

# Healthy In, Healthy out

BEST PRACTICES FOR REDUCING FIRE FIGHTER  
RISK OF EXPOSURES TO CARCINOGENS

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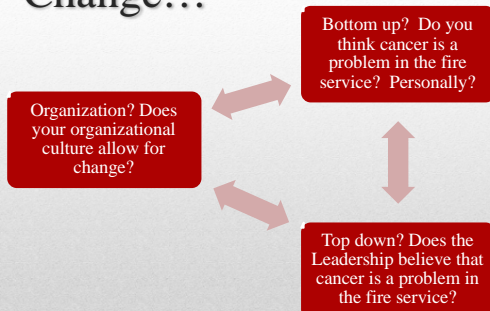
## Mission Statement

To encourage safe and healthy practices from first day to last day!  
**Healthy In, Healthy Out!**

cancer may never be eliminated, but steps must be taken NOW to reduce the number of fire fighters being diagnosed and dying every year.

These Best Practices include: equipment, guidelines, and common sense practices to reduce exposures.

## Change...



## IMS format:

**Finance:** identify funding sources, budget for implementation

**Command:** how the health/safety officer plays key role

**Planning:** how design and maintenance can improve safety

**Operations –**

**Emergency:** gross decontamination, rehabilitation, overhaul, transporting contaminated PPE

**Routine:** wellness, annual physicals, nutrition, documenting exposures

**Logistics:** housekeeping, cleaning PPE, hose and equipment

## Finance

Budget for both **big** and **small** items...

- Bags for transporting contaminated PPE
  - Retrofit for warm water wash stations
  - Disposable hand wipes
  - Station shoes
  - EMS gloves
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- Annual physicals & wellness/fitness
  - 2 sets of turnouts – or additional sets available
  - Extractors/professional cleaning – ISP
  - Diesel exhaust capture systems – available via AFG



## Command

### Accident Prevention Plan

Safety committee – both employees and employers

- identify root cause of event
- suggest action items to include:

Policy, procedure, training and/or operational changes to prevent future events

These are your working conditions....

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## Planning

### Fire Station Design

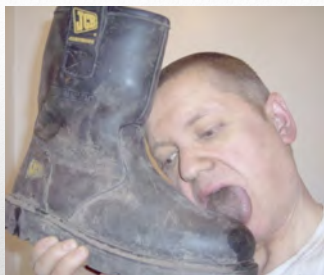
- Direct source diesel exhaust capture systems
  - Higher air pressure in living quarters than rest of the station
  - Turnouts in enclosed, ventilated room without ultraviolet light exposure
  - Install no carpet – use solid surfaces for flooring like polished concrete and tile
  - Install turnout extractors – designed to clean fire fighting gear.
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- **Red** zone – contaminated equipment, hose, SCBA, turnouts, EMS equipment from medical calls to be cleaned
- **Yellow** zone – typically apparatus bay – cleaned equipment can now be stored in app bay
- **Green** zone – living quarters. Kitchen, sleeping, offices.



“Keep it clean in the **Green**”

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Instead of work boots inside living quarters... station shoes!

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## Planning

Diesel exhaust has been classified by IARC as carcinogenic to humans (Group 1).

Use diesel exhaust capture systems!





## Apparatus Design



Separate the fire fighters from the contaminants:

- Put SCBA's in separate compartment
- Vinyl seats and Rubber matted floors
- Exhaust piping directed away from pump panel
- Provide storage for contaminated turnouts/equipment

## Operations: Emergency



- Conduct risk benefit analysis; limit personnel on-scene
- Units should stage uphill and upwind when possible
- Windows closed, air conditioner and heater off
- Turn off apparatus not integrally involved
- On-deck crews can be available, and not in smoke envelope
- SCBA shall be worn from initial attack throughout overhaul (structural, car fires and dumpster fires)

## Gross Decon

50' of booster/forestry/trash line or garden hose with a small adjustable nozzle.

- Put a cone 40 to 50 feet away from the engine in the direct path of the entry teams' exit.
- Crews decon each other – don't expose engineer to contaminants.



## warm water wash station

Washing with soap and water removes contaminants...

Fire mechanics took a 3/8" line off the heat exchanger (engine cooler) and ran it out to the pump panel.

In 2 minutes, they had a 5 gallon bucket of 98 degree water.

For ~ \$70 in parts, and a couple hours labor, every fire engine can be equipped with a warm water wash station.



## Rehab



- Change out contaminated hoods for clean ones at scene.
- Wash hands, face and neck before eating or drinking.
- Ensure personnel are hydrated, and monitored for heat/cold stress.
- All personnel in hazard zone – (pump operators) will also need to cycle thru rehab.

## Overhaul

- Conduct risk benefit analysis;
- Fire fighter safety **is** THE priority
- SCBA's worn throughout overhaul/investigation
- IC should release most contaminated crews first.

**First In - First out.**



## Transporting...

Transport your CONTAMINATED PPE back to fire station in bags. In the hosebed. Don't contaminate your seat. And not in your personal vehicle.



## Operations: Routine

### Wellness

- Use sunscreen
- Stop now and don't start tobacco use
- Physical Fitness
- Sleep
- Stress reduction



## Nutrition

- Eat whole foods, not processed
- Eat your vegetables
- Eat 3 meals a day with 2-3 snacks
- Avoid super caffeinated beverages
- Drink water!!



## Annual Physical

- Hands-on physical exam
- Blood analysis
- Urinalysis
- Vision tests
- Pulmonary
- Stress EKG
- Cancer screening
- Immunization/infectious disease
- Heavy metal screening

## Document Exposures

- Personal tracking record of exposures
- Take to your doctor during annual physical
- Does NOT take the place of reporting to your department for injury/illness

## LOGISTICS

- **Decontamination** – occurs @ scene, remove most of contaminants
- **Cleaning** – occurs @ fire station, uses cleaning products, abrasive actions & warm water rinses
- **Disinfecting** – can only happen after the object has been cleaned. Chemicals have a contact or dwell time required to “kill” microorganisms. Read the labels. Or use steam.



## It's up to you...

Knowledge is power....

Fire Fighters are problem solvers....

cancer is killing us....

Solve this one

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