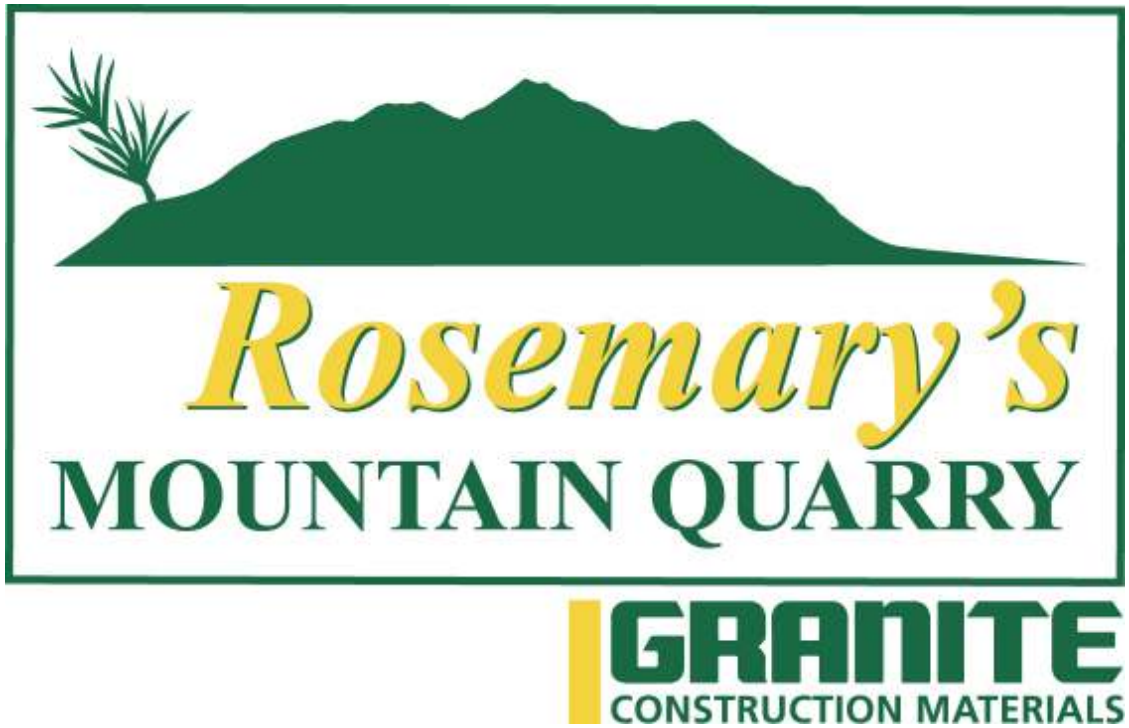


WELCOMES YOU TO A TOWN HALL MEETING

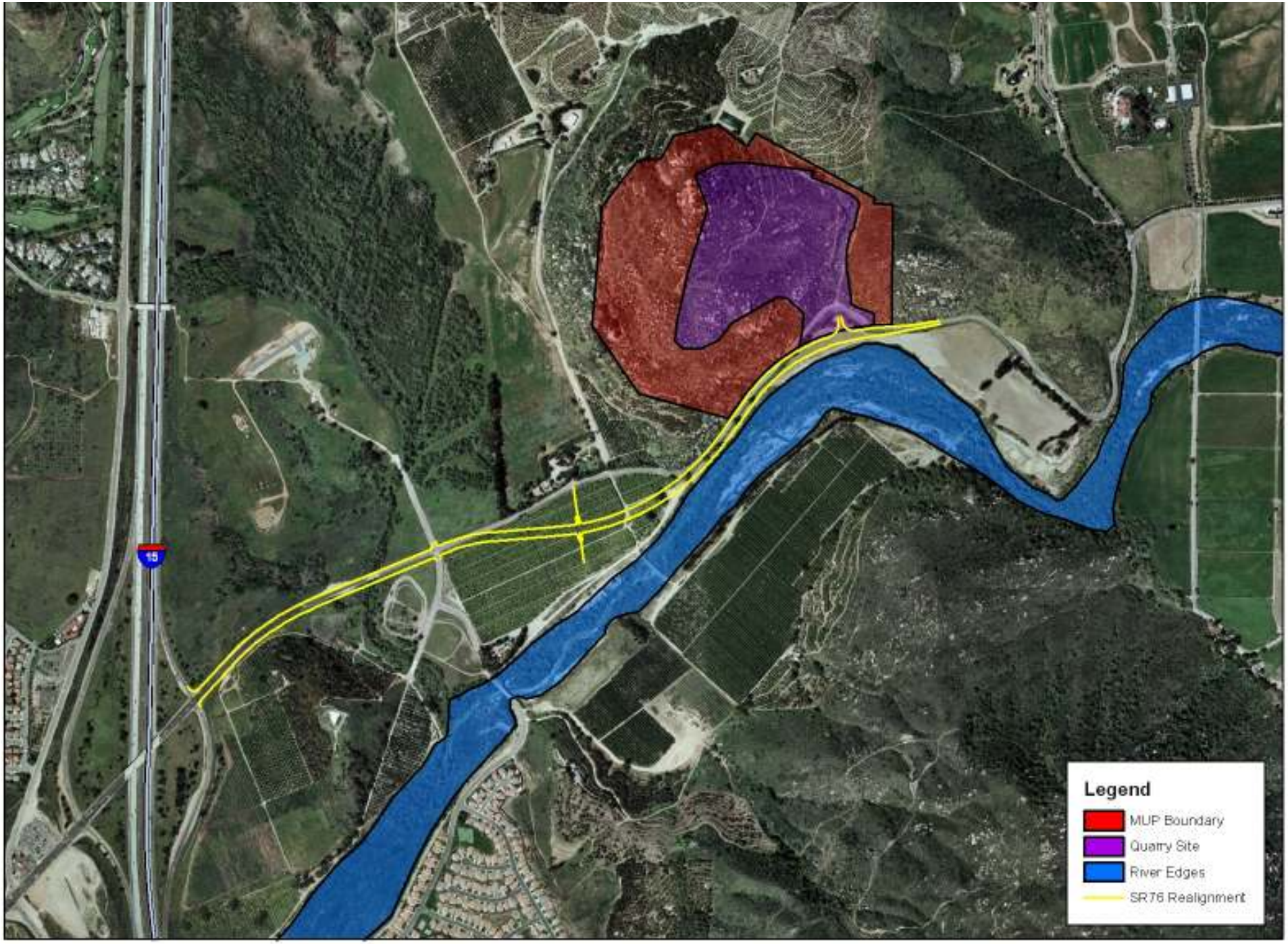
TOWN HALL MEETING

TONIGHT'S AGENDA

- Introduction
- Project Update
- Health Effects
- Dust Dispersion
- Dust Sources and Control
- Reports and Monitoring

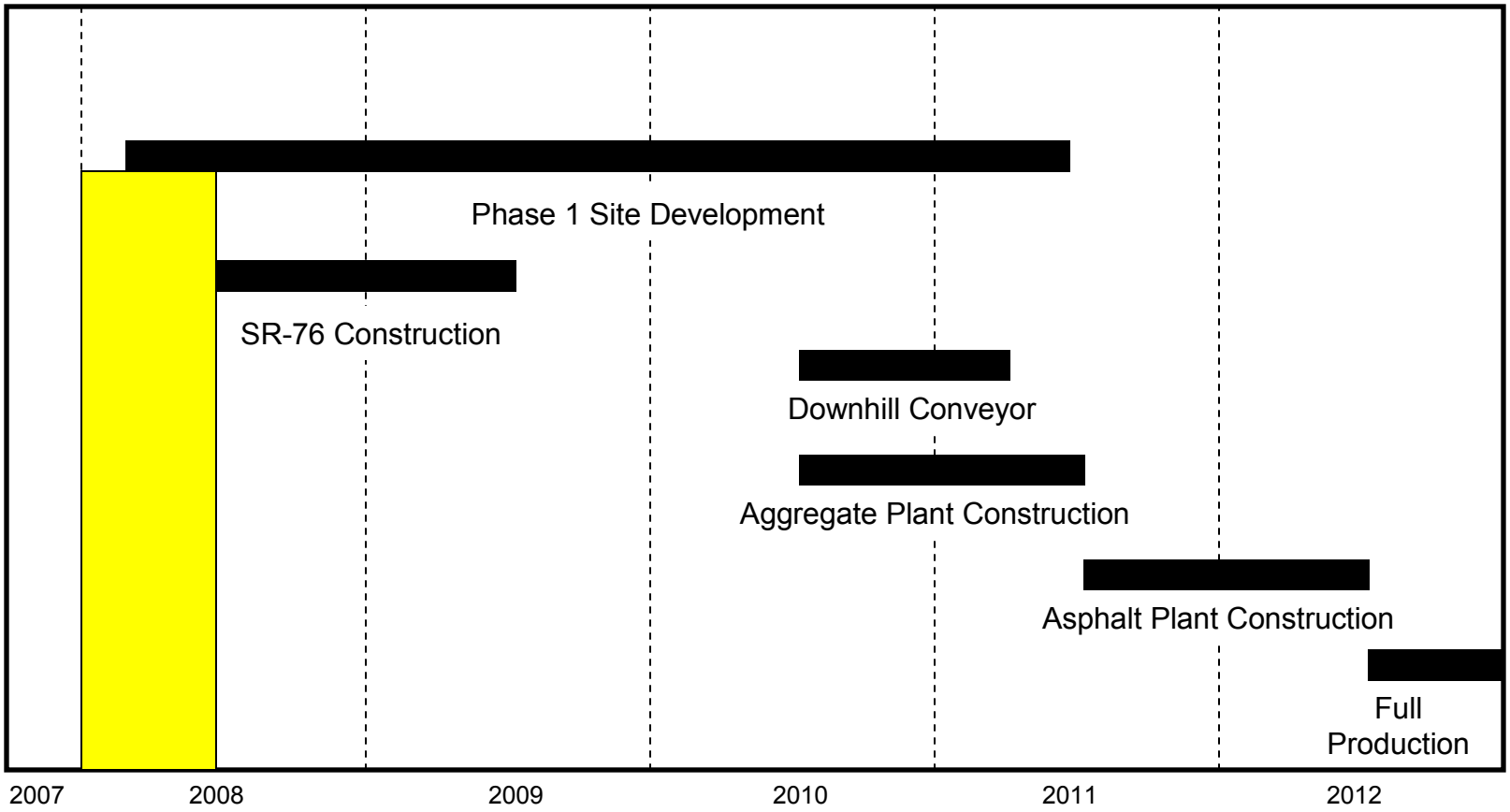
TOWN HALL MEETING

Project Update


15
Legend
MUP Boundary
Quarry Site
River Edges
SR76 Realignment

TOWN HALL MEETING

Schedule



TOWN HALL MEETING

Road Closures

All road closures occur between 8:00 AM and 4:00 PM

Development Blasting

- 10 - ten minute closures (3 closures to date)
- 10 - fifteen minute closures
- 6 - twenty minute closures

Truck crossings

- Maximum of 20 - one minute closures per hour

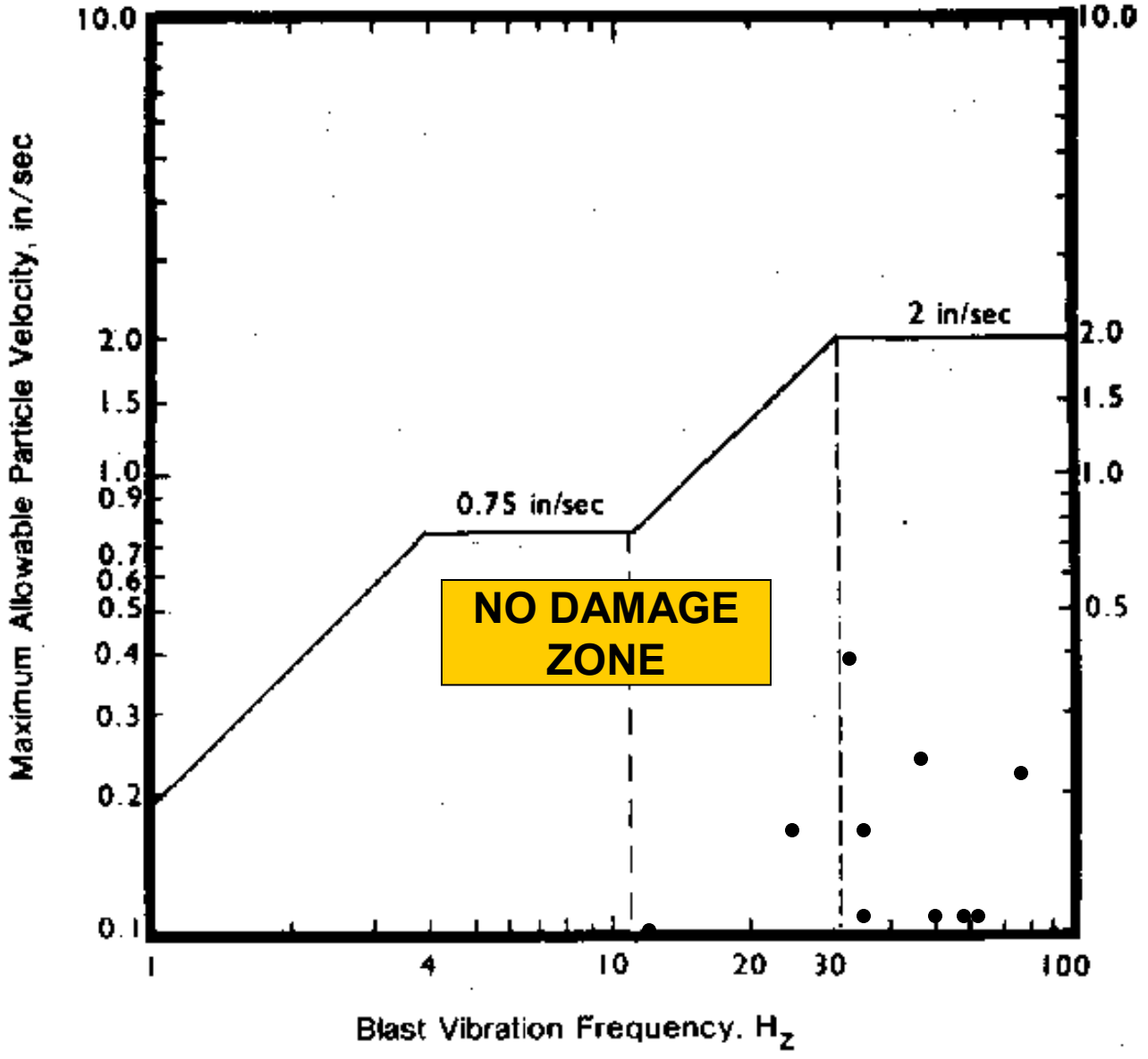


Figure 1. Alternative blasting level criteria.

(Source: Modified from figure B-1, Bureau of Mines RI 8507)

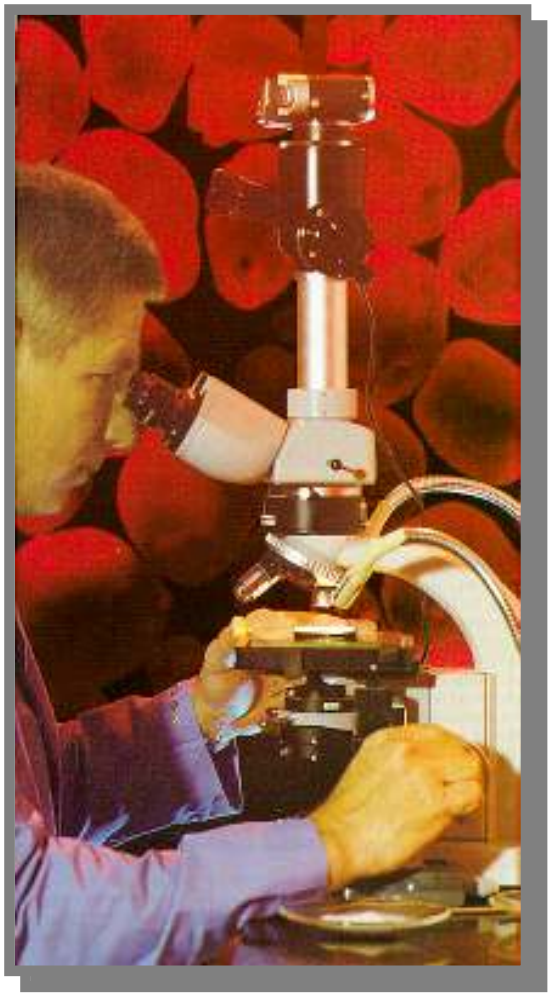
Health Effects

What We'll Cover

1. Background on health effects related to dust and crystalline silica
2. Crystalline silica in the aggregate industry
3. Regulatory standards for silica

Background
Respirable Dust

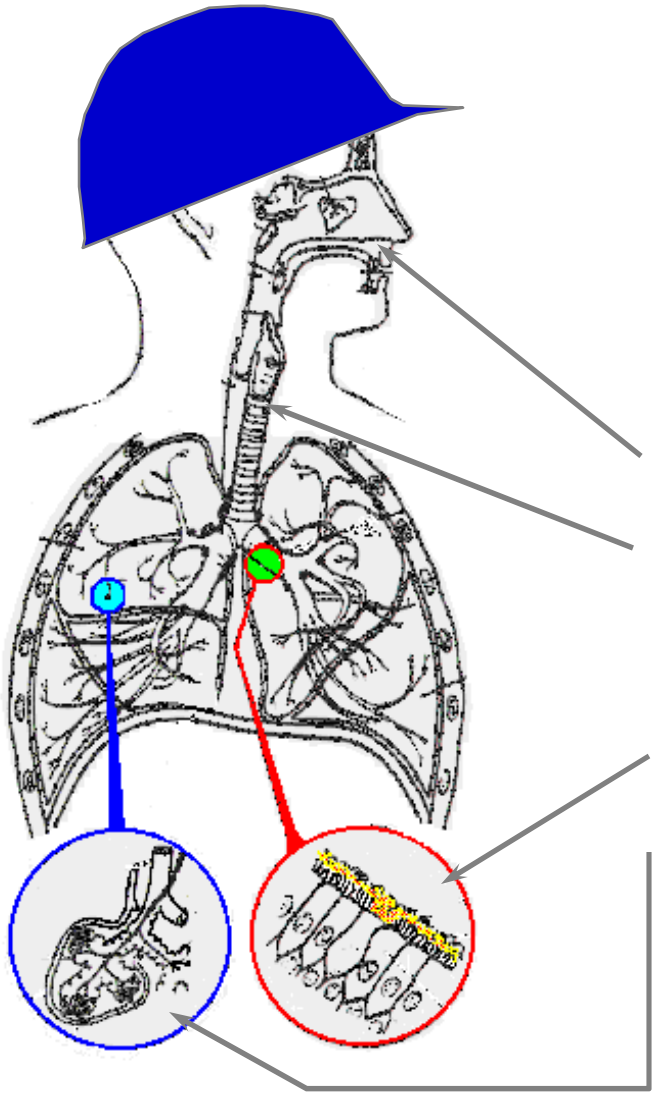
- Health effects of dust are from inhalation
- Respirable dust is measured in microns
- What's a micron?
  - Pretty darn small
  - 1/24,000th of an inch !
- Human Hair
  - 40 to150 microns in diameter



What We Breathe

- Air contains a small amount of particles from natural and man made sources
- A small fraction of inhaled particles are deposited in lungs
- The remainder are exhaled or removed
- Particle size determines what stays in lungs

The Human Respiratory System



- Nose or Mouth
- Windpipe
  - The Beginning Structure of the Lung
- Mucous & Cilia
- Alveolar Region

Fate of Deposited Dust

- The lungs have mechanism for removing small particles deep in the lungs
- Very small particles can cause scarring

Silica and the Aggregate Industry

Health Affects

- Long-term exposure to crystalline silica can cause silicosis
- Silicosis is a scarring of lung tissue caused by crystalline silica
- Silicosis is a workplace specific illness that is being prevented through workplace control measure

- Silicosis can occur at elevated exposure levels
  - Over exposure causes the disease
  - Most silicosis occurs after very long exposures
  - Occurs rarely after short-term, very high exposures

- Communities have very low exposures to crystalline silica dust and are free of silicosis risk
  - Quarry property line and background levels are equal
  - Mine community levels equivalent to others
  - Granite and CA industry has conducted testing

- Silicosis can occur in the workplace and most commonly after long exposure at elevated concentrations
  - Formerly common among dusty trades
  - Rarely seen now due to modern dust controls

- Granite Construction has no reported cases of silicosis
- Workplace practices limit dust emissions

Regulatory Standards

Monitoring

- Granite minimizes dust emissions
- Monitor employees for silica exposure
- Take action if level is greater than ½ of the California OSHA standard
- Meet or exceed local, state and federal standards for dust

California Reference Exposure Level (REL) for Crystalline Silica

- Approved in 2005
- The concentration level at or below which no adverse health effects are anticipated over a lifetime of exposure
- ***Crystalline Silica REL = 3 µg/m3***

Previous Monitoring

- Granite: 2004
  - Over the six days of monitoring, the average contribution was 0.057 µg/m3 or 1.9% of the proposed standard
- Group of Aggregate Companies: 2005 & 2006
  - Tested two facilitates
  - No significant impact

Summary

- Regulatory standards not expected to be exceeded
- No risk of adverse health affects from quarry operation

TOWN HALL MEETING

Dust Types

1. PM_{10} > PM_5 – Non-Hazardous
   - Dust particles between 5 and 10 microns.
   - Can pass trough the nose and throat
   - Hair like particles (cilia) move particles up and out.
2. <PM_5 – Hazardous (*Respirable Dust*)
   - Dust particles smaller than 5 microns
   - Get trapped in alveoli sacs

TOWN HALL MEETING

Health Risks

Silicosis

- ***World's oldest occupational disease.***
- A scarring of the lung tissue.
- Occurs at elevated exposure levels.

Cancer

- EPA does not list crystalline silica as a hazardous air pollutant.
- IARC* has found that crystalline silica inhaled from ***occupational sources*** is carcinogenic to humans.
- Proposition 65 lists crystalline silica (airborne particles of respirable size) as a chemical known to the State to cause cancer.

*International Agency for Research on Cancer

TOWN HALL MEETING

Dust Dispersion

Ambient Particulate at Rosemary's Mountain Quarry

Russell E. Erbes, CCM
Senior Principal
Kleinfelder, Inc.

May 27, 2008

Agenda

- Introduction
- Topics Examined
- Results
- Discussion

Topics Examined

- General Air Quality and Dispersion Concepts
- Previous Studies
  - Particulate Matter
  - Crystalline Silica
- Ambient Monitoring at Rosemary's Mountain Quarry

General Air Quality

- Ambient Air Quality
  - Concentration – micrograms per cubic meter (ug/m^3)
  - 1 ug is extremely small
    - A single M&M candy is about 1 gram
    - Cut the M&M into a million pieces -- one piece would be a microgram
  - An adult breathes about 20 cubic meters of air daily
  - 1 ug/m^3 is about 1 part per billion
    - Equivalent to 1 second in 32 years

Ambient Air Quality Components

- Health related standards -- PM_{10}, $PM_{2.5}$, PM_4
  - PM_{10} – particulate less than 10 micron diameter
  - $PM_{2.5}$ – particulate less than 2.5 micron diameter
  - PM_4 – particulate less than 4 micron diameter
  - Micron is one millionth of a meter
    - Human hair 300 microns
    - Table salt 70 microns
    - Cannot see anything smaller than 40 microns
- Nuisance dust thresholds – Total Suspended Particulate (TSP)
  - About double PM_{10}

California Ambient Air Quality Standards

- PM_{10}
  - 24-hour average – 50 ug/m^3
  - Annual average – 20 ug/m^3
- $PM_{2.5}$
  - 24-hour average – 35 ug/m^3 (federal only)
  - Annual average – 12 ug/m^3
- Nuisance Dust – TSP – No Standard
  - Convenient Reference -- Former Federal Standard
  - 24-hour average 150 ug/m^3

General Concepts

- TSP first air quality constituent regulated by the US – 1960's
- Refined by US and California to current PM_{10} and $PM_{2.5}$ standards to reflect potential health effects
- PM_{10} mostly chemical and combustion, not mechanical
- $PM_{2.5}$ almost all chemical and combustion

Questions

Dispersion

- Ambient Concentrations Always Decrease with Distance from the Source of Emissions
  - Dust disperses horizontally (transverse and translation) and vertically in the atmosphere
  - If constant emissions:
    - Greater wind speed always lowers concentration
    - Meandering wind always lowers concentration
    - Turbulence always lowers concentration

Gravitational Settling

- “Large” particles (>40 microns) fall out very quickly
  - Deposition velocities >40 cm/sec or within 50 feet if start at 10 feet high and 4 mph wind
- Very small particles (<0.5 microns) travel somewhat like gases, longer distances
- Aggregate operations do not generate very small particles

Questions

Previous Monitoring Studies at Quarries

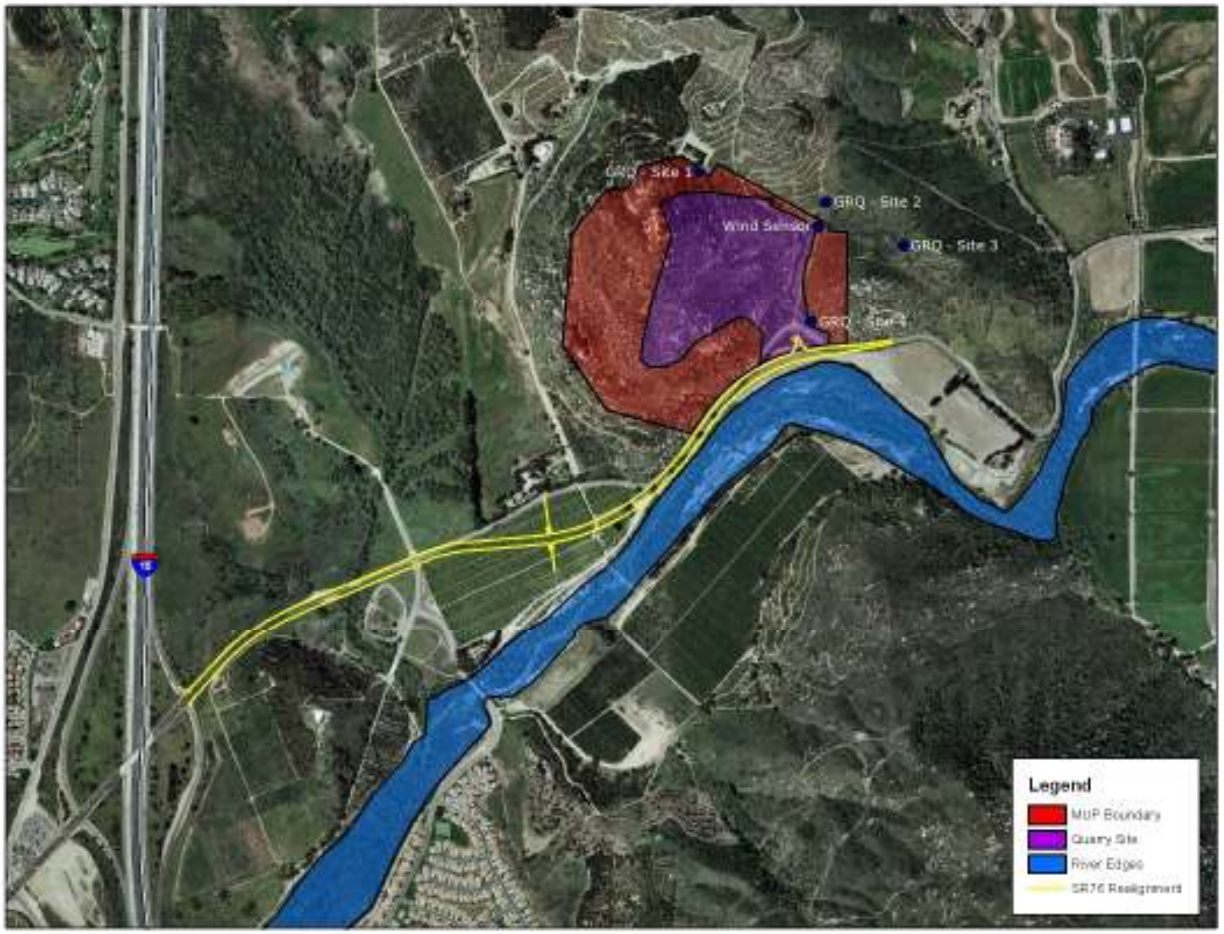
- USEPA Emission Factor Studies
  - Conducted for over 40 years at numerous facilities, peer reviewed and published
  - Emission factors used in impact assessments of proposed and active facilities by agencies and industry
- Crystalline Silica Emission Factors (Industry report to CARB)
  - CARB protocol and developed state of the art PM_4 crystalline silica monitoring methodology
  - Demonstrated that only a fraction of crystalline silica in soil can become airborne through aggregate operations
  - No significant downwind ambient PM_{10} or crystalline silica concentration increases
  - Used by agencies and industry
- South Coast AQMD Study at Duarte
  - No increase of ambient PM_{10} concentrations near quarries compared to other site (Azusa)
  - PM_{10} concentrations generally below standard
  - Ambient crystalline silica averaged about 0.5 ug/m^3, less than 15% of standard

Questions

Monitoring at Rosemary's Mountain Quarry

- Goals:
  - Monitor difference between upwind and downwind PM_{10} ambient concentrations at the boundary – worst case
  - Co-locate monitors to determine relative accuracy of samplers
  - Compare 8-hour to 24-hour concentrations
  - Evaluate ambient PM_4 crystalline silica concentrations
  - During periods of routine operations

Monitoring Locations



Monitoring Locations

Monitoring Devices

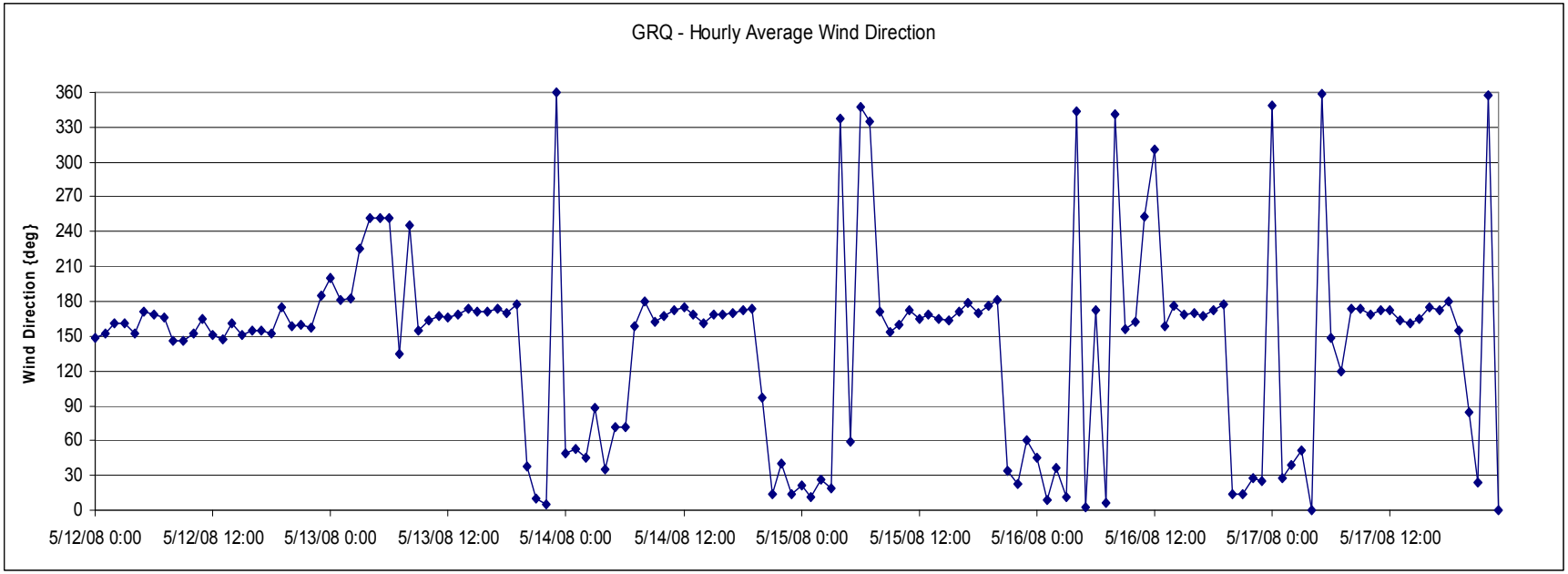
Monitoring Dates

- Upwind/Downwind Monitoring On …
  - May 6 -- Tuesday
  - May 8 through 10 – Thursday through Saturday
  - May 12 through 17 – Monday through Saturday
- Routine Operations, Including Blasting

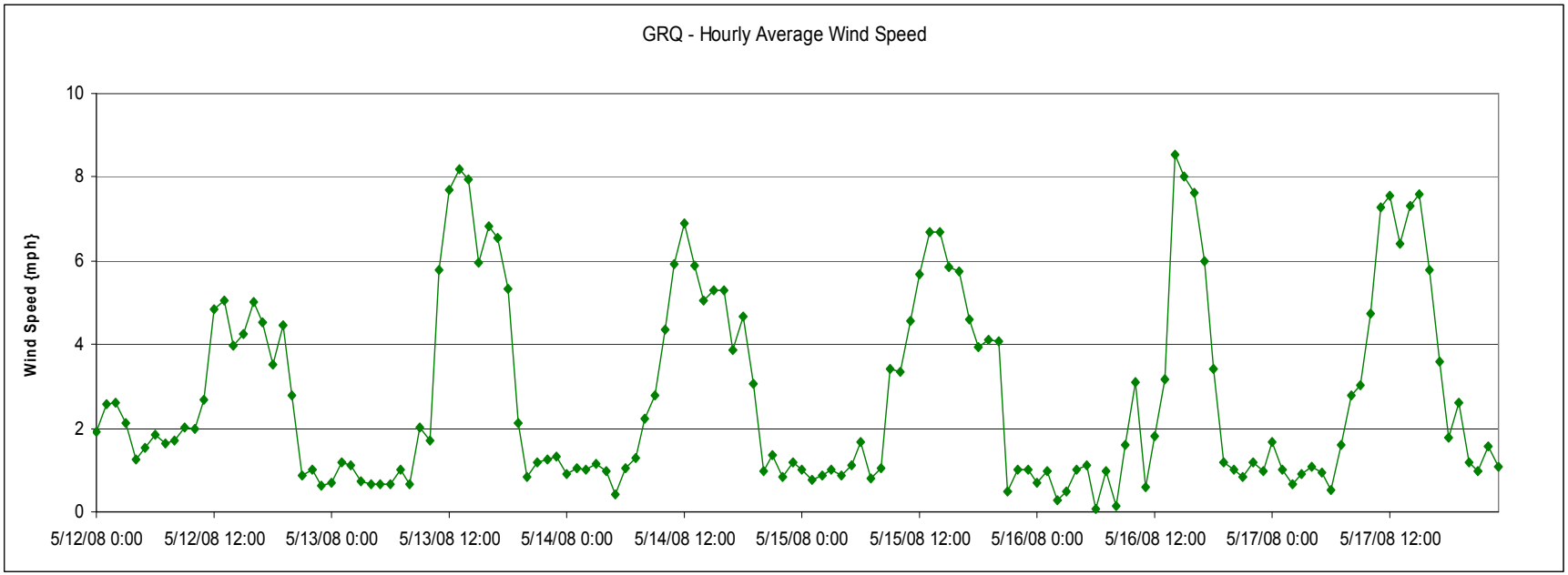
Wind Data During Monitoring

- Wind consistently from south/southeast
- Wind speeds relatively low, averaging 3.5 mph during monitoring
  - Would tend to increase local ambient concentrations of emitted material

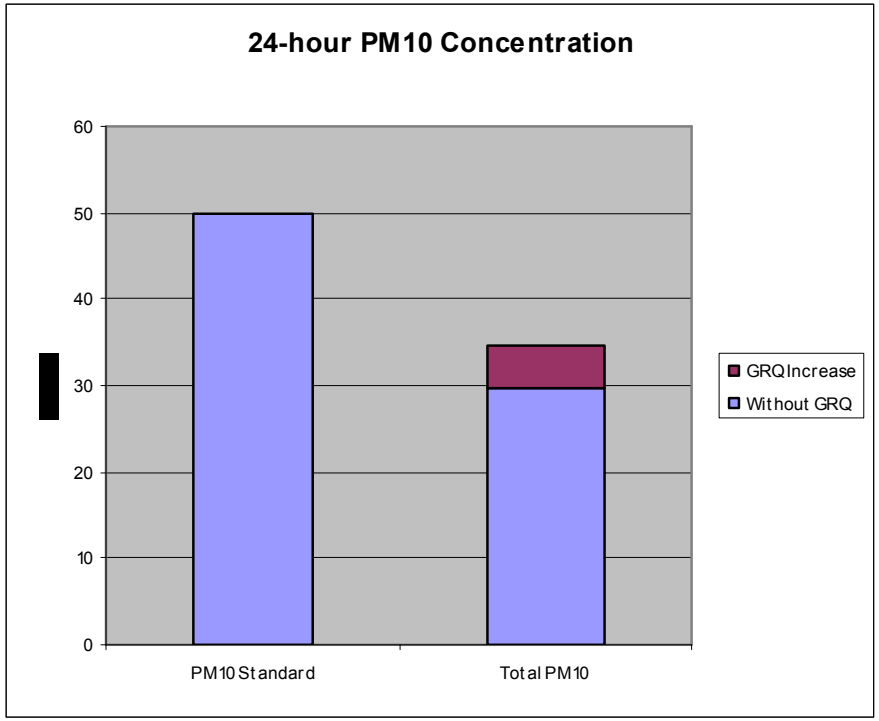
Wind Direction Data During Monitoring

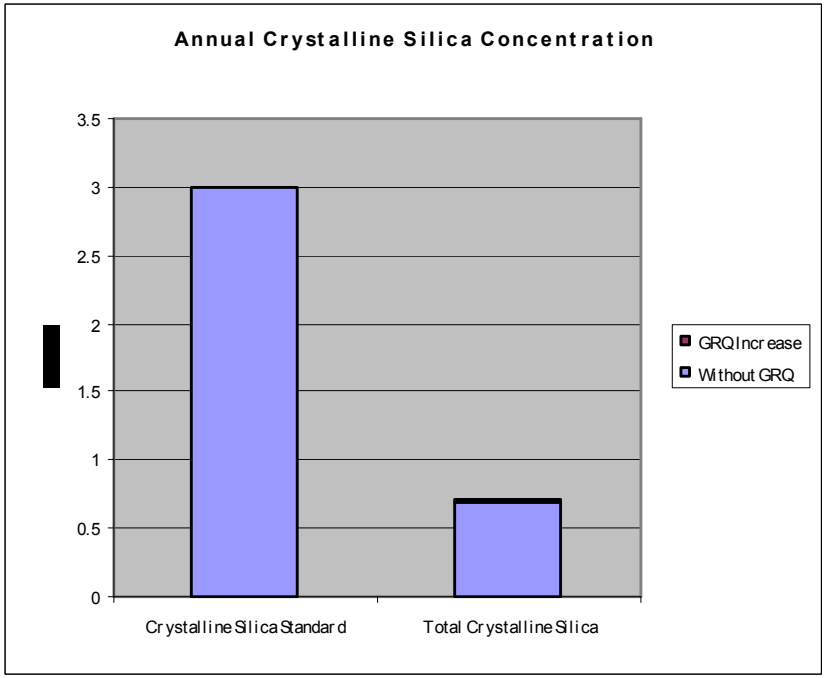


Wind Speed Data During Monitoring



Summary


24-hour PM10 Concentration
60
50
40
30
20
10
0
PM10 Standard
Total PM10
GRQ Increase
Without GRQ


Annual Crystalline Silica Concentration
3.5
3
2.5
2
1.5
1
0.5
0
Crystalline Silica Standard
Total Crystalline Silica
GRQ Increase
Without GRQ

Summary

- Monitored Impact of Current Rosemary's Quarry Operations
  - Monitored PM_{10} within natural variability
    - Could be about 10 to 15% change on some days
  - Monitored crystalline silica less than health standards
    - Less than about 3% of standard
- Monitoring Results Consistent with Other Studies

Questions

TOWN HALL MEETING

Dust Sources & Control

TOWN HALL MEETING

CARB Fugitive Dust Sources

SOURCE	PM_{10} (Teragrams)	Percentage (%)
Paved roads	0.6020	53.0
Construction	0.2690	23.7
Agriculture	0.1710	15.0
Unpaved roads	0.0370	3.3
Forest fires	0.0370	3.3
Wind erosion	0.0130	1.1
Power plants	0.0040	0.3
Metallurgy	0.0020	0.2
Quarrying and mining	0.0007	0.1
Total	1.1357	100.0

*Ambient Levels and Noncancer Health Effects of Inhaled Crystalline and Amorphous Silica, EPA 600 R-95/115, 1996

TOWN HALL MEETING

Making Dust

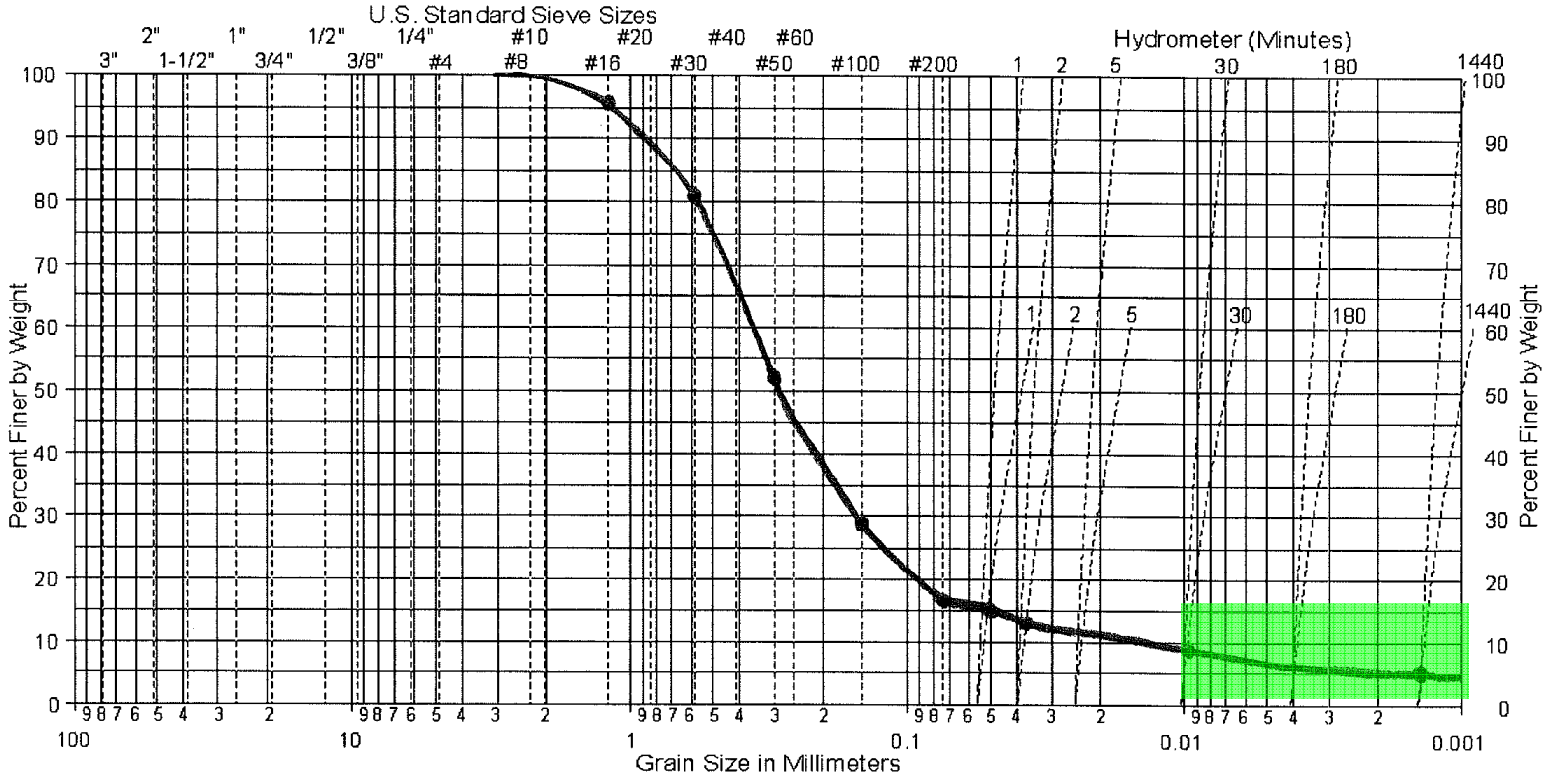
Granite is very hard – Dust particles must be mechanically or naturally ground from the parent rock source.

Source	Grinding Method
Nature	Wind, water, freeze/thaw
Man	Drilling, tires, crushing, etc.

SOUTHERN CALIFORNIA
SOIL AND TESTING, INC.
6280 RIVERDALE STREET, SAN DIEGO, CA 92120
Phone:(619) 280-4321 Fax: (619) 280-4717

Job Name:	GRANITE CONSTRUCTION
Job Number:	0821020
Sample:	-30" STOCKPILE AREA
By/Date:	CA 5/15/08

GRAIN SIZE DISTRIBUTION



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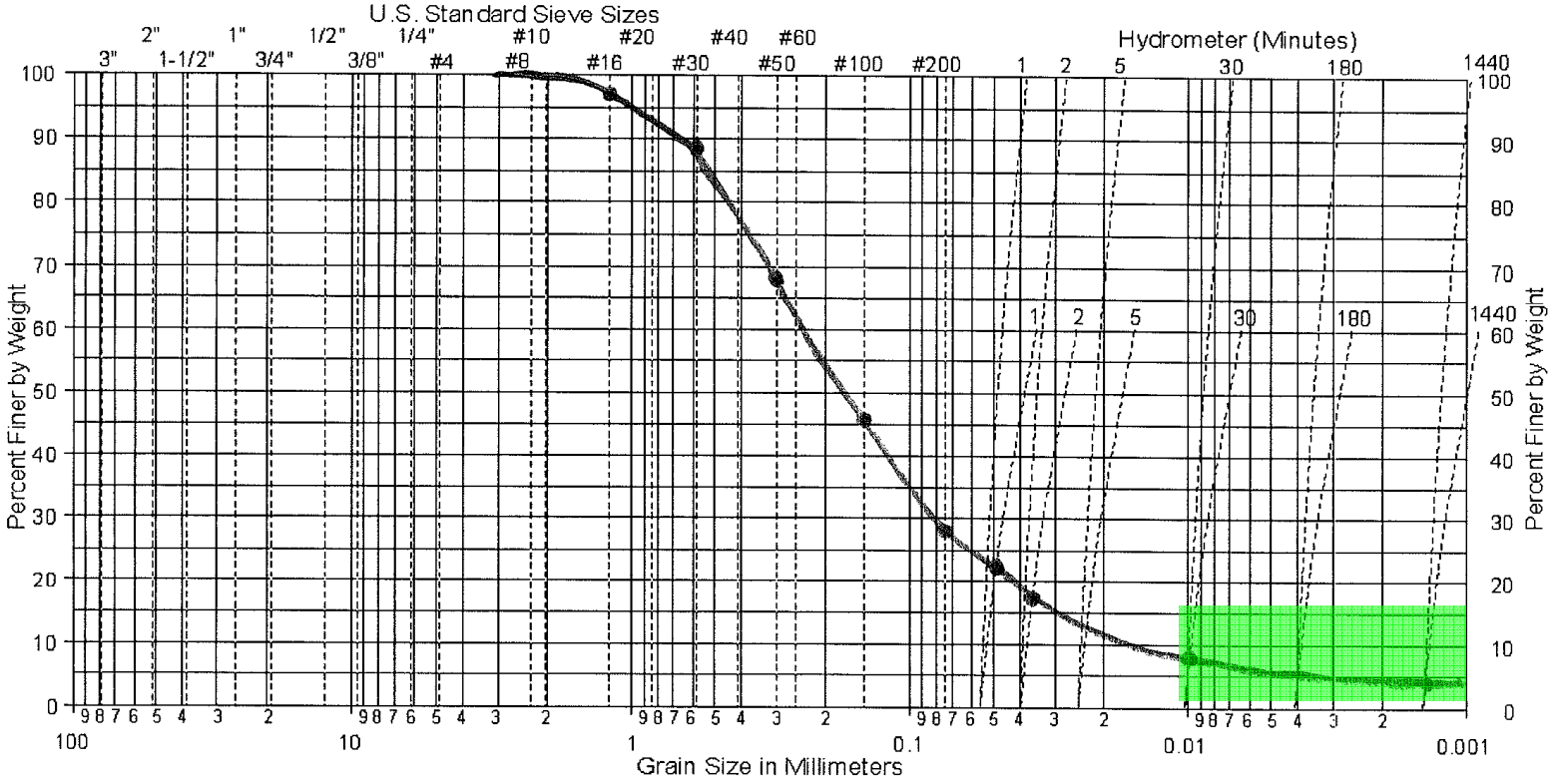
SOIL AND TESTING, INC.
6280 RIVERDALE STREET, SAN DIEGO, CA 92120
Phone:(619) 280-4321 Fax: (619) 280-4717

Job Name:	GRANITE CONSTRUCTION
Job Number:	0821020
Sample:	DRILL CUTTINGS
By/Date:	CA 5/15/08

GRAIN SIZE DISTRIBUTION



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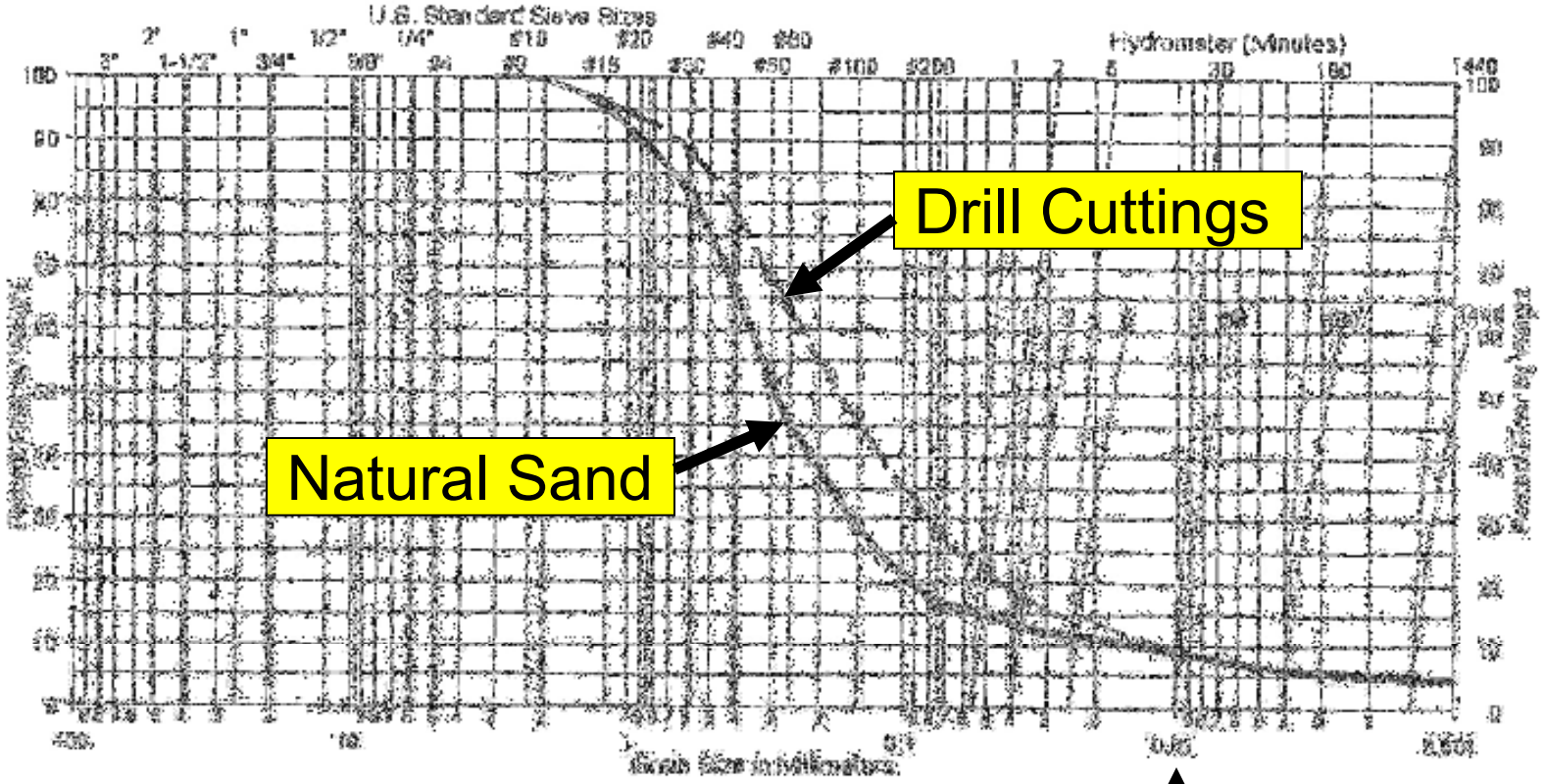
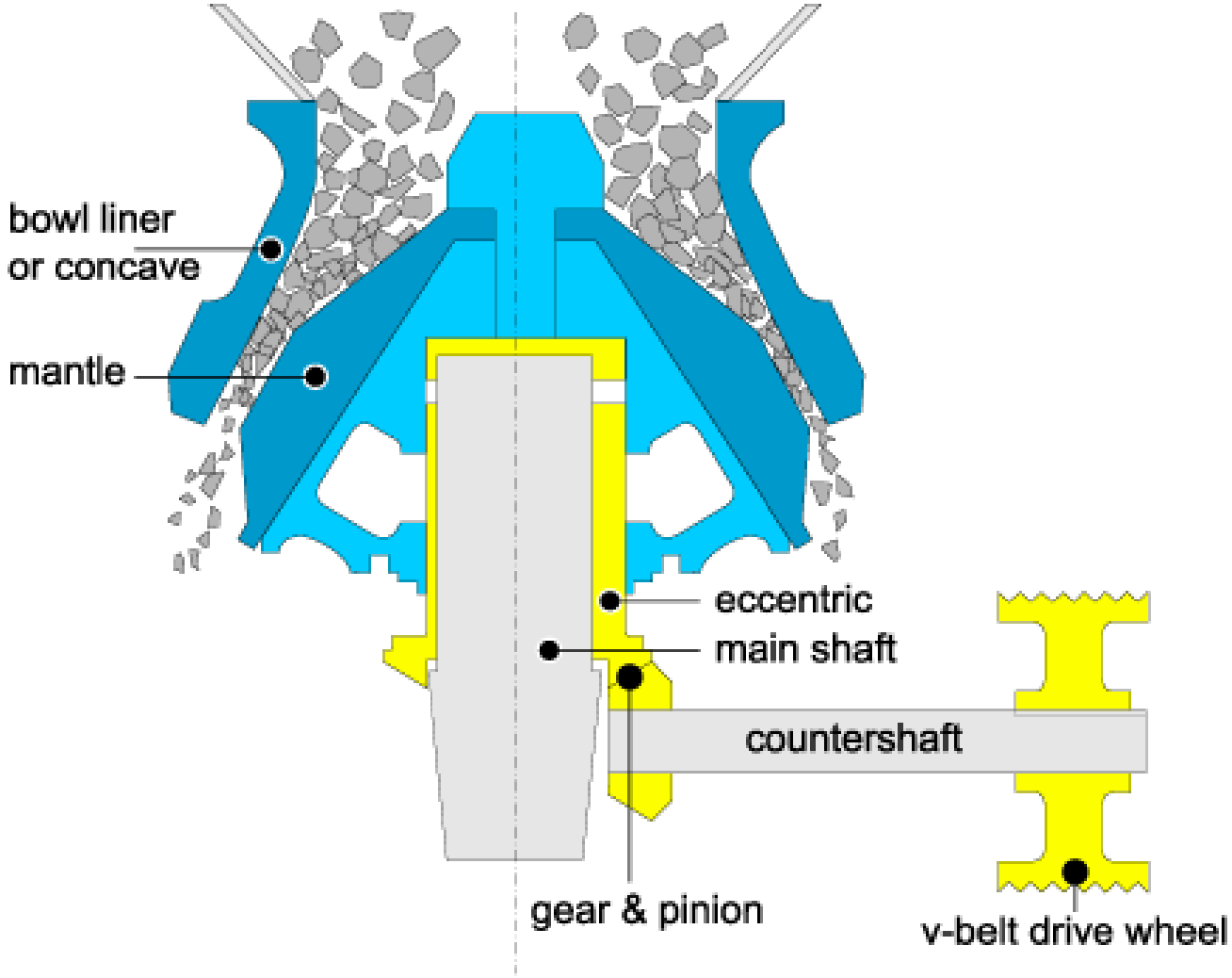
GRAIN SIZE DISTRIBUTION




DANGER
EXPLOSIVES
AWAY

CONE CRUSHER

(main frame and other details omitted for clarity)




DIESEL FUEL


DANGER
HARD HAT
AREA

Rosemary's MOUNTAIN QUARRY
GRANITE CONSTRUCTION MATERIALS

Water Truck Log Book

Hour	7	8	9	10	11	12	1	2	3	4	5	6
610 Bench	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐
570 Bench	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
530 Bench	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
490 Bench	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐
450 Bench	☐	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐
410 Bench	☐	☒	☐	☐	☒	☐	☒	☐	☐	☐	☐	☐
370 Bench	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐
330 Bench	☐	☒	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐
Main Quarry Rd.	☒	☐	☒	☐	☐	☒	☐	☒	☐	☐	☐	☐
Road to Top	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Plant Site	☐	☒	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐
Load Out Area	☐	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐
Orchard	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

Load Count: HT IIII Date: 5-5-08 Driver Initials: MR

TOWN HALL MEETING

Dust Monitoring

Air Monitoring: Hierarchy of Agencies Involved

- Federal – US EPA
  - State – CARB (California Air Resources Board
    - Local – Individual Air Districts
      - SDAPCD (San Diego Air Pollution Control District

Air Monitoring: Hierarchy of Agencies

- **Federal – US EPA**
  - Clean Air Act of 1970
    - Required federal air quality standards to be set and enforced by the EPA
  - Sets National Ambient Air Quality Standards
  - Enforces federal regulations and can enforce state and local regulations
  - Sets emissions standards for mobile sources
    - i.e. Motor Vehicle Pollution
  - Approves State Air Quality Plans
  - **Adopted "METHOD 9" procedure to monitor stationary sources**

- **State -- CARB**
  - Sets Ambient Air Quality Standards
  - Monitors Air Quality, Conducts Research
  - Assists and Oversees local air districts
  - Approves local air quality plans and submits state air quality plans to USEPA

Air Monitoring: Hierarchy of Agencies (continued)

- Local Level – SDAPCD
  - Regulates and Permits Non-Vehicular and Stationary Source
    - i.e. Aggregate Plants
  - Enforces rules and permits
  - Responds to Complaints
  - Monitors and reports air quality
  - Adopts local air quality plans

EPA Method 9: Opacity Readings

- **Opacity** = degree to which light transmission through the diameter of a smoke/dust plume is reduced:
  - Another way of describing smoke/dust density
  - 100% opacity = no visible light seen through plume
  - 0% opacity = Full light transmission through plume

SMOKE CHART

RINGELMANN TYPE

INSTRUCTIONS

This miniature Ringelmann smoke scale will enable the observer to conveniently grade the density of smoke issuing from the stack.

The scale should be held at arm's length at which distance the dots in the scale will blend into uniform shades.

Then compare the smoke (as seen through the hole) with the chart, determining the shade in the chart most nearly corresponding to the shade or density of the smoke. Experienced observers often record in half chart numbers. By recording the changes in smoke density, the average "percentage of smoke density" for any period of time can be determined.

Observer's line of observation should be at right angles to the direction of smoke travel.

Observer should not be less than 100 ft. nor more than ½ mile from the stack.

Observer should avoid looking towards bright sunlight. The background immediately beyond the top of the stack should be free of buildings or other dark objects.

EPA Reference Method 9: Continued

- EPA established that Method 9 observations remain presumptively valid
- Validity established in legislation and courts
- Readings In *Opacity* Only
- Opacity Readings Recorded in 15 Second Intervals

- Elements of CARB Health and Safety Code Section 41701:
  - "No person shall discharge any air contaminant that exceeds 40% Opacity for period(s) of time aggregating more than 3 minutes in any one hour"

- HOWEVER, Rosemary's Mountain Air Permits from SDAPCD Limit us to:
  - 20% Opacity at the Aggregate Plant
  - 10% Opacity on Roadways and Screening Units

Rosemary's MOUNTAIN QUARRY
GRANITE CONSTRUCTION MATERIALS

Method 9 – Example at RMQ

Section 2.12.10 6 April 1983

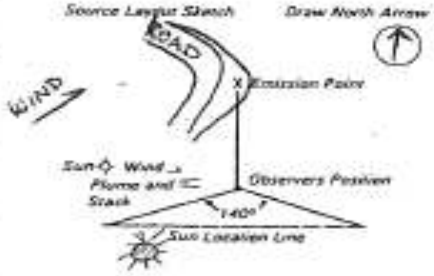
METHOD 9 – 60 min

Visible Emission Observation Form

SOURCE NAME: GRANITE CONST. – RMQ	OBSERVATION DATE: 5-14-08
ADDRESS: 5338 SR76	START TIME: 1:00 PM
CITY: FALLBROOK	STATE: CA ZIP: 92028
PHONE: 760 578-7251	SOURCE ID NUMBER: GCC #
PROCESS EQUIPMENT: HAUL ROAD	OPERATING MODE: Site Develop.
CONTROL EQUIPMENT: WATER TRUCK / LOW SPEEDS	OPERATING MODE:
DESCRIBE EMISSION POINT: START 8 Above Rd. STOP 8' Above Rd.	
HEIGHT ABOVE GROUND LEVEL: START 8' STOP 8'	HEIGHT RELATIVE TO OBSERVER: START 20' STOP 20'
DISTANCE FROM OBSERVER: START 100' STOP 100'	DIRECTION FROM OBSERVER: START NW STOP NW
DESCRIBE EMISSIONS: START intermittent STOP intermittent	
EMISSION COLOR: START Brown STOP Brown	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☑ INTERMITTENT ☐
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 8' Above Rd STOP 8' Above Rd.	
DESCRIBE BACKGROUND: START Clear sky STOP clear sky	
BACKGROUND COLOR: START Blue STOP Blue	SKY CONDITIONS: START Clear STOP clear
WIND SPEED: START 5 STOP 10	WIND DIRECTION: START N STOP NNE
AMBIENT TEMP: START 80 STOP 80	WET BULB TEMP: RH, percent:

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	5	5	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	5	0	0	34	0	5	5	0
5	0	0	0	0	35	0	5	0	0
6	0	0	0	0	36	0	0	0	0
7	0	5	10	5	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	5	0	0	39	0	5	5	0
10	5	0	0	5	40	0	0	0	0
11	0	0	0	0	41	0	5	0	0
12	NO				42	0	0	0	0
13					43	0	0	0	0
14					44	0	0	0	0
15	ACTIVITY				45	0	0	0	0
16					46	5	5	0	0
17					47	5	0	0	0
18					48	0	0	0	0
19					49	0	0	0	0
20	0	5	0	5	50	5	5	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	5	5	0
24	0	0	0	0	54	0	0	0	0
25	0	5	10	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	5	5	0
30	0	5	0	5	60	0	0	0	0

Source Layout Sketch — Draw North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD: 10	NUMBER OF READINGS ABOVE 10 % WERE 0
RANGE OF OPACITY READINGS: 0 MINIMUM 10 MAXIMUM	
OBSERVER'S NAME (PRINT): Chris Kiser	
OBSERVER'S SIGNATURE:	DATE: 5-27-08
ORGANIZATION: GCC	
CERTIFIED BY: CARB	DATE
VERIFIED BY	DATE

COMMENTS: Intermittent traffic on roads – Haul trucks, GCC vehicles

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS

SIGNATURE / TITLE / DATE

Quality Assurance Handbook MS-4.2

CARB Certification:

required in order to be
qualified to conduct Method 9 testing.

Rosemary's MOUNTAIN QUARRY
GRANITE CONSTRUCTION MATERIALS

CARB – Fundamentals of Enforcement

- Initial Two Day Class
- Recertification required every 6 months
- Granite Construction requires most plant engineers, superintendents, foremen, and operators to be Method 9 Certified.

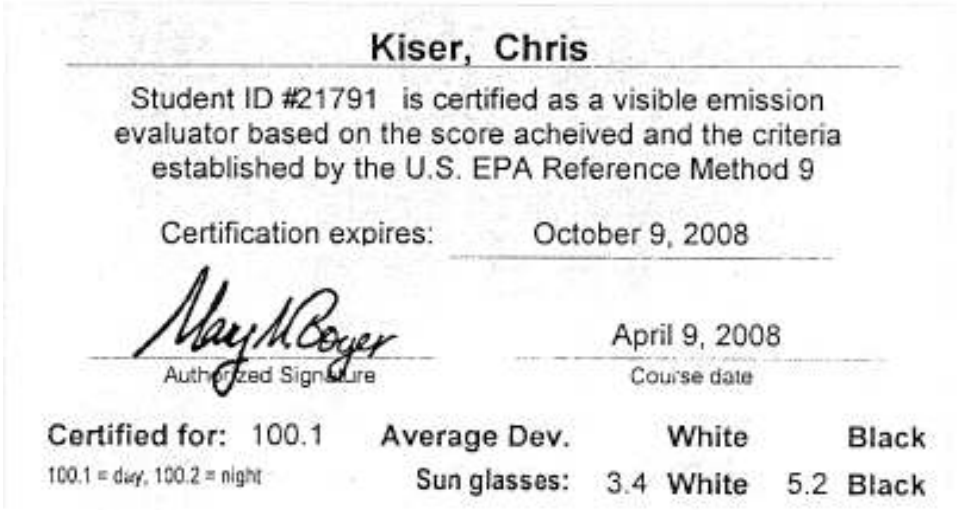
California Environmental Protection Agency
AIR RESOURCES BOARD

VISIBLE EMISSION EVALUATION PROGRAM

Information on Future Schedule and Locations:

Day Recert: http://www.arb.ca.gov/CAP/100_1.htm
Night Recert: http://www.arb.ca.gov/CAP/100_2.htm

If a photocopy of your qualification form is required, please send a stamped self-addressed envelope to:
ARB, Enforcement Division, Compliance Assistance Section
P.O. Box 2815, Sacramento, CA 95812



Kiser, Chris

Student ID #21791 is certified as a visible emission evaluator based on the score acheived and the criteria established by the U.S. EPA Reference Method 9

Certification expires: October 9, 2008

Mary M Boyer
Authorized Signature

April 9, 2008
Course date

Certified for: 100.1	Average Dev.	White	Black
100.1 = day, 100.2 = night	Sun glasses:	3.4 White	5.2 Black

TOWN HALL MEETING

24 Hour Hot Line

(760) 391-6340