McCALLUM ROCK DRILLING

BLASTING REPORT

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CUSTOMER NAME:	Eastside Rock Products	DAY:	31	DIRECTION AND DISTANCE TO NEAREST STRUCTURE (non mine related if available) :	DISTANCE/FT. 845	DIR. Southeast	WEATHER:	Clear
LOCATION/CITY:	Fall City	MONTH:	October	LOCATION/ADDRESS:	At designated area 20' off rivers edge.		TEMPERATURE/°F:	Cool
LOCATION/STATE:	Washington	YEAR:	2017	METHOD OF MEASUREMENT:	G.P.S.		WIND DIRECTION:	N/A
BLAST LOCATION:	Top Bench			G.P.S. LOCATION (STATION/STRUCTURE):	N 47'32.813" W 121'54.169"			
QUARRY/PIT ID.:	Raging River Quarry	TIME:	4:02	G.P.S. ACCURACY +/- (STATION/STRUCTURE) /FT:	9' +/-		WIND SPEED:	None
BLAST NO.:	1			G.P.S. LOCATION (BLAST ZONE):	N 47'32.829" W 121'54.354"			
JOB NO. :	1983	AM/PM:	PM	G.P.S. ACCURACY +/- (BLAST ZONE)/FT.:	9' +/-		CEILING LEVEL	N/A

	1	2	3	4		1	2	3	4
TYPE OF HOLES:	Vertical (production)	Vertical (production)			BURDEN/FT. :	9'	8'		
NO. OF HOLES:	9	41			SPACING/FT. :	10'	8'		
HOLE DIAMETER/ IN. :	3 1/2"	3 1/2"			SUBDRILL/FT. :	N/A	N/A		
HOLE DEPTH/RANGE/AVG.FT. :	58' 56'-62'	21' 10'-25'			MATERIAL BLASTED:	basalt	basalt		
STEMMING LENGTH/RANGE/AVG./FT. :	12' 12'-42'	9' 6'-11'			STEMMING TYPE:	1/2"minus	1/2"minus		

	EXPLOSIVE PRODUCTS USED	SIZE	UNITS	WEIGHT/LBS.	DETONATORS USED	SIZE/FT.	QUANTITY
1	DYNO MIX	BAG(S)	47	2350.000	MS 350	16	6
2	DYNO MIX WR	BAG(S)	15	750.000	MS 350	30	2
3	BLASTEX	2 1/2 X16	5.46 cs.	216.630	EZ DET 25/350	30	20
4	DYNO AP	1 1/8 X 16	.34 cs.	13.270	EZ DET 25/350	40	21
5	SPARTAN BOOSTER	350 G	35	26.250	EZ DET 25/350	80	9
6					EZTL #17	20	2
7					EZTL #25	20	9
8					EZTL #42	20	7
9							
10							

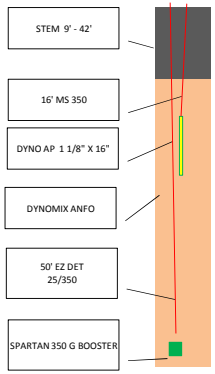
EXPLOSIVES COMPANY USED:	Dyno Nobel				
DECKING:	NO				
BLASTING MACHINE USED:	R.C.B.M.				
METHOD OF FIRING:	NONEL				
BLASTING MATS USED:	NO				
QUANTITY OF BLASTING MATS USED:	N/A				
MAX. NO. OF HOLES/DECK PER 8 MS :	2	TOTAL EXPLOSIVES USED/LBS.:	3,356.150	TOTAL NO. OF DETONATORS USED:	76
MAX. WT. OF EXPLOSIVES PER HOLE / DECK :	162				
MAX. WT. OF EXPLOSIVES PER ANY 8 MS INTERVAL :	324	TOTAL VOLUME/CUBIC YARDS :	3,824.0	SHOT RESULTS	
GROUND RESPONSE(K) FACTOR:	95	ROCK DENSITY/SPECIFIC GRAVITY :	2.00	FRAGMENTATION:	MEDIUM
PREDICTED P.P.V.:	0.30	TOTAL WEIGHT/TONS :	7,648	MUCK PILE CONFIGURATION:	MULTIPLE HEAPS
SCALED DISTANCE :	46.94	POWDER FACTOR/LBS./CUBIC YARDS:	0.88	FLYROCK:	NO
		POWDER FACTOR/LBS./TON:	0.44	ALL HOLES DETONATED:	YES

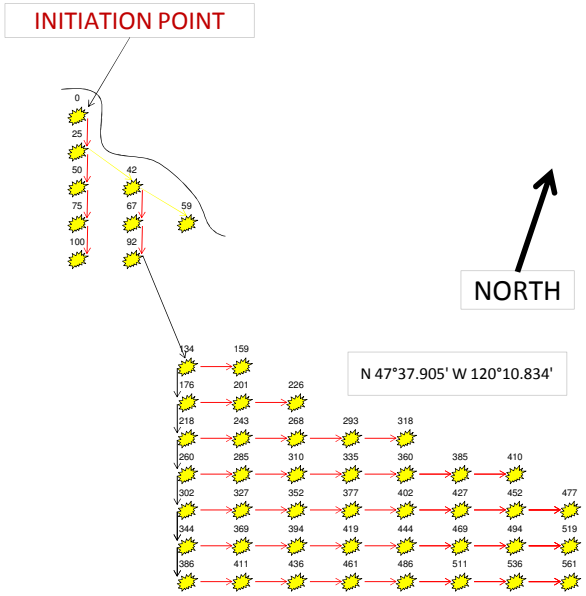
BLASTING CREW	LICENSE NO.	B.I.C.	BLASTING CREW	LICENSE NO.	B.I.C.	BLASTING CREW	LICENSE NO.	B.I.C.
Shelby Spahr		N/A						
Andrew Spees		N/A						
Tristan Winter		N/A						
Tim Fredericks	U-21478	YES						

SEISMOGRAPH TYPE:	INSTANTEL	LOCATION OF SETUP:	At designated area 20' off rivers edge.
NO. OF SEISMOGRAPHS USED :	3		
SEISMOGRAPH OPERATOR(S):	Shelby Spahr	DISTANCE FROM BLAST/FT.:	845
		IF USED SEISMOGRAPH RECORD(S) ATTACHED TO BLAST REPORT	
		SIGNATURE OF BLASTER IN CHARGE	Tim Fredericks
COMPANY:	McCALLUM ROCK DRILLING		
COMMENTS:	Blast completed as expected. All holes loaded and shot according to plans. Seismograph #UM6218 date is 2017 not 2018		

CUSTOMER NAME:	Eastside Rock
LOCATION/CITY:	Fall City
BLAST LOCATION:	Top Bench
JOB NAME/#:	1983
DATE:	10/31/2017

HOLE PROFILE





Event Report

Date/Time	Vert at 4:02:23 PM October 31, 2017
Trigger Source	Geo: 0.030 in/s
Range	Geo: 10.000 in/s
Record Time	4.25 sec (Auto=3Sec) at 4096 sps
Job Number:	1

Serial Number	BA13720 V 10.72-8.17 BlastMate III
Battery Level	6.1 Volts
Unit Calibration	February 6, 2017 by Instantel
File Name	O720H4US.JZ0
Scaled Distance	66.4 (845.0 ft., 162.0 lb.)

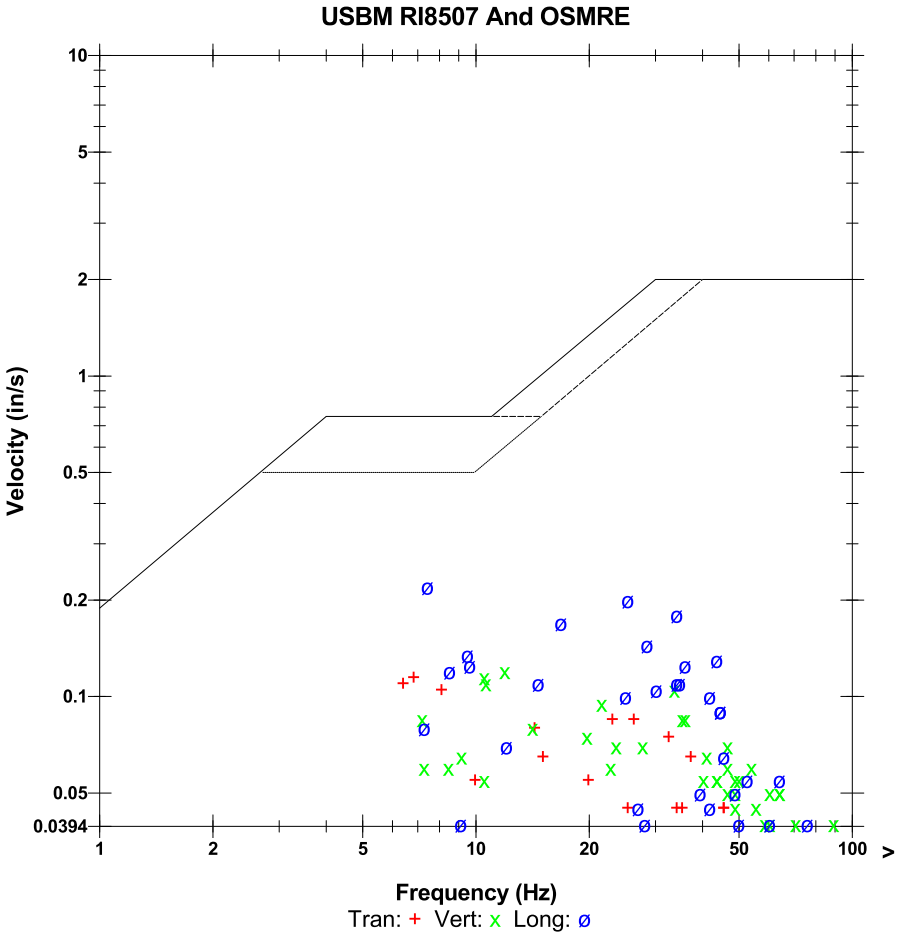
Notes
Customer: Eastside Raging River Quarry
Location: Fall City,WA
User Name: Shelby Spahr/MRD
General

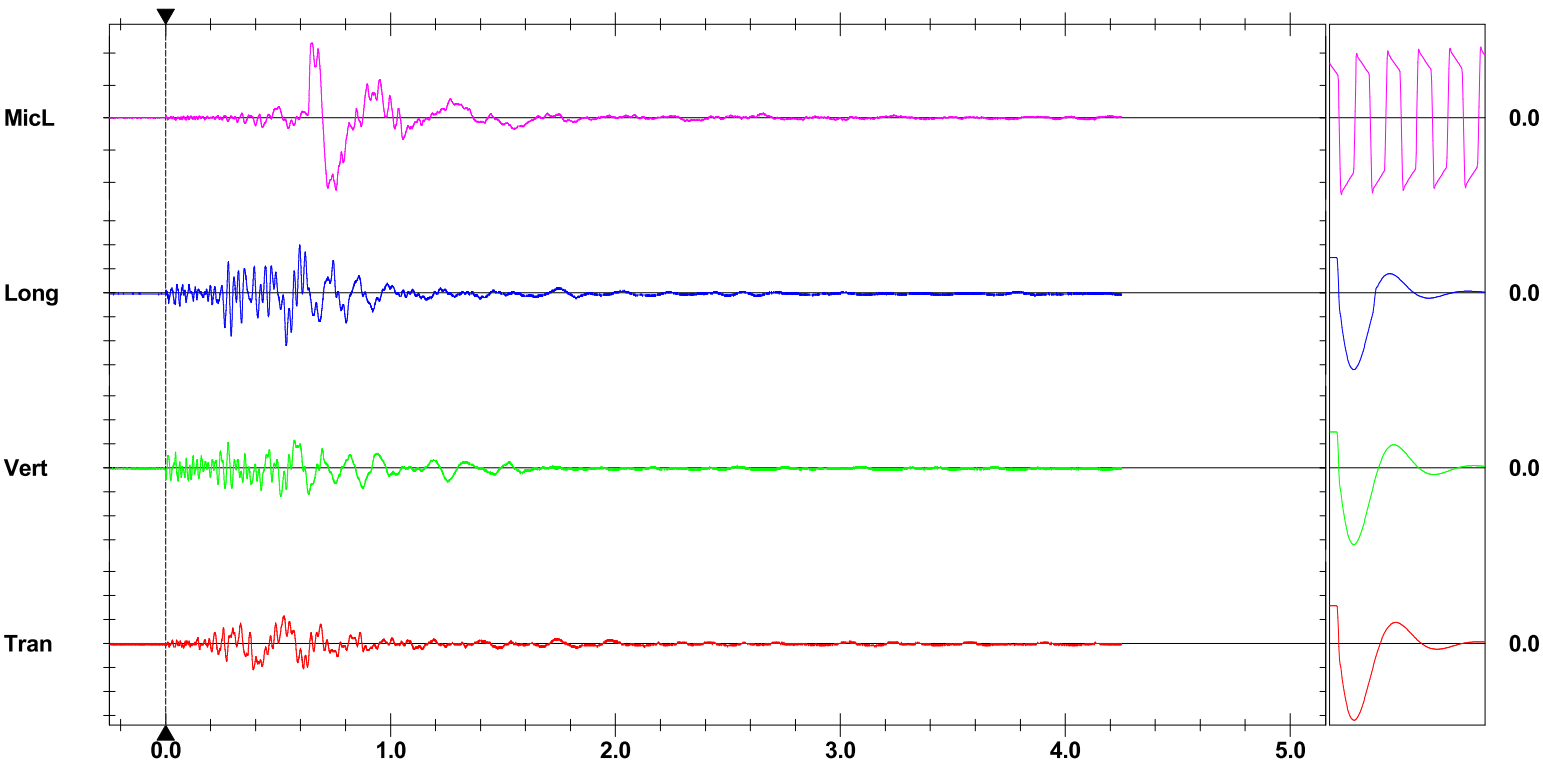
Extended Notes
Seismograph located 20' off river bank.
N 47'32.813" W 121'54.169"

Microphone	Linear Weighting
PSPL	124.0 dB(L) 0.005 psi(L) at 0.649 sec
ZC Freq	5.0 Hz
Channel Test	Passed (Freq = 20.5 Hz Amp = 684 mv)

	Tran	Vert	Long	
PPV	0.115	0.120	0.220	in/s
PPV	32.21	32.58	37.85	dB
ZC Freq	6.8	11.9	7.4	Hz
Time (Rel. to Trig)	0.526	0.510	0.535	sec
Peak Acceleration	0.106	0.106	0.159	g
Peak Displacement	0.003	0.002	0.003	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.8	8.5	Hz
Overswing Ratio	3.7	3.4	4.1	

Peak Vector Sum 0.241 in/s at 0.536 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.002 psi(L)/div Sensor Check
Trigger = ▶----------◀

Event Report

Date/Time	Vert at 4:02:18 PM October 31, 2017
Trigger Source	Geo: 0.030 in/s, Mic: 115.0 dB(L)
Range	Geo: 10.000 in/s
Record Time	4.0 sec at 4096 sps
Job Number:	1
Operator/Setup:	Operator/Eastside 4.mmb

Serial Number	UM10691 V 10-82 Micromate ISEE
Battery Level	3.7 Volts
Unit Calibration	October 28, 2016 by Instantel
File Name	UM10691_20171031160218.IDFW
Scaled Distance	74.6 (950.0 ft., 162.0 lb.)

GPS Location	**Latitude**	**Longitude**
Source:	000 0.000 N	000 0.000 W
Sensor1:	000 0.000 N	000 0.000 W
Distance:	000.0 ft.	

Notes

Location: Raging River Quarry Fall City WA.
Client: Eastside Rock Products
User Name: Shelby Spahr / MRD
General: Top Bench

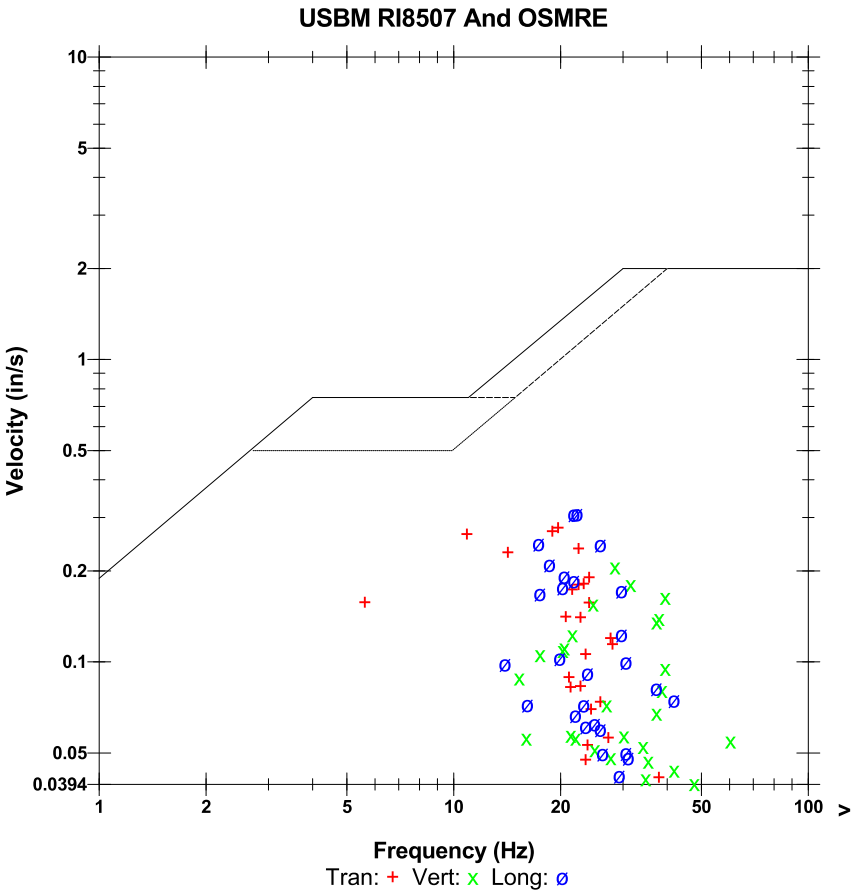
Extended Notes

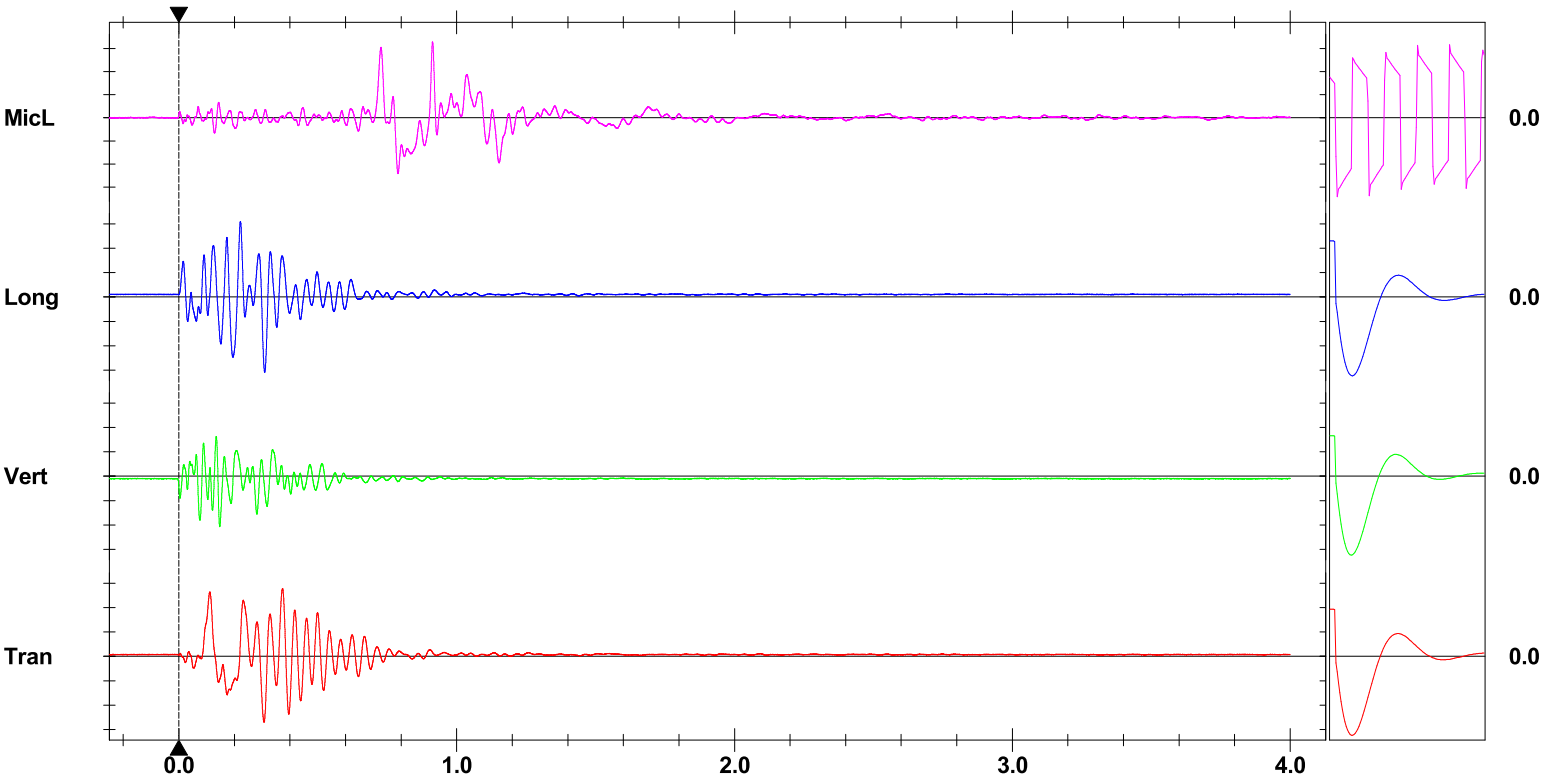
Seismograph located at Station # 4. (Designated area at SE 58 st.)
(N 47*32.942' W 121*54.492' acc. +/- 9')

Microphone	Linear Weighting
PSPL	115.1 dB(L) 0.002 psi(L) at 0.913 sec
ZC Freq	22.3 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1440 mv)

	Tran	**Vert**	**Long**	
PPV	0.278	0.207	0.310	in/s
PPV	39.88	37.32	40.83	dB
ZC Freq	19.7	28.4	22.3	Hz
Time (Rel. to Trig)	0.374	0.147	0.221	sec
Peak Acceleration	0.151	0.145	0.194	g
Peak Displacement	0.004	0.002	0.002	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.1	Hz
Overswing Ratio	3.5	3.6	3.6	

Peak Vector Sum 0.408 in/s at 0.309 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div Sensor Check
Trigger = ▶----------◀

Event Report

Date/Time	Vert at 4:02:15 PM October 31, 2018
Trigger Source	Geo: 0.030 in/s, Mic: 115.0 dB(L)
Range	Geo: 10.000 in/s
Record Time	4.0 sec at 4096 sps
Job Number:	1
Operator/Setup:	Tim Fredericks/Eastside 2.mmb

Serial Number	UM6218 V 10-88 Micromate ISEE
Battery Level	3.7 Volts
Unit Calibration	October 10, 2017 by Instantel
File Name	UM6218_20181031160215.IDFW
Scaled Distance	78.8 (1003.0 ft., 162.0 lb.)

GPS Location	**Latitude**	**Longitude**
Source:	000 0.000 N	000 0.000 W
Sensor1:	000 0.000 N	000 0.000 W
Distance:	000.0 ft.	

Notes

Location: Raging River Quarry Fall City WA.
Client: Eastside Rock Products
User Name: Shelby Spahr/ MRD
General: Top Bench

Extended Notes

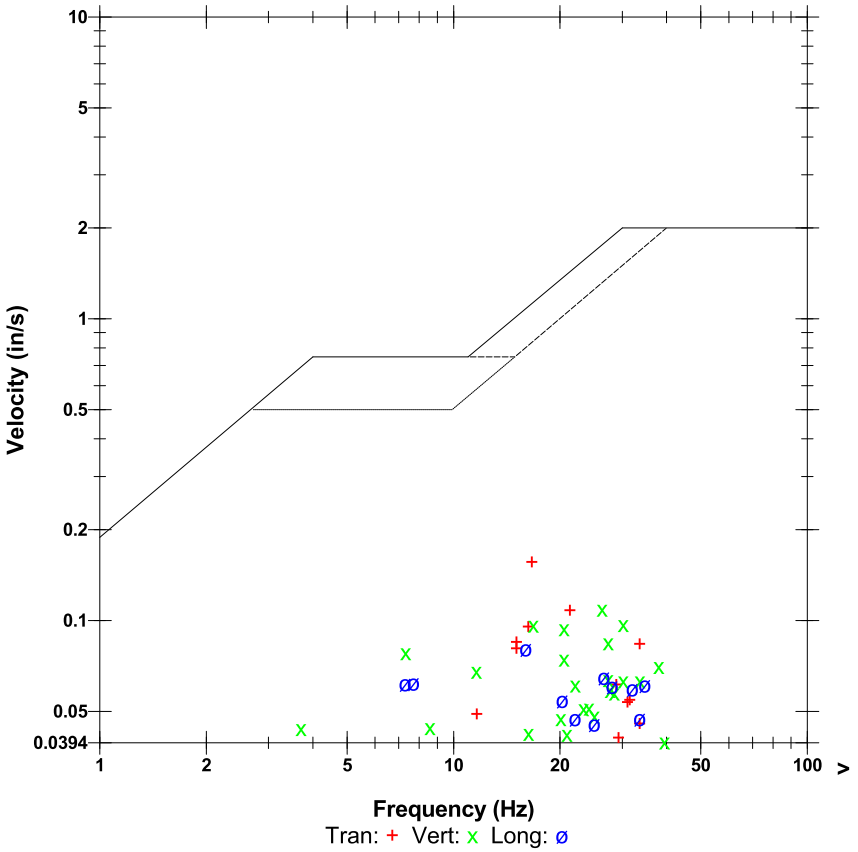
Seismograph located at Station # 2. (Designated area at end of 329 Ave SE.)
(N 47*32.917' W 121*54.170' acc. +/- 9')

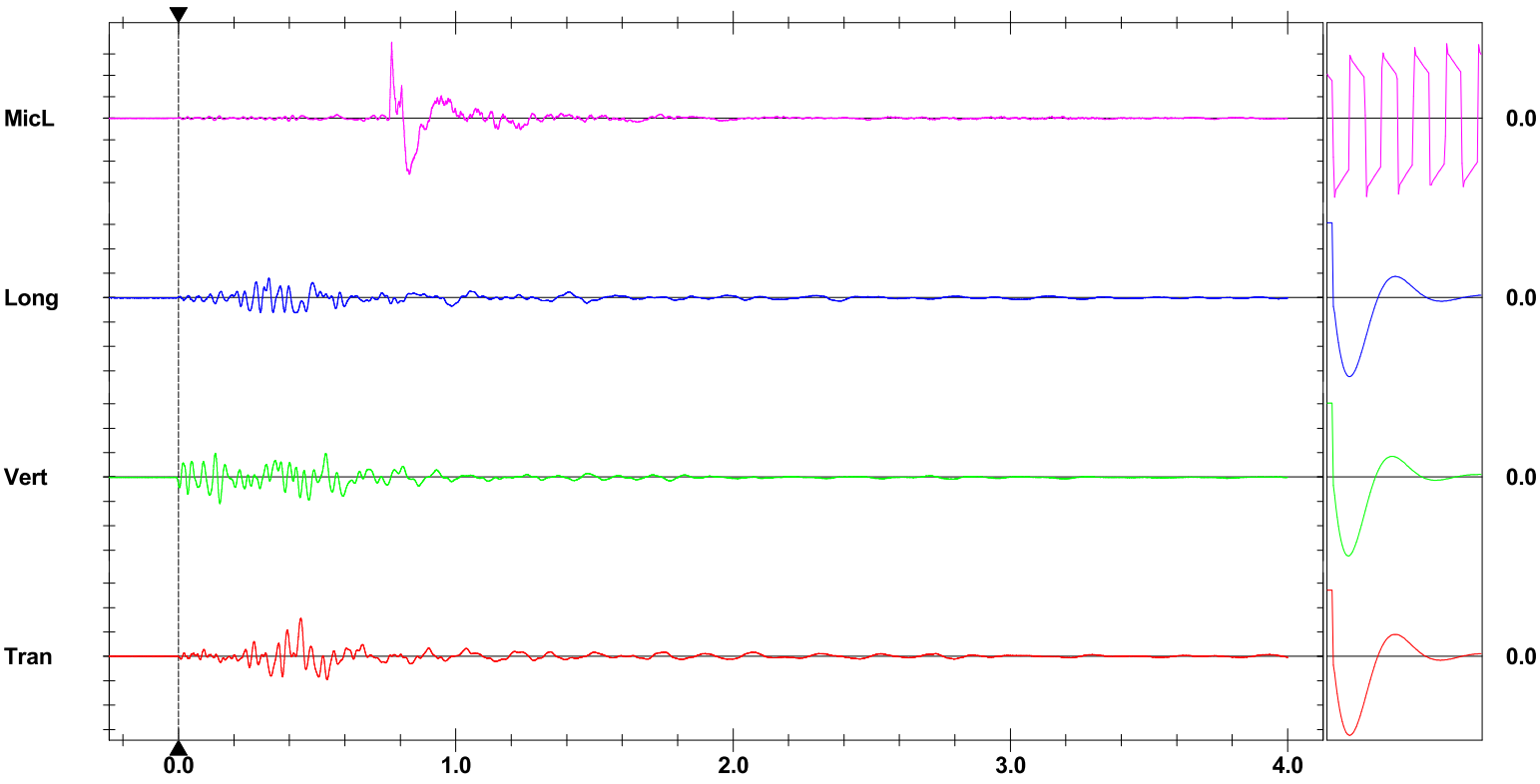
Microphone	Linear Weighting
PSPL	127.8 dB(L) 0.007 psi(L) at 0.769 sec
ZC Freq	10.0 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1446 mv)

	Tran	**Vert**	**Long**	
PPV	0.156	0.110	0.081	in/s
PPV	34.88	31.79	29.17	dB
ZC Freq	16.7	26.3	16.0	Hz
Time (Rel. to Trig)	0.441	0.149	0.326	sec
Peak Acceleration	0.069	0.082	0.059	g
Peak Displacement	0.001	0.001	0.001	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.1	Hz
Overswing Ratio	3.6	3.8	3.8	

Peak Vector Sum 0.176 in/s at 0.440 sec

USBM RI8507 And OSMRE





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.002 psi(L)/div Sensor Check
Trigger = ▶----------◀