

BLAST MONITORING REPORT

HM26 Hard Stone Quarry at Tal-Maċina, Nigret, l/o Żurrieq

26th October 2015

Details

Date	26-10-2015
Quarry number	HM26 – Tal-Maċina, Nigret, l/o Żurrieq
Quarry operator	C J C Camilleri Bros. Ltd.
ANFO Supplier	Framegrip Ltd.
Police escort	PC 229 – K Camilleri

Location and Time of Blasting

Two blasts were carried out at 10:40 and 10:45 at the points as approximately indicated on the attached site diagram.

Summary of Blasting Conditions

Maximum charge per delay: 50Kg

Vibration limits: 4 mm/s (20 to 40Hz) at the nearest sensitive point within 200m.

Air overpressure limit: 120 dB (L).

Site Specific Permit

Holes were within quarry boundaries and within the permitted depths. Blasts were carried out according to the site specific conditions, and no blast exceeded the maximum permitted charge of 50Kg per delay.

Weather Conditions

Humidity ^[1]	Wind ^[1]	Temperature ^[1]	Atm. Pressure ^[1]	Cloud Cover ^[2]
58%	6 Knots SSE	22C	1021 hPa	Clear

[1] As reported by weather.maltairport.com on 26 October 2015 at 12:10 at Luqa Airport

[2] Our observation

Comments

All holes are at the middle shelf of the quarry in their respective location.

Notes

Seismograph was placed in front of the Nigret booster which is also close to the water reservoir.

Seismograph was set to trigger at 0.50 mm/s. Seismograph used is MiniMate Plus s/n BE9488.

Readings

Blast number	1	2
Time	10:40	10:45
No. of holes	13	12
No. of delays	13	12
Depth of holes (m)	9	12
Max. Charge per delay (kg)	25	34
Total charge (kg)	325	400
Dist. From Seismograph (m)	180	200
PPV (mm/s)	1.41	2.41
Frequency (Hz)	33.0	16.3
Air Overpressure (dB)	115.6	107.0
Scaled Distance (m kg^{-1/2})	36.0	34.3

Burden is an average of 2 metres, and distance between holes is an average of 2.5 metres.

Weights in kilograms are rounded-up to the nearest half-unit, and depth in metres is rounded to the nearest ½ unit. Displacement between holes and the seismograph is measured using the online version of MEPA's Map Server and is accurate to the nearest 10 metres. Number of holes, their depth, burden, and the amount of ANFO used are as given by the quarry operator. Scaled distance and maximum charge per delay are calculated from the primary data. Weights are rounded-up to the nearest kilogram and the depth is rounded to the nearest ½ meter.

Observations

There was no flyrock outside quarry boundaries. No damage to the surroundings was observed after the blast.

Anthony Cini B.Sc.

DATA COLLECTION SHEET

Date:	26-10-15		MIC for HM26 is 50Kg
Quarry Name & Number:	HM26 - Tal-Macina, Nigret, l/o Zurrieq	Quarry Operator:	C J C Camilleri Bros. Ltd.
Police Escort:	No: PC 229 Name: KENNETH CAMILLERI.		
Blasting carried out by:	Company: Framegrip Ltd.	Name: NARIO CALLEJA	
Seismograph readings by:	A CINI, RAPHAEL MICALLEF.		

Blast	Time	Holes	Delays	Dist.		Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
				(m)	(ft)	(m)	Bags	(kg)					
1	10:40:55	13	13	180	30	9.	13	325	25	1.41	33.0	115.6	
2	10:45:00	12	12	200	40	12	16	400	34	2.41	16.3	107.0	
3		25					29	725					
4													
5													
6													
7													
8													
9													
10													
11													

Location of Seismograph	<input checked="" type="checkbox"/> Front of the WSC Nigret booster (this is also next to water reservoir)	<input type="checkbox"/> Other location:
Burden	Distance between boreholes: <u>2.5</u> m	Distance from rock face (burden): <u>2</u> m
Notes	<p>Any horizontal holes? <u>No</u> Any blast made up of holes of different-depth? <u>No</u> Why? <u>✓</u></p> <p>Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? <u>No</u> Why? <u>✓</u></p> <p>Any visitors before/during/after blast? <u>Nobody</u> (note names and organizations)</p> <p>Any complaints from neighbours? <u>None Reported</u> (note names, number of persons/households?)</p> <p>Note levels of holes: <u>Middle Shelf</u></p> <p>Flyrock observation: <u>None Outside</u> Any damage to quarry surroundings? <u>None Observed</u></p>	
Further Comments	<u>* Cloud Cover - Clear.</u>	

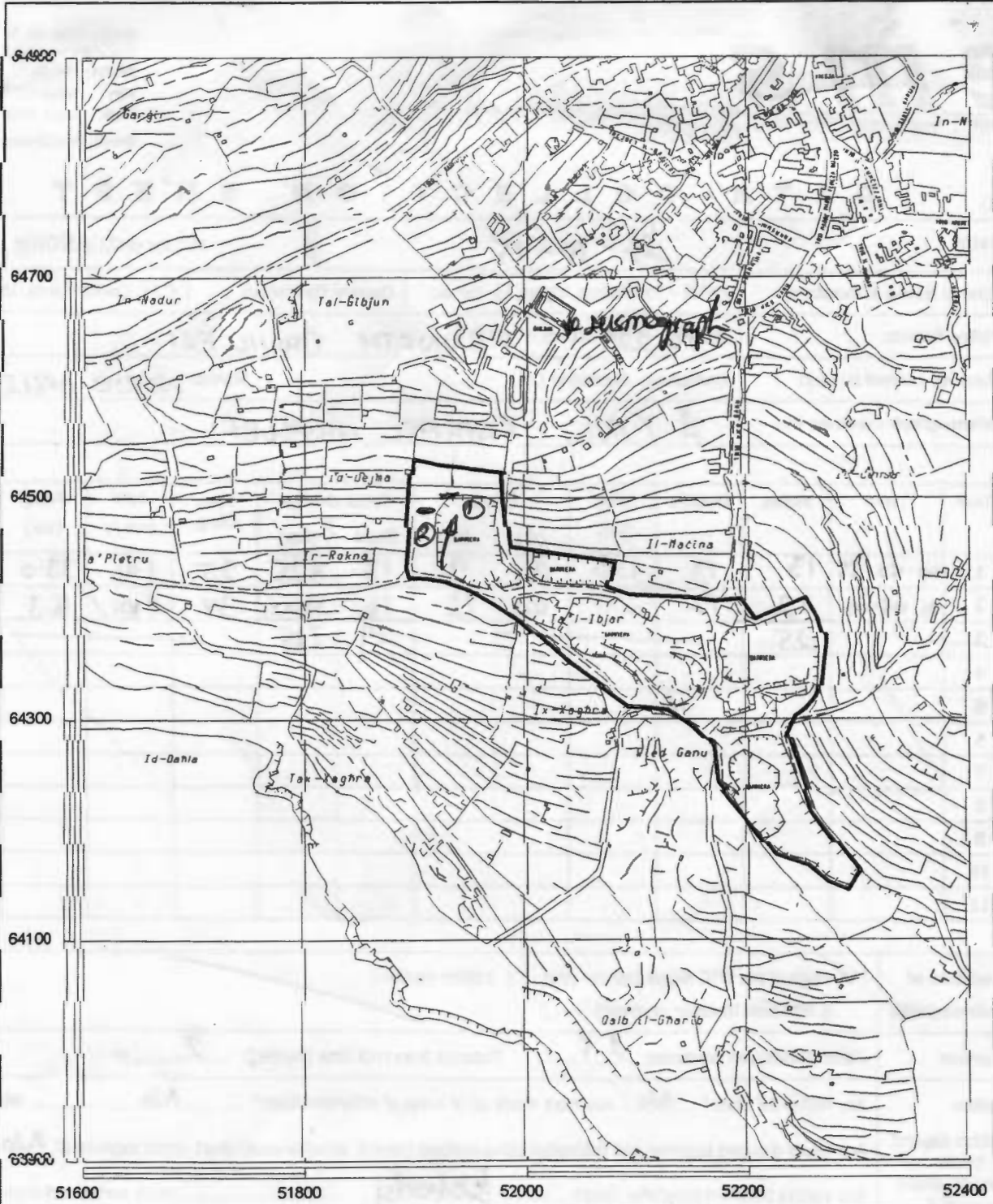
(use overleaf if more space is required)


Signatures

PC 229
Police escort

[Signature]
f/ Quarry operator

[Signature]
f/ ems



Malta Environment & Planning Authority Hardstone (LC) Quarry Site Plan		St. Francis Ravelin Floriana PO Box 200, Valletta Tel:240976 Fax:224846	
Quarry No. :- HM 26	Location :- Tal-Macina, Nigret, l/o Zurrieq		<i>26-10-15</i>
Scale :- 1:5000	Permitted Quarry Area :- 47605.41 sqm	Permitted Quarry Depth :- 80 m amsl	
Part of Survey Sheet(s): 5063 5064 5263 5264			Date :- 6/5/03

Date/Time Tran at 10:40:55 October 26, 2015
Trigger Source Geo: 0.510 mm/s
Range Geo: 31.7 mm/s
Record Time 2.0 sec at 4096 sps

Serial Number BE9488 V 10.72-8.17 MiniMate Plus
Battery Level 6.1 Volts
Unit Calibration August 20, 2015 by Datum Monitoring
File Name K488G2ZF.070

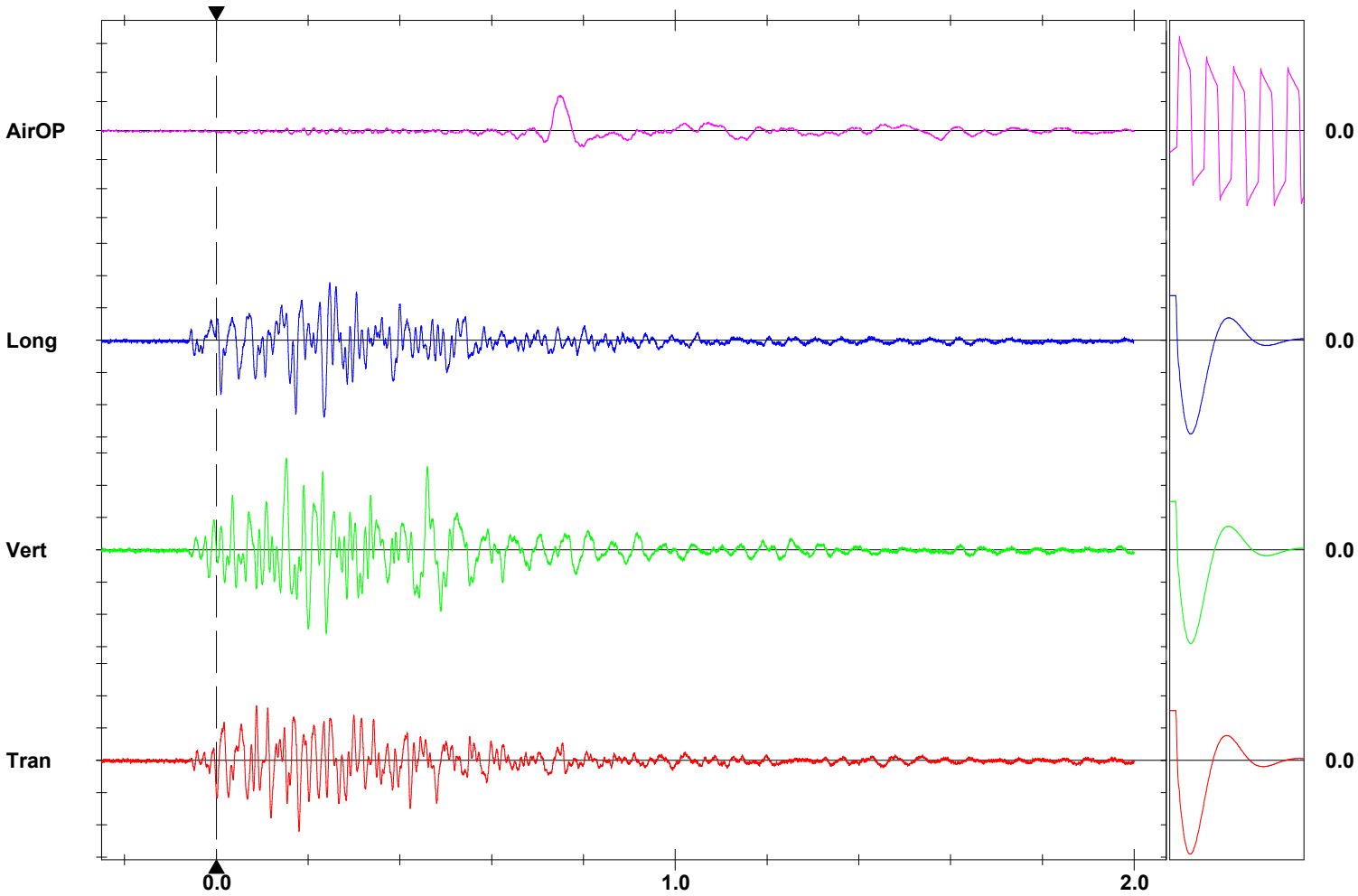
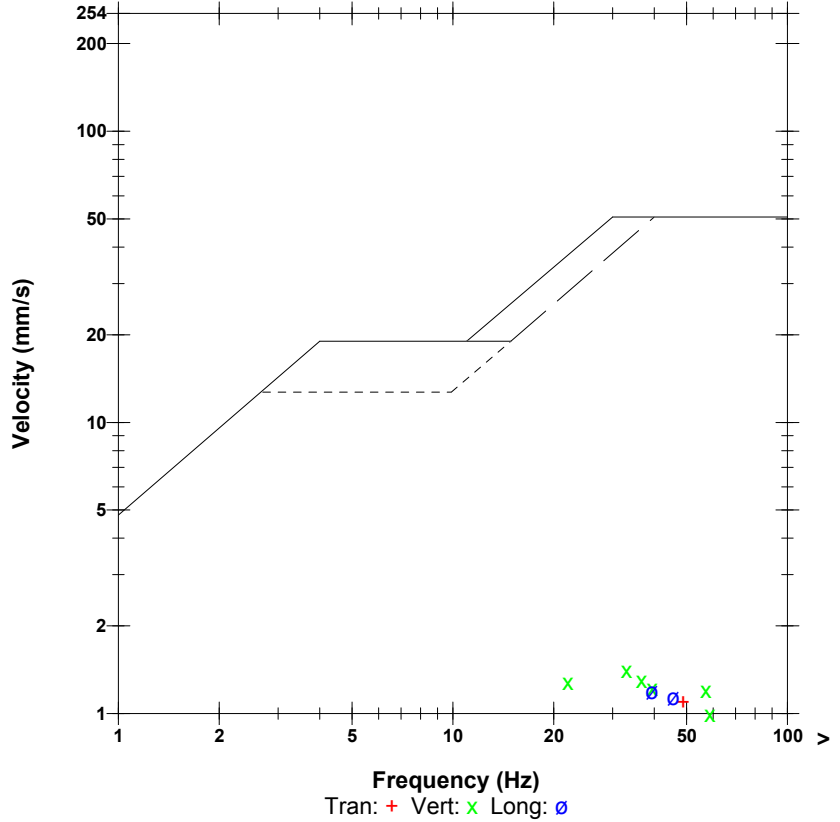
Notes
 Location: Quarry Blasting
 Client:
 User Name: ems
 General:

Microphone Linear Weighting
PSPL 115.6 dB(L) 12.0 pa.(L) at 0.748 sec
ZC Freq 10.8 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 495 mv)

	Tran	Vert	Long	
PPV	1.10	1.41	1.19	mm/s
ZC Freq	49	33.0	39.4	Hz
Time (Rel. to Trig)	0.180	0.152	0.234	sec
Peak Acceleration	0.0464	0.0597	0.0464	g
Peak Displacement	0.00307	0.00680	0.00494	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.4	7.3	Hz
Overswing Ratio	3.8	4.0	4.2	

Peak Vector Sum 1.60 mm/s at 0.233 sec

USBM RI8507 And OSMRE



Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.00 pa.(L)/div
Trigger =

Sensor Check

Date/Time Vert at 10:45:00 October 26, 2015
Trigger Source Geo: 0.510 mm/s
Range Geo: 31.7 mm/s
Record Time 2.0 sec at 4096 sps

Serial Number BE9488 V 10.72-8.17 MiniMate Plus
Battery Level 6.1 Volts
Unit Calibration August 20, 2015 by Datum Monitoring
File Name K488G2ZF.700

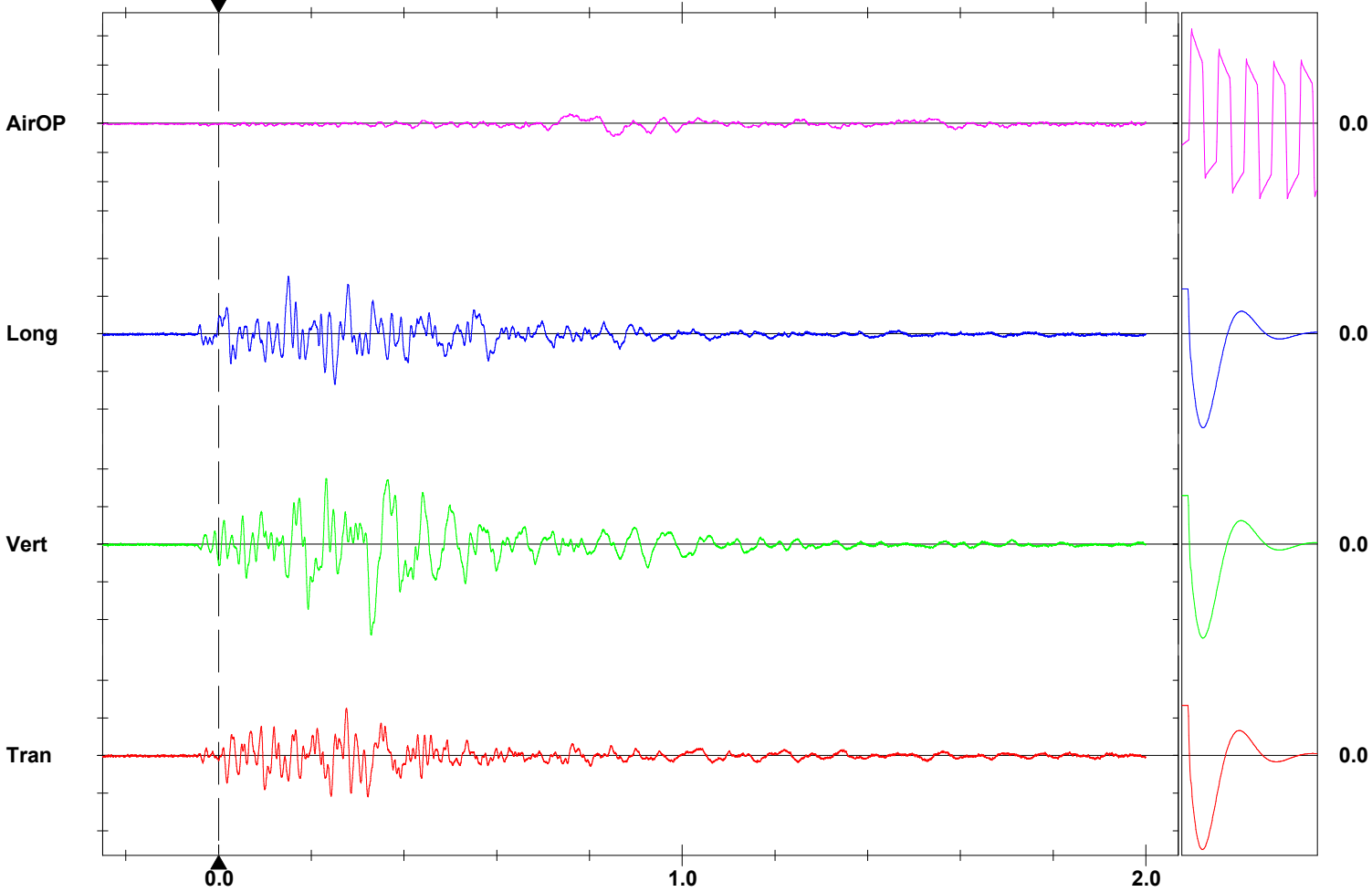
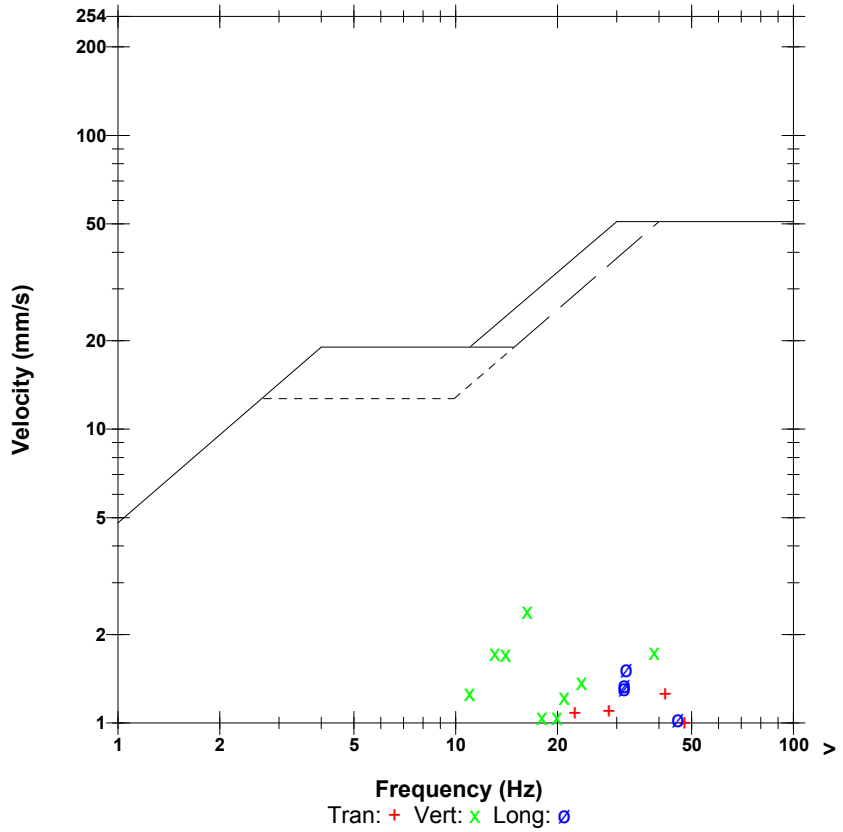
Notes
 Location: Quarry Blasting
 Client:
 User Name: ems
 General:

Microphone Linear Weighting
PSPL 107.0 dB(L) 4.50 pa.(L) at 0.851 sec
ZC Freq 8.8 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 495 mv)

	Tran	Vert	Long	
PPV	1.25	2.41	1.52	mm/s
ZC Freq	42	16.3	32.0	Hz
Time (Rel. to Trig)	0.276	0.329	0.150	sec
Peak Acceleration	0.0464	0.0464	0.0398	g
Peak Displacement	0.00739	0.0201	0.00705	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.7	7.4	7.3	Hz
Overswing Ratio	3.8	4.0	4.2	

Peak Vector Sum 2.50 mm/s at 0.329 sec

USBM RI8507 And OSMRE



Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 1.000 mm/s/div Mic: 10.00 pa.(L)/div
Trigger =

Sensor Check