McCALLUM ROCK DRILLING

mccallumrock.com

CUSTOMER NAME:	Eastside Rock Products	Date	11	DIRECTION AND DISTANCE TO NEAREST STRUCTURE (non mine related if available) :	DISTANCE/FT.	DIR.	WEATHER:	Partly Cloudy
LOCATION/CITY:	Fall City	MONTH:	March	LOCATION/ADDRESS:	Designated location		TEMPERATURE/°F:	Mild
LOCATION/STATE:	Washington	YEAR:	2019	METHOD OF MEASUREMENT:	G.P.S.		WIND DIRECTION:	N/A
BLAST LOCATION:	Bench 1			G.P.S. LOCATION (STATION/STRUCTURE):	N 47.54678° W 121.90296°			
QUARRY/PIT ID.:	Raging River Quarry	TIME:	3:54	G.P.S. ACCURACY +/- (STATION/STRUCTURE) /FT:	14' +/-		WIND SPEED:	None
BLAST NO.:	N/A			G.P.S. LOCATION (BLAST ZONE):	N 47.54715° W 121.90527°			
JOB NO. :	3093	AM/PM:	PM	G.P.S. ACCURACY +/- (BLAST ZONE)/FT.:	14' +/-		CEILING LEVEL	Medium

	1	2	3	4		1	2	3	4
TYPE OF HOLES:	Vertical (production)				BURDEN/FT. :	9'			
NO. OF HOLES:	39				SPACING/FT. :	10'			
HOLE DIAMETER/ IN. :	3.5"				SUBDRILL/FT. :	0'			
HOLE DEPTH/RANGE/AVG.FT. :	33'-44'	42'			MATERIAL BLASTED:	Basalt			
STEMMING LENGTH/RANGE/AVG./FT. :	7'-25'	7'			STEMMING TYPE:	3/8"clean			

EXPLOSIVES COMPANY USED:	McCallum Powder		EXPLOSIVE PRODUCTS USED	SIZE	UNITS	WEIGHT/LBS.	DETONATORS USED	SIZE/FT.	QUANTITY
DECKING:	NO	1	HYDROMITE BULK EMULSION	BULK	Lbs.	7080.000	DUAL DELAY	60	39
		2	BLACK CAP BOOSTER	350 G	70	52.500	IN - HOLE	16	31
BLASTING MACHINE USED:	R.C.B.M.	3					QRC #25	20	5
		4					QRC #42	20	15
METHOD OF FIRING:	NONEL	5							
		6							
BLASTING MATS USED:	NO	7							
QUANTITY OF BLASTING MATS USED:	N/A	8							
		9							
		10							

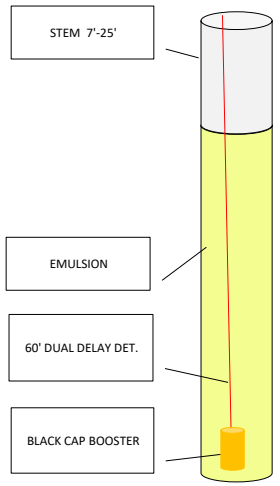
MAX. NO. OF HOLES/DECK PER 8 MS :	3	TOTAL EXPLOSIVES USED/LBS.:	7,132.500	TOTAL NO. OF DETONATORS USED:	90
MAX. WT. OF EXPLOSIVES PER HOLE / DECK :	170				
MAX. WT. OF EXPLOSIVES PER ANY 8 MS INTERVAL :	510	TOTAL VOLUME/CUBIC YARDS :	5,321.0	SHOT RESULTS	
GROUND RESPONSE(K) FACTOR:	34	ROCK DENSITY/SPECIFIC GRAVITY :	2.00	FRAGMENTATION:	MEDIUM
PREDICTED P.P.V.:	0.23	TOTAL WEIGHT/TONS :	10,642	MUCK PILE CONFIGURATION:	HEAPED
SCALED DISTANCE :	28.07	POWDER FACTOR/LBS./CUBIC YARDS:	1.34	FLYROCK:	NO
		POWDER FACTOR/LBS./TON:	0.67	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						
Javon Brager		N/A						
Tristan Winter		N/A						

SEISMOGRAPH TYPE:	WHITE SEISMOLOGY	LOCATION OF SETUP:	Designated location
NO. OF SEISMOGRAPHS USED :	5		
SEISMOGRAPH OPERATOR(S):	Shelby Spahr	DISTANCE FROM BLAST/FT.:	634
		IF USED SEISMOGRAPH RECORD(S) ATTACHED TO BLAST REPORT	
		SIGNATURE OF BLASTER IN CHARGE	
COMPANY:	McCALLUM ROCK DRILLING	Tim_Fredericks	
COMMENTS:	Blast loaded and shot as expected.		

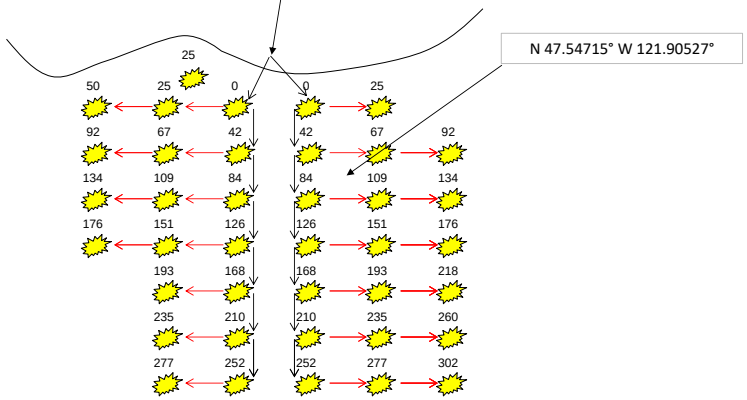
BLAST LOCATION:	Bench 1	
JOB NAME/#:	Raging River Quarry	3093
DATE:	3/11/2019	

HOLE PROFILE





INITIATION POINT



Event Report

Date/Time Vert at 3:55:30 PM March 11, 2019
Trigger Source Geo: 0.030 in/s, Mic: 130.0 dB(L)
Range Geo: 10.000 in/s
Record Time 4.0 sec at 1024 sps
Operator/Setup: Operator/EASTSIDE STATION 5.MMB

Notes
Location: FALL CITY,WA
Client: EASTSIDE ROCK
User Name: Shelby Spahr / MRD
General: Bench 1

Extended Notes

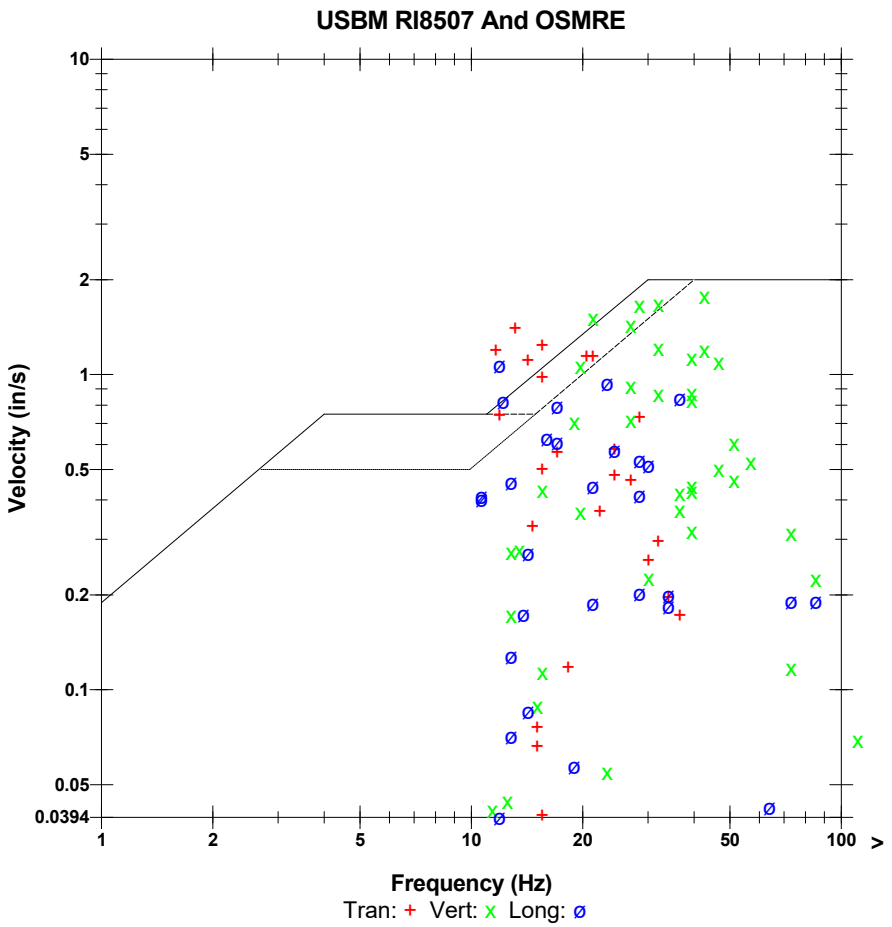
Microphone Linear Weighting
PSPL 124.0 dB(L) 0.005 psi(L) at 0.422 sec
ZC Freq 5.8 Hz
Channel Test Passed (Freq = 19.7 Hz Amp = 1464 mv)

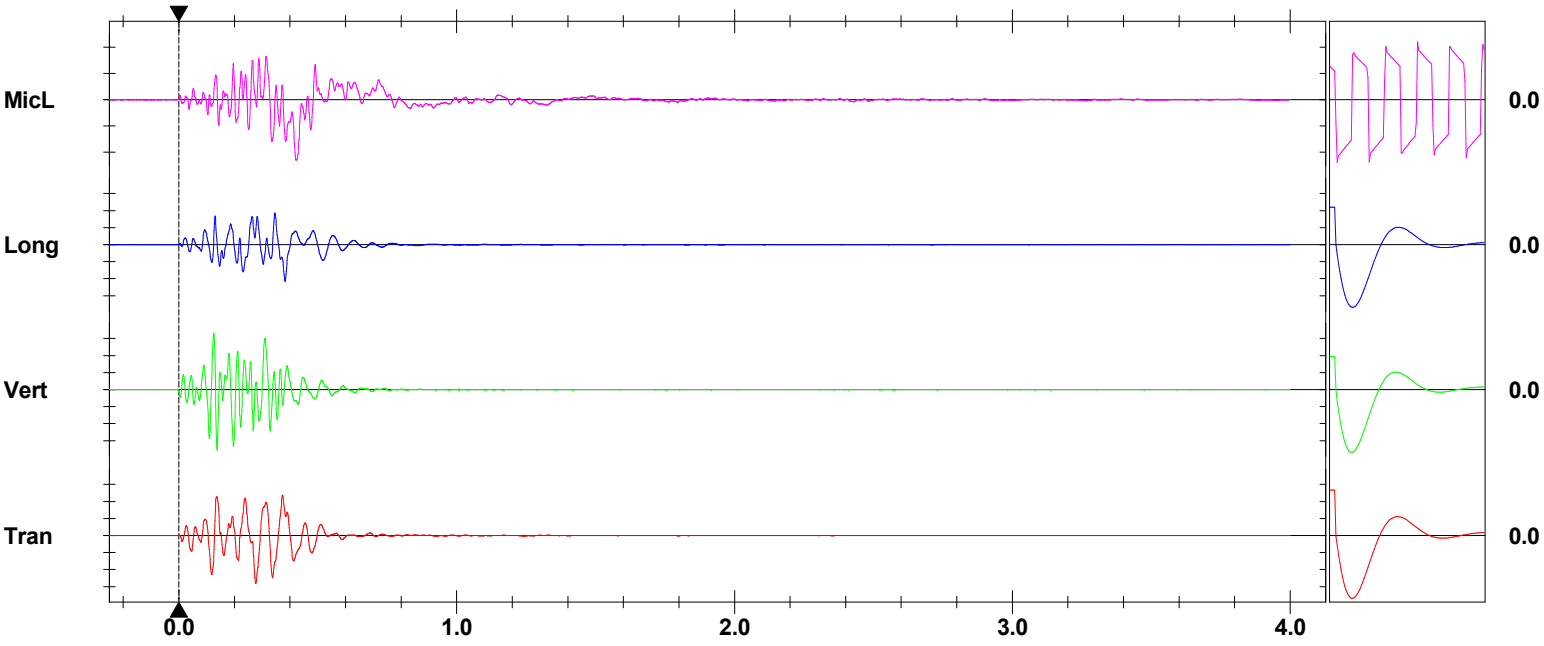
	Tran	Vert	Long	
PPV	1.407	1.777	1.076	in/s
PPV	53.96	56.00	51.64	dB
ZC Freq	13	43	12	Hz
Time (Rel. to Trig)	0.276	0.138	0.383	sec
Peak Acceleration	1.070	1.773	0.551	g
Peak Displacement	0.014	0.011	0.011	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.3	7.5	7.1	Hz
Overswing Ratio	3.3	3.6	3.6	

Peak Vector Sum 2.109 in/s at 0.138 sec

Serial Number UM10691 V 10-89 Micromate ISEE
Battery Level 3.5 Volts
Unit Calibration March 19, 2018 by Instantel
File Name UM10691_20190311155530.IDFW

Post Event Notes
Unit Setup at a designated location (Station 5)
N 47.54687° W 121.90507°
120' Away





Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 in/s/div Mic: 0.002 psi(L)/div
Trigger = ▶----------◀

Sensor Check

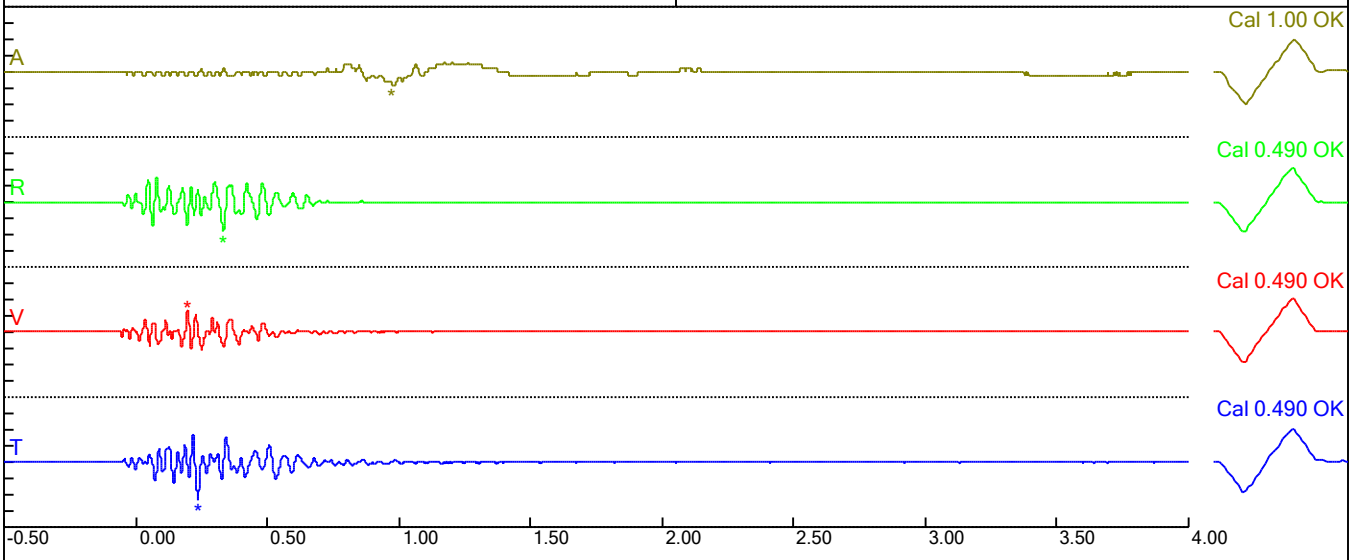
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Eastside Rock- Raging River Quarry

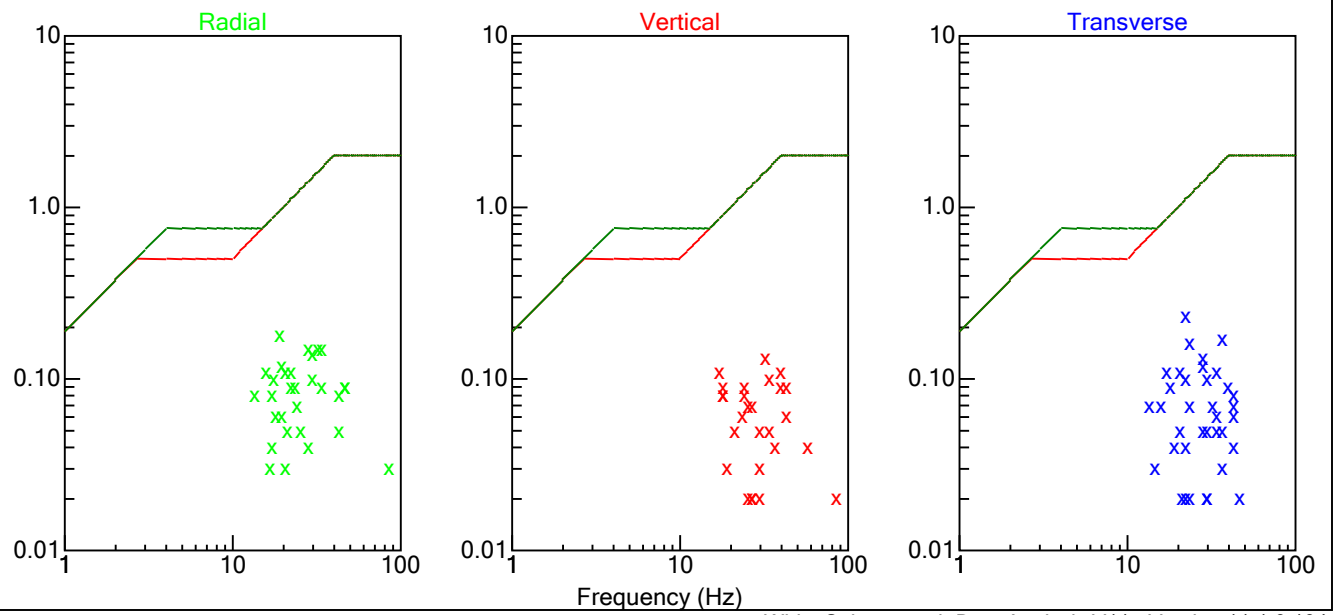
Unit setup at designated location.
(Station #1)
N 47.54889° W 121.90819°
950' Away

File: 6309201903111553191.dtb
Number: 191
Date and Time: 3/11/2019 3:53:00 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: 6.40

Peaks and Frequencies	Graph Information
PPV Maximum: 0.230 in/sec (0.2373 sec)	Duration: -0.500 s To: 4.000 s
Acoustic: 112 dBL @ 4.4 Hz (0.9717 sec)	Acoustic Scale: 126 dBL
Radial: 0.180 in/sec @ 18.9 Hz (0.3320 sec)	Seismic Scale: 0.400 in/sec (0.100 in/sec/div)
Vertical: 0.130 in/sec @ 32.0 Hz (0.1973 sec)	Time Intervals: 0.50 sec
Transverse: 0.230 in/sec @ 22.2 Hz (0.2373 sec)	
Last Calibration Date: 4/17/2018	



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



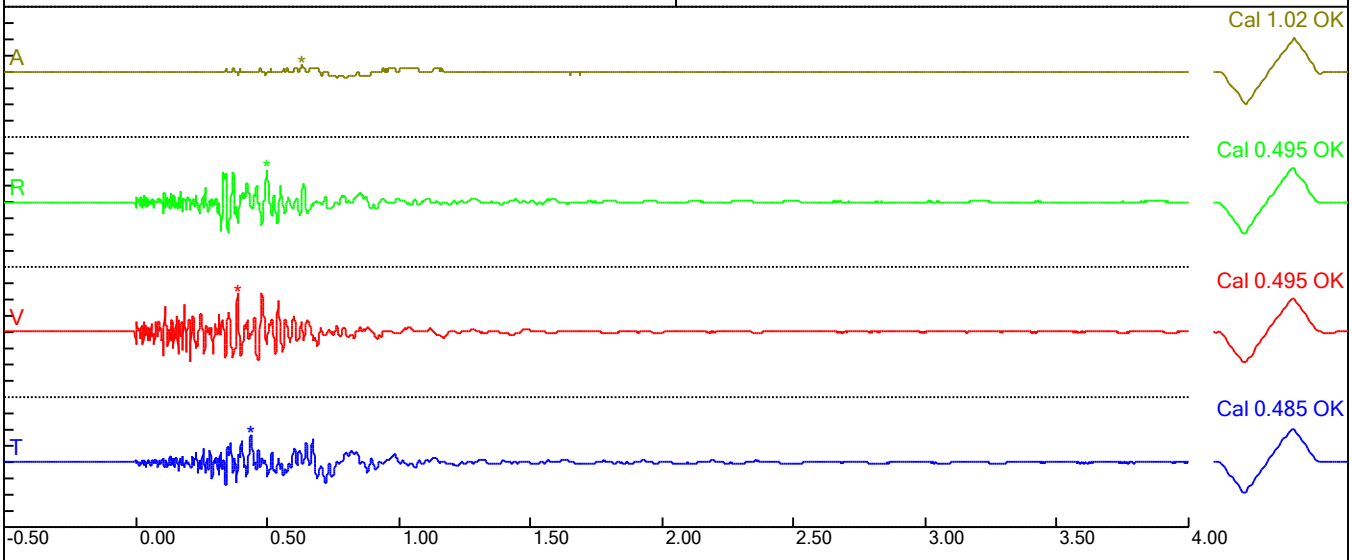
Eastside Rock- Raging River Quarry

Unit setup at designated location.
(Station #2)
N 47.54678° W 121.90296°

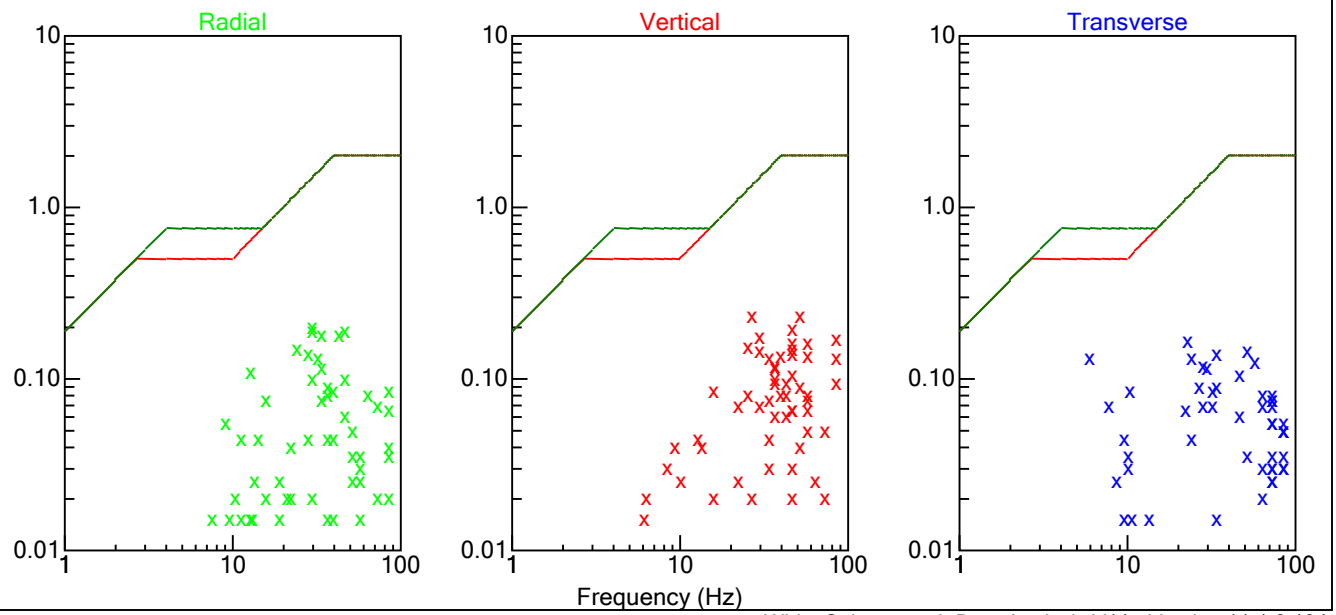
Actual time of blast 3:54 pm

File: 6307201903111454130.dtb
Number: 130
Date and Time: 3/11/2019 2:54:00 PM
SN: 6307
Seismic Trigger: 0.0300 in/sec
Air Trigger: 112 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: 0.235 in/sec (0.3877 sec)	Duration: -0.500 s To: 4.000 s
Acoustic: 106 dBL @ 0.0 Hz (0.6309 sec)	Acoustic Scale: 126 dBL
Radial: 0.200 in/sec @ 30.1 Hz (0.4980 sec)	Seismic Scale: 0.400 in/sec (0.100 in/sec/div)
Vertical: 0.235 in/sec @ 51.2 Hz (0.3877 sec)	Time Intervals: 0.50 sec
Transverse: 0.165 in/sec @ 23.2 Hz (0.4375 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 March 11, 2019
Trigger Source Geo: 0.030 in/s, Mic: 130.0 dB(L)
Range Geo: 10.000 in/s
Record Time 4.0 sec at 4096 sps
Operator/Setup: Tim Fredericks/CAULDASACK EASTSIDE.MMB

Serial Number UM8589 V 10-89 Micromate ISEE
Battery Level 3.8 Volts
Unit Calibration December 18, 2018 by Instantel
File Name UM8589_20190311155522.IDFW

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.	

Post Event Notes
Unit setup at designated location (Station 3)
N 47.54861° W 121.90263°
792' Away

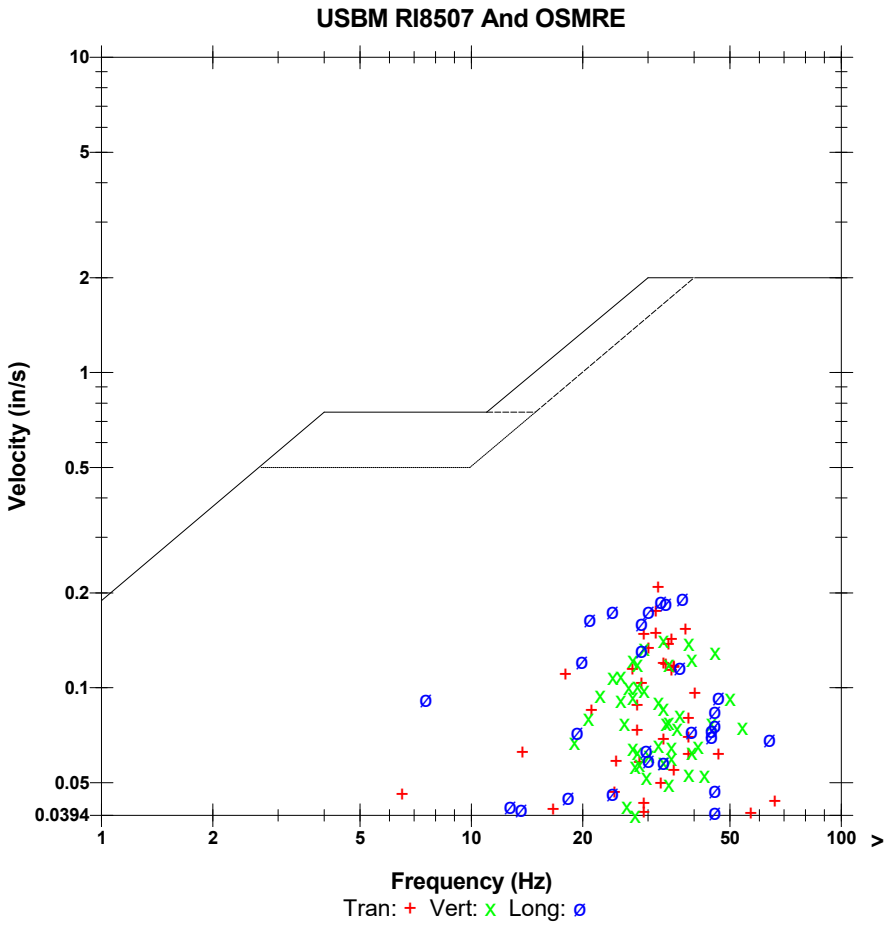
Notes
Location: FALL CITY,WA
Client: EASTSIDE ROCK
User Name: TRISTAN WINTER MRD
General: BENCH 1

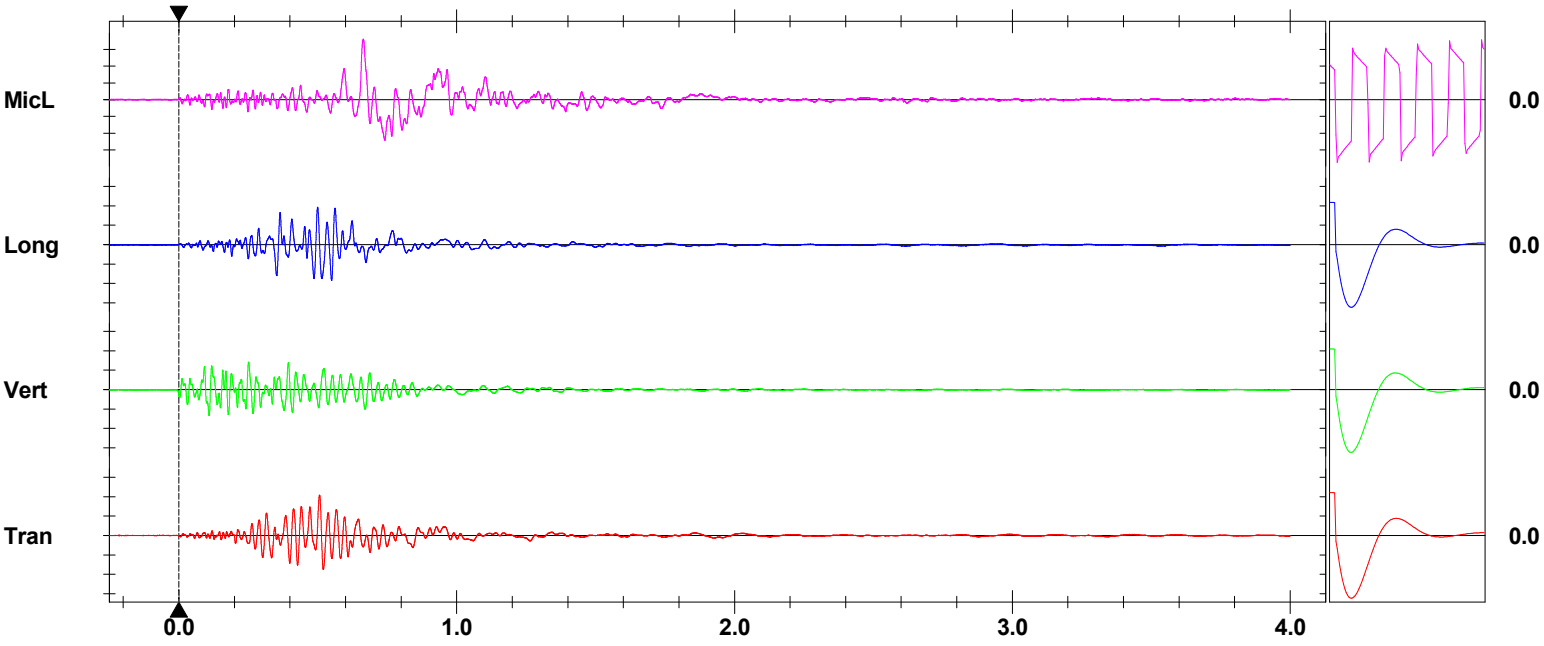
Extended Notes

Microphone Linear Weighting
PSPL 115.9 dB(L) 0.002 psi(L) at 0.664 sec
ZC Freq 16.0 Hz
Channel Test Passed (Freq = 20.5 Hz Amp = 1428 mv)

	Tran	Vert	Long	
PPV	0.209	0.142	0.193	in/s
PPV	37.38	34.02	36.70	dB
ZC Freq	32.0	33.0	37.2	Hz
Time (Rel. to Trig)	0.506	0.251	0.500	sec
Peak Acceleration	0.158	0.234	0.168	g
Peak Displacement	0.001	0.001	0.001	in
Sensor Check	Passed	Passed	Passed	
Frequency	7.5	7.5	7.5	Hz
Overswing Ratio	3.6	3.8	4.1	

Peak Vector Sum 0.246 in/s at 0.519 sec





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

Sensor Check

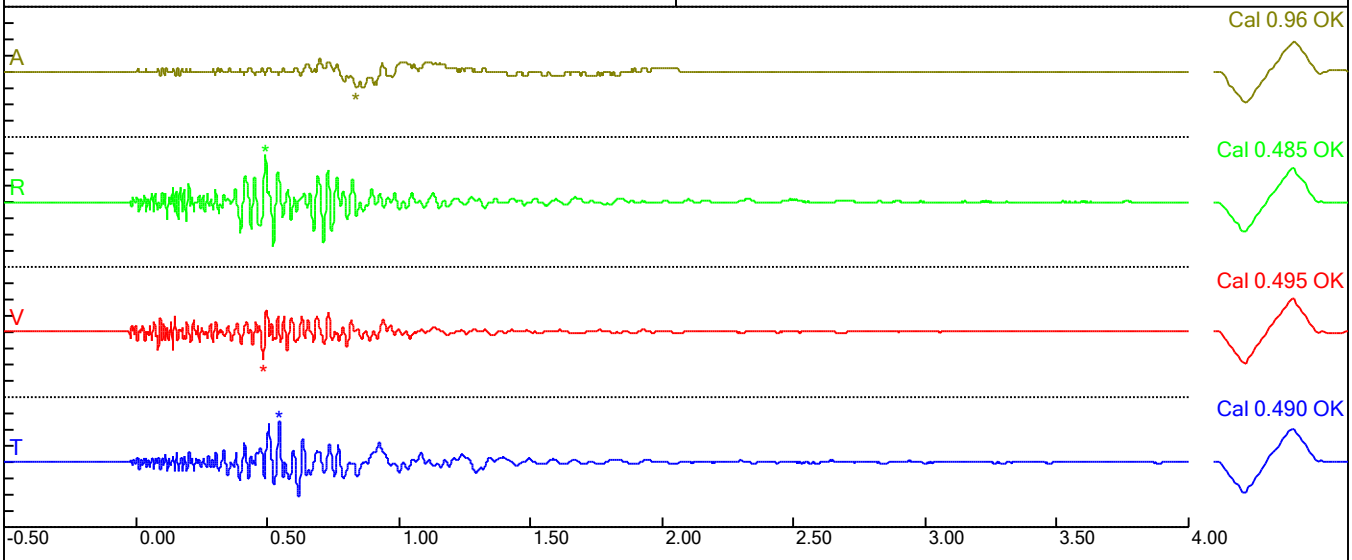
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Eastside Rock- Raging River Quarry

Unit setup at designated location.
(Station #4)
N 47.54753° W 121.90192°
845' Away

File: 63082019031115555149.dtb
Number: 149
Date and Time: 3/11/2019 3:55:00 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: 0.295 in/sec (0.4932 sec)	Duration: -0.500 s To: 4.000 s
Acoustic: 114 dBL @ 4.5 Hz (0.8359 sec)	Acoustic Scale: 126 dBL
Radial: 0.295 in/sec @ 16.5 Hz (0.4932 sec)	Seismic Scale: 0.400 in/sec (0.100 in/sec/div)
Vertical: 0.175 in/sec @ 36.5 Hz (0.4844 sec)	Time Intervals: 0.50 sec
Transverse: 0.255 in/sec @ 28.4 Hz (0.5449 sec)	
Last Calibration Date: 4/17/2018	



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

