Evaluation of the Hexavalent Chromium Airborne Toxic Control Measure (ATCM) for Chrome Plating and Chromic Acid Anodizing Operations

Stakeholder Workgroup

January 29, 2002

California Environmental Protection Agency

Air Resources Board

Outline

- Background
  - Air Toxics Program
  - Hexavalent chromium
  - Standards/Compliance
- Community Health / Environmental Justice
- Evaluation process
- Preliminary findings
- Process/Schedule

BACKGROUND

Air Toxics Program

- Assembly Bill 1807: The Toxic Air Contaminant Identification and Control Act
  - Risk Identification
  - Risk Management
- Assembly Bill 2588: Air Toxics "Hot Spots" Program
- Senate Bill 1731: Risk Reduction

BACKGROUND

Hexavalent Chromium

- Identified by the ARB as a Toxic Air Contaminant (TAC) in 1986
- A potent human carcinogen
- Two major sources
  - Cooling Towers
  - Chrome plating and anodizing

BACKGROUND

Air Toxics - Risk Management

- Chrome Plating ATCM
  - Over 90% reduction in hexavalent emissions
- Chromate treated cooling towers ATCM
- Chrome Plating ATCM amended
  - Equivalency with the federal NESHAP
- District Rules and Policies

STANDARDS

Existing Hard Chrome

Facility Size	Requirement by amp-hr		
	≤ 60 million	> 60 million	
Large	≤ 0.006		
Medium	≤ 0.03 mg/amp-hr	≤ 0.006 mg/amp-hr	≤ 0.03 mg/amp-hr and 0.015 mg/dscm
Small	≤ 0.15 mg/amp-hr	≤ 0.03 mg/amp-hr	≤ 0.15 mg/amp-hr and 0.015 mg/dscm

STANDARDS

New/Modified Hard Chrome

Facility Size	Requirement	
	≤ 60 million amp-hr	> 60 million amp-hr
Large	≤ 0.006 mg/amp-hr	≤ 0.006 mg/amp-hr
Small	≤ 0.03 mg/amp-hr	≤ 0.006 mg/amp-hr

STANDARDS

Decorative and Acid Anodizing

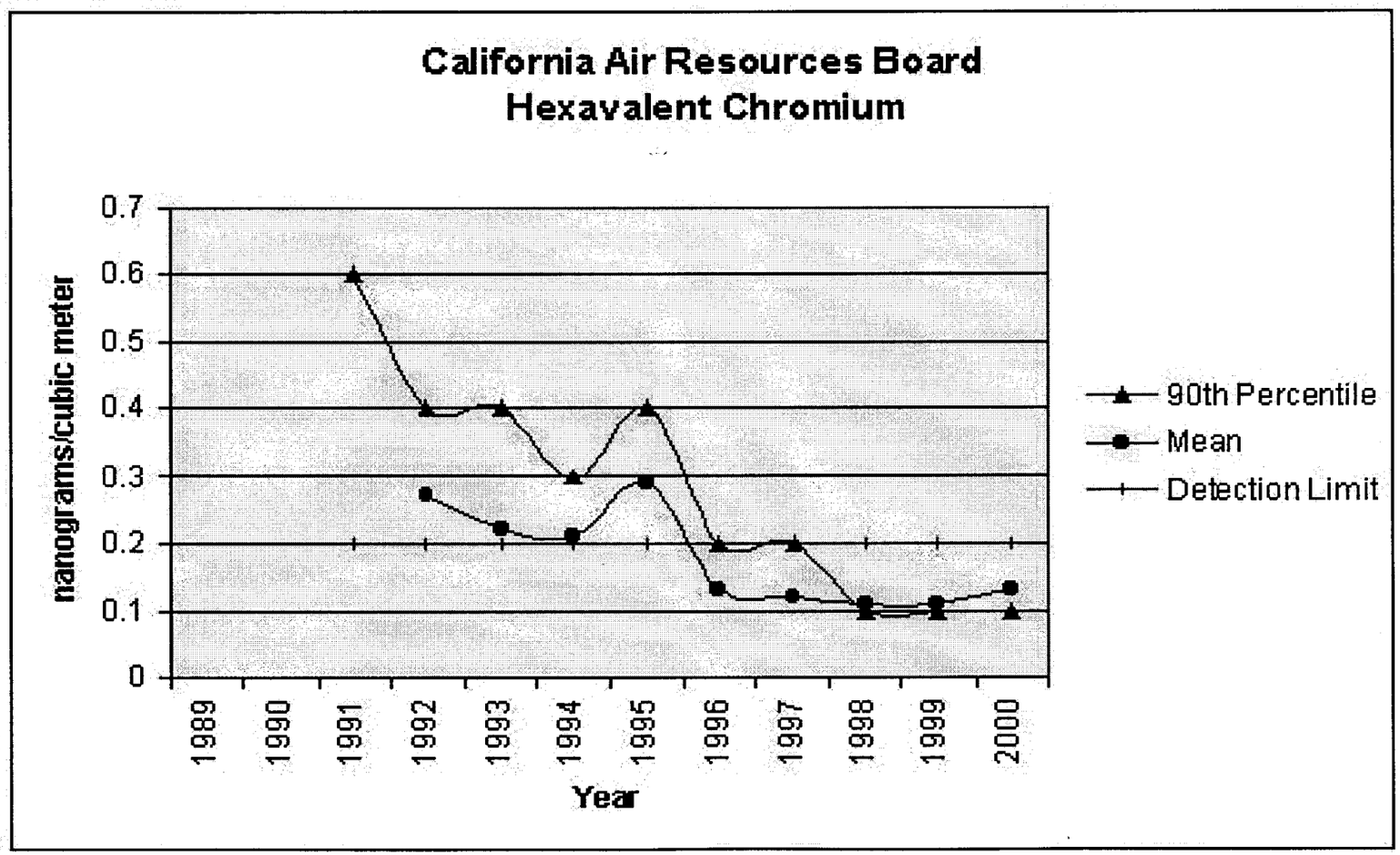
Method of Compliance	Requirement
Add-on pollution control equipment, or chemical fume suppressants forming a foam blanket, or mechanical fume suppressants	$\leq$ 0.01 mg/dscm 4.4 X 10^{-6} gr/dscf
Chemical fume suppressants containing a wetting agent	$\leq$ 45 dynes/cm 3.1 X 10^{-3} lbF/ft

STANDARDS

Decorative Facilities using Cr^{3+}

Method of Compliance	Requirement
Add-on pollution control equipment, or chemical fume suppressants forming a foam blanket, or mechanical fume suppressants	$\leq$ 0.01 mg/dscm 4.4×10^{-6} gr/dscf
Chemical fume suppressants containing a wetting agent	Use wetting agent as bath ingredient and comply with recordkeeping and reporting requirements

Ambient Concentrations - Cr^{6+}



Why Look At Chrome Plating Facilities Again?

Community Health: Assessing Public Health Risks in California's Communities

- Neighborhood Assessment Program
- Community-Based Air Toxics Evaluations
- Children's Environmental Health
- Indoor and Personal Exposure Programs

Environmental Justice

"The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." (SB115, Solis, 1999)

Environmental Justice

- Reduce health risks from toxic air pollutants in all communities
  - Review, revise, and develop, as appropriate, control measures for sources of toxic air pollutants that may present significant near-source risks to residents

Questions to be Answered

- Are plating facilities located near sensitive receptors?
- Do the standards represent the most stringent that are technologically feasible?
- Can the regulation be improved to ensure continuous compliance?

Evaluation Process

- Form workgroup to assist in evaluation
- Evaluate remaining potential health risks
- Evaluate operation and maintenance practices
- Evaluate control technologies -- BACT
- Assess emission limits
  - Technological feasibility of limits
  - Costs

Evaluation Process

- Review emission factors
- Assess need for other regulation changes
  - Table of limits
  - Inspection and maintenance requirements
  - Evaluate Nickel plating
  - ATCM structure
  - Other?
- Work with air districts and affected stakeholders to share information

Working with Districts

- Bay Area AQMD
- Sacramento Metro AQMD
- San Diego County APCD
- San Joaquin Valley APCD
- Shasta County AQMD
- South Coast AQMD
- Ventura County APCD

PRELIMINARY

Compliance Options

- Add-on control equipment
  - Composite Mesh Pad
  - Fiber Bed Mist Eliminator
  - Packed Bed Scrubber
  - Filter (HEPA)
- Chemical Fume Suppressant Technology

PRELIMINARY FINDINGS

Emissions and Potential Risk

Type	Potential Risk (excess cancers/million)
Hard	0 – 72
Decorative (hexavalent)	0 – 83
Chromic Acid Anodizing	0 - 4

Improved Compliance

- Draft Rule Effectiveness Study
  - Joint study conducted in five districts
  - Report being finalized
  - Recommendations
- Training Program
  - November 13, 2002

Process / Schedule

- Form a workgroup
- Staff evaluation
- Workgroup meetings
- Public workshops
- Public comment period
- Board hearing - Fall 2002

More Information

- Air Toxics website:

http://www.arb.ca.gov/toxics/toxics.htm

- Chrome Plating ATCM website

http://www.arb.ca.gov/toxics/atcm/chroatcm.htm

- Staff Contact:
  - Shobna Pandhoh: (916) 327-1516, or spandhoh@arb.ca.gov