

# Control of Emissions from Marine SI and Small SI Engines, Vessels, and Equipment

## Draft Regulatory Impact Analysis

### Chapter 10 Small-Business Flexibility Analysis

Assessment and Standards Division  
Office of Transportation and Air Quality  
U.S. Environmental Protection Agency

CHAPTER 10: Small-Business Flexibility Analysis

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## CHAPTER 10: Small-Business Flexibility Analysis

This chapter discusses our Initial Regulatory Flexibility Analysis (IRFA) which evaluates the potential impacts of the proposed standards on small entities. The Regulatory Flexibility Act, as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Pursuant to this requirement, we have prepared an IRFA for the proposed rule. Throughout the process of developing the IRFA, we conducted outreach and held meetings with representatives from the various small entities that could be affected by the rulemaking to gain feedback, including recommendations, on how to reduce the impact of the rule on these entities. The small business recommendations stated here reflect the comments of the small entity representatives (SERs) and members of the Small Business Advocacy Review Panel (SBAR Panel, or ‘the Panel’).

### 10.1 Overview of the Regulatory Flexibility Act

In accordance with section 609(b) of the Regulatory Flexibility Act, we convened an SBAR Panel before conducting the IRFA. A summary of the Panel’s recommendations is presented in the preamble of this proposed rulemaking. Further, a detailed discussion of the Panel’s advice and recommendations is found in the Final Panel Report contained in the docket for this proposed rulemaking.

Section 609(b) of the Regulatory Flexibility Act further directs the Panel to report on the comments of small entity representatives and make findings on issues related to identified elements of the IRFA under section 603 of the Regulatory Flexibility Act. Key elements of an IRFA are:

- A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;
- Projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements and the type of professional skills necessary for preparation of the report or record;
- An identification to the extent practicable, of all other relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule;
- Any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

The Regulatory Flexibility Act was amended by SBREFA to ensure that concerns regarding small entities are adequately considered during the development of new regulations

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that affect those entities. Although we are not required by the Clean Air Act to provide special treatment to small businesses, the Regulatory Flexibility Act requires us to carefully consider the economic impacts that our rules will have on small entities. The recommendations made by the Panel may serve to help lessen these economic impacts on small entities when consistent with Clean Air Act requirements.

### **10.2 Need for the Rulemaking and Rulemaking Objectives**

A detailed discussion on the need for and objectives of this proposed rule are located in the preamble to the proposed rule. As presented in Chapter 8, controlling exhaust and evaporative emissions from Small SI engines and equipment and Marine SI engines and vessel has important public health and welfare benefits.

Section 213(a) of the CAA directs EPA to: (1) conduct a study of emissions from nonroad engines and vehicles; (2) determine whether emissions of CO, NO<sub>x</sub>, and VOCs from nonroad engines and vehicles are significant contributors to ozone or CO in more than one area which has failed to attain the National Ambient Air Quality Standard (NAAQS) for ozone or CO; and (3) if nonroad emissions are determined to be significant, regulate those categories or classes of new nonroad engines and vehicles that cause or contribute to such air pollution. Section 213(a)(3) states that the emission standards “shall achieve the greatest degree of emission reduction achievable through the application of technology” giving appropriate consideration to cost, noise, energy, safety, and lead time.

The Nonroad Engine and Vehicle Emission Study required by section 213(a)(1) was completed in November 1991. The determination of the significance of emissions from nonroad engines and vehicles in more than one NAAQS nonattainment area was published on June 17, 1994. At the same time, the first set of regulations for new land-based nonroad compression-ignition (CI) engines at or above 37 kW was promulgated. EPA has also issued proposed or final rules for most other categories of nonroad engines, including engines used in lawn and garden equipment, recreational marine vessels, forklifts, recreational vehicles, locomotives, and ships. In addition, EPA has revised the emission standards for many of these categories of nonroad engines one or more times to achieve further emission reductions.

In addition to the general authority to regulate nonroad engines under the CAA, section 428 of the Omnibus Appropriations Bill for 2004 requires EPA to propose and finalize new regulations for nonroad spark-ignition engines less than 50 horsepower (hp). The Bill directs EPA to propose regulations by December 1, 2004 and finalize them by December 31, 2005. EPA’s assessment of new standards is to be carried out under section 213 of the CAA.

Finally, section 205 of Public Law 109-54 included an additional requirement that EPA complete a technical study, to look at safety issues related to the potential standards called for under the Omnibus Appropriations Bill for 2004. The law directed EPA to complete the study prior to issuing the proposal called for in the Omnibus Appropriations Bill for 2004. In response to this requirement, EPA prepared a technical study on safety in coordination with the Consumer Product Safety Commission (CPSC). The study analyzes the incremental risk of fire and burn to

consumers that could result from the new standards. EPA published the study in March 2006.

In response to these requirements, today’s action proposes controls on exhaust and evaporative emissions from Small SI engines and equipment and Marine SI engines and vessels.

### 10.3 Definition and Description of Small Entities

Small entities include small businesses, small organizations, and small governmental jurisdictions. For the purposes of assessing the impacts of the proposed rule on small entities, a small entity is defined as: (1) a small business that meets the definition for business based on the Small Business Administration’s (SBA) size standards (see Table 10.3-1); (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. Table 10.3-1 provides an overview of the primary SBA small business categories potentially affected by this regulation.

**Table 10.3-1: Small Business Definitions for Entities Affected by this Rule**

Industry	NAICS Codes <sup>a</sup>	Defined as small entity by SBA if less than or equal to: <sup>b</sup>
Nonroad SI Engine Manufacturers	333618	1,000 employees
Equipment Manufacturers:		
Farm Machinery	333111	500 employees
Lawn and Garden	333112	500 employees
Construction	333120	750 employees
Sawmill and Woodworking	333210	500 employees
Pumps	333911	500 employees
Air and Gas Compressors	333912	500 employees
Generators	335312	1,000 employees
Boat Builders	336612	500 employees
Fuel Tank Manufacturers:		
Other Plastic Products	326199	500 employees
Metal Stamping	332116	500 employees
Metal Tank (Heavy Gauge)	332420	500 employees
Fuel Hose Manufacturers:		
Rubber and Plastics Hoses	326220	500 employees

<sup>a</sup> North American Industry Classification System

<sup>b</sup> As defined in SBA’s regulations at 13 CFR part 121.

#### 10.3.1 Small SI Engines and Equipment

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For Small SI engines and equipment, the SBA small business size standards are 1,000 employees for engine manufacturers, 1,000 employees for generator manufacturers, 750 employees for construction equipment manufacturers, and 500 employees for manufacturers of other types of equipment. To identify companies that meet these criteria, we compiled a list of engine manufacturers and equipment manufacturers using information from a database prepared by Power Systems Research (PSR) that contains data on Small SI engines and equipment sold in the United States. EPA augmented this information with the list of engine manufacturers currently certifying with EPA under the Small SI engine regulations. We then found employment data for each company (or parent company if an individual company is part of a larger group) using databases such as the Thomas Register and Dunn and Bradstreet.

The SBA small business size standard for manufacturers that produce fuel tanks or fuel hose is 500 employees. To identify companies that meet this criterion, we compiled a list of manufacturers that produce fuel tanks and fuel hoses for the Small SI equipment market. The list was based on information from the California Air Resources Board, who has recently adopted requirements for Small SI engine fuel tank and fuel hose manufacturers, and additional information from Small SI equipment manufacturers and the Association of Rotational Molders International. We then found employment data for each of the companies (or parent company if an individual company is part of a larger group) using databases such as Thomas Register and onsourceexpress.com and discussions with some of the manufacturers.

### **10.3.2 Marine SI Engines and Vessels**

For Marine SI engines and vessels, the SBA small business size standards are 1,000 employees for engine manufacturers and 500 employees for boat builders. To identify companies that meet these criteria, we used a number of different sources. For engine manufacturers, we compiled a list based on the engine manufacturers currently certifying with EPA and the California Air Resources Board (CARB) under the existing Marine SI engine regulations and augmented the list with additional information on SD/I manufacturers, who do not currently have to certify with EPA. We gathered additional information from boat shows, the Internet, trade magazines, the National Marine Manufacturers Association (NMMA), and discussions with individual manufacturers. For vessel manufacturers, we used information from a database of boat builders maintained by the U.S. Coast Guard.

The SBA small business size standard for manufacturers that produce fuel tanks or fuel hose is 500 employees. For fuel tank and fuel hose manufacturers, we compiled a list based on information gathered from the NMMA, trade shows, the Internet and discussions with manufacturers. We then found employment data for these companies (or parent company if an individual company is part of a larger group) using databases such as Thomas Register and discussions with trade groups and individual manufacturers.

## **10.4 Summary of Small Entities to Which the Rulemaking Will Apply**

As noted above, for each sector impacted by this proposal, SBA defines small entities by

number of employees. This section gives an overview of the Small SI engine and equipment industries and the Marine SI engine and vessel industries, specifically related to small businesses.

### 10.4.1 Small SI Engines and Equipment

Based on EPA certification records, the Small SI nonhandheld engine industry is made up primarily of large manufacturers including Briggs and Stratton, Tecumseh, Honda, Kohler and Kawasaki. The Small SI handheld engine industry is also made up primarily of large manufacturers including Electrolux Home Products, MTD, Homelite, Stihl and Husqvarna. EPA has identified 10 Small SI engine manufacturers that qualify as a small business under SBA definitions. Half of these small manufacturers certify gasoline engines and the other half certify liquefied petroleum gas (LPG) engines.

The Small SI equipment market is dominated by a few large businesses including Toro, John Deere, MTD, Briggs and Stratton, and Electrolux Home Products. While the Small SI equipment market may be dominated by just a handful of companies, there are many small businesses in the market; however these small businesses account for less than 10 percent of equipment sales. We have identified over three hundred equipment manufacturers that qualify as a small business under the SBA definitions. More than 90 percent of these small companies manufacture less than 5,000 pieces of equipment per year. The median employment level is 65 employees for nonhandheld equipment manufacturers and 200 employees for handheld equipment manufacturers. The median sales revenue is approximately \$9 million for nonhandheld equipment manufacturers and \$20 million for handheld equipment manufacturers.

EPA has identified 25 manufacturers that produce fuel tanks for the Small SI equipment market that meet the SBA definition of a small business. Fuel tank manufacturers rely on three different processes for manufacturing plastic tanks – rotational molding, blow molding and injection molding. EPA has identified small business fuel tank manufacturers using the rotational molding and blow molding processes but has not identified any small business manufacturers using injection molding. In addition, EPA has identified two manufacturers that produce fuel hose for the Small SI equipment market that meet the SBA definition of a small business. The majority of fuel hose in the Small SI market is made by large manufacturers including Avon Automotive and Dana Corporation.

### 10.4.2 Marine SI Engines and Vessels

Based on EPA certification records, the OB/PWC market is made up primarily of large manufacturers including, Brunswick (Mercury), Bombardier Recreational Products, Yamaha, Honda, Kawasaki, Polaris, Briggs & Stratton, Nissan, and Tohatsu. One company that qualifies as a small business under the SBA definitions has certified their product as a PWC. This company is Surfango who makes a small number of motorized surfboards.

The SD/I market is made up mostly of small businesses; however, these businesses account for less than 20 percent of engine sales. Two large manufacturers, Brunswick

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(Mercruiser) and Volvo Penta, dominate the market. We have identified 28 small entities manufacturing SD/I marine engines. The third largest company is Indmar, which qualifies as a small business based on the SBA threshold of 1,000 employees. Based on sales estimates, number of employees reported by Thomas Register, and typical engine prices, we estimate that the average revenue for the larger small SD/I manufacturers is about \$50-60 million per year. However, the vast majority of the SD/I engine manufacturers produce low production volumes of engines and typically have less than 50 employees.

The two largest boat building companies are Brunswick and Genmar. Brunswick owns approximately 25 boat companies and Genmar owns approximately 12 boat companies. Based on a manufacturer list maintained by the U.S. Coast Guard, there are over 1,600 boat builders in the United States. We estimate that, based on manufacturer identification codes, more than 1,000 of these companies produce boats using gasoline marine engines. According to the National Marine Manufacturers Association (NMMA), most of these boat builders are small businesses. These small businesses range from individuals building one boat per year to businesses near the SBA small business threshold of 500 employees.

We have identified 15 marine fuel tank manufacturers in the United States that qualify as small businesses under the SBA definition. These manufacturers include five rotational molders, three blow molders, six aluminum fuel tank manufacturers, and one specialty fuel tank manufacturer. The small rotational molders average less than 50 employees while the small blow-molders average over 100 employees. Moeller qualifies as a large business because they are owned by Moore; however, their rotational molding business is a small part of the company and operates similar to the smaller businesses. Other blow-molders are in the same situation such as Attwood which is owned by Brunswick.

We have only identified one small hose manufacturer that produces for the Marine SI market. Novaflex primarily distributes hoses made by other manufacturers, but does produce its own fill neck hose. Because we expect vessel manufacturers will design their fuel systems such that there will not be standing liquid fuel in the fill neck (and therefore the proposed low permeation fuel hose requirements will not apply to the fill neck), we have not included this manufacturer in our analysis. The majority of fuel hose in the Marine SI market is made by large manufacturers including Goodyear and Parker-Hannifin.

### **10.5 Related Federal Rules**

For Small SI engines and equipment, the primary federal rules that are related to the rule under consideration are EPA Phase 1 rule for Small SI engines (60 FR 34582, July 3, 1995), EPA Phase 2 rule for Small SI nonhandheld engines (64 FR 15208, March 30, 2004), and EPA Phase 2 rule for Small SI handheld engines (65 FR 24268, April 25, 2000). For Marine SI engines and vessels, the primary federal rule that is related to the rule under consideration is EPA October 1996 final rule (61 FR 52088, October 4, 1996).

Three other federal agencies have regulations that relate to the equipment and vessels under consideration. These agencies are the Consumer Product Safety Commission (CPSC),



United States Department of Agriculture (USDA), and the United States Coast Guard (USCG). CPSC has safety requirements that apply to walk-behind lawnmowers to protect operators of such equipment. USDA has design requirements intended to reduce the potential fire threat of Small SI equipment. The USCG has safety regulations for marine engine and fuel system designs. The USCG safety regulations include standards for exhaust system temperature, fuel tank durability, and hose designs, including specific requirements related to system survivability in a fire. Manufacturers will need to consider both EPA and other federal standards when certifying their products.

### **10.6 Projected Reporting, Recordkeeping, and Other Compliance Requirements**

For any emission control program, EPA must have assurances that the regulated products will meet the standards. Historically, EPA programs for Small SI engines and Marine SI engines have included provisions placing engine manufacturers responsible for providing these assurances. The program that EPA is considering for manufacturers subject to this proposal may include testing, reporting, and record keeping requirements for manufacturers of engines, equipment, and vessels, and may also include fuel system component manufacturers if they choose to certify their fuel tank, fuel hose, and fuel cap products.

For Small SI engine manufacturers and OB/PWC engine manufacturers, EPA is proposing to continue the same reporting, record keeping, and compliance requirements prescribed in the current regulations. For SD/I engine manufacturers, which are not currently subject to EPA regulation, EPA is proposing to apply similar reporting, record keeping, and compliance requirements to those for OB/PWC engine manufacturers. Testing requirements for engine manufacturers would include certification emission (including deterioration factor) testing and production line testing. Reporting requirements would include emission test data and technical data on the engines. Manufacturers would also need to keep records of this information.

Because of the proposed evaporative emission requirements, there would be new reporting, record keeping and compliance requirements for Small SI equipment manufacturers. Small SI equipment manufacturers participating in the proposed transition program would also be subject to reporting, record keeping and compliance requirements. Depending on who chooses to certify fuel system components, there may also be new reporting, record keeping and compliance requirements for fuel tank manufacturers, fuel hose manufacturers, fuel cap manufacturers, and marine vessel manufacturers. Testing requirements for these manufacturers could include certification emission testing. Reporting requirements could include emission test data and technical data on the designs. Manufacturers would also need to keep records of this information.

### **10.7 Regulatory Alternatives**

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The Panel developed a wide range of regulatory alternatives to mitigate the impacts of the rulemaking on small businesses, and recommended that we propose and seek comment on the flexibilities. The Panel's findings and discussions are based on the information that was available during the term of the Panel and issues that were raised by the SERs during the outreach meetings and in their written comments. It was agreed that EPA should consider the issues raised by the SERs (and issues raised in the course of the Panel) and that EPA should consider the comments on flexibility alternatives that would help to mitigate any negative impacts on small businesses. Alternatives discussed throughout the Panel process include those offered in the development of the upcoming rule. Though some of the recommended flexibilities may be appropriate to apply to all entities affected by the rulemaking, the Panel's discussions and recommendations are focused mainly on the impacts, and ways to mitigate adverse impacts, on small businesses. A summary of the Panel's recommendations, along with those provisions that we are actually proposing in this action, are detailed below. A full discussion of the regulatory alternatives and hardship provisions discussed and recommended by the Panel, all written comments received from SERs, and summaries of the two outreach meetings that were held with the SERs can be found in the SBREFA Final Panel Report.<sup>1</sup> In addition, all of the flexibilities that are being proposed in the rulemaking for small businesses, as well as those for all entities that may be affected by the rulemaking, are described in the preamble to the proposed rule.

### **10.7.1 Small SI Exhaust Emission Standards**

Described below are the flexibility options recommended by the Panel and our proposed regulatory alternatives related to the Small SI nonhandheld engine exhaust emission standards.

#### **10.7.1.1 Regulatory Flexibility Options for Nonhandheld Engine Manufacturers**

##### 10.7.1.1.1 SBAR Panel Recommendations

***Additional Lead Time for Nonhandheld Engine Manufacturers*** - The Panel recommended that EPA propose two additional years of lead time before the Phase 3 standards take effect for small business engine manufacturers. For Class I engines, the effective date for small business engine manufacturers would be 2014. For Class II engines, the effective date for small business engine manufacturers would be 2013.

***Assigned Deterioration Factors*** - The Panel recommended EPA propose that small business engine manufacturers be allowed the option to use EPA-developed assigned deterioration factors in demonstrating compliance with the Phase 3 exhaust emission standards.

***Production Line Testing Exemption*** - The Panel recommended EPA propose that small business engine manufacturers be exempted from the production line testing requirements for the Phase 3 exhaust emission standards.

***Broader Definition of Engine Family*** - The Panel recommended that EPA propose allowing small business engine manufacturers to group all of their Small SI engines into a single

engine family for certification by engine class and useful life category, subject to good engineering judgment.

**Eligibility for the Small Business Flexibilities** - For purposes of determining which engine manufacturers are eligible for the small business flexibilities described above, EPA is proposing criteria based on a production cut-off of 10,000 nonhandheld engines per year for engine manufacturers. The Panel recommended that EPA propose to allow engine manufacturers which exceed the production cut-off levels noted above but meet the SBA definitions for a small business (i.e., fewer than 1,000 employees for engine manufacturers), to request treatment as a small business.

### 10.7.1.1.2 EPA's Proposed Regulatory Flexibility Options

In general, we have chosen to propose the Panel's recommended regulatory flexibility provisions. The following is a discussion of the proposed provisions.

**Additional Lead Time for Nonhandheld Engine Manufacturers** - We are proposing that small-volume engine manufacturers could delay implementation of the Phase 3 exhaust emission standards for two years (see §1045.145). Small-volume engine manufacturers would be required to comply with the Phase 3 exhaust emission standards beginning in model year 2014 for Class I engines and model year 2013 for Class II engines. Under this approach, we propose that manufacturers would be able to apply this delay to all their nonhandheld engines or to just a portion of their production. They could therefore sell engines that meet the Phase 3 standards on some product lines while delaying introduction of emission control technology on more challenging product lines. This option provides more time for small-volume engine manufacturers to redesign their products. They would also be able to learn from some of the hurdles overcome by larger manufacturers.

**Assigned Deterioration Factors** - We are proposing that small-volume engine manufacturers may rely on an assigned deterioration factor to demonstrate compliance with the standards rather than doing service accumulation and additional testing to measure deteriorated emission levels at the end of the regulatory useful life (see §1054.240). EPA is not proposing actual levels for the assigned deterioration factors with this proposal. EPA intends to analyze emissions deterioration information that becomes available over the next few years to determine what deterioration factors would be appropriate for nonhandheld engines. This data is likely to include deterioration data for engines certified to comply with CARB's Tier 3 standards and engines certified early to EPA's Phase 3 standards. Prior to the implementation date for the Phase 3 standards, EPA would provide guidance to engine manufacturers specifying the levels of the assigned deterioration factors for small-volume engine manufacturers.

**Production Line Testing Exemption** - We are proposing that small-volume engine manufacturers would be exempt from the production-line testing requirements (see §1054.301). While we are proposing to exempt small volume engine manufacturers from production line testing, we believe requiring limited production-line testing could be beneficial to remind manufacturers they have an ongoing obligation to assure production engines are complying with

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the standards. Therefore, we request comment on the alternative of applying limited production-line testing to small volume engine manufacturers with a requirement to test one production engine per year.

***Broader Definition of Engine Family*** - We are proposing that small-volume engine manufacturers may use a broader definition of engine family for certification purposes. Under the existing engine family criteria specified in the regulations, manufacturers group their various engine lines into engine families that have similar design characteristics including the combustion cycle, cooling system, cylinder configuration, number of cylinders, engine class, valve location, fuel type, aftertreatment design, and useful life category. We are proposing to allow small-volume engine manufacturers to group all of their Small SI engines into a single engine family for certification by engine class and useful life category, subject to good engineering judgment (see §1054.230).

***Eligibility for the Small Business Flexibilities*** - We are proposing to retain the current criteria (i.e., 10,000 units per year of nonhandheld engines) for determining who is a small-volume engine manufacturer and, as a result, eligible for the Phase 3 flexibilities described above (see §1054.801). Based on confidential sales data provided to EPA by engine manufacturers, the 10,000 unit cut-off for engine manufacturers would include all of the small business engine manufacturers using SBA's employee-based definition. However to ensure all small businesses that meet SBA's employee-based definition have access to the flexibilities described below, EPA is also proposing to allow engine manufacturers which exceed the production cut-off level noted above but have fewer than 1,000 employees, to request treatment as a small volume engine manufacturer (see §1054.635). In such a case, the manufacturer would need to provide information to EPA demonstrating that the manufacturer has fewer employees than the 1,000 cut-off level established by SBA.

### **10.7.1.2 Regulatory Flexibility Options for Nonhandheld Equipment Manufacturers**

#### 10.7.1.2.1 SBAR Panel Recommendations

***Additional Lead Time for Small SI Equipment Manufacturers*** - The Panel recommended that EPA propose a transition program that would allow small business equipment manufacturers to continue using Phase 2 engine designs (i.e., engines meeting the Phase 2 exhaust emission standards) during the first two years that the Phase 3 standards take effect. (For equipment using Class I engines, the provision would apply in 2012 and 2013. For equipment using Class II engines, the provision would apply in 2011 and 2012.) The Panel also recommended that EPA propose to allow small business equipment manufacturers to use Phase 3 engines without the catalyst during this initial two year period, provided the engine manufacturer has demonstrated that the engine without the catalyst would comply with the Phase 2 exhaust emission standards and labels it appropriately.

***Simplified Engine Certification for Equipment Manufacturers*** - Generally, it has been engine manufacturers who certify with EPA for the exhaust emission standards, where the standards are engine standards. However, a number of equipment manufacturers, especially

those that make low-volume models, believe it may be necessary for equipment manufacturers to certify their own unique engine/muffler designs with EPA (but using the same catalyst substrate already used in a muffler certified by the engine manufacturer. The Panel recommended that EPA propose a simplified engine certification process for small business equipment manufacturers in such situations. Under such a simplified certification process, the equipment manufacturer would need to demonstrate that it is using the same catalyst substrate as the approved engine manufacturer's family, provide information on the differences between their engine/exhaust system and the engine/exhaust system certified by the engine manufacturer, and explain why the deterioration data generated by the engine manufacturer would be representative for the equipment manufacturer's configuration.

***Eligibility for the Small Business Flexibilities*** - For purposes of determining which equipment manufacturers are eligible for the small business flexibilities described above, EPA is proposing criteria based on a production cut-off of 5,000 pieces of nonhandheld equipment per year for equipment manufacturers. The Panel recommended that EPA propose to allow equipment manufacturers which exceed the production cut-off levels noted above but meet the SBA definitions for a small business (i.e., fewer than 500 employees for most types of equipment manufacturers), to request treatment as a small business.

### 10.7.1.2.2 EPA's Proposed Regulatory Flexibility Options

In general, we have chosen to propose the Panel's recommended regulatory flexibility provisions. The following is a discussion of the proposed provisions.

***Additional Lead Time for Small SI Equipment Manufacturers*** - We are proposing that small-volume equipment manufacturers would have two extra years beyond the implementation dates for the Phase 3 standards to continue using Phase 2 engines in their Class II equipment. Alternatively, the manufacturer could use Phase 3 engines without the catalysts, provided the engine manufacturer submitted data at the time of certification showing that the engine without the catalyst complied with EPA's Phase 2 standards. As described in Section V.E.3 of the preamble, EPA is proposing a flexibility program for all equipment manufacturers that produce Class II equipment. Under that program, equipment manufacturers can install Phase 2 engines in limited numbers of Class II equipment over the first four years the Phase 3 standards apply (i.e., 2011 through 2015). The number of equipment that can use Phase 2 engines is based on 30 percent of an average annual production level of Class II equipment. In an effort to provide additional flexibility to small-volume equipment manufacturers within the context of the flexibility program, EPA is proposing that small-volume manufacturers may use Phase 2 engines at a level of 200 percent of an average annual production level of Class II equipment over the four year period (see §1054.625). Therefore, a small-volume equipment manufacturer could potentially use Phase 2 engines on all their Class II equipment for two years (consistent with the SBAR Panel's recommendation) or they might, for example, sell half their Class II equipment with Phase 2 engines for four years.

***Simplified Engine Certification for Equipment Manufacturers*** - We are proposing a simplified engine certification procedure for small-volume equipment manufacturers. (As

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discussed in Section V.E.4 of the preamble, we are also proposing this provision for other manufacturers, regardless of the company's size.) Generally, it has been engine manufacturers who certify with EPA for the exhaust emission standards because the standards are engine-based standards. However, because the Phase 3 standards under consideration are expected to result in the use of catalysts, a number of equipment manufacturers, especially those that make low-volume models, believe it may be necessary to certify their own unique engine/muffler designs with EPA, but using the same catalyst substrate already used in a muffler certified by the engine manufacturer. In order to allow the possibility of an equipment manufacturer certifying an engine/muffler design with EPA, we are proposing a simplified engine certification process for small-volume equipment manufacturers (see §1054.612). Under such a simplified certification process, the equipment manufacturer would need to demonstrate that it is using the same catalyst substrate as the approved engine manufacturer's family, provide information on the differences between their engine/exhaust system and the engine/exhaust system certified by the engine manufacturer, and explain why the emissions deterioration data generated by the engine manufacturer would be representative for the equipment manufacturer's configuration.

***Eligibility for the Small Business Flexibilities*** - EPA is proposing to retain the current criteria (i.e., 5,000 units per year of nonhandheld equipment) for determining who is a small-volume equipment manufacturer and, as a result, eligible for the Phase 3 flexibilities described above (see §1054.801). Based on sales data, the 5,000 unit cut-off for equipment manufacturers would include the vast majority of the small business equipment manufacturers using SBA's employee-based definition. However to ensure all small businesses that meet SBA's employee-based definition have access to the flexibilities described below, EPA is also proposing to allow equipment manufacturers which exceed the production cut-off level noted above but have fewer employees than the SBA definition of small business (i.e., 500 employees for manufacturers of most types of equipment), to request treatment as a small-volume equipment manufacturer (see §1054.635). In such a case, the manufacturer would need to provide information to EPA demonstrating that the manufacturer has fewer employees than the applicable employee cut-off level established by SBA.

### **10.7.2 Marine SI Exhaust Emission Standards—Regulatory Flexibility Options for SD/I Engine Manufacturers**

Described below are the flexibility options recommended by the Panel and our proposed regulatory alternatives related to the exhaust emission standards for marine SD/I engine manufacturers.

#### **10.7.2.1 SBAR Panel Recommendations**

***Additional Lead Time for SD/I Engine Manufacturers*** - The Panel recommended that EPA propose an implementation date of 2011 for  $\leq 373$  kW SD/I engines produced by small business marine engine manufacturers and an implementation date of 2013 for small business manufacturers of high performance ( $>373$  kW) SD/I marine engines. Based on the proposed 2009 implementation date for the remaining SD/I engine manufacturers (i.e., the large businesses), these dates would provide small business SD/I engine manufacturers with 2 years

additional lead time for  $\leq 373$  kW SD/I engines and 4 years additional lead time for  $>373$  kW SD/I engines.

**Exhaust Emission ABT** - EPA is proposing an averaging, banking and trading (ABT) program for the SD/I engine standards. Because EPA is proposing an ABT program for SD/I engines, the Panel recommended that EPA request comment on the desirability of credit trading between high performance and other SD/I marine engines and the impact it could have on small business.

**Early Credit Generation for ABT** - EPA is proposing an early banking program for SD/I marine engines. Under the early banking provisions, manufacturers can generate “bonus” credits for the early introduction of engines meeting the proposed emission standards. The Panel supports EPA proposing an early banking program and believes that bonus credits will provide greater incentive for more small business engine manufacturers to introduce advanced technology earlier than would otherwise occur.

**Assigned Emission Rates for High Performance ( $>373$  kW) SD/I Engines** - The Panel recommended that EPA propose to allow the use of default emission rates that could be used by small business high performance SD/I engine manufacturers as part of their certification. Based on currently available test data, the proposed default baseline emission levels for high performance engines are 30 g/kW-hr HC+NO<sub>x</sub> and 350 g/kW-hr CO.

**Alternative Standards for High Performance ( $>373$  kW) SD/I Engines** - SERs expressed concern that that catalysts have not been demonstrated on high performance engines and that they may not be practicable for this application. While EPA is proposing a standard based on the use of catalysts, EPA is requesting comment on a standard for high performance SD/I marine engines that could be met without the use of a catalyst. (Based on available data, levels of 16 g/kW-hr HC+NO<sub>x</sub> and 350 g/kW-hr CO were discussed with the SERs). The Panel recommended EPA request comment on a non-catalyst based standard for high performance marine engines.

EPA is proposing to not apply the not-to-exceed (NTE) standards to high performance SD/I engines. The Panel supports excluding high performance SD/I engines from NTE requirements.

**Broad Engine Families for High Performance ( $>373$  kW) SD/I Engines** - The Panel recommended that EPA propose allowing small businesses to group all of their high performance SD/I engines into a single engine family for certification, subject to good engineering judgment.

**Simplified Test Procedures for High Performance ( $>373$  kW) SD/I Engines** - For high performance SD/I engines, it may be difficult to hold the engine at idle or high power within the tolerances currently specified in existing EPA test procedures. The Panel recommended that EPA propose less restrictive specifications and tolerances for small businesses testing high performance SD/I engines, which would allow the use of portable emission measurement equipment.

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**Eligibility for the Small Business Flexibilities** - For purposes of determining which engine manufacturers are eligible for the small business flexibilities described above for SD/I engine manufacturers, EPA is proposing criteria based on a production cut-off of 5,000 SD/I engines per year. The Panel recommended EPA propose to allow engine manufacturers that exceed the production cut-off level noted above but meet the SBA definitions for a small business (i.e., fewer than 1,000 employees for engine manufacturers), to request treatment as a small business.

### **10.7.2.2 EPA's Proposed Regulatory Flexibility Options**

In general, we have chosen to propose the Panel's recommended regulatory flexibility provisions. The following is a discussion of the proposed provisions.

**Additional Lead Time for SD/I Engine Manufacturers** - One small business marine engine manufacturer is already using catalytic converters on some of its  $\leq 373$  kW production SD/I marine engines. These engines have been certified to meet standards adopted by CARB that are roughly equivalent to the proposed standards. However, other small businesses producing SD/I engines have stated that they are not as far along in their catalyst development efforts. These manufacturers support the concept of receiving additional time for compliance, beyond the implementation date for large manufacturers. For these reasons, EPA is proposing an implementation date of 2011 for  $\leq 373$  kW SD/I engines produced by small business marine engine manufacturers and a date of 2013 for small business manufacturers of high-performance ( $>373$  kW) marine engines (see §1045.145).

**Exhaust Emission ABT** - We are proposing an averaging, banking, and trading (ABT) credit program for exhaust emissions from SD/I marine engines (see part 1045, subpart H). Small businesses expressed some concern that ABT could give a competitive advantage to large businesses. Specifically, there was an equity concern that if credits generated by traditional ( $\leq 373$  kW) SD/I engines could be used for high-performance SD/I engines, that one large manufacturer could use these credits to meet the high-performance SD/I engine standards without making any changes to their engines. In response, EPA is requesting comment on the desirability of credit trading between high-performance and other SD/I marine engines and the impact it could have on small business.

**Early Credit Generation for ABT** - We are proposing an early banking program in which bonus credits can be earned for certifying early (see §1045.145). This program, combined with the additional lead time for small businesses, would give small-volume SD/I engine manufacturers ample opportunity to bank emission credits prior to the proposed implementation date of the standards and provide greater incentive for more small business engine manufacturers to introduce advanced technology earlier than would otherwise occur.

**Assigned Emission Rates for High Performance ( $>373$  kW) SD/I Engines** - We are proposing assigned baseline HC+NO<sub>x</sub> and CO emission rates for all high-performance SD/I engines. These assigned emission rates are based on test data presented in Chapter 4 of the draft RIA. We are also proposing assigned deterioration factors for small-volume high-performance



SD/I manufacturers. (See §1045.240.)

***Alternative Standards for High Performance (>373 kW) SD/I Engines*** - Small businesses expressed concern that that catalysts have not been demonstrated on high-performance engines and that they may not be practicable for this application. In addition, the concern was expressed that emission credits may not be available at a reasonable price. In response, we are requesting comment on the need for and level of alternative standards for high-performance marine engines. Also, we are not proposing to apply NTE standards to high-performance SD/I engines (See §1045.105).

***Broad Engine Families for High Performance (>373 kW) SD/I Engines*** - Typically in EPA engine and equipment programs, manufacturers are able to group their engine lines into engine families for certification to the standards. Engines in a given family must have many similar characteristics including the combustion cycle, cooling system, fuel system, air aspiration, fuel type, aftertreatment design, number of cylinders and cylinder bore sizes. A manufacturer would then only perform emission tests on the engine in that family that would be most likely to exceed an emission standard. We are proposing to allow small businesses to group all of their high performance SD/I engines into a single engine family for certification, subject to good engineering judgment (see §1045.230).

***Simplified Test Procedures for High Performance (>373 kW) SD/I Engines*** - Existing testing requirements include detailed specifications for the calibration and maintenance of testing equipment and tolerances for performing the actual tests. For high performance SD/I engines, it may be difficult to hold the engine at idle or high power within the tolerances currently specified by EPA in the test procedures. Therefore, we are proposing less restrictive specifications and tolerances, for small businesses testing high performance SD/I engines, which would allow the use of portable emission measurement equipment (see §1065.901(b)). This would facilitate less expensive testing for these small businesses without having a negative effect on the environment.

***Eligibility for the Small Business Flexibilities*** - For purposes of determining which engine manufacturers are eligible for the small business flexibilities described above for SD/I engine manufacturers, we are proposing criteria based on a production cut-off of 5,000 SD/I engines per year. Under this approach, we would allow engine manufacturers that exceed the production cut-off level noted above to request treatment as a small business if they have fewer than the number of employees specified above under the SBA definition of small business. In such a case, the manufacturer would need to provide information to EPA demonstrating that the manufacturer has fewer employees than the applicable employee cut-off level established by SBA.

### **10.7.3 Small SI and Marine SI Evaporative Emission Standards— Flexibility Alternatives for Equipment, Vessel, and Fuel Tank Manufacturers**

Described below are the flexibility options recommended by the Panel and our proposed regulatory alternatives related to the evaporative emission standards for Small SI engines and equipment and Marine SI engines and vessels. SERs raised many of the same issues regarding

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evaporative emission standards for both Small SI and marine applications. In fact, many of the SERs supply fuel system components to both industries. For these reasons, the Panel's recommendations on regulatory flexibility discussed below would apply to Small SI equipment and to SD/I marine vessels, except where noted.

Because the majority of fuel tanks produced for the Small SI equipment and the SD/I marine vessel market are made by small businesses, the details of the evaporative emissions program under consideration and the flexibility provisions shared by EPA with the SERs were noted as being available to all fuel tank manufacturers. Therefore, EPA is proposing the Panel recommendations on regulatory flexibility discussed below for small business fuel tank manufacturers for all fuel tank manufacturers.

### **10.7.3.1 SBAR Panel Recommendations**

***Consideration of Appropriate Lead Time*** - The Panel recommended that EPA propose to implement the fuel tank permeation standards in 2011 with an additional year (2012) for rotationally-molded marine fuel tanks. The extra year for rotational-molded marine tanks would give manufacturers time to address issues that are specific to the marine industry.

With regard to diurnal emissions control, SERs commented that they would like additional time to install carbon canisters in their vessels because of deck and hull changes that might be needed to accommodate the carbon canisters. SERs commented that they would consider asking EPA to allow the use of low permeation fuel hose prior to 2009 as a method of creating an emission neutral flexibility option for providing extra time for canisters. The Panel recommended that EPA continue discussions with the marine industry and request comment on environmentally neutral approaches to provide more flexibility in meeting the potential diurnal emission standards.

***Fuel Tank ABT and Early Incentive Program*** - The Panel recommended that EPA propose an ABT program for fuel tank permeation. The Panel also recommended that EPA request comment on including service tanks (i.e., replacement tanks) in the ABT program. Finally, the Panel recommended that EPA request comment and on an early incentive program for tank permeation.

***Broad Definition of Evaporative Emission Family for Fuel Tanks*** - The Panel recommended that EPA propose a broad emission family definition for Small SI fuel tanks and for marine fuel tanks similar to that in the regulations for recreational vehicles. Under the recreation vehicle evaporative emission regulations, EPA specifies that fuel tank permeation emission families be based on type of material (including additives such as pigments, plasticizers, and ultraviolet (UV) inhibitors), emission-control strategy, and production methods. Fuel tanks of different sizes, shapes, and wall thicknesses may be grouped into the same emission family.

***Compliance Progress Review for Marine Fuel Tanks*** - While there is clearly a difference of opinion among the SERs involved in tank manufacturing, some SERs expressed

concern that there is not an established low permeation technology available for rotationally-molded marine fuel tanks. These SERs stated that they are working on developing such technology, but do not have in-use experience to demonstrate the durability of low-permeation rotationally molded fuel tanks. The Panel recommended that if a rule is implemented, EPA undertake a “compliance progress review” assessment with the manufacturers. In this effort, EPA should continue to engage on a technical level with rotationally-molded marine fuel tank manufacturers and material suppliers to assess the progress of low permeation fuel tank development and compliance.

***Design-Based Certification*** - The Panel recommended that EPA propose a design-based certification for carbon canisters and fuel tanks. For the carbon canisters, the design requirement would call for a ratio of carbon volume (liters) to fuel tank capacity (gallons) of 0.04 liter/gallon for boats less than 26 feet in length, and 0.016 liter/gallon for larger boats. The different canister sizes are intended to account for the difference between boats normally trailered to the water for use versus boats normally stored in the water between uses. For fuel tanks, the Panel recommended that EPA propose to allow design-based certification for metal tanks and plastic fuel tanks with a continuous EVOH barrier.

SERs commented that the American Boat and Yacht Council (ABYC) and the Society of Automotive Engineers (SAE) have industry recommended practices for boat designs that must be met as a condition of membership in the National Marine Manufacturers Association (NMMA). NMMA is working to update these recommended practices to include carbon canister installation specifications and a low-permeation hose designation. The Panel recommended that EPA propose to accept data used for meeting the voluntary requirements as part of the EPA certification.

***Additional Lead Time for Small SI Fuel Hose Requirement*** - EPA is proposing to apply the fuel hose permeation requirements beginning with the 2008 model year for Small SI nonhandheld equipment. Given the short lead time before 2008, small business equipment manufacturers may not be ready for such a requirement. The Panel recommended EPA propose a 2009 implementation date for low permeation fuel hose for small business equipment manufacturers producing Small SI nonhandheld equipment.

### **10.7.3.2 EPA’s Proposed Regulatory Flexibility Options**

In general, we have chosen to propose the Panel’s recommended regulatory flexibility provisions. The following is a discussion of the proposed provisions.

***Consideration of Appropriate Lead Time*** - Consistent with the Panel recommendations, we are proposing to implement the tank permeation standards in 2011 with an additional year (2012) for rotational-molded marine fuel tanks (see §1054.110 and §1045.107). With regard to the proposed diurnal emission control requirements, we are requesting comment on environmentally neutral approaches to provide more flexibility in meeting the potential diurnal emission standards.

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***Fuel Tank ABT and Early Incentive Program*** - Consistent with the Panel recommendations, we are proposing an ABT program for fuel tank permeation and an early-allowance program for fuel tank permeation. We are requesting comment on including service tanks in the ABT program. Service tanks are fuel tanks sold as replacement parts for in-use equipment.

***Broad Definition of Evaporative Emission Family for Fuel Tanks*** - We are proposing that permeation emission families be based on type of material (including additives such as pigments, plasticizers, and UV inhibitors), emission-control strategy, and production methods. Fuel tanks of different sizes, shapes, and wall thicknesses could be grouped into the same emission family (see §1045.230 and §1054.230). Manufacturers therefore would be able to broadly group similar fuel tanks into the same emission family and then only test the configuration most likely to exceed the emission standard. Although Small SI and Marine SI fuel tanks would not be allowed in the same emission family, it would be possible to carry-across certification test data from one category to another.

***Compliance Progress Review for Marine Fuel Tanks*** - Some major manufacturers of rotational-molded marine fuel tanks have expressed concern that they do not have significant in-use experience to demonstrate the durability of low-permeation rotational-molded fuel tanks in boats. However, one manufacturer of rotational-molded fuel tanks has stated that they are already selling low permeation tanks into the Small SI market and they have plans to sell them into marine applications. To address this uncertainty, EPA notes in the preamble for the rule that it intends to continue to engage on a technical level with rotational-molded marine fuel tank manufacturers and material suppliers to assess the progress of low permeation fuel tank development and compliance. If systematic problems are identified across the industry, this would give EPA the opportunity to address the problem. If problems were identified only for individual businesses, this would give EPA early notice of the issues that may need to be addressed through the proposed hardship relief provisions.

***Design-Based Certification*** - We are proposing design-based certification for carbon canisters for boats. For the carbon canisters, the design requirement would call for a ratio of carbon volume (liters) to fuel tank capacity (gallons) of 0.04 liter/gallon for boats less than 26 feet in length, and 0.016 liter/gallon for larger boats. We are also proposing design-based certification for certain fuel tanks. For fuel tanks, we are proposing to allow design-based certification for metal tanks as well as plastic fuel tanks with a continuous EVOH barrier. With regard to the Panel recommendation that EPA accept data for its certification program that is used for meeting industry recommended practices (such as those recommended by NMMA, ABYC and SAE), we are proposing that this data could be used as part of EPA certification as long as it is collected consistent with the test procedures and other requirements proposed today.

***Additional Lead Time for Small SI Fuel Hose Requirement*** - We are proposing an implementation date of 2008 for Small SI hose permeation standards for non-handheld equipment (see §90.127). Consistent with the Panel recommendations, we are proposing a 2009 implementation date for low permeation fuel hose for small businesses producing Small SI non-handheld equipment.

#### **10.7.4 Hardship Provisions—Regulatory Flexibility Options for Engine, Equipment, Vessel, and Fuel System Component Manufacturers**

The Panel recommended that EPA propose two hardship programs for manufacturers. EPA has adopted similar hardship provisions in a number of previous rules. The following section summarizes the hardship provisions recommended by the Panel which would be available to engine manufacturers, equipment manufacturers, vessel manufacturers, and fuel system component manufacturers (i.e., fuel tank, fuel hose, and fuel cap manufacturers).

##### **10.7.4.1 SBAR Panel Recommendations**

***Unusual Circumstances Hardship*** - The Panel recommended that EPA propose a provision allowing for hardship relief under unusual circumstances for manufacturers affected by this rule. Manufacturers would be able to apply for hardship relief if circumstances outside their control cause the failure to comply and if failure to sell the subject engines or equipment would jeopardize the company's solvency. An example of an unusual circumstance outside a manufacturer's control may be an "Act of God," a fire at the manufacturing plant, or the unforeseen shut down of a supplier with no alternative available.

***Economic Hardship*** - The Panel recommended that EPA propose economic hardship provisions for small businesses affected by this rule. Small manufacturers would be able to petition EPA for limited additional lead time to comply with the standards. A manufacturer would have to make the case that it has taken all possible business, technical, and economic steps to comply, but the burden of compliance costs would have a significant impact on the company's solvency.

##### **10.7.4.2 EPA's Proposed Hardship Provisions**

We have chosen to propose the Panel's recommended regulatory flexibility provisions. The following is a discussion of the proposed provisions.

***Unusual Circumstances Hardship*** - Under the proposed unusual circumstances hardship provision, manufacturers would be able to apply for hardship relief if circumstances outside their control cause the failure to comply and if failure to sell the subject engines or equipment would jeopardize the company's solvency (see §1068.245). The terms and time frame of the relief would depend on the specific circumstances of the company and the situation involved. As part of its application for hardship, a company would be required to provide a compliance plan detailing when and how it would achieve compliance with the standards. This hardship provision would be available to all business engine manufacturers, equipment manufacturers, vessel manufacturers, and fuel system component manufacturers, regardless of size.

***Economic Hardship*** - Under the proposed economic hardship provision, small business manufacturers would be able to petition EPA for limited additional lead time to comply with the standards (see §1068.250). A manufacturer would have to make the case that it has taken all possible business, technical, and economic steps to comply, but the burden of compliance costs

would have a significant impact on the company's solvency. Hardship relief could include requirements for interim emission reductions and/or purchase and use of emission credits. The length of the hardship relief would be established during the initial review and would likely need to be reviewed annually thereafter. As part of its application for hardship, a company would be required to provide a compliance plan detailing when and how it would achieve compliance with the standards. This hardship provision would be available only to engine manufacturers, equipment manufacturers, vessel manufacturers, and fuel system component manufacturers that are small businesses.

### **10.8 Projected Economic Effects of the Proposed Rulemaking**

The following section summarizes the economic impact on small businesses of the proposed exhaust and evaporative emission standards for both Small SI engines and equipment and Marine SI engines and vessels. As noted earlier, the types of companies that will be affected by the proposed Marine SI standards include OB/PWC engine manufacturers, SD/I engine manufacturers, boat builders, and marine fuel system component manufacturers (e.g., fuel tank and fuel hose manufacturers). Similarly, the types of companies that will be affected by the Small SI standards include nonhandheld engine manufacturers, equipment manufacturers, and Small SI fuel system component manufacturers (e.g., fuel tank and fuel hose manufacturers). For the purposes of this analysis, it is assumed that engine manufacturers will bear the cost of complying with the exhaust emission standards, whereas equipment manufacturers and vessel manufacturers will bear the cost of complying with the evaporative emission standards.

To gauge the impact of the proposed standards on small businesses, EPA employed a cost-to-sales ratio test to estimate the number of small businesses that would be impacted by less than one percent, between one and three percent, and above three percent. The costs used in this analysis are based on the cost estimates developed in Chapter 6 of this Draft RIA. A description of the inputs used for each affected industry sector and the methodology used to develop the estimated impact on small businesses in each industry sector is presented in the docket for this rulemaking.<sup>2</sup>

For OB/PWC engine manufacturers, EPA identified one small business. The one small business identified by EPA manufactures their personal watercraft today using four-stroke engines with certified emission levels below the proposed standards. As a result, the estimated costs for upgrading their engines would not apply. We therefore believe the impact of the rule is well below one percent of revenues for this OB/PWC engine manufacturer.

For <373 kW SD/I engine manufacturers, EPA identified nine small businesses. Of these companies, eight produce conventional SD/I engines and the remaining one company produces SD/I engines for airboats. Of the conventional SD/I small business engine manufacturers, five of the small businesses may incur compliance costs between one and three percent of their annual revenues. Three of the small businesses that produce <373 kW SD/I engines as part of a much broader line of work (such as engine rebuilding or selling land-based engines) will be impacted by less than one percent of annual revenues.

Using available information for the airboat engine manufacturer, we project that the manufacturer will have compliance costs between one and three percent of annual revenues. Some of this company's engines are >373 kW, so their estimated compliance burden reflects a combination of costs for conventional SD/I engines and for high-performance >373 kW engines. (They are included in the conventional SD/I category for this impact analysis.) This company is unique in that it manufactures many of its engines for sale to other airboat manufacturers, resulting in a concentrated cost impact relative to their revenues.

We also identified a number of other airboat manufacturers. These small businesses making engines for airboats are less reliant on selling engines to other boat builders, instead making engines for the boats they build themselves. Most of these businesses are very small, with little ability to marshal the technical resources needed to comply with emission standards. If these companies would take on the effort to design and certify compliant engines, they would likely experience compliance costs exceeding three percent of their revenues. However, given their place in the market and the fact that they are primarily boat builders with the resourcefulness to make their own engines, we believe the most likely approach for these companies is to buy a certified engine from manufacturers of conventional SD/I engines. As such, these companies would be treated with other boat builders, in which case their main compliance cost is related to evaporative emissions (as described below). We therefore do not consider any of these companies as engine manufacturers for the purposes of analyzing the impact of the proposed standards on engine manufacturers.

For >373 kW SD/I engine manufacturers, EPA identified 19 small businesses. Of the >373 kW SD/I small business engine manufacturers, 17 of the small businesses are projected to incur compliance costs between one and three percent of their annual revenues. Two small businesses that produce >373 kW SD/I engines as part of a broader line of work (such as engine testing) will be impacted by less than one percent of annual revenues.

For boat builders, EPA believes there are over 1,000 small business manufacturers. Many of these companies make small numbers of vessels for certain segments of the marine market. Given the high cost of most boats, EPA believes the cost impact will be below one percent for all small business boat builders, including those that manufacture SD/I vessels, and OB/PWC boat manufacturers as well.

While boat builders have the primary responsibility under the proposed regulations for complying with evaporative emission standards, fuel hose and fuel tank manufacturers will have to certify their product with EPA. EPA has identified one small business that manufactures fuel hose for marine applications and 15 small businesses that manufacture fuel tanks for marine applications. The company producing fuel hose primarily distributes hoses made by other manufacturers but does produce its own fill neck hose. Because we expect vessel manufacturers will design their fuel systems such that there will not be standing liquid fuel in the fill neck (and therefore the proposed low permeation fuel hose requirements will not apply to the fill neck), we have not included this manufacturer in our analysis. Of the 15 fuel tank manufacturers, EPA has estimated that all of them will incur costs below one percent of annual revenues.

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For Small SI engine and equipment manufacturers, EPA has identified 370 small businesses.<sup>3</sup> Ten of the small businesses are engine manufacturers and the remaining companies are equipment manufacturers. Based on an analysis of sales revenues by company, EPA projects that 314 of the small businesses are estimated to incur compliance costs representing less than 1 percent of their annual revenues. EPA projects that 38 companies will incur compliance costs between 1 and 3 percent of their annual revenues, and 18 companies will incur compliance costs representing more than 3 percent of their annual revenues.

Similar to the requirements noted above for boat manufacturers under the Marine SI evaporative emission regulations, equipment manufacturers will have the primary responsibility under the regulations for complying with the Small SI evaporative emission standards. However, fuel hose and fuel tank manufacturers will have to certify their product with EPA. EPA has identified two small businesses that manufactures fuel hose for Small SI applications and 25 small businesses that manufacturer fuel tanks for Small SI applications. Of these companies, EPA has estimated that all of these companies will incur costs below one percent of annual revenues.

Table 10.8-1 summarizes the impacts of the proposed regulations on small businesses impacted by the proposed exhaust and evaporative emission standards for Small SI engines and equipment and Marine SI engines and vessels.

Table 10.8-1: Summary of Impacts on Small Businesses

Market Sector	0-1 percent	1 - 3 percent	> 3 percent
Manufacturers of Marine OB/PWC engines	1	0	0
Manufacturers of Marine SD/I engines < 373 kW	4	5	0
Manufacturers of Marine SD/I engines > 373 kW (high-performance)	2	17	0
Boat Builders	>1,000	0	0
Manufacturers of Fuel Hose and Fuel Tanks for Marine SI Vessels	15	0	0
Small SI engines and equipment	314	38	18
Manufacturers of Fuel Hose and Fuel Tanks for Small SI Applications	27	0	0
Total	363 + >1,000 boat builders	60	18



For a complete discussion of the economic impacts of the proposed rulemaking, see Chapter 9, the Economic Impact Analysis chapter, of this Draft Regulatory Impact Analysis.

### **Chapter 10 References**

1. Final Panel Report of the Small Business Advocacy Review Panel on EPA's Planned Proposed Rule—Control of Emissions from Nonroad Spark-Ignition Engines and Equipment, October 17, 2006. (A copy has been placed in docket EPA-HQ-OAR-2004-0008.)
2. “Small Business Impact Memo, Control of Emissions from Nonroad Spark-Ignition Engines and Equipment,” EPA memorandum from Phil Carlson to the EPA Docket, March 6, 2007. (Docket Identification EPA-HQ-OAR-2004-0008-0547.)
3. “Small Entity Analysis of Small Spark Ignition Nonroad Engine and Equipment Manufacturers,” memorandum from Alex Rogozhin and Brooks Depro, RTI International, to Phil Carlson, U.S. EPA, December 15, 2006. (Docket Identification EPA-HQ-OAR-2004-0008-0541.)