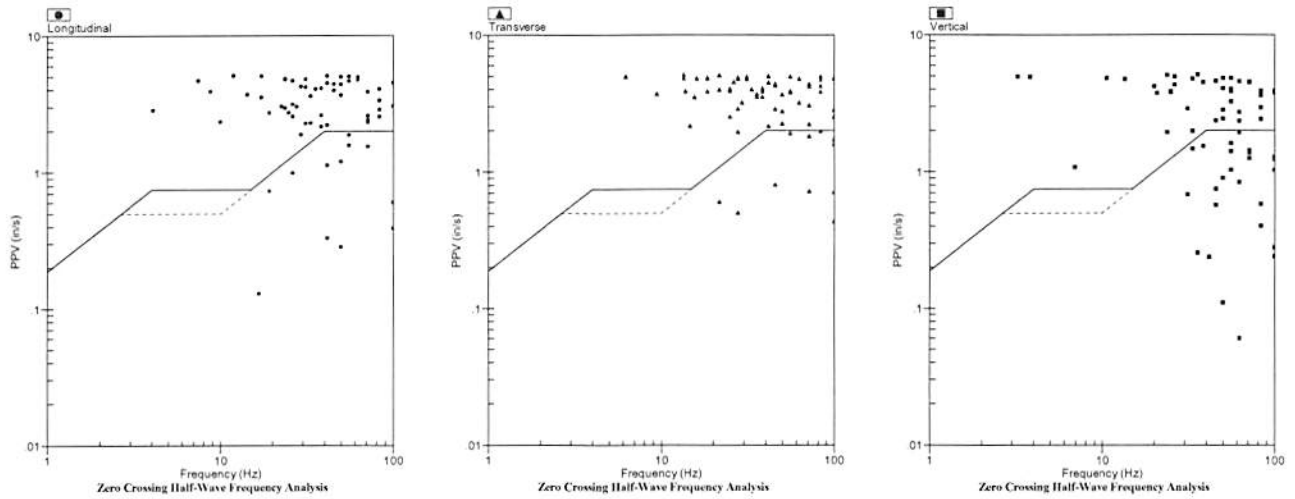
### Summary Data

	L	T	V
PPV (in/s)	0.033	0.053	0.063
FREQ (Hz)	7.4	10.2	3.0
PD (.001")	0.81	1.92	3.07
PPA (g)	0.013	0.026	0.020
Peak Vector Sum:	0.068 in/s		
Peak Air Pressure:	101 db		
	0.00032 PSI @ 45.5 Hz		

### Additional Info:

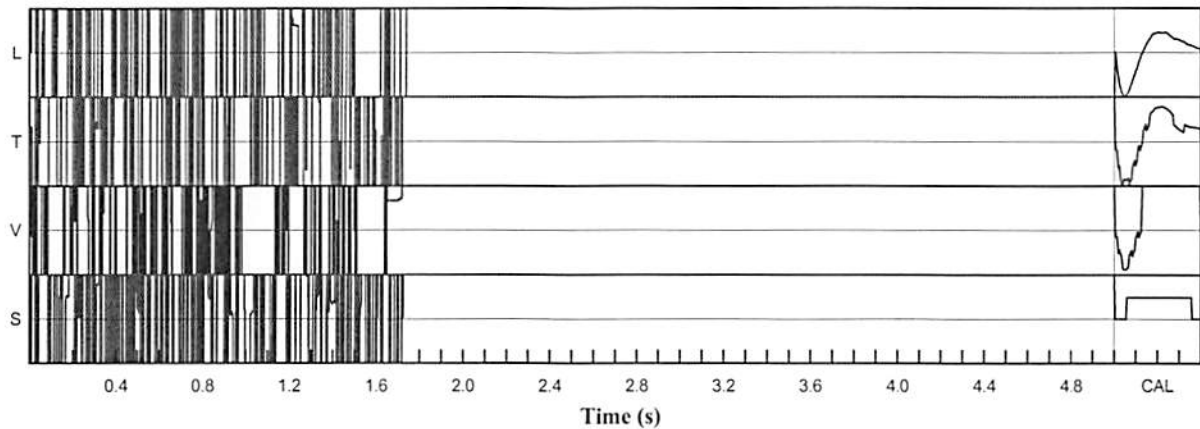
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 16



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5150 v3.67  
**Date:** 09/05/2018 11:30:43  
**Event No:** 20  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 5276 SW 152 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

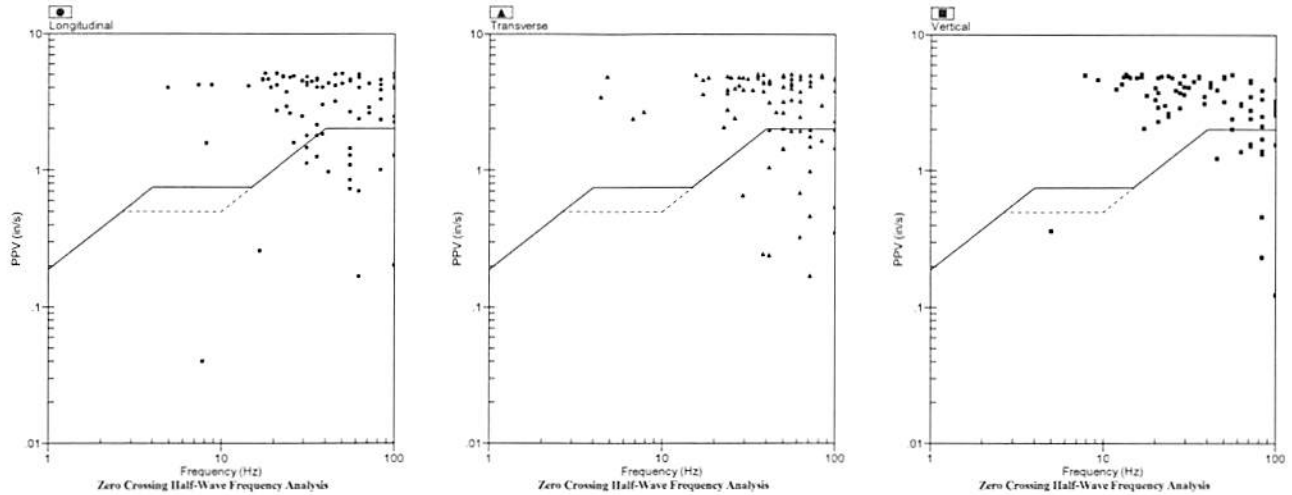
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.030	0.058	0.038
<b>FREQ (Hz)</b>	7.2	11.1	3.5
<b>PD (.001")</b>	0.82	1.63	2.14
<b>PPA (g)</b>	0.020	0.020	0.020
<b>Peak Vector Sum:</b>	0.063 in/s		
<b>Peak Air Pressure:</b>	92 db		
	0.00020 PSI @ 83.3 Hz		

### Additional Info:

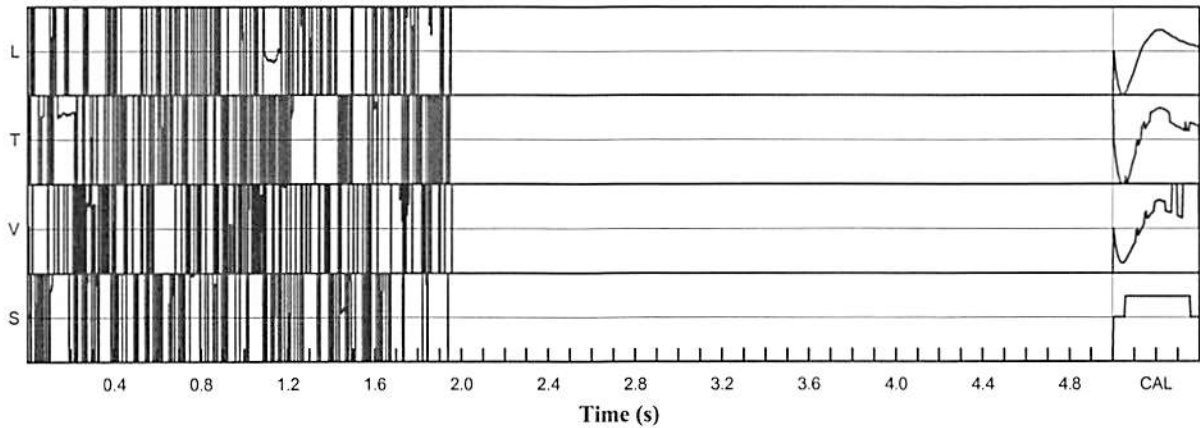
**Shaketable Calibrated:** 04/19/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5150 Event: 20



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/21/2018 13:15:30  
**Event No:** 16  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

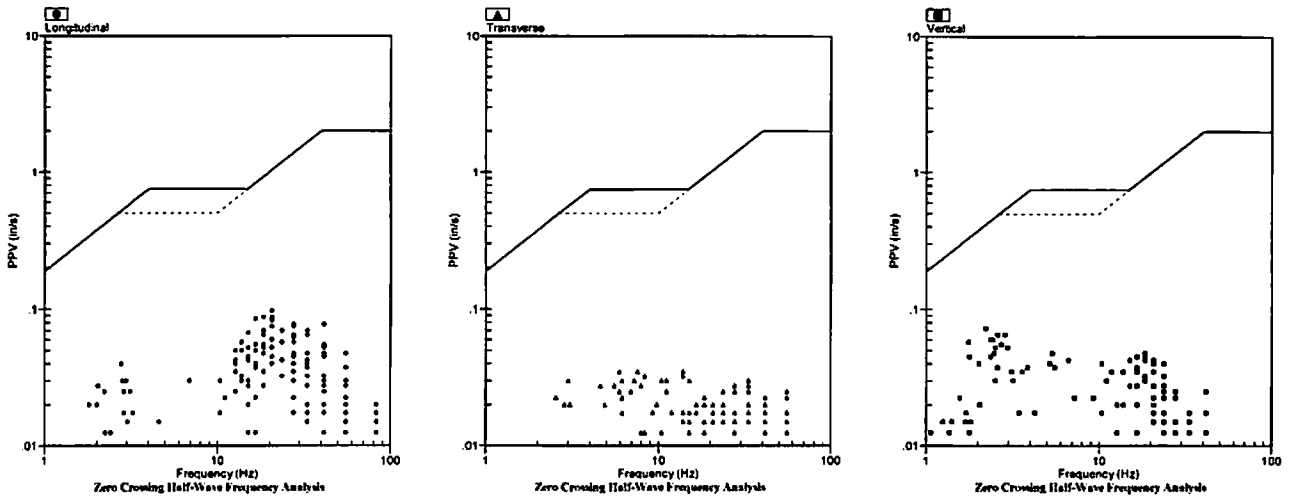
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.098	0.035	0.073
<b>FREQ (Hz)</b>	20.8	13.9	2.2
<b>PD (.001")</b>	1.81	1.32	4.60
<b>PPA (g)</b>	0.052	0.020	0.020
<b>Peak Vector Sum:</b>	0.103 in/s		
<b>Peak Air Pressure:</b>	102 db		
	0.00043 PSI @ 6.0 Hz		

### Additional Info:

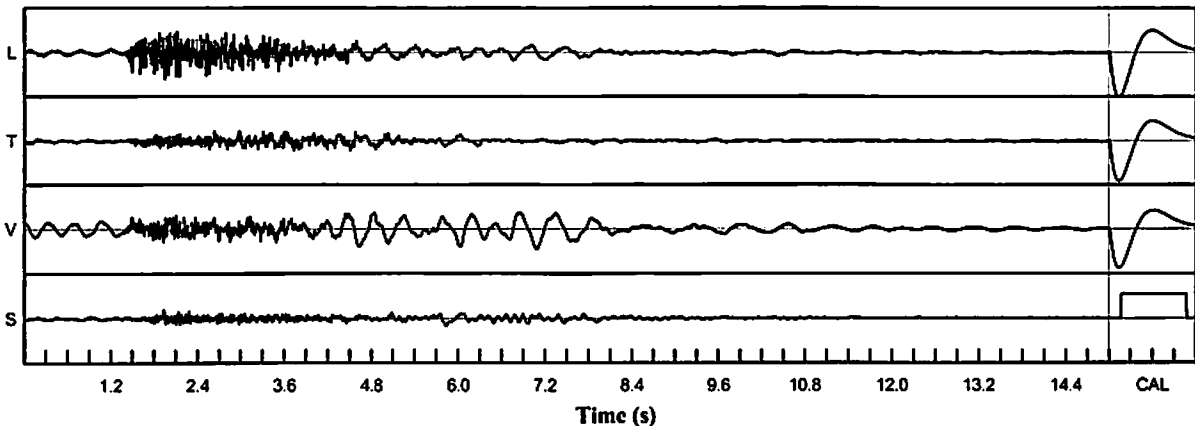
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 16



### Velocity Waveform Graph Scale

**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/23/2018 11:45:16  
**Event No:** 17  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

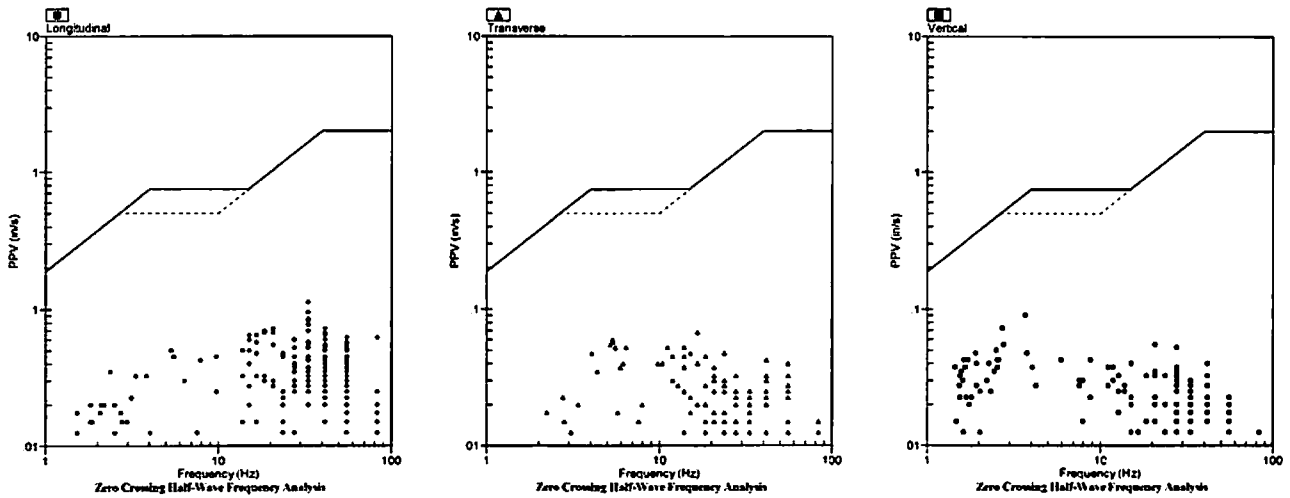
### Summary Data

	L	T	V
PPV (in/s)	0.113	0.068	0.090
FREQ (Hz)	33.3	16.7	3.7
PD (.001")	1.52	2.05	3.90
PPA (g)	0.052	0.033	0.026
Peak Vector Sum:	0.115 in/s		
Peak Air Pressure:	105 db		
	0.00057 PSI @ 4.9 Hz		

### Additional Info:

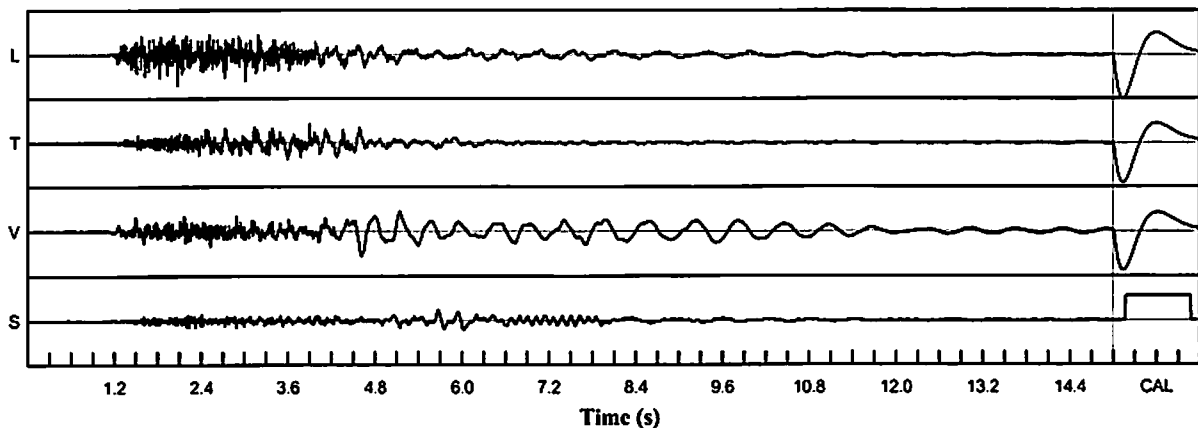
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 17



### Velocity Waveform Graph Scale

**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/28/2018 13:15:47  
**Event No:** 18  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

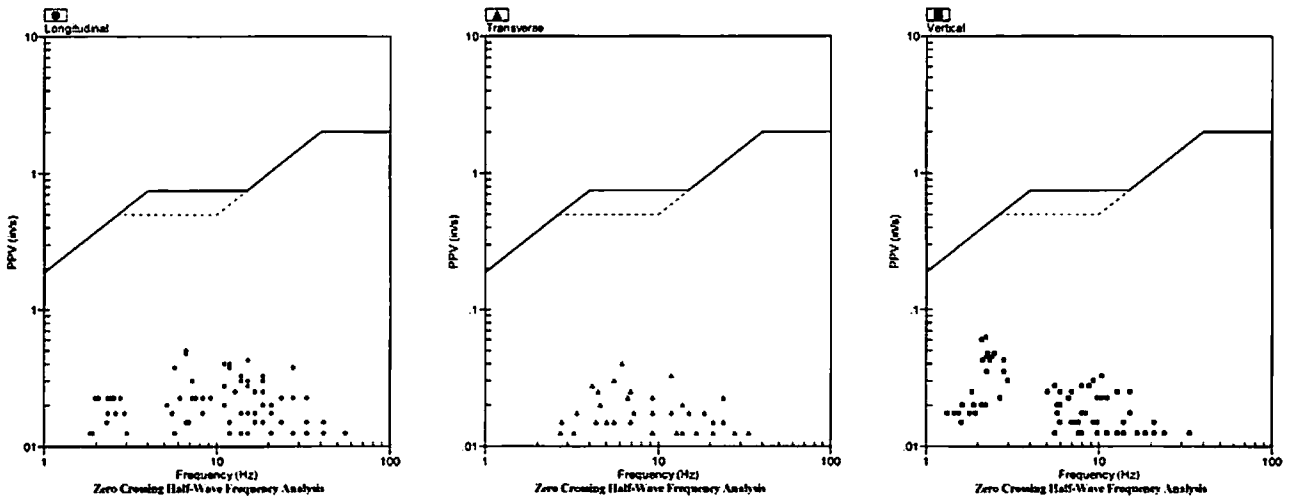
### Summary Data

	L	T	V
PPV (in/s)	0.050	0.040	0.063
FREQ (Hz)	6.7	6.2	2.2
PD (.001")	1.50	1.21	4.22
PPA (g)	0.013	0.013	0.013
Peak Vector Sum:	0.063 in/s		
Peak Air Pressure:	106 db		
	0.00062 PSI @ 3.5 Hz		

### Additional Info:

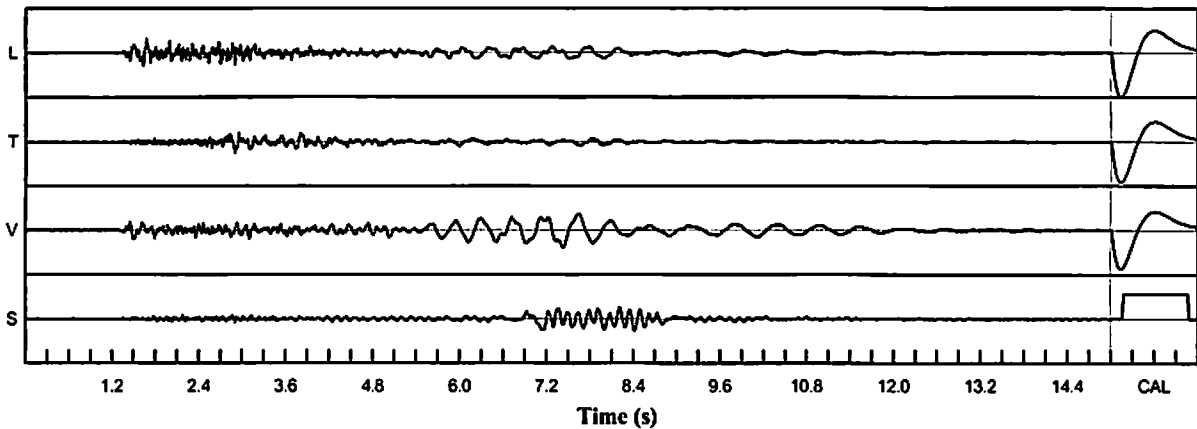
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 18



### Velocity Waveform Graph Scale

**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 08/29/2018 11:16:20  
**Event No:** 19  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

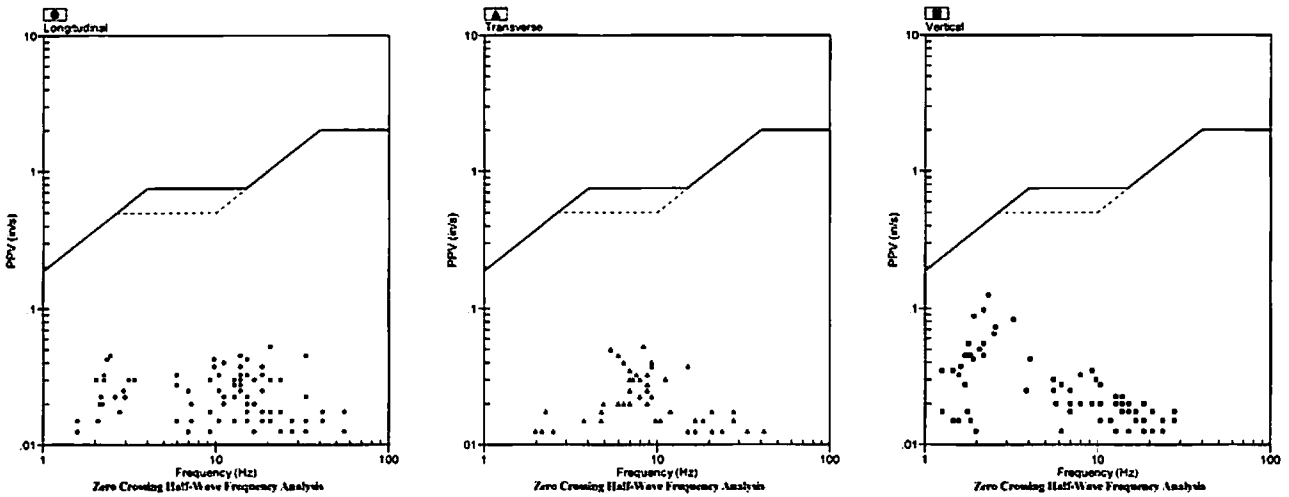
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.060	0.053	0.125
<b>FREQ (Hz)</b>	11.9	8.3	2.3
<b>PD (.001")</b>	3.07	1.41	7.36
<b>PPA (g)</b>	0.020	0.013	0.013
<b>Peak Vector Sum:</b>	0.125 in/s		
<b>Peak Air Pressure:</b>	108 db		
	0.00080 PSI @ 2.6 Hz		

### Additional Info:

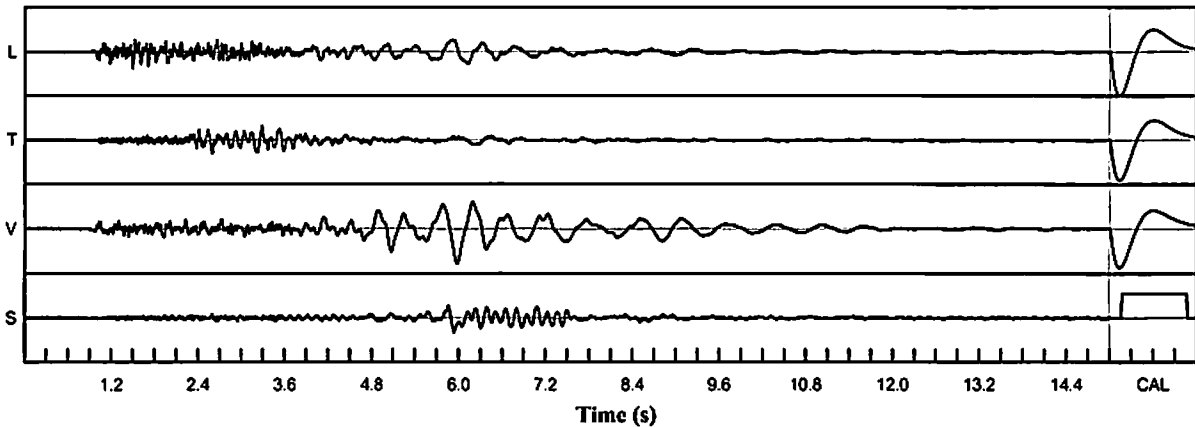
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 19



### Velocity Waveform Graph Scale

**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

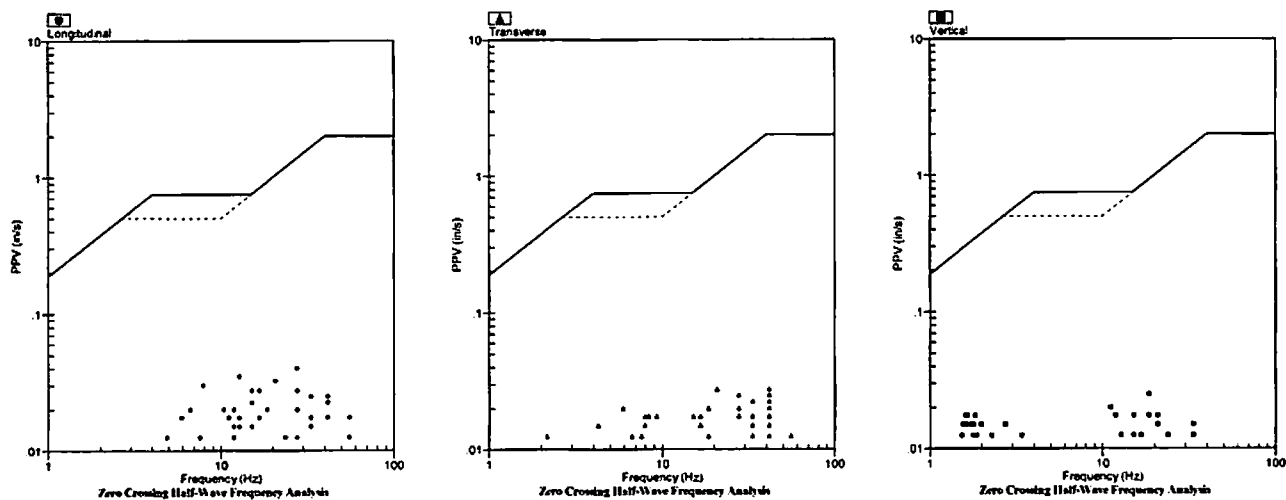
**Serial No:** 5149 v3.67  
**Date:** 08/30/2018 13:46:00  
**Event No:** 20  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

	L	T	V
<b>PPV (in/s)</b>	0.055	0.030	0.025
<b>FREQ (Hz)</b>	16.7	33.3	18.5
<b>PD (.001")</b>	0.82	0.74	1.60
<b>PPA (g)</b>	0.026	0.020	0.007
<b>Peak Vector Sum:</b>	0.058 in/s		
<b>Peak Air Pressure:</b>	94 db		
	0.00021 PSI @ 27.8 Hz		

**Additional Info:**

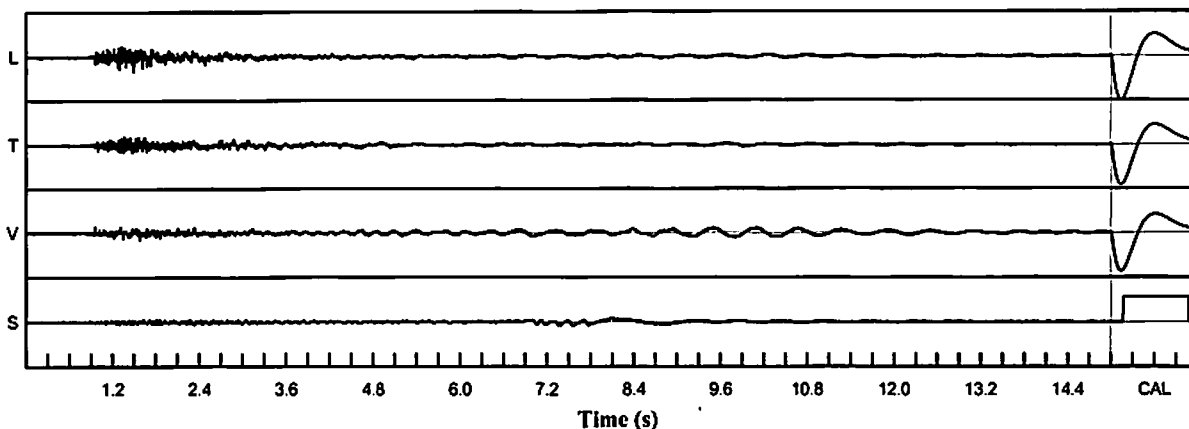
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 20



**Velocity Waveform Graph Scale**

**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 09/05/2018 11:31:17  
**Event No:** 21  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

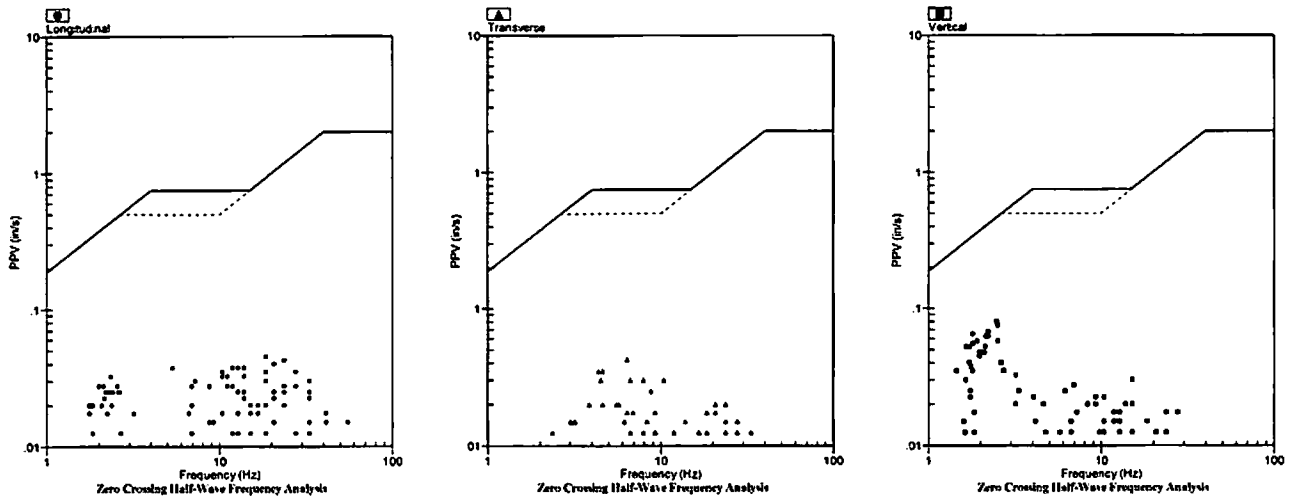
### Summary Data

	L	T	V
PPV (in/s)	0.045	0.043	0.080
FREQ (Hz)	18.5	6.4	2.5
PD (.001")	1.91	1.19	5.48
PPA (g)	0.020	0.013	0.007
Peak Vector Sum:	0.080 in/s		
Peak Air Pressure:	103 db		
	0.00045 PSI @ 3.0 Hz		

### Additional Info:

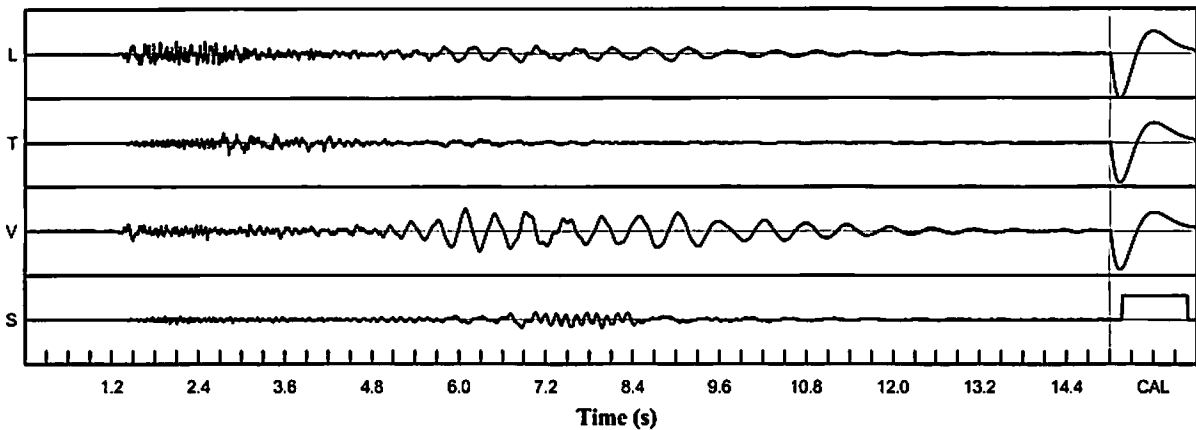
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 21



### Velocity Waveform Graph Scale

**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 09/11/2018 11:31:46  
**Event No:** 22  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

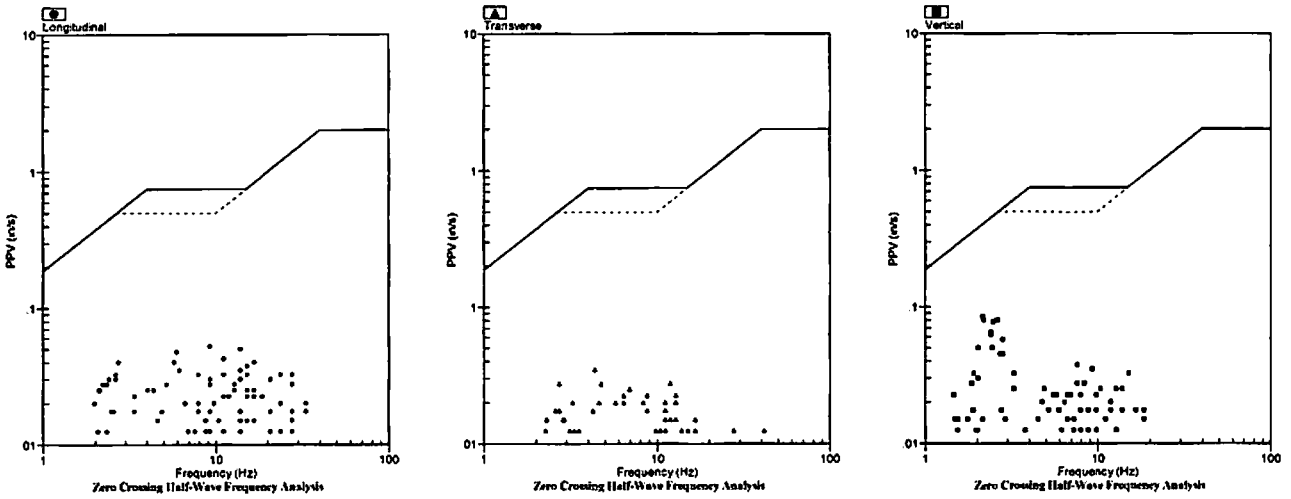
### Summary Data

	L	T	V
PPV (in/s)	0.053	0.035	0.085
FREQ (Hz)	9.3	4.4	2.2
PD (.001")	2.13	1.48	5.27
PPA (g)	0.020	0.013	0.013
Peak Vector Sum:	0.088 in/s		
Peak Air Pressure:	105 db		
	0.00059 PSI @ 2.6 Hz		

### Additional Info:

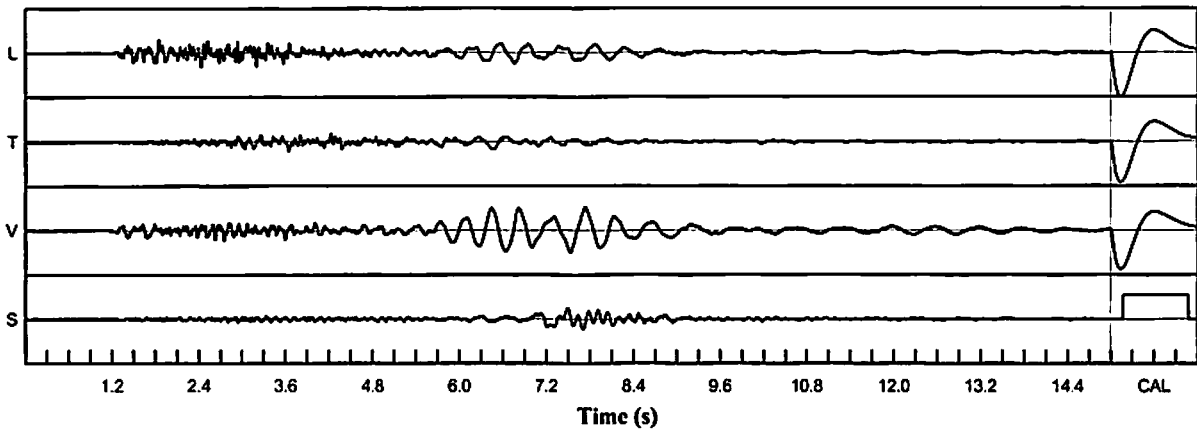
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 22



### Velocity Waveform Graph Scale

**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5149 v3.67  
**Date:** 09/12/2018 11:32:01  
**Event No:** 23  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

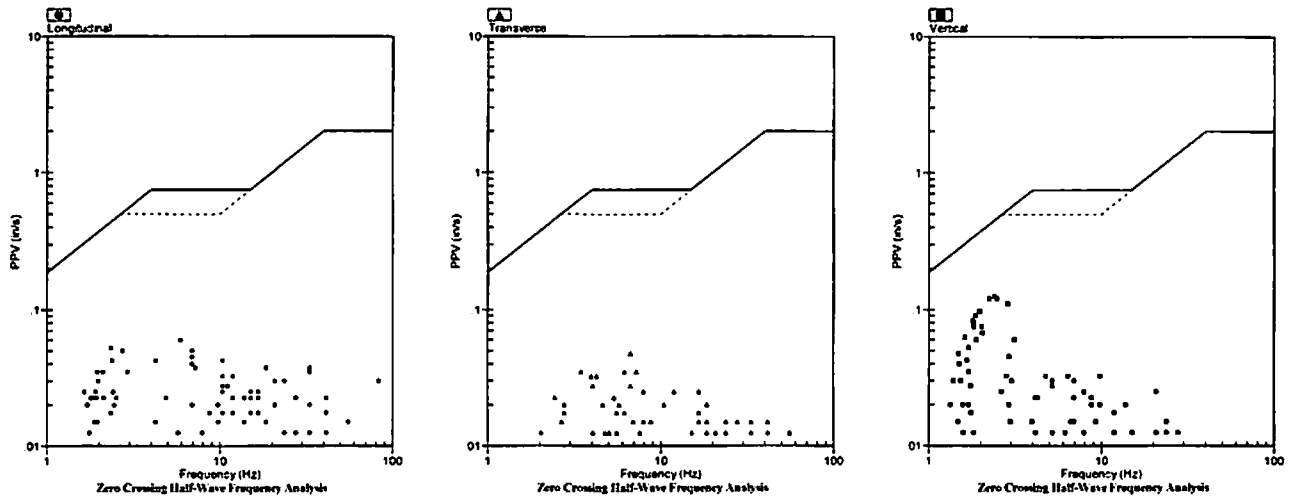
### Summary Data

	L	T	V
PPV (in/s)	0.060	0.048	0.125
FREQ (Hz)	6.0	6.7	2.4
PD (.001")	3.18	1.32	8.50
PPA (g)	0.020	0.013	0.013
Peak Vector Sum:	0.125 in/s		
Peak Air Pressure:	106 db		
	0.00066 PSI @ 2.9 Hz		

### Additional Info:

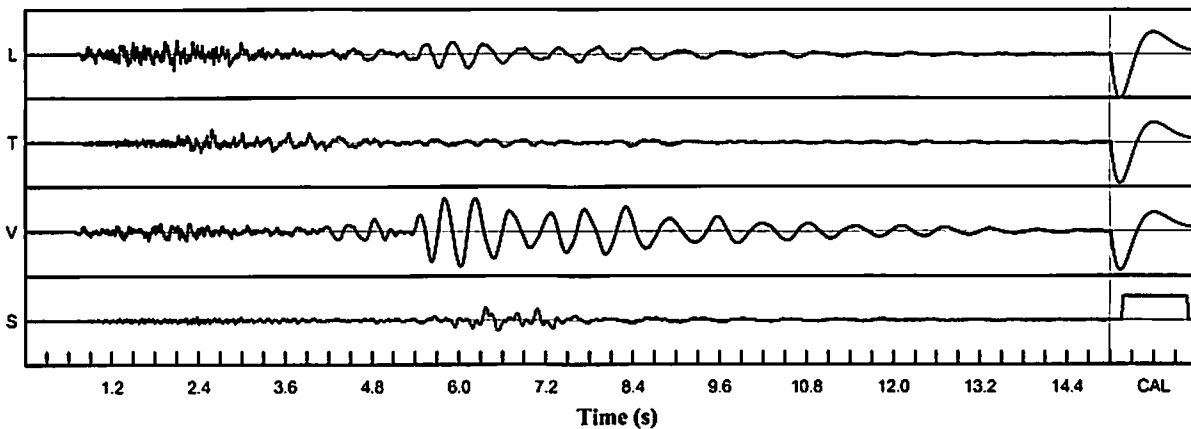
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 23



### Velocity Waveform Graph Scale

**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

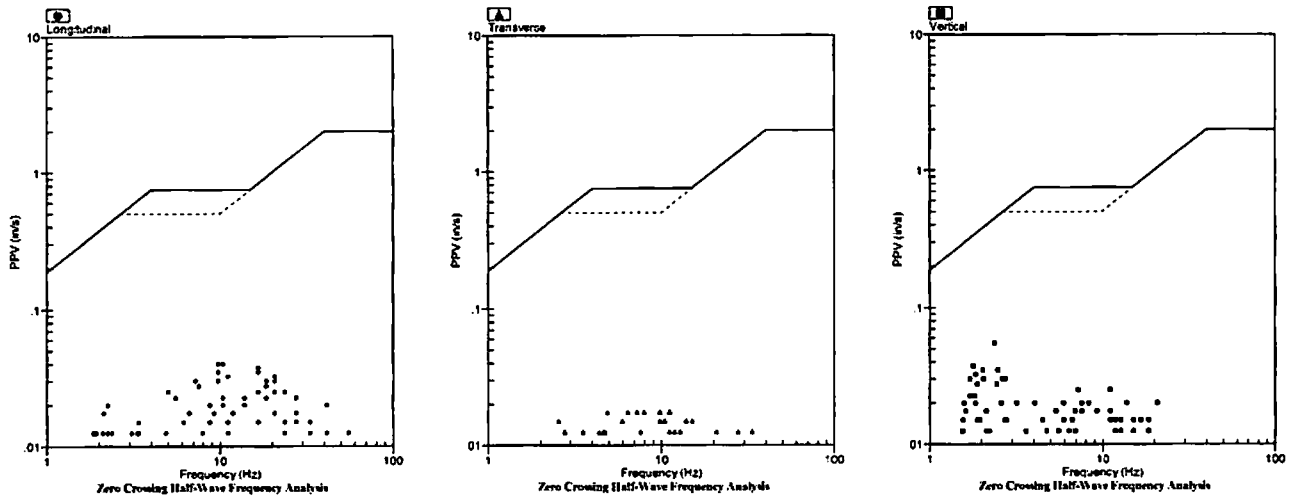
**Serial No:** 5149 v3.67  
**Date:** 09/13/2018 11:32:10  
**Event No:** 24  
**Record Time:** 15.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 16171 SW 49 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

	L	T	V
<b>PPV (in/s)</b>	0.040	0.018	0.055
<b>FREQ (Hz)</b>	11.1	11.1	2.4
<b>PD (.001")</b>	1.08	0.99	3.61
<b>PPA (g)</b>	0.013	0.007	0.007
<b>Peak Vector Sum:</b>	0.055 in/s		
<b>Peak Air Pressure:</b>	105 db		
	0.00061 PSI @ 6.0 Hz		

**Additional Info:**

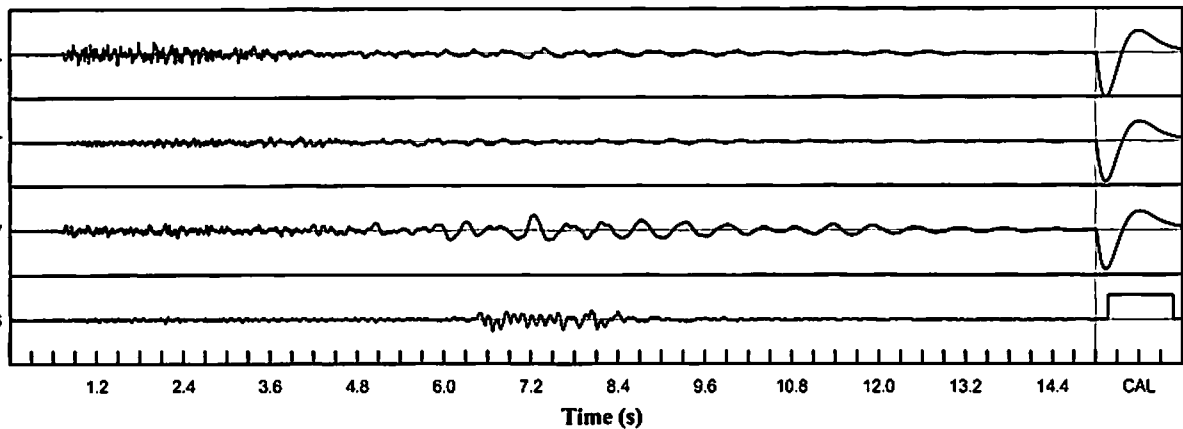
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5149 Event: 24



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.300 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 08/20/2018 13:15:40  
**Event No:** 14  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

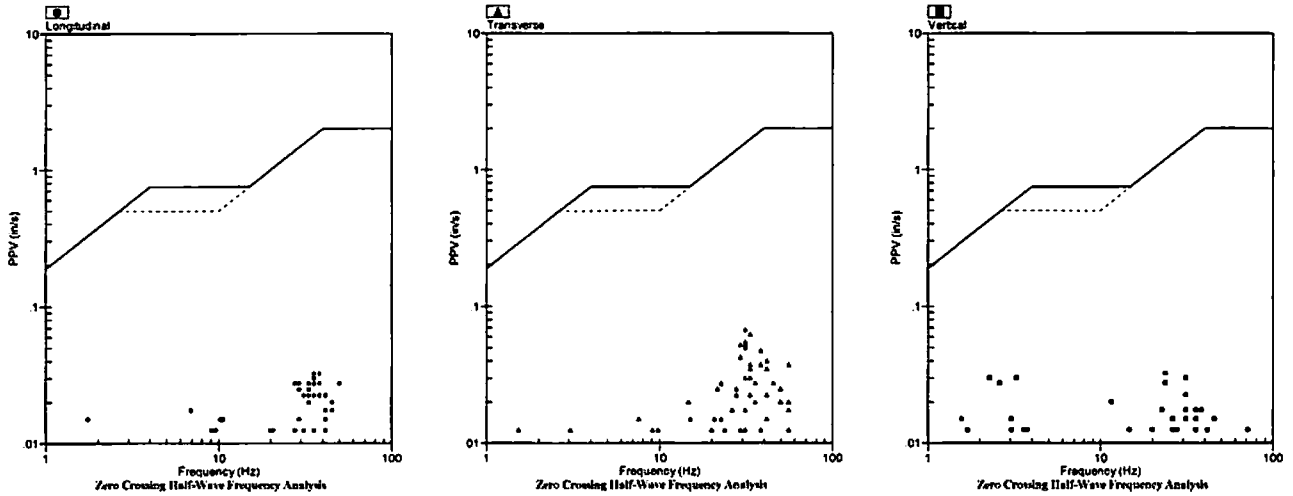
### Summary Data

	L	T	V
PPV (in/s)	0.033	0.068	0.033
FREQ (Hz)	35.7	31.3	23.8
PD (.001")	0.83	0.66	2.01
PPA (g)	0.026	0.039	0.020
Peak Vector Sum:	0.073 in/s		
Peak Air Pressure:	91 db		
	0.00025 PSI @ 29.4 Hz		

### Additional Info:

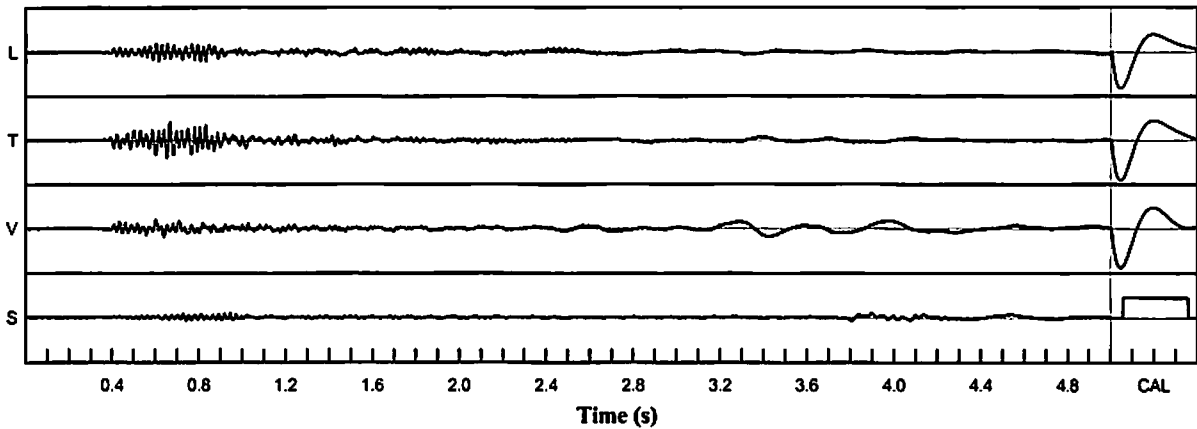
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 14



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

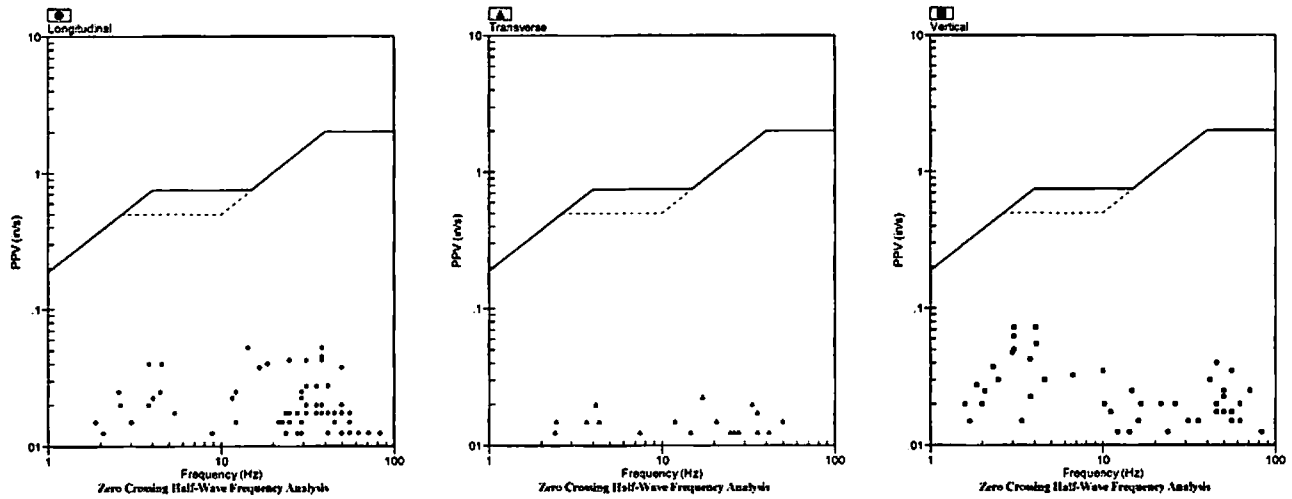
**Serial No:** 5148 v3.67  
**Date:** 08/21/2018 13:15:21  
**Event No:** 15  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

	L	T	V
<b>PPV (in/s)</b>	0.053	0.023	0.073
<b>FREQ (Hz)</b>	38.5	17.2	4.1
<b>PD (.001")</b>	1.41	0.85	3.63
<b>PPA (g)</b>	0.039	0.020	0.033
<b>Peak Vector Sum:</b>	0.075 in/s		
<b>Peak Air Pressure:</b>	98 db		
	0.00039 PSI @ 6.5 Hz		

**Additional Info:**

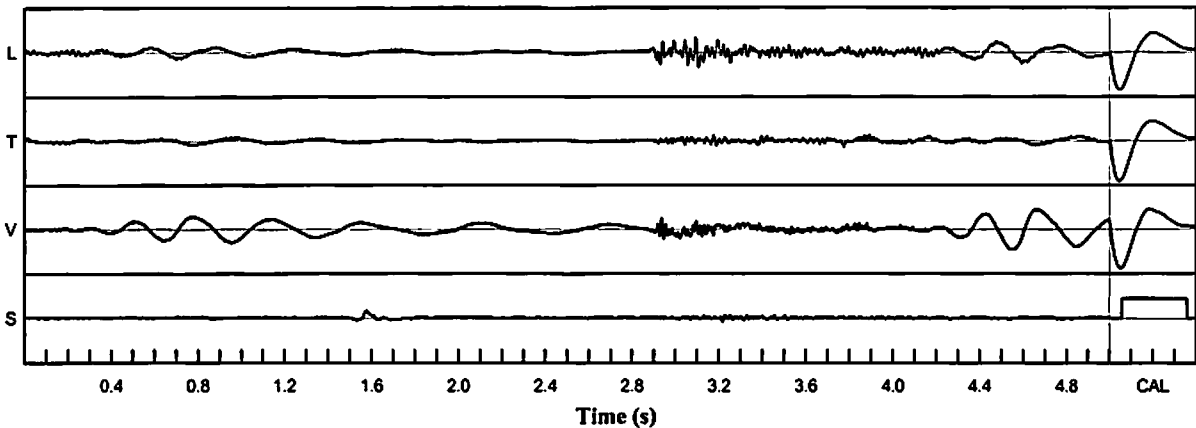
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 15



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 08/22/2018 14:15:35  
**Event No:** 16  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

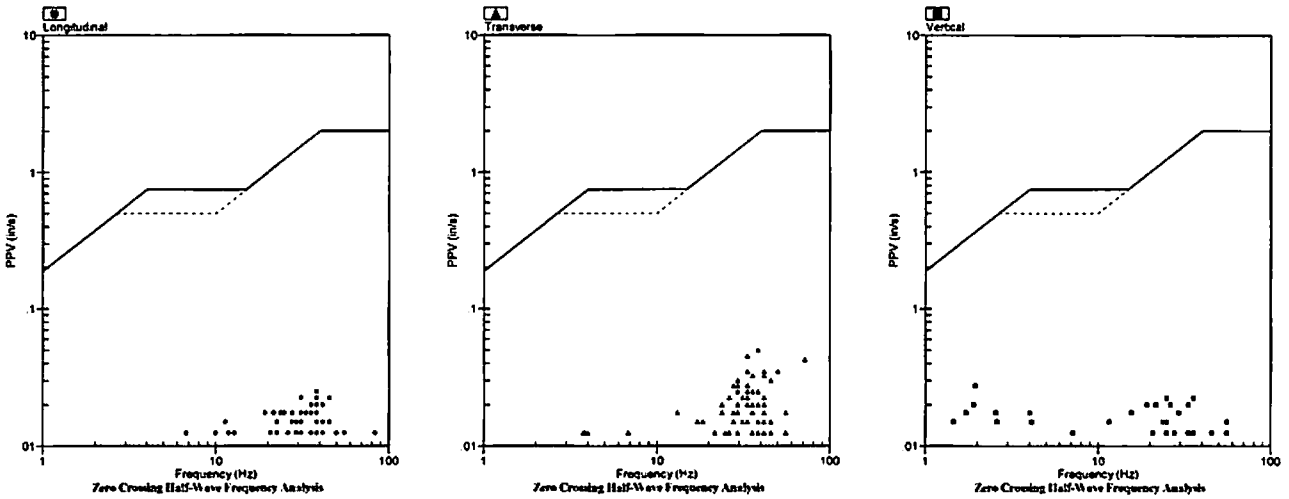
### Summary Data

	L	T	V
PPV (in/s)	0.025	0.050	0.028
FREQ (Hz)	38.5	38.5	2.0
PD (.001")	0.52	0.66	1.76
PPA (g)	0.020	0.033	0.026
Peak Vector Sum:	0.055 in/s		
Peak Air Pressure:	90 db		
	0.00021 PSI @ 21.7 Hz		

### Additional Info:

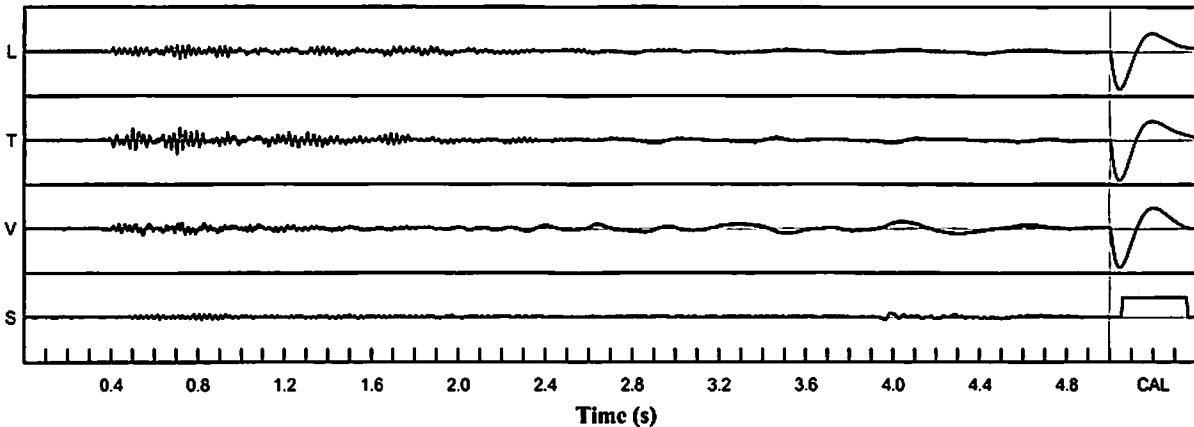
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 16



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

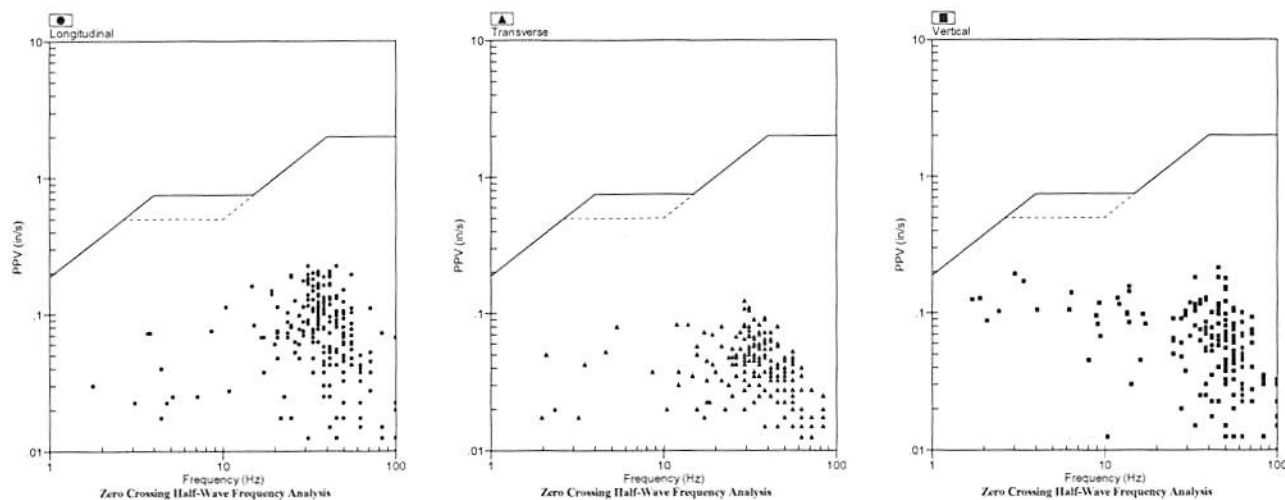
**Serial No:** 5148 v3.67  
**Date:** 08/23/2018 11:45:11  
**Event No:** 17  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

	<b>L</b>	<b>T</b>	<b>V</b>
<b>PPV (in/s)</b>	0.225	0.123	0.213
<b>FREQ (Hz)</b>	45.5	29.4	45.5
<b>PD (.001")</b>	3.07	2.72	11.30
<b>PPA (g)</b>	0.176	0.078	0.189
<b>Peak Vector Sum:</b>	0.263 in/s		
<b>Peak Air Pressure:</b>	109 db		
	0.00096 PSI @ 12.5 Hz		

**Additional Info:**

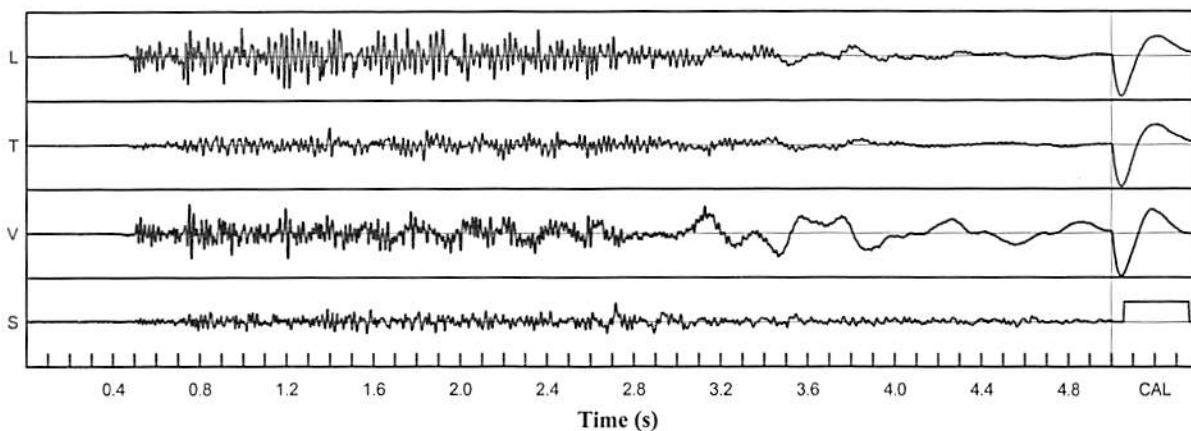
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 17



**Velocity Waveform Graph Scale**

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

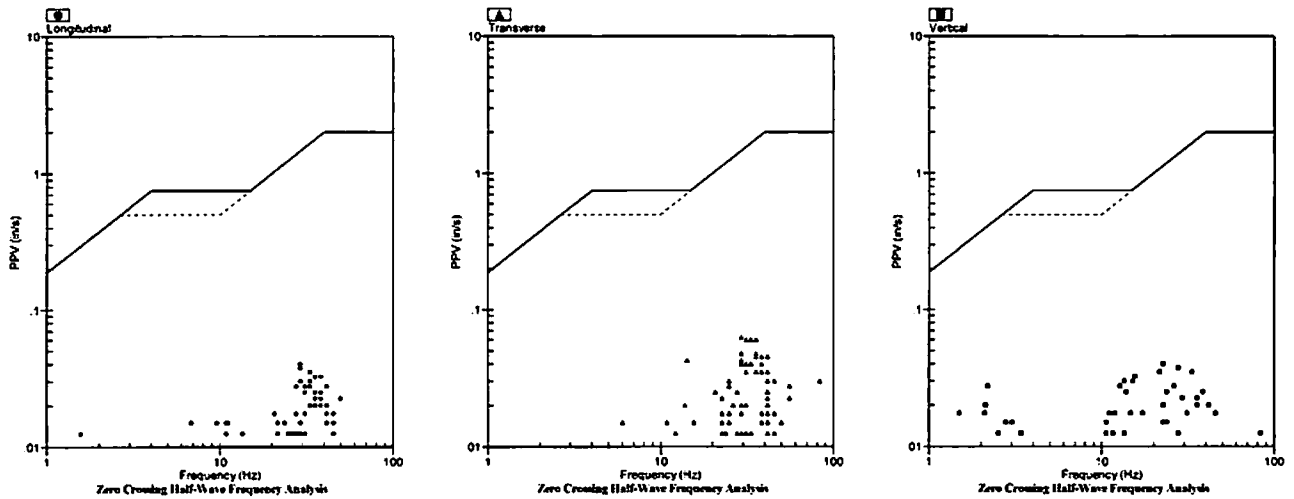
**Serial No:** 5148 v3.67  
**Date:** 08/24/2018 11:30:52  
**Event No:** 18  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

	L	T	V
<b>PPV (in/s)</b>	0.040	0.063	0.040
<b>FREQ (Hz)</b>	29.4	29.4	22.7
<b>PD (.001")</b>	0.84	0.68	1.53
<b>PPA (g)</b>	0.026	0.033	0.026
<b>Peak Vector Sum:</b>	0.073 in/s		
<b>Peak Air Pressure:</b>	95 db		
	0.00032 PSI @ 31.3 Hz		

**Additional Info:**

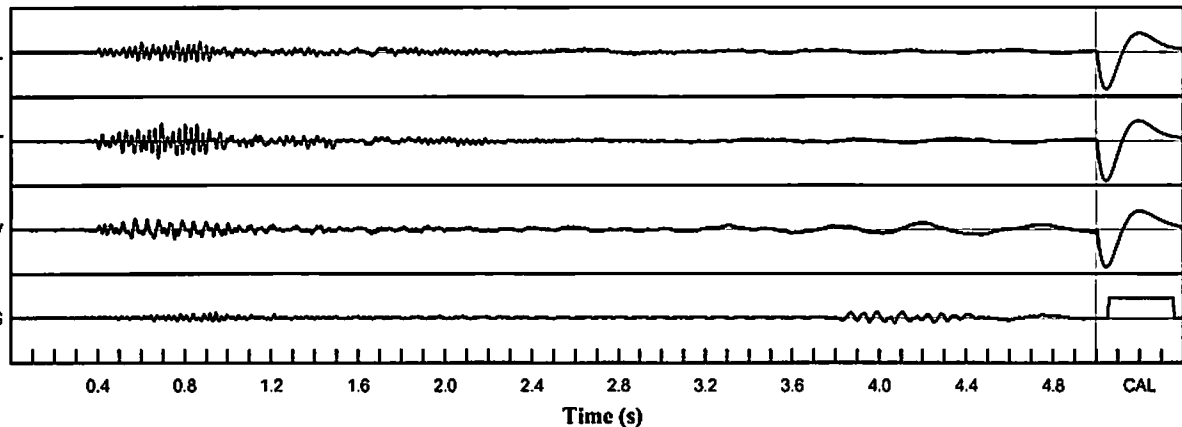
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 18



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

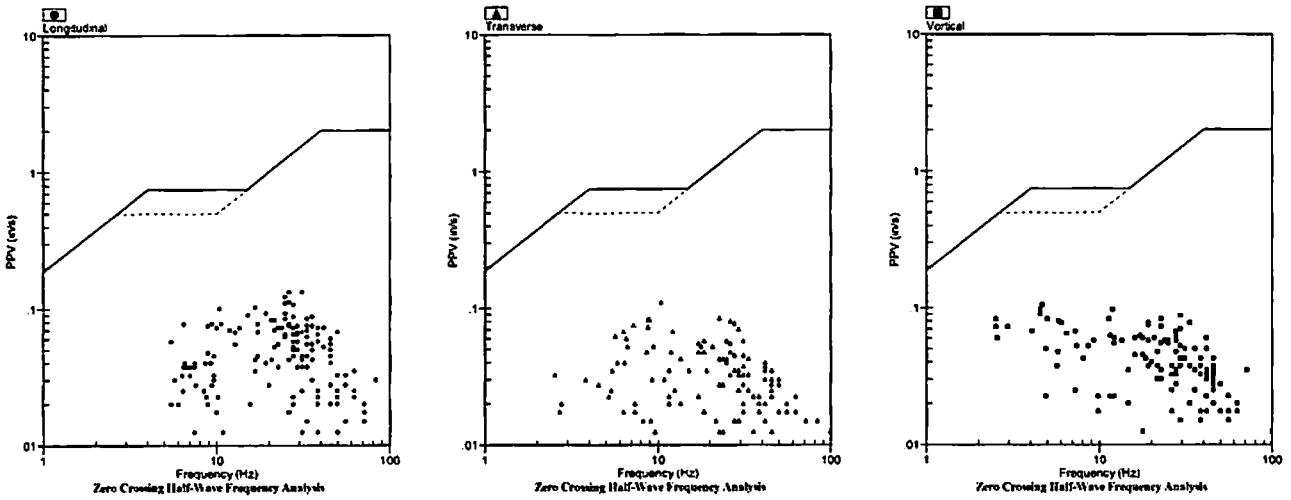
**Serial No:** 5148 v3.67  
**Date:** 08/28/2018 13:15:36  
**Event No:** 19  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

	L	T	V
<b>PPV (in/s)</b>	0.133	0.110	0.105
<b>FREQ (Hz)</b>	31.3	10.4	4.7
<b>PD (.001")</b>	1.81	2.13	4.57
<b>PPA (g)</b>	0.065	0.046	0.052
<b>Peak Vector Sum:</b>	0.150 in/s		
<b>Peak Air Pressure:</b>	114 db		
	0.00157 PSI @ 10.0 Hz		

**Additional Info:**

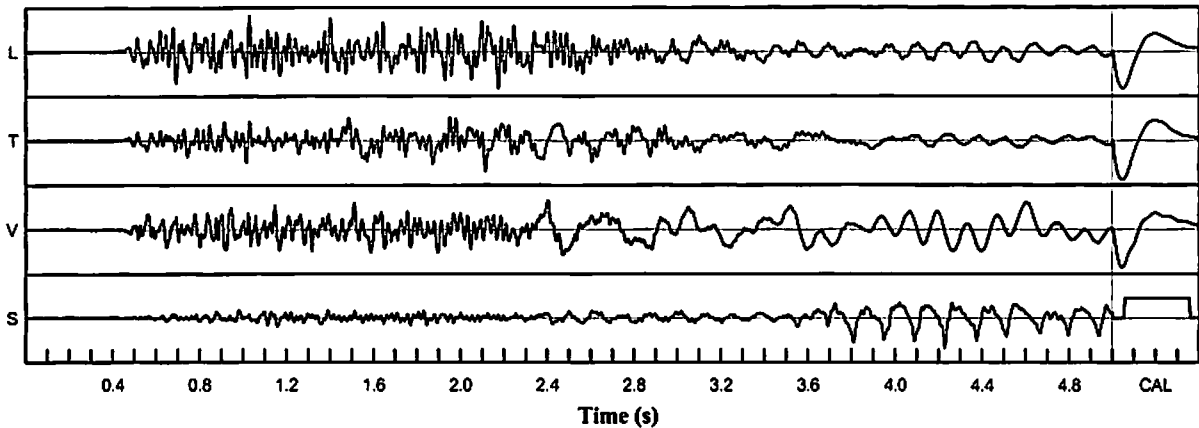
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 19



**Velocity Waveform Graph Scale**

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 08/29/2018 11:16:09  
**Event No:** 20  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

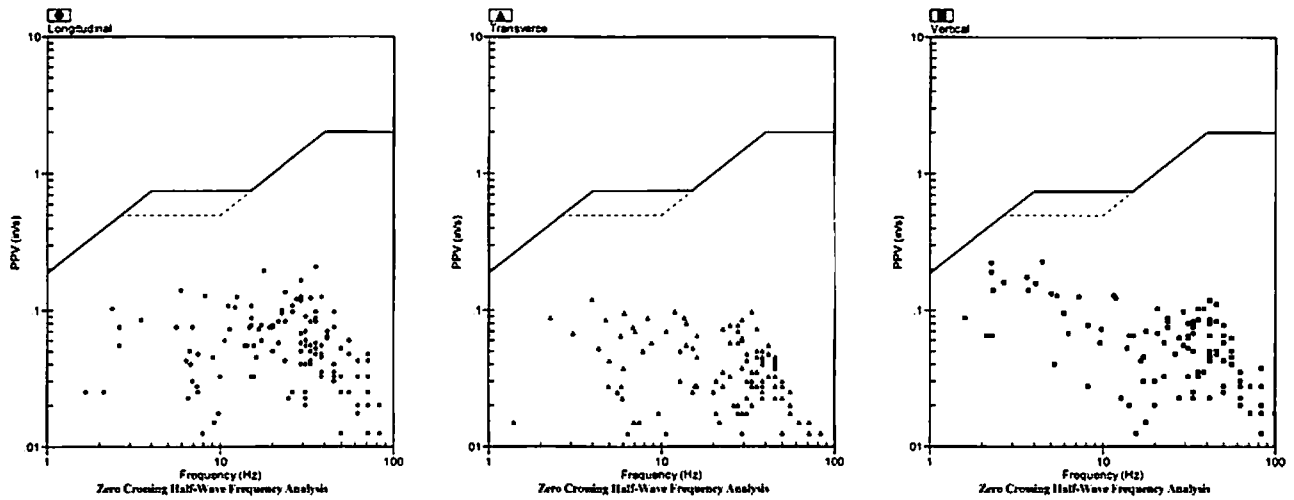
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.208	0.120	0.228
<b>FREQ (Hz)</b>	35.7	4.0	4.5
<b>PD (.001")</b>	4.43	4.42	14.80
<b>PPA (g)</b>	0.124	0.052	0.098
<b>Peak Vector Sum:</b>	0.238 in/s		
<b>Peak Air Pressure:</b>	113 db		
	0.00146 PSI @ 6.0 Hz		

### Additional Info:

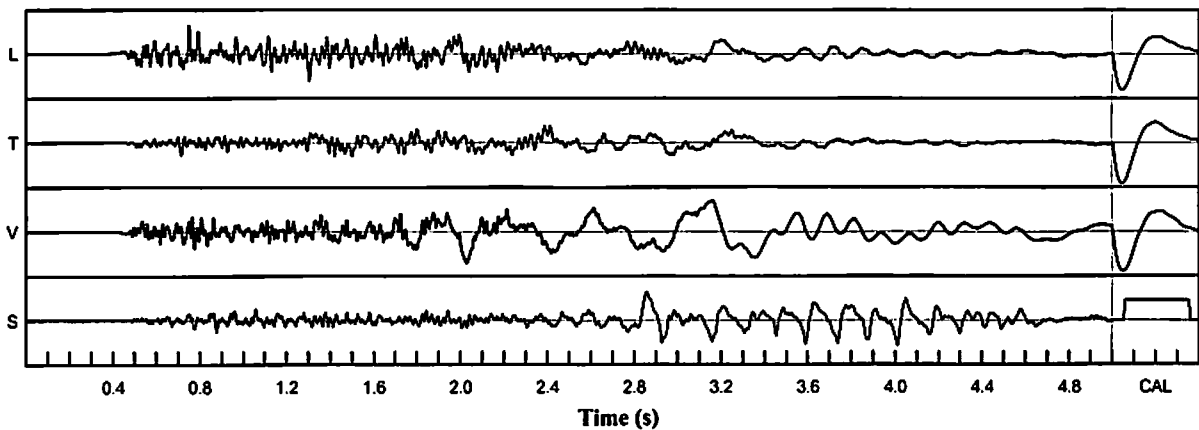
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 20



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 08/30/2018 13:45:47  
**Event No:** 21  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

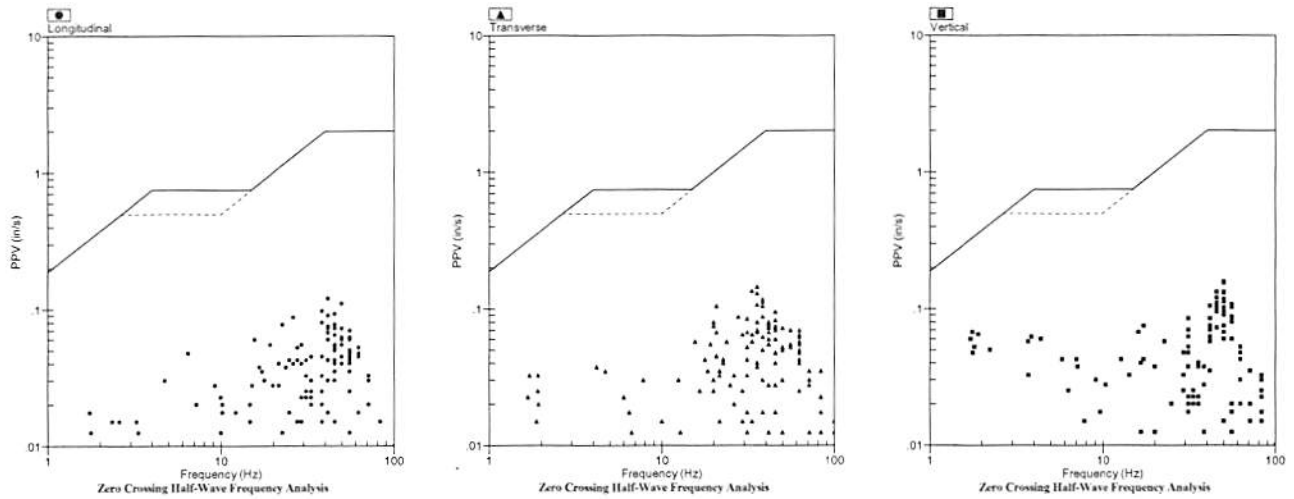
### Summary Data

	L	T	V
PPV (in/s)	0.120	0.145	0.158
FREQ (Hz)	41.7	35.7	50.0
PD (.001")	1.28	2.19	5.12
PPA (g)	0.078	0.091	0.117
Peak Vector Sum:	0.175 in/s		
Peak Air Pressure:	103 db		
	0.00050 PSI @ 38.5 Hz		

### Additional Info:

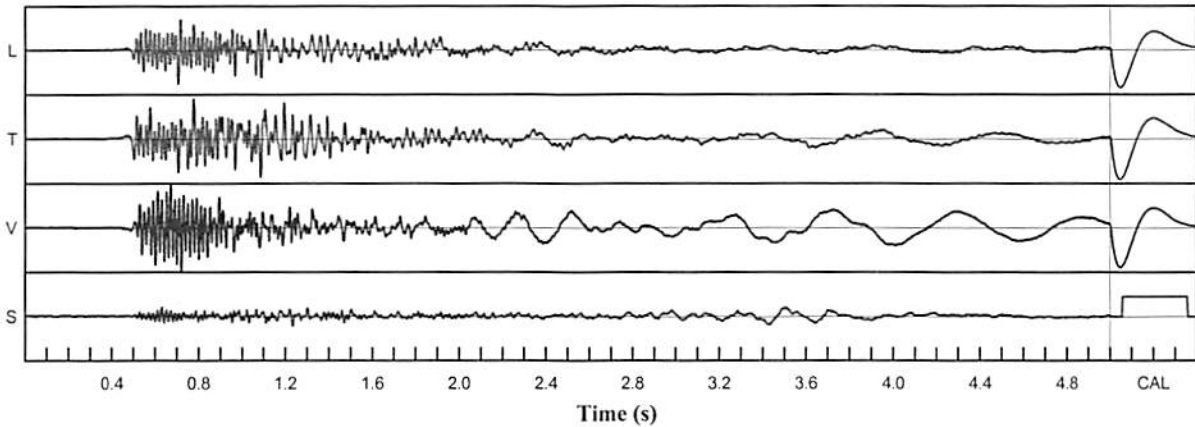
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 21



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 09/04/2018 14:30:42  
**Event No:** 22  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

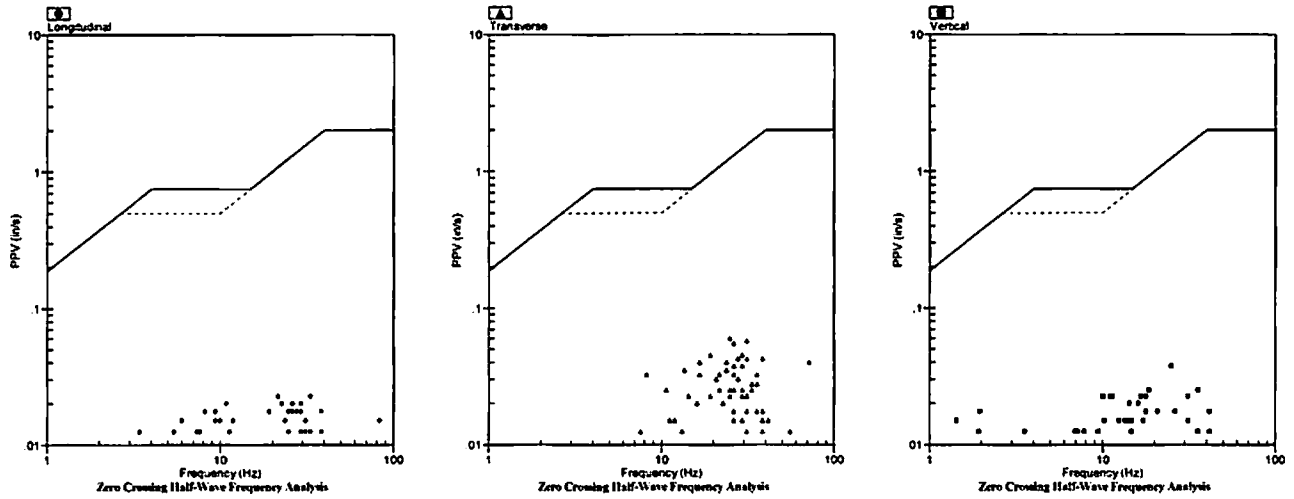
### Summary Data

	L	T	V
PPV (in/s)	0.023	0.060	0.038
FREQ (Hz)	33.3	25.0	25.0
PD (.001")	0.44	0.56	1.21
PPA (g)	0.020	0.039	0.020
Peak Vector Sum:	0.063 in/s		
Peak Air Pressure:	87 db		
	0.00014 PSI @ 1.0 Hz		

### Additional Info:

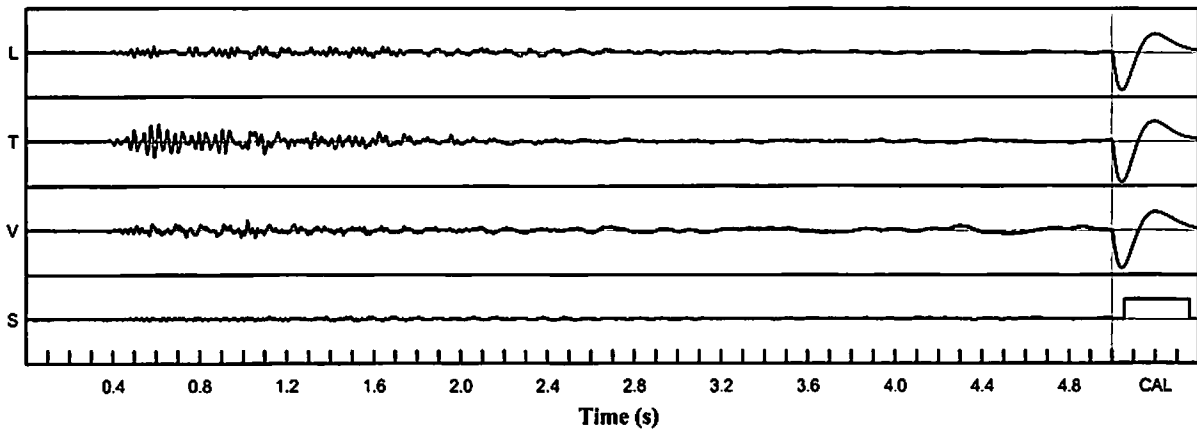
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 22



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 09/05/2018 11:30:58  
**Event No:** 23  
**Record Time:** 5.0 s  
**Client:** City of Miramar  
**Operation:** White Rock Quarries  
**Location:** 17040 SW 53 Ct  
**Distance:**  
**Operator:** Pedro V.  
**Comment:** In Ground  
**Seismic Trigger:** 0.030 in/s

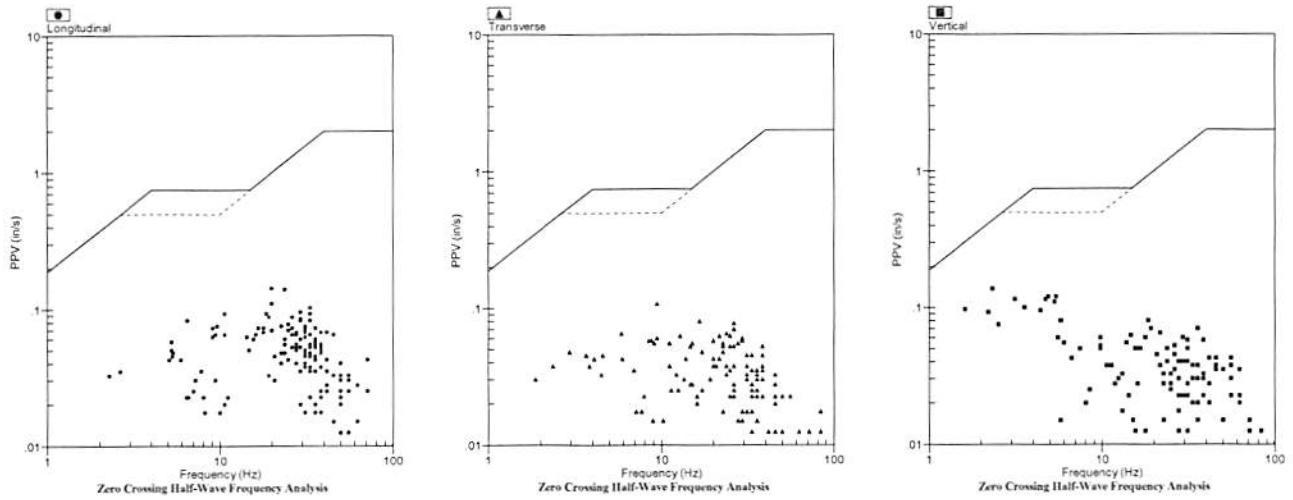
### Summary Data

	L	T	V
PPV (in/s)	0.143	0.108	0.138
FREQ (Hz)	20.0	9.4	2.3
PD (.001")	2.56	2.37	7.93
PPA (g)	0.085	0.046	0.039
Peak Vector Sum:	0.160 in/s		
Peak Air Pressure:	107 db		
	0.00075 PSI @ 11.4 Hz		

### Additional Info:

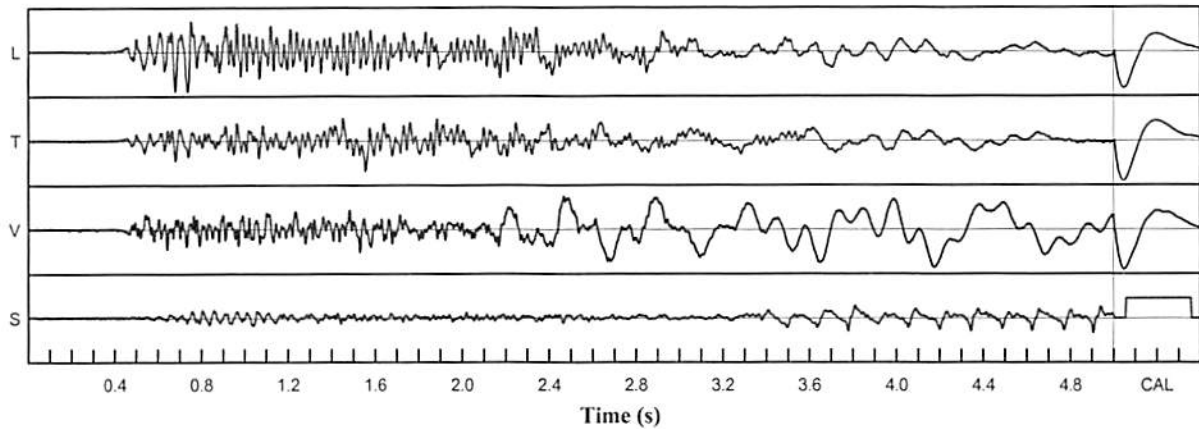
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 23



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

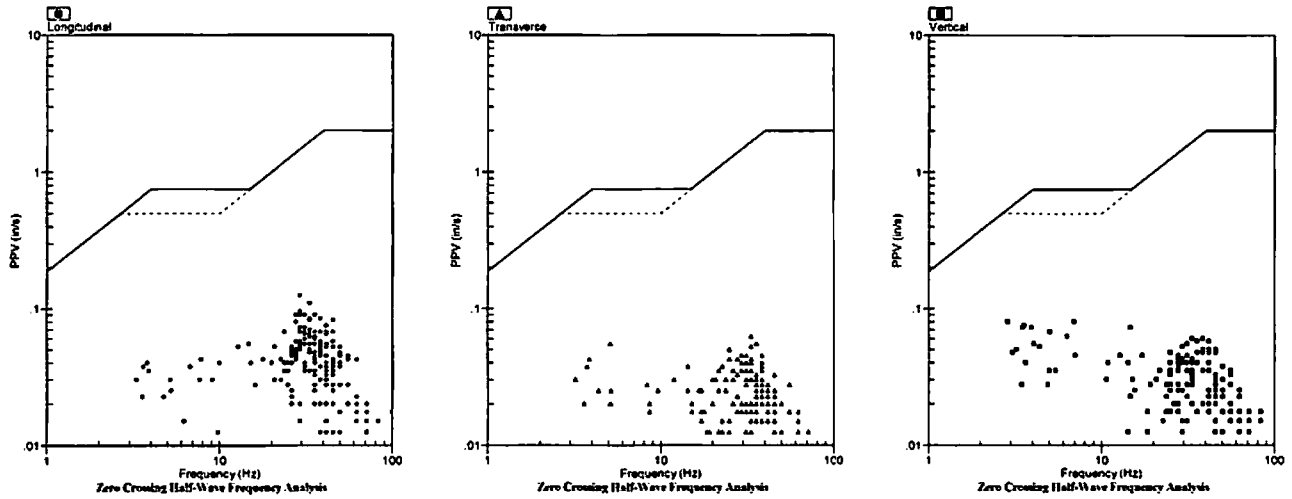
**Serial No:** 5148 v3.67  
**Date:** 01/01/1980 04:19:56  
**Event No:** 1  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.125	0.060	0.080
<b>FREQ (Hz)</b>	29.4	33.3	6.9
<b>PD (.001")</b>	1.47	1.49	3.88
<b>PPA (g)</b>	0.065	0.033	0.046
<b>Peak Vector Sum:</b>	0.130 in/s		
<b>Peak Air Pressure:</b>	103 db		
	0.00050 PSI @ 3.8 Hz		

**Additional Info:**

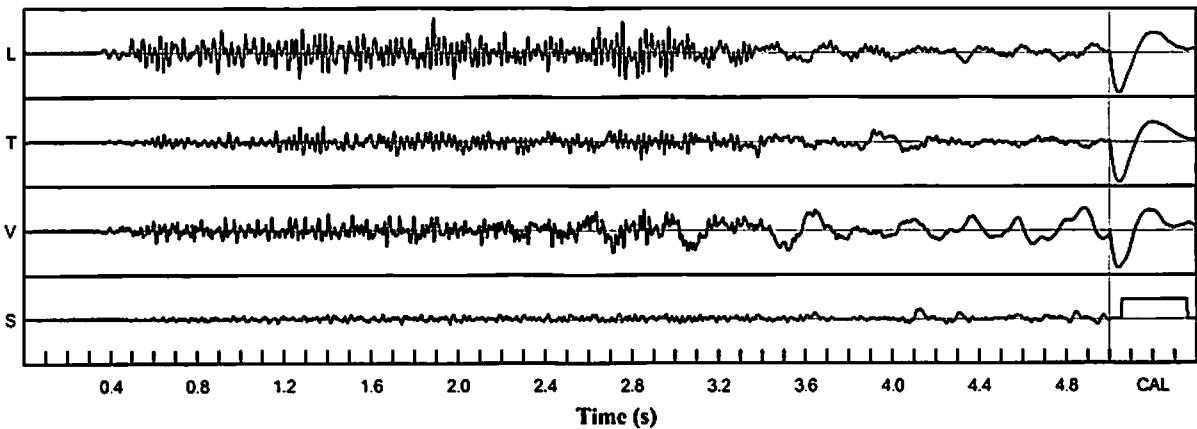
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 1



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

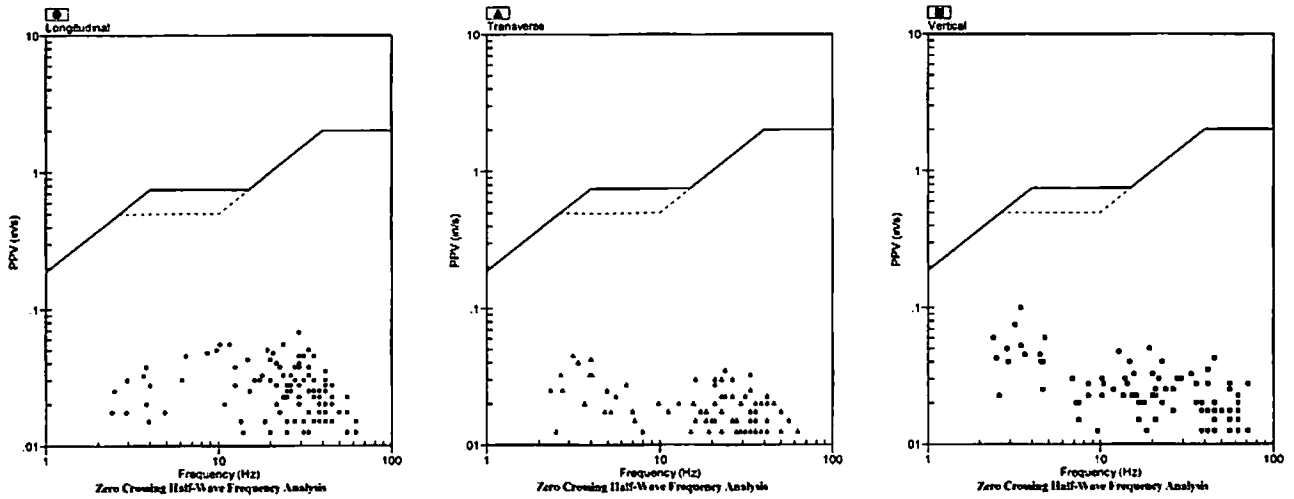
**Serial No:** 5148 v3.67  
**Date:** 01/02/1980 01:49:34  
**Event No:** 2  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

Summary Data			
	L	T	V
PPV (in/s)	0.068	0.045	0.100
FREQ (Hz)	29.4	3.2	3.4
PD (.001")	1.43	1.61	4.09
PPA (g)	0.033	0.020	0.033
Peak Vector Sum:	0.108 in/s		
Peak Air Pressure:	91 db		
	0.00025 PSI @ 4.7 Hz		

**Additional Info:**

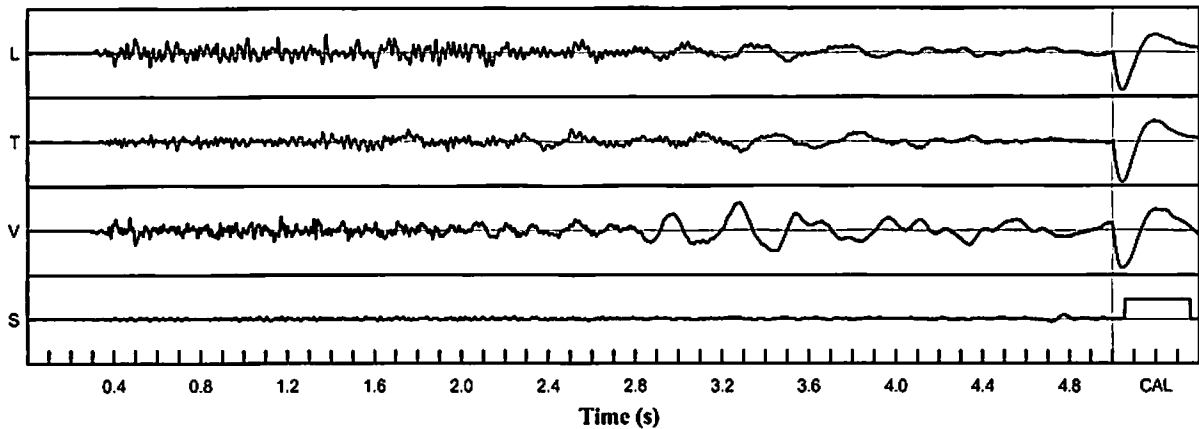
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 2



**Velocity Waveform Graph Scale**

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/04/1980 04:05:22  
**Event No:** 3  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

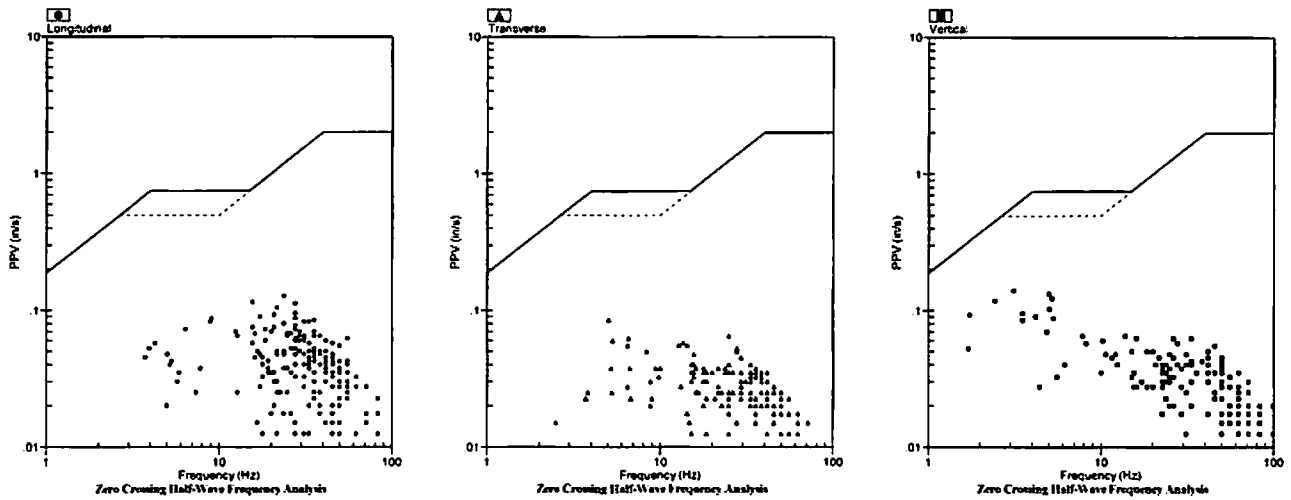
### Summary Data

	L	T	V
PPV (in/s)	0.128	0.085	0.140
FREQ (Hz)	23.8	5.1	3.1
PD (.001")	2.45	1.95	6.91
PPA (g)	0.065	0.033	0.046
Peak Vector Sum:	0.145 in/s		
Peak Air Pressure:	101 db		
	0.00046 PSI @ 5.6 Hz		

### Additional Info:

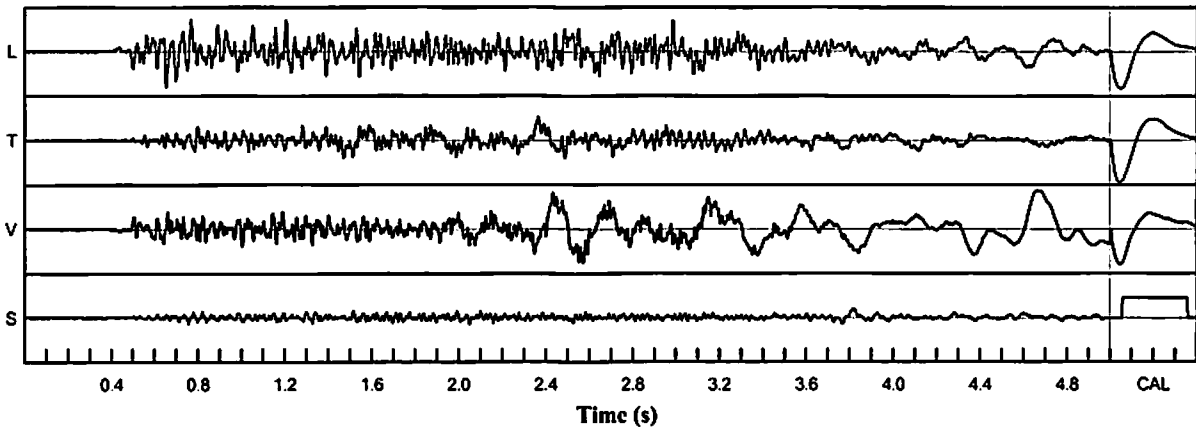
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 3



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/07/1980 04:05:27  
**Event No:** 4  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

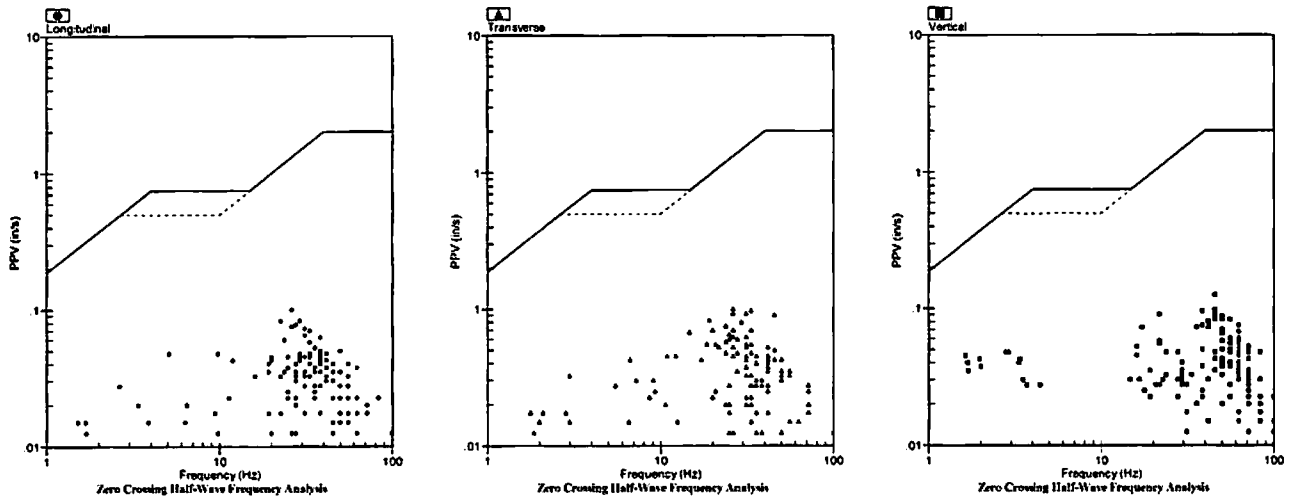
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.100	0.100	0.125
<b>FREQ (Hz)</b>	26.3	26.3	45.5
<b>PD (.001")</b>	1.56	1.66	4.14
<b>PPA (g)</b>	0.052	0.072	0.098
<b>Peak Vector Sum:</b>	0.138 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00057 PSI @ 12.8 Hz		

### Additional Info:

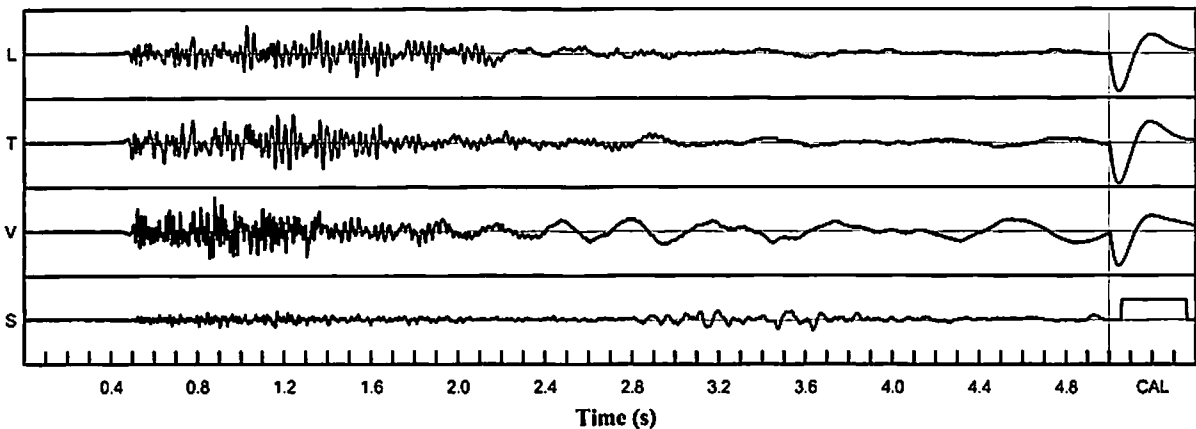
• Shakerable Calibrated: 04/12/2018  
 By: GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 4



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/09/1980 04:04:53  
**Event No:** 5  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

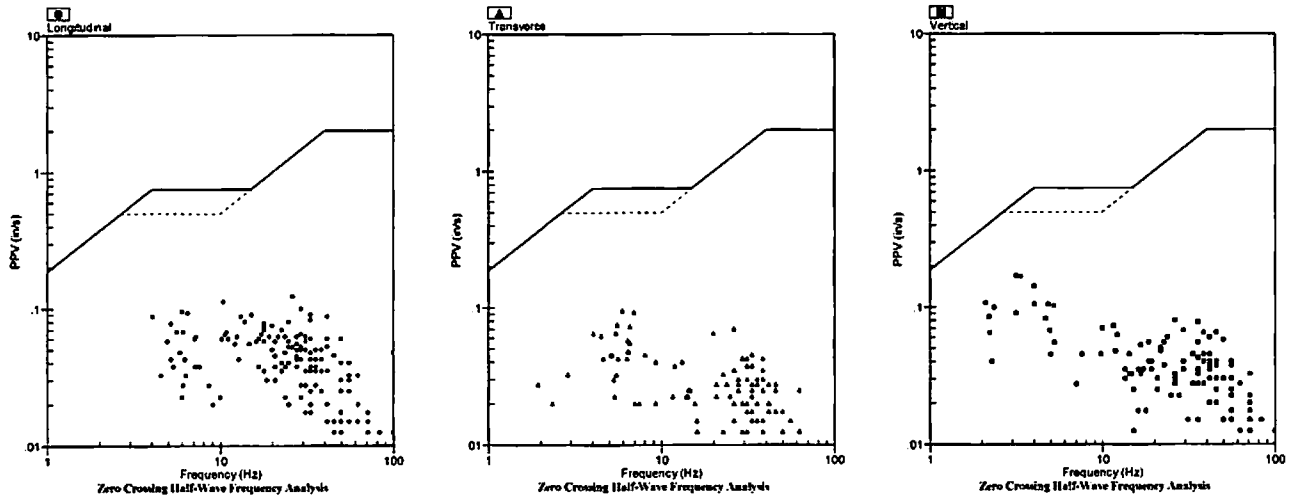
### Summary Data

	L	T	V
PPV (in/s)	0.123	0.095	0.170
FREQ (Hz)	26.3	6.0	3.2
PD (.001")	2.59	2.83	7.39
PPA (g)	0.072	0.039	0.046
Peak Vector Sum:	0.193 in/s		
Peak Air Pressure:	108 db		
	0.00082 PSI @ 4.8 Hz		

### Additional Info:

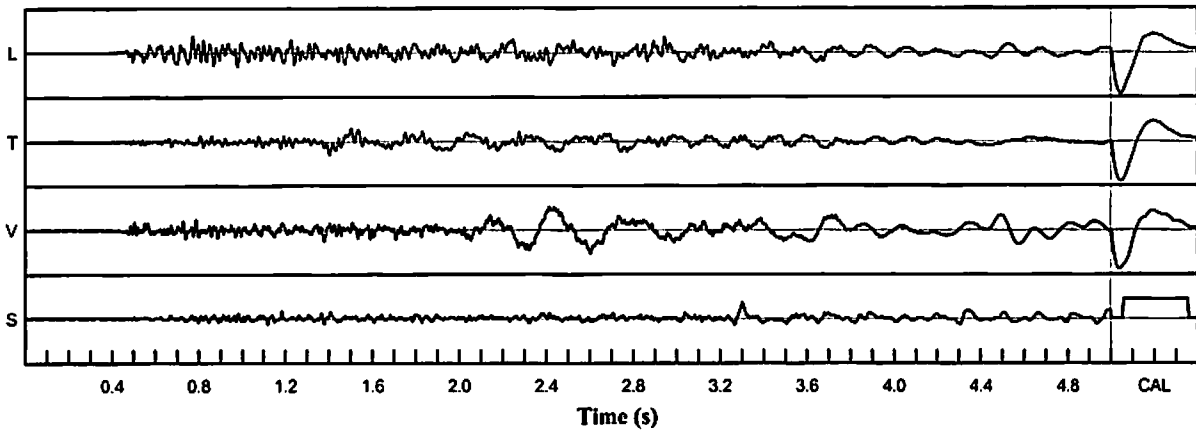
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 5



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI



# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/10/1980 01:49:52  
**Event No:** 6  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

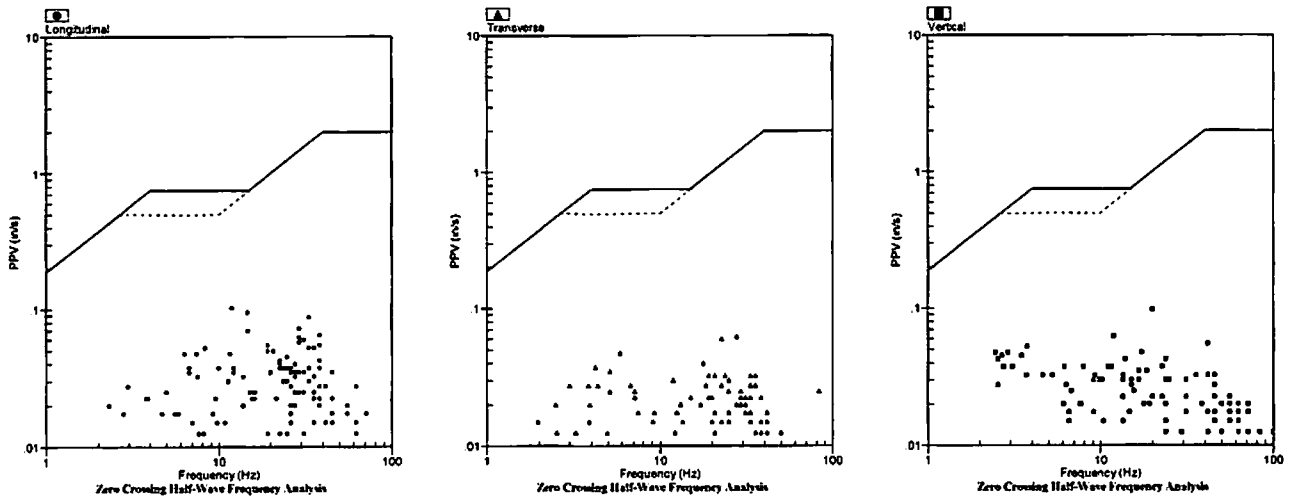
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.103	0.063	0.098
<b>FREQ (Hz)</b>	11.9	27.8	15.6
<b>PD (.001")</b>	1.45	1.70	3.14
<b>PPA (g)</b>	0.046	0.033	0.039
<b>Peak Vector Sum:</b>	0.130 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00057 PSI @ 6.2 Hz		

### Additional Info:

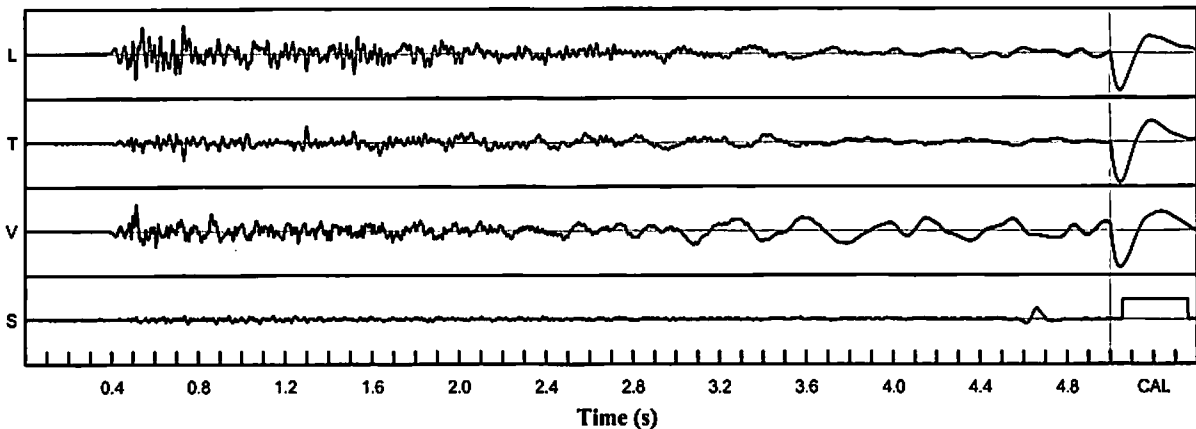
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 6



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

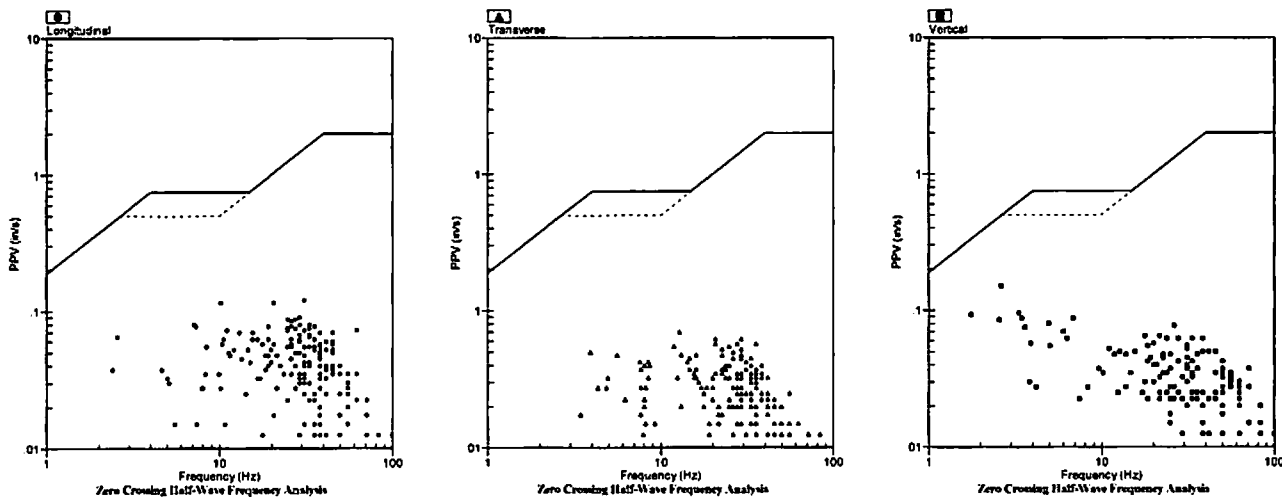
**Serial No:** 5148 v3.67  
**Date:** 01/11/1980 04:05:31  
**Event No:** 7  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	Summary Data		
	L	T	V
<b>PPV (in/s)</b>	0.120	0.070	0.150
<b>FREQ (Hz)</b>	31.3	12.8	2.6
<b>PD (.001")</b>	2.14	1.60	6.50
<b>PPA (g)</b>	0.072	0.039	0.046
<b>Peak Vector Sum:</b>	0.153 in/s		
<b>Peak Air Pressure:</b>	111 db		
	0.00121 PSI @ 9.8 Hz		

**Additional Info:**

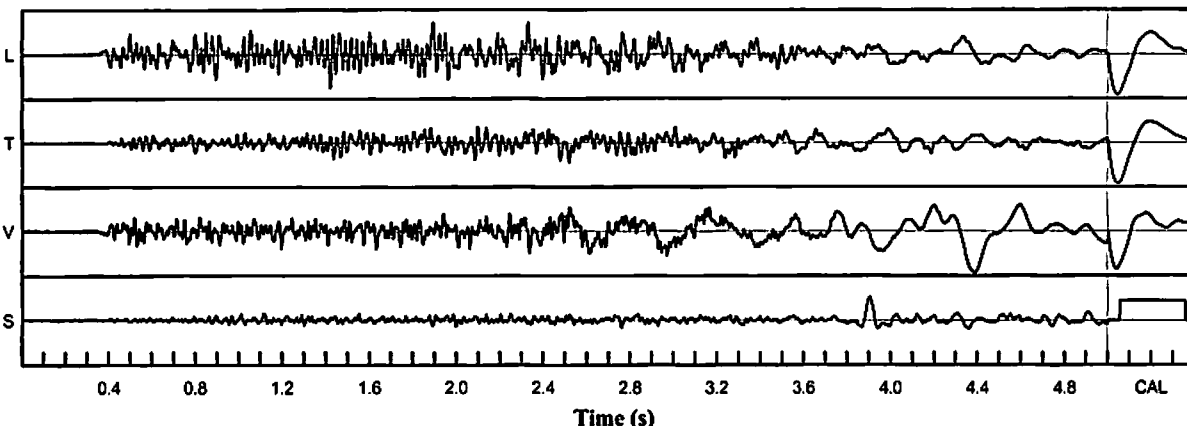
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 7



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/15/1980 04:36:27  
**Event No:** 8  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

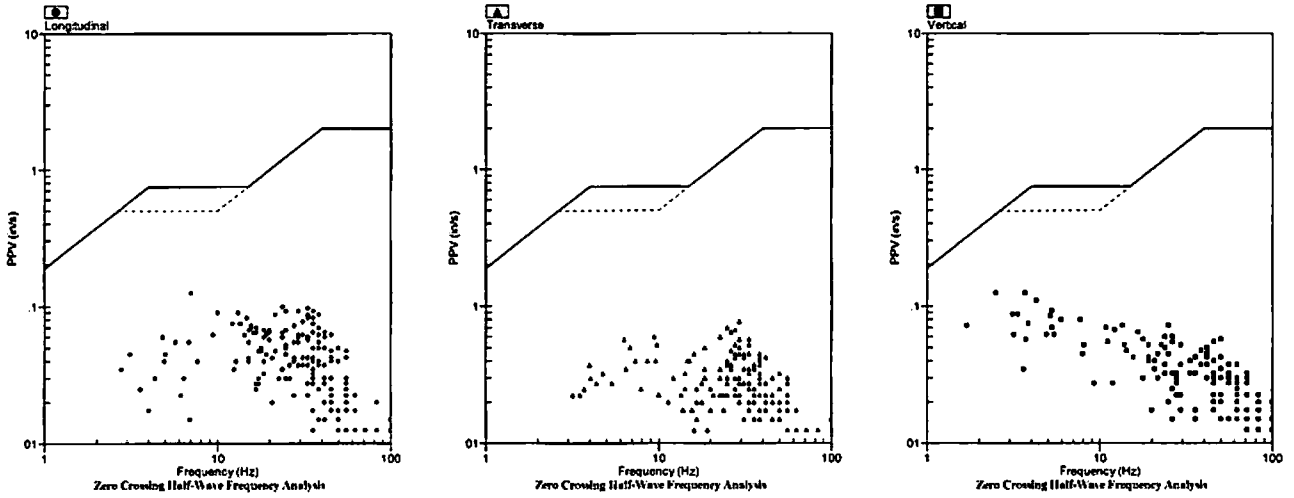
### Summary Data

	L	T	V
PPV (in/s)	0.125	0.078	0.125
FREQ (Hz)	7.0	29.4	2.5
PD (.001")	1.92	1.53	5.68
PPA (g)	0.059	0.039	0.052
Peak Vector Sum:	0.128 in/s		
Peak Air Pressure:	106 db		
	0.00064 PSI @ 8.5 Hz		

### Additional Info:

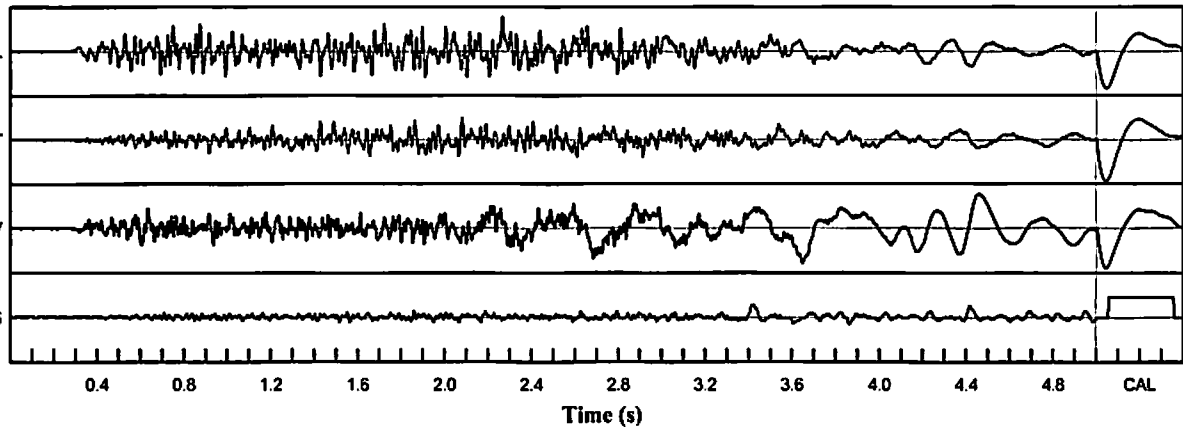
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 8



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

**Serial No:** 5148 v3.67  
**Date:** 01/18/1980 04:20:46  
**Event No:** 9  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

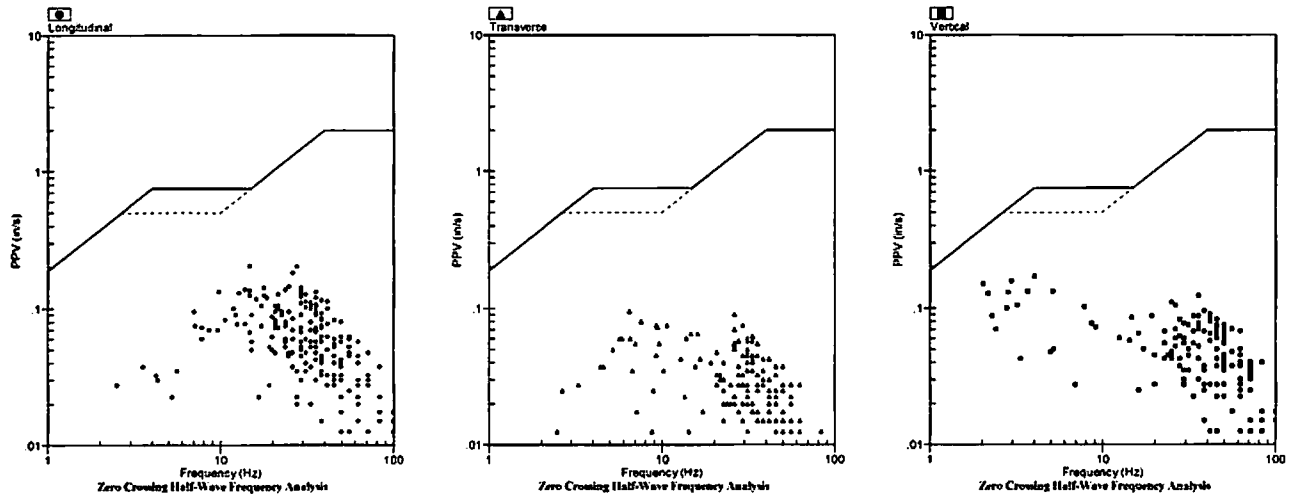
### Summary Data

	L	T	V
<b>PPV (in/s)</b>	0.205	0.095	0.170
<b>FREQ (Hz)</b>	14.7	6.5	4.0
<b>PD (.001")</b>	3.38	1.87	7.23
<b>PPA (g)</b>	0.091	0.046	0.078
<b>Peak Vector Sum:</b>	0.215 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00064 PSI @ 7.8 Hz		

### Additional Info:

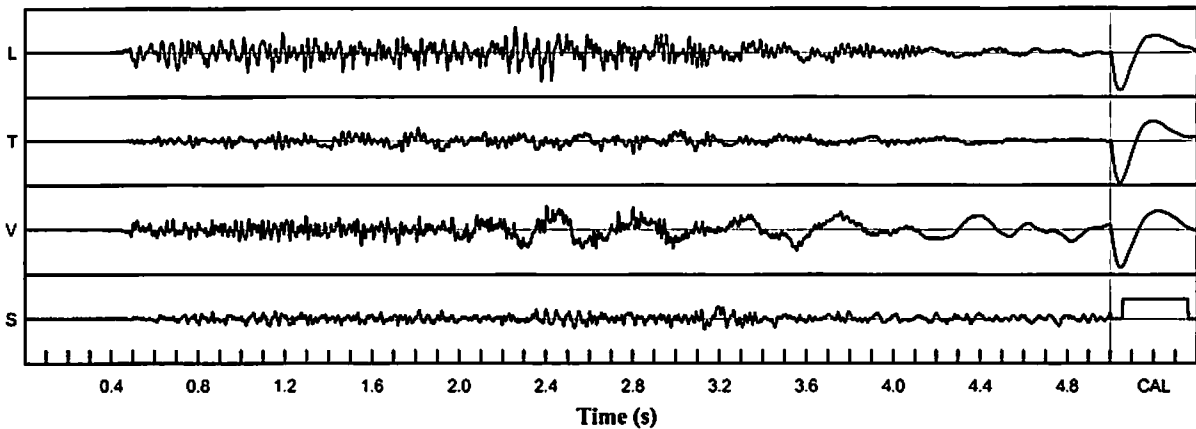
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 9



### Velocity Waveform Graph Scale

**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

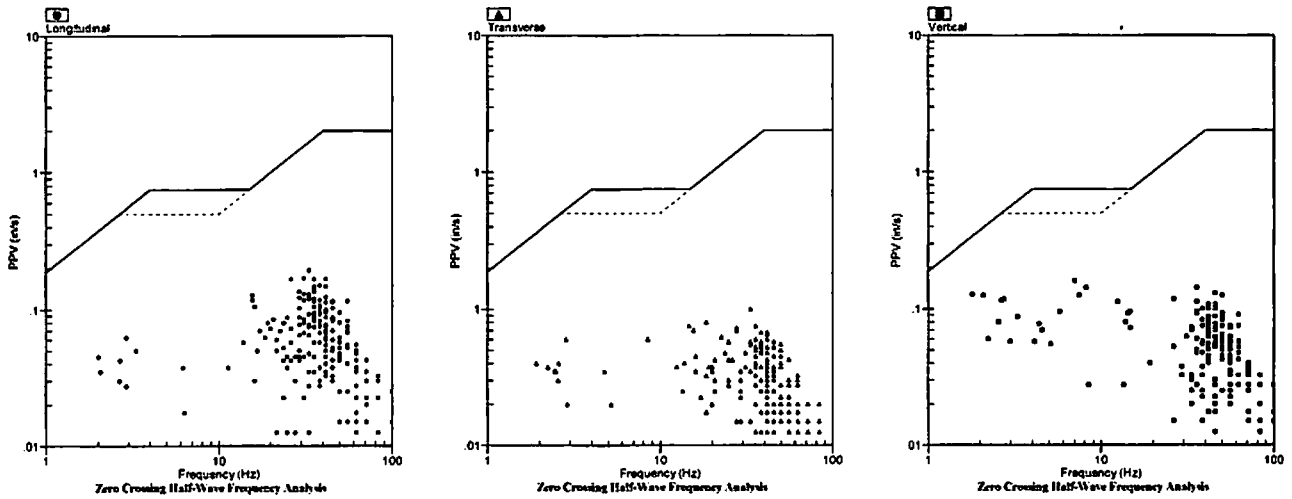
**Serial No:** 5148 v3.67  
**Date:** 01/22/1980 02:47:33  
**Event No:** 10  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.195	0.100	0.160
<b>FREQ (Hz)</b>	33.3	33.3	7.0
<b>PD (.001")</b>	3.16	2.86	11.03
<b>PPA (g)</b>	0.117	0.059	0.098
<b>Peak Vector Sum:</b>	0.220 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00057 PSI @ 41.7 Hz		

**Additional Info:**

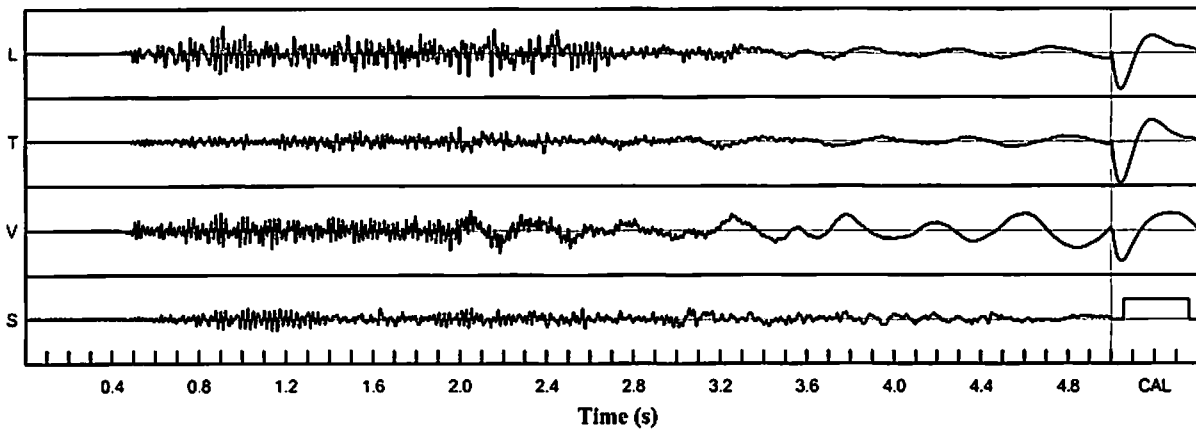
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 10



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

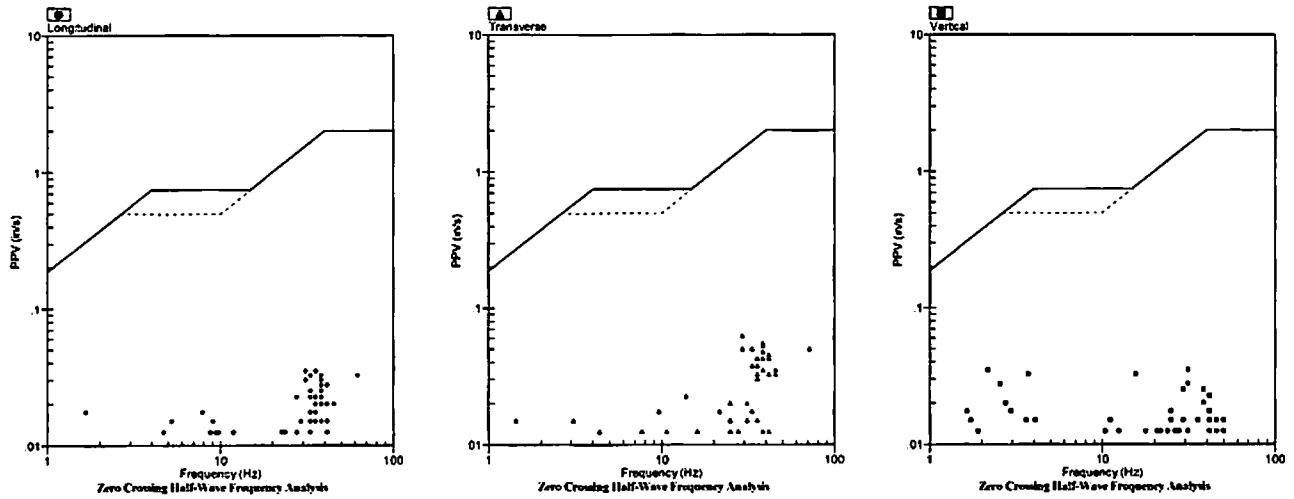
**Serial No:** 5148 v3.67  
**Date:** 01/24/1980 04:21:17  
**Event No:** 11  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.035	0.063	0.035
<b>FREQ (Hz)</b>	31.3	29.4	31.3
<b>PD (.001")</b>	0.93	0.89	2.14
<b>PPA (g)</b>	0.026	0.046	0.026
<b>Peak Vector Sum:</b>	0.073 in/s		
<b>Peak Air Pressure:</b>	93 db		
	0.00028 PSI @ 3.2 Hz		

**Additional Info:**

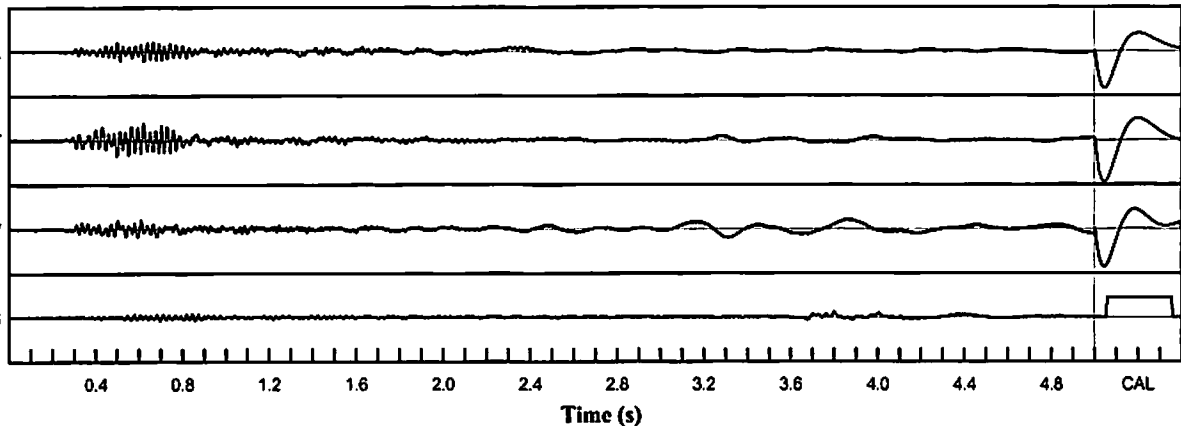
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 11



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.160 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

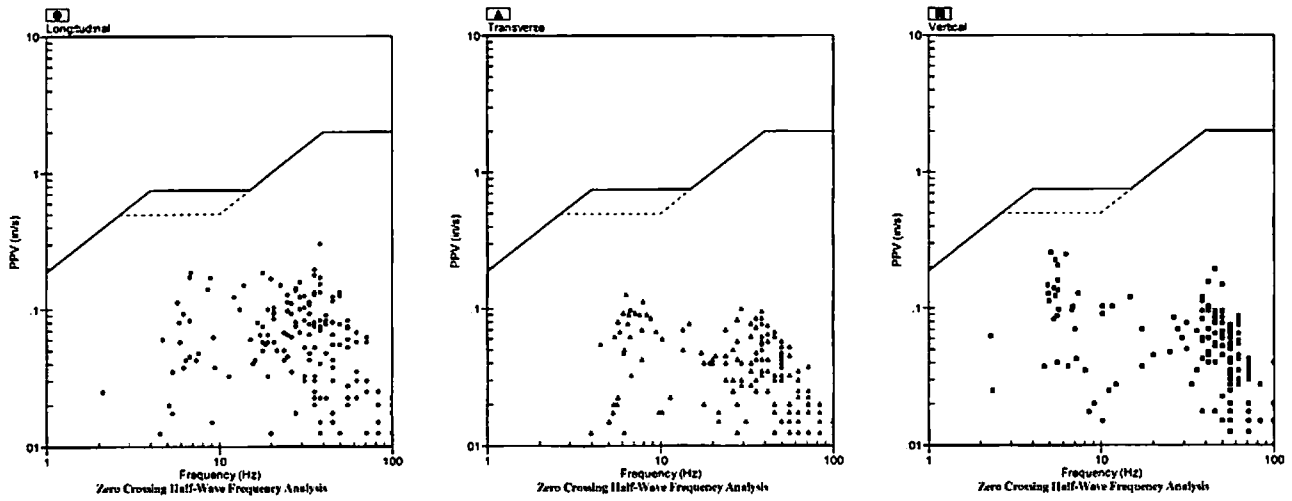
**Serial No:** 5148 v3.67  
**Date:** 01/30/1980 04:05:58  
**Event No:** 12  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (in/s)</b>	0.300	0.128	0.255
<b>FREQ (Hz)</b>	38.5	6.3	5.1
<b>PD (.001")</b>	3.71	2.88	6.50
<b>PPA (g)</b>	0.176	0.065	0.150
<b>Peak Vector Sum:</b>	0.303 in/s		
<b>Peak Air Pressure:</b>	108 db		
	0.00078 PSI @ 9.8 Hz		

**Additional Info:**

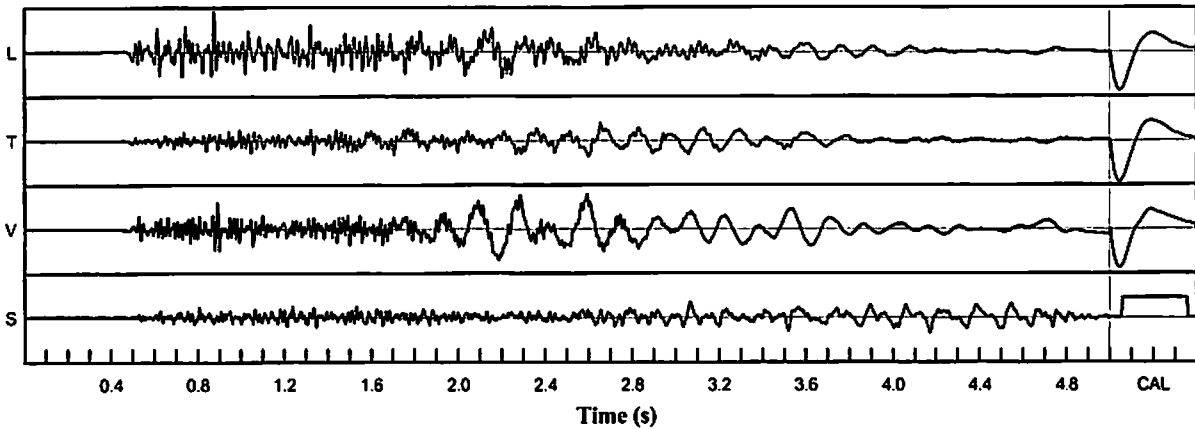
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 12



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI

# Seismic Analysis

## USBM/Velocity Waveform Report

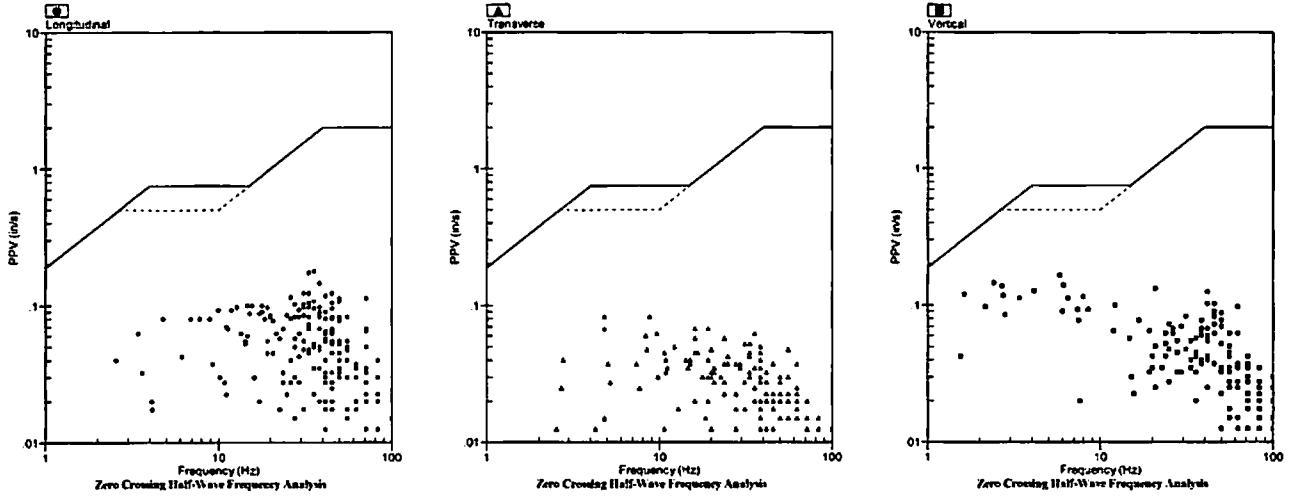
**Serial No:** 5148 v3.67  
**Date:** 01/02/1980 02:22:04  
**Event No:** 13  
**Record Time:** 5.0 s  
**Client:**  
**Operation:**  
**Location:**  
**Distance:**  
**Operator:**  
**Comment:**  
**Seismic Trigger:** 0.050 in/s

	L	T	V
<b>PPV (In/s)</b>	0.178	0.083	0.165
<b>FREQ (Hz)</b>	35.7	8.8	5.8
<b>PD (.001")</b>	2.72	2.56	9.64
<b>PPA (g)</b>	0.098	0.046	0.098
<b>Peak Vector Sum:</b>	0.180 in/s		
<b>Peak Air Pressure:</b>	106 db		
	0.00057 PSI @ 10.0 Hz		

**Additional Info:**

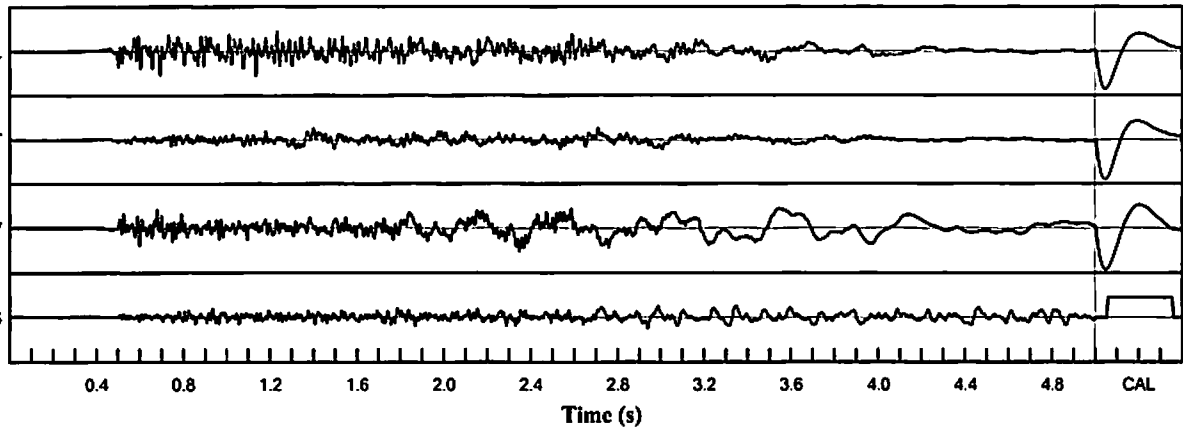
**Shaketable Calibrated:** 04/12/2018  
**By:** GeoSonics Inc.  
 359 Northgate Drive  
 Warrendale, PA 15086 U.S.A.  
 TEL: 724.934.2900 FAX: 724.934.2999

### USBM Safe Blasting Levels



### Velocity Waveform

SN: 5148 Event: 13



**Velocity Waveform Graph Scale**  
**Time Scale:** 0.100 s  
**Seismic Scale:** +/- 0.320 in/s  
**Sound Scale:** +/- 0.0023 PSI