

Washington Township Fire Department Standard Operating Procedure

Division 300: Occupational Safety & Health
Section 309: Personal
Subject 309.04: Rehabilitation
Supersedes: General Order 96-3



Approved By: 

Date: July 8, 2010

Date Last Reviewed:

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PURPOSE:

This procedure describes a rehabilitation process to ensure members of the Washington Township Fire Department, and any supporting agency, operate at established safe levels of physical or mental endurance. Rehabilitation is an intervention to mitigate the effects of physical, physiological, and emotional stress of training and emergency incidents. This procedure establishes reasonable processes to prevent the risk of injury and to treat injuries sustained during emergency operations and training exercises.

RESPONSIBILITY:

Members of the Department must learn and follow this procedure, and further, remain current in its provisions. Officers of the Department are expected to carry out and ensure that members are adequately trained and comply with this procedure.

PROCEDURE:

This procedure applies to all operations and training exercises when physical activity or environmental exposure can cause or create stress upon the human body. Pursuant to *Personnel Accountability System* (Procedure 301.01) procedures, while at an emergency incident, members will be working an assignment, in Rehab or in Manpower¹. This procedure should not diminish aggressive fire attack or rescue operations.

Rehabilitation Considerations:

1. Avoid alcohol the night before a shift.
2. Avoid large amounts of coffee/caffeine during your shift.
3. Pre-hydrate before the emergency/exercise and hydrate frequently during.
4. Monitor your urine output.
5. Avoid doughnuts, candy bars and carbonated beverages.

Rehabilitation Establishment

Establishment of a Rehab area is dependent upon time, complexity and intensity. It will be used if:

1. Initiated by the Incident Commander (IC) or other established procedures. The IC will:
 - a. Establish the radio designation of "REHAB."
 - b. Appoint a Rehab Group Leader.
 - c. Designate the area to be used for rehabilitation.
2. A moderate to long working time is expected.

¹ "Manpower" is used in the context of "workforce" with the former being a more familiar term within the *National Incident Management System*.

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3. A moderate to large personnel force is utilized.
4. Environmental conditions indicate the need.
5. Members have donned and used Self Contained Breathing Apparatus for one cycle.

Rehabilitation provides a specific area where members assemble to receive:

- Rest, recovery, and re-hydration
- Relief from climatic conditions
- Active and/or passive cooling/warming as needed
- Electrolyte and calorie replacement
- Continuing medical evaluation including stress support assessment
- Treatment of injuries
- Release/re-assignment instructions

Rehabilitation Area

This area provides physical and psychological rest and allows recuperation. Locate the Rehab away from operational activities and ideally not near Staging. The location serves several purposes if it is near or adjacent to the assigned medic and/or air unit.

Rehab area characteristics include:

1. Sheltering.
2. During hot weather, the area should be cool and during cold weather, the area should be heated.
3. Large enough to accommodate multiple crews.
4. Easily accessible to EMS units.
5. Free of exhaust fumes from apparatus and other motorized equipment.
6. Quiet.
7. Restricted media access.

The use of tobacco products within the Rehab area is prohibited.

Accountability

Members must report when entering and exiting Rehab. This includes the submission and retrieval of Accountability Passports. The *Personnel Accountability System* (Procedure 301.01) will be used. A Rehabilitation Log Sheet (Form 36) is used to indicate the member's identification, arrival time, number of SCBA bottles used, vital signs, any complaints or pertinent condition, and if further or more extended care is needed. The reverse side of Form 36 has supplemental information about core temperature, nutrition, and the rating of perceived exertion scales.

Evaluators may also monitor cardiac rhythms or collect other information consistent with providing a medical standard of care. Following the event, forward the Rehabilitation Log Sheet(s) to the Department's Safety/Fitness/Wellness Committee for review, comment and/or recommendation.

Rehabilitation Operations

Members should remove as much PPE as practical before entry into Rehab.

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Members should undergo rehabilitation when a 45 or 60-minute SCBA cylinder is used, or following 40 minutes of intense work without SCBA.² During rest periods of no less than 10 minutes, members should hydrate with a minimum of 8 ounces of fluid. Members should rest for at least 20 minutes following the use of a second 30-minute SCBA cylinder. Members with 20 minutes of rest and who still displaying significantly abnormal signs and symptoms should receive emergency medical care treatment.³

Members released from Rehab return to Manpower for reassignment, pursuant to the *Personnel Accountability System* (Procedure 301.01) procedures.

Medical Monitoring

Personnel assigned to operate the Rehab area conduct medical monitoring, assist with rehabilitation activities and refer persons for medical treatment as necessary. Members reporting to and released from Rehab are logged in and out by use of the *Rehabilitation Log Sheet* (Form 36) pursuant to the *Personnel Accountability System* procedures.

Upon entering Rehab, EMS personnel must log participants into the area and institute a baseline assessment. The assessment may include but is not limited to:

Vital signs recorded

Symptoms displayed or stated including:

Dehydration

Heat/cold stress

Physical/emotional exhaustion

Cardiopulmonary abnormalities

Emotional stress

Utilization of the Rating of Perceived Exertion (RPE)⁴

Vital sign monitoring figures are used as a guideline to determine member recuperation and recovery during an emergency incident or training exercise:

Blood Pressure⁵

- a. Diastolic >130 consider transport to hospital.
- b. Diastolic >100 with symptoms of heat stress do not release from Rehab.
- c. Systolic >160 monitor closely and do not release from Rehab.
- d. If blood pressure is >200 after rest, consider transport to hospital.

Pulse

- a. If a heart rate is >150: administer oxygen, fluids and rest. If the rate is <100 after 20 minutes, the firefighter can return to work.
- b. If the heart rate remains >100 after 20 minutes, rest the firefighter for 20 more minutes and monitor cardiac rhythm, administer oxygen and fluids.

² Ideally, members should be provided with rehabilitation or released from their assignment following the use of a single 30 minute SCBA cylinder or at the end of a 20 minute work-cycle without SCBA. Source – IAFC *Rehabilitation & Medical Monitoring*, page 15.

³ Source – IAFC *Rehabilitation & Medical Monitoring*, page 12.

⁴ See reverse side of Form 36 – *Rehabilitation Log Sheet*.

⁵ Systolic of 160 and diastolic of 100 are recommended by NFPA 1584.

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- c. If the heart rate remains >100 after 40 minutes, transport to hospital.

Pulse Oximetry/Carbon Monoxide

- a. If any pulse oximetry reading is below 95%, give oxygen and continue monitoring. Any pulse ox reading below 85% transport to hospital.
- b. If carbon monoxide levels of >35 PPM, transport to hospital.

Necessary levels of electrolytes and calories can be depleted during firefighting. Hydration and nourishment will be provided for members that are engaged for a long period of time at an incident or exercise. Suggested resources for Rehab include water, sports drinks⁶, energy bars, crackers and pretzels. Avoid all carbonated beverages and diuretics such as coffee. Utilize special units such as Montgomery Special Unit or Box 21 when necessary.

References

International Association of Fire Chiefs

Rehabilitation & Medical Monitoring – A Guide for Best Practices, August, 2009

National Fire Protection Association

Standard 1584 – *Standard on Rehabilitation Process for Members During Emergency Operations and Training Exercises*

Washington Township Fire Department

Form 36 – *Rehabilitation Log Sheet*

Procedure 301.01 – *Personnel Accountability System*

⁶ Accelorate, Cytomax, Gatorade, Powerade products that contain between 4%-8% carbohydrate.
309.04 Rehab

Washington Township Fire Department – Rehabilitation Log Sheet

Date: _____ Incident #: _____ Rehab Officer: _____ Weather: _____

FD & ID	Time In/Out	Exam	BP	Pulse	Resp	Skin	P/Ox	SpCO	Medical Complaints
		Initial							
		20 min.							
		40 min.							
		Release							
		Initial							
		20 min.							
		40 min.							
		Release							
		Initial							
		20 min.							
		40 min.							
		Release							
		Initial							
		20 min.							
		40 min.							
		Release							

Washington Township Fire Department – Rehabilitation Log Sheet

Cooling/Core Temperature

Cooling the human body reduces the core temperature sufficiently, relative to the environmental temperature. Normal core temperatures range from 98.6° F to 100.6° F and vary between individuals, time of day and activity level. Core temperature may rise to 101° F or more during active firefighting. Recent studies¹ suggest core temperature levels of firefighters may continue to rise even after cessation of physical activity, and few firefighters will return to pre-activity temperature levels following 20 minutes of rest and active cooling measures.

Should the environmental temperature be 95° F, the capacity for the body to cool itself is reduced, thereby lengthening the time required to cool.

Cooling may be accomplished by:

passive cooling – natural body cooling processes

e.g., sweating, evaporation, removal of clothing, moving to a cooler environment

active cooling – application of cold to a person cools through the process of conduction and evaporation

e.g., cold packs, application of ice, hand and forearm immersion, misting fans

Wet or cold towels are an inexpensive, portable and effective system of active cooling.

Active cooling facilitates the rapid movement of heat away from the body and to the cooling device used. Further, the core temperature can more quickly return to normal, thereby minimizing the possibility of heat stress.

Nutritional Information

Calories and electrolytes are two areas of importance when planning rehabilitation.

Energy is measured in calories and stored within the body in various forms. When available stores of calories are depleted, they must be replaced. Calories can be derived from three primary sources; carbohydrates, lipids and proteins.

Electrolytes are chemicals present in the body that are necessary for normal function. The most important of these are sodium, potassium, magnesium, chloride, and phosphate. After as little as one hour of intense work, electrolyte imbalances may appear.

Rating of Perceived Exertion (RPE)

This rating scale can be used as a relative “before/after” exertion comparison to assist in determining a person’s readiness to return to duty.

The original chart for RPE was created by Dr. Gunnar Borg and is therefore referred to as the Borg Scale. When created, the scale started at 6 (corresponding to a heart rate of 60 beats per minute) and ended at 20. Therefore, on the Borg scale, most individuals rate between 12 and 16 during maximum exertion, as highlighted on the table below.

A newly created chart simply goes from 1 to 10 (maximum exertion). Most individuals rate between 4 and 7, as highlighted on the table below. The American College of Sports Medicine suggests that scores of 4 to 6 RPE equate with “somewhat hard” to “hard” exertion which correlates with 60% to 85% of maximum heart rate.

New RPE Scale & Borg Scale Comparison

New RPE Scale	Borg RPE Scale	Description
1	6	No exertion at all
	7	Extremely light
	8	
2	9	Very light
	10	
3	11	Light
4	12	
5	13	Somewhat hard
6	14	
7	15	Hard heavy
8	16	
8.5	17	Very hard
9	18	
9.5	19	Extremely hard
10	20	Maximal exertion