



United States
Consumer Product Safety Commission

April 22, 2022

TRANSMITTED VIA EMAIL

Mr. Joseph Harding
Technical Director
Portable Generator Manufacturers' Association
1300 Sumner Avenue
Cleveland, OH 44115-2851

Dear Mr. Harding:

U.S. Consumer Product Safety Commission (CPSC) staff* provides the enclosed redacted CPSC in-depth investigation (IDI) report of an incident involving the carbon monoxide (CO) poisoning deaths of a woman and her two children from a generator that was certified to the PGMA G300-2018 standard. The generator was reportedly purchased new just before the incident, and it was operating outside, but next to the house. This tragic incident exemplifies one of the limitations of PGMA G300-2018 in protecting against certain hazard scenarios.

Sincerely,

Janet Buyer
Mechanical Engineer
Project Manager, Portable Generators
Directorate for Engineering Sciences

*Please note this information was prepared by CPSC staff, has not been reviewed or approved by, and may not necessarily reflect the views of the Commission.

Enclosure: Redacted IDI Task Number 211104HCC3123

Cc: Jacqueline Campbell, CPSC Voluntary Standards Coordinator

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Safety Commission
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caused a power outage in their home. The home was not equipped with carbon monoxide detectors.

On September █ 2021, the victim's ex-husband, and father of the 23-year-old female and 17-year-old male, purchased the involved generator from a local retailer. He assembled the involved generator and placed it alongside the home. The generator was positioned approximately 3" to 5" off the brick veneer wall and approximately 10" from an exterior door on the side of the home. The exhaust end of the involved generator was positioned near the door. A 25-foot extension cord, which was provided with the involved generator, was plugged into a receptacle on the generator. An air-conditioning unit, portable fan and refrigerator were plugged into the extension cord. The victim's husband reported that when he left the residence, the generator was running and that it was operating correctly.

INCIDENT

According to the sheriff's report, the victim's ex-husband stated that he received a text message from his son, (the 17-year-old victim), on September █ 2021, at approximately █am, asking how to restart the generator. According to the responding Detective, it's believed that the generator had run out of gas and the 17-year-old victim had to refuel the generator and restart it. The victim's ex-husband texted his ex-wife at █am to ask if the generator was still working and that she replied that it was. He reported that he called his ex-wife at █am, but that she did not answer.

He got concerned when he could not reach any of the victims and he went to the involved residence at approximately █am to check on them. He called 911 when none of the victims answered his phone calls or text messages.

POST INCIDENT

Emergency officials arrived at █pm, and after discovering the close proximity of the involved generator to the back door, suspected that carbon monoxide could be inside the residence. (Note: the involved generator was not running when emergency officials arrived.) They made a forced entry into the residence through a door. Fire officials used a carbon monoxide meter and discovered 684 parts per million of carbon monoxide inside the residence. The reading taken outside where the involved generator was located, was 200 parts per million. The house was ventilated with fans before any emergency personnel were allowed back into the residence.

Once emergency officials were able to safely make entry into the residence, they found the victims unresponsive, with no signs of life. The 23-year-old female victim was discovered lying on her back next to the couch in the living room. The 17-year-old victim was found lying on his stomach on the floor in the kitchen. The 54-year-old female was found lying on her back on the floor in the dining room area.

The victims were pronounced deceased on the scene at █. Official reports indicated that the inside of the residence was 91 degrees and that all the windows and doors were closed. Photos obtained from the sheriff's office show the generator's engine switch in the "on" position. The generator's fuel tank was reportedly empty. Investigators stated that the involved generator had been placed too close to the home, causing the carbon monoxide build up in the home. The weather conditions at the time the victims were discovered: 93 degrees Fahrenheit, sunny, with no precipitation in the last 24 hours.

An autopsy was performed on the victims, which determined that all three of the victims had died of carbon monoxide toxicity. The 54-year-old female had a COHb of 46%, the 23-year-old female had a COHb of 59%, and the 17-year-old male had a COHb of 63%.

INVESTIGATIVE FOLLOW-UP

This PSI interviewed the responding detective by telephone. According to the detective, when he arrived on the scene, he observed the involved generator approximately 3-5 inches from the back door, with the generator's exhaust pointed toward the back door. The involved generator's fuel tank was empty, and the engine switch was in the "on" position. He did not have information on the fuel containers used to refuel the generator. He did not have information on whether the generator had shutoff at any other time during the incident.

SAMPLE

The disposition of the involved generator is unknown.

EXHIBITS

- 1) Contact List (2 Pages) **[EXCLUDED]**
- 2) Sheriff's Office Report (8 Pages) **CONFIDENTIAL [EXCLUDED]**
- 3) Photos 1-4 (4 Pages) **CONFIDENTIAL [EXCLUDED]**
- 4) Coroner's Report re: 54-YOF (5 Pages) **CONFIDENTIAL [EXCLUDED]**
- 5) Toxicology Report re: 54-YOF (3 Pages) **CONFIDENTIAL [EXCLUDED]**
- 6) Coroner's Report re: 23-YOF (5 Pages) **CONFIDENTIAL [EXCLUDED]**
- 7) Toxicology Report re: 23-YOF (3 Pages) **CONFIDENTIAL [EXCLUDED]**
- 8) Coroner's Report re:17-YOM (4 Pages) **CONFIDENTIAL [EXCLUDED]**
- 9) Toxicology Report re: 17-YOM (2 Pages) **CONFIDENTIAL [EXCLUDED]**
- 10) Missing Document (1 Page) **[EXCLUDED]**
- 11) DRS CO Poisoning Appendix 16-General Info (4 Pages)
- 12) DRS CO Poisoning Appendix 16-Injured Persons (2 Pages)



INVESTIGATION GUIDELINE

DATA RECORDING SHEET: GENERAL INFORMATION

The purpose of this data recording sheet is to capture general information, victim information, and CO alarm information (if applicable) for all CO incidents. In addition, it is designed to capture detailed information concerning home environment conditions and individual products for CO incidents that are investigated on-site in a residence. Complete this data recording sheet for all incidents involving carbon monoxide poisoning and/or an activated CO alarm as instructed and attach to CPSC form 182, Epidemiologic Investigation Report.

Instructions for all CO investigations: Please complete the data recording sheets entitled *General Information* (pp.9-12), *Injured Persons* (pp.15-16), and *CO Alarms* (if applicable, pp.20-22) **for all incidents**. In addition, **when conducting an on-site investigation in a residence** (as opposed to an RV, outdoor enclosure, etc.), complete the sections entitled *Residence Environment* (p.27-29), *Product Identification* (p.30), and *Conditions of Vented Products* (p.31-32). For these on-sites, also complete the data-recording sheet in section V (p.25) of the guideline for those products in use around the time of the incident. Each product from the *Pre- On-Site Investigation CO Product Checklist* (p. 25) is listed on a separate page (or similar products are grouped together on one page) for your convenience.

GENERAL INFORMATION

1. Task number _____
2. Incident date (MM/DD/YYYY) 09/ 2021
3. Completion of this investigation is based on (check one):
 - Site visit to residence where incident occurred (may include written reports)
Complete guideline sections I – V, including data recording sheets (for relevant products).
 - Telephone interview and/or written reports (e.g., fire report)
Complete guideline sections I – III, including data recording sheets contained in those sections.
 - Written reports or newsclips only
Complete guideline sections I – III, including data recording sheets contained in those sections.
 - Other, specify _____
 Complete guideline sections I – III, including data recording sheets contained in those sections.
4. Type of structure: Check one.
 - Detached house
 - Attached house (e.g., townhouse, duplex)
 - Apartment building or condominium
 - Detached garage
 - Other, specify (e.g. shed, tent, camper, RV, etc.) _____
 - Don't know

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INVESTIGATION GUIDELINE

DATA RECORDING SHEET: GENERAL INFORMATION (continued)

5. What is the approximate age of the structure where the incident occurred?

Specify an age range in years: _____ Don't know

6. Did the consumer smell an unusual odor (e.g., burning smell, rotten eggs) in the structure or near a gas appliance prior to or during the incident?

___ Yes ___ No ___ Don't know

7. At the time of the incident, what was the approximate outdoor temperature where the incident occurred?

Specify in degrees Fahrenheit _____ Don't know

8. At the time of the incident, how windy was it where the incident occurred?

Specify (provide wind speed or other descriptor, such as calm, light breeze, moderately windy, gusting, etc.) _____ Don't know

9. At the time of the incident, what was the approximate outdoor relative humidity where the incident occurred?

Specify % humidity _____ Don't know

10. Was it foggy or rainy at the location of the residence at the time of the incident?

___ Foggy ___ Rainy ___ Don't know

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INVESTIGATION GUIDELINE

DATA RECORDING SHEET: GENERAL INFORMATION (continued)

11. Had there been a hurricane, tropical storm, ice storm, or power outage near the time of the incident?

Power outage Weather event causing power outage; if selected, specify what type of weather event: _____

Don't know

_____ Hurricane/storm name if known

12. Was a vehicle's engine or portable generator or other engine-driven tool running in a garage, carport, or driveway that is attached to or adjacent to the residence during the incident? (A running vehicle positioned on the driveway some distance from the house is answered No.) Choose an option below.

Vehicle Portable generator Other engine-driven tool

Don't know

13. Was there a fire in the fireplace at the time of, or just prior to, the incident?

Yes No Don't know

14. Was camping equipment (e.g. portable camping lanterns, heaters, stoves, grills, and hibachis) being used at the time of, or just prior to, the incident?

Yes No Don't know

15. If incident was related to the use of camping equipment, mark the type of equipment.

Check all that apply:

Lantern

Heater

Portable Stove

Grill or Hibachi

Other, specify _____

Don't know

16. Did someone turn off appliances or other possible sources of CO post-incident?

Yes No Don't know

17. Did someone open windows or doors to air out the residence after the incident?

Yes No Don't know



INVESTIGATION GUIDELINE

18. If the consumer left the residence immediately, were outside doors and windows left open?

Yes No Don't know



INVESTIGATION GUIDELINE

DATA RECORDING SHEET: INJURED PERSONS

1. How many non-firefighter victims were injured? Specify _____
2. How many non-firefighter victims died? Specify _____
3. List the age, sex of each victim (include all victims; don't limit to 5) and answer yes or no to whether the person was injured or died.

Victim	Age (yrs)	Sex (M/F)	Died? Y/N	Died same day at scene? Y/N	Injured? Y/N
Person 1					
Person 2					
Person 3					
Person 4					
Person 5					

The next questions are about the **most severely injured** victims – please complete this section for each severely poisoned victim who received hyperbaric oxygen treatment, or who was admitted to hospital for more than 24 hours. If no victims meet these criteria, complete the questions only for the most severely poisoned victim.

4. Approximately how long was the victim in the home prior to the incident?
Specify _____ Don't know
5. Was the victim a smoker?
___ Yes ___ No ___ Don't know **If "no" or "don't know" go to question 8.**
6. If the victim smoked cigarettes, how many did he/she smoke a day?
Specify _____ Don't know
7. If the victim smoked cigars, how many did he/she smoke a day?
Specify _____ Don't know
8. Did the victim receive medical treatment from a hospital emergency room as a result of the incident?
___ Yes ___ No ___ Don't know

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INVESTIGATION GUIDELINE

DATA RECORDING SHEET: **INJURED PERSONS** (continued)

9. Did the victim have a blood test to measure exposure to CO poisoning?

Yes No Don't know

10. If a blood test was given for CO poisoning, will the victim allow the CPSC investigator access to the medical test result?

Yes No Don't know

11. Did the victim receive hyperbaric oxygen therapy (HBO), and if so how many HBO treatments were given?

Yes No Don't know

12. At this time, does the victim/victim's family consider the victim has fully recovered from the CO exposure?

Yes No Don't know (victim)

Yes No Don't know (family member – specify relationship _____)

Note how many days have lapsed since the CO exposure occurred and this assessment

13. For any victim/family member who answered "no" to question 12, please note specifics of effects/symptoms that are considered to still impact the victim and when they were first noticed.

14. Is victim still under medical care for health effects related to the CO poisoning incident?

Yes No Don't know. If yes, provide further details.