

## Incident Rehabilitation Standard

**Scope:**

Pertains to all members of all Seneca County Fire and EMS emergency service providers. These procedures do not eliminate the reasonability of training and the safety of their members by the individual providers of emergency services in Seneca County. Shall apply to all emergency operations and training exercises where strenuous physical activity or exposure to heat or cold exists and may be a factor to the health and welfare of firefighters

**Purpose:**

To insure that the physical and mental condition of emergency service providers who are operating at an emergency incident or training exercise do not deteriorate to the point that it affects the safety of each member or jeopardize the safety and integrity of the operation. Defines the minimum expectations of Emergency Incident Rehabilitation in Seneca County.

**Rehab Process:**

NFPA 1584 defines eight key objectives and parameters:

- Relief from climate conditions
- Rest and recovery
- Active and/or passive cooling or warming, as needed
- Rehydration
- Calorie and electrolyte replacement for longer incidents
- Medical monitoring
- Member accountability
- Release to return to duty.

**Terminology:**

**Accountability:** The process of emergency responders checking into and making themselves announced as being on-scene during an incident to an incident commander or accountability officer. Tag, 'passport', or other system for identification and tracking of personnel at an incident, especially those entering and leaving an IDLH area; intended to permit rapid determination of who may be at risk or lost during sudden changes at the scene

**Authority Having Jurisdiction (Lead Agency)** (or AHJ): organization or agency with legal authority over a given type of incident (e.g., fire, EMS, SAR, arson, HAZMAT); may change or overlap as incident changes,

**Cold Zone:** The area designated by Command for the Command Post and other support activities such as technical support, staging, rehab, etc.

**Company:** two or more firefighters organized as a team, led by a fire officer, and equipped to perform certain operational functions.

**Dispatch:** Refers to Seneca County Fire Control

**EMS:** Emergency medical service(s).

**Freelancing:** dangerous situation at an incident where an individual carries out tasks alone or without being assigned; violation of personnel accountability procedures.

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**HAZMAT:** Hazardous materials, including solids, liquids, or gases that may cause injury, death, or damage if released or triggered.

**Hot Zone:** An area designated by Command, which surrounds the emergency for a distance in which personnel are in immediate danger.

**Incident Commander:** The officer in charge of all activities at an incident.

**Incident Safety Officer:** The officer in charge of scene safety at an incident.

**Incident Rehab Officer:** The officer in charge of the rehabilitation sector

**Member:** - Any person(s) from an emergency service provider

**Rehabilitation:** The process of providing rest, re-hydration, nourishment, and medical evaluation to members who are involved in extended or extreme incident scene operations.

**Rehab, Rehabilitation sector:** An area for physical and mental recuperation at a fire scene, equipped with beverages, and chairs, isolated from environmental extremes (cold, heat, noise, smoke). This rest area enables emergency service personnel to relax, cool off (or warm up) and regain hydration by way of preventing injury.

**Rehab Ambulance** – dedicated unit assigned to the Rehab Sector equipped to provide emergency transportation to fire ground personnel. (ALS equipped).

**Rehab Ambulance Crew** – EMS personnel (ALS level preferred) dedicated to the Rehab Ambulance. They may assist with the rehabilitation but they are not the primary EMS staffing for the rehab center.

**Rate of Perceived Exertion (RPE):** A scale created to determine the intensity level of an individual's exertion. Numeric values are assigned according to the individual's fatigue, environment, muscle factors, etc.

**Self-Rehabilitation Areas:** Multiple locations for self-fluid replacement should be established, based on size and type of incident. Departments should ensure that fluids are available on all apparatus so that members can replace fluids during operations. Does not replace the formal rehabilitation process when implemented.

**RESPONSIBILITIES:**

a. Incident Commander

The Incident Commander in conjunction with the Safety Officer shall consider the circumstances of each incident and make adequate provisions early in the incident for the rest and rehabilitation for all members operating at the scene. These provisions shall include: medical evaluation, treatment and monitoring; food and fluid replenishment; mental rest; and relief from extreme climatic conditions and the other environmental parameters of the incident. The rehabilitation shall include the provision of Emergency Medical Services (EMS) at the Basic Life Support (BLS) level or higher. The Incident Commander in conjunction with the Safety Officer shall establish a Rehabilitation Sector and appoint Rehabilitation Officer. The Rehabilitation Officer shall report to Safety Officer. EMS personnel must be on scene and available to provide treatment to fire ground personnel at a moment's notice

b. Company Officers

All officers shall maintain an awareness of the condition of each member operating within their span of control and ensure that adequate steps are taken to provide for each member's safety and health. The

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command structure shall be utilized to request relief and the reassignment of fatigued crews. Because Officers work side by side with the fire ground personal, they play an important role in Rehab. The safety of the fire ground rests here, at the supervisor level. If a company member shows signs of fatigue or illness, the company officer will likely be the first to recognize the problem

## c. Personnel

During periods of hot weather, members shall be encouraged to drink water and activity beverages throughout the work day. During any emergency incident or training evolution, all members shall advise their supervisor when they believe that their level of fatigue or exposure to heat or cold is approaching a level that could affect themselves, their crew, or the operation in which they are involved. Members shall also remain aware of the health and safety of other members of their crew. Any member is encouraged to report to the Rehab Sector at any time that he or she feels the need to do so. Symptoms may include weakness, dizziness, chest pain, muscle cramps, nausea, altered mental status, difficulty breathing, and others.

Regardless of physical well being, all fire ground personnel should report to the Rehab Sector immediately following:

- (a) Strenuous Activity – Forcible Entry, Advancing Hose lines, Ventilation, etc.
- (b) The use and depletion of two SCBA bottles @ Thirty (30) minutes of operation within a hazardous/dangerous environment
- (d) Failure of SCBA

***Note: No personnel should enter the warm or hot zone of a declared Hazardous Materials Incident unless the Rehabilitation and Treatment areas have been established and staffed according to the policies and procedures of the respective Hazardous Materials Team which includes an ALS transporting ambulance dedicated to the Hazardous Materials Team.***

REHABILITATION OFFICER

1. Assume the radio designation of Rehab Officer
2. When selecting a location to conduct rehab operations, the following should be considered;
  - a. Large enough to accommodate the number of personnel expected to use the rehab, as well as those expected to work rehab.
  - b. Offer an area for firefighter to remove PPE and SCBA
  - c. Area should be accessible for the Ambulance & EMS personnel
  - d. Area should be Upwind and away from the IDLH area, and apparatus exhaust fumes.
  - e. An area that will provide natural shade, natural wind break is determined to be needed.
  - f. Area should have access to a water supply (bottled or running) to provide for hydrations and active cooling.
  - g. Area should be secluded from spectators and media, area should be marked off when not able to be secluded.
3. Acquire the needed resources for quality rehab operations, which may include the following
  - a. Potable drinking water for hydration
  - b. Sports drinks (to replace electrolytes & calories) for long duration incidents (working for more than one hour).
  - c. Resources needed to conduct Active Cooling
  - d. Medical monitoring equipment (chairs, B/P cuffs, stethoscopes, tracking sheets, etc)
  - e. Food when required, and a means to wash/sanitize hands and face prior to eating
    - i. Food should be considered in operations longer than two hours
    - ii. Food should be considered during operations that occur during a normal meal time that may have prohibited personnel from eating.
    - iii. Food should be considered during incidents of severe cold, as additional calories will be needed to maintain body temperatures.
  - f. Dry blankets, towels, clothing for cold winter months
  - g. Washroom/Bathroom facilities when incident involves multiple operational periods

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4. Ensure personnel in rehab “dress down” by removing their SCBA, Bunker Coats, Helmets, Hoods, and opening their Bunker Pants to promote cooling. Ambient temperature must be considered before requiring personnel to “dress down”
5. Track personnel time in rehab to ensure they receive at least 10 to 20 minutes of rest.
6. Ensure personnel rehydrate themselves, (min. of 16 ozs./ max. of 32 ozs.)
7. When needed, ensure personnel are provided with the means to be actively cooled.
8. Maintain accountability of personnel assigned to rehab, and remain within the rehab operations area for the duration of the incident.
9. In addition to tracking time in/out of personnel, a log should be maintained of all personnel to include Name, and affiliated department.
10. Inform the Incident Commander, and Safety Officer of a member that requires additional medical attention off the site of the incident.
11. All EMS personnel and resources will work out of the rehab group, with the Rehab Officer acting as the liaison between EMS and the Incident Commander.

EMS PERSONNEL

1. Report to the Incident Commander, or the Rehab Officer if already designated to obtain requirements for the rehab area.
2. Identify the EMS staffing levels needed, and request additional resources through the rehab officer.
3. Check vital signs, monitor for heat/cold stress, and signs of other medical issues
  - a. Heart rate –
    - i. Before leaving the rehab area, a firefighter’s heart rate must be under 100 beats per minute.
    - ii. Firefighters with heart rate above 100 beats per minute after 20 minutes of rehab, may be released from any further duty for the remainder of the operational period.
  - b. Respiratory rate –
    - i. Before leaving the rehab area, a firefighter’s respiratory rate must be within normal range of 12-20 respirations per minute.
  - c. Blood Pressure –
    - i. If a baseline blood pressure is not already known by EMS for individual firefighters, then EMS will ask firefighter if they know their normal blood pressure before taking the initial blood pressure in the rehab area .
    - ii. Firefighters with a systolic pressure greater than 160 and/or a diastolic pressure greater than 100, may be released from any further duty for the remainder of the operational period.
  - d. Pulse Oximetry –
    - i. Readings of less than 95 will result in the firefighter to receive oxygen and be monitored until SpO2 improves to 95 or above.
    - ii. Most oximeters are unable to differentiate between oxyhemoglobin, and carboxyhemoglobin (blood cells saturated with oxygen versus carbon monoxide). Pulse Oximeters should not be the only basis to determine hypoxia.
4. Document medical monitoring.
  - a. A universal rehab sheet may be used to track personnel, department affiliations, time in/out, and rehab staff that assisted personnel. If personnel return to duty with a reasonable time frame no additional documentation is needed.
  - b. A Pre-Hospital Care Report (PCR) should be filled when;
    - i. Any personnel that have been retained in rehab an extended period of time do to vital signs not within normal parameters.
    - ii. When personnel seeks treatment for an injury that requires more attention the basic first aide.
    - iii. Anytime EMS deems appropriate that personnel be transported to a medical center for further treatment and/or evaluation, and the wishes of the personnel are to refuse further treatment.

On all of the above criteria the personnel treated will be required to sign a release acknowledging that they have been informed of their risk of not seeking additional medical treatment. The release on the reverse side of a PCR will be appropriate.

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5. Provide emergency medical care and transport to medical facilities as required
6. Inform the Rehab Officer (or Incident Commander if no Rehab Officer is assigned) when personnel require transportation to and treatment at a medical facility.
7. Inform the Rehab Officer (or Incident Commander if no Rehab Officer is assigned) when personnel require transport to and treatment at a medical facility, and the personnel is refusing any additional medical treatment.

**ESTABLISHMENT OF REHABILITATION SECTOR:**

## a. Location

The Rehab Officer conjunction with the Safety Officer shall select an appropriate location based on the site characteristics and designations below. The IC shall be notified of the site location and as soon as it is operational.

## b. Site Characteristics

1. It should be in a location that will provide physical rest by allowing the body to recuperate from the demands and hazards of the emergency operation or training evolution.
2. It should be far enough away from the scene that members may safely remove their turnout gear and SCBA and be afforded mental rest from the stress and pressure of the emergency operation or training evolution.
3. It should provide suitable protection from the prevailing environmental conditions. During hot weather, it should be in a cool, shaded area. During cold weather, it should be in a warm, dry area.
4. It should enable members to be free of exhaust fumes from apparatus, vehicles, or equipment (including those involved)
5. It should be large enough to accommodate multiple crews, based on the size of the incident.
6. It should be easily accessible by EMS units.
7. It should allow prompt reentry back into the emergency operation upon complete recuperation.
8. The location needs to be able to provide personal privacy for the members, at no time should non-emergency personal be allowed into the area, i.e. press, spectators, etc.

## d. Site Designations

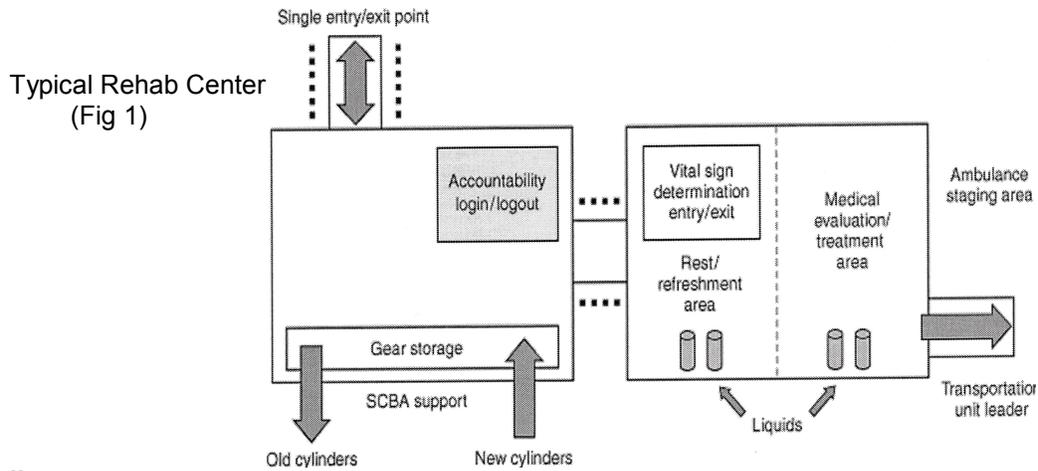
1. A nearby garage, building lobby, or other structure.
2. A school bus, municipal bus
3. Fire apparatus, ambulance, or other emergency vehicles at the scene or called to the scene.
4. An open area in which a Rehab Area can be created using tarps, fans, etc.

## e. Resources

The Rehab Officer shall secure all necessary resources required to adequately staff and supply the Rehabilitation Area. The supplies should include the items listed below:

1. Fluids - water, activity beverage, oral electrolyte solutions and ice.
2. Food - soup, broth, or stew in hot/cold cups.
3. Other - awnings, fans, tarps, smoke ejectors, heaters, dry clothing, extra equipment, floodlights, blankets and towels, traffic cones and fire line tape (to identify the entrance and exit of the Rehabilitation Area).

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f. Staffing:

Anyone can assist with REHAB operations. There is no prerequisite of training required to provide assistance with the Rehab program. However a minimum of two trained EMS personnel should initially be assigned to monitor and assist firefighters in the Rehab Sector. Utilize auxiliary and other members to assist EMS personnel. The incident itself will determine staffing requirements.

g. Accountability.

Members reporting to the Rehab Sector / Group should enter and exit the Area as a team. Their company designation, number of personnel, and the times of entry to and exit from the Rehab Area should be documented. This can be done either by the Rehab Officer or his / her designee on a Company Check-In / Out Sheet. Keep crews together, and don't allow overanxious members to freelance the event

**NOTE: UNLESS A MEMBER IS TRANSPORTED BY AMBULANCE, ALL ARE TO ENTER AND EXIT THE REHAB CENTER THROUGH THE SINGLE ENTRY/EXIT POINT.**

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**GUIDELINES**

a. Rehabilitation Sector/Group Establishment.

Rehabilitation should be considered by staff officers during the initial planning stages of an emergency response. However, the climatic or environmental conditions of the emergency scene should not be the sole justification for establishing a Rehabilitation Area. Any activity/incident that is large in size, long in duration, and/or labor intensive will rapidly deplete the energy and strength of personnel and therefore merits consideration for rehabilitation.

Climatic or environmental conditions that indicate the need to establish a Rehabilitation Area are a heat stress index above 90 F or wind-chill index below 10 F

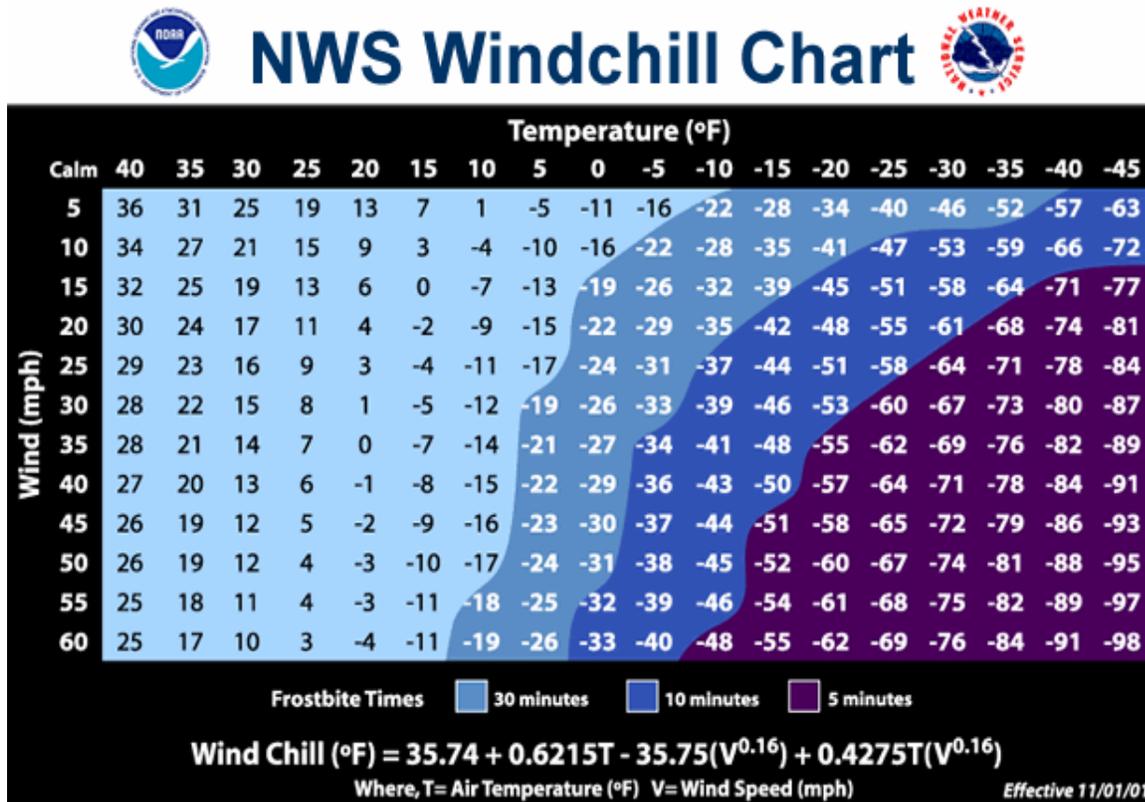


Fig 2

**COLD WEATHER INSTRUCTIONS:**

1. Determine the wind chill by entering the chart with current temperature and wind speed.
2. Work times should not exceed the indicated frostbite times indicated by the various color coded zones.

Example: Determine the maximum recommended work time in an environment where the wind speed is 10 mph and the temperature is -10°F.

Solution: For these conditions the wind chill is -28. This falls into the medium blue colored zone on the chart, which has a frostbite time of 30 minutes. Therefore, the recommended work time is 30 minutes.

**CAUTION: Exposed flesh may freeze in 30 seconds at wind chills of -75 or less. Work is not recommended under these conditions without adequate temperature protection.**

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**WARNING: Flesh may freeze if exposed at wind chills between -25 and -75. Work in these conditions requires proper temperature protection**

Wind Chill Work Recommendations:

30 to 0 = Wind chills in this range may cause discomfort but should not restrict active healthy responders from performing duties with normal turnout gear.

0 to -30 = Wind chills in this range may cause frostbite in flesh exposed for extended time periods. Cold weather gear should be worn. Caution personnel to be alert for any indications of frostbite. -30 or less = Refer to the Windchill Chart for recommended work times, which may be the limiting factor for recommended work time.

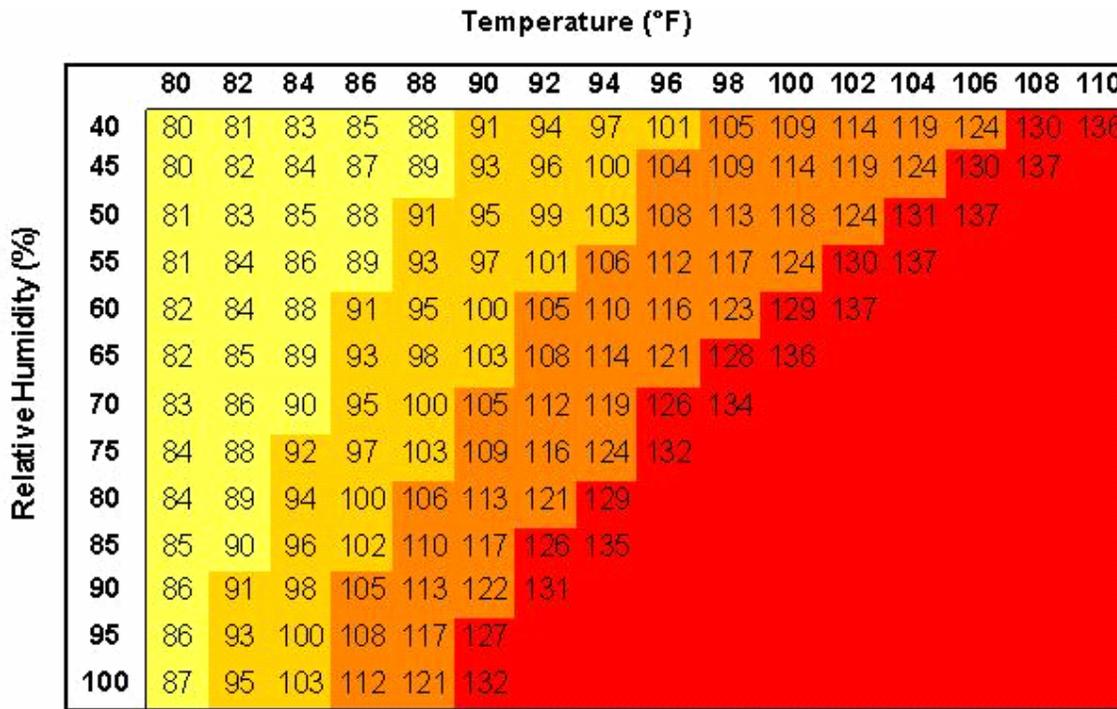


Fig 3

**HOT WEATHER INSTRUCTIONS:**

1. Determine heat index by entering the Heat Index Chart with current Temperature (Degrees Fahrenheit) and Relative Humidity (%). NOTE: Add 10°F when protective clothing is worn and an additional 10°F when working in direct sunlight.
2. Review Potential Threat for the working Heat Index and adjust work cycles accordingly.  
 Example: Determine work impact when working directly in sunlight in full turnout gear with a temperature of 82°F and a relative humidity of 40%. Solution: Add a total of 20° and enter the chart with 102°F and 40% humidity. The result is a heat index of 114. This falls within the "Danger" zone which indicates **"SUNSTROKE, HEAT CRAMPS OR HEAT EXHAUSTION LIKELY, AND HEATSTROKE POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY."**

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**NOAA's National Weather Service Heat Index****POTENTIAL HEAT STRESS THREAT****Extreme Danger (130° OR >) HEATSTROKE/SUNSTROKE HIGHLY LIKELY WITH CONTINUED EXPOSURE****Danger – (105° - 130°) SUNSTROKE, HEAT CRAMPS OR HEAT EXHAUSTION LIKELY, AND****HEATSTROKE POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY****Extreme Caution – (90° - 105°) SUNSTROKE, HEAT CRAMPS AND HEAT EXHAUSTION POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY****Caution (80° - 90°) FATIGUE POSSIBLE W/ PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY***Information adopted from NOAA Publication, "Heat Wave, A Major Summer Killer".*

## b. Hydration

A critical factor in the prevention of heat injury is the maintenance of water and electrolytes. Water must be replaced during exercise periods and at emergency incidents. During heat stress, the member should consume at least one quart of water per hour. The rehydration solution should be a 50/50 mixture of water and a commercially prepared activity beverage and administered at about 40 F. Rehydration is important even during cold weather operations where, despite the outside temperature, heat stress may occur during firefighting or other strenuous activity when protective equipment is worn. Alcohol and caffeine beverages should be avoided before and during heat stress because both interfere with the body's water conservation mechanisms. Carbonated beverages should also be avoided.

## c. Nourishment

The department shall provide food at the scene of an extended incident when units are engaged for three or more hours. A cup of soup, broth, or stew is highly recommended because it is digested much faster than sandwiches and fast food products. In addition, foods such as apples, oranges, and bananas provide supplemental forms of energy replacement. Fatty and/or salty foods should be avoided.

## d. Rest

The "two air bottle rule," or 45 minutes of work time, is recommended as an acceptable level prior to mandatory rehabilitation. Members shall rehydrate (at least eight ounces) while SCBA cylinders are being changed. Firefighters having worked for two full 30-minute rated bottles, or 45 minutes, shall be immediately placed in the Rehabilitation Area for rest and evaluation. In all cases, the objective evaluation of a member's fatigue level shall be the criteria for rehab time. Rest shall not be less than ten minutes and may exceed an hour as determined by the Rehab Officer. Fresh crews, or crews released from the Rehabilitation Sector/Group, shall be available in the Staging Area to ensure that fatigued members are not required to return to duty before they are rested, evaluated, and released by the Rehab Officer.

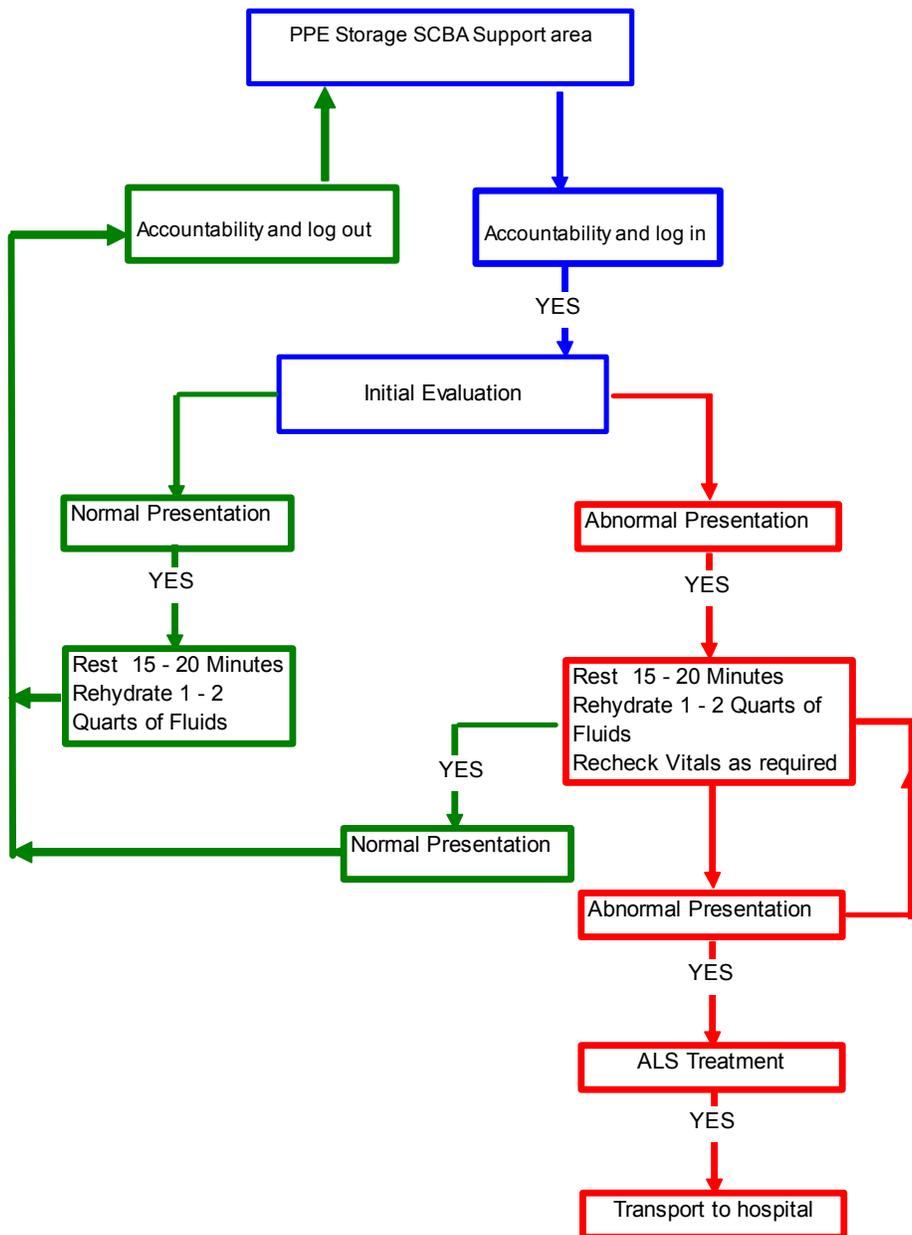
## e. Recovery

Members in the Rehabilitation Area should maintain a high level of hydration. Members should not be moved from a hot environment directly into an air conditioned area because the body's cooling system can shut down in response to the external cooling. An air conditioned environment is acceptable after a cool-down period at ambient temperature with sufficient air movement. Certain drugs impair the body's ability to sweat and extreme caution must be exercised if the member has taken antihistamines, such as Actifed or Benadryl, or has taken diuretics or stimulants.

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Re-Hab Flow Chart

1. Responders should be detailed to the Rehabilitation Area by the Incident Commander or their designee after every 45 minutes of continuous hard labor, one 45 minute or 60 minute rated SCBA cylinder, two, thirty minute rated SCBA cylinders, or after being decontaminated. The Incident Commander or Incident Safety Officer may direct personnel to the Rehabilitation Area at any time for reasons not mentioned above.
2. All responders must be decontaminated (if necessary) and remove personal protective equipment prior to entering the Rehabilitation Area.
3. All responders must follow the accountability system when entering/departing the Rehabilitation and/or Treatment Areas.
4. Upon entering the Rehabilitation Area, the responder is expected to do the following:
  - a. Drink at least 16 ounces of fluid (water first, then half-strength electrolyte solution).
  - b. No tobacco use in the Rehabilitation or Treatment Areas.



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**Documentation;**

1. All responders entering the Rehabilitation Area should have their name, vital signs, and disposition recorded on the Rehabilitation Log (Attached). This Log should be attached and stored with the stand-by PCR associated with the incident and a copy given to the responder's home department Incident Safety Officer.
2. A separate PCR must be completed for any responder referred to the Treatment Area, regardless of whether the responder was transported by EMS. Should the responder not wish transport, a Refusal Form must be completed and the individual(s) responsible for scene safety, accountability and/or command shall be notified.

**Abnormal Vital Signs;**

Pulse >110 beats per minute  
Respirations > 20 per minute  
Systolic BP >160  
Diastolic BP >100  
SPO2 <96% in ambient air  
Pulse Co-oximetry >5% (if measured)

Every responder will have vital signs assessed to include Pulse, Respiratory Rate, Blood Pressure, and Pulse-Oximetry over a thirty-second period and recorded on the Incident Rehabilitation Log. Use of pulse cooximetry is optional, but encouraged.

**Potentially Life Threatening Issues;**

Chest Pain or Short of Breath  
Altered mental status (confusion, seizures, dizziness, etc.)  
Irregular pulse

**Returning to Service;**

**No responder may return to manpower/staging unless they fulfill the following:**

- a. No symptoms of dizziness, weakness, nausea, headache, cramps, aches or pain, changes in gait, speech or behavior, and symptoms of heat or cold-related stress.
- b. Pulse  $\leq$ 110 per minute
- c. Respirations  $\leq$ 20 per minute
- d. Systolic Blood Pressure  $\leq$ 160
- e. Diastolic Blood Pressure  $\leq$ 100
- f. Pulse oximetry  $\geq$ 96% in ambient air
- g. Pulse co-oximetry  $\leq$ 5% (if measured)

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**Resources:**

NFPA 1561, Standard on Fire Department Incident Management System

FA-114, Emergency Incident Rehabilitation\* Emergency Incident Rehabilitation (FEMA)

NFPA 1521: Standard for Fire Department Safety Officer

NFPA 1584: Recommended Practice on the Rehabilitation of Members Operating at Incident Scene Operations and Training Exercises

USC §654(a) (1): OSHA General Duty Clause

29 CFR § 1910.156: Fire Brigades (OSHA)

NFPA 1500: Standard on Fire Department Occupational Safety and Health Program

Canandaigua Fire Department (uses FA-114)

Gorham Fire Department (NH)

*"Rehabilitation Standards, traps and Tools"* Fire Engineering may 2004

Cool Draft Scientific, Bellaire • OH • 43906

Monroe-Livingston Regional EMS Council

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Rehabilitation Area - Medical Evaluation Form - Seneca County

Incident \_\_\_\_\_ Date \_\_\_\_\_ Agency \_\_\_\_\_

Responders Name	Time Recorded	GCS	Eye	BP	Pulse	Resp	Lungs	Comments	Recorded By
Time in				/					
Time out				/					
Treatment				/					
Time in				/					
Time out				/					
Treatment				/					
Time in				/					
Time out				/					
Treatment				/					