McCALLUM ROCK DRILLING

mccallumrock.com

CUSTOMER NAME:	Eastside Rock	DAY:	8	DIRECTION AND DISTANCE TO NEAREST STRUCTURE (non mine related if available) :	DISTANCE/FT.	DIR.	WEATHER:	Cloudy
LOCATION/CITY:	Fall City	MONTH:	October		686	SE	TEMPERATURE/°F:	Cool
LOCATION/STATE:	Washington	YEAR:	2018	LOCATION/ADDRESS:	(Station 2)			
BLAST LOCATION:	Multiple Benches			METHOD OF MEASUREMENT:	G.P.S.		WIND DIRECTION:	N/A
QUARRY/PIT ID.:	Raging River Quarry	TIME:	3:55	G.P.S. LOCATION (STATION/STRUCTURE):	N 47°32.811' W 121°54.167'			
BLAST NO.:	N/A			G.P.S. ACCURACY +/- (STATION/STRUCTURE) /FT:	10' +/-		WIND SPEED:	None
JOB NO. :	52231	AM/PM:	PM	G.P.S. LOCATION (BLAST ZONE):	N 47°32.815' W 121°54.336'			
				G.P.S. ACCURACY +/- (BLAST ZONE)/FT.:	9' +/-		CEILING LEVEL	Low

	1	2	3	4		1	2	3	4
TYPE OF HOLES:	Vertical (production)	Horizontal (lifter hole)			BURDEN/FT. :	8'	7'		
NO. OF HOLES:	28	5			SPACING/FT. :	8'	7'		
HOLE DIAMETER/ IN. :	3.5"	3"			SUBDRILL/FT. :	0'	0'		
HOLE DEPTH/RANGE/AVG.FT. :	11'-25' 15'	10'-30' 20'			MATERIAL BLASTED:	Basalt	Basalt		
STEMMING LENGTH/RANGE/AVG./FT. :	8'-15' 9'	8'-20' 8'			STEMMING TYPE:	Cuttings	Cuttings		

EXPLOSIVES COMPANY USED:	McCallum Powder		EXPLOSIVE PRODUCTS USED	SIZE	UNITS	WEIGHT/LBS.	DETONATORS USED	SIZE/FT.	QUANTITY
DECKING:	NO	1	AUSTINITE 15	BAG(S)	20	1000.000	DUAL DELAY	24	3
		2	AUSTINITE 15 WR	BAG(S)	3	150.000	DUAL DELAY	30	15
		3	BLACK CAP BOOSTER	350 G	28	21.000	DUAL DELAY	40	15
BLASTING MACHINE USED:	SCORPION	4	EMULEX 520	2 X16	5	11.350	QRC #25	12	5
		5	HYDROMITE 820	2 1/4 X 16	26	68.380	QRC #42	12	8
METHOD OF FIRING:	NONEL	6	HYDROMITE 880	2 1/2 X16	13	43.290	QRC # 09	12	1
		7							
BLASTING MATS USED:	NO	8							
QUANTITY OF BLASTING MATS USED:	N/A	9							
		10							

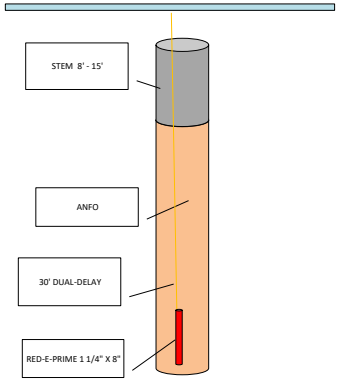
MAX. NO. OF HOLES/DECK PER 8 MS :	2	TOTAL EXPLOSIVES USED/LBS.:	1,294.020	TOTAL NO. OF DETONATORS USED:	47
MAX. WT. OF EXPLOSIVES PER HOLE / DECK :	75				
MAX. WT. OF EXPLOSIVES PER		TOTAL VOLUME/CUBIC YARDS :	1,505.0	SHOT RESULTS	
ANY 8 MS INTERVAL :	150	ROCK DENSITY/SPECIFIC GRAVITY :	2.00	FRAGMENTATION:	MEDIUM
GROUND RESPONSE(K) FACTOR:	20	TOTAL WEIGHT/TONS :	3,010	MUCK PILE CONFIGURATION:	SLOPED
PREDICTED P.P.V.:	0.07	POWDER FACTOR/LBS./CUBIC YARDS:	0.86	FLYROCK:	NO
SCALED DISTANCE :	56.01	POWDER FACTOR/LBS./TON:	0.43	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						
Trevon Bolling		N/A						
Tristan Winter		N/A						

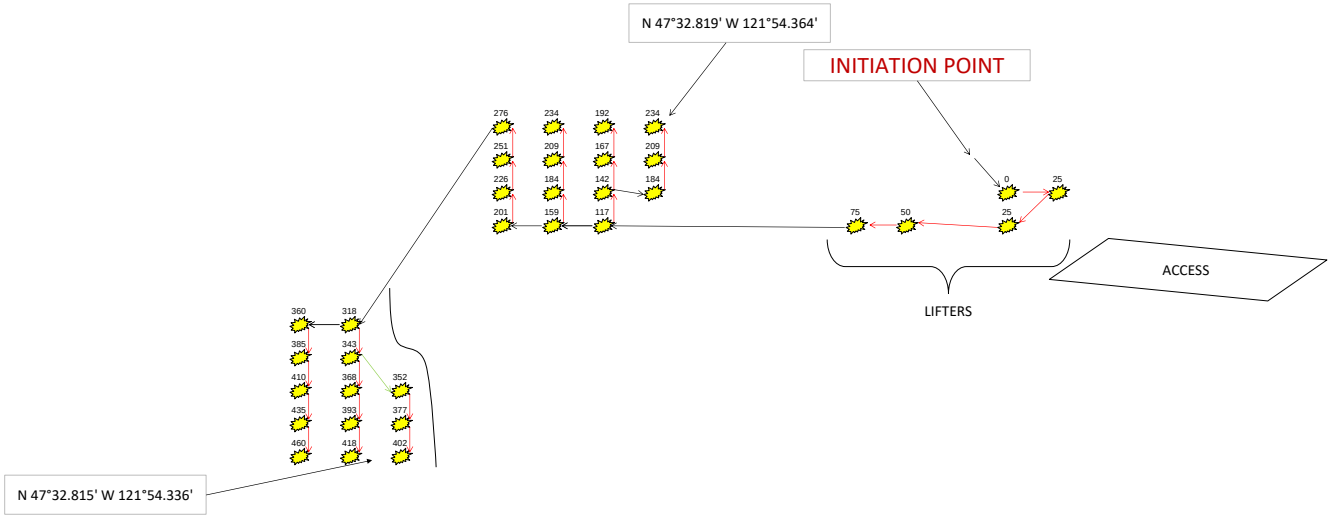
SEISMOGRAPH TYPE:	White Seismology/Instantel	LOCATION OF SETUP:	(Station 2)
NO. OF SEISMOGRAPHS USED :	4		
SEISMOGRAPH OPERATOR(S):	Tim Fredericks	DISTANCE FROM BLAST/FT.:	686
	N/A		
	N/A	IF USED SEISMOGRAPH RECORD(S) ATTACHED TO BLAST REPORT	
	N/A		
	N/A	SIGNATURE OF BLASTER IN CHARGE	
COMPANY:	McCallum Rock Drilling	Tim_Fredericks	
COMMENTS:	Blast loaded and shot as expected.		

CUSTOMER NAME:	Eastside Rock
LOCATION/CITY:	Fall City
BLAST LOCATION:	Multiple Benches
JOB NAME/#:	Raging River Quarry 52231
DATE:	10/8/2018

HOLE PROFILE



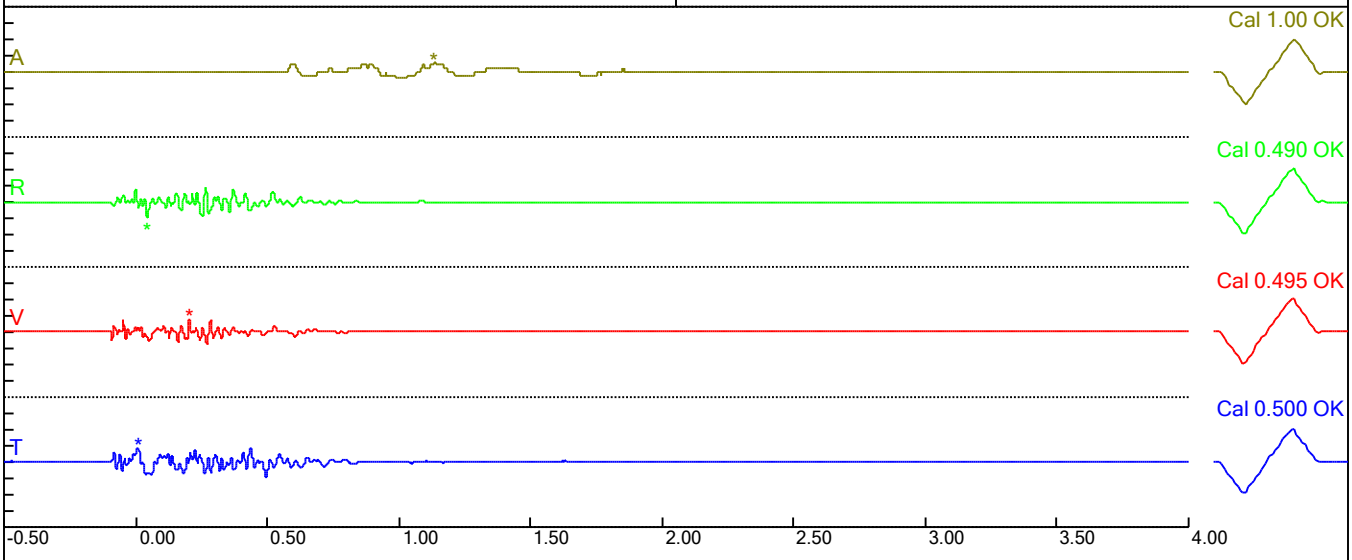




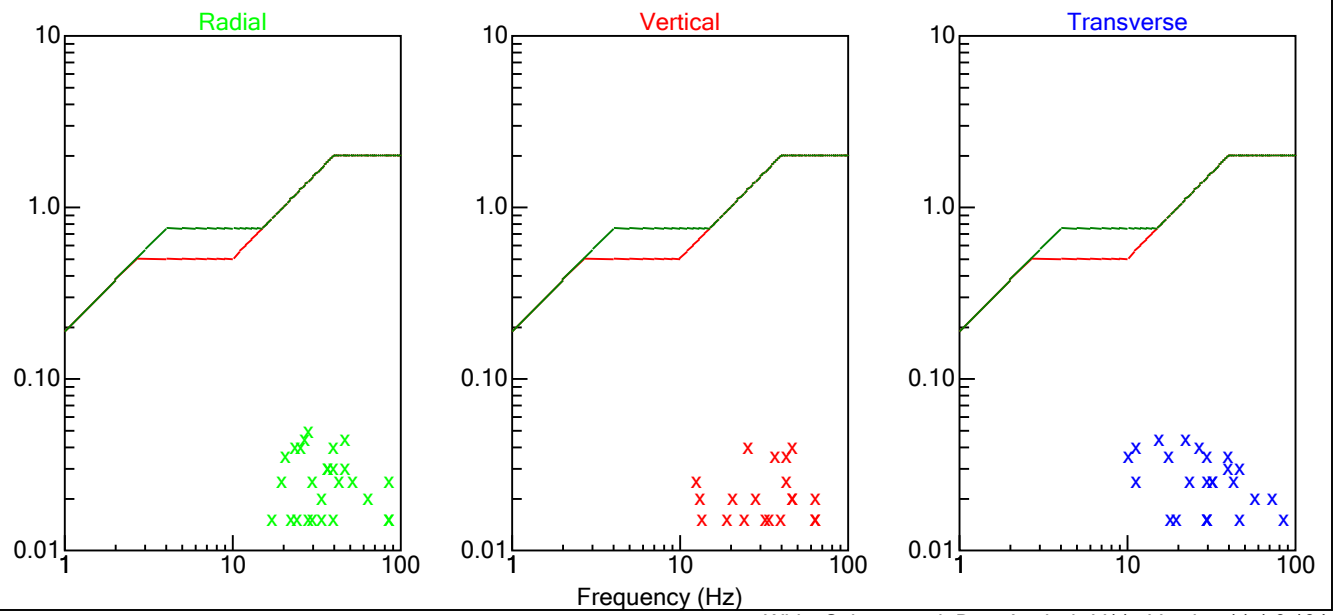
Eastside Rock Products
Unit setup at designated location
(Station 1)
898' Away
N 47*32.937'
W 121*54.486'
Accuracy +/- 9'

File: 6308201810081556083.dtb
Number: 083
Date and Time: 10/8/2018 3:56:00 PM
SN: 6308
Seismic Trigger: 0.0400 in/sec
Air Trigger: 142 dBL
Sample Rate: 1024
Duration: 4 Seconds
Pre-Trigger: 0.5 Second
Seismic Range: 2.50 in/s
Acoustic Range: 142 dBL
Gain: 2.0x
Voltage: 6.50

Peaks and Frequencies	Graph Information
PPV Maximum: 0.0500 in/sec (0.0439 sec)	Duration: -0.500 s To: 4.000 s
Acoustic: 110 dBL @ 8.0 Hz (1.1328 sec)	Acoustic Scale: 126 dBL
Radial: 0.0500 in/sec @ 28.4 Hz (0.0439 sec)	Seismic Scale: 0.200 in/sec (0.0500 in/sec/div)
Vertical: 0.0400 in/sec @ 46.5 Hz (0.2041 sec)	Time Intervals: 0.50 sec
Transverse: 0.0450 in/sec @ 15.5 Hz (0.0107 sec)	
Last Calibration Date: 4/17/2018	



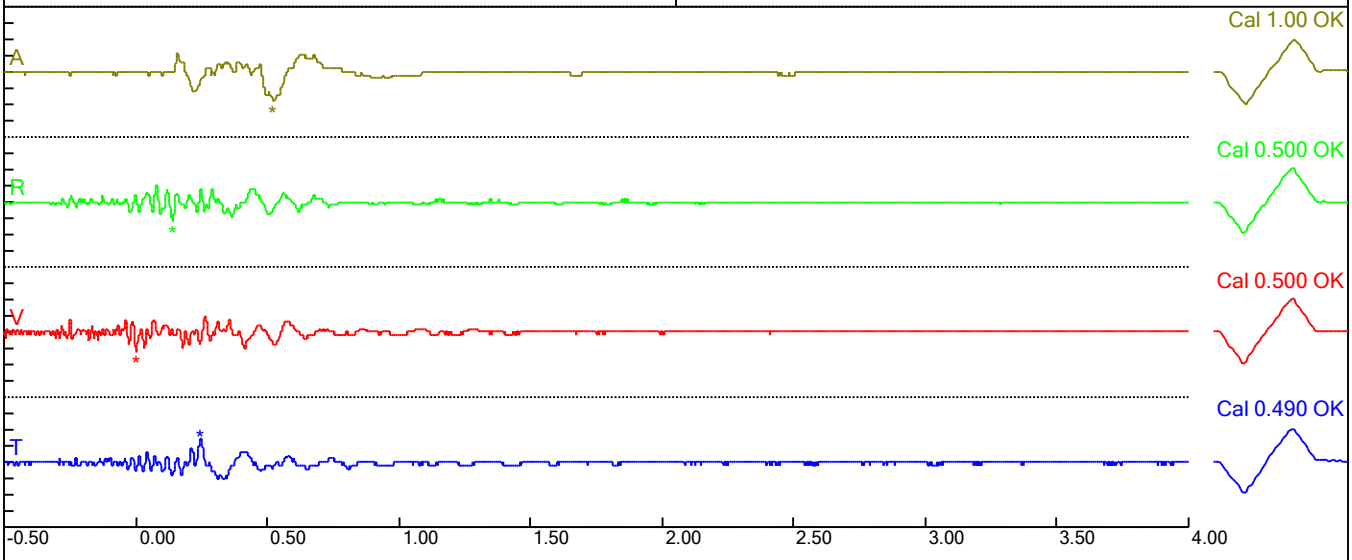
Particle Velocity Versus Frequency - USBM Limits (RI 8507, 1980)



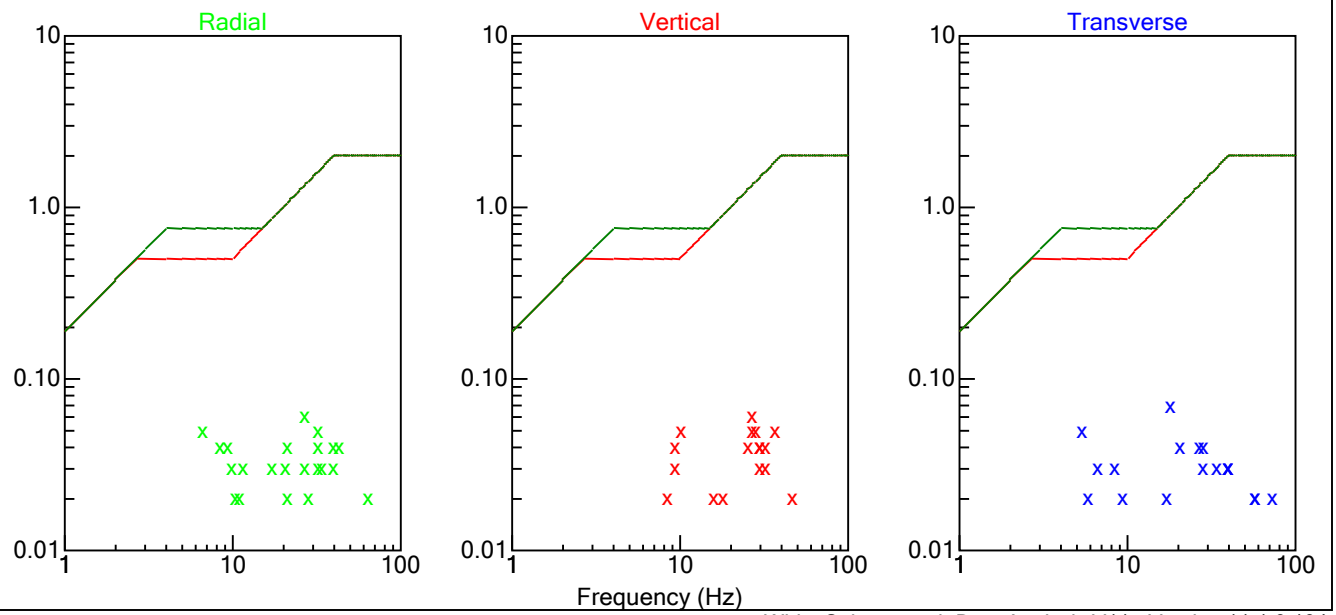
Eastside Rock Products
Unit setup at designated location
(Station 2)
686' Away
N 47*32.811'
W 121*54.167'
Accuracy +/-10'

File: 6309201810081555099.dtb
Number: 099
Date and Time: 10/8/2018 3:55:00 PM
SN: 6309
Seismic Trigger: 0.0500 in/sec
Air Trigger: 130 dBL
Sample Rate: 1024
Duration: 4 Seconds
Pre-Trigger: 0.5 Second
Seismic Range: 5.00 in/s
Acoustic Range: 142 dBL
Gain: 2.0x
Voltage: 6.50

Peaks and Frequencies	Graph Information
PPV Maximum: 0.0700 in/sec (0.2441 sec)	Duration: -0.500 s To: 4.000 s
Acoustic: 119 dBL @ 5.5 Hz (0.5186 sec)	Acoustic Scale: 126 dBL
Radial: 0.0600 in/sec @ 26.9 Hz (0.1396 sec)	Seismic Scale: 0.200 in/sec (0.0500 in/sec/div)
Vertical: 0.0600 in/sec @ 26.9 Hz (0.0010 sec)	Time Intervals: 0.50 sec
Transverse: 0.0700 in/sec @ 18.2 Hz (0.2441 sec)	
Last Calibration Date: 4/17/2018	



Particle Velocity Versus Frequency - USBM Limits (RI 8507, 1980)



Event Report

Date/Time Vert at 3:55:22 PM October 8, 2018
Trigger Source Geo: 0.030 in/s, Mic: 117.0 dB(L)
Range Geo: 10.000 in/s
Record Time 3.0 sec at 4096 sps

Notes

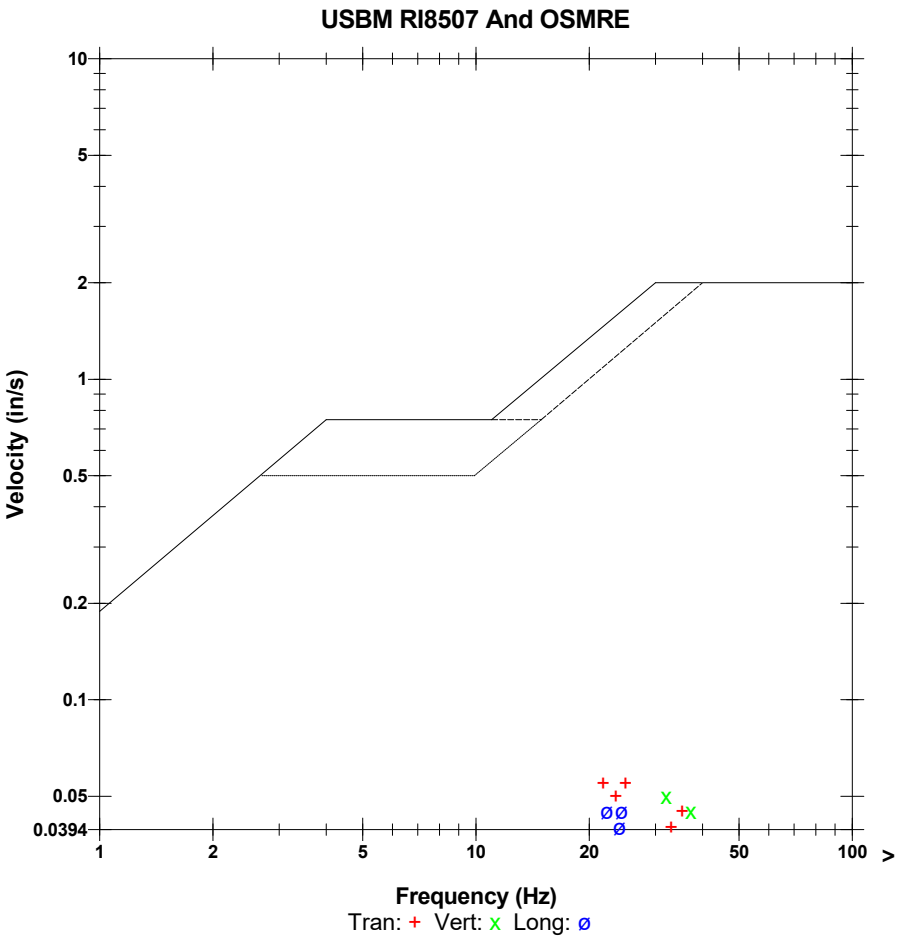
Serial Number BE11606 V 10.72-1.1 Minimate Blaster
Battery Level 6.4 Volts
Unit Calibration February 6, 2018 by Instantel
File Name M606HMG4.8A0
Post Event Notes
Setup at designated location.(Station #3) N 47*32.910'
845' Away from blast W 121*54.166' Accuracy
+/-9'

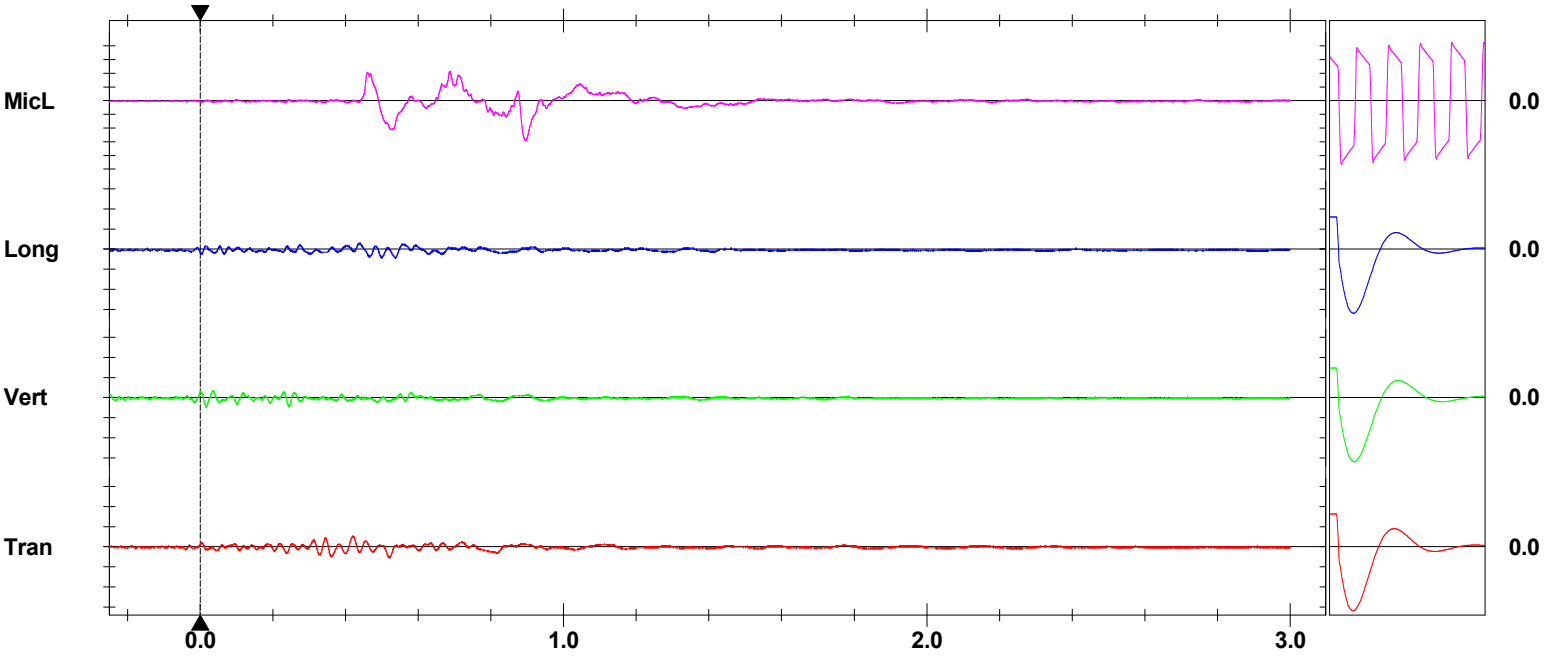
Extended Notes

Microphone Linear Weighting
PSPL 120.0 dB(L) 0.003 psi(L) at 0.894 sec
ZC Freq 9.4 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 581 mv)

	Tran	Vert	Long	
PPV	0.055	0.050	0.045	in/s
PPV	25.81	24.98	24.06	dB
ZC Freq	25.0	32.0	24.4	Hz
Time (Rel. to Trig)	0.420	0.016	0.500	sec
Peak Acceleration	0.106	0.106	0.106	g
Peak Displacement	0.001	0.000	0.001	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.8	7.3	7.6	Hz
Overswing Ratio	3.6	3.8	4.0	

Peak Vector Sum 0.059 in/s at 0.520 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 3:56:11 PM October 8, 2018
Trigger Source	Geo: 0.030 in/s, Mic: 115.0 dB(L)
Range	Geo: 10.000 in/s
Record Time	3.0 sec at 4096 sps
Operator/Setup:	Brandon Babka/ESR STATION4.mmb

Serial Number	UM6218 V 10-88 Micromate ISEE
Battery Level	3.8 Volts
Unit Calibration	October 10, 2017 by Instantel
File Name	UM6218_20181008155611.IDFW

Notes

Location:	Fall City, WA
Client:	Eastside Rock
User Name:	Tim Fredericks / MRD
General:	Multiple areas

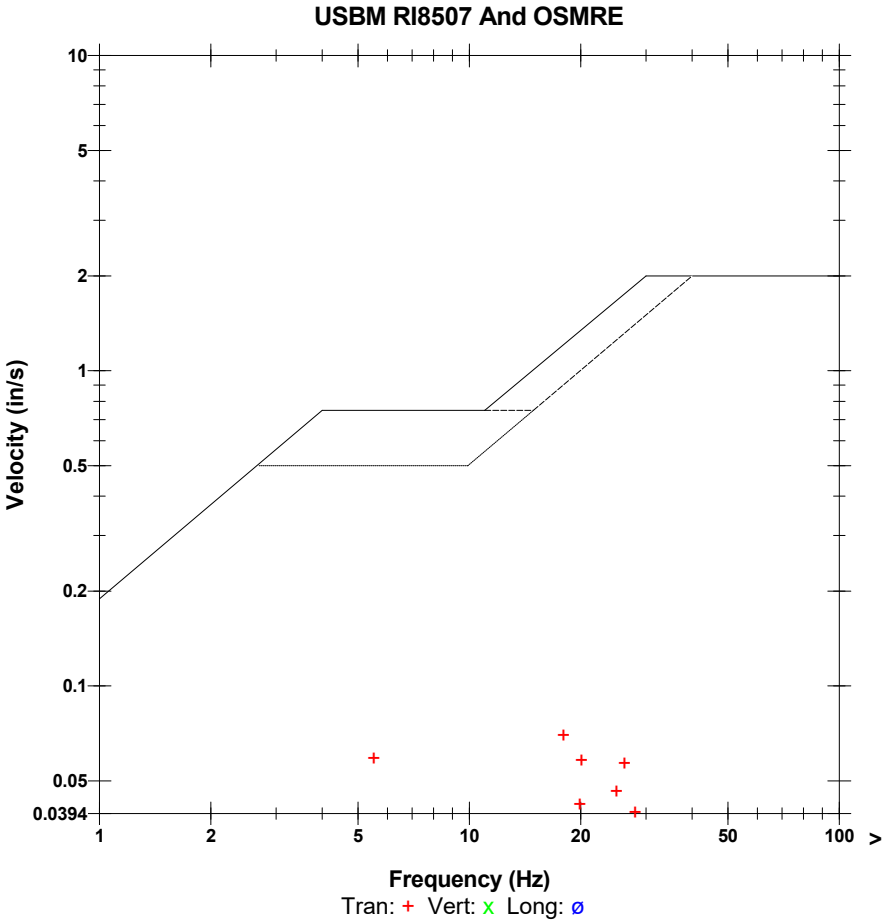
Extended Notes

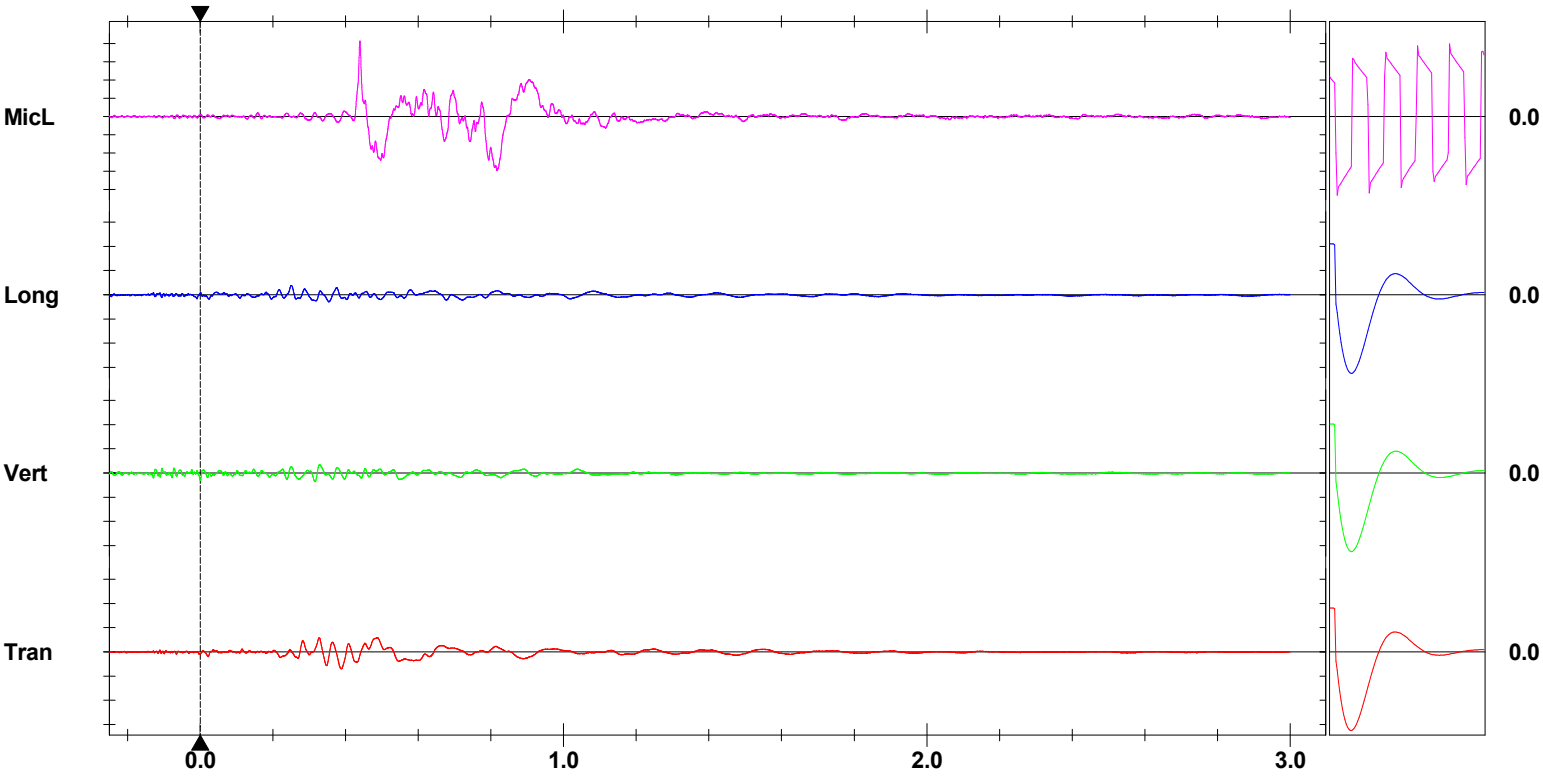
Seismograph located at station #4 near river.
N 47°32.842' W 121° 54.125'
.17 Away from blast

Microphone	Linear Weighting
PSPL	117.1 dB(L) 0.002 psi(L) at 0.439 sec
ZC Freq	15.6 Hz
Channel Test	Passed (Freq = 19.7 Hz Amp = 1404 mv)

	Tran	Vert	Long	
PPV	0.070	0.036	0.039	in/s
PPV	27.92	22.05	22.77	dB
ZC Freq	18.0	33.6	24.7	Hz
Time (Rel. to Trig)	0.388	0.316	0.250	sec
Peak Acceleration	0.043	0.039	0.033	g
Peak Displacement	0.001	0.000	0.000	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.5	Hz
Overswing Ratio	3.9	3.6	3.7	

Peak Vector Sum 0.072 in/s at 0.389 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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