



## Section 100 – Incident Command/Management

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### 100.3.17 Incident Scene Rehabilitation: (Rehab)

#### 100.3.17.1 General:

No member will be permitted to continue emergency operations beyond safe levels of physical or mental endurance. The intent of rehab is to lessen the risk of injury that may result from extended field operations under adverse conditions. Rehab is implemented during hot or cold environmental temperature extremes, but may be used anytime at the direction of the IC.

#### 100.3.17.2 Work-to-Rest Ratio:

The basic work-to-rest ratios are listed below. These ratios are considered minimum guidelines and can be adjusted for incident conditions.

- |       |   |
|-------|---|
| Work: | After:  |
|       | <ul style="list-style-type: none"><li>• One 30-minute SCBA cylinder</li><li>• 20 minutes of intense work without SCBA</li></ul>   |
| Rest: | 10 minutes of self-rehabilitation (rest with hydration)   |
| Work: | After:  |
|       | <ul style="list-style-type: none"><li>• Two 30-minute SCBA cylinders</li><li>• One 45/60-minute SCBA cylinder when encapsulating chemical protective clothing is worn</li><li>• 40 Minutes of intense work without SCBA</li></ul> |
| Rest: | 20 minutes of rest (with hydration) in a rehabilitation area  |

#### 100.3.17.3 Ongoing Hydration: (Water)

Minimum of 2-4 oz. of water for every:

- 20 minutes during any type of firefighting
- 20 minutes during major medical or mass casualty incidents
- 15-30 minutes during Hazmat/special operations

#### 100.3.17.4 Long Term Incident Hydration: (Diluted Sports Drink)

When the on-scene time exceeds two hours, members will be provided with sports drink diluted to half strength with water in place of water at the intervals indicated above.



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### 100.3.17.5 Rehab Levels and Functions:

#### 100.3.17.5.1 Self-Rehabilitation (Company/Crew Level Rehabilitation):

Self-rehabilitation occurs after short duration incidents and/or between trips to the Rehab Area. Company officers should ensure that fluids are available on their apparatus so that members can replace fluids (while changing SCBA cylinders, taking short breaks, etc.).

#### 100.3.17.5.2 Formal Rehab (Rehab Group):

The Rehab group will be used to evaluate and assist personnel who could be suffering from the effects of sustained physical or mental exertion during emergency operations.

The rehab group provides a specific area where personnel will assemble to receive:

- A physical assessment
- Rest, hydration, and refreshments
- Medical evaluation and treatment of minor injuries
- Continual monitoring of physical condition
- Transportation for those requiring treatment at medical facilities
- Initial stress support assessment
- Reassignment

#### 100.3.17.5.2.1 Rehab Group Resources and Capabilities:

When the IC implements the Rehab Group, the group supervisor should utilize any of the following resources that he/she deems appropriate:

- EMSA
- TFD Apparatus with Rehab Equipment
  - "? Air & Light Units
  - "? Hazmat
  - "? TFD Bus
- TFD Training Staff: The TFD Training Center maintains a cache of towels, buckets, and sports drink for Rehab. Additionally, the staff can bring the TFD Bus.
- TFD EMS Staff
- TFD ALS Capabilities
- TFD Fitness Staff
- MTTA Bus
- Any other resource necessary



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The IC has the discretion to assign an appropriate person to the position of Rehab Group Supervisor. When assigning this position, the IC should consider the following personnel:

- TFD EMS Officer
- TFD Training Officer
- TFD Exercise Physiologist
- TFD Chief Officer or Company Officer
- EMSA Supervisor

### 100.3.17.5.2.2 Check-In Point:

This is the initial entry point. Rehab staff will take a pulse rate on all crew members.

- Any member who has a pulse rate greater than 120 will report directly to medical rehab. These members will be treated by advanced life support personnel in accordance with EMS protocols.
- All other members will report to the hydration and replenishment area.

### 100.3.17.5.2.3 Hydration and Replenishment Area:

During warm weather conditions, all personnel will remove coats, helmets, gloves, and protective hoods. Turnout pants should be removed or at least rolled down over the boots. Fluid and electrolyte replacement will be provided.

The following requirements pertain to the physical area used for Rehab:

- A key concept to abide by when establishing a Rehab Area is to set it up as close as safely possible to where firefighters are working.
- During hot temperature extremes, avoid placing personnel directly in an air conditioned environment. Provide a shaded area with air movement. Air and Light Units and Hazmat have canopies, fans and misters for this purpose. Hazmat also has tent capabilities. Rehab supervisors may also be able to secure areas that are close to the incident.



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The following other requirements pertain to personnel assigned to the hydration and replenishment area:

- All personnel should spend a minimum of 20 minutes resting in this area.
- Personnel should consume a minimum of 10 ounces of water or other approved beverages while in this area.
- Personnel should place their arms into cool (not cold) water as they are resting (See Rehab Group Resources).
- Smoking is not permitted in this area.

### 100.3.17.5.2.4 Medical Rehab and Transport Area:

This Section is staffed by an ALS crew and at least one EMS transport vehicle. Personnel reporting here will receive evaluation and treatment per EMS protocols. The ALS crew in this area will pay close attention to the following:

- Pulse
- Pulse-ox
- Respiratory rate
- Blood pressure
- Body temperature
- Obvious injuries or illness

Any firefighters who receive IV fluids are considered to be in medical rehab and fall under EMS protocols. Additionally, those receiving IV fluids will be taken to the appropriate medical facility to obtain laboratory blood testing to ensure appropriate levels of hydration, electrolytes, and renal function.

### 100.3.17.5.2.5 Reassignment Area:

After the prescribed rehabilitation (minimum of 20 minutes for an initial cool down and evaluation period) members will be re-evaluated. Upon evaluation, the members will be triaged into one of the following groups:

- Return to duty - adequately rehabbed and medically sound.
- Remove from duty - evidence of an illness or injury; including any person with a pulse rate greater than 100.
- Transported to an appropriate medical facility for further evaluation and treatment of illness or injury; including any member who has a temperature greater than 101 °F (38 °C) or a blood pressure less than 100 (systolic).

Members who are transported to a medical facility should be accompanied by a department representative.



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Crews authorized to return to duty will be released as intact crews and report to the Reassignment Area.

The rehab group supervisor will update the IC throughout the operation with pertinent information including the identities of companies in Rehab, the companies available for reassignment, and the status of injured personnel.

Company officers must keep crews intact and report to the proper sections in Rehab. The rehab group supervisor will direct the crew to the proper areas; however, it is the company officer's responsibility to make sure crew members receive refreshments, rest, and a medical clearance.



# REHABILITATION

## ARM & HAND IMMERSION IN TAP WATER

A simple, safe and controlled method to reduce heat stress is hand and arm immersion into containers of standard tap water. Buckets for this procedure will be stored on Engines and specialized apparatus or staff positions.



### STEP 1

Remove the helmet, bunker coat, hood, pants and boots when checked into Rehabilitation. The helmet, coat and hood tend to be naturally removed. Direction usually needs to be given to remove the pants and boots. The removal of all gear is essential to obtain the desired cooling.

Fill two buckets with tap water obtained from a garden hose, hose line from fire apparatus or connection to a fire hydrant. NOTE: If water is acquired through a fire pump, make certain that it has not been heated from the churn action of the fire pump.



DO NOT  
ADD ICE  
TO THE  
BUCKETS.



### STEP 2

Seat the person onto a bench type surface such as the tailboard of the apparatus or curb of the street. Position the buckets on either side of the person at the same elevation as the object used as a seat. Instruct the person to place both hands and arms into the water with the hands touching the bottom of the bucket. Ideally, the person should spread his/her fingers apart to maximize the exchange of heat.



### STEP 3

The immersion process should be conducted for ten to twenty minutes. A similar process may be conducted with the feet for additional control of severe cases.

Continuously monitor the medical condition of the person and frequently record vital signs. Provide medical care as needed.

Also provide cool water or partial strength sports drinks. Do not provide hot or cold beverages and avoid all fluids that contain caffeine.

## OPS/006 INCIDENT REHABILITATION

### 1. PURPOSE:

The policy of the Oklahoma City Fire Department is that no employee will operate at an emergency or non-emergency scene beyond a safe level of physical and mental endurance. The Rehabilitation Group will be utilized to evaluate and assist personnel to avoid sustained physical exertion that can result in acute health detriments as well as to evaluate and assist personnel who may already be suffering from the effects of sustained physical exertion during emergency operations. The Rehab Group will provide a specific area where personnel will assemble to receive:

- a physical assessment
- revitalization - rest, refreshments, etc.
- treatment for physical and/or mental stress as well as physically-induced injuries and/or illnesses
- close monitoring of physical condition
- transportation for those requiring treatment at medical facilities

### 2. SCOPE:

These guidelines apply to all appropriate emergency incidents and training exercises where physical activity or exposure to extreme environmental conditions exist.

### 3. RESPONSIBILITIES:

#### a) *Incident Commander*

The Incident Commander will consider the circumstances of each incident and make necessary arrangements early in the incident for the rest and rehabilitation of all personnel operating at the scene.

#### b) *Supervisors*

All supervisors will maintain an awareness of the condition of each company member operating within their span of control. The command structure will be utilized to request relief of fatigued crews.

#### c) *Personnel*

It is the responsibility of each company member to 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 or their company in the operation in which they are involved.

### 4. ESTABLISHMENT OF REHAB:

#### a) *Responsibility*

The Incident Commander will establish a Rehab Group as per OCFD Incident Management System when conditions indicate it will be needed at an incident or training evolution scene. A member will be placed in charge of the Group and will be known as the Rehab Officer. The Rehab Officer will typically report to the Logistics Officer (if filled) in the framework of the Incident Management System.

#### b) *Location*

The location for the Rehab area will normally be designated by the Incident Commander. If a specific location has not been designated, the Rehab Officer will select an appropriate location.



**c) Site characteristics**

- (1) The entry/exit will be marked with two traffic cones to indicate where all personnel will enter and exit the Rehab area.
- (2) Rehab area should be far enough away from the scene that members may safely remove their turnout gear and SCBA.
- (3) The site should enable members to be free of exhaust fumes from apparatus, vehicles, or equipment
- (4) It should provide protection from the prevailing environmental conditions.
- (5) Misting and cooling equipment should be made available if heat illness could result from the incident operations and/or prevailing environmental conditions.
- (6) It should be large enough to accommodate multiple crews.
- (7) It should be easily accessible to EMS and other support units.
- (8) It should allow easy reentry into the emergency operation.
- (9) Rehab should be divided into three areas, one for immediate rehab, one for staged and ready firefighters, and another area for medical. The staffing of the Rehab area will be determined by the Incident Commander taking into consideration the size and duration of the incident/evolution.

**d) Staffing**

- (1) Residential/Commercial Response Rehab areas will be staffed using the initial responding companies unless in the judgment of the Incident Commander more resources are needed to adequately staff it.
- (2) Multiple Alarm Rehab areas will be staffed by initial responding resources until such time as the greater alarm support personnel arrive on the scene. The greater alarm, support personnel will report to the IC and could be assigned Medical / Rehab duties if necessary for existing personnel to be relieved.

**OPS/006 INCIDENT REHABILITATION -**

**5. GUIDELINES:**

**a) *Rehabilitation Group Establishment***

Rehabilitation should be considered by the incident commander during the size-up phase of an incident. Climatic and environmental conditions for the incident scene should not be the sole justification for establishing a Rehabilitation Area. Any training or incident activity 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 establishing a Rehabilitation Group.

**b) *Accountability***

All crew members reporting to Rehab will check in with the Rehab Officer at the entry/exit point. Personnel leaving the Rehab Area must check out through the Rehab Officer. When a rehabilitation area is established, no member should be reassigned to return to duty before being medically evaluated, hydrated for at least 10 minutes, and cleared by Rehab Officer.

The Rehab Officer will update the Logistics Officer (or Incident Commander) throughout the operation with pertinent information including the identity of companies in Rehab, the companies available for reassignment, plus the status of any injured or ill personnel.

**c) Resources**

The Rehab Officer will secure all necessary resources to adequately staff and supply the Rehabilitation Area. The supplies should include the following items, but should be adjusted as necessary for the incident.

- (1) Fluids - water, activity beverage and ice
- (2) Food - Red Cross can be used as a resource for soup, broth, or other types of food.
- (3) Medical - need at least one trauma kit, oxygen administration equipment, defibrillator, RAD -57 or defibrillator with CO monitoring capabilities, and other equipment as needed.
- (4) Other - as deemed by the incident fans, tarps, heaters, floodlights, blankets, and traffic cones (to mark the entry/exit of the Rehabilitation Area)

**d) 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. Employees will rehydrate (at least eight ounces) while SCBA cylinders are being refilled. During heat stress, each employee should consume at least one quart (32 oz.) of water per hour. The rehydration fluid should be an activity beverage administered cool. Rehydration is important even during cold weather operations where heat stress may occur during firefighting or other strenuous activity when protective equipment is worn. Caffeinated drinks should be avoided before and during emergency operations, because both interfere with the body's water conservation mechanisms. Carbonated drinks should also be avoided.

**e) Nourishment**

Food and nourishing drinks may be provided by the American Red Cross (or suitable alternative) at the scene of extended incidents when units are engaged for three or more hours.

**f) Rest**

Rest normally should not be less than ten minutes and may exceed an hour as determined by the Rehab Officer. Fresh crews, or crews released from the Rehab rest area, will move to the Ready area of Rehab to ensure that fatigued employees are not required to return to duty before they are rested, evaluated, and released by the Rehab officer.

**\*The company officer or crew leader should additionally ensure that all members in the company or crew seem fit to return to duty.**

**Work-to-Rest Ratio**

Up to one 30 minute SCBA cylinder	At least 10 minutes of self-rehabilitation (rest with hydration ) as a company or crew
20 min of intense work without SCBA	At least 10 minutes of self-rehabilitation (rest with hydration ) as a company or crew

**(When encapsulating chemical protective clothing is worn)**

Up to two 30-minute SCBA cylinders	At least 20 minutes of rest (with hydration) in rehabilitation area
One 45-minute SCBA cylinder	At least 20 minutes of rest (with hydration) in rehabilitation area
One 60-minute SCBA cylinder	At least 20 minutes of rest (with hydration) in rehabilitation area
40 minutes of of work without SCBA	At least 20 minutes of rest (with hydration) in rehabilitation area

## Medical Surveillance Form Instructions

See Attachment A - COMPANY CHECK IN / CHECK OUT SHEET

### g) Medical Evaluation

When employees are assigned to the Rehabilitation unit, the Rehab Officer (or his/her designated rehab personnel) will observe all members in each crew for employees that have signs of heat stress, hypothermia, extreme fatigue, and/or need of medical aid. If employee does not recover in allotted time, they should be moved to the medical evaluation area.

### REHAB OFFICER

1. Enter your name and time in as Rehab Officer.
2. All companies must enter and exit the Rehab area as a crew at the entry/exit point.
3. Enter the company, number of persons in company, and time in and out of Rehab.
4. Each arriving emergency worker must be questioned regarding any medical symptoms, be asked about any injury or illness resulting from incident work, and have assessment of appropriate vital signs. If employee is in need of aid or does not recover in allotted time, they should be moved to the medical surveillance area.
5. If any personnel need to go to the medical surveillance or medical treatment area, enter names.
6. Enter number of times company has been in Rehab.
7. After company has had sufficient rest and rehabilitation and all SCBA have been refilled, move company to the Ready area of Rehab and enter time.
8. The Rehab Officer will update the Logistics Officer (or Incident Commander) throughout the operation with pertinent information including the identity of companies in Rehab, the companies available for reassignment, plus the status of any injured personnel
9. Release companies from the Ready area as needed and enter time in the Time out column.

### MEDICAL SURVEILLANCE

Enter name of person entering the medical evaluation area for heat/cold/fatigue or for medical treatment of injury or illness.

Once in the medical surveillance area, heart rate should be measured for 30 seconds as early as possible in the rest period along with full vital signs including pulse ox and CO readings.

Vitals will be taken every 5-10 minutes.

- ☼ If any of the following signs and/or symptoms, or any complaint or reason for concern in the opinion of rehab officer or employee, they should be moved from the medical monitoring area to medical treatment area.

#### Heat Stress Symptoms

#### Cold Stress Symptoms

nausea	shortness of breath	headache	low or absent blood pressure
flushed skin	weakness	mental confusion	slow pupil response
cramping	exhaustion	numbness	muscle rigidity or stiff posture
headache	seizures	waxy/pale skin	blistered skin
mental confusion	sunburn	dehydration	
rapid heartbeat	absence of sweating		

- ☼ If an employee's heart rate exceeds 110 beats per minute, an oral temperature should be taken.  
If an employee's temperature exceeds 100.6°F, employee should be moved to medical treatment area and, rehabilitation time should be increased.
- ☼ Measure the SpO2%. If an employee's oxygen saturation below 94 percent (while breathing atmospheric or room air) employee should be moved to medical treatment area.

✿ Measure the SpCO% with RAD-57 or LifePak 15

✿ If SpCO% > 3% with any of below signs or symptoms, treat per MCB protocol III.44 Monitoring of CO Poisoning.

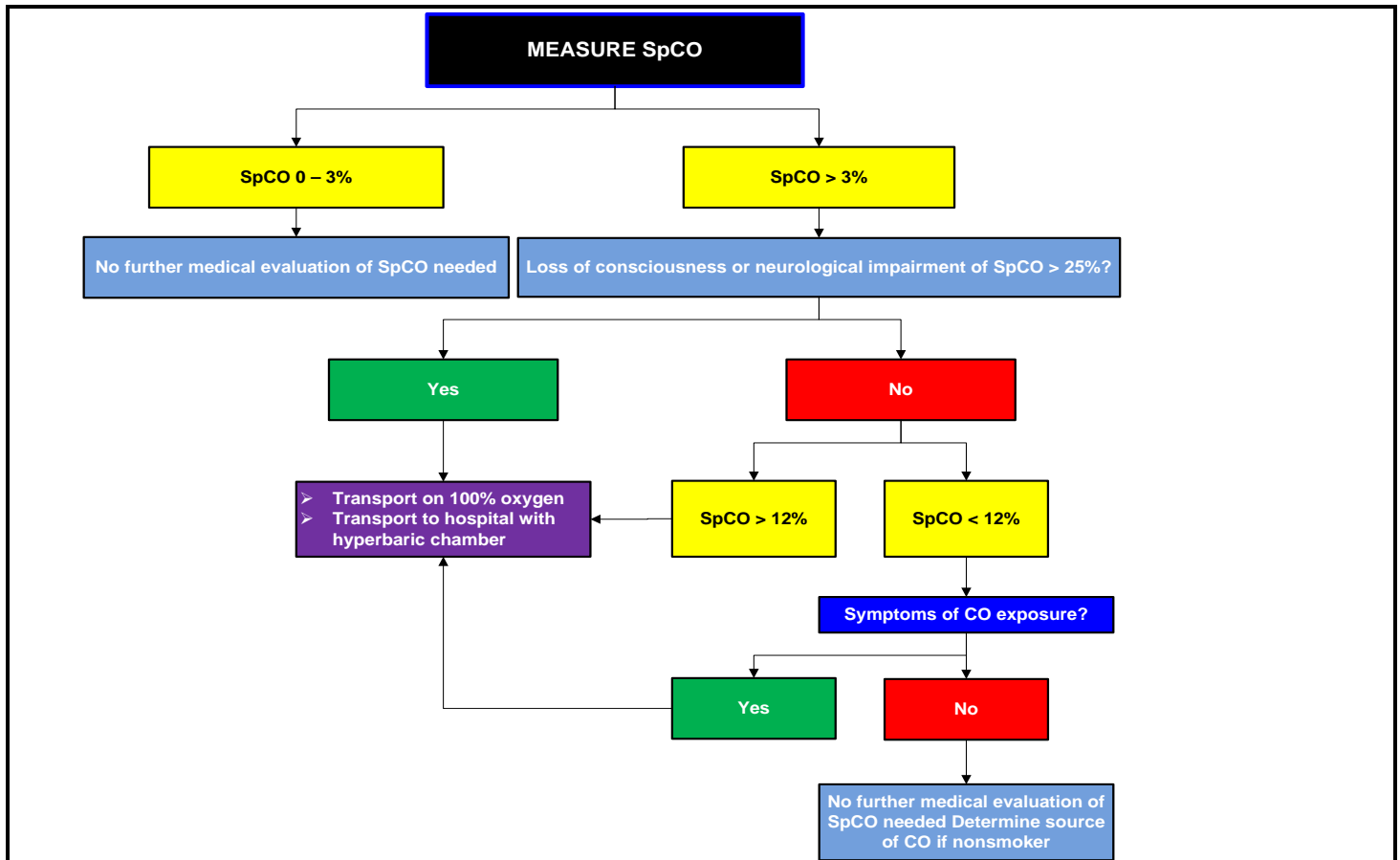
### **CO Poisoning Symptoms**

Flu-like symptoms	Abdominal pain
Fatigue	Headache
Dyspnea	Drowsiness
Chest pain	Dizziness
Palpitations	Weakness
Lethargy	Confusion
Confusion	Visual disturbances
Depression	Syncope
Impulsiveness	Seizures
Distractibility	Fecal incontinence
Hallucination	Urinary incontinence
Confabulation	Memory disturbances
Agitation	Gait disturbances
Nausea	Bizarre neurologic symptoms
Vomiting	Coma
Diarrhea	

### **Firefighter Headaches**

While CO should always be considered a possible cause of headaches in working firefighters, there are more common causes which includes:

- Tight helmet ratchet
- Too heavy a helmet (especially leather)
- Dehydration



### MEDICAL TREATMENT AREA

All treatment should follow MCB approved protocols. There is clear delineation between medical monitoring and emergency medical treatment in rehab. Documentation is to be kept separately. Although the same providers may do both, it makes logistical and operational sense to separate them into functional areas if possible.

**If an employee has abnormal vital signs or if employee does not recover in a reasonable amount of time, contact the Medical Officer for possible transport to the hospital.**



**Attachment A - COMPANY CHECK IN / CHECK OUT SHEET (BACK SIDE)**

- Enter name of medic in rehab at bottom of form
- Enter the name and company of each person entering rehab
- Each time personnel enter rehab, re-enter them on the form. Be sure to record the number of times the person is rehabilitated
- Once in the medical evaluation area, heart rate should be measured for 30 seconds as early as possible in the rest period
- If employee's heart rate exceeds 110 beats per minute, an oral temperature should be taken
- If temperature exceeds 100.6°, no PPE should be worn
- If temperature is below 100.6° and heart rate remains above 110 beats per minute, rehab time should be increased
- Vitals should be taken every 5-10 minutes
- If employees SpCO level is >3% with any of the below signs or symptoms, treat per MCB protocol III.44 Monitoring of CO Poisoning

Signs of CO Poisoning			Heat Stress Symptoms		Cold Stress Symptoms	
Flu like symptoms	Fatigue	Dyspnea	nausea	shortness of breath	headache	low or absent blood pressure
Chest Pain	Palpitations	Lethargy	flushed skin	weakness	mental confusion	slow pupil response
Confusion	Depression	Impulsiveness	cramping	exhaustion	numbness	muscle rigidity or stiff posture
Abd pain	Headache	Drowsiness	headache	seizures	waxy/pale skin	blistered skin
Weakness	Confusion	Visual Disturbances	mental confusion	sunburn	dehydration	
Syncope	Seizures	Hallucination	rapid heartbeat	absence of sweating		
Agitation	Nausea	Vomiting				
Diarrhea	Incontinence	Memory disturbances				
Gait disturbances	Neurologic symptoms	Coma				

**Work-to-Rest Ratio**

Up to one 30 minute SCBA cylinder	<b>At least 10 minutes of self-rehabilitation (rest with hydration ) as a company or crew</b>
20 min of intense work without SCBA	<b>At least 10 minutes of self-rehabilitation (rest with hydration ) as a company or crew</b>

**(When encapsulating chemical protective clothing is worn)**

Up to two 30-minute SCBA cylinders	<b>At least 20 minutes of rest (with hydration) in rehabilitation area</b>
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One 60-minute SCBA cylinder	<b>At least 20 minutes of rest (with hydration) in rehabilitation area</b>
40 minutes of of work without SCBA	<b>At least 20 minutes of rest (with hydration) in rehabilitation area</b>

**If an employee has abnormal vital signs or if employee does not recover in a reasonable amount of time, contact the Medical Officer for possible transport to the hospital**