

**ENVIRONMENTAL PROTECTION AGENCY****40 CFR Part 90****[FRL-5802-5]****Statements of Principles for Nonroad Phase 2 Small Spark-Ignited Engines****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Advance Notice of Proposed Rulemaking (ANPRM).

**SUMMARY:** EPA is developing a second phase of national air emission regulations that affect small spark-ignited (SI) engines used primarily in lawn and garden equipment. EPA expects the program to reduce combined emissions of hydrocarbon (HC) and oxides of nitrogen (NO<sub>x</sub>) from these engines by an additional 30 to 40 percent beyond Phase 1 levels, in excess of 100,000 tons of HC per year with minimal changes in NO<sub>x</sub>. These emission reductions will result in a decrease in summertime ozone and a corresponding health and welfare benefit. In 1996 EPA and certain other interested parties signed two different Statements of Principles (SOPs) that describe various aspects of the Phase 2 program that EPA will propose. One SOP focuses on provisions that would affect engines used in handheld equipment such as leaf blowers, chain saws, and trimmers. The second SOP addresses provisions that would affect engines used in nonhandheld equipment such as lawnmowers and generator sets. EPA is issuing this ANPRM to: notify the public about the availability of the two small SI nonroad engine SOPs; request comment on the SOPs, and; inform interested parties about the forthcoming Phase 2 small SI engine Notice of Proposed Rulemaking (NPRM) which will be based in part on the two SOPs.

**DATES:** EPA requests comment on this ANPRM no later than April 28, 1997. Should a commenter miss the requested deadline, EPA will try to consider any comments that it receives prior to publication of the NPRM. There will also be an opportunity for oral and written comment after publication of the NPRM.

**ADDRESSES:** Materials relevant to this Notice are contained in EPA Air and Radiation Docket No. A-96-55 and Docket No. A-93-29, located at room M-1500, Waterside Mall (ground floor), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. The docket may be inspected from 8:00 a.m. until 5:30 p.m., Monday

through Friday. The docket may also be reached by telephone at (202) 260-7548.

As provided in 40 CFR part 2, a reasonable fee may be charged by EPA for copying docket materials.

Comments on this document should be sent to Public Docket A-96-55 at the above address. EPA requests that a copy of comments also be sent to Betsy McCabe, U.S. EPA, Engine Programs and Compliance Division, 2565 Plymouth Road, Ann Arbor, MI 48105.

**FOR FURTHER INFORMATION CONTACT:**

Betsy McCabe, U.S. EPA, Engine Programs and Compliance Division, 2565 Plymouth Road, Ann Arbor, MI 48105. Telephone: (313) 668-4344.

Electronic mail:

mccabe.betsy@epamail.epa.gov

**SUPPLEMENTARY INFORMATION:****I. Background and Purpose for this Advance Notice**

With this document EPA announces the signing of two Statements of Principles (SOPs). One SOP, signed in May, 1996, focuses on provisions to be proposed in a future Notice of Proposed Rulemaking (NPRM) that would affect new spark-ignited (SI) engines at or below 19 kilowatts (25 horsepower) used in handheld applications such as trimmers, edgers, brush cutters, leaf blowers, leaf vacuums, chain saws, augers, and tillers. In developing this handheld SOP, EPA, state, and industry representatives reached agreement on several elements of a Phase 2 program to be proposed for these small handheld SI engines. The second SOP, signed in December, 1996, describes areas of agreement between EPA and certain industry representatives for a Phase 2 program to be proposed for small SI engines used in nonhandheld equipment such as lawnmowers, generator sets, and riding mowers.

EPA anticipates issuing an NPRM, based in part on these two SOPs, by the Fall of 1997. The NPRM will be subject to the full public process required by section 307(d) of the Clean Air Act, as amended, 42 U.S.C. 7607(d). By announcing the availability of the handheld and nonhandheld SOPs in this Advance Notice, EPA hopes to receive early comments and suggestions which can inform the development of the proposal and, ultimately, the final regulations for Phase 2. Today's Advance Notice includes the text of the handheld and nonhandheld SOPs as appendices to this preamble.

**II. Brief Background on Small SI Engine Rulemakings**

In July 1995, EPA issued the first national program to reduce emissions

from small SI engines (60 FR 34582, July 3, 1995, codified at 40 CFR part 90). This program, called "Phase 1," takes effect with model year 1997 and sets emissions standards for "new" small SI engines. The Phase 1 standards are expected to result in a 32 percent reduction in HC emissions from small SI engines. The Phase 1 program was developed through the notice and comment rulemaking process, and the regulations are similar in many respects to California's Tier I Regulation for 1995 and Later Utility and Lawn and Garden Equipment Engines.<sup>1</sup> While EPA was developing the Phase 1 regulations, EPA began working with certain interested parties in a consultative process to develop a comprehensive Phase 2 program that focusses on ensuring that emissions reductions from small SI engines are achieved "in-use."

In September 1993, a Negotiated Rulemaking Advisory Committee was formed to support EPA in developing a practical approach to a comprehensive regulatory program for Phase 2. This committee, consisting of representatives from industry, small business, state, public health and environmental groups, and EPA, met until February 1996, but did not reach consensus on an Agreement in Principle or draft regulatory language. However, the regulatory negotiation process (Reg Neg) produced substantial useful information and provided EPA with input from numerous key stakeholders which will help the Agency develop the Phase 2 small SI engine regulatory program. Subsequent to the conclusion of the Reg Neg process, EPA continued working with some of the parties to reach agreement on how certain aspects of a Phase 2 program would be addressed in a future NPRM. As these discussions proceeded, the involved parties worked together to develop written documents, Statements of Principles, which will partly form the basis of the Phase 2 NPRM. The handheld SOP addresses issues affecting engines used in handheld equipment, and the nonhandheld SOP addresses issues affecting engines used in nonhandheld equipment. Key features of the SOPs are described briefly below. However, the reader is advised to refer to the actual SOP documents that follow for details (see also section VII, "Obtaining Copies of Documents"). Issues not discussed in the SOPs will be addressed in the Phase 2 NPRM.

<sup>1</sup> The California Regulations for 1995 and Later Utility and Lawn and Garden Equipment Engines were initially approved in December 1990, and formally adopted in March 1992.

### III. Brief Summary of the Handheld SOP for Small SI Engines

Parties to the handheld SOP, signed in May, 1996, include EPA; the Auger and Power Equipment Manufacturers Association (APEMA); the North American Equipment Dealers Association (NAEDA); the Portable Power Equipment Manufacturers Association (PPEMA); the State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO); and the Wisconsin Department of Natural Resources.

This SOP outlines elements for a Phase 2 program to be proposed by EPA for Class 3, 4, and 5 handheld small SI engines at or below 19 kilowatts. Handheld engines generally use 2-stroke technology due to its high power to weight ratio and its allowance for multi-positional use. Because of these characteristics, handheld engines are used in equipment typically carried by the operator, such as chainsaws, trimmers, and blowers.

As described in the SOP, EPA plans to propose Phase 2 emission standards for emissions of HC+NO<sub>x</sub> and for carbon monoxide (CO) from handheld engines that are to be met over the lifetime of the engine. These standards, if adopted, would represent an estimated 30 percent reduction in HC+NO<sub>x</sub> exhaust levels from these engines below Phase 1 levels.

The involved parties also agreed that EPA would propose a provision for phased-in effective dates based on a percentage of production from model year 2002 through model year 2005.

As described in the SOP, the signatories agreed that a particulate matter and toxics test program will be conducted to collect and evaluate information on emissions of these pollutants from handheld sources.

The signatories also agreed that the NPRM would include a voluntary program that would allow manufacturers to display a label or symbol identifying handheld engines that have HC+NO<sub>x</sub> certification levels substantially below the Phase 2 standards.

The following elements of a compliance program are reflected in the SOP and will be described in the NPRM: a certification program; a production line testing program; and an in-use testing program. The provisions in the compliance program that EPA will propose will help ensure that handheld engines continue meeting the standards for the life of the engine.

In addition, the SOP provides that EPA intends to conduct a technology

review to assess whether any further revisions to the emissions standards for handheld engines would be appropriate.

### IV. Brief Summary of the Nonhandheld SOP for Small SI Engines

Parties to the nonhandheld SOP, signed in December 1996, include EPA; Briggs & Stratton Corporation; Kawasaki Motors Corporation, U.S.A.; Kohler Company; Kubota; Mitsubishi Engine North America, Inc.; Onan Corporation; Suzuki Motor Corporation; Tecumseh Products Company; The Toro Company; and Wis-Con Total Power Corporation.

This SOP outlines elements of a Phase 2 program to be proposed by EPA for Class 1 and 2 nonhandheld small SI engines at or below 19 kilowatts. Class 1 engines have displacements of less than 225 cc and are typically used in relatively inexpensive residential applications such as walk-behind lawnmowers and tillers. Most Class 1 engines use side-valve (SV) technology. Class 2 engines have displacements greater than or equal to 225 cc, and are typically used in more expensive commercial applications such as lawn tractors, riding mowers and generator sets.

As described in the nonhandheld SOP, EPA plans to propose in the Phase 2 NPRM standards for HC + NO<sub>x</sub> and CO emissions from nonhandheld engines that are to be met over the lifetime of the engine. These standards, if adopted, would represent a 30 to 40 percent reduction in HC + NO<sub>x</sub> exhaust emissions from these engines below Phase 1 levels.

The signatories also agreed that EPA would propose a provision for an effective date of 2001 for Class 1 engines, and a phase-in between 2001 and 2005 for Class 2 engines. The signatories expect that the emission standards and effective dates contained in the SOP would cause manufacturers to shift their Class 2 engines to cleaner, more durable technology, such as overhead valve (OHV) technology by 2005.

To help determine the consumer acceptance and feasibility of applying OHV technology to Class 1 engines, EPA and certain manufacturers have entered into separate Memoranda of Understanding calling for an OHV Demonstration Program to be implemented by those manufacturers. Readers who are interested in learning more about the OHV Demonstration Program should refer directly to the Memoranda of Understanding (MOUs), available electronically (see Obtaining Copies of Documents section) and in the public docket for this rulemaking.

As described in detail in the nonhandheld SOP, EPA plans to

propose a comprehensive compliance program for nonhandheld engines in the Phase 2 NPRM. This program will be designed to ensure that emission benefits are achieved over the lifetime of the engines while minimizing manufacturers' compliance burdens. The Phase 2 compliance provisions in the NPRM for nonhandheld engines will include certification and production line testing programs. In addition, the proposed program will call for manufacturers to conduct a field durability and in-use emission performance demonstration program for OHV engines every four years.

The signatories also agreed to work together to develop a voluntary Fuel Spillage Reduction Program aimed at educating consumers about the significant contribution to air pollution from spillage, and encouraging the development and use of technology that will reduce or eliminate spills by users.

### V. Environmental Benefit Assessment

National Ambient Air Quality Standards (NAAQS) have been set for criteria pollutants which adversely affect human health, vegetation, materials, and visibility. The primary criteria pollutant affected by this rule is ozone. EPA has determined the standards contained in this NPRM will reduce HC emissions from spark-ignition small engines with minimal changes in NO<sub>x</sub> levels and help areas come into compliance with the ozone NAAQS. The following sections contain a brief description of some of the health effects associated with ozone, and the importance of continuing to reduce HC emissions. The NPRM for this rule will contain a more detailed discussion of the health and welfare benefits which can be expected from this program.

#### A. Health Effects of Tropospheric Ozone

Ozone is a highly reactive chemical compound which can affect both biological tissues and man-made materials. Ozone can affect human pulmonary and respiratory health—symptoms include chest pain, coughing, and shortness of breath.<sup>2</sup> Elevated ozone levels can cause aggravation of pre-existing respiratory conditions such as asthma. Ozone can cause a reduction in performance during exercise even in healthy persons. In addition, ozone can also cause alterations in pulmonary and extrapulmonary (nervous system, blood, liver, endocrine) function. The oxidizing effect of ozone can irritate the

<sup>2</sup> Air Quality Criteria Document for Ozone and Related Photochemical Oxidants (External Review Draft), EPA-600/AP-93/004a-c, February, 1995 (NTIS #: PB94-17-3127, -3135, -3143).

nose, mouth, and throat causing coughing, choking, and eye irritation.

The presence of elevated levels of ozone is of concern in rural areas as well. Because of its high chemical reactivity, ozone causes damage to vegetation. Estimates based on experimental studies of the major commercial crops in the U.S. suggest that ozone may be responsible for significant agricultural crop yield losses. In addition, ozone causes noticeable leaf damage in many crops, which reduces marketability and value. Finally, there is evidence that exposures to ambient levels of ozone which exist in many parts of the country are also responsible for forest and ecosystem damage. Such damage may be exhibited as leaf damage, reduced growth rate, and increased susceptibility to insects, disease, and other environmental stresses and has been reported to occur in areas that attain the current standard. There are complexities associated with evaluating such effects due to the wide range of species and biological systems introduce significant uncertainties.

#### *B. Need for NO<sub>x</sub> and VOC Control*

Photochemical modeling highlights the fact that ozone pollution is a regional problem, not simply a local or state problem. Ozone itself and its precursors are transported long distances by winds and meteorological events. Thus, achieving ozone attainment for an area and thereby protecting its citizens from ozone-related health effects often depends on the ozone and/or precursor emission levels of upwind areas. Local stationary source NO<sub>x</sub> and VOC controls will assist nonattainment areas toward their ozone reduction goals, but for many areas with persistent ozone problems, attainment of the ozone NAAQS will require broader control strategies for both NO<sub>x</sub> and VOC. As a result, effective national ozone control requires an integrated strategy which combines cost-effective approaches in both the mobile and stationary source arenas at both the local and national levels.

Small spark-ignited engines represent an important portion of the national HC inventories. The program contained in today's notice will result in important reductions in HC (in excess of 100,000 tons HC/year) with little change in NO<sub>x</sub> levels from small spark-ignited nonroad engines. These meaningful HC reductions will help to alleviate the problems associated with ozone formation in many nonattainment areas throughout the country.

## **VI. Discussion of Issues**

EPA seeks comments on the provisions described in the handheld and nonhandheld SOPs that are summarized above and published in their entirety along with this ANPRM. In particular, the Agency requests comment on some areas for which the SOPs do not contain detailed provisions, as discussed below.

### *A. Definitions of Commercial and Residential*

As discussed in the handheld SOP, at the time of certification handheld engine manufacturers would declare an engine family to be "commercial" or "residential" based on the expected useful life and intended application of the engine. Comment is solicited on the appropriate definitions of "commercial" and "residential."

### *B. Bench Aging Correlation Program*

Both SOPs contain provisions for bench aging programs as part of the compliance programs that EPA will propose for the Phase 2 NPRM. EPA solicits suggestions on the ability of bench aging to adequately demonstrate deterioration of engines in the field. The Agency also seeks comment on methods for correlating bench-aged and field-aged results. In addition, EPA requests comment on whether there are certain engine technologies that are more suitable to bench aging than others. In particular the Agency seeks information on whether the bench aging certification program for side valve engines is the appropriate method for estimating deterioration.

### *C. Deterioration Factors*

The nonhandheld SOP signatories agree to the goal of designing and building engines that are emissions durable over their actual useful lives. Consequently, under the program envisioned in the SOP the test results from any of the new engine compliance programs would be adjusted by deterioration factors to estimate emissions at the end of the engine's life. The nonhandheld SOP describes several program elements that involve establishment of deterioration factors (DFs). As EPA further develops its Phase 2 program to propose in the NPRM, the Agency requests comment on various aspects of developing appropriate deterioration factors. EPA seeks additional data on which to base assigned DFs in the Phase 2 proposal. In addition, EPA seeks comment on the types of data required for both assigned and manufacturer-determined DFs for the 500 and 1000 hour useful life categories for Class 2 engines. The

Agency also seeks suggestions on the appropriateness of establishing optional assigned DFs for the 250 and 500 hour useful life categories for Class 1. EPA encourages interested parties to provide comment, regarding Class 2 engines, on the kind of data required to determine the DFs, the methodology required to determine the DFs, the amount of in-use testing required to verify the DFs, and the appropriateness of reserving certification credits pending verification of the DFs through in-use testing.

### *D. Averaging, Banking and Trading (ABT)*

The Signatories to the nonhandheld SOP agree that an ABT program would help ensure that the standards and phase-in structure that EPA will propose in the Phase 2 NPRM will be cost-effective and technologically feasible. Signatories to the handheld SOP did not reach agreement on an ABT program. EPA seeks comment on the appropriateness of the ABT program described in the nonhandheld SOP and also on whether or not an ABT program would be appropriate for the handheld segment of the small SI industry. In addition, EPA solicits comment on the appropriateness of the provision described in the nonhandheld SOP of unlimited life for credits generated under the Phase 2 program when used for purposes of compliance with the SOP nonhandheld standards that EPA will propose in the Phase 2 NPRM.

### *E. Fuel Spillage Reduction Program*

The nonhandheld SOP includes a provision for the signatories to work collaboratively and with other affected parties to develop a voluntary fuel spillage reduction program. It is anticipated that this voluntary partnership program would involve EPA; engine manufacturers and equipment manufacturers; and potentially regional, state, and local air pollution agencies; health and environmental organizations; and other interested parties. The strategies involved in reducing fuel spillage would include, but not be limited to:

- providing information and reminders at public places where refueling frequently occurs, where equipment or fuel supplies are sold, and similar places;
- providing education and training to commercial operators of equipment, to those persons who influence individuals doing the refueling (such as equipment sales staff or small engine course instructors), and similar target audiences;
- providing educational materials for use in environmental education courses

or related programs targeting children and youth;

- encouraging the development of technology that will assist equipment users in reducing spills and providing recognition for implementing technology developments that will assist equipment users in reducing spills.

EPA will develop this program in greater detail as the proposed rule is developed and finalized and encourages those parties interested in participating to contact the Agency.

The Agency believes it is appropriate to develop and implement a program unique to the small SI industry to encourage public awareness and act as an incentive for technology investments. Every year, millions of gallons of gasoline are lost during refueling. It is estimated that the few ounces spilled during refueling lawn and garden equipment alone total about 17 million gallons of gasoline, most of which evaporates into the air to contribute to the air pollution problem. To reduce and prevent this pollution a variety of measures will be needed, most involving increased public awareness and education.

The Agency seeks comment on this possible voluntary partnership program, appropriate strategies, appropriate target audiences, and other matters pertinent to establishing this program. EPA also solicits comment on the feasibility and appropriateness of expanding such a program to the handheld side of the industry.

#### *F. Environmental Labeling Program*

EPA will be developing an incentive and recognition program to identify for consumers those handheld engines which emit HC+NO<sub>x</sub> levels substantially below the Phase 2 levels. This program would be voluntary. Manufacturers who meet the program qualifications and choose to participate would be recognized for their efforts and allowed to display a symbol (as yet unidentified) on qualifying products identifying them as cleaner engines.

As part of the public recognition program, EPA will establish criteria for the standards and the procedure required to qualify for public recognition. The specific details of the incentive and recognition program will be determined as the proposed rule is developed and finalized. Some of the matters which need to be considered include, but are not limited to:

- emission level at which recognition will be granted;
- single or multiple levels of recognition provided (that is, recognizing in a different manner or

with a different symbol, those who comply at the minimum level of the requirement from those products who go beyond the minimum level);

- period of recognition;
- type of recognition;
- appropriate symbol and identifier for this program;
- criteria for use of the symbol on the product, packaging, or advertisements for the engine;
- administrator and/or manager of the program—EPA, independent third party, combination, or some other option;
- process for administration of the program on ongoing basis.

EPA will propose an initial framework for this program as part of the NPRM.

The Agency believes it is appropriate to develop and implement a program unique to this industry as an incentive for advanced technology investments. EPA solicits comment on this possible incentive and recognition program, the applicable criteria, the type of recognition accorded, the period of recognition, and any other matters pertinent to establishing this program.

While EPA is initially developing this program for handheld engines which emit below the Phase 2 levels, the Agency solicits comment on the feasibility and appropriateness of such a program for nonhandheld engines, including the applicable criteria, the type of recognition accorded, and the period of recognition. In addition, EPA also solicits comments on the feasibility and appropriateness of expanding such a program to include similar equipment not subject to the small SI engine regulations (such as electric string trimmers and mowers).

#### *G. PM and Toxics Testing Program*

The handheld SOP describes a particulate matter (PM) and toxics test program that EPA will propose as part of the Phase 2 NPRM. The Agency requests comment on the scope of the program, the number of test engines, and the types of pollutants to be tested. In addition EPA seeks suggestions as to who might best administer the test program, how the program might be administered, and the level of funding needed to conduct such a program. EPA also seeks comment on the time frame for such a program, given the consideration that such a program could begin prior to implementation of the Phase 2 program, since there are handheld engines now available which meet the standards described in the handheld SOP which the Agency will propose in the Phase 2 NPRM.

#### *H. Cost Information on Field Ageing*

EPA solicits information as to the costs for manufacturers to field age engines used in handheld and nonhandheld equipment out to the end of their regulatory useful lives as described in the SOPs.

#### *I. Impact on Equipment Manufacturers*

As it works on developing the Phase 2 NPRM, EPA is trying to gain a better understanding of various aspects of the small SI equipment industry, and the impacts that the Phase 2 program EPA will propose would have on the equipment industry. Consequently, the Agency seeks any detailed information regarding the impact of the program on the equipment manufacturers. In particular, the Agency seeks specific information from nonhandheld equipment manufacturers on the number of production lines per equipment type that will need to be changed in order to incorporate engines changing to OHV technology.

#### *J. Fuel Consumption Data*

In order to fully discuss the effects of the Phase 2 program it will propose, EPA seeks detailed data regarding fuel consumption for both handheld and nonhandheld Phase 1 and Phase 2 engines and the effects of various technological changes and emission reduction strategies on fuel consumption.

### **VII. Public Participation**

By September 30, 1997, EPA will issue a Notice of Proposed Rulemaking based in part on the SOPs for Phase 2 nonroad small SI engines. The Agency is committed to a full and open regulatory process and looks forward to input from a wide range of interested parties as the rulemaking process develops. Opportunities for input will include a formal public comment period and a public hearing. EPA encourages all interested parties to become involved in this process as it develops.

With publication of this ANPRM, EPA opens a 30 day comment period regarding the content of this ANPRM and the handheld and nonhandheld SOPs (see **DATES** section above for close of comment period). The Agency strongly encourages comment on all aspects of the SOPs. The most useful comments are those supported by appropriate and detailed rationales, data, and analyses. In particular, EPA requests comment on those issues described in the Discussion of Issues section. All comments, with the exception of proprietary information, should be submitted to the EPA Air Docket No. A-96-55 by the date

specified above. The Agency will consider all comments, and use them in developing the NPRM.

Commenters who wish to submit proprietary information for consideration should clearly separate such information from other comments by (1) labeling proprietary information "Confidential Business Information" and (2) sending proprietary directly to the contact person listed (see **FOR FURTHER INFORMATION CONTACT**) and not to the public docket. This will help ensure that proprietary information is not inadvertently placed in the docket. If a commenter wants EPA to use a submission of confidential information as part of the basis for the NPRM or for the final rule, then a nonconfidential version of the document that summarizes the key information or data should be sent to the docket.

Information covered by a claim of confidentiality will be disclosed by EPA only to the extent allowed and in accordance with the procedures set forth in 40 CFR part 2. If no claim of confidentiality accompanies the submission when it is received by EPA, it will be made available to the public without further notice to the commenter.

### VIII. Obtaining Copies of Documents

This Advance Notice, both the handheld and nonhandheld SOPs, and the MOUs are available in hard copy from the public docket. These documents are also available electronically from the EPA Internet site and the Technology Transfer Network (TTN).

#### A. Hard Copies From the Docket

Hard copies of this ANPRM, the SOPs, and the MOUs may be obtained from the EPA Air and Radiation public docket as described in the **ADDRESSES** section above.

#### B. Electronic Copies From Internet and TTN

Electronic copies of this ANPRM, the handheld and nonhandheld SOPs, and the MOUs are available electronically from the EPA internet site and via dial-up modem on the Technology Transfer Network (TTN), which is an electronic bulletin board system (BBS) operated by EPA's Office of Air Quality Planning and Standards. Both services are free of charge, except for your existing cost of internet connectivity or the cost of the phone call to TTN. Users are able to access and download files on their first call using a personal computer and modem per the following information.

#### Internet

World Wide Web: <http://www.epa.gov/OMSWWW>  
Gopher: <gopher.epa.gov> Follow menus for: Offices/Air/OMS FTP: <ftp.epa.gov> Change Directory to pub/gopher/OMS

#### Technology Transfer Network (TTN)

TTN BBS: 919-541-5742 (1200-14400 bps, no parity, 8 data bits, 1 stop bit) Also accessible via Internet: TELNET <ttnbbs.rtpnc.epa.gov> Voice Helpline: 919-541-5384.

Off-line: Mondays from 8:00 AM to 12:00 noon EST.

A user who has not called TTN previously will be required to answer some basic informational questions for registration purposes. After completing the registration process, proceed through the following menu choices from the Top Menu to access information on this rulemaking.

```
<T> GATEWAY TO TTN TECHNICAL
    AREAS (Bulletin Boards)
<M> OMS—Mobile Sources Information
<K> Rulemaking and Reporting
<6> Non-Road
<2> Non-road Engines
```

At this point, the system will list all available files in the chosen category in reverse chronological order with brief descriptions. To download a file, select a transfer protocol that is supported by the terminal software on your own computer, then set your own software to receive the file using that same protocol.

If unfamiliar with handling compressed (i.e. ZIP'ed) files, go to the TTN top menu, System Utilities (Command: 1) for information and the necessary program to download in order to unZIP the files of interest after downloading to your computer. After getting the files you want onto your computer, you can quit the TTN BBS with the <G>oodbye command.

Please note that due to differences between the software used to develop the document and the software into which the document may be downloaded, changes in format, page length, etc. may occur.

### IX. Legal Authority

Authority to develop the small SI program is granted to EPA by sections 213 and 301(a) of the Clean Air Act, as amended (42 U.S.C. 7547, 7601(a)).

### X. Unfunded Mandates Reform Act

Under Section 202 of the Unfunded Mandates Reform Act of 1995 ("UMRA"), P.L. 104-4, EPA must prepare a budgetary impact statement to accompany any general notice of proposed rulemaking or final rule that

includes a Federal mandate which may result in estimated costs to State, local, or tribal governments in the aggregate, or to the private sector, of \$100 million or more. Under Section 205, for any rule subject to Section 202 EPA generally must select the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule and is consistent with statutory requirements. Under Section 203, before establishing any regulatory requirements that may significantly or uniquely affect small governments, EPA must take steps to inform and advise small governments of the requirements and enable them to provide input.

EPA has determined that the requirements of UMRA do not extend to advance notices of proposed rulemaking such as this ANPRM.

### XI. Regulatory Flexibility

The Regulatory Flexibility Act (RFA) is intended to assure that concerns about small entities are adequately considered during the development of new regulations which affect them. While the Regulatory Flexibility Act does not require a formal analysis of ANPRMs, pursuant to section 609(a) of the RFA EPA has begun to consider how small entities would be affected by the potential new standards discussed in the SOPs.

The nonroad small SI industry is made up of a large number of engine manufacturers, and a still larger number of equipment manufacturers, many of which do business internationally. Some of these manufacturers may be small businesses as defined by the RFA and applicable regulations and thus may be impacted by the Phase 2 standards for handheld and nonhandheld engines.

EPA plans to minimize any adverse impact on smaller nonroad small SI engine and equipment manufacturers to the extent possible consistent with the law, and will work with representatives of such entities as the formal proposal is developed. EPA requests comment on the impacts of the program outlined in the SOPs on small entities. In particular, EPA solicits advice and recommendations on the following issues:

(a) The number of small entities to which the proposed rule as based on the SOPs would apply;

(b) Projected reporting, record keeping, and other compliance requirements of the proposed rule as based on the SOPs, including the classes of small entities which would be subject to the Phase 2 requirements and the type of professional skills necessary for preparation of the report or record;

(c) Other relevant Federal rules which may duplicate, overlap or conflict with the proposed rule as based on the SOPs; and,

(d) Any significant alternatives to the proposed rule as based on the SOPs which would accomplish the stated objectives of applicable statutes and which would minimize any significant economic impact of Phase 2 rules on small entities.

## **XII. Administrative Designation and Regulatory Analysis**

Under Executive Order 12866 (58 FR 51735 (Oct. 4, 1993)), the Agency must determine whether this regulatory action is "significant" and therefore subject to Office of Management and Budget (OMB) review and the requirements of the Executive Order. The order defines "significant regulatory action" as any regulatory action (including an advanced notice of proposed rulemaking) that is likely to result in a rule that may:

(1) have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or,

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Although the Agency is uncertain at this time of what the annual monetary or material effect of a future Phase 2 rulemaking might be, EPA has reason to estimate that such regulatory action might result in an annual effect on the economy of \$100 million or more, or adversely affect in a material way a sector of the economy. EPA will further address the requirements of Executive Order 12866 in developing the proposed and final Phase 2 rule.

This Advance Notice was submitted to OMB for review as required by Executive Order 12866. Any written comments from OMB or other federal agencies and any EPA written response to OMB or other federal agency comments are in the public docket for this document.

### **List of Subjects in 40 CFR Part 90**

Environmental protection,  
Administrative practice and procedure,

Air pollution control, Motor vehicle pollution, Reporting and recordkeeping requirements.

Dated: March 19, 1997.

**Carol M. Browner,**  
*Administrator.*

## **Appendix A to the Preamble— Handheld Engines Statement of Principles**

*Statement of Principles for the  
Regulation of Exhaust Emissions From  
Handheld Spark-Ignited Engines at or  
Below 19 Kilowatts*

### **Preface**

The Environmental Protection Agency (EPA) agrees to draft a preamble and proposed rule that will include, to the maximum extent possible, consistent with EPAs legal obligations, the agreements contained in this statement of principles (SOP). This SOP applies to new spark ignited engines at or below 19 kW for use in handheld applications. The draft preamble and proposed rule will form the basis of a notice of proposed rulemaking (NPRM) for Phase 2 emission standards for all new nonroad spark-ignition engines at or below 19 kilowatts subject to the exclusion and exemption provisions contained herein. The signatories have reached agreement on many of the basic issues that will apply to handheld engines in Phase 2, such as the pollutants to be regulated, the emission standards, phased in effective dates, and a test program for certain non-regulated pollutants. The signatories agree to support a program that promotes technological advancement of durable engine and emission control technology. The signatories agree that the program should strive to produce verifiable reductions in engine emissions over the useful lives of the engines and that the responsibility for verification testing is most appropriately placed with the manufacturers. Consequently, the signatories have reached conceptual agreement on issues such as production line and in-use testing, and the implementation of a technology review designed to assess the appropriateness of Phase 3 emission standards.

However, a significant number of important, unresolved issues remain. To the extent possible in the time remaining prior to publication of the NPRM, the parties will continue their efforts to reach agreement on these unresolved issues. All outstanding issues will be addressed during the rulemaking process. Each party to this SOP, other than EPA, agrees not to file negative comments on the NPRM as to the agreed upon provisions included in

this SOP. If the NPRM includes the agreements contained in this SOP, each party to the SOP other than EPA agrees to file a memorandum in the docket to that effect and to acknowledge that it participated in negotiating the SOP. Each party, other than EPA, agrees not to take any action to inhibit the adoption in the final rule of the agreed-upon provisions included in this SOP. Each party, other than EPA, agrees not to challenge in court the agreements in this SOP which are included in a final rule. If the final rule is challenged in court, and if the final rule and preamble include the agreements contained in this SOP, each party, other than EPA, agrees to file a memorandum informing the court that it participated in negotiating the agreements contained in this SOP.

### **Statement of Principles**

The signatories agree to the proposal of a single Notice of Proposed Rulemaking to regulate the exhaust emissions of small spark ignited engines at or below 19 kW. The emission standard related provisions applicable to small handheld engines (Effective Dates, Engine Classifications, Emission Standards, PM and Toxics Test Program, Test Procedures, Voluntary Incentive and Recognition Program, Certification: Averaging, Banking and Trading) will be based upon the items listed below. The non-emission standard related provisions of the proposed rule (Definitions, Applicability, Certification Program, Production Line Testing, In-Use Program, Imports, Dealer Responsibility, Technology Review/Phase 3, and Tampering) shall be identical for all engines subject to the rule, to the extent possible and provided modifications are not necessary due to differences in emission standard related provisions. Where such provisions are proposed that will not be identical for all engines, the signatories will be consulted during development of any such proposal and will have full opportunity to comment after proposal. Items not addressed in this SOP will be developed during the rulemaking process.

### **A. Definitions**

The signatories agree that, to the greatest extent possible, terms defined in the Phase 1 rule shall have the same meanings in the Phase 2 rule. Additionally, the signatories agree to define the following terms necessary to implement provisions described in this SOP.

*In-use credit:* An emission credit derived from the difference between the mean in-use emission results of a

regulated pollutant, or pair of pollutants in the case of HC+NO<sub>x</sub>, and the applicable emission standard.

**Technology subgroup:** A group of engine families from one or more manufacturers having similar size, application, useful life and emission control equipment; e.g., Class III, residential, non-catalyst, two stroke, engine used in generator set applications.

#### B. Applicability

1. This statement of principles is applicable to handheld equipment and spark ignited engines used in handheld products subject to the following exclusions. These exclusions, to the extent described in the Phase 1 rule, apply as described in that rule.

- a. Engines used to propel marine vessels.
- b. Engines used to propel any motor vehicle as defined in section 216 of the Clean Air Act including motorcycles.
- c. Engines used to propel aircraft.
- d. Engines used to propel recreational vehicles.
- e. Engines used solely for competition.

f. Engines used exclusively in emergency and rescue equipment where no certified engines are available to power the equipment safely and practically.

g. Engines used to power stationary sources regulated by a federal New Source Performance Standard promulgated under section 111 of the Act.

h. Engines that are both: Used in underground mining or in underground mining equipment; AND are regulated by the Mining Safety and Health Administration (MSHA) in 30 CFR parts 7, 31, 32, 36, 56, 57, 70 and 75.

i. Engines produced for export.

2. Exemptions will be provided as in the Phase 1 rule for uncertified engines used for purposes of research, investigations, demonstrations or training.

3. Exemptions will also be provided as appropriate for reasons of national security. An automatic national security exemption will be proposed, similar to that in the marine SNPRM (61 FR 4618) for nonroad engines and equipment that exhibit combat features, i.e. armor and or weaponry.

#### C. Effective Dates

The standards will be phased in on a percentage of production basis as shown below. The percentages listed below represent the minimum percentage of an individual manufacturer's total production of nonexempt, nonexcluded handheld engines (not percentage of

engine families) destined for U.S. use that must be certified to all applicable standards and comply with all applicable related emission requirements; e.g. labeling, warranty, production line and in-use testing, etc.

TABLE 1.—PHASE IN PERCENTAGES FOR ALL HANDHELD STANDARDS

Model year	Production (percent)
2002 .....	20
2003 .....	40
2004 .....	70
2005 .....	100

#### D. Engine Classifications

Engine classification will be based upon engine displacement as in the Phase 1 rule with Classes I and II being reserved for nonhandheld engines.

TABLE 2.—HANDHELD ENGINE CLASSIFICATIONS

Engine class	Application	Displacement in cubic CM
III .....	Handheld	Less than 20.
IV .....	Handheld	Greater than or = 20, less than 50.
V .....	Handheld	Greater than 50.

#### E. Emission Standards

1. The percentages of engines listed in Table 1 must meet the standards listed in Table 3 for their useful lives. These standards are predicated upon a multiplicative deterioration factor (df) of 1.0 and useful lives of 50 hours for residential handheld engines and 300 hours for commercial handheld engines. Manufacturers will declare at the time of certification whether an engine family is "commercial" or "residential". The definitions of "commercial" and "residential" will be determined in the rulemaking process.

TABLE 3.—HC+NO<sub>x</sub> AND CO STANDARDS FOR HANDHELD ENGINES

Engine class	HC + NO <sub>x</sub> (g/kW/hr)	CO (g/kW/hr)
III .....	210	805
IV .....	172	805
V .....	116	603

2. Two-stroke engines used to power snowthrowers will be subject to the handheld standards at the manufacturer's option.

3. Engines used exclusively in wintertime-only applications, such as snowthrowers or ice augers, need not certify to or comply with the HC+NO<sub>x</sub>

standard at the option of the manufacturer.

4. A provision will be included to provide relief to small volume equipment manufacturers to permit the use of Phase 1 engines for a certain period of time when they can make a showing that no certified Phase 2 engine is available with suitable physical or performance characteristics to power a piece of equipment in production prior to 2002.

#### F. PM and Toxics Test Program for Class III, IV, and V Engines

The Phase 2 regulations adopted for handheld engines pursuant to this SOP will not establish small engine emission standards for particulate matter or toxic air contaminants listed under section 112(b) of the Clean Air Act. To evaluate the levels of these pollutants from Phase 2 handheld engines, the signatories agree that a particulate matter and toxics test program will be conducted. Elements of a PM and Toxics Test Program for Class III, IV, and V engines include:

(1) PPEMA, in cooperation with EPA, commits to a test program to evaluate and quantify emissions of particulate matter and toxics including, but not limited to: formaldehyde, acetaldehyde, benzene, toluene, and 1,3 butadiene.

(2) Testing under this program will be conducted on Phase 2 technology handheld engines.

(3) Testing under this program will be of sufficient magnitude to represent the range of new basic technologies used to comply with the Phase 2 small engine standards. CARB test data may be used where appropriate.

(4) No enforcement will be tied to this testing program.

(5) Test data will be made available promptly to EPA for distribution to other interested parties.

(6) Testing will be conducted at EPA, industry, and/or independent facilities.

#### G. Test Procedures

The 2-mode steady state Cycle C test procedure will apply to all Class III, IV, and V engines as it did in the Phase 1 rule except that the modal weighting factors for the Phase 2 rule, will be 0.85 for Mode 1 (100% max. power) and 0.15 for Mode 2 (idle mode).

A large number of unresolved issues regarding the Phase 2 test procedure still exist. The issues include: testing precision, calibration requirements, data sampling requirements, long term data storage, requirements for natural gas and liquefied petroleum gas, and requirements for ambient test cell conditions. The signatories agree these



could be resolved during the rulemaking process.

#### H. Certification Program

A simplified version of the Phase 1 Certification Program will be provided to the extent possible and appropriate. The following outlines the elements of the program:

- (1) Streamlined annual certification application.
- (2) Coordination with the California Air Resources Board (CARB).
- (3) Possible automation of submittal.

#### I. Production Line Testing

The signatories agree that an efficient, flexible Production Line Testing (PLT) program, designed to verify production of complying engines is appropriate. At the same time, the signatories recognize that when clear compliance is shown for a family, it is reasonable to reduce or curtail testing. The basic components of a PLT program are listed below. Additional specific details of the PLT program will be developed through the rulemaking process.

- (1) Self-auditing plan, covering all engine families each model year in a statistically valid manner.
- (2) The Cumulative Sum (CumSum) procedure will be proposed in the NPRM. Alternate test schemes may be proposed by industry. The signatories agree it is desirable to avoid a multiplicity of individual, diverse test schemes, but recognize that there may be situations where a single test scheme is not appropriate for specific engine families or companies.
- (3) Manufacturers will randomly select engines from each engine family from the production line without regard to engine configuration.
- (4) California audit test data is acceptable to be used as input into the statistical scheme to determine compliance for 50-state engine families.
- (5) Production line testing will employ the full Federal Test Procedure (FTP). EPA will seek comments in the NPRM on the appropriateness of alternative test procedures that preserve the enforceability of the PLT program.
- (6) All exhaust pollutants for which standards are promulgated in the Phase 2 rule will be tested and resultant test data will be reported to EPA quarterly.
- (7) If an engine family exceeds the test program determinant of exceedance, the manufacturer will provide appropriate data to EPA within a certain number of days. EPA will review the data and other pertinent information and may notify the manufacturer that it intends to suspend or revoke the manufacturer's certificate of conformity in whole or in part for that engine family.

(8) The suspension or revocation of a certificate of conformity shall not occur before thirty (30) days after notification from EPA of its intent to suspend or revoke. Hearing procedures by which a manufacturer may contest the suspension or revocation of a certificate will be provided similar to those in the Phase 1 Selective Enforcement Auditing (SEA) regulations. The certificate is automatically suspended with respect to any individual engine that fails to comply with applicable standards during this testing process.

(9) During this thirty (30) day period described in paragraph I 8 above, EPA will maintain a dialogue and coordinate with the manufacturer to facilitate the approval of the required production line change in order to eliminate the need to halt production, if possible.

(10) EPA will approve or disapprove the manufacturer's production line change within fifteen (15) days of receipt. Disapproval of the manufacturer's production line change could result in certificate suspension or revocation, with hearing procedures as described above. If EPA does not respond to the manufacturer's proposed change within fifteen (15) days of receipt, the proposed change will be deemed acceptable to EPA.

(11) The manufacturer, in concert with EPA, will then determine the number of non-complying engines which have been introduced into commerce.

(12) EPA may conduct Selective Enforcement Audits as a backstop; for example, when it receives evidence of improper testing procedures or evidence of a non-conformity that was not being addressed in the normal Production Line Testing process. Routine or random SEAs shall not be a part of the final program.

#### J. In-Use Program

##### 1. In-Use Testing

The signatories agree that an efficient, flexible testing program designed to ensure and verify compliance of in-use engines with applicable emission standards is appropriate. The signatories agree to establish an in-use testing program with basic components as follows. Additional specific details of the program will be developed through the rulemaking process:

- (a) In-use testing will employ the full Federal Test Procedure (FTP).
- (b) All exhaust pollutants for which standards are promulgated in the Phase 2 rule will be tested.
- (c) EPA will select a portion of each manufacturer's engine families to be in-use tested each year (up to 25% of

families). Manufacturers may elect to conduct testing of additional families, and to test more frequently. Additional in-use credits may be generated or required from such testing.

(d) The in-use testing scheme will employ a method to increase the number of engines to be tested when individual engine failures occur, up to a maximum of ten engines per family per year. Except for small volume families, the minimum number(n) of engines tested will be four.

(e) All in-use test results will be reported electronically each quarter to EPA. Reporting of data which suggests an emission exceedance (mean  $\leq$  standard) will occur within a certain number of days of the last test.

(f) EPA will have the right to spot check a manufacturer to evaluate testing practices. EPA will provide reasonable notice of such checks unless it has evidence of improper test practices.

(g) EPA may conduct its own in-use testing, including testing of properly maintained consumer owned engines, through the full useful life of the engines for enforcement purposes.

(h) Bench aging of in-use engines will be permitted only for technology subgroups where correlation between field aged and bench aged engines can be shown (see J2).

##### 2. Bench Aging Correlation

The signatories agree that bench aging is an appropriate way to obtain in-use emission data from small spark ignited gasoline engines, provided that the bench aging process can be shown initially and periodically to correlate with field aging. Consequently the signatories agree to the basics of a bench aging correlation strategy as follows. Additional specific details will be developed in the rulemaking.:

(a) An initial bench-aging/field-aging correlation program will be conducted by manufacturers under EPA guidance. A portion of the field engines will be aged in individual usage or fleets where the manufacturer does not carry out or exercise control over the engines maintenance, or limit their usage such that the engines are no longer used in a way that is representative of typical in-use engines.

(b) Emission testing will employ the full Federal Test Procedure (FTP).

(c) All exhaust pollutants for which standards are promulgated in the phase 2 rule will be measured for correlation purposes.

(d) Engines will be aged to the full regulatory useful life on the bench and in the field except that commercial engines may be aged to 75% of the full



regulatory useful life for correlation testing purposes only.

(e) Correlation and sample sizes will be determined as appropriate.

(f) Engine manufacturers will conduct a correlation spot check program periodically of each technology subgroup to verify that emissions from bench-aged engines correlate with emissions from field-aged engines.

### 3. In-Use Credit Program

The signatories agree that reasonable means must exist to address emission exceedances of in-use engines, including those exceedances of in-use engines identified by Production Line Testing, that: (1) provide an incentive to manufacturers to build emission-durable engines; (2) can be implemented practically; (3) provide an incentive to perform additional in-use testing; (4) offset additional emissions that occur as a result of the exceedance of the standard; and (5) are not unduly burdensome to the manufacturers. The signatories agree that a mandatory recall program does not meet these five criteria, although a manufacturer may conduct a voluntary recall in lieu of remedying emission exceedances through the in-use credit program or alternative methods provided in this SOP. The signatories believe that successful implementation of the in-use credit program and the other alternatives described herein will provide a comprehensive remedy to address in-use emission exceedances so that EPA will not, in practice, order mandatory recall of Phase 2 certified engines. Additional specific details of the in-use credit program will be developed during the rulemaking process:

(a) In-use credits generated or required will be based on an engine family's in-use emission level relative to its applicable standard, as determined from the In-use Testing Program.

(b) A multiplicative factor will be used to adjust credits earned based on sample size.

(c) In-use credits will be used at a higher rate than the in-use credits were generated.

(d) In-use credits will have an unlimited life during the Phase 2 program.

(e) For credit computational purposes, U.S. sales figures will be used.

(f) In-use credit banking and trading is allowed, but trading may be limited between categories of engines.

(g) All credit calculations indicating surpluses and deficits will be reported electronically at the conclusion of in-use testing for that model year.

(h) An appropriate in-use credit formula will be developed in the rulemaking to account for the different power ratings of engines and the different regulatory useful lives of residential and commercial engines.

(i) In the case of in-use testing of carry-over engine families, and in the absence of other applicable test data, the test results from one model year will be assumed to apply to four years worth of production: the model year tested, the next model year and the two previous model years. In-use credits will be generated or required, as appropriate.

### 4. Alternative Methods to Address In-Use Exceedances of Standards

The signatories agree that the primary method for manufacturers to address in-use exceedances of standards will be applying credits generated through the in-use credit program. If the manufacturer has insufficient in-use credits, it should first investigate the possibility of purchasing credits through available sources. However, appropriate alternative methods will be considered. Manufacturers will be allowed to implement all appropriate alternative methods prior to EPA making a determination of substantial nonconformity. EPA will make a determination of substantial nonconformity only when use of in-use credits and/or appropriate alternative methods do not adequately address the exceedance. Alternatives should meet the following criteria:

(a) Alternatives must have a nexus to the emission problem caused by the subject engine family.

(b) The alternative must cost substantially more than foregone compliance costs and consider the time value of foregone costs.

(c) Alternatives must offset at least 100% of the exceedance of the standard, subject to the other listed criteria.

(d) Alternatives must consider the degree of environmental harm caused by the exceedance.

(e) Alternatives must consider the time value of the foregone environmental benefit resulting from the exceedance.

(f) Alternatives will be subject to a cost cap that will be established in the rulemaking process.

(g) Alternatives may not include measures the manufacturer planned to undertake irrespective of the need to address the exceedance.

(h) Alternatives must be able to be implemented expeditiously and completed in a reasonable time.

(i) Alternatives must not force the manufacturer out of business.

(j) The implementation potential of an alternative must be considered.

### K. Imports

The Imports program will be similar to the program for Phase 1. Essentially, this program bars the importation of uncertified, regulated small engines except that a one-time personal use exemption will permit the importation of three non-conforming small engines (or pieces of equipment containing such engines) for personal use but not for purposes of resale.

### L. Voluntary Incentive and Recognition Program for Handheld Engines

A voluntary program will be created to identify handheld engines that have HC+NO<sub>x</sub> certification levels substantially below the Phase 2 standards. Manufacturers who participate in this program will be allowed to display a symbol (yet to be determined) on their products, packaging, or advertisements indicating that the engine qualifies for the program. The signatories recognize that further specific details of the program need to be formulated, but they agree on certain basic concepts of the program. To qualify for the program, certified engine emission levels must be a certain percentage below the Phase 2 HC+NO<sub>x</sub> standard. EPA and industry will agree on the administration of the program. In addition, manufacturers will receive a waiver on production line testing if an engine family achieves a certification level a certain percentage or more below the HC+NO<sub>x</sub> standard. The two percentages referenced in this paragraph may be different.

### M. Certification: Averaging, Banking and Trading (ABT)

No certification ABT program will be created for handheld engines. In-use credits generated in the in-use ABT program are not applicable for use in certification.

### N. Dealer Responsibility

The signatories agree that, except as noted in this paragraph, these regulations will not impose any obligation on the dealers or repair facilities to bring into compliance any products found to have been tampered, nor will dealers or repair facilities be required to report defects to EPA. Dealers and repair facilities will be prohibited from tampering or causing tampering, but, are not prohibited from working on tampered products. Dealers and repair facilities will not be required to restore products submitted to them with tampered emission controls to certified configurations unless the repair

involves the component or system that has been tampered. In that case, dealers and repair facilities will be required to restore the system to a certified and properly functioning configuration but will not be required to demonstrate that the products comply with applicable emission standards. In repairing or replacing emission control parts and systems, dealers and repair facilities may use parts represented by their manufacturers to be functionally equivalent to original equipment (OE) parts.

#### O. Technology Review/Phase 3

The signatories recognize that technological advances and/or cost reductions may occur after promulgation of the Phase 2 rule that could make greater, but still cost-effective reductions feasible in handheld emission levels. At the same time, the signatories agree that industry requires certainty and stability for its business planning. Without such certainty, industry would not commit to the investment that these standards will require, and without such certainty and stability these investments might never be recouped. EPA will commit to conducting a technology review and publishing a Notice of Proposed Rulemaking in 2001 announcing any intended amendments to the standard levels or other program elements or EPAs desire to maintain the existing standards or program. The final rulemaking will be completed by 2002 and, if Phase 3 standards are adopted, they will be phased in on a percentage basis and over a period of time similar to Phase 2, beginning no earlier than model year 2007. This schedule is intended to provide a minimum five year period between the implementation of Phase 2 standards and the implementation of any Phase 3 standards to aid manufacturers in recouping their investments in Phase 2 technology.

#### P. Tampering

The signatories agree that the tampering prohibitions from Phase 1 shall be adopted in Phase 2 except that a provision will be added to permit the removal, subject to approval by EPA, of emission control devices or elements of design that interfere with the safe and/or practical use of emergency and rescue equipment.

### Appendix B to the Preamble— Nonhandheld Engines Statement of Principles

#### *Small Nonhandheld Spark-Ignited Nonroad Engine Statement of Principles*

Members of the small (19 kilowatt and below) nonhandheld spark-ignited (SI) nonroad engine industry and the U.S. Environmental Protection Agency (EPA) (collectively, the Signatories) recognize the significant contribution made by small nonhandheld SI nonroad engines to the emissions inventory that leads to ozone concentrations in nonattainment areas. This recognition prompted the Signatories, along with State and environmental organization representatives, to work together to quickly put into place a first phase of regulations taking effect with the 1997 model year. The Phase 1 regulations achieve significant reductions in ozone-forming pollutants from these engines by setting emissions standards to control hydrocarbons (HC) and oxides of nitrogen (NO<sub>x</sub>).

Nevertheless, the Signatories recognize that further control of HC and NO<sub>x</sub> from these sources beyond the Phase 1 levels is achievable through technology that will be cost-effective and feasible in future model years. They also recognize the need for stability and predictability to be designed into a regulatory program that achieves these additional reductions.

The Signatories also recognize that it is important to maintain a strong and competitive industrial base as EPA implements its responsibilities to protect public health and welfare and the environment.

This Statement of Principles ("SOP") accomplishes both environmental and business objectives, ensuring cleaner air in a manner which is both realistic for industry and responds to environmental needs. The Signatories agree that the aggressive package of emission standards and implementation schedules contained in this SOP accomplishes the environmental benefit of further significantly reducing in-use emissions of ozone forming pollutants from nonhandheld small SI nonroad engines. The Signatories further agree that the package of provisions contained in this SOP reflects a clear, stable, long-term control program for this source which will encourage industry to more effectively incorporate environmental objectives into their business planning.

With this SOP, the small nonhandheld SI nonroad engine industry has stepped forward to work as a partner with EPA to bring about cleaner air. States will see significant additional reductions in the emission

inventory from these sources beyond those achieved by the Phase 1 rule that they can rely upon in meeting their responsibilities to attain and maintain the national ambient air quality standard (NAAQS) for ozone. Consumers will benefit from improved engine technology, which in addition to improving air quality will likely also burn less fuel, require less maintenance, be more reliable, and last longer.

This SOP outlines the joint understanding of all Signatories that will provide the basis for issuance by EPA of an Advanced Notice of Proposed Rulemaking ("ANPRM") and a Notice of Proposed Rulemaking ("NPRM") which would be consistent with the points outlined in this document. EPA intends to issue the ANPRM in early 1997, the NPRM in the Fall of 1997, and to promulgate a final rule by the Fall of 1998.<sup>1</sup> Based on the currently available information, the Signatories believe that the standards contained in this SOP represent the most stringent standards achievable considering cost and other appropriate factors in the time frame of this Phase 2 program. However, this SOP does not change the importance of EPA demonstrating the need for the standards described below and EPA's obligations to meet the criteria of the Clean Air Act in finalizing any rule, including complying with all applicable rulemaking procedures.

#### 1. Scope

This SOP addresses a Phase 2 program that will apply to Class 1 and Class 2 nonhandheld SI nonroad engines at or below 19 kilowatts (25 horsepower). These classes are distinguished from each other primarily in terms of engine size (displacement), cost, and the applications in which they are used.

Class 1 engines, which have displacements of less than 225 cc, are typically used in relatively inexpensive applications such as walk-behind lawnmowers, edgers and trimmers, and other lawn care equipment. The vast majority of Class 1 engines produced for use in the United States use side-valve (SV) technology.

Class 2 engines, which have displacements greater than or equal to 225 cc, are typically used in more expensive applications such as riding mowers, lawn tractors, tillers, generator sets, and many other applications. Class 2 engines are often used in commercial applications and, as a result, tend to have much higher hours of use annually than Class 1 engines. Approximately

<sup>1</sup> EPA is currently seeking appropriate changes to a court order to conform to this SOP.

one third of the Class 2 engines sold in the United States today utilize over-head valve (OHV) engine technology.

## 2. Technology Forcing and In-Use Goals

The two primary goals for the Phase 2 program for small nonhandheld SI nonroad engines reflected in this SOP are 1) a shift to cleaner, more emissions durable technology as quickly as feasible, considering cost and lead time factors, and 2) assurance that emission reductions are achieved in-use.

The Signatories acknowledge that the program described here is intended to meet the clean technology goal and reflect a shift to clean more durable technology on an aggressive schedule by: 1) ensuring that manufacturers shift

their production of larger (Class 2) nonhandheld engines completely to over-head valve engine or comparably clean and durable technology (referred to herein as "OHV emissions performance") by model year 2005, and in the interim attain a 50 percent shift to OHV emissions performance by model year 2001, 2) establishing standards for Class 1 engines that reflect cost-effective controls on SV engine technology, and 3) assessing the environmental, marketplace and other economic factors associated with high-volume OHV technology for smaller (Class 1) nonhandheld engines through an OHV demonstration program.

The Signatories further agree on the principle that the emission benefits of

the program must be realized in-use. As a result, this SOP contains provisions to ensure that the engines produced by manufacturers are emissions durable over their useful lives while at the same time using compliance mechanisms that are not unduly burdensome.

## 3. Standards and Effective Dates

In order to achieve the goals described in section 2 above, the Signatories agree to the following provisions.

### a. HC+NO<sub>x</sub>

The Signatories believe that the standards and effective dates shown in Table 1 below will achieve the technology forcing goal described in section 2 above.

TABLE 1.—HC+NO<sub>x</sub> STANDARDS AND MODEL YEAR EFFECT DATES

	HC+NO <sub>x</sub>	NMHC+ NO <sub>x</sub> (optional standard for natural gas fueled engines only)	2001	2002	2003	2004	2005
	g/kw-hr (g/bhp-hr)		Assumed % of Sales				
Class 1 .....	25.0 (18.7) .....	23.0 (17.2) .....	100				
Class 2 .....	24.0 (18.0) .....	22.1 (16.5) .....	50	37.5	25	12.5	0
	12.1 (9.0) .....	11.3 (8.4) .....	50	62.5	75	87.5	100

**Note to table:** The actual corporate average emission standards for Class 2 engines, based on the standards applicable at the 250 hour useful life category are, in g/kw-hr:

2001	2002	2003	2004	2005
18.0	16.6	15.0	13.6	12.1

A manufacturer's actual corporate average could be different depending on its mix of 250, 500, and 1000 hour useful life engines.

The Class 1 level of 25 g/kw-hr is expected to achieve meaningful emission reductions from these engines beyond what is required for the Phase 1 rule, while at the same time allowing the continued use of SV engines in the market for this class. The Signatories agree to the importance of the OHV Demonstration Program for Class 1 to investigate the potential for increasing penetration of OHV technology in Class 1 (see section 3(g) below).

For Class 2 engines there is a dual standard: one based on SV technology (which is expected to be phased-out), and one based on OHV technology. The OHV technology based standard (12.1 g/kw-hr for 250 hour engines) would be phased-in on a percentage of production basis as shown in Table 1. The standard is based on the projected capabilities of emissions-optimized durable OHV engines. The standard assumes an assigned multiplicative deterioration factor (DF) of 1.3 at 250 hours for OHV engines. EPA will propose that manufacturers would be allowed to establish their own DFs for their full product line within a useful life

category for the 500 and 1000 hour useful life categories. The proposal will address in a reasonable and practical manner the kind of data required to determine the DFs, the amount of in-use testing required to verify the DFs, and the appropriateness of reserving certification credits pending verification of the DFs through in-use testing. During the rulemaking process EPA will consider the appropriateness of allowing manufacturers to establish their own DFs for their full product line within the first useful life category (250 hours).

Recognizing that manufacturers' testing capacities may be substantially constrained during the transition to fully phased in standards, manufacturers choosing to establish their own DFs for the 500 and 1000 hour Class 2 useful life categories may base the DF on good engineering judgment, demonstrated to the satisfaction of the Administrator, provided that, in a reasonable period after model year 2005, the manufacturer shall verify their good engineering judgement using appropriate data. The proposal will

address in a reasonable and practical manner the kind of data required to verify the DFs. In the event that a DF must be adjusted, the manufacturers shall offset any emission shortfalls resulting from a previous low DF. The use of credits from either Class 1 or Class 2 engines would be one means to offset any such shortfalls.

The Signatories agree that one goal of the SOP is to encourage manufacturers to design and build engines that are emissions durable over their actual useful lives, and to encourage manufacturers to voluntarily certify their engines to longer useful life categories when they are intended for longer hours of operation in-use (See section 3.b.). The Signatories recognize that, depending on the emission characteristics of an engine, at longer useful life hours the emission standard may be more difficult to meet. In addition, it is the Signatories' goal to make sure the emission standards encourage manufacturers to voluntarily certify to longer useful lives those engine designed to be operated and durable for longer useful lives.

EPA will propose, based on available data, optional assigned DFs for the 500 and 1000 hour useful life categories. The proposed assigned DFs at the longer useful life categories would not be lower than 1.3. Furthermore, it is anticipated that longer useful life engines would not have an assigned DF greater than 1.5 at 1000 hours. Consequently, the Signatories expect that the proposed assigned DFs for longer useful life engines would be between 1.3 and 1.5 at 1000 hours.

Finally, the Signatories agree that EPA will propose HC+NO<sub>x</sub> standards associated with longer useful hours to reflect the proposed assigned DFs discussed above.<sup>2</sup> However, in no case will the proposed standard be lower than that associated with an assigned DF of 1.3 or higher than that associated with an assigned DF of 1.5.

If as a result of the field durability demonstration program described under section 4(d), EPA later determines that the assigned DFs need to be adjusted, then EPA would initiate a rulemaking to adjust the DFs and the standards accordingly.<sup>3</sup> Any such rulemaking would only apply prospectively and would be undertaken only if data suggest that measured DFs are significantly different from the assigned DFs as set forth in this SOP.

The engines for which the manufacturer determines its own DFs would be included in the field durability demonstration program. However, data from those engines would not be included in determining whether the assigned DFs need to be adjusted under the field durability program.

The Signatories acknowledge that it may be appropriate to create a separate engine class with different HC+NO<sub>x</sub> standards for very small displacement nonhandheld engines. To that end, EPA will consider the need for such a class as part of the rulemaking process.

#### b. Useful Life

The Signatories recognize that small nonhandheld SI nonroad engines are used in a wide range of applications with annual and seasonal hourly use varying from low in some residential applications to high in some commercial applications. The Signatories further recognize that the

greater the use during the ozone season of an engine the greater its importance in terms of air quality impacts.

The Signatories agree to the desirability of a mechanism that allows manufacturers to select the useful life category for a given engine application. Selection of the useful life category would be solely at the manufacturer's discretion, and the engine's label and averaging, banking and trading (ABT) credit calculation would reflect the manufacturer's choice.

For the Phase 2 program, the useful life categories for Class 1 and Class 2 engines would be as follows:

TABLE 2.—USEFUL LIFE CATEGORIES (HOURS)

	Cat- egory C	Cat- egory B	Cat- egory A
Class 1 .....	66	250	500
Class 2 .....	250	500	1000

The useful life category corresponds to the hours of operation to which the engine is subject to applicable emissions standards. For purposes of the engine label, the useful life will be referred to as the emissions compliance period. The engine label will indicate that the engine is built to conform with EPA emissions regulations for the emissions compliance period, in hours, selected by the manufacturer (e.g., 250 hours).

As an option, the engine label will indicate that the engine is built to conform with EPA emissions regulations for the emissions compliance period, by category, selected by the manufacturer (e.g., Category C). The label will refer to the appropriate owner's manual for a description of the emissions compliance period. As part of this option, EPA will propose that engine manufacturers demonstrate during the certification process that information explaining the meaning of the category designation will be provided to the ultimate purchaser.

#### c. CO

The Phase 1 carbon monoxide (CO) standard for Class 1 and Class 2 engines will remain in place for the Phase 2 program, but will be adjusted to 610 g/kw-hr to reflect engine deterioration. In addition, EPA will have authority to waive the reporting requirement for CO at the Administrator's discretion.

#### d. Wintertime Products

The exemptions from the HC+NO<sub>x</sub> standards contained in Phase 1 for engines used only in wintertime products would continue for Phase 2.

#### e. Certification Test Fuel

The Signatories agree that no changes in the certification test fuel specifications will be proposed from the current Phase 1 requirements.

#### f. Averaging, Banking, and Trading (ABT)

Compliance with the HC+NO<sub>x</sub> standards above would be based upon a corporate average with manufacturers also having the ability to bank and trade emission credits. The Signatories agree that such an ABT program will help assure that the aggressive schedule set out above will be cost-effective and technologically feasible.

Credit calculations would be based upon sales weighted corporate average emissions from a manufacturer's engines on an annual basis, using family emission limits (FELs) and useful life hours selected by the manufacturer. While the Signatories believe that the phase-in for percentage of production shown in Table 1 for Class 2 engines will occur, the flexibility provided under the ABT program will allow some variation from the expected percentage of production phase-in. Regardless of this variation, manufacturers of Class 2 engines certified to the 250 hour useful life category would be required to achieve a standard of 18.0 g/kw-hr, 16.6 g/kw-hr, 15.0 g/kw-hr, and 13.6 g/kw-hr in model years 2001, 2002, 2003, and 2004, respectively, on a sales weighted average across their Class 2 production,<sup>4</sup> recognizing that through the ABT program credits may be used to meet the standard. EPA will propose rules addressing the procedures and requirements for determining the number of engines that correspond to an engine family and model year for purposes of credit calculations. The procedures and requirements will take into account the unique characteristics of the small nonhandheld SI nonroad engine industry, and will be designed to limit the burden of tracking engine production and sales to no more than the minimum needed to establish fair and accurate credit accounting. In addition, EPA will consider during the rulemaking process the appropriateness of using production-based instead of sales-based accounting for credit accounting purposes.

In order to assure that the ABT program adequately encourages the transition to cleaner, more durable technology and that the ABT program fulfills its intended function, cross class averaging, banking, and trading will

<sup>2</sup> The proposed standards will be based on the ratio of the assigned DFs for these longer useful life engines at the longer time periods compared to the 1.3 assigned DF at the 250 hour useful life category (e.g.,  $1.5/1.3 \times 12.1 = 14.0$ ).

<sup>3</sup> For example, the standard would be 14.0 g/kw-hr if the DF was adjusted to be 1.5, whereas the standard would be 11.2 g/kw-hr if the DF was adjusted to be 1.2.

<sup>4</sup> A manufacturer's actual corporate average could be different depending on its mix of 250, 500, and 1000 hour useful life engines.

only be allowed under two scenarios; provided that the affected manufacturer's Class 2 engine production is either all OHV technology or it meets or exceeds the assumed OHV emissions performance production phase-in schedule for Class 2 engines in Table 1. One scenario where cross class ABT would be allowed is for credit exchanges from credit generating Class 2 engines to credit using Class 1 engines. The other allowable scenario is credit exchanges between Class 1 and Class 2 engines to offset emission shortfalls identified in to the programs outlined in Section 4(c) below or as a result of an adjustment to manufacturer determined DFs as discussed in section 3(a).

In order to provide an incentive to accelerate the introduction of cleaner technologies, the Signatories agree that the proposal will contain provisions for generation of credits prior to the 2001 model year (i.e., early banking). Manufacturers may begin to generate such early credits two model years before the standards set forth in this SOP take effect. Early banking credits may only be generated for engines certified below the 12.1 g/kw-hr HC+NO<sub>x</sub> emission level at the 250 hour useful life category for Class 2 engines (or the applicable standard for the 500 and 1000 hour useful life categories), and below 16.0 g/kw-hr HC+NO<sub>x</sub> for Class 1 engines. In addition, such early credits could only be banked where a manufacturer certifies and complies with the 2001 standard for its entire product line in a given class. Early banking credits cannot be used to defer the assumed OHV emissions performance production phase-in schedule for Class 2 engines in Table 1.

The Signatories further agree that credits generated under the Phase 2 program will have an unlimited life when used for purposes of compliance with the standards specified in this SOP. EPA will consider the appropriate life of Phase 2 program credits in connection with other regulatory programs in which those credits could be used.

#### g. Class 1 OHV Demonstration Program

The Signatories recognize the important role SV engines currently play in the Class 1 market and the significant economic impediments to the widespread introduction of higher cost, cleaner technologies such as OHV in this class. Nevertheless, the Signatories also recognize the desirability of investigating the potential to reduce the cost and increase the penetration of such technology in this

class in order to maximize achievable emissions reductions from this industry.

As a result, in order to determine in a meaningful way the potential for increasing the penetration of cleaner, more durable technology in Class 1, EPA and certain manufacturers have entered into Memoranda of Understanding (MOUs) calling for an OHV demonstration program. The Class 1 OHV demonstration program is designed as an experiment to explore the consumer acceptance and feasibility of applying OHV technology to mass production Class 1 engines. The program would include a series of reports to EPA on the level of success, impediments encountered, market response, costs, emission rates, etc.

#### 4. Compliance Assurance

The Signatories agree on the principle that the emission benefits of the Phase 2 program must be achieved over the lifetime of the engines. However, the Signatories also recognize the importance of minimizing to the extent possible the compliance burden associated with this program.

The Signatories agree that reasonable means must exist to address emission exceedences identified in selective enforcement audits (SEA) or production line testing (PLT). These means should: (1) provide an incentive to manufacturers to build emission-durable engines; (2) be practical to implement; (3) provide an incentive to perform accurate testing; (4) offset additional emissions that occur as a result of the exceedence of the standards; and (5) not be unduly burdensome to manufacturers. The Signatories agree that a mandatory recall program for Class 1 and 2 engines, modeled on traditional on-highway recall procedures, does not meet these five criteria, given the non-integrated nature of the nonhandheld outdoor power equipment industry and the consumer markets in which most of that equipment is sold. The Signatories agree that there are other, better means to encourage compliance with emission standards for these engines than mandatory product recalls (as discussed in section 4(c) below), and that the efforts of the industry and EPA should be devoted to assuring that engines will comply with applicable standards in-use before they leave the production facility and to taking any necessary actions as quickly as possible to assure good emission performance. Consequently, the proposal will not contain provisions for making compliance determinations on the basis of in-use testing or emission performance.

The Signatories agree that the combined package of provisions contained in this SOP strikes the appropriate balance between providing assurance of in-use emission performance and minimizing the burden to industry.

#### a. Class 1 Certification

Certification for Class 1 engines with SV technology or aftertreatment would continue as under Phase 1, except that certification engines would first be bench-aged to the number of hours selected as useful life (66, 250, or 500) to determine compliance with the FEL.

A manufacturer could propose a bench-aging schedule up to 48 months prior to the start of a model year for the engine family as projected by the manufacturer. EPA would accept or reject the proposed schedule within 90 days of submission. If EPA did not reject the schedule within 90 days, the manufacturer's proposed schedule would automatically be accepted.

Periodic correlation of bench-to-field testing would be demonstrated by the manufacturer. Such correlation would be established by a simple method such as determining the ratio of the calculated mean emission levels of bench-aged engines and field-aged engines. During the first five years the program correlation would be demonstrated every two model years, and every five model years thereafter (e.g., 2001, 2003, 2005, 2010, etc.). Any changes to the correlation ratio would apply prospectively only with appropriate lead time for the manufacturers.

As an option, instead of testing engines on the bench and demonstrating correlation, manufacturers could choose to test engines from the field with accumulated hours corresponding to the useful life category selected by the manufacturer ("field-aged certification").

Certification for Class 1 OHV engines would continue as under Phase 1, except that a multiplicative assigned DF would be applied to new engine levels to determine compliance with the FEL for the 66 hour useful life category shown in Table 2. The Signatories agree that the assigned DF for Class 1 OHV engines will be 1.3 at 66 hours. Manufacturers would be allowed to establish their own DFs for their full product line within a useful life category for the 250 and 500 hour useful life categories. The proposal will address in a reasonable and practical manner the kind of data required to determine the DF, the amount of in-use testing required to verify the DF, and the appropriateness of reserving

certification credits pending verification of the DF through in-use testing. During the rulemaking process EPA will consider the appropriateness of allowing manufacturers to establish their own DF for their full product line within the first useful life category (66 hours). EPA will also consider the appropriateness of establishing optional assigned DFs for the 250 and 500 hour useful life categories. Any adjustment to the assigned DF would be made as set forth in Section 3(a) above, however, in the case of Class 1 engines the standard would not be adjusted.

#### b. Class 2 Certification

Certification for Class 2 engines with SV technology or aftertreatment would continue as under Phase 1, except that certification engines would first be bench-aged to the number of hours selected as the useful life (250, 500, or 1000) to determine compliance for certification purposes. During the transition to OHV emissions performance engines, some flexibilities to relieve testing burden would apply (see section 5).

A manufacturer could propose a bench-aging schedule up to 48 months prior to the start of a model year for the engine family as projected by the manufacturer. EPA would accept or reject the proposed schedule within 90 days of submission. If EPA did not reject the schedule within 90 days, the manufacturer's proposed schedule would automatically be accepted.

Periodic correlation of bench-to-field testing would be demonstrated by the manufacturer. Such correlation would be established by a simple method such as determining the ratio of the calculated mean emission levels of bench-aged engines and field-aged engines. During the first five years the program correlation would be demonstrated every two model years, and every five model years thereafter (e.g., 2001, 2003, 2005, 2010, etc.). Any changes to the correlation ratio would apply prospectively only with appropriate lead time for the manufacturers.

As an option, instead of testing engines on the bench and demonstrating correlation, manufacturers could choose to test engines from the field with accumulated hours corresponding to the useful life category selected by the manufacturer ("field-aged certification").

Certification for Class 2 OHV engines would continue as under Phase 1, except that a multiplicative assigned DF would be applied to new engine levels to determine compliance with the FEL for the 250 hour useful life category

shown in Table 2. The Signatories agree that the assigned DF for Class 2 OHV engines will be 1.3 at 250 hours. Manufacturers would be allowed to establish their own DFs for their full product line within a useful life category for the 500 and 1000 hour useful life categories. The proposal will address in a reasonable and practical manner the kind of data required to determine the DFs, the amount of in-use testing required to verify the DFs, and the appropriateness of reserving certification credits pending verification of the DFs through in-use testing. During the rulemaking process EPA will consider the appropriateness of allowing manufacturers to establish their own DFs for their full product line within the first useful life category (250 hours). EPA will propose based on available data optional assigned DFs for the 500 and 1000 hour useful life categories, as discussed in Section 3(a) above. Any adjustment to the DF and standard would be made as set forth in Section 3(a) above.

#### c. Production Line Compliance

The Signatories agree that reasonable testing to assure that production engines meet standards is appropriate and that two different approaches would be used to monitor production line compliance.

Under the first approach, a manufacturer would opt to conduct a manufacturer run Production Line Testing (PLT) program (including but not necessarily limited to CumSum) for all of their engine families. In this case, the Signatories agree that the SEA program would exist only for backstop purposes where evidence of improper testing or nonconformities not being addressed by the manufacturer's testing program was obtained by EPA. The Signatories agree that for manufacturers who conduct a PLT program under this approach, if an engine family fails its production audit by exceeding its FEL, the FEL for that family would be adjusted to the new FEL indicated by the production audit results for both past and future production where applicable. Similarly, if an engine family passes its production audit by achieving emissions below its FEL, the FEL for that family can be adjusted to the new FEL indicated by the production audit results for future production where applicable. Any deficit in corporate-wide emissions performance resulting from the FEL change would need to be retired by the end of the model year following the model year in which the production audit failure occurred on a one-for-one basis. Any deficit in corporate-wide emissions performance resulting from

the FEL change that is not retired by that time can be retired in the following two model years on a 1.2 to one basis.

This PLT program will permit the manufacturer to perform additional testing beyond the minimum required by regulation. Any such additional test data can be used to limit the number of engines for which a manufacturer is liable if there is a failure in the PLT program.

A manufacturer must implement the PLT approach for a minimum of three consecutive model years and must notify EPA a minimum of one complete model year prior to the model year for which they are requesting to opt out. This timing restriction would not preclude a manufacturer from implementing appropriate changes to the design or scope of the PLT program from model year to model year.

Furthermore, they cannot be carrying a negative credit balance at the time of opting out. Where a manufacturer fails the PLT audit for more than one engine family in a model year and the number of engines that are recertified to a new FEL as a result of the failed PLT audit exceeds 10 percent of the manufacturer's annual production, then the remedies for noncompliance under this option are no longer valid. Instead, the provisions under the SEA approach described below would apply.

Under the second approach, engines in the Phase 2 program would be subject to SEA as under the Phase 1 program. This approach would apply to manufacturers who do not conduct a PLT program under the first approach. The Signatories agree that appropriate remedies need to be implemented for failures of SEA resulting from testing new (e.g. zero-hour) engines. Such appropriate remedies must meet the criteria set forth in the second paragraph of Section 4 above. EPA is committed to designing remedies that will both preserve the environmental benefits of this program and minimize the burden on the industry. The proposal will therefore preserve for EPA adequate flexibility to address such failures on a case-by-case basis, so that EPA and the manufacturer may develop a response that achieves the goals noted above. Such a response might include, for example, a combination of measures such as mandatory PLT for appropriate time periods and portions of production, recertification of all or part of an engine family, and generation of credits to remedy the exceedences over an appropriate period of time. As discussed above in section 4, the Signatories agree that a mandatory recall program for Class 1 and 2 engines, modeled on traditional on-highway

recall procedures, does not meet the criteria for reasonable means to address emission exceedences identified in SEA or PLT programs, given the non-integrated nature of the nonhandheld outdoor power equipment industry and the consumer markets in which most of that equipment is sold. EPA will not revoke or suspend a certificate where a response that meets the goals noted above is designed and implemented in a timely manner (except in cases where a manufacturer desires to obtain a new certificate in which case the old certificate would be suspended to avoid the existence of two certificates for the same family).

**d. Field Durability and In-use Emission Performance Demonstration Program for OHV Engines**

The Signatories agree to the necessity of a Field Durability and In-use Emission Performance Demonstration Program to produce reliable data that verifies that the conclusions in this program with respect to the durability of OHV engines are accurate. The data collected under this program would be designed to provide a representative picture of actual in-use emissions, including representative age (hours), maintenance, and sales mix of engines in the field. Manufacturers would test a sufficient number of engines to be statistically meaningful. Individual manufacturers would supply test data to EPA. However, the test program could be jointly run on an industry-wide basis.

To the extent practical, engines will be selected from residential customers or professional users; however, the Signatories recognize that engines also will be selected from manufacturers fleets, as long as the engines represent typical in-use engines.

The Field Durability and In-use Emission Performance Demonstration Program would be conducted every four years. The data from this program are neither designed nor intended to be used for compliance purposes.

The Signatories recognize that the test programs covered under sections 4(a), 4(b) and 4(d) should be designed in a way to minimize the overall burden on the manufacturer while meeting the goals of these provisions including a reasonable cap where appropriate on the overall level of testing required. The Signatories further recognize that while the maximum testing may be required in the initial years of testing, EPA will reduce the testing burden as appropriate in subsequent years as the overall database grows. To that end, the total field engine test burden for the largest manufacturers by sales volume for tests required for these programs will not

exceed 96 field-aged engines in a four year period or 24 field-aged engines in a one year period. EPA will propose an appropriate scaling of the field engine test burden for smaller volume manufacturers. It is intended that only a representative sample of engine families will be tested in the program set forth in Section 4(d). EPA will have the discretion to proportion the test engines among the test programs covered under Sections 4(a), 4(b) and 4(d). The Signatories also agree to permit the Field Durability test program to run over multiple years and to provide for appropriate delays or waivers from the requirements of the bench correlation program in years when a manufacturer also runs the field durability program.

**5. Manufacturer Flexibilities During the Transition to OHV Emissions Performance Engines**

Recognizing that old technology will be phased-out during the transition period to clean durable OHV emissions performance technology for Class 2, the Signatories agree to certain flexibilities to accommodate an orderly transition. Manufacturers would be allowed to bench-age Class 2 SV or aftertreatment engines and to demonstrate compliance with the FEL based on 120 hours of testing during the transition period. However, manufacturers would certify to and use 250 hours for credit calculation purposes.

**6. Small Volume Provisions**

The Signatories agree that for SV Class 2 engine families with less than 1000 units produced for sale in the U.S. can continue to meet the 24.0 g/kw-hr standard in 2005 and subsequent model years. With the 2005 model year, however, this standard will become a cap and these engines will be excluded from the ABT credit calculations.

**7. Fuel Spillage Reduction Program**

The Signatories recognize the contribution to air pollution from fuel spillage and agree to work collaboratively and with other affected parties to develop a voluntary Fuel Spillage Reduction Program which provides information and education to a variety of audiences and encourages the development and use of technology that will reduce spills by users.

**8. Test Procedures and Other Requirements**

The signatories agree that the model year definition will be the same as for the Phase 1 rule, and the interpretation of the model year definition for the start-up of the Phase 1 program will also

exist for the start-up of the Phase 2 program in order to provide maximum flexibility in the transition to Phase 2 standards.

The Signatories acknowledge that this SOP does not address such issues as test procedure or certain other issues included in the existing Phase 1 Rule. The Signatories acknowledge that any changes not specifically set forth above could adversely affect the manufacturers ability to meet the standards and effective dates in this SOP. EPA will continue to review all aspects of the Phase 1 regulatory program to determine what areas, if any, need to be updated to reflect experience gained during Phase 1 or to implement the provisions contained in this SOP. EPA does not plan on proposing any changes in the areas not addressed herein, or any additional programs not consistent with this SOP, such as evaporative emissions standards, that would materially change the stringency or cost of the Phase 2 regulatory program.

**9. Stability**

One of the key principles of this SOP is to design a regulatory program that provides industry with stability and predictability, allowing it to make and recoup the investments that will be needed to achieve the emissions reductions called for under this SOP. EPA recognizes this level of investment, and acknowledges the need for a corresponding period of stability and certainty.

**10. Harmonization**

The Signatories recognize the value that harmonizing standards within the United States would have on the cost of producing engines and equipment and support the goal of harmonization as long as it does not undercut achieving the air quality needs the standards are designed to achieve, and the Signatories will work with the California Air Resources Board (ARB) to this end. The Signatories will also coordinate and consult with ARB in order to achieve the maximum appropriate harmonization of the elements of their respective small SI engine regulatory programs, including, for example, test procedures, certification, and compliance assurance, recognizing the value for EPA, manufacturers and users associated with harmonizing these programs.

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