

SAN RAFAEL ROCK QUARRY VIBRATION REPORT

Location: PB-7 Max. Charge Weight: 200 Date of Blast: 8.30.11
 Northing: 37° 59' 10 N Blast Duration: 343 ms Time of Blast: 12:11
 Easting: 122° 27' 17 W Blast Number: 554

SEISMOGRAPH INFORMATION		UNIT		UNIT	
Seismograph Model	2000	Mico	Mico	117050	
Serial Number	2481	4550	4647	4670	
Last Calibration Date	5 24 11	5 26 11	5 26 11	5 26 11	

LOCATION INFORMATION		UNIT		UNIT	
Location	Offsite	Site	Location	Site	Location
Northing	37° 59' 19 N	37° 59' 31 N	37° 59' 30 N	37° 59' 30 N	
Easting	122° 27' 22 W	122° 27' 20 W	122° 27' 16 W	122° 27' 16 W	
Distance from Blast	1056	8456	2428	2060	
Scaled Distance	74	209	171	145	

VIBRATION INFORMATION		UNIT		UNIT	
Longitudinal Peak Particle Velocity (ips)	.12		.06		
Longitudinal Peak Frequency (Hz)	16.6		13.5		
Transverse Peak Particle Velocity (ips)	.13		.05		
Transverse Peak Frequency (Hz)	14.2		3.9		
Vertical Peak Particle Velocity (ips)	.11		.05		
Vertical Peak Frequency (Hz)	38.5		13.1		
Peak Vector Sum (ips)	.16		.08		
Peak Air Overpressure (db)	112		106		

GENERAL COMMENTS

Seismograph Operator: Ramon Lopez Signature: [Signature]

SAN RAFAEL ROCK QUARRY BLAST REPORT

BASE DATA:

Location: PB-7 Designed Bench Height (ft): 40 Date: 8.30.11
 Northing: 37° 59' 10 N Rock Density (lb/ft³): 2.7 Time: 12:11
 Easting: 122° 37' 17 W Relative Rock Hardness: 7 Blast Number: 1554

DESIGN DATA:

Number of Holes Shot: 20 Hole Dia. (in.): 6 3/4 Stemming (ft): 15 Loading Time Required (man hrs): 9 Deck Type: 3/4" Stone
 Ave. Hole Depth (ft): 43 Burden (ft): 15 Stem Type: 3/4" Static Staggered Pattern (y or n): N Length (ft): 51 A
 Relative Confinement: _____ Spacing (ft): 16 Subchill (ft): 3 Number of Lost Holes: 0 Tons Shot: 19,200

EXPLOSIVES DATA:

Bulk Explosive	Weight	Boosters	Units	Delays	Misc.	Units	Max (lb/hole):
<u>TRIPLEX</u>	<u>6500</u>	<u>150</u>	<u>40</u>	<u>20</u>		<u>20</u>	<u>340</u>
				<u>50</u>		<u>20</u>	
				<u>4</u>		<u>4</u>	

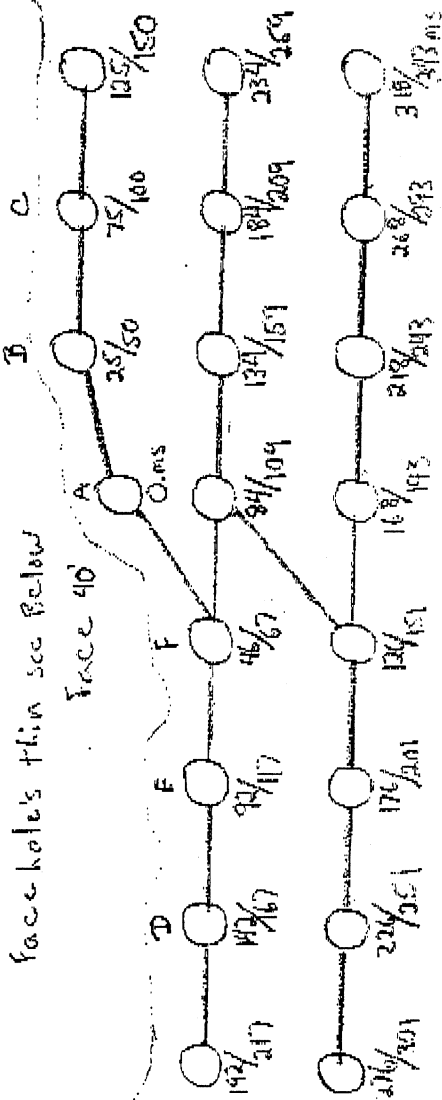
VIBRATION DATA:

Nearest Structure: Refin. 509 Seismograph Loc.: S 600 Temperature: 70° Max. Chrg. (lb/ftms): 300 Total Charge Wt.: 6540
 Northing: 37° 59' 19 N Northing: _____ Sky Condition: Direct Cast RPPV: .16
 Easting: 122° 37' 22 W Easting: _____ Wind Direction: SE Frequency: 38.4
 Distance Away: _____ Distance Away: _____ Wind Speed: 3-6 Airblast: 112

PERFORMANCE DATA:

Powder Factor (lb/ton): .3 Displacement: Good Crushability: _____
 lb/yard³: .9 Vibration: Great Fines: _____
 Fragmentation: Good Dig ability: _____
 Comments: Deck loaded Blaster in Charge: J. M. Jeps

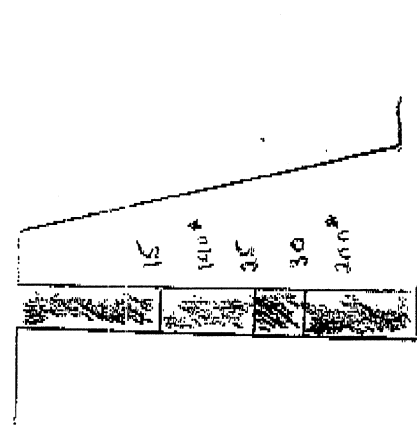
face holes thin see below



8.30.11
PB.7
* 1554

15 x 16

probosc. form.



20 H mte

30° 28' EZ det

30° 50' EZ det

4: 42 ms

40: 450 gram Bonsters

6,500 lbs titar 1000s

depth: 413

MOMIN 10502

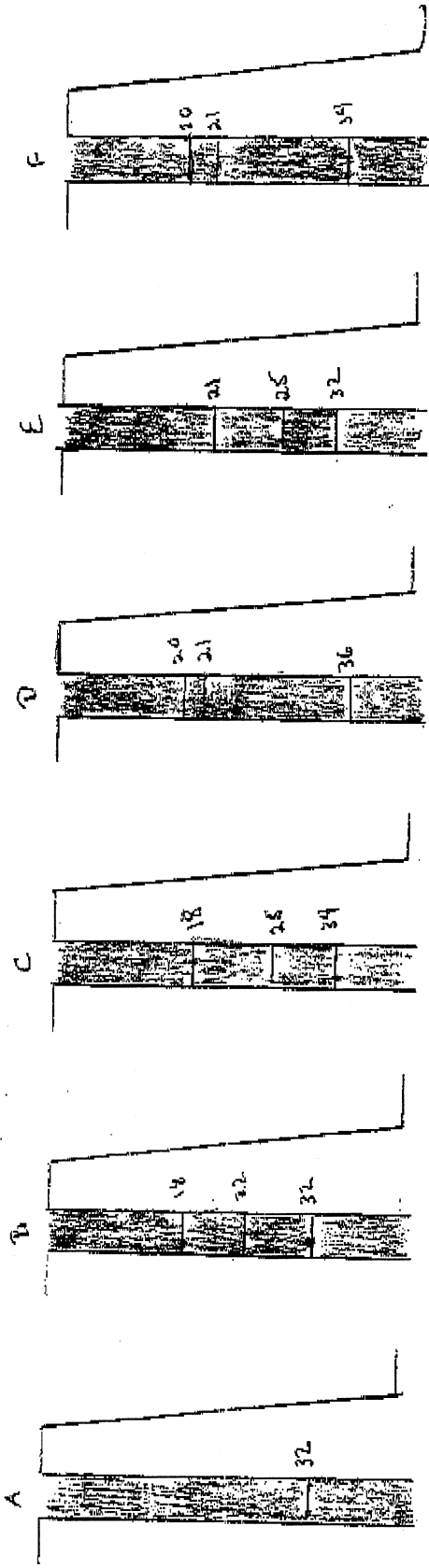
VIA M 24554

SAM M 24228

M'N 80660

37° 59' 10 N

122° 27' 17 W



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: 08/30/2011 06:00:50 (UTC-7)
End Date: 08/30/2011 12:50:42 (UTC-7)
Events over Trigger: 0 (4-3)
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 August 30, 2011 at approximately 12:11 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: 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

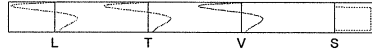
Begin Date: 08/30/2011 07:00:50 (UTC-7)
End Date: 08/30/2011 12:47:52 (UTC-7)
Events over Trigger: 0 (5-4)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.8

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 August 30, 2011 at approximately 12:11 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: 08/30/2011 07:00:50 (UTC-7)
End Date: 08/30/2011 12:54:01 (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: 8.9

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 August 30, 2011 at approximately 12:11 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.