

# SAN RAFAEL ROCK QUARRY VIBRATION REPORT

Location: Socorro, NM      Max. Charge Weight: 220      Date of Blast: 6.9.11  
 Northing: 32° 59' 01" N      Blast Duration: 437 ms      Time of Blast: 11:32  
 Easting: 122° 27' 22" W      Blast Number: 1549

SEISMOGRAPH INFORMATION		UNIT #1	UNIT #2	UNIT #3	UNIT #4	UNITS
Seismograph Model	2000	Micro	Micro	Micro	Micro	
Serial Number	4181	4560	4567	4570	4570	
Last Calibration Date	5.24.11	5.26.11	5.26.11	5.26.11	5.26.11	

LOCATION INFORMATION		UNIT #1	UNIT #2	UNIT #3	UNIT #4
Location	Stationing	Sta. Marked	Stationing	Stationing	Stationing
Northing	37° 59' 19" N	37° 59' 18" N	37° 59' 31" N	37° 59' 30" N	37° 59' 30" N
Easting	122° 27' 22" W	122° 27' 53" W	122° 27' 30" W	122° 27' 16" W	122° 27' 16" W
Distance from Blast	1848	3010	3168	2956	2956
Scaled Distance	124	202	213	199	199

VIBRATION INFORMATION		UNIT #1	UNIT #2	UNIT #3	UNIT #4
Longitudinal Peak Particle Velocity (ips)					
Longitudinal Peak Frequency (Hz)					
Transverse Peak Particle Velocity (ips)					
Transverse Peak Frequency (Hz)					
Vertical Peak Particle Velocity (ips)					
Vertical Peak Frequency (Hz)					
Peak Vector Sum (ips)					
Peak Air Overpressure (db)					

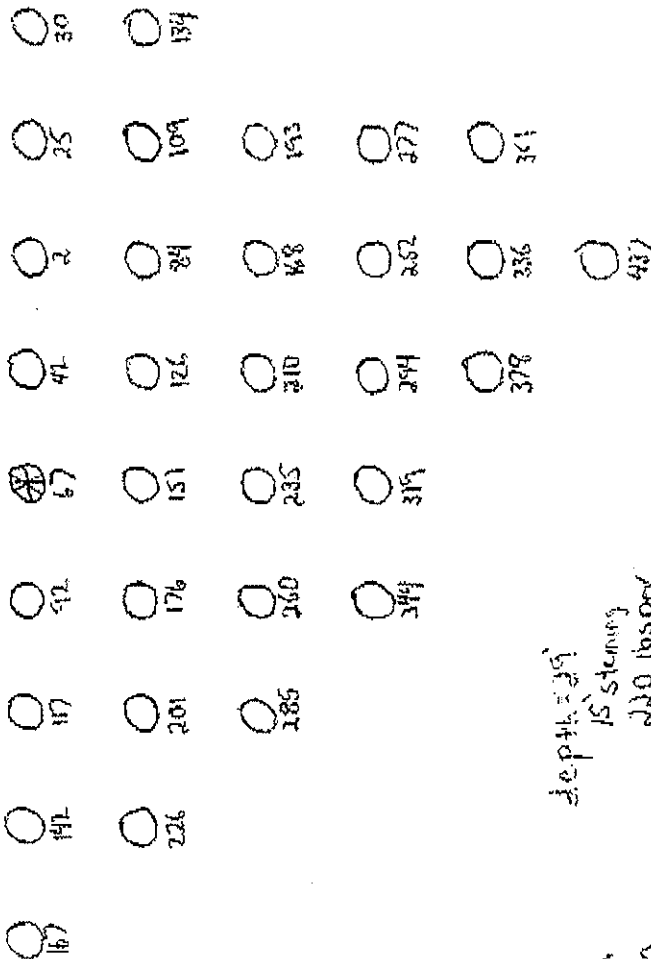
**GENERAL COMMENTS:** Nothing triggered

Seismograph Operator: Deron Lopez      Signature: [Signature]

6-9-11  
S.H.W.  
\*1549

M.H.

Face 25'



32 holes  
20' 50' unit  
30' 30' unit  
64' 450 gram

6, 9 80 lbs titanium

depth = 29'  
15' stemming  
220 lbs per

440 lbs max per deck

main 1878  
Via M 3010  
SM 3188  
M.H. 2956

⊗ 37° S 101° W  
121° 37' 22" W

# SAN RAFAEL ROCK QUARRY BLAST REPORT

**BASE DATA:**

Location: South Hill      Date: 6-9-71  
 Northing: 37° 59' 01" N      Rock Density (lb/ft<sup>3</sup>): 2.7  
 Easting: 122° 27' 22" W      Relative Rock Hardness: 7      Blast Number: 1549

**DESIGN DATA:**

Number of Holes Shot: 32      Hole Dia. (in.): 3 1/4      Stemming (ft): 15      Loading Time Required (man hrs): 6      Deck Type: —  
 Ave. Hole Depth (ft): 29      Burden (ft): 14      Stem Type: 3 1/4" Stone      Staggered Pattern (y or n): N      Length (ft): —  
 Relative Confinement: —      Spacing (ft): 14      Subdrill (ft): 4      Number of Lost Holes: 0      Tons Shot: 15680

**EXPLOSIVES DATA:**

Bulk Explosive	Weight	Boosters	Units	Delays	Misc.	Units	Max (lb/ft hole)
<u>1100</u>	<u>6980</u>	<u>450 gran</u>	<u>64</u>	<u>50 gran</u>	<u>32</u>	<u>32</u>	<u>220</u>
				<u>30 gran</u>			<u>432 ms</u>

**VIBRATION DATA:**

Total Charge Wt.: 7049

Nearest Structure: Base Camp      Seismograph Loc.: Station      Temperature: 67°      Max. Chrg. (lb/ft hole): 440  
 Northing: 37° 59' 19" N      Northing: —      Sky Condition: Clear      RPPV: 0  
 Easting: 122° 27' 22" W      Easting: —      Wind Direction: East      Frequency: 0  
 Distance Away: 1848      Distance Away: —      Wind Speed: 2-5      Airblast: 0

**PERFORMANCE DATA:**

Powder Factor (lb/ton): 44      Displacement: good      Crushability: —  
 Lib/yard<sup>3</sup>: 1.2      Vibration: Great      Fines: —  
 Fragmentation: good      Dig ability: —  
 Comments: —      Blaster in Charge: Alan Agre



Maurer & Scott, Inc.  
Maurer & Scott Sales, Inc. 122 E. Thomas Street Coopersburg, PA 18036-2100

**BLAST REPORT**

Date: 6-9-2011 Customer: TILCON OF N.Y. Location: OXFORD, N.J.

Time Fired: 11:01 (AM) P.M. Shot No.: 4-11 Shot Coordinates: N40°49.435 W75°01.346

Shot Location - Level: 4 Face: WEST Rows: 3 Mine Permit No.: ---

Rock Type: GRANITE Density: 2.46 Shot Classification: PRODUCTION Mats Used: NO

Sky Conditions: Clear Temperature: 88°F Wind Direction: S Wind Speed: 5mph  
(lbs/Cu Yd)

Total No. Holes: 43 Shot Tons (Cu. Yds.): 2,36.117 Total Lbs. Expl.: 35,117 Pwdr Fctr (Tons/lb): 1.6

Max. Lbs. Expl / Delay: 563 Max Holes / Delay: 1 Stemming Type: 3/4 STONE Sub-Drilling: 4-5'

Contract Blaster: JEFF Muldoh License No.: 3113 No. of Persons in Blast Crew: 5

Pre blast site inspection completed (Circle One): Yes No Comments: ---

Shot Duration: 6:34 ms

Initiation System (Circle One): Nonel - Electric Nonel / Electric Starter

Manufacturer: Dyno

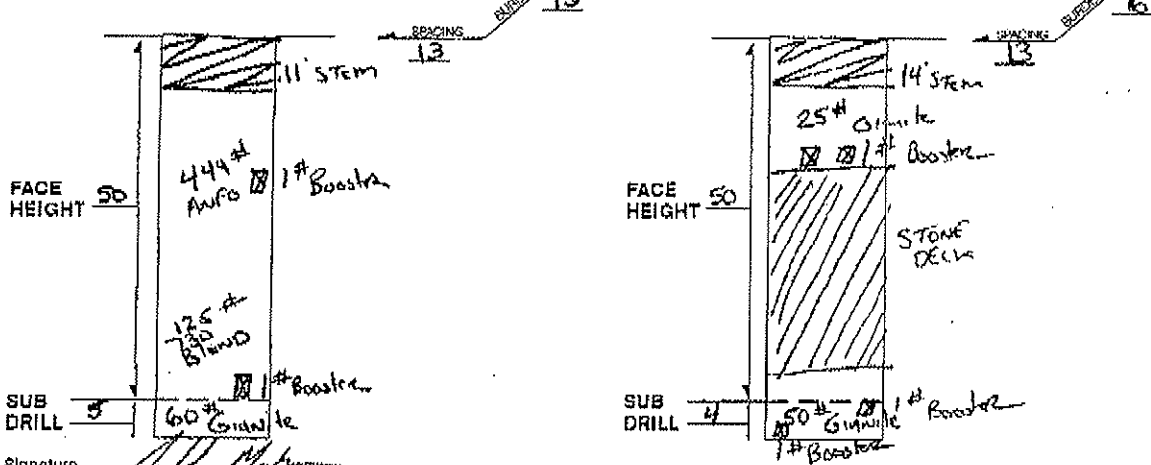
- Blasting Materials Used:
- 1) Spartan 550 1#
  - 2) Granite 4 1/2 x 25
  - 3) Granite 5 x 30
  - 4) Powstak 730 HD
  - 5) Bulk ANFO
  - 6) ---
  - 7) ---

In-Hole Units:	No. Used:	Surface Units:	No. Used:
1) <u>40' 25/525</u>	<u>25</u> ea.	1) <u>50' Extra M342</u>	<u>5</u> ea.
2) <u>60' 25/500</u>	<u>23</u> ea.	2) <u>16' Electric 4.1</u>	<u>1</u> ea.
3) <u>80' 25/500</u>	<u>44</u> ea.	3) <u>---</u>	<u>---</u> ea.
4) <u>---</u>	<u>---</u> ea.	4) <u>---</u>	<u>---</u> ea.

Total Detonators: 98 Lead in Type: --- ft

Row No.	Hole No.	Hole Dia.	Moitz. Vert. Angle	IN FEET				LBS. BLASTING MATERIAL USED							TOTAL	Water	Stem			
				Bur-den	Spac-ing	Face	Depth	1	2	3	4	5	6	7						
1	1	64	A	16	15	50	54	4	50	60	125	449					563	0	32	
3	43	64	V	13	13	50	54	2	0	90	471	0					563	15	11	
43								TOTALS	92	500	3330	10,600	7420							

**MAXIMUM BORE HOLE**



Signature: Jeff Muldoh

**RECORDED DATA**

M&S UNIT	Type/Number	Operator	Instrument Location	Dir. From Shot	Distance Ft.	Scale Distance	Part. Vel. (ft/sec)			Sound Db.
							Longitudinal	Transverse	Vertical	
<input checked="" type="checkbox"/>	5586		LANDFILL SCENE	E	1,162'		165	108	123	126
<input checked="" type="checkbox"/>	Geotronics 5500	N:	W:				Hz. 26.3	Hz. 27.7	Hz. 35.7	
<input type="checkbox"/>		N:	W:				Hz.	Hz.	Hz.	

# GeoSonics Inc. Seismic Analysis

## Stop Event Report

**Serial No:** 7155 v3.23  
**Client:** COUNTY OF MARIN  
**Operation:** SAN RAFAEL ROCK QUARRY  
**Location:** 16 MARIN BAY PARK CT.  
**Distance:**  
**Operator:** VIBRA-TECH GSM  
**Comment:** WILLIAM HOSKEN RESIDENC

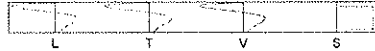
**Begin Date:** 06/09/2011 07:00:50 (UTC-7)  
**End Date:** 06/09/2011 11:51:10 (UTC-7)  
**Events over Trigger:** 0 (2-1)  
**Record Time:** 5.0 s  
**Seismic Trigger:** 0.030 in/s  
**Sound Trigger:** N/A  
**Battery Level:** 8.8

**Additional Info:**

j-GEO-01252  
N37 59.524, W122 27.373

Shaketable Calibrated: 01/26/2011  
By: Vibra-Tech, Inc.  
2700 Holloway Road - Suite 113  
Louisville, KY 40299 U.S.A.  
TEL: 502.240.9900 FAX: 502.240.9902

Dynamic Calibration Graph:



**Cal Test Results:**

**Longitudinal:** Pass  
**Transverse:** Pass  
**Vertical:** Pass  
**Sound:** Pass

The seismograph located across the street from 16 Marin Bay Park Court (S/N 7155) did not trigger during the blast on June 9, 2011 at approximately 11:31 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.

# GeoSonics Inc. Seismic Analysis

## Stop Event Report

Serial No: 9669 v3.23  
Client: COUNTY MARIN  
Operation: SAN RAFAEL ROCK QUARRY  
Location: 114 SAN MARINO DRIVE  
Distance:  
Operator: VIBRA-TECH GSM  
Comment: VERONIQUE RASKIN

Begin Date: 06/09/2011 07:00:50 (UTC-7)  
End Date: 06/09/2011 11:51:10 (UTC-7)  
Events over Trigger: 0 (2-1)  
Record Time: 5.0 s  
Seismic Trigger: 0.030 in/s  
Sound Trigger: N/A  
Battery Level: 8.7

### Additional Info:

j-GEO-01254  
N37 59.395, W122 27.700

Shaketable Calibrated: 01/26/2011  
By: Vibra-Tech, Inc.  
2700 Holloway Road - Suite 113  
Louisville, KY 40299 U.S.A.  
TEL: 502.240.9900 FAX: 502.240.9902

Dynamic Calibration Graph:



### Cal Test Results:

Longitudinal:	Pass
Transverse:	Pass
Vertical:	Pass
Sound:	Pass

The seismograph at 114 San Marino Drive (S/N 9669) did not trigger during the shot on June 9, 2011 at approximately 11:31 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.

# GeoSonics Inc. Seismic Analysis

## Stop Event Report

**Serial No:** 9856 v3.23  
**Client:** COUNTY MARIN  
**Operation:** SAN RAFAEL ROCK QUARRY  
**Location:** ON QUARRY PROPERTY  
**Distance:**  
**Operator:** VIBRA-TECH GSM  
**Comment:**

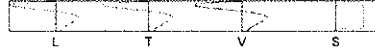
**Begin Date:** 06/09/2011 12:00:33 (UTC-7)  
**End Date:** 06/09/2011 12:07:05 (UTC-7)  
**Events over Trigger:** 0 (2-1)  
**Record Time:** 5.0 s  
**Seismic Trigger:** 0.030 in/s  
**Sound Trigger:** N/A  
**Battery Level:** 8.7

### Additional Info:

j-GEO-01253  
N37 59.481, W122 27.256

**Shaketable Calibrated:** 01/27/2011  
**By:** Vibra-Tech, Inc.  
2700 Holloway Road - Suite 113  
Louisville, KY 40299 U.S.A.  
TEL: 502.240.9900 FAX: 502.240.9902

### Dynamic Calibration Graph:



### Cal Test Results:

<b>Longitudinal:</b>	<b>Pass</b>
<b>Transverse:</b>	<b>Pass</b>
<b>Vertical:</b>	<b>Pass</b>
<b>Sound:</b>	<b>Pass</b>

The seismograph on Quarry Property (S/N 9856) did not trigger during the shot on June 9, 2011 at approximately 11:31 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.