

4th Working Group Meeting for

**Proposed Amended Rule 1469 – Hexavalent
Chromium Emissions from Chromium
Electroplating and Chromic Acid Anodizing
Operations and**

**Proposed Amended Rule 1426 – Emissions from
Metal Finishing Operations**

South Coast AQMD

August 2, 2017

Summary of Working Group #3 on June 29, 2017

- Responded to comments from Working Group #2:
- Discussion of Ambient Air Monitoring and Housekeeping & Best Management Practices
 - Ambient Air Monitoring
 - Information on benefits of ambient air monitoring and how it is utilized by SCAQMD for measuring hexavalent chromium
 - General cost estimates
 - Initial concepts for PAR 1469
 - Housekeeping & Best Management Practices
 - Existing Rule 1469 requirements
 - Site observations and concerns
 - Initial recommendations for PAR 1469 requirements

Key Comments at Working Group #3

- Request for test methods for hexavalent chromium
 - Posted on Proposed Amended Rules webpage under PAR 1469/1426
- Request for additional cost information of ambient air monitoring
- Expressed concern for unregulated and/or unidentified facilities contributing to monitored hexavalent chromium measurements near their facilities for both the Air Toxics Initiative in Compton and any proposed monitoring requirement of PAR 1469
- Comment that some proposed housekeeping requirements are duplicative to those set forth by other agencies
 - Faster clean-up of liquid spills containing chromic acid
 - Hazardous waste treatment (sludge/filter cakes)

Updated Cost Information for Ambient Air Monitoring

- Ambient Air Monitoring Sampling Plan
 - Cost to prepare Plan ~\$8,500¹
 - Cost SCAQMD review (20 to 50 hours) ~\$130 per hour (Rule 306)²
- Ambient sampler ~\$4,800-\$24,800
- Wind monitor³ – capital and installation ~\$4,000
- Ongoing ambient air monitoring costs
 - Filter costs (\$40-\$90 per pack)
 - Sample collection and transport³ (5 hours @ \$80/hr = \$400)
 - Laboratory analysis (\$75-\$150 per sample)
 - Maintenance of sampler⁴ (\$1920 per year)
 - Expedited sample analysis (added cost of \$350-\$550 per sample depending on situation)
- Sampling frequency will substantially affect ambient monitoring costs

¹ Based on cost estimate for preparing Lead Ambient Sampling Plans for Rule 1420.2.

² Based on estimated hours to review Ambient Air Monitoring Sampling Plans for Rule 1420.2. Hours varies based on complexity of Plan.

² Based on cost estimates for Rule 1420.2 – 1.214 factor included for premium holidays and weekends

⁴ Based on cost estimates for Rule 1420.2

Ambient Air Samplers Used by SCAQMD for Hexavalent Chromium

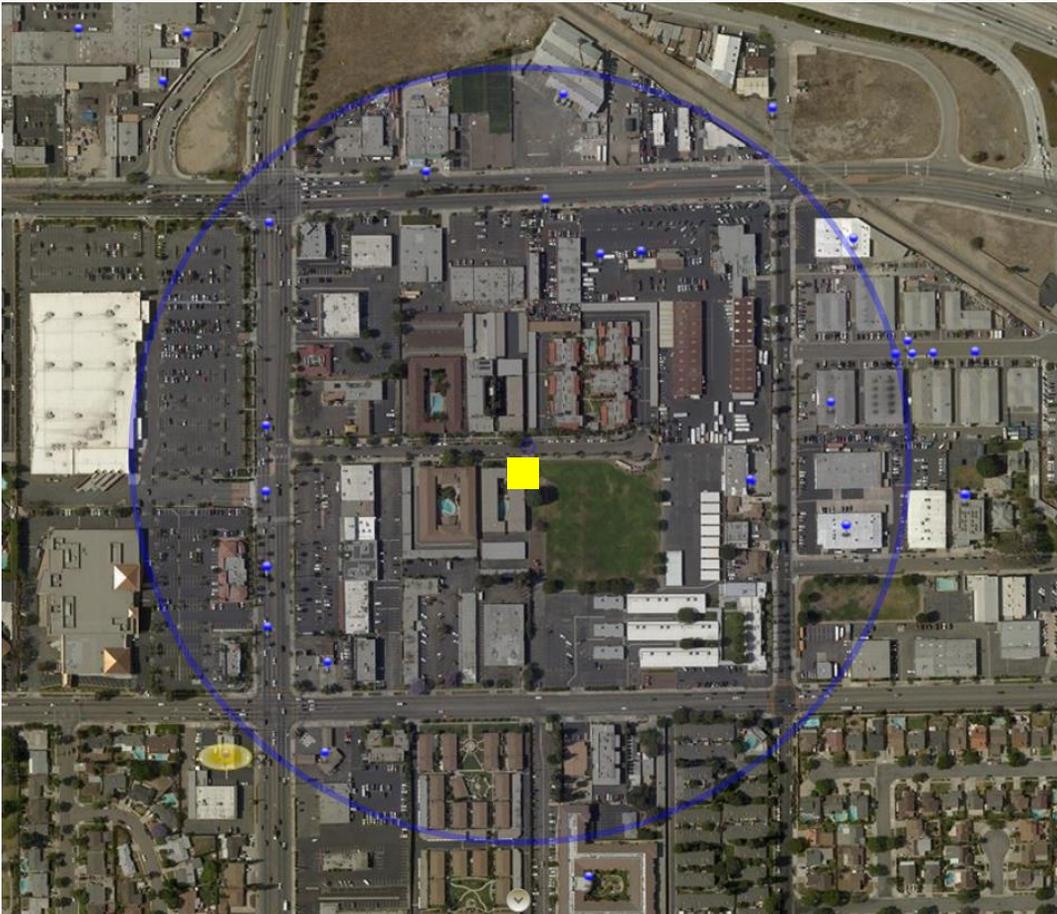
Type	Cost	Mount Option	Power Source	Flow Rate	Key Characteristics
BGI OMNI	~\$4,800	<ul style="list-style-type: none"> Stands Pole mount 	<ul style="list-style-type: none"> AC, DC and solar Recharge unit if pole mounted Battery 	<ul style="list-style-type: none"> Set at 5 L/minute (Not Adjustable) 	<ul style="list-style-type: none"> Portable Suitable for fence-line monitoring 1 Filter Retrieve entire unit for analysis Used in the City of Paramount/Compton
BGI PQ100	~\$6,700	<ul style="list-style-type: none"> Tripod/Stand 	<ul style="list-style-type: none"> AC, DC and solar Battery 	<ul style="list-style-type: none"> 2 L/minute - 25 L/minute Typically set at 12 L/minute 	<ul style="list-style-type: none"> Portable 1 filter Used in 2 sites in Compton and at Hixson Metal Finishing
Xonteck 924	~\$24,000	<ul style="list-style-type: none"> Stands 	<ul style="list-style-type: none"> AC 	<ul style="list-style-type: none"> 0 – 30 L/minute Typically set at 12 L/minute 	<ul style="list-style-type: none"> Permanent (heavy) 4 filters Able to monitor for multiple compounds at the same time, e.g., metals, lead, carbonyls Used at cement facilities and for NATS

MATES IV Hexavalent Chromium Monitoring Results

- Working group requested that SCAQMD identify surrounding sources near MATES IV monitors
- Next slides provide an aerial of the monitors and a list of permitted facilities within 1,000 feet of monitor
- MATES IV conducted air toxics monitoring at 10 locations over a one-year period
 - Sampling followed a one-in-six day, 24-hour integrated sampling schedule
 - Sampling occurred from July 2012 to June 2013
 - Over 30 air pollutants monitored, one of which is hexavalent chromium

MATES IV Monitoring Site	Average (ng/m ³)
Anaheim	0.03
Burbank	0.04
Los Angeles	0.07
Compton	0.11
San Bernardino	0.04
Huntington Park	0.10
North Long Beach	0.04
Pico Rivera	0.05
Rubidoux	0.04
West Long Beach	0.03

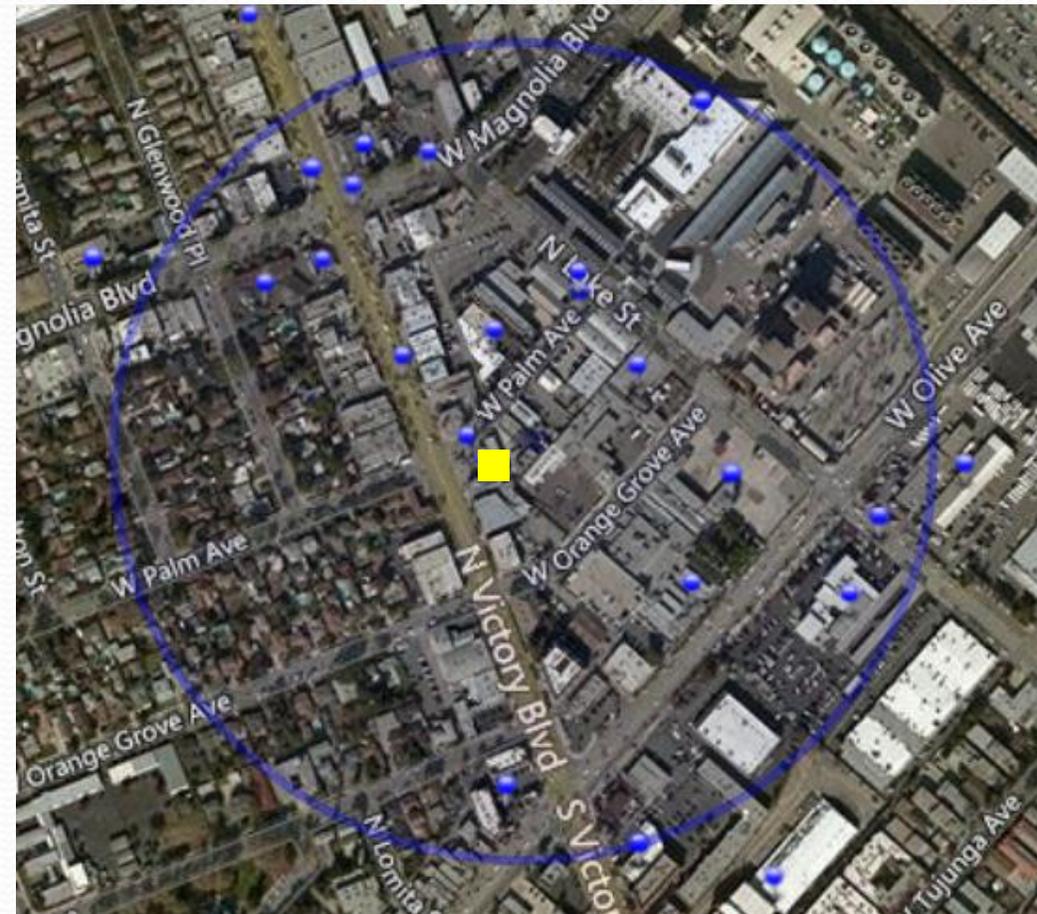
MATES IV Anaheim Monitor



Facility ID	Name	Address
19158	DAISY CLEANERS, L. C. PRINGLE SALES INC	277 S EUCLID ST ANAHEIM CA 92802
1082	MILLS COLLISION CENTER	1600 W LINCOLN AV ANAHEIM CA 92801
6557	BOOMS & SON	229 S LOARA ST ANAHEIM CA 92802
91398	AFTER FIVE TUX SHOP INC	1683 W LINCOLN ANAHEIM CA 92801
175070	BROADWAY RETAIL, INC	1680 W BROADWAY ANAHEIM CA 92802 USA
149443	CTS CEMENT MANUFACTURING CORP.	1631 W LINCOLN AVE ANAHEIM CA 92801 USA
126107	SAVON DRUG STORE 3120	255 EUCLID ST ANAHEIM CA 92802 USA
105392	TMB OIL CO INC #1	260 S EUCLID ANAHEIM CA 92802
3086	ALLIED HEAT TREATING CO INC	1554 W EMBASSY ST ANAHEIM CA 92802
84959	MCCUNE AUDIO/VISUAL/VIDEO	1562 EMBASSY ST ANAHEIM CA 92802
173425	DANIELS HOME CENTER, IRVINE VALLEY AIR C	255 S EUCLID ANAHEIM CA 92802 USA
125033	ALBERTSON'S #6196	255 S EUCLID ANAHEIM CA 92804 USA
17936	LA HABRA PROD. INC	240 S LOARA ST ANAHEIM CA 92802
142415	EDGE CIRCUIT TECHNOLOGY	240 S LOARA ST ANAHEIM CA 92802 USA
13501	WOODY CHEVROLET INC	215 S EUCLID ST ANAHEIM CA 92802
155411	TARGET CORP #2421	101 S EUCLID ST ANAHEIM CA 92802 USA
1082	MILLS COLLISION CENTER	1600 W LINCOLN AV ANAHEIM CA 92801

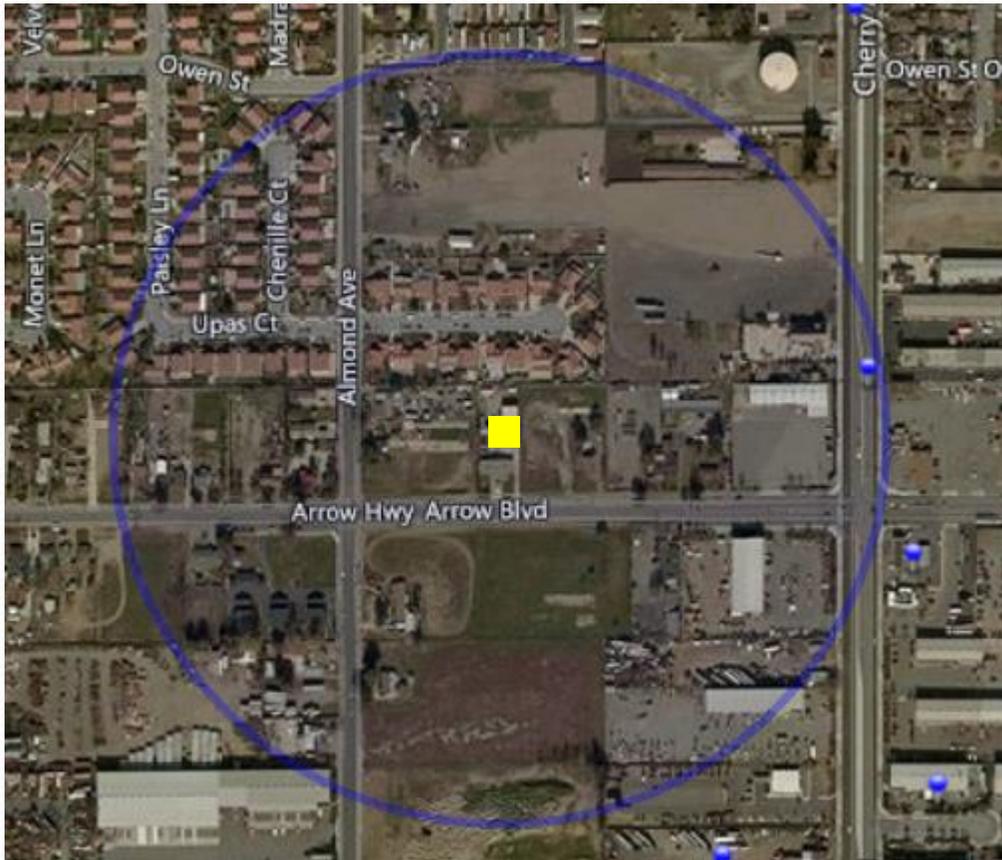
MATES IV

Burbank Monitor



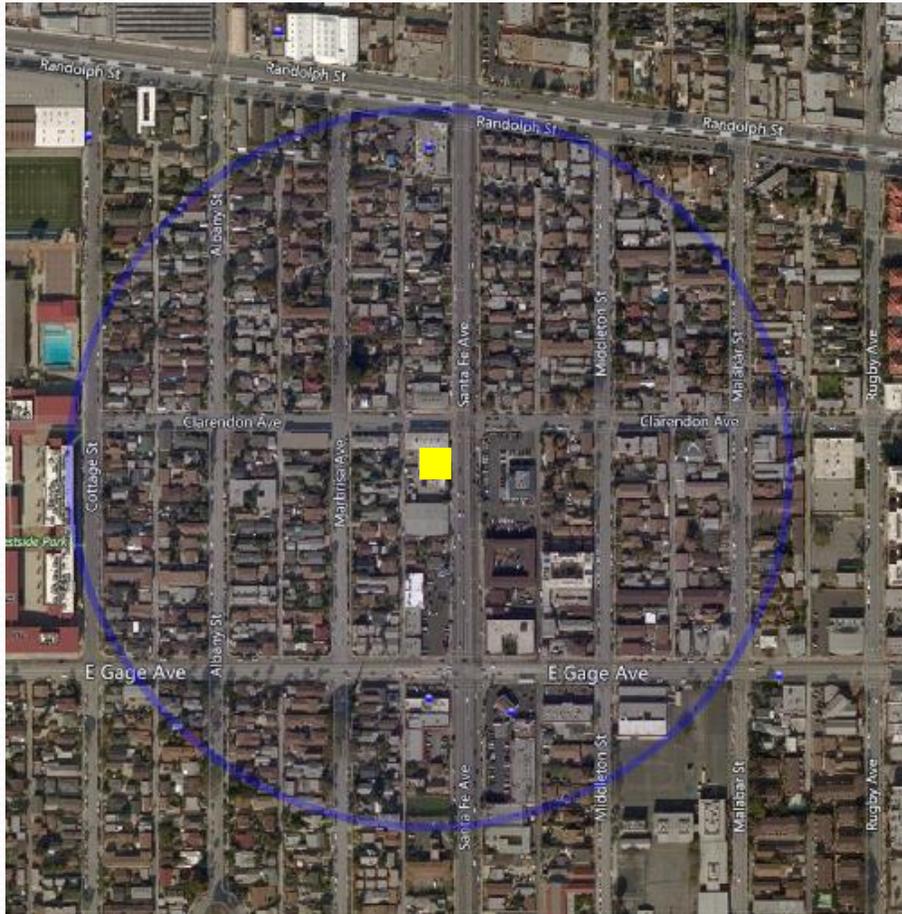
Facility ID	Name	Address
156910	CASITA TACO AL CARBON, IN JUN	405 N VICTORY BLVD BURBANK CA 91502 USA
168120	NICKELODEON ANIMATION STUDIO	231 W OLIVE AVE BURBANK CA 91502 USA
72494	OPERATING ENGINEERS PENSION TRUST FUND	301 N LAKE ST PASADENA CA 91101
158406	CLARK'S CLEANERS, VARTAN SEMERCIAN	101 NORTH VICTORY BLVD. BURBANK CA 91502
42177	BRADY SHEET METAL INC	320 N VICTORY BL BURBANK CA 91502
68858	L & M EDITORIAL REPAIR INC	219 W PALM AV BURBANK CA 91502
67034	CASITA TACO AL CARBON, J CHANCHUEN ETAL	405 N VICTORY BLVD. BURBANK CA 91502
10810	BURBANK CITY, CITY HALL	124 S LAKE ST BURBANK CA 91502
67084	A A WANAMAKER RENTS	203 W OLIVE AV BURBANK CA 91502
67085	CHICKEN HOUSE	101 N VICTORY BLVD. BURBANK CA 91502
151923	TESORO S.COAST CO., LLC US/SHELL #68507	400 N VICTORY BL BURBANK CA 91502
20485	VALLEY SCREEN CO	211 N LAKE ST BURBANK CA 91502
25638	BURBANK CITY, BURBANK WATER & POWER	164 W MAGNOLIA BL BURBANK CA 91502
99272	ACSCO PRODUCTS INC	201 W PALM AVE BURBANK CA 91502
86276	PICANTE MEXICAN GRILL	201 W MAGNOLIA, S-365 BURBANK CA 90266
28228	VICTORY AND MAGNOLIA CAR WASH	910 W MAGNOLIA AV/VICTORY BURBANK CA 91506
37833	SYS BATTERIES	222 N VICTORY BLVD BURBANK CA 91502
124961	SHAWAN ENG & BLDG CONTRACTORS	PALM AVE WEST HOLLYWOOD CA 90069 USA
137374	RWR GAS	341 N VICTORY BLVD BURBANK CA 91502 USA
128052	COMMUNITY CHEVROLET	200 W OLIVE AVE BURBANK CA 91502 USA
72058	BURBANK ROOFING SUPPLY, INC.	295 W MAGNOLIA BLVD. BURBANK CA 91502
122002	UNITED RENTALS INC	203 W OLIVE BURBANK CA 91502
128243	BURBANK CITY,BURBANK WATER & POWER,SCPPA	164 W MAGNOLIA BLVD BURBANK CA 91502 USA
10810	BURBANK CITY, PUBLIC WORKS	124 S LAKE ST BURBANK CA 91502

Inland Valley San Bernardino



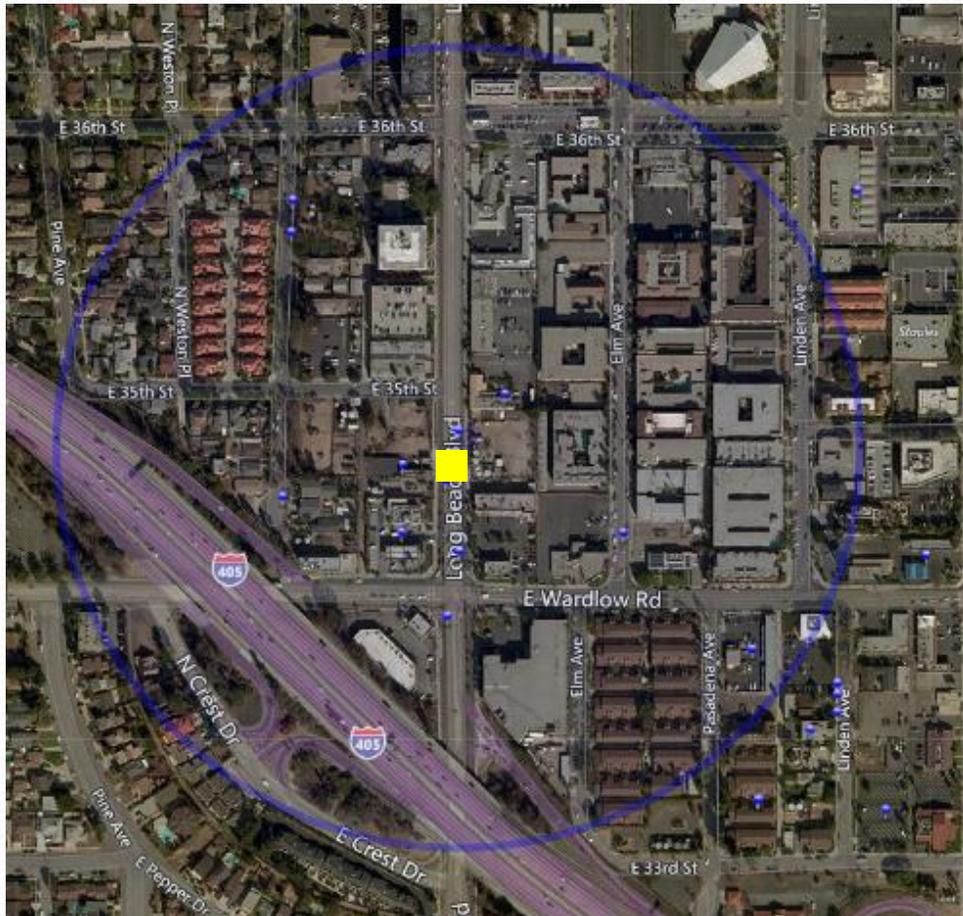
Facility ID	Name	Address
159966	A.S.P. DIESEL INJECTION SERVICE	8449 CHERRY AVE FONTANA CA 92335 USA

Huntington Park MATES IV Monitor



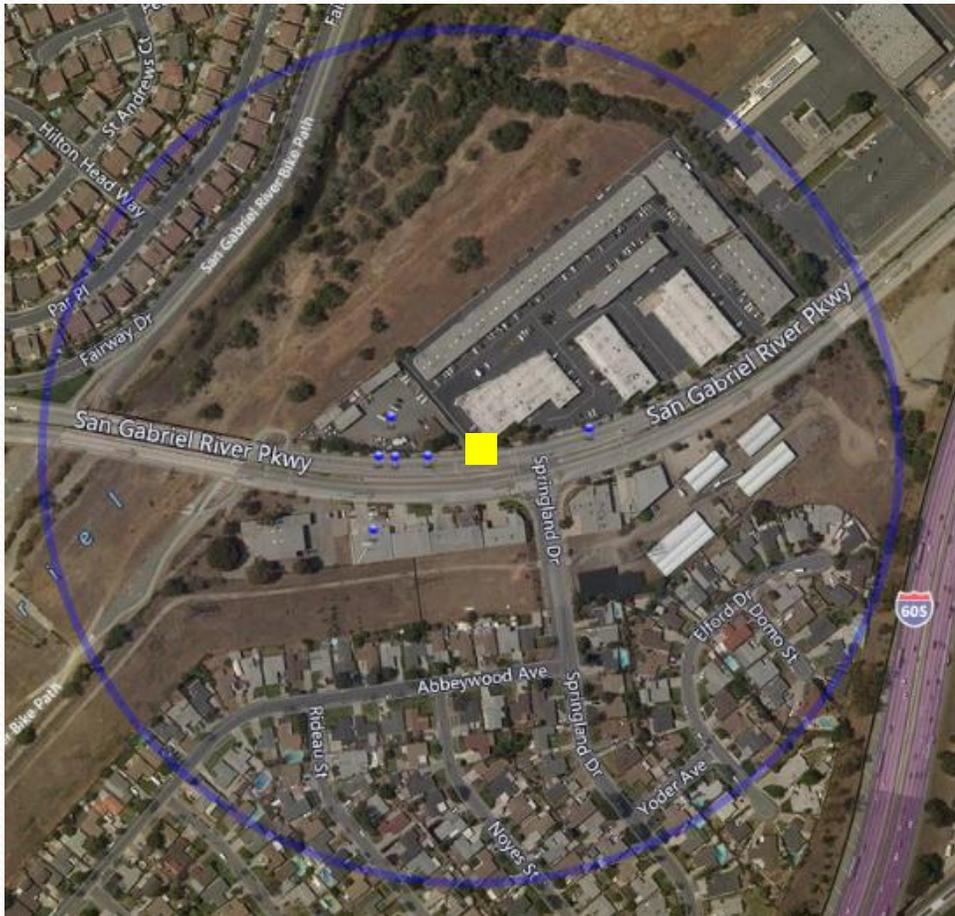
Facility ID	Name	Address
31028	LA CO., FIRE STA #164	6301 S SANTA FE AV HUNTINGTON PARK CA 90255
104322	VIP GARMENT CARE CO	6101 S SANTA FE HUNTINGTON PARK CA 90255
134597	JOHN'S SERVICE STATION/NAHAS	6400 SANTA FE AVE HUNTINGTON PARK CA 90255 USA
63692	AMERICAN TEXTILE CONDITIONERS	6101 SANTA FE AVE. HUNTINGTON PARK CA 90255
113838	SANI DIP CLEANERS	6401 S SANTA FE AV HUNTINGTON PARK CA 90255

North Long Beach MATES IV Monitor



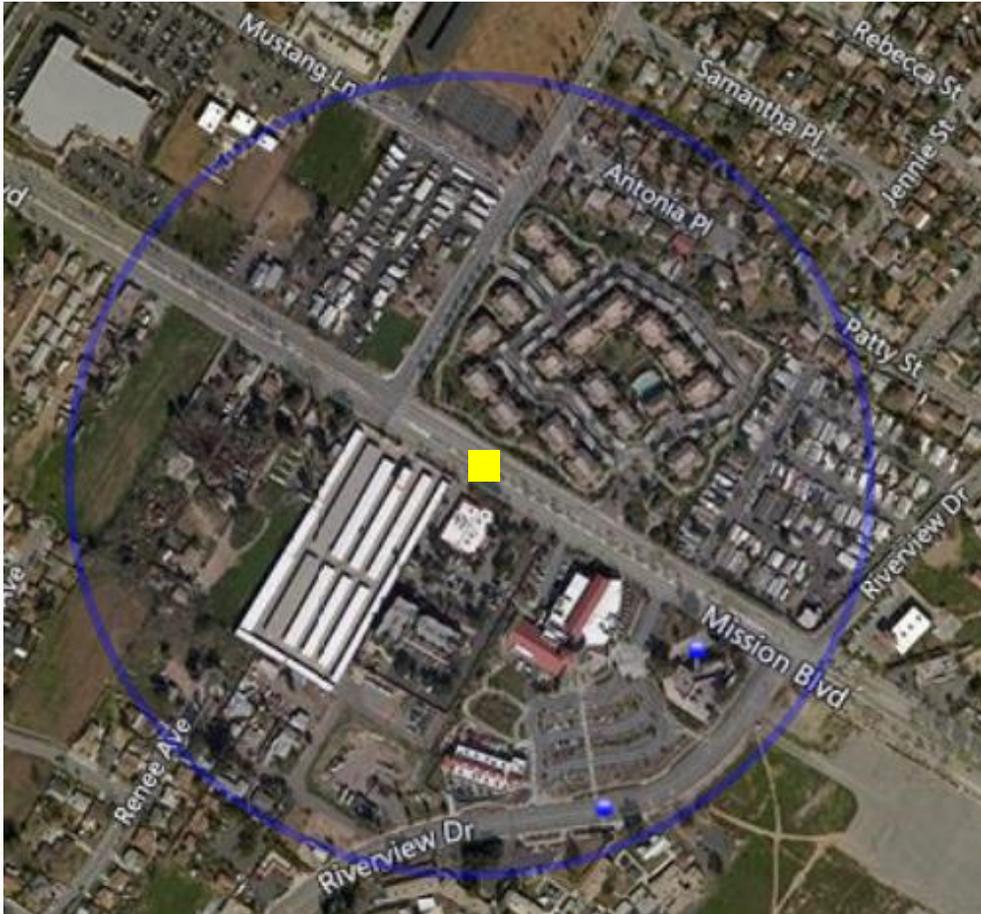
Facility ID	Name	Address
47395	CATHER PRODUCTION CO, CHEROKEE LEASE	3464 LONG BEACH BLVD. LONG BEACH CA 90807
47399	CATHER PRODUCTION CO, JAMES LEASE	3420 ELM AV LONG BEACH CA 90807
47403	CATHER PRODUCTION CO, LAMB LEASE	3439 LONG BEACH BLVD. LONG BEACH CA 90807
47404	CATHER PRODUCTION CO, BOTT LEASE	3400 LOCUST AV (35TH ST) LONG BEACH CA 90807
89354	DON & HAROLD'S INC	500 E WARDLOW RD LONG BEACH CA 90807
139733	OIL OPERATORS - BELL LEASE	3560 LOCUST AVE LONG BEACH CA 90807 USA
78852	DUFFY'S TAVERN	3445 LONG BEACH BLVD LONG BEACH CA 90807
160523	UNITED FAMILY LLC	3401 LONG BEACH BLVD LONG BEACH CA 90807 USA
129231	PHIL TRANI'S	3490 LONG BEACH BLVD LONG BEACH CA 90807 USA
166392	BROILER GROUP 786 OF LA-1 INC, FLAME BRO	3418 LONG BEACH BLVD LONG BEACH CA 90807 USA
99800	BLUE BIRD RESTAURANT, MILTIADIS MARANGOS	3397 LONG BEACH BLVD LONG BEACH CA 90807
123315	J P RESOURCES INC/ BELL #3	3574 LOCUST AV LONG BEACH CA 90744
143960	CASA GARCIA, MANUEL GARCIA	3418 LONG BEACH BLVD LONG BEACH CA 90807 USA

Pico Rivera MATES IV Monitor



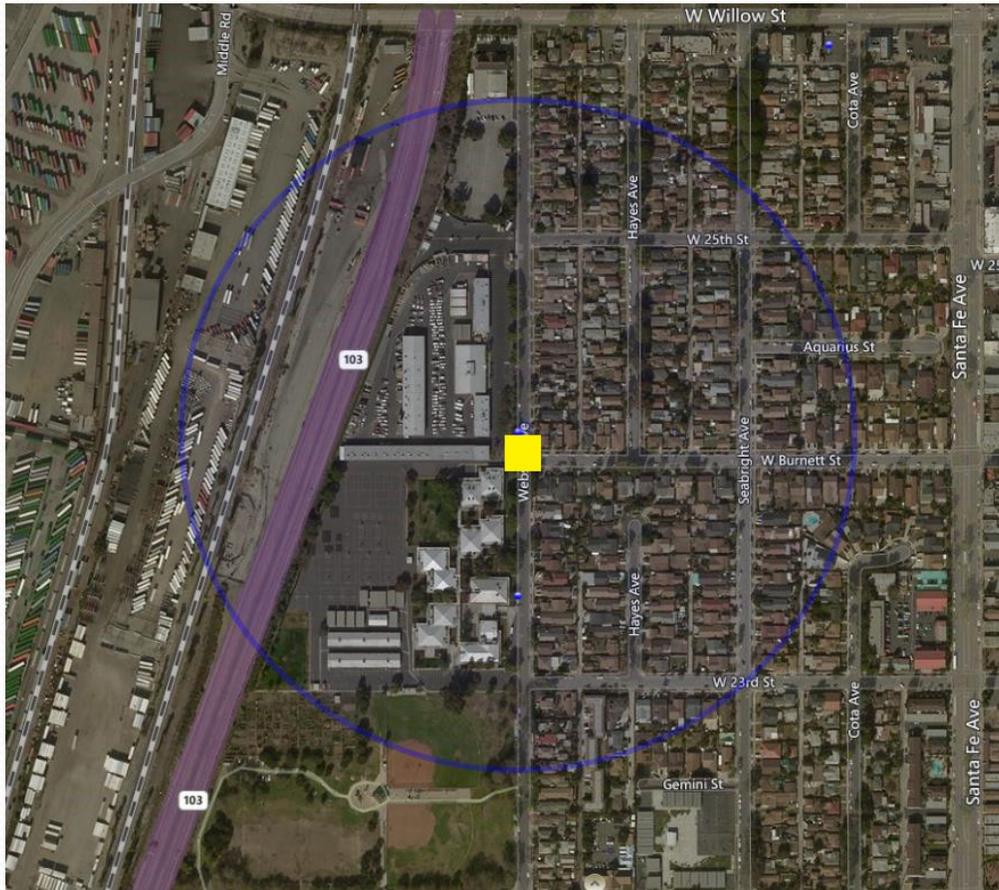
Facility ID	Name	Address
150333	HERNANDEZ CABINETS	3750 SAN GABRIEL RIVER PKY PICO RIVERA CA 90660 USA
85670	ABAR IBSEN INDUSTRIES	3723 D SAN GABRIEL RIVER PKWY PICO RIVERA CA 90660
35541	CROWN LTD	3619 SAN GABRIEL RIVER PKWY PICO RIVERA CA 90660
99374	W G INGALLS COMPANY LTD	3737 SAN GABRIEL RIVER PARKWAY PICO RIVERA CA 90660
85050	NATIONAL SECURITY CO	3711 SAN GABRIEL RIVER PRKWY PICO RIVERA CA 90660
81008	BISHOP ELECTRONICS CORP	3729-B SAN GABRIEL RIVER PKWY PICO RIVERA CA 90660

Rubidoux MATES IV Monitor



Facility ID	Name	Address
23681	JURUPA UNI SCH DIST	3924 RIVERVIEW DR. RIVERSIDE CA 92509
140849	CIRCLE K STORE #5247	5804 MISSION BLVD RUBIDOUX CA 92509

West Long Beach MATES IV Monitor



Facility ID	Name	Address	Facility
140187	LONG BEACH UNIFIED SCHOOL DISTRICT-MAINT	2425 WEBSTER AVE LONG BEACH CA 90810 USA	140187
88113	LONG BEACH CITY UNIFIED SCHOOL DISTRICT	2425 WEBSTER AV LONG BEACH CA 90810	88113
140508	LONG BEACH UNI SCH DIST; E. HUDSON	2335 WEBSTER AVE LONG BEACH CA 90810 USA	140508

Unidentified Sources of Hexavalent Chromium

- SCAQMD staff has utilized third party lists, directory information on the MFASC website, internet searches, and other SCAQMD databases to identify other unpermitted R1469 facilities
- SCAQMD staff is evaluating approximately 12 facilities that may be subject to Rule 1469
- SCAQMD staff will verify the compliance status of these facilities
- SCAQMD staff will update Working Group on status at next Working Group Meeting

Identifying Sources of Hexavalent Chromium for Community Air Toxics Initiative

- If air samples show elevated levels of hexavalent chromium, SCAQMD staff evaluates potential sources
 - SCAQMD staff looks at permitting database
 - Conducts multi-agency inspections of all surrounding sources – permitted and unpermitted
 - Utilize a variety of tools to verify the presence of hexavalent chromium
 - Analysis of bulk samples of materials such as fines from metal working operations
 - Source tests of specific sources
- Additional ambient air monitors may be added to better “pinpoint” source(s)

Clean Up of Liquid Spills

- CCR Title 22 Section 66256.196 – Response to Leaks or Spills and Disposition of Leaking or Unfit-for-Use Tank Systems
 - Considers materials that spill from plating tanks onto the floor to be hazardous waste if it contains chemicals above hazardous waste regulatory levels, is discarded, and relinquished
 - Requires owner or operator to remove as much as possible, any of spilled waste from the tank within 24 hours or in a timely manner as is possible to prevent harm to human health and the environment
- Existing Rule 1469 already requires clean up or containment of any spilled liquid or solid materials that may contain hexavalent chromium immediately and no longer than one hour after being spilled
 - Staff is recommending spills to be addressed no later than 15 minutes after being spilled – more stringent than and not duplicative of CCR Title 22 Section 66256.196

Hazardous Waste Treatment

- Some facilities treat hexavalent chromium waste on-site by reducing hexavalent chromium to trivalent chromium using a reducing chemical reaction such as sodium bisulfite
- Solid waste is processed through a filter press to remove excess liquid leaving a solid filter cake
- Studies and sampling have demonstrated that hexavalent chromium can still be present in processed waste
- Trivalent chromium can oxidize back to hexavalent chromium^{1,2}
- SCAQMD maintains recommendation to propose requirements for waste processing area by operating in an enclosed area and performing housekeeping measures

¹ <https://www.ncbi.nlm.nih.gov/m/pubmed/16297546/>

² <http://www.pjoes.com/pdf/11.2/117-121.pdf/>

Meetings with Metal Finishers Since Last Working Group Meeting

- On 7/5/2017, SCAQMD staff met with representatives from the MFASC who presented concerns with SCAQMD ambient benchmarks
- MFASC believes that:
 - Risk from inhalation pathway is overestimated due to outdated OEHHA's inhalation cancer potency
 - 36 % of risk is associated with vegetable ingestion, but MFASC believes that hexavalent chromium is not stable in organic matrices, including fruits and vegetables
 - Scientific evidence supports that hexavalent chromium does not pose a carcinogenic hazard at relevant exposure levels
- SCAQMD staff explained that OEHHA is the agency that establishes the potency and methodology to estimate health risk
- SCAQMD staff is still evaluating statements made during the meeting

Survey of PAR 1469 Facilities

- On 6/30/2017, SCAQMD staff sent out a survey to obtain facility specific information
- The MFASC expressed concerns that the requested information was confidential and that the timeline was not sufficient – specifically cost information
- Under the District's Public Records Act Guidelines¹, the District is prohibited from providing proprietary or confidential information in response to a Public Records Act request
- If operators believe that information contained in the survey is business confidential they should indicate that in their response
- A Public Records Act request for proprietary or confidential information triggers a process involving the company whose information has been requested
- In response to the MFASC, SCAQMD has extended the deadline for submitting responses to 60 days to September 6, 2017

¹<http://www.aqmd.gov/docs/default-source/default-document-library/Guidelines/pr-guidelines.pdf?sfvrsn=2>

Letter from Metal Finishing Association

- On July 24, 2017, the MFASC sent a letter to SCAQMD presenting the following positions:
 - Recently there have been lengthy and intrusive inspections of metal finishing facilities
 - Concerns with the ambient monitor both in place and used as rule requirement
 - Opposes the use of ambient monitors for facility specific situations
 - Support of some of the presented housekeeping measures in previous working groups
- SCAQMD staff is constructing a response to the positions presented by the MFASC



Total Enclosures

Overview – Total Enclosures

- Purpose of total enclosures is to contain fugitive emissions that are not captured by the point source controls
- Two general types of total enclosures
 1. Total Enclosure (without negative air)
 - Four sided structure with a roof that is free of gaps or openings
 - No requirements for negative air within the total enclosure
 - Provisions to minimize cross draft and release of fugitive dust through openings by using physical barriers such as roll up doors, plastic curtains, air curtains, etc.
 2. Permanent Total Enclosure
 - Total Enclosure under negative air that is vented to pollution controls
 - Openings meet a specified inward face velocity at all times
 - In general, permanent total enclosure is based on EPA Method 204

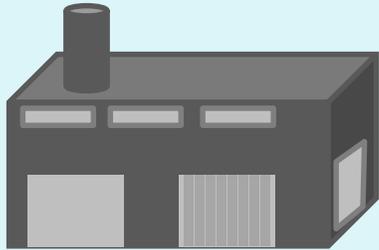
Permanent Total Enclosures – EPA

Method 204

- Criteria to determine if permanent or temporary enclosure meets the criteria for a total enclosure
- Natural Draft Opening: any permanent opening in the enclosure that remains open during operation of the facility and is not connected to a duct in which a fan is installed
- Criteria for a Permanent Total Enclosure
 - Natural draft openings must be a minimum of four equivalent openings from each emitting point
 - Exhaust points shall be four equivalent duct or hood diameters from each natural draft opening
 - Natural draft openings shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling
 - Average facial velocity through natural draft openings shall be 200 feet per minute and into enclosure
 - Access doors and windows shall be closed during routine operation
 - All VOC emissions must be captured and contained for discharge through a control device²⁶

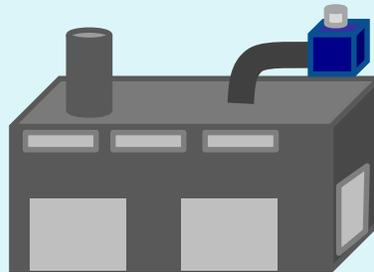
Types of Enclosures

Total Enclosure



- Minimize openings using automatic roll-up doors, plastic strip curtains, etc. to:
 - Minimize cross-draft
 - Contain fugitive emissions

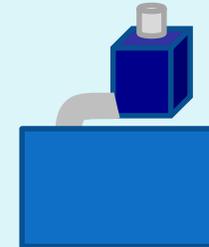
Permanent Total Enclosure



Total Enclosure that:

- Vents air within enclosure to air pollution control device
- Negative pressure requirements of 200 fpm at openings

Permanent Total Enclosure does Not Have to be a Building



- Smaller Permanent Total Enclosure
- Controlling emissions for tanks of concern
- Similar concept for paint spray booths

Effectiveness of Total Enclosures

- October 2016, SCAQMD staff deployed several monitors in the city of Paramount to identify sources of high hexavalent chromium levels coming from Anaplex Corporation with openings in the structure allowing emissions to escape
- During site visits, SCAQMD staff observed that open doors negatively impacted the collection efficiency of add-on air pollution control devices at multiple facilities
- Implementation of a total enclosure demonstrated a reduction of monitored hexavalent chromium emissions
- Total enclosures are required by SCAQMD Rule 1420.1, 1420.2, and 1430

Permanent Total Enclosure at Hixson Metal Finishing

- Building No. 2 (location of chromic/sulfuric acid anodizing and chemfilm line) is a permanent total enclosure vented to an acid mist wet scrubber
- Key requirements of the permanent total enclosure are:
 - Maintained as a permanent total enclosure per EPA Method 204
 - Install a digital differential pressure monitoring system
 - Maintained to be free of cracks, gaps, corrosion or other openings
 - Monthly inspections and deficiencies are to be repaired within 8 hours of detection

Initial Recommendations for Total Enclosure

- All tank operations must be conducted within a total enclosure
- Total enclosures shall be designed in a manner that does not conflict with requirements set forth by the Occupational and Safety Hazard Assessment regarding worker safety
- The owner or operator of a facility shall minimize cross-draft conditions of a total enclosure by:
 - Closing openings that result in decrease in collection of hexavalent chromium emissions for an emission collection system
 - Close openings include vents, windows, passages, doorways, bay doors, and roll-up doors when not in use
 - Other acceptable methods to minimize cross-draft conditions include installing plastic strip curtains or vestibules

Possible Criteria Where Permanent Total Enclosures are Required

- Considering provision that if average ambient air monitoring of hexavalent chromium is above a specified threshold at a residential or sensitive receptor, owner or operator will be required to install of a Permanent Total Enclosure
 - Seeking input on threshold and averaging period
 - Seeking input on other triggers
- Requirements if a Permanent Total Enclosure is required:
 - Vent permanent total enclosure to an add-on air pollution control device that is subject to the same emission standards for point source controls for hexavalent chromium generating operations
 - Install and maintain a digital differential pressure monitoring system
 - Considering other additional requirements



**Tanks Currently Not Regulated
Under Rule 1469
(Non-Rule 1469 Tanks)**

Non-Rule 1469 Tanks

- Rule 1469 is applicable to chromium electroplating and chromic acid anodizing operations
- Electroplating and anodizing operations utilize an electrical current and are considered to be an electrolytic process
- Most electroplating or anodizing facilities have other tanks that are part of the process line that may be heated, air sparged, or rectified (electrolytic process) that are sources of hexavalent chromium that are currently not regulated
- These unregulated tanks can be a source of fugitive emissions as:
 - Heating can create bubbles and the tank solution can become vaporized at high temperatures
 - Air sparging creates gas bubbles in the tank solution
 - Electrolytic processes generate small gas bubbles that rupture at the surface potentially releasing hexavalent chromium emissions

Currently Unregulated Tanks That are Potential Sources of Hexavalent Chromium

- SCAQMD staff has identified tanks that may be sources of hexavalent chromium emissions
 - Rinse Tanks
 - Sealing Tank
 - Passivation Tank
 - Chemical Conversion Tank
 - Stripping Tanks
- These non-rule tanks can contain hexavalent chromium, and if heated, air sparged, and/or rectified, can generate hexavalent chromium emissions

Rinse Tanks

- Parts are submerged in water to remove residue of previous bath contents from parts and equipment
- Bath contents of previous tank containing hexavalent chromium, such as plating or anodizing tank, may get dragged-out into the rinse tank
- Frequency of rinse water change-out varies from facility to facility
- Concern is the concentration of hexavalent chromium in solution and that the tank may be heated and/or air sparged



Dichromate Seal Tanks

- Sealing closes the porous surface generated during the anodizing process
- Sealing gives the product a maximum corrosion resistance but minimizes the wear resistance of the anodized oxide layer
- Typical methods involve the anodized part to be immersed in either a hot water, nickel acetate, or dichromate seal
- Seal tanks are heated to near boiling temperatures
- Specific military specifications require specific parameters to be conducted for specific parts

Dichromate Seal Tank Sampling Results

- SCAQMD conducted emission sampling of dichromate seal tanks at multiple facilities
- All three facilities are permitted chromic acid anodizing facilities
- A chromic acid anodizing tank controlled with a certified chemical fume suppressant had a hexavalent chromium air concentration of 6,880 ng/m³
- NESHAP has a limit of 7,000 ng/m³ for chromic acid anodizing tanks

Sampling Results of Dichromate Seal Tanks

Facility Name	Hexavalent Chromium Air Concentration (ng/m ³)	Hexavalent Chromium Content (WT %)	Hexavalent Chromium Content (PPM)	Tank Operating Temperature	Air Sparging?
Facility A	97,200	3.0-6.0% ¹	30,000 - 60,000 ¹	194-212 °F ¹	No
Facility B	682,000	3.2%	32,000	194-212 °F	No
Facility C	292,000 ²	5.3%	53,000	203 °F	No

¹Based on industrial specifications

²Highest concentration of a triplicate run

Passivation Tanks

- Passivation is a chemical, non-electrolytic process that maximizes corrosion resistance and removes surface contamination from the substrate
- Substrate is submerged into a passivating acid, which can contain sodium dichromate (2-3%)
- Tanks may be heated to 120° F and air sparged

Chemical Conversion and Strip Tanks

- Chemical conversion
 - Chromating, chromate conversion, alodining, or chem film
 - Does not require electricity to apply the coat
 - The solution is operated at ambient temperatures
 - Typical solutions can contain 0.5 - 2% hexavalent chromium by volume
- Stripping
 - Parts are submerged in tank to remove a layer of material from the substrate
 - Process may either use a chemical process or use an electrical current to remove layer
 - Concentration of the tank varies with the facility

Summary of SCAQMD Observations of Non-Rule 1469 Tanks

- Other tanks have varying ranges of hexavalent chromium concentrations based on data collected from site visits and the chrome plating industry
- These tanks are close to hexavalent chromium concentrations found in dichromate seal tanks
- These tanks are of greater concern if they are also air sparged, heated, and/or rectified
- SCAQMD staff conducting sampling of some tanks that do not have specific ranges for hexavalent chromium concentrations

Summary of SCAQMD Staff Observations of Non-Rule 1469 Tanks

Tank Process	Hexavalent Chromium Concentration	Air Sparged	Temperature	Rectified
Dichromate Seal	3.0-6.0 %	No	190-205 °F	No
Passivation	2.0-3.0 %	Yes	120-130 °F	No
Chemical Conversion	0.5-2.0 %	No	Ambient	No
Stripping	Varies	Varies	Ambient	Yes
Rinse	Varies	Varies	Varies	No

Additional Sampling Results or Rinse and Strip Tanks

- As part of rule development, SCAQMD staff investigated other tanks that may be sources of hexavalent chromium emissions
- A liquid sample was taken to determine the concentration of hexavalent chromium from these other tanks
- Liquid samples were taken of tanks that were heated, air-sparged, or rectified
- These tanks contained hexavalent chromium concentration ranges similar to dichromate seal, passivation, and chemical conversion tanks

SCAQMD Liquid Sample Results of Non-Rule 1469 Tanks

Type of Tank	Hexavalent Chromium Contents (WT %)	Hexavalent Chromium Contents (PPM)	Heated?	Air Sparged?	Rectified?
Secondary Rinse Tank (Dilute Hex Chrome)	2.3	23,200	No	Yes	No
Stripping Tank	4.7	47,400	No	No	Yes

Summary of Findings

- Samples of bath solutions of non-rule 1469 tanks taken at facilities have shown elevated concentrations of hexavalent chromium
- Rinse tanks may have different concentrations of hexavalent chromium depending on how facility handles rinse water (e.g., frequency of use or change out)
- No current rule requirement to analyze bath contents for hexavalent chromium
- No current specific requirements for hexavalent chromium-containing tanks that do not conduct chromium electroplating or chromic acid anodizing
- Dragout from hexavalent chromium-containing tanks can be a source of fugitive emissions
- Hexavalent chromium-containing tanks can generate hexavalent chromium emissions if heated, air sparged, and/or rectified

Initial Interim Recommendations

- SCAQMD staff recommends the following practices be implemented in the interim to reduce hexavalent chromium emissions from non-Rule 1469 tanks
 - Reduce tank operating temperatures
 - Utilize an alternative form of agitation instead of air sparging, such as eductors or manual mixing
 - Use a cover over the tank when parts are not being removed or placed in a hexavalent chromium-containing tank
 - Implement practices that reduce the amount of drag-out occurring from hexavalent chromium-containing tanks

Initial Recommendations

- Considering pollution control requirements that will be similar to plating and anodizing tanks for certain non-Rule 1469 tanks that are:
 - Heated, air sparged, or rectified; and
 - Operating above a specified concentration of hexavalent chromium
- Need to establish emission limit for hexavalent chromium-containing tanks
- Require temperature gauges on tanks and labels to ensure tank is operating within permitted temperatures
- Require periodic testing of tanks to monitor hexavalent chromium concentration
- Expand housekeeping provisions to non-Rule 1469 tanks
- Require permanent cover for tanks that are potential sources of hexavalent chromium when not in use – seeking input

Initial Recommendations for Grinding and Polishing

- Grinding and polishing operations can be a source of fugitive emissions if not well controlled
- Initial concepts for grinding and polishing
 - Prohibit grinding and polishing in the open air
 - Require grinding and polishing to occur within a structure with four walls and a ceiling (building enclosure)
 - Require grinding and polishing emissions be vented to an air pollution control device – considering 99% control efficiency
 - Housekeeping provisions to ensure fugitive emissions that are not collected by air pollution control device removed to ensure they do not become reentrained into the ambient air

Schedule

- Release Draft Rule Language for PAR 1469 and 1426
- 5th Working Group: August 2017
- Public Workshop: October 2017
- Governing Board Meeting: December 2017

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