United States
CONSUMER PRODUCT SAFETY COMMISSION
Bethesda, Maryland 20814

MEMORANDUM

DATE: February 15, 2007

TO : ES

Through: Todd A. Stevenson, Secretary, OS

FROM : Martha A. Kosh, OS

SUBJECT: Portable Generators; Advance Notice of Proposed Rulemaking; Request for Comments and Information

ATTACHED ARE COMMENTS ON THE CC 07-3

COMMENT	DATE	SIGNED BY	AFFILIATION
CC 07-3-1	1/05/07	Kenneth Frank	kafrank@charter.net
CC 07-3-2	1/24/07	Sandy Uhrig	uranch@comcast.net
CC 07-3-3	2/06/07	G.Scott Earnest Chief	Department of Health and Human Services Centers for Disease Control and Prevention National Institute for Occupational Safety and Health Robert A. Taft Lab. 4676 Columbia Parkway Cincinnati, OH 45226
CC 07-3-4	2/08/07	Doris J. Hibner	327 West 30th St, Apt 5H New York, NY 10001
CC 07-3-5	2/12/07	Edward G. Horn Sr. Scientist	State of New York Department of Health Flanigan Square 547 River St. Troy, NY 12180
CC 07-3-6	2/12/06	David P. Murray Counsel for Yamaha Motor Corp, USA	Willkie Farr & Gallagher LLP 1875 K St., NW Washington, DC 20006

Portable Generators; Advance Notice of Proposed Rulemaking; Request for Comments and Information

CON'T

		Michael A. Brown Counsel for American Honda Motor Co., Inc.	Brown & Gidding 3201 New Mexico Ave, NW Suite 242 Washington, DC 20016
		Patricia M. Hanz Counsel for Briggs & Stratton Corp.	Briggs & Stratton Corp. 12301 West Wirth St. Wauwatosa, WE 53222
CC 07-3-7	2/12/07	Nick Moore Product Compliance Engineer	Briggs & Stratton Corporation
CC 07-3-8	2/12/07	Joseph Kubsh Exec. Director	Manufacturers of Emission Controls Assoc. 1730 M St, NW Suite 206 Washington, DC 20036
CC 07-3-9	2/12/07	Albert Donnay Environmental Health Engineer Toxicologist and Certified CO Analyst	10145 Falls Rd Lutherville, MD 21093
CC 07-3-10	2/15/07	Donald L. mays Sr. Director Product Safety and Consumers Sciences	Consumers Union 1101 17th St, NW Suite 500 Washington, DC 20036
		Peter Sawchuk Program Leader Outdoor Power Equip.	
		Janell Mayo Duncan Serior Counsel	
		Rachel Weintraub Director of Product Safety and Senior Counsel	Consumer Federation of America 1620 I St, NW Suite 200 Washington, DC 20006

Portable gen. 1

Stevenson, Todd A.

From: Mills, Alberta E.
Sent: Friday, January 05, 2007 10:09 AM
To: Stevenson, Todd A.
Subject: FW: Portable Generator CO issues

Todd,

I'm guessing that the message below should be classified as a comment for the petition on portable generator????

From: Leonard, Vicky B.
Sent: Friday, January 05, 2007 9:57 AM
To: Mills, Alberta E.
Subject: FW: Portable Generator CO issues

Hi Alberta:

I'm not quite sure who to forward this to in the Commission, so I am forwarding it to your office.

Vicky

From: kenneth frank [mailto:kafrank@charter.net]
Sent: Friday, January 05, 2007 9:45 AM
To: Clearinghouse
Subject: Portable Generator CO issues

I heard that you will rerquire portable generators to be labeled with a warning statement regarding CO.I am retried from Coleman Powermate and spent 30 years in various functions ranging from engineering manager to VP of operations for the company. I developed many of their products.During the time Coleman Powermate was owned by American Household/Sunbeam I tried to get the company in conjunction with First Alert,a sister company, to incorporate a CO detector on the genset that would sence excessive CO levels and shut the Genset down.This is possible to do,in my opinion.I was not able to convince upper management to go foward with this technology.
You may want to look into forcing Genset manufacturers to do this. Ken

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Stevenson, Todd A.

From: Sandy Uhrig [uranch@comcast.net]

Sent: Wednesday, January 24, 2007 4:43 PM

To: Stevenson, Todd A.

Subject: [FR Doc: E6-21131];[Page 74472-74474]; Consumer Product Safety Act: Portable generators--Mandatory performance standards

I AM A HUMAN RESOURCES MANAGER FOR A COMPANY WITH ALMOST 100 EMPLOYEES. EVERY EMPLOYEE IN OUR COMPANY HAS AN IMPORTANT JOB...AND MOST WEAR MANY HATS. THE INTERMITTENT LEAVE PROVISIONS IN THE FMLA REGULATION NEED TO BE TIGHTENED UP TO MORE SPECIFICALLY DEFINE THE NEED FOR LEAVES. NOW, ONCE AN EMPLOYEE IS CERTIFIED FOR A MEDICAL CONDITION FOR THEMSELVES OR FOR A DEPENDENT, THEY CAN TAKE OFF FOR ANY AMOUNT OF TIME AT A MOMENTS NOTICE. WE UNDERSTAND THAT NOT EVERYTHING IS PREDICTABLE, BUT IT SEEMS THAT THE POLICY CAN BE USED FOR WEEKEND GETAWAYS OR AFTERNOONS OFF ON A NICE DAY.

PLEASE CONSIDER MORE CLEAR GUIDELINES...AND MORE SPECIFIC INFORMATION REQUIREMENTS.

WE WILL APPRECIATE IT.

Sandy Uhrig
Human Resources Manager
FP Mailing Solutions
Addison, IL

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Centers for Disease Control and Prevention
National Institute for Occupational
Safety and Health
Robert A. Taft Laboratories
4676 Columbia Parkway
Cincinnati OH 45226-1998

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February 6, 2007

Janet L. Buyer
Office of Secretary
Consumer Product Safety Commission
4330 East-West Highway, Room 502
Bethesda, Maryland 20814

Dear Ms. Buyer:

We are writing you in support of your Advanced Notice of Proposed Rulemaking for portable generators which was published in the Federal Register on Dec 12, 2006. The National Institute for Occupational Safety and Health (NIOSH) has been involved in the investigation and prevention of carbon monoxide (CO) poisonings from small gasoline-powered engines for many years. We have continued to work on this problem following the identification of CO poisonings and deaths associated with marine engines and generators since 2000. The hazard associated with the emission of carbon monoxide from portable generators continues to be a very serious concern for both the general public and workers of the U.S. NIOSH remains a partner with the CPSC in working to prevent CO poisonings and deaths through increasing awareness of the hazard and encouraging the development of controls to reduce the risk associated with these products.

In 1993, the NIOSH-sponsored Occupational Health Nurses in Agricultural Communities Surveillance Program identified several cases of CO poisoning related to the use of gasoline-powered pressure washers in Iowa [CDC 1993]. Around that same time other public health agencies across the U.S. were also beginning to document CO poisonings related to the use of small gasoline powered engines. This initial work led to the publication of a joint NIOSH/CDHPE/CPSC/OSHA/EPA Alert entitled, "Preventing Carbon Monoxide Poisoning from Small Gasoline-Powered Engines and Tools." The need for temporary power following hurricanes, ice storms and other power outage situations coupled with the low cost associated with portable generators have resulted in an increase in the purchase and use of these products. As a result, the CDC and CPSC have documented epidemics of CO poisonings and increasing numbers of deaths related to the use of these products [CPSC 2006, CDC 2005a, CDC 2005b, CDC 2006].

Generator-related CO poisonings on houseboats have been under investigation by NIOSH since 2000. From 1990-2004, nearly 600 CO poisonings have been identified based on hospital records, press accounts, and other sources, with over 100 of these poisonings resulting in death.

Two hundred forty-two of the poisonings occurred on houseboats, with more than 200 of these poisonings attributed to generator exhaust alone [Double Angel Foundation 2006]. Following initial investigations which showed very high concentrations of CO on and around houseboats using gasoline-powered generators, NIOSH has conducted many field studies into the ambient levels of CO on and around houseboats and the effect of engineering controls on reducing those levels.

NIOSH has shown that CO concentrations from gasoline-powered generators can reach dangerous levels on and around houseboats [Earnest et al. 2001a, 2001b, 2002; Dunn et al. 2001b, 2003; Echt et al. 2003; Hall 2000, 2001; Hall et al. 2000; McCammon et al. 2000]. CO measured in the exhaust and near the rear of boats has often exceeded the NIOSH Immediately Dangerous to Life and Health (IDLH) value of 1,200 ppm. These engines routinely emit CO at concentrations well above the IDLH and concentrations exceeding the NIOSH workplace ceiling limit of 200 ppm were measured at a distance of 12 feet from the stern of a boat with engines operating while stationary [Echt et al. 2003].

Initially, one of the major obstacles in the safe use of gasoline-powered generators was the lack of any engineering controls (such as emission controls). NIOSH researchers have been partnering with boat builders and marine engine manufacturers since 2001 to address the issue of CO poisonings from gasoline marine engines. Work in that area has resulted in new low-emission generators and other exhaust configurations which have greatly reduced the risk of carbon monoxide poisoning on recreational boats. To date, two major manufacturers of marine power generation systems, Westerbeke and Kohler, have developed low CO emission generators. NIOSH evaluations have shown that the addition of technologies such as catalytic converters and electronic fuel injection to marine generators have helped reduce the emissions of CO by over 99% [Earnest 2006]. NIOSH is continuing to monitor the performance of these systems over extended hours of operation to evaluate the life of these catalysts.

The addition of catalytic converters has proven to be a life-saver with respect to motor vehicle-related CO poisonings. In 1970, Congress established the Environmental Protection Agency and enacted the Clean Air Act which set emission limits on automobiles. Beginning in 1975, automobile manufacturers began installing catalytic converters on automobiles in the U.S. to meet these standards. An analysis of the effect of these policies on carbon monoxide-related mortality showed a decline in unintentional vehicle-related CO deaths of greater than 80% from 1975-1996 [Mott et al. 2002].

NIOSH, as a public health agency, recognizes and supports the rulemaking process which ultimately will help to reduce fatalities and prevent future poisonings from carbon

monoxide. We also recognize that the scope of this effort will have a national impact. Do not hesitate to contact us as we are willing to provide technical assistance to support the rulemaking process.

Sincerely,

G. Scott Earnest

G. Scott Earnest, Ph.D., P.E., C.S.P
CAPT, U.S. Public Health Service
Chief
Engineering and Physical Hazards Branch
Division of Applied Research and Technology

References

CDC [1993]. Unintentional carbon monoxide poisoning from indoor use of pressure washers--Iowa, January 1992-January 1993. Morbidity and Mortality Weekly Report. MMWR *42*(40):777-779, 785.

CDC [2005a]. Carbon Monoxide Poisoning from Hurricane-Associated Use of Portable Generators —Florida, 2004. Morbidity and Mortality Weekly Report. MMWR 54(28);697-700.

CDC [2005b]. Carbon Monoxide Poisonings After Hurricane Katrina --- Alabama Louisiana and Mississippi, September 2005. Morbidity and Mortality Weekly Report. MMWR 54(39):996-998.

CDC [2006]. Carbon Monoxide Poisonings After Two Major Hurricanes --- Alabama and Texas, August--October 2005. Morbidity and Mortality Weekly Report. MMWR 55(09):236-239.

CPSC [2006]. Memorandum of August 16, 2006, from M.V. Hnatov, Division of Hazard Analysis, Directorate for Epidemiology, to J. Buyer, Division of Combustion Fire Sciences, Directorate for Engineering Services, United States Consumer Product Safety Commission.

Double Angel Foundation [2006]. Boat-Related CO Poisonings Case Listing 1-2-06. [http://www.doubleangel.org/archives_frame.htm]. Date accessed: February 2007.

Dunn KH, Hall RM, McCammon JB, Earnest GS [2001a]. An evaluation of an engineering control to prevent carbon monoxide poisonings of individuals on houseboats at Sumerset Custom Houseboats, Somerset, KY. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. ECTB 171-26a.

Dunn KH, Earnest GS, McCleery R, Hall RM, McCammon JB, Jones AL [2001b]. Comparison of a dry stack with existing generator exhaust systems for prevention of carbon monoxide poisonings on houseboats. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. ECTB 171-28a.

Dunn KH, Shulman SA, Earnest GS, Hall RM, McCammon JB, McCleery RE [2003]. Carbon monoxide and houseboats: an evaluation of a stack exhaust system to reduce poisonings associated with generator exhaust. Professional Safety 48(11):47-57.

Earnest GS, Dunn KH, Hall RM, McCleery R., McCammon JB [2001a]. An evaluation of an engineering control to prevent carbon monoxide poisonings of individuals on and around houseboats. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health

Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. ECTB 171-25a.

Earnest GS, Dunn KH, Hall RM, McCleery R, McCammon JB [2001b]. An evaluation of an emission control device, exhaust stack, and interlock to prevent carbon monoxide poisonings of individuals on houseboats. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. ECTB 171-27a.

Earnest GS, Dunn KH, Hall RM, McCleery RE, McCammon JB [2002]. An evaluation of an engineering control to prevent carbon monoxide poisonings of individuals on and around houseboats. AIHAJ 63(3):361-369.

Earnest GS, Echt A, Dunn KH, Hall RM, Hammond D, McCammon JB, McCleery RE [2003a]. Carbon monoxide emissions and exposures on recreational boats under various operating conditions. Lake Mead, NV and Lake Powell, AZ. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. EPHB 171-05ee2.

Earnest GS, Hall RM, Dunn KH, Hammond D, Valladares R [2003b]. An evaluation of vertical exhaust stack and aged emission control devices to prevent carbon monoxide poisonings from houseboat generator exhaust. Callville Bay Marina, Boulder City, NV. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. EPHB 171-32a.

Earnest GS, Hall RM, Garcia A, McCleery R. [2006]. An evaluation of catalytic emission controls to prevent carbon monoxide poisonings from houseboat generator exhaust. Callville Bay Marina, Boulder City, NV. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. EPHB 171-38a.

Echt A, Earnest GS, Hammond D, McCammon JB, Blade LM, Valladares R [2003]. Carbon monoxide emissions and exposures on recreational boats under various operating conditions, Lake Norman, NC. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. EPHB 171-31a.

Hall RM [2000]. Letter of December 18, 2000, from R.M. Hall, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Public Health Service, U.S. Department of Health and Human Services to Dr. Rice C. Leach, Commissioner, Cabinet of Health Services, Commonwealth of Kentucky, Frankfort, KY.

Hall RM and McCammon JB [2000]. Letter of November 21, 2000, from R.M. Hall and J. B. McCammon, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Public Health Service, U.S. Department of Health and Human Services, to Joe Alston, Park Superintendent, Glen Canyon National Recreation Area, Page, AZ.

Hall RM [2001]. Letter of April 5, 2001, from R.M. Hall, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Public Health Service, U.S. Department of Health and Human Services to John Stenseth, General Manager, Fun Country Marine, Muncie, IN.

McCammon JB and Radtke T [2000]. Letter of September 28, 2000, from J. McCammon, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Public Health Service, U.S. Department of Health and Human Services and T. Radtke, U.S. Department of the Interior, to Joe Alston, Park Superintendent, Glen Canyon National Recreation Area, Page, AZ.

Mott JA, Wolfe MI, Alverson CJ, Macdonald SC, Bailey CR, Ball LB, Moorman JE, Somers JH, Mannino DM, Redd SC [2002]. National Vehicle Emissions Policies and Practices and Declining US Carbon Monoxide-Related Mortality. Journal of the American Medical Association. 288 (8): 988-995.

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DORIS J. HIBNER
327 WEST 30TH STREET, APT. 5H
NEW YORK, NEW YORK 10001

917-885-6173
doris@hibnermanagement.com

February 8, 2007

The Honorable Nancy A. Nord
Acting Chairman
U.S. Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

RE: Portable Generator Safety

Dear Commissioner Nord:

I heard reports of your recent press release regarding portable generators with great and painful interest.

On the 5th of January, 2005, the day after my parents celebrated their 63rd Wedding Anniversary, Ohio was hit by a severe ice storm. They were without electricity but were doing fine as they had a wood burning stove to keep them toasty warm. On the 8th, my brother brought out a generator to drain the cellar of increasingly high water. The generator was left in the garage with the side door open. I talked to my dad at 7 p.m. that evening and he had closed the door a bit but thought it was still vented. The next morning my 85 year old dad was dead and my 83 year old mother, who has a dementia and for whom Dad was the loving caregiver, was alive but had carbon monoxide poisoning and had suffered a heart attack. As a result of this tragedy, my mom had to be placed in a nursing home.

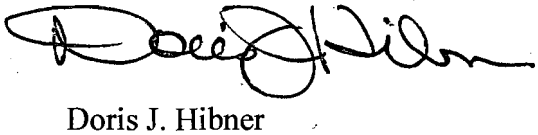
We have learned a very painful lesson about how cold air comes to the warm air and would have blocked the carbon monoxide from getting out regardless of how open the door was. At that time, as my gift to my beloved dad, I determined that I would spread the word of the dangers of portable generators. I have done this with friends, co-workers and whoever else I can get to. I want to work in getting a law passed that makes it mandatory for portable generators to have warnings and diagrams on the top in huge letters -- not just paper warnings -- so that no family has to suffer the pain that we continue to live with. And battery operated carbon monoxide detectors are equally as important as smoke alarms. (The one in my parents' home was electric!) After hearing this dreadful story, a friend rushed out on a Sunday afternoon to buy two battery operated carbon monoxide detectors for his home.

I don't know why I never thought to contact the Consumer Product Safety Commission, but now that you are in the process of issuing guidelines, I would like to share my thoughts:

1. The required notice proposed by your agency should be painted/printed on the smooth tops of generators.
2. The word DANGER THIS MACHINE CAN KILL YOU should be in HUGE letters above the message.
3. The size of the message should take up the entire top of the generator.
4. HUGE lettering should be on the carton so it can't be missed.
5. The message should be printed in a permanent manner so it can't be removed.
6. The message should indicate that no matter what the weather, the generator should be outside and away from all windows, doors and entries to a building. (A friend related the instance of her neighbor who was running a generator in his garage during the last black-out to hit New York City.)
7. Public service announcements should be run.
8. When people are reminded to change the batteries in smoke detectors, they should also be reminded to have battery-operated carbon monoxide detectors and to change the batteries as well.

If there is anyway that I can help get the word out by sharing my heartbreak, I would do that for my dad.

Sincerely,



Doris J. Hibner

P.S. A commercial for the Honda generator was just on the Weather Channel. No mention was made of safety concerns – any commercial should include a safety message. The commercial was just a silly one. If that had been a gun commercial there would be an outrage. The results can be the same – deadly. Also, there was that big red side panel which would be a great place for a HUGE safety notice.

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

February 12, 2007

Office of the Secretary
Consumer Product Safety Commission
Room 502
4330 East-West Highway
Bethesda, Maryland

Re: Portable Generator ANPR

Dear Sir:

The New York State Department of Health (NYSDOH) commends the Consumer Product Safety Commission for recognizing the serious carbon monoxide (CO) hazard posed by portable generators and the need for mandatory performance standards for this equipment. In 1998 a severe ice storm affected much of Northern New York. For NYSDOH staff, this event was one of the first which illustrated the potential public health consequences of portable generator use during a prolonged power outage. While no systematic follow-up surveillance was conducted then, public health staff in one county identified three generator-related CO fatalities.

On October 12-13, 2006, an early season snowstorm in Western New York State left almost 400,000 utility customers without electrical power. In four counties near Buffalo, NY, two thirds of all residents were without power for several days, and power was not fully restored for almost two weeks. NYSDOH is coordinating an assessment of power-outage-related acute CO poisonings that occurred during this event. Medical record data from local hospitals have been collected for more than 200 individuals, representing 136 episodes. The medical records indicate that 62% of the episodes were generator-related, 15% were fuel-powered appliance-related, 5% were fireplace/woodstove-related, and 18% of the episodes did not identify the CO source in the medical record. Further analysis is being conducted to determine exposure duration, severity of injury and treatment received.

Follow-up case interviews with at least one adult per episode are underway and nearing completion. The data gathered through these interviews will provide more detailed information regarding "incident scenarios." The data will identify potential exposure sources and their location (including, for generators, the distance from the residence and exposure potential from an adjacent property). The data will also provide a better understanding of perceptions of CO poisoning risk and lead to ways to prevent CO poisoning. Once the data analysis is complete, a summary will be compiled and provided to the Consumer Product Safety Commission. We may also have additional comments about your proposed rulemaking at that time.

NYSDOH participates in the federal Hazardous Substances Emergency Events Surveillance (HSEES), a federal program that collects information on non-petroleum hazardous substances spills/releases. To gather specific information about each incident, HSEES staff contact the people directly involved in the response or knowledgeable about the event such as responders, company representatives or medical personnel. From 2000 to 2004, HSEES identified four CO events in which a portable generator was the source of CO. From these four events, ten people were reported as having CO poisoning: all ten had dizziness or central nervous system effects; six and four experienced respiratory and gastrointestinal problems, respectively; two were treated on-scene, six were treated at a hospital and released, and two died. In all four events, the generator was being used by and affected construction/renovation workers.

Again, we applaud the Consumer Product Safety Commission for considering ways to improve the performance of portable generators, particularly related to carbon monoxide emissions. This equipment is clearly an important source of injury and death for its users and possibly others.

Sincerely,

Edward G. Horn, Ph.D
Senior Scientist
Center for Environmental Health

cc: N. Kim
D. Luttinger
S. Hwang

Stevenson, Todd A.

From: Edward G. Horn [egh01@health.state.ny.us]
Sent: Monday, February 12, 2007 2:41 PM
To: Stevenson, Todd A.
Cc: Daniel A. Luttinger; Syni-An A. Hwang; nam04@health.state.ny.us; Buyer, Janet
Subject: Portable Generator ANPR

Attachments: CPSC_ANPR-DOHLtr-070212.pdf

CPSC_ANPR-DO
tr-070212.pdf (3

Attached is submitted in response to the request for comments and information regarding the Advance Notice of Proposed Rulemaking for Portable Generators. Thank you for your attention.

(See attached file: CPSC_ANPR-DOHLtr-070212.pdf)

Edward G. Horn, Ph.D., Senior Scientist
Division of Environmental Health Assessment Center for Environmental Health NYS Department of Health
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February 12, 2007

BY ELECTRONIC MAIL
AND HAND DELIVERY

Todd A. Stevenson
Secretary
Office of the Secretary
U.S. Consumer Product Safety Commission
4330 East West Highway
Bethesda, Maryland 20814

Re: *Portable Generator ANPR*

Dear Mr. Secretary:

American Honda Motor Co., Inc., Briggs & Stratton Co., and Yamaha Motor Corporation, U.S.A. (the "Companies") respectfully submit the following joint comments on the December 12, 2006 Advance Notice of Proposed Rulemaking ("ANPR") concerning portable generators. The ANPR outlines a number of proposals for reducing the risk of carbon monoxide ("CO") poisoning associated with misuse of portable generators. While the Companies share the Commission's goal of reducing such CO poisonings, the ANPR raises several substantive issues that the Commission should consider prior to proceeding with any mandatory rule.

I. PORTABLE GENERATORS ARE ECONOMICAL AND SERVE A WIDE RANGE OF IMPORTANT AND BENEFICIAL USES.

The use and popularity of portable generators has increased significantly over the past decade. Based on consumer survey data, "an estimated 1.1 million portable generators were purchased by consumers in 2003, 1.5 million were purchased in 2004, and 1.1 million were purchased in 2005." CPSC Memo, *Portable Electric Generator Sets for Consumer Use: Additional Data on Annual Sales, Number in Use, and Societal Costs*, at 34 (Aug. 24, 2006) (attached as Tab B to Briefing Package). "The estimated number of portable generators owned by households ranged from about 9.2 million units in 2002 to 10.6 million units in 2005." 71 Fed. Reg. 74,472, 74,472 (Dec. 12, 2006). As more fully discussed in Section II *infra*, there are discrepancies in CPSC's estimates of portable generator sales to consumers and its estimates of the number of portable generators owned by households. The Companies believe that CPSC's population estimates for portable generators may be understated. The Companies are also unaware of any data that measures consumer exposure to CO risks from personal generators (e.g., average hours of use of the products).

Even so, there is no question that consumer sales and ownership of portable generators have increased significantly over the past seven years. Several factors have contributed to this increase. Portable generators are relatively economical. According to the CPSC staff memorandum, sixty percent (60%) of generators purchased by consumers range in cost between

$500 to $800. CPSC Memo, *Portable Generators*, at 43 (Aug. 22, 2005) (attached as Tab B to Briefing Package). A recent survey conducted by one of the Companies indicates that the typical purchaser of a new portable generator is a male in his fifties. Fifty-four percent (54%) of the respondents previously owned a generator while forty-six percent (46%) were first time buyers.

Consumers use portable generators for many different applications. Among other things, portable generators are used for or in conjunction with: (1) recreational vehicles; (2) camping; (3) back up power for residences; (4) home utility; (5) renovation and construction projects; and (6) farming and agricultural activities. In some cases, portable generators may be used as the primary electrical power source for a residence, office or workshop. In the recent consumer survey described above, respondents reported that they used their portable generators an average of nine (9) hours per use and an average of five (5) times per month. The respondents who previously owned a portable generator had owned it for an average of eight (8) years.

Although CO-poisonings relating to portable generator misuse are tragic, the low number of incidents of CO poisoning in comparison with the number of generators in use (which, as further discussed below, may be understated by CPSC) demonstrates that the vast majority of consumers use their portable generators properly and safely. In considering any further regulatory requirements to reduce CO-poisonings, CPSC should give proper weight to the important benefits and widespread uses of portable generators, as well as the affordability of current models for most consumers. CPSC should not impose additional regulatory requirements that may degrade the functionality and versatility of portable generators or that increase the costs of the products and make them less available to average consumers.

II. CONSIDERATION OF FURTHER MANDATORY STANDARDS

As the staff noted in its briefing package on the ANPR, a variety of household products have been associated with CO poisoning incidents. For example, fuel-burning heating systems accounted for fifty-five percent (55%) of CO-related deaths in 2002. In addition, the Commission, EPA, CDC and other organizations have issued general warnings about CO poisoning after natural disasters. Most recently, in the wake of winter storms, EPA warned residents of New England about such risks associated with the indoor use of generators, pressure washers, camp stoves and lanterns, and charcoal grills. Portable gas-fired heaters are another source of emergency heat that, with limited exceptions, should not be used indoors because of the CO risk.

The public would be better served by the CPSC focusing its efforts and resources on a "global" approach to CO poisoning. Most notably, further efforts to refine sensing technology and promote its widespread use would help to protect consumers from all sources of CO poisoning, not just portable generators. Even if the significant technical and economic issues raised by the agency's proposals to reduce CO poisoning associated with portable generator misuse could be surmounted, singling out this one product category for regulatory action may be shortsighted and an inefficient use of agency resources. One need only look at the promotion of smoke detectors and seat belt use as examples of activities that have effectively provided widespread protection regardless of the causes of fires or motor vehicle accidents. The Companies understand that the Commission has been engaged in efforts to refine CO detectors and promote their widespread household use by consumers for several years. The Companies

encourage the agency to continue such activities, which help protect consumers from all forms of potential CO poisoning.

In addition, unlike many of the reported CO deaths involving other products (e.g., fuel-burning heating systems alone account for more than half of the yearly total), virtually all incidents of CO poisoning associated with generators result from the failure to follow the warnings that are affixed to each generator and similar warnings and instructions that are contained in product owner's manuals and related materials. The Commission recently promulgated a mandatory standard requiring the use of uniform CO warning labels on new portable generators and product packaging effective May 12, 2007. The stated purpose of the mandatory labels is to reduce the risk of CO poisoning associated with portable generator misuse. The effectiveness of these new mandatory labels should be determined prior to advancing additional regulatory proposals that may result in costly changes to and reduced functionality of the products.

Should the Commission proceed with this proposed rulemaking, the increase in CO poisonings associated with portable generator misuse must be examined in light of the increasing popularity and use of the products over the last several years. As the data in the staff briefing package on the ANPR indicate, portable generator sales have increased significantly due to the "Y2K" scare and the number of major weather-related power outages during this time period. CPSC estimates that the number of portable generators owned by households reached about 10.5 million in 2005. This number can be expected to increase by approximately another two million in 2006 and 2007, and will continue to increase thereafter, since generators are durable machines that last many years. For regulatory purposes, any analysis of the risk of CO deaths associated with generator misuse should take into account the rate at which such deaths occur as a function of the number of generators in use or available for use, as well as the exposure to such risks (i.e., measured in hours of operation of the generators). Neither the ANPR nor the briefing package presents reliable or complete data that would permit this requisite analysis.

Indeed, CPSC's risk analysis suffers from two serious infirmities. First, there is no attempt to illuminate risk issues associated with portable generators by presenting meaningful exposure data -- product population, sales, and hours of usage -- that would help shed light upon the significant discontinuity between annual fatalities in the most recent period (2002-2005), and the lower numbers of annual fatalities in the earlier period 1999-2001. Though data are presented for the years 2002-2005 for product population and 2003-2005 for product sales, no meaningful apples-to-apples comparison data are available for either population or sales for the earlier period. (Earlier sales and population data from consultant Frost and Sullivan were employed in a prior version of CPSC's analysis, but were found to result in serious underestimates of use; these data do not appear to have been replaced in CPSC's briefing package with more reliable data that can be directly compared with the later period).

Second, for the years in which more recent data are available, there appear to be both significant overall as well as individual year-to-year inconsistencies between changes in annual generator sales at the consumer level and their effect on the product population. Overall, CPSC's consultant Synovate estimates about 3.7 million in consumer sales of portable generators between 2003 and 2005, but separately estimates that the total portable generator population increased by only about 900,000 units during this same time period (from 9.7 to 10.6 million).

This means on average that for every four generators sold and added to the population in this three-year period, three others were retired from use – a rate of retirement that appears implausibly large, but cannot be evaluated because of missing data for earlier years. Likewise, to illustrate individual year-to-year inconsistencies, two separate years can be examined. In 2004, sales were 1.5 million, but the total number of portable generators is estimated to have fallen from 9.69 million to 9.34 million – leading to the inference that significantly more products left the population (presumably through reaching the end of their useful life) than entered it (through increased sales). However, for 2005, the story is completely different. Sales were 1.1 million, but total product population increased by 1.27 million – a total of 1.1 million in new sales plus an additional 170,000 products that appear to have been "resurrected" from previous retirement. Thus the year-to-year data on the surface indicate too many retirements in 2004, and too few (indeed, negative) retirements in 2005.

It is unclear whether the inconsistencies in the data presented in the staff briefing package are the result of differences in the year-to-year samples and methodologies used to collect sales and product ownership data or have some other explanation. In all events, the lack of a clear, coherent explanation or more detail about how the estimates were derived (together with the omission of usage data and of key baseline data for earlier years, as discussed above) makes it impossible to rely on such data to make reasonable inferences about trends in product exposure and the contribution of such exposure to an understanding of fatality risk.

There are likewise significant data gaps concerning human usage and perception that must be addressed. The staff briefing package outlines some epidemiological information based on the staff's analysis of CO poisonings, such as the number and age of the victims and the locations in which the generators were used. However, there is little or no analysis of any data concerning, for example, consumer awareness of CO risks, the warnings and information available to CO poisoning victims, the duration of exposure, etc. Individuals who own generators or might purchase them in the future, as well as individuals who have experienced and recovered from CO poisoning, could be useful sources of such information. Obtaining such additional information is critical to identifying and understanding the causes of CO poisoning and, if appropriate, possible additional remedial strategies.

III. REMEDIAL STRATEGIES - GENERAL

While the ANPR itself contains only a summary enumeration of the remedial measures that the Commission may pursue, the staff briefing package contains a fairly balanced description and analysis of various alternatives, noting both positive and negative aspects of each. Should the Commission proceed with rulemaking, proper consideration of the pros and cons of any strategies that the agency chooses to pursue will require more detailed analyses (supported by evidence) than the discussions in the staff briefing package currently present. However, at this stage of the proceeding, the Companies believe that the Commission and staff should be guided by and continue to consider seriously the technical issues associated with each of the possible remedial strategies identified in the briefing package. The costs of each remedial strategy must also be objectively quantified and weighed. In addition, consideration of such alternatives should not take place in a vacuum. The Commission and staff should consult with industry and other interested parties on any specific regulatory proposals, to ensure that the

agency has the most current product information and usage data and can adequately assess the potential effects of such regulation on product safety, utility, costs, and availability.

Options: Many of the options discussed in the briefing package raise technological challenges that, even if overcome, would still be directly affected by elements of human behavior. Any attempt to impose such mandatory requirements, therefore, must be supported by rigorous testing, evaluation and analysis to assure that they would be effective in reducing exposure to hazardous concentrations of CO without diminishing or degrading the utility and availability of the products.

For example, "weatherizing" generators is primarily designed to address a perceived tension between instructions to use generators in dry areas (to avoid electrical shock and damage to the units) and instructions to use generators outside and away from enclosed areas, where -- depending on weather conditions -- the units might be exposed to rain. However, CPSC has identified no empirical data indicating that weatherizing generators for use in wet areas will have any effect on where consumers actually use the products. As the briefing package notes, there are other commonly cited reasons for using generators indoors or in close proximity to buildings, including fear of theft, concerns about the noise of the generators disturbing neighbors, and others.

The ANPR also hypothesizes a CO detection system that involves either an in-house mounted CO detector/transmitter with a receiver/controller mounted on the portable generators or sensing technology mounted only on the generator. These alternatives similarly raise numerous behavioral and technological issues that must be carefully examined. First, remote sensing technologies require consumers to take affirmative actions to locate sensors inside buildings and to monitor them to make sure that they continue to be operational. Second, the use of sensing technology in the vicinity of a generator may impair its operation, causing users to disconnect the sensors to ensure a steady source of electrical energy (e.g., during power outages). Third, CO detectors require routine maintenance and their capabilities can be degraded during extended periods of inactivity or by lack of maintenance. These problems may be particularly acute given the relatively infrequent use of portable generators. It may be unreasonable to expect consumers regularly to check and maintain such CO sensing equipment, even when the portable generators themselves are not being used. Fourth, the presence of such CO detection capability may create a false sense of security, leading consumers to believe that no further precautions are necessary to avoid exposure to CO associated with portable generator use. This risk would be greatly exacerbated if, as previously discussed, consumers fail to locate or use the sensing technology properly, or the detectors malfunction due to infrequent use or lack of maintenance. Accordingly, the Commission would need to demonstrate, through empirical evidence, that users would both understand and follow the required steps to use and maintain the sensing equipment properly.

Moreover, as noted above, consumers may be exposed to CO in their homes from a variety of sources, including their heating systems, portable heaters, fireplaces, water heaters, cooking appliances, automobiles, and barbeque grills. Any CO-detector/controller system for portable generators would only address one product source and would provide no protection against CO exposure from these multiple other sources. Requiring an integrated CO detection system on portable generators would also cost substantially more than any stand-alone general-

use CO detector, constituting a substantial percentage of the total cost of a portable generator and making these products less available to average consumers. The very nature of power-outages also suggests that other sources of CO will likely be in use, from charcoal or gas grills to portable heaters. An operating general-use CO detector, located in the home, would be more economical, would not be susceptible to the behavioral, performance and maintenance problems associated with a remote receiver/controller system or on-product detector, and would help protect consumers from all potential CO sources.

The ANPR further proposes to reduce CO emissions from portable generators. As discussed below in Section IV, there are serious questions whether the Commission has the authority to impose such regulations. Even so, modifying portable generators to reduce CO emissions would require the Commission to address a number of competing considerations. As the staff briefing package notes, even reducing emissions by ninety (90) to ninety-five (95) percent is not a panacea for CO poisoning. People may still be injured or killed if they fail to follow the instructions on the generators and use them in inappropriate locations. The effect of such reduction must also be balanced against increasing other risks, such as thermal burns from exhaust and catalytic converters, and increasing the emission of other pollutants in a manner that conflicts with or undermines EPA's efforts to address those pollutants. Again, any attempt to impose requirements to reduce CO emissions must be carefully weighed to assure that they can achieve the desired goal of reducing CO injuries and deaths without creating new hazards or other offsetting problems.

Costs: The Commission must carefully consider the increased costs associated with the various regulatory options under consideration and the potential effects of such increased costs on the availability and utility of generators. Under the Consumer Product Safety Act ("CPSA"), the Commission is required to perform rigorous analyses sufficient to demonstrate the actual costs of the measures proposed as well to show that such measures impose the least burdensome requirements commensurate with the risk of injury. In this connection, the Companies note that, while generators are widely available and used for multiple purposes, many common uses occur relatively infrequently. Thus, some consumers may view even modest cost increases as exceeding the perceived value of additional safety features, with a resulting negative effect on sales (i.e., consumer availability).

Timing: For the reasons set forth above, the Companies believe that further mandatory standards for portable generators would be premature. The Companies understand that the Directorate for Epidemiology will be conducting a special study to define the hazard patterns associated with portable generators, which is anticipated to be completed by October 1, 2007. The Companies concur that this study is a necessary first step in the regulatory process, but are concerned that the timing of the study is too compressed and may not include key seasons such as the winter storm and hurricane seasons. Upon completion of the Epidemiology Study, an exposure study should also be conducted to determine the rate of risk associated with the products. These and other steps are necessary prerequisites to any proper evaluation of potential options for further addressing the risks of CO poisoning associated with portable generators.

IV. CPSC LACKS AUTHORITY TO REGULATE A RISK OF INJURY THAT COULD BE ADDRESSED UNDER THE CLEAN AIR ACT.

As previously noted, the ANPR includes proposals to reduce the CO emissions of portable generators by ninety (90) to ninety-five (95) percent. 71 Fed. Reg. at 74,472. By lowering emissions, the CPSC believes that the incidence of CO poisoning may be reduced when consumers misuse portable generators inside homes and other enclosed structures. *Id.*

There are significant questions whether CPSC has the legal authority to impose CO emission reduction requirements. The CPSA expressly prohibits the CPSC from regulating a risk that could be addressed by other enumerated statutes, including the Clean Air Act. Section 31 of the CPSA states, in pertinent part, that:

> The Commission shall have no authority under this act to regulate any risk of injury associated with a consumer product if such risk could be eliminated or reduced to a sufficient extent by actions taken under . . . the Clean Air Act.

15 U.S.C. § 2080 (2006). Thus, if portable generator emissions could be regulated under the Clean Air Act to eliminate or reduce injury risks, the plain language of § 31 precludes the CPSC from regulating in this area.

The Clean Air Act authorizes EPA to regulate CO emissions from portable generators. Specifically, § 213 of the Clean Air Act directs the EPA to regulate the emissions of "nonroad" engines and vehicles, stating as follows:

> The Administrator shall conduct a study of emissions from nonroad engines . . . to determine if such emissions cause, or significantly contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.

42 U.S.C. § 7547(a)(1) (2006).[1] Section 302(g) of the Clean Air Act defines "air pollutant" to mean "any air pollution agent or combination of such agents . . . which is emitted into or otherwise enters the *ambient air*." *Id.* § 7602(g) (emphasis added). "Ambient air" has traditionally been understood to be the outside air that surrounds homes, buildings, etc. In addition, EPA has asserted jurisdiction over indoor emissions, generally on the ground that pollutants released inside enclosed structures will eventually work their way into the outdoor air.

When regulating CO emissions, the EPA must make a determination as to whether emissions are significant contributors to CO concentrations. *See id.* § 7547(a)(2). This determination of significance need not be based on the contribution of individual product categories, but on the aggregate contributions of all nonroad engines or vehicles. *See Bluewater Network v. EPA*, 370 F.3d 1, 13-14 (D.C. Cir. 2004) (considering regulation of snowmobiles). Individual product categories need only make a nontrivial contribution. *See id.* at 14. If the EPA

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[1] "Nonroad engine" is defined as "an internal combustion engine (including the fuel system) that is not used in a motor vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under section 111 or 202." 42 U.S.C. § 7550 (2006). Section 111 regulates stationary sources of emissions, and section 202 regulates motor vehicle engines. *See* 42 U.S.C. §§ 7411, 7521 (2006). EPA has taken the view that portable generator engines meet the definition of a nonroad engine, and has regulated them pursuant to this authority.

finds such contribution, it must promulgate regulations imposing emissions standards on nonroad engines which it finds to have caused, or contributed to, such air pollution. *See* 42 U.S.C. § 7547(a)(3) (2006).

The EPA has promulgated regulations pursuant to § 213 of the Clean Air Act that govern CO emissions of portable generators. *See* 40 C.F.R. §§ 90 *et seq.* (2006). These regulations relate to the "Control of Emissions from Nonroad Spark-Ignition Engines at or Below 19 Kilowatts." *See id.* Portable generators utilize "spark-ignition" engines and many of the most common consumer models distributed by the Companies produce up to 3 kW of power.[2] Such engines are regulated under the section, unless specifically excluded. *See id.* § 90.1(a). Importantly, the regulation refers to generators specifically in stating that they are *not* part of the excluded categories of engines, and hence are covered by the regulation. *See id.* § 90.1(d)(7). The regulation imposes exhaust emission standards for CO and other pollutants based on the size of the engine. *See id.* §§ 90.103, 90.116.[3]

These regulations were originally promulgated in 1995 and revised in 1999 and 2000 to incorporate increasingly stringent emission standards. *See* 64 Fed. Reg. 15,207 (Mar. 30, 1999); 65 Fed. Reg. 24,267 (Apr. 25, 2000). These changes are incorporated in the current version of the C.F.R. *See id.* Each of these rulemakings referred to "generators" as examples of nonhandheld spark-ignition engines regulated under the section. *See* 64 Fed. Reg. at 15,211; 65 Fed. Reg. at 24,273.

The CPSC staff's briefing package supporting the ANPR acknowledges EPA regulation of portable generator emissions. The briefing package references both existing regulations and ongoing rulemaking by EPA and the California Air Resources Board.[4]

Moreover, EPA has expressly asserted jurisdiction over both outdoor and indoor air quality standards in regulating emissions from nonhandheld spark-ignition engines, such as

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[2] Generators with engine-capacities greater than 19 kW would be similarly regulated for emissions pursuant to the Clean Air Act under 40 C.F.R. § 1048 (2006).

[3] Most of the portable generators would likely be considered "Class I" because they are "nonhandheld equipment engines greater than or equal to 100 cc but less than 225 cc in displacement." 40 C.F.R. § 90.116(a)(3) (2006). For example, Yamaha's most popular generator is 171cc in displacement. This correlates to an emission limitation of 610 grams of CO per kilowatt-hour. *See id.* § 90.103(a), Table 2.

[4] *See* CPSC Staff Briefing Package for ANPR, Executive Summary, at 9 (Oct. 11, 2006) ("The California Air Resources Board is proposing, and the Environmental Protection Agency intends to propose, rulemaking that will regulate the hydrocarbons (HC) and nitrous oxides (NOx) emissions of the class of engines that encompasses those used on portable generators that consumers typically own."); CPSC Memo, *Health Hazard Assessment of CO Poisoning Associated with Emissions from a Portable, 5.5 Kilowatt, Gasoline-Powered Generator*, at 87 (Sept. 21, 2004) (attached as Tab F to Briefing Package) ("Current environmental CO emissions control requirements, applicable to engine classes that include most portable, gasoline-powered, generator-type engines, allow exhaust to contain high levels of CO when operating normally (519 to 610 g/kw-hr)."); *id.* at 87 n.1 ("In 1992, to address outdoor pollution concerns, the [EPA] began to develop emissions standards applicable to new non-road spark-ignition nonhandheld engines, at or below 19 kW; these requirements apply to CO (completed), hydrocarbons and nitrogen oxides (still being phased in) (40 C.F.R part 90)"); *id.* at 92 (CPSC also utilized "[t]he EPA's computer-based RISK 1.9.22 Indoor Air Modeling program . . . to model the buildup and decay of CO ppm in different areas of the home over an 18 hour period.").

portable generators. For example, in promulgating the standard revisions in 1999, EPA rejected the suggestion of some commenters "that EPA exempt from regulation small manufacturers of propane-powered spark-ignited engines used solely for indoor applications and subject to OSHA indoor air quality standards." 64 Fed. Reg. at 15,523. These commenters had asserted that "EPA has neither the need nor the right to regulate such equipment." *Id.* In response to these comments, EPA stated as follows:

> OSHA does not set equipment emission standards; *EPA has that responsibility.* Additionally, the emissions from this equipment can be effectively controlled through the EPA regulations being adopted today.

Id. at 15,224 (emphasis added). More recently, EPA issued a publication addressing indoor air quality, which notes that "[n]o standards for CO have been agreed upon for indoor air." EPA, *An Introduction to Indoor Air Quality, available at* http://www.epa.gov/iaq/co.html.

Notably, in the briefing package for the ANPR, CPSC staff observed that most instances of consumer misuse of portable generators inside of dwellings and structures involve some form of actual or attempted ventilation to the outdoors.[5] These observations further reinforce EPA's assertion of jurisdictional authority over portable generator emissions, since it is reasonable for EPA to assume that CO emitted inside of homes and other structures will work its way -- and be released -- into the outdoor or "ambient" air.

The reductions in portable generator CO emissions set forth in the ANPR would effectively regulate outdoor *and* indoor use of the products. Because the Clean Air Act expressly authorizes the EPA to regulate portable generator emissions as necessary to protect "public health or welfare," CPSC is precluded from exercising regulatory jurisdiction in this area under the plain language of § 31 of the CPSA.

The Companies recognize that federal agencies sometimes share jurisdiction and that CPSC and EPA have done so in the past. Neither the ANPR nor the staff briefing package indicates whether the two agencies have reached such an agreement here. Even so, EPA has previously recognized that major reductions in CO emissions from small engines would be cost-prohibitive and could introduce significant new hazards (e.g., use of catalytic converters increases engine temperatures creating greater risks of fire and thermal burns). These same technical, cost, and risk factors would likely make any CPSC-imposed standard equally infeasible, assuming the agency had jurisdiction to consider such a standard.

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[5] CPSC Memo, *Incidents, Deaths, and In-Depth Investigations Associated with Carbon Monoxide from Engine-Driven Generators and Other Engine-Driven Tools, 1990-2004*, at 60 (Dec. 1, 2005) (attached as Tab D to Briefing Package) (40 out of 104 deaths investigated "reported that some type of venting was employed. Twenty-four investigated deaths reported an open window, an open door, an open garage door, or a combination of these."); CPSC Memo, *Health Hazard Assessment of CO Poisoning Associated with Emissions from a Portable, 5.5 Kilowatt, Gasoline-Powered Generator*, at 88 (Sept. 21, 2004) (attached as Tab F to Briefing Package) (A review of several in-depth investigation reports showed that "a door or window had been left open, possibly to provide ventilation.").

CONCLUSION

The Companies remain interested in working with the Commission and other potentially interested parties to reduce CO poisonings associated with portable generator misuse in ways that are potentially effective and do not degrade the utility or availability of these important consumer products. For the reasons discussed above, the Companies believe that any further mandatory standards for portable generators would be premature at this time. The Companies request an opportunity to meet with the Commission and other interested parties as additional data concerning hazard and usage patterns, rates of risk, feasibility and costs of various regulatory options, and other aspects of the ANPR become available. Whether such meetings are conducted as "round table" discussions or take some other form, the Companies believe that the Commission and the public will benefit from further discussion of the agency's regulatory proposals and their potential effects on product safety, utility, costs, and availability. Please let us know if you have any questions or want to discuss these comments.

Very truly yours,

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Stevenson, Todd A.

From: Moore, Nick [Moore.Nick@basco.com]
Sent: Monday, February 12, 2007 7:23 PM
To: Stevenson, Todd A.
Subject: Portable Generator ANPR
Attachments: B&S CPSC response 3-17-06.pdf; B&S CPSC response 5-1-06.pdf; 20070212150523.pdf

In addition to the joint comments submitted on behalf of American Honda Motor Co., Yamaha Motor Co, USA, and Briggs & Stratton Co. to the Portable Generator ANPR, Briggs & Stratton Co. would like to submit three documents, which are previous submissions to the CPSC with regards to the topics discussed in the ANPR. Please find attached these three documents. Five copies are also being mailed to your office.

Best regards,

Nick Moore
Product Compliance Engineer
Briggs & Stratton Corporation
ph. 414-259-5958
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BRIGGS & STRATTON
POWER PRODUCTS GROUP, LLC

17 March 2006

Office of the Secretary
U. S. Consumer Product Safety Commission
Washington, D.C. 20207-0001

Subject: Briggs & Stratton Home Power Products Group Comments on the CPSC Staff Report: Demonstration of a Remote Carbon Monoxide Sensing Automatic Shut-Off Device for Portable Generators

Briggs & Stratton has reviewed the subject report and has serious reservations about the claim that CPSC staff has demonstrated a remote carbon monoxide sensing automatic shut-off device for portable generators. These reservations are serious enough for Briggs & Stratton to request that CPSC withdraw the report and that CPSC pursue a comprehensive program to properly evaluate the concept proposed.

Ensuring consumer safety through product design and manufacture is the utmost concern and priority of Briggs & Stratton Home Power Products. Therefore, the identification of a potential fail-safe means for preventing CO incidents caused by engine-driven equipment is of extreme importance and interest to Briggs & Stratton. However, this study does not demonstrate such a means. It is merely an initial exploration of a concept based on only one of several hazard scenarios. The potential for one such system including the capacity to shutdown the source device thus preventing any further emissions before unsafe levels are reached has not been demonstrated. However, additional explorations should be pursued based on a comprehensive program.

A Comprehensive Program Must Include All the Hazard Scenarios

The CPSC staff only looked at the hazard scenario of placing a generator in a garage for one home with the garage doors closed. Data was collected for: (1) the generator and system in the garage (under no load); (2) the generator in the garage with the system in a hallway adjacent to the garage (under load); and, (3) the generator in the garage with the system in the kitchen, adjacent to the hallway to the garage. A comprehensive program must include different types of homes and additional locations for the system in those homes, for example, bedrooms.

The report mentions two other hazard scenarios, a generator placed in a basement and a generator located near an open window. Neither of these hazard scenarios were explored, a major failing of the report. In CDC's Morbidity and Mortality Weekly Report for March 10, 2006, there is an article, "Carbon Monoxide Poisonings After Two Major Hurricanes – Alabama and Texas, August – October 2005, which states: "Most of

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the generators involved were placed outside but close to the home to power window air conditioners (ACs) or connect to central electric panels." The article goes on to say: "Although the risk for CO poisoning likely decreases as generators are placed further from the home, additional studies are needed to establish a safe distance for generator placement." CPSC staff should look at generator placement as part of a comprehensive program.

A Comprehensive Program Must Include Representative Portable Generators

CPSC staff only tested one portable generator. Samples representative of the portable generator market should be obtained and tested as part of the comprehensive program.

A Comprehensive Program Must Include Consideration of Reliability and Performance Issues

After review and research Briggs & Stratton believes that several reliability and performance issues, further detailed below, along with the impact of this system on consumer behavior must be thoroughly and satisfactorily addressed before implementation may be considered.

Briggs & Stratton's concerns on the reliability and durability of the system may best be summarized by the closing paragraph of the report summary itself, "The study was limited to proof-of-concept and did not consider issues such as life expectancy, reliability, usability, and environmental conditions. All of these factors would need to be considered in developing a remote CO detection/shut-off system for portable generators for consumer use." Specific concerns are detailed as follows:

CONCEPT CONCERNS

1) Outside influences (temperature, humidity, etc.) have an undetermined effect on the performance and durability of the various "sensing" technologies.
2) Need to insure batteries are charged and installed.
3) Since the majority of the units are bought when the power is out, will the consumer (properly) install the system in the dark?
4) How many nuisance trips, due to a variety of influences, will it take before the consumer disconnects the system?
5) Low charged batteries and relying on the consumer to plug in and maintain a charged system has not worked on past product offerings.
6) The operator has the ability to start the unit then remove the sensor/transmitter from the signal area. No feedback-loop is in place to insure the system is checking for a signal to keep the unit operating.

ADDITIONAL HAZARDS

1) Any IC engine produces carbon monoxide (CO) and was never designed nor intended to be run indoors or in an enclosure. As indicated in the report, if operated and maintained as specified by the manufacture, it is a safe product.
2) Will this system encourage people to bring units into their garages/carports and run them in close proximity to cars, fuel cans, and etc. because they are being provided with a false sense of security?

INVESTIGATION REQUIRED

1) Based on the number of units sold as compared to CO deaths, has the number of deaths decreased due to the improvements in manuals, warnings, information campaign's etc.?
2) What are the environmental effects on CO propagation and dispersion?
3) How does unit loading affect CO propagation, concentration, and dispersion?
4) Need to understand what blocks RF signals (materials, walls, etc.) and how stray RF signals can affect the system.
5) What is an acceptable range to expect the system to work? Will this determine the number of transmitters or CO monitors required?
6) Need to find a simple way for the consumer to use the system (reset procedure) in a storm environment.
7) Is data available to determine when units are sold (pre, during, or post storm)? This might help determine if people would take the time to evaluate their home configuration and properly install the system.
8) What are the minimum system requirements (feedback indicators, transmitters, etc.) to be considered a "safe" product?
9) What are the minimum battery requirements to make the system function effectively?

Briggs & Stratton strongly believes that the details of this system lie in the expertise area of the current CO detection industry and manufacturers. Briggs &Stratton would support and work closely with any industry leaders and manufacturers identified and approached by the CPSC.

Assuming that these concerns can be addressed satisfactorily, the impact of this system on consumer behavior must also be understood and jury tested. Our primary concern is that with or without CO emissions, internal combustion engines are neither designed nor intended for interior use. We need to ensure that a false sense of security is not created under which consumers mistakenly believe that a generator can or should be operated indoors. Additional hazards such as exhaust temperatures, component temperature levels, gasoline storage, and fuel evaporation emissions are inherent to internal combustion engines and will remain present. Also, in order to be effectively utilized the system would rely heavily on the consumer to properly locate and maintain the transmitter/detection unit.

In addition to consumer usage behavior, the impact of the detection system on consumer purchase behavior should also be understood. The current generator market

provides safe, reliable, back-up power generators at a price point affordable for a majority of the consumer public. An average 5000-5500 watt generator, a size and performance unit ideal for home back-up applications and typical of storm stock units, can be purchased for a median retail price of approximately $649. The addition of this system with an estimated cost in the document of $100 – $150 significantly impacts this price point. Though unfamiliar with the costing of these components, Briggs & Stratton believes the study estimate could be low as it does not include feedback systems or directly dictate the number of CO detectors/transmitters that would be required. These additional costs could force and or encourage some purchasers into lower price point product with reduced performance capability and reduced hazard reduction components such as integral spark arrestors, proper and redundant warning messages, and UL compliant components. In addition, consumers who have already installed effective CO detection systems within their homes may avoid these detection features for cost reasons again resulting in possible increased exposure levels to all potential product misuse hazards.

The core technology of this system revolves around the currently available and proven consumer technology of CO detection units. When properly installed these units have been proven effective and adequate in detecting and warning of dangerous CO levels in residential homes and structures. In addition these systems provide protection against all potential sources of CO impacting a home from all fuel burning consumer products. Sources such as faulty and temporary heating systems (historically the highest incidence product category per the Non-Fire Carbon Monoxide Deaths Associated with the Use of Consumer Products 2001 Annual Estimates analysis issued May 13, 2004 by the CPSC) and charcoal grills that may be present at all times and at elevated frequencies during power outage events would also be guarded against with a permanent versus source-specific option. A case study verifying the effectiveness of this technology, Use of Carbon Monoxide Alarms to Prevent Poisonings During a Power Outage – North Carolina, December 2002, was published by the CDC in the March 12, 2004 volume of MMWR. The case highlights the effectiveness of CO alarms with battery back-up and the precedence for requiring these devices by ordinance and/or building code. Based upon this information we feel that current CO detectors offer the best and most reliable means for preventing CO incidents at this time. B&SHPP would strongly support a CPSC led education and action campaign aimed at requiring reliable CO detectors in all residential homes through building code and legislation.

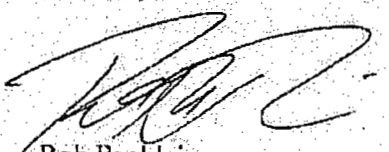
In conjunction with the move to the required use of CO detectors in homes and/or mandated inclusion of CO detectors in all emissions producing devices, we believe that efforts to drive consumer awareness of potential hazards must be continuous and elevated. As we reviewed at our December 18th meeting with CPSC, Briggs & Stratton Home Power Products Group is constantly monitoring and developing the warning labels, icons, and information packets included with and permanently adhered to all portable generator units. Compliance with all ANSI warning label standards is ongoingly monitored and reviewed. In addition to on-unit labels, the CO warning is also conveyed on all packaging, Quick Start Guides, and User Manuals. B&S also maintains and utilizes a Generator Outreach Program. This program is a two-pronged campaign,

Educational Outreach and Targeted Response, designed to assist media, government agencies, and consumer products groups in driving consumer awareness of the potential hazards associated with gasoline powered products. The generator safety outreach campaign has resulted in extensive radio and newspaper coverage in states hardest hit by power outages, including Florida and Louisiana. Though successful, B&S feels that this program could be even more effective and well-received if led and distributed by a government agency such as CPSC with the financial support of the product industry. As presented at our December meeting, this program would include the development and distribution of Public Service Announcements for print, radio, and television medias. B&S is committed to supporting this effort with both resources and finances as detailed in our earlier presentation. In addition to direct exposure, such campaigns should heighten and increase word-of-mouth warning and awareness. B&SHPP would also support any initial marketing/awareness campaigns designed to facilitate the recognition of this hazard and efforts to drive mandated CO detection systems through building codes and legislation.

In addition to consumer hazard awareness, B&SHPP is committed to driving an internal awareness of the factors and situations that may influence consumers to utilize generators in manners inconsistent with intended use and warning labels. Concerns for the physical security and weather resistancy of product have been identified as possible drivers for unsafe operation. Driven by this knowledge, B&SHPP Engineering and Research and Development teams are currently and continuously searching for methods to reduce and/or eliminate these drivers. The generator product line continues to evolve with improved features and warning message delivery.

In conclusion, there are enough serious problems with the CPSC staff report that Briggs & Stratton requests that CPSC withdraw the report and that CPSC pursue a comprehensive program to properly evaluate the concept proposed. It is the opinion of B&S that based upon current technologies the most effective and practical means for the detection and early warning of dangerous carbon monoxide levels is already available in the market through properly installed battery back-up equipped CO Detectors. The proliferation of these devices through building code requirements, product mandate, and legislation combined with clear, consistent, easily understood warning labels, and increased consumer awareness driven by a CPSC led-, industry financed safety campaign should greatly improve the homeowners protection and safety levels against all potential CO hazards.

Sincerely,



Rob Poehlein
Product Manager
Briggs & Stratton Power Products Group L.L.C.

BRIGGS & STRATTON
POWER PRODUCTS GROUP, LLC

1 May 2006

Mr. John Mullan, Director
Office of Compliance and Field Operations
U.S. Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

Dear Mr. Mullan:

This letter is in response to your letter of 14 April 2006 requesting the implementation of new CPSC designed Carbon Monoxide Warning labels on portable generator product and packaging. Briggs & Stratton Home Power Products Group (B&SHPPG) continues to be committed to working closely with the Consumer Product Safety Commission to promote and ensure portable generator safety. Based upon this cooperative effort and B&SHPPG's commitment to maximizing product safety, B&SHPPG is staged to begin implementing these labels as further detailed in this letter, however careful review of the request has raised several significant concerns listed below that B&SHPPG feels should be addressed prior to implementation:

1. B&SHPPG is concerned that the new information is not consistent with the material on the CPSC website and not in conformance with the ANSI Z535 standard. If CPSC has changed its position, then the CPSC staff should consider supporting this change with a new Human Factors memorandum with an explanation why the old label is no longer appropriate. B&SHPPG believes that a new Human Factors memorandum is needed to provide the rationale and documentation, including conformance with ANSI Z535.4, for the language and pictograms used in the recommended labels.

2. B&SHPPG requests clarification by CPSC staff concerning the way the labels were developed and the format and content of the labels. B&SHPPG was aware that CPSC staff were going to discuss the new label with Underwriters Laboratories (UL). However, B&SHPPG expected that there would have been an opportunity to provide input under the due process provided by the UL Standards Technical Panel (STP) method of standards development. It appears that as a result of the CPSC/UL meeting, UL and CPSC staff decided on specific labels. These same labels are an element of UL's Outline of Investigation for Portable Engine-Generator Assemblies that was issued on April 7, 2006 and the CPSC staff request of April 14, 2006. (B&SHPPG was not informed by UL that the STP process would be superceded by the Outline of Investigation.)

3. B&SHPPG requests all correspondence, meeting logs and other communications between CPSC and UL to better understand the rationale for the selection of the language and format of the labels because they are contradictory to portable generator safety information that CPSC continues to advocate on the CPSC website. B&SHPPG is also concerned that the recommended labels are not consistent with the performance requirements of the American National Standard for Product Safety Signs and Labels (ANSI Z535.4).

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4. This is particularly important because B&SHPPG had reviewed the information on the CPSC website and developed warnings and labels consistent with the well-documented analysis provided by the August 22, 2003 memorandum from the Division of Human Factors titled: Proposed Warning Language to Accompany Generators. B&SHPPG also considered information provided by CPSC staff at their May 20, 2004 public meeting on portable generator safety.

5. All of the information on the CPSC website uses the signal word "WARNING." See, for example, the August 22, 2003 memorandum from the Division of Human Factors which justifies using the signal word "WARNING" because it identifies "a potentially hazardous situation which, if not avoided, could result in death or serious injury (ANSI Z535.4-2002)." The joint CDC/CPSC Health Alert, CPSC and CDC Carbon Monoxide Warnings and, the CPSC document, "Returning Home Safely After Katrina," all use the signal word "WARNING."

6. B&SHPPG had previously used the signal word "DANGER" for the carbon monoxide hazard label and then changed the signal word to "WARNING." This change brought the B&SHPPG hazard labeling in line with the recommendations of CPSC staff and is consistent with the CPSC and CDC information to this point in time.

Briggs & Stratton Home Power Products Group currently provides consumers with extensive information on the safe use of portable generators. B&SHPPG also provides information to consumers about the hazards that may result due to improper use of portable generators. The product, packaging, and support materials are designed to inform and warn consumers consistently and repeatedly throughout the product setup and use process. B&SHPPG provides a *Carton Hazard label* on the top flap of the carton and requires multiple labels directly on the product. On the cover of every Operator's Manual there is a warning to read the manual and follow all safety rules and operating instructions before using the product. The *Safety Rules* are provided on the first pages of the manual. With regard to the carbon monoxide hazard, it is the first warning in the *Safety Rules* section. In the *Generator Location* part of the *Using The Generator* section, specific information is provided to the consumer, including the carbon monoxide hazard label and a graphic showing generator clearance from an occupied building. Similar information is provided in the *Quick Start Guide* that is included with every unit and is the first item visible when the carton is opened.

Due to the new CPSC label format concerns detailed above, it is B&SHPPG's intent to begin using the new label in addition to current warnings. This will continue until such time as the new label is recognized in ANSI and UL standards and verified through consumer testing and research. It is our sincerest hope that the CPSC will work closely with these organizations to rapidly bring the standards and label into agreement and eliminate this need for multiple label formats. B&SHPPG would welcome the opportunity to assist and/or participate in this development process.

B&SHPPG will begin implementing the label updates on a unit-by-unit basis immediately upon CPSC acknowledgment and agreement with the dual label message. The process will be completed in a timely manner with all newly manufactured generator product to be updated as quickly as possible. As shared previously, the "Generator Season" has transitioned to the May time frame driven by State sponsored Tax Relief Bills designed to promote Hurricane awareness and preparedness. To meet this demand and timing,

quantities of generator have already been produced and staged throughout the distribution chain. All of this product was built using the latest and most proven warning methods recognized at the time of manufacture and detailed previously in this letter.

In summary, Briggs & Stratton Home Power Products is committed to designing, manufacturing, and marketing generator product that can be used safely and made readily available to consumers when back-up power is required. B&SHPPG welcomes the continuing opportunity to work closely with the Consumer Product Safety Commission to define and implement generator product standards and longer term strategies to reduce carbon monoxide hazards during periods of power outage.

Sincerely,

Robert M. Poehlein
Product Manager
Briggs & Stratton Power Products Group L.L.C.

May 12, 2006

VIA U.S. MAIL AND ELECTRONIC MAIL

Chairman Harold Stratton
U.S. Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

Dear Mr. Chairman:

The Consumer Product Safety Commission currently has a number of projects underway related to portable generators. The purpose of this letter is to request that you appoint a point person to coordinate these efforts and be the contact person for portable generator manufacturers and their representatives.

It is our understanding that the following initiatives are underway:

- Modification of the existing ANSI/ISO warning labels for portable generators;
- A public information and education campaign;
- Evaluation of remote controlled shut off devices; and
- A request for information on CO reduction devices.

Briggs & Stratton either has or will submit comments to CPSC on all of these initiatives. If there are any other initiatives at CPSC related to portable generators we would like to know of those as well.

In addition, Briggs & Stratton presented a public information campaign proposal to CPSC staff in December 2005 to which we have yet to receive a response. Briggs & Stratton feels strongly that a campaign must be launched in the next 2 weeks if the information is to get out ahead of the 2006 hurricane season. If CPSC will not be leading such an effort Briggs & Stratton is prepared to do so. If CPSC will be leading such an effort Briggs & Stratton would be very interested in coordinating its efforts with that of the agency.

Thank you for your time and attention to this request.

Sincerely,
Briggs & Stratton Corporation

Patricia M. Hanz

Patricia M. Hanz
Assistant General Counsel

PMH/td

Manufacturers of Emission Controls Association
1730 M Street, NW
Suite 206
Washington, DC 20036-5603
(202) 296-4797 FAX: (202) 331-1388

February 12, 2007

VIA E-MAIL TO: cpsc-os@cpsc.gov

Office of the Secretary
Consumer Product Safety Commission
Room 502
4330 East-West Highway
Bethesda, MD 20814

RE: CPSC's Portable Generators; Advance Notice of Proposed Rulemaking

To Whom It May Concern:

Please find attached a copy of the written testimony submitted by the Manufacturers of Emission Controls Association (MECA) regarding the above-referenced rulemaking.

Thank you for your assistance.

Sincerely,

Joseph Kubsh
Executive Director

WRITTEN COMMENTS
OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON THE
CONSUMER PRODUCT SAFETY COMMISSION'S ADVANCED NOTICE OF PROPOSED RULEMAKING ON PORTABLE GENERATORS

February 11, 2007

The Manufacturers of Emission Controls Association (MECA) is pleased to respond to the Consumer Product Safety Commission's (CPSC) request for comments and information on the Portable Generators; Advanced Notice of Proposed Rulemaking. These comments are consistent with MECA's response to CPSC's Request for Information on Techniques to Substantially Reduce CO from Gasoline Portable Generators dated April 28, 2006. MECA supports CPSC Staff's motivation to reduce portable generator related deaths due to carbon monoxide (CO) poisoning. MECA firmly believes that cost-effective catalyst technology exists to substantially reduce CO emissions from these small gasoline engines.

MECA is a non-profit association of the world's leading manufacturers of emission control technology for motor vehicles and stationary internal combustion engines. Our members have over 30 years of experience and a proven track record in developing and manufacturing emission control technology for a wide variety of on-road and non-road vehicles and engines. A number of our members have extensive experience in the development, manufacture, and commercial application of CO emission control technologies for stationary engines, as well as, expertise in applying catalyst technologies to small spark ignited engines less than 25 hp.

Catalyst technology for small gasoline engines, like those used in portable generators, draws from the more than 30 years of successful experience in the U.S. with catalytic converters applied to light-duty gasoline cars and trucks. The centerpiece of this automotive emission control technology base is the three-way catalyst used on gasoline, spark-ignited vehicles in all major world markets today. The name three-way catalyst (TWC) was applied to catalytic controls that were capable of reducing all three criteria pollutants: carbon monoxide (CO), oxides of nitrogen (NOx), and volatile organic compounds or hydrocarbons (VOCs, HC). Today, more than 90% of the new automobiles sold around the world are equipped with catalytic converters, adding to the more than 600 million vehicles worldwide that have been equipped with catalysts since their first introduction in the U.S. in 1975. Three way catalysts typically operate within a narrow range of inlet exhaust gas compositions that corresponded to approximately the stoichiometric air/fuel ratio where they are capable of simultaneously achieving high conversion efficiencies for all three common regulated pollutants. CO conversion efficiencies greater than 95% are often observed.

The widespread use of catalysts on passenger cars has been spreading into other spark ignited engine applications in both on and off-road vehicles. An example of where TWC technology was applied by a manufacturer ahead of regulations was demonstrated and commercialized by Indmar Marine Engines. These inboard marine engines are equipped with

catalysts to reduce emissions of CO by more than 50% and smog-forming gases by more than 66% with no reported loss in performance. (epa.gov/otaq/regs/nonroad/marine/si/420f06057.htm).

There are a variety of technical publications and reports available that provide details about the application and performance of catalysts on smaller, four-stroke gasoline engines. The SAE technical publication literature contains many technical papers on the application of catalysts to both two-stroke and four-stroke gasoline engines used on motor scooters and motorcycles. Catalysts have been successfully applied to motor scooters and motorcycles in a variety of world markets (including the U.S., Europe, Taiwan, India, Thailand) to comply with regional emission regulations. Some of these applications include very small displacement engines (e.g., under 200 cc of total engine cylinder displacement). CO conversion efficiencies from applications of catalysts to motor scooters and motorcycles range from 50% to in excess of 90% depending on the system design and the air/fuel ratio at the inlet of the catalyst.

A more direct analogy to portable generator applications can be drawn from catalyst technology that has been successfully applied to a wide variety of small, two and four-stroke gasoline engines such as those on handheld equipment (e.g., chainsaws, leaf blowers, string trimmers), and non-handheld equipment (e.g., lawn mowers, motor scooters, motorcycles, marine engines, and forklift trucks). In many cases these catalyst systems have been specifically engineered to provide high reductions of CO and HC emissions as well as reductions in NOx emissions. The successful application of catalysts to these smaller gasoline engines has required the engineering of exhaust systems that effectively manage exhaust component temperatures, provide for efficient packaging of the catalyst within the exhaust system, include consideration for the safe operation of the engine in the environment, have adequate mechanical and catalytic durability, as well as, reduce exhaust emissions. All of this catalytic system experience can be directly applied to the design of safe, effective, and durable catalyst systems for four-stroke, gasoline portable generators.

MECA is aware of two manufacturers of four-stroke, gasoline generators that are already using properly designed exhaust systems with catalysts to reduce CO emissions by more than 90% compared to uncontrolled levels: Westerbeke Corporation and Kohler Power Systems. Both of these companies have targeted marine applications for these ultra-low CO emitting generators. Westerbeke's line of Safe-CO™ generators was introduced in 2004. In 2006, Kohler Power Systems became the second manufacturer to offer portable generators with catalytic converters.

Both the California Air Resources Board (CARB) and the U.S. EPA have recently evaluated the performance of catalysts on Class I (up to 225 cc cylinder displacement) and Class II (225 cc or greater cylinder displacement) gasoline four-stroke engines used in off-road applications of non-handheld equipment (e.g., lawn mowers, riding tractors, portable generators). In these test programs, catalysts were shown to perform effectively, over extended hours of operation, in reducing hydrocarbon, NOx, and CO exhaust emissions. The ARB test program was concluded in 2004 and a final report is available on the ARB website at: www.arb.ca.gov/msprog/offroad/sore/sore.htm (listed as "Durability of Low Emissions Small Off-Road Engines – Final Report"). EPA issued a report in March 2006 ("EPA Technical Study

on the Safety of Emission Controls for Nonroad Spark-Ignition Engines < 50 Horsepower") on their small engine test program. This 2006 EPA report is available at: www.epa.gov/otaq/equip-ld.htm.

The ARB and EPA studies show that catalysts can be integrated into the existing muffler designs used on these small engines and provide significant reductions in exhaust emissions. The ARB test program was completed in advance of ARB approving Tier 3 emission standards for Class I and Class II engines that began in the 2007. The EPA study, in particular, addressed emission performance and safety issues with the implementation of catalysts on these small engines and concluded that the application of catalysts to these small gasoline engines would not cause any incremental increase in risk of fire or burn to consumers. The focus, in terms of emissions control, for both the ARB and EPA test programs was the reduction of hydrocarbon and NOx exhaust emissions from these small gasoline engines. CO emission performance of the catalyst system designs were also evaluated and ranged from 50% to greater than 70% depending on system design and air/fuel ratio of the exhaust components present at the inlet of the catalyst.

The published experience of catalyst performance on four-stroke gasoline engines indicates that high efficiencies for reducing CO emissions are strongly influenced by the air/fuel stoichiometry in the exhaust upstream of the catalyst. Maximum reduction efficiencies for all three regulated pollutants (hydrocarbons, CO, NOx) can be obtained if the air/fuel ratio of the exhaust stream is controlled to be near the stoichiometric ratio of reducing and oxidizing components in the exhaust stream. At or near this stoichiometric air/fuel ratio, catalyst efficiencies can be well in excess of 90% for all three pollutants provided that the catalyst temperature is above its activation temperature (typically 350°C or higher), and that a reasonable catalyst volume relative to the volumetric flow of exhaust gas is contained in the system. MECA believes that the ultra-low CO emission generators offered by Westerbeke and Kohler employ this type of strategy (controlled exhaust air/fuel ratio near the stoichiometric point) to achieve high CO conversion efficiencies across a catalyst. In automotive or larger four-stroke motorcycle catalyst applications, this precise air/fuel control is achieved using a closed-loop control strategy that employs an oxygen sensor present in the exhaust, upstream of the catalyst. The sensor provides a feedback loop to the engine's intake air and fuel metering system.

The modest CO conversion efficiencies using catalysts (e.g., 30-60%) reported by ARB and EPA in their small engine test programs are generally indicative of engine operation under net fuel-rich conditions. Small gasoline engines are often designed to operate in a net fuel-rich condition to limit combustion and exhaust temperatures as a means of managing engine component durability. In net fuel-rich exhaust conditions, high CO catalyst efficiencies can also be achieved through use of some type of air introduction into the exhaust down stream of the engine. This strategy is generally termed secondary air injection. Air injection into the exhaust shifts the air/fuel ratio of the exhaust to a leaner (more oxygen rich) condition upstream of the catalyst and favors oxidation of CO and hydrocarbons over the catalyst. Lean exhaust conditions, however, are less favorable for the reduction of NOx over a precious metal-based, three-way catalyst. Both the ARB and EPA small engine test programs include examples of the use of secondary air injection into the exhaust, typically through some type of passive, venturi-based approach.

In summary, catalyst-based exhaust emission controls are a proven, cost-effective, durable, and safe strategy for reducing CO emissions from small, four-stroke gasoline engines like those used in portable generators. The combination of precious metal-based three-way catalyst formulations and precise air/fuel control has been shown to provide CO conversion efficiencies well in excess of 90% on a variety of small four-stroke gasoline engines, including portable generators currently offered by at least two manufacturers. MECA strongly supports the CPSC's efforts in reducing CO emissions and improving the safety of portable generators.

Stevenson, Todd A.

From: Antonio Santos [asantos@meca.org]

Sent: Monday, February 12, 2007 3:01 PM

To: Stevenson, Todd A.

Subject: MECA's Comments on CPSC's ANPRM for Portable Generators

Attachments: CPSC portable generator ANPRM comments 021207.pdf; CPSC portable generator ANPRM cover memo 021207.doc

February 12, 2007

VIA E-MAIL TO: cpsc-os@cpsc.gov

Office of the Secretary
Consumer Product Safety Commission
Room 502
4330 East-West Highway
Bethesda, MD 20814

RE: CPSC's Portable Generators; Advance Notice of Proposed Rulemaking

To Whom It May Concern:

Please find attached a copy of the written testimony submitted by the Manufacturers of Emission Controls Association (MECA) regarding the above-referenced rulemaking.

Thank you for your assistance.

Sincerely,
Joseph Kubsh
Executive Director

Stevenson, Todd A.

From: Albert Donnay [ahd@bcpl.net]
Sent: Monday, February 12, 2007 11:51 PM
To: Stevenson, Todd A.
Cc: ADONNAY
Subject: Portable Generator ANPR

2/12/07

Comments submitted
by Albert Donnay, MHS
Environmental Health Engineer,
Toxicologist and Certified CO Analyst
10145 Falls Rd, Lutherville MD 21093
adonnay@jhu.edu

RE: Portable Generator ANPR

In response to:
[Federal Register: December 12, 2006 (Volume 71, Number 238)] [Proposed Rules] [Page 74472-74474]

In which the Consumer Product Safety Commission solicits comments on various matters related to portable generators,
including:

#1. Written comments with respect to the risk of injury and death identified by the Commission.

#2. Written comments regarding the regulatory alternatives being considered, their costs, and other possible alternatives for addressing the risk.

#3. Any information related to reducing the CO emission rate of engines used on portable generators, weatherization of portable generators, or interlocking device concepts.

I submit the following comments.

With respect to #1:

The "Background" statement in the Federal Register notice on the risk of injury and death identified by the Commission cites (in paragraph A) the laudable strategic goal of reducing the number of non-fire CO deaths from consumer products by 20% from 1999/2000 to 2013, but then inexplicably grossly mis-states the "totally yearly estimated non-fire CO related deaths for each of the years 1999 through 2002" as "109, 138, 130 and 188, respectively."

As CPSC staff are well aware, based on their reports on the subject of CO deaths over the last 15 years, the actual number of non-fire CO deaths per year reported by the CDC's National Center for Health Statistics is still over 1200 per year. While most of these are suicides, over 200 are unintentional CO deaths caused by motor vehicle exhaust, and most of these are the result of vehicles operated inside residential garages. The number of non-fire, non-suicide CO deaths per year caused by motor vehicles is more than that of all other consumer products combined, and almost 10 times that attributed to generators.

Given the reality of these statistics, even if 100% of the CO deaths that CPSC "estimates" in this Background statement were eliminated, more than 1000 people per year would still die from non-fire related CO deaths caused by motor vehicles.

Even though motor vehicles are not regulated by CPSC, they are still consumer products and so there is no excuse for CPSC to ignore the CO deaths they cause. If CPSC does not want to publish the number of CO deaths attributed to suicides and motor vehicles, it should at least make this omission explicit, as it at least does with respect to vehicles in its fact sheet on Carbon Monoxide Questions & Answers (CPSC document #466, online at

http://www.cpsc.gov/cpscpub/pubs/466.html)

Since the Commission cites in paragraph C of the Background statement an estimate of 351 CO poisoning fatalities caused by portable generators over the 16 year period 1990 through 2005, it should put this number in perspective by also citing the total number of non-fire CO poisoning fatalities reported in this period by CDC's NCHS. Including fatalities caused by vehicles and suicides, the 1990-2005 total is over 20,000. Even without suicides, the total is over 3000.

That said, I strongly support any action the CPSC may take to reduce the number of CO poisonings caused by portable generators.

With respect to #2 and #3.

The increasing death toll in recent years highlights the inadequacies of attempts to prevent CO deaths by placing warnings on portable generators. I recommend that the CPSC require manufacturers to include one or preferably both of the following safety systems with all generators:

A) A CO detector interlock modeled after those used for decades to turn on exhaust fans in commercial parking garages (per commercial building code requirements, as soon as the level of CO detected exceeds 35ppm). I recommend that all generators be equipped with an integral electro-chemical CO detector/controller that would switch off the generator's power and prevent re-start whenever the detected CO level was over 35ppm. The CO detector should be mounted on the generator as far away as possible from the exhaust stream and in such a way that users could not easily block or cover the hole(s) through which ambient air would have to pass to reach the sensor, but in such a way that the sensor could be replaced as needed.

The cost of CO fan controllers ranges from the high 10s to low 100s of dollars, but a NHTSA study in 1991 found that CO ignition interlocks could be installed in vehicles for just
$11.39 each. For more on this, see my 2001 petition to NHTSA, online at
http://www.mcsrr.org/pressreleases/nhtsa01p.html

The useful life of CO controllers is 2 to 3 years, after which the electrochemical sensor or the entire unit must be replaced. To ensure fail-safe operation, they could be equipped for this application with an ignition interlock that would engage automatically after 3 years from date of first use or sooner if tampered with or removed, at which time the user would have to replace either the CO sensor or
entire controller in order for the generator before they could restart the generator.

Unlike home CO alarms, the CO controllers in generators, like those in commercial garages, should be designed to engage as soon as a specific level is engaged. To allow them to wait even 5 minutes could result in the accumulation of an extremely high level of CO in the immediate vicinity.

Unlike garage controllers, however, generator controllers should also sound a warning alarm as long as the detected CO level exceeds the shutoff level. This is needed to warn anyone who might wonder why the generator had shut off and try to restart it while the local CO level was still high.

As I have reported to CPSC staff before, there is absolutely no scientific basis for the CPSC's assumption that CO exposures are not harmful unless they result in COHb levels over 10%. Many studies show that COHb levels do not correlate consistently with the symptoms, severity or outcome of CO poisoning, and others show that fetuses, asthmatics and people with heart disease are adversely affected by exposure to even a few ppm of CO above background. For more on this, see:
http://www.findarticles.com/p/articles/mi_m0CYP/is_10_111/ai_107756437

B) A coiled and flexible exhaust hose of considerable length (such as 30 to 50 feet) designed to fit snugly over the generator's exhaust pipe at one end and through a window fitting at the other end. To ensure the use of this exhaust hose, it should have an electrical circuit wired along its entire length, with a plug at the exhaust pipe end designed to fit into a socket on the generator (but only if placed correctly over the exhaust pipe -- similar to the electric wiring and connections built into in some vacuum cleaner hose attachments that are used to provide power to a light or motor). The

generator should not be able to start or continue operating if the exhaust hose is not correctly attached or if the wiring is cut at any point along its length). The other end would be firmly attached to (and protruding several inches out of) a laterally expandable window fitting. This fitting, much like those used to hold small window fans in place, could be labeled with both multi-lingual text and diagrams to show its proper installation (resting on top of a window sill, with the window sash pushed up against it, either from the side or top depending on the style of window, to hold the fitting in place).

This concludes my comments.

Consumers Union
Nonprofit Publisher of Consumer Reports

Consumer Federation of America

February, 15, 2007

Office of the Secretary
Consumer Product Safety Commission
Room 502
4330 East-West Highway
Bethesda, Maryland 20814
Via: cpsc-os@cpsc.gov and
Facsimile (301) 504-0127.

Comments of Consumers Union of the U.S. Inc., and Consumer Federation of America to the Consumer Product Safety Commission on 16 CFR Chapter II "Portable Generators; Advance Notice of Proposed Rulemaking; Request for Comments and Information" Advance Notice of Proposed Rulemaking

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Introduction

Consumers Union (CU), publisher of *Consumer Reports*, and Consumer Federation of America (CFA), submit the following comments in response to the Consumer Product Safety Commission's ("CPSC" or "Commission") request for comments and information in the above Advance Notice of Proposed Rulemaking ("ANPR").[1]

CU and CFA commend the Commission for its attention to this important consumer safety issue. We believe that the labeling provisions mandated in the final rule[2] published January 12, 2007 ("Final Labeling Rule") is a good first step in attempting to reduce the number of carbon monoxide ("CO") poisoning deaths caused by consumers operating portable generators in garages or other enclosed areas. In addition, we support the CPSC's consumer outreach and education through communications through its web page entitled, "**Generator Danger Warning**"[3] and related links, informing consumers of the many dangers relating to generators.

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[1] "Portable Generators; Advance Notice of Proposed Rulemaking; Request for Comments and Information," 71 Fed. Reg. 74472 (December 12, 2006).
[2] "Portable Generators; Final Rule; Labeling Requirements," 72 Fed. Reg. 1443 (January 12, 2007).
[3] http://www.cpsc.gov/generator.html

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However, as CU stated in its comments filed in response to the request for comments that resulted in the Final Rule, CU and CFA strongly believe that the steady increase in generator-related carbon monoxide poisoning clearly demonstrates that education and warnings alone are not enough to protect consumers.

CU and CFA Recommendations

The effectiveness of a label, no matter how well designed, depends on the consumer's ability to read, comprehend, and follow its directions. In most situations in which a portable generator is used, consumers are operating them in the dark, possibly during a storm, while under pressure to act quickly to make the unit work. Such conditions are not conducive to reading a label or understanding its guidance. We therefore believe that the most effective way to reduce injury and deaths from CO poisoning would be for all manufacturers to equip generators with a CO detector that will automatically shut down the unit if it detects dangerous levels of CO. Many generators on the market today have a similar automatic shut off system designed to cut off the equipment when it senses that the machine is low on oil. In addition, quality CO sensing devices are readily available and have already proven effective in preventing CO poisoning. Furthermore, the CPSC has itself demonstrated proof-of-concept of CO detection safety systems on portable generators in its own labs.[4] We applaud the Commission for its work in this area and strongly urge the CPSC to proceed quickly to require CO detection and automatic shut-off safety mechanisms on all portable generators.

Conclusion

We appreciate the opportunity to share our views on this important proposed rule to increase the safe use of portable generators. We strongly urge the Commission to move quickly to mandate that manufacturers equip all portable generators with an automatic CO sensor and safety shut-off feature.

Respectfully submitted,

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[4] ICPHSO tour of CPSC labs on, or about, May 10, 2006.

Stevenson, Todd A.

From: Knox, Camille [KNOXCA@consumer.org]
Sent: Thursday, February 15, 2007 6:24 PM
To: Stevenson, Todd A.
Subject: Portable Generator ANPR
Attachments: 022007_CPSC Generator Label Rule Comments.pdf

Attached is Consumers Union comments on "Portable Generators; Advance Notice of Proposed Rulemaking; Request for Comments and Information" in PDF format.

Thank you,

M. Camille Knox
Administrative Assistant
Consumers Union®
Expert ·