

SAN RAFAEL ROCK QUARRY VIBRATION REPORT

Location: South Hill E-175 Max. Charge Weight: 175 Date of Blast: 3-11-11
 Northing: 37° 59' 03 N Blast Duration: 242 ms Time of Blast: 11:33
 Easting: 122° 27' 31 W Blast Number: 1544

SEISMOGRAPH INFORMATION		UNIT #		UNIT #	
Seismograph Model	2000	Mico	Mico	Mico	Mico
Serial Number	2481	4550	4567	4570	4570
Last Calibration Date	5 10 10	5 17 10	5 17 10	5 17 10	5 17 10

LOCATION INFORMATION		UNIT #		UNIT #	
Location	Marina Log	Via Montano	San Marcos	M ^c Neary Park	
Northing	37° 59' 19 N	37° 59' 18 N	37° 59' 31 N	37° 59' 30 N	
Easting	122° 59' 22 W	122° 27' 53 W	122° 27' 30 W	122° 27' 16 W	
Distance from Blast	1637	3010	2957	2693	
Scaled Distance	124	227	223	203	

VIBRATION INFORMATION	
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)	0
Peak Air Overpressure (db)	-

GENERAL COMMENTS:
Nothing triggered

Seismograph Operator: Deon Lopes Signature: Deon Lopes

SAN RAFAEL ROCK QUARRY BLAST REPORT

BASE DATA:

Location: South Hill E-175 Designed Bench Height (ft): SS Date: 3-11-11
 Northing: 37° 59' 03.1 N Rock Density (lb/ft³): 2.7 Time: 11:33
 Easting: 122° 27' 21.1 W Relative Rock Hardness: 7 Blast Number: 1544

DESIGN DATA:

Number of Holes Shot: 16 Hole Dia (in.): 3.4 Stemming (ft): 15+17 Loading Time Required (min hrs): 6 Deck Type: _____
 Ave. Hole Depth (ft): 62 Burden (ft): 8 Stem Type: 3/8" stone Staggered Pattern (y or n): N Length (ft): _____
 Relative Confinement: _____ Spacing (ft): 8 Subdrill (ft): 5 Number of Lost Holes: 0 Tons Shot: 5632

EXPLOSIVES DATA:

Bulk Explosive	Weight	Boosters	Units	Delays	Misc.	Units
<u>Alph. 3.0% X</u>	<u>2450</u>	<u>300</u>	<u>32</u>	<u>65</u>	<u>18</u>	<u>18</u>
<u>Dyno AP2 1/2 x 16</u>	<u>117</u>		<u>14</u>	<u>30</u>		<u>14</u>

Max (lb/ftole): 175
 Blast Duration (sec): 292ms

Total Charge Wt: 2591

VIBRATION DATA:

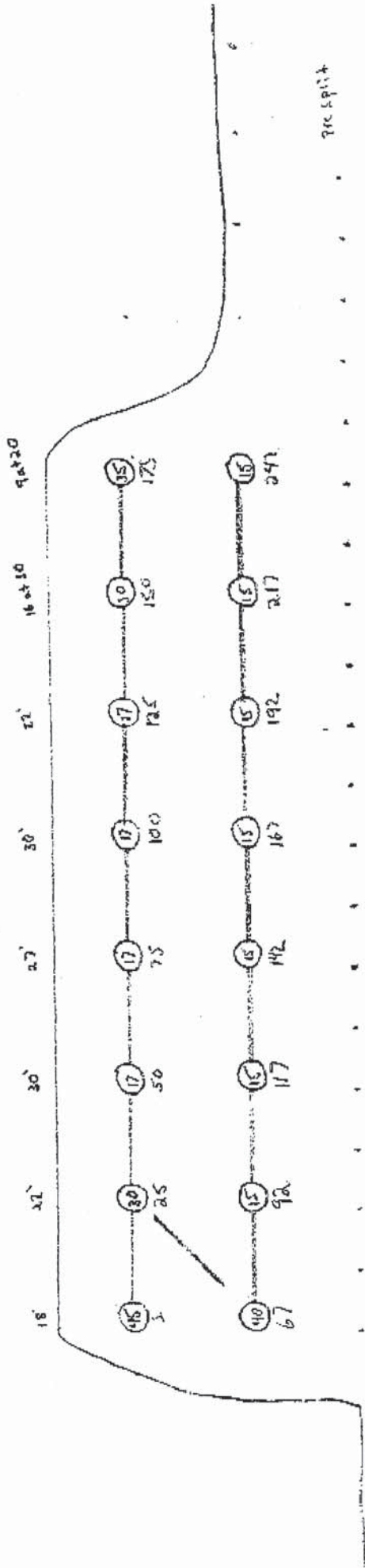
Nearest Structure: Max. in. ag Seismograph Loc.: S.W. Temperature: 62 Max. Chrg. (lb/ftms): 175
 Northing: 37° 59' 19.1 N Nothing: _____ Sky Condition: clear RPPV: 0
 Easting: 122° 27' 22.1 W Easting: _____ Wind Direction: NE Frequency: 0
 Distance Away: 1632 Distance Away: _____ Wind Speed: 0-2 Airblast: 0

PERFORMANCE DATA:

Powder Factor (lb/ton): 4 Displacement: _____ Crushability: _____
 Lb/ft³: 1.3 Vibration: Great Fines: _____
 Fragmentation: Great Dig ability: _____
 Comments: skleton with Bob Keller Blaster in Charge: Bob Keller

3.11.11
 South Hill E176
 #1594

Face H+SS



Main 1637
 Viam 3010
 Sca M 2957
 M2N 2643
 21° 59' 03" N
 122° 27' 21" W

depth 0.2 m
 20° Angle
 Stem 15+17 A4

16 Holes
 18 = 65 cm. ton
 14 = 30 cm. ton
 32 = 350 gram
 2450* Alpha mix
 117* Dyna AP 0 1/2 x 16

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: 03/11/2011 07:00:50 (UTC-8)
End Date: 03/11/2011 12:16:22 (UTC-8)
Events over Trigger: 0 (2-1)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.9

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 March 11, 2011 at approximately 11:33 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: 03/11/2011 06:00:50 (UTC-8)
End Date: 03/11/2011 12:19:22 (UTC-8)
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:

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

The seismograph on Quarry Property (S/N 9856) did not trigger during the shot on March 11, 2011 at approximately 11:33 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: 03/11/2011 07:00:50 (UTC-8)
End Date: 03/11/2011 12:16:40 (UTC-8)
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-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 March 11, 2011 at approximately 11:33 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.