McCALLUM ROCK DRILLING

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CUSTOMER NAME:	Eastside Rock Products	DAY:	23	DIRECTION AND DISTANCE TO NEAREST STRUCTURE (non mine related if available) :	DISTANCE/FT.	DIR.	WEATHER:	Clear
					950	NE		
LOCATION/CITY:	Fall City	MONTH:	April	LOCATION/ADDRESS:	32415 SE 58th St.		TEMPERATURE/°F:	Warm
LOCATION/STATE:	Washington	YEAR:	2018	METHOD OF MEASUREMENT:	G.P.S.		WIND DIRECTION:	N/A
BLAST LOCATION:	Top Bench			G.P.S. LOCATION (STATION/STRUCTURE):	N 47°32.942' W 121°54.492'			
QUARRY/PIT ID.:	Raging River Quarry	TIME:	4:11	G.P.S. ACCURACY +/- (STATION/STRUCTURE) /FT:	10'		WIND SPEED:	None
BLAST NO.:	N/A			G.P.S. LOCATION (BLAST ZONE):	N 47°32.810' W 121°54.355'			
JOB NO. :	52101	AM/PM:	PM	G.P.S. ACCURACY +/- (BLAST ZONE)/FT.:	10'		CEILING LEVEL	N/A

	1	2	3	4		1	2	3	4
TYPE OF HOLES:	Vertical (production)				BURDEN/FT. :	9'			
NO. OF HOLES:	23				SPACING/FT. :	10'			
HOLE DIAMETER/ IN. :	3.5"				SUBDRILL/FT. :	4'			
HOLE DEPTH/RANGE/AVG.FT. :	51'-65' / 55'				MATERIAL BLASTED:	Basalt			
STEMMING LENGTH/RANGE/AVG./FT. :	9'-25' / 9'				STEMMING TYPE:	1/2"minus			

		#	EXPLOSIVE PRODUCTS USED	SIZE	UNITS	WEIGHT/LBS.	DETONATORS USED	SIZE/FT.	QUANTITY
EXPLOSIVES COMPANY USED:	McCallum Powder	1	AUSTINITE 15	BAG(S)	40	2000.000	DUAL DELAY	80	22
DECKING:	NO	2	AUSTINITE 15 WR	BAG(S)	27	1350.000	IN - HOLE	20	12
		3	BLACK CAP BOOSTER	350 G	22	16.500	IN - HOLE	30	8
BLASTING MACHINE USED:	R.C.B.M.	4	HYDROMITE 880	2 1/2 X16	75	249.750	QRC #25	20	8
		5	RED-E-PRIME	1 1/4 X 8	20	8.400	QRC #42	20	10
METHOD OF FIRING:	NONEL	6							
		7							
BLASTING MATS USED:	NO	8							
QUANTITY OF BLASTING MATS USED:	N/A	9							
		10							

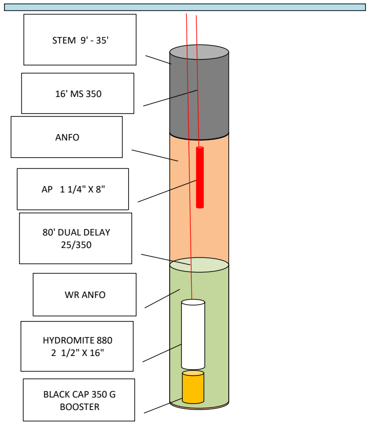
MAX. NO. OF HOLES/DECK PER 8 MS :	2	TOTAL EXPLOSIVES USED/LBS.:	3,624.650	TOTAL NO. OF DETONATORS USED:	60
MAX. WT. OF EXPLOSIVES PER HOLE / DECK :	200				
MAX. WT. OF EXPLOSIVES PER		TOTAL VOLUME/CUBIC YARDS :	4,646.0	SHOT RESULTS	
ANY 8 MS INTERVAL :	400	ROCK DENSITY/SPECIFIC GRAVITY :	2.00	FRAGMENTATION:	MEDIUM
GROUND RESPONSE(K) FACTOR:	91	TOTAL WEIGHT/TONS :	9,292	MUCK PILE CONFIGURATION:	SLOPED
PREDICTED P.P.V.:	0.28	POWDER FACTOR/LBS./CUBIC YARDS:	0.78	FLYROCK:	NO
SCALED DISTANCE :	47.50	POWDER FACTOR/LBS./TON:	0.39	ALL HOLES DETONATED:	YES

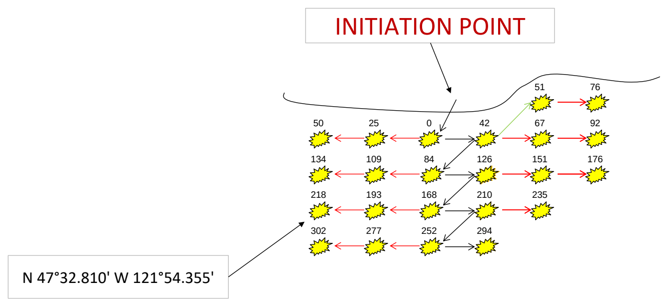
BLASTING CREW	LICENSE NO.	B.I.C.	BLASTING CREW	LICENSE NO.	B.I.C.	BLASTING CREW	LICENSE NO.	B.I.C.
Tim Fredericks	U-21478	Yes						
Shelby Spahr		No						
Aren Reeves		N/A						
Tristan Winter		N/A						
Javon Bragert		N/A						

SEISMOGRAPH TYPE:	INSTANTEL	LOCATION OF SETUP:	32415 SE 58th St.
NO. OF SEISMOGRAPHS USED :	3		
SEISMOGRAPH OPERATOR(S):	Shelby Spahr	DISTANCE FROM BLAST/FT.:	950
	N/A		
	N/A	IF USED SEISMOGRAPH RECORD(S) ATTACHED TO BLAST REPORT	
	N/A		
	N/A	SIGNATURE OF BLASTER IN CHARGE	
COMPANY:	McCallum Rock Drilling	Tim_Fredericks	
COMMENTS:	All holes loaded and shot as expected.		

CUSTOMER NAME:	Eastside Rock Products
LOCATION/CITY:	Fall City
BLAST LOCATION:	Top Bench
JOB NAME/#:	Raging River Quarry-52101
DATE:	4/23/2018

HOLE PROFILE





Event Report

Date/Time	Vert at 4:11:38 PM April 23, 2018
Trigger Source	Geo: 0.030 in/s, Mic: 116.8 dB(L)
Range	Geo: 10.000 in/s
Record Time	3.0 sec at 4096 sps

Serial Number	BE11606 V 10.72-1.1 Minimate Blaster
Battery Level	6.3 Volts
Unit Calibration	February 6, 2018 by Instantel
File Name	M606HDT0.ZE0

Notes

Location:	Fall City,WA
Client:	Raging River Quarry
User Name:	Shelby Spahr/ McCallum Rock Drilling
General:	Top Bench

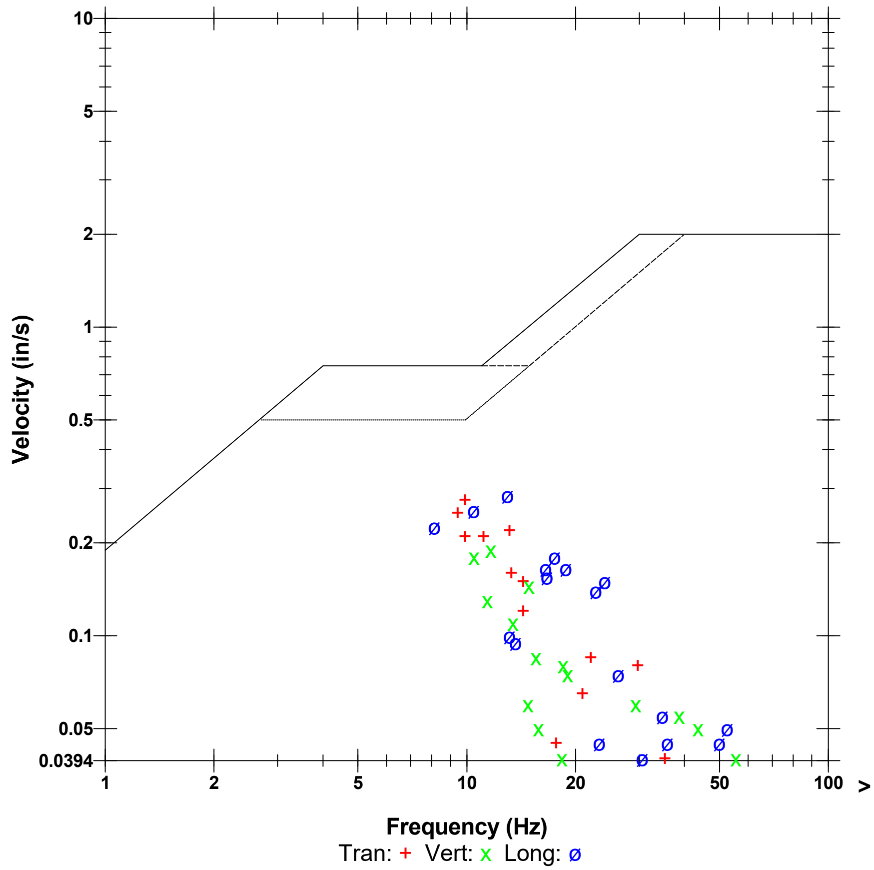
Extended Notes
Seismograph located at designated area outside of 32415 SE 58th Street.
(N47*32.942' W121*54.492' +-9')

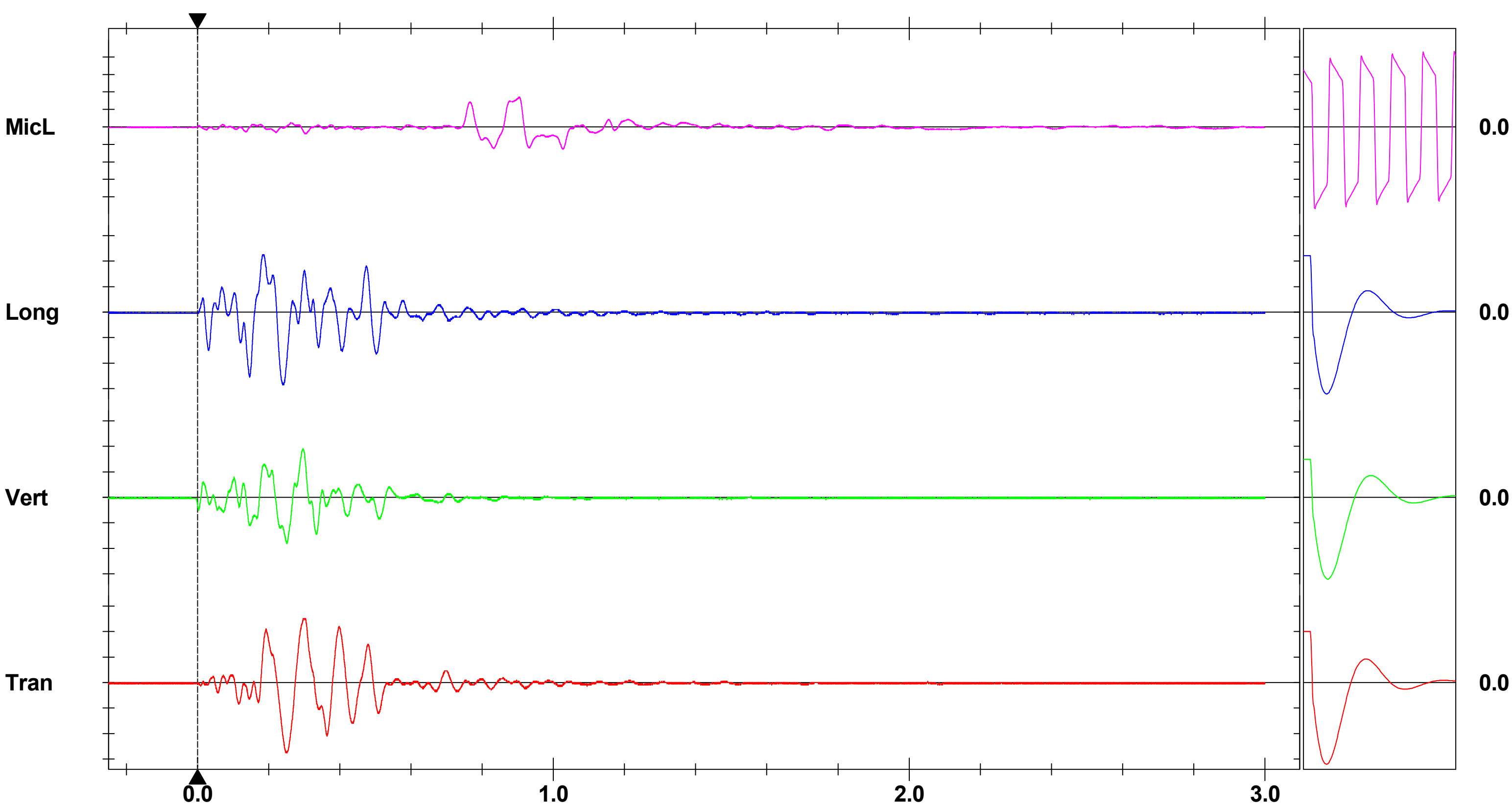
Microphone	Linear Weighting
PSPL	115.4 dB(L) 0.002 psi(L) at 0.903 sec
ZC Freq	8.7 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 511 mv)

	Tran	Vert	Long	
PPV	0.275	0.190	0.285	in/s
PPV	39.79	36.58	40.10	dB
ZC Freq	9.9	11.6	13.0	Hz
Time (Rel. to Trig)	0.248	0.296	0.239	sec
Peak Acceleration	0.106	0.106	0.106	g
Peak Displacement	0.004	0.003	0.004	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.9	7.3	7.7	Hz
Overswing Ratio	3.5	3.8	3.9	

Peak Vector Sum 0.404 in/s at 0.245 sec

USBM RI8507 And OSMRE





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 4:11:41 PM April 23, 2018	**Serial Number**	BE12377 V 10.72-1.1 Minimate Blaster
Trigger Source	Geo: 0.030 in/s, Mic: 117.0 dB(L)	**Battery Level**	6.1 Volts
Range	Geo: 10.000 in/s	**Unit Calibration**	November 6, 2017 by Instantel
Record Time	3.0 sec at 4096 sps	**File Name**	N377HDT0.ZH0

Notes

Location:	Fall City,WA
Client:	Raging River Quarry
User Name:	Shelby Spahr/MRD
General:	Top Bench

Extended Notes

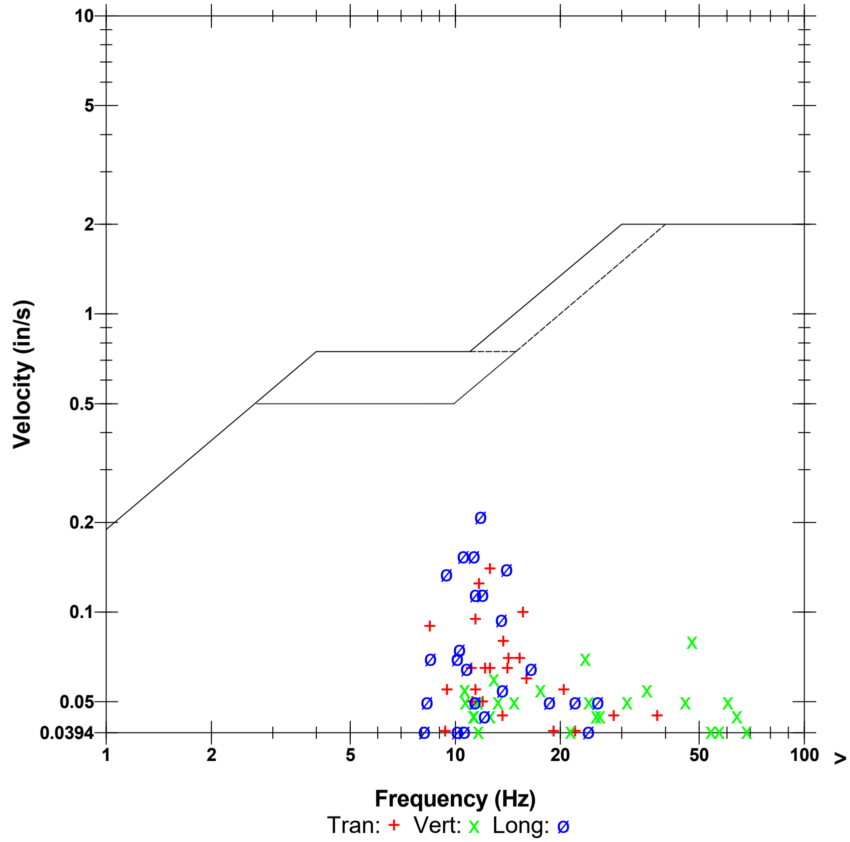
Seismograph located at designated area outside quarry gate 15' from river.
(N47*32.813 W121*54.169' +-9')

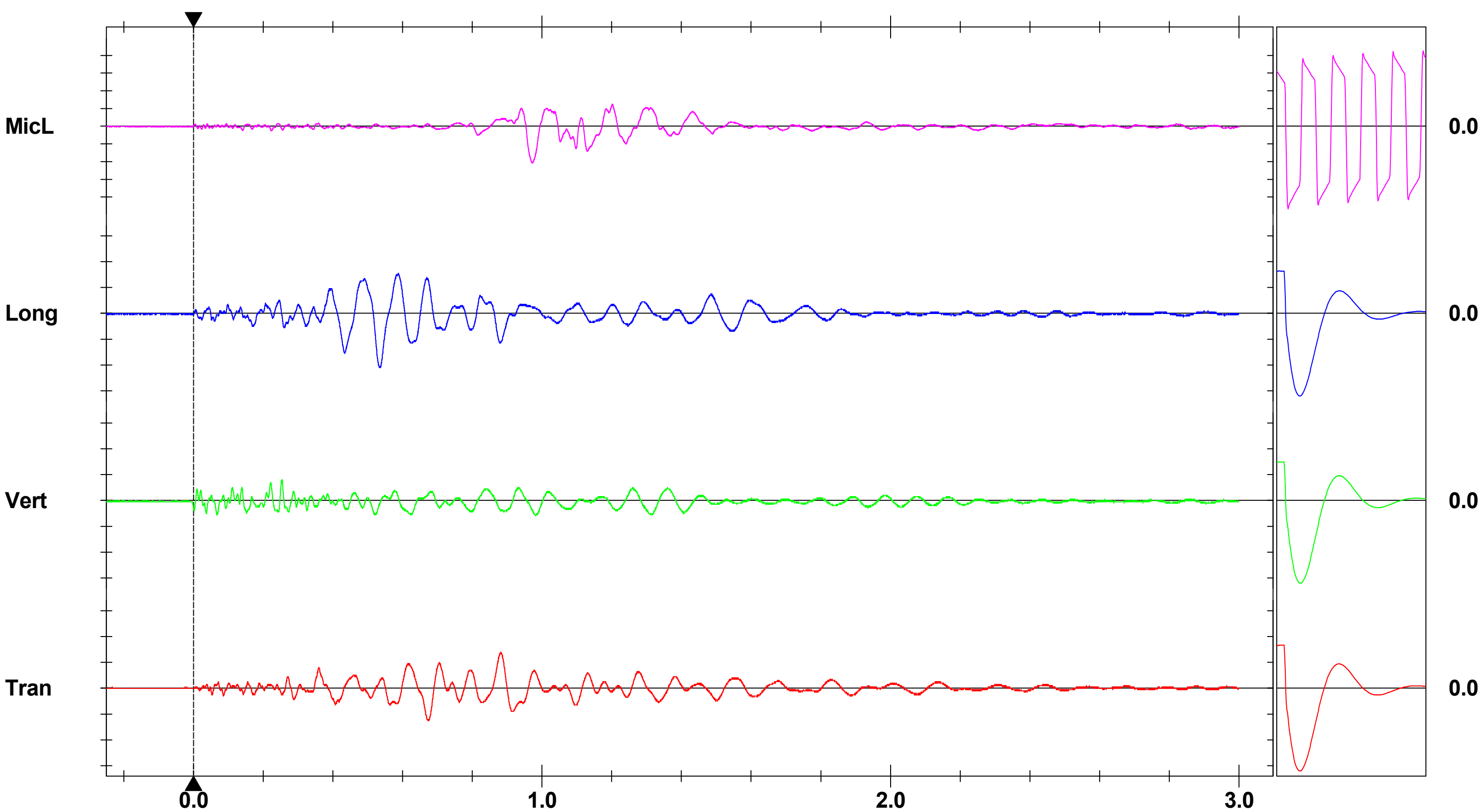
Microphone	Linear Weighting
PSPL	117.1 dB(L) 0.002 psi(L) at 0.970 sec
ZC Freq	12.6 Hz
Channel Test	Passed (Freq = 20.1 Hz Amp = 620 mv)

	Tran	Vert	Long	
PPV	0.140	0.080	0.210	in/s
PPV	33.92	29.06	37.44	dB
ZC Freq	12.6	48	11.8	Hz
Time (Rel. to Trig)	0.882	0.253	0.533	sec
Peak Acceleration	0.106	0.106	0.106	g
Peak Displacement	0.002	0.001	0.003	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.9	7.7	7.7	Hz
Overswing Ratio	3.5	3.4	3.7	

Peak Vector Sum 0.213 in/s at 0.536 sec

USBM RI8507 And OSMRE





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

Printed: April 27, 2018 (V 10.74)

Event Report

Instantel

Date/Time	Vert at 4:11:37 PM April 23, 2019
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 3.mmb

Serial Number	UM8589 V 10-88 Micromate ISEE
Battery Level	3.8 Volts
Unit Calibration	November 7, 2017 by Instantel
File Name	UM8589_20190423161137.IDFW

Post Event Notes
4-23-2018 ***2018***

Notes

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

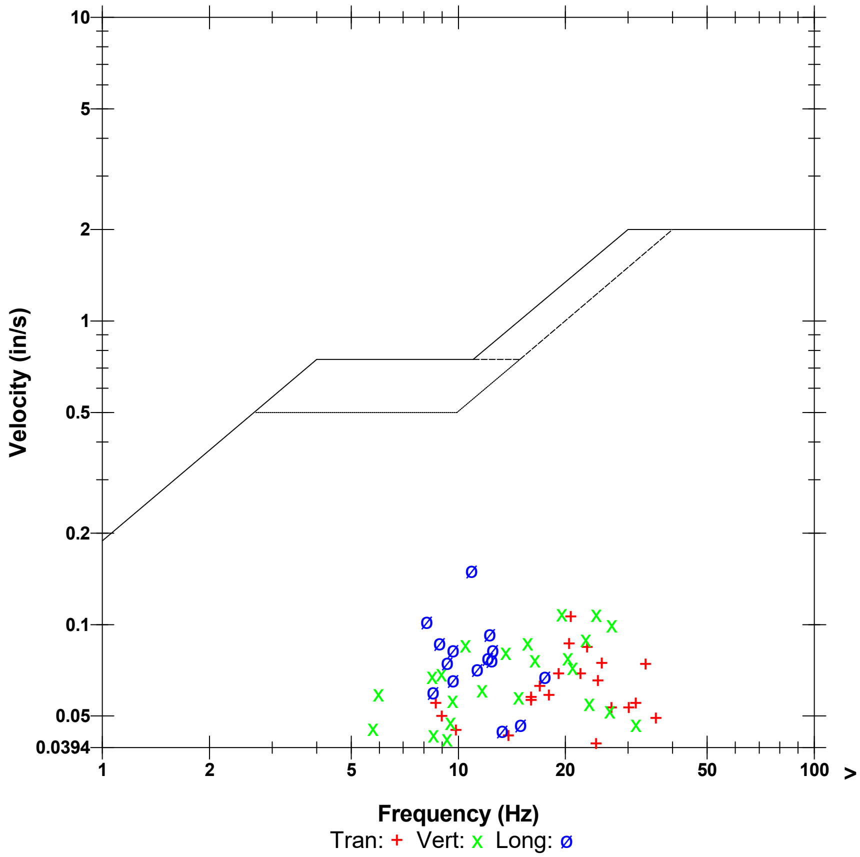
Extended Notes
Seismograph located at designated area at the end of 329 Ave SE.
(N 47*32.917' W 121*54.170' acc. +/- 9')

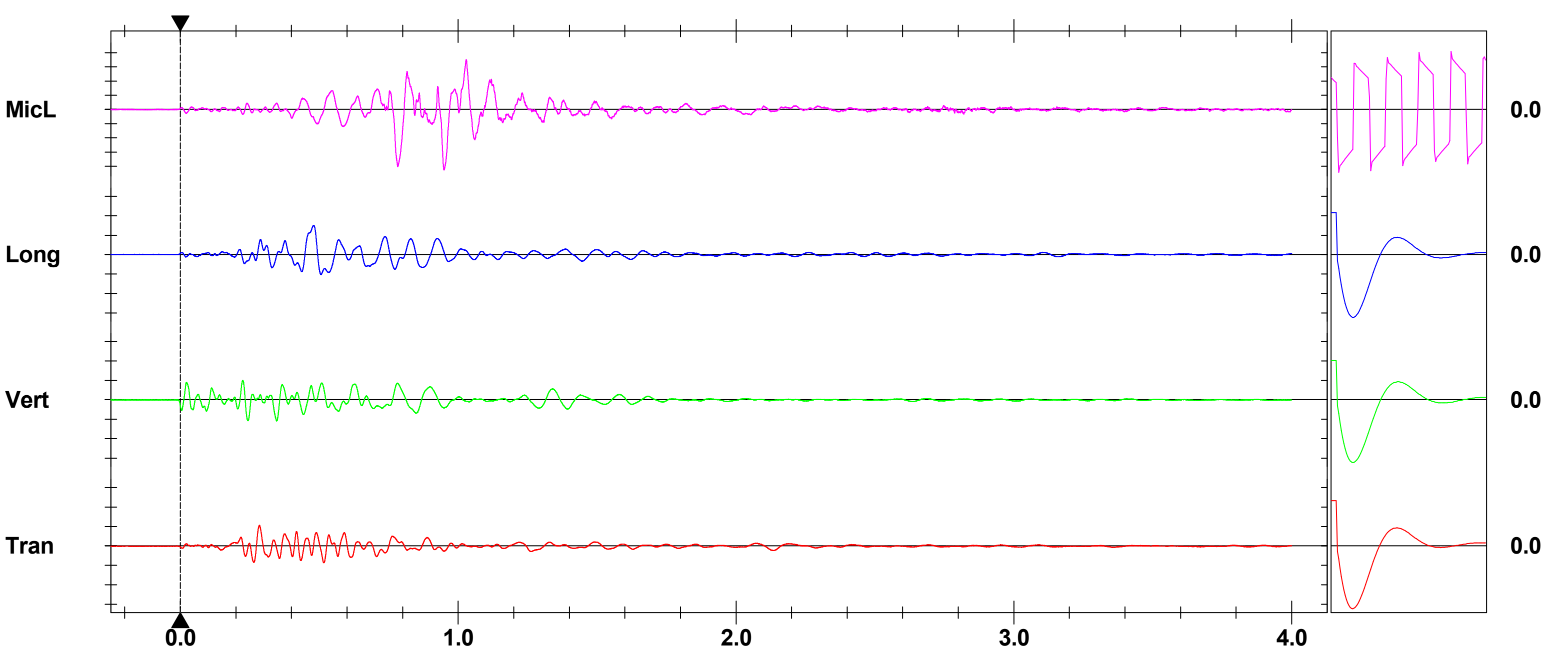
Microphone	Linear Weighting
PSPL	117.3 dB(L) 0.002 psi(L) at 0.949 sec
ZC Freq	14.4 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1325 mv)

	Tran	Vert	Long	
PPV	0.106	0.109	0.151	in/s
PPV	31.52	31.74	34.60	dB
ZC Freq	20.7	19.5	10.9	Hz
Time (Rel. to Trig)	0.284	0.347	0.481	sec
Peak Acceleration	0.089	0.072	0.059	g
Peak Displacement	0.001	0.001	0.002	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.5	7.5	Hz
Overswing Ratio	3.5	3.5	3.7	

Peak Vector Sum 0.158 in/s at 0.474 sec

USBM RI8507 And OSMRE





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

Sensor Check