

**Socioeconomic Analysis
Proposed Regulation 8
Rule 16
Solvent Cleaning Operations**

Prepared for

**Bay Area Air Quality Management District
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10 September 2002

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1. Introduction and Summary

This report describes the socioeconomic impacts of amendments of Regulation 8, Rule 16: Solvent Cleaning Operations, which is intended to accommodate improvements in technology and clarify existing language, especially as it relates to the adoption of aqueous cleaning technology in place of cold cleaners currently used by businesses in the repair and maintenance industries. The analysis discusses the types of businesses that would be most affected by these rules. The report discusses the anticipated costs of compliance for the affected businesses, as well as employment and regional economic impact. The report is prepared pursuant to the provisions of AB2061 (Section 40728.5 of the California Health and Safety Code), which requires an assessment of socioeconomic impacts of proposed air quality rules.

The proposed amendments have the potential of affecting about 4,700 businesses in a wide range of industries, mainly in automotive services. To satisfy the intent of the rule changes, a number of businesses will need to purchase equipment and incur operational costs that would result in annual expenditures of \$1,480, which is an annualized figure over a ten-year period at 10 percent interest. The \$1,480 figure translates into a cost to all businesses within all affected industries of approximately \$7.5 million. If the Bay Area businesses absorb all of these costs, it is estimated that they would experience substantially less than one percent drop in profits.

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2. Description of Proposed Rules

The amendments to Regulation 8-16 are aimed at reducing the volatile organic compound emissions by 2.2 tons per day and to satisfy what is referred to as the control measure SS-14, which is published within the 2001 San Francisco Bay Area Ozone Attainment Plan. The amendments are targeted at repair and maintenance cleaning industry, especially within automotive services. More specifically, the amendments to Regulation 8, Rule 16 cover industries such as automotive exhaust system repair, tire retreading and repair, automotive glass replacement, automotive transmission repair, general automotive repair, motorcycle repair, and industrial truck repair. It also sets equipment standards and operating requirements that reduce solvent emissions for bus maintenance terminals, fleet vehicle maintenance centers, and truck stop facilities, which typically use larger parts washers and have more than one parts washer.¹ As it is, Regulation 8, Rule 16 contains specific operating requirements for solvent cleaning equipment such as vapor solvent cleaners, conveyORIZED degreasers, and cold cleaners.

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¹ Bay Area Air Quality Management District, "Staff Report: May, 2002: Proposed Amendments to BAAQMD Regulation 8, Rule 16: Solvent Cleaning Operations," page 4 of 15.

3. Employment and Economic Impact Analysis

3.1 Affected Businesses

In May, 2002, Bay Area Air Quality Management District (BAAQMD) staff prepared a report that explains the proposed amendments to Regulation 8, Rule 16. In this report, BAAQMD staff evaluated the cost of new equipment required as a result of amending Regulation 8, Rule 16. The BAAQMD compared the cost of the new equipment against the cost of current equipment employed by affected industries. BAAQMD staff also reported that the leading parts washer vendor in the San Francisco Bay Area, Safety Kleen, services approximately 6,347 facilities, of which 4,500 are repair and maintenance related businesses. In calculating the cost of the equipment required by the amendments to Regulation 8, Rule 16, BAAQMD staff based its calculations on the 4,500 facilities.² At the same time, the most current source of available data - the 2000 County Business Patterns of the US Census - indicates that there are 4,672 repair and maintenance related businesses in the San Francisco Bay Area. Thus, the rule amendments would affect nearly 4,672 businesses in the Bay Area. Table 1 below identifies all affected industries that are present in the Bay Area. These businesses employ 33,417 workers, or approximately 1 percent of total employment in the 9-county Bay Area. The 4,627 establishments represent 2 percent of all establishments in the Bay Area.

TABLE 1
Bay Area Businesses Affected by Proposed Amendments to Regulation 8, Rule 16
Solvent Cleaning Operations

SIC	NAICS	NAICS Description	No. of Affected Businesses	Affected Business Aggregate Employment	Affected Payroll	Affected Value of Shipments
7534	326212	Retreading	12	153	\$3,901,063	\$18,957,575
76	484110	General freight truck, local	392	4,594	\$179,156,654	\$497,787,293
76	484121	General freight trucking, long distance, truckload	192	3,148	\$140,021,774	\$449,984,788
76	484122	General freight trucking, long distance, less than truckload	78	3,258	\$151,639,210	\$374,457,542
76	484220	Specialized freight trucking, local	514	3,596	\$159,321,960	\$44,947,421
76	484230	Specialized freight trucking, long-distance	127	1,571	\$74,667,740	\$232,800,682
76	485113	Bus & other motor vehicle transit systems	11	542	\$14,709,771	\$22,774,647
76	488410	Motor vehicle towing	193	1,917	\$65,391,243	\$142,072,934
7538	811111	General automotive repair	2,163	8,947	\$290,523,648	\$1,183,716,040
7533	811112	Automotive exhaust system repair	74	326	\$2,868,168	\$40,382,658
7537	811113	Automotive transmission repair shop	156	669	\$26,041,478	\$88,326,636
7699	811118	Other auto mechanical and electric repair and maintenance	205	845	\$27,993,179	\$107,867,694
7536	811122	Automotive glass replacement (pt)	113	738	\$19,369,410	\$112,430,539
7549	811191	Automobile oil changes	129	1,243	\$26,536,656	\$60,063,386
7534	811198	All other auto repair and maintenance (pt)	53	305	\$19,768,439	\$36,244,936
7699	81149	Other personal and household goods repair	260	1,565	\$38,197,666	\$98,330,251
			4,672	33,417	\$1,240,108,060	\$3,511,145,023

Source: *Applied Development Economics, based on US Census, County Business Patterns (NAICS, 2000) and US Census, Economic Census (1997)*

² Bay Area Air Quality Management District, "Staff Report: May, 2002: Proposed Amendments to BAAQMD Regulation 8, Rule 16: Solvent Cleaning Operations," page 11 of 15.

Table 2 below shows the importance of the affected industries relative to the Bay Area and the State of California. The affected businesses represent a small percentage of all businesses in all industries in the Bay Area, at 2.5 percent. When judged against similar industries across the state, data in Table 2 shows that the affected industries are more concentrated in the Bay Area than elsewhere in the state. Altogether, the 4,672 businesses represent 31 percent of all businesses in the same industries in California, as well as 50 percent of employment. In other words, of all the jobs in California in the affected industries, half of these jobs are in the Bay Area.

TABLE 2
Bay Area as Percentage of California Businesses Affected by Proposed Amendments to Regulation 8-16
Solvent Cleaning Operations

SIC	NAICS	NAICS Description	Bay Area Industry	Bay Area Industry	Bay Area Industry	Bay Area Industry
			Establishments % of Total Bay Area	Establishments % of Total California	Employment as % of Bay Area	Employment as % of California
7534	326212	Retreading	0.01%	18%	0.005%	15%
76	484110	General Freight Truck, Local	0.21%	19%	0.139%	20%
76	484121	General Freight Trucking, Long Distance, Truckload	0.10%	13%	0.095%	13%
76	484122	General Freight Trucking, Long Distance, Less Than Truckload	0.04%	17%	0.098%	15%
76	484220	Specialized Freight Trucking, Local	0.27%	19%	0.109%	16%
76	484230	Specialized Freight Trucking, Long-Distance	0.07%	15%	0.047%	13%
76	485113	Bus & Other Motor Vehicle Transit Systems	0.01%	13%	0.016%	9%
76	488410	Motor Vehicle Towing	0.10%	19%	0.058%	20%
7538	811111	General Automotive Repair	1.14%	22%	0.27%	23%
7533	811112	Automotive Exhaust System Repair	0.04%	19%	0.01%	24%
7537	811113	Automotive Transmission Repair Shop	0.08%	18%	0.02%	18%
7699	811118	Other Auto Mechanical And Electric Rapid And Maintenance	0.11%	17%	0.03%	16%
7536	811122	Automotive Glass Replacement (Pt)	0.06%	23%	0.02%	26%
7549	811191	Automobile Oil Changes	0.07%	18%	0.04%	23%
7534	811198	All Other Auto Repair And Maintenance (Pt)	0.03%	14%	0.01%	14%
7699	81149	Other Personal And Household Goods Repair	0.14%	23%	0.05%	25%
			2.5%	31%	1%	50%

Source: Applied Development Economics, based on US Census, County Business Patterns (NAICS, 2000) and US Census, Economic Census (1997)

3.2 Cost to Businesses

For the purposes of cost estimates, it is assumed that all businesses regardless of size will be affected by Regulation 8, Rules 16. In other words, all affected businesses will have to implement water-based parts cleaners, which cost \$1,480 each. Thus, the equipment cost for all affected businesses in the entire Bay Area is estimated at \$7.5 million, which is a figure annualized over a ten year period at 10% interest. Table 3 breaks down cost estimates, comparing current solvent cleaner approach versus the proposed water-based solution. As Table 3 below shows, affected industries annually spend \$6,194,240 on solvent cleaner solutions right now, and they are expected to spend \$7,531,160 per year on aqueous washers because of amendments to Regulation 8, Rule 16. Thus, affected industries are expected to pay an additional \$1,336,920 because of the rule changes.

TABLE 3
Annual Cost of Aqueous Parts Washer Versus Solvent Unit Cleaner
Solvent Cleaning Operations

	Current Cost	Potential Replacement Cost	Difference
	Solvent Cleaner	Aqueous Washer	
Disposal Costs	\$1,180,000	\$1,770,000	\$590,000
Operation Cost	\$1,416,000	\$4,248,000	\$2,832,000
707 gl solvent eq. vs. 707 gl aqueous cleaners eq.	\$2,205,840	\$551,460	-\$1,654,380
Equipment Replacement Cost	\$1,392,400	\$961,700	-\$430,700
Total Annual Cost	\$6,194,240	\$7,531,160	\$1,336,920

Source: Bay Area Air Quality Management District (BAAQMD), "Staff Report of May, 2002: Proposed Amendments to BAAQMD Regulation 8, Rule 16: Solvent Cleaning Operations" (page 12)

At \$961,700, the annual cost of the aqueous equipment is less expensive than the current solvent-based parts cleaner by \$430,700, as Table 3 shows. However, disposal and operating costs for the aqueous cleaner are greater than disposal and operating costs for the solvent cleaner, so, on the whole, affected industries will pay an additional amount when implementing aqueous washers. It should be noted that, with the adoption of the aqueous solution, the BAAQMD estimates an annual reduction in VOC emissions of 803 tons. Thus, the cost effectiveness of the new technology is calculated at \$1,664 per ton (or \$1,336,920 divided by 803 tons) of emission reduced.

Using information in Table 3, Table 4 estimates the economic impact on businesses affected by proposed amendments to Regulation 8, Rule 16. This table shows that the impact of purchasing aqueous cleaning equipment falls well within the BAAQMD socioeconomic standards of significance, which posits that "cost impacts that are less than two to three percent of sales would not be considered significant except under special circumstances or where small businesses are required to bear capital costs for which financing may not be available or may be cost prohibitive." The cost of aqueous washer is less than one percent of sales, which, in the event adoption of equipment pursuant to the rule changes, should not affect small or any businesses in the affected industries, given prevailing industry trends regarding payroll, sales, and value added.

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TABLE 4
Impact on Bay Area Businesses in Industries Affected by Proposed Amendments
to Regulation 8, Rule 16
Solvent Cleaning Operations

SIC	NAICS	NAICS Description	Year One Cost of Aqueous Parts Washer Annualized over 10 Years @ 10%	Nos. of Affected Business Establishments	Affected Businesses Value of Sales	Equipment Cost As Percent of Affected Business Sales
7534	326212	Retreading	\$3,434	12	\$18,957,575	0.02%
76	484110	General freight truck, local	\$112,173	392	\$497,787,293	0.02%
76	484121	General freight trucking, long distance, truckload	\$54,942	192	\$449,984,788	0.01%
76	484122	General freight trucking, long distance, less than truckload	\$22,320	78	\$374,457,542	0.01%
76	484220	Specialized freight trucking, local	\$147,084	514	\$44,947,421	0.33%
76	484230	Specialized freight trucking, long-distance	\$36,342	127	\$232,800,682	0.02%
76	485113	Bus & other motor vehicle transit systems	\$3,148	11	\$22,774,647	0.01%
76	488410	Motor vehicle towing	\$55,228	193	\$142,072,934	0.04%
7538	811111	General automotive repair	\$618,955	2,163	\$1,183,716,040	0.05%
7533	811112	Automotive exhaust system repair	\$21,176	74	\$40,382,658	0.05%
7537	811113	Automotive transmission repair shop	\$44,640	156	\$88,326,636	0.05%
7699	811118	Other auto mechanical and electric repair and maintenance	\$58,662	205	\$107,867,694	0.05%
7536	811122	Automotive glass replacement (pt)	\$32,336	113	\$112,430,539	0.03%
7549	811191	Automobile oil changes	\$36,914	129	\$60,063,386	0.06%
7534	811198	All other auto repair and maintenance (pt)	\$15,166	53	\$36,244,936	0.04%
7699	81149	Other personal and household goods repair	\$74,401	260	\$98,330,251	0.08%
			\$1,336,920	4,672	\$3,511,145,023	0.04%

Source: Applied Development Economics

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