

BLAST MONITORING REPORT

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

9th October 2015

Details

Date	09-10-2015
Quarry number	HM26 – Tal-Maċina, Nigret, l/o Żurrieq
Quarry operator	C J C Camilleri Bros. Ltd.
ANFO Supplier	Framegrip Ltd.
Police escort	PC1107 – D Willis

Location and Time of Blasting

Two blasts were carried out at 09:21 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]
63%	20 Knots SE	26C	1013 hPa	Clear

[1] As reported by weather.maltairport.com on 9 October 2015 at 12:15 at Luqa Airport [2] Our observation

Comments

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

The two blasts were grouped together and detonated by means of two short-circuit exploders in very quick sequence and captured as one event by the seismograph.

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	09:21	
No. of holes	9	10
No. of delays	9	10
Depth of holes (m)	12	12
Max. Charge per delay (kg)	37	37
Total charge (kg)	325	369
Dist. From Seismograph (m)	220	220
PPV (mm/s)	0.51	
Frequency (Hz)	16.0	
Air Overpressure (dB)	103.5	
Scaled Distance (m kg^{-1/2})	36.2	36.2

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:	9-10-15		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 1107 Name: DANIEL WILLIS.		
Blasting carried out by:	Company: Framegrip Ltd.	Name: MARIO CALLETA	
Seismograph readings by:	RAPHAEL MICALIEF		

Blast	Time	Holes	Delays	Dist. (m)	Depth		Total charge		Max. Chrg.	PPV mm/s	Freq. (Hz)	Air (dB)
					(ft)	(m)	Bags	(kg)				
1	09-21-25	9	9	220	40	12	13	325	37	0.51	16.0	103.5
2		10	10	220	40	12	14 ^{3/4}	368 ^{3/4}	37			
3		19					21 ^{3/4}	613 ^{3/4}				
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 checked="" type="checkbox"/> Other location: _____
Burden	Distance between boreholes: <u>2.5</u> m	Distance from rock face (burden): <u>2</u> m
Notes	Any horizontal holes? <u>No</u> Any blast made up of holes of different-depth? <u>No</u> Why? <u>/</u> Any blasts grouped together and detonated using multiple (almost simultaneous) short-circuit exploders? <u>Yes</u> Why? <u>*</u> Any visitors before/during/after blast? <u>Nobody</u> (note names and organizations) Any complaints from neighbours? <u>None Reported to us</u> (note names, number of persons/households?) Note levels of holes: <u>(1,2) Middle Shelf</u> Flyrock observation: <u>None Reported</u> Any damage to quarry surroundings? <u>None Observed</u>	
Further Comments	* Yes-as, indicated, to reduce blasts due to work process * Cloud Cover - Clear.	

(use overleaf if more space is required)

Signatures

PC 1107 Willis
Police escort

[Signature]
f/ Quarry operator

[Signature]
f/ ems

Date/Time Vert at 09:21:25 October 9, 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 5.9 Volts
Unit Calibration August 20, 2015 by Datum Monitoring
File Name K488G23T.ZP0

Notes

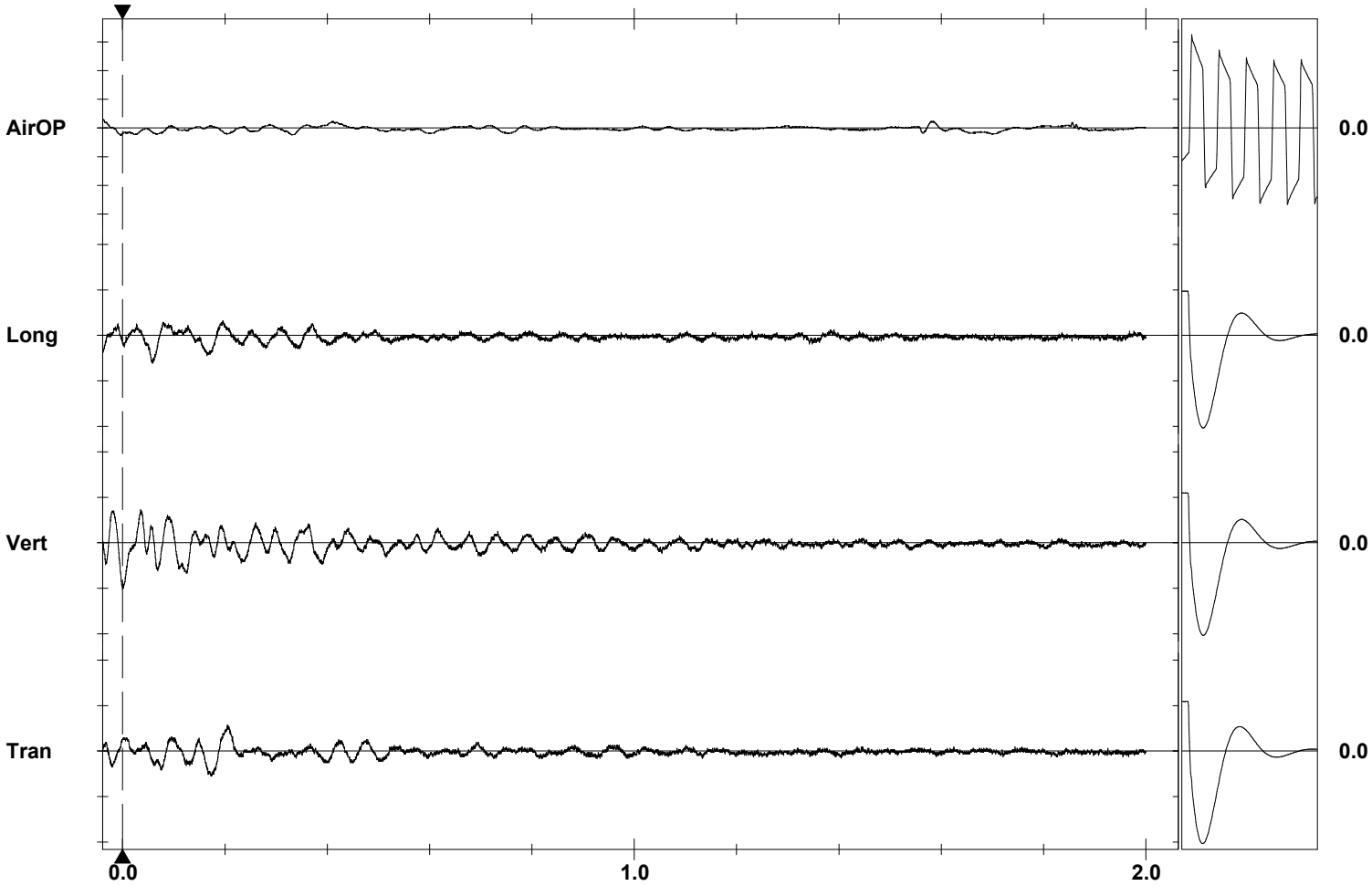
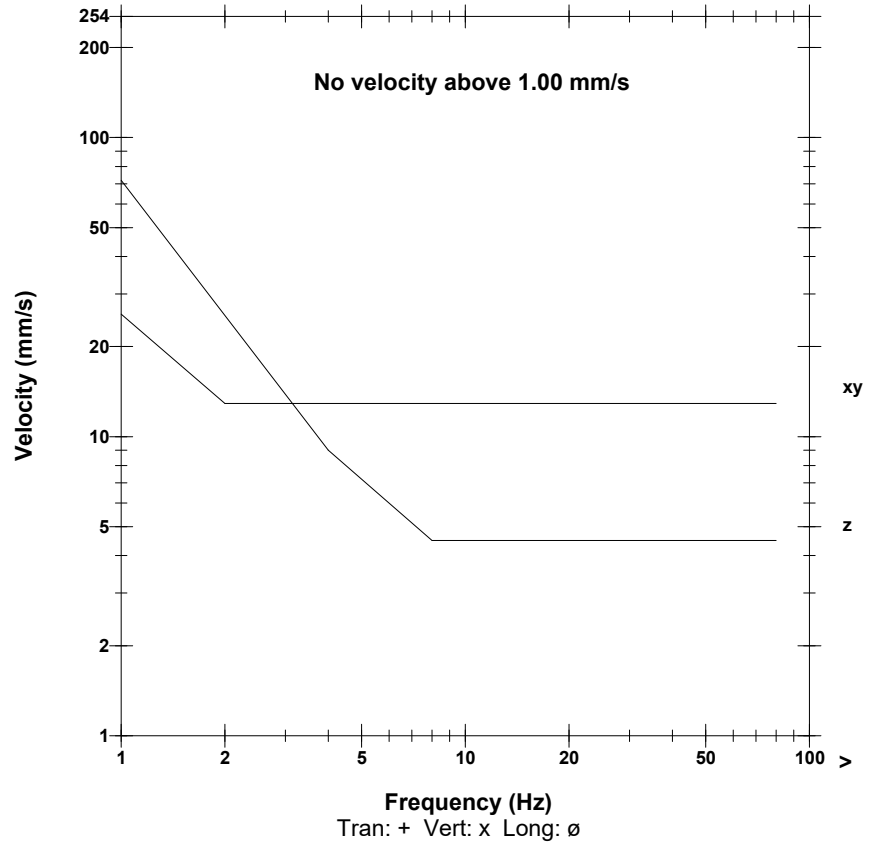
Location: Quarry Blasting
 Client:
 User Name: ems
 General:

Microphone Linear Weighting
PSPL 103.5 dB(L) 3.000 pa.(L) at -0.039 sec
ZC Freq N/A
Channel Test Passed (Freq = 20.1 Hz Amp = 540 mv)

	Tran	Vert	Long	
PPV	0.286	0.508	0.302	mm/s
PPV	40.12	45.12	40.59	dB
ZC Freq	17.7	16.0	16.0	Hz
Time (Rel. to Trig)	0.205	0.000	0.058	sec
Peak Acceleration	0.020	0.027	0.020	g
Peak Displacement	0.003	0.004	0.002	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 0.532 mm/s at 0.000 sec
N/A: Not Applicable

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