

REGULATING OUTDOOR AIR

**PRESENTED BY THE
NEW MEXICO ENVIRONMENTAL HEALTH
COORDINATING COUNCIL**

New Mexico Environmental Health Coordinating Council

- The Council first convened 2003
- The mission of the EHCC is to assess, plan and take action to protect and improve environmental health in New Mexico
- Participants include
 - ▣ NM Environment Department & NM Department of Health
 - ▣ City of Albuquerque's Air Quality Division
 - ▣ County of Bernalillo Environmental Health Office
 - ▣ IHS Environmental Health Office
 - ▣ Representatives from Universities, Tribes, Professional & Community Associations, Experts in EH and EJ activities in New Mexico's rural and Border Communities

Workshop Goals

1. To raise awareness of the link between air quality & ill health
2. Introduce attendees to issues related to outdoor air quality & its regulation
3. Make recommendations for ways the public can participate in improving outdoor air quality

Presenters

Chris Campbell, Moderator
NMSU/Institute for Energy
& the Environment

Marla Painter, President of Mountain View
Neighborhood Association

Diana Bustamante Ph.D., Executive
Director for Colonias Development Council
(CDC)

Rita Bates, NM Environment Department,
Air Quality Bureau

Johnnye Lewis, Ph.D., University of New
Mexico, College of Pharmacy, Community
Environmental Health Program

Kitty Richards MS, Bernalillo County Office
of Environmental Health and the South Valley
Partners for Environmental Justice
#R25 ES 014317

NMPHA

4/11/08

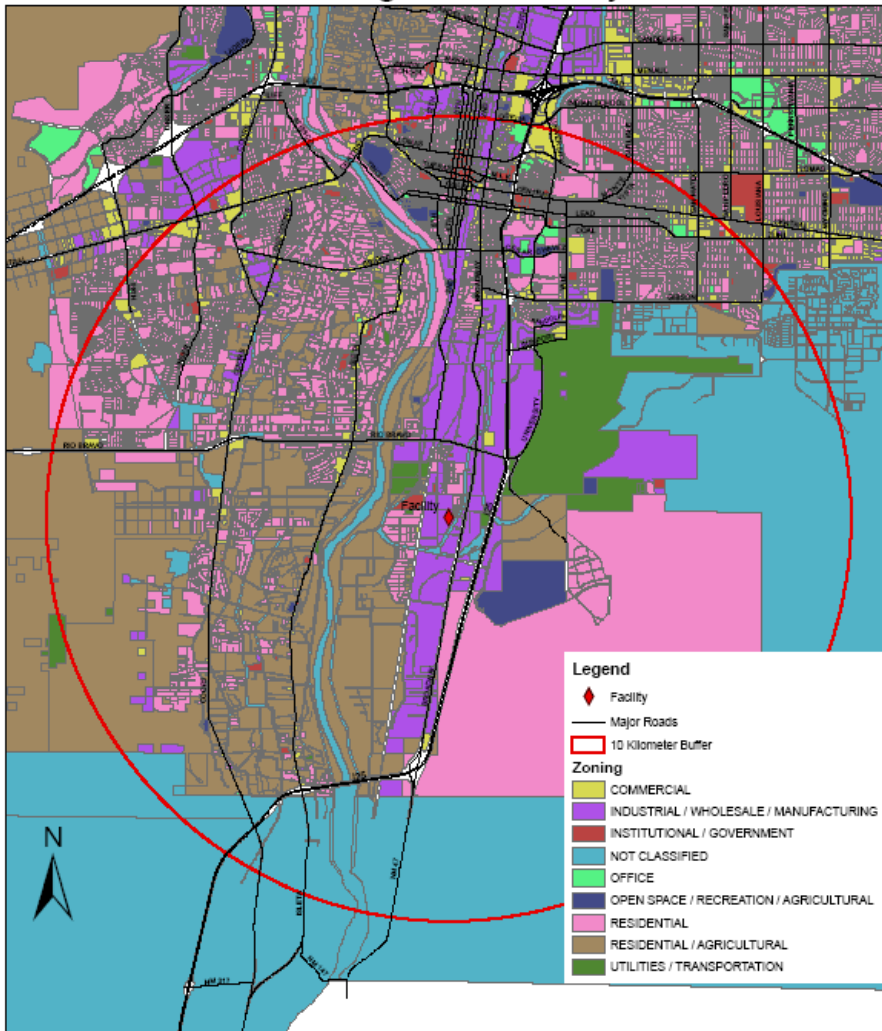
South Valley Challenges and Mountain View Air Quality Issues

Marla Painter

NMPHA

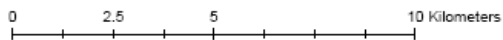
4/11/08

Zoning - South Valley

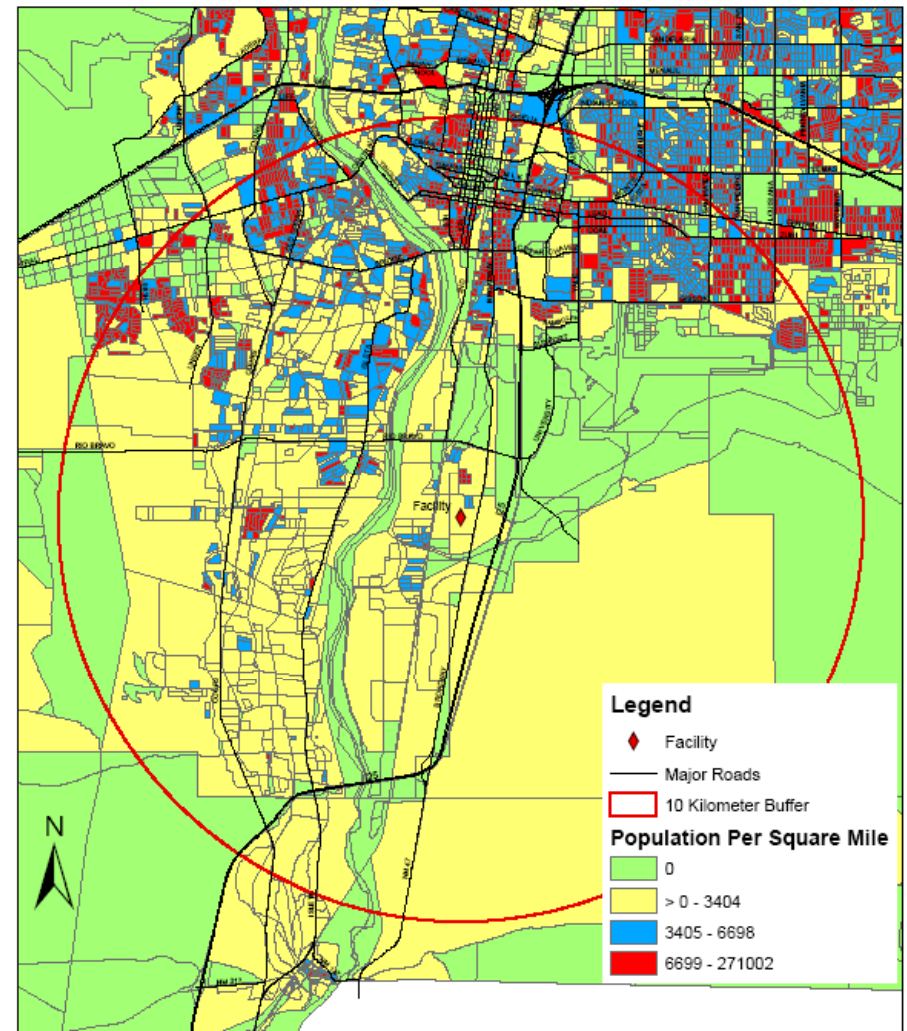


28 February 2008
Public Works Division
GIS Program

This information is for reference only.
Bernillo County assumes no liability for errors
associated with the use of these data.

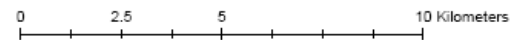


Population Density - South Valley



28 February 2008
Public Works Division
GIS Program

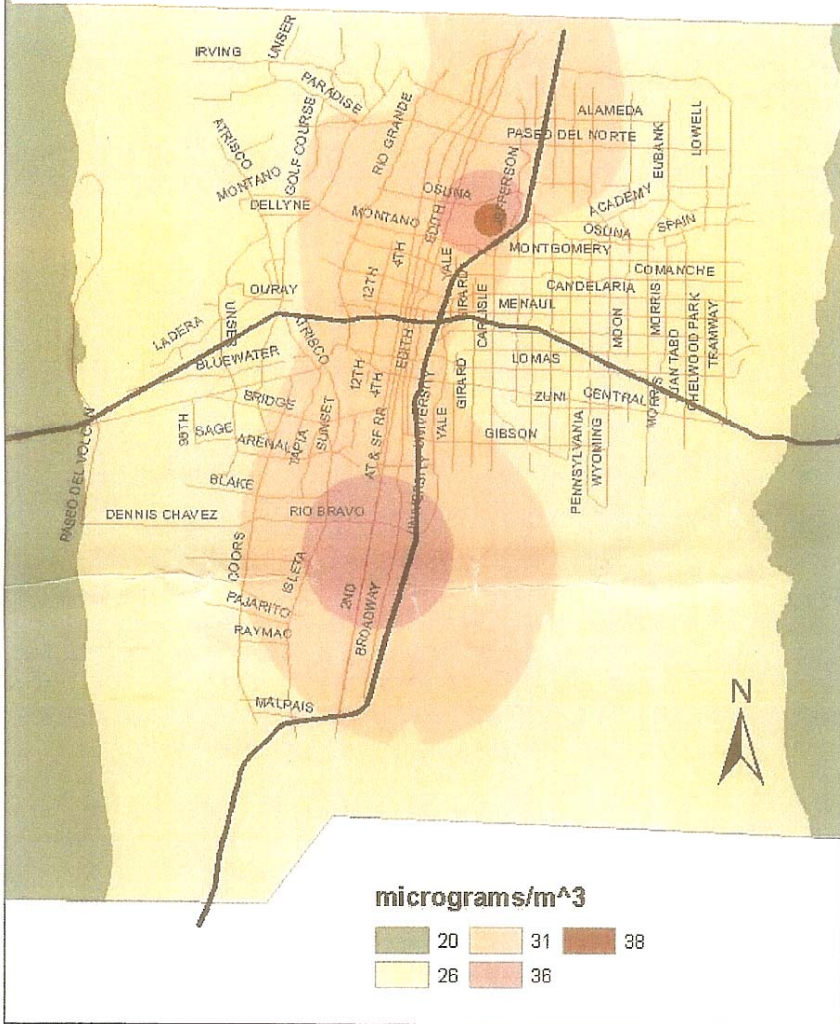
This information is for reference only.
Bernillo County assumes no liability for errors
associated with the use of these data.



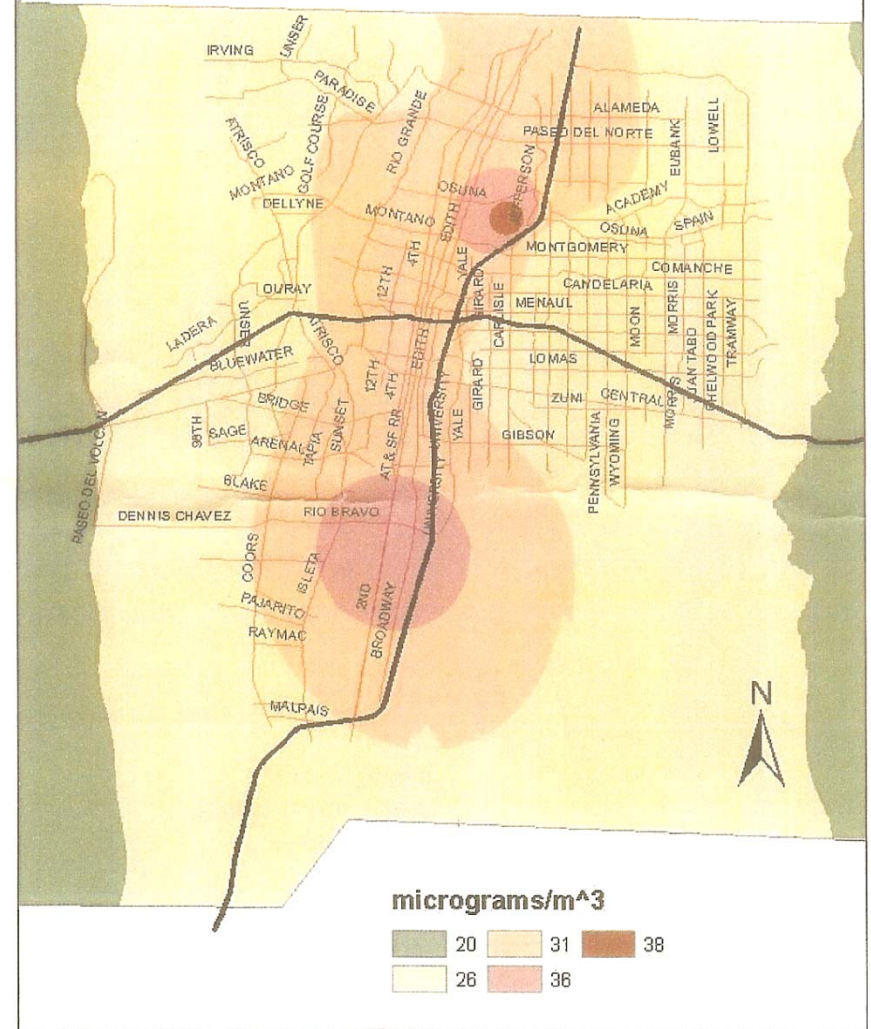
NMPHA

4/11/08

TSP backgrounds - Albuquerque Metro area



PM10 backgrounds - Albuquerque Metro area



South Valley Challenges

- Unique sources
- Permitting process and community involvement
- Population studies for health effects
- Cumulative effect

South Valley Challenges

- Monitoring, enforcement, & modeling
- Community reliance on a regulatory agency that is not accountable to voters in the area
- Decision making process
- Zoning
- Mountain View Sector Plan

Community Experience

Diana Bustamante Ph.D.

NMPHA

4/11/08

Colonias Development Council (CDC)

- CDC provides community organizing support to colonia communities in southern New Mexico
- CDC has been part of the NM Environmental Justice Working Group since 2004, after a series of Listening Sessions on EJ throughout New Mexico

Environmental Justice Working Group

- Coordinated by the Southwest Network for Environmental & Economic Justice (SNEEJ)
- Objectives:
 - To identify and explore common statewide policy issues to create effective policy on environmental justice
 - Address issues that members of the Group are working on such as landfills, land use and zoning, development, and water quality and quantity
 - Strengthen community capacity to build grassroots power at the local, state, and regional level, and examine how existing regulations and policies are implemented in communities of color

EJ Working Group Members & Affiliates

- SNEEJ
- Kalpulli Izakalli
- Concerned Citizens of Wagon Mound & Mora County
- Sacred Alliances for Grassroots Equality (SAGE Council)
- SouthWest Organizing Project (SWOP)
- NM Environmental Law Center
- Southwest Research and Information Center (SRIC)
- Colonias Development Council

Colonias Development Council: Recent Trajectory

- 2001:
 - ▣ Chaparral: Public Hearing on Solid Waste permit application by Rhino Environmental Services
 - ▣ Over 400 attend hearing, voicing opposition to landfill
 - ▣ Over 600 letters sent to NMED
 - ▣ Over 1,600 signatures on petitions
 - ▣ Audience not allowed to address social impact issues, as this was not part of application requirements

CDC's Recent Trajectory

APPEAL:

- 1) CDC argued that there was no evidence of a regional plan for waste disposal in considering Rhino's application. The issue of cumulative effects of already existing facilities was addressed.
- 2) As the cumulative effects of landfills in the vicinity of Chaparral were not taken into consideration, besides other industrial sites, CDC argued that now social impact issues were addressed in application process.
- 3) CDC held that the hearing officer acted in a discriminatory way toward the witnesses, the experts and especially toward the residents at the public hearing.
- 4) Issue of due process: CDC contended that NMED denied CDC and the Chaparral Community Health Council, through their expert witness, the opportunity to present evidence or cross-examine witnesses on matters touching upon the statutory requirements for granting a solid waste permit.

NMPHA

4/11/08

Recent Trajectory

□ 2002 – 2005

- NMED grants permit. CDC appeals to NMED. Appeal denied
- CDC appeals to Court of Appeals. Appeal Denied
- CDC appeals to NM Supreme Court. Court decides to hear appeal. Hearing held June 2004. Court hands down ruling, July 2005.

Recent Trajectory

□ 2005

- ▣ NM Supreme Court reviews only 1 and 2.
- ▣ Court remands NMED to a restricted public hearing: that CDC will be afforded the opportunity to cross examine Rhino on issues related to social impact and community concerns regarding health.
- ▣ Hearing is postponed. Request to postpone made by solid waste company.

□ 2006

- ▣ Environmental Improvement Board (EIB) listens to recommendations on changes to Solid Waste Regulations from both industry and environmental justice groups representatives.

Recent Trajectory

□ 2007

- February and March 2007: Dona Ana and Otero County Boards of Commission pass resolutions against the proposed landfill in Chaparral
 - August: Solid Waste Regulations include environmental justice language. In particular, definition of “vulnerable communities” is included
- ## □ Update on Landfill Hearing in Chaparral

Health Effects of Air Pollutants

Johnnye Lewis Ph.D.

NMPHA

4/11/08

Definition of Air Quality Terms

- Atmosphere – naturally occurring gases in outdoor air
 - ▣ 78% nitrogen, 21% oxygen, 1% other
- Air pollutants – anything in the air that could potentially harm humans, animals or vegetation
 - ▣ May be natural or man-made
 - ▣ May be gas, liquid, or solid (examples – pollen, dust, chemicals)
- Air toxics – anything in the air that is reasonably expected to harm human health
- HAPs (Hazardous Air Pollutants) – subset of approximately 188 air toxics identified in the Clean Air Act of 1990
- Criteria Pollutants – subset of 6 air toxics identified in the Clean Air Act of 1970

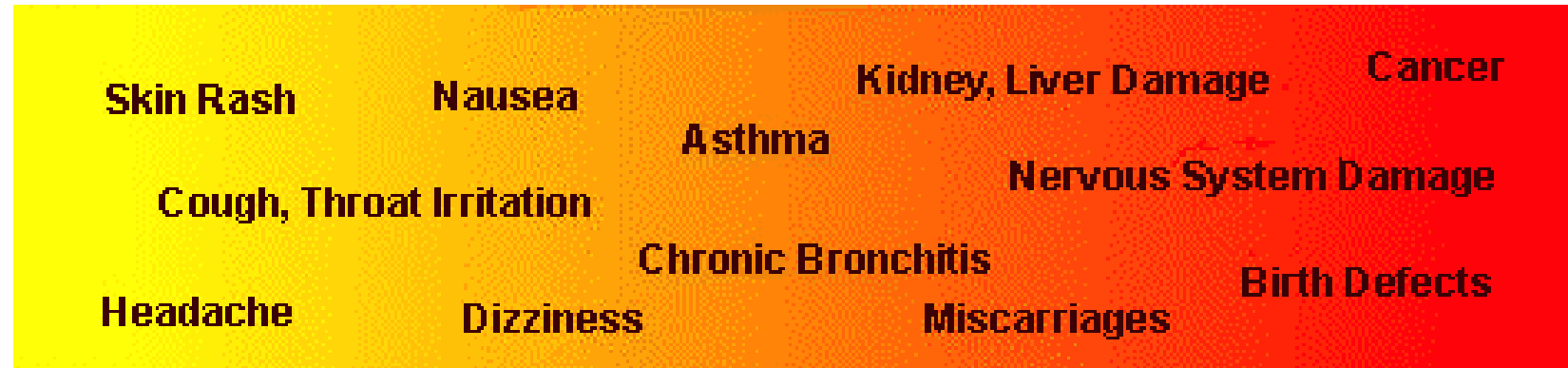
How are people exposed to air pollutants

- Breathing / Inhaling contaminated air
 - ▣ The volume of air intake is 5,000 times greater than food or water
 - ▣ The average adult takes approximately 20,000 breaths a day
 - ▣ Average adult lung capacity is approximately 6 liters
- Consumption / Ingestion
 - ▣ Eating contaminated food products
 - ▣ Eating contaminated soil
 - ▣ Drinking water contaminated by air pollutants.
- Touching / Skin Absorption
- Chronic vs. acute exposure
- Mixtures
- Animals and plants

Less Serious
reversible
not debilitating
not life-threatening



More Serious
irreversible
debilitating
life-threatening



Who are most vulnerable to air pollutants?

- Children
- Elderly
- Pregnant women/unborn children
- Those with asthma or other chronic lung or heart problems
- Those with chemical sensitivities or allergies
- Those with other chronic illnesses

Health Effects of Criteria Pollutants

Criteria Pollutant	Respiratory – worsens asthma &/or lung disease; irritates lung, nose, & throat	Cardiovascular- aggravates HD	CNS – learning disabilities
Ozone	++	+	
Particulate	++	++	
Sulfur dioxide	++		
Carbon monoxide	++		
Lead			++
Nitrogen dioxide	++		

Asthma

- 8.9% of adults and 10.7% of children in New Mexico have asthma (2005 BRFSS)
- Prevalence of childhood asthma has almost doubled over the past 20 years
- Low income children are disproportionately affected
- Asthma is the most common chronic disease in children with 1/3 of school days missed attributed to asthma

Common air pollutants in New Mexico

- Dust
- Wood smoke – fireplaces, stoves, wildland and prescribed burns
- Vehicle emissions
- Coal-fired power plants
- Mining
- Oil & gas
- Dairies
- Agriculture – pesticides, etc.
- National laboratories
- Manufacturing and other Industries

Pesticides as Air Pollutants

- There are approximately 10,000 pesticide products registered in NM
- Outdoor applications of pesticides drift to non-target areas - more than 99.9% of agricultural pesticides do not reach their target pests
- Pesticides volatilize back into the air, even after they have dried - they can continue to enter the air for long periods following their application
- Proximity to pesticides is associated with
 - ▣ Neurologic impairment; including impact on neurological developmental in children
 - ▣ Parkinson's
 - ▣ Association with some cancers



More Regarding Pesticides as Air Pollutants

- There are no state requirements to provide notification of pesticide use in NM and no requirements to report pesticide use.
- Chemically sensitive individuals are often highly sensitive to pesticides and other air pollutants and can become severely ill from trace amounts in ambient air.
- 16% of New Mexicans report being chemically sensitive



New Mexico Air Quality Regulations

Rita Bates

NMPHA

4/11/08

History of Air Pollution

- Pollution disasters in modern times due to coal burning and weather inversion
 - ▣ Meuse Valley, Belgium – 1930
 - ▣ Donora, Pennsylvania – 1948
 - ▣ Great London Fog – 1952

- Air Pollution Control Act history
 - ▣ First act initiated by California in 1947
 - ▣ Air Pollution Control Act 1955 passed by Congress
 - ▣ Eventually became the Clean Air Act of 1970

Casarett & Doull's Toxicology 6th edition
Chapter 28, Air Pollution, D. L. Costa

NMPHA

4/11/08



London, 1948



Donora, 1952

NMPHA

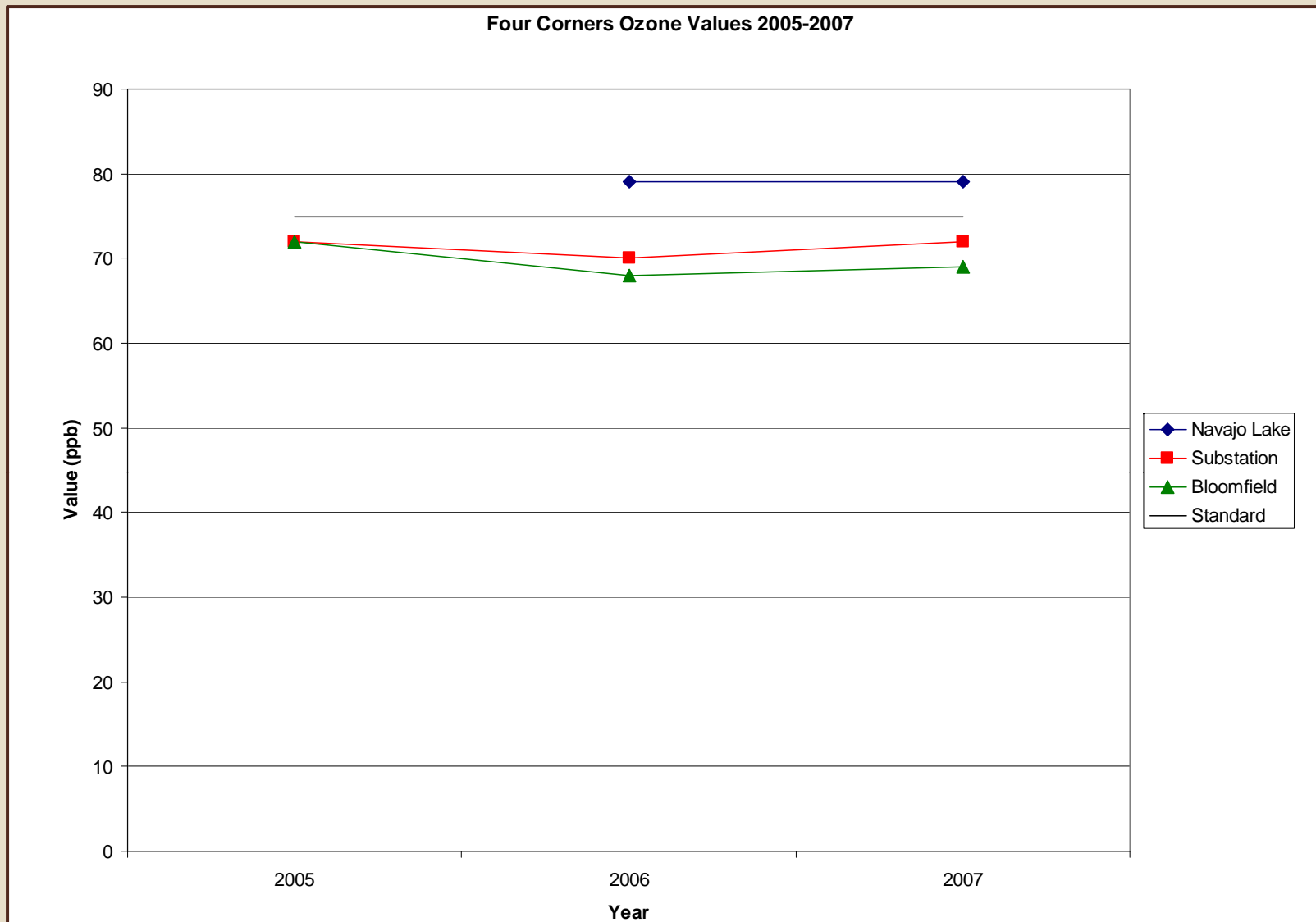
4/11/08

National Ambient Air Quality Standards

- NAAQS to be reviewed every 5 years
- A Criteria Document for each criteria pollutant are developed with a detailed summary of available data to be integrated into a paper written by EPA staff to be used by EPA Administrator to set the standards
- The term “criteria pollutants” derives from the requirement that EPA must describe the characteristics and potential health & welfare effects of these pollutants; it is on the basis of these criteria that standards are set or revised.
- Primary consideration is for health including safety factor for the most susceptible populations
- Secondary consideration is for agricultural and structural welfare & economic impacts not to be considered except for implementation

NMPHA

4/11/08

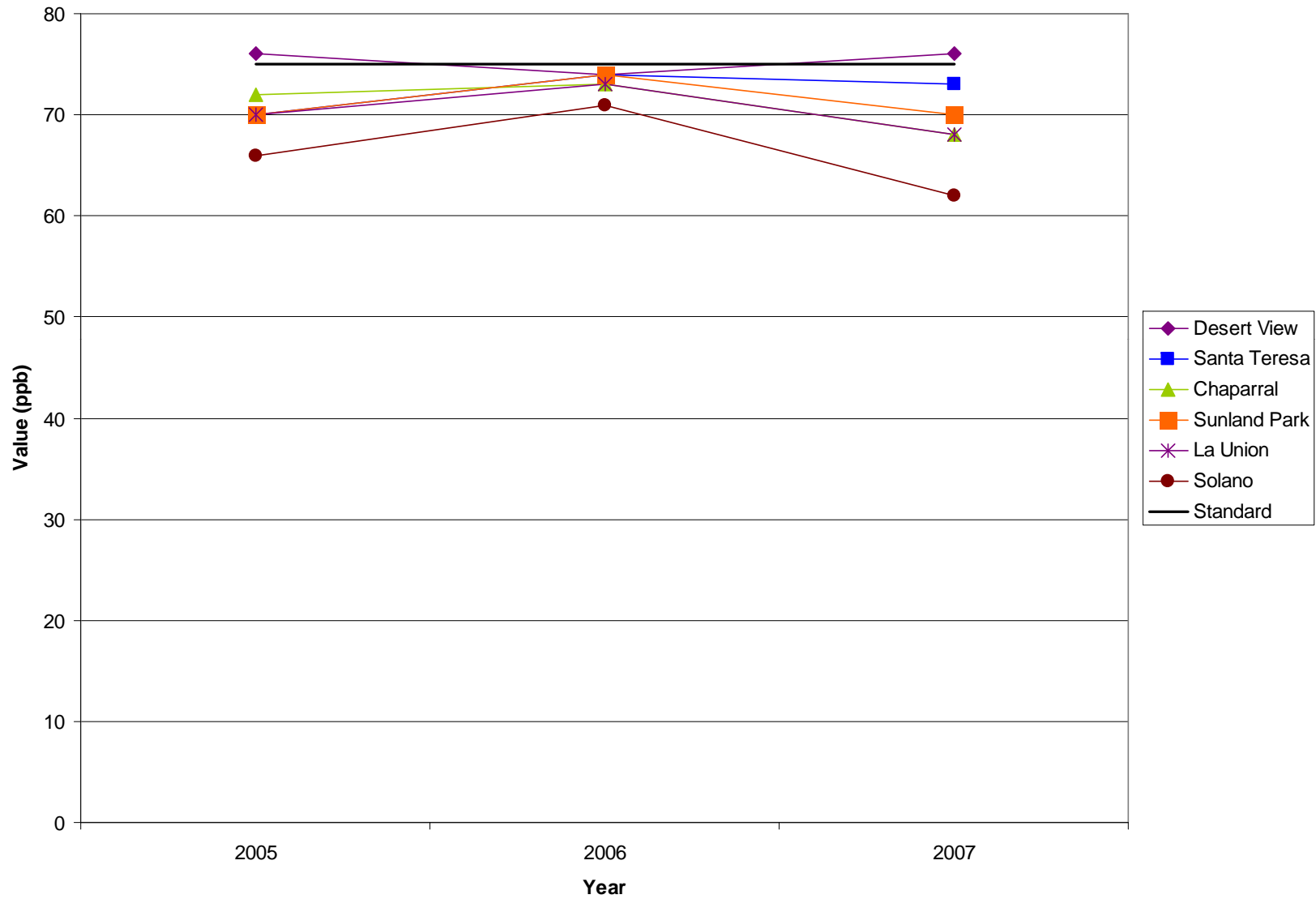


Ozone has been an issue in southern Doña Ana, San Juan County and Bernalillo Counties. San Juan County is likely to be non-attainment for ozone since the standard was revised this year (from 84 ppb to 75 ppb).

NMPHA

4/11/08

Dona Ana County Ozone Values 2005-2007

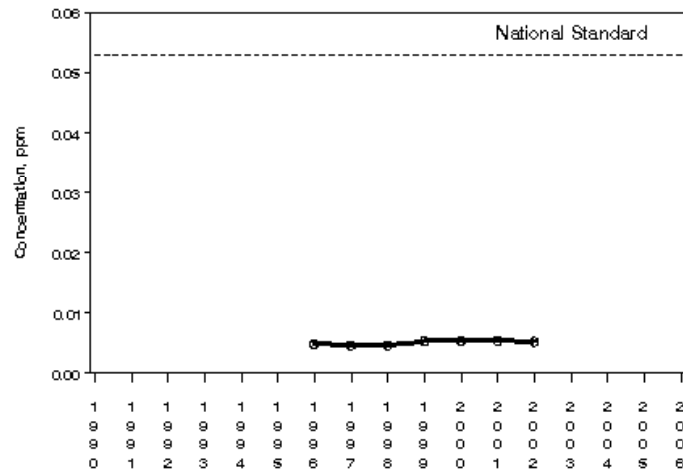


NO2 Air Quality, 1990 – 2006

(Based on Annual Arithmetic Average)

Las Cruces, NM

SITE= 350130020 POC= 1

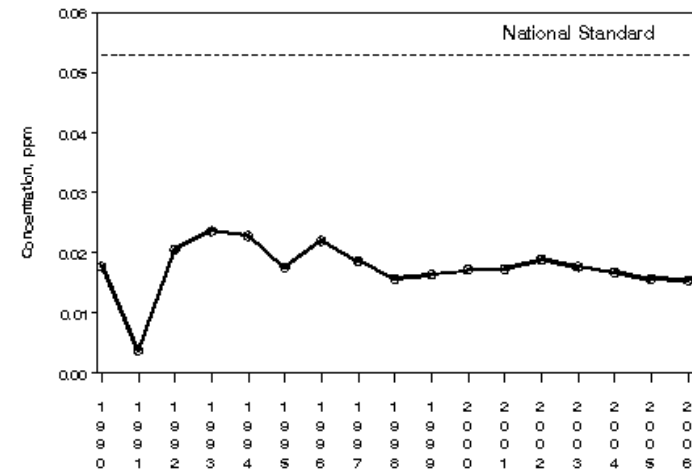


NO2 Air Quality, 1990 – 2006

(Based on Annual Arithmetic Average)

Albuquerque, NM

SITE= 350010023 POC= 1

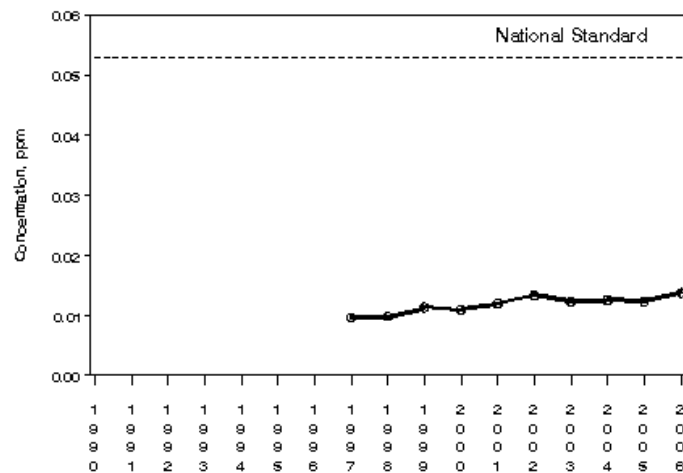


NO2 Air Quality, 1990 – 2006

(Based on Annual Arithmetic Average)

San Juan County

SITE= 350450009 POC= 1



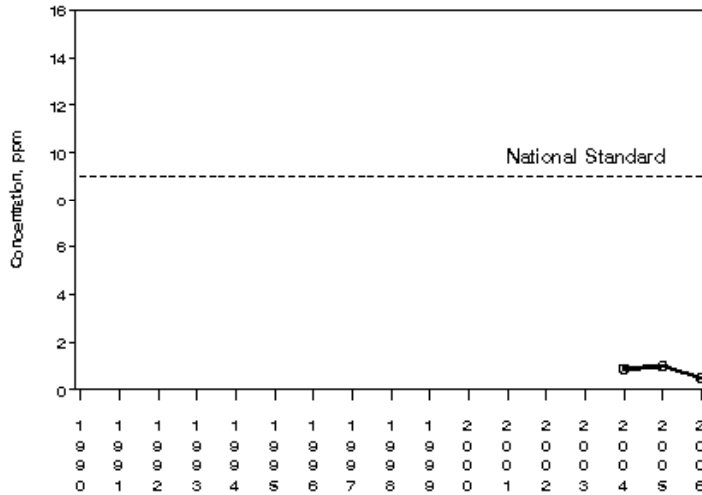
Nitrogen Oxide monitoring around the state – well below the national standard.

NMPHA

4/11/08

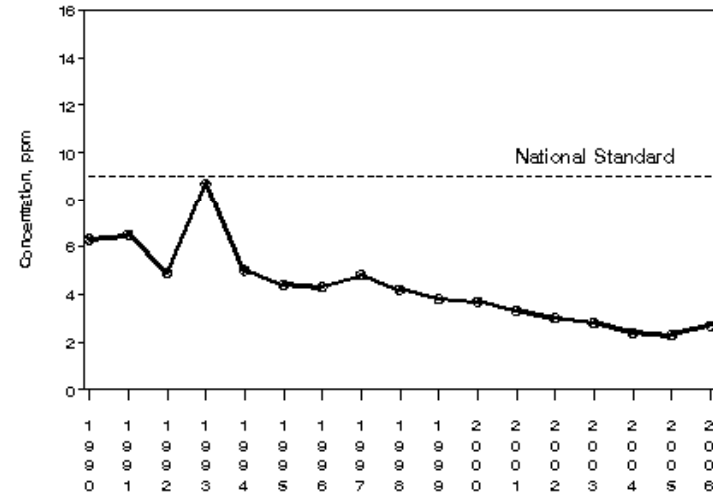
CO Air Quality, 1990 – 2006

(Based on Annual 2nd Maximum 8-hour Average)
 Albuquerque, NM
 SITE= 350439004 POC= 1



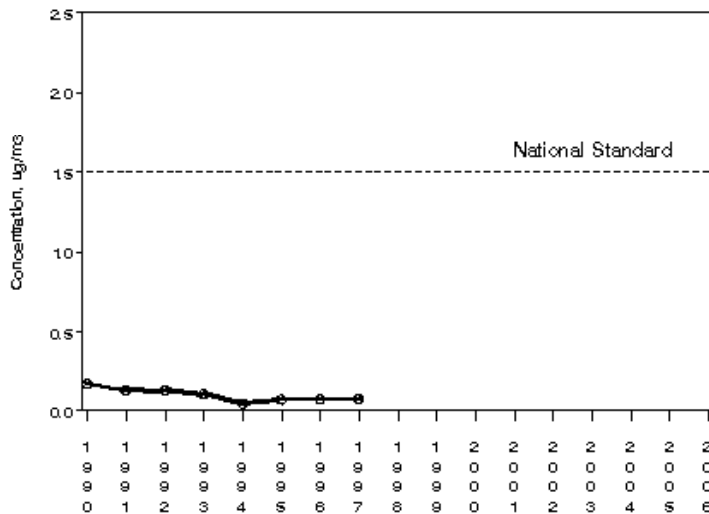
CO Air Quality, 1990 – 2006

(Based on Annual 2nd Maximum 8-hour Average)
 Las Cruces, NM
 SITE= 350131012 POC= 1



Lead Air Quality, 1990 – 2006

(Based on Annual Maximum Quarterly Average)
 Las Cruces, NM
 SITE= 350130017 POC= 1



Carbon Monoxide monitoring in NM 1990 – 2006. Bernalillo County is currently in maintenance status for CO.

One location monitored for Lead

Hazards Air Pollutants

- In the CAA of 1970 only 8 listed HAPs
- HAPs are not covered by ambient air standards but may reasonably be expected to cause or contribute to irreversible illness or death
 - ▣ Bhopal, India in December 1984 – accidental release of 30 tons of methyl isocyanate
- Clean Air Act Amendments of 1990 increased HAPs from 8 to 188
- EPA issues standards for sources that are technology-based & designed to require the maximum degree of emission reduction achievable (MACT)

What's the Difference Between a Statute and a Regulation?

- Statutes are laws passed by the New Mexico legislature (NM Air Quality Control Act is a statute)
- Regulations are adopted by agencies to implement the statutes (NM Air Quality Control Rules)

New Mexico Air Quality Control Act

- The New Mexico Air Quality Control Act gives authority to set standards and regulations for air pollution control to:
 - ▣ NM Environment Department
 - ▣ Environmental Improvement Board
 - Issues regulations for Air Quality, Solid Waste, OSHA, PSTB
 - Meet monthly – see website at www.nmenv.state.nm.us/eib/index.html
 - Regulations are found in the New Mexico Administrative Code (NMAC) – e.g., permitting rules, open burning and smoke management rules
 - ▣ Albuquerque-Bernalillo County Air Quality Control Board

What's Regulated by NMED?

- Stationary sources like power plants, natural gas processing plants, refineries, rock crushers
- Smoke management
 - ▣ Prescribed burning does not include wood stoves &/or fire places
- Open burning

What's Not Regulated by NMED?

- Emissions from airplanes, construction equipment, small engines (like lawnmowers)
- Dust (unless it is from a regulated entity like a rock crushing plant)
- Noise
- Odors

What is Stringency?

- Four areas where NM cannot be more stringent than the federal EPA:
 - ▣ Standards, like equipment standards for sources or for hazardous air pollutants
 - ▣ Visibility (regional haze)
 - ▣ Prevention of Significant Deterioration (permitting program for large sources)
 - ▣ Non-attainment

Can NM Ever Be More Stringent?

Yes

- NM has ambient air quality standards more stringent than federal government
 - NM is currently preparing regulations for greenhouse gases (no federal requirements)
 - Statute explicitly allows NM to be more stringent for waste combustion and mercury standards for new power plants
- If US EPA does not have a standard then NM can adopt a standard

Local Issues

- Land use and zoning
- Economic growth
- Tribal lands
 - ▣ Navajo Nation developing program, but currently regulated by EPA Region 9 (San Francisco)
 - ▣ Pueblos regulated by EPA Region 6 (Dallas)

Climate Change

- No federal requirements
- Clean Car Requirements
- Greenhouse Gas Reporting Requirements
- NM currently working on multi-state processes
 - ▣ The Climate Registry
 - ▣ Western Climate Initiative

Albuquerque – Bernalillo County

Kitty Richards, MS

NMPHA

4/11/08

Bernalillo County-City of Albuquerque Air Quality Control Board

- 4 City Representatives
- 3 County Representatives
- City of Albuquerque, Air Quality Division,
provides staffing for the Board

Air Quality Control Board Authority

- Implements the Air Quality Control Act for Bernalillo County.
- Mandate to:
 - ▣ prevent or abate air pollution,
 - ▣ to promulgate regulations to attain and maintain national ambient air quality standards, and
 - ▣ adopt plan to manage air pollution recognizing differences, needs and requirements, and conditions within its jurisdiction.

Air Quality Control Board Authority

- The Board must adopt the primary and secondary National Ambient Air Quality Standards.
- The Board also has discretionary responsibility under which it may regulate air quality according to local conditions.

Air Quality Control Board Authority

- Give weight appropriate to all facts and circumstances, including
 - ▣ Character and degree of injury to or interference with health, welfare, visibility and property.
 - ▣ The public interest, including the social and economic value of the sources and subjects of air contaminants.
 - ▣ Technical practicability and economic reasonableness of reducing or eliminating air contaminants from source involved.

Board's Environmental Justice Task Force

- The Task Force was formed in late 2007 to provide recommendations to the Air Quality Control board to address EJ concerns related to air quality in Albuquerque and Bernalillo county
- Diversity of members created a heightened potential for conflict

Problems Identified by the EJ Task Force

- Regulations have limited mechanisms to address EJ and cumulative impacts.
- Communities do not feel that their input is explicitly considered in decisions that affect them.
- Disproportionately burdened communities have not been systematically identified.

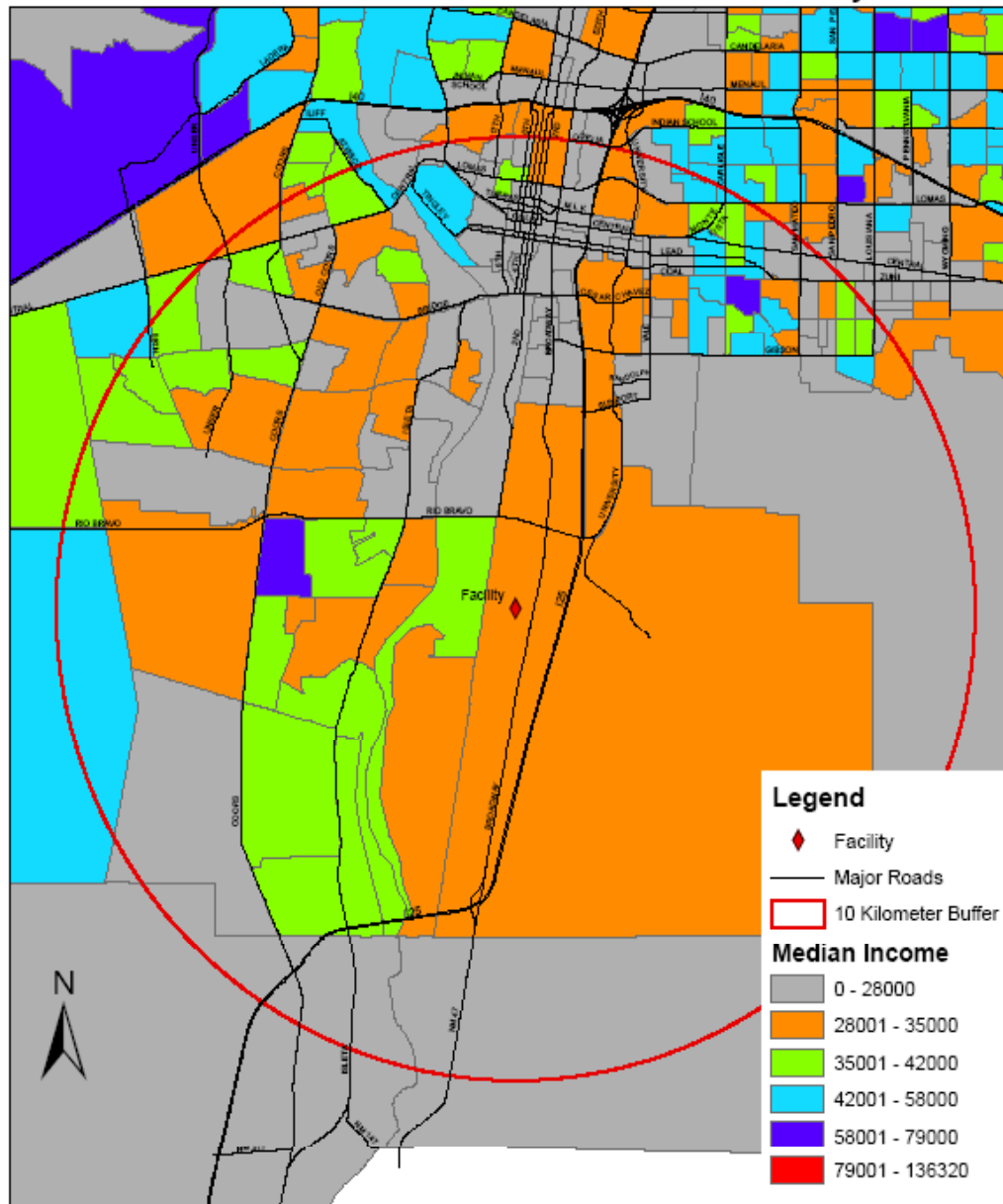
Disproportionate Impacts by Childhood Poverty in Bernalillo County

Releases of Toxic Chemicals	Indicator of chemical releases	Ratio
Kids below poverty	3700 /	
Kids above poverty	2800 /	1.32
Superfund sites	Sites per square mile	
Kids below poverty	0.38 / sq. mile	
Kids above poverty	0.14 / sq. mile	2.71
Criteria Air Pollutant Emitters	Facilities per square mile	
Kids below poverty	0.23	
Kids above poverty	0.08	3.03

NMPHA

4/11/08

Median Household Income - South Valley



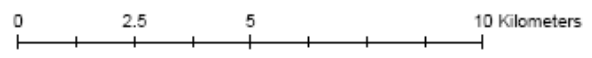
Legend

- ◆ Facility
- Major Roads
- 10 Kilometer Buffer

Median Income

- 0 - 28000
- 28001 - 35000
- 35001 - 42000
- 42001 - 58000
- 58001 - 79000
- 79001 - 136320

11 March 2008
Public Works Division
GIS Program



This information is for reference only.
Bernalillo County assumes no liability for errors
associated with the use of these data.

Top Five Recommendations from Task Force

1. Support adoption of environmental assessment provisions at state and local level.
2. Routinely monitor sources to ensure that modeled emissions are reflective of actual emissions.
3. Explicitly consider EJ and cumulative impacts in permitting process.
4. Collaborate with rule making bodies to develop policies.
5. Improve monitoring network to assess local air quality conditions.

Attorney General's Environmental Justice Opinion - Summary

- The Board has the authority to promulgate regulations that incorporate environmental justice principles.
- The Board has the authority to adopt directives requiring that environmental justice principles be incorporated into staff work, but those directives do not have a binding effect on the parties in the permitting process.

Recommended Policies

- State Environmental Quality Act – provides for environmental assessment as part of permitting process.
- Local Ordinance – provides for environmental and cumulative impact assessments as part of permitting process.
- Conduct cumulative impact assessment by applying qualitative and quantitative models.
- Any member of the public can approach the Air Quality Control Board with a proposed regulation for passage

Location of Air Emissions - South Valley

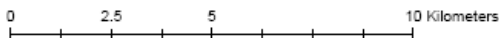


Legend

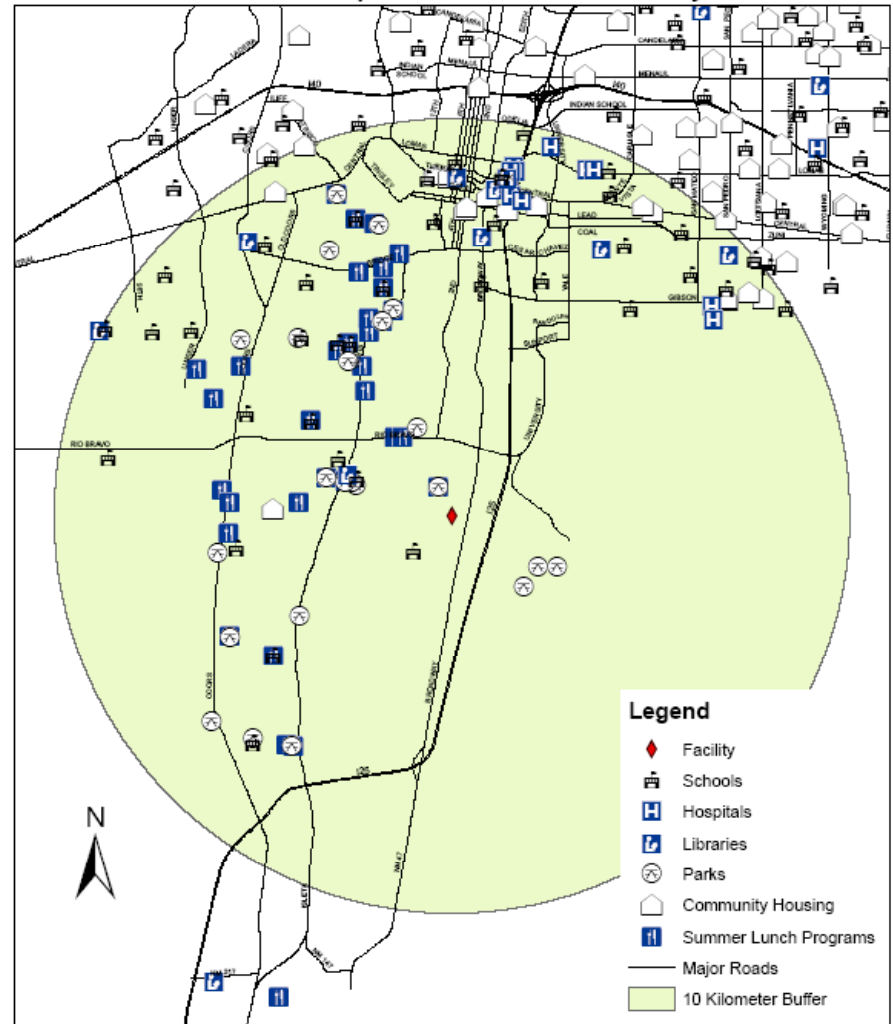
- EPA Air Release Sites
- Facility
- Major Roads
- 10 Kilometer Buffer

28 February 2008
Public Works Division
GIS Program

This information is for reference only.
Bernallio County assumes no liability for errors
associated with the use of these data.



Sensitive Population - South Valley



Legend

- Facility
- Schools
- Hospitals
- Libraries
- Parks
- Community Housing
- Summer Lunch Programs
- Major Roads
- 10 Kilometer Buffer

28 February 2008
Public Works Division
GIS Program

This information is for reference only.
Bernallio County assumes no liability for errors
associated with the use of these data.



Summary of the Environmental Justice Task Force

- Environmental disparities exist in Albuquerque-Bernalillo County - www.bernco.gov
- Tools to evaluate disparities & cumulative impact
 - ▣ www.scorecard.org provides county level information
 - ▣ www.census.gov data finders
 - ▣ Air Quality Division data for industrial emissions
 - ▣ Health data from the Tumor Registry and the NM Dept. of Health
 - ▣ County, city, & state from environmental quality data
 - ▣ Local planning agencies for information on future development

Precautionary Principle: Vision of the Future

Johnnye Lewis Ph.D.

NMPHA

4/11/08

Why Do We Need a New Regulatory Approach?

- Standards are health based but not health protective
- Often a 10-year lag between science and change in standard
- Standards often based on exposure assumptions that don't always fit
- Standards are based on action of single chemical
- Once permit is given, any adverse impacts must be proven by those concerned, most often the public

Precautionary Principle

“In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”

Rio Declaration from the 1992 United Nations Conference
on Environment and Development

The Precautionary Principle is currently used in San Francisco & throughout Europe to guide decision making.

Precautionary Principle

1. When we have a reasonable suspicion of harm, and
2. Scientific uncertainty about cause and effect, and a
3. Plausible scientific basis for health effect, then
4. We have a duty to take action to prevent harm.

Some scientific uncertainty is inevitable – the difference in regulatory approaches is how uncertainty is managed.

Is the Precautionary Principle Consistent with “Sound Science”

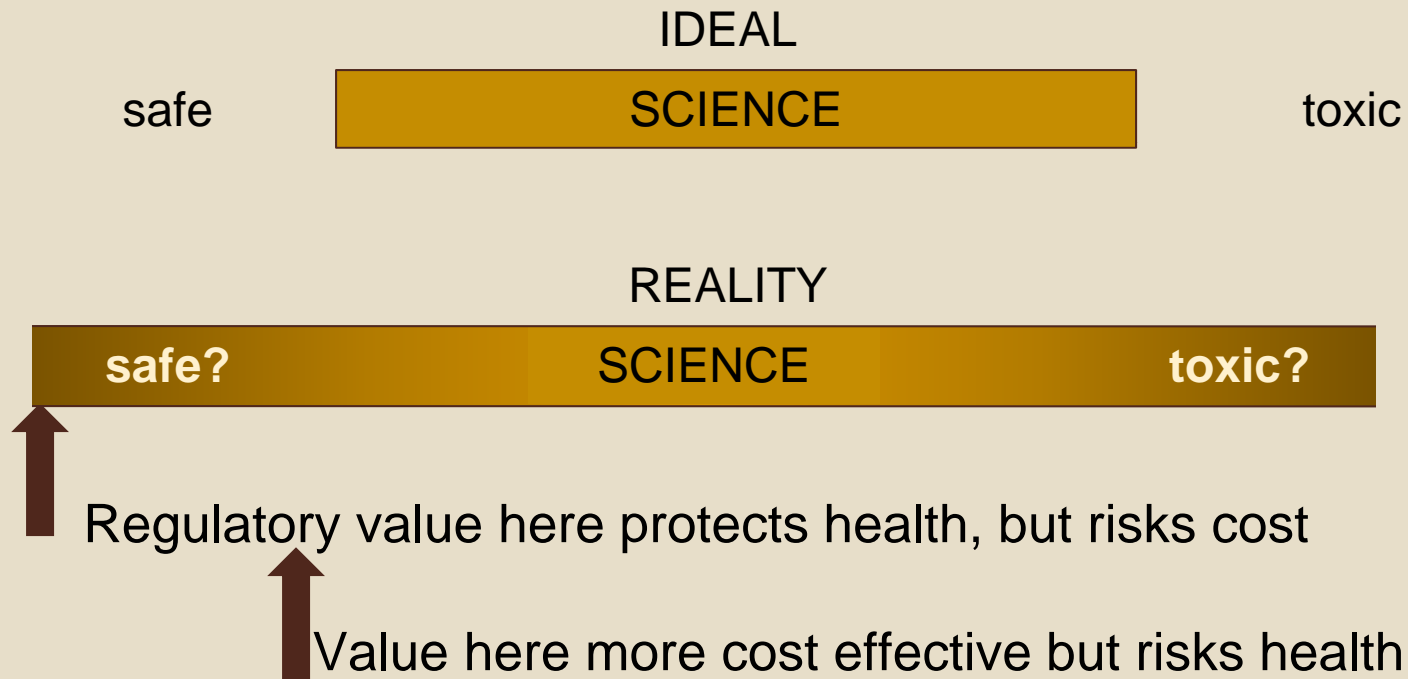
□ Bradford Hill Criteria for Causality:

- Animal studies
- Experimental Models
- Epidemiological Data
- Consistency
- Biological Plausibility
- Temporality
- Dose Response Relationship
- Specificity
- Analogy

Precautionary Principle

- Requires examination of alternatives to proposed activity
- Safeguards public health & the environment before potentially harmful activity begins
- Insists on public involvement in decisions that impact public health & the environment
- Shifts burden of proof from the public to polluter

Managing Uncertainty: Precautionary Principle



Vision of the Future

No one is made sick from
the air they breathe.

Examples of Ways to Improve Outdoor Air Quality

1. Apply the Precautionary Principle to decisions impacting air quality
2. Take cumulative impacts into account when approving industrial permits
3. Amend state law to allow NM to create all air standards that are more stringent than federal standards
4. Reduce wood smoke by developing & encouraging the use of alternative heat sources
5. Reduce exposures to pesticides by promoting organic farming & integrated pest management; and amend Pesticide Control Act to give NMED authority to implement non-agricultural provisions
6. Deny applications for new coal-burning power plants

More examples

7. Reduce vehicle emissions by
 1. Creating more stringent emission controls in Bernalillo County & adopting in other parts of the state
 2. Increasing non-polluting public transportation
 3. Expanding Cleaner Car Regulation to include large diesel trucks
8. Reduce exposures to diesel exhaust by creating bigger zones between highly trafficked areas such as residences, schools, hospitals, parks, etc.
9. Support alternative energy sources that reduce atmospheric carbon and other pollutants
10. Support non-polluting industries

How can the public improve outdoor air quality

- Reduce wood-burning and/or use clean fuel and tight stoves
- Use low VOC paints & other consumer products
- Minimize or avoid the use of chemical pesticides
- Carpool, use public transportation, use low-emitting vehicles
- Support legislation and regulations that improve air quality through participating in public comment, testimony, and phone calls
 - ▣ See NMED & City of Albuquerque websites for more information
- Politics influence policy – so participate by voting
 - ▣ President appoints head of US EPA
 - ▣ NM governor appoints members of the EIB

Join organizations working to improve outdoor air quality

- Environment New Mexico
- NMPHA
- NM Environment & Health Coalition
- Coalition for a Mercury-Free NM
- NM Lung Association
- Multiple Chemical Sensitivities Task Force of NM
- Southwest Network for Environmental & Economic Justice
- League of Conservation Voters
- Sierra Club
- Coalition for Clean Affordable Energy (CCAEE)
- Others?

NMPHA

4/11/08