

# INCIDENT INVESTIGATION ASSIGNMENT INSTRUCTIONS

## Carbon Monoxide Poisoning from Generators

**DOCUMENT NUMBER:**

**DATE OF INCIDENT:**

**CATID: STNN36 2020**

**FOLLOW-UP REQUESTED**

**HAZARD ANALYSIS**  **SECT 15**

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**BACK-UP CONTACT:** Janet Buyer, ESFS, 301-987-2293, [jbuyer@cpsc.gov](mailto:jbuyer@cpsc.gov)

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**ASSIGNMENT MESSAGE:** Use guideline Appendix 16 - All Carbon Monoxide Poisoning-Related Incidents and Data Recording Sheet (revised September 2007) and complete the data record sheets related to General Information, Injured Persons and CO Alarms.

These instructions have been revised to require you to ask the surviving CO-poisoned persons of an incident involving a generator more detailed questions than in the past. For your information, staff intends to use this information to support a proposed rule that will require engines that power portable generators to have a substantially reduced CO emission rate to reduce the likelihood of CO poisoning, and to slow the onset and progression of CO poisoning symptoms among exposed persons. The expectations associated with this are that this will give exposed persons (1) a longer timeframe in which to recognize that a hazardous situation is developing and will use it to escape or summon help, or (2) for those who stay in the CO containing environment, to not reach a fatal exposure before the tank runs out of fuel. The intent of many of the questions that have been added to these instructions is to gather data on how survivors reacted once they started to experience the adverse symptoms of CO poisoning so we can learn if they had the opportunity to either remove themselves from the exposure or summon help and if they then took those actions or stayed in the CO-containing environment either because they quickly became incapacitated such that they were unable to take those actions or because they did not understand the cause of their symptoms and simply chose to stay in place. Additionally, we want to gather information that could indicate the effectiveness of the mandatory label, the specific types of appliances consumers used their generators to power, and for how long consumers used the generator.

Please obtain the following:

1. Pre-incident, incident, and post-incident information.
2. Product description, including manufacturer, model name/number, horsepower (HP) of engine, kilowatts of generator output (continuous/rated watts), and age of the product. List names and address of retail outlet where product was purchased or rented. Specify if borrowed or obtained as a used product. Photograph product, if possible, including all markings and warnings on the product. Obtain copy of owner's manual or instructions.
3. Document, including taking photographs, where the generator was located, and ask why the operator chose that location.
4. Ask what the weather was like at the time they were operating the generator-was it raining or precipitating (please describe) or were they expecting it to do so?
5. Ask why the generator was being used - was there a power outage, was the power turned off, or was it used in a location that had no power available? If it was a power outage, what was the cause of the power outage - a recent hurricane, ice storm, tornado, etc?

6. Specify the type of fuel used by the product, the size of the fuel tank, how much fuel was left in the tank when the victims were first discovered. Document if the product was running when the victims either took some action to combat or escape from the hazard, or were discovered. If it was not running, document the state of the ignition or on/off switch.
7. If incident occurred indoors or in a partially enclosed or covered space (e.g., garage, carport), document the square footage and layout of that room or space. If incident occurred in a house, apartment, condo, mobile home, etc., or other living spaces, obtain square footage of the entire living area of the structure (specify if this area measurement includes the basement or not). If victim or generator was located in basement or attached garage, obtain square footage of basement or garage and report separately. Identify the locations of any CO alarms, fans, doors, and windows throughout the structure. Indicate whether fans were operating and which doors or windows were open. Indicate the degree to which windows or doors were open (fully open, partially open, open a crack, etc.) and, if possible, note whether this changed from when the generator was started to when the victims self-rescued or were discovered. Were there any other attempts made to mitigate the exhaust (e.g., using a fan in an attempt to expel the exhaust)?
8. How experienced was the operator with using the incident generator (e.g. was this the operator's first use of this generator?)? How experienced was the operator with using generators in general?
9. If the operator used this or another generator previously, was it used in the same location? If so, indicate if there were any changes in window/door openings this time. If not, please specify the previous locations.
10. Find out if product was operating near a central heating or cooling unit or other appliance that circulates air throughout the home, and whether that unit or appliance was operating while the generator was in use.
11. What was the generator powering (e.g. refrigerator, range, microwave, heaters, lights, etc.)?
12. How long was the generator operating leading up to and during the incident? Was it operated intermittently or continuously? Was it refueled at any time during use of the generator on this occasion?
13. If the incident occurred while product was operating outdoors, describe how the CO seems to have reached the victim(s). Were there any open doors, open windows, vents, or air intakes to the home near where the generator was operating? If so, how close was the generator to any of these and which direction was the generator's exhaust pointing relative to the opening on the house? Also document the length and type of any extension cord being used with the generator and photograph the cord plug to show any labels. If there was an open window or door, describe how far it was opened. What were the wind conditions? How far was the generator from the house, and why was that location selected? Was it a permanently installed back-up generator, or a portable generator?
14. Document all CO measurements taken (in ppm) by emergency response personnel, fire dept., and/or utilities, and any steps taken after the incident to ventilate the premises and note when the measurements were taken relative to those actions.
15. Obtain death certificates for all fatalities and also document apparent and actual injuries of survivors. If possible obtain all victim(s) medical records related to the incident. In particular, note any reported COHb level in each victim (usually expressed as a percentage) and try to obtain verification of these levels (toxicology or autopsy reports). For victims not fatally injured, document what, if any, treatments were received, both at the scene and/or at the hospital. If COHb blood levels were taken, please try to determine the approximate time when the blood sample(s) were taken relative to removal from the CO environment. If survivors do not mention any treatment with supplemental oxygen, ask if they were provided with a breathing mask (oxygen) by first responders or medical personnel. Determine if any victims received hyperbaric oxygen treatment.
16. Did those exposed to the CO remove themselves from the CO exposure? If not, who rescued them and how was the rescuer alerted?

17. Was the victim ever aware that something was wrong? If so, what triggered their awareness (e.g. symptoms, CO alarm activation)? If they understood that something was wrong at that time, did they understand that it was a CO related issue?
18. Describe if any specific actions they took in response to CO alarms sounding, their symptoms, or their awareness that something was wrong. (If the victim doesn't recall or has no response, ask them if they did any of the following and in what order: lie down, call 911, call a friend, try to alert or rescue another individual (or pet?), go outside, attempt to enter generator location to turn off the generator, immediately lose consciousness?)
19. If the victim became aware by their symptoms, please describe all symptoms in the order that they occurred. If applicable, ask which particular symptom ultimately prompted them to take any action.
20. Regardless of whether the victim said they were aware of their symptoms, ask the victim if they experienced any of the following: headache, nausea, dizziness, fatigue or generalized weakness, vomiting, trouble thinking or confusion, loss of consciousness, difficulty breathing, or chest pain. (Note: when CO levels rise very rapidly or on entering areas with extremely high levels of CO (several thousand parts per million (ppm)), it is possible to experience loss of consciousness near-immediately without perceiving less serious symptoms)
21. If they were admitted to the hospital, ask how long were they hospitalized. Since the CO incident, are the victims having any difficulties with being able to concentrate, perform previous work and home tasks? Have they experienced any long term cognitive problems such as deficits in attention, visual memory, verbal memory, problem solving, verbal reasoning and other cognitive processes (generally termed executive function)? Are they still receiving any medical care for residual symptoms?
22. Does the victim remember whether there were any warnings on the product? If so, ask the victim if he or she can remember what they were about and, specifically, what they recall the warnings said?
23. How long were the victims exposed to CO?
24. Were the victims aware of the potential CO poisoning hazard associated with generators prior to this incident?
25. Did the victims receive an owner's manual with the product? If so, do they still have it? Have they read it? If so, what parts? Had they read the CO warning section? (Only ask this last question after the victims describe the parts they read.)
26. Identify and describe any CO alarms or combined CO/smoke alarms documented in #7, including age of the product and manufacturer. Describe where they were located.
  - a) Obtain manufacturer name, model number, copy of instructions, and photos of front and back of alarm.
  - b) Obtain information about previous experience with the alarm:
    - 1) Has it alarmed before?
    - 2) When?
    - 3) When was it installed?
    - 4) If it is a battery operated unit, when were the batteries changed last?
    - 5) Does the consumer routinely use spray deodorizers, air fresheners, or ammonia-containing cleaners near the alarm?

**OBTAIN COPY OF FIRE REPORT, EMERGENCY RESPONSE REPORT, MEDICAL RECORDS, OR ANY OTHER OFFICIAL REPORTS.**

**Complete the relevant portion(s) of Appendix 16 required for this IDI as fully as possible. Due to the lag in state reporting of death certificates and contract restrictions placed on investigations initiated from death certificates, we recognize that some information may be difficult to obtain to complete the required portion(s) of the Appendix 16 Data Record Sheets. However, we request that the investigator provide as much information as possible in the Data Record Sheets.**

### **Additional requirements for this IDI:**

Request for additional information for IDI's assigned for deaths related to portable generators.

The Office of Compliance and Field Operations would like to review the CO poisoning hazard labels on the generators involved with fatalities for compliance with the labeling requirements of 16 C.F.R. § 1407. Compliance will follow-up with the manufacturers of any products found to be non-compliant.

Copies of the mandated on-product and on-package CO poisoning hazard labels are shown below. If you suspect that the labeling on a generator does not meet the requirements, please photograph the top and each side of the generator. Inquire if the consumer has retained the outer packaging of the generator, if so, evaluate the hazard labels on the packaging for compliance.

Requirements for placement of the labels:

On-product hazard labels:

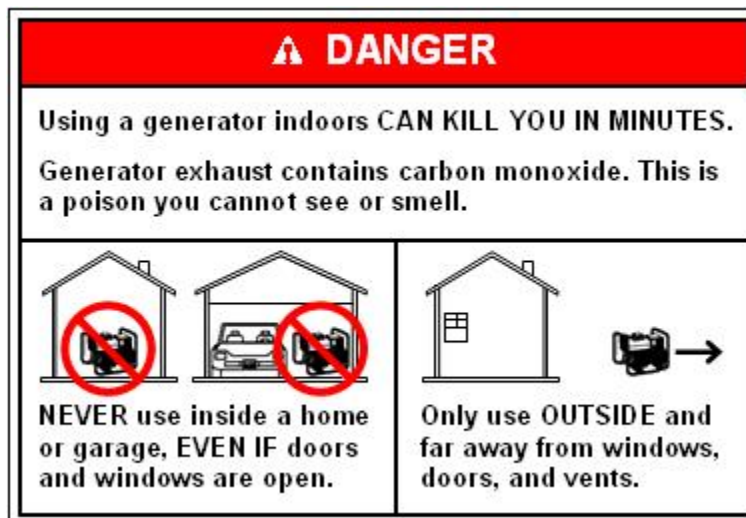
The on-product hazard label must be permanently affixed and located:

- A) On a part of the portable generator that cannot be removed without the use of tools, and
- B) On a location that is prominent and conspicuous to an operator while performing at least two of the following actions: Filling the fuel tank, accessing the receptacle panel, and starting the engine.

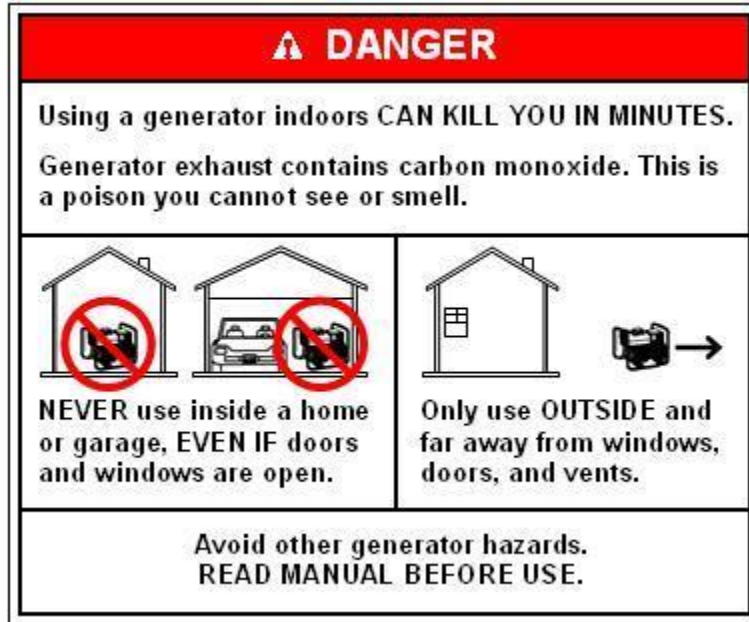
On-package hazard labels:

The on-package hazard label must be located on the principal display panel(s) of the package AND the surface containing the top flaps of the package. The principal display panel(s) of the package is the portion(s) of the outer packaging that is designed to be most prominently displayed, shown, presented, or examined under conditions of retail sale.

### **Generator On-Product Label**



## Generator On-Package Label



**Please include all primary and all backup contacts in the distribution of the completed IDI.**

----- Area below will be completed in Data Systems -----

**Person(s) to Contact:**

**Guidelines: Appendix 16 – All Carbon Monoxide Poisoning-Related Incidents,  
including relevant portion(s) of Data Recording Sheet**

**Task Number:**

**Date:**

**Assigned to:**

**Processed by: lew**