Working Group Meeting 1

Proposed Amended Rule (PAR) 1469

Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations

Tuesday
March 11, 2025
10:30 AM

Zoom Meeting Link:

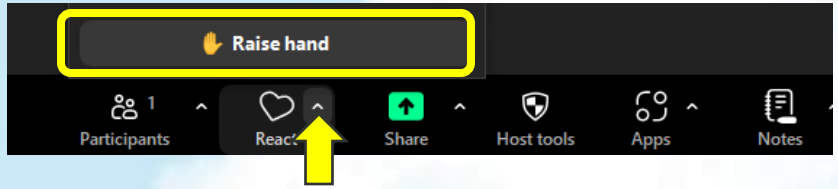
https://scaqmd.zoom.us/j/98165845756

Dial In: (669) 900 6833

Meeting ID: 981 6584 5756

Meeting Information

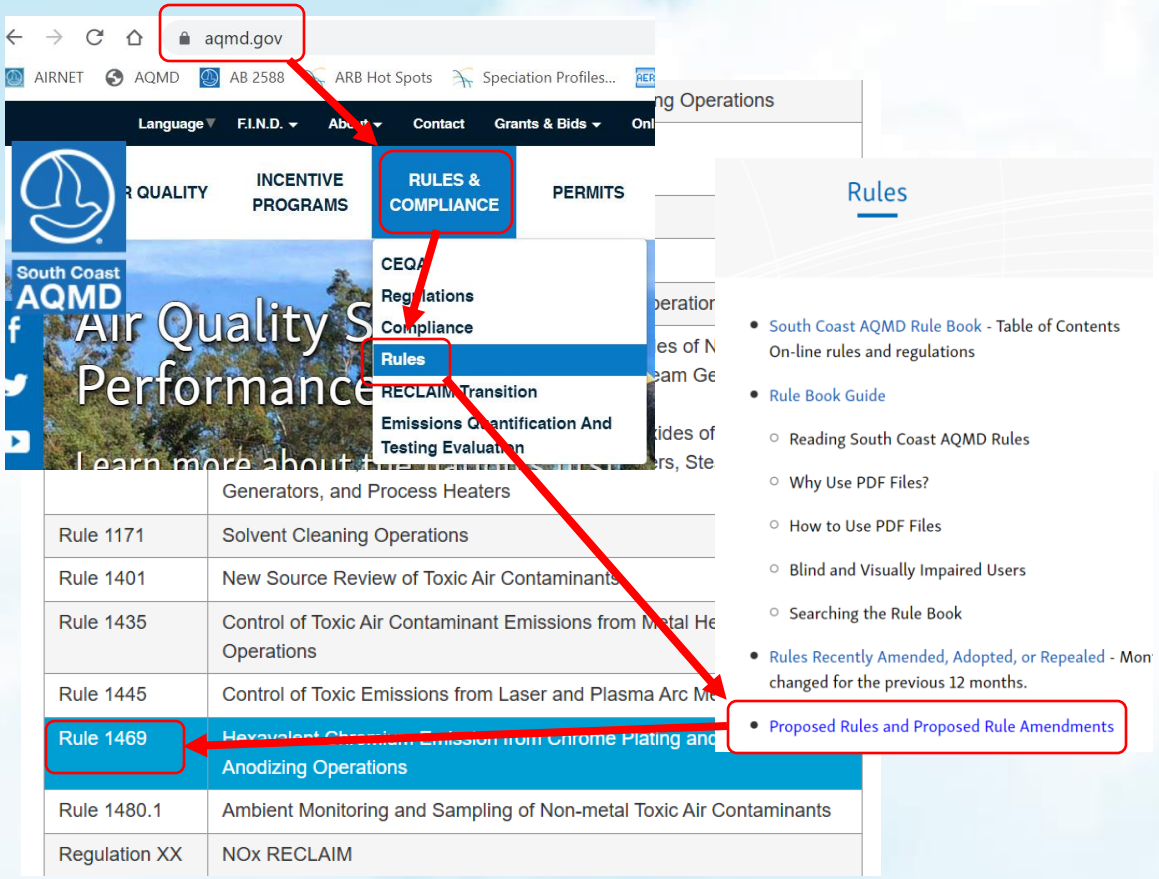
- To speak in today's meeting:



OR

Dial *9 to raise hand
Then dial *6 to unmute

- For meeting materials:



Agenda

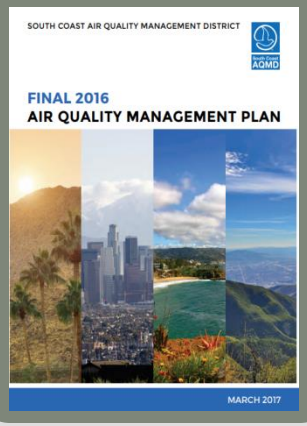
- Introduction
- Rule Development Process
- Background on Hexavalent Chromium Emissions
- Regulatory Background
- CARB Chrome ATCM
- Next Steps

Introduction

South Coast AQMD

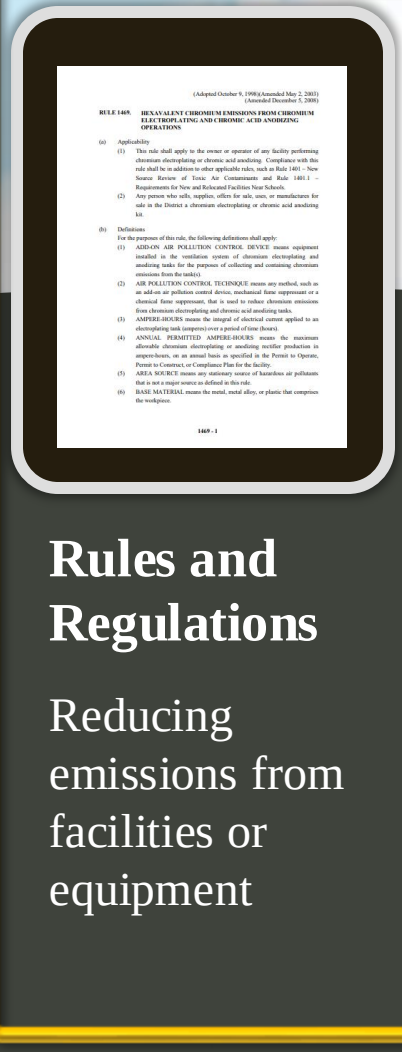
- Local air pollution control agency
  - 10,743 square miles
  - 17 million residents
  - Largest of the 35 local air agencies in CA and in the U.S.
  - Permit ~75,000 sources at ~25,000 facilities

Key South Coast AQMD Activities



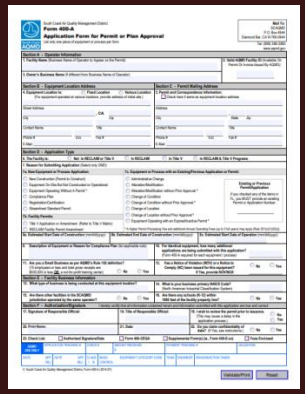
Air Quality Management Plans

Blueprint to comply with clean air standards



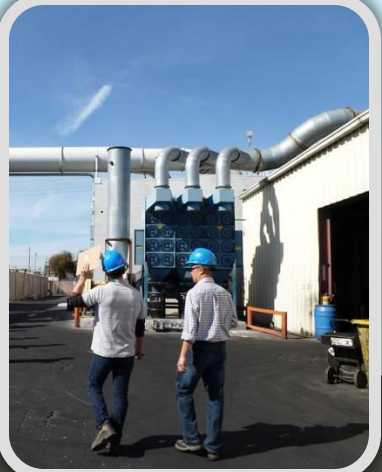
Rules and Regulations

Reducing emissions from facilities or equipment



Permits to Operate

Issuance of Permits to limit the amount of emissions per equipment/ facility



Compliance Inspections

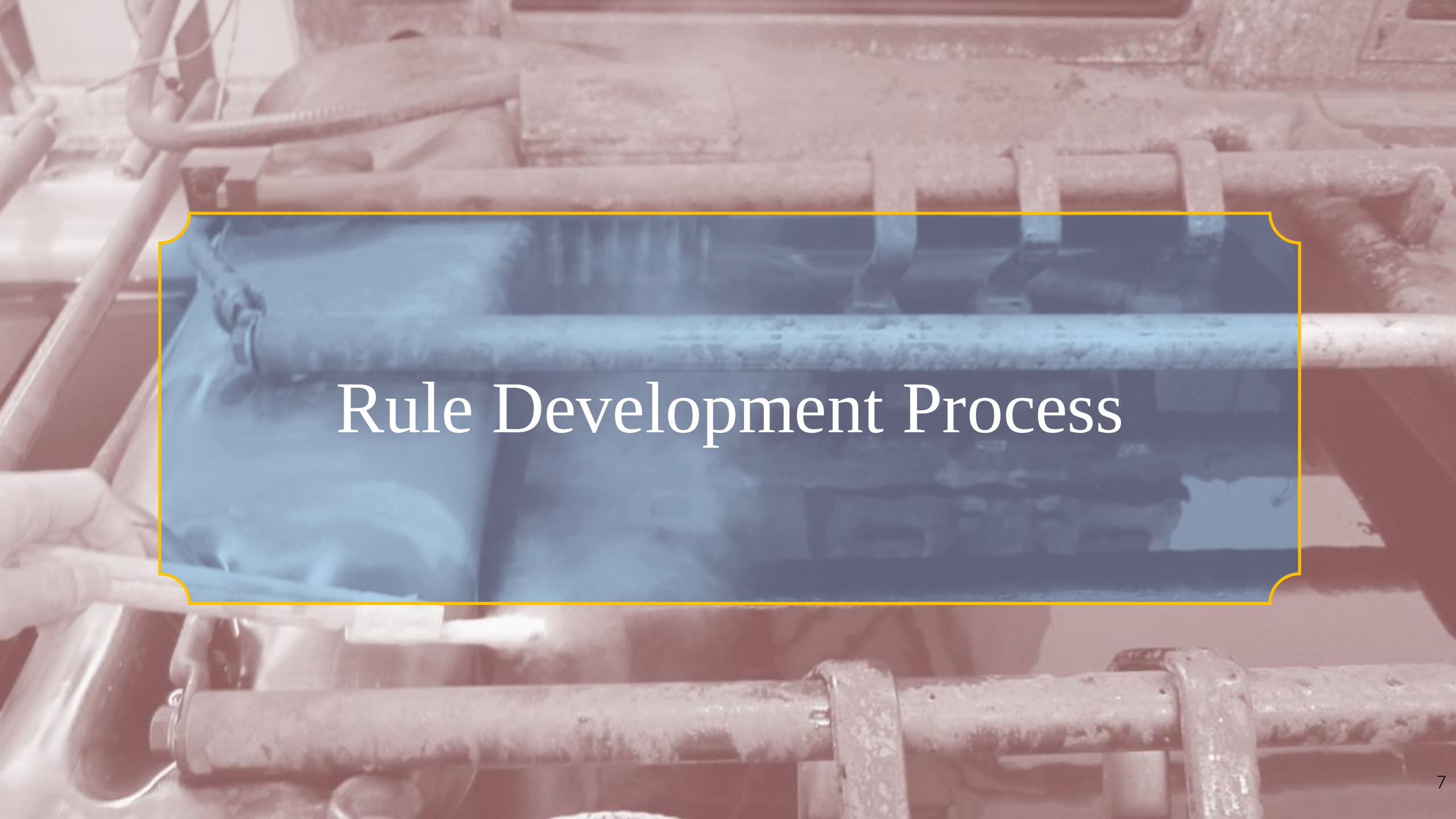
Periodic inspections to enforce rules and permits

Complaint Investigations

Responses to air quality concerns received from the public

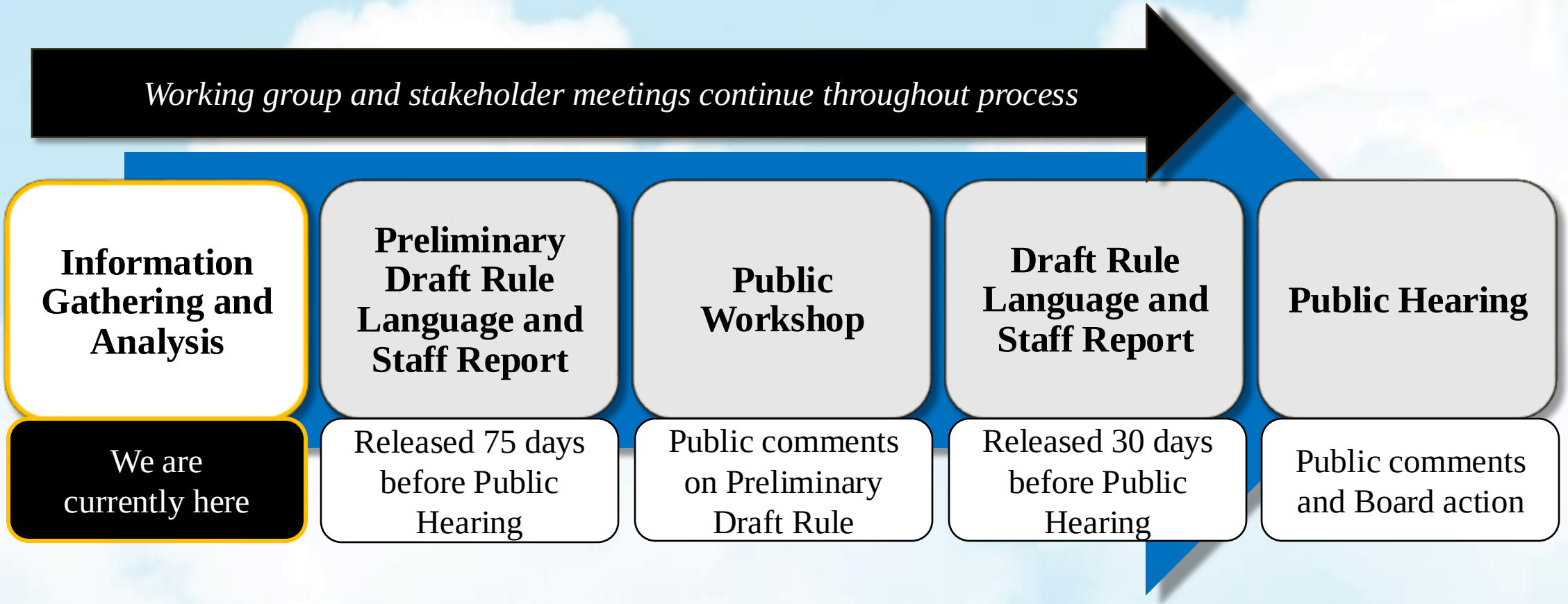
Ambient Air Monitoring

Quantification of air quality including special studies



Rule Development Process

Overview of Rule Development Process



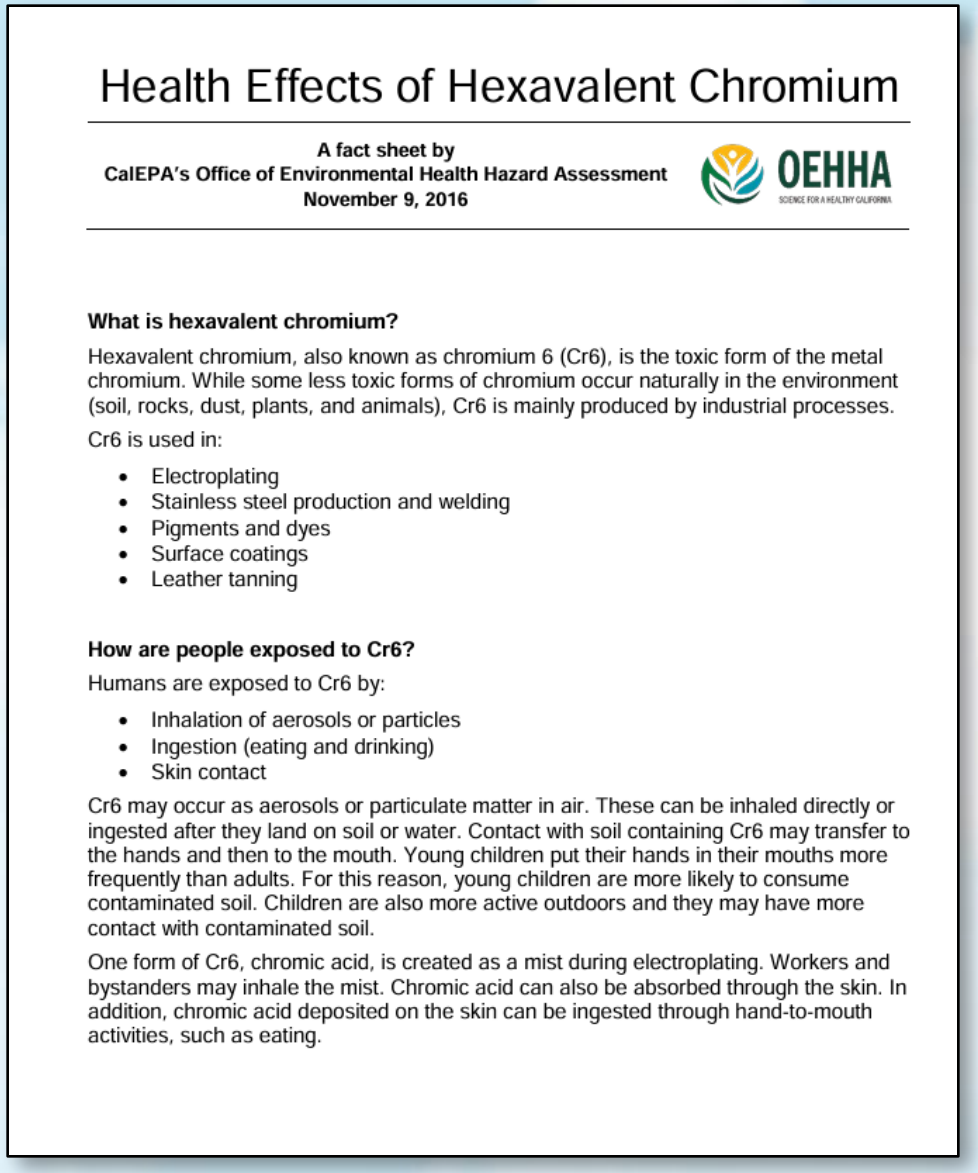
PAR 1469 Working Group

- Comprised of stakeholders including industry, environmental groups, community members, and public agencies
- Held throughout the rule development process and open to the public
- Objectives
  - Build consensus and work through issues
  - Opportunity for early input by stakeholders
  - Develop a rule that affected facilities can implement
- Assist staff in understanding
  - Key issues and concerns
  - Industry terms, industry practices, etc.
  - Applicable technologies

Background on Hexavalent Chromium Emissions

Risks from Hexavalent Chromium Emissions

- Hexavalent chromium is a Toxic Air Contaminant (TAC) that is a potent carcinogen
- Long-term inhalation of hexavalent chromium over a lifetime can:
  - Increase the risk of developing lung and nasal cancers
  - Cause or worsen certain health conditions such as respiratory tract irritation, wheezing, shortness of breath etc.
- Health risks determined by Office of Environmental Health Hazard Assessment (OEHHA)



Health Effects of Hexavalent Chromium

A fact sheet by
CalEPA's Office of Environmental Health Hazard Assessment
November 9, 2016

OEHHA
SCIENCE FOR A HEALTHY CALIFORNIA

What is hexavalent chromium?

Hexavalent chromium, also known as chromium 6 (Cr6), is the toxic form of the metal chromium. While some less toxic forms of chromium occur naturally in the environment (soil, rocks, dust, plants, and animals), Cr6 is mainly produced by industrial processes.

Cr6 is used in:

- Electroplating
- Stainless steel production and welding
- Pigments and dyes
- Surface coatings
- Leather tanning

How are people exposed to Cr6?

Humans are exposed to Cr6 by:

- Inhalation of aerosols or particles
- Ingestion (eating and drinking)
- Skin contact

Cr6 may occur as aerosols or particulate matter in air. These can be inhaled directly or ingested after they land on soil or water. Contact with soil containing Cr6 may transfer to the hands and then to the mouth. Young children put their hands in their mouths more frequently than adults. For this reason, young children are more likely to consume contaminated soil. Children are also more active outdoors and they may have more contact with contaminated soil.

One form of Cr6, chromic acid, is created as a mist during electroplating. Workers and bystanders may inhale the mist. Chromic acid can also be absorbed through the skin. In addition, chromic acid deposited on the skin can be ingested through hand-to-mouth activities, such as eating.

Chromium Electroplating and Chromic Acid Anodizing Operations

- Metal finishing is important for many products used daily
  - Home, kitchen, and bath fixtures
  - Machinery and industrial equipment
  - Aerospace (commercial and military)
- Chromium electroplating and chromic acid anodizing ("chrome plating") is a type of metal finishing
  - Decorative – primarily aesthetic reasons
  - Functional – anti-corrosion, durability
- Hexavalent chromium found in most chemical solutions used in chrome plating process

Sources of Hexavalent Chromium Emissions at Chrome Plating Facilities

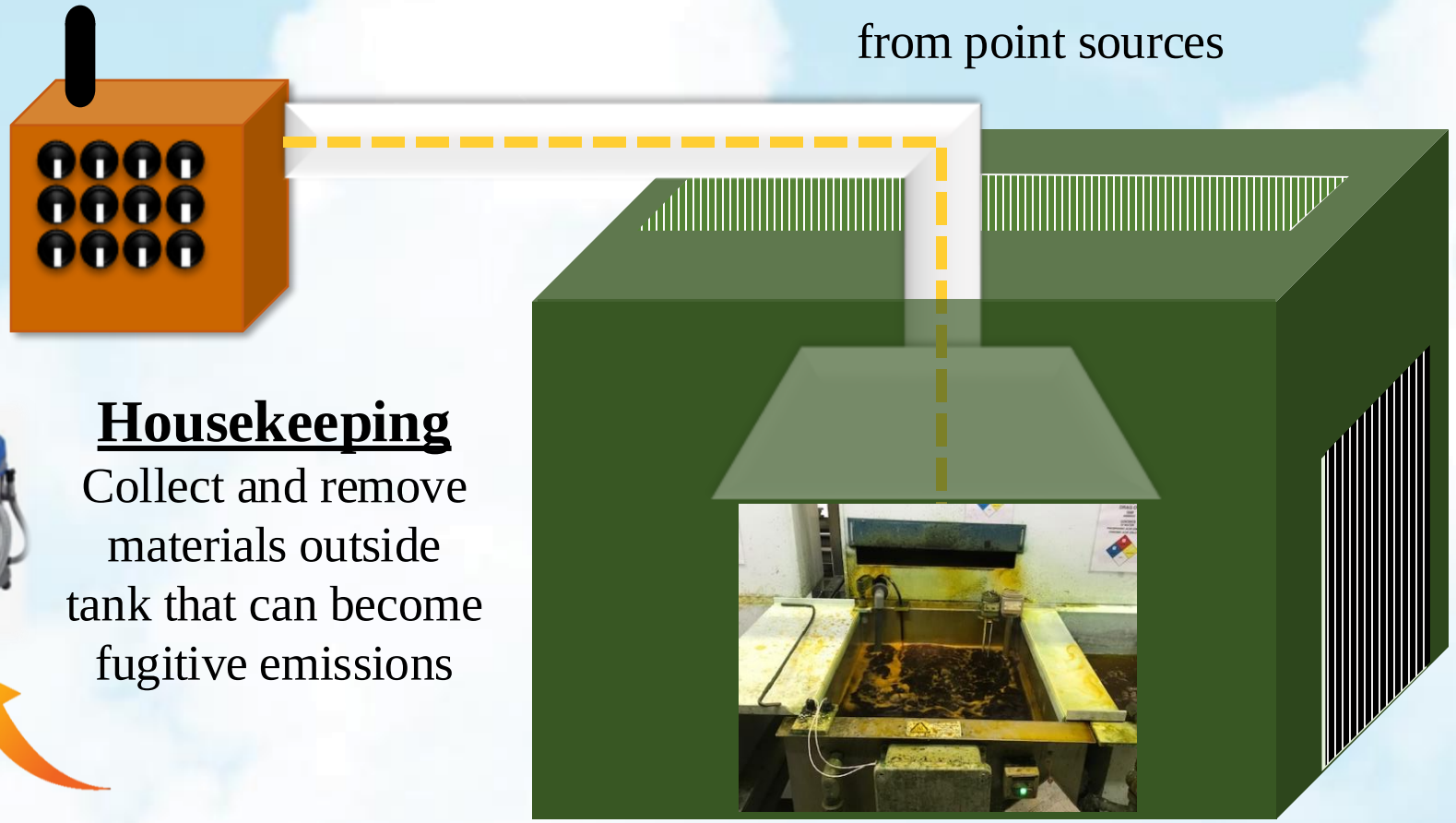
Sources of hexavalent chromium emissions categorized as:

- Point Sources: Chrome Plating Tanks, and other tanks containing or accumulating hexavalent chromium (e.g., sodium dichromate seal or chrome strip)
  - Rectification, air sparging and heat generate emissions from these tanks
- Fugitive Sources: Dried tank solutions, uncontrolled emissions from tanks, and other materials that came in contact with hexavalent chromium

Three Key Control Measures to Address Hexavalent Chromium Emissions

Point Source Controls

Measures to reduce hexavalent chromium emissions from point sources



Enclosures

Minimal openings for ingress and egress to contain fugitive emissions

Housekeeping

Collect and remove materials outside tank that can become fugitive emissions

Regulatory Background

Air Quality Regulations for Chrome Plating

NESHAP

(National Emission Standards for Hazardous Air Pollutants)

Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks

- **Last amended in 2012**

Chrome ATCM

(Air Toxic Control Measure)

California Air Resource Board (CARB) ATCM for Chromium Plating and Chromic Acid Anodizing Facilities

- **Last amended in 2023**

Rule 1469

(Part of Regulation XIV)

Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations

- **Last amended in 2021**
- **Regulatory Advisory added March 2024**

Rule 1469 Regulatory History

Initial Adoption

Amendments

1998

- Incorporated requirements from Rule 1169 – Hexavalent Chromium - Chrome Plating and Chromic Acid Anodizing
- Reduced emission limits
- Allowed use of chemical fume suppressants
- Improved compliance verification

2003

- Reduced emission limits
- Limited air sparging
- Required training of operators

2008

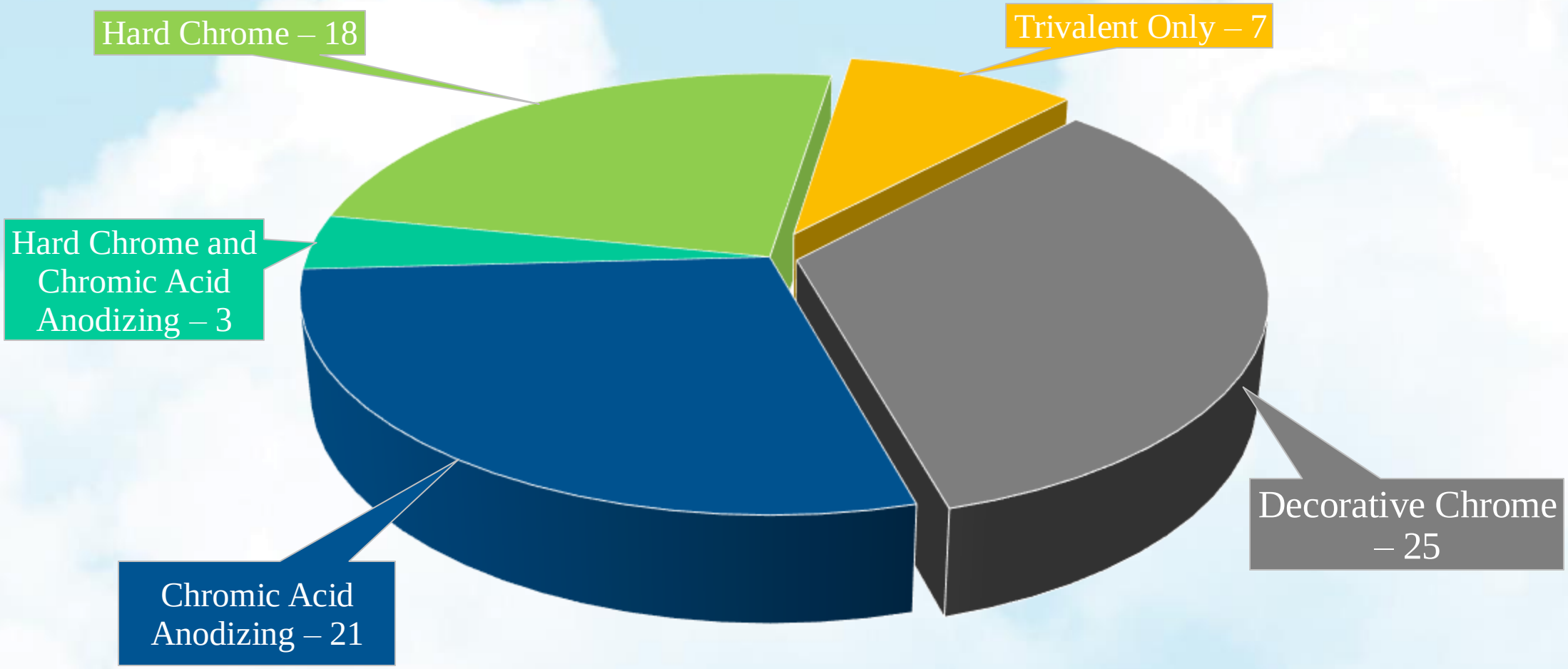
- Reduced emission limits
- Required initial source testing
- Align with CARB Chrome ATCM requirements

2018

- Added requirements for previously uncontrolled tanks
- Building enclosures
- Enhanced best management practices and housekeeping
- Align with 2012 NESHAP requirements

Rule 1469 Universe

Facilities by Operational Type – 74 Total



CARB
Chrome ATCM

Chrome ATCM Amended in December 2023

2023 – Chrome ATCM

- September 2020 – CARB began public rulemaking process to amend Chrome ATCM
- December 2023 – Amended Chrome ATCM* approved by Office of Administrative Law and filed with Secretary of State
- Key requirements included
  - Phase-out dates for hexavalent chromium based on tank operations
  - Incorporation of most requirements in Rule 1469 added in 2018 amendment
  - Set emission limit of 0.00075 mg/amp-hr post-controls for Functional Chrome Plating tanks achieved through add-on controls

* https://ww2.arb.ca.gov/rulemaking/2023/chromeatcm2023

2023 Chrome ATCM – Key Requirements

January 1, 2024

- New hexavalent chromium plating and anodizing facilities prohibited
- Modified Facilities – underwent physical or operational changes
  - No increase in permitted amp-hrs
  - Vent all Chrome Plating Tanks at facility to an APCD
  - Meet 0.00075 mg/amp-hr emission limit
  - Conduct risk assessment

January 1, 2026

- All Functional Chrome Plating tanks (i.e., Hard Chrome Plating and Chromic Acid Anodizing) meet 0.00075 mg/amp-hr emission limit through source testing
  - Source test conducted within last two years
  - Two-year periodic tests
- Building Enclosures
- Best management practices
- Housekeeping

January 1, 2027*

- Phase-out hexavalent Decorative Chrome Plating operations, unless tanks operated within Building Enclosures

* Facility operating decorative chrome plating tanks within the required building enclosures allowed to operate until January 1, 2030

January 1, 2039

- Phase-out Functional Chrome Plating operations pending two Technology Reviews by CARB
  - January 1, 2032
  - January 1, 2036

Key Differences Between Rule 1469 and Chrome ATCM Beginning January 1, 2026*

Updated Slide

Rule 1469

Functional and Decorative Chrome Plating

Emission limits for Chrome Plating Tanks:

- 0.01 mg/amp-hr with chemical fume suppressants
- 0.0015 mg/amp-hr or 0.0011 mg/amp-hr with controls

Periodic source testing

- Every five years if > 1,000,000 amp-hr/year
- Every seven years if ≤ 1,000,000 amp-hr/year
- Periodic slot velocity measurements of add on controls

Chrome ATCM

Functional Chrome Plating

Effective January 1, 2026 - Emission limits for Chrome Plating Tanks:

- 0.00075 mg/amp-hr for Chrome Plating Tanks

Effective January 1, 2026 - Periodic source testing every two years

By January 1, 2039 – Functional Chrome Plating Facilities can no longer use hexavalent chromium

Decorative Chrome Plating

By January 1, 2027 – Decorative Chrome Plating facilities without implementing building enclosure requirements can no longer use hexavalent chromium

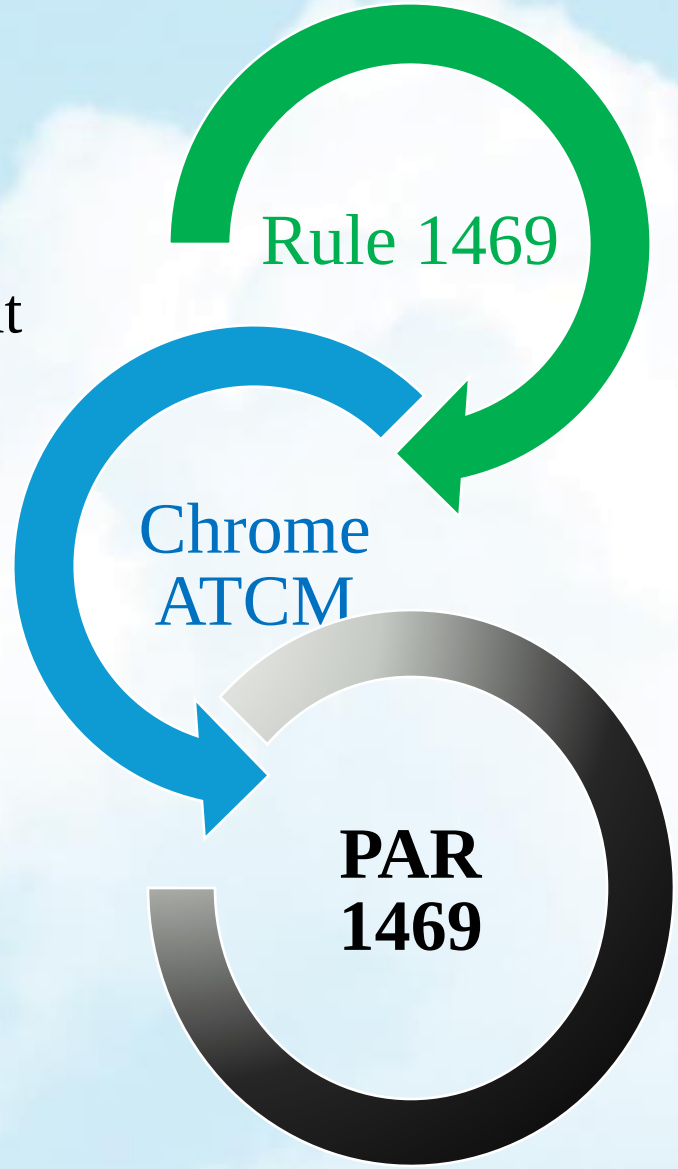
By January 1, 2030 – All Decorative Chrome Plating facilities can no longer use hexavalent chromium

Not required to conduct periodic source test or meet emission limits for non-Chrome Plating Tanks

**Other differences will be discussed and presented at future meetings*

Need to Amend Rule 1469

- Rule 1469 must be at least as stringent as Chrome ATCM
  - Before January 1, 2026 – Rule 1469 is more stringent
  - Starting January 1, 2026 – Chrome ATCM is more stringent
- If Rule 1469 is not amended, South Coast AQMD would enforce the Chrome ATCM
  - There would be backsliding of some Rule 1469 requirements
- Rule 1469 rulemaking needed to:
  - Align with Chrome ATCM
  - Streamline regulatory requirements
  - Ensure established practices are retained



Actions to Comply with Upcoming Chrome ATCM Requirements for Functional Chrome Plating Facilities

By January 1, 2026, Functional Chrome Plating facilities should take steps to[1]:

- Demonstrate Chrome Plating Tanks emissions do not exceed 0.00075 mg/amp-hr post-control equipment
- Conduct a source test for Chrome Plating Tanks and emissive non-Chrome Plating Tanks[2], if source test is more than two years old

Scenario #1 – Chrome Plating Tanks not equipped with add-on controls or add-on controls that cannot meet 0.00075 mg/amp-hr

Key Steps

- Submit permit applications and required information to install or modify add-on controls
- South Coast AQMD would approve application upon review and issue a corresponding permit
- Add-on controls would be modified or installed
- Conduct source test to verify performance (see Scenario #2)

Scenario #2 - Tanks with add-on controls requiring an initial test, re-test or with source tests conducted prior to 2024 to demonstrate meeting Chrome ATCM emission limits

Key Steps

- Submit source test protocol for review
- Schedule and conduct source tests
- Submit source test reports

[1]PAR 1469 is being amended to be at least stringent as the Chrome ATCM; public process underway to solicit public input

[2]Tank heated, air sparged, or electrolytic containing at or above a specific hexavalent chromium concentration

Next Steps

Next Steps

- Identify requirements that need to be included in Rule 1469
- Draft initial proposed rule language to present to Working Group
- Receive comments and feedback from Working Group to refine rule language

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☑ **Rule 1469**

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Please contact staff with any questions or comments

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