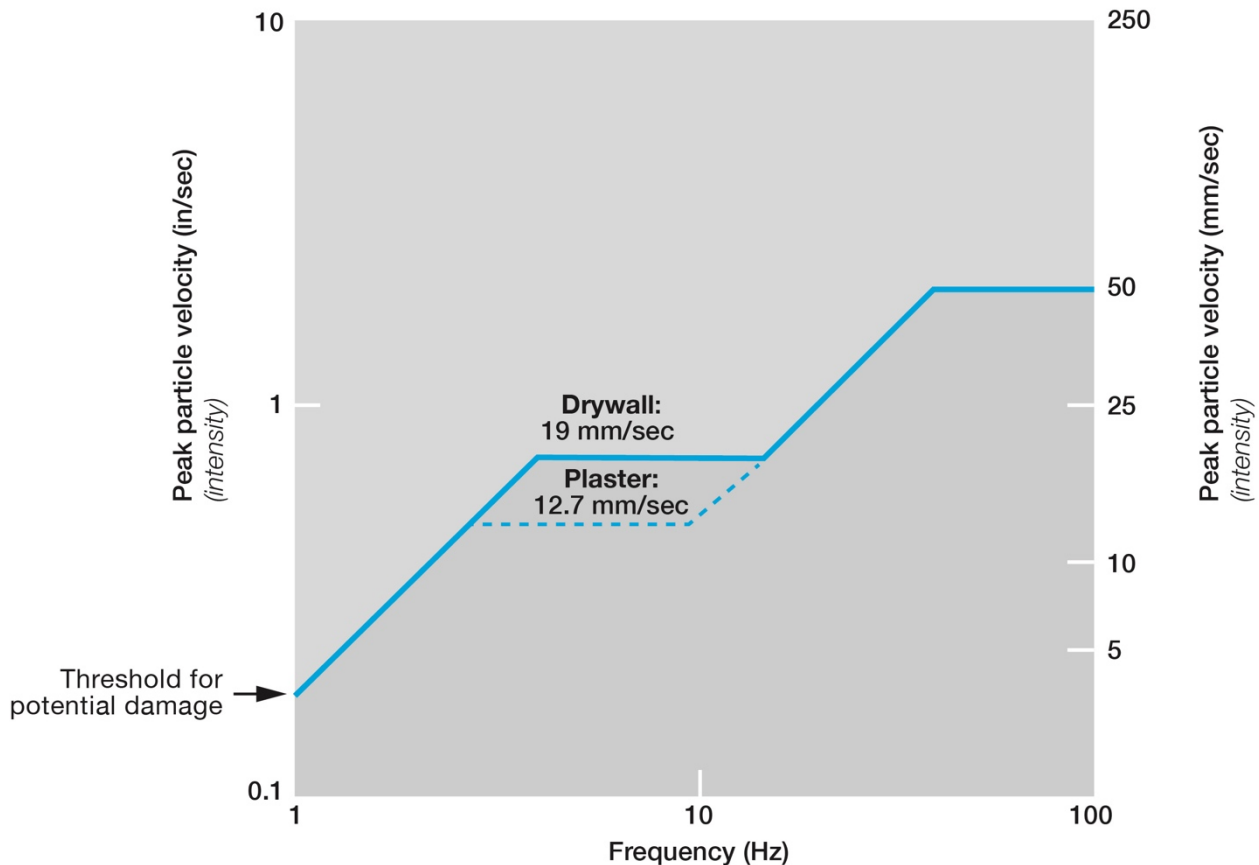


## Understanding the Z-Curve

The Z-Curve line establishes a limit above which damage becomes possible, but it is crucial to note that damage does not automatically occur once this limit is breached. Damage would not actually occur in the average residence until ground vibrations reached significantly higher intensities than those outlined by the USBM Z-Curve. If the Z-Curve criteria is exceeded, the probability of damage is merely introduced and will incrementally increase with higher and higher vibration amplitudes.

**USBM Z-CURVE (USBM RI 8507)**  
Threshold damage vibration criteria



Vibrations are occurring around us every day and are highly subjective. Each individual's perception and tolerance will influence the degree to which vibrations are a nuisance or objectionable. Humans and animals are far more sensitive to vibrations than a two-storey timber framed house, bridge or other structures.

### Permanent Monitoring Units

West Calgary Ring Road			92 Cougarstone Manor SW, Calgary, AB		9555 2 Avenue SW, Calgary, AB		97 Cougar Ridge Close SW, Calgary, AB		130 Cougarstone Close SW, Calgary, AB		128 Cougarstone Manor SW, Calgary, AB		152 Cougarstone Common SW, Calgary, AB		135 Cougarstone Common SW, Calgary, AB	
Blast Date:	Blast no.	Blast time:	PPV	AOP	PPV	AOP	PPV	AOP	PPV	AOP	PPV	AOP	PPV	AOP	PPV	AOP
1-Oct-20	WCRR-170	16:02	1.02mm/s	117.9dB(L)	0.89mm/s	115.0dB(L)	4.45mm/s	123.3dB(L)	0.38mm/s	107.5dB(L)	0.76mm/s	112.0dB(L)	0.51mm/s	111.2dB(L)	0.38mm/s	108.0dB(L)
2-Oct-20	WCRR-171	16:11	1.27mm/s	118.8dB(L)	1.02mm/s	115.2dB(L)	4.06mm/s	121.4dB(L)	0.25mm/s	106.0dB(L)	0.76mm/s	115.4dB(L)	0.38mm/s	114.6dB(L)	0.51mm/s	109.2dB(L)
3-Oct-20	WCRR-172	16:00	2.41mm/s	119.2dB(L)	2.03mm/s	125.6dB(L)	5.08mm/s	121.8dB(L)	0.76mm/s	108.8dB(L)	1.91mm/s	116.1dB(L)	1.14mm/s	114.6dB(L)	0.76mm/s	111.5dB(L)
6-Oct-20	WCRR-173	16:02	1.91mm/s	120.8dB(L)	1.65mm/s	120.9dB(L)	4.95mm/s	123.3dB(L)	0.51mm/s	108.0dB(L)	1.14mm/s	115.4dB(L)	0.89mm/s	114.6dB(L)	0.76mm/s	112.3dB(L)
7-Oct-20	WCRR-174	16:06	3.05mm/s	122.4dB(L)	2.54mm/s	124.6dB(L)	9.02mm/s	126.8dB(L)	0.64mm/s	109.5dB(L)	1.78mm/s	117.6dB(L)	1.40mm/s	114.6dB(L)	0.76mm/s	109.9dB(L)
8-Oct-20	WCRR-175	16:06	3.05mm/s	122.7dB(L)	2.03mm/s	118.3dB(L)	9.52mm/s	124.7dB(L)	0.51mm/s	113.1dB(L)	1.91mm/s	114.6dB(L)	1.27mm/s	115.7dB(L)	1.14mm/s	114.6dB(L)
9-Oct-20	WCRR-176	15:53	1.65mm/s	117.1dB(L)	1.27mm/s	112.6dB(L)	5.84mm/s	121.4dB(L)	0.38mm/s	107.5dB(L)	1.14mm/s	112.3dB(L)	0.76mm/s	110.2dB(L)	0.51mm/s	109.2dB(L)
13-Oct-20	WCRR-177	16:06	2.16mm/s	119.7dB(L)	2.03mm/s	120.6dB(L)	4.70mm/s	123.4dB(L)	0.38mm/s	110.6dB(L)	1.27mm/s	115.9dB(L)	1.02mm/s	115.9dB(L)	0.76mm/s	111.2dB(L)
14-Oct-20	WCRR-178	16:10	2.29mm/s	120.1dB(L)	2.54mm/s	121.1dB(L)	11.30mm/s	125.3dB(L)	0.51mm/s	112.0dB(L)	1.53mm/s	115.6dB(L)	0.89mm/s	115.7dB(L)	0.76mm/s	112.0dB(L)
15-Oct-20	WCRR-179	16:02	3.30mm/s	119.3dB(L)	0.76mm/s	112.0dB(L)	7.11mm/s	125.1dB(L)	0.38mm/s	108.0dB(L)	1.27mm/s	111.8dB(L)	1.02mm/s	113.3dB(L)	0.89mm/s	108.8dB(L)
17-Oct-20	WCRR-180	16:10	1.02mm/s	121.9dB(L)	0.51mm/s	117.8dB(L)	4.45mm/s	123.0dB(L)	0.25mm/s	111.5dB(L)	0.64mm/s	115.2dB(L)	0.38mm/s	117.6dB(L)	0.51mm/s	114.2dB(L)
20-Oct-20	WCRR-181	16:50	1.52mm/s	118.7dB(L)	1.91mm/s	120.8dB(L)	6.22mm/s	121.6dB(L)	0.38mm/s	104.9dB(L)	0.64mm/s	113.8dB(L)	0.64mm/s	112.0dB(L)	0.76mm/s	108.8dB(L)
21-Oct-20	WCRR-182	16:10	2.41mm/s	119.3dB(L)	0.64mm/s	110.6dB(L)	5.59mm/s	127.9dB(L)	0.51mm/s	109.2dB(L)	1.14mm/s	114.2dB(L)	1.14mm/s	115.6dB(L)	0.64mm/s	111.8dB(L)
23-Oct-20	WCRR-183	16:35	1.14mm/s	115.9dB(L)	0.76mm/s	117.4dB(L)	4.32mm/s	117.8dB(L)	0.25mm/s	95.9dB(L)	0.64mm/s	109.5dB(L)	0.51mm/s	108.0dB(L)	0.51mm/s	105.5dB(L)
29-Oct-20	WCRR-184	16:18	2.41mm/s	120.1dB(L)	1.52mm/s	115.0dB(L)	7.75mm/s	123.0dB(L)	0.38mm/s	109.9dB(L)	1.40mm/s	110.2dB(L)	0.89mm/s	115.0dB(L)	0.89mm/s	111.8dB(L)
30-Oct-20	WCRR-185	16:12	1.65mm/s	131.9dB(L)	0.64mm/s	118.7dB(L)	4.70mm/s	128.3dB(L)	0.38mm/s	136.3dB(L)	1.14mm/s	136.9dB(L)	0.64mm/s	126.8dB(L)	0.64mm/s	128.7dB(L)
31-Oct-20	WCRR-186	16:06	2.29mm/s	123.1dB(L)	0.51mm/s	117.5dB(L)	8.13mm/s	125.0dB(L)	0.38mm/s	126.8dB(L)	2.16mm/s	134.5dB(L)	0.76mm/s	120.9dB(L)	0.89mm/s	113.8dB(L)

\*Click on a highlighted cell to view the seismograph report for the corresponding date and location.

Date/Time Tran At 15:59:57 October 3, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.8 Volts  
 Unit Calibration October 23, 2019 by InstanTel  
 File Name M251INSK.FX0W

**Notes**  
 Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

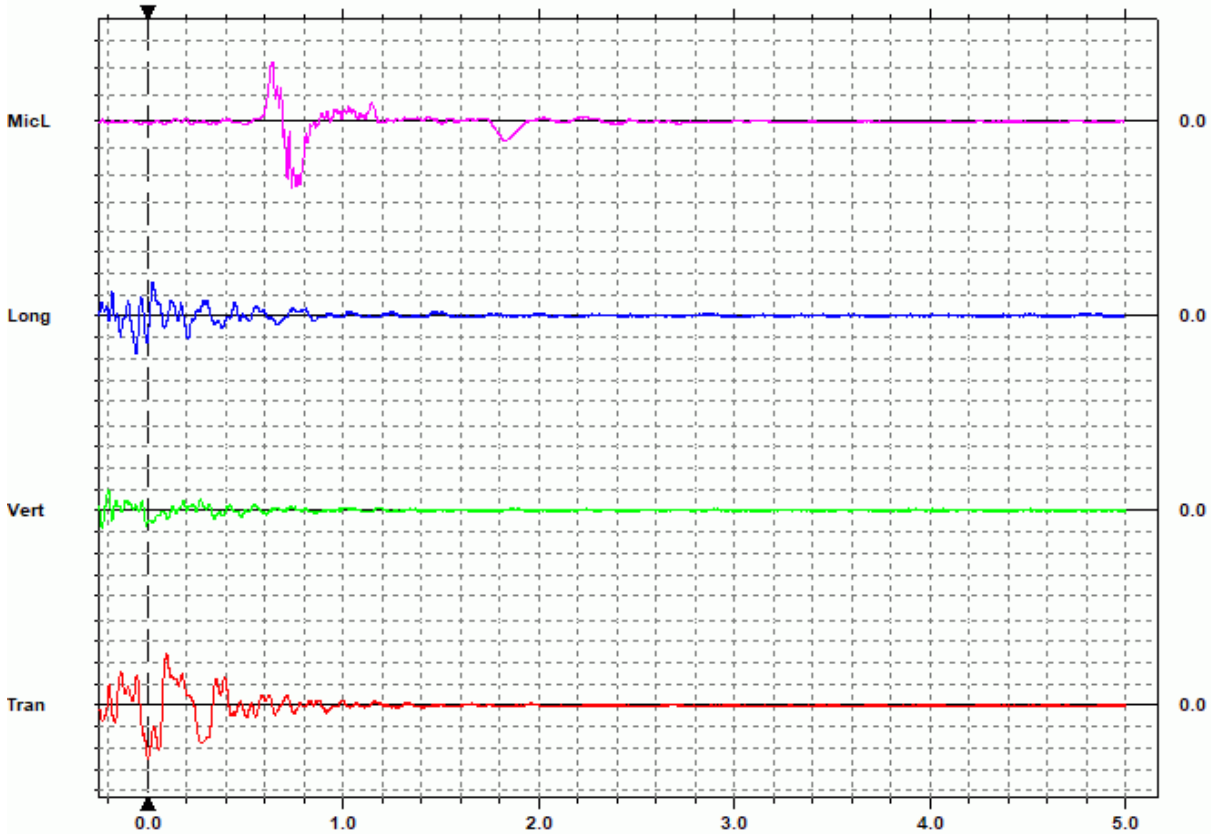
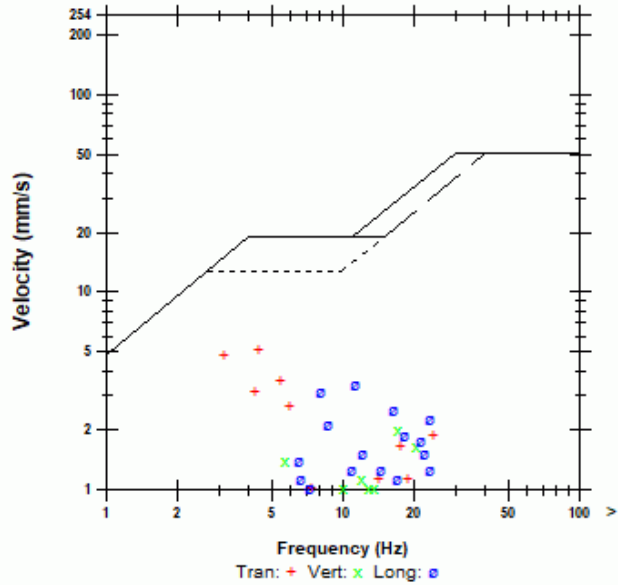
**Extended Notes**  
 Combo Mode October 3, 2020 05:16:48  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 121.8 dB(L) at 0.737 sec.  
 ZC Freq 3.1 Hz  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	5.08	2.03	3.43	mm/s
ZC Freq	4.5	17	11	Hz
Time (Rel. to Trig)	0.001	-0.203	-0.081	sec
Peak Acceleration	0.0530	0.0265	0.0398	g
Peak Displacement	0.182	0.0358	0.0514	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 5.61 mm/s At 0.001 sec.

USBM R18507 And OSMRE



Time(Seconds) 0.20 sec/div Amplitude Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div  
 Trigger =  $\blacktriangleright$   $\blacktriangleleft$

Date/Time Tran At 15:59:57 October 3, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.8 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M251INSK.FX0W

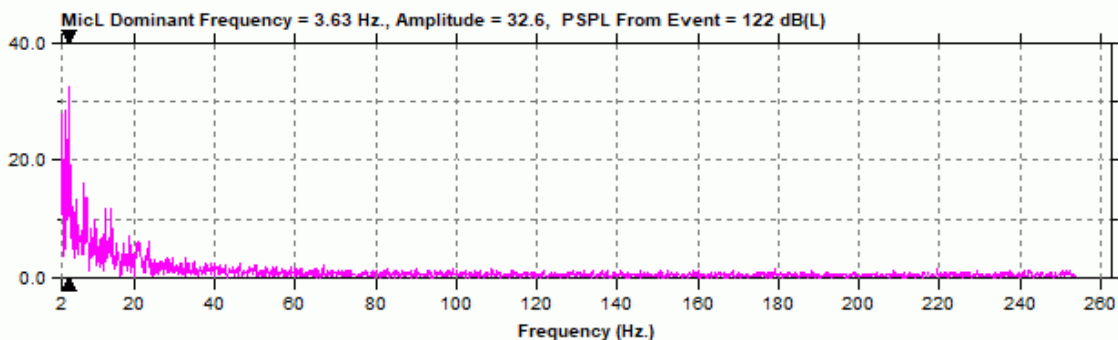
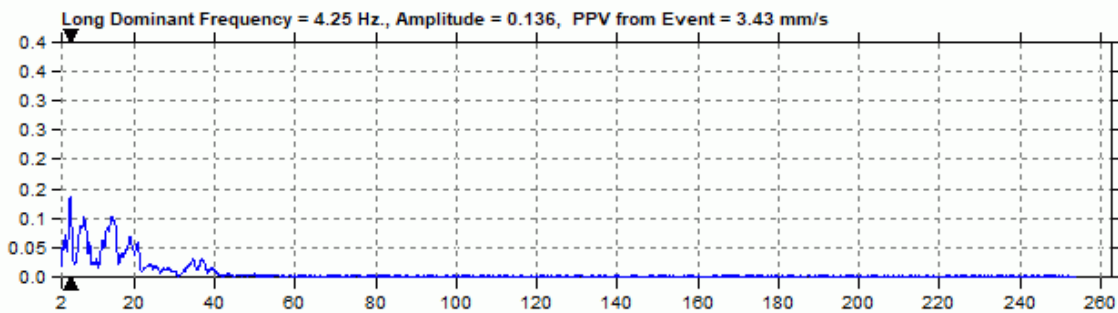
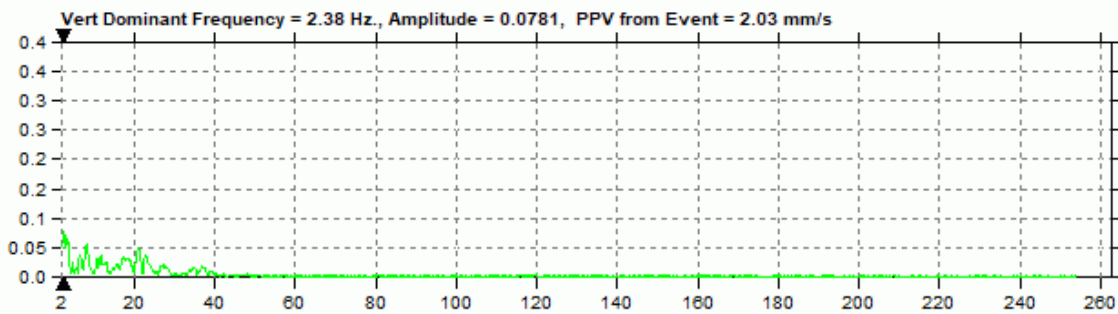
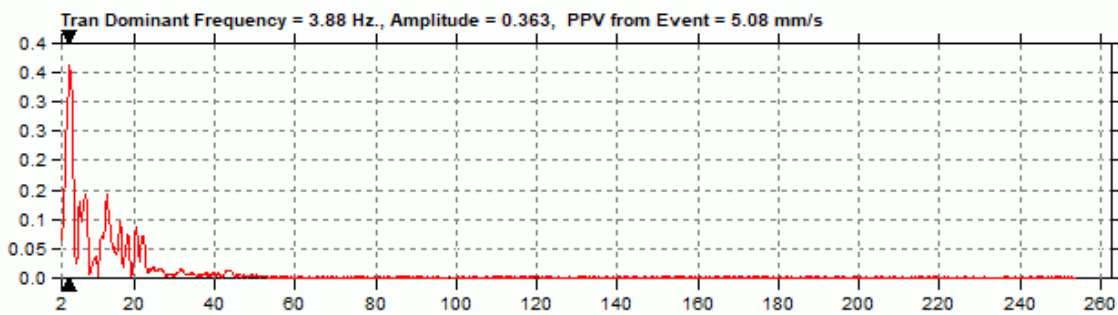
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 3, 2020 05:16:48  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes



Date/Time Long At 16:02:44 October 7, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.8 Volts  
 Unit Calibration October 23, 2019 by InstanTel  
 File Name M2511NZZ.8K0W

**Notes**

Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

**Extended Notes**

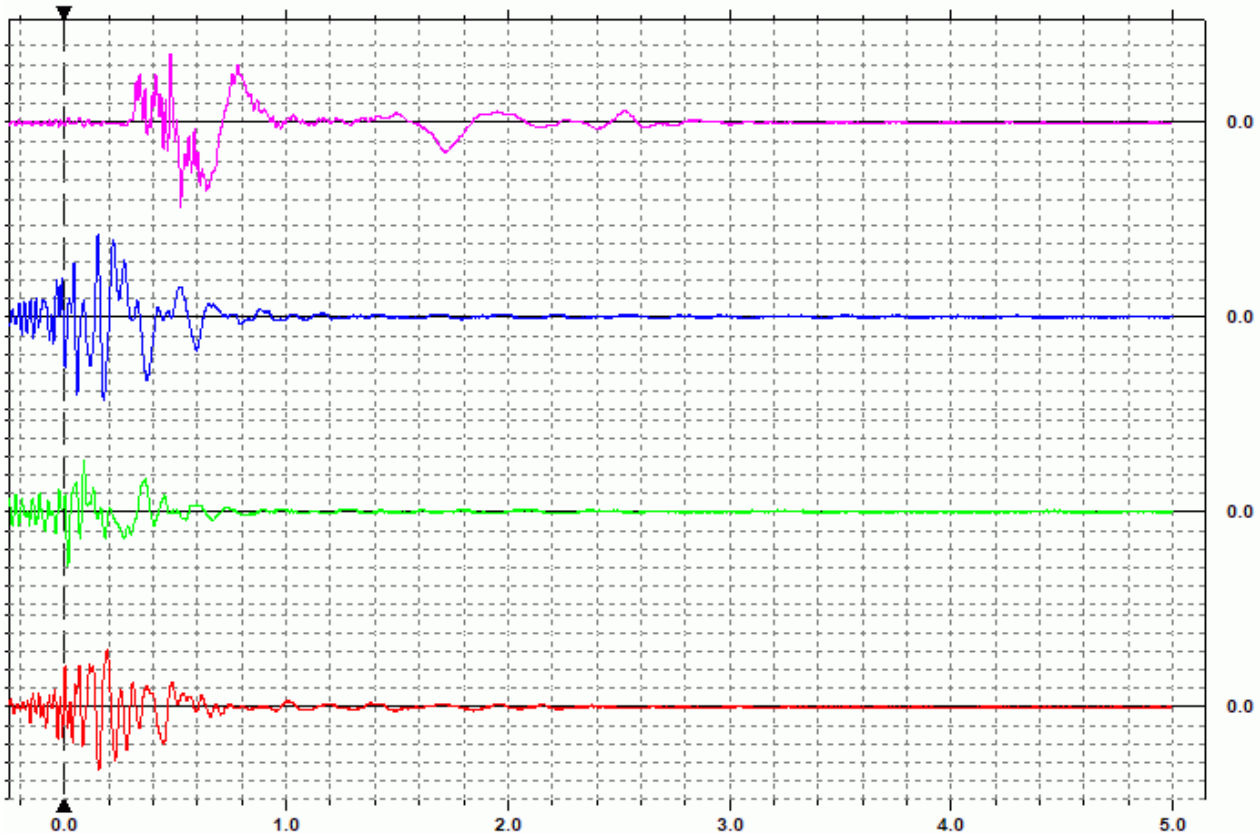
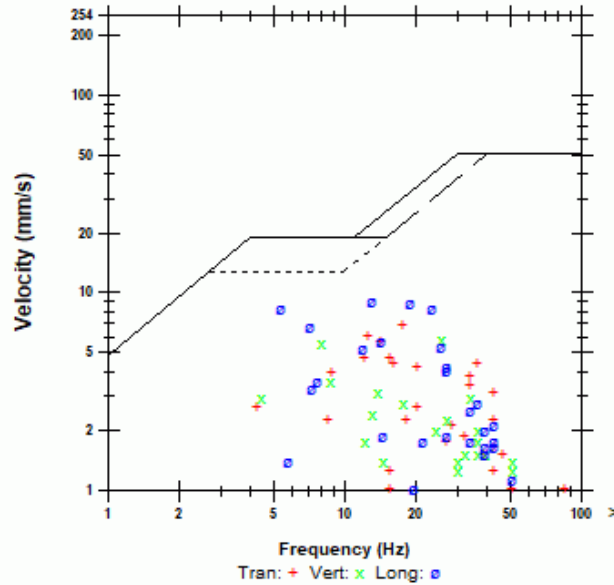
Combo Mode October 7, 2020 05:16:45  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 126.8 dB(L) at 0.524 sec.  
 ZC Freq 2.4 Hz.  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	6.86	5.84	9.02	mm/s
ZC Freq	18	26	13	Hz
Time (Rel. to Trig)	0.153	0.015	0.177	sec
Peak Acceleration	0.106	0.0928	0.159	g
Peak Displacement	0.0815	0.0898	0.202	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 10.7 mm/s At 0.149 sec.

USBM RI8507 And OSMRE



Time(Seconds) 0.20 sec/div Amplitude Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div  
 Trigger =

Date/Time Long At 16:02:44 October 7, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.8 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M251INZZ.8K0W

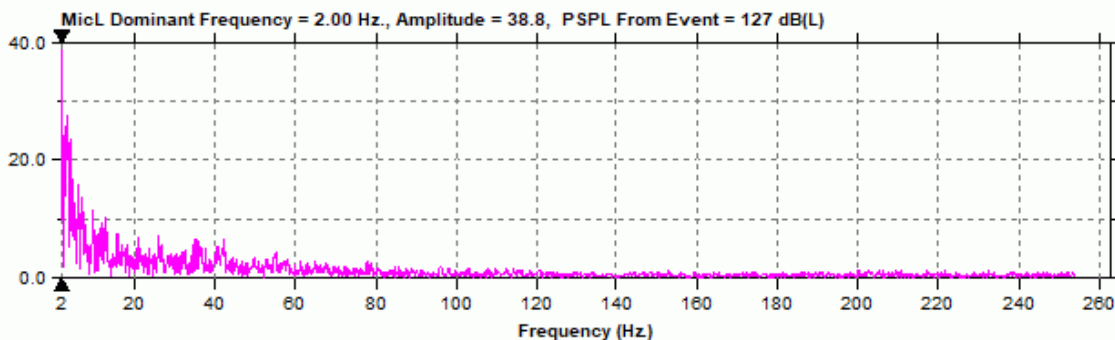
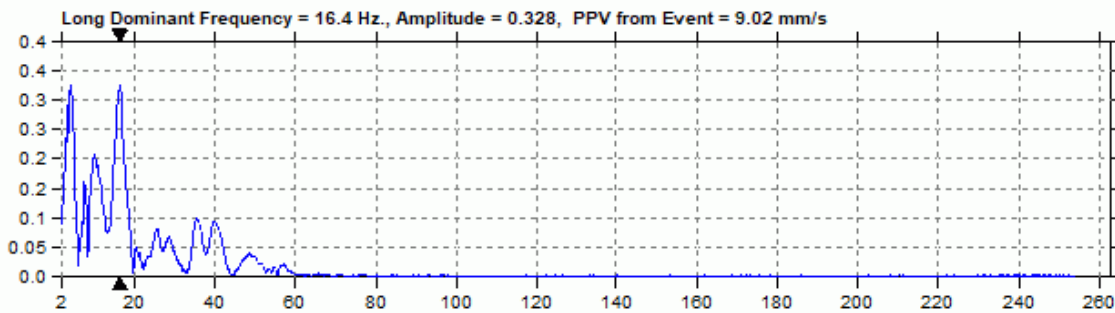
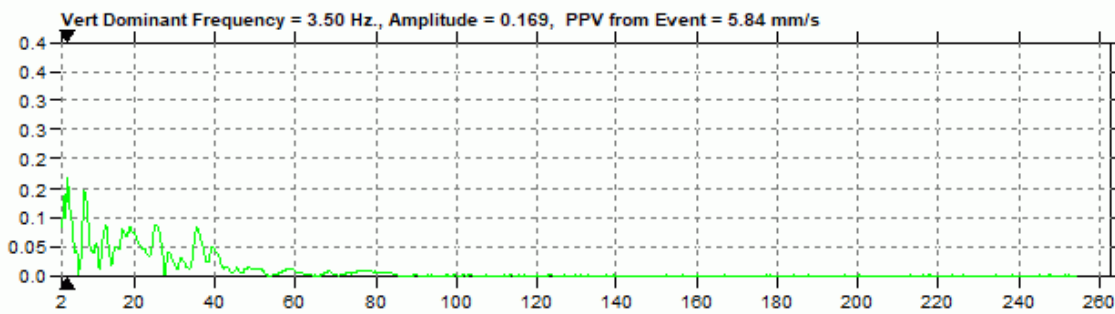
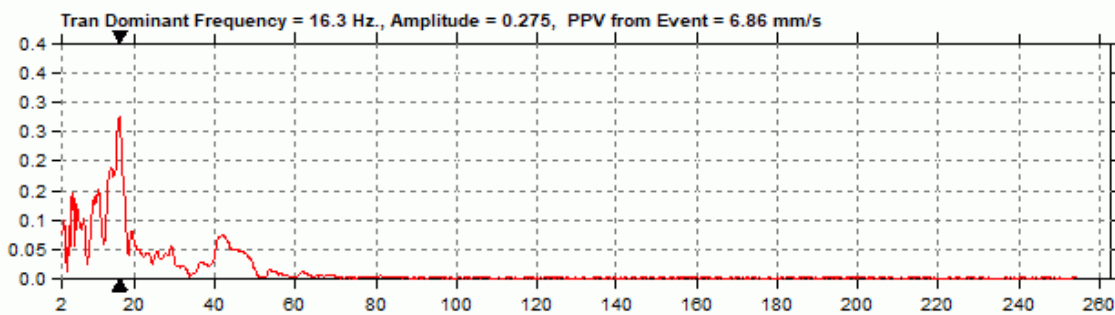
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 7, 2020 05:16:45  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes



Date/Time Tran At 16:01:54 October 8, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.8 Volts  
 Unit Calibration October 23, 2019 by Instantel  
 File Name M2511Q1T.V60W

**Notes**

Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

**Extended Notes**

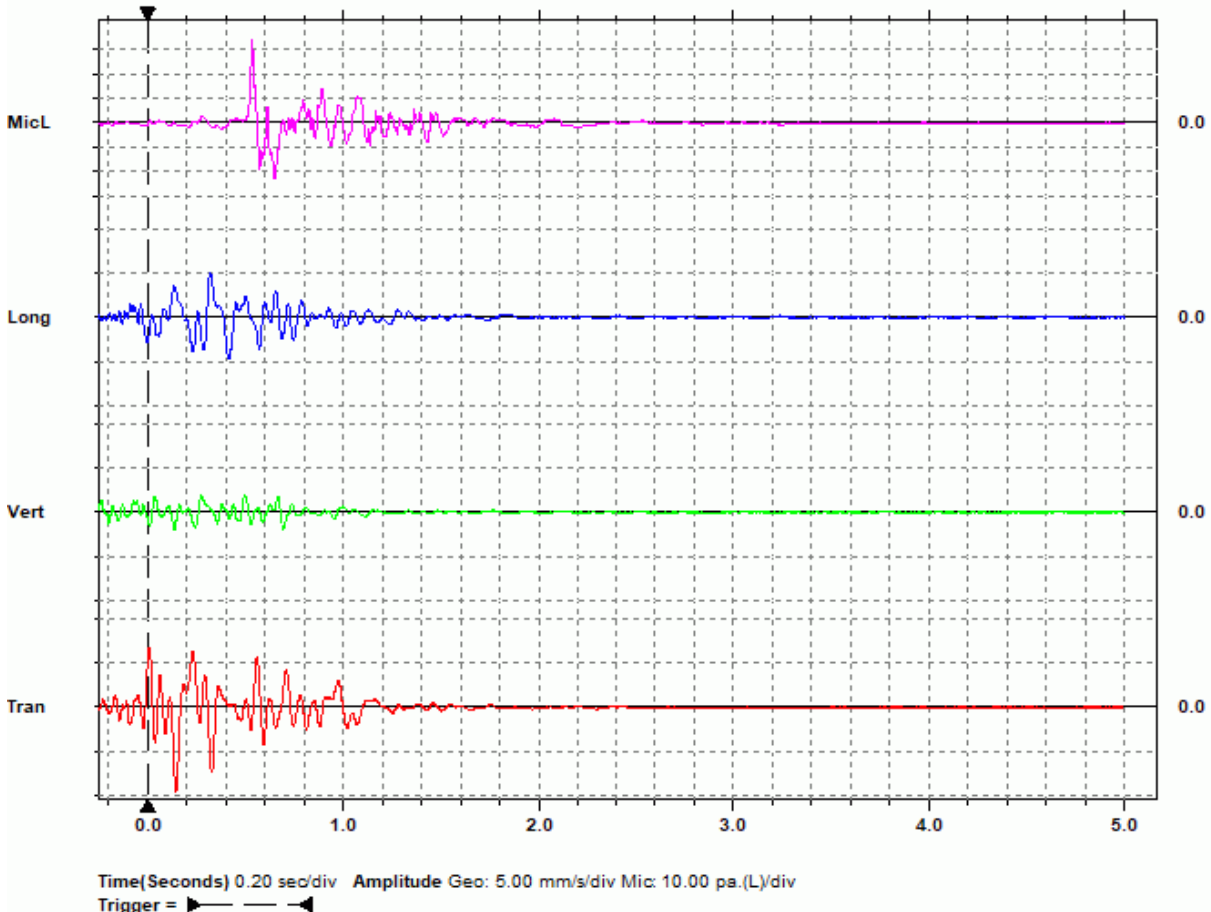
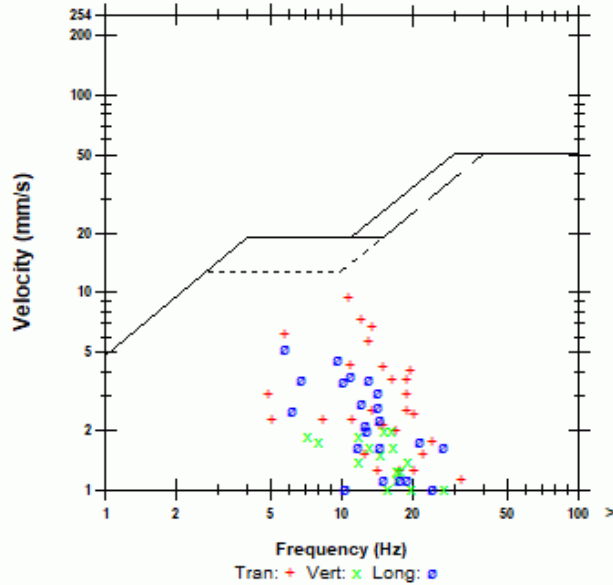
Combo Mode October 8, 2020 05:16:48  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 124.7 dB(L) at 0.535 sec.  
 ZC Freq 3.5 Hz  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	9.52	2.03	5.21	mm/s
ZC Freq	11	16	5.8	Hz
Time (Rel. to Trig)	0.144	0.135	0.319	sec
Peak Acceleration	0.0795	0.0285	0.0530	g
Peak Displacement	0.135	0.0332	0.0991	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 10.2 mm/s At 0.144 sec.

USBM R18507 And OSMRE



Date/Time Tran At 16:01:54 October 8, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.8 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M2511Q1T.V60W

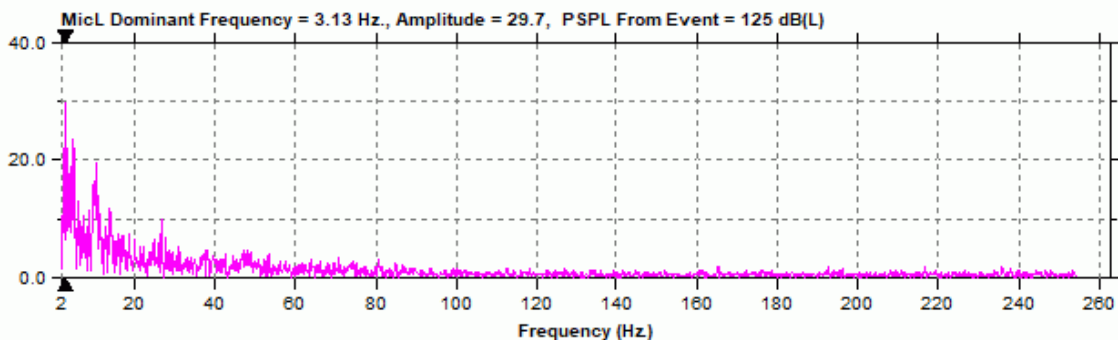
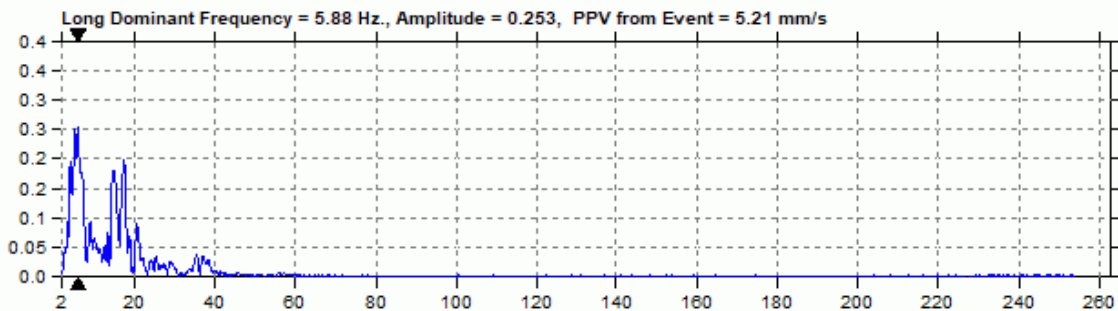
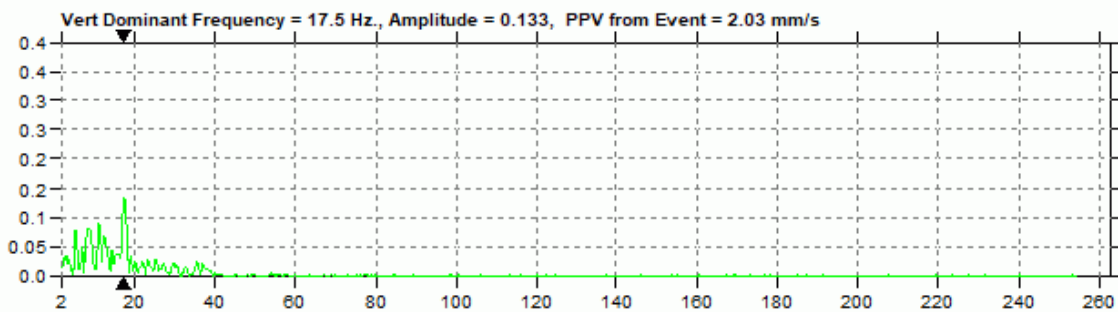
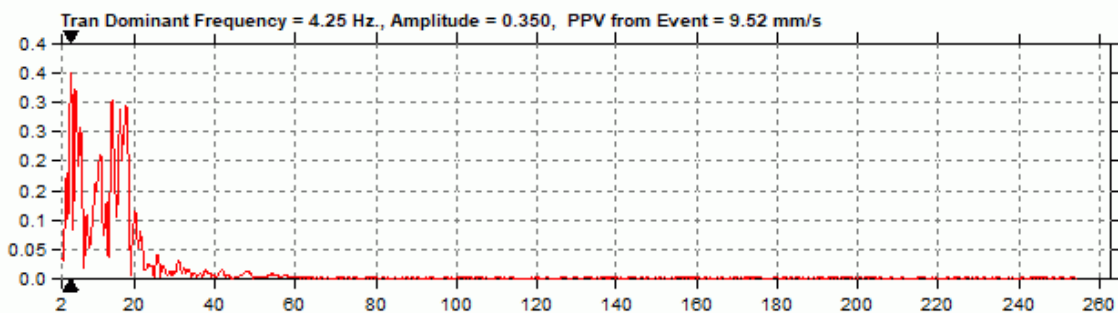
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 8, 2020 05:16:46  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes





Date/Time Tran At 15:49:23 October 9, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.8 Volts  
 Unit Calibration October 23, 2019 by InstanTel  
 File Name M2511O3N.YB0W

**Notes**

Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

**Extended Notes**

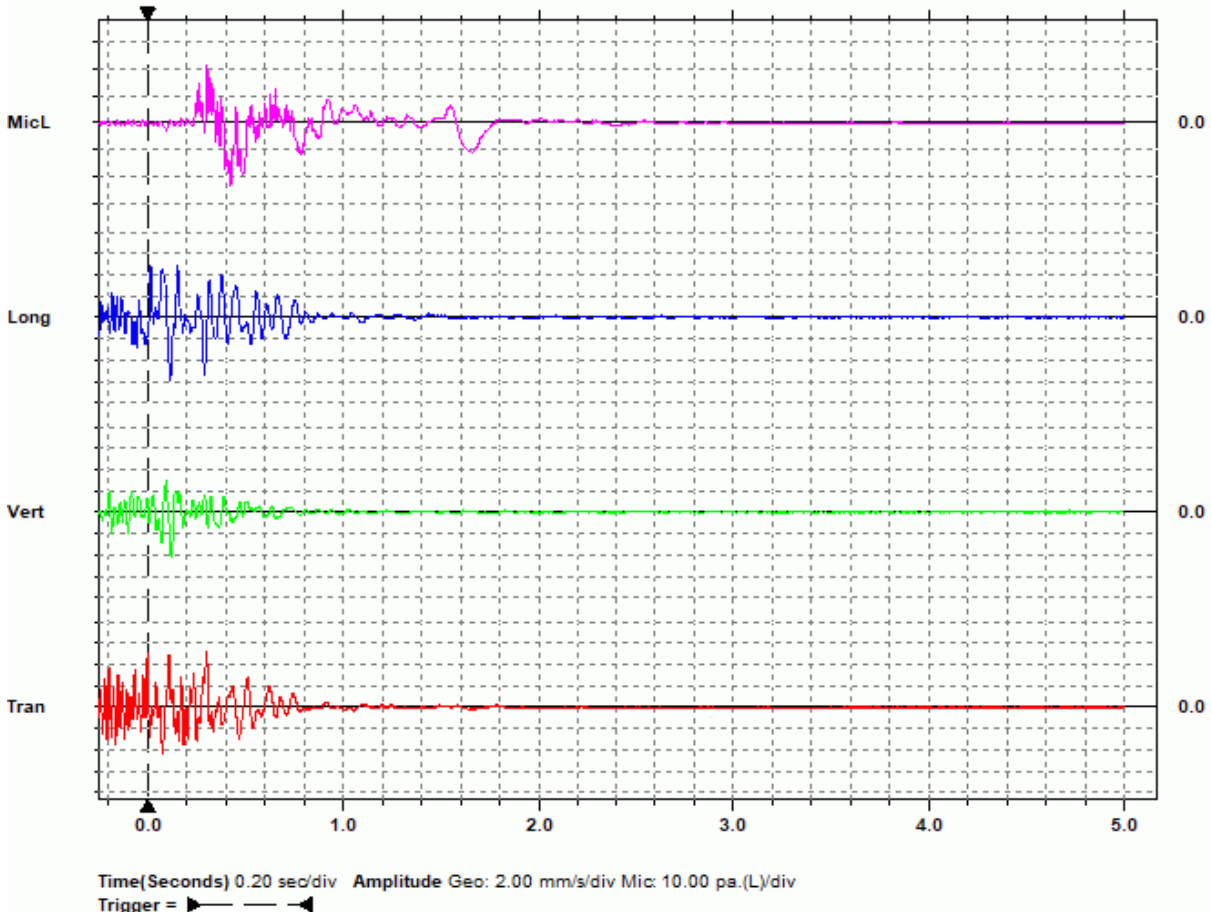
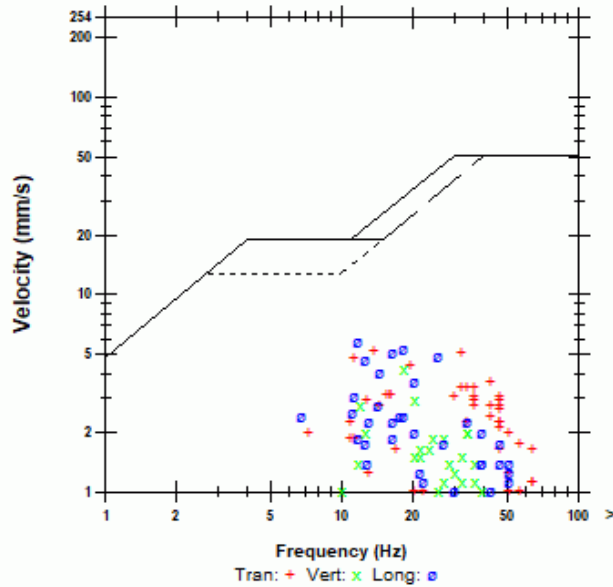
Combo Mode October 9, 2020 05:18:47  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 121.4 dB(L) at 0.425 sec.  
 ZC Freq 8.5 Hz  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	5.21	4.19	5.84	mm/s
ZC Freq	14	18	12	Hz
Time (Rel. to Trig)	0.302	0.122	0.117	sec
Peak Acceleration	0.106	0.0663	0.0795	g
Peak Displacement	0.0520	0.0332	0.0617	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 6.94 mm/s At 0.117 sec.

USBM R18507 And OSMRE



Date/Time Tran At 15:49:23 October 9, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.8 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M2511O3N.YB0W

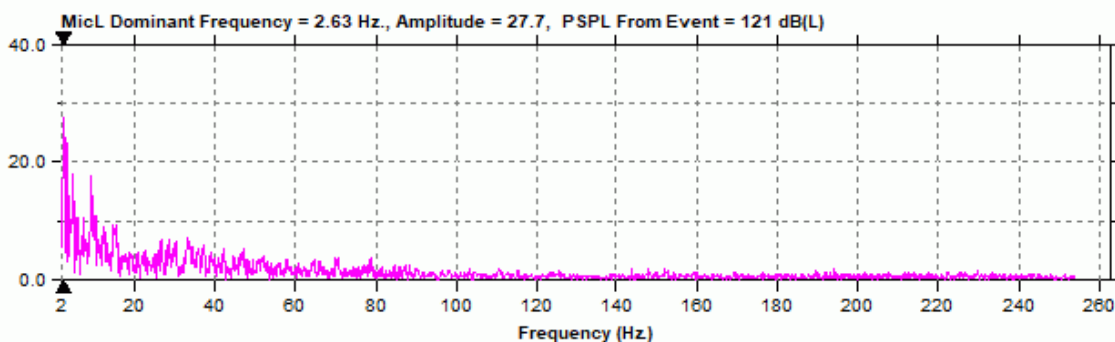
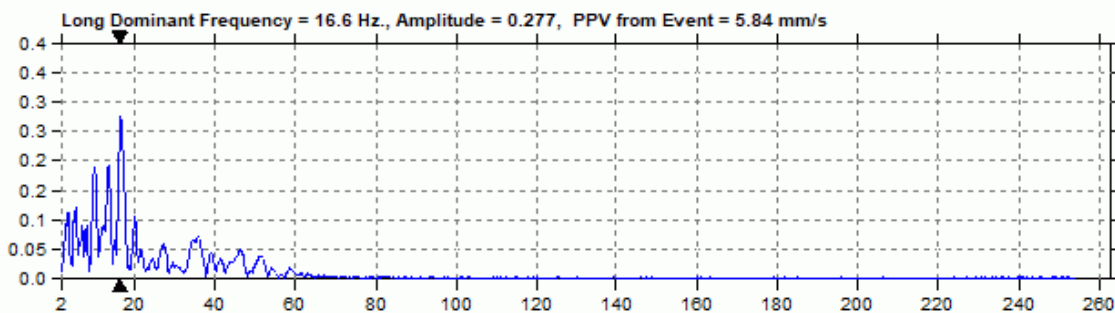
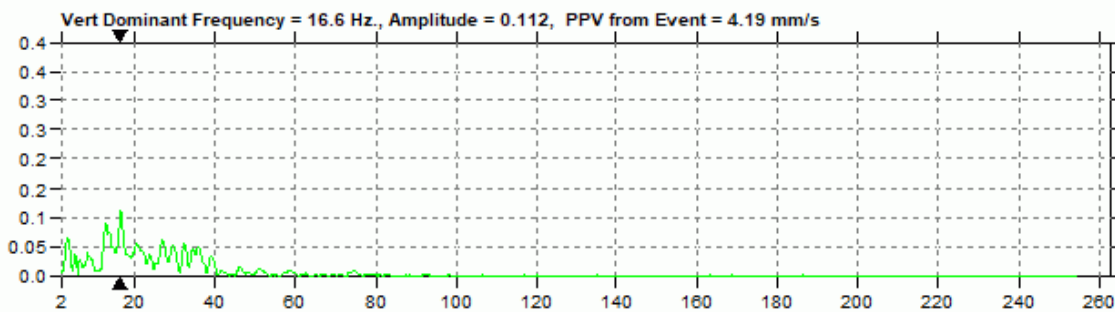
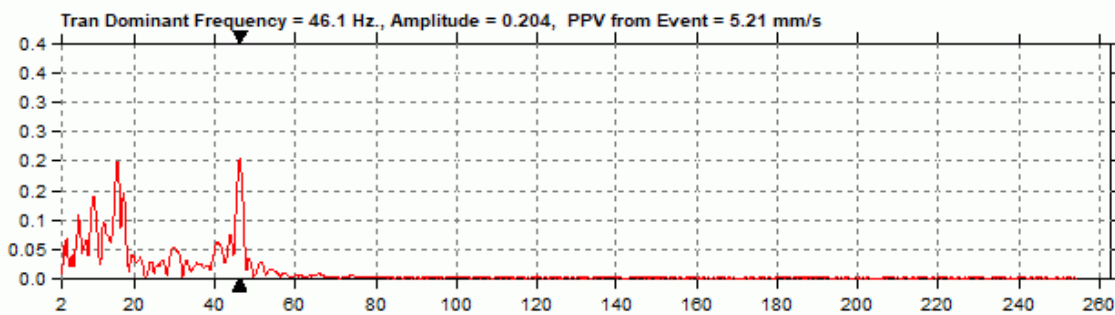
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 9, 2020 05:16:47  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes



Date/Time Tran At 16:05:35 October 14, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.9 Volts  
 Unit Calibration October 23, 2019 by Instantel  
 File Name M2511OCY.1B0W

**Notes**

Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

**Extended Notes**

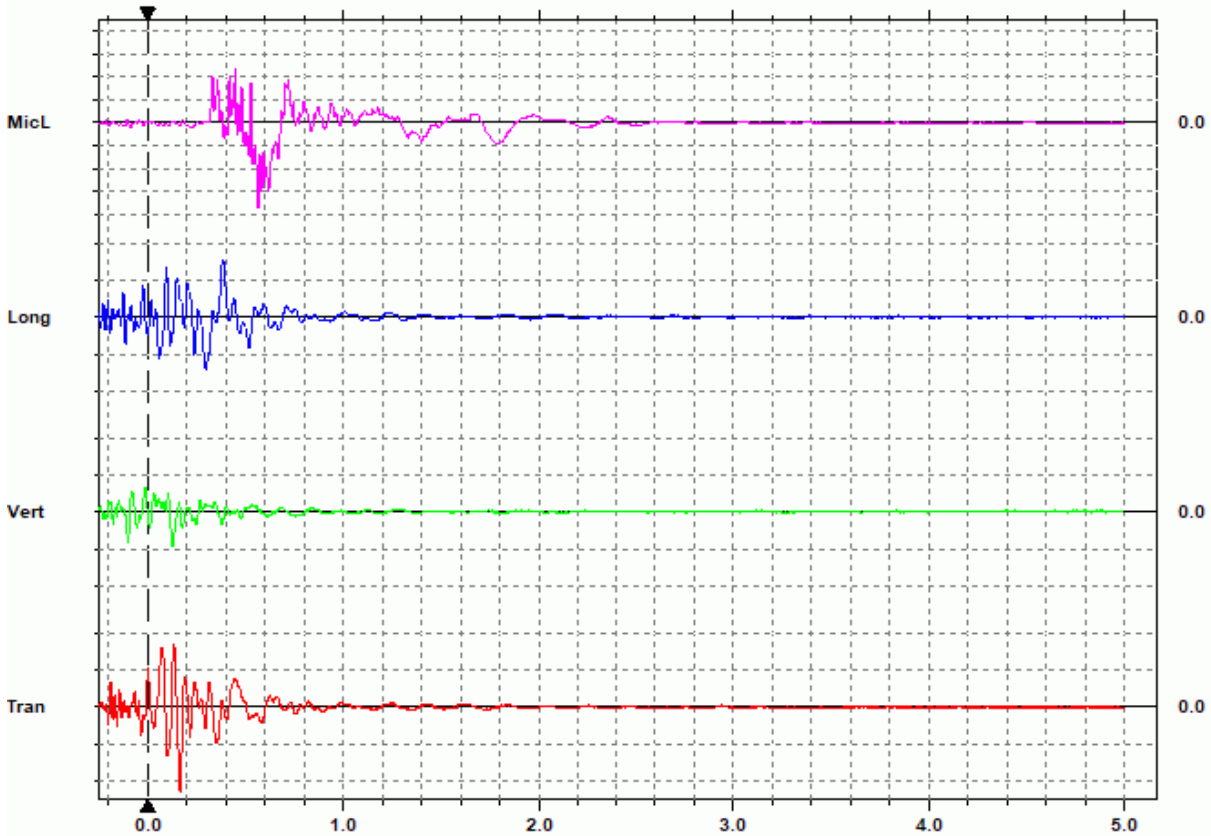
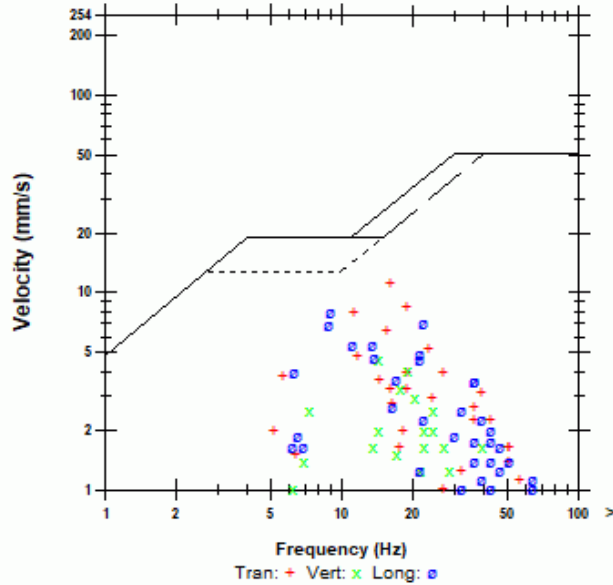
Combo Mode October 14, 2020 05:16:47  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 125.3 dB(L) at 0.565 sec.  
 ZC Freq 3.3 Hz  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	11.3	4.57	8.00	mm/s
ZC Freq	16	14	9.0	Hz
Time (Rel. to Trig)	0.165	0.126	0.384	sec
Peak Acceleration	0.119	0.0663	0.0928	g
Peak Displacement	0.103	0.0454	0.115	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 11.6 mm/s At 0.166 sec.

USBM RI8507 And OSMRE



Time(Seconds) 0.20 sec/div Amplitude Geo: 5.00 mm/s/div Mic: 10.00 pa.(L)/div  
 Trigger =

Date/Time Tran At 16:05:35 October 14, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.9 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M2511OCY.1B0W

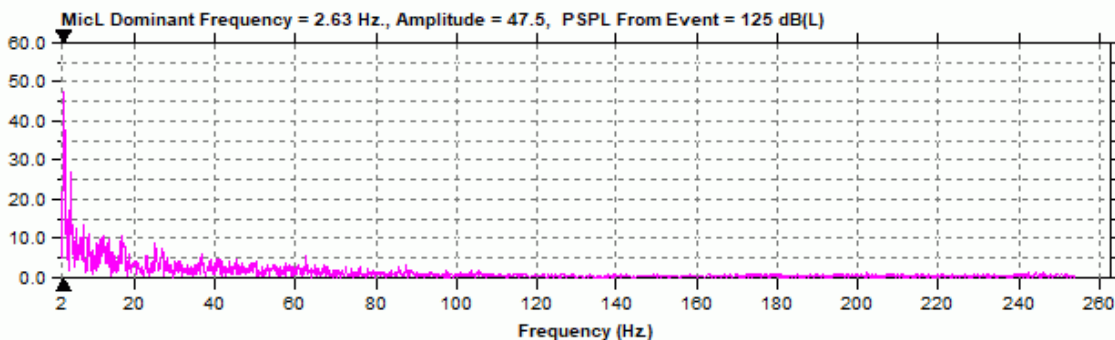
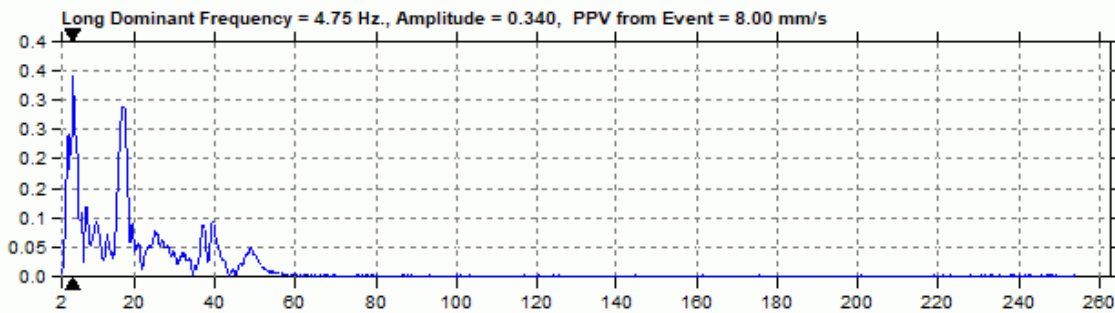
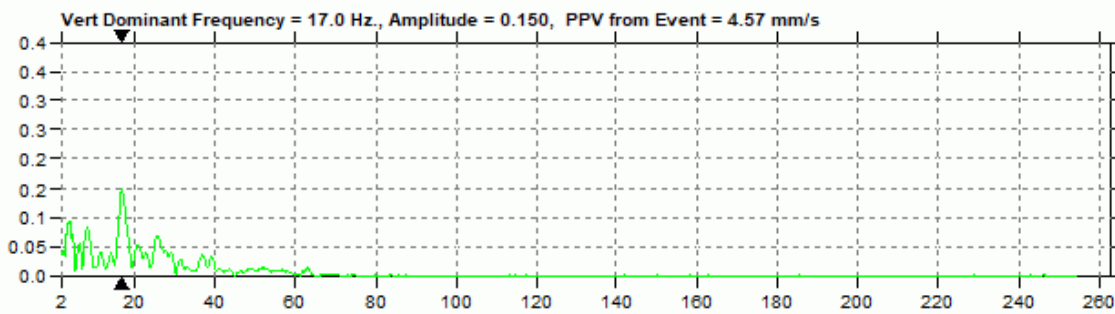
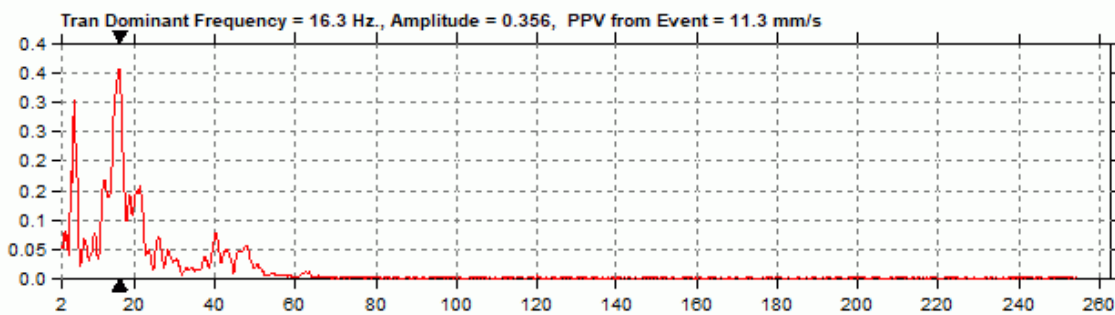
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 14, 2020 05:16:47  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes



Date/Time Vert At 15:57:44 October 15, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.9 Volts  
 Unit Calibration October 23, 2019 by InstanTel  
 File Name M251IOES.C80W

**Notes**  
 Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

**Extended Notes**

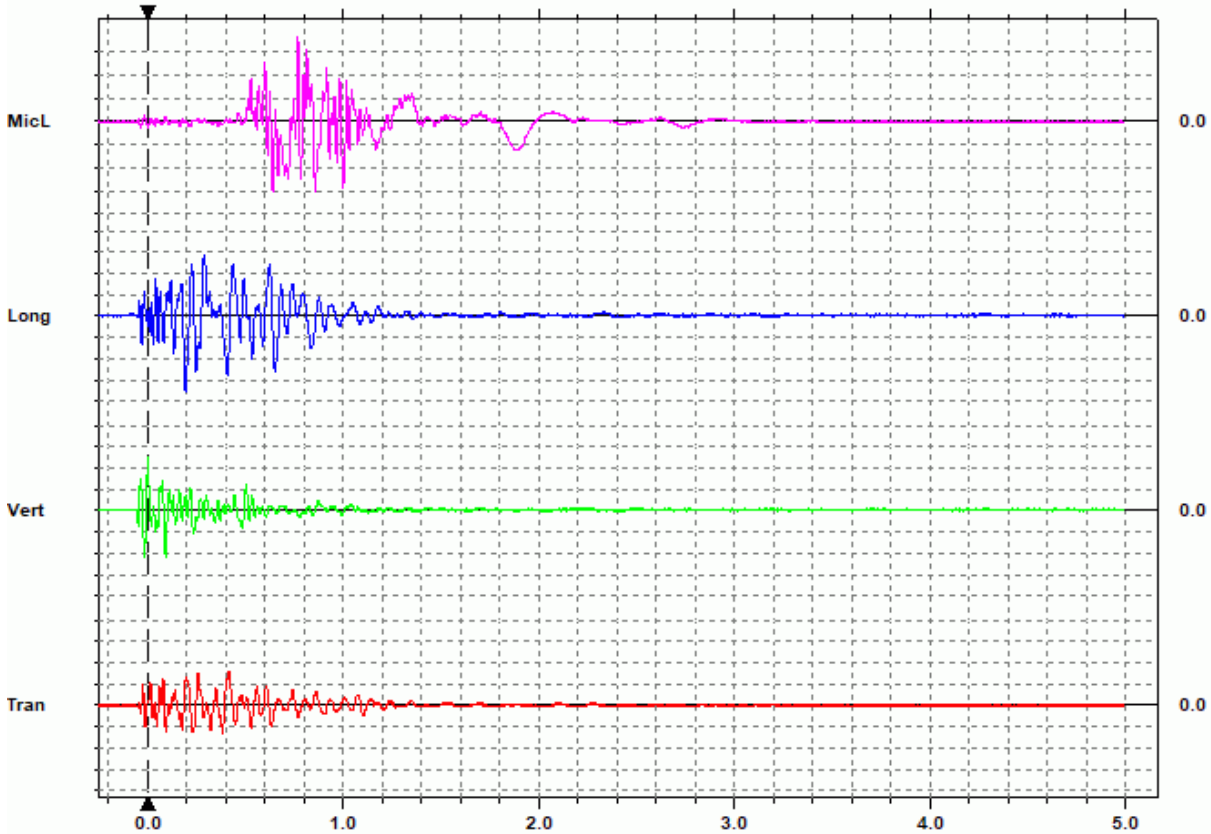
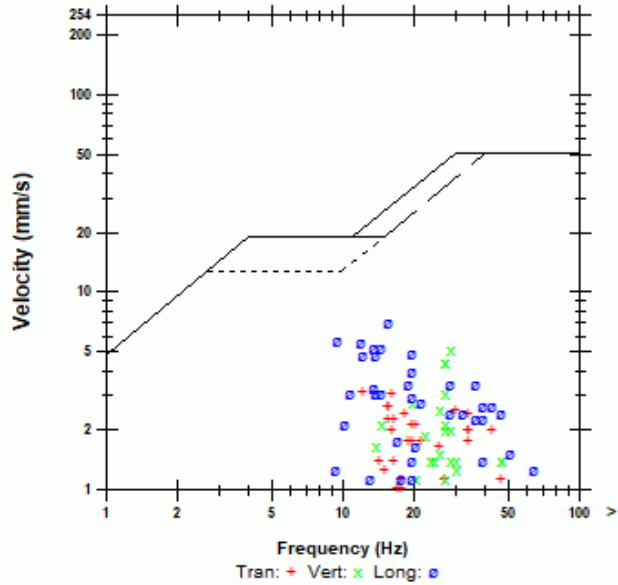
Combo Mode October 15, 2020 05:16:44  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 125.1 dB(L) at 0.768 sec.  
 ZC Freq 32 Hz.  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	3.17	5.08	7.11	mm/s
ZC Freq	12	28	16	Hz
Time (Rel. to Trig)	0.415	0.001	0.192	sec
Peak Acceleration	0.0663	0.0928	0.0928	g
Peak Displacement	0.0402	0.0263	0.0748	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 7.75 mm/s At 0.194 sec.

USBM RI8507 And OSMRE



Time(Seconds) 0.20 sec/div Amplitude Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div  
 Trigger =

Date/Time Vert At 15:57:44 October 15, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.9 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M251IOES.C80W

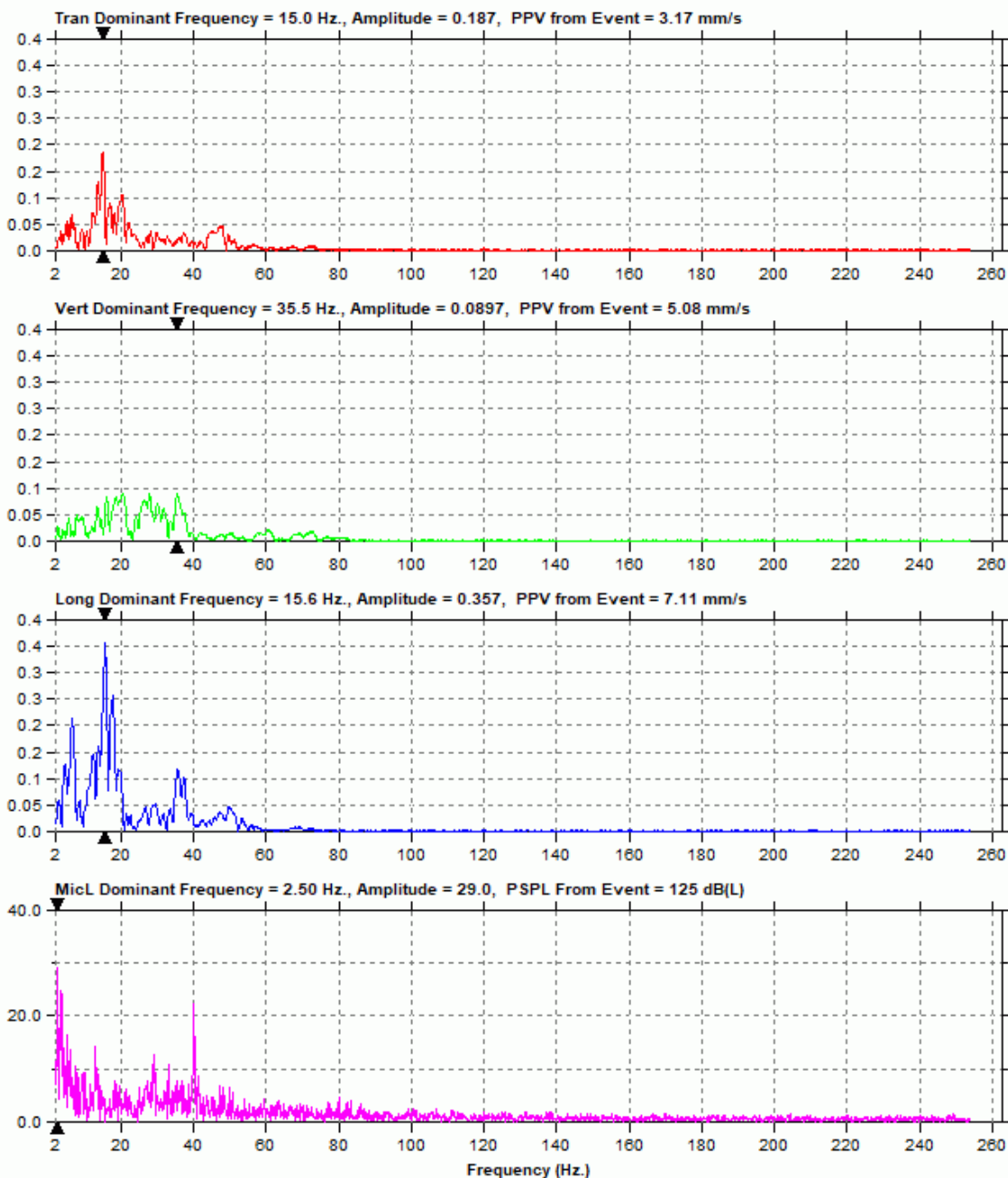
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 15, 2020 05:16:44  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes



Date/Time Tran At 16:44:50 October 20, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.9 Volts  
 Unit Calibration October 23, 2019 by InstanTel  
 File Name M2511003.UQ0W

**Notes**  
 Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

**Extended Notes**

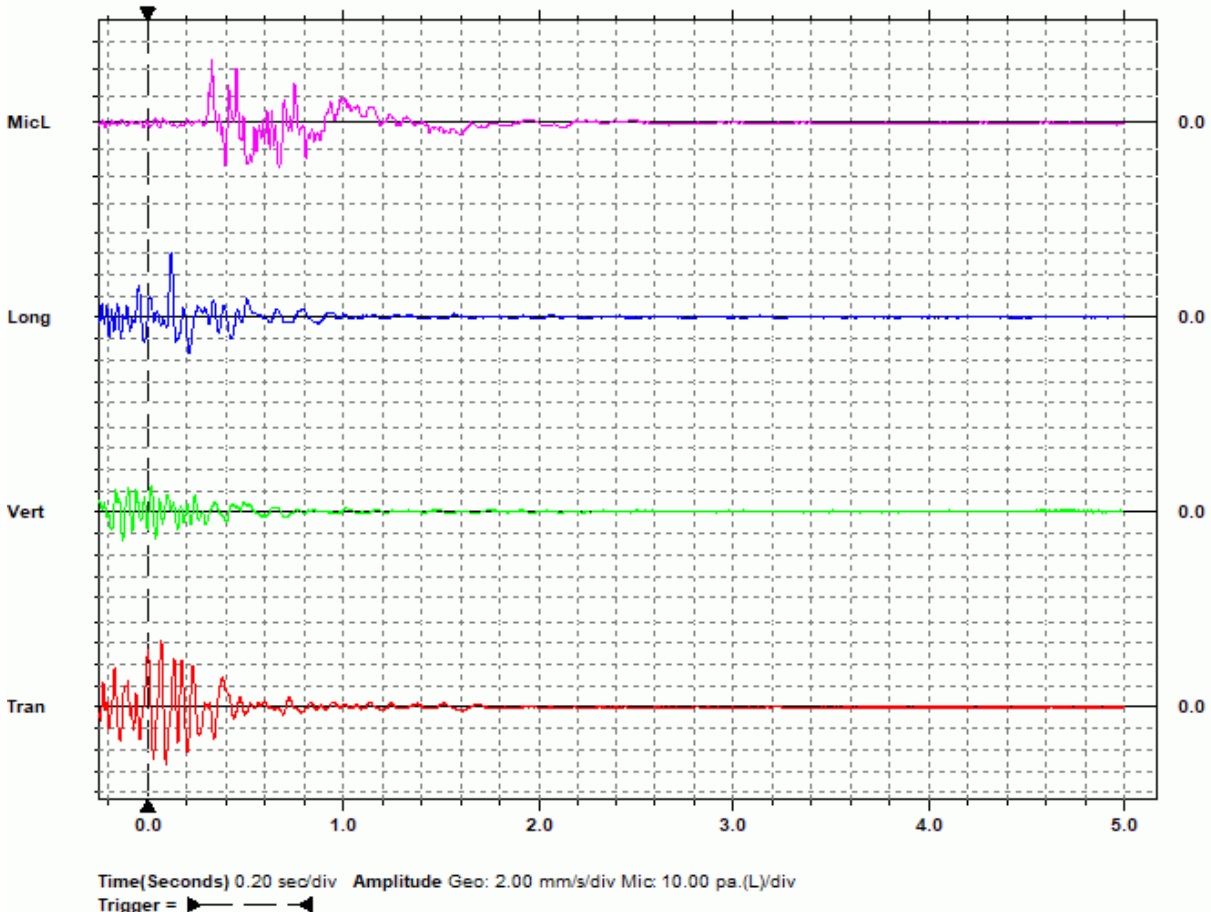
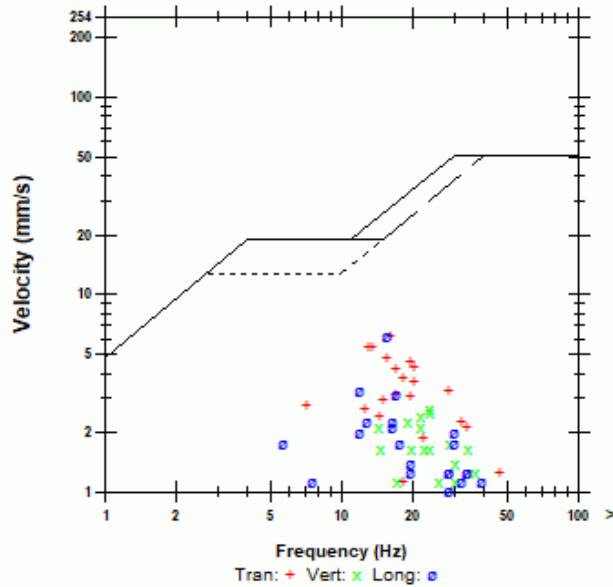
Combo Mode October 20, 2020 05:16:50  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 121.6 dB(L) at 0.329 sec.  
 ZC Freq 9.1 Hz  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	6.22	2.67	6.22	mm/s
ZC Freq	16	23	16	Hz
Time (Rel. to Trig)	0.070	-0.125	0.121	sec
Peak Acceleration	0.0795	0.0530	0.0663	g
Peak Displacement	0.0562	0.0229	0.0580	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 6.29 mm/s At 0.071 sec.

USBM R18507 And OSMRE



Date/Time Tran At 16:44:50 October 20, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.9 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M2511003.UQ0W

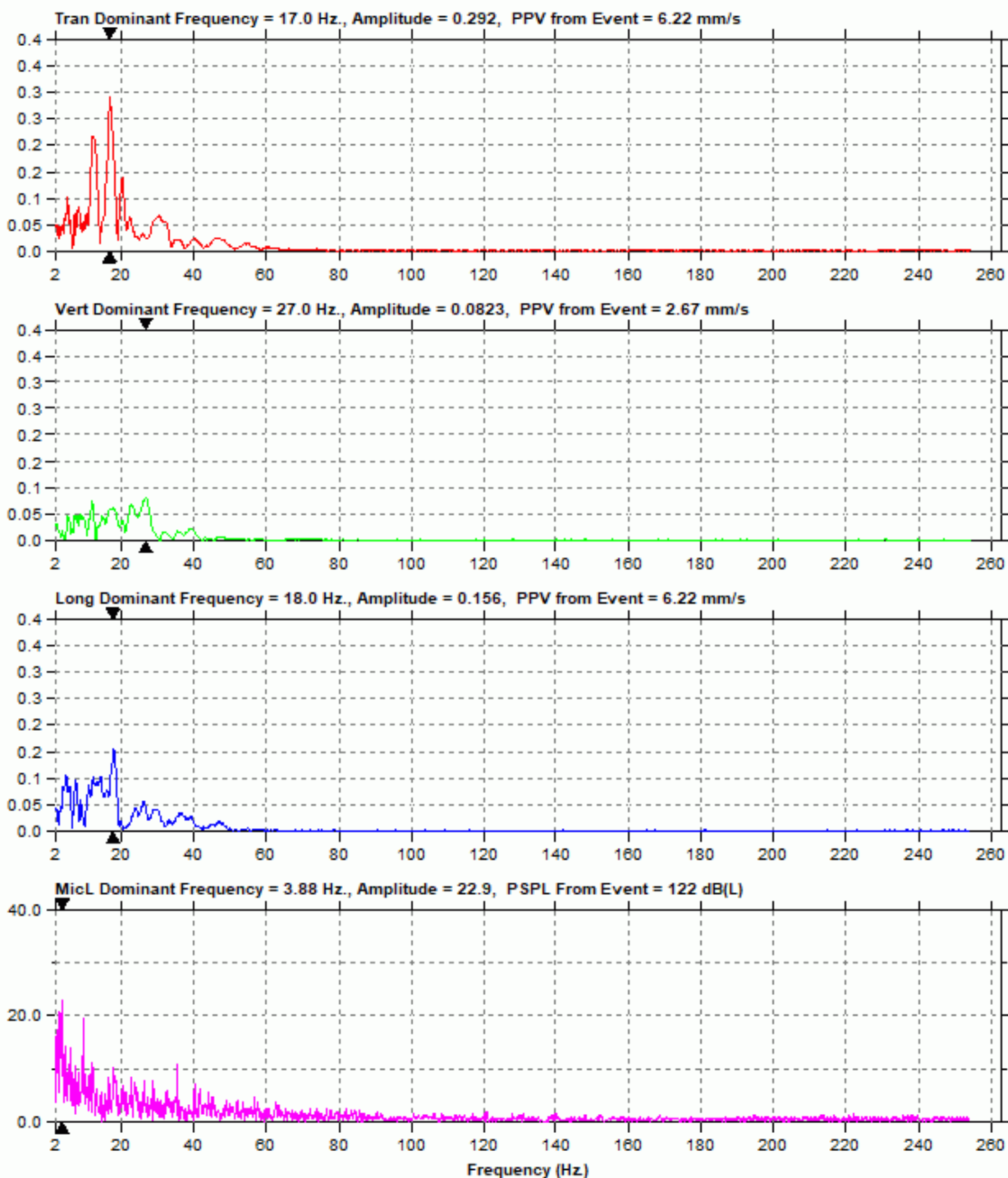
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 20, 2020 05:16:50  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes





Date/Time Long At 16:05:24 October 21, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 7.0 Volts  
 Unit Calibration October 23, 2019 by InstanTel  
 File Name M251IOPW.P00W

**Notes**

Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

**Extended Notes**

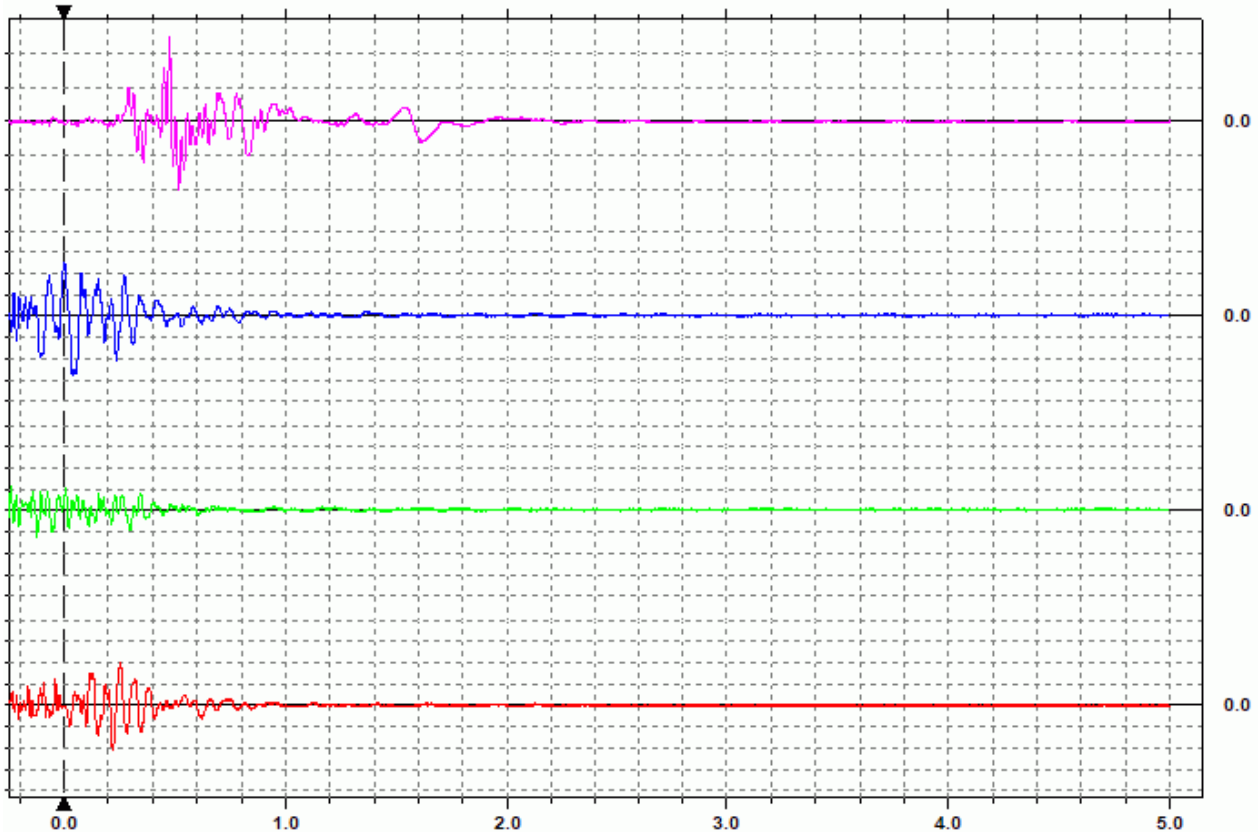
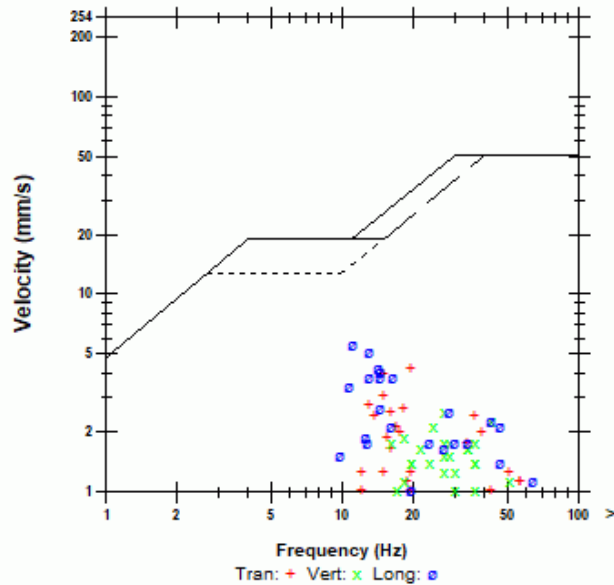
Combo Mode October 21, 2020 05:16:45  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 127.9 dB(L) at 0.477 sec.  
 ZC Freq 24 Hz.  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	4.19	2.54	5.59	mm/s
ZC Freq	20	27	11	Hz
Time (Rel. to Trig)	0.221	-0.124	0.037	sec
Peak Acceleration	0.0663	0.0663	0.0795	g
Peak Displacement	0.0402	0.0184	0.0913	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 5.69 mm/s At 0.037 sec.

USBM RI8507 And OSMRE



Time(Seconds) 0.20 sec/div Amplitude Geo: 2.00 mm/s/div Mic: 20.0 pa.(L)/div  
 Trigger =

Date/Time Long At 16:05:24 October 21, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 7.0 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M251IOPW.P00W

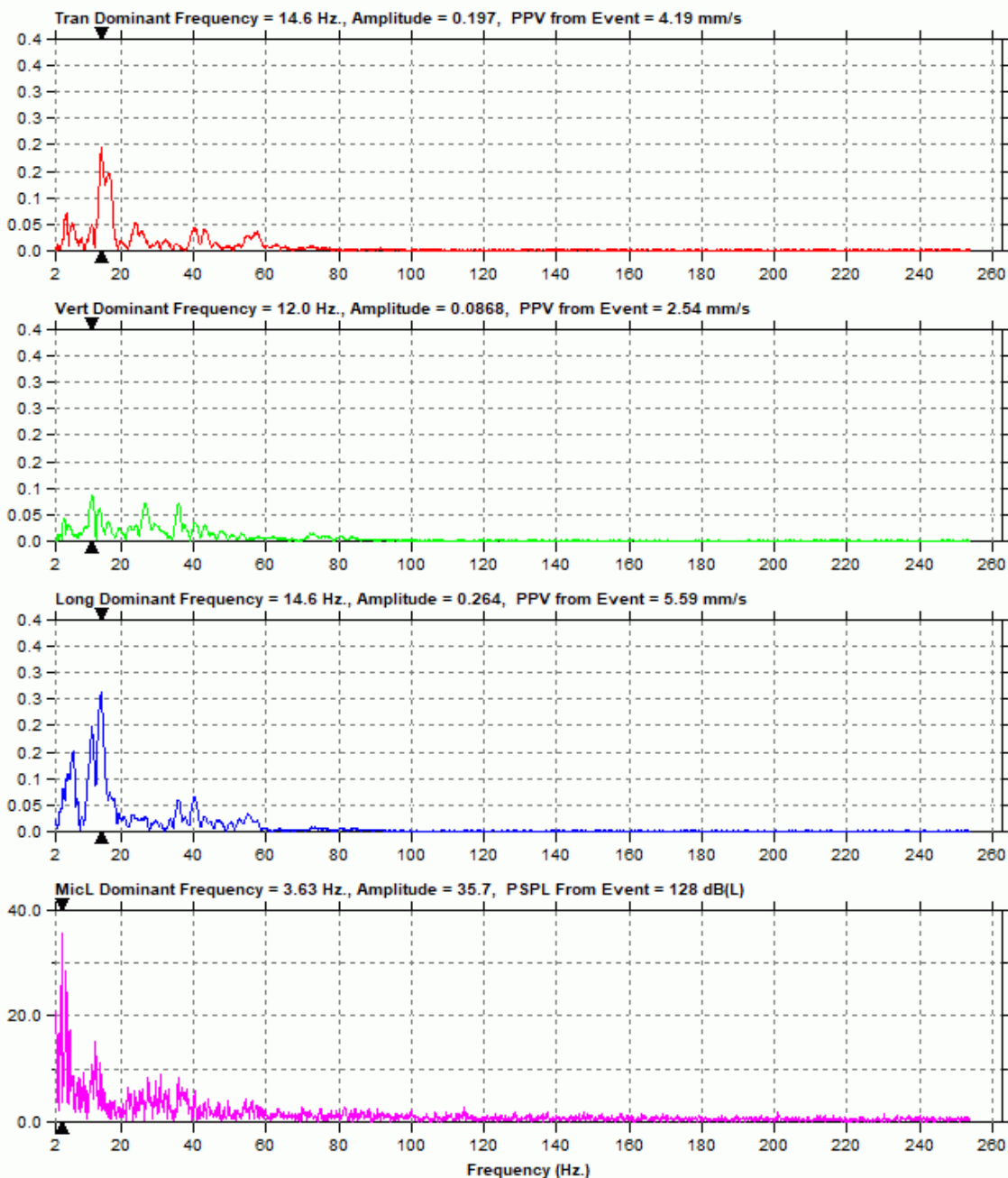
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 21, 2020 05:16:45  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes



Date/Time Long At 16:12:28 October 29, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.9 Volts  
 Unit Calibration October 23, 2019 by InstanTel  
 File Name M2511P4Q.CS0W

**Notes**

Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

**Extended Notes**

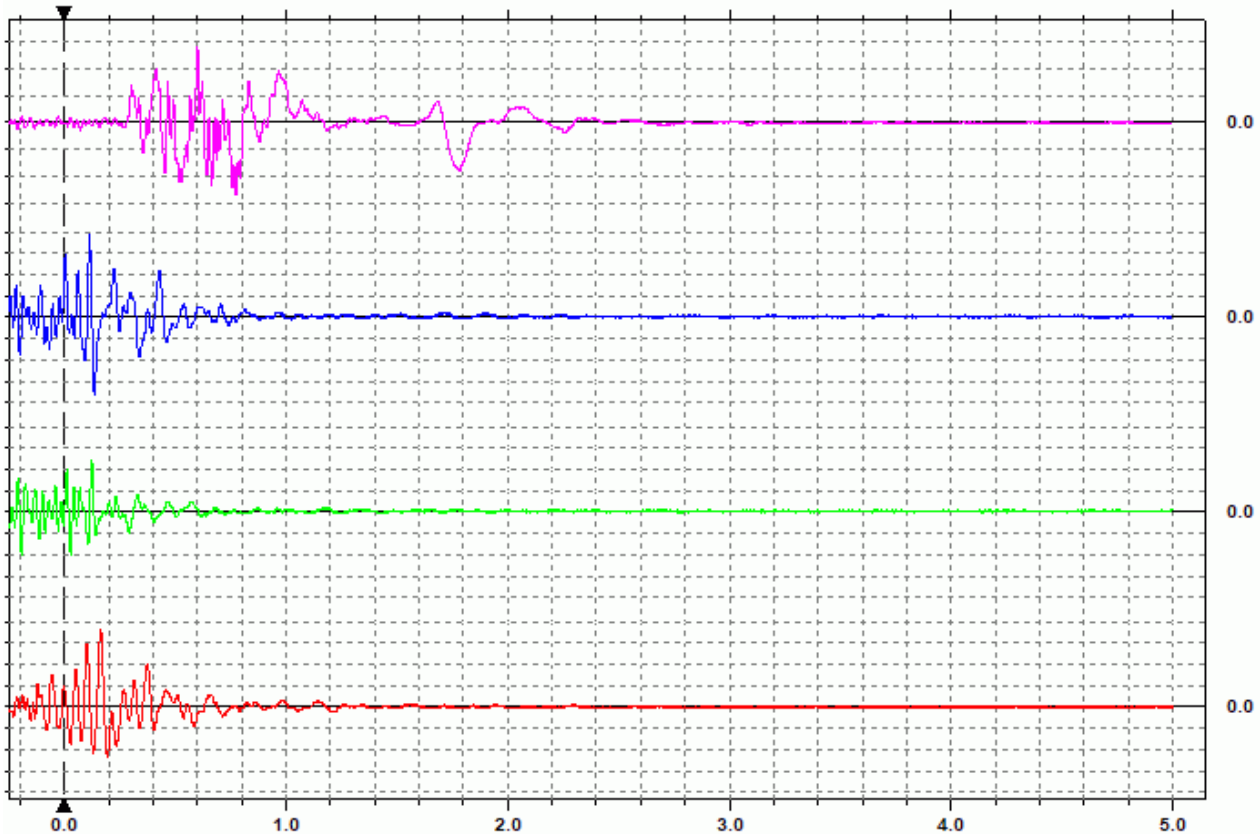
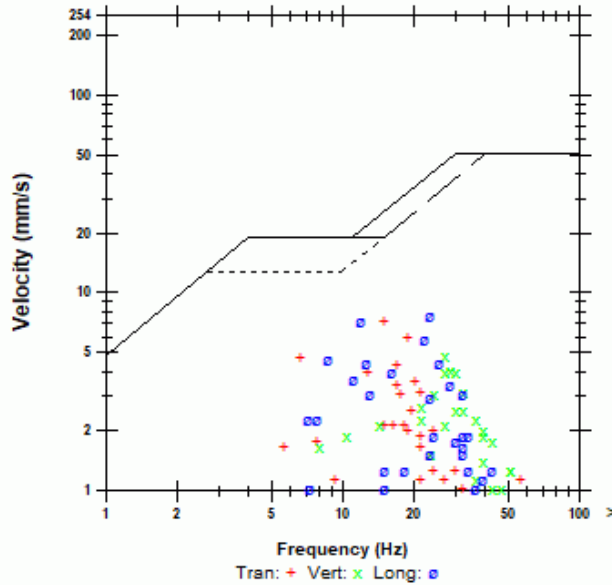
Combo Mode October 29, 2020 05:16:50  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 123.0 dB(L) at 0.600 sec.  
 ZC Freq 10 Hz.  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	7.24	4.83	7.75	mm/s
ZC Freq	15	27	23	Hz
Time (Rel. to Trig)	0.162	0.123	0.112	sec
Peak Acceleration	0.0795	0.0795	0.119	g
Peak Displacement	0.0950	0.0275	0.0704	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 8.30 mm/s At 0.135 sec.

USBM RI8507 And OSMRE



Time(Seconds) 0.20 sec/div Amplitude Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div  
 Trigger =

Date/Time Long At 16:12:28 October 29, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.9 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M2511P4Q.CS0W

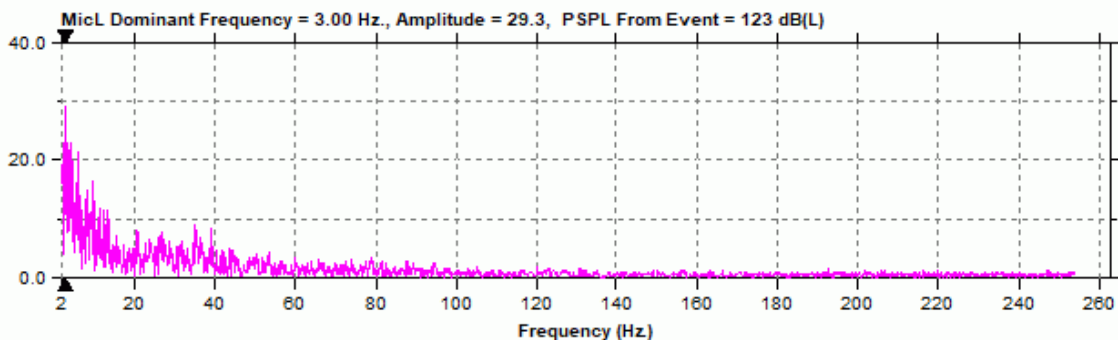
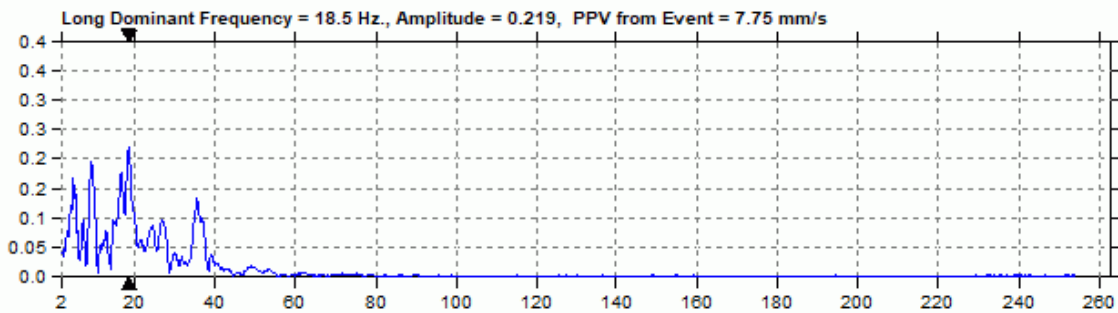
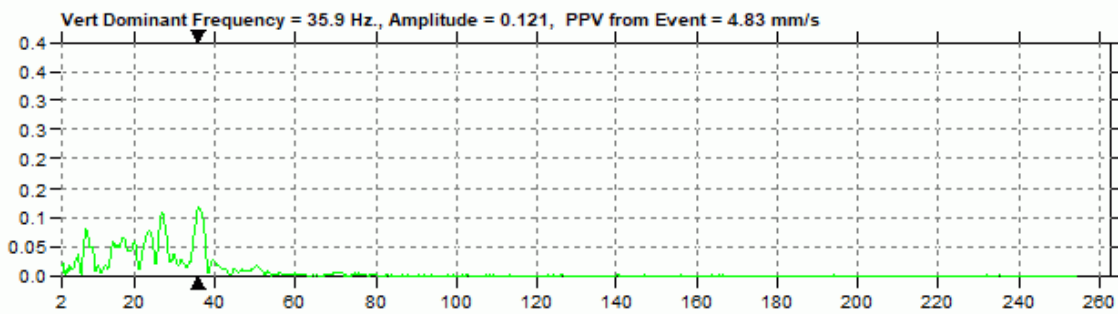
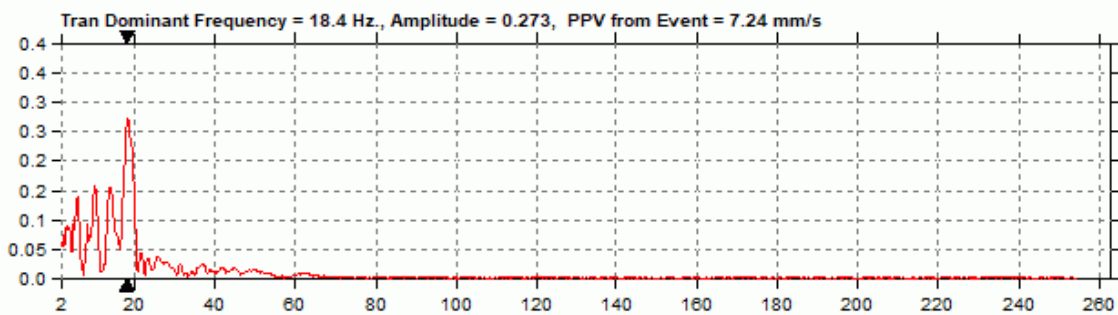
### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 29, 2020 05:16:50  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes



Date/Time Long At 15:59:23 October 31, 2020  
 Trigger Source Geo: 5.00 mm/s  
 Range Geo: 254 mm/s  
 Sample Rate 5.0 sec. At 1024 Sps  
 Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
 Battery Level 6.9 Volts  
 Unit Calibration October 23, 2019 by Instantel  
 File Name M2511P8F.2Z0W

**Notes**  
 Location: 97 Cougar Ridge Close SW, Calgary, AB  
 Client: McCaw's Drilling and Blasting  
 User Name: Explotech Engineering Ltd.  
 General: Sandbagged on ground

**Post Event Notes**

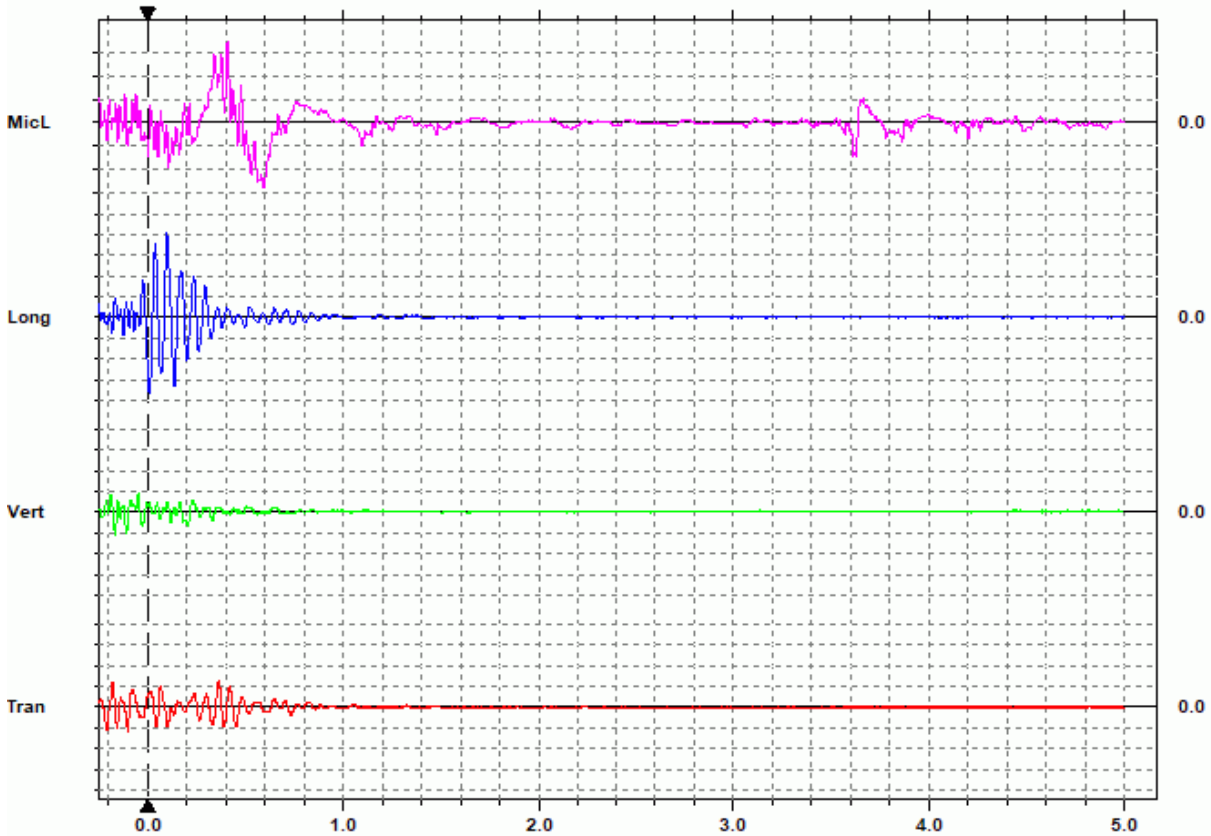
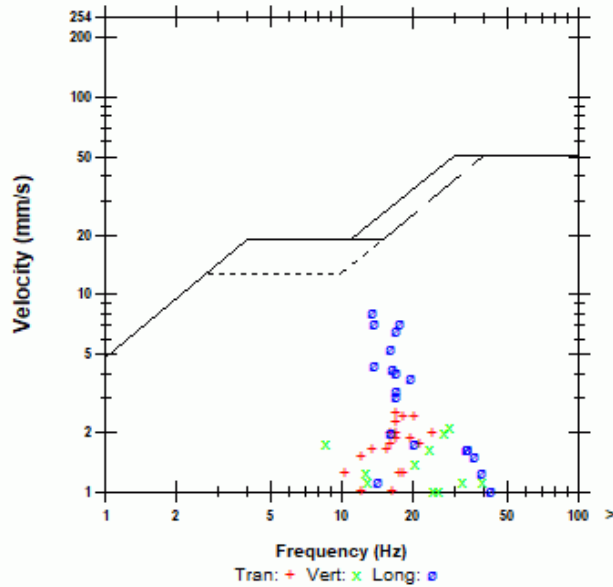
**Extended Notes**  
 Combo Mode October 31, 2020 05:16:50  
 Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

Microphone Linear Weighting  
 PSPL 125.0 dB(L) at 0.409 sec.  
 ZC Freq 3.2 Hz  
 Channel Test Disabled

	Tran	Vert	Long	
PPV	2.54	2.16	8.13	mm/s
ZC Freq	17	28	13	Hz
Time (Rel. to Trig)	0.360	-0.167	0.098	sec
Peak Acceleration	0.0398	0.0530	0.0928	g
Peak Displacement	0.0241	0.0251	0.0851	mm
Sensor Check	Disabled	Disabled	Disabled	

Peak Vector Sum 8.37 mm/s At 0.099 sec.

USBM RI8507 And OSMRE



Time(Seconds) 0.20 sec/div Amplitude Geo: 2.00 mm/s/div Mic: 10.00 pa.(L)/div  
 Trigger =

Date/Time Long At 15:59:23 October 31, 2020  
Trigger Source Geo: 5.00 mm/s  
Range Geo: 254 mm/s  
Sample Rate 5.0 sec. At 1024 Sps  
Job Number 8177

Serial Number BE11251 V 10.72-8.17 MiniMate Plus  
Battery Level 6.9 Volts  
Unit Calibration October 23, 2019 by InstanTel  
File Name M2511P8F.2Z0W

### Notes

Location: 97 Cougar Ridge Close SW, Calgary, AB  
Client: McCaw's Drilling and Blasting  
User Name: Explotech Engineering Ltd.  
General: Sandbagged on ground

### Extended Notes

Combo Mode October 31, 2020 05:16:50  
Geophone is sandbagged under the stairs of the backyard deck at 97 Cougar Ridge Close SW adjacent ongoing blasting operations.

### Post Event Notes

