

SAN RAFAEL ROCK QUARRY VIBRATION REPORT

Location: PB-8 Max Charge Weight: 40 lbs Date of Blast: 30 12
 Northing: 37° 59' 10 N Blast Duration: 67 ms Time of Blast: 11:31
 Easting: 122° 27' 18 W Blast Number: 1566

Seismograph Model	Serial Number	Last Calibration Date	MICRO	MICRO	MICRO
SSU 2000	3481	5 24 11	4550	4567	4570
			5 26 11	5 26 11	5 26 11

Location	Northing	Easting	Distance from Blast	Scaled Distance
Mañá Ag	37° 59' 18 N	122° 27' 22 W	2957	
Via Montabello	37° 59' 31 N	122° 27' 30 W	2428	
M'Neat Park	37° 59' 30 N	122° 27' 16 W	2057	

VIBRATION INFORMATION	Value
Longitudinal Peak Particle Velocity (ips)	.05
Longitudinal Peak Frequency (Hz)	35.7
Transverse Peak Particle Velocity (ips)	.04
Transverse Peak Frequency (Hz)	38.4
Vertical Peak Particle Velocity (ips)	.03
Vertical Peak Frequency (Hz)	62.5
Peak Vector Sum (ips)	.06
Peak Air Overpressure (db)	100

MICRO'S did not trigger
 Seismograph Operator: Peron Lopes Signature: Peron Lopes

SAN RAFAEL ROCK QUARRY BLAST REPORT

BASE DATA:

Location: PB-8 Designed Bench Height (ft): Sump Date: 1/30/12
 Northing: 37°59'10N Rock Density (lb/ft³): 2.23 Time: 11:31
 Easting: 122°27'18W Relative Rock Hardness: 7 Blast Number: 1566

DESIGN DATA:

Number of Holes Shot: 5 Hole Dia. (in.): 6 3/4 Loading Time Required (man hrs): 6 Deck Type: _____
 Avg. Hole Depth (ft): 23 Burden (ft): 14 Stem Type: 10 Staggered Pattern (y or n): N Length (ft): _____
 Relative Confinement: _____ Spacing (ft): 14 Subdrill (ft): _____ Number of Lost Holes: 4 Tons Shot: 1865

EXPLOSIVES DATA:

Bulk Explosive	Weight	Boosters	Units	Delays	Units	Misc.	Units	Max (lb/hole)	Blast Duration (sec)
Dyno AP 3x16	175 lbs	450 gran	5	50 EZ	10			40	
25 gran cord	130 FT			42ms	1				67ms
				17ms	1				

VIBRATION DATA:

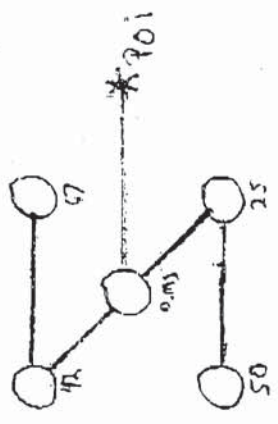
Nearest Structure: Mesa Crg Seismograph Loc.: Same Temperature: 67° Max. Chrg. (lb/8ms): 4b Total Charge Wt.: 200
 Northing: 37°59'17N Northing: _____ Sky Condition: overcast RPPV: .06
 Easting: 122°27'22W Easting: _____ Wind Direction: ESE Frequency: 62.5
 Distance Away: 1057 Distance Away: _____ Wind Speed: 0-1 Airblast: 100

PERFORMANCE DATA:

Powder Factor (lb/ton): 7 Displacement: 0V Crushability: _____
 Lb/yard³: 1 Vibration: Great Fines: _____
 Fragmentation: ok Dig ability: _____
 Comments: Sump shot wet and latty. Blaster in Charge: [Signature]

1.30.12
 7B.8
 #1566

Swamp shot



14x14

Sholes

10:50 EZ
 1:42 ms
 1:17 ms
 S: 450 gram

5 1/2 Boxes Dyno AP 3x16
 #175

25 gram Cord 130'

Depth 23

10 strings in
 a decoupled Hole
 6 3/4 in.
 Holes Very Wet and
 Ratty

main: 1056
 Viatt: 2957
 SM: 2428
 M6N: 2059
 37° 59' 10 N
 122° 27' 18 W

GeoSonics Inc. Seismic Analysis

Stop Event Report

Serial No: 7334 v3.23
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QUARRY
Location: 114 SAN MARINO DRIVE
Distance:
Operator: VIBRA-TECH GSM
Comment: Veronique Raskin Res.

Begin Date: 01/30/2012 06:00:50 (UTC-8)
End Date: 01/30/2012 12:38:16 (UTC-8)
Events over Trigger: 0 (5-4)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.9

Additional Info:

j-GEO-01254
N37 59.395, W122 27.700

Shaketable Calibrated: 01/16/2012
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 7334) did not trigger during the shot on January 30, 2012 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: 7179 v3.23
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QUARRY
Location: ON QUARRY PROPERTY
Distance:
Operator: VIBRA-TECH GSM
Comment:

Begin Date: 01/30/2012 06:00:50 (UTC-8)
End Date: 01/30/2012 12:38:15 (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-01253
N37 59.481, W122 27.256

Shaketable Calibrated: 01/13/2012
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 7179) did not trigger during the shot on January 30, 2012 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: 7257 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: 01/30/2012 07:00:50 (UTC-8)
End Date: 01/30/2012 12:54:29 (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-01252
N37 59.524, W122 27.373

Shaketable Calibrated: 01/13/2012
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 7257) did not trigger during the blast on January 30, 2012 at approximately 11:31 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.