

Actions to Address Indoor Ozone Generators



California
Air Resources Board

May 25, 2006

Introduction

- Background
- ARB Tests of Ozone Generators
- Portable Air Cleaner Survey
- Outreach Activities
- Activities of Other Groups
- Next Steps

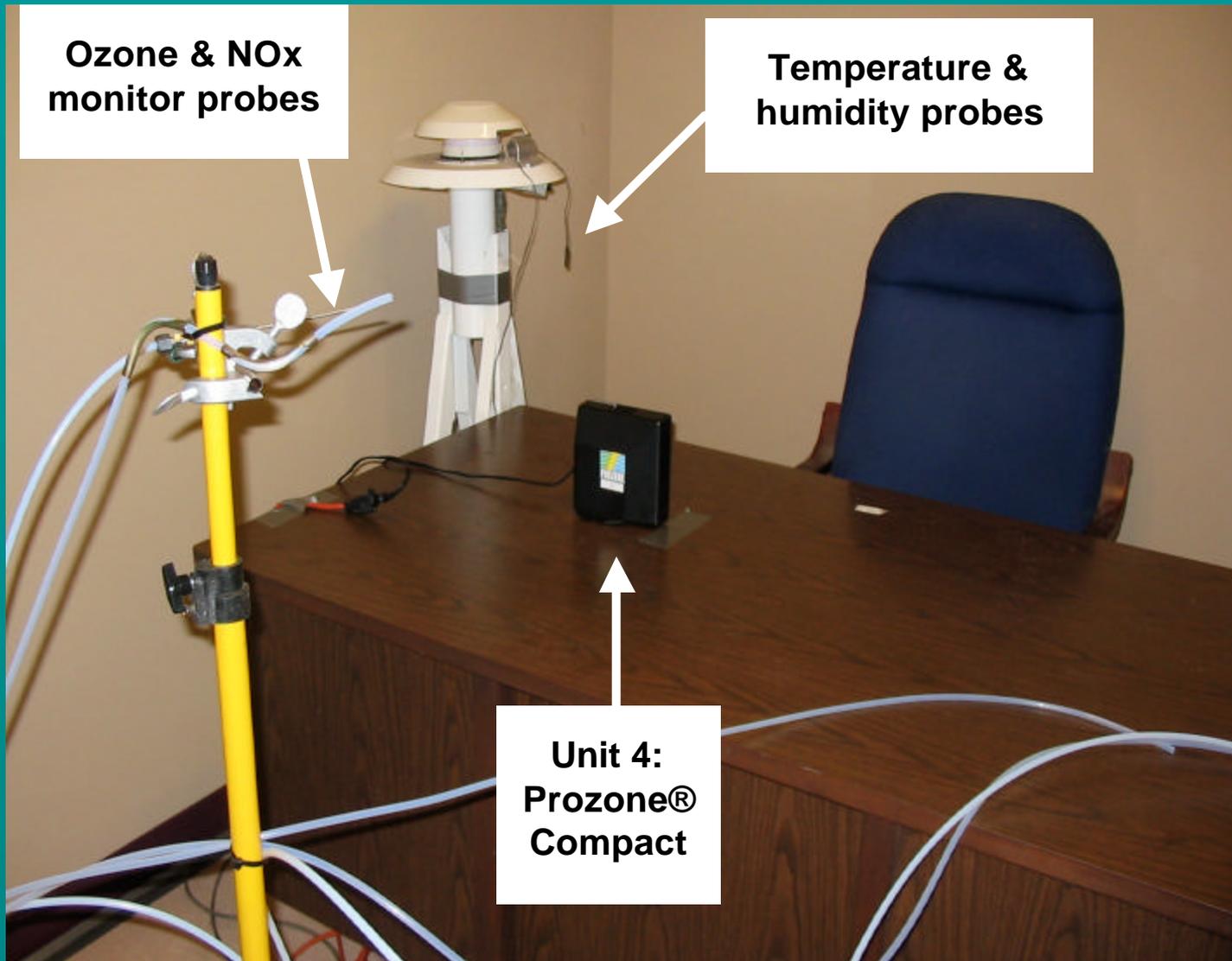
Background

- **Ozone generators are a serious health concern**
 - Intentional emission of ozone
 - Misleading claims for ozone
- **January 2005: Health Update to Board**
 - EPA study: > 300 ppb ozone in home
 - Exceedance of health-based standards
 - Ineffective in removing indoor air pollutants
 - Aggressively marketed via mail and the Internet
 - Federal and state efforts ineffective; FDA limit of 50 ppb not enforced
 - Regulatory authority in California is lacking

ARB Tests of Ozone Generators

- 4 models tested (\$190 - \$495 each)
 - Alpine Air XL-15 / Lightning Air RA 2500
 - Biozone® 500
 - Prozone® Whole House
 - Prozone® Compact
- Room concentrations measured
- Emission rates measured

Room Test Methods

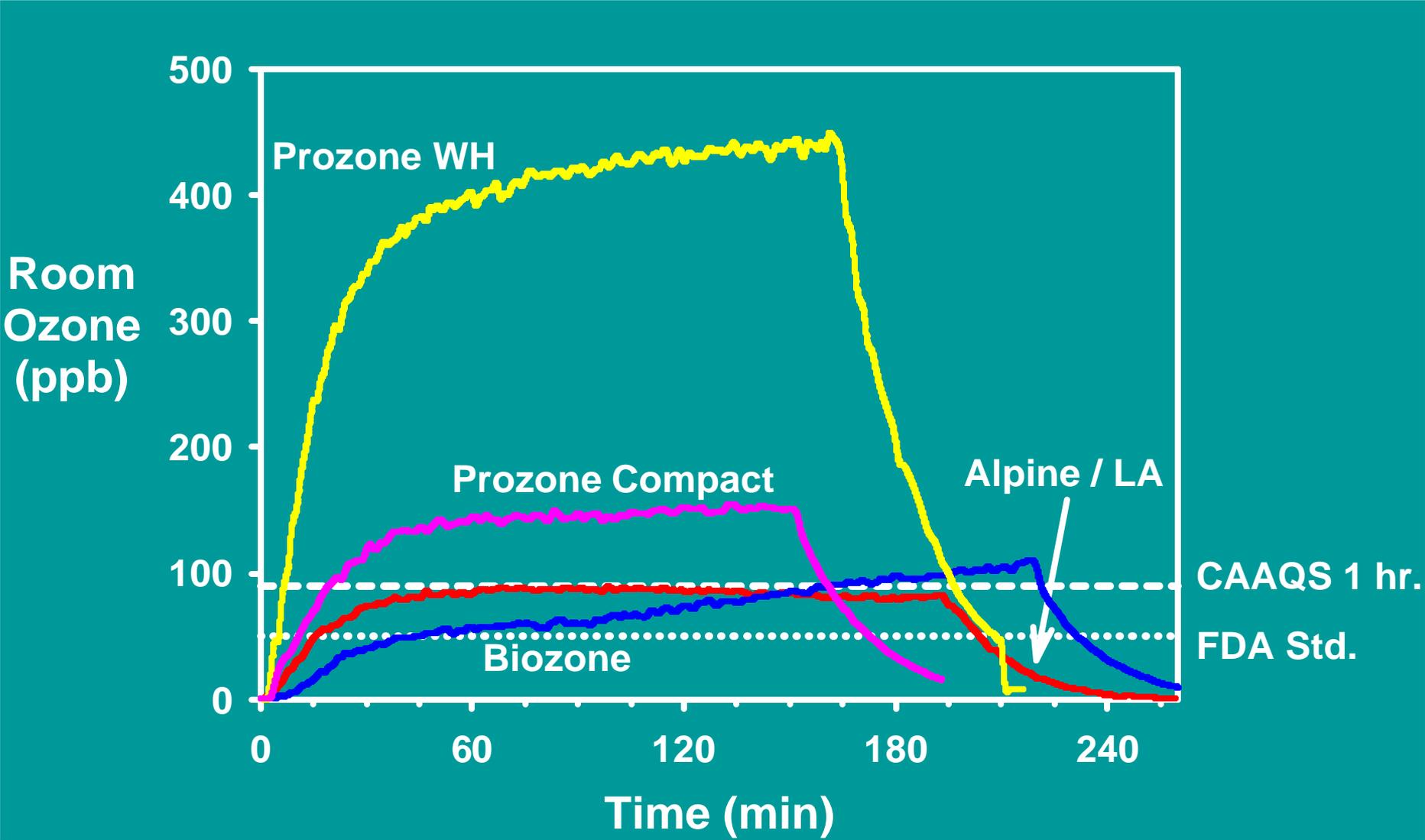


Ozone & NOx
monitor probes

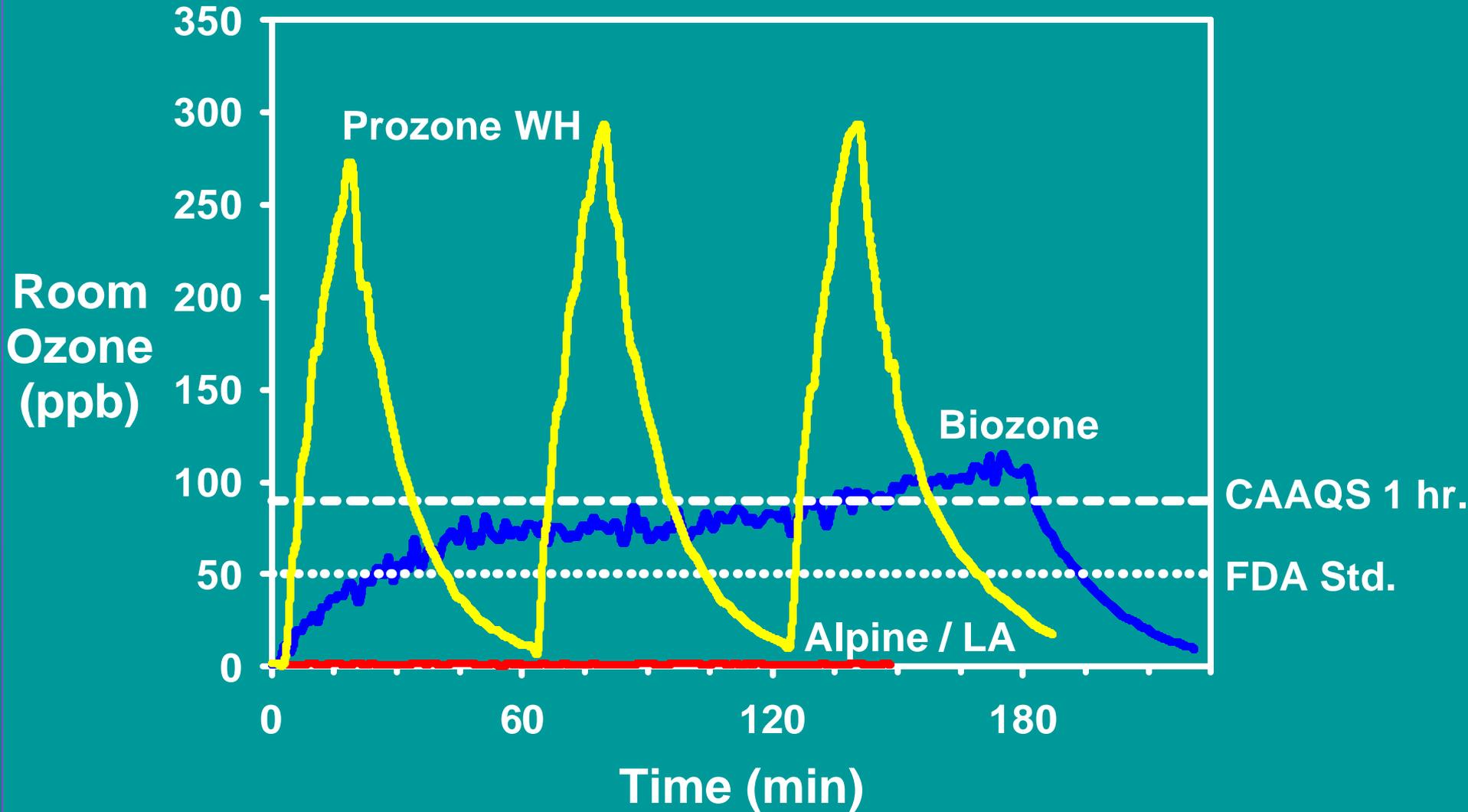
Temperature &
humidity probes

Unit 4:
Prozone®
Compact

Room Results: Medium & High Settings



Room Results: Low Settings

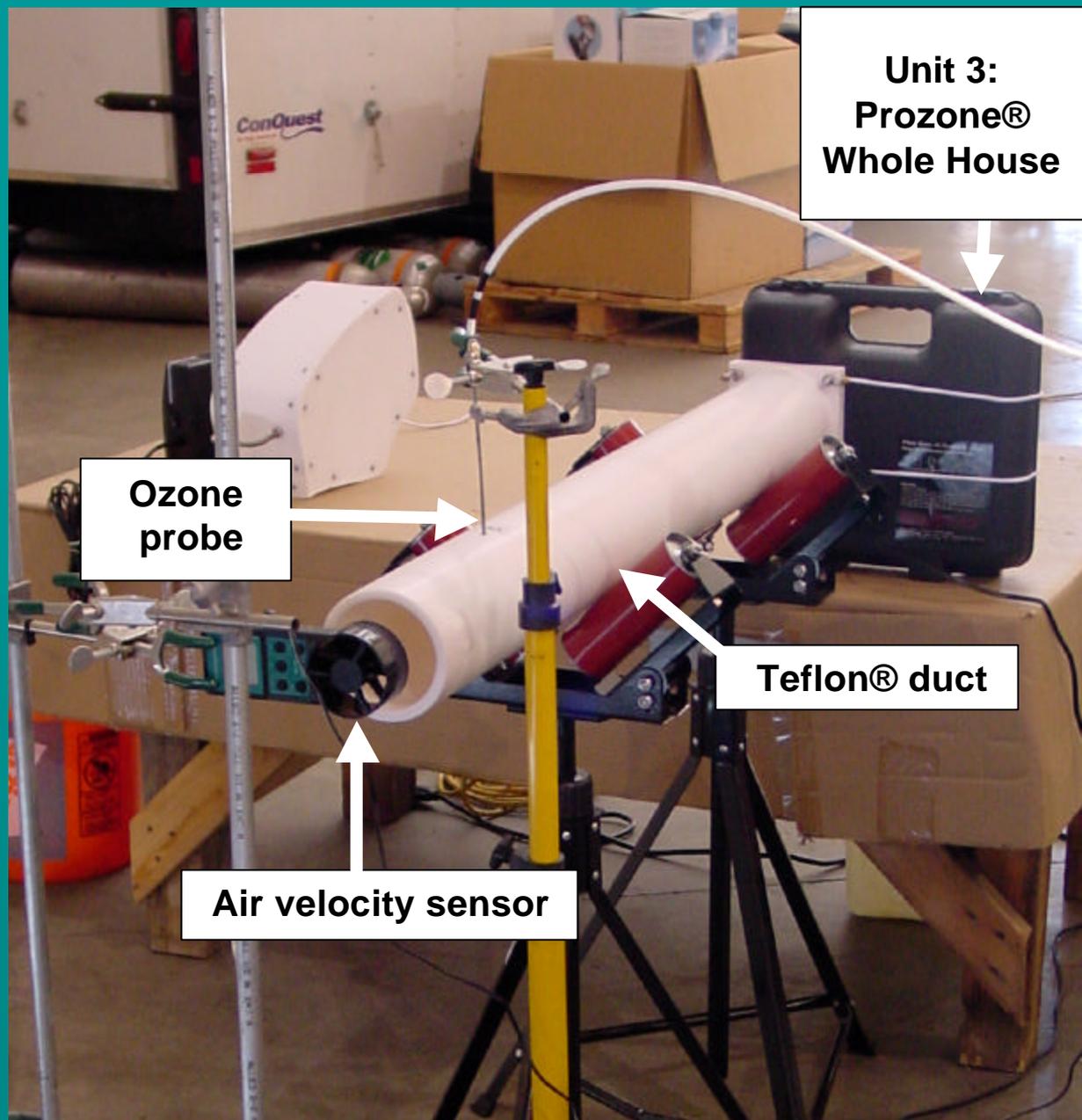


Room Tests: Time to Reach 90 ppb Ozone

Manufacturer & Model	Ozone Output Setting	Time to Reach 90 ppb Ozone (level of 1-hr CAAQS)
Alpine Air XL-15 / Lightning Air RA 2500	Medium	68 minutes *
Biozone® 500	Low fan	135 minutes
Prozone® Whole House	Intermittent	7 minutes
Prozone® Compact B	On	20 minutes

Emission Rate Tests

- Results consistent with room test results and previous studies



ARB Tests: Conclusions

- All four ozone generators can produce room ozone concentrations above health-based air quality standards.
- The measured emission rates are consistent with the room test results.
- These devices are not safe to operate in occupied spaces.

Portable Air Cleaner Survey

- Objectives
 - Percent of CA households using ozone generators
 - How often and how long portable air cleaners are used
 - Reasons for purchase
- Telephone survey by UC Berkeley
 - Statewide, random sample
 - Interview 1,800 households
- Results expected this Fall

Ozone Generator Outreach

- Proactive effort to educate professionals and the public
- Presentations to key groups:
 - Local air districts, local health officers
 - Medical, dental, and veterinary groups
 - Building and environmental organizations
 - Others
- Ozone Generator Fact Sheet
- Updated list of ozone generators: many new models

New Models



Desktop



Shoe & wardrobe



Ozone optical mouse



Inside vehicles

Related Activities of Other Groups

- **AB 2276, Pavley:** regulatory authority to ARB
- **Attorney General:** ARB requested review
- **U.S. Consumer Product Safety Commission:** consultant review of literature
- **Underwriters Laboratory:** reviewing industry test method
- **Consumer Reports:** tested effectiveness and ozone emissions; two articles

Next Steps

- Follow proposed legislation
- Send letters to FDA & CPSC
- Continue outreach efforts
- Complete air cleaner survey
- Continue participating in UL effort to revise industry test standard
- Update Board