

SAN RAFAEL ROCK QUARRY VIBRATION REPORT

Location: S.H. 61-120 Max. Charge Weight: 540 Date of Blast: 6/4/13
 Northing: 37° 59' 00 N Blast Duration: 234 ms Time of Blast: 11:47
 Easting: 122° 27' 21 W Blast Number: 1599

| | | | |
|-----------------------------|---------------|----------------|---------------|
| Seismograph Model | 2000 | Micro | Micro |
| Serial Number | 2481 | 4550 | 4520 |
| Last Calibration Date | 5 3 13 | 5 3 13 | 5 3 13 |
| LOCATION INFORMATION | | | |
| Location | Marin Co | Via Montabello | San Marino |
| Northing | 37° 59' 19 N | 37° 59' 18 N | 37° 59' 30 N |
| Easting | 122° 27' 22 W | 122° 27' 53 W | 122° 27' 16 W |
| Distance from Blast | 2005 | 3220 | 3062 |
| Scaled Distance | 86 | 138 | 143 |

| | |
|---|---|
| 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: [Signature]

SAN RAFAEL ROCK QUARRY BLAST REPORT

BASE DATA:

Location: S.H. E1-120 Designed Bench Height (ft): 45' Date: 6/4/13
 Northing: 37° 59' 00" N Rock Density (g/cm³): 2.23 Time: 11:47
 Easting: 122° 27' 21" W Relative Rock Hardness: 7 Blast Number: 1594

DESIGN DATA:

Number of Holes Shot: 18 Hole Dia. (in.): 6 3/4 Stemming (ft): 17 Loading Time Required (man hrs): 6 Deck Type: -
 Ave. Hole Depth (ft): 48 Burden (ft): 15 Stem Type: 3/4" stem Staggered Pattern (y or n): N Length (ft): -
 Relative Confinement: - Spacing (ft): 15 Subdrills (ft): 3 Number of Lost Holes: 0 Tons Shot: 15,053

EXPLOSIVES DATA:

| Bulk Explosive | Weight | Boosters | Units | Delays | Misc. | Units | Max (lb/hole) | Blast Duration (sec) | Total Charge Wt. |
|----------------|--------|----------|-------|-----------|-------|-------|---------------|----------------------|------------------|
| 80/20 Blend | 9480 | 450 gpm | 36 | 50' E2det | 18 | 18 | 540 | 234ms | 7516 |
| | | | | 80' E2det | 18 | 2 | | | |
| | | | | 17ms | 2 | | | | |
| | | | | 42ms | 2 | | | | |

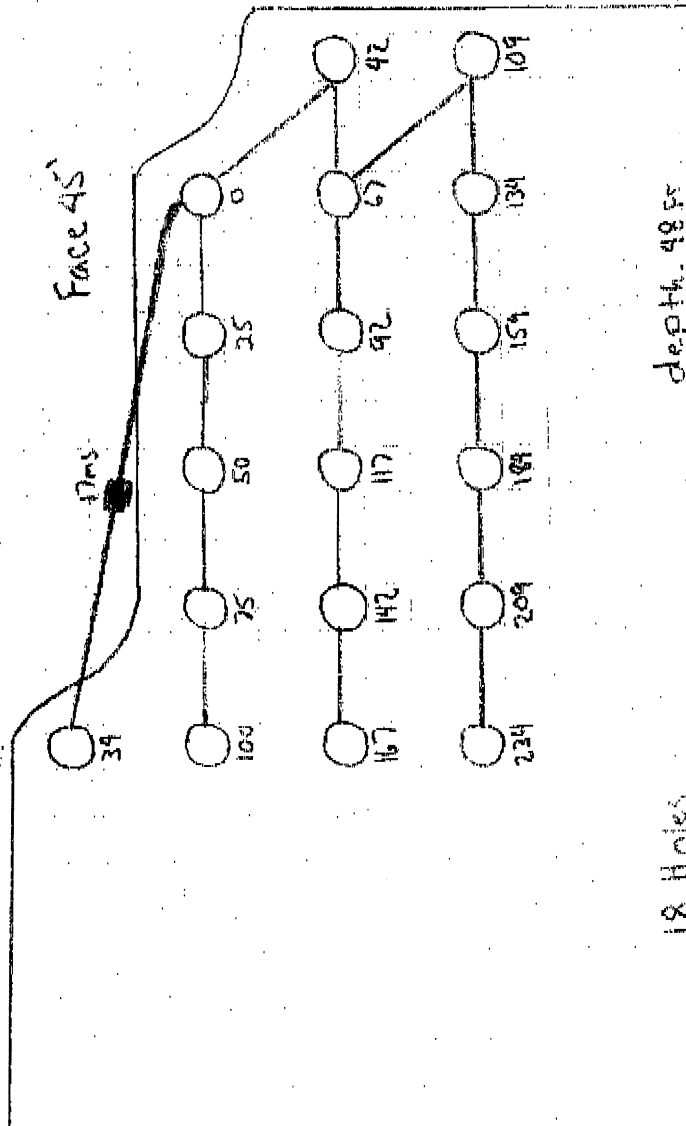
VIBRATION DATA:

Nearest Structure: Mesa Co Seismograph loc.: Scamc Temperature: 73 Max. Chrg. (lb/ftms): 540
 Northing: 37° 59' 00" N Sky Condition: Clear RPPV: N/A
 Easting: 122° 27' 21" W Wind Direction: NE Frequency: N/A
 Distance Away: 200' Wind Speed: 10-15 Airblast: N/A

PERFORMANCE DATA:

Powder Factor (lb/ton): 6 Displacement: Great Crushability: -
 Lb/yard³: 14 Vibration: Great Fines: -
 Fragmentation: Great Digability: -
 Comments: - Blaster in Charge: [Signature]

6.4.13
 S.H. E1-120
 #1594



15x15

Main = 2006
 Vign M = 3220
 S. H. E1 3326
 17' stem 3062
 57 59 00 N
 102 27 21 W

depth 48 ft
 17' stem
 540 lbs per foot

18 Holes
 18 = 50' E2 det
 18 = 80' E2 det
 2 = 17ms
 2 = 92ms
 2 = 100gms

9,400 lbs 80/20 blend



Vibra-Tech Inc. Seismic Analysis

Stop Event Report

Serial No: 9591 v3.23
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QRY
Location: 16 MARIN BAY PARK CT.
Distance:
Operator: VIBRA-TECH GSM
Comment: WILLIAM HOSKEN RES.

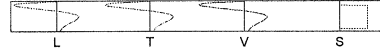
Begin Date: 06/04/2013 07:00:50 (UTC-7)
End Date: 06/04/2013 13:31:58 (UTC-7)
Events over Trigger: 0 (2-1)
Record Time: 5.0 s
Seismic Trigger: 0.030 in/s
Sound Trigger: N/A
Battery Level: 8.7

Additional Info:

j-GEO-01252
N37 59.524, W122 27.373

Shaketable Calibrated: 02/20/2013
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 at 16 Marin Bay Park Court (S/N 9591) did not trigger during the shot on June 4, 2013 at approximately 11:47 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.



Vibra-Tech Inc. Seismic Analysis

Stop Event Report

Serial No: 9808 v3.23
Client: COUNTY OF MARIN
Operation: SAN RAFAEL ROCK QRY
Location: ON QUARRY PROPERTY
Distance:
Operator: VIBRA-TECH GSM
Comment:

Begin Date: 06/04/2013 06:26:45 (UTC-7)
End Date: 06/04/2013 13:30:59 (UTC-7)
Events over Trigger: 0 (18-17)
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: 02/20/2013
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 9808) did not trigger during the shot on June 4, 2013 at approximately 11:47 indicating the ground vibrations produced were below the ground trigger level of 0.030 in/sec.