October 17, 2006

The Honorable Stephen L. Johnson
Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Mr. Johnson:

Enclosed for your consideration is the Report of the Small Business Advocacy Review Panel (SBAR Panel or the Panel) convened for the Environmental Protection Agency's (EPA's) proposed rulemaking on the Control of Emissions from Nonroad Spark-Ignition (SI) Engines and Equipment. These regulations are under development by EPA under section 213 of the Clean Air Act, which authorizes EPA to set emission standards for new nonroad engines and equipment. 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).

EPA is considering exhaust emission standards for land-based nonroad SI engines less than 19 kW (25 hp), hereafter referred to as "Small SI", and for marine SI engines, including those used in outboard engines, personal watercraft, and sterndrive/inboard (SD/I) engines. EPA is also considering evaporative emission requirements for the equipment and vessels using these engines. Based on emissions inventory projections, EPA believes that without further controls, these two categories of nonroad engines will contribute over 25 percent of hydrocarbon (HC) emissions from all mobile sources. EPA expects to issue a proposal covering these two categories of nonroad SI engines in early 2007.

On August 17, 2006 EPA's Small Business Advocacy Chairperson (SBAC) convened this Panel under Section 609(b) of the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA). In addition to the Chair, the Panel consisted of the Division Director the Assessment and Standards Division within EPA's Office of Air and Radiation, the Chief Counsel for Advocacy of the Small Business Administration (SBA), and the Administrator of the Office of Information and Regulatory Affairs within the Office of Management and Budget (OMB).

It is important to note that the Panel's findings and discussion are based on the

information available during the term of the Panel. EPA is continuing to conduct analyses relevant to the proposed rule, and additional information may be developed or obtained during the remainder of the rule development process and from public comment on the proposed rule. Any options the Panel identified for reducing the rule's regulatory impact on small entities may require further analysis and/or data collection to ensure that the options are practicable, enforceable, environmentally sound, and consistent with Clean Air Act section 213.

SUMMARY OF SMALL ENTITY OUTREACH

For Small SI engines and equipment, EPA actively engaged in talking to entities that would potentially be affected by the upcoming rulemaking well before beginning the formal SBREFA process. Based on information from EPA certification databases and non-governmental sales and employment databases, EPA was able to identify the small entities within the Small SI engine and equipment sectors. Based on information from engine manufacturers and equipment manufacturers as well as trade groups and the Internet, EPA was able to identify small entities in the fuel tank and fuel hose sectors for Small SI engines and equipment. After identifying these small entities, EPA began talking to businesses to locate potential small entity representatives (SERs) to participate in the SBREFA process. For equipment manufacturers, EPA also attended the 2004 Lawn and Garden Expo in Louisville, Kentucky and established some small entity contacts.

For marine SI engine and vessels, EPA has already completed two SBAR Panels. These Panels took place in 1999 and 2001 and addressed small business issues related to exhaust emission standards and evaporative emission standards, respectively, similar to those being considered today. Nineteen small entities that sell in the marine SI engine and vessel sectors participated as SERs in those two Panels.

Since the 1999 and 2001 SBAR Panels, EPA has continued to meet with the marine industry to discuss issues related to exhaust and evaporative emission standards for SI marine engines and vessels. These meetings have been in the form of manufacturer visits, presentations and meetings at tradeshows, and meetings with the National Marine Manufacturers Association (NMMA) and with individual manufacturers.

Based on the outreach efforts to small entities noted above, EPA identified a list of potential SERs in both the Small SI and Marine SI sectors. EPA also consulted with SBA Advocacy to identify potential SERs. EPA provided each of the potential SERs with EPA's fact sheets on the SBREFA process and background information on the nonroad SI engine rulemaking process. Once potential SERs were identified, EPA began having more discussions to better understand the needs of the small entities in more detail. Recently, EPA staff visited the facilities of two of the potential Small SI equipment manufacturer SERs to gain additional insight into the capabilities and needs of small entity equipment manufacturers.

Prior to convening the Panel, two outreach meetings were held on July 11, 2006. The first meeting covered the Small SI engine and equipment provisions and the second meeting

covered the marine SI engine and vessel provisions. EPA invited SBA, OMB and the potential SERs and solicited comments from the small entities on the preliminary information sent to them. EPA shared the potential SERs' written comments with the Panel as part of the Panel convening document.

After the SBAR Panel was convened, the Panel distributed additional information to the SERs on August 28, 2006, for their review and comment and in preparation for another outreach meeting. On September 12, 2006, the Panel met with the SERs to hear their comments on the information distributed in these mailings. The Panel received written comments from the SERs in response to the discussions at this meeting and the outreach materials. The Panel asked SERs to evaluate how they would be affected and to provide advice and recommendations regarding early ideas to provide flexibility. Section 8 of the Panel Report contains a complete discussion of SER comments. Their full written comments are also attached to the Panel Report. In light of these comments, the Panel considered the regulatory flexibility issues specified by RFA/SBREFA and developed the findings and discussion summarized below.

REGULATORY APPROACHES

As discussed below, EPA is considering various approaches for new exhaust and evaporative emission standards for both Small SI engines and equipment and Marine SI engines and vessels.

Small SI Engines and Equipment

For Small SI nonhandheld engines, EPA is considering exhaust emission standards similar to the recently adopted California Air Resources Board (CARB) standards. Table 1 shows the primary option for hydrocarbon plus oxides of nitrogen (HC+NOx) and carbon monoxide (CO) exhaust standards and implementation dates EPA considered for Small SI nonhandheld engines during the SBREFA process. EPA believes these standards can be met using engine modifications and the application of catalysts. EPA has also given some consideration to the potential of more stringent standards based on the use of improved fuel management (i.e., fuel injection systems) and catalysts. Finally EPA has also given some consideration to the potential of minor (i.e., around 10 percent) reductions from the current Phase 2 standards based on minor modifications of existing engines. Because the existing Phase 2 standards for handheld engines are based on the application of catalysts for most engines, and the standards are still not fully implemented, EPA is not considering new exhaust standards for handheld engines at this time.

Table 1: Primary Option for Phase 3 Exhaust Standards under Consideration for Small SI Engines

Engine Class	Application	Displacement	Potential Implementation Date	HC+NOx standard, g/kW-hr	CO standard, g/kW-hr
I	Nonhandheld	<225 cc	2010*	10.0	610

II	Nonhandheld	≥225 cc	2011	8.0	610

* EPA is also evaluating a Class I implementation date of 2012.

EPA is also considering evaporative emission standards for Small SI engines that are, in many ways, similar to the CARB standards. These standards would include both permeation and venting emissions and would apply to both handheld and nonhandheld engines. EPA believes that large reductions are feasible in fuel hose and fuel tank permeation emissions. Low permeation hoses are available today and are used on some existing Small SI equipment and marine vessels. To minimize permeation, barrier layers of low permeation material, such as fluoroelastomers and fluoroplastics, are included in the fuel hose constructions. Several technologies have been identified for controlling fuel tank permeation. These technologies include surface treatments, barrier materials, and alternative materials.

In addition, EPA is interested in reducing venting emissions such as diurnal, running loss, and diffusion. Emission control strategies for controlling venting emissions include carbon canisters, sealed fuel tanks with pressure relief, insulating or moving the fuel tank away from heat sources, routing the vent line to the engine intake, and tortuous venting paths such as through the gas cap threads.

Table 2 presents the primary option for evaporative emission standards and implementation dates EPA is considering for Small SI engines. EPA's primary option does not include the control of diurnal emissions (which the CARB evaporative standards do include) but it does include control of hose permeation for handheld engines (which the CARB evaporative standards do not include).

Table 2: Primary Option for Phase 3 Evaporative Standards under Consideration for Small SI Engines

Engine Class	Application	Implementation Date for Evaporative Requirements		
		Fuel Hose Permeation (Standard = 15 $g/m^2/day$)	Fuel Tank Permeation (Standard =1.5 $g/m^2/day$)	Running Loss Control (Design Standard)
I, II	Nonhandheld	2009*	2011	2011
III, IV, V	Handheld	2009	2009	Not Applicable

* - EPA is considering moving up implementation of the fuel hose permeation standard to 2008.

Marine SI Engines and Vessels

For outboard/personal watercraft (OB/PWC) engines, EPA is considering HC+NOx exhaust emission standards similar to the 2008 CARB standards. EPA is also considering CO standards based on this certification data. These standards can be met using four-stroke and direct-injection engines that manufacturers are certifying and selling. EPA has also given some consideration to the potential of more stringent standards and greater emission reductions based

on the use of catalysts on OB/PWC engines. Table 3 shows the primary option for exhaust standards EPA is considering for OB/PWC engines. EPA is considering beginning the OB/PWC standards with the 2009 model year.

Table 3: Primary Option for Exhaust Standards under Consideration for Marine SI Engines

Pollutant	Standard for Marine Sector (g/kW-hr)		
	OB/PWC P* ≤40 Kw	OB/PWC P* >40 kW	SD/I
HC+NOx	28 – 0.3 × P*	16.0	5.0
CO	500 – 5.0 × P*	300	75

* P = maximum engine power in kW

For SD/I engines, EPA is considering HC+NOx exhaust emission standards similar to those adopted by CARB. In addition, EPA is considering CO standards as well. These standards can be met using catalysts. Table 3 (presented above) shows the primary option for exhaust standards EPA is considering for SD/I engines. The SD/I standards are anticipated to begin with the 2009 model year. (Alternatively, for SD/I engines above 373 kW, EPA is strongly considering standards of 16.0 g/kW-hr for HC+NOx and 350 g/kW-hr for CO.) EPA also considered emission reductions that could be achieved in the near-term through engine calibration and through exhaust gas recirculation (EGR).

EPA is also considering a new proposal for evaporative emission standards for marine fuel systems. The standards would be similar to an earlier 2002 proposal in that EPA is interested in achieving significant reductions in permeation and diurnal emissions. The primary changes are in regard to the form of the standards and the test procedures. In addition, EPA has collected much more information on potential emission control strategies since the original proposal. Table 4 shows the primary option for evaporative emission standards EPA is considering for Marine SI engines.

Table 4: Primary Option for Evaporative Standards under Consideration for Marine SI Engines

Category	Implementation Date for Evaporative Requirements		
	Fuel Hose Permeation (Standard = 15 g/m^2/day)	Fuel Tank Permeation (Standard = 1.5 g/m^2/day)	Diurnal Control (Standard = 0.40 g/gal/day)
PWC and Portable Tanks	2009	2011	2009
Other Tanks	2009	2012	2010

Low permeation hoses are available today and are used on some existing Small SI equipment and marine vessels. To minimize permeation, barrier layers of low permeation material, such as fluoroelastomers and fluoroplastics, are included in the fuel hose constructions.

Several technologies have been identified for controlling fuel tank permeation. These technologies include surface treatments, barrier materials, and alternative materials. For diurnal emissions, emission control strategies include sealed systems with pressure relief, fuel or air bladders, and activated carbon canisters in the vent line.

PANEL FINDINGS AND DISCUSSION

Under the RFA, the Panel is to consider four regulatory flexibility issues related to the potential impact of the rule on small entities (i.e., small businesses and municipalities):

1. The type and number of small entities to which the rule will apply.
2. Record keeping, reporting and other compliance requirements applicable to small entities.
3. The rule's interaction with other Federal rules.
4. Regulatory alternatives that would minimize the impact on small entities consistent with the stated objectives of the statute authorizing the rule.

The Panel's most significant findings and discussion with respect to each of these issues and the methodological issues are summarized below. To read the full discussion of the Panel findings and recommendations, see Section 9 of the Panel Report.

1. Number and Types of Entities Affected

EPA used a variety of sources to identify which companies in each of the industry sectors are appropriately considered small entities. 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.

Small SI Engine and Equipment Manufacturers

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. EPA has 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.

Marine SI Engine and Vessel Manufacturers

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% of engine sales. Two large manufacturers, Brunswick (Mercruiser) and Volvo Penta, dominate the market. EPA has identified 28 small entities manufacturing SD/I marine engines. The third largest company is Indmar, which has much less than the SBA threshold of 1,000 employees. Based on sales estimates, number of employees reported by Thomas Register, and typical engine prices, EPA estimates 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. EPA estimated that, based on manufacturer identification codes, more than 1,000 of these companies produce boats using gasoline marine engines. According to 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.

EPA has 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, two blow molders, seven aluminum fuel tank manufacturers, and two specialty fuel tank manufacturers. 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.

EPA has 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. The majority of fuel hose in the Marine SI market is made by large manufacturers including Goodyear and Parker-Hannifin.

2. Potential Reporting, Recordkeeping, and Compliance Requirements

For any emission control program, EPA must have assurances that the regulated products will meet the standards. Historically, EPA's 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 cap, and fuel hose products. Testing requirements for some manufacturers may include certification emission (including deterioration factor) testing and production line testing. Reporting requirements would likely include emission test data and technical data on the engines and equipment including defect reporting. Manufacturers would likely have to keep records of this information.

3. Related Federal Rules

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

4. Regulatory Alternatives

The Panel undertook a detailed review of the regulatory flexibility alternatives, and the comments and discussion provided by the SERs during the Panel process. Consensus was reached as to the final recommendations of the Panel. The following section summarizes the Panel's recommendations. A more detailed description of the Panel's recommendations can be found in section 9 of the Panel Report.

Potential Burden Reduction Measures For Engine and Equipment Manufacturers Related to the Exhaust Emission Standards for Nonhandheld Engines

The Panel's recommendations for the Phase 3 exhaust emission standards under consideration for nonhandheld engines are summarized below.

Additional Lead Time for Nonhandheld Engine Manufacturers - Small business engine manufacturers generally have limited resources available for developing new engine designs to comply with new emission standards. As a result, small manufacturers may need more time to meet new emission standards. The Panel recommends 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 - Under EPA's regulations for small engines, manufacturers must demonstrate compliance with the exhaust emission standards by running an engine for a specified number of hours, ranging from 125 to 500 hours for Class I engines and ranging from 250 to 1000 hours for Class II engines, as part of the pre-production certification process. In order to reduce the testing burden on small business engine manufacturers, the Panel recommends 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 - Under EPA's regulations for small engines, manufacturers must perform low hour emissions tests on a randomly selected set of engines pulled off of the production line. In order to reduce the testing and cost burden on small business engine manufacturers, the Panel recommends 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 - In EPA programs, manufacturers group their various engine lines into engine families for certification to the standards. Testing burden can be reduced by using broader definition of what constitutes an engine family. The Panel recommends 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.

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, 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 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 recommends 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.

Additional Lead Time for Small SI Equipment Manufacturers - Because the Phase 3 standards under consideration may result in both engine design changes and the use of catalysts, a number of equipment manufacturers have expressed their belief that many equipment models may need to be redesigned to incorporate the new engines. The redesign process will be especially challenging for small volume equipment manufacturers who have fewer resources to devote to these tasks. Therefore, the Panel recommends 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 recommends 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.

Eligibility for the Small Business Flexibilities - For purposes of determining which engine and equipment manufacturers are eligible for the small business flexibilities described above, EPA is considering to propose criteria based on a production cut-off of 10,000 nonhandheld engines per year for engine manufacturers and 5,000 pieces of nonhandheld equipment per year for equipment manufacturers. If EPA adopts that approach, the Panel recommends that EPA propose to allow engine manufacturers which exceed the production cut-off level noted above but have fewer than 1,000 employees, or equipment manufacturers which exceed the production cut-off level noted above but have fewer than 500 employees (or 750 employees if they produce construction equipment), to request treatment as a small business.

Potential Burden Reduction Measures for Engine and Vessel Manufacturers Related to the Exhaust Emission Standards for SD/I Marine Engines

EPA has already completed two SBAR Panels related to standards for marine engines and vessels. These Panels took place in 1999 and 2001 and addressed small business issues related to exhaust and evaporative emission standards similar to those being considered today. The recommendations of the two previous Panels served as the starting point for the current Panel. The Panel's recommendations for the exhaust emission standards under consideration for marine SD/I engines are summarized below.

Additional Lead Time for Small Business SD/I Manufacturers - One small business engine manufacturer is already using catalytic converters on some of its ≤373 kW production SD/I marine engines. These engines have been certified to meet standards adopted by CARB that are equivalent to those under consideration by EPA. Other small businesses producing SD/I engines ≤373 kW have stated that they are not as far along in their catalyst development efforts. For SD/I marine engines >373 kW, manufacturers are typically smaller businesses than SD/I engine manufacturers ≤373 kW. The majority of >373 kW SD/I engine manufacturers produce less than 100 engines per year. The Panel recommends that EPA propose an implementation date of 2011 for ≤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 an expected 2009 implementation date for the remaining SD/I engine manufacturers (i.e., the large businesses), these dates would provide 2 years additional lead time for ≤373 kW SD/I engine manufacturers and 4 years additional lead time for >373 kW SD/I engine manufacturers.

Exhaust Emission ABT - EPA is considering an averaging, banking and trading (ABT) program for the SD/I engine standards. An ABT program allows manufacturer to generate positive emission credits from engines certified below the emission standard. These credits can be used to offset debits generated by engines certified above the emission standard. SERs expressed some concern that ABT could give a competitive advantage to large businesses. Should EPA decide to propose an exhaust emissions ABT program for SD/I marine engines, the Panel recommends 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 considering proposing an early banking program for SD/I marine engines. Under the early banking provisions, EPA would offer the ability to all engine manufacturers to generate "bonus" credits for the early introduction of engines meeting the anticipated 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 - One SER, representing a high performance SD/I engine manufacturer, commented that certification may be too costly to amortize effectively over their small sales volumes. One way of minimizing this testing burden would be to allow manufacturers to use, as a default, EPA assigned baseline emission rates for certification based on previously generated emission data. The Panel recommends 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, reasonable default baseline emission levels for high performance engines would be 30 g/kW-hr HC+NOx 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. EPA is considering setting a standard for all high performance SD/I marine engines that could be met without the use of a catalyst, based on the technical and other circumstances related to these engines. Based on available data, levels of 16 g/kW-hr HC+NOx and 350 g/kW-hr CO were discussed. The Panel recommends EPA request comment on a non-catalyst based standard for high performance marine engines.

EPA is considering not applying the not-to-exceed (NTE) standards to high performance SD/I engines. The Panel supports proposing EPA's idea to exclude high performance SD/I engines from NTE requirements, as it would minimize the costs of compliance testing for small businesses.

Broad Engine Families for High Performance (>373 kW) SD/I Engines - In EPA programs, manufacturers group their various engine lines into engine families for certification to the standards. Testing burden can be reduced by using a broader definition of what constitutes an engine family. The Panel recommends 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 - EPA 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 laboratory test procedure. The Panel recommends 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.

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 considering to propose criteria based on a production cut-off of 5,000 SD/I engines per year. If EPA adopts that approach, the Panel recommends EPA propose to allow engine manufacturers that exceed the production cut-off level noted above but have fewer than 1,000 employees to request treatment as a small business.

Potential Burden Reduction Measures for Engine, Equipment, and Vessel Manufacturers Related to the Evaporative Emission Standards for Small SI Engines and Equipment and SD/I Marine Engines and Vessels

SERs raised many of the same issues regarding evaporative emission standards for both small SI and marine applications. In fact, many of the SERs supply fuel system components to both industries. Therefore, the Panel recommendations on regulatory flexibility discussed below would apply to small SI equipment and to boats, except where noted.

Because the majority of fuel tanks produced for the small SI equipment and marine SI 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 considering proposing the Panel recommendations on regulatory flexibility discussed below for small business fuel tank manufacturers for all fuel tank manufacturers.

Consideration of Appropriate Lead Time - SERs commented that they would need to make significant changes to their plastic fuel tank designs and molding practices to meet the tank permeation standards under consideration by EPA. One SER commented that, due to the lead time needed to install a new machine and to perform quality checks on the tanks, they would not be ready to sell multi-layer blow-molded fuel tanks until 2011 for the small SI and marine markets.

SERs that rotationally-mold fuel tanks were divided in their opinion. One manufacturer stated that they are already producing fuel tanks with a low permeation inner layer that are used in small SI applications. This company also sells marine fuel tanks, but not with the low permeation characteristics. Two other SERs, that rotationally mold fuel tanks,

stated that they have not been able to identify and demonstrate a low-permeation technology that would meet their cost and performance needs. They commented that developing and demonstrating low-permeation technology is especially an issue for the marine industry because of the many different tank designs and Coast Guard durability requirements.

The Panel recommends that EPA propose to implement the tank permeation standards in 2011 with an additional year (2012) for rotationally-molded marine fuel tanks. The extra year for marine tanks would give manufacturers time to address issues raised by SERs 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. They stated that some boat designs would require deck and hull changes to assist in packaging the canisters and they would like to make these changes in the normal turnover cycle of their boat molds. 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 recommends 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 – EPA is considering an ABT program that would cover fuel tanks. EPA is also considering offering incentives to manufacturers that introduce low permeation fuel tanks earlier than required. Under an early incentive program, equipment manufacturers would be able to earn tank allowances by using low permeation fuel tanks before the fuel tank permeation standards begin. These tank allowances could be used to sell an equal number of uncontrolled fuel tanks once the standards become effective. The Panel recommends that EPA propose an ABT program for fuel tank permeation. The Panel also recommends that EPA request comment on including service tanks (i.e., replacement tanks) in the ABT program. Finally, the Panel recommends that EPA request comment and on an early incentive program for tank permeation.

Broad Definition of Evaporative Emission Family for Fuel Tanks - In its evaporative emission regulations for recreational vehicles, 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. The Panel recommends that EPA propose a similar broad emission family definition for small SI fuel tanks and for marine fuel tanks.

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 used 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. These SERs requested that EPA conduct a review of the technology in a later year, after adoption of the standards, to reassess whether there is technology available and feasible for complying with the tank permeation standards.

The Panel recommends that if a rule is implemented, EPA undertake a "compliance progress review" assessment with the manufacturers. In this effort, EPA would 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 - EPA intends to propose diurnal emission standards for fuel tank used in gasoline-powered boats beginning in 2010. One diurnal emission control technology that is under consideration is a canister containing activated carbon which would be installed in the currently used fuel tank vent line. SERs commented that they would like to certify carbon canisters based on their design (and the emission reductions reasonably associated with such design) in lieu of performing emission tests to demonstrate reductions. In addition, SERs proposed that different canister sizes should be used for boats normally trailered to the water for use versus boats normally stored in the water between uses. The Panel recommends that EPA propose a design-based certification for carbon canisters. The 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.

In its evaporative emission program for recreational vehicles, EPA allows manufacturers using metal fuel tanks to certify by design to the tank permeation standards. One SER recommended that multi-layer fuel tank with a continuous ethylene vinyl alcohol (EVOH) barrier should be allowed to certify by design as well. This technology has been widely used in automotive applications and demonstrated to be well below the tank permeation standard discussed in Section 3. The Panel recommends 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 NMMA membership. NMMA is working to update these recommended practices to include carbon canister installation specifications and a low-permeation hose designation. SERs suggested that the NMMA certifications could be used as documentation for EPA standards. The Panel recommends 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 considering applying the fuel hose permeation requirements beginning with the 2008 model year for small SI equipment. Given the short lead time before 2008, small business equipment manufacturers may not by ready for such a requirement. The Panel recommends EPA propose a 2009 implementation date for low permeation fuel hose for small business equipment manufacturers producing small SI equipment.

Potential Burden Reduction Measures for All Manufacturers Related to the Exhaust and Evaporative Emission Standards for Small SI Engines and Equipment and SD/I Marine Engines and Vessels

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

Unusual Circumstances Hardship - 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. The Panel recommends that EPA propose a provision allowing for hardship relief under unusual circumstances for manufacturers affected by this rule.

Economic Hardship - 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. The Panel recommends that EPA propose economic hardship provisions for small businesses affected by this rule

5. Methodological Issues

A number of the SERs provided comments related to EPA's draft cost estimates for complying with the new requirements under consideration. These comments have been reviewed by EPA and the cost analyses have been changed to take a number of these concerns and suggestions into account.

Sincerely,

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Enclosure