Respiratory Protection Program & Cancer Risk Reduction

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Purpose:
The Cottekill Volunteer Fire Company (CVFC) established a Firefighter Health and Safety Program that provides general guidance for the health and wellbeing of its members. This guideline specifically establishes a respiratory protection program that addresses the selection, inspection, safe use and maintenance of respiratory protection equipment, training in its use and the assurance of air quality testing as specified in the National Fire Protection Association (NFPA) 1404 and 1500 Section 5-3 standards.

Beyond the respiratory protection program, this guideline also addresses cancer risk reduction for firefighters. It establishes the education for members of the fire company and the district on the cancer risks and preventative measures associated with firefighting.

Responsibility:
It is the responsibility of the Fire District to provide:

- NFPA 1971 compliant Personal Protective Equipment (PPE) and NFPA 1981 compliant Self Contained Breathing Apparatus (SCBA) to the members of the fire company.
- Protective measures to reduce firefighter exposure to carcinogens and other products of combustion
- PPE storage that is out of the living areas of the firehouse
- Measures to properly clean PPE
- A health safe facility (the firehouse)
- Firefighter health monitoring and exams
- Health and Wellness Program

The Fire Chief is solely responsible for all facets of this program and has the authority to make necessary decisions to ensure success of this program including enforcement. The Fire Chief will develop written detailed instructions covering each of the basic elements in this program, and is the person authorized to amend these instructions.

It is the responsibility of the Training Officer to provide all staff members (active, social and commissioners) with the appropriate training in regards to respiratory protection, and the awareness and prevention of cancer as it relates to firefighting.

It is the responsibility of all members to follow risk reduction measures provided in this document and any subsequent documentation, information and practices provided in the CVFC’s training program.
Procedure for use:

Selection –

The Cottekill Fire District operates and maintains open-circuit SCBA only. All newly purchased SCBA shall meet current standards set forth by NFPA. All current SCBA units shall meet NFPA standards at the time of manufacture and shall remain in service until they can no longer meet such standards or if respiratory protection would become severely compromised due to outdated standards.

The Cottekill Fire District shall provide Fire Company members with appropriate Personal Protective Equipment (PPE) for the duties they are qualified to perform. The PPE shall meet OSHA and NFPA regulations and standards outlined for each type of PPE.

SCBA Inspection/Maintenance -

- Weekly inspections shall be conducted to ensure cylinder pressure is within normal limits and that all SCBA are stowed properly on the apparatus.
- Monthly Inspections shall be completed to ensure all components of the SCBA are functioning correctly.
- Service use inspections shall be completed prior to and after use of the SCBA.
- Annual Inspection - All SCBA’s shall be inspected and serviced annually by qualified personnel and/or whenever there is a report of an operational problem. The inspection and servicing shall include at least the following procedures as well as manufacturer recommendations:
  - Disassembling of the SCBA into major components
  - Flow testing the regulator
  - Disassembling and cleaning of the regulator
  - Replacement of worn parts, or those recommended by the manufacturer, in the regulator assemblies
  - Disassembling the low-air alarm, and cleaning and replacement of components as necessary
  - Cleaning and replacement of components of the facepiece and harness assembly, and replacement of components as needed or scheduled
  - Reassembling of the entire SCBA and testing for proper operation of all components
  - Proper recording of all performed maintenance and return the SCBA to service

The contractor providing the inspection shall make all reasonable attempts to repair the unit on-site. In the event the unit cannot be repaired on-site and/or the repair cost is questionable, the contractor shall remove the unit from service and contact the Chief for repair approval. The contractor will provide a detailed report on the failure and the repair completed or needed.

- Hydrostatic test - All air cylinders shall be hydrostatically tested within the periods specified by the manufacturers and the applicable governmental agencies.
- Fit test - The facepiece seal capability of each member qualified to use SCBA shall be verified by qualitative fit testing on an annual basis and whenever new types of SCBA or facepieces are issued. Each new member shall be fit tested before being permitted to use SCBA in a hazardous atmosphere. Only members with a properly fitting facepiece shall be permitted to function in a hazardous atmosphere with SCBA. Regardless of fit tests, any member who has facial hair at any point where the SCBA facepiece is designed to seal with the face, or hair that could interfere with the operation of the unit shall not be permitted to operate in hazardous or potentially hazardous atmospheres.

- Out of service SCBA’s - When an SCBA unit fails any inspection or service check, it is to be removed from service immediately by the person(s) conducting the check or inspection. The following are the proper procedures for removing the unit from service dependent on the type of inspection:
  - Weekly Check – Only the cylinder shall be removed from service and it shall be replaced with a fresh cylinder from the full bottle rack. The cylinder in question shall be tagged as low and notification to the Lieutenant shall be made.
  - Monthly Check - The complete unit is to be removed from the apparatus and placed in the designated area for out of service equipment. The member conducting the inspection shall complete the inspection form and indicate the reason(s) for the failure. This report is to be turned into the Lieutenant who shall verify the failure. The Lieutenant shall forward a copy of the report to the Captain for scheduling of repair.
  - Service Use Inspection - The user shall pull the complete unit form the apparatus and turn the unit over to the driver/operator of the apparatus. The driver shall place the unit in the cab of his/her apparatus and notify the IC or his/her direct supervisor that an SCBA unit is out of service. Upon returning to the fire house the complete unit is to be placed in the designated area for out of service equipment. A Service Use Inspection Failure report is to be completed by the member who initially completed the inspection. This member shall turn this report over to the Lieutenant who shall verify the failure. The Lieutenant shall forward a copy of the report to the Captain for scheduling of repair.

- All SCBA shall be cleaned and sanitized after each use.

**PPE Inspection/Maintenance**

- PPE shall be inspected and cleaned at a minimum, biannually.

**Safe use and operation:**

Only members who pass the physical, psychological, fit test, and training requirements set forth by this SOG, NFPA 1404, 1500, 1582 and OSHA 29 CFR 1910.134 will be permitted to use respiratory protective equipment.
Hazardous atmosphere –

NFPA defines a hazardous atmosphere as any atmosphere that is oxygen deficient or that contains a toxic or disease producing contaminant. A hazardous atmosphere might or might not be immediately dangerous to life or health.

Dangerous gasses and chemicals such as but not limited to arsenic, benzene, formaldehyde, carbon monoxide (CO), hydrogen cyanide (HCN), hydrogen chloride (HCl), Nitrogen Dioxide (NO2), sulfur dioxide (SO2) and particulates will be present during active fire events and will most likely be present for an extended period of time after extinguishment. Currently members only have access to CO meters for air monitoring. The lack of CO is not sufficient evidence to determine the lack of other toxic gasses and particulates.

- Firefighters shall wear a self-contained breathing apparatus (SCBA) under the following conditions:
  - while engaged in interior structural firefighting;
    - From the initial fire attack through the completion of overhaul
  - while working in confined spaces where toxic products or an oxygen deficient atmosphere may be present; and
  - during fire or emergency situations involving toxic substances
- This does not include wildland firefighting

Donning SCBA –

Prior to donning any SCBA the user shall conduct a service use inspection to ensure the unit is in proper working order. (see Appendix B) If the unit does not pass any one of the checks it is not to be used and the driver/operator of the apparatus in which the SCBA is located on, shall be advised that the unit is out of service.

After completing the service use inspection the member will don the SCBA as described in the "Cottekill Volunteer Fire Company- Standard Operating Guidelines - Training: SCBA".

At no time will any member compromise the protective integrity of the SCBA for any reason when operating in a hazardous atmosphere, or in an atmosphere where the quality of air is unknown, by removing the facepiece or disconnecting any portion of the SCBA that would allow the ambient atmosphere to be breathed in.

Doffing of PPE and SCBA –

Members shall do a gross field decontamination of PPE, SCBA, and tools to remove as much soot and particulates as possible prior to leaving the scene.

- Use of a forestry line or garden hose can be used to rinse items
  - During cold weather operations use of a medium bristle brush is recommended to remove loose particles
- Members will remain on air through the gross decon phase.
  - Members conducting the decon shall be on air as well
- Members will wear medical exam gloves while doffing PPE.
- Contaminated PPE are not to be placed in the cab of any motor vehicle.
All contaminated gear will be placed in a plastic bag and then in a compartment or in the back of a pickup truck for transportation back to the firehouse. Plastic bags will be stored on all apparatus.

- Members will take their brush fire gear bag on the apparatus to all fires
  - Members who have entered or have been near an IDLH area shall at a minimum change into their brush boots for footwear. If remaining on scene for other duties not requiring re-entry to an IDLH area, members will don their brush gear for identification purposes.

Cleaning and storing of PPE –

Members are to clean all PPE (coat, pants, gloves, hood and helmet) immediately after a fire.

- PPE shall be washed with a soft bristle brush and soapy water with a mild detergent.
- Wet gear is to be hung in a well-ventilated area and not in direct sunlight.

PPE is to be stored in the provided lockers and is to be kept out of living areas.

- Members are not to wear or store gear in the meeting room, office, kitchen, or bathroom.
- Members are not to take contaminated clothes or PPE home or store it in their vehicle.

Cleaning Apparatus –

Members are to decontaminate the interior of fire apparatus after every fire.

- Wipe down all interior surfaces (Seats, seatbelts, steering wheel, doors, radio, dashboards etc) with Wet-Nap or baby wipes; sweep out and rinse floors with water.

Members are to wash any soot and/or particulates off the exterior of the apparatus after each fire. General road dirt can be washed off when convenient.

Refilling SCBA air cylinders –

Air cylinders shall be refill from an approved cascade system or filling station in accordance with NFPA 1404 Chapter 7, by properly trained personnel. The Cottakee Fire Company utilizes the High Falls Fire Company's cascade system as its primary filling station. The Stone Ridge Fire Company's filling station is a backup in the event the High Falls unit is out of service or inaccessible.

RIT Connections –

The RIT connection on the SCBA is for the refilling of cylinders in emergency situations only. An emergency situation is described as a firefighter down or a firefighter whose air capacity is at a dangerously low level that the firefighter may not be able to exit to a safe area before running out of air.

Personal Care:

Firefighters are at increased risk of cancer. Contamination from gear post-fire increases exposure to carcinogens through absorption and inhalation. Gross decontamination and
cleaning of turnout gear was previously discussed. What hasn’t been is what protection turnout gear provides and what it doesn’t provide.

Turnout gear is designed to provide limited thermal and liquid protection. It is not fire proof nor will it protect against corrosive liquid. It is also not air tight. Smoke carrying toxic chemicals and gasses will penetrate through certain areas of the gear. Evidence of this is the Smokey odor of hair and street clothing. These chemicals and gasses are then deposited on the firefighters skin which are then absorbed into the bloodstream. The following personal care steps should be taken to reduce further contamination of the firefighter, other members and the firefighters family.

- Use Wet-Nap or baby wipes to remove as much soot as possible from head, neck, jaw, throat, under arms and hands immediately and while still on the scene.
- Change your clothes and wash them immediately after a fire.
  - Members should keep a change of clothes at the firehouse
  - Plastic bags will be available at the firehouse
- Shower thoroughly after a fire.
- It is recommended that members live a healthy lifestyle by
  - Eating a diet rich in nutrient dense foods
  - Exercising
  - Not using/stop using tobacco products.
Appendix A

Monthly Service Check - Monthly inspections for SCBA will include the following operational checks:

- The cylinder pressure gauge reading shall be checked. Any air cylinder below 2216 psi. shall be refilled/topped off.
- The cylinder valve shall be turned on to check for leaks and to test the low air alarm(s).
- The high-pressure line shall be checked for cracks or damage.
- The harness and facepiece shall be checked for wear, and all straps will be checked for proper adjustment and damage.
- The SCBA shall be donned.
- The facepiece shall be donned and the facepiece-to-face seal shall be checked for leakage.
- The exhalation valve shall be checked for proper operation.
- The SCBA shall be placed into service and checked for normal operation.
- The bypass valve shall be opened slightly to ensure proper operation and then closed.
- The cylinder valve shall be shut, and breathing will take place until the low-air alarm(s) initiate and operates correctly.
- The SCBA valve will be returned to normal positions.
- The SCBA can be doffed.
- The harness straps and facepiece webbing are to be returned to their don positions.
- The facepiece and other associated equipment should be cleaned and sanitized, as needed.
- The SCBA shall be placed back into it's appropriate storage rack, ready for use.
Appendix B

Service Use Inspection – The before use inspection shall include the following checks:

- The cylinder pressure shall be checked to verify it is at 2216 psi.
- The low-air alarm & PASS shall be checked to verify they sound when the cylinder valve is opened.
- A correct facepiece-to-face seal shall be verified.
- The exhalation valve function shall be checked.
- The normal operation of the SCBA shall be checked.

After use inspection shall include:
- Replacing the air cylinder with a fully charged cylinder.
- Checking for defective or damaged components.
- Thorough cleaning of all SCBA components and sanitizing of the facepiece.
- Checking the SCBA for functional operation.