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## Summary of Compliance with the Airborne Toxic Control Measure for Chromium Plating and Chromic Acid Anodizing Facilities in Four California Air Districts

This document provides a synopsis of joint inspections conducted by Air Resources Board (ARB) staff and air district staff at chromium plating and chromic acid anodizing facilities located in the Bay Area Air Quality Management District (Bay Area AQMD), the San Joaquin Valley Air Pollution Control District (San Joaquin Valley APCD), the San Diego County Air Pollution Control District (San Diego County APCD), and the South Coast Air Quality Management District (South Coast AQMD). Approximately 90 percent of chromium plating and acid anodizing facilities located in California operate within these four air districts. The goal of the inspections was to evaluate compliance rates with the amended Airborne Toxic Control Measure for Chromium Plating and Chromic Acid Anodizing Facilities (ATCM).

### Background

Hexavalent chromium is a known human carcinogen. In an effort to further protect the public, amendments to the ATCM were approved at the ARB's December 7, 2006, hearing. The amendments were subsequently adopted on August 9, 2007, and became legally effective on October 24, 2007. In Resolution 06-25, in which the amendments were approved, ARB staff was directed to track compliance with the ATCM.

The adopted amendments set forth the most stringent emission control requirements in the nation. Generally, except for small facilities, the limits require installing or upgrading add-on air pollution control devices at the plating tank. Based on proximity to sensitive receptors and total throughput, the requirements become effective between April 24, 2008, and October 24, 2011. The compliance date to meet emission control requirements was October 24, 2009, for facilities with sensitive receptors nearby (within 330 feet) and/or those with higher throughputs.

To evaluate compliance, in conjunction with air district staff, ARB staff inspected 111 facilities in the Bay Area AQMD, the San Joaquin Valley APCD, the San Diego County APCD, and the South Coast AQMD. This represents about 60 percent of the facilities operating in the State. Joint facility inspections with the various air districts occurred in the summer of 2008. At this time several ATCM requirements had recently become effective. These included requirements to use specific chemical fume suppressants in plating baths to control hexavalent chromium emissions, and housekeeping measures to control fugitive dust emissions. No later than April 24, 2008, facility operators were also required to complete and file with the air districts, reports of their facility's initial compliance status with the ATCM.

Goals established for this project included:

1. Evaluate facility compliance with the April 2008 ATCM requirements;
2. Ensure facility operators are aware of upcoming compliance dates;

3. Inform the air districts of the resources necessary to meet the permitting and source testing workload related to the October 2009 compliance date for installation of add-on control devices; and,
4. Work collaboratively with the air districts to promote statewide consistency and encourage, at a minimum, annual inspections of these facilities.

### Overall Findings

During the joint facility inspections, a number of minor violations were observed and documented. For purposes of this project, ARB has defined a minor violation as an administrative non-emissions related violation or violation that is unlikely to result in excess emissions. Examples of minor violations include recordkeeping violations or violations relating to non-compliance with the ATCM's housekeeping measures. Most minor violations found were related to non-compliance with the new housekeeping measures. Therefore, these inspections served as an opportunity to clarify and further inform facility operators of those new housekeeping measures that were designed to further reduce de minimis levels of fugitive emissions.

Major violations were found at five (5) facilities. A major violation exists when the noncompliance results, or has a reasonable potential to result, in excess emissions. Most of these emission related violations were due to incorrect use of chemical fume suppressants or improper installation of an ampere-hour meter. Of the five (5) major violations, three (3) were at facilities in the Bay Area AQMD, one was at a facility in the San Diego County APCD, and one was at a facility in the San Joaquin Valley APCD. It is our understanding that all of these violations have been corrected. Despite these violations, there was an overall high compliance rate with the emission control requirements that were in effect at the time of the inspections.

As part of the 2008 compliance evaluation project, 96 facilities were identified for joint inspection based on their production rates and proximity to sensitive receptors. The particular facilities were required by the ATCM to meet an emission limit by October 2009. Most facility operators were aware of this upcoming compliance deadline but were not necessarily aware of the lead times necessary to plan for and install add-on controls. Therefore, the joint inspections served as an opportunity to set facilities on a course to meet the October 2009 compliance date and explain the various compliance alternatives. To comply, these facilities would need to do one of the following:

- 1) Install add-on controls and source test to demonstrate compliance with the emission limit;
- 2) Reduce ampere-hours to extend their compliance date; or,
- 3) Meet requirements to comply through use of chemical fume suppressants alone.

The joint inspections also provided ARB and air district staff the opportunity to jointly assess facility compliance and to work with both permitting and source testing staff to coordinate upcoming compliance strategies at these chrome plating operations. To promote statewide consistency, during the joint facility inspections, ARB staff provided guidance to the air districts, when necessary, on how inspections should be conducted and violations assessed. Because inspection frequency varied among the air districts, ARB staff recommended that inspections be conducted no less than annually.

In July 2009, ARB staff followed up with the Bay Area AQMD, San Joaquin Valley APCD, and San Diego County APCD staff to determine if facilities were on schedule to comply by the October 2009 compliance date. After completing the 2008 inspections and the July 2009 follow-ups, ARB staff prepared a report for

these air districts summarizing inspection results and providing recommendations for future inspections to promote statewide consistency. Each air district's report was shared and discussed with them.

A report summarizing the results of the 2008 inspections in the South Coast AQMD was shared with South Coast's staff in January 2009. Because of the large number of facilities with October 2009 compliance dates, ARB staff documented and tracked further progress toward compliance through periodic meetings with South Coast's staff. South Coast's staff provided final information on the compliance status as of August 31, 2011, of those chrome plating facilities operating within their jurisdiction.

Through diligent and regular follow-up inspections by staff in these four air districts most facilities achieved compliance with the October 2009 compliance date. Further details on the inspection findings in each air district follows. Note that, based on updated information, the facility numbers below may differ slightly from those originally identified during the 2008 inspections. Also provided is the current compliance status of all chromium plating and chromic acid anodizing facilities in these four air districts as of August 31, 2011.

#### Bay Area Air Quality Management District:

Sixteen (16) hexavalent and two (2) trivalent chromium plating facilities were inspected. Both trivalent and the three (3) hexavalent chromium plating facilities were in compliance. Major violations at three (3) facilities were found. Violations noted at one facility included operating with an expired permit and having an improperly installed ampere-hour meter. At two (2) facilities the violations were related to improper use of a chemical fume suppressant. Minor violations were noted at several facilities. Most of these related to housekeeping requirements that had become effective in April 2008. The Bay Area staff has indicated to us that these violations have been corrected and the facilities are now in compliance.

At the time of the 2008 inspections, of the facilities with compliance dates of October 2009, five (5) facilities were identified that would need to install add-on controls, reduce ampere-hours to extend their compliance date, or meet requirements to comply through use of chemical fume suppressants alone. Subsequent follow-up with Bay Area staff in 2009 indicated that these facilities were on track to comply by the compliance date. Four (4) facilities complied through the use of add-on controls while the fifth facility lowered their permitted ampere-hours such that compliance could be achieved through use of chemical fume suppressants alone.

Among ARB staff's recommendations to Bay Area's staff was that they strive for annual inspections and that there should be consistency as to procedures for issuing Notices to Comply (NTC) for minor violations. The Bay Area AQMD was open to considering these comments.

#### San Joaquin Valley Air Pollution Control District:

Fifteen (15) of the seventeen (17) hexavalent chromium plating facilities and one trivalent chromium plating facility were inspected. Since ARB's inspections in 2008, four facilities have gone out of business and one new facility has commenced operation. There are now a total of 14 chrome plating and chromic acid anodizing facilities operating within the District's jurisdiction. The operators from each of the 14 facilities have attended the required ARB chrome plating industry certification course. All but one of the nine remaining facilities which had compliance deadlines prior to 2010 are operating in compliance with ATCM requirements. The remaining facility has failed to source test to demonstrate compliance. The District has issued the facility a Notice of Violation and is working to bring the facility into compliance. Of the five

facilities identified to have October 2010 compliance dates, only three remain in operation. Two of the remaining facilities are now operating under permits with reduced ampere hours (<20,000 amp/year) and the other remaining facility has successfully completed source testing and demonstrated compliance with ATCM requirements. There is only one facility which has a 2011 compliance deadline. The facility is aware of the upcoming compliance date and is researching their compliance options.

#### San Diego County Air Pollution Control District:

All six (6) hexavalent chromium plating facilities were inspected. A major violation was found at one facility for having chromium solution spills below the tank. Minor violations were found at five (5) facilities. These violations were for non-compliance with various aspects of the housekeeping measures. The San Diego District staff has indicated that these violations have been corrected and the facilities are now in compliance.

At the time of the 2008 inspections we identified four facilities that were in compliance with emission limits by using chemical fume suppressants alone. Two (2) other facilities with compliance dates of 2009 were already complying with emission limits through use of add-on controls.

Among ARB staff's recommendations to San Diego District staff was that they should work with their facility operators to ensure all had taken the ARB's required training class by the required date and that permits be modified to incorporate the ATCM's requirements. The San Diego District was open to considering these comments.

#### South Coast Air Quality Management District:

##### Summary of Results of 2008 Joint Facility Inspections:

At the time of the 2008 joint facility inspections, there were 138 chrome plating and acid anodizing facilities operating within South Coast AQMD's jurisdiction. As noted earlier, no major violations were found from the facilities inspected in South Coast AQMD since that time, four (4) of those facilities are no longer in business. Of these remaining 134 facilities, 112 were required to meet the October 2010 ATCM compliance deadline. The remaining 22 facilities were considered to be in compliance because their compliance date of October 2011 had not yet occurred.

Seventy-one (71) of the hexavalent chromium plating and acid anodizing facilities, representing approximately one-half of facilities operating within South Coast AQMD's jurisdiction, were jointly inspected. Of those inspected, twenty two (22) facilities were in full compliance with no emissions-related violations or minor violations identified. ARB attributes this high compliance rate to South Coast AQMD's quarterly inspections, as well as field inspection staff and facility operator training and industry outreach efforts.

Minor violations were found at forty-three (43) facilities. These minor violations related to noncompliance with recordkeeping and/or certain aspects of the ATCM housekeeping measures. South Coast staff conducted follow up inspections at these forty three (43) facilities and confirmed that these minor violations have since been corrected and the facilities are now in full compliance with the ATCM.

At the time of the 2008 inspections, and in subsequent follow-up with South Coast staff, of the facilities with compliance dates of October 2009, it was determined that eighty six (86) facilities would need to either:

1. Install add-on controls;
2. Reduce ampere-hours to extend their compliance date; or,
3. Meet requirements to comply through use of chemical fume suppressants alone.

Because of the large number of facilities needing to comply, and associated workload, some facilities did not fulfill all of the ATCM's requirements by the October 2010 date. However, all facilities required to install add-on controls had completed installation and were operating with the controls in place.

Among ARB staff's recommendations to South Coast AQMD staff were that permits and inspection guidelines be updated to include the new requirements. South Coast AQMD staff was open to considering these comments.

### Current Status

As of August 31, 2011, of the 134 facilities identified, 102 facilities are in full compliance, twenty two (22) facilities reduced their ampere-hours to extend their compliance date to October 2011, eight (8) facilities are in various stages of source testing (see table that follows), and two (2) facilities have installed HEPA units and have received approval for these source test protocols from South Coast AQMD staff, but claim insufficient funding to perform the source testing (chrome plating tanks currently non-operational).

### Overall Current Status of the Four Air Districts:

ARB remained in contact with the four air districts to ensure facilities met the October 24, 2009, emissions limit compliance date. Facilities with this compliance date were those identified as posing the greatest potential health risk because they had near-by sensitive receptors and/or high annual ampere-hours. Table 1 below provides a compliance status summary of chromium plating and chromic acid anodizing facilities in the four districts. It should be noted that these numbers may not reflect those in our compliance status reports because some facilities opted for other compliance methods than were originally predicted.

**Table 1  
Compliance Status of Chromium Plating Operations as of August 31, 2011**

District	Total Facilities	Total Number in Compliance with 2010 Compliance Date*	Pending**	October 2010 Compliance Date	October 2011 Compliance Date
Bay Area	18	15	0	0	3
San Joaquin <sup>1</sup>	14	12	1	3	1
San Diego	6	6	0	0	0
South Coast <sup>2</sup>	134	102	8	2	22

<sup>1</sup> Those facilities classified as “pending” need to complete a current source test. However, based on previous source tests conducted at these facilities, it is expected that they will comply with the requisite emission limit. No source tests have been scheduled at the time of this reporting.

<sup>2</sup> Of the eight (8) facilities classed as “pending,” two (2) have not yet completed source testing. These two (2) facilities have installed HEPA units and have received approval on these source test protocols from South Coast AQMD staff but claim insufficient funding to perform the source testing. Their chrome plating tanks are presently non-operational. One facility has completed source testing and is awaiting the test results. Five (5) facilities have completed source testing however the South Coast AQMD staff has deemed the results to be ‘Conditionally Unacceptable.’ These five (5) facilities are scheduled for retesting or to provide the additional information necessary for the South Coast AQMD staff to deem the source test results acceptable.

\* This category includes sources in full compliance with either their 2008 or 2009 emission limit compliance date or sources with controls installed and source testing completed. However, administrative review of the source test results and permit issuance is still in progress.

\*\* Controls have been installed but source testing is pending or the source test results have been determined to be ‘Conditionally Acceptable’ pending retesting or additional information.

The “Total Number in Compliance” column includes facilities that had either an October 2008 or 2009 emission limit compliance date. Table 1 also includes the number of facilities with emission limits becoming effective in October 2010 and 2011. The 2010 and 2011 emission limit effective dates were provided for facilities with fairly low annual ampere-hours or with no near-by sensitive receptors. However, regardless of the emission limit compliance date, all facilities were to be in compliance with housekeeping and other reporting provisions of the ATCM by October 2008.

It is also important to note that source testing results indicate that facilities with add-on control devices, generally including a high efficiency particle arrestor filter, are operating significantly below the 0.0015 milligrams per ampere-hour limit. This provides additional health protection to residents living or working near these facilities.