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U.S. Department of Transportation

United States Coast Guard

USCG-2001-8773-2

Marine Casualties and Investigations; Chemical Testing Following Serious Marine Incidents

Draft Regulatory Analysis for Notice of Proposed Rulemaking

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USCG-2001-8773

December 19, 2002

United States Coast Guard Headquarters
2100 Second Street SW
Washington, DC 20593-0001

Marine Casualties and Investigations; Chemical Testing Following Serious Marine Incidents

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Marine Casualties and Investigations; Chemical Testing Following Serious Marine Incidents

EXECUTIVE SUMMARY

This Draft Regulatory Analysis is designed to provide supporting data and analysis for the Regulatory Evaluation section of the notice of proposed rulemaking (NPRM) entitled *Marine Casualties and Investigations: Chemical Testing Following Serious Marine Incidents*.

The proposed rule would revise the requirements for alcohol and drug testing following a serious marine incident (SMI). The proposed revision would establish procedures to ensure that alcohol testing be conducted within 2 hours of a serious marine incident, as required by the Coast Guard Authorization Act of 1998. It would require marine employers to have alcohol-testing device(s) readily available to facilitate compliance with the testing requirements. Any of the devices listed on the National Highway Traffic Safety Administration (NHTSA) Conforming Products Lists can be used. In addition, minor procedural changes to the drug testing regulations are also proposed.

There are more than 183,400 commercial vessels that would be required to comply with the Coast Guard's requirements for alcohol and drug testing following an SMI. Of these, about 2,600 vessels are already required to carry alcohol breath-testing devices because they undertake international voyages. Since these vessels carry breath-testing devices on board, the marine employers can already meet the statutory alcohol-testing timeframe and proposed requirements without additional cost. Thus, the number of additional vessels affected by the rulemaking would be about 180,800.

The cost of the rulemaking is estimated by assuming that, of the available alcohol breath or saliva-testing devices listed in the NHTSA's Conforming Products Lists, 90 percent of vessels choose the less costly saliva alcohol screening devices, while 10 percent of vessels choose breath alcohol screening devices. No vessels are assumed to choose evidential breath measurement devices because of their much higher initial and maintenance costs.

The additional cost to industry over 10 years is estimated to be approximately \$144 million. An analysis of the impact of the rule on small entities found that while more than 3,500 entities could be affected, the impact on these would not be significant.

The proposed timeframe and carriage requirements serve as additional deterrents from crewmembers using alcohol and illegal drugs while working on board a commercial vessel. Also, the proposed rule would provide more accurate information relating to the role alcohol and illegal drugs play in serious marine incidents.

Marine Casualties and Investigations; Chemical Testing Following Serious Marine Incidents

PURPOSE

This Draft Regulatory Analysis is designed to provide supporting data and analysis for the Regulatory Evaluation section of the notice of proposed rulemaking (NPRM) entitled *Marine Casualties and Investigations; Chemical Testing Following Serious Marine Incidents*.

BACKGROUND

The current regulations in 46 CFR 4.06-1 require marine employers to take all practicable steps after a serious marine incident (SMI)¹ to ensure that chemical testing is conducted. The regulations do not specify a time requirement for completing the tests for alcohol or for dangerous drugs following an SMI. Without a specified timeframe to conduct alcohol or drug testing after an SMI, in some instances tests were not conducted, and in other instances tests were not completed soon enough for the results to provide a determination of whether alcohol was present in an individual's system at the time the SMI occurred.

In 1998, Congress passed Public Law 105-383 which revised Title 46, U.S. Code, by adding a new section 2303a – “Post serious marine casualty alcohol testing” (hereafter § 2303a). Section 2303a requires the Coast Guard to establish procedures ensuring that after a serious marine casualty occurs, required alcohol testing is conducted no later than two hours after the casualty occurred. If the alcohol testing cannot be conducted within that timeframe because of safety concerns directly related to the casualty, § 2303a requires the alcohol testing to be conducted as soon thereafter as the safety concerns have been adequately addressed to permit such testing. However, § 2303a prohibits the Coast Guard from requiring alcohol testing to be conducted more than eight hours after the casualty occurs.

The Coast Guard requires that alcohol and drug testing be conducted after a serious marine incident. Section 2303a uses the term “serious marine casualty.” For the purpose of the rulemaking serious marine casualty means the same as serious marine incident (SMI) as defined in 46 CFR 4.03-2. Section 2303a also uses the phrase “safety concerns directly related to the casualty” as the only reason the marine employer may postpone alcohol testing following an SMI.

¹ Defined in 46 CFR 4.03-2. In general, this includes the following events involving a vessel in commercial service: (1) any marine casualty or accident which results in 1 or more deaths; an injury to a crewmember, passenger, or other person that requires medical treatment beyond first aid; damage to property in excess of \$100,000; actual or constructive total loss of any vessel subject to inspection; (2) a discharge of oil of 10,000 gallons or more; and (3) a discharge of a reportable quantity of hazardous substance into the navigable waters of the United States.

The rule would provide that alcohol testing requirements after an SMI will not prevent personnel who are required to be tested for alcohol from performing duties in the aftermath of an SMI when their performance is necessary for the preservation of life or property or the protection of the environment.

Coast Guard regulations in 46 CFR part 4 mandating alcohol testing after an SMI currently require marine employers to collect blood or breath specimens from each individual who was directly involved in the SMI, and for breath specimens, to use an alcohol breath-testing device that can accurately determine the presence of alcohol in an individual's system. The regulations also require inspected vessels certificated for unrestricted oceans routes and inspected vessels certificated for restricted overseas routes to have onboard at all times an alcohol breath-testing device capable of determining the presence of alcohol in an individual's system. The voyages of oceangoing vessels take the vessel and its crew far from shore-based facilities where alcohol testing can be conducted. If an SMI were to occur during the voyage, the vessel would not be able to return to a shore-based facility soon enough to complete alcohol testing for the results to indicate whether alcohol was present in an individual's system at the time the SMI occurred. Requiring marine employers to have testing devices onboard these vessels at all times makes it possible for them to ensure that proper alcohol testing is conducted in a timely manner.

Section 2303a applies to all commercial vessels. The majority of these vessels are not currently required to carry alcohol-testing devices on board the vessel. A regulatory requirement to conduct testing within the statutory timeframes cannot, by itself, ensure that alcohol testing after an SMI will be done within 2 hours. For the same reason we currently require oceangoing vessels to carry alcohol breath-testing devices onboard at all times, all other commercial vessels should also carry testing devices onboard their vessels. Having the devices onboard would make it possible for a marine employer to conduct the required alcohol testing within two hours after the occurrence of an SMI.

Given a choice between Evidential Breath Testing (EBT) devices or breath Alcohol Screening Devices (ASDs), we believe that most commercial vessel owners and operators would elect to carry breath ASDs for determining the presence of alcohol in an individual's system. Our assumption is based on the cost differential between the more expensive EBT and less expensive breath ASD. However, the cost of the less expensive breath ASD could still be too expensive for the smallest commercial vessel owners and operators. Providing vessel owners and operators with a wider variety of alcohol-testing devices to choose from would give them more control over the cost of compliance. Therefore, we are proposing to allow commercial vessel owners or operators to carry either breath or saliva ASDs to satisfy the requirement to carry alcohol-testing devices onboard their vessels.

DISCUSSION OF PROPOSED RULE

Statutory Time Requirements for Alcohol Testing After an SMI

The Coast Guard proposes adding § 4.06-3, "Requirements for alcohol and drug testing following a serious marine incident," which would require commercial vessel marine employers to conduct alcohol testing within two hours after an SMI, unless precluded by safety concerns directly related to the casualty, as mandated by § 2303a. If alcohol testing is not completed within two hours based on this exception, it must be done within eight hours of the casualty. An explanation on the casualty report form CG-2692B would be required for alcohol testing that is not completed within the prescribed two-hour timeframe, and an additional explanation would be required when testing is not completed within the eight-hour timeframe.

Also, the notice proposes adding a provision in this section requiring drug testing be conducted as soon as possible after an SMI but no later than 32 hours after its occurrence. We would require the same type of explanation on the casualty reporting form when drug testing is not completed within the prescribed times as when alcohol testing is not completed within provided timeframes.

Responsibility of Individuals Directly Involved in SMIs

The proposed rulemaking would amend § 4.06-5, "Responsibility of individuals directly involved in serious marine incidents," so that individuals subject to alcohol testing after an SMI would be prohibited from consuming alcoholic beverages for eight hours following the SMI, or until after the required alcohol testing is completed.

Adding a Requirement to Carry Alcohol-testing Devices

The proposed rulemaking would add § 4.06-15, "Availability of chemical testing devices," which would require marine employers to have sufficient breath- or saliva-alcohol testing devices capable of determining the presence of alcohol in an individual's system on board vessels. This requirement would make it possible for owners and operators to comply with the statute's two-hour timeframe for alcohol testing.

The proposed rulemaking would also move § 4.06-20(b), which requires commercial vessel owners and operators to have drug-testing kits readily available for use following an SMI, to this new section.

Allowing Use of Saliva-Alcohol Testing Devices

To prevent a redundancy, the proposed rulemaking would move the specimen collection requirements in § 4.06-10 to the specimen collection requirements in § 4.06-20. It will also propose including saliva, along with blood and breath, as specimens that can be collected for alcohol testing. For alcohol

testing conducted aboard vessels, it would allow vessel owners and operators to choose any breath- or saliva-alcohol testing device that can determine the presence of alcohol in an individual's system. For drug testing, we will keep the current requirement for testing kits complying with 49 CFR part 40.

Delay of Implementation

The proposed rule would have a delayed implementation date of 180 days to ensure that all marine employers subject to a new carriage requirement have ample time to procure and learn how to use the required equipment.

ASSESSMENT

This proposed rule is not a "significant regulatory action" under Section 3(f) of Executive Order 12866 and does not require an assessment of potential costs and benefits under Section 6(a)(3) of that Order. It is, however, considered "significant" under the regulatory policies and procedures of the Department of Transportation (DOT) (44 FR 11040, February 26, 1979). A draft regulatory assessment of the benefits and costs of the rulemaking is below.

Benefits

The Act mandates that alcohol testing must be conducted within 2 hours of an SMI. The proposal would establish a requirement for all commercial vessels to have alcohol testing devices readily available to comply with the testing requirements. The statutory time limit and the expanded carriage requirement serve as additional deterrents from crewmembers using alcohol and illegal drugs while working on a commercial vessel.

As required by 46 C.F.R. §4.05-10, form CG-2692 must be completed after each SMI. Test results are reported on this form. The proposed rule would require that the test be conducted within 2 hours of the incident, whereas under the current regulation the time that elapses following the incident and when the test is conducted can not be determined. The proposal would provide more accurate information relating to the role alcohol and illegal drugs play in SMIs.

Costs

The cost estimate for the rulemaking is approximately \$144 million. The assumptions for this estimate are explained below and are followed by the methodology and analysis.

Assumptions

1. The rule would become effective in the year 2003. This analysis includes costs up to and including the year 2012 (10 years).
2. All dollar values are discounted to 2002 present value at a 7 percent discount rate.

3. An estimated 180,819 vessels would be required to comply with the proposed requirement (80,819 documented vessels + 100,000 undocumented vessels).
4. Although some of these 180,819 vessels would be within 2 hours of access to the shore and would thus not have to carry alcohol-testing devices on board, this analysis makes the conservative assumption that all these vessels would comply with the carriage requirement in the proposed rulemaking. This assumption is made primarily because it is difficult to estimate the number of vessels that would be more than 2 hours away from land.
5. The proposed rule would allow employers to choose the most cost effective testing equipment. For the purposes of analysis, this analysis assumes that employers will choose a device listed in the National Highway Transit Safety Administration (NHTSA) "Conforming Products List of Alcohol Screening Devices"² or the "Conforming Products List of Evidential Breath Measurement Devices."³ See Appendix A for a comparison of alcohol tests considered in the development of the proposed rule.
6. The prices for alcohol screening devices used in this analysis are \$97 for saliva ASDs and \$393 for breath ASDs, based on a survey. This analysis also assumes that the prices for these products would remain constant.
7. The proportion of vessel owners that choose saliva ASDs to conduct breath-testing following SMIs is 90 percent, while 10 percent choose to use breath ASDs. Saliva ASDs are considerably cheaper, with lower initial costs.
8. No vessel owners select EBTs because of their much higher cost
9. Each type of device would require specific training for its use. Each vessel would annually train 4 mariners to use the testing device for the first year the regulation is in effect. For each following year, each vessel would train 2 mariners to use the testing device.
10. Training would be conducted by another mariner that is a member of each vessel's crew or by a trained professional.
11. Training would take ½ hour to learn how to appropriately use saliva ASDs, and 1 hour for breath ASDs.
12. The cost per mariner to be trained, trainer, or professional would be \$35 per hour.

² The latest version was published in the Federal Register (66 FR 22639, May 4, 2001). Other subsequent versions may be published by NHTSA.

³ The latest version was published in the Federal Register (65 FR 45419, July 2 1, 2000). Other subsequent versions may be published by NHTSA.

13. Saliva ASDs would be replaced every other year, whereas breath ASDs need not be replaced for the 10-year period of the analysis.⁴

Affected Population

The proposed rule would affect all vessels used for commercial purposes. A query of the Coast Guard’s Marine Safety Management System (MSMS) database revealed that there are 83,400 commercial vessels⁵ documented with the Coast Guard as of April 2001. Of these, about 2,600 vessels are already required to carry alcohol breath-testing devices because they engage on international voyages, are documented, and are inspected by the Coast Guard. An additional 80,800 documented vessels identified by MSMS would, therefore, be required to meet the proposed requirement (See Table 1 for exact figures).

Commercial vessels less than 5 gross tons are not required to be documented with the Coast Guard, but would be required to comply with the proposed rule. The Coast Guard estimates that about 100,000 vessels currently operate in U.S. waters for commercial purposes, and documentation is not required on these vessels. This includes about 63,000 undocumented fishing vessels, as estimated by the Port and Facility Compliance Division (G-MOC-3). This analysis uses the affected population of 180,819 vessels (80,819 documented commercial vessels + 100,000 undocumented commercial vessels) as shown in Table 1.

Table 1: Affected Population

Type of Vessels	Number of Vessels
Total documented vessels.	83,411
Documented vessels that already carry a device.	2,592
Additional documented vessels that would be required to carry a device by the proposed rule. ⁶	80,819
Undocumented commercial vessels that would be required to comply with the proposed rule. ⁷	100,000
Total number of commercial vessels that would be required to comply with the proposed rule. ⁸	180,819

Prices for Testing Equipment and Training

Prices for testing equipment were derived through a survey of the products listed in the NHTSA Conforming Products Lists. This analysis uses the median prices for saliva ASDs. Table 2 below shows the prices for saliva and breath ASDs as quoted to the Coast Guard. These are the types of equipment that most vessels would likely carry. See Appendix B for prices on EBT devices.

⁴ Saliva ASDs are moisture sensitive. Protective coatings or sealants may deteriorate or become weathered with time. Also, some saliva ASDs become inactive after freezing. For these reasons, it is reasonable to assume that saliva ASDs would need to be replaced every 2 years.

⁵ This estimate excludes vessels whose service is categorized as “Recreational.”

⁶ “Total documented vessels” minus “Documented vessels that already carry a device.”

⁷ Coast Guard estimate.

⁸ “Documented vessels that would be required to carry a device by the proposed rule” plus “Undocumented commercial vessels that would be required to comply with the proposed rule.”

Table 2: Prices for Alcohol Screening Devices

Product	Quoted Price and Assumption Notes	Price	
Saliva Alcohol Screening Devices			
Product A	\$1.88 per stick Sold in packages of 24. If vessel carries 24 sticks, then \$45 per vessel. Would need to be replaced every 2 years.	\$45	
Product B	\$3.86 per stick Sold in packages of 25. If vessel carries 25 sticks, then \$97 per vessel. Would need to be replaced every 2 years.	\$97	→ Median
Product C	\$5 to \$7 per stick If vessel carries 25 sticks, then \$150 per vessel. Would need to be replaced every 2 years.	\$150	
Breath Alcohol Screening Devices			
Product D	\$331 per device. No other equipment is needed for calibration. One device per vessel, and it would last for 10 years.	\$331	
Product E	\$393 per device. No other equipment is needed for calibration. One device per vessel, and it would last for 10 years.	\$393	} Median
Product F	\$393 per device. No other equipment is needed for calibration. One device per vessel, and it would last for 10 years.	\$393	
Product G	\$487 per device. No other equipment is needed for calibration. One device per vessel, and it would last for 10 years.	\$487	

Using the training assumptions listed above, the cost of training per vessel would be \$88 for vessels that use saliva ASDs.⁹ The cost of training per vessel would be \$175 for vessels that use breath ASDs.¹⁰ For each following year, vessels using saliva ASDs would retrain 2 new workers (\$35 per vessel¹¹), and vessels using breath ASDs would do the same (\$105 per vessel¹²).

Cost of Devices

From the total affected population of 180,819 vessels, this analysis assumes that 90 percent choose saliva ASDs, and 10 percent choose breath ASDs. This analysis also assumes that no vessel owners select EBTs because

⁹ Rounding up from \$87.5 for 5 mariners (4 being trained and 1 performing the training) * 0.5 hours for training * \$35 per hour.

¹⁰ Using 5 mariners (4 being trained and 1 performing the training) * 1 hour for training * \$35 per hour.

¹¹ Rounding up from \$52.5 for 3 mariners (2 being trained and 1 performing the training) * 0.5 hours * \$35 per hour.

¹² Using 3 mariners (2 being trained and 1 performing the training) * 1 hour * \$35 per hour.

of their much higher cost.¹³ The vessel population using saliva ASDs is calculated as 162,737 (180,819 × 0.9), and the vessel population using breath ASDs as 18,082 (180,819 × 0.1). Total cost to industry — with 90 percent of vessels using saliva ASDs and 10 percent using breath ASDs — is \$144,371,261 (about \$144 million) as depicted in Table 3.

**Table 3: Total Cost to Industry
(90 Percent of Affected Population Using Saliva ASDs, and 10 Percent of Affected Population Using Breath ASDs)**

Device	Details	Cost
Saliva ASD	Testing device	97
	Training	88
	Initial Cost per Vessel	185
	PV Cost for 90% of Vessels	123,211,952
Breath ASD	Testing device	393
	Training	175
	Initial Cost per Vessel	568
	PV Cost for 10% of Vessels	21,159,309
Total		\$ 144,371,261

The costs to commercial vessels acquiring saliva ASDs and breath ASDs, as well as their present values, are calculated and shown in Tables 4 and 5. Most of the cost is incurred in “Year 1” because the proposed rule does not have a phase-in period beyond 1 year.

¹³ See section on “Other Alternatives Considered” for additional discussion.

**Table 4: Costs for Saliva ASDs
(90 Percent of Affected Population and Replacement Every Other Year)**

Year	Detail of Costs	Costs	Present Value (2002 \$)
Year 1 2003	Testing Device	97	
	Training	88	
	Annual Cost per Vessel	185	
	Cost for 90 Percent of Affected Population	\$30,106,345	
Year 2 2004	Training Cost per Vessel	53	
	Cost for 90 Percent of Affected Population	8,625,061	
Year 3 2005	Replacement Cost + Training per Vessel	150	
	Cost for 90 Percent of Affected Population	24,410,550	
Year 4 2006	Training Cost per Vessel	53	
	Cost for 90 Percent of Affected Population	8,625,061	
Year 5 2007	Replacement Cost + Training per Vessel	150	
	Cost for 90 Percent of Affected Population	24,410,550	
Year 6 2008	Training Cost per Vessel	53	
	Cost for 90 Percent of Affected Population	8,625,061	
Year 7 2009	Replacement Cost + Training per Vessel	150	
	Cost for 90 Percent of Affected Population	24,410,550	
Year 8 2010	Training Cost per Vessel	53	
	Cost for 90 Percent of Affected Population	8,625,061	
Year 9 2011	Replacement Cost + Training per Vessel	150	
	Cost for 90 Percent of Affected Population	24,410,550	
Year 10 2012	Training Cost per Vessel	53	
	Cost for 90 Percent of Affected Population	8,625,061	
Total Cumulative Present Value			\$123,211,952

**Table 5: Costs for Breath ASDs
(10 Percent of Affected Population)**

Year	Detail of Costs	Costs	Present Value (2002 \$)
Year 1 2003	Testing device	393	
	Training	175	
	Initial Cost per Vessel	568	
	Cost for 10 Percent Affected Population	\$10,270,576	
Year 2 2004	Retraining per vessel	105	
	Total Retraining	1,898,610	
Year 3 2005	Retraining	105	
	Total Retraining	1,898,610	
Year 4 2006	Retraining	105	
	Total Retraining	1,898,610	
Year 5 2007	Retraining	105	
	Total Retraining	1,898,610	
Year 6 2008	Retraining	105	
	Total Retraining	1,898,610	
Year 7 2009	Retraining	105	
	Total Retraining	1,898,610	
Year 8 2010	Retraining	105	
	Total Retraining	1,898,610	
Year 9 2011	Retraining	105	
	Total Retraining	1,898,610	
Year 10 2012	Retraining	105	
	Total Retraining	1,898,610	
Total Cumulative Present Value			\$21,159,309

Government Costs

This proposed rule should not have an adverse effect on Coast Guard resources. All Coast Guard law enforcement platforms and most Marine Safety Offices are equipped with readily accessible breath-testing devices and have personnel capable of using the equipment for alcohol testing. The rule would not require Coast Guard units to respond to the scene of every SMI to conduct the required alcohol testing because doing so would burden resources already engaged in other missions such as search and rescue, drug interdiction, migrant interdiction, marine safety, and environmental protection.

Although it is impractical to make the Coast Guard responsible for testing mariners in every SMI, it is not unreasonable to expect the Coast Guard to conduct alcohol testing if investigators arrive on scene within the prescribed timeframe and are properly equipped with alcohol testing devices. This practice would not have an overly burdensome effect on Coast Guard resources.

ALTERNATIVES CONSIDERED TO THE PROPOSED RULE

For the rulemaking, two other alternatives were considered. One alternative would have required all vessels to carry EBTs, listed in the NHTSA "Conforming Products List of Evidential Breath Measurement Devices." The cost of this alternative would be about \$650 million in present value over 10 years. Because EBTs have high initial costs as well as related equipment supplies costs over the 10 years of the analysis, the total cost of this alternative is extremely high. The median cost for the initial purchase of an EBT device is \$2,621, and equipment supplies need to be replaced every 2.5 years. This means that if the devices were purchased on 1 January 2003 (Year 1), then there would be equipment supplies costs incurred on 1 July 2005 (Year 3), 1 January 2008 (Year 6), and 1 July 2010 (Year 8). Because of the extreme cost associated with the procurement and maintenance of EBTs, this alternative was dismissed.

The other regulatory alternative considered would have allowed commercial vessel owners or operators to carry either EBTs or breath ASDs¹⁴ listed on the NHTSA "Conforming Products List of Alcohol Screening Devices" on board the vessel to meet a carriage requirement and the statutory time requirement. Using EBTs or breath ASDs (effectively excluding all saliva ASDs) would cost approximately \$212 million. The cost estimate assumes that all vessels choose breath ASDs because EBTs have a much higher cost than breath ASDs both in procurement and in maintenance. Given the choice of carrying EBTs or breath ASDs, vessel owners will most likely select to carry breath ASDs. The median cost for the initial purchase of a breath ASD device is \$393.

Within this second alternative, there was some debate as to whether saliva ASDs should be allowed, or whether only breath ASDs should be allowed. After an analysis of the costs associated with using only breath ASDs, it was

¹⁴ Breath ASDs include only devices that use breath as means to detect the presence of alcohol, but its results are not admissible as evidence in court of a law.

decided that saliva ASDs should be allowed, as their lower cost and facility of use would result in lower overall costs to industry. This would add saliva as an additional method of alcohol testing. Restricting commercial vessels to carry a device to test a person's blood or breath for the presence of alcohol forces a sizeable cost on vessel owners or operators. Because the cost of saliva ASDs is lesser than breath ASDs or EBTs, this alternative is the least costly while providing the widest selection of testing devices. The chosen alternative allows for the use of saliva ASDs and costs \$144 million, as described earlier. For lowest and highest cost estimates, see Appendix C.

SMALL ENTITIES

Under the Regulatory Flexibility Act [5 U.S.C. 601 et seq.], the Coast Guard considered whether this proposed rule, if adopted, would have a significant economic impact on a substantial number of small entities. "Small entities" include small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000.

The rule affects approximately 3,500 small entities, based on the determination made by the Small Business Administration (SBA) in the North American Industry Classification System (NAICS codes 4831, 4832, 4872, 48831, 48832, 48833).¹⁵ The SBA defines small entities either by revenue size or by employee size for all NAICS sectors. Firms with revenues less than \$5 million and firms with fewer than 500 employees are defined as Small Entities. For the NAICS sectors and sub-sectors that apply to this analysis, SBA defined NAICS Codes 4831 (Deep Sea, Coastal, & Great Lakes water transportation) and 4832 (Inland Water Transportation) by employee size and the rest by revenue size. Those sectors defined by revenue size are: Scenic & Sightseeing Transportation (water), Port & Harbor Operations, Marine Cargo Handling, and Navigational Services to Shipping.

To determine the impact of the cost of the rule on these companies, the following assumptions were made:

- Firms with revenues less than \$499,999 or employ fewer than 20 employees own 5 vessels.
- Firms with revenues in the range of \$500,000 to \$5 million or employ 20 to 500 employees own 10 vessels.

Using the per-vessel cost from Table 3 and the assumptions above, a cost estimate per company can be calculated. This is shown in Table 6 below.

¹⁵ Please see Appendix D for more detailed information and calculations.

Table 6: Cost Incurred per Company

	Using Saliva ASDs		Using Breath ASDs	
	Initial Cost (\$)	Recurring Cost (\$)	Initial Cost (\$)	Recurring Cost (\$)
Cost Per Vessel	185	150	568	105
For a Company that owns 5 vessels	925	750	2,840	525
For a Company that owns 10 vessels	1,850	1,500	5,680	1,050

The cost impact of selecting either breath ASDs or saliva ASDs can be calculated, and it is shown in Table 7. Costs would be a very small percentage of revenues for almost all companies. The initial cost burden is up to 6.12 percent of revenues for companies owning 5 vessels and using breath ASDs. However, it is reasonable to assume that under these circumstances the companies in question would select saliva ASDs, which would be a much smaller burden to them.

Table 7: Cost Burden as a Percentage of Annual Revenues for Small Entities

For a Company that owns:		Using Saliva ASDs		Using Breath ASDs	
		Initial	Recurring	Initial	Recurring
5 vessels	Cost	\$925	\$750	\$2,840	\$525
	Impact (Cost / Average Revenue)	0.01% to 1.99%	0.01% to 1.62%	0.04% to 6.12%	0.01% to 1.13%
10 vessels	Cost	\$1,850	\$1,500	\$5,680	\$1,050
	Impact (Cost / Average Revenue)	0.002% to 0.41%	0.001% to 0.33%	0.01% to 1.25%	0.001 to 0.23%

Therefore, the Coast Guard certifies that this proposed rule would not have a significant economic impact on a substantial number of small entities under section 605(b) of the Regulatory Flexibility Act [5 U.S.C. 601 et seq.].

COLLECTION OF INFORMATION

Under the Paperwork Reduction Act [44 U.S.C. 3501 et seq.], the Office of Management and Budget (OMB) reviews each proposed rule that contains a collection-of-information requirement to determine whether the practical value of the information is worth the burden imposed by its collection. Collection-of-

information requirements include reporting, recordkeeping, monitoring, notification, posting, labeling, and other similar actions. The information collection requirements are calculated for the standard 3-year period in accordance with OMB.

The proposed regulation would require marine employers to document the reason for delaying the alcohol test on form CG-2692B if testing were not completed within the 2-hour timeframe. If the alcohol test is not completed within the 8-hour timeframe, the marine employer must document the reason for the further delay of testing on form CG-2692B. The requirement to report this information would be promulgated in 46 CFR 4.06-3. We would accordingly revise form CG-2692B to record the results of all types of testing (blood, breath, saliva, etc.).

The proposed requirement could potentially change the burden of the previously approved collection (filling out form CG-2692B, OMB 2115-0003). The possible additional burden imposed by this proposed rule is estimated to be so minimal that it does not merit changing the approved collection (a couple of additional minutes whenever documentation is needed). OMB approved, on previous submissions, the one-hour burden of completing the forms needed to report a marine casualty (CG-2692, CG-2692A, and CG2692B). We estimate that about 6,000 forms are currently filled out on annual basis. With the proposed regulation in place, it would be very rare and unusual for the required test not to be conducted within the proposed timeframes.

FEDERALISM

The carriage requirement proposed by the rulemaking should be viewed as an unfunded mandate and may have an effect on State or local governments. However, the rule does not impose a substantial cost of compliance on State or local governments and as such, does not have implications for Federalism under Executive Order 13132.

UNFUNDED MANDATES

Under the Unfunded Mandate Reform Act (Pub. L. 104-4), the Coast Guard must consider whether the rule would result in an annual expenditure by state, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million (adjusted annually for inflation). The Act also requires (in Section 205) that the Coast Guard identify and consider a reasonable number of regulatory alternatives and, from those alternatives, select the least costly, cost-effective, or least burdensome alternative that achieves the objective of the rule.

TAKING OF PRIVATE PROPERTY

The proposed rule would not effect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS

The proposed rule will not have tribal implications; will not impose substantial direct compliance costs on Indian tribal governments; and will not preempt tribal law. Therefore, it is exempt from the consultation requirements of Executive Order 13175. If tribal implications are identified during the comment period the Coast Guard will undertake appropriate consultations with the affected Indian Tribal officials.

CIVIL JUSTICE REFORM

The proposed rule meets applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

PROTECTION OF CHILDREN

The proposed rule has been analyzed under Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. The rule is not an economically significant rule and does not concern an environmental risk to health or risk to safety that may disproportionately affect children.

ENERGY EFFECTS

The rule has been analyzed under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution or Use. The proposed rule is not a "significant energy action" under that order because it is not a "significant regulatory action" under Executive Order 12866 and is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The Administrator of the Office of Information and Regulatory Affairs has not designated the proposed rule as a significant energy action. Therefore, it does not require a Statement of Energy Effects under Executive Order 13211.

ENVIRONMENT

The rulemaking would not have any environmental impact. Therefore, the Coast Guard concluded that under figure 2-1, paragraph (34) (c), of Commandant Instruction M16475.1C, the rule is categorically excluded from further environmental documentation.

APPENDIX A: COMPARISON OF AVAILABLE ALCOHOL TESTS

Alcohol Tests Available	Compliance w/ Regulations	Capabilities	Approximate Cost
Blood Test	Complies with regulations if completed by qualified medical personnel	<ul style="list-style-type: none"> • Can measure accurate breath alcohol content (BAC) of an individual • Can be used as evidence in any proceeding • Blood specimen must be taken by qualified medical personnel • Invasive test 	<ul style="list-style-type: none"> • \$105 - \$165 per test at a laboratory facility.
Breath-testing Device EBT	Complies with current regulations.	<ul style="list-style-type: none"> • DOT/NHTSA publishes list of EBTs on Conforming Products List • Accurate level BAC • Capable of printer hook up • Portable • Requires trained operator • Requires calibration equipment • Requires routine calibration and maintenance • Can be used as evidence in any proceeding • Non-invasive 	<ul style="list-style-type: none"> • \$429-\$8,453 for EBT • \$225 for calibration equipment • \$140 per year for training • \$50 for disposable mouthpieces

APPENDIX A: COMPARISON OF ALCOHOL TESTS AVAILABLE (Continued)

Alcohol Tests Available	Compliance w/ Regulations	Device Capabilities	Approximate Cost
Breath-testing Device ASD	Complies with regulations.	<ul style="list-style-type: none"> • Accurately detects the presence of alcohol • Portable, some devices are disposable • Can be used by any individual who can follow manufacturer's directions • Can be used in CG administrative proceedings • Non-invasive • DOT/NHTSA list of approved breath screening devices 	<ul style="list-style-type: none"> • Breath devices \$331-\$487 • \$3 per ampulized crystal tube
Saliva ASD	Does not comply with current regulations (but was not an option when original regulations were instituted). Some saliva tests are approved by DOT/NHTSA as screening devices.	<ul style="list-style-type: none"> • DOT/NHTSA publishes list of alcohol screening devices Conforming Products List • Accurately detects the presence of alcohol • Portable • Can be used by any person who can follow manufacturer's directions • Can be used in CG administrative proceedings • Disposable • Non-invasive 	\$2 - \$7 per saliva test device

APPENDIX B: PRICES OF ALCOHOL TESTING DEVICES

Product	Quoted Price and Assumption Notes	Price	
Saliva Alcohol Screening Devices			
Product A	\$1.88 per stick Sold in packages of 24. If vessel carries 24 sticks, then \$45 per vessel. Would need to be replaced every 2 years.	\$45	
Product B	\$3.86 per stick Sold in packages of 25. If vessel carries 25 sticks, then \$97 per vessel. Would need to be replaced every 2 years.	\$97	→Median
Product C	\$5 to \$7 per stick If vessel carries 25 sticks, then \$150 per vessel. Would need to be replaced every 2 years.	\$150	
Breath Alcohol Screening Devices			
Product D	\$331 per device. No other equipment is needed for calibration. One device per vessel, and it would last for 10 years.	\$331	
Product E	\$393 per device. No other equipment is needed for calibration. One device per vessel, and it would last for 10 years.	\$393	} Median
Product F	\$393 per device. No other equipment is needed for calibration. One device per vessel, and it would last for 10 years.	\$393	
Product G	\$487 per device. No other equipment is needed for calibration. One device per vessel, and it would last for 10 years.	\$487	
Evidential Breath-testing Alcohol Devices			
Product H	\$429 per device, \$50 for 250 mouthpieces, and \$225 dry gas/regulator for calibration. One device per vessel, and it would last for 10 years.	\$704	
Product I	\$575 per device, \$50 for 250 mouthpieces, and \$225 dry gas/regulator for calibration. One device per vessel, and it would last for 10 years.	\$850	
Product J	\$490 per device, \$44 for 200 mouthpieces, \$425 simulator for calibration, \$3 battery, \$2 calibration screw driver, and \$50 video. One device per vessel, and it would last for 10 years.	\$1,014	
Product K	\$695 per device, \$28 for 100 mouthpieces, and \$330 dry gas/regulator for calibration. One device per vessel, and it would last for 10 years.	\$1,053	
Product L	\$690 per device, \$425 simulator for calibration, mouthpieces included, \$3 battery, \$2 calibration tool, and \$50 video. One device per vessel, and it would last for 10 years.	\$1,170	

**APPENDIX B: PRICES OF ALCOHOL TESTING DEVICES
(Continued)**

Product	Quoted Price and Assumption Notes	Price
Evidential Breath-testing Alcohol Devices (Continued)		
Product M	\$1,799 per device, mouthpieces included, \$225 dry gas/regulator for calibration, \$14 printer ribbon and \$33 tamper evident printing rolls. One device per vessel, and it would last for 10 years.	\$2,071
Product N	\$2,000 per device, \$447 simulator, and \$100 other supplies. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$2,547
Product O	\$2,349 per device, \$225 dry gas/regulator for calibration, \$14 printer ribbon, and \$33 tamper evident printing rolls. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$2,621
Product P	\$2,250 per device, \$425 simulator, \$45 printer battery \$11 printer cartridge, \$20 evidence tape, and \$50 video. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$2,801
Product Q	\$2,250 per device, \$425 simulator, \$45 printer battery \$11 printer cartridge, \$20 evidence tape, and \$50 video. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$2,801
Product R	\$2,250 per device, \$425 simulator, \$45 printer battery \$11 printer cartridge, \$20 evidence tape, and \$50 video. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$2,801
Product S	\$2,885 per device, \$225 dry gas/regulator for calibration, \$14 printer ribbon, and \$33 tamper evident rolls. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$3,157
Product T	\$3,675, \$50 video, \$6 slip printer paper, and \$40 evidence tape. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$3,771
Product U	\$7,485 per device. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$7,485
Product V	\$8,453 per device. All other needed equipment is included. One device per vessel, and it would last for 10 years.	\$8,453

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APPENDIX C: COST CALCULATIONS FOR ALCOHOL TESTING DEVICES

**Table C-1: Summary of Cost Estimates for Alcohol Testing Devices
(100 Percent of Vessels for Each Type and Price Cost of Device)**

Device	Lowest Cost		Median Cost		Highest Cost	
Saliva ASD	Testing device	45	Testing device	97	Testing device	150
	Training	88	Training	88	Training	88
	Annual Cost per Vessel	133	Annual Cost per Vessel	185	Annual Cost per Vessel	238
	PV Cost / All Vessels	\$ 102,765,715	PV Cost to All Vessels	\$ 136,902,252	PV Cost to All Vessels	\$ 171,695,262
ASD	Testing device	487	Testing device	487	Testing device	487
	Training	175	Training	175	Training	175
	Initial Cost per Vessel	662	Initial Cost per Vessel	662	Initial Cost per Vessel	662
	PV Cost / All Vessels	\$ 201,114,560	PV Cost to All Vessels	\$ 211,591,923	PV Cost to All Vessels	\$ 227,476,956
EBT	Testing device	429	Testing device	2,349	Testing device	8,453
	Mouth pieces	50	Dry gas/regulator	225		
	Dry gas/regulator	225	Printer Ribbon	14		
			Evidence Tape	33		
	Training	175	Training	175	Training	175
	Initial Cost per Vessel	879	Initial Cost per Vessel	2,796	Initial Cost per Vessel	8,628
	PV Cost / All Vessels	\$ 297,281,743	PV Cost / All Vessels	\$ 649,509,364	PV Cost / All Vessels	\$ 1,640,172,608

APPENDIX C: COST CALCULATIONS FOR ALCOHOL TESTING DEVICES (Continued)

Table C-2: Lowest Cost Estimate of Saliva ASDs for 100 Percent of Vessels and Replacement Every Other Year

Year	Description of Costs	Cost	Present Value (2002 \$)
Year 1 2003	Testing device	45	
	Training	88	
	Annual Cost per Vessel	133	
	Cost for All Vessels	24,048,927	22,475,633
Year 2 2004	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	8,370,519
Year 3 2005	Replacement Cost + Training per Vessel	98	
	Cost for All Vessels	17,720,262	14,465,012
Year 4 2006	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	7,311,135
Year 5 2007	Replacement Cost + Training per Vessel	98	
	Cost for All Vessels	17,720,262	12,634,302
Year 6 2008	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	6,385,829
Year 7 2009	Replacement Cost + Training per Vessel	98	
	Cost for All Vessels	17,720,262	11,035,289
Year 8 2010	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	5,577,630
Year 9 2011	Replacement Cost + Training per Vessel	98	
	Cost for All Vessels	17,720,262	9,638,648
Year 10 2012	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	4,871,718
Total Cumulative Present Value			\$102,765,715

Table C-3: Lowest Cost Estimate of Breath ASDs for 100 Percent of Vessels

Year	Description of Costs	Costs	Present Value (2002 \$)
Year 1 2003	Testing Device	487	
	Training	175	
	Initial Cost per Vessel	662	
	Cost for Entire Vessel Population	91,494,414	85,508,798
Year 2 2004	Retraining per Vessel	105	
	Total Costs per Vessel	18,985,995	16,583,103
Year 3 2005	Retraining	105	
	Total Costs per Vessel	18,985,995	15,498,227
Year 4 2006	Retraining	105	
	Total Costs per Vessel	18,985,995	14,484,325
Year 5 2007	Retraining	105	
	Total Costs per Vessel	18,985,995	13,536,752
Year 6 2008	Retraining	105	
	Total Costs per Vessel	18,985,995	12,651,170
Year 7 2009	Retraining	105	
	Total Costs per Vessel	18,985,995	11,823,523
Year 8 2010	Retraining	105	
	Total Costs per Vessel	18,985,995	11,050,022
Year 9 2011	Retraining	105	
	Total Costs per Vessel	18,985,995	10,327,123
Year 10 2012	Retraining	105	
	Total Costs per Vessel	18,985,995	9,651,517
Total Cumulative Present Value			\$201,114,560

**APPENDIX C: COST CALCULATIONS FOR ALCOHOL
TESTING DEVICES (Continued)**

**Table C-4: Lowest Cost Estimate of Evidential Breath-testing Devices for
100 Percent of Vessels**

Year	Testing Devices & Training	Cost	Present Value (2002 \$)
Year 1 2003	Testing Device	429	
	Mouth Pieces	50	
	Dry Gas/Regulator	225	
	Training	175	
	Initial Cost per Vessel	879	
	Cost for Entire Vessel Population	158,939,901	148,541,964
Year 2 2004	No Equipment Supplies Costs	-	
	Training Costs per Vessel	105	
	Cost for Entire Population	18,985,995	16,583,103
Year 3 2005	No Equipment Supplies Costs	-	
	Training Costs per Vessel	105	
	Cost for Entire Population	18,985,995	15,498,227
Year 4 2006	No Equipment Supplies Costs	-	
	Training Costs per Vessel	105	
	Cost for Entire Population	18,985,995	14,484,325
Year 5 2007	No Equipment Supplies Costs	-	
	Training Costs per Vessel	105	
	Cost for Entire Population	18,985,995	13,536,752
Year 6 2008	Mouthpieces	50	
	Replacement Cost for Dry Gas/Regulator	225	
	Training Costs per Vessel	105	
	Total Cost per Vessel	380	
	Cost for Entire Population	68,711,220	45,785,187
Year 7 2009	No Equipment Supplies Costs	-	
	Training Costs per Vessel	105	
	Cost for Entire Population	18,985,995	11,823,523
Year 8 2010	No Equipment Supplies Costs	-	
	Training Costs per Vessel	105	
	Cost for Entire Population	18,985,995	11,050,022
Year 9 2011	No Equipment Supplies Costs	-	
	Training Costs per Vessel	105	
	Cost for Entire Population	18,985,995	10,327,123
Year 10 2012	No Equipment Supplies Costs	-	
	Training Costs per Vessel	105	
	Cost for Entire Population	18,985,995	9,651,517
Total Cumulative Present Value			\$297,281,743

APPENDIX C: COST CALCULATIONS FOR ALCOHOL TESTING DEVICES (Continued)

Table C-5: Median Cost Estimate of Saliva ASDs for 100 Percent of Vessels and Replacement Every Other Year

Year	Description of Costs	Costs	Present Value
Year 1 2003	Testing device	97	
	Training	88	
	Annual Cost per Vessel	185	
	Cost for All Vessels	33,451,515	31,263,098
Year 2 2004	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	8,370,519
Year 3 2005	Replacement Cost + Training per Vessel	150	
	Cost for All Vessels	27,122,850	22,140,325
Year 4 2006	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	7,311,135
Year 5 2007	Replacement Cost + Training per Vessel	150	
	Cost for All Vessels	27,122,850	19,338,217
Year 6 2008	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	6,385,829
Year 7 2009	Replacement Cost + Training per Vessel	150	
	Cost for All Vessels	27,122,850	16,890,748
Year 8 2010	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	5,577,630
Year 9 2011	Replacement Cost + Training per Vessel	150	
	Cost for All Vessels	27,122,850	14,753,033
Year 10 2012	Training Cost per Vessel	53	
	Cost for All Vessels	9,583,407	4,871,718
Total Cumulative Present Value			\$136,902,252

Table C-6: Median Cost Estimate of Breath ASDs for 100 Percent of Vessels

Year	Description of Costs	Costs	Present Value (2002 \$)
Year 1 2003	Testing Device	487	
	Training	175	
	Initial Cost per Vessel	662	
	Cost for Entire Vessel Population	102,705,192	95,986,161
Year 2 2004	Retraining per Vessel	105	
	Total Costs per Vessel	18,985,995	16,583,103
Year 3 2005	Retraining	105	
	Total Costs per Vessel	18,985,995	15,498,227
Year 4 2006	Retraining	105	
	Total Costs per Vessel	18,985,995	14,484,325
Year 5 2007	Retraining	105	
	Total Costs per Vessel	18,985,995	13,536,752
Year 6 2008	Retraining	105	
	Total Costs per Vessel	18,985,995	12,651,170
Year 7 2009	Retraining	105	
	Total Costs per Vessel	18,985,995	11,823,523
Year 8 2010	Retraining	105	
	Total Costs per Vessel	18,985,995	11,050,022
Year 9 2011	Retraining	105	
	Total Costs per Vessel	18,985,995	10,327,123
Year 10 2012	Retraining	105	
	Total Costs per Vessel	18,985,995	9,651,517
Total Cumulative Present Value			\$211,591,923

**APPENDIX C: COST CALCULATIONS FOR ALCOHOL
TESTING DEVICES (Continued)**

**Table C-7: Median Cost Estimate of Evidential Breath-testing Devices for
100 Percent of Vessels**

Year	Testing Devices & Training	Cost	Present Value (2002 \$)
Year 1 2003	Testing Device Dry Bas/Regulator Printer Ribbon Evidence Tape Training Initial Cost per Vessel Cost for Entire Vessel Population	2,349 225 14 33 175 2,796 505,569,924	 472,495,256
Year 2 2004	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	 16,583,103
Year 3 2005	Additional Mouthpieces Replacement of Printer Battery Replacement of Printer cartridge Training Costs per Vessel Total Cost per Vessel Cost for Entire Population	21 53 14 105 193 34,898,067	 28,487,218
Year 4 2006	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	 14,484,325
Year 5 2007	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	 13,536,752
Year 6 2008	Replacement Cost for Dry Gas/Regulator Replacement of Printer Battery Replacement of Printer Cartridge Replacement of Evidence Tape Training Costs per Vessel Total Cost per Vessel Cost for Entire Population	225 53 14 33 105 430 77,752,170	 51,809,554
Year 7 2009	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	 11,823,523
Year 8 2010	Additional Mouthpieces Replacement of Printer Battery Replacement of Printer Cartridge Training Costs per Vessel Total Cost per Vessel Cost for Entire Population	21 53 14 105 193 34,898,067	 20,310,993
Year 9 2011	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	 10,327,123
Year 10 2012	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	 9,651,517
Total Cumulative Present Value			\$649,509,364

APPENDIX C: COST CALCULATIONS FOR ALCOHOL TESTING DEVICES (Continued)

Table C-8: Highest Cost Estimate of Saliva ASDs for 100 Percent of Vessels and Replacement Every Other Year

Year	Detail of Costs	Costs	Present Value (2002 \$)
Year 1 2003	Testing Device	150	
	Training	88	
	Annual Cost per Vessel	238	
	Cost for All Vessels	43,034,922	
Year 2 2004	Training Cost per Vessel	53	8,370,519
	Cost for All Vessels	9,583,407	
Year 3 2005	Replacement Cost + Training per Vessel	203	29,963,240
	Cost for All Vessels	36,706,257	
Year 4 2006	Training Cost per Vessel	53	7,311,135
	Cost for All Vessels	9,583,407	
Year 5 2007	Replacement Cost + Training per Vessel	203	26,171,054
	Cost for All Vessels	36,706,257	
Year 6 2008	Training Cost per Vessel	53	6,385,829
	Cost for All Vessels	9,583,407	
Year 7 2009	Replacement Cost + Training per Vessel	203	22,858,812
	Cost for All Vessels	36,706,257	
Year 8 2010	Training Cost per Vessel	53	5,577,630
	Cost for All Vessels	9,583,407	
Year 9 2011	Replacement Cost + Training per Vessel	203	19,965,772
	Cost for All Vessels	36,706,257	
Year 10 2012	Training Cost per Vessel	53	4,871,718
	Cost for All Vessels	9,583,407	
Total Cumulative Present Value			\$171,695,262

Table C-9: Highest Cost Estimate of Breath ASDs for 100 Percent of Vessels

Year	Detail of Costs	Costs	Present Value (2002 \$)
Year 1 2003	Testing Device	487	
	Training	175	
	Initial Cost per Vessel	662	
	Cost for Entire Vessel Population	119,702,178	
Year 2 2004	Retraining per Vessel	105	16,583,103
	Total Costs per Vessel	18,985,995	
Year 3 2005	Retraining	105	15,498,227
	Total Costs per Vessel	18,985,995	
Year 4 2006	Retraining	105	14,484,325
	Total Costs per Vessel	18,985,995	
Year 5 2007	Retraining	105	13,536,752
	Total Costs per Vessel	18,985,995	
Year 6 2008	Retraining	105	12,651,170
	Total Costs per Vessel	18,985,995	
Year 7 2009	Retraining	105	11,823,523
	Total Costs per Vessel	18,985,995	
Year 8 2010	Retraining	105	11,050,022
	Total Costs per Vessel	18,985,995	
Year 9 2011	Retraining	105	10,327,123
	Total Costs per Vessel	18,985,995	
Year 10 2012	Retraining	105	9,651,517
	Total Costs per Vessel	18,985,995	
Total Cumulative Present Value			\$227,476,956

**APPENDIX C: COST CALCULATIONS FOR ALCOHOL
TESTING DEVICES (Continued)**

**Table C-10: Highest Cost Estimate of Evidential Breath-testing Devices for
100 Percent of Vessels**

Year	Testing Devices & Training	Cost	Present Value (2002\$)
Year 1 2003	Testing Device Training Initial Cost per Vessel Cost for Entire Vessel Population	8,453 175 8,628 1,560,106,332	1,458,043,301
Year 2 2004	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	16,583,103
Year 3 2005	Additional Mouthpieces Simulator Solution Replacement of Printer Cartridge Training Costs per Vessel Total Cost per Vessel Cost for Entire Population	27 143 14 105 289 52,256,691	42,657,026
Year 4 2006	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	14,484,325
Year 5 2007	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	13,536,752
Year 6 2008	Simulator Solution Replacement of Printer Cartridge Replacement of Evidence Tape Training Costs per Vessel Total Cost per Vessel Cost for Entire Population	143 14 9 105 271 49,001,949	32,652,068
Year 7 2009	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	11,823,523
Year 8 2010	Additional Mouthpieces Simulator Solution Replacement of Printer Cartridge Training Costs per Vessel Total Cost per Vessel Cost for Entire Population	27 143 14 105 289 52,256,691	30,413,870
Year 9 2011	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	10,327,123
Year 10 2012	No Equipment Supplies Costs Training Costs per Vessel Cost for Entire Population	- 105 18,985,995	9,651,517
Total Cumulative Present Value			\$1,640,172,608

APPENDIX D: SMALL ENTITIES CONSIDERED AND IMPACT

Table D-1: Average Revenue Calculations for Companies in Small Entity Revenue and Employee Size Ranges

NAICS Code	Sector	Employee size range	Number of firms	Number of establishments	Revenue (\$1,000)	Average Revenue (\$)
4831	Deep Sea, Coastal, & Great Lakes water transportation					
	Firms operating for the entire year		730	1162	\$19,796,526	
		<5	233	233	\$214,726	\$921,571
		5 to 9	140	144	\$393,442	\$2,810,300
		10 to 19	114	127	\$765,413	\$6,714,149
		20 to 49	112	123	\$975,214	\$8,707,268
		50 to 99	44	67	\$1,499,025	\$34,068,750
		100 to 249	41	136	\$2,035,250	\$49,640,244
		250 to 499	24	111	\$2,520,011	\$105,000,458
	Firms not operated for the entire year		65	146	\$542,367	\$8,408,791
	Total number of Small Entities		773			
4832	Inland water transportation					
	Firms operating for the entire year		431	483	\$3,626,901	
		<5	144	144	\$66,221	\$459,868
		5 to 9	84	84	\$85,974	\$1,023,500
		10 to 19	80	83	\$144,256	\$1,803,200
		20 to 49	60	65	\$286,052	\$4,767,533
		50 to 99	27	36	\$219,951	\$8,146,333
		100 to 249	22	35	\$576,276	\$26,194,364
		250 to 499	8	11	\$571,842	\$71,480,250
	Firms not operated for the entire year		65	130	\$53,374	\$821,138
	Total number of Small Entities		490			

APPENDIX D: SMALL ENTITIES CONSIDERED AND IMPACT (Continued)

**Table D-1: Average Revenue Calculations for Companies in Small Entity Revenue and Employee Size Ranges
(Continued)**

NAICS Code	Sector	Revenue range (\$)	Number of firms	Number of establishments	Revenue (\$1,000)	Average Revenue (\$)
4872	Scenic & Sightseeing transportation, water					
	Firms operating for the entire year		913	946	\$882,838	
	<100,000		218	218	D*	D
	100,000 to 249,999		263	263	\$42,244	\$160,624
	250,000 to 499,999		170	171	\$59,428	\$349,576
	500,000 to 999,999		123	126	\$84,360	\$685,854
	1,000,000 to 2,499,999		80	83	\$120,511	\$1,506,388
	2,500,000 to 499,999,999		31	38	\$106,459	\$3,434,161
	Firms not operated for the entire year		373	746	\$245,787	\$659,831
	Total number of Small Entities		1258			
48831	Port & Harbor Operations					
	Firms operating for the entire year		123	152	\$866,933	
	<100,000		8	8	\$371	\$46,375
	100,000 to 249,999		19	19	\$3,217	\$169,316
	250,000 to 499,999		12	12	\$4,245	\$353,750
	500,000 to 999,999		16	17	\$11,196	\$699,750
	1,000,000 to 2,499,999		21	27	\$33,916	\$1,615,048
	2,500,000 to 499,999,999		12	13	\$42,202	\$3,516,833
	Firms not operated for the entire year		8	16	\$22,192	\$2,774,000
	Total number of Small Entities		96			

APPENDIX D: SMALL ENTITIES CONSIDERED AND IMPACT (Continued)

**Table D-1: Average Revenue Calculations for Companies in Small Entity Revenue and Employee Size Ranges
(Continued)**

NAICS Code	Sector	Revenue range (\$)	Number of firms	Number of establishments	Revenue (\$1,000)	Average Revenue (\$)
48832	Marine Cargo Handling					
	Firms operating for the entire year		346	571	\$4,425,593	
		<100,000	30	30	\$1,663	\$55,433
		100,000 to 249,999	34	34	D	D
		250,000 to 499,999	47	47	\$16,808	\$357,617
		500,000 to 999,999	33	35	\$24,292	\$736,121
		1,000,000 to 2,499,999	64	74	\$106,273	\$1,660,516
		2,500,000 to 499,999,999	47	57	\$167,382	\$3,561,319
	Firms not operated for the entire year		26	52	\$30,650	\$1,201,961
	Total number of Small Entities		281			
48833	Navigational Services to Shipping					
	Firms operating for the entire year		646	729	\$1,482,358	
		<100,000	60	60	\$3,105	\$51,750
		100,000 to 249,999	196	196	D	D
		250,000 to 499,999	133	133	\$46,822	\$352,045
		500,000 to 999,999	67	69	\$45,258	\$675,493
		1,000,000 to 2,499,999	79	81	\$123,803	\$1,567,127
		2,500,000 to 499,999,999	43	55	\$154,095	\$3,583,605
	Firms not operated for the entire year		68	136	\$30,844	\$453,588
	Total number of Small Entities		646			
	Total number of firms**		3543			

* The term "D" in the cells indicates that the information was not provided by NAICS.

** Only companies within the valid definition of Small Entities were used to calculate the total number. Of those firms not operating the entire year, this analysis assumes half would be Small Entities. Their cost burdens were not considered.

APPENDIX D: SMALL ENTITIES CONSIDERED AND IMPACT (Continued)

Table D-2: Impact of Cost on Small Entities – Cost per Company/Average Revenue in Percentage

			Initial/Saliva ASD	Annual/Saliva ASD	Initial/Breath ASD	Annual/Breath ASD
Cost to companies owning 10 vessels			\$1,850	\$1,500	\$5,680	\$1,050
Cost to companies owning 5 vessels			\$925	\$750	\$2,840	\$525
NAICS Code & Sector	Employee Range	Average Revenue (\$)	Cost burden of saliva ASDs/Initial (%)	Annual cost burden of saliva ASDs sticks (%)	Cost burden of breath ASDs/Initial (%)	Annual cost burden of breath ASDs (%)
4831 Deep Sea, Coastal, & Great Lakes water transportation						
Firms operating for the entire year						
	<5	\$921,571	0.10	0.08	0.31	0.06
	5 to 9	\$2,810,300	0.03	0.03	0.10	0.02
	10 to 19	\$6,714,149	0.01	0.01	0.04	0.01
	20 to 49	\$8,707,268	0.02	0.02	0.07	0.01
	50 to 99	\$34,068,750	0.01	0.00	0.02	0.00
	100 to 249	\$49,640,244	0.00	0.00	0.01	0.00
	250 to 499	\$105,000,458	0.00	0.00	0.01	0.00
	Firms not operated for the entire year	\$8,408,791	0.02	0.02	0.07	0.01
4832 Inland water transportation						
Firms operating for the entire year						
	<5	\$459,868	0.20	0.16	0.62	0.11
	5 to 9	\$1,023,500	0.09	0.07	0.28	0.05
	10 to 19	\$1,803,200	0.05	0.04	0.16	0.03
	20 to 49	\$4,767,533	0.04	0.03	0.12	0.02
	50 to 99	\$8,146,333	0.02	0.02	0.07	0.01
	100 to 249	\$26,194,364	0.01	0.01	0.02	0.00
	250 to 499	\$71,480,250	0.00	0.00	0.01	0.00
	Firms not operated for the entire year	\$821,138	0.23	0.18	0.69	0.13

APPENDIX D: SMALL ENTITIES CONSIDERED AND IMPACT (Continued)

Table D-2: Impact of Cost on Small Entities – Cost per Company/Average Revenue in Percentage (Continued)

		Initial/Saliva ASD	Annual/Saliva ASD	Initial/Breath ASD	Annual/Breath ASD	
Cost to companies owning 10 vessels		\$1,850	\$1,500	\$5,680	\$1,050	
Cost to companies owning 5 vessels		\$925	\$750	\$2,840	\$525	
NAICS Code & Sector	Revenue range (\$)	Average Revenue (\$)	Cost burden of saliva ASDs/Initial (%)	Annual cost burden of saliva ASDs (%)	Cost burden of breath ASDs/Initial (%)	Annual cost burden of breath ASDs (%)
4872 Scenic & Sightseeing transportation, water						
Firms operating for the entire year						
	<100,000					
	100,000 to 249,999	\$160,624	0.58	0.47	1.77	0.33
	250,000 to 499,999	\$349,576	0.26	0.21	0.81	0.15
	500,000 to 999,999	\$685,854	0.27	0.22	0.83	0.15
	1,000,000 to 2,499,999	\$1,506,388	0.12	0.10	0.38	0.07
	2,500,000 to 499,999,999	\$3,434,161	0.05	0.04	0.17	0.03
Firms not operated for the entire year		\$659,831	0.28	0.23	0.86	0.16
48831 Port & Harbor Operations						
Firms operating for the entire year						
	<100,000	\$46,375	1.99	1.62	6.12	1.13
	100,000 to 249,999	\$169,316	0.55	0.44	1.68	0.31
	250,000 to 499,999	\$353,750	0.26	0.21	0.80	0.15
	500,000 to 999,999	\$699,750	0.26	0.21	0.81	0.15
	1,000,000 to 2,499,999	\$1,615,048	0.11	0.09	0.35	0.07
	2,500,000 to 499,999,999	\$3,516,833	0.05	0.04	0.16	0.03
Firms not operated for the entire year		\$2,774,000	0.07	0.05	0.20	0.04

APPENDIX D: SMALL ENTITIES CONSIDERED AND IMPACT (Continued)

Table D-2: Impact of Cost on Small Entities – Cost per Company/Average Revenue in Percentage (Continued)

		Initial/Saliva ASD	Annual/Saliva ASD	Initial/Breath ASD	Annual/Breath ASD	
Cost to companies owning 10 vessels		\$1,850	\$1,500	\$5,680	\$1,050	
Cost to companies owning 5 vessels		\$925	\$750	\$2,840	\$525	
NAICS Code & Sector	Revenue range (\$)	Average Revenue (\$)	Cost burden of saliva sticks/Initial (%)	Annual cost burden of saliva sticks (%)	Cost burden of ASDs/Initial (%)	Annual cost burden of ASDs (%)
48832 Marine Cargo Handling						
Firms operating for the entire year						
	<100,000	\$55,433	1.67	1.35	5.12	0.95
	100,000 to 249,999	D	D	D	D	D
	250,000 to 499,999	\$357,617	0.26	0.21	0.79	0.15
	500,000 to 999,999	\$736,121	0.25	0.20	0.77	0.14
	1,000,000 to 2,499,999	\$1,660,516	0.11	0.09	0.34	0.06
	2,500,000 to 499,999,999	\$3,561,319	0.05	0.04	0.16	0.03
	Firms not operated for the entire year	\$1,201,961	0.15	0.12	0.47	0.09
48833 Navigational Services to Shipping						
Firms operating for the entire year						
	<100,000	\$51,750	1.79	1.45	5.49	1.01
	100,000 to 249,999	D	D	D	D	D
	250,000 to 499,999	\$352,045	0.26	0.21	0.81	0.15
	500,000 to 999,999	\$675,493	0.27	0.22	0.84	0.16
	1,000,000 to 2,499,999	\$1,567,127	0.12	0.10	0.36	0.07
	2,500,000 to 499,999,999	\$3,583,605	0.05	0.04	0.16	0.03
	Firms not operated for the entire year	\$453,588	0.41	0.33	1.25	0.23