

BLAST MONITORING REPORT

HM13A Hard Stone Quarry at Tat-Tomna, l/o Mellieħa

20th October 2015

Details

Date	20-10-2015
Quarry number	HM13A – Hard stone Quarry at Tat-Tomna, l/o Mellieħa
Quarry operator	A Vella Borg & Sons Ltd.
Shortfirer	Framegrip Ltd.
Police escort	PS1277 – H Spiteri

Location and time of blasting

Two blasts were carried out at 10:14 and 10:17 at the points as approximately indicated on the attached site diagram.

Summary of blasting conditions

Max charge per delay: 50Kg

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

Air overpressure limit: 120 dB (L)

Site Specific Permit

Holes were within the quarry's boundaries and within the permitted depths.

Maximum charge per delay of 50Kg was not exceeded.

Weather Conditions

Humidity ^[1]	Wind ^[1]	Air Pressure ^[1]	Temperature ^[1]	Cloud Cover ^[2]
90%	6 Knots S	1011 hPa	25 C	Clear

[1] As reported by weather.maltairport.com on 20 Oct 2015 at 11:45 at Luqa Airport [2] Our observation

Comments

Blasts number 1 is at the middle shelf of the quarry and blast number 2 is at the top shelf.

Notes

Seismograph is placed opposite the quarry, on the entrance to Tat-Tomna water reservoir (WSC).

Seismograph was set to trigger at 0.50 mm/s. Seismograph used is a MiniMate Plus, serial number BE9488.

Readings

Blast number	1	2
Time	10:14	10:17
No. of holes	11	11
No. of delays	11	11
Depth of holes (m)	18	18
Max. Charge per delay (kg)	45	45
Total charge (kg)	488	488
Dist. from seismograph (m)	190	190
PPV (mm/s)	2.25	1.65
Frequency (Hz)	31.5	23.0
Air Overpressure (dB)	103.5	108.8
Scaled Distance (m kg^{-1/2})	28.3	28.3

Burden is an average of 2 metres. Distance between holes is 2.5m.

Weights in kilograms are rounded-up to the nearest 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

No damage to the surroundings was observed after the blast.

The ground vibration and air overpressure are within permitted limits.

Anthony Cini B.Sc.

DATA COLLECTION SHEET


Date:	20-10-15		MIC for HM13A is 50Kg
Quarry Name & Number:	HM13A - Tat-Tomna, l/o Mellieha	Quarry Operator:	A Vella Borg & Sons Ltd.
Police Escort:	No: PS 1277 Name: HERMANUN SPITERI.		
Blasting carried out by:	Company: Framegrip Ltd.	Name:	MARIO CACLETYP
Seismograph readings by:	A CINI, RAPHAEL NICALIEF		

Blast	Time	Holes	Delays	Dist. (m)	Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
					(ft)	(m)	Bags	(kg)				
1	10.14.17	11	11	190	60	18	19 1/2	487 1/2	45	2.25	31.5	103.5
2	10.17.14	11	11	190	60	18	19 1/2	487 1/2	45	1.65	230	108.8
3		22					39	975				
4												
5												
6												
7												
8												
9												


Location of Seismograph	<input checked="" type="checkbox"/> At the entrance to Tat-Tomna (WSC) water reservoir <input type="checkbox"/> Other location:	
Burden	Distance between boreholes: 2.5 m	Distance from rock face (burden): 2 m
Notes	Any horizontal holes? <u>No</u> Any blast made up of holes of different-depth? <u>No</u> Why? <u>1</u> Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? <u>No</u> Why? <u>1</u> Any visitors before/during/after blast? <u>Nobody</u> (note names and organizations) Any complaints from neighbours? <u>None Reported</u> (note names, number of persons/households?) Note levels of holes: <u>(1) Middle Shelf (2) Top Shelf</u> Flyrock observation: <u>None Observed</u> Any damage to quarry surroundings? <u>None Observed</u>	
Further Comments	<u>☒ Cloud Cover - Clear.</u> <u>No damage observed.</u>	

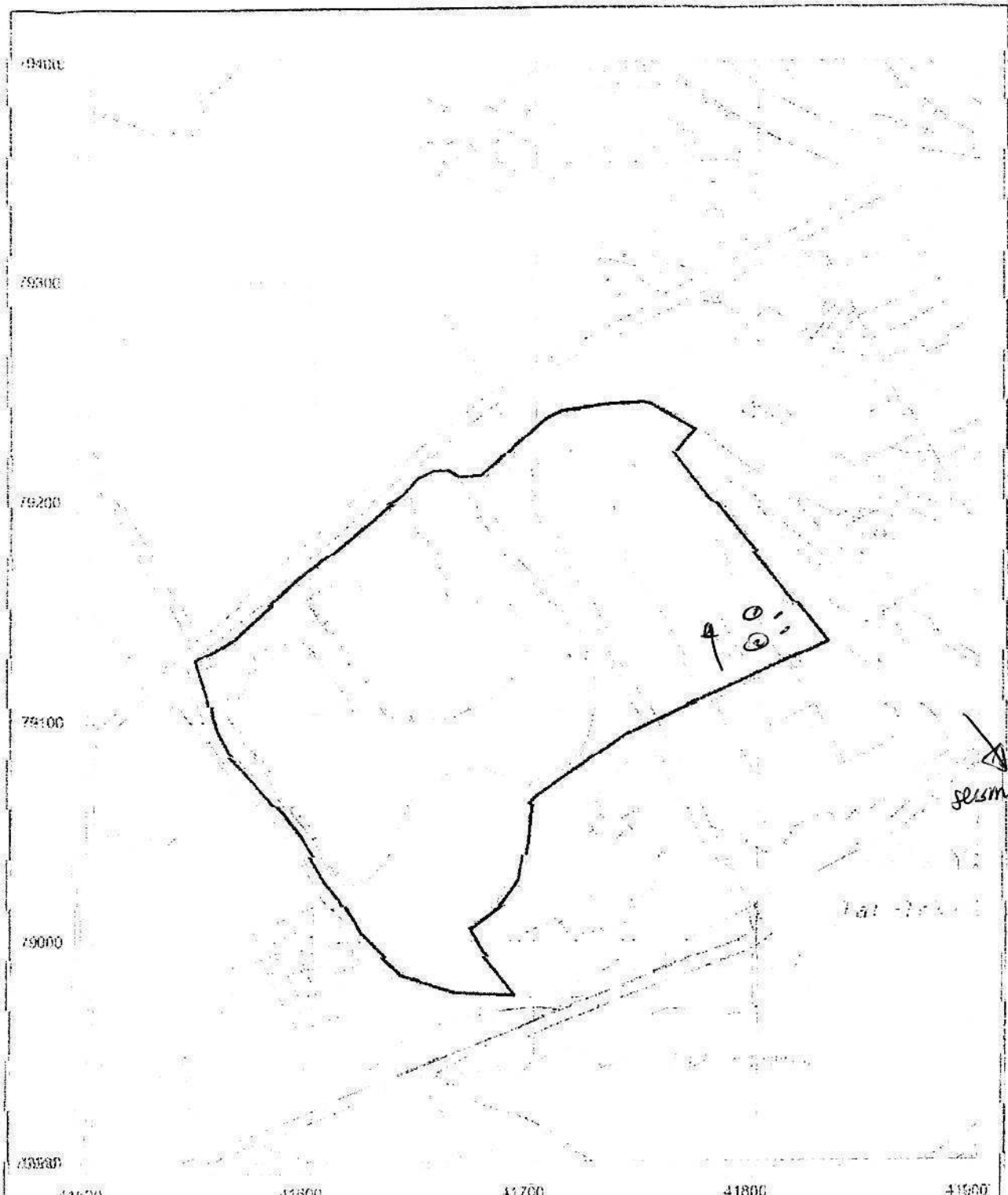
(use overleaf if more space is required)

Signatures

PS 1277

 Police escort


 f/ Quarry operator


 f/ ems



Malta Environment & Planning Authority

Hardstone (LC) Quarry Site Plan

Quarry No. :-

HM 13A

Scale :- 1:2500

Part of Survey Sheet(s): 4078 4079

St. Francis Ravello
Floriana
PO Box 200, Valletta
E: 012960000 Fax: 01223846



19-10-15

Location :- Fat-Tonna for Mellicha

Permitted Quarry Area :- 38130 sqm

Permitted Quarry Depth :- 100' m amsl

Date :- 12/7/04

Date/Time Long at 10:14:17 October 20, 2015
Trigger Source Geo: 0.510 mm/s
Range Geo: 31.75 mm/s
Record Time 2.0 sec at 4096 sps

Serial Number BE9488 V 10.72-8.17 MiniMate Plus
Battery Level 6.2 Volts
Unit Calibration August 20, 2015 by Datum Monitoring
File Name K488G2O9.RT0

Notes

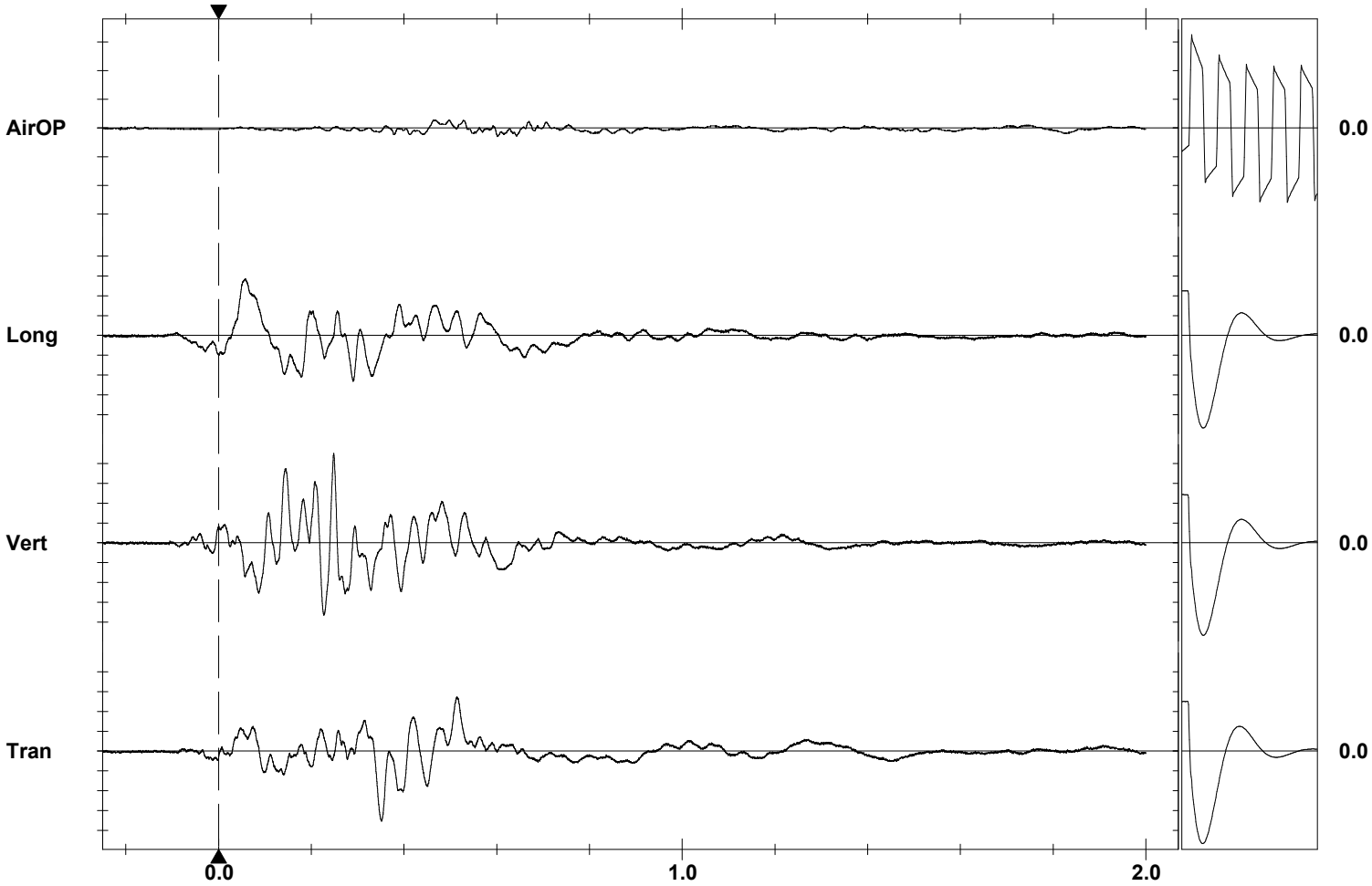
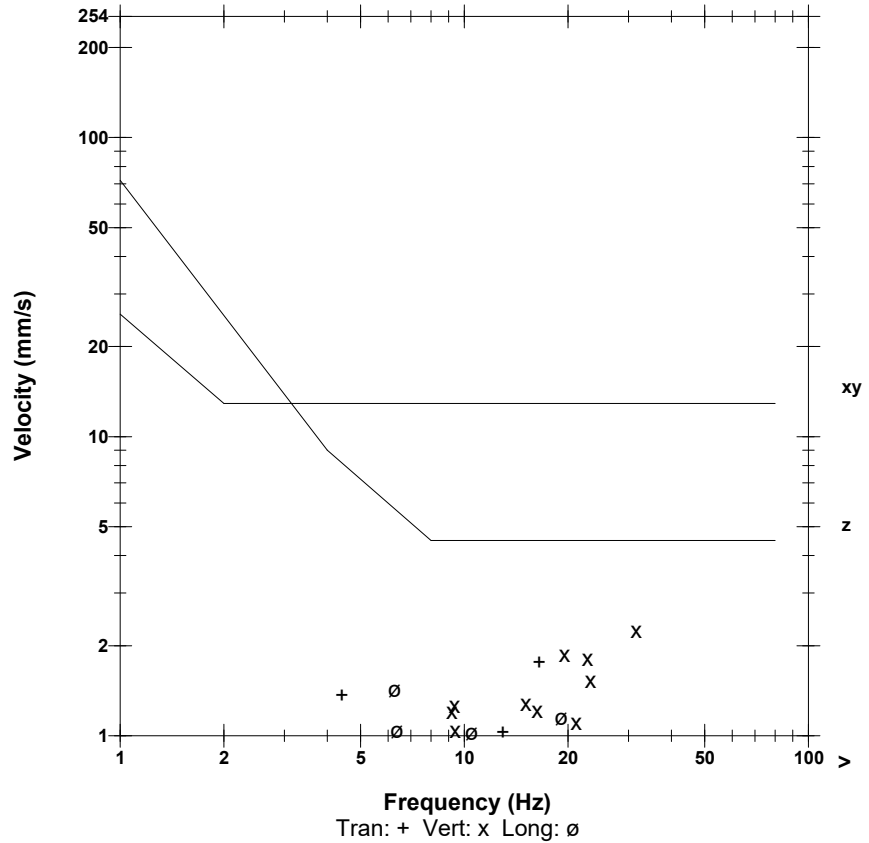
Location: Quarry Blasting
 Client:
 User Name: ems
 General:

Microphone Linear Weighting
PSPL 103.5 dB(L) 3.000 pa.(L) at 0.601 sec
ZC Freq 16.9 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 500 mv)

	Tran	Vert	Long	
PPV	1.762	2.254	1.429	mm/s
PPV	55.92	58.06	54.10	dB
ZC Freq	16.5	31.5	6.3	Hz
Time (Rel. to Trig)	0.351	0.248	0.058	sec
Peak Acceleration	0.033	0.053	0.027	g
Peak Displacement	0.026	0.019	0.029	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.3	7.3	Hz
Overswing Ratio	3.8	4.0	4.2	

Peak Vector Sum 2.258 mm/s at 0.248 sec

BS 6472:1992 CURVE 32



Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.000 pa.(L)/div
Trigger =

Sensor Check

Date/Time Long at 10:17:14 October 20, 2015
Trigger Source Geo: 0.510 mm/s
Range Geo: 31.75 mm/s
Record Time 2.0 sec at 4096 sps

Serial Number BE9488 V 10.72-8.17 MiniMate Plus
Battery Level 6.2 Volts
Unit Calibration August 20, 2015 by Datum Monitoring
File Name K488G2O9.WQ0

Notes

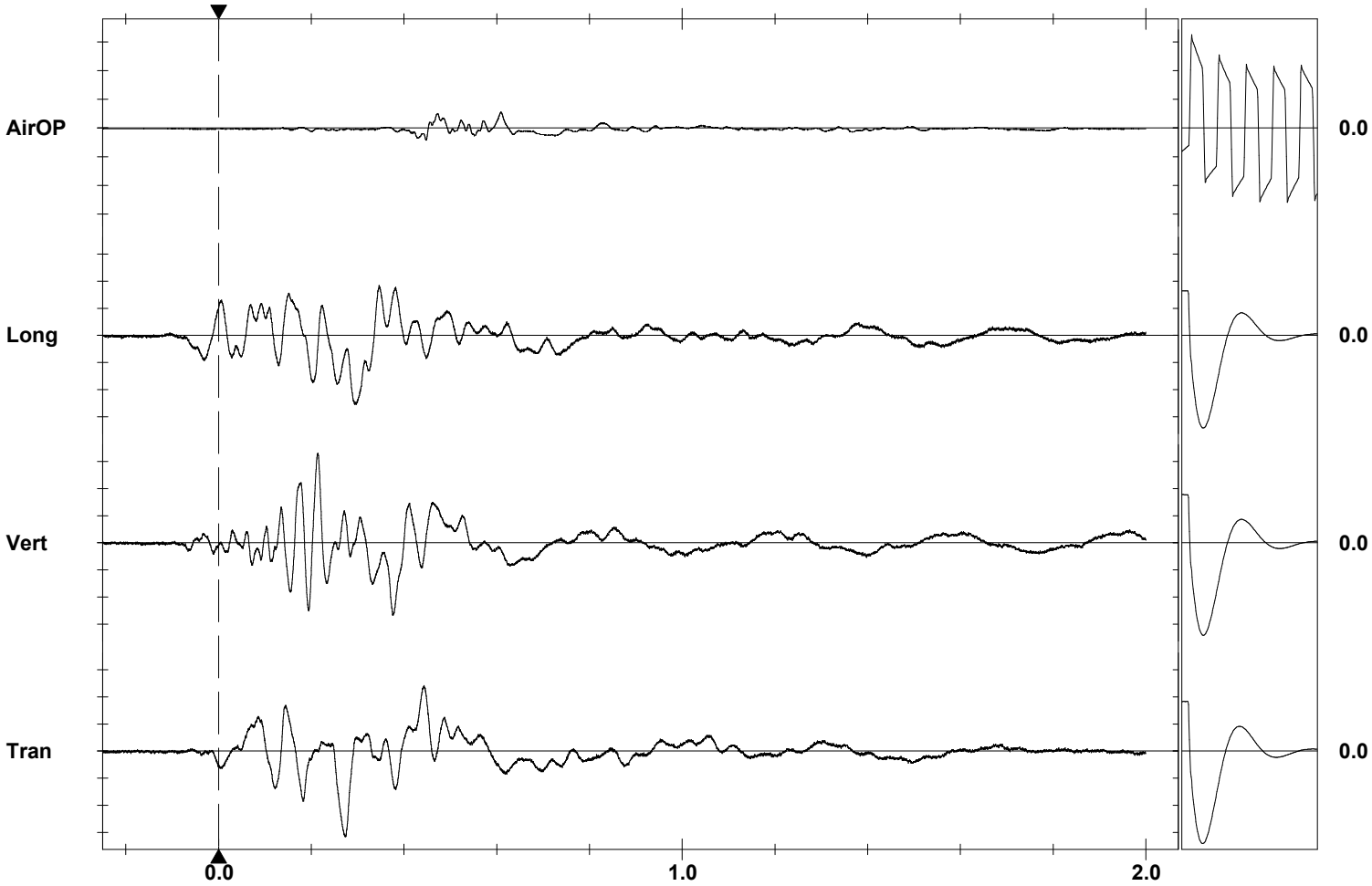
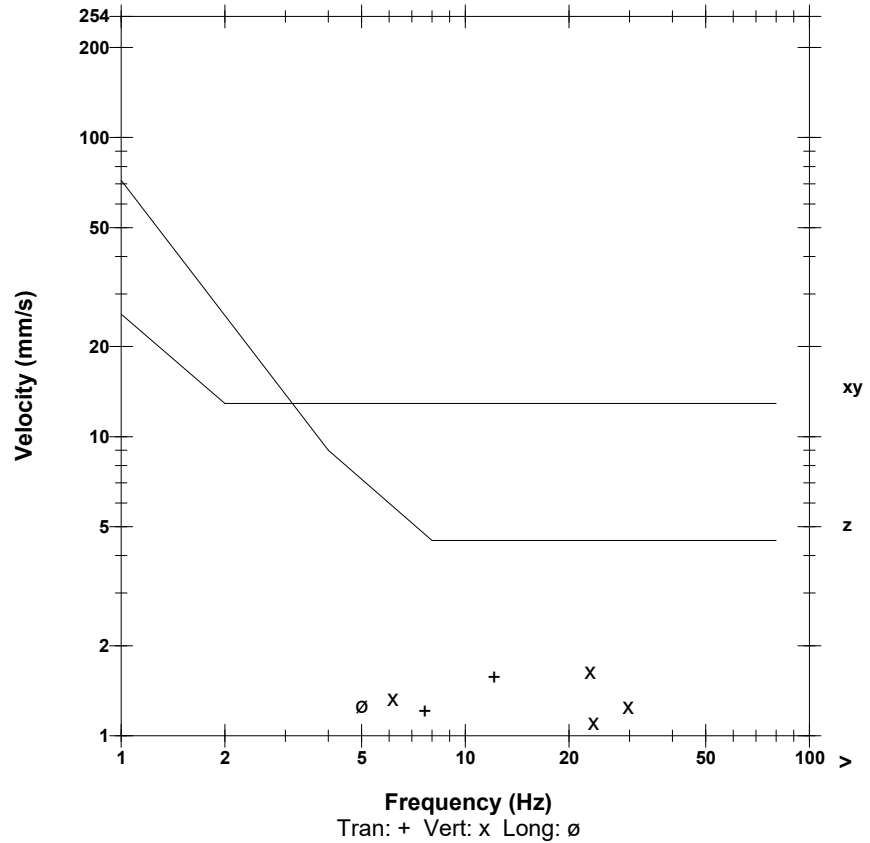
Location: Quarry Blasting
 Client:
 User Name: ems
 General:

Microphone Linear Weighting
PSPL 108.8 dB(L) 5.500 pa.(L) at 0.609 sec
ZC Freq 16.9 Hz
Channel Test Passed (Freq = 20.1 Hz Amp = 500 mv)

	Tran	Vert	Long	
PPV	1.572	1.651	1.270	mm/s
PPV	54.93	55.35	53.08	dB
ZC Freq	12.1	23.0	5.0	Hz
Time (Rel. to Trig)	0.272	0.214	0.294	sec
Peak Acceleration	0.027	0.033	0.027	g
Peak Displacement	0.020	0.024	0.033	mm
Sensor Check	Passed	Passed	Passed	
Frequency	7.6	7.3	7.3	Hz
Overswing Ratio	3.8	4.0	4.2	

Peak Vector Sum 1.701 mm/s at 0.272 sec

BS 6472:1992 CURVE 32



Time Scale: 0.20 sec/div **Amplitude Scale:** Geo: 0.500 mm/s/div Mic: 10.000 pa.(L)/div
Trigger =

Sensor Check