Title: Rehabilitation at Incident Scene & Training Exercises

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Standard Number: 600-02
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01. Purpose
   To provide guidance on the implementation and use of a rehabilitation process as a requirement of the incident management system (IMS) at the scene of a fire, other emergency, or training exercise. To ensure the physical and mental condition of personnel operating at the scene of an emergency or training exercise does not deteriorate to a point that affects the safety of any individual, or jeopardizes the safety and integrity of the emergency operations and/or training exercise where strenuous physical activity and exposure to heat and cold exist.

02. Applicability
   Applies to all fire, rescue and EMS operational units, Division of Emergency Services, fire & rescue corporations, and all fire, rescue, EMS personnel, both career and volunteers.

03. WHO MUST REPORT TO THE REHABILITATION GROUP/DIVISION?

3.1. Working Incidents
   Upon completion of an assignment in the “hot zone”, personnel shall report to the Rehabilitation Group/Division prior to requesting or undertaking additional assignments. The Rehab Group/Division Supervisor or their designee will be responsible for the Rehab area. Crew members shall undergo a mandatory rest and recovery period if they have used two full 30/45 minute air cylinders, worked 45 minutes or if command staff, a company officer, or a senior firefighter in charge of a crew directs the crew members to do so. Personnel shall not report back to their staffing pool or reassigned unless they have been evaluated and released by the Rehab Group/Division Supervisor.

3.2. Live Fire Training
   The standards listed for working incidents shall apply to live fire training with the following exception. All working crews shall report to the Rehabilitation Group upon completion of a working evolution, rather than after two full 30/45 minute air cylinders or 45 minutes of work time.

3.3. Other Training and Activities
   The need to establish Rehabilitation Group will be determined by the Training Officer and Command Staff prior to commencement of non-fire
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The principles and procedures discussed in this standard shall apply to all personnel attending or operating at emergency incidents, training operations, and other operations where strenuous physical activity and/or mental stress can occur and/or exposure to heat or cold extremes are present.

4.0 RESPONSIBILITIES

4.1. Incident Commander
Shall consider all circumstance and make early, as well as adequate provision for the rest and rehabilitation of all on scene personnel. These provisions shall include necessary medical evaluation, treatment and monitoring, food & fluid replenishment, mental rest, relief from extreme climactic and other environmental parameters of the incident. The rehabilitation area shall include the provision of Emergency Medical Services (EMS) at a Basic Life Support (BLS) level or higher. Designate and assign a supervisor to manage rehabilitation and ensure sufficient
resources are assigned to the group/division. It is recommended that an additional EMS resource be requested to supplement Rehab operations on all incidents with a confirmed IDLH environment.

4.2. **Officers/Supervisors**
Shall maintain an awareness of the condition of all personnel under their command or within their span of control and ensure adequate steps are taken to provide for each person’s health and safety. It is imperative the Incident Command and Accountability Systems are utilized to request relief and the reassignment of fatigued crews. All officers/supervisors shall continuously encourage members to maintain proper nutrition, hydration, and a healthy lifestyle prior to emergency operations or training exercises.

4.3. **Personnel**
During periods of hot weather, members shall be encouraged to drink water and full strength activity beverages throughout the workday. During any emergency incident or training evolution, all members shall maintain their hydration and advise their company officers when they believe their level of fatigue or exposure to heat or cold is approaching a level that could negatively affect them, 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.

4.4. **Rehab Group/Division Supervisor**
Shall be selected from EMS company officer or qualified EMS personnel:

The Rehab Group/Division Supervisor responsibility shall include:

- Wearing of the Rehab Group/Division Supervisors Vest if available
- Designating the location of the Rehabilitation Group/Division if the Incident Commander has not already done so, securing and providing the necessary resources for rehabilitation
- Maintaining accountability at all times
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- Remaining with the Rehabilitation Group/Division at all times and serving as a liaison with EMS Personnel

- The Rehab Group Supervisor is responsible for accountability of all crews assigned to the Rehabilitation Area. Crews shall not leave the Rehabilitation Area until authorized to do so by the Rehab Group Supervisor.

4.5. First EMS Unit designated to setup Rehabilitation

Unless a life safety issue immediately exist

4.6. Rehabilitation Group/Division Personnel (EMS)

Shall consist of the Rehab Group/Division Supervisor, all non firefighters, and any EMS personnel assigned by command staff. Rehab Group / Division Personnel shall report directly to the Rehab Group/Division Supervisor. Their responsibilities shall include checking vital signs, monitoring for Hypothermia/Hyperthermia, other medical issues and providing treatment and transportation to medical facilities as required. Rehab Group/Division Personnel shall inform the Rehab Group/Division Supervisor when personnel require an extended period of rehabilitation or transportation to a medical facility.

5.0. Establishment of the Rehabilitation Group/Division

5.1. Responsibility

The Incident Commander will establish a Rehabilitation Group or Division when conditions indicate that rest and rehabilitation is needed for personnel operating at an incident scene or training evolution. A supervisor will be placed in charge of the Group/Division and shall be known as the Rehab Group or Division Supervisor. The Rehab Supervisor will typically report to the Logistics Officer in the framework of the incident management system. Duration of operations, level of physical exertion and environmental conditions, including temperature, humidity, and wind-chill factors shall be considered. (i.e. Extreme climate or environment; humidity reaches 96 or the air temperature is below 37 degrees; stress index >90 degrees F; wind chill <10 degrees F, full assignments, large scale incidents, hazardous materials incidents requiring entry/return)
labor intensive incidents > 45 minutes or more of strenuous activity, long duration incidents over 60 minutes)

5.2. Location
The location for the Rehabilitation Group/Division area will normally be designated by the Incident Commander. If a specific location has not been designated, the Rehab Group/Division Supervisor shall select an appropriate location based on the site characteristics and designations below and relay this to Command.

5.3. Site Characteristics
5.3.1 Far enough outside the immediate perimeter to permit the removal of PPE. (Including boots).
5.3.2 Far enough outside the immediate perimeter to provide physical and mental rest from the stress and demands of the incident or training evolution.
5.3.3 Far enough outside the immediate perimeter to be free of vehicle exhaust, equipment noises and the general flow of communications.
5.3.4 Should provide suitable protection from the environmental conditions. It should be warm & dry during cold weather and during warm weather it should be cool and shaded.
5.3.5 Should be large enough to accommodate multiple crews according to the size of the incident.
5.3.6 Should be easily accessible by EMS units, but out of the traffic flow of other vehicles.
5.3.7 Should provide easy access to Staging without requiring travel through other operational areas. Allow prompt reentry back into the emergency operation upon completion of recuperation.

5.4 Designated Sites
5.4.1 Structures such as barns, garages, schools, building lobbies or other structures (Tents).
5.4.2 Large capacity vehicles such as school or municipal transportation buses and or rehab unit.
5.4.3 Emergency apparatus large enough to meet the current needs of the Rehab Unit Leader.
5.4.4 An open but protected area such as a parking lot or field.
5.5 Resources

The Rehab Group/Division Supervisor shall secure all necessary resources required to adequately staff and supply the Rehabilitation Area. The supplies should include the items listed below (minimum):

1. Other – awnings, fans, tarps, smoke ejectors, heaters, dry clothing, extra equipment, flood lights, blankets and towels, hand washing station, traffic cones and fire line tape (to identify the entrance and exit of the rehabilitation area).

2. Mental decompression. CISD/CISM if necessary.
   a. Is on site evaluation & defusing necessary?
   b. Response to station for evaluation & defusing necessary?
   c. Coordinate debriefing within 24-48 hours of the incident?

3. Concerns regarding hot and cold environmental conditions:
   a. Warm condition concerns
   b. Extra hydration
   c. Shelter from sun
   d. Prevention of burns on hot asphalt
   e. Cooling therapies

4. Cold weather
   a. Wind shelter
   b. Increased caloric consumption
   c. Thawing of gear
   d. Frostbite check

5.6 Staffing Procedures

Rehab staffing is based on the anticipated workload. The recommended ratio of Rehab personnel to members currently assigned to rehab should be approximately 1:5. This recommendation is arrived at by considering the following:

- The recommended National Incident Management System (NIMS) Span of Control of three to seven
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This recommendation equates to a ratio of ten persons assigned to Rehab for a single EMS unit or about three companies in Rehab at the same time. The IC should consider supplementing Rehab in the event of weather extremes. The IC may also elect to redeploy underused resources to Rehab to facilitate the surge created by incident de-escalation/demobilization.

5.7 Based on that ratio, the levels of Rehab are:

- **Normal** - Consists of a single, dedicated EMS unit and is applicable for incidents up to and including a first alarm assignment or incidents where units will be operating for less than one hour. The responsibility of rehabilitation can be handled by a single EMS unit and can be managed by any EMS provider.

- **Moderate** - Consists of multiple dedicated resources with a designated supervisor. As the incident grows, there becomes a need for more resources to handle the responsibilities of rehabilitation. On incidents greater than a first alarm, consideration should be given to increasing the number of providers assigned to the Rehab Group as well as the level of supervision. The supervisor of the Rehab Group should be an Operations Officer at EMT or higher certification and the providers operating in the group can be any combination of EMS or suppression personnel as long as the ratio of providers to firefighters needing rehab remains consistent. ALS presence in Rehab is REQUIRED at this level.

- **Elevated** - Also consists of multiple dedicated resources with a designated supervisor. During long term incidents such as large brush fires or hazardous materials incidents, the Rehab Group should be managed under the Logistics Section of the Incident Command System. Radio designation will be determined by Logistics due to the potential for multiple rehab sites, establishment of a base camp, etc. Incident Commanders should give consideration to requesting additional EMS resources if the original EMS unit assigned to the incident becomes involved in patient care and or transport and are unable to fulfill their rehab duties.

The Rehab area shall be clearly denoted. Companies are to stay within the designated area while assigned to the Rehab Group.
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The Rehabilitation Tracking Form (Appendix A) will be used to document and track each company through Rehab.

6.0 Procedures/Objectives

6.1. Cooling
A primary goal of rehabilitation should be the restoration of each person’s core body temperature. The most effective method of doing so is active cooling through forearm/hand immersion for at least 10 minutes. If equipment is available, this is the preferred method of cooling. Other methods involve passive cooling through hydration, removal of turnout gear, and rest.

6.2. Hydration/Rehydration
A critical factor in the prevention of heat injury is the maintenance of water and electrolytes. Fluids must be replaced during training and emergency incidents. During heat stress personnel should consume at least one (1) quart of water per hour. The re-hydration solution should be an undiluted commercially prepared activity beverage administered at about 40 degree F. When applying the 2 air bottle rule, personnel (6.4) shall rehydrate with a minimum of 8 ounces while air bottles are being exchanged. Rehydration is important even during cold weather operations where despite the outside temperature, heat stress can occur during firefighting operations when wearing PPE. Alcoholic, caffeine, and carbonated beverages should be avoided before and during heat stress because they interfere with the body’s water conversion mechanism.

6.3. Nourishment
Food may be provided at the scene of an extended incident when units are engaged for three or more hours. A cup of soup, broth, 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.
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64. **Rest**

The two (2) air bottle rule or 45 minute work period rule shall apply and shall mean that personnel working through two (2) 30/45 minute air bottles or a 45 minute work period shall be required to be relieved and report to the Rehab area. This rule represents the maximum effort permitted prior to mandatory rehabilitation. In all cases an objective evaluation of an individual’s fatigue level shall be the criteria for rehabilitation. The Rehab Group/Division Supervisor shall determine the length of the rest period; however, it shall be no less than 10 minutes.

65. **Recovery**

Personnel in the Rehab areas should maintain a high level of hydration. Personnel should not move directly from a hot environment to an air conditioned one. Such a move can cause the body’s natural cooling system to shut down. It is necessary, therefore, to provide a cooling down period in an area with some amount of air flow. Certain medications such as diuretics, stimulants or antihistamines like Actifed or Benadryl impair the body’s ability to sweat; therefore, extreme caution must be exercised if an individual has taken those medications.

66. **Medical Evaluation**

Standard specifies assessing each person for: presence of chest pain, dizziness, shortness of breath, weakness, nausea or headache; general complaints such as cramps, aches or pains; symptoms of heat or cold related stress; changes in gait, speech or behavior; alertness and orientation to person, place and time; vital signs, particularly those considered abnormal within protocol.

1. Rehab personnel will evaluate vital signs; question them about any symptoms, and/or injuries. Examine personnel and determine appropriate disposition such as return to staging, initial rehabilitation or medical treatment/transport. Continued rehabilitation should include additional monitoring of vital signs providing fluids and rest. Medical treatment should be in accordance with established medical protocol.
2. The heart rate should be measured for 30 seconds. An early oral or tympanic temperature should be taken. If the temperature exceeds 100.6°F the individual should not be permitted to wear PPE. If it is below 100.6°F and the heart rate remains above 110 beats per minute, the rehab time should be extended. If the heart rate is less than 100 beats per minute the chance of heat stress is negligible.

3. All vitals will be documented and personnel will be evaluated for signs and symptoms of heat stress, chest pain, shortness of breath, or other ill effects when entering the rehab area. If these are absent, then vitals can be taken after fifteen minutes of hydration and rest. Personnel whose pulse rates exceed 120 bpm will be sent to the treatment area for further evaluation. Personnel with other symptoms, i.e. chest pain, shall be sent to the treatment area.

4. The Rehab Group/Division Supervisor shall advise the IC on the number of personnel ready to return to operations and those not and possible duration for that.

Prior to Release:

**Benchmarks after Rest and Recovery should be:**

- **Pulse:** Less than 100 beats per minute
- **BP:** Systolic less than 160mmHg and/or diastolic less than 100mmHg
- **Temp:** Normal ranges from 98.6°F to 100.6°F
- **SpO2:** Less than 95% (smokers may be ‘normal’ up to 10%)
- **SpO2:** Greater than 95% (smokers may be normal down to 90%)
- **Resp:** Less than 20

**Transport to Hospital if:**

- Symptoms of heat stroke
- Respiratory distress/SOB
- Abnormal lung sounds
- Altered mental status
- Irregular pulse
- Persistent pulse above 180
- Significant injury
- Chest pain or severe headache
- Other conditions as appropriate
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Documentation:
All medical evaluations shall be recorded on standard forms along with the member’s name and complaints and must be signed, and dated by the Rehab Group Supervisor or his/her designee. All documentation generated by Rehab with the exception of eMEDS will be turned over to the Incident Commander.

Release from Rehab:
Personnel working in the rehab area will need to utilize an accountability system for tracking members entering and leaving the area. Time in and time out will be documented.

If members become ill or are injured, standard medical protocols will be followed. While BLS care is a minimum, for high-risk operations (e.g. hazmat operations), it will be appropriate to have ALS resources available.

All reports shall be completed per assessed provider in eMEDS Patient Care Report document and paper records destroyed.

6.7 Failed Rehab
A person is considered to have failed rehab whenever they are unable to be released back to full operational status (returned to staging or operations). The Rehab Supervisor is considered to have the delegated authority from the IC to determine if a person is able to be released back to operations or if they have failed Rehab.

Failed Rehab criteria include but are not limited to:
- Any complaint of altered level of consciousness, persistent headache, chest pain, trouble breathing, persistent air hunger, or any sign of other serious medical events.

- Vital Signs that remain outside the safe range (noted earlier in standard) after 40 minutes in Rehab.
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- Any emerging injury, such as burns (i.e., developing redness), swelling or soft tissue injury, increasing muscle cramping, or spasm in spite of Rehab.

- Evidence of injury from environmental extremes or any other signs of minor injury that requires medical evaluation prior to returning to an operational status.

Personnel that fail rehab will be evaluated for potential immediate transport to a hospital. The Incident Safety Officer and IC will be notified of all failed rehab events. Persons who fail Rehab will not be permitted to engage in any further activity on the incident regardless if they elect against transport to a hospital. All persons who fail Rehab, regardless of being transported, will be referred back to their departments for specific procedures on returning to duty. The disposition of the remaining members of that crew will be at the discretion of the Safety Officer or Incident Commander.

It is assumed that failure to Rehab may be potentially related to a medical condition and those persons are further assessed as a ‘patient.’ Rehab personnel will complete a patient care report (eMEDS) using the Rehab EMS Unit designator, unless transported then will be the transporting unit’s responsibility. Furthermore, ALL expectations of patient privacy and confidentiality shall be respected and followed on any failed rehab. All personnel are strongly cautioned against discussing any person’s response to rehab, regardless of perceived insignificance of the information. Any information and documentation from Rehab will be provided to the Incident Commander to be secured with the NFIRS’s documentation.
The goal is not ONLY to go home at the end of each shift, but also to finish your career healthy. Achieving these goals will take a long term commitment by emergency personnel, officers, administration and government.

### RECOMMENDED FLUID INTAKE

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<th>Fluid Intake</th>
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<td>Structural firefighting</td>
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<td>Approximately every 20 minutes</td>
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<td>Major Medical/MCI event</td>
<td>2-4 oz.</td>
<td>Approximately every 20 minutes</td>
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<tr>
<td>HazMat or Technical rescue</td>
<td>2-4 oz</td>
<td>Approximately every 15-30 minutes considering time element in removing PPE</td>
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<td>Wild land Firefighting</td>
<td>2-4 oz</td>
<td>Approximately every 20 minutes</td>
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### Additional Material

Appendix A – Rehab Tracking Sheet
Appendix B - NOAA’s National Weather – Wind Chill Chart
Appendix C – NOAA’s National Weather – Heat Index Chart
Appendix D - Urine Hydration Chart
Appendix E – Example of a possible Rehab Triage Tag
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References

- U.S. Fire Administration Emergency Incident Rehabilitation (February 2008)
- Firefighter Rehab: An Introduction to NFPA 1584 - (IAFC)
- Medical/Rehab Unit Leader Check List – Crew Boss Rehab
- Firemedically - Making Rehab a Requirement: NFPA 1584 (12/2007)
- Northern Virginia - Emergency Incident Rehabilitation, Second Edition (10/2012)
## Appendix A – Rehab Tracking Sheet

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<th>County/State:</th>
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**Appendix B - NOAA’s National Weather -- Wind Chill Chart**

## Wind Chill Chart

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**Frostbite Times**  
- Blue: 30 minutes  
- Blue: 10 minutes  
- Blue: 5 minutes

Wind Chill \((^\circ F)\) = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})

Where, \(T\) = Air Temperature \((^\circ F)\) \(V\) = Wind Speed (mph)

*Effective 11/01/71*

---

600-02 Incident Scene Rehabilitation – 11/21/2013
### NOAA's National Weather Service

#### Heat Index

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#### Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- **Caution**
- **Extreme Caution**
- **Danger**
- **Extreme Danger**
Appendix D - Urine Hydration Chart

**Am I Hydrated?**

Urine Hydration Chart

1. Healthy
2. Hydrated (Target)
3. Dehydration
4. Severe Dehydration

*Diabetes and medical conditions can change the color of urine; use another type of test to verify these.*
Appendix E – Example of a possible Rehab Triage Tag

**WASHINGTON COUNTY INCIDENT REHAB TAG**

<table>
<thead>
<tr>
<th>DATE:</th>
<th>INCIDENT NUMBER:</th>
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**RESPONDER INFORMATION**

<table>
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<th>NAME:</th>
<th>STATE L.D.B.</th>
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<table>
<thead>
<tr>
<th>AGE/D.O.B.:</th>
<th>GENDER</th>
<th>ADJUDGED</th>
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<td></td>
<td>MALE</td>
<td>FEMALE</td>
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<th>UNIT ASSIGNMENT:</th>
<th>100-IN-T/T:</th>
<th>100-OUT-T/T:</th>
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<th>PPE USE:</th>
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**CURRENT WEATHER CONDITIONS**

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<th>TEMPERATURE</th>
<th>WIND D.H.R.</th>
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**VITAL SIGNS**

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<tr>
<th>TIME</th>
<th>BP</th>
<th>PULSE RATE</th>
<th>RESPIRATIONS</th>
<th>TEMPERATURE</th>
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**COLD SYMPTOMS**

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<th>Low BP</th>
<th>Mental Confusion</th>
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**EMERGENCY MEDICAL CARE REQUIRED:**

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**OFFICIALS**

**WASHINGTON COUNTY INCIDENT REHAB TAG**

**WCVFRA REHABILITATION**

Upon completion of an assignment in the hot zone of a working incident or training session, personnel shall report to the Rehabilitation Sector prior to requesting or undertaking additional assignments. Crew members shall undergo a mandatory rest and recovery period if they have used two full 30 or 45 minute air cylinders, if they have worked 65 minutes or if command staff, a company officer, or a senior firefighter in charge of a crew directs the crew members to do so. Personnel shall not report back to his manpower pool unless they have been evaluated and released by the Rehabilitation Sector.

Personnel working in the rehab area will need to utilize an accountability system for tracking members entering and leaving the area. Time in and time out will be documented.

**REHAB PRE-RELEASE CHECK LIST**

1. Climatic Conditions: Yes | No
2. Dehydration: Yes | No
3. Dehydration: Yes | No
4. ORAL SOLUTIONS
   - Water: Yes | No
   - Glucose: Yes | No
5. Wound Care: Yes | No
6. Personal Accountability: Yes | No
7. Rest: Yes | No

**PRE-RELEASE VITAL SIGNS**

<table>
<thead>
<tr>
<th>TIME</th>
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<th>RESPIRATIONS</th>
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Released By: ____________________________
Signature: ____________________________
Time: ____________________________

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600-02 Incident Scene Rehabilitation – 11/21/2013