

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

**Final Socioeconomic Assessment for
PROPOSED RULE 1144—VANISHING OILS AND RUST INHIBITORS**

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EXECUTIVE SUMMARY

A socioeconomic analysis was conducted to assess the impacts of Proposed Rule (PR) 1144—Vanishing Oils and Rust Inhibitors. The proposed rule will affect vanishing oil and rust inhibitor manufacturers, steel tube and spring manufacturers, steel mills, aerospace manufacturers, automobile part manufacturers and rebuilders and machine shops that engage in processes that include broaching, drilling, drawing, heading, honing, forging, milling, stamping, tapping, threading and turning. A summary of the analysis and findings is presented below.

Elements of Proposed Rule	PR 1144 establishes VOC limits for vanishing oils and rust inhibitors and requires that containers for vanishing oils and rust inhibitors display the date of manufacture. At full implementation Proposed Rule 1144 will achieve 2.71 tons per day of VOC reductions by January 2012.
Affected Facilities and Industries	PR 1144 will affect facilities in the fabricated metal product manufacturing [North American Industry Classification System (NAICS) Code 332], machinery manufacturing (NAICS 333), transportation equipment manufacturing (NAICS 336), and petroleum and coal products manufacturing (NAICS 324) sectors in the AQMD. Staff estimates that six percent of the firms in these sectors currently use vanishing oils with a VOC content above the limit in PR 1144. This estimate implies that ~427 facilities would purchase cleaning equipment for removing residue from substitute compliant fluids. Based on a supplier survey of rust inhibitor and vanishing oil volumes, staff estimates indicate that there are thousands of facilities that will switch to fluids with a lower VOC as a result of PR 1144. Lastly, the record keeping provisions of the PR 1144 are estimated to affect ~2000 facilities. However, it is not possible to ascertain exactly which facilities would be affected by PR 1144.
Assumptions of Analysis	It is assumed that users of vanishing oils would switch to lower content VOC fluids that will leave a residue. To remove the residue, it is also assumed that these users would install cleaning equipment. Users of rust inhibitors are assumed to switch to lower VOC fluids that will not require the installation of cleaning equipment. The capital cost of cleaning equipment is annualized based on a real interest rate of four percent and an equipment life of 10 years. Full implementation is assumed to begin in 2010.

<p>Compliance Costs</p>	<p>The average annual total cost of Proposed Rule 1144 is projected to be \$8.11 million from 2010 to 2025. The costs are incurred in machinery manufacturing (59.4%), fabricated metal product manufacturing (38.3%), transportation equipment manufacturing (1.9%), petroleum and coal products manufacturing (0.1%), and primary metal manufacturing (0.1%) sectors.</p>
<p>Jobs and Other Socioeconomic Impacts</p>	<p>Overall, 195 jobs, 0.002% of total jobs in the four county region, could be forgone annually, on average, between 2010 and 2025. Job impacts in the local economy at the sectorial level relative to total industry employment are modest. The retail trade and machinery manufacturing sectors are expected to experience the largest declines in employment. In the case of the retail trade sector, the estimate is 20 jobs forgone, on average, between 2010 and 2025. The estimate of average annual jobs forgone in machinery manufacturing is 18. One sector, utilities, is expected to experience increased employment that amounts to an annual average of one employee. The rule is expected to cause very few changes in the relative costs of production and prices of goods in the local economy. The secondary and induced impacts (i.e., jobs) of PR 1144 are analyzed using the Regional Economic Models, Inc. (REMI) model, which includes published historical (until 2005) and projected economic data in assessing impacts of the policy. Although the REMI model does not include the most recent economic statistics, the results of the model are still indicative of the underlying structure of the regional economy.</p>

INTRODUCTION

Proposed Rule (PR) 1144—Vanishing Oils and Rust Inhibitors—limits the volatile organic compound (VOC) content of fluids used for metal working, rust prevention and inhibition, and lubrication in industrial facilities. These fluids are currently subject to the general provisions of Rule 442. Steel tube and spring manufacturers, steel mills, aerospace manufacturers, automobile part manufacturers and rebuilders and machine shops that engage in operations that include broaching, drilling, drawing, heading, honing, forging, milling, stamping, tapping, threading and turning would be affected under PR 1144. It is expected that 2.71 tons of VOC emissions per day will be reduced when PR 1144 is fully implemented.

The socioeconomic assessment herein analyzes the impacts of the proposed rule on affected facilities and the entire economy in the four-county region.

LEGISLATIVE MANDATES

The socioeconomic assessments at the AQMD have evolved over time to reflect the benefits and costs of regulations. The legal mandates directly related to the assessment of the proposed rule include the AQMD Governing Board resolutions and various sections of the California Health & Safety Code (H&SC).

AQMD Governing Board Resolutions

On March 17, 1989 the AQMD Governing Board adopted a resolution that calls for preparing an economic analysis of each proposed rule for the following elements:

- Affected Industries
- Range of Control Costs
- Cost Effectiveness
- Public Health Benefits

On October 14, 1994, the Board passed a resolution which directed staff to address whether the rules or amendments brought to the Board for adoption are in the order of cost effectiveness as defined in the AQMP. The intent was to bring forth those rules that are cost effective first.

Health & Safety Code Requirements

The state legislature adopted legislation that reinforces and expands the Governing Board resolutions for socioeconomic assessments. H&SC Sections 40440.8(a) and (b), which became effective on January 1, 1991, require that a socioeconomic analysis be prepared for any proposed rule or rule amendment that *"will significantly affect air quality or emissions limitations."* Specifically, the scope of the analysis should include:

- Type of Affected Industries
- Impact on Employment and the Economy of the District
- Range of Probable Costs, Including Those to Industries
- Emission Reduction Potential

- Necessity of Adopting, Amending or Repealing the Rule in Order to Attain State and Federal Ambient Air Quality Standards
- Availability and Cost Effectiveness of Alternatives to the Rule

For necessity of rule adoption, please refer to the Staff Report for PR 1144. Additionally, the AQMD is required to actively consider the socioeconomic impacts of regulations and make a good faith effort to minimize adverse socioeconomic impacts. H&SC Section 40728.5, which became effective on January 1, 1992, requires the AQMD to:

- Examine the type of industries affected, including small businesses; and
- Consider socioeconomic impacts in rule adoption

H&SC Section 40920.6, which became effective on January 1, 1996, requires that incremental cost effectiveness be performed for a proposed rule or amendment setting a Best Available Retrofit Control Technology (BARCT) requirement or a "feasible measure" relating to ozone, carbon monoxide (CO), oxides of sulfur (SO_x), oxides of nitrogen (NO_x), and their precursors. Incremental cost effectiveness is defined as the difference in costs divided by the difference in emission reductions between one level of control and the next more stringent control. Incremental cost effectiveness for this proposed rule is addressed in the Staff Report for PR 1144.

AFFECTED FACILITIES

PR 1144 will affect facilities in the fabricated metal product manufacturing (North American Industry Classification System [NAICS] code 332), machinery manufacturing (NAICS 333), transportation equipment manufacturing (NAICS 336), and petroleum and coal products manufacturing (NAICS 324) sectors of the AQMD. A survey of approximately 100 metal product and machinery manufacturing facilities from a mailing list for PR 1144 (approximately 7,200 facilities) was conducted. It was found that approximately six percent of potentially affected sources use vanishing oils with a VOC content that exceeds the limit proposed in PR 1144. Applying the six percent to the 7,200 facilities on the mailing list yielded approximately 427 facilities that would purchase cleaning equipment to comply with PR 1144. Based on a supplier survey of rust inhibitor and lubricant volumes, staff estimates indicate that there are thousands of facilities that will switch to fluids with a lower VOC as a result of PR 1144. The record keeping provisions of the PR 1144 are estimated to affect ~2000 facilities. It is not possible to ascertain the exact location of facilities affected.

Small Businesses

The AQMD defines a "small business" in Rule 102 as one which employs 10 or fewer persons and that earns less than \$500,000 in gross annual receipts. In addition to the AQMD's definition of a small business, the federal Small Business Administration (SBA), the federal Clean Air Act Amendments (CAAA) of 1990, and the California Department of Health Services (DHS) also provide definitions of a small business.

The SBA's definition of a small business uses the criteria of gross annual receipts (ranging from \$0.75 million to \$35.5 million), number of employees (ranging from 50 to 1,500), megawatt

hours generated (4 million), or assets (\$175 million), depending on industry type (US SBA, 2008). The SBA definitions of small businesses vary by 6-digit NAICS code. For example, in the metal stamping (NAICS 332116) and fabricated structural metal manufacturing (NAICS 332312) sectors, a business with 500 or fewer employees is considered “small.”

The CAAA classifies a facility as a "small business stationary source" if it: (1) employs 100 or fewer employees, (2) does not emit more than 10 tons per year of either VOC or NOx, and (3) is a small business as defined by SBA.

Only seven out of the many facilities affected can be positively identified. Of these seven facilities, six responded to staff’s request for employment and sales data. Based on these responses, one facility meets the AQMD criterion for small business designation. Under the SBA’s definition for the affected sectors, all six respondents qualify as small businesses. All six facilities would also be designated as small businesses using the CAAA definition.

COMPLIANCE COST

The average annual cost of the proposed rule is estimated to be \$8.11 million from 2010 to 2025. The distribution of these costs across industries is shown in Table 1. The majority of the cost is incurred in the machine manufacturing industry. The compliance of PR 1144 begins in 2010 and will reach full implementation in 2012. The analysis below assumes that the cost of full implementation begins in 2010. This approach produces a slightly higher estimate of the impacts of PR 1144 than a later full-implementation year.

Table 1
Cost of Proposed Rule (in millions of dollars)

Industry	2010	2015	Average Annual (2010-2025)
Primary metal manufacturing	0.01	0.01	0.01
Fabricated metal product manufacturing	3.11	3.11	3.11
Machinery manufacturing	4.82	4.82	4.82
Transportation equipment manufacturing	0.16	0.16	0.16
Petroleum and coal products manufacturing	0.20	0	0.01
Total	8.30	8.10	8.11

PR 1144 will effectively eliminate the use of vanishing oils in metal working and machine manufacturing and require these facilities to switch to metal working fluids that may leave a residue. Most of the cost associated with the elimination of vanishing oils comes from cleaning equipment and chemicals, and disposal costs are associated with removing the residue of lower VOC fluids from substrates. It is assumed that all 427 affected facilities would purchase cleaning equipment at \$89,695 per unit. It is further assumed that these units have a lifetime of 10 years and will be purchased initially in 2010 when the sell-through provision expires. The annual operation and maintenance costs, including the disposal of used cleaning fluids,

electricity, and the purchase of cleaning fluids for cleaning equipment are assumed to be \$6,557 per unit. However, switching to low VOC fluids, which tend to be less expensive than vanishing oils, is assumed to save facilities an average of \$1,405 per year. The distribution of these costs and savings across the affected industries will follow this pattern: primary metal manufacturing (0.1%), fabricated metal product manufacturing (38.3%), machinery manufacturing (59.4%), transportation equipment manufacturing (1.9%), and petroleum and coal products manufacturing (0.1%).

Under PR 1144 rust inhibitors used in metal working/machine and transportation equipment manufacturing activities are also affected. Substitution of reformulated or lower VOC fluids for non-compliant VOC content rust inhibitor is projected to generate additional costs. The annual volume of rust inhibitors used in the four county region is assumed to be 250,900 gallons, which will be replaced by lower VOC fluids at an assumed additional cost of \$4.70 per gallon.

The analysis herein also assumes an average cost at the facility level of \$100 per year from record keeping expenses related to the proposed rule.

The incremental cost from switching to compliant fluids includes the costs of reformulation, commercialization and any other additional material cost necessary for reformulation. All related companies in the supply chain for low VOC substitutes for vanishing oil and rust inhibitor are assumed to bear these costs as they pass through intermediate goods markets and become imbedded in the price of final goods and services.

Lastly, it is assumed that manufactures of substitute fluids for non-compliant vanishing oils and rust inhibitors will test fluids to ensure they are in compliance with the VOC fluid content limit in Proposed Rule 1144. It is assumed that there will be a one-time cost of testing of \$175,000.

JOBS AND OTHER SOCIOECONOMIC IMPACTS

The REMI model (version 9.5.26) is used to assess the total socioeconomic impacts of a policy change. The model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino. The REMI model for each county is comprised of a five block structure that includes (1) output and demand, (2) labor and capital, (3) population and labor force, (4) wages, prices and costs, and (5) market shares. These five blocks are interrelated. Within each county, producers are made up of 165 private non-farm industries, three government sectors, and a farm sector. Trade flows are captured between sectors and borders as well as across counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration.

The assessment herein is performed relative to a baseline without the implementation of PR 1144. Direct effects of the policy change (the proposed rule) have to be estimated and used as inputs to the REMI model in order for the model to assess secondary and induced impacts for all the actors in the four-county economy on an annual basis and across a user-defined horizon

(2010 to 2025). Direct effects of PR 1144 include additional costs to the affected industries and additional sales of control devices by local vendors at the county (or finer) level and by industry.

The proposed rule would create an additional demand for professional and technical services resulting from tests to verify the VOC content of fluids. There would be additional demand for cleaning equipment in the machinery manufacturing sector and cleaning fluids in the chemical manufacturing sector. Additional demand would be created for the utility sector because of the increased need for electricity and in the sanitary services sector due to additional disposal costs from used cleaning fluids. Under the proposed rule, there would also be an increased demand in the petroleum and coal products sector for the purchase of lower VOC metal working fluids.

The additional costs of doing business to affected facilities include the annualized costs for cleaning equipment, increased annual costs due to the purchase of lower VOC fluids (e.g., high flash point oils and reformulated rust inhibitors), increased electricity costs, and increased disposal costs. The petroleum and coal products industry will also bear additional costs from testing the VOC content of fluids.

Facilities that are affected by mandatory record keeping would experience a small reduction in labor productivity as additional person hours are devoted to the task.

Overall, 195 jobs could be forgone annually, on average, between 2010 and 2025 in the local economy. Under the baseline forecast, the four county region will average 9.5 million jobs annually from 2010-2025. The forecasted decline of 195 jobs represents 0.002% of total jobs in the four county region. Table 2 presents the estimated job impacts by industry for the proposed rule. Additional jobs would be created in the compliance year, 2010, in the machinery manufacturing sector as demand for this sector rises due to purchases of cleaning equipment. Similarly, there will be jobs created in the sectors of professional and technical services in 2010 to provide VOC content testing of fluids. Jobs will be created in the utility sector—an average of one per year from 2010 to 2025—because of the additional demand for electricity and waste disposal services. In 2010, there will also be an average of one job created in the sectors of primary metal manufacturing, wholesale trade, and management of companies and enterprises. In 2010, the professional and technical services industry would have two jobs created. As the annualized cost of doing business reaches its full effect and the positive impact of spending diminishes, jobs forgone are expected to begin in 2011. The machinery manufacturing sector is also directly affected by the proposed rule and is projected to have 18 jobs forgone, on average, from 2010 to 2025. Jobs forgone in the non-manufacturing sectors such as retail trade are due mainly to the reduction in personal income. The secondary and induced impacts (i.e., jobs) of PR 1144 are analyzed using the Regional Economic Models, Inc. (REMI) model, which includes published historical (until 2005) and projected economic data in assessing impacts of the policy. Although the REMI model does not include the most recent economic statistics, the results of the model are still indicative of the underlying structure of the regional economy.

Table 2
Job Impacts by Industry

Industry	2010	2015	2020	2025	Average
Utilities	2	1	1	1	1
Construction	-2	-18	-11	-10	-13
Wood product manufacturing	0	0	0	-1	0
Nonmetallic mineral product manufacturing	0	-1	0	-1	-1
Primary metal manufacturing	1	-1	-1	-2	-1
Fabricated metal product manufacturing	-1	-13	-13	-14	-12
Machinery manufacturing	28	-21	-1	-25	-18
Computer and electronic product manufacturing	0	-1	-2	-2	-1
Electrical equipment and appliance manufacturing	0	-1	0	-1	-1
Motor vehicle manufacturing	0	-1	-1	-1	-1
Transportation equipment manufacturing	-1	-2	-2	-2	-2
Furniture and related product manufacturing	0	-1	-1	-1	-1
Miscellaneous manufacturing	0	-1	-1	-1	-1
Food manufacturing	0	-1	-1	-1	-1
Printing and related support activities	0	-1	-1	-1	-1
Petroleum and coal products manufacturing	0	0	0	0	0
Plastics and rubber products manufacturing	0	-1	-1	-1	-1
Wholesale trade	1	-9	-6	-8	-7
Retail trade	-5	-23	-17	-21	-20
Truck transportation; Couriers and messengers	0	-3	-2	-3	-2
Monetary authorities – central bank; credit intermediation and related activities; Funds, trusts, & other financial vehicles	-1	-5	-3	-4	-4
Securities, commodity contracts, investments	0	-3	-2	-3	-3
Insurance carriers and related activities	0	-3	-3	-3	-3
Real estate	-3	-11	-8	-9	-9
Professional and technical services	2	-16	-12	-16	-14
Management of companies and enterprises	1	-3	-2	-3	-3
Administrative and support services	0	-14	-11	-14	-13
Educational services	-1	-5	-4	-6	-5
Ambulatory health care services	-1	-5	-5	-7	-5
Hospitals	0	-2	-2	-3	-2
Nursing and residential care facilities	0	-2	-2	-3	-2
Social assistance	-1	-5	-4	-6	-5
Performing arts and spectator sports	0	-2	-1	-1	-1
Amusement, gambling, and recreation	0	-2	-1	-2	-2
Accommodation	0	-2	-1	-2	-2
Food services and drinking places	-2	-14	-9	-13	-12
Repair and maintenance	0	-3	-2	-3	-3
Personal and laundry services	-1	-3	-2	-2	-2
Membership associations and organizations	-1	-4	-2	-3	-3
Private households	0	-1	-1	-2	-1
Government	-1	-9	-14	-16	-11
Other	0	-9	-6	-8	-8
Total	12	-223	-158	-221	-195

The sum of individual numbers may not be the same as the total due to rounding.

Competitiveness

The additional cost brought on by the proposed rule would increase the cost of production of the affected industries relative to their national counterparts. Changes in relative production costs would thus be a good indicator of changes in relative competitiveness. The magnitude of the impact depends on the size, diversification, and infrastructure in a local economy, as well as interactions among industries. A large, diversified, and resourceful economy would absorb the impact with relative ease. Implementation of the proposed amendments increases the cost of doing business for affected industries.

Table 3 shows the impact of the proposed rule on the cost of production by industry for selected years. An index of 0 indicates that there is no change in the cost of production relative to the rest of the United States. An index of above or below 0 means that the cost of production in the four-county areas resulting from the proposed amendments is higher or lower, respectively, than that in the rest of the U.S. In 2018, the primary metal manufacturing and most non-manufacturing sectors would experience an increase in the relative cost of production of about 0.001%. The relative cost of production, in 2018, for other sectors directly affected by the proposed rule is a slightly higher: fabricated metal product manufacturing (0.012%), machinery manufacturing (0.041%), transportation equipment manufacturing (0.002%), and petroleum and coal products manufacturing (0.002%).

Changes in production costs will affect prices of goods produced locally. The relative delivered price of a good is based on its production cost and the transportation cost of delivering the good to where it is consumed or used. The average price of a good at the place of use reflects prices of the good produced locally and imported elsewhere.

Based on the measurement of relative delivered prices in the REMI model, the proposed rule is projected to result in higher delivered prices. These impacts are smaller than those on the relative cost of production (Table 3). In 2018, most sectors of the regional economy would experience an increase in relative delivered prices of 0.001% or less. Only two of the sectors directly affected by the proposed rule are exceptions to this generalization. In the cases of the fabricated metal product manufacturing and machinery manufacturing sectors the increase in relative delivered price, in 2018, is 0.010% and 0.021%, respectively.

Table 3
Impacts on Relative Cost of Production and Delivered Prices
(Relative to the U.S.)

Industry	Relative Cost of Production			Delivered Price		
	2010	2018	2025	2010	2018	2025
Utilities	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%
Construction	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Wood product manufacturing	0.001%	0.001%	0.000%	0.000%	0.000%	0.000%
Nonmetallic mineral product manufacturing	0.001%	0.001%	0.001%	0.001%	0.000%	0.000%
Primary metal manufacturing	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Fabricated metal product manufacturing	0.014%	0.012%	0.010%	0.012%	0.010%	0.008%
Machinery manufacturing	0.042%	0.039%	0.028%	0.022%	0.020%	0.015%
Computer and electronic product manufacturing	0.001%	0.001%	0.001%	0.001%	0.001%	0.000%
Electrical equipment and appliance manufacturing	0.001%	0.001%	0.001%	0.001%	0.000%	0.000%
Motor vehicle manufacturing	0.002%	0.001%	0.001%	0.000%	0.000%	0.000%
Transportation equipment mfg. excl. motor vehicles	0.002%	0.002%	0.001%	0.002%	0.001%	0.001%
Furniture and related product manufacturing	0.001%	0.001%	0.001%	0.001%	0.000%	0.000%
Miscellaneous manufacturing	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Food manufacturing	0.001%	0.001%	0.001%	0.001%	0.000%	0.000%
Beverage and tobacco product manufacturing	0.002%	0.001%	0.001%	0.001%	0.001%	0.001%
Textile mills	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%
Textile product mills	0.001%	0.001%	0.000%	0.001%	0.000%	0.000%
Apparel manufacturing	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%
Leather and allied product manufacturing	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%
Paper manufacturing	0.001%	0.001%	0.001%	0.000%	0.000%	0.000%
Printing and related support activities	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Petroleum and coal products manufacturing	0.002%	0.000%	0.000%	0.001%	0.000%	0.000%
Chemical manufacturing	0.001%	0.001%	0.001%	0.001%	0.000%	0.000%
Plastics and rubber products manufacturing	0.001%	0.001%	0.001%	0.001%	0.001%	0.000%
Wholesale trade	0.001%	0.001%	0.001%	0.001%	0.001%	0.000%
Retail trade	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%
Air transportation	0.001%	0.001%	0.000%	0.000%	0.000%	0.000%
Rail transportation	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%
Water transportation	0.002%	0.001%	0.001%	0.001%	0.000%	0.000%
Truck transportation; Couriers and messengers	0.001%	0.001%	0.001%	0.001%	0.001%	0.000%

Table 3 (continued)
Impacts on Relative Cost of Production and Delivered Prices
(Relative to the U.S.)

Industry	Relative Cost of Production			Delivered Price		
	2010	2018	2025	2010	2018	2025
Transit and ground passenger transportation	0.001%	0.001%	0.001%	0.001%	0.000%	0.000%
Pipeline transportation	0.001%	0.001%	0.001%	0.000%	0.000%	0.000%
Scenic and sightseeing transportation; support activities	0.001%	0.001%	0.001%	0.001%	0.001%	0.000%
Warehousing and storage	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%
Publishing industries, except Internet	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Motion picture and sound recording industries	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%
Internet services and data processing; Other information services	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Broadcasting, except Internet; Telecommunications	0.001%	0.001%	0.001%	0.001%	0.001%	0.000%
Monetary authorities – central bank; credit intermediation and related activities; Funds, trusts, & other financial vehicles	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Insurance carriers and related activities	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%
Real estate	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%
Rental and leasing services; Lessors of nonfinancial intangible assets	0.003%	0.003%	0.002%	0.003%	0.002%	0.002%
Professional and technical services	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Administrative and support services	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%
Waste management and remediation services	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%

RULE ADOPTION RELATIVE TO THE COST EFFECTIVENESS SCHEDULE

On October 14, 1994, the Governing Board adopted a resolution that requires staff to address whether rules being proposed for adoption are considered in the order of cost-effectiveness. The 2007 Air Quality Management Plan (AQMP) ranked, in the order of cost-effectiveness, all of the proposed control measures for which costs were quantified. It is generally recommended that the most cost-effective actions be taken first.

Proposed Rule 1144 fully implements control measure CTS-01--Industrial Lubricants. CTS-01 is ranked second in overall cost-effectiveness among competing stationary source control measures listed in the 2007 AQMP with an estimated control cost in the range of \$1,000 to \$5,000 per ton of VOC reduced. The estimated cost effectiveness of PR 1144 is \$8,189 per ton of VOC reduced.

REFERENCES

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