

SOG 2014-002	Standard Operating Guideline (SOG) REHABILITATION	Page 1 of 12
	Cumberland County Fire Chief's Association	<i>REFERENCES:</i> NFPA 1584 - Standard on the Rehabilitation Process for Members during Emergency Operations and Training Exercises
		<i>FORMS: TBP</i>
Emergency Incident Rehabilitation		
<i>APPROVED BY: CCFCA Board of Director – Freddy L. Johnson Sr. President</i>		<i>EFFECTIVE: 01/01/2015</i>

1.0 Purpose

To ensure the physical and mental condition of operating personnel at an emergency scene or training exercise does not deteriorate to a point affecting each member's safety or jeopardizing operational safety and integrity.

2.0 Scope / Implementation

Rehabilitation occurs anytime an ambulance stands-by at an emergency incident. The Incident Commander (IC) or at the request of the senior EMS person at the scene, will designate a rehabilitation (rehab) area. When a rehab area is necessary, the first available paramedic holds responsibility for its management and coordination. Rehabilitation should be implemented at all emergency operations and training exercises where strenuous physical activity, or heat and cold exposure exist.

3.0 Responsibilities

3.0.1 Incident Commander

The IC shall consider the incident circumstances and make adequate provisions early in the incident for the rest and rehabilitation for all on-scene operating personnel. The IC shall request EMS for all working fires or long duration incidents. The IC shall communicate with the senior EMS person and provide the incident particulars (expected size, intensity, length of incident, etc).

3.0.1.A The provisions include:

1. Medical Evaluation
2. Treatment and Monitoring
3. Food and fluid replenishment

4. Mental Rest
5. Relief from extreme climactic/environmental conditions
6. Provision of emergency medical services at BLS or ALS level

3.0.2 Supervisors / Line Officers

All supervisors shall maintain situational awareness of members operating within their span of control, and ensure adequate steps are taken to provide for all members' personnel safety and health. Supervisors/Line Officers will utilize the command structure to request relief and reassignment of fatigued crews.

3.0.3 Personnel

During hot weather periods, personnel shall be encouraged to drink water and activity beverages throughout the workday. During emergency incidents or training evolutions, personnel shall advise their supervisor when they believe their fatigue status, or heat or cold exposure is approaching a critical level that could affect themselves, their crew, or the operation. Personnel shall also remain aware of the health and safety of other crew members.

3.0.4 Safety Officer

The IC will designate a safety officer who will be responsible for, and have the authority for, referring emergency workers to the rehabilitation area *per established guidelines or necessity*.

3.0.5 Rehabilitation Officer (First Certified EMS or Rescue Member)

The Rehab Officer shall obtain the rehabilitation materials from the designated Rehab Vehicle. The Rehabilitation Officer shall don the Rehab Officer vest (if available) and announce by radio the establishment of the rehab area and its location. He/She shall make provisions to secure the needed rehab materials. The rehabilitation officer will communicate with the EMS supervisor to request additional EMS personnel, ambulances, request periodic relief for EMS stand-by/rehabilitation crew, and other resources deemed necessary.

4.0 Establishment of Rehabilitation Sector

4.0.1 Responsibility

The Incident Commander will establish a rehabilitation sector or group when conditions indicate rest and rehabilitation is needed for operating personnel at an incident scene or training evolution. In the interim and prior to EMS arrival, an EMT will be placed in charge of the sector/group, and shall be known as the rehab officer. The rehab officer will typically report to the logistics officer or the incident commander in the framework of the incident command system (ICS). The EMT will be relieved by the first arriving paramedic who will assume the rehab officer role.

4.0.2 Location

The incident commander will designate the rehabilitation area location. If a specific location has not been designated, the rehab officer shall select an appropriate location based on the site characteristics and designations below.

4.0.2.A Site Characteristics

1. It should be in a location providing physical rest by allowing the body to recuperate from the emergency operation or training evolution demands and hazards.
2. It should be far enough away from the scene that personnel may safely remove their turnout gear and SCBA, and be afforded mental rest from the emergency operation or training evolution stress and pressure.
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 be free of apparatus, vehicle, or equipment exhaust fumes.
5. Based on the size of the incident, it should be large enough to accommodate multiple crews. The rehab area should be easily accessible by EMS units.
6. It should allow prompt entry back into the emergency operation upon recuperation.

4.0.2.B Site Designations (examples)

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

5.0 Resources

The rehab officer shall secure all necessary resources required to adequately staff and supply the rehabilitation area. The host unit will provide all necessary food stuffs, drinking fluids and infrastructure equipment (subparagraphs 5.0.1, 5.0.2 and 5.0.4). EMS will provide the medical equipment (subparagraph 5.0.3). The supplies should include the items listed:

5.0.1 Fluids

- a. water,
- b. activity beverages
- c. oral electrolyte solutions
- d. ice

5.0.2 Nourishment

- a. Short term: granola bars
- b. Long term: soup, broth or stew in hot/cold cups

5.0.3 Medical

- a. B/P cuffs
- b. Stethoscopes

- c. O2 administration devices
- d. Cardiac monitors / defibrillator
- e. IV solutions
- f. Oral thermometers

5.0.4 Other

- a. Awnings
- b. Tarps
- c. Fans
- d. Smoke ejectors
- e. Heaters
- f. Dry clothing,
- g. Extra equipment
- h. Floodlights
- i. Blankets, Towels
- j. Traffic cones and fire tape (to mark the entrance and exit of rehab area)

6.0 Guidelines

6.0.1 Rehabilitation Sector/Group Establishment

Incident officers should consider rehab during the initial planning stages of an emergency response. However, the emergency scene climatic or environmental conditions should not be the sole justification for establishing the rehab area. Any large size, long duration, and/or labor intensive activity/incident will rapidly deplete personnel energy and strength, and therefore merits consideration for rehabilitation.

Climatic or environmental conditions indicating the need for a rehab area are a heat stress index above 90F or wind-chill index below 10F.

6.0.2 Preventive Hydration

Water and electrolyte management are critical factors in heat injury prevention. Fluids must be replenished during strenuous activity and work periods, and at emergency incidents. During heat stress, members 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 approximately 40F. Rehydration is similarly important during cold weather operations where, despite the outside temperature, heat stress may occur during firefighting or other strenuous activity when personal protective ensemble (PPE) is worn. Avoid alcohol, carbonated beverages, and caffeine beverages during heat stress because they interfere with the body's water conservation mechanisms.

6.0.3 Nourishment Recommendations

The host fire department should provide food at extended incident scenes when units are engaged for three or more hours. A cup of soup, broth, or stew is highly recommended because it digests much faster than sandwiches and fast food products. In addition, foods such as apples, oranges and bananas provide supplemental forms of energy replacement. Avoid fatty and/or salty foods.

6.0.4 Mandatory Rest

The "two air bottle rule" or 45 minutes of work time, is recommended as an acceptable exertion level prior to mandatory rehabilitation. Personnel shall rehydrate while SCBA cylinders are changed. Firefighters having worked for two full 30-minute rated bottles, or 45 minutes, shall be placed in the rehabilitation area for rest and evaluation. In all cases, the objective evaluation of personnel fatigue levels 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 rehab area, shall be available in the staging area to ensure that fatigued personnel are not required to return to duty before they are rested, evaluated and released by the rehab officer.

6.0.5 Factors Affecting Recovery

Personnel in the rehabilitation area should maintain high hydration levels. Personnel 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 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. Exercise extreme caution if the member has taken antihistamines, such as Actifed or Benadryl, or has taken diuretics or stimulants.

7.0 Medical Evaluations

7.0.1 Emergency Medical Services

Emergency medical services should be provided and staffed by the most highly trained and qualified EMS personnel on the scene. They shall evaluate vital signs, examine personnel, and make proper disposition (return to duty, continue rehab, medical treatment and/or transport to hospital). Continued rehabilitation should consist of additional vital sign monitoring, providing rest, and providing rehydration fluids. EMS personnel should be assertive to find medical problems early. If the member's condition, symptoms, or medical history indicates potentially serious problems, then on-scene treatment and transportation to a medical facility should be prompt and aggressive per local EMS guidelines.

Emergency workers will report to the rehabilitation area and receive an immediate medical evaluation when:

- a. Emergency workers having worked through two full 30-minute rated bottles, or 45 minutes, shall be placed in the rehabilitation area for rest and evaluation.
- b. Referral from self, Fire Officer or Safety Officer.
- c. A SCBA failure in which exposure to the toxic combustion products resulting from the firefighter removing his/her SCBA face piece or a leaking face piece.

- d. Weakness, dizziness, muscle cramps, nausea/vomiting, headache. Any injury.
- e. Altered mental status, chest pain, difficulty breathing, burns or possible inhalation injury necessitate immediate ALS treatment and prompt transport per local EMS protocols. Other conditions will be evaluated by the senior on-scene medical person and the need for treatment and transport will be determined.

Pulse oximetry and hydrogen cyanide monitoring (if equipment is available) will be incorporated in all medical assessments.

7.0.2 General Guidelines for Rehabilitation of Emergency Workers

- a. After receiving a medical evaluation and based on the signs and symptoms severity, the highest trained medical authority shall determine whether rest and rehab, or medical treatment and transport is required. (See the appropriate EMS protocol for full medical guidelines.)
- b. An emergency worker with a normal presentation will rest for a minimum of 10 minutes, rehydrate (1-2 quarts of fluid) and then report to the Safety Officer or IC for return to duty.
- c. An emergency worker with an abnormal presentation (weakness, dizziness, muscle cramps, nausea / vomiting, headache, etc.) will rehydrate, rest and receive BLS treatment as indicated by presentation, heart rate, BP and temperature.
- d. Emergency workers will receive ALS treatment and prompt transport per EMS protocols if presenting signs and symptoms and/or vital sign remain abnormal for 20 minutes or greater.
- e. Altered mental status, chest pain, difficulty breathing, BP < 90 systolic, burns or possible inhalation injury necessitate immediate ALS treatment and prompt transport per EMS protocols.

8.0 General Heart Rate and Temperature Parameters

The heart rate should be measured as early as possible in the rest period. If a member's heart rate exceeds 110 BPM, an oral temperature should be taken. If the member's temperature exceeds 100.6F, he/she should not be permitted to wear PPE. If it is below 100.6F and the heart rate remains above 110 BPM, rehabilitation time should be increased. If the heart rate is less than 110 BPM, the chance of heat stress is negligible. Cardiac monitoring will be at the paramedic's discretion.

9.0 BLS Medical Treatment for HR>110 BPM and/or temperature >100.6F

The following treatment shall be started:

- a. Remove all turnout gear and heavy clothing. Maintain privacy with a sheet.
- b. Wet from head to toe.
- c. Place supine in shaded area with rapidly moving air (fan).
- d. Apply cool compresses to axilla and groin.

9.0.1 IF PROBLEM DOES NOT CORRECT WITHIN 20 MINUTES, OR IF ORAL TEMPERATURE REMAINS ABOVE 100.6 AND PULSE IS > 110 BPM THEN:

- a. Attach to a Cardiac Monitor/perform 12-lead EKG as indicated.
- b. Check Pulse Ox (Consider Possible CO Inhalation).
- c. Establish IV of normal saline (NS) or lactated ringers (LR) at a rapid infusion rate.
- d. Promptly transport to hospital, continue treatment in accordance with the appropriate EMS protocol.

10.0 Documentation

All routine medical evaluations will be recorded on the "Emergency Incident Rehabilitation Report" along with the member's name and complaints. The form must be signed and dated by the rehab officer. At the completion of the incident, the original form must remain with the Fire Department with one copy to EMS Supervisor. A sample rehab form is found at Annex 3.

Any treatment beyond the BLS level and treatment requiring transport to the emergency department will have a pre-hospital ACR completed.

G. Accountability

Personnel assigned to the rehabilitation area shall enter and exit as a crew. The crew designation, number of crew personnel, and the time of entry to and from the rehab area shall be documented by the rehab officer or his/her designee on the department check-in/check-out sheet. Crews shall not leave the rehab area until authorized to do so by the rehab officer.

11.0 Appendices – 3

Appendix A – Heat Stress Card

Appendix B – Wind Chill Chart

Appendix C – Emergency Incident Rehabilitation Report

Appendix A – Heat Stress Card

Easy Work		Moderate Work		Hard Work			
<ul style="list-style-type: none"> • Weapon Maintenance • Walking Hard Surface at 2.5 mph, < 30 lb Load • Marksmanship Training • Drill and Ceremony 		<ul style="list-style-type: none"> • Walking Loose Sand at 2.5 mph, No Load • Walking Hard Surface at 3.5 mph, < 40 lb Load • Callisthenics • Patrolling • Individual Movement Techniques, i.e. Low Crawl, High Crawl, etc. 		<ul style="list-style-type: none"> • Walking Hard Surface at 3.5 mph, > 40 lb Load • Walking Loose Sand at 2.5 mph with Load • Field Assaults 			
<ul style="list-style-type: none"> • The work-rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Fluid needs can vary based on individual differences (\pm ¼ qt/h) and exposure to full sun or full shade (\pm ¼ qt/h). • NL = no limit to work time per hour. • Rest means minimal physical activity (sitting or standing), accomplished in shade if possible. 				<ul style="list-style-type: none"> • CAUTION: Hourly fluid intake should not exceed 1½ quarts. • Daily fluid intake should not exceed 12 quarts. • If wearing body armor add 5°F to WBGT in humid climates. • If wearing NBC clothing (MOPP 4) add 10°F to WBGT. 			
Heat Category	WBGT Index, F°	Easy Work		Moderate Work		Hard Work	
		Work/Rest	Water Intake (Qt/H)	Work/Rest	Water Intake (Qt/H)	Work/Rest	Water Intake (Qt/H)
1	78° - 81.9°	NL	¼	NL	¼	40/20 min	¼
2 (GREEN)	82° - 84.9°	NL	¼	50/10 min	¼	30/30 min	1
3 (YELLOW)	85° - 87.9°	NL	¼	40/20 min	¼	30/30 min	1
4 (RED)	88° - 89.9°	NL	¼	30/30 min	¼	20/40 min	1
5 (BLACK)	> 90°	50/10 min	1	20/40 min	1	10/50 min	1

Appendix B – Wind Chill Chart

WIND CHILL FACTOR CHART												
Cooling Power of Wind on Exposed Flesh Expressed as an Equivalent Temperature (Under Calm Conditions).												
Estimated wind speed (in mph)	Actual Thermometer Reading (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Temperature (°F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-66
10	40	28	18	4	-9	-24	-33	-46	-58	-70	-81	-89
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-98	-112
20	32	18	4	-10	-23	-39	-53	-67	-82	-96	-110	-124
25	30	16	0	-15	-29	-44	-59	-74	-89	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-21	-36	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-101	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER (For properly clothed person, Maximum danger of false sense of security.)			INCREASING DANGER Danger from freezing of exposed flesh.				GREAT DANGER				
Trench foot and immersion foot may occur at any point on this chart.												

Appendix C – An Example Emergency Incident Rehabilitation Report

Appendix A – Rehabilitation Tracking Form

Spotsylvania Dept. of Fire, Rescue & Emergency Management

Rehabilitation Tracking Form (Page 1 of 2)

Incident Location							Incident Number		
Unit:							Unacceptable Vital Limits Pulse > 100 BPM BP > 160 (S) or > 100 (D) Temp < 98.6 or > 100.6 CO > 10%		
Name (Last, First)	Time	1st set	Time	2nd set (if needed)	Time	3rd set (if needed)	Time	Final set	
	B/P		B/P		B/P		B/P		
	Pulse		Pulse		Pulse		Pulse		
Position	OIC	Resp	Resp		Resp		Resp		
Interior Ops Exterior Ops One	SpO2		SpO2		SpO2		SpO2		
	SpCO		SpCO		SpCO		SpCO		
EKG	Temp		Temp		Temp		Temp		
Disposition	Returned to Staging/Service			Transported to ER		Tx. Unit		Hosp	
Notes:									

Name (Last, First)	Time	1st set	Time	2nd set (if needed)	Time	3rd set (if needed)	Time	Final set
	B/P		B/P		B/P		B/P	
	Pulse		Pulse		Pulse		Pulse	
Position	Driver	Resp	Resp		Resp		Resp	
Interior Ops Exterior Ops One	SpO2		SpO2		SpO2		SpO2	
	SpCO		SpCO		SpCO		SpCO	
EKG	Temp		Temp		Temp		Temp	
Disposition	Returned to Staging/Service			Transported to ER		Tx. Unit		Hosp
Notes:								

Name (Last, First)	Time	1st set	Time	2nd set (if needed)	Time	3rd set (if needed)	Time	Final set
	B/P		B/P		B/P		B/P	
	Pulse		Pulse		Pulse		Pulse	
Position	FF	Resp	Resp		Resp		Resp	
Interior Ops Exterior Ops One	SpO2		SpO2		SpO2		SpO2	
	SpCO		SpCO		SpCO		SpCO	
EKG	Temp		Temp		Temp		Temp	
Disposition	Returned to Staging/Service			Transported to ER		Tx. Unit		Hosp
Notes:								

**Spotsylvania Dept. of Fire, Rescue & Emergency Management
Rehabilitation Tracking Form (Page 2 of 2)**

Incident Location						Incident Number			
Unit:								Unacceptable Vital Limits Pulse > 100 BPM BP > 160 (S) or > 100 (D) Temp < 98.6 or > 100.6 CO > 10%	
Name (Last, First)		Time	1st set	Time	2nd set (if needed)	Time	3rd set (if needed)	Time	Final set
		B/P		B/P		B/P		B/P	
		Pulse		Pulse		Pulse		Pulse	
Position		FF		Resp		Resp		Resp	
Interior Ops	Exterior Ops	Circle		SpO2		SpO2		SpO2	
	One			SpCO		SpCO		SpCO	
EKG		Temp		Temp		Temp		Temp	
Disposition		Returned to Staging/Service			Transported to ER		Tx. Unit		Hosp
Notes:									

Name (Last, First)		Time	1st set	Time	2nd set (if needed)	Time	3rd set (if needed)	Time	Final set
		B/P		B/P		B/P		B/P	
		Pulse		Pulse		Pulse		Pulse	
Position		FF		Resp		Resp		Resp	
Interior Ops	Exterior Ops	Circle		SpO2		SpO2		SpO2	
	One			SpCO		SpCO		SpCO	
EKG		Temp		Temp		Temp		Temp	
Disposition		Returned to Staging/Service			Transported to ER		Tx. Unit		Hosp
Notes:									

Name (Last, First)		Time	1st set	Time	2nd set (if needed)	Time	3rd set (if needed)	Time	Final set
		B/P		B/P		B/P		B/P	
		Pulse		Pulse		Pulse		Pulse	
Position		FF		Resp		Resp		Resp	
Interior Ops	Exterior Ops	Circle		SpO2		SpO2		SpO2	
	One			SpCO		SpCO		SpCO	
EKG		Temp		Temp		Temp		Temp	
Disposition		Returned to Staging/Service			Transported to ER		Tx. Unit		Hosp
Notes:									