



SOUTHWEST ENERGY LLC
2040 WEST GARDNER LANE
TUCSON, ARIZONA 85705-2208
(520) 696-9495

DAILY BLAST REPORT

Thursday, September 21, 2017

Red Canyon

PRODUCT DESCRIPTION	HOLES	QUANTITY	UNIT
Shot # 6 Main Pit 6	Holes	56	
502 (Fortis Control)		15,860	Lbs
Harness Wire 500m		1	Spool
Pentex BC 12 (340)		112	Ea
Unitronic 600 15M 50'		56	Ea
Unitronic 600 9m 30'		56	Ea
Totals for 9/21/17	Total Holes	56	
502 (Fortis Control)		15,860	Lbs
Harness Wire 500m		1	Spool
Pentex BC 12 (340)		112	Ea
Unitronic 600 15M 50'		56	Ea
Unitronic 600 9m 30'		56	Ea
Blasting Service Fee		1	Each



BLAST REPORT

SOUTHWEST ENERGY LLC
2040 W GARDNER LANE
TUCSON, ARIZONA 85705-2208
(520) 696-9495

Date: 9/21/17 Customer: Martin Marietta Materials, Inc Location: Red Canyon
Shot Fired: 11:45 AM Permit No: 0405136 Pit: Main Pit Level: 6

Shot Number:	6	Shot Coordinates:	N1656004.22Y140190794.
Rock Type:	Limestone/Granite	Rock Density:	148.5 lbs/cu ft
Shot Classification:	Production	Mats Used:	No
Sky Conditions:	Clear	Temperature:	76 °F
Wind Direction:	NE	Wind Speed:	12 mph
Hole Diameter:	5 in	Avg Stem Height:	14 ft
Burden-Spacing:	16 x 16 ft	Avg Hole Depth:	44 ft
Holes:	56	Sub-Drilling:	5 ft
Total Holes:	56	Shot Tons:	41,513
Total Lbs Explo:	15,944	Powder Factor:	0.38 lbs/ton
Max Lbs/Delay:	516	Max Holes/Delay:	919
Stemming Type:	Crushed Stone	Shot Duration:	919 ms
Contract Blaster:	Travis Taylor	License No:	1-059-11062
Blast Crew:	Atwood, Smith, Miller, Taylor, Castens, Melick		
Note:			
Safety Meeting:	Yes	Workplace Inspection:	Yes

Monday, September 25, 2017

Contract Blaster: _____

Seismic Analysis

Velocity Waveform Analysis

Serial Number: 9835
Firmware Version: 0C-06.05
Event Date: 09/21/2017 11:25:11 (UTC -06:00)
Event number: 14
Recording Time: 5 s
Client: Martin Marietta
Operation: Red Canyon Quarry
Location: North Hill Side
Distance:
Operator: Vibra Tech
Comment: Pueblo, Colorado
Seismic Trigger: 0.02 in/s
Sound Trigger: 133 dB

Additional Info:

j-GEO-16060
N38 36 22 W104 56 31

Summary Data

	L	T	V
PPV (in/s):	0.08	0.075	0.06
FREQ (HZ):	11.6	15.2	13.2
PD (.001"):	0.89	0.78	0.51
PPA (g):	0.033	0.033	0.039

Peak Vector Sum: 0.088 in/s
Peak Air Pressure: 112 dB
0.0012 psi @ 12.5 HZ

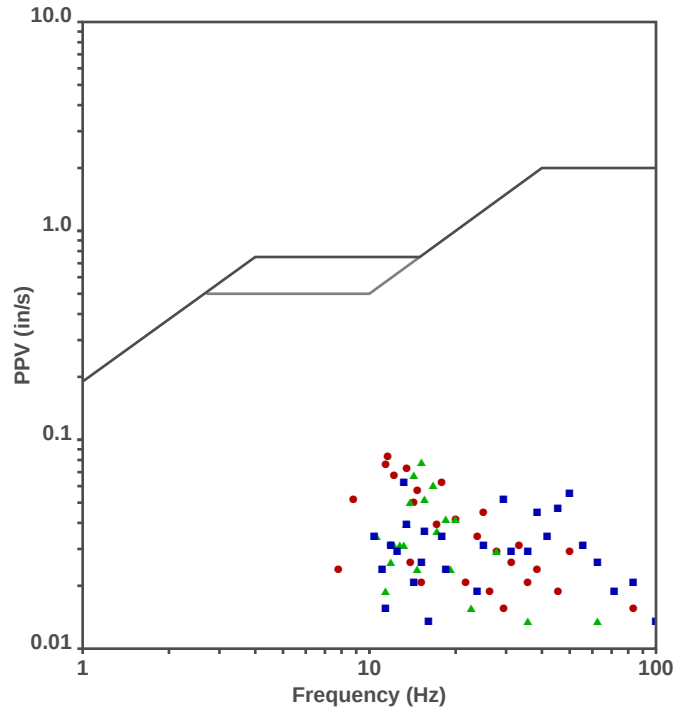
Shaketable Calibrated

On: 10/21/2016 (UTC -06:00)
By: Vibra-Tech, Inc.
2700 Holloway Road - Suite 113
Louisville, KY 40203 U.S.A.

USBM Safe Blasting Levels

SSN: 9835 Event: 14

● Longitudinal ▲ Transverse ■ Vertical



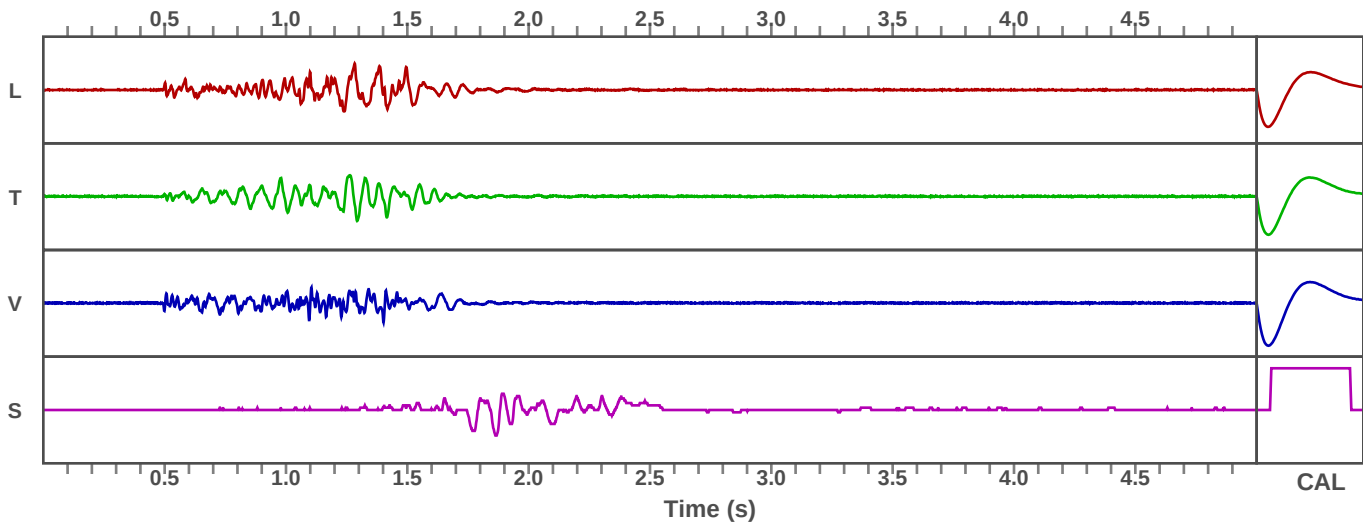
Zero Crossing Half-Wave Frequency Analysis

Waveform Graph Scale

Time Scale: 0.1 s
Seismic Scale: +/- 0.16 in/s
Sound Scale: +/- 0.0023 psi

Velocity Waveform

SSN: 9835 Event: 14



Seismic Analysis

Velocity Waveform Analysis

Serial Number: 10696
Firmware Version: 0C-06.05
Event Date: 09/21/2017 11:25:11 (UTC -06:00)
Event number: 6
Recording Time: 5 s
Client: Martin Marietta
Operation: Red Canyon Quarry
Location: Front Entrance
Distance:
Operator: Vibra Tech
Comment:
Seismic Trigger: 0.02 in/s
Sound Trigger: 133 dB

Additional Info:

j-GEO-16222
N38 36 04 W104 56 59

Summary Data

	L	T	V
PPV (in/s):	0.033	0.025	0.015
FREQ (HZ):	11.4	7.9	17.9
PD (.001"):	0.56	0.39	0.18
PPA (g):	0.013	0.013	0.013

Peak Vector Sum: 0.035 in/s
Peak Air Pressure: 108 dB
0.0007 psi @ 8.3 HZ

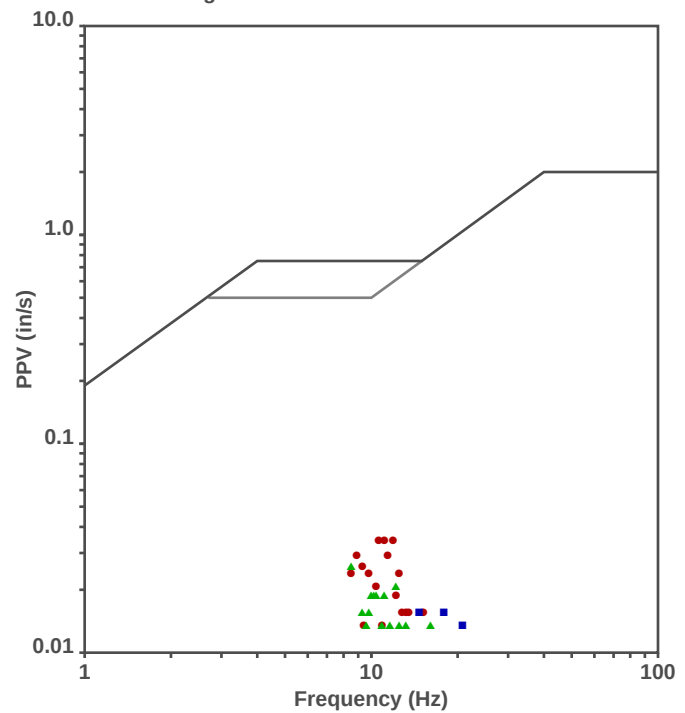
Shaketable Calibrated

On: 04/13/2017 (UTC -06:00)
By: Vibra-Tech, Inc.
2700 Holloway Road - Suite 113
Louisville, KY 40203 U.S.A.

USBM Safe Blasting Levels

SSN: 10696 Event: 6

● Longitudinal ▲ Transverse ■ Vertical

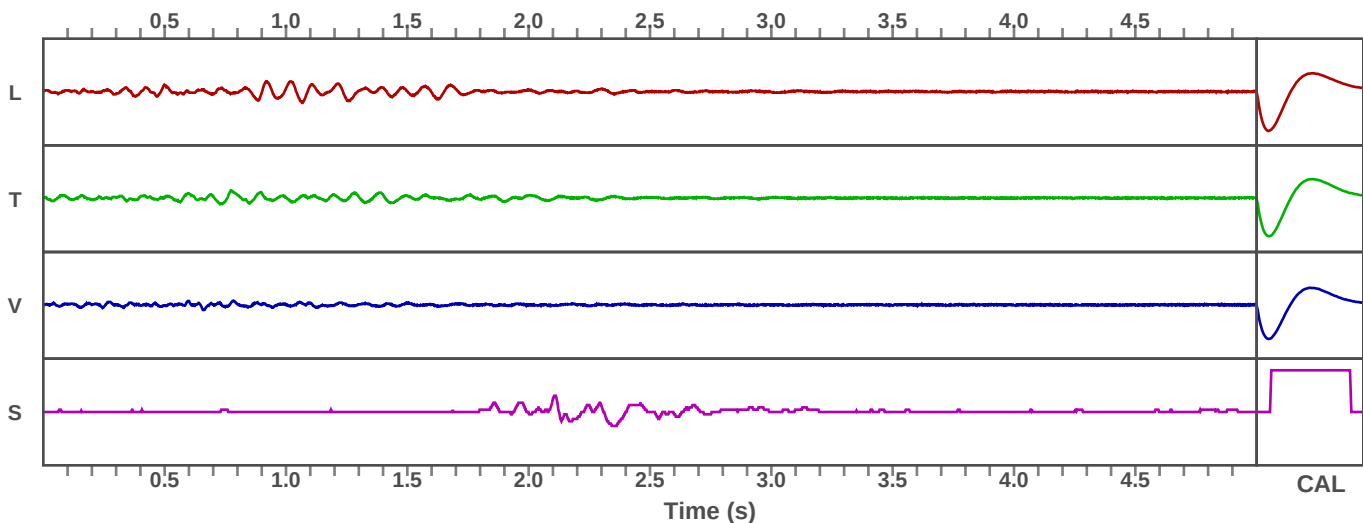


Waveform Graph Scale

Time Scale: 0.1 s
Seismic Scale: +/- 0.16 in/s
Sound Scale: +/- 0.0023 psi

Velocity Waveform

SSN: 10696 Event: 6





STATE OF
COLORADO

Cazier - DNR, Tim <tim.cazier@state.co.us>

Shot #6-2017, SWE Test Shot #5

1 message

Wayne Stoughton <Wayne.Stoughton@martinmarietta.com>

Mon, Sep 25, 2017 at 12:35 PM

To: "Cazier - DNR, Tim" <tim.cazier@state.co.us>

Good Morning Tim,

Here is the shot report and Seismic Reports for the shot on 9-21-2017. Please let me know if you need anything else on the shot.

Wayne

3 attachments



Shot Repor SWE test #5, shot #6-2017.pdf

890K



7_4PVzWQ.pdf

98K



7_ROwrHF.pdf

95K