Comments on the Draft Socioeconomic Impact Assessment for PAR 1469

We are pleased to have the opportunity to provide comments on behalf of the Metal Finishing Association of Southern California (MFASC) on the South Coast Air Quality Management District's (SCAQMD's) draft Socioeconomic Impact Assessment (SIA) for Proposed Amended Rule (PAR) 1469.

While most of our specific comments represent instances where we criticize the draft SIA and suggest improvements to it, this should not detract from our appreciation for the notable effort the District staff have made in estimating the compliance costs and economic impacts of PAR 1469 and summarizing their analysis in the draft SIA. District staff have conducted an open and collaborative process with stakeholders to develop and analyze PAR 1469. The product of this effort – the proposed rule itself and its supporting documentation – have benefited from many discussions and sharing of information and perspectives. We hope these comments will contribute to an improved SIA and to further improvements in the proposed rule.

MFASC's Perspective on Economic Issues Associated with PAR 1469

The draft SIA estimates the costs that affected chromium electroplating and anodizing facilities in the SCAQMD will incur in complying with the requirements of PAR 1469 and then analyzes the economic impacts that will result from these compliance costs. The magnitude of the economic impacts that are projected depends directly on the magnitude of the compliance costs that are estimated.

The draft SIA estimates that affected facilities will incur compliance costs amounting to $2.6 - $4.3 million per year. We estimate costs higher than these. In an analysis in which we estimated compliance costs for a set of nine or ten MFASC member-owned facilities and then scaled up to all facilities in the District, we estimated costs of $6.5 million per year, about 50% more than the higher cost scenario estimate projected in the draft SIA. While SCAQMD staff and we shared data and agreed on many elements of the cost analysis, there remain in the draft SIA a few areas where we believe staff have missed some likely significant costs and have underestimated others.[1] We provide comments in this document on how the District staff can improve the cost estimates in the draft SIA.

Despite underestimating compliance costs, the draft SIA nevertheless finds that PAR 1469 will have significant and worrisome adverse economic impacts on the electroplating and anodizing industry. The draft SIA estimates that:

[1] Another reason why our cost estimates may be higher than those in the draft SIA is that our sample of nine or ten facilities from which we extrapolate to all 115 affected facilities may be representative of the MFASC membership but perhaps not entirely representative of the full set of affected facilities. In particular, our sample may over-represent anodizers (who the draft SIA estimates will face higher than average compliance costs per facility from PAR 1469) and under-represent decorative and hard chrome platers (who are estimated to face lower than average compliance costs, unless non-PFOS fume suppressants are not recertified).

- The average electroplating/anodizing facility will face PAR 1469 compliance costs amounting to 1.8% to 3.3 % of revenues.

- The smaller facility segments of the industry will face even higher compliance burdens -- 3.4% to 7.4% of revenues on average for the 27 small decorative plating facilities, for example.

A regulatory cost burden of this magnitude will eliminate most or all of the average electroplating or anodizing facility's profit margins. By way of comparison, the job shop electroplating industry's pretax profit margin nationally over the past 27 years has averaged under 4%. (This is a low-margin, highly competitive industry.)

While the SCAQMD has not as a general matter established a level of cost impact relative to revenues that they consider threatening for a regulated industry, other regulatory agencies have. Both the Federal Environmental Protection Agency (EPA) and Occupational and Safety and Health Administration (OSHA) have adopted cost thresholds at 1% or 3% of revenues as levels of concern. EPA has said that 3% or more of revenues represents an "unquestionably significant" impact on small businesses. OSHA traditionally uses 1% of revenues and 5 to 10% of profits as thresholds of economic impact concern for their regulations. We're looking here at PAR 1469 costing 100% of profits for many facilities.

We fear that the compliance costs the draft SIA has projected for the industry in the four South Coast counties would cause a significant share of the industry to go out of business. Hundreds or even thousands of good jobs will be lost in the metal finishing industry and the industry's suppliers and customers.

Note that all MFASC members know of competitors nearby -- in Northern California, in San Diego, in Mexico and in other States -- that won't face these regulatory costs and that will take much of the South Coast producers' business if local firms were to try to raise their prices by 3% or 5% or 10% to cover the PAR 1469 costs. The findings in the draft SIA suggest that the local industry faces an unfortunate choice between absorbing the regulatory costs and seeing their already modest profitability vanish, and increasing prices to cover the regulatory costs and losing a significant portion of their business to nearby competitors who don't face the PAR 1469 costs.

Summary of Comments on the Draft SIA

We provide the following specific comments suggesting improvements to the draft SIA. If the draft SIA is improved as we suggest, it will further support the MFASC's concerns about the adverse impacts of PAR 1469.

- Capital costs for add-on APCDs will not show economies of scale to the extent assumed in the draft SIA. Larger systems will have lower unit costs than smaller systems, but not to the degree that District staff have estimated in the draft analysis.

- The O&M costs of an air pollution control system should be estimated in relation to the volume of airflow needing control, not to the capital costs of the system. Making this change to the

manner in which O&M costs are estimated in the SIA will bring the estimates much closer to the available cost information for systems that are now operating.

- Costs to meet the enclosure requirements are underestimated. The enclosure provisions will require facilities to do more than meet the 3.5% limitation on openings in the building envelope. There will be additional costs to meet the cross-draft requirements and to provide supplemental ventilation at some facilities.

- The SIA underestimates costs for restrictions on spray rinsing of parts. The SIA estimates costs for these requirements by assuming that facilities with automated lines will install drip trays between each electroplating or anodizing tank and adjacent tanks. For many facilities with automated lines this won't be feasible, and alternative solutions should be costed out. Compliance costs should be estimated also for the facilities that do not have automated lines.

- Additional costs for source testing and for permitting should be included. The draft SIA estimates some costs, but misses the costs for labor hours that facility personnel will expend in managing these activities. The draft SIA also may underestimate the number of new permits that will need to be acquired and renewed as a result of PAR 1469.

- In view of the many uncertainties in estimating compliance costs, the sensitivity analysis in the draft SIA that aims to provide high and low compliance cost estimates and to bracket the likely true cost is important and should be expanded. The SIA should include more of the variables that lead to large uncertainties in estimating costs as differences that are analyzed in the low cost scenario versus the high cost scenario. A high cost scenario is not less reasonable or less likely to prevail than a low cost scenario, and implications in the draft SIA to the contrary should be deleted.

- The SIA's facility-based impact analysis is key in evaluating whether PAR 1469 will be affordable for the affected electroplating and anodizing facilities and in projecting the number of facilities that are likely to close because they will not be able to afford the PAR 1469 compliance costs. We appreciate the District staff's work to include this analysis in the draft SIA. While this analysis in the draft SIA addresses the average facility in each of the categories into which the industry has been divided, the final SIA should do better in portraying the variability in PAR 1469 compliance cost burden across all affected facilities in each category. We suggest a methodology by which District staff could use available data to estimate the facility-by-facility variation in cost burden (facility-by-facility ratio of compliance costs to revenues) and to project the number of facilities that are likely to find compliance not to be affordable. Such an analysis should be included in the final SIA.

Capital Costs for Add-on APCDs Will Not Show Economies of Scale to the Extent Assumed in the SIA

We appreciate the District staff's collaborative work with industry consultants to obtain actual incurred cost figures, vendor quotes, engineering estimates and other data with which to develop a relationship that projects the capital cost/cfm for different sized HEPA APCD systems. The individuals involved in this work ultimately agreed on a representative figure of $23/cfm for the capital cost of a relatively small system of approximately 5,000 cfm. While the seven capital cost estimates collected by the MFASC's consultants suggested a lower average figure of about $19.50/cfm, these individual estimates and this average figure did not include any costs for local approvals, building electrical upgrades (typically a thousand dollars or more for each system) and sales tax (5 - 7 % typically). The group judged $23/cfm to be a representative figure that might include the latter two of these additional items.[2] The figure of $23/cfm also matched the figure obtained by SCAQMD staff from an experienced Southern California

[2] We believe that the large number of local approvals typically required will likely result in costs exceeding $23/cfm when all costs are included. Unless the building has been built in the last several years – which none of the nine sample facilities in the MFASC's cost analysis have been -- when the company goes to the city to get a permit to install the APCD or upgrade the electrical, this will trigger requirements for a number of upgrades (tenant improvements) that may require the facility owner to bring the entire building up to current code. The upgrades can include:

- Seismic upgrades. Could include bracing of the roof and walls. Possible replacement of the entire roof structure and foundation upgrades.
- Electrical upgrades (do you have enough power to run all your equipment and the new scrubbers?). If not, you need to bring in new service that opens your entire electrical system to upgrades to meet current code.
- If you install anything on the roof, be prepared for equipment line of sight barriers as well as possible structural upgrades.
- Noise compliance studies may have to be conducted.
- Possible sound barriers may have to be installed.
- ADA compliance (Handicapped Parking, compliant paths of travel, ADA compliant bathrooms, etc.)
- The building will probably be reclassified as an H4 occupancy (High Hazard). This brings with it fire sprinkler requirements, fire and hazard alarm and monitoring, and 2- to 4-hour fire barrier walls between H4 and other occupancies. Though a number of cities don't seem to push it this could require the replacement of all ductwork with CPVC or installation of fire heads in all ductwork.
- This can also affect secondary containment. If you have to install fire sprinklers or increase their capacity, the water from the sprinklers (20 minutes) also has to be taken into account for secondary containment calculations.
- Depending upon where your chemical storage area is, fire bunkers may have to be installed or alternate emergency exits and paths of travel will need to be considered.
- Since most older neighborhoods do not have the water pressure at the street to accommodate an H4 occupancy, you may have to install a fire house with a fire pump. Big dollars here.
- Is your lighting Title 22 compliant?
- Water-tolerant landscaping requirements. Yes you may have to tear out the grass.

While we agree with the draft SIA statements to the effect that costs for the upgrades likely to be required by local governments are both uncertain and difficult to predict (see page 17), we believe that the capital cost figures for APCDs used in the draft SIA should be viewed in light of the failure to include any costs reflecting the usually significant required local upgrades.

installer/vendor and was very close to the figure of $22.62/cfm that is obtained by updating to 2017 dollars CARB's estimate for the 2008 PATCM for a 5,000 cfm system.

The SIA appropriately recognizes that the cost per cfm for a larger APCD system will likely be somewhat lower than the cost per cfm for a smaller system. There will be economies of scale in purchasing and installing a larger system. However, we believe that the step function approach and the specific figures chosen by the District to represent these economies of scale in the SIA cost analysis are too crude. The District's approach for reflecting economies of scale should be improved.

The District's step function approach generates some illogical results. If, as the SIA assumes (page 16), a system of up to 5,000 cfm costs $23/cfm and a system of between 5,000 and 10,000 cfm costs only $17/cfm, then the District would project that a 6,500 cfm system will actually cost less to purchase and install than a smaller 5,000 cfm system. (5,000 cfm x $23/cfm = $115,000 while 6,500 cfm x $17/cfm = only $110,500.) The same sort of illogical result occurs for larger systems also; the District's chosen relationship would project, for example, that a 12,000 cfm system (at $14/cfm) would cost less than a 10,000 cfm system (at $17/cfm).

The District's chosen step function approach also does not reflect what most engineers would expect to be a smooth increase in economies of scale as system size increases.

It would be better, in our view, to represent economies of scale in capital costs for APCDs with a smooth, continuous function. This could be done in either of two ways:

- Most simply, the District could assume a typical exponent of 0.7 or 0.8 to represent scale economies in the capital costs of air pollution control. Doubling the size of the system to be purchased is typically assumed in costing references (e.g., EPA's *Air Pollution Control Cost Manual*) to increase the cost of an air pollution control system not by a factor of two but instead by a factor of $2^{0.7}$ (=1.62) or $2^{0.8}$ (=1.74). If a 5,000 cfm system costs $115,000 ($23/cfm), then a 10,000 cfm system would be estimated to cost $187,000 ($18.70/cfm) using the 0.7 exponent or $200,100 ($20.10/cfm) using the 0.8 exponent.

- Alternatively, the District could perform a regression analysis to develop a relationship between system capital cost and system size in cfm, using the five (most appropriate) or seven (total, of which two are less appropriate) HEPA system cost quotes that we obtained and provided to District staff earlier this year.

Either of these approaches to representing economies of scale would provide two significant advantages over the step function approach the District uses in the Draft SIA. Either would: 1) Avoid the illogical results obtained using the District's approach; 2) Provide a smooth, continuous functional relationship that easily allows for estimating the cost of any particular sized system and reflects continually increasing economies of scale as the size of the APCD increases.

The District appears to have drawn the SIA cost estimates for systems larger than 5,000 cfm from the CARB PATCM estimates, but in our view staff have misinterpreted the CARB estimates. CARB estimated

$17/cfm specifically for a 10,000 cfm system, not as staff assumes in the draft SIA for all systems in the range from 5,000 cfm to 10,000 cfm. A system toward the low end of this range, i.e., only slightly larger than 5,000 cfm, would have a cost substantially higher than $17/cfm. Likewise, CARB estimated $14/cfm specifically for a 20,000 cfm system, not for all systems in the range from 10,000 to 20,000 cfm. A system toward the low end of this range would have a cost much closer to $17/cfm (the CARB figure for a 10,000 cfm system) than to $14/cfm as the District has assumed for the SIA.

Finally, note that Ike Molvi, an installer/vendor with whom District staff have been in contact, estimated $23/cfm for a 5,000 cfm system and $18 - $19/cfm for a larger 20,000 cfm system.

In sum, we believe that the SIA estimate of $23/cfm in capital cost for a 5,000 cfm system is reasonable (although it still likely does not reflect the costs of local approvals necessitated by construction of the system), but that the SIA cost estimates for larger size systems are too low, reflecting too large a reduction in costs as system size increases.

Please note also that District staff appear perhaps to have made an error in the logic of their worksheet in which capital costs for APCD systems have been estimated.

SCAQMD staff provided us with a redacted copy of the worksheet used to develop the compliance cost estimates in the SIA. The worksheet is redacted in two respects: 1) Information that could reveal the identity of any particular facility has been removed; and 2) The formulas linking cells in the worksheet have been removed, leaving each cell so that it includes only a number without explanation of how that number might have been derived. The latter alteration to the worksheet makes it somewhat difficult for us to understand and to trace the analysis, but we believe in most instances that we have figured out what the formulas are likely to be in the non-redacted worksheet. We appreciate the opportunity to review this material and appreciate the effort the District staff have made in explaining this material to us.

The possible error that we are concerned with occurs in the worksheet titled “Cost Sheet for PAR 1469_StuCopy”. In the first tab (High Estimate - Rev) of this worksheet, in Column D, the average tank size is multiplied by the number of tanks at the facility to get the total square footage of tanks at the facility. In column E, this total square footage at the facility is multiplied by 150 cfm/sq ft (plus 30% more for the tanks with hot, saturated air flows assumed to exist at medium anodizers) to obtain the total airflow needing APCD control at the facility. In column J, the total airflow needing APCD control is then multiplied by $23/cfm (up to 5,000 cfm) or by $17/cfm (5,001 to 10,000 cfm) or by $14/cfm (10,001 to 20,000 cfm). This procedure of totaling the cfm for all the tanks at the facility and then multiplying by the cost/cfm step function seems inappropriate. In the high cost scenario, the assumption is supposed to be that there will be one APCD system per tank needing APCD control. If so, it is not appropriate to total the cfm for all the tanks at the facility needing control and then to price a single large APCD that will provide control for that total air flow. Instead, distinct APCDs should be priced individually for the air flows for each tank needing APCD and then costs should be added across the multiple APCDs. The error lies in applying the cost/cfm figure ($23 or $17 or $14 per cfm) to the total air flow at the facility rather than to the air flow for each individual tank.

The Estimated O&M Costs of an Air Pollution Control System Should be Related to the Volume of Airflow Needing Control, Not to the Capital Costs of the System

Applying an approach used by CARB for the 2006 chromium electroplating ATCM and relying mostly on data provided by industry, the SIA applies cost figures to the effect that the annual operating and maintenance costs for an APC system will equal 18% of that system's capital costs. We believe that a better interpretation of the available data would suggest instead applying an annual O&M cost of roughly $6 per cfm or, if the District wishes to reflect some economies of scale in the estimates, perhaps $10 per cfm for smaller systems of approximately 5,000 cfm and $4 per cfm for larger systems exceeding 15,000 cfm.[3]

The table shown on the page after next summarizes the information on O&M costs for HEPA filtration APCDs that we provided to District staff earlier. We've added to the table a final column at the right that shows O&M costs as a function of the APCD system size expressed in cfm, which we believe is the best way to estimate O&M costs. This is in contrast to the CARB 2006 approach that has been adopted for the draft SIA, in which annual O&M costs are expressed as a function of APCD system capital costs. In our view, O&M costs are most directly a function of an APCD system's size measured in terms of airflow, and any observed correlation between a system's O&M costs and its capital cost is due in fact to more fundamental relationships between the system's capital cost and its size/airflow and between O&M cost and size/airflow. Why not express the relationship between system size and O&M cost directly rather than indirectly in two steps via the relationship between system size and capital cost? The District staff's approach to estimating APCD O&M costs yields the following cost/cfm estimates when the 18% of capital cost figure is combined with the staff's capital cost estimates (which we discussed earlier and suggested that they represent too much in the way of economies of scale).

O&M Costs for APCDs as a Function of System Size in cfm
Figures Resulting from SCAQMD Draft SIA Approach

APCD system size (cfm)	Capital cost/cfm	Annual O&M cost relative to capital cost	Resulting estimated O&M cost/cfm
Up to 5,000	$23	18%	$4.14
5,001 to 10,000	$17	18%	$3.06
10,001 to 20,000	$14	18%	$2.52

The estimates the District staff uses in the SIA are too low when expressed on a per cfm basis in this manner. For small APCD systems under 5,000 cfm the staff's approach results in estimated O&M costs of $4.14/cfm, in contrast to the estimate of $13.89/cfm for the only small system in our limited data set. For large systems exceeding 10,000 cfm, the staff's approach results in estimated O&M costs of $2.52/cfm in contrast to the three estimates for actual large systems that range from $3.18 - $4.10/cfm.

[3] We have no data for systems in the vicinity of 10,000 cfm and thus no recommendation specifically for them, although somewhere between the $4 and $10 per cfm figures for smaller and larger systems might seem reasonable.

Annual Operating and Maintenance Costs for APCDs for Hex Chrome Plating/Anodizing/Finishing Tanks

Unit Cost Assumptions:

Annual permit renewal (SCAQMD estimate):	$1,409	per APCD
Initial permit application (SCAQMD estimate):	$4,354	per APCD (assume average of 7 yrs after initial permit before significant changes and new permit application needed. Yrly cost thus = (initial application cost + 6*annual application cost)/7
Supervising, inspecting APCD operation:	3	hours/month/APCD (Workload estimate by one facility engineer after compliance w/PAR 1469)
Reading APCD gauges, testing, data logging:	6	hours/month/APCD (Estimate by one facility engineer for lab personnel workload after compliance w/PAR 1469)
Cost for ULPA filter:	$700	
Cost for HEPA filter:	$300	
	50	weeks/yr
Capital cost for HEPA + scrubbers/mesh pad APCD:	$23	per cfm
Avg engineer/supervisor/lab technician cost:	$44.84	per hr
Avg labor cost:	$22.42	per hr
Electricity Cost:	$0.18	per kW-hr (Note: seasonal and time-of-day industrial rates will end up higher than this figure. E.g., one facility pays avg of $0.17/kW-hr winter and $0.35/kW-hr in summer. This is one impt reason why these O&M costs are likely underestimated)

Facility Number	Number of APCD Systems	APCD System	Capital Cost	Airflow (cfm)	Annual Energy Cost Reported or Estimated by Facility	Filters	Replacement Schedule	Cost per yr to purchase replacement filters	Estimated Crew Hours per Changeout	Crew Cost per yr for filter replacements	Hazwaste Disposal Cost	Total Filter Cost/yr	Oversight, Testing, Data Logging, etc. Hours/yr	Oversight etc. Cost/yr	Permit cost/yr	4% of Capital Cost/yr for Property Tax, Insurance, Overhead (Source: EPA)	Total Annual O&M Cost for APCD	Annual Cost as % of Capital Cost	Annual Cost per cfm of Airflow
1	1	7 plating tanks/baths vented to scrubber, mesh pad, prefilters, HEPA + some bldg ventilation	$690,000	30,000	$48,000	30	2x/yr, 30 per changeout	$18,000	36	$3,228	$5,600	$26,828	420	$18,833	$1,830	$27,600	$123,091	18%	$4.10
2	2	2 systems serving 7 hard chrome plating tanks	$250,000	4,500	$5,371	9 prefilters 9 intermediate 9 HEPA	Prefilters quarterly Others 2x/yr Thus avg 18 per quarterly changeout	$21,600	21.6	$3,874	$8,320	$33,794	216	$9,685	$3,659	$10,000	$62,510	25%	$13.89
3	1	1 system serving 6 hard chrome plating tanks: mesh pads, prefilters, HEPA	$403,650	17,550	$12,000	9 prefilters 9 HEPA	2x/yr, 30 per changeout	$10,000	21.6	$1,937	$5,600	$17,537	?	$8,333	$1,830	$16,146	$55,846	14%	$3.18
4	1	Vent and control dichromate seal tank + building	$370,000	17,000	$5,000	28 HEPAs 10 ULPAs	HEPAs 2x/yr, ULPAs 1x/yr Thus 38 filters once, 28 next time, avg 33 at 2x/yr	$23,800	39.6	$3,551	$6,000	$33,351	108	$4,843	$1,830	$14,800	$59,824	16%	$3.52
																		Average:	$6.17
																		Weighted average:	$4.36

Costs to Meet the Enclosure Requirements are Underestimated

For our sample of facilities, we estimate higher costs to meet the enclosure requirements than the costs estimated in the SIA. We expect six sorts of costs that should be estimated in the SIA:

1. Costs to close roof vents that are within 15 feet of Tier II or III tanks. Roof vents this close to a tank must be closed. The area of any such roof vents counts toward the total square footage of building openings, and thus the closure of any such roof vents helps toward meeting the 3.5% allowance. Among the sample of 9 facilities in our cost analysis, we believe there are zero such openings within 15 feet of what will be Tier II or III tanks. (There were many within 30 feet, however.) The ceiling height of the great majority of electroplating/anodizing buildings is 20 feet or more, meaning that a vent even directly above a tank with 3-foot walls on a 2-foot platform will not be within 15 feet of the tank. We suggest that the District's cost analysis should not include roof vents in the scenario that is costed out for closing openings.

2. Costs to close additional openings as necessary to meet the 3.5% allowance. The draft SIA suggests that most facilities are already below 3.5% openings, and we agree. Among our 9 sample facilities, only two appeared currently to exceed 3.5 %. One facility would need to reduce its openings by about 140 ft^2 and the other by about 100 ft^2 in order to achieve 3.5%. One of these facilities would likely choose to install an automated 14' x 12' roll-up door to close a large bay opening at a cost of about $10,000. The other would likely cover over a window, close a large wall vent, and replace an open doorway with plastic strip curtains, at a total cost of perhaps $2,000.

3. Costs to ensure that openings on opposite sides of the building are not open simultaneously, except for a maximum of 2 hours per opening per day to allow ingress/egress of personnel and equipment. This requirement applies additionally, beyond the requirement to limit total openings to 3.5%. In our view, this means in practical terms that in any situations where there are openings of any sort on both sides of a building and/or in both the front and back walls of the building then <u>all the openings on one of the two opposing walls</u> must be fitted in some manner that keeps them generally closed, with the exception of a maximum of 2 hours/day for ingress/egress. Thus, for example, even for a building that already easily meets the 3.5% requirement, if on one side there are several open windows, a wall vent and a swamp cooler vent and on the other side there are several open doorways, then all of these items on one or the other of the two sides must be fitted in a way so that they remain generally closed, except when specifically opened for ingress/egress. Perhaps all of the open doorways on one side would be fitted with plastic strip curtains or doors that close automatically and remain closed except when being used, or perhaps the windows, wall vent and opening for the swamp cooler on the other side (none of which are used for ingress/egress of people or equipment) would be permanently closed, but one or the other of these two options would need to occur. Among our nine sample facilities, most had openings on two opposing sides of their building that are typically kept open, and some facilities had openings on all four of the opposing sides of the building. The District should estimate the costs to close a typical assortment of such openings in addition to the costs to reduce the total area of openings to meet the 3.5% requirement. A reasonable collection of such openings to assume perhaps as typical for a higher cost scenario might include two walls needing closures (one side wall, and either the front or back wall);

one wall with a small bay opening for entry and exit of equipment, an open doorway for personnel, a large window and a large wall vent, and another wall with only an open doorway and a large window or wall vent. As a representative lower cost scenario, one might assume only a single wall needing closures for an open doorway and a large window or wall vent. The costs to close these openings at typical facilities in a manner such that they could be opened when necessary would likely substantially exceed the costs the District has estimated on page 12 of the draft SIA (4 openings per facility at a cost of $200 each). While the assumption of 4 openings per facility seems perhaps reasonable as a middle cost scenario, the assumption of $200 per opening is much too low to represent the installed cost of automated roll-up doors or closing large vents and disposing of fans, housings and swamp coolers or fitting a door with an automatic closer or installing a good strip curtain arrangement in an open doorway.

4. Costs to close any openings that directly face toward and are within specified distances of sensitive receptors or schools. We did not inquire about such openings with our nine sample facilities, and thus did not estimate the costs to close them. The draft SIA also does not appear to have investigated how many openings of this sort exist and how much it might cost to close them. We understand that the District has GIS capabilities to determine how close each facility is to sensitive receptors and schools, and this would provide a start toward estimating the costs to meet this requirement.

5. Costs to address special or unusual closure situations that require structural changes in facilities. We appreciate the effort made in the SIA to recognize and account for such situations (see the two situations described at the bottom of page 12). In the first of these referenced situations, the large gaps between the wall and the roof do not necessarily have to be closed to meet the 3.5% requirement, but without closing them there will inevitably be substantial cross-drafts in the building. It would perhaps be more accurate to attribute the costs of closing these gaps to the cross-draft requirement than to the 3.5% requirement. An engineer for the facility has estimated the cost to extend the wall and join it to the roof would be about $50,000. In the other situation, as described in the SIA, the facility's managers have what they view as compelling reasons for keeping large openings at both ends of their large building open -- worker health, safety and comfort; and the logistics of moving equipment and very large parts in and out. They would prefer to meet the cross-draft requirements of PAR 1469 by extending some existing interior walls within the building to make the plating area inside the building into an enclosure rather than by closing the openings at one or the other end of the building. It may be true, as the SIA indicates, that this represents a business choice and may not be the least-cost way to meet the PAR 1469 enclosure requirements. However, if one takes a broad view on what constitutes "costs", including worker discomfort and logistical difficulties as costs in addition to construction activities, then this facility's preferred strategy to develop an enclosure within the building may well be the least-cost solution for them.

6. Costs for additional ventilation to provide acceptable conditions for workers after the facility is closed up. Among our nine sample facilities, the managers of five of them believed that the combined impact of the closures due to the five requirements cited above would leave the building as needing more ventilation after it is closed up than would be provided assuming: 1) current levels of ventilation plus 2) the additional airflow that will be provided by the projected new APCDs for Tier III tanks. In our cost

analysis, we attempted to quantify how much additional ventilation would be needed to meet a target of 6 air exchanges per hour within the building enclosure, and then split this additional ventilation needed into a share attributable to insufficient ventilation now and a share attributable to the additional closures due to PAR 1469. We admit that neither four of the five facility managers who thought they would need additional ventilation nor our calculations had the benefit of input or review by ventilation engineers. One of the five facilities did have a knowledgeable consulting engineer review the current facility ventilation situation relative to the PAR 1469 requirements and estimate needs and costs. In our cost analysis, we estimated that the total annualized cost for additional ventilation needed by the five facilities upon compliance with PAR 1469 would be about $14,000/year/facility.

One additional point to make about estimating the costs to meet the enclosure requirements of PAR 1469 is that these requirements apply to each enclosure within which Tier II and III hexavalent chromium tanks are located. The draft SIA equates enclosures with facilities, assuming in effect one enclosure per electroplating/anodizing facility, and scaling up the estimated unit compliance costs for a typical enclosure by multiplying by the 111 facilities affected by the enclosure requirements. Some electroplating/anodizing facilities, however, have multiple buildings or multiple enclosures within which Tier II and III tanks are located. Among our nine facilities that serve as case studies for our cost analysis for the enclosure provisions, there are 11 or perhaps 12 buildings within which Tier II and III hexavalent chromium tanks are located and there will be 12 enclosures within the meaning of PAR 1469. The SIA cost analysis for the enclosure requirements should scale up appropriately to the number of enclosures within the SCAQMD, not simply to the number of affected facilities.

The SIA Underestimates Costs for the Restrictions on Spray Rinsing of Parts

PAR 1469 would require operators when spray rinsing parts or equipment that were previously in a Tier II or Tier III hexavalent chromium tank to:

- Do so with parts fully lowered inside a tank where the overspray and all of the liquid is captured inside the tank; or

- Alternatively the operator may rinse above a tank if the tank is equipped with splash guards in good condition and the splash guards are cleaned weekly with water.

    - For a tank where installation of splash guards would restrict an overhead crane system, the operator may rinse above the tank if s/he uses a low pressure spray nozzle and the water flows off of the part or equipment and into the tank.

The SIA states that costs are estimated for these provisions by assuming that operators will comply by installing a drip tray between each electroplating or anodizing tank and adjacent tanks for facilities with automated lines. The capital cost of an installed drip tray is estimated at $310 including installation labor, and no cost is estimated for maintenance, cleaning or replacement. Several aspects of this cost estimate raise questions:

- Despite the statement to the effect that costs are estimated only for drip trays at facilities with automated lines, the cost estimate appears to reflect one drip tray for each electrolytic tank and for each Tier III tank (305 total tanks) without regard to whether the facility has an automated line or not. The estimate thus reflecting one drip tray per electrolytic or Tier III tank appears to presume that a drip tray needs to be installed between the electrolytic/Tier III tank and an adjoining tank on only one side of these tanks, as if parts are always moved out of one of these tanks in only one direction. Movement of parts in either direction from one of these tanks would imply in most instances drip trays on both sides of the tank, not only on one side.

- The cost estimate presumes that it is feasible in all instances where there are electrolytic or Tier III tanks to install and maintain and clean drip trays, and that drip trays represent the only method that operators will elect to meet the spray rinsing requirements. The SIA does not offer any suggestions about the circumstances under which other options available under PAR 1469 such as rinsing with parts fully lowered into a tank would be chosen. When might rinsing with parts fully lowered into a tank be feasible and cost-effective? Nor does the SIA offer any suggestion about the circumstances under which it may be feasible or not feasible or cost-effective or not cost-effective to rinse above a tank with a low pressure spray nozzle with the water flowing off the parts and into the tank.

We suggest a different approach to estimating the costs to comply with the PAR 1469 spray rinsing requirements.

In April of 2018 we conducted a quick survey (supplemental to our original cost survey) of nine MFASC member-owned facilities to acquire information needed to estimate their costs to comply with these and two other specific PAR 1469 housekeeping provisions. Six of the nine facilities participating in this project at that time responded. Respondents cited several reasons why they would incur additional costs if they were to perform their spray rinsing in the manner prescribed by PAR 1469:

- At most facilities, there are few or no tanks that are empty or almost empty and into which parts can be fully lowered for rinsing that are in the same process lines and near the plating or anodizing tanks. In general, fully in-tank rinsing is not an available option for most automated lines. For hand lines, empty tanks could be found within which spray rinsing could occur, but available empty tanks are often some distance away and carrying parts to distant tanks for rinsing would substantially increase the time required for rinsing and make it difficult to return the collected plating chemicals.

- Installation of spray bars that spray rinse slightly downward while parts are raised by a hoist out of the liquid in a tank would maximize the fraction of overspray that is collected in the tank and would meet the PAR 1469 requirements. Although one of the survey facilities has such a system and finds that this system has reduced operating costs, it would be quite costly to install a spray bar system on a retrofit basis for an existing line of tanks served by an overhead crane. An

ascending rinse spray bar system could be installed cost-effectively only when a tank line is being newly constructed or significantly modified.

- Most facilities thus indicated that most of their spray rinsing is done above tanks, while making an effort to ensure that overspray and drips are collected in the tanks below. The tanks above which spraying occurs have secondary containment around the base of the tanks, typically a sump below a metal grating. The sump collects any overspray or drips that aren't collected in the tanks. The material collected in the sump is usually routed to the facility's wastewater treatment system and the sump is cleaned out periodically. This approach limits the degree to which overspray or drips can result in fugitive emissions, and it is not clear that the PAR 1469 spray rinse requirements would reduce emissions to any significant degree relative to current practice.

- Several operators cited difficulties their employees face in spray rinsing above tanks in a manner that maximizes the collection of spray and drips in the tank below as PAR 1469 would appear to require. It's often not possible to access the full perimeter of a tank and spraying is thus sometimes conducted from a non-optimal location: from farther away using a higher pressure spray that carries further and provides a concentrated, well-directed spray but splashes off more; or in a direction more horizontally rather than downward; or across the short side of a rectangular tank rather than lengthwise along the tank. These time-saving practices may result in an increased portion of the overspray or drips missing the tank below and instead getting collected in the secondary containment. More material could be collected in the tank if employees spent more time and were extra-careful in their spraying. Estimates ranged from 30 – 60 minutes more per shift per employee for the workers conducting spray rinsing to do it more carefully.

- One operator objected specifically to being required to use low pressure nozzles when spray rinsing above a tank. Many of his parts have complex geometry with crevices, hollow areas and indentations and he needs to use a high pressure spray to be sure of efficiently removing all traces of unwanted chemicals adhering to parts' surfaces. He is uncertain whether he can meet product quality specifications using only low-pressure spray rinsing. He nevertheless estimated about a half hour additional per employee involved in spray rinsing per shift if he were to spend more time and rinse more carefully using low pressure nozzles.

- Most operators felt that installation of more splash guards was not feasible for their tanks, and that spray rinsing above a tank would be by far the most frequent approach to meet the PAR requirements. Reasons given for the inability to install more splash guards included: insufficient clearance for an overhead crane/conveyor to lift racks and parts out of tanks and carry them elsewhere, and insufficient space between tanks to install splash guards. A couple of operators commented that it is difficult to access all existing splash guards in order to clean them weekly;

another reason why rinsing above tanks is the preferred approach for trying to comply with the proposed requirements rather than installing, cleaning and maintaining splash guards.

The following table summarizes the costs that we estimate the six facilities that responded to our survey will incur to meet the proposed spray rinsing requirements.

The several unit cost figures that we use in developing these cost estimates are:

- Low pressure spray nozzle and hose assembly (includes any necessary plumbing): $200

- Splash guards fully around the perimeter of a tank: $1,000

- Additional labor hours to conduct spray rinsing more carefully and as required are priced at the average hourly production worker wage rate for each facility as reported in our survey, loaded with 41% additional benefits (average for Los Angeles area). The range for the six facilities responding to this survey is from $21.19/hour to $31.49/hour. The average loaded hourly wage rate for the eleven facilities that participated in an earlier survey was $22.42/hour.

Estimated Costs to Meet PAR 1469 Spray Rinsing Requirements

Facility	# Low Pressure Sprays Needed	# Tanks Needing Splash Guards	# Workers w/Added Workload	Add'l Time per Worker per Shift (hrs)	Capital Cost	Annual O&M Cost	Total Annualized Cost	Comments
C	3	0	5	0.5	$600	$28,072	$28,390	Now spray above/in a few empty tanks, but most is above process or rinse tanks. Most tanks are 5' deep; with parts fully out of the tanks employees must spray up to rinse top of parts -- overspray. Prohibitively costly to rinse on the rise (would require 2 employees simultaneously, 1 for crane and 1 to rinse) or to install spray bars on all necessary tanks. Have secondary containment. PAR 1469 would require: more lowering of parts into tanks for spraying, more low pressure nozzles, and painstaking care when spraying above tanks.
E	0	0	0	0	$0	$0	$0	Meets these requirements already with ascending spray rinse as racks with parts are pulled up and out of most tanks. Requires coordination between crane operator and tank personnel. Was costly to set up.
F	0	4	3	0.25	$4,000	$10,169	$11,068	Have secondary containment. Typically rinse above the tank. Sometimes rinse while rack is being moved on crane, with drip pan carried below. Assume this will be OK. A couple of tanks could use splash guards also to reduce uncaptured overspray.
G	6	0	3	1	$1,200	$16,949	$17,585	Would need to switch to low pressure nozzles and take much greater care in spraying above tanks. Have secondary containment. "Why is this necessary?"
H	10	0	10	0.5	$2,000	$26,483	$27,543	Concerned about product quality impact w/low pressure spray. Will be major problem for parts with complex geometries. Could perhaps spend much extra time w/low pressure rinse to get it close to right. Note secondary containment. Can't do splash guards because of tank/crane configurations. Don't in most cases have empty tanks in which to do spraying
I	1	0	0	0	$200	$0	$106	Use low pressure spray above tanks in most cases now already. Would be feasible in most instances (but more costly) to rinse in empty tanks or to install splash guards and clean them
				Average per facility:	$1,333	$13,612	$14,116	
						Avg for small facility:	$8,846	
						Avg for large facility:	$16,750	

Additional Costs for Source Testing and for Permitting Should be Included

Costs are estimated in the draft SIA for source testing and emissions screening only for the payments that facility owners will make to consultants and source testing contractors for performing the tests. Costs have been omitted but should be included also for the labor hours that facility personnel will expend in contracting for, arranging and supervising the tests and in recording the results and keeping records. There are often also significant costs involved in shutting down production on a line while source testing proceeds on that line, but it would be quite difficult to estimate these costs. We suggest that the SIA should assume an average of 24 hours of facility personnel labor per source test or emissions screening, with these hours priced at double the average hourly loaded rate for shop personnel of $24.42/hour to reflect the managerial and technical nature of the labor hours required for these activities.

The draft SIA is likewise incomplete in estimating the costs of the additional new and renewal permits that will be prompted by PAR 1469. The draft SIA includes the costs to be paid to the District by facility owners and operators for these permits, but fails to include an estimate of the costs of the labor hours that facility personnel will expend in seeking these permits and the costs incurred for consultants to assist in permit acquisition. These costs also should be estimated and included in the SIA.

The draft SIA assumes that one permit will be issued and renewed per each new add-on APCD system that will be installed to meet PAR 1469 requirements. We have found, however, that many facilities have had to obtain and have been issued a permit for both the APCD and for a tank or the tank line that the APCD serves. We do not understand the typical procedures applicable in these situations. We suggest that the high cost scenario in the final SIA should reflect a reasonable assumption regarding the additional numbers of tanks or tank lines that will require permits beyond the numbers of APCDs that will require permits.

Uncertainties in the Estimated Number of Tier III Tanks and Estimated Number of APCDs Needed

Costs for purchasing, installing, operating and maintaining APCDs are the largest of the several varieties of compliance costs estimated in the draft SIA. The manner in which the District estimates the number of these controls that will need to be implemented is thus key in the analysis.

As we understand it, the District does not have a census of the tanks existing at the 111 Cr(VI) electroplating/anodizing facilities and the characteristics of these tanks (e.g., Cr(VI) concentrations, operating temperatures, electrolytic and/or air sparged) as would be needed to estimate with confidence the number of tanks that will need control with add-on APCDs. Nor does the District have sufficient information about the purposes and co-location of these tanks needing new controls with each other and with existing APCD-controlled tanks as would be necessary to project confidently whether each of these newly-to-be-controlled tanks will require its own dedicated APCD or whether many of these newly-to-be-controlled tanks could be grouped together in new APCDs serving multiple tanks, or could be vented into existing APCDs. Absent this information, the District makes a several assumptions or estimates. We offer a few comments:

- The District projects in the draft SIA that the 111 affected Cr(VI) electroplating and anodizing facilities will need to construct somewhere between 64 (low cost estimate) and 103 (high cost estimate) APCD systems to control existing tanks that will become Tier III. This ratio of new APCD systems to facilities is quite similar to what we projected – eight new APCD systems -- for our much smaller (but more thoroughly researched) sample of 10 MFASC member facilities. The District projects 0.58 – 0.93 new APCDs per facility, while we project 0.8, well within the District's range.[4] The District's overall high and low projections bracket ours; these projections appear reasonable in the aggregate.

- The draft SIA appears to suggest (page 14) that 25 of the 62 responses (among 111 facilities, assuming that none of the survey respondents are trivalent chromium only) to the District's survey provide sufficient information to judge how many Tier III tanks there will be at particular facilities and what the characteristics of these tanks are. If these 25 survey respondents are spread across all 12 of the non-trivalent facility categories that the District sets up for the draft SIA, then there are an average of only two survey respondents in each category. This rather limited coverage suggests that there is substantial uncertainty in the details of the District's characterization of the typical facility in each category as drawn from the survey responses, including: how many Tier III tanks, their average size, the number that use CFS, the number that are air sparged and could be switched to eductors, the number of stripping tanks, etc..

We question several of the District's specific estimates that staff have derived from this limited number of survey responses:

- The District notes that there are 27 affected facilities that are controlled only by certified fume suppressants, and assumes if chemical fume suppressants are not recertified prior to 2021 that each of these facilities will need only one APCD system. We doubt that this is a good assumption. Among the set of 10 sample MFASC member-owned facilities that we studied for our cost analysis is a hard chrome facility that has two electroplating tanks that are controlled now with fume suppressants and polyballs and no APCDs. This facility would have two additional Tier III tanks (reclaim rinse) if PAR 1469 were adopted. These four tanks are in two different process lines (an automated line and a hand line) and will clearly require two APCDs if fume suppressants are not recertified. Two distinct APCDs will be required partly because these two lines are some distance apart, but more importantly because the two process lines are often run at differing times. It would be quite inefficient to connect all four of these tanks to a single APCD and to run that APCD at all times when any one of the tanks is being operated. We expect that there are additional facilities among the 27 currently controlled only by certified fume suppressants that would need more than one APCD if fume suppressants were not

[4] We did not consider in our analysis the possibility that chemical fume suppressants will not be recertified. If chemical fume suppressants were in fact not recertified by 2021, the number of new APCD systems constructed across our ten case example facilities would increase from eight to ten; giving a higher ratio of new systems to facilities than the District projects even for their high cost scenario.

recertified. The District staff should be able to determine from permit records the number and nature of Cr(VI) electroplating and anodizing tanks at most or perhaps all of these 27 facilities and may be able to obtain information on the additional tanks that will become Tier III at some or all of these facilities. We expect that a significant number of these facilities, perhaps as many as half, will be found to have more than one tank that will need APCD control if fume suppressants are not recertified. For the cost analysis in the final SIA, the District should then apply their high cost scenario (one APCD system per tank needing APCD control) to this larger number of estimated tanks that will need APCD control if fume suppressants are not recertified. (In the low cost scenario the District assumes that fume suppressants will be recertified and that the facilities that control Cr(VI) electroplating/anodizing tanks now using fume suppressants only will use fume suppressants also to control any Tier III tanks.)

- The discussions provided in the draft SIA should be clarified as to why some tanks that might appear perhaps be Tier III have not been counted as Tier III in the analysis (e.g., "adjusted" Tier III tank count). In particular, we are interested in how many chem film, passivation and other tanks that are now air sparged have been assumed as converting to eductors and avoiding Tier III status. Among our sample of facilities, facility operators judged that only about half of these tanks could be switched to eductors without raising concerns about product quality. We are also interested in the SIA providing further details on how a determination was made regarding the fraction of stripping tanks that have Cr(VI) concentrations exceeding 1,000 ppm (thus Tier III) and the fraction that do not. If there are substantial uncertainties on these issues, perhaps they should be included among the variables for which sensitivity analysis is conducted between the low and high cost scenarios.

- More generally, the discussion in the draft SIA about why facilities can realize savings by controlling multiple tanks with a single APCD is misleading insofar as it presents a positive case for consolidating control of multiple tanks into a single APCD (see the three points cited on page 17) without presenting also the reasons why consolidation may not be cost-effective. The potential savings from connecting multiple tanks to a single APCD can be outweighed by the costs of doing so when the tanks to be controlled:

    - Are not close to each other and connecting them would require longer duct runs; or

    - Are in different process lines which are operated on differing schedules; or

    - Generate emissions air flows that differ qualitatively (hot, saturated air flows vs. cooler, drier and less concentrated flows) and pose differing control needs that are best served by differing control technologies; or

    - Could be connected but doing so would require significant retrofit costs to integrate the new tanks to be controlled into an existing APCD system. (Note, for example, that EPA made a general assumption in costing retrofit APCD applications for the electroplating

NESHAP regulation that retrofits cost 50% more for the same airflow controlled than entirely new, purpose-built applications.)

Also, tanks not in proximity to each other can rarely be moved closer together as the draft SIA suggests in order to vent them to a common APCD. Most tanks are located as they are because they represent components in process lines. Moving an individual tank out of its process line in order to realize a potential savings in control costs is likely not possible without upsetting various important logistical relationships particular to the process line (e.g., hoists to move parts from tank to tank along the process line, locations of drying stations).

The Sensitivity Analysis that Aims to Provide High and Low Compliance Cost Estimates is Important and Should be Expanded

The District should include more elements in differentiating a low cost scenario from a high cost scenario. The high cost scenario is not less reasonable or less likely to prevail than the low cost scenario.

We support the approach adopted in the draft SIA of estimating costs for both a lower cost scenario and a higher cost scenario, with the aim of bracketing what the PAR 1469 compliance costs are likely to be. But we suggest adding to the list of elements that have been chosen to differentiate the high cost scenario from the low cost scenario. And we disagree with the manner in which both scenarios have been characterized in the SIA:

- In our view, the high cost scenario does not represent "the highest expected cost of compliance with the requirements of PAR 1469." There are many respects in which compliance costs could prove in practice to be higher than what is estimated in the draft SIA's high cost scenario. We will list some below.

- The low cost scenario also does not represent "the costs associated with a more reasonable scenario". We view the two scenarios as approximately equally likely and reasonable – the low cost scenario is neither more likely nor more reasonable than the high cost scenario. We will list below some respects in which we believe this also to be true.

In sum, we would suggest that the District should refer neutrally and in a balanced manner to the two cost scenarios, not posing one as more reasonable or likely than the other. We would suggest that they be termed as a "higher cost scenario" and as a "lower cost scenario". The two scenarios should be viewed as representing an effort to bracket the compliance costs that will ensue from PAR 1469, with the costs actually incurred by the affected sources likely, though not necessarily, to be between the lower cost estimate and the higher cost estimate.

Some reasons why the costs that District staff estimate for the high cost scenario might be lower than the costs that ultimately prevail would include:

- Omitted categories of costs. The District has not estimated costs for facility personnel to arrange for and supervise the additional source tests and emissions screening required by PAR 1469, nor the costs for facility personnel and consultants to pursue the additional permits that will be needed. The District has not estimated the additional operating costs that some facility owners will incur to spray rinse parts more carefully so as to capture all overspray in tanks.

- Generally underestimating some categories of costs. We believe that costs are likely to be higher than the District estimates for enclosures and for capital and O&M costs for APCDs (our particular concerns regarding APCD costs involve accounting for economies of scale and the costs for local approvals that have not been included).

- Underestimating the count of items that will need to be controlled or managed or accomplished. There will be more enclosures that will need to be created and meet the PAR 1469 requirements than there are facilities. At least some facilities that are now controlled only with fume suppressants will have more than one tank that will need APCD control if fume suppressants are not recertified. For some APCD systems, both the system and one or more of the tanks may need permits.

- The discount rate used in the analysis. There are several arguments for applying a discount rate higher than the 4% figure the District uses for the high cost scenario. Federal economic analyses, pursuant to guidance from the U.S. Office of Management and Budget, usually apply a real discount rate of 7%/yr. Many analysts believe that a hurdle rate of return approach that gives even higher figures is appropriate for establishing the discount rate to apply when compliance spending displaces productive private capital investments.

Some reasons why we don't consider the low cost scenario to be "more reasonable" or more likely to prevail than the high cost scenario include:

- No one knows whether fume suppressants actually will or will not be recertified.

- Discount rates. Choice of a discount rate as low as 1% (low cost scenario) is very rare in regulatory impact analyses, while the choice of a discount rate higher than the 4% assumed for the high cost scenario is common.

We also suggest that several additional quantities that are both important and uncertain should be added to the list of those that are varied between the lower and the higher cost scenarios. These include:

- The number of Tier III tanks needing control. The number of Tier III tanks has been estimated based on a limited number of site visits and survey responses that together cover only a small fraction of the 115 affected facilities. There is very large uncertainty in then projecting the number of facilities in each category with Tier III tanks and the average number of tanks per facility that has them. The several adjustments that are then applied to the number of Tier III

tanks are further uncertain and should be subject to sensitivity analysis -- the fraction of chem film, passivation and other tanks that can (despite product quality concerns) be switched from air sparging to eductors to reduce control costs; the fraction of stripping tanks that have Cr(VI) concentrations below 1,000 ppm; whether rinse tanks can be managed to hold concentrations below 1,000 ppm, etc. Given the importance of the number of Tier III tanks in estimating compliance costs and the substantial uncertainty in estimating this number based on incomplete available data, this is perhaps the first and most important variable that should be included in a high/low sensitivity analysis. It might be appropriate also to develop also a smaller and a larger estimate of average Tier III tank size for each category. We agree that the sensitivity analysis included in the SIA currently that involves the question of how many APCDs per Tier III tank is reasonable, with high estimate of one APCD per tank and low estimate of one APCD per 2 tanks.

- In view of the seemingly substantial difference of opinion between facility operators and the SCAQMD staff about the frequency with which the enclosure requirements in total (not the 3.5% requirement alone) will prompt operators to make structural changes and ventilation improvements, this quantity also should be subject to sensitivity analysis.

The SIA's Facility-Based Impact Analysis is Key in Evaluating Whether PAR 1469 Will Be Affordable for the Affected Electroplating and Anodizing Facilities

We appreciate the District's efforts in the draft SIA to evaluate the impacts of PAR 1469 compliance costs on individual affected electroplating and anodizing facilities. In our view, particularly for small businesses (as nearly all of the entities affected by PAR 1469 are), a comparison of the annualized compliance costs a facility will face against the facility's typical annual revenues and/or profits provides a quick and rough, but very useful, indication of whether the facility can likely afford to pay the costs to comply with the proposed rule and continue in business or cannot afford to pay these costs and will likely close.

Although additional issues are also important in judging the affordability of a regulation for small businesses (e.g., whether conditions in the markets into which the affected businesses sell are such that regulatory cost increases tend to be passed through to customers), regulatory agencies often apply simple benchmarks in judging when a regulatory cost burden is likely to be problematic:

- The U.S. Occupational Safety and Health Administration (OSHA) typically views a regulatory cost exceeding 1% of revenues or 10% of profits (5% of profits for very small businesses) for the average business in an industry as a potentially significant economic impact. If projected annualized compliance costs exceed one of these levels, substantial further analysis must be conducted if a proposed regulation is to be shown to be "economically feasible" as required for regulations pursuant to the Occupational Safety and Health Act.[5]

[5] See, for example, the discussion in Section VIII E., Economic Impacts, in the preamble to the final rule for Occupational Exposure to Hexavalent Chromium. Federal Register: February 28, 2006 (Volume 71, Number 39), pages 10099-10385.

- The U.S. Environmental Protection Agency (EPA) typically figures that a proposed regulation will not have a significant economic impact on a small entity (e.g., small business, small government) if compliance costs for the affected entity are less than 1% of that entity's sales. EPA typically figures that the impact will be "unquestionably significant" if costs exceed 3% of a small entity's sales or revenues.[6]

In contrast to the Federal OSHA and EPA, the SCAQMD has not yet established any particular benchmark levels of compliance costs relative to revenues or profits that should viewed as acceptable or unacceptable or as affordable or unaffordable or as survivable or non-survivable.

In judging the affordability of PAR 1469 for individual hexavalent chromium electroplating/anodizing facilities and for the industry more generally, we suggest that the SCAQMD might consider the following benchmarks:

- If the annualized compliance costs for the proposed rule are less than 1% of revenues, the rule is unlikely to pose affordability problems;

- If the annualized compliance costs for the proposed rule are greater than 3% of revenues, the rule is likely to pose significant affordability problems and some of the producers affected at this level are likely to close; and

- If the annualized compliance costs exceed 5% of revenues, most of the producers affected at this level are likely to close.

We suggest this set of benchmarks based on several factors:

- The chosen Federal EPA and OSHA benchmarks.

- The likelihood that hexavalent chromium electroplaters/anodizers within the SCAQMD will not be able to pass any significant share of PAR 1469 compliance costs through to their customers. Nearly all MFASC members in the District know of competitors nearby -- in Northern California, in San Diego, in Mexico, or in other States -- that won't face the PAR 1469 regulatory costs and that will take much of their business if they were to try to raise their prices by 3% or 5% or 10% to cover the PAR 1469 costs.

- The job shop electroplating industry (NAICS 332813, the industry in which the great majority of the 115 affected facilities are categorized) has had an average pre-tax profit margin over the past 27 years of less than 4%. This is a low-margin, highly competitive industry. Costs equal to 3% of profits would consume nearly all of this industry's typical profits, and costs at 5% of profits would consume more than all of typical profits.

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[6] U.S. EPA. Final Guidance for EPA Rulewriters: Regulatory Flexibility Act as Amended by the Small Business Regulatory Enforcement Fairness Act. November, 2006.

- We focus particularly on benchmarks involving a comparison between annualized compliance costs and typical annual revenues for various technical reasons. We focus on this comparison, as the District staff have provided in the draft SIA, for several reasons. First, summing all costs -- capital costs, other one-time costs, occasionally recurring costs, and annual O&M costs -- over many years into the future and then annualizing these costs provides a good, comprehensive single measure of the long-term compliance costs that a facility will bear. Second, typical annual revenues are a better representation of a firm's ability to pay costs than are typical annual profits. For small businesses, it is easier to influence the firm's reported profits in a manner that understates them and paints a misleading picture of the firm's financial health than is possible when reporting revenues. Third, the particular levels chosen for the benchmarks (e.g., 1%, 3%, 5%) should be judged based on the industry's rate of pre-tax profitability rather than post-tax profitability. In analyses that consider firms when they may be threatened with closure, tax rates are likely to be very low and compliance spending will generate little in the way of tax shields. Comparison of compliance costs against pre-tax rather than post-tax margins will provide a much more conservative analysis.

The SIA Should Do More in Portraying the Variability in PAR 1469 Compliance Cost Burden Across Affected Facilities

We are particularly concerned that the SIA estimate whether electroplating/anodizing facilities will face compliance costs that are affordable. How many of the 115 affected facilities will face costs that may force them out of business? The facility-based analysis that the District provides in the draft SIA gives information that helps in this direction, but the analysis in essence addresses only the average or typical facility in each of the 13 various categories into which the SIA divides the industry.[7] The analysis does not provide a comparison of costs to revenues for each of the 115 facilities. Specifically, the draft SIA's facility-based analysis compares the average projected compliance cost for a facility in the category against the estimated revenues for each of the individual facilities in that category and then averages the results, which are reported in Table 9 on page 32.

This is the table of draft SIA results in which we are particularly interested. It provides some sense about whether the costs to comply with PAR 1469 are affordable or not. For the large hard chrome category, which we will use as an example, the table shows for the facilities in this category that compliance costs estimated under the "low cost scenario" amount on average to 1.9% of facilities' revenues. Under the "high cost scenario", compliance costs amount instead to an average of 2.7% of large hard chrome facilities' revenues. This range of impacts shown as extending from 1.9 % to 2.7% of revenues might be interpreted by many readers as suggesting that PAR 1469 poses no significant affordability issues for large hard chrome platers in the District. The reported range of impacts is below the 3% level that EPA considers unquestionably significant, and it is below the 5% level that we believe

[7] The draft SIA establishes thirteen categories of facilities, including: chromic acid anodizing (small, medium and other); decorative chromium plating (small, medium, large and other); hard chromium plating (small, medium, large and other); multiple plating or anodizing operations (large); and trivalent (other).

could cause closure of most of the affected producers. But this impression is misleading, we believe, because the District's analysis does not adequately show the variability of potential impacts on individual facilities around these average figures. Further analysis and scrutiny would show that many facilities in this category, as well as facilities in other categories that show similar ranges of average impacts that appear generally below affordability benchmarks, will likely have difficulty affording PAR 1469 compliance costs.

We would like the SIA to attempt to answer several specific questions. How many of the 115 affected facilities will face compliance costs from PAR 1469 that may force them out of business? How many will face annual compliance costs that exceed 5% of annual revenues, a level which we believe would clearly not be affordable for most electroplating/anodizing small businesses in the SCAQMD? How many will face annual compliance costs that exceed 3% of revenues, a level that EPA has termed "unquestionably significant" and that we believe would pose a high risk of closure for most businesses in this industry? We will provide some suggestions about how the District staff, using information they already have, might quickly perform a facility-by-facility comparison of costs to revenues that more fully portrays the range of variability in impacts and affordability and provides some answers to these questions.

For the cost portion of the cost-to-revenue comparison, the District does not develop compliance cost estimates for each of the 115 individual affected facilities nor does the District develop a compliance cost estimate for any specific one of the affected facilities. Instead, the District staff develops a cost estimate only for a typical or representative or average (not saying specifically which) facility in each of the 13 categories.

For the revenue portion of the cost-to-revenue comparison, to the contrary, the District has acquired good information (from Dun and Bradstreet) on the revenues for nearly every one of the 115 individual affected facilities.[8] But in the eventual cost-to-revenue comparisons that are presented in the draft SIA (pages 32 and 33), the District does not portray how the variation in revenues across the facilities in a category results in cost-to-revenue ratios that differ from one facility to another. Table 9 shows only the average cost-to-revenue ratio for the facilities in each category. Specifically, for example, the figure showing that high scenario compliance costs for large hard chrome facilities amount to 2.7% of their revenues is derived as follows:

- The average high scenario cost for large hard chrome facilities is estimated. This figure is $29,667/year/facility, or $30,000/year/facility as shown in Table 9 after rounding.

- This average cost per facility is compared against the revenue information for each of the 18 hard chrome large facilities. In one of the backup spreadsheets that we were given, the $29,667 high scenario average cost estimate is compared facility-by-facility against the available revenue information for that facility. The highest revenue facility among the 18 large hard chrome

[8] Based on our limited understanding of the Dun and Bradstreet data set that the District has used, we suspect that the revenue information for each of the 115 facilities may actually be for the companies or other entities that own each facility. If so, considering total corporate revenues may overstate a facility's ability to afford compliance costs in instances when the facility constitutes a separable portion of the company's overall business.

facilities has annual revenues of $45.8 million per year, resulting in a cost-to-revenue ratio of 0.06% if it were to face the average high scenario large hard chrome facility compliance costs. The lowest revenue facility among the 18 large hard chrome facilities has annual revenues of $216,000 per year, resulting in a cost-to-revenue ratio for it, if it were to face the average high scenario large hard chrome facility compliance costs, that exceeds 14%. Five of the 18 facilities are shown in the backup spreadsheet as having cost-to-revenues ratios exceeding 3%. It would appear from the spreadsheet, and considering thus far only variability in revenues, that a substantial share of the large hard chrome category will face affordability issues, at least under the high cost scenario.

- The cost-to-revenue ratios for each of the 18 facilities in this category are then averaged, and the result is reported in Table 9 of the draft SIA only as the average figure of 2.7%.

The problem that we see with regard to the revenue side of the cost-to-revenue presentation in the draft SIA is simply that the impact of variability in facility revenues that is considered in the underlying spreadsheets is not portrayed in the SIA itself. Table 9 shows all but two of the 13 categories as having "Facility-specific … Cost Impacts" (the title of Table 9) that are below the 3.0% benchmark. Yet the information that the District has and has analyzed on differences in revenues across facilities indicates to the contrary that nearly every category has at least one facility that likely does exceed the 3% benchmark and faces significant affordability issues.

The issue that we are concerned with on the cost side of the draft SIA's facility-based impact analysis is different from and more substantial than that on the revenue side. On the cost side, the District simply does not analyze the degree to which compliance costs vary across the facilities within a category and thus has no opportunity to reflect the impact of variable compliance costs in the facility-by-facility comparison of costs against revenues.

The compliance cost estimates the District presents in the draft SIA have been developed not for individual facilities but instead for a typical or average or representative facility in each of the 13 categories or bins. The District may believe it does not have sufficient information on the important characteristics of each individual facility (e.g., number, size and character of Tier III tanks at the facility) to estimate compliance costs for each individual facility. Instead, from the limited number of site visits and the relatively few full surveys received, the District has judged for a typical facility in each of the categories how many Tier III tanks there are and the average square footage of these tanks. The following table shows a key portion of the District's cost analysis for the high cost scenario for the most important of the 13 categories, accounting for 106 of the 115 affected facilities. (This portion of the District's cost worksheet has been reordered somewhat in order to clarify the logic and flow of the cost analysis.)

	A	B	C	D	E	F	G
	TOTAL FACILITIES WITHIN BIN	% OF FACILITIES IN BIN WITH TIER III TANKS	# OF FACILITIES IN BIN WITH TIER III TANKS	ADJUSTED # OF TIER III TANKS PER FACILITY AT FACILITIES THAT HAVE THEM	TIER III TANKS NEEDING APCD CONTROL	AVERAGE TIER III TANK SIZE (SQ FT)	TOTAL SIZE OF TIER II TANKS AT A FACILITY (SQ FT)
ANODIZING Medium	18	83%	15	3.5	49	24.4	85.4
ANODIZING Small	14	80%	11	2	22	31	62
DECORATIVE Medium	11	25%	3	2	3	47	94
DECORATIVE Small	27	50%	14	1.3	8*	19.375	25.1875
HARD Large	18	50%	9	1.8	17	22.5	40.5
HARD Medium	7	43%	3	1	3	2.5	2.5
HARD Small	6	0%	0	N/A	0	N/A	0
DECORATIVE Large	5	0%	0	N/A	0	N/A	0

Referring, for example, to the Hard Chrome Large category, the District estimates that there are 18 such facilities that will be affected by PAR 1469, that half of them (9) have Tier III tanks, and that there are an average of 1.8 tanks per hard chrome large facility, for a total of 17 tanks in this category. The District further estimates based on site visits and survey results that the average size of a Tier III tank at hard chrome large facilities is 22.5 square feet. When multiplied by the estimated average of 1.8 Tier III tanks at large hard chrome facilities that have them, the District estimates that the average such facility has 40.5 square feet of Tier III tank surface area that will need to be controlled with APCDs. The cost analysis then proceeds beyond what is shown in the table above. The District assumes that the APCD to control a Tier III tank should be sized at 150 cfm/sq ft, assumes in the high cost scenario that there will be one APCD system per Tier III tank, and applies unit cost functions to the estimated air flow needing control to estimate both the capital and annual O&M costs for the APCD systems needed to control the Tier III tanks that are thought to exist among the estimated 18 hard chrome large facilities. The District follows a similar procedure in estimating the other sorts of compliance costs that PAR 1469 will entail for the facilities in this category, including costs for enclosures, source testing, permitting, etc. For each sort of cost, the District ultimately estimates the cost for the average facility in this category and the total cost for the entire set of facilities in this category. The total estimated high scenario compliance cost for the estimated 18 large hard chrome facilities is $534,000/year (page 8), eighteen times the cost of $29,642/yr that has been estimated for the average large hard chrome facility.[9] In the facility cost-to-revenue analysis as shown in the worksheet (though not in the SIA document itself), the District compares the $29,642/yr estimated average high scenario cost and the $21,542/yr estimated average low scenario cost for a large hard chrome facility sequentially against the annual revenue estimates for each of the 18 large hard chrome facilities.

The high scenario and the low scenario compliance cost estimates for the average large hard chrome facility are computed based on that facility having exactly 17/18 or 0.944 Tier III tanks that need APCD control. In reality, though, some of the 18 large hard chrome facilities have no Tier III tanks (the District estimates that 9 of the 18 have no Tier III tanks), some have one Tier III tank, some likely have two, and perhaps a few have three or more Tier III tanks. The number of Tier III tanks that a facility has and that will need to be controlled with APCDs appears clearly to be the most important single factor that will

[9] The total and the average differ by a factor of 18.01, not exactly 18. The total figure is taken from the SIA itself while the average figure is taken from the backup worksheets we were provided. The small difference from the factor of 18 that is expected is perhaps due to rounding.

determine the facility's PAR 1469 compliance costs.[10] The more Tier III tanks a facility has, the higher the facility's compliance costs will be, in a roughly linear relationship. The number of Tier III tanks a facility has is likewise the most important factor that determines how one facility's compliance costs will differ from those for the other facilities in the same category. In our view, the key to reflecting variability in compliance costs across facilities in the SIA's facility-specific impact analysis lies in reflecting in the cost analysis the variability across facilities in the numbers of Tier III tanks that will need APCD controls. We will demonstrate one way in which the SIA's cost analysis could be expanded to reflect this variability, using as an example again the cost analysis for the high cost scenario for the large hard chrome category of facilities.

The District estimates in the draft SIA that there are 18 large hard chrome facilities, nine of which have no Tier III tanks and the other nine of which have 17 (adjusted) Tier III tanks that will need a total of 17 APCD systems (one system per Tier III tank in the high cost scenario). How might these 17 tanks/systems be distributed across the 18 large hard chrome facilities and what compliance costs might each of these facilities then face based on the number of tanks/systems each has?

We use a binomial expansion procedure to estimate the probability that any one of the eighteen facilities has various numbers of the Tier III tanks.[11]

[10] The SIA notes at the top of page 6 that the majority of the estimated PAR 1469 compliance costs are attributable to the capital, installation and O&M costs of controls for APC systems. The costs for APC systems relate directly to the number of Tier III tanks being controlled by these systems, figured at one system per tank (high cost scenario) or two systems per tank (low cost scenario), including costs for source testing and permitting. Table 2 on page 7 of the SIA demonstrates the importance of the number of Tier III tanks in determining PAR 1469 compliance costs. The costs for most of the largest PAR 1469 requirement categories (the rows in the table) are essentially linear with respect to the number of Tier III tanks, including the following six requirement categories: capital cost of new APC systems for existing Tier III tanks; initial source testing for new APC systems for existing Tier III tanks; permitting costs for new APC systems for existing Tier III tanks; screening test costs for Tier III tanks; operating and maintenance costs for APC systems; and annual permit renewal costs for Tier III tanks. In the low cost scenario (third of the four numerical columns in the table), these six requirement categories that relate directly to the number of Tier III tanks account for $1,957,000/yr or 74% of the $2,648,000/yr in total annual costs for the low cost scenario. For the high cost scenario, the costs for these six requirements account for $3,265,000/yr or 82% of the $3,977,000/yr in total annual costs (excluding from the total the amounts totaling $281,000 for existing electrolytic tanks controlled by chemical fume suppressants).

[11] We simulate the location of the 17 tanks across the 18 facilities as a set of 17 independent Bernoulli trials. A tank is, in concept, dropped randomly into one of the 18 facilities, with probability 1/18 (0.0555) that the tank ends up in any given facility. The binomial expansion (function available in Excel) then gives the probability that any number of tanks ends up at the given facility after all 17 tanks are placed or after all 17 trials are completed.

Bernoulli trials table, 17 trials, 0.05555 probability of "success" in each trial

# of "successes"	Probability of this # of successes	Probability of this # of successes or more
0	0.3785	1.0000
1	0.3784	0.6215
2	0.1781	0.2431
3	0.0524	0.0650
4	0.0108	0.0126
5	0.0016	0.0019
6	0.0002	0.0002
7	0.0000	0.0000
8	0.0000	0.0000
9	0.0000	0.0000

This table can be read to say, for example, that any one of the 18 large hard chrome facilities has a probability of 0.065 of having 3 or more tanks. The most likely numbers of tanks at any single one of these nine facilities is zero or one, with each of these numbers of tanks having a probability of 0.378 at any given facility. This Bernoulli procedure simulates the likely variability in numbers of Tier III tanks at the large hard chrome facilities, and we next simulate the likely variability in compliance costs across the large hard chrome facilities by attaching an estimate of the likely compliance cost per tank to the estimates for the numbers of tanks.

The compliance cost estimates that District staff have developed in the draft SIA show, for the high cost scenario, that roughly 82% of the annual compliance costs for a facility relate linearly to the number of Tier III tanks the facility has (see footnote 8, above). For large hard chrome facilities that will face an average compliance cost that the draft SIA estimates at $29,642/yr, then, 82% of this cost or $24,306 relates directly to the number of Tier III tanks the facility has, and approximately 18% of this amount, or $5,336 appears to relate to other factors. The average large hard chrome facility for which these cost estimates were developed has 17/18 (0.9444) Tier III tanks (17 Tier III tanks across 18 large hard chrome facilities). The compliance cost per tank, as the draft SIA estimates it, is thus $24,306/0.9444 or $25,736. A mathematical function stating how the District's high scenario cost estimate for large hard chrome facilities relates to the number of Tier III tanks that one of these facilities has would thus be:

High scenario compliance cost at large hard chrome facility = $5,336/yr + ($25,736/yr) x (# Tier III tanks)

We apply this cost function to simulate how the compliance cost a large hard chrome facility will bear relates to the number of Tier III tanks it has, and we combine this cost function with the Bernoulli estimates for how the number of tanks a facility has is likely to vary across the 18 large hard chrome facilities.

The table below takes this analysis a step further, by combining information on the variability of revenues across the 18 large hard chrome facilities with this information we have developed on the variability of costs across these facilities. The table estimates the probability that a random facility among the 18 will have annual compliance costs exceeding 3% of that facility's annual revenues.

Number and % of Large Hard Chrome Facilities With Compliance Costs Exceeding 3% of Revenues
High Cost Scenario

Revenues for Hard (Large) Facilities	Probability of this revenue level	Annual Cost if at 3% of Revenues	Minimum # of tanks req'd to yield this cost	Minimum # of tanks req'd to yield this cost	Probability of this # of tanks or more for this facility	Joint probability
$45,845,045	0.0556	$1,375,351	53.23	54	0	0.0000
$7,736,964	0.0556	$232,109	8.81	9	0.0000	0.0000
$6,863,936	0.0556	$205,918	7.79	8	0.0000	0.0000
$4,511,352	0.0556	$135,341	5.05	6	0.0002	0.0000
$4,210,246	0.0556	$126,307	4.70	5	0.0019	0.0001
$3,851,839	0.0556	$115,555	4.28	5	0.0019	0.0001
$3,271,441	0.0556	$98,143	3.61	4	0.0126	0.0007
$3,531,073	0.0556	$105,932	3.91	4	0.0126	0.0007
$3,202,736	0.0556	$96,082	3.53	4	0.0126	0.0007
$2,000,000	0.0556	$60,000	2.12	3	0.0650	0.0036
$1,774,633	0.0556	$53,239	1.86	2	0.2431	0.0135
$1,412,912	0.0556	$42,387	1.44	2	0.2431	0.0135
$896,802	0.0556	$26,904	0.84	1	0.6215	0.0345
$775,000	0.0556	$23,250	0.70	1	0.6215	0.0345
$700,000	0.0556	$21,000	0.61	1	0.6215	0.0345
$511,726	0.0556	$15,352	0.39	1	0.6215	0.0345
$500,000	0.0556	$15,000	0.38	1	0.6215	0.0345
$216,278	0.0556	$6,488	0.04	1	0.6215	0.0345
					Summed probability:	0.2401
					Expected # Facilities:	4.3222
					Percent of Facilities:	24.0%

The first column of this table shows the annual revenues that the District has estimated for each of the 18 large hard chrome facilities. The second column assigns an equal probability (1/18 = 0.0556) to each of the 18 revenue estimates for large hard chrome facilities. In the third column, we show what the annual compliance cost would need to be for each of the 18 facilities if costs were to exceed 3% of facility revenues (e.g., for the bottom-most facility in the list with annual revenues of $216,278, compliance costs would need to exceed $6,448/year if they were to exceed 3% of revenues for this facility). In the fourth column, we show how many Tier III tanks would need to be at a facility in order for the facility's compliance cost to exceed the cost figure shown in the third column and exceed 3% of revenues. The number of tanks shown in the fourth column has been computed by using the cost formula cited earlier:

High scenario compliance cost at large hard chrome facility = $5,336/yr + ($25,736/yr) x (# Tier III tanks)

The fifth column rounds up the number of Tier III tanks cited in the fourth column to the nearest integer. (An actual facility cannot have a fraction of a tank.) The sixth column shows the results of the Bernoulli trials and binomial expansion: the probability that a facility has a number of tanks equal to or exceeding the number in the fifth column. The sixth column shows the joint probability of the facility having both

the revenue figure shown in the first column and a number of tanks equal to or exceeding the number that would cause compliance costs to exceed three percent of this revenue figure.

At the bottom of the sixth column are the results of this analysis for the high cost scenario for the 18 large hard chrome facilities:

- The joint probability that a facility has the revenue figure shown in the first column and a number of tanks sufficient to cause compliance costs to exceed 3% of these revenues is 0.24.

- The expected number of the 18 large hard chrome facilities that will have compliance costs that exceed 3% of their revenues is thus 0.24 x 18 = 4.32.

- The expected value of 4.32 facilities incurring compliance costs that exceed 3% of revenues represents 24% of the 18 large hard chrome facilities.

In other words, taking account of the variation among large hard chrome facilities in revenues and compliance costs, we estimate using the estimates in the draft SIA that 24% of the 18 facilities are likely to incur compliance costs (high cost scenario) that exceed 3% of their revenues. In our view, any facility for which long-term compliance costs exceed 3% of the facility's revenues would have its continuation in business threatened.

We performed this analysis also for large hard chrome facilities to estimate the number and percentage of the 18 facilities that would have costs exceeding 5% of revenues (likely resulting in closure of these facilities), and performed these calculations for both the District's high cost scenario and for the low cost scenario. The results are shown in the table below.

Potential Closures Among Large Hard Chrome Facilities Due to PAR 1469 After Consideration of Variability Across Facilities in Revenues and Compliance Costs

	High Cost Scenario	Low Cost Scenario
Percentage of facilities with costs > 3% of revenues – threatened closures	24%	17%
Percentage of facilities with costs > 5% of revenues – likely closures	15%	9%

We suggest that the District should perform analyses similar to this one for the additional categories of facilities in order to estimate the numbers of facilities facing compliance costs exceeding affordability thresholds after considering the variability of revenues and costs. We expect this analysis would show that PAR 1469 would likely lead to the closure of some 10 – 20% of the Cr(VI) electroplating/anodizing industry in the SCAQMD.

We are particularly concerned that the District should perform this sort of analysis as a part of the SIA for the small decorative chrome category of facilities, which includes all or nearly all of the facilities that are now controlled with chemical fume suppressants (CFS) only. Our preliminary calculations show that the PAR 1469 low scenario compliance costs would cause the closure of more than one-third of these

small facilities even if CFS were to be recertified. If CFS are not recertified, then the high scenario compliance costs would be sufficient to cause the closure of roughly 60% of the facilities in this category. We believe it is very important for the District in the SIA to complete a thorough analysis of the degree to which small decorative chrome facilities will be able to afford compliance with PAR 1469. We believe this analysis would show that without financial assistance from the State and/or District that PAR 1469 would cause the closure of between 35 and 60 % of these facilities.

District Staff Should Seek Funding to Assist With Capital Costs for Add-on APCDs in Any Event, Not Only if Non-PFOS Fume Suppressants Are Not Recertified

The draft SIA presents cost estimates in terms of the average annual costs the industry will face each year through 2035. In reality, though, each of the businesses in the industry must get over the hump of the initial capital costs and "first year" costs of the regulation in order to have an opportunity to try to continue in business until 2035. The draft SIA projects these initial costs as $100,000 to $150,000 for the average facility,[12] and as several hundred thousand dollars for many individual facilities. How is the typical electroplating or anodizing small business going to come up with several hundred thousand dollars to meet this particular set of environmental requirements and then see if it can continue in business for the long haul? Virtually none of the affected businesses are publicly owned -- almost none of them can issue stock or bonds or has a parent company that can do so. Most of them are family-owned. Many of them can't access a bank loan for several hundred thousand dollars, and their owners are unlikely to have the personal assets available to pay this amount.

Furthermore, who is going to invest this sort of money or what bank is going to loan this sort of money for a business with: a) thin profit margins in the first place; b) an ever-shrinking base of manufacturing customers in the South Coast area; and c) the inevitable prospect of additional costly regulatory requirements in the future? In addition to Rule 1469 there will be Rule 1426 on additional metals beyond hexavalent chromium; Rule 1480 on monitoring; community air toxics programs; tighter wastewater requirements; increasing fees for all sorts of permits; tighter building codes; emergency planning requirements; training, certification and paperwork requirements; and so forth. Who is going to help the South Coast electroplaters and anodizers get over the hump of the initial costs for Rule 1469 when the future looks like this?

The final SIA should include an analysis that more clearly identifies the initial capital costs of PAR 1469 and applies simple credit-worthiness tests to determine whether the affected facilities can finance these costs. The adoption resolution for PAR 1469 should commit District staff to seek funding for assistance with capital investments for add-on APCD controls in any event for this industry, not solely if non-PFOS chemical fume suppressants cannot be recertified. Perhaps the financial assistance could be targeted for facilities that are projected to face compliance costs that exceed a specified percentage of their typical revenues, as calculated using the District staff's procedures for estimating costs and revenues.

[12] See Table 2, page 7. The summed "one-time costs" in the high cost scenario total approximately $17 million, which when spread across the 115 affected facilities equals nearly $150,000 for the average facility. The projected costs in the low-cost scenario are about 2/3 of those projected for the high cost scenario.