McCALLUM ROCK DRILLING

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BLASTING REPORT

CUSTOMER NAME:	Eastside Rock	DAY:	4	DIRECTION AND DISTANCE TO NEAREST STRUCTURE (non mine related if available) :	DISTANCE/FT.	DIR.	WEATHER:	Partly Cloudy
LOCATION/CITY:	Fall City	MONTH:	December		1003	Northeast	TEMPERATURE/°F:	Cool
LOCATION/STATE:	Washington	YEAR:	2017	LOCATION/ADDRESS:	Designated area at S. 58th St.			
BLAST LOCATION:	Bench 2			METHOD OF MEASUREMENT:	G.P.S.		WIND DIRECTION:	N/A
QUARRY/PIT ID.:	Raging River Quarry	TIME:	4:02	G.P.S. LOCATION (STATION/STRUCTURE):	N 47°32.942' W 121°54.592'			
BLAST NO.:	N/A			G.P.S. ACCURACY +/- (STATION/STRUCTURE) /FT:	9' +/-		WIND SPEED:	None
JOB NO. :	2010	AM/PM:	PM	G.P.S. LOCATION (BLAST ZONE):	N 47°32.831' W 121°54.353'			
				G.P.S. ACCURACY +/- (BLAST ZONE)/FT.:	9' +/-		CEILING LEVEL	N/A

	1	2	3	4
TYPE OF HOLES:	Toe hole	Verlical (production)		
NO. OF HOLES:	2	25		
HOLE DIAMETER/IN. :	3 1/2"	3 1/2"		
HOLE DEPTH/RANGE/AVG.FT. :	8' 8'	60' 60'		
STEMMING LENGTH/RANGE/AVG./FT. :	6' 6'	10' 10'-45'		

	1	2	3	4
BURDEN/FT. :	7'	9'		
SPACING/FT. :	7'	10'		
SUBDRILL/FT. :	N/A	N/A		
MATERIAL BLASTED:	basalt	basalt		
STEMMING TYPE:	1/2"minus	1/2"minus		

EXPLOSIVES COMPANY USED:	Dyno Nobel		EXPLOSIVE PRODUCTS USED	SIZE	UNITS	WEIGHT/LBS.	DETONATORS USED	SIZE/FT.	QUANTITY
		1	DYNO MIX	BAG(S)	35	1850.000	NONEL STARTER	500'	3
DECKING:	NO	2	DYNO MIX WR	BAG(S)	21	1050.000	MS 350	16	5
		3	SPARTAN BOOSTER	350 G	27	20.250	MS 350	30	9
BLASTING MACHINE USED:	R.C.B.M.	4	BLASTEX	2 1/2 X16	5.083 cs.	203.350	EZ DET 25/350	24	2
		5	DYNO AP	1 1/8 X 16	.25 cs.	9.040	EZ DET 25/350	80	25
METHOD OF FIRING:	NONEL	6					EZTL #25	12	4
		7					EZTL #42	12	8
BLASTING MATS USED:	NO	8							
QUANTITY OF BLASTING MATS USED:	N/A	9							
		10							

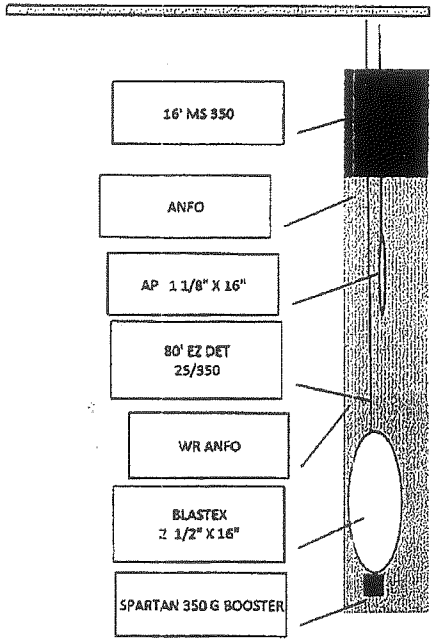
MAX. NO. OF HOLES/DECK PER 8 MS :	2	TOTAL EXPLOSIVES USED/LBS.:	3,132.640	TOTAL NO. OF DETONATORS USED:	56
MAX. WT. OF EXPLOSIVES PER HOLE / DECK :	162				
MAX. WT. OF EXPLOSIVES PER ANY 8 MS INTERVAL :	324	TOTAL VOLUME/CUBIC YARDS :	5,024.0	SHOT RESULTS	
		ROCK DENSITY/SPECIFIC GRAVITY :	2.00	FRAGMENTATION:	MEDIUM
GROUND RESPONSE(K) FACTOR:	95	TOTAL WEIGHT/TONS :	10,048	MUCK PILE CONFIGURATION:	SLOPED
PREDICTED P.P.V.:	0.23	POWDER FACTOR/LBS./CUBIC YARDS:	0.62	FLYROCK:	NO
SCALED DISTANCE :	55.72	POWDER FACTOR/LBS./TON:	0.31	ALL HOLES DETONATED:	YES

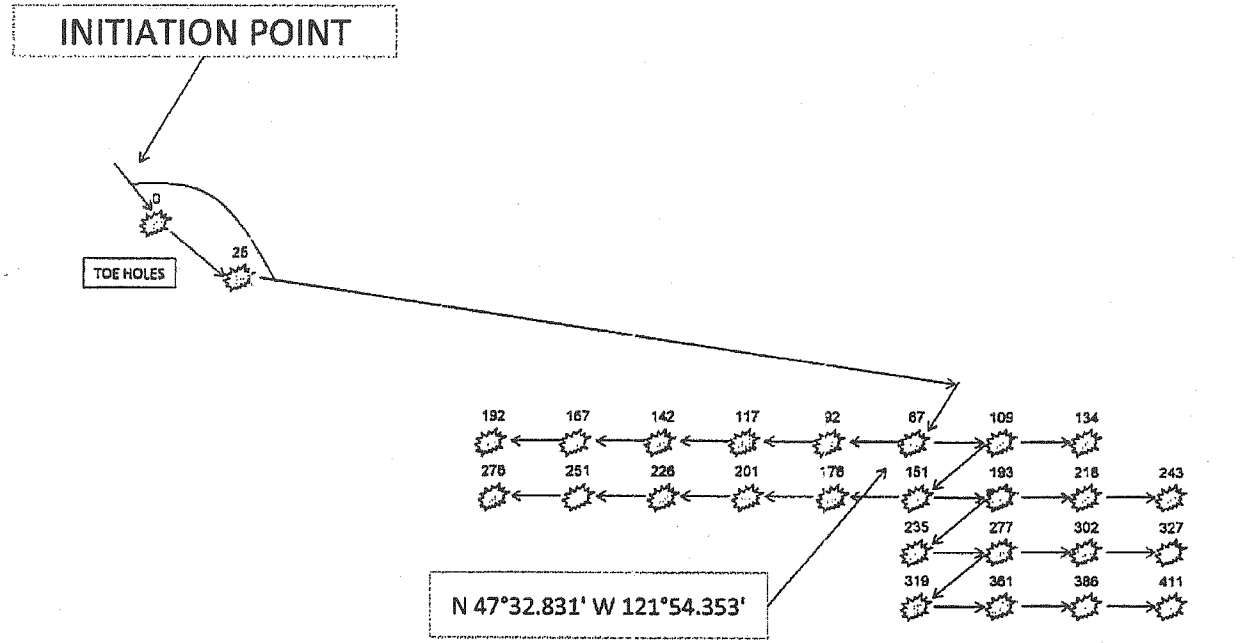
BLASTING CREW	LICENSE NO.	B.I.C.	BLASTING CREW	LICENSE NO.	B.I.C.	BLASTING CREW	LICENSE NO.	B.I.C.
Tim Fredericks	U-21478	YES						
Andrew Spees		N/A						
Shelby Spahr		N/A						

SEISMOGRAPH TYPE:	INSTANTEL	LOCATION OF SETUP:	Designated area at S. 58th St.
NO. OF SEISMOGRAPHS USED :	3		
SEISMOGRAPH OPERATOR(S):	Shelby Spahr	DISTANCE FROM BLAST/FT.:	1003
		IF USED SEISMOGRAPH RECORD(S) ATTACHED TO BLAST REPORT	
COMPANY:	McCALLUM ROCK DRILLING	SIGNATURE OF BLASTER IN CHARGE	Tim Fredericks
COMMENTS:	Blast completed as expected. All holes loaded and shot according to plans.		

CUSTOMER NAME:	Eastside Rock
LOCATION/CITY:	Fall City
BLAST LOCATION:	Bench 2
JOB NAME/#:	2010
DATE:	12/4/2017

HOLE PROFILE





Instantel

Event Report

Date/Time	Vert at 4:01:41 PM December 4, 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
Operator/Setup:	Operator/Eastside 4.mmb

Serial Number	UM6219 V 10-88 Micromate ISEE
Battery Level	3.8 Volts
Unit Calibration	November 3, 2017 by Instantel
File Name	UM6219_20171204160141.IDFW

Notes

Location:	Raging River Quarry Fall City WA.
Client:	Eastside Rock Products
User Name:	Shelby Spahr / MRD
General:	Bench 2

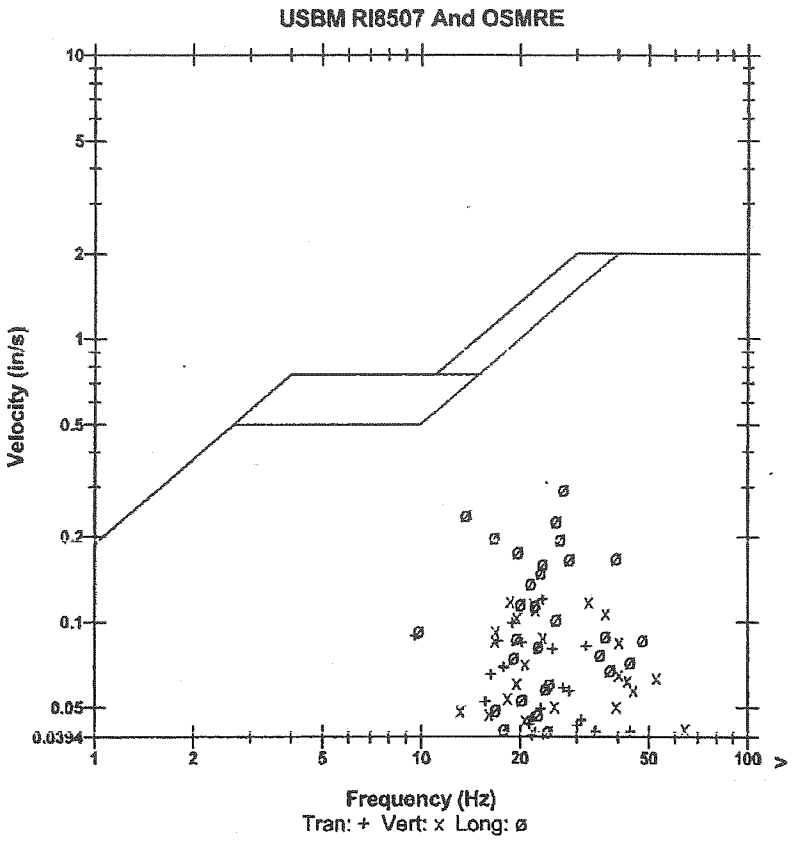
Extended Notes

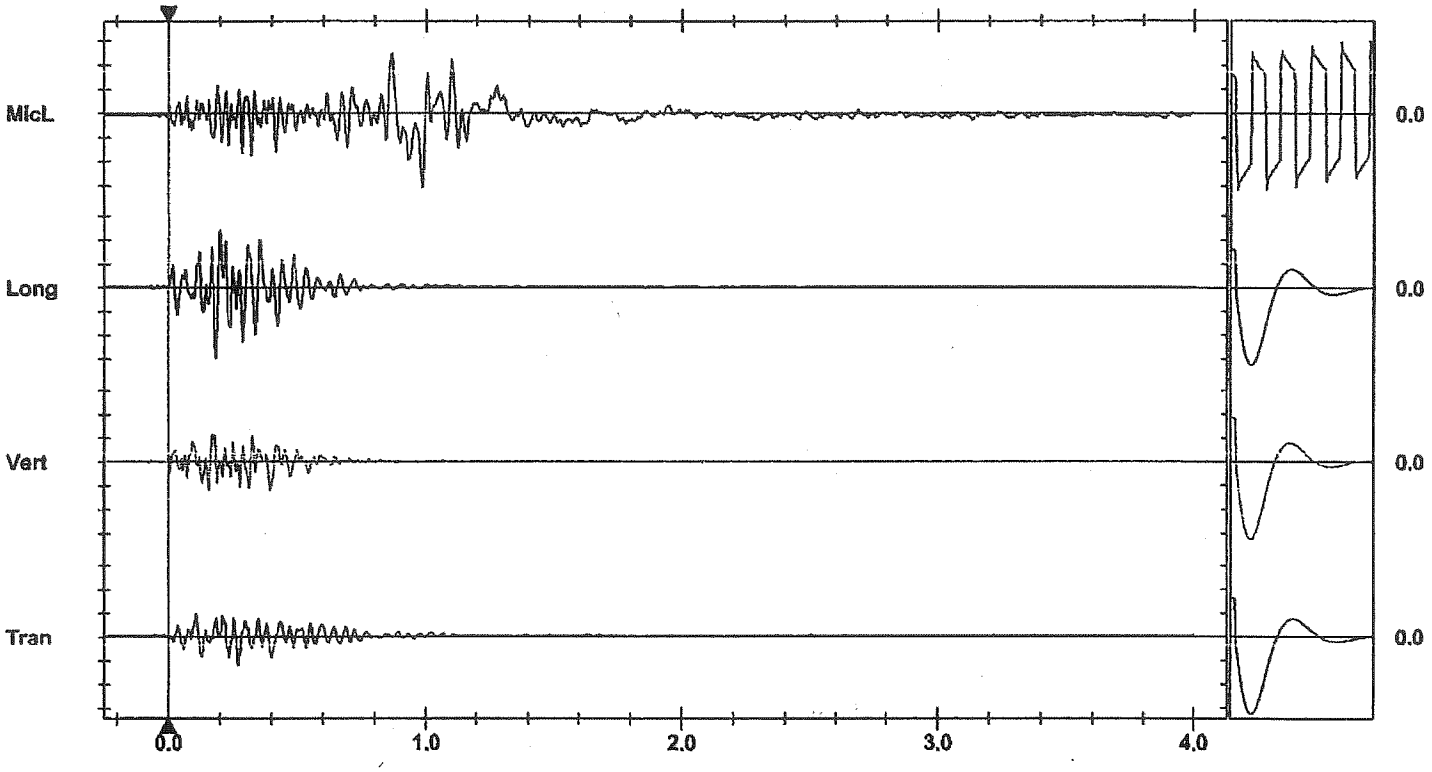
Seismograph located at Station # 4. (Designated area at SE 58 st.)
(N 47°32.942' W 121°54.492' acc. +/- 9')

Microphone	Linear Weighting
PSPL	106.5 dB(L) 0.001 psi(L) at 0.984 sec
ZC Freq	4.5 Hz
Channel Test	Passed (Freq = 20.5 Hz Amp = 1370 mv)

	Tran	Vert	Long	
PPV	0.120	0.119	0.296	in/s
PPV	32.61	32.52	40.42	dB
ZC Freq	23.5	18.6	27.3	Hz
Time (Rel. to Trig)	0.273	0.393	0.184	sec
Peak Acceleration	0.095	0.132	0.253	g
Peak Displacement	0.001	0.001	0.002	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.1	7.5	7.3	Hz
Overswing Ratio	4.3	4.1	4.2	

Peak Vector Sum 0.304 in/s at 0.184 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.000 psi(L)/div

Sensor Check

Trigger =

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Instantel

Event Report

Date/Time	Vert at 4:01:57 PM December 4, 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 1.mmb

Serial Number	UM8590 V 10-88 Micromate ISEE
Battery Level	3.8 Volts
Unit Calibration	November 6, 2017 by Instantel
File Name	UM8590_20171204160157.IDFW

Notes

Location:	Raging River Quarry Fall City WA.
Client:	Eastside Rock Products
User Name:	Shelby Spahr / MRD
General:	Bench 2

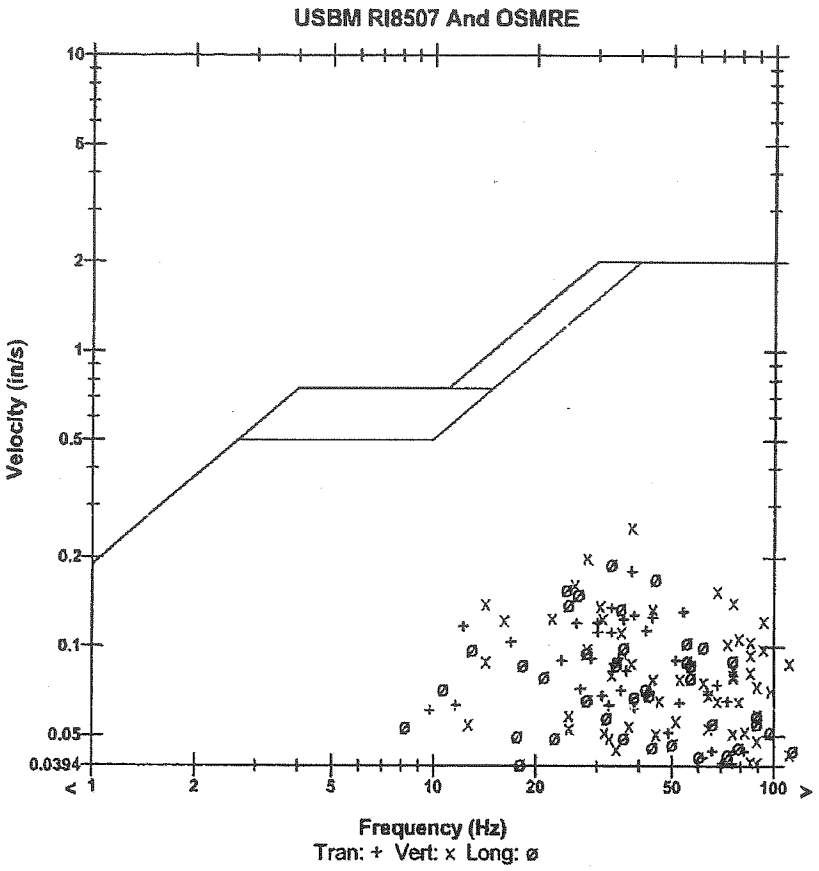
Extended Notes

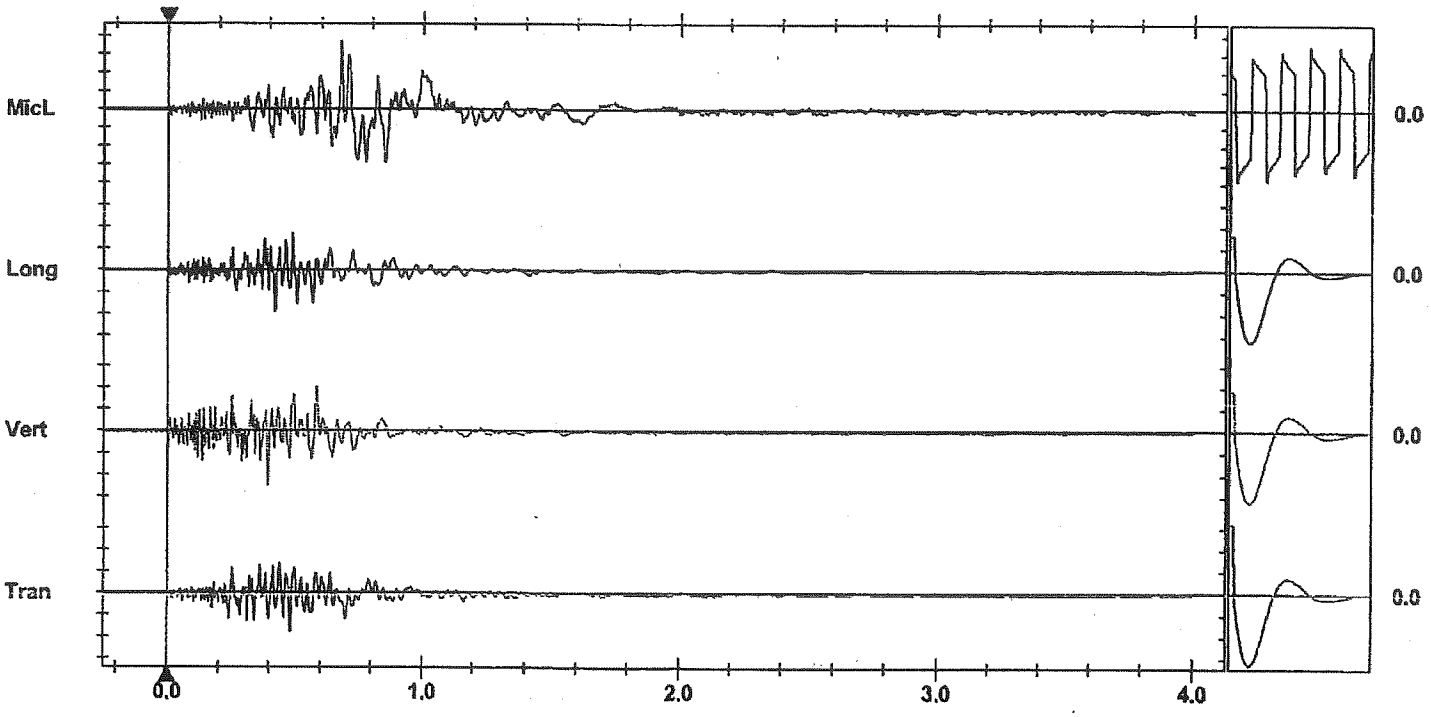
Seismograph located at Station # 1. (Located 20' from river)
(N 47°32.813' W 121°54.169' acc. +/- 9')

Microphone	Linear Weighting
PSPL	116.1 dB(L) 0.002 psi(L) at 0.677 sec
ZC Freq	29.3 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1494 mv)

	Tran	Vert	Long	
PPV	0.180	0.254	0.191	in/s
PPV	36.09	39.10	36.60	dB
ZC Freq	37.9	37.9	33.0	Hz
Time (Rel. to Trig)	0.484	0.395	0.422	sec
Peak Acceleration	0.168	0.293	0.194	g
Peak Displacement	0.001	0.001	0.001	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.3	7.3	Hz
Overswing Ratio	4.5	4.5	4.8	

Peak Vector Sum 0.279 in/s at 0.395 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div

Trigger =

Sensor Check

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Event Report

Date/Time	Vert at 4:02:04 PM December 4, 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 2.mmb

Serial Number	UM8589 V 10-88 Micromate ISEE
Battery Level	3.8 Volts
Unit Calibration	November 7, 2017 by Instantel
File Name	UM8589_20171204160204.IDFW

Notes

Location:	Raging River Quarry Fall City WA.
Client:	Eastside Rock Products
User Name:	Shelby Spahr/ MRD
General:	Bench 2

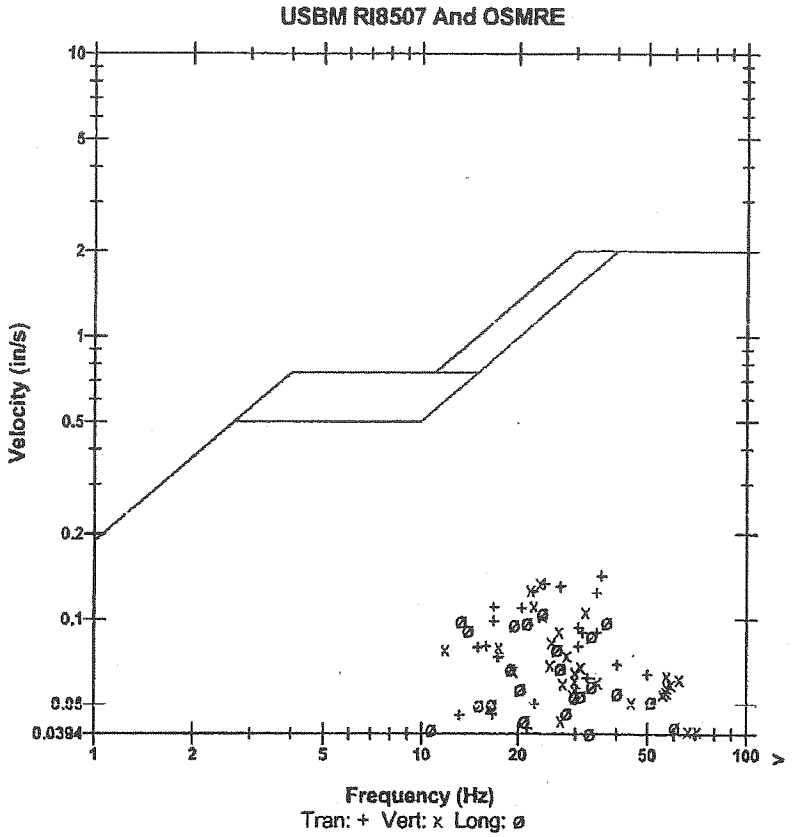
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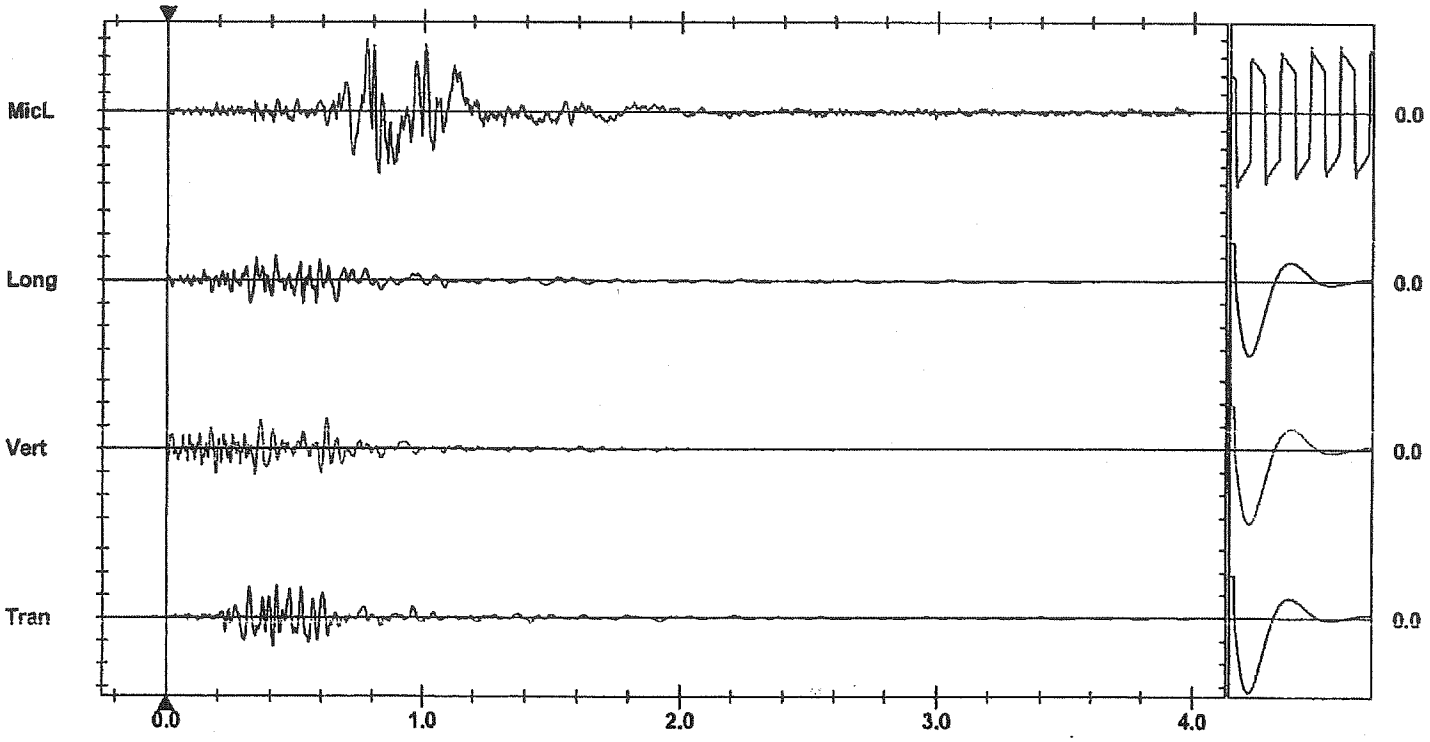
Seismograph located at Station # 2. (Designated area at end of 329 Ave SE.)
(N 47°32.917' W 121°54.170' acc. +/- 9')

Microphone	Linear Weighting
PSPL	116.7 dB(L) 0.002 psi(L) at 0.773 sec
ZC Freq	11.2 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1441 mv)

	Tran	Vert	Long	
PPV	0.142	0.135	0.106	in/s
PPV	34.05	33.59	31.47	dB
ZC Freq	35.9	23.3	23.8	Hz
Time (Rel. to Trig)	0.424	0.620	0.417	sec
Peak Acceleration	0.148	0.092	0.115	g
Peak Displacement	0.001	0.001	0.001	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.3	7.5	Hz
Overswing Ratio	3.8	3.7	3.9	

Peak Vector Sum 0.164 in/s at 0.340 sec





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.100 in/s/div Mic: 0.001 psi(L)/div

Sensor Check

Trigger =

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