Public Consultation Meeting: Proposed Amended Rule 444 – Open Burning

Newport Beach	El Segundo
June 13th	June 14th

South Coast AQMD

Background

- Newport Beach request to the Coastal Commission to remove fire rings
- Commission staff cited exemption in SCAQMD rules as justification to deny request
- Large number of fire rings close to where people live, work, & play
- Wood smoke poses a localized health impact on beach goers and nearby residents

Beach Name	City	No. of Fire Rings
LOS ANGELES COUNTY		Total = 79
Dockweiler State Beach	Playa del Rey	73
Cabrillo Beach	San Pedro	6
ORANGE COUNTY		Total = 687
Bolsa Chica State Beach	Huntington Beach	178
Huntington City Beach	Huntington Beach	112
Huntington State Beach	Huntington Beach	240
Balboa Beach	Balboa/Newport Beach	33
Corona Del Mar State Beach	Newport Beach	27
Aliso Beach County Park	South Laguna	7
Doheny State Beach	Dana Point	72
Capistrano Beach Park	Capistrano	4
North Beach	San Clemente	5
San Clemente City Beach	San Clemente	9

* Not intended to be an all inclusive list.

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Agency Positions on Wood Smoke

- California Air Resources Board
  - Wood smoke a serious threat to public health
  - Aggravates lung and heart disease
  - Can cause 10% increase in children's hospital admissions for respiratory symptoms
- U.S. Environmental Protection Agency
  - Wood smoke can affect everyone
    - Children, persons with existing health conditions most vulnerable
  - Health risks can be reduced by switching to gaseous fuels

PM Health Guidance

- National Ambient Air Quality Standards for PM2.5:
  - Annual Average: 12 µg/m³
  - 24 Hour Average: 35 µg/m³
- Guidance for Public Health Officials for Wildfire Smoke
  - Recommended protective measures based upon shorter term PM exposure
  - Includes Time frames as short as 1 to 3 hours for both PM2.5 and PM10:
    - 89 - 138 µg/m³ - Unhealthy for Sensitive Groups (USG)
    - 139 - 351 µg/m³ - Unhealthy – "consider canceling public events, based on public health and travel considerations"
    - 352 - 526 µg/m³ - Very Unhealthy

Lipsett, Michael and Barbara Materna, *Wildfire Smoke A Guide for Public Health Officials*, 2008.

Beach Fire Pit Emissions

- Assessed the emissions of a single fire ring for one evening
  - One fire event assumed to burn 2 bundles of wood (approx. 32 lbs total)
  - Assumed CARB fireplace emission factor
  - Compared emissions to that of an average on-road 2013 Heavy Duty Diesel Vehicle (HDDV)
- **One fire pit in one evening estimated to emit as much PM2.5 as one Heavy-Duty Diesel Truck driving 564 miles**

SCAQMD Monitoring Studies

- Purpose
  - Assess potential for human exposure to wood smoke from beach fires
- Approach
  - Deploy a combination of monitoring technologies and sampling strategies
- Other Considerations
  - Shifting meteorology, variable activity levels, technology limitations

Gradient Surveys

Objective:

Assess the PM impacts of the Beach Fires at multiple locations downwind over the course of an evening

Methods:

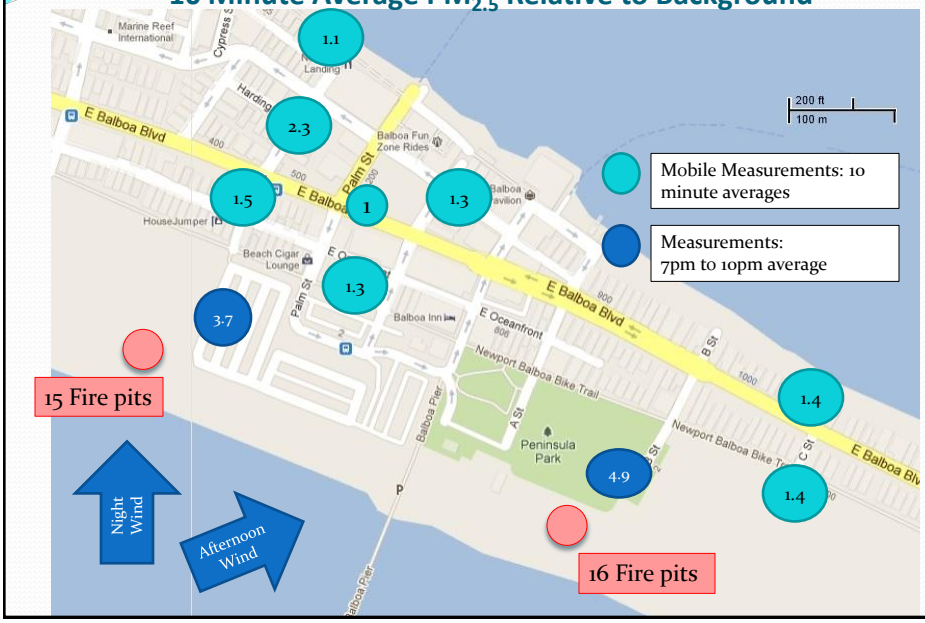
TSI Inc. DustTrak DRX – Measures PM1, PM2.5, PM10 on a second-by-second basis

Advantages: small, portable, high time resolution, good survey tool for relative measurements

Limitations: not certified to federal reference method criteria. A drying inlet implemented to remove humidity effects

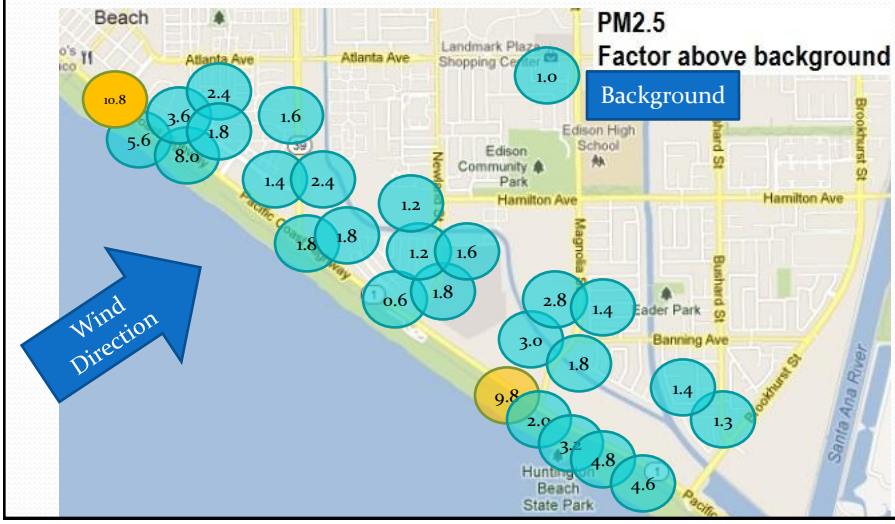
Preliminary Results: Corona Del Mar 3/30/13
10 Minute Average PM_{10} Relative to Background Levels

Preliminary Results: Balboa Beach 3/23/13
10 Minute Average $PM_{2.5}$ Relative to Background

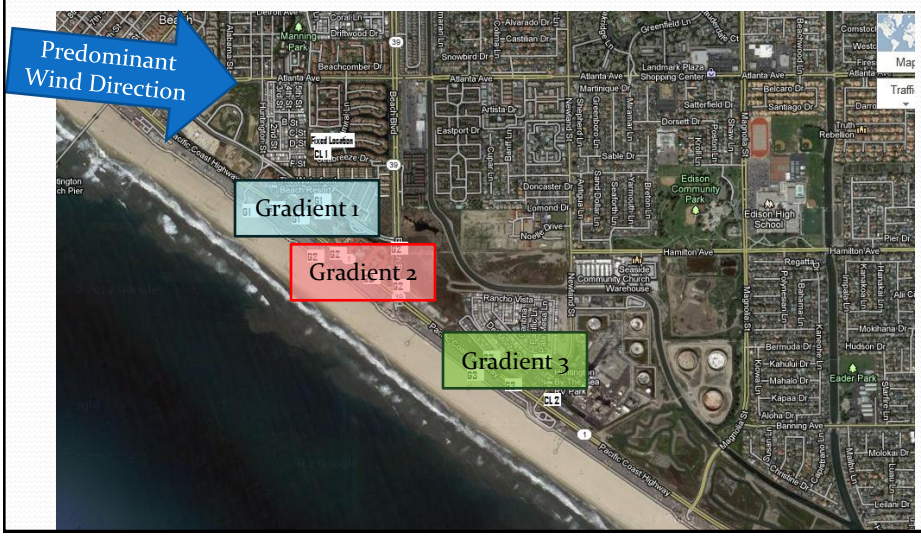


Preliminary Results: Dockweiler State Beach 4/20/13
10 Minute Average $PM_{2.5}$ Relative to Background

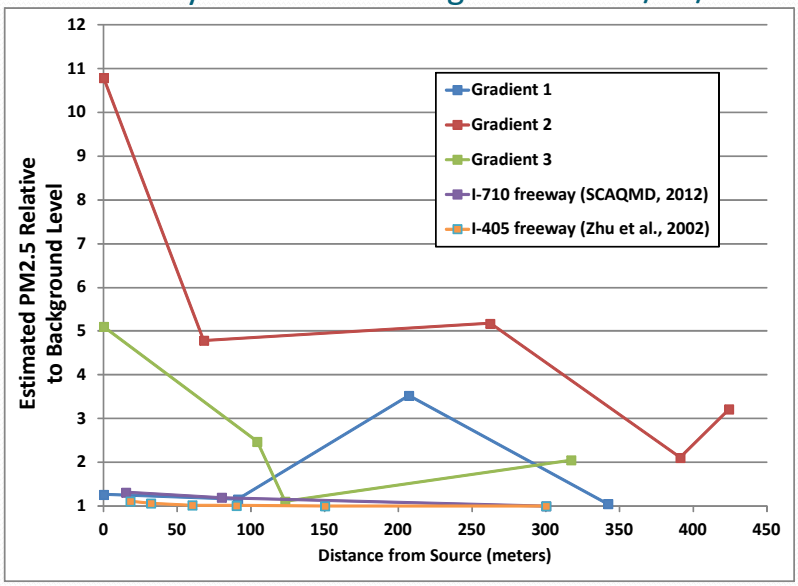
Preliminary Results: Huntington Beach 4/13/13
10 Min Average $PM_{2.5}$ Relative to Background



Preliminary Results: Huntington Beach 4/27/13

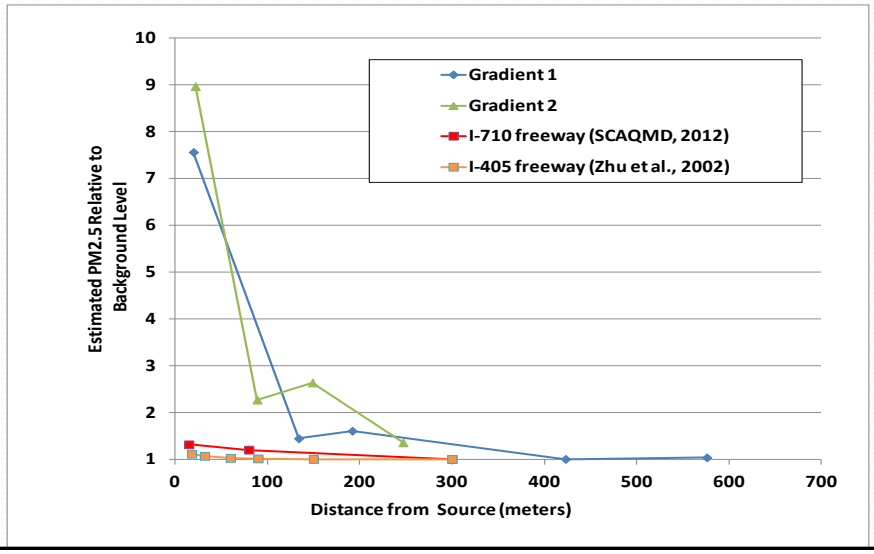


Preliminary Results: Huntington Beach 4/27/13



Preliminary Results: Doheny State Beach 06/01/13
20 minute Average $PM_{2.5}$ Ratio to Background

Preliminary Results: Doheny State Beach 06/01/13



Fixed-Site Monitoring

Objective:

Assess the PM impacts of the Beach Fires at a fixed locations, continuously over time

Methods:

E-BAM – Measures PM2.5 on an hourly basis

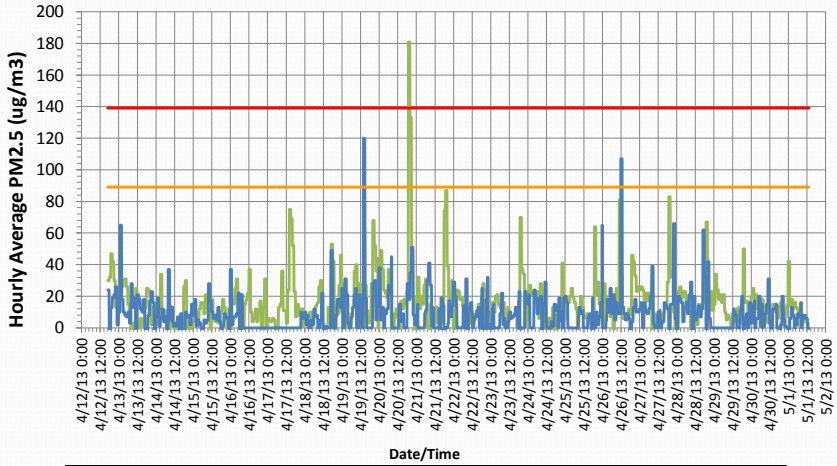
Advantages: portable, low power, same measurement principle as a Federal Equivalent Method

Limitations: less accurate at low levels

Aethalometer – Measures Black Carbon, an indicator of combustion, on a continuous basis

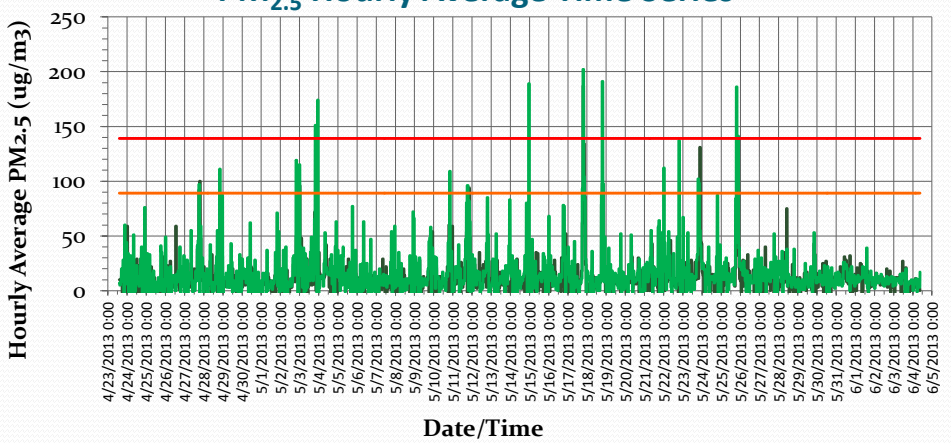
Condensation Particle Counter (CPC) - Measures Ultrafine particles, indicative of nearby sources of combustion

Huntington Beach Preliminary Data: PM2.5 Hourly Average Time Series



USG = Unhealthy for Sensitive Groups
Unhealthy – "consider canceling public events, based on public health and travel considerations"

Corona Del Mar Preliminary Data: $PM_{2.5}$ Hourly Average Time Series



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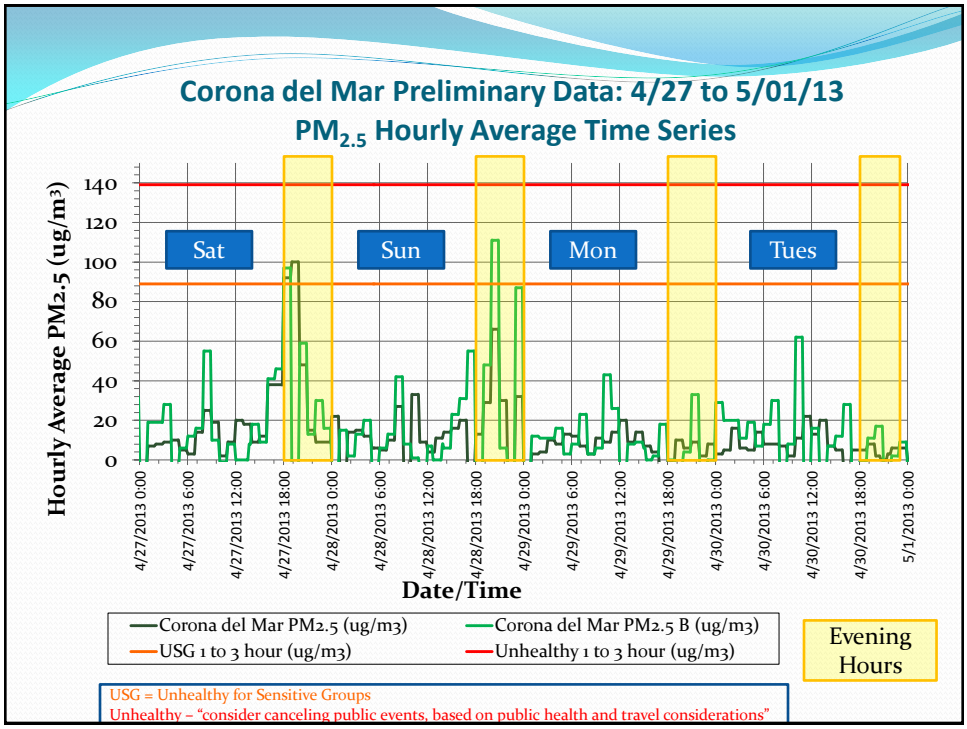
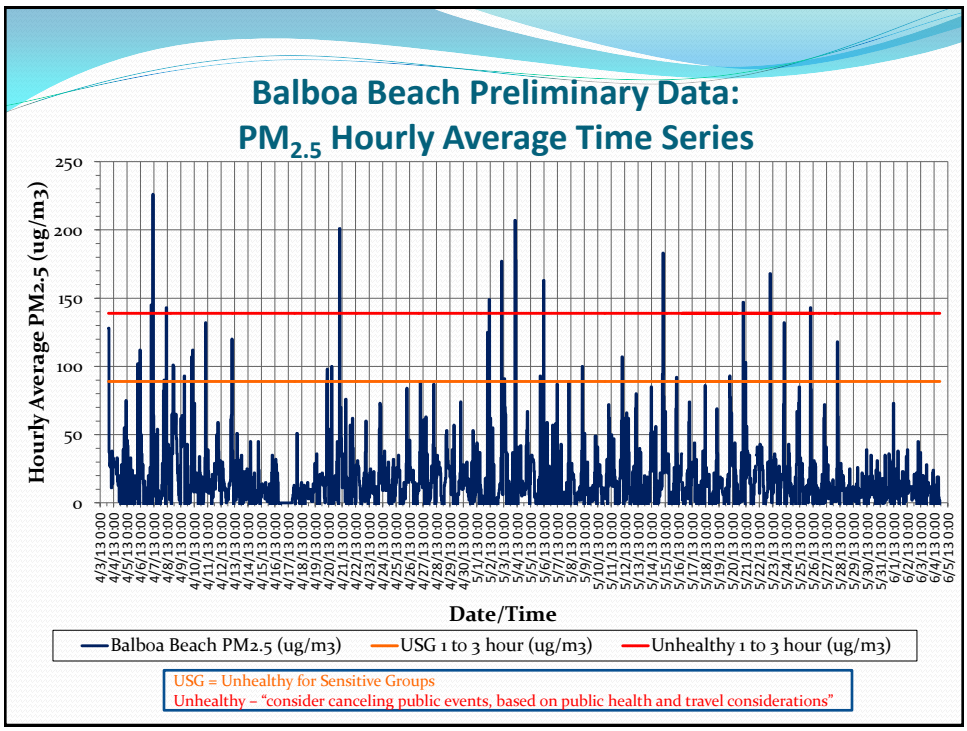
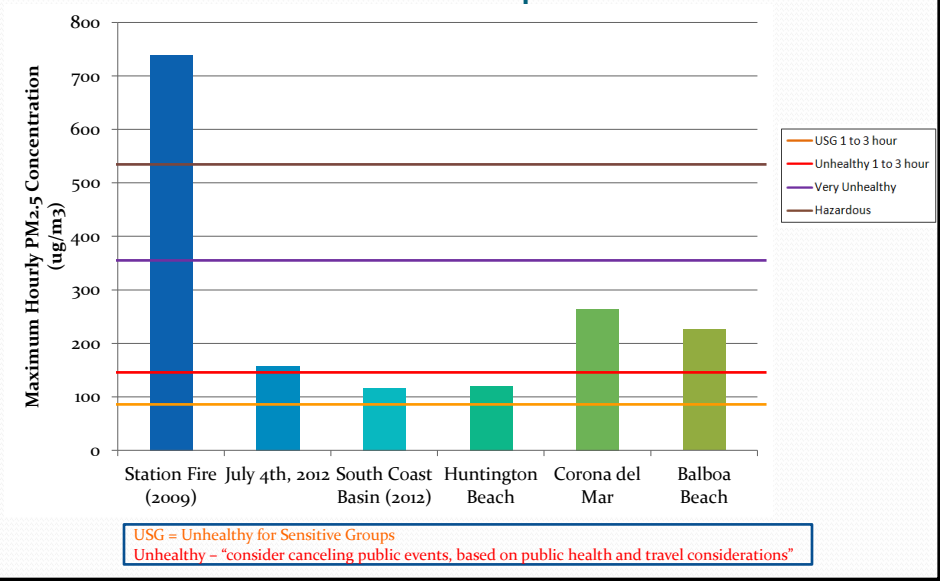

Corona del Mar Preliminary Data: 4/27 to 5/01/13
PM2.5 Hourly Average Time Series
Hourly Average PM2.5 (ug/m3)
140
120
100
80
60
40
20
0
Sat
Sun
Mon
Tues
4/27/2013 0:00
4/27/2013 6:00
4/27/2013 12:00
4/27/2013 18:00
4/28/2013 0:00
4/28/2013 6:00
4/28/2013 12:00
4/28/2013 18:00
4/29/2013 0:00
4/29/2013 6:00
4/29/2013 12:00
4/29/2013 18:00
4/30/2013 0:00
4/30/2013 6:00
4/30/2013 12:00
4/30/2013 18:00
5/1/2013 0:00
Date/Time
Corona del Mar PM2.5 (ug/m3)
Corona del Mar PM2.5 B (ug/m3)
USG 1 to 3 hour (ug/m3)
Unhealthy 1 to 3 hour (ug/m3)
Evening Hours
USG = Unhealthy for Sensitive Groups
Unhealthy – "consider canceling public events, based on public health and travel considerations"


Balboa Beach Preliminary Data:
PM2.5 Hourly Average Time Series
Hourly Average PM2.5 (ug/m3)
250
200
150
100
50
0
Date/Time
Balboa Beach PM2.5 (ug/m3)
USG 1 to 3 hour (ug/m3)
Unhealthy 1 to 3 hour (ug/m3)
USG = Unhealthy for Sensitive Groups
Unhealthy – "consider canceling public events, based on public health and travel considerations"

Preliminary Results: Maximum Hourly $PM_{2.5}$ Concentration Comparison



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Filter analysis

Corona del Mar (3/30 to 4/19), Huntington Beach (4/24 to current)

- **PM2.5 Mass (24 hour average) – Daily Samples**
  - All below 12.5 ug/m3, under the 24 hour NAAQS level (35 ug/m3)
  - One day nearly 40 ug/m3, day had very high gusty winds
- **PM10 mass (4 hour sample, 4/6) - One Sample Only**
  - Sample collected from 5 to 9pm with burning activity shown to have PM10 mass concentration of 95 ug/m3.
  - 30% higher concentration than sample collected from 1 to 5pm
  - Elevated levels of Potassium, an indicator for wood smoke

Preliminary Air Monitoring Conclusions

- Beach fire activity is impacting PM2.5 levels at the beach and extending into neighboring communities
- Concentrations can be over 10 times background levels for short periods of time in beach parking areas, up to 3 times background at residential locations
- 1-hour average PM concentrations can exceed public health guidance levels
- Some measurements are higher than observed across the Basin over a whole year

Proposed Rule 444 Amendments

- Revised Language released on June 6, 2013
  - Provision for cities to remove rings if they are declared to be a public nuisance
  - All rings more than 700 feet from residences are allowed
  - Spacing requirements within 700 feet
    - 100 feet apart, or
    - 50 feet apart if 15 or less pits in a city
  - No-burn days if high particulate levels are forecast in that coastal area
  - Only applicable to pits on the sand
- Public Hearing to consider rule continued until July 12th

Next steps

- Seek public input
- Continue field sampling as necessary
- Continue to report findings to public as they become available
- Continue to work with potentially impacted cities and state parks
- Demonstration project for propane and natural gas beach fire options
- Public Hearing scheduled for July 12, 2013