

Exposure Prevention and Decontamination

Purpose:

To provide Lehi Fire Department policy and procedure regarding on scene decontamination of personal protective equipment (PPE) and skin following the exposure to the products of combustion. This policy extends to decontamination of the skin using the station decon shower if available.

Background:

On scene decontamination of PPE and skin is performed to remove contaminants following exposure to the products of combustion. On scene decontamination can reduce hazardous compounds entering the body through absorption, ingestion and inhalation. Showering as soon as possible after an incident can further reduce absorption of hazardous compounds.

Scope:

This instruction applies to all Department personnel involved in on scene emergency operations resulting in exposures to the products of combustion that can be removed using the prescribed procedures.

Incident response to the following provide an example, but not a complete list of incidents to which this procedure applies:

- Structure Fires
- Training Fires
- Hazmat Runs
- Vehicle Fires
- Wildland Fires
- Dumpster Fires

Other details where it is determined decontamination is needed.

Objective:

To provide on scene decontamination of PPE and skin to reduce the possibility of hazardous compounds found in the products of combustion from entering the body.

I. RESPONSIBILITY

- A. All uniformed personnel exposed to the products of combustion are responsible for ensuring they complete on scene decontamination as directed by the incident commander (IC) or his/her designee and after completing all operational assignments. This includes returning to the station for showers when directed by the IC.

B. Incident commanders are responsible for:

1. Determining when on scene decontamination is required.
2. Determine the level of firefighting decontamination appropriate for personnel.
3. Identifying exposure to hazardous materials and implementing procedures outlined.
4. Announcing the location of where decontamination will occur.
5. Developing a resource release schedule that limits out of service time while units return to quarters for personal showers.
6. Ensuring personnel are compliant with directive.

C. All officers are responsible for:

1. Monitoring their personnel for exposure to the products of combustion and ensuring decontamination of PPE and skin starts on scene.
2. Complying with the resource release schedule to limit out of service time as personnel return to quarters for showers.
3. Ensuring their unit is made available for responses as soon as feasible after personnel and equipment are clean.

D. All firefighters are responsible for the daily inspection, cleanliness, and working order of the PPE. PPE requiring cleaning or repair shall be cleaned according to Department procedure. Company Offices will monitor to ensure compliance.

E. A unit that is designated by the IC to perform decon is responsible for:

1. Identifying the location of on scene decontamination and informing the IC.
2. Preparing the on-scene decontamination area.
3. Performing on scene decontamination.
4. Preparing PPE doffing area.

II. Implementation

- A. Initiation of On Scene Decontamination. On scene decontamination of PPE shall be performed on incidents where personnel are exposed to the products of combustion and when the IC determines it is required.
- B. On Scene Decontamination Area. An on-scene decontamination area shall be upwind from the operational area at a distance where no additional exposure may be possible. The following items shall be positioned at this location:
1. Dry brush.
 2. Five-gallon bucket.
 3. Liquid soap/water mixture: three-ounce dish soap mixed with three gallons water.
 4. Plastic scrub brush.
 5. One inch hose line from apparatus with low flow fog nozzle or garden hose with spray nozzle.
 6. Large trash bags to bag contaminated turnouts.

7. Tyvek suits for extreme situations
8. Flip flops for extreme situations

C. On Scene Decontamination. On scene decontamination requires personnel being decontaminated to remain in full PPE with facepiece donned and breathing from the air bottle. Personnel performing decontamination shall be in appropriate PPE to support personnel in operational area; nitrile gloves, eye protection and N95 mask at minimum.

- Personnel should be assigned to on scene decontamination as assigned units. (Assignment by unit allows all personnel on the unit to be decontaminated together so they can be released to the station for showers as a unit.)
- On scene decontamination is a head to toe, and front and back, cleaning of the PPE that may consist of either of the following types as determined by the degree of exposure. The IC or his/her designee makes the determination:

Light Exposure – Exposure to dry products of combustion for a short duration.

- 1) Decontamination requirements - Dry brush used to remove dry contaminants and the use electric fan to blow away contaminants.

Moderate to Heavy Exposure - Exposure to interior firefighting or exterior operations while working in close proximity to the fire for longer durations.

- 1) Decontamination requirements - Water and soap mixture scrub followed with water spray rinse. See appendix for procedure.

D. Doffing PPE after Decontamination. PPE doffing shall take place next to the decontamination area and downwind but adjacent to the rehabilitation/medical treatment area. The following items shall be positioned at this location:

1. Impermeable gloves.
2. Sanitation wipes.
3. Respiratory protection masks.
4. Large plastic trash bags for PPE and trash (soiled sanitation wipes and disposable towels).
5. Towels for cleaning.

E. Cleaning of skin during Doffing of PPE. Personnel shall use Department approved sanitation wipes to remove contaminants on the skin during the doffing process.

F. Compliance with incident rehabilitation/medical treatment plan is required immediately after doffing of PPE is completed.

G. On Scene Doffing of Contaminated PPE. Personnel shall limit skin contact with PPE at the conclusion of decontamination by wearing impermeable gloves while removing PPE. Contaminated turnout coat, pants gloves, and hood should be placed in a plastic bag with the top secured and transported back to the station in a compartment where exposure is minimized.

H. Resource Release Schedule. Resources with exposed personnel shall be released in a systematic fashion so operational personnel remain on scene to complete incident objectives. Released resources shall remain assigned to the incident while en route to the station for showers. Resources shall go available as soon as feasible after exposed personnel have showered and placed clean PPEs on the apparatus.

I. Showering Following Exposure. On scene decontamination extends to showering at the station as soon as feasible following exposure to the products of combustion for a more thorough washing of the skin.

J. Engines, trucks and quints shall maintain items required for on scene decontamination and doffing of equipment as per this instruction.

K. Elements of this policy may not apply when emergency incidents require immediate engagement of personnel and equipment.

III. PROCEDURES APPENDIX A

A. Firefighting operations that result in exposure to products of combustion.

B. Determine the need for on scene decontamination in collaboration with rehabilitation/medical. IC shall:

1. Recognize hazard and determine on scene decontamination requirements (type, location, equipment and personnel resource needs).
2. Assign unit(s) to be responsible for on scene decontamination and provide direction on type of decontamination required for personnel.
3. Transmit decontamination expectations and location of on scene decontamination area on Command and Tactical radio channels.

C. Preparing on scene decontamination area.

1. Personnel assigned to on scene decontamination unit(s) shall locate and prepare the area upwind from the incident and downwind from the rehabilitation/medical treatment area.
Personnel decontaminating others shall don appropriate PPE as per policy.
2. Position dry brush for use.
3. Position 1" hose line charged to pump pressure with nozzle adjusted to medium flow and medium fog stream. Garden hose with spray nozzle can also be used.
4. Prepare soap water mixture of three-ounce dish soap with three gallons water in five gallon bucket with brush.

D. Personnel to be Decontaminated.

1. Enter decontamination area after completing all operational assignments and while in full PPE and breathing air from SCBA.
2. Close all PPE pockets and open storm flaps exposing zipper.
3. The individual being decontaminated stands upright with arms extended away from body at 90 degrees and feet shoulder width apart.
4. Perform decontamination as indicated by degree of exposure. Decontamination is head to toe and front and back.
 - a. Dry brush used for light exposure of dry contaminants. Begin at head and brush in a downward fashion until entire body has been brushed.
 - b. Water applied head to toe and front and back followed by soap applied with a scrub brush used for moderate to heavy exposures resulting from extended time in close proximity to the fire and smoke. Starting at the head, scrub with water soap mixture and work around the body to the feet. Rinse with water from hose line.

E. Doffing PPE.

1. Personnel shall move from the decontamination area to the designated doffing area.
2. Position firefighter near large plastic bag used for transporting all PPE. Place items in bag as removed.
3. Remove structure gloves. Place in plastic bag. Avoid skin contact with exterior of gloves
4. Use sanitation wipes to clean hands. Place soiled wipe in trash bag.
5. Dry hands with clean disposable towel.
6. Don impermeable gloves.
7. Remove all PPE beginning with the face-piece and SCBA and working toward the feet. Place helmet, hood, face piece, jacket and pants and turnout boots in plastic bag with gloves.
8. Seal plastic bag.
9. Remove impermeable gloves and place in trash bag.
10. Use sanitation wipes to clean skin areas susceptible to exposure of contaminants. These areas include but are not limited to: face, ears, neck, arms, wrists, and legs. Place soiled wipe in trash bag.

F. Follow incident rehabilitation/medical treatment requirements as directed.

G. Returning to quarters for showers as soon as operationally feasible.

Keep the cab of the apparatus as clean as practical and to avoid transferring toxins and harmful products back to the fire station, it is extremely important to perform gross decontamination prior to leaving the incident scene.

1. Personnel shall return to quarters in uniform.
2. Secure bagged PPEs in apparatus compartment or location where exposure is minimized.
3. Clean and return all equipment to operational readiness before showering.
4. Resource remains assigned to incident while en route to the station and until all exposed personnel have showered and clean PPEs are placed on apparatus. This shall be completed in an expeditious manner so the resource can be available for responses.

H. Resource in-service and available for responses.

1. Resource shall be made available for responses when company officer determines personnel and equipment are response ready.

I. Cleaning of contaminated PPE returned to the station.

1. Contaminated PPEs shall be cleaned following the Department approved process.

Gross Cleaning and Elimination of Possible Contaminants: Equipment

All fire equipment shall be cleaned before placing back on the fire apparatus which includes but not limited to the following items:

- SCBA
- SCBA Face piece using the proper cleaning agent All hand tools
- Nozzles Hose

While loading hose or equipment personnel should wear gloves, other than used structural firefighting gloves, to protect their hands from the products of combustion or being contaminated.

Steps for On Scene Gross Decon

According to current research completing on scene gross decontamination using a water and soap solution immediately upon exiting the fire ground has shown a median reduction of 85% of the fire ground contaminates from firefighter personal protections equipment

- When it is decided to start releasing personnel command will assign a decon group and location.
- Decon area will be marked off with cones. Decon bucket will be retrieved. The booster line or the reducer and hose will be hooked to the supplying engine. The bucket will be filled with water and soap added to the water.

- Crews will exit fire ground to the decon area remaining on air.
- Firefighter that is the lowest on air will go first.
- Starting with the helmet and working down, the firefighter will be sprayed and brushed off.
- After gross decon firefighter will move to the side and doff turnouts leaving gloves on as long and you can. After gloves are removed, medical gloves will be put on for the remainder on the doffing.
- Turnouts will be placed in a bag in the following order; gloves coat with the liner in, boots and pants with the helmet on the side.
- Bag will be twisted shut and taped.
- Bag will be returned to the station outside the cab.
- Bag will be opened outside the station with everything removed and allowed to off gas.
- Shells and liners will be washed separately with gloves washed separately

Decon Kit

- 5 Gallon Bucket with Lid
- Liquid Soap
- Soft Bristle Brush
- 2 ½" to 1" Reducer
- 1" Hose 50' for Tower
- Sprayer for Tower
- Plastic Garbage sacks
- Tape

A large, semi-transparent watermark of the Lehi Fire Department logo is centered on the page. The logo is a shield-shaped emblem with a red border. At the top, the words "LEHI FIRE" are written in large, white, bold, sans-serif capital letters. Below this, a white banner with a scalloped edge contains the text "EST 1901" in black. The central part of the shield features a circular emblem with a red background, depicting a fire station with a ladder leaning against it and a fire hydrant. To the right of the circle is a blue Star of Life medical symbol. At the bottom, another white banner contains the word "UTAH" in black capital letters. The background of the shield is a light blue color.