North Kingstown Fire Department
Carbon Monoxide Incident Operational Guide

Response: No Signs/Symptoms (1) Engine Co. [Code C Response - Investigation]
Confirmed CO levels [35ppm+] Ladder Co., & C-2 [CO Incident]
Possible Signs/Symptoms of CO (1) Engine Co., (1) Ladder Co., (1) Rescue Co., & Car 2.

Operations General:

- Evacuate Structure / Interview Occupants
- Monitor w/ 2 meters
- Utilize NKFD CO Incident Check-List & Notice of Findings Reports

Operations Elevated CO Readings:

- Full - PPE when CO greater than 35ppm (Utilizing 2-in-2-out)
- Attempt to determine source of CO
- Eliminate the source if possible:
  - Secure the fuel source of the malfunctioning appliance if possible
    - Call *National Grid* gas for natural gas appliances
    - Call occupant/owners *propane* provider for propane appliances
- Ventilate as necessary (Natural Ventilation &/or Positive Pressure Fan)
- Re-Evaluate CO Levels as needed

Operations Post-Incident:

- Advice occupant/owner:
  - Replacement of CO detector if warranted
  - Discontinue use of appliance/fixture causing elevated CO
  - Repair [by qualified personnel] &/or Replacement of appliance/fixture causing elevated CO
  - Turn scene over to National Grid/propane provider if appropriate
  - Provide occupant/owner copy of Notice of Findings report
  - Complete NFIRS and/or EMS Report as Appropriate
- In the case of a tenant / landlord relationship—or if building owner is not on scene—every effort shall be made to notify the building owner as to the findings and recommendations.

Note - This CO Incident Operational Guide is Intended to Summarize / Supplement Existing NKFD Policy / Practices

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Signs and symptoms of carbon monoxide poisoning include: throbbing headache, nausea, shortness of breath, irritability, confusion, loss of judgment, increased heart and respiratory rate, lethargy and stupor, seizures, and changes in skin color from pale to cyanotic to cherry red. The PEL for CO is 35 ppm and the IDLH is 1200 ppm.

EFFECTS OF CARBON MONOXIDE EXPOSURE	
CO Level in ppm*	**Resulting Condition/Effect on Humans**
0-20 ppm	Grade "D" breathing air (legal for compressed or airline breathing air)
35 ppm	Permissible Exposure Limit (PEL)
100 ppm	Headache and discomfort after 3 hours
200 ppm	Ceiling level - 5 minutes allowable exposure in 4 hours - Headache in 2-3 hours
400 ppm	Frontal headache and nausea in 1-2 hours - Occipital headache in 2.5-3.5 hours
800 ppm	Headache, dizziness, nausea in 45 mins. Collapse & possible death in 2 hours
1,200 ppm	IDLH level
1,600 ppm	Headache, dizziness, nausea in 20 mins. Collapse & possible death in 1.5 - 2 hours
3,200 ppm	Headache & dizziness in 5-10 mins. - Unconsciousness & death in 30 mins.
6,400 ppm	Headache & dizziness in 1-2 mins. - Unconsciousness & death in 10-15 mins.
12,800 ppm	Immediate unconsciousness - Death in 1-3 mins.

*ppm—parts per million

All values are approximate. The effects can vary depending on the individual's health and the type of physical activity being performed.

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