

**Socioeconomic Analysis
Proposed Regulation 8
Rule 5
Storage of Organic Liquids**

Prepared for

**Bay Area Air Quality Management District
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1. Introduction and Summary

This report describes the socioeconomic impacts of amendments to Regulation 8, Rule 5: Storage of Organic Liquids that, among other things, is intended to change the rule format to make it easier to read and understand, to revise exemptions in Sections 8-5-111 and 8-5-112, and to enhance tank seal and fitting requirements. This report discusses the types of businesses that would be most affected by these rules. It 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 rule amendments have the potential of affecting 591 businesses in petroleum and organic chemicals industries. To satisfy the intent of the rule changes, businesses will need to assume an increase of \$929 in regulator costs per business per year. The \$929 annual per business figure translates into a cost to all businesses within all affected industries of over \$548,962. If the affected 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 proposed changes to Regulation 8, Rule 5 do not require any new equipment to be installed, or any existing equipment to be replaced or modified. All significant increased costs associated with this rule are related to increased monitoring requirements for tanks. Some costs, such as the requirement to maintain records in proposed section 8-5-501.2, are assumed to have an insignificant cost.

The specific sections which require additional monitoring are: 8-5-401.1, 8-5-401.2, 8-5-402.2, 8-5-402.3, which impose more frequent monitoring requirements for primary and secondary seals on internal and external floating roof tanks, and 8-5-403 which imposes a new pressure-relief valve inspection requirement on any tank required to be equipped with such a valve. There are approximately 4,700 fixed roof tanks, 320 external floating roof tanks and 200 internal floating roof tanks in the District.

Proposed sections that require additional inspections are discussed in detail below.

Proposed Regulation 8-5-401.1

This section will increase the frequency of primary and secondary seal inspections for external floating roof tanks (EFRTs). The current inspection frequency is once either every 1 or 10 years, depending on the age of the tank. The proposed frequency will be twice per year. It may be assumed that most EFRTs are currently inspected once every 10 years. Thus, each of 320 tanks will require 20 inspections in a 10-year period, instead of 1. Each inspection may be assumed to take 3 people, and take a maximum of 2 hours to accomplish.

Proposed Regulation 8-5-401.2

This rule change is essentially the same as Proposed Regulation 8-5-401.1, except for the level of effort required for each inspection. For example, each inspection may be assumed to take 2 people, and take a maximum of 1/2 hour to accomplish.

Proposed Regulation 8-5-402.2

This section will increase the frequency of visual inspections of secondary seals for internal floating roof tanks (IFRTs). The current inspection frequency is once per year. The proposed frequency will be twice per year. Thus, each of 200 tanks will require 2 inspections per year, instead of 1. Each inspection may be assumed to take 2 people, and take a maximum of 1/2 hour to accomplish.

Proposed Regulation 8-5-402.3

This section will also increase the frequency of visual inspections of tank-top fittings for internal floating roof tanks (IFRTs). The current inspection frequency is once every 10 years. The proposed frequency will be twice per year. However, it may be assumed that visual fitting inspections will be performed at the same time as secondary seal inspections required by proposed section 8-5-402.2, within the 1/2 hour time allowance for these seal inspections. Thus, this proposed required will not require significant additional resources to accomplish.

Proposed Regulation 8-5-403

This section will add a requirement to inspect pressure-vacuum (PV) valves for leak-tight operation and good working condition twice per year. PV valves may be installed on either fixed or floating roof tanks. Floating roof tanks are typically installed at facilities that are required to perform leak testing of other components. Thus, for floating roof tanks, inspection of PV valves may be assumed to not require significant additional resources to accomplish. It is unknown what fraction of fixed-roof tanks is equipped with PV valves. Therefore, for fixed roof tanks, this requirement will result in an unknown number of inspections, but a maximum of 2 per year for each of 4,700 tanks. Each fixed roof inspection may be assumed to take 2 people, and take a maximum of 1/2 hour to accomplish.

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3. Employment and Economic Impact Analysis

3.1 Affected Businesses

The rule amendments would affect nearly 591 establishments in the Bay Area. Table 1 below identifies all affected industries that are present in the Bay Area. These businesses employ 22,678 people, or less than 1 percent of total employment in the 9-county Bay Area. The 591 establishments represent approximately 0.3 percent of all establishments in the Bay Area.

TABLE 1
Bay Area Businesses Affected by Proposed Amendments
to Regulation 8, Rule 5
Storage of Organic Liquids

SIC	NAICS	NAICS Description	Nos. of Affected Establishments	Affected Employment	Affected Payroll	Affected Businesses' Value of Sales	Affected Value Added	Affected Capital Expenditures
2911	32411	Petroleum refineries	9	3,922	\$278,431,757	\$11,371,837,275	\$2,213,084,343	\$222,057,471
28	325 (less 32518)	Chemicals (less inorganic chemicals)	298	15,317	\$1,066,498,261	\$4,557,634,681	\$3,148,733,316	\$381,913,313
5169	42269	Other chemicals and alloyed products	208	2,272	\$94,497,677	\$2,048,287,567		\$194,454,839
5171	42271	Petroleum bulk stations and terminals	76	1,167	\$41,474,928	\$2,668,792,586		\$139,455,230
			591	22,678	\$1,480,902,623	\$20,646,552,109	\$5,361,817,660	\$937,880,853

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

Table 2 below shows the importance of the affected industries relative to the Bay Area and the State of California. When judged against similar industries across the state, data in Table 2 shows that the affected industries are slightly less in the Bay Area than elsewhere in the state. Altogether, the 591 businesses represent 20 percent of all businesses in the same industries in California, as well as 28 percent of employment. In other words, of all the jobs in California in the affected industries, most of these jobs are in places other than the 9-county Bay Area.

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TABLE 2
Comparison of Businesses Affected by
Proposed Amendments to Regulation 8, Rule 5
Storage of Organic Liquids

SIC	NAICS	NAICS Description	Affected Bay Area Establishments	ESTABLISHMENTS		
				Bay Area Industry Establishments % of Total Bay Area Establishments	California Industry Establishment as % of California Establishments	Bay Area Industry Establishment as % of California Industry Establishments
2911	32411	Petroleum Refineries	9	0.005%	0.01%	22%
28	325 (less 32518)	Chemicals (Less Inorganic Chemicals)	298	0.2%	0.04%	20%
5169	42269	Other Chemicals And Alloyed Products	208	0.1%	0.13%	21%
5171	42271	Petroleum Bulk Stations And Terminals	76	0.04%	0.06%	16%
			591	0.3%	0.23%	20%
EMPLOYMENT						
2911	32411	Petroleum Refineries	3,922	0.1%	0.08%	37%
28	325 (less 32518)	Chemicals (Less Inorganic Chemicals)	15,317	0.5%	0.12%	29%
5169	42269	Other Chemicals And Alloyed Products	2,272	0.1%	0.08%	5%
5171	42271	Petroleum Bulk Stations And Terminals	1,167	0.04%	0.06%	15%
			22,678	0.7%	0.34%	28%
PAYROLL						
2911	32411	Petroleum Refineries	\$278,431,757	0.5%	0.2%	
28	325 (less 32518)	Chemicals (Less Inorganic Chemicals)	\$1,066,498,261	0.6%	0.9%	
5169	42269	Other Chemicals And Alloyed Products	\$20,414,344	0.3%	0.1%	
5171	42271	Petroleum Bulk Stations And Terminals	\$5,961,518	0.2%	0.1%	
			\$1,371,305,880	0.7%	0.4%	

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

3.2 Cost to Businesses

It is difficult to correlate which businesses within the four NAICS industries in this report (32411, 325, 42269 and 42271) maintain EFRTs, IFRTs and fixed-roof tanks with PV valves, given the limitations of available data. However, there are 4,700 fixed roof tanks, 320 external floating roof tanks and 200 internal floating roof tanks in the District. Thus, for the purposes of cost estimates, it is assumed that all businesses regardless of size will be affected by Regulation 8 Rules 5.

In other words, all affected businesses will have to implement increased monitoring responsibilities as set forth in Regulation 8 Rule 5 rule changes. Thus, the regulatory cost for all affected businesses in the entire Bay Area is estimated at \$548,962, which is an annual cost. Table 3 breaks down cost estimate comparing cost by specific rule changes. At \$366,221, proposed amendment to Rule 8-5-403 represents the bulk of all annual costs resulting from changes to Regulation 8, Rule 5. The wage of the inspector is estimated to be \$85,301, which is based on the average salary within the affected industries, and it includes \$20,000 in benefits.

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TABLE 3
Estimated Cost of Implementing Various
Regulation 8 Rule 5 Amendments
Storage of Organic Liquids

ORIGINAL COST SCHEDULE

	number of SITES (a)	1 inspection PER SITE per 10 years (b)	Number of staff (c)	hours (d)	total hours [z = (a x b x c x d)]	salary per inspector (\$65,3001 avg wage + \$20,000 benefits)	hour rate based on 2080 hours (incl. benefits) (q)	TOTAL INSPECTION COSTS OVER TEN YEARS $w_1 = (z \times q)$
8-5-401.1	320	1	3	2	1,920	\$85,301	\$41.01	\$ 78,739
8-5-401.2	320	1	2	0.5	320	\$85,301	\$41.01	\$ 13,123
8-5-402.2	200	10	2	0.5	2,000	\$85,301	\$41.01	\$ 82,020
8-5-402.3								
8-5-403	4,700	1	2	0.5	4,700	\$85,301	\$41.01	\$ 192,748

PROPOSED RULE AND NEW COST SCHEDULE

8-5-401.1	320	20	3	2	38,400	\$85,301	\$41.01	\$1,574,790
8-5-401.2	320	20	2	0.5	6,400	\$85,301	\$41.01	\$262,465
8-5-402.2	200	20	2	0.5	4,000	\$85,301	\$41.01	\$164,041
8-5-402.3								
8-5-403	4,700	20	2	0.5	94,000	\$85,301	\$41.01	\$3,854,954

	ADDITIONAL TOTAL COST PER TEN YEARS $(W_2 - W_1)$	ADDITIONAL ANNUAL TOTAL COST $(W_2 - W_1) / 10$	ANNUAL COST PER AFFECTED BUSINESS
8-5-401.1	\$ 1,496,050	\$ 149,605	
8-5-401.2	\$ 249,342	\$ 24,934	
8-5-402.2	\$ 82,020	\$ 8,202	
8-5-402.3			
8-5-403	\$ 3,662,206	\$ 366,221	
		\$ 548,962	929

Source: Applied Development Economics, based on BAAQMD cost analysis of Regulation 8, Rule 5 (August, 2002)

Using information in Table 3, Table 4 estimates the economic impact on businesses affected by proposed amendments to Regulation 8, Rule 5. This table shows that the impacts of the rule changes fall 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 the additional regulatory requirements is less than one percent of sales, which, in the event adoption of rule changes, should not affect small or any businesses in the affected industries, given prevailing industry trends regarding payroll, shipment (sales), and value added.

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TABLE 4
Impact on Bay Area Small Businesses in Industries Affected
by Proposed Amendments to Regulation 8, Rule 5
Storage of Organic Liquids

SIC	NAICS	NAICS Description	Annual New Cost of regulations per affected business	No. of Affected Businesses	Aggregate Monitoring Cost to Affected Businesses	Monitoring Cost As Percent of Affected Business Sales
2911	32411	petroleum refineries	\$929	9	\$8,360	0.0001%
28	325 (less 32518)	chemicals (less inorganic chemicals)	\$929	298	\$276,803	0.0061%
5169	42269	other chemicals and alloyed products	\$929	208	\$193,205	0.0094%
5171	42271	petroleum bulk stations and terminals	\$929	76	\$70,594	0.0026%
			\$929	591	\$548,962	0.0027%

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