

REHAB GROUP

Stress is one of the leading causes of death and injury to firefighters. One of the contributing factors of stress is heat exposure. Heat exposure can result from extended operations in hot and humid weather, extended interior fire suppression activities and Haz-Mat operations requiring full encapsulation. The equipment we wear to protect ourselves from the heat also prevents the release of heat, which can contribute to the heat stress.

One of the ways to reduce the potential for heat related injury is thorough proper rehabilitation during and after an extended incident. This SOP provides guidelines for initiating and operating a Rehab Group. Also included with this SOP are recommendations for post-incident rehabilitation.

ESTABLISHING A REHAB GROUP

Working Fires, Training Exercises and Other “Routine” Incidents

When operating at short-term incidents, provisions should be available for Firefighters to rehydrate and rehab on an as-needed basis. A formal Rehab Group can be established at the discretion of the Incident Commander. In lieu of additional alarms, consideration should be given to requesting an extra Engine and/or Truck Company for fire relief due to rehab.

Multiple Alarm Fires, Hazardous Materials Incidents and Extended Rescues

A formal Rehab Group shall be established and staffed as specified in the operating procedures of this SOP.

Rehab guidelines are based on the “Heat Stress Index” and the “Wind Chill Index” charts, which will be carried by the Safety Officer, Paramedic Shift Supervisor and on all Medic units.

The heat stress index (HSI, see Table 1) is broken down into two categories;

- Gray – Danger, HSI above 105° F
- White – Caution, HSI at or below 105° F

The wind chill index (WCI, see Table 2) is divided into three categories;

- Dark Gray – Great danger, WCI below -75°F
- Light Gray – Increasing danger, WCI -25°F to -75°F
- White – Little danger, WCI above -25°F

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TABLE 1- HEAT STRESS INDEX

		HUMIDITY								
		10%	20%	30%	40%	50%	60%	70%	80%	90%
TEMPERATURE	104	98	104	110	120	132				
	102	97	101	108	117	125				
	100	95	99	105	110	120	132			
	98	93	97	101	106	110	125			
	96	91	95	98	104	108	120	128		
	94	89	93	95	100	105	111	122		
	92	87	90	92	96	100	106	115	122	
	90	85	88	90	92	96	100	106	114	122
	88	82	86	87	89	93	95	100	106	115
	86	80	84	85	87	90	92	96	100	109
	84	78	81	83	85	86	89	91	95	99
	82	77	79	80	81	84	86	89	91	95
	80	75	77	78	79	81	83	85	86	89
	78	72	75	77	78	79	80	81	83	85
76	70	72	75	76	77	77	77	78	79	
74	68	70	73	74	75	75	75	76	77	

Add 10 deg. F when protective clothing is worn.
Add 10 deg. F when operating in direct sunlight.

HEAT STRESS INDEX	DANGER CATEGORY	INJURY THREAT
80 - 90	CAUTION	Fatigue possible if exposure is prolonged and there is physical activity
90 - 105	EXTREME CAUTION	Heat cramps and heat exhaustion possible if exposure is prolonged and there is physical activity
105 - 130	DANGER	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity
Above 130	EXTREME DANGER	Heat stroke imminent!

TABLE 2 – WIND CHILL INDEX

		TEMPERATURE (F)												
		45	40	35	30	25	20	15	10	5	0	-5	-10	-15
WIND SPEED MPH	5	43	37	32	27	22	16	11	6	0	-5	-10	-15	-21
	10	34	28	22	16	10	3	-3	-9	-15	-22	-27	-34	-40
	15	29	23	16	9	2	-5	-11	-18	-25	-31	-38	-45	-51
	20	26	19	12	4	-3	-10	-17	-24	-31	-39	-46	-53	-60
	25	23	16	8	1	-7	-15	-22	-29	-36	-44	-51	-59	-66
	30	21	13	6	-2	-10	-18	-25	-33	-41	-49	-56	-64	-71
	35	20	12	4	-4	-12	-20	-27	-35	-43	-52	-58	-67	-75
	40	19	11	3	-5	-13	-21	-29	-37	-45	-53	-60	-69	-76
	45	18	10	2	-6	-14	-22	-30	-38	-46	-54	-62	-70	-78

WIND CHILL TEMPERATURE (F)	DANGER
Above -25 Deg. F	Little danger for properly clothed person
-25 to -75 Deg. F	Increasing danger, flesh may freeze
Below -75 Deg. F	Great danger, flesh may freeze in 30 seconds

REHAB GROUP LOCATION AND STAFFING

LOCATION

The Incident Commander or Rehab Group Supervisor, if already designated, will choose a site for the Rehab Area. The area should be upwind and upgrade from the incident unless conditions dictate otherwise. Dispatch shall be notified so they can provide the location to incoming support personnel and apparatus.

The Salvation Army Emergency Services Unit and other support vehicles, if at all possible, shall be located in the rehab area. The rehab area boundaries will be defined with fire-line tape whenever possible. This will help to control entry and exit of personnel. It will also prevent access of unauthorized personnel.

It is desirable to have an area where personnel can go to get relief from the hot humid weather in the summer and cold and windy weather in the winter. The Salvation Army unit can be used as an area to cool down or warm up.

Incident Commanders should also consider requesting a MAT bus for an on-site shelter.

In extreme weather conditions, consideration should be given to utilizing a nearby business, if practical or should also consider requesting a MAT bus for an on-site shelter

STAFFING

A minimum of two; preferably four, medic personnel are needed to staff a Rehab Group.

The EMS Battalion Chief, when available, shall be in charge of the Rehab Group. If the EMS Battalion Chief is not available, the Paramedic Shift Supervisor or a Paramedic Captain will assume command of the Rehab Sector.

CRITERIA FOR SENDING COMPANIES TO REHAB

SUMMER WEATHER

Structural Firefighting - Caution rule on heat stress index

Personnel involved in interior firefighting operations will be required to report to rehab after the use of two (2) SCBA cylinders.

No mandatory limit on exterior operations, decision based on the discretion of the Incident Commander or Scene Safety Officer based on the assessment of the conditions at the time.

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Structural Firefighting - Danger rule on heat stress index

Personnel involved in interior firefighting operations will be required to report to rehab after the use of one (1) SCBA cylinder.

Personnel involved in active exterior operations will be required to report to rehab after 45 minutes.

Haz-Mat Incidents

Personnel wearing total encapsulating suits will rehab and be evaluated during each cylinder change.

Technical Rescue, Confined Space Rescue, etc.

The Incident Commander or Safety Officer will make a determination on setting up rehab based on type and extent of incident operations in conjunction with the heat stress index.

Winter Weather

Personnel involved in interior firefighting operations will be required to report to rehab after the use of two SCBA cylinders.

There are no mandatory limits on exterior operations. The decision to send personnel to rehab should be based on the existing weather conditions and the discretion of the Incident Commander and/or Safety Officer based on their observations. Extra caution should be taken to prevent frostbite and hypothermia. This will require close monitoring of operating personnel by the Company Officer, Division/Group Supervisor and Rehab Group personnel.

REHAB GROUP OPERATING GUIDELINES

ENTRY AND DOCUMENTATION

Personnel will enter Rehab as a company. Personnel assigned to the Rehab Group will record the entry time and the names of all company members on the forms provided.

A complete set of vital signs, to include temperature will be taken as soon as possible after arrival in Rehab. Before an individual is released from Rehab, a second set of vital signs shall be taken. The vital signs must be within the recommended guideline of below 110 beats per minute and a temperature below 100.6° F.

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The second form, OFD-293 (1/00), is the Emergency Incident Rehabilitation Report. This form will be used to record the names of individual company members and the company they are working on. There are three rows per individual for recording the time, number of bottles used, vital signs, Rehab medic performing the assessment, and other medical related information.

INCIDENT REHABILITATION REPORT										Incident: _____ Date: _____	
NAME/CO. #	TIME(S)	TIME/ # Bottles	BP	PULSE	RES P	TEMP	SKIN	TAKEN BY	COMPLAINTS/CONDI TION	TRANSPORT?	

OFD 293 (1/00)

A supply of Rehab forms shall be maintained on each Medic unit, in the Paramedic Shift Supervisor’s car and in the Safety Officer’s car.

At the completion of the incident, the Rehab forms will be forwarded to the Safety Officer for post-incident critiques and filing with other incident related reports.

Any medical condition or treatment over and above “routine” rehab shall be documented as per normal EMS reporting procedures.

RE-HYDRATION

Mandatory

During the first air-cylinder change, each individual should consume at least 8 oz. of water. This will require the availability of cool water (no less than 40° F) on Rescue 51.

In Rehab:

On “Caution” heat stress index days, at least 1 quart of water or other recommended liquids shall be consumed.

On “Danger” heat stress index days, at least 2 quarts of water or other recommended liquids shall be consumed.

During cold weather, water is still necessary to prevent dehydration. If “warm-up” beverages are consumed, the beverages of choice are chicken or beef broth or hot chocolate. Coffee is not recommended as it interferes with the body’s water conservation capabilities.

RECOMMENDED

During “Danger” heat stress index days, all personnel should drink at least five 8 oz. glasses of water per day, while in company quarters.

REHAB BEVERAGES

The beverage of choice, other than water, is a 50% solution of a commercial sports drink and water, served at no less than 40° F.

RELEASE FROM REHAB

No Companies will leave Rehab until released by the Rehab Group Supervisor. Companies will be released from Rehab as a unit after 20 minutes and when all company member’s vital signs are within the guidelines recommended above.

Exception to company level release: If an individual company member has a medical condition preventing return to active scene duties (i.e. their vital signs do not return to normal or another medical condition develops), the Company will be released and sent to staging with a notification of reduced staffing. The accountability system in use must also reflect this change in personnel.

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Companies will report to Staging from Rehab, unless conditions at the incident demand immediate re-deployment. Companies may also be released from Rehab to return to quarters with or without their assigned apparatus.

POST-INCIDENT REHABILITATION

Although incident scene rehabilitation is important, post-incident rehabilitation is equally important, especially during weather extremes. Replenishing fluids and carbohydrates within the first 30 – 45 minutes after an incident is the most effective approach. If not done during this time period, the body will begin breaking down muscle tissue to convert it to blood sugar to satisfy energy and glycogen replacement requirements.

Upon returning to quarters after an incident, Firefighters should begin the rehabilitation process.

FLUID INTAKE

Water

Diluted sports drinks

Hot Chocolate, beef or chicken broth

Avoid coffee, soda pop, fruit juice, etc. as those drinks have negative effects on rehab.

FOOD INTAKE

Fresh or canned fruit (fresh is better)

Complex carbohydrates such as pasta, rice, potatoes and bread

REST

Get some rest; give your body time to “put itself back together”.