

Mountain Environmental Group
Health and Safety Plan
PROJECT: Davidson River Village, LLC
LOCATION: 1 Ecusta Road
Pisgah Forest, NC
DATE: 3/12/2008

B. ACTIVITIES PERFORMED ON SITE PRIOR TO ASSESSMENT/CLEANUP:

The site formerly functioned as a paper mill and manufacturing facility of paper products. The site was recently purchased by Davidson River Village, LLC (DRV) for development into a mixed commercial usage.

C. TOPOGRAPHIC AND/OR UNUSUAL FEATURES:

- (1)The project site is located on the east side of Ecusta Road approximately 1,900 feet south of its intersection with US Highway 64 (Asheville Highway).
- (2)The site is located at the base of Johnson Mountain in a level stream valley/flood plain associated with the Davidson River which parallels the site to the east. Based on applied hydrogeologic principles, groundwater flow at the site would likely flow to the east, southeast toward the Davidson River.
- (3)The site has historically served as a paper manufacturing mill.

D. RESULTS OF PREVIOUS SURVEYS OR ASSESSMENTS:

Although assessment and intrusive testing of both soil and groundwater have been conducted in conjunction with the real estate transfer of the former Ecusta plant, Mountain Environmental Group has not been provided copies of historical assessment of the subject facility. Based upon the scope of work outlined for the characterization and handling of materials at the site, it does not appear that the findings of such assessments will affect the performance of the Mountain Environmental work scope.

E. Constituents of Concern:

The constituents of concern for the Davidson River Village, LLC project site are expected to be corrosive liquids, oxidizers, black liqueurs from the pulp paper process, volatile, semi-volatile, organic fluids, flammables, sludge and semi-solids that were part of the manufacturing process of paper and paper products. These materials are anticipated to include medium/high boiling point hydrocarbon fuels (heating fuel, diesel, etc.), detergents, flammable liquids, organic and inorganic solvents, gasses (propane, etc) and other chemicals used in the paper manufacturing process. **Attachment 3** is a list of the bulk tank inventory at the site presenting information regarding bulk containers including: tank ID numbers, container size general and specific

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locations, former contents and CAS numbers for the former contents. An inventory of chemical **Attachment 4** is a list of on-site chemicals. Material safety data sheets (MSDSs) for materials utilized at the former Ecusta facility are stored on the third floor of the Main Office Building (Building #2) depicted on **Figure 2: Demolition Phase Map**.

F. WASTE TYPES:

Chemicals and wastes contained on-site include those used in the paper manufacturing process. A list of the bulk tank contents is included as **Attachment 3**. An inventory of chemicals dated April 2004 is included in **Attachment 4**.

1. LIQUIDS:

Liquids may be difficult to contain and are easily splashed onto unprotected body surfaces. Exercise caution when working in areas where liquids may be present. Avoid spillage of liquids. All liquid chemicals will be inventoried, labeled, and secured for transport to a temporary staging area for pick-up. Containers will be sealed against the environment following identification and segregation handling and staging to prevent spillage and rain water from entering the containers.

2. SOLIDS:

Solids will may be encountered and will be inventoried, labeled, and secured for on-site transport to a temporary staging area for pick-up.

3. GASES/VAPORS:

Gases and vapors are not generally visible, may displace oxygen in low lying or enclosed areas, may not excite the olfactory senses and are readily inhaled into the respiratory system. Monitor areas where toxic gasses/vapors may be present for contamination levels, oxygen content, and flammability. Position personnel upwind of invasive activities and on the opening of materials where gasses/vapors may be released until contamination levels are established and appropriate protection measures are in place.

G. WASTE CHARACTERISTICS:

Waste/chemical constituents will be labeled and inventoried on-site. Waste characteristics may be in the form of liquids, gasses, or solids.

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H. SUBSTANCES:

Field activities will primarily be those associated with classifying, inventorying, and staging chemicals, liquids, solids and semi-solid materials for disposal. Chemicals in the bulk tank inventory are included as **Attachment 3**. Material safety data sheets (MSDSs) for materials utilized at the former Ecusta facility are stored on the third floor of the Main Office Building (Building #2) depicted on **Figure 2: Demolition Phase Map** and will be available for review at all times during field activities.

The chemicals encountered may pose a human health hazard if ingested or exposed to skin for extended periods of time. The chemicals may pose a hazardous eye irritant, and hazardous dermal exposure through skin contact.

I. PHYSICAL HAZARDS:

1. Inhalation Hazards

Field work may involve exposure to materials that produce hazardous vapors, gases, fumes and/or mists. These materials may emit these toxic inhalants when introduced to non-corrosive substances such as water. Vapors, fumes, and gases may be odorless, colorless and their production may not be immediately observable. Any reaction of materials should be monitored, field activities ceased and appropriate counter-measures executed (donning air purifying respirators with appropriate filter cartridges, evacuation of personnel, ventilation of affected area, etc.)

2. Acids and Alkaline Materials

Acids and Alkaline materials pose a burn hazard that can cause skin destruction upon contact. These materials can include both solids and liquids. Caution should be exercised in handling these materials to prevent skin exposure. Care should be exercised to reduce splash hazards. If these materials should come in contact with the skin, flush affected area for a minimum of 15 minutes with water, DO NOT try to neutralize the affected area and seek immediate medical assistance. Appropriate protective equipment should be utilized when handling acids and bases including splash guards, face shields, gloves (inner and outer), and coveralls.

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3. Oxidizers

Oxidizers are substances which accelerate combustion by the addition of oxygen to the reactants. These materials may generate heat, pressure, fire, explosion, toxic vapors, or violent reactions when introduced to incompatible materials. It should be noted that aged or degraded oxidizers may increase instability. Oxidizers may cause skin irritation and burns especially when they have degraded or been introduced to incompatible materials such as flammable liquids and acids and caution should be exercised to segregate from incompatible reactants.

4. Explosion/Fire Hazard

Gasoline vapors have a flash point of approximately -45°F (-42.8°C) and can pose an extreme explosion hazard. Auto ignition temperature for gasoline ranges from 536°F to 850°F .

Diesel fuel is combustible (flash point 140°F , 60°C) and may pose a moderate fire risk. Auto ignition temperature for #2 diesel fuel is approximately 490°F .

Chemicals in the bulk tank inventory are included as **Attachment 3**. An inventory of chemical dated April 2004 is included as **Attachment 4** at the end of this Health and Safety Plan. Material safety data sheets (MSDSs) for materials utilized at the former Ecusta facility are stored on the third floor of the Main Office Building (Building #2) depicted on **Figure 2: Demolition Phase Map**.

5. Heat Stress

The use of personal safety equipment may produce heat stress for field personnel, especially in the late spring through the early fall of the year. Monitoring of personnel wearing personal protective equipment will be conducted when the ambient air temperature exceeds 70°F (21.1°C). Monitoring frequency should increase as the ambient temperature increases or as slow heat stress recovery rates are observe. Personnel should be trained in self monitoring techniques as outlined in **Attachment 2**. Heat stress monitoring by a person possessing a valid first aid certification and who is trained to recognize heat stress symptoms may be warranted depending upon site and work conditions. It is not anticipated that the scope of work will continue into warm-weather seasons.

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6. Cold Related Illness

Working in cold weather presents special considerations to avoid injury to personnel performing field activities in cold environments. Personnel should be trained in self monitoring techniques as outlined in **Attachment 2** to be able to identify and thereby reducing the risk of cold weather injury such as hypothermia and frost bite. It is not anticipated that the scope of work will continue into cold-weather seasons.

6. Location Hazards

The site is located within the former Ecusta Paper manufacturing complex which is an industrial manufacturing setting. Caution should be exercised during ingress and egress at driveway access points to Ecusta Road and NC Highway 280. Because of the presence of trucks and heavy equipment associated with the demolition, construction and development of the site, caution should also be exercised not only in roadways, parking and paved areas and thoroughfares but also within open buildings and similar large enclosed “open” spaces in observance of vehicular traffic. Handling of chemicals and materials may require the use of fork lifts, pallet jacks and similar bulk materials transportation equipment. Field personnel are cautioned to be aware of moving equipment in and around vehicular thoroughfares, plant corridors and indoor “open” spaces at all times.

J. WEATHER CONDITIONS:

The proposed time frame for the site activities indicates that the field work will be conducted in the early through mid-spring seasons. Further assessment, site activity and remedial effort may be conducted in each of the four seasons, however. Weather conditions for the Transylvania County region typically range from moderate day and nighttime temperatures in the spring and fall seasons to extremes of heat and cold experienced in the summer and winter seasons, respectively.

1. Ambient Temperatures:

Day: Variable (typical spring temperatures 50-65 degrees)

Night: Variable (typical spring temperatures 30-45 degrees)

2. Prevailing Winds:

No information was available for site specific prevailing wind directions. Based upon the

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anticipated scope of work to be conducted at the site, prevailing wind direction does not appear to be an influential factor.

3. Special Weather Considerations:

Icy roads and hazardous driving conditions may be encountered in the region from late fall (Mid-November) through late spring (early May) which will include the time frame for field work at the former Ecusta facility. During spring and summer seasons thunder storms may occur thereby limiting or restricting field activities during these periods.

II. SITE ORGANIZATION AND CONTROL:

In an attempt to establish control of the site to provide a safe work area with regards to the types and established levels of contamination, the prevailing wind and site conditions, and the scope of work activities to be conducted, the site will be organized as follows:

1. Exclusion Zone:

The exclusion zone for the work activities will be the immediate area of storage receptacles (tanks, 55-gallon drums and groups of smaller containers). Access to this area should be restricted to personnel required for the characterization, identification and handling of materials and should be delineated by the placement of traffic hazard cones, warning tape, and/or the support/transport vehicle(s).

2. Contamination Reduction Zone/Decontamination Corridor:

The contamination reduction zone and decontamination zone will be the area surrounding the support vehicle(s) and should include an area with a radius of approximately 40 feet, depending upon site conditions and limitations of available space.

3. Support Zone:

The support will consist of the area surrounding the support vehicle and should include an area with a radius of approximately 60 feet, depending upon site conditions and limitations of available space.

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III. WORK SCOPE

MESI will provide a team of 29 CFR 1910.120 40-Hr trained personnel to sweep the entire facility and stage all found, and transportable containers of chemicals to staging areas strategically located on the site. The staging areas will be located based upon security, RCRA storage requirements and ease of off-site transport loading efficiency. During the staging process, chemicals will be segregated by hazard code. Incompatible chemicals will be isolated from each other. MESI plans to use DRV fork trucks to facilitate the collection and staging. Spill Response equipment and materials will be provided and stored on-site during the staging and assessment phase.

Containers containing unknown materials will be isolated, sampled and Haz-mat field tested. MESI will attempt to identify and characterize materials by the field test or by generator knowledge, if the haz-mat field testing and generator knowledge leaves doubt to the identity or hazard class of the material, a representative sample will be delivered to an analytical lab for waste characterization. Haz-mat field testing and analytical testing will be performed outside the lump sum scope of work and will be billed separately based on unit rates.

Once all “movable” chemical containers have been located, characterized and staged in one of three locations, MESI will prepare a inventory spreadsheet detailing each waste stream by the hazard class, the number of containers, volumes, physical state and disposal options. MESI will work with DRV personnel knowledgeable of the ASB NPDES permit to determine which waste streams can be disposed of on-site through the ASB.

MESI personnel will physically inspect each bulk tank as listed on the tank inventory spreadsheet. The inspection will be performed to; confirm the chemical identity of the contents through field tests or generator knowledge, the volume and the physical state of the material. During this bulk tank evaluation process, MESI will add to the inventory plant equipment with obvious fluid or chemical storage containers (hydraulic oil reservoirs, turbine oil tanks, etc.)

Note:

1. MESI will take immediate action if a material is found in an unstable condition or if a container is found to be leaking, or at risk to leak, to reduce the risk of chemical exposure to humans or the environment. These actions may include: the use of personal protective equipment at a higher level than the anticipated standard “Level D” to include respirators or self-contained air as necessary, removal of personnel from area deemed hazardous until conditions stabilize.
2. If MESI is asked to perform tasks over and beyond the scope of work as listed above, MESI will perform the work based upon the unit rates listed. A written

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authorization with estimated costs will be provided to the client prior to MESI performing out-of-scope tasks.

3. MESI expects to be physically on-site for approx. six weeks to perform the chemical staging and characterization. The report preparation should be completed within two weeks after staging for a total project length of eight weeks.

IV. PERSONNEL:

Personnel conducting the field activities of the handling of hazardous and non-hazardous materials will consist of:

- (1) Project Engineer
- (2) Field Chemist
- (3) Field Technician(s)
- (4) Project manager
- (5) Project safety officer

V. EQUIPMENT:

Equipment utilized in the performance of the chemical characterization/assessment will include, but may not be limited to the following:

- (1) Support and auxiliary equipment vehicles
- (2) A portable Mini-Rae 2000 photo-ionization detector to volatile organic compounds
- (3) A portable TMX-112 multi-gas detector
- (4) Fork lifts, pallet jacks, drum dollies, hand trucks and similar container-handling equipment
- (5) Field decontamination equipment (plastic sheeting, water sprayers, etc.)

VI. AMBIENT FIELD MONITORING:

Ambient field monitoring will be conducted by periodic assessment of the breathing air space

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utilizing a portable photo-ionization detector or TMX multi-gas detector to monitor the presence of volatile organic vapors. Ambient air monitoring will also include Dräger[®] CMS, Dräger[®] brand 5-gas IR ambient air monitor (or equivalent) to assess the presence of specific gas concentrations. Breathing air space for personnel may consist of: areas around tanks, 55-gallon drums and smaller container storage and others.

VII. PROTECTION LEVELS:

Because the project site involves a wide range of materials including volatile, semi-volatile organic, inorganic, acids and bases, liquids solids and semi-solid materials, it is anticipated that Protection Level "D" protocol will provide sufficient personal safety for activities associated with the materials management activities.

Level D protection is the minimum protection required. Level D protection may be sufficient when no contaminants are present or work operations preclude splashes, immersion, or the potential for unexpected inhalation or contact with hazardous levels of chemicals. Appropriate Level D protective equipment may include gloves, coveralls, safety glasses, face shield, and chemical-resistant, steel-toe boots or shoes.

Level C protection is required when the concentration and type of airborne substances is known and the criteria for using air purifying respirators is met. Typical Level C equipment includes full-face air purifying respirators, inner and outer chemical-resistant gloves, hard hat, escape mask, and disposable chemical-resistant outer boots. The difference between Level C and Level B protection is the type of equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main criterion for Level C is that atmospheric concentrations and other selection criteria permit wearing an air-purifying respirator. Mountain Environmental will utilize North[®] brand 7600/5400 Full Face air purifying respirators (APR) equipped with organic vapor and acid gas cartridges (P110 organic vapor acid gas with particulate filter) and recommends the same or equivalent for subcontractors.

Regardless of the personal protective equipment level, caution should be exercised by all field personnel to reduce hand-to-mouth/hand-to-face contact. Activities relating to smoking, drinking, and eating should be restricted to periodic break times and only following field decontamination protocol.

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VIII. SAFETY EQUIPMENT:

Health and safety equipment will consist of:

- a. Personal protective equipment associated with level "D" activities

Gloves, coveralls, safety glasses, face shield, and chemical-resistant, steel-toe boots or shoes

- b. Fire extinguisher

A #20 dry chemical fire extinguisher will be committed to the support vehicle(s) and will be maintained to contain or extinguish small fires only. **All fires must be reported to the Pisgah Forest Fire Department and Transylvania County Emergency Management as a 911 emergency.**

- c. First aid kit

A commercial first aid kit will be located in the support vehicle(s). This equipment will be used for minor injuries and for temporary emergency care (prior to transport) only. Body fluid/electrolyte replacement (Gatorade or equivalent), oral thermometers, and a scale will be maintained on site for heat stress prevention/monitoring.

- d. Decontamination equipment

Field decontamination equipment will consist of: plastic sheeting and bermed decontamination area, 5 gallon plastic buckets, plastic/vinyl water retention pool(s), long handled brushes, Alconox brand detergent, de-ionized water rinse, and water sprayer.

- e. Sanitation and hygiene

Sanitation facilities are provided by on-site construction-type portable sanitation units.

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IX. CONTINGENCY PLANS:

A. Local Sources of Assistance:

Both **Pisgah Forest** and **Transylvania County** employ the **911 emergency** telephone response system and should be utilized for first responder assistance.

1. Hospital: Transylvania Community Hospital
1 Hospital Drive
Brevard, North Carolina
(828) 884-9111

2. Ambulance: Transylvania County EMS
Call 911
Robert Cooper
(828) 433-3244

3. Fire: North Transylvania Volunteer Fire Department
2400 Asheville Hwy
Pisgah Forest, NC 28768

Transylvania County Fire Marshall
Contact: Gerald Grose
(828) 884-3235

4. Local Emergency Management:

Transylvania County Emergency Management
Call 911
(828) 884-3108
Contact: David McNeil

5. Local Police: Transylvania County Sheriff Department
(828) 884-3168

6. State Police: NC Highway Patrol
(828) 884-4232

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B. National or Regional Sources of Assistance

- | | | |
|-----|--|----------------------------------|
| 1. | Mountain Environmental Services, Inc. | (828) 648-5556 |
| 2. | EPA (RCRA Superfund Hotline) | (800) 424-9346 |
| 3. | Project Manager (MES) | (828) 456-5189 |
| 4. | Chemtrec (24 hours) | (800) 424-9300 |
| 5. | Bureau of Explosives (24 hours)
(Association of American Railroads) | (202) 639-2222 |
| 6. | CSX Transportation Railroad Emergency | (800) 232-0144 |
| 7. | Communicable Disease Center
(Biological Agents) | (404) 633-5313 |
| 8. | National Response Center
(Oil and Hazardous Substances) | (800) 424-8802 |
| 9. | DOT Office of Hazardous Operations
DOT (Regulatory Matters) | (404) 305-6120
(202) 366-4700 |
| 10. | U.S. Coast Guard
(Major Incidents) | (800) 424-8802 |
| 11. | Pesticide Health Hotline | (800) 858-7378 |
| 12. | Carolina Poison Center | (800) 848-6946 |

ATTACHMENT 1
Mountain Environmental Services, Inc.
HEALTH AND SAFETY PLAN

**SITE AND VICINITY MAP
AERIAL PHOTOGRAPH
DEMOLITION PHASE MAP (SITE PLAN)**

Davidson River Development
(Former Ecusta Paper Facility)
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ATTACHMENT 2: Weather Related Hazards and Self Monitoring Protocol

1.0

HOT WEATHER OPERATIONS

Field operations conducted during the summer months can create a variety of hazards to the employees. This may be especially true if personal safety measures require protective clothing, respiration devices, and other equipment. Heat cramps, heat exhaustion and heat stroke may be experienced, and if not remedied, can be life threatening. Therefore, it is important that all personnel associated with field activities be able to recognize symptoms representative of these conditions, as well as being able to arrest the problem as quickly as possible.

HEAT CRAMPS

Heat cramps usually affect personnel working in hot environments and perspire a lot. Loss of salt from the body causes very painful cramps of the leg and abdominal muscles. Heat cramps may also result from drinking iced fluids either too quickly or in too large a quantity. The symptoms of heat cramps are as follows:

- Muscle cramps in legs or abdomen
- Pain accompanying cramps
- Faintness
- Profuse perspiration

To provide emergency care for heat cramps, remove the employee to a cool place. Give employee relatively small sips of liquids which contain electrolyte replacements such as "Gatorade" or an equivalent fluid. Apply manual pressure to the cramped muscle. Remove the affected employee to a hospital if there is any indication of a more serious problem.

HEAT EXHAUSTION

Heat exhaustion occurs in individuals working in hot environments; this disorder may often be associated with heat cramps. It is brought about by the pooling of blood in the vessels of the skin. The heat is transported from the interior of the body to the surface by the blood. The skin vessels become dilated and a large amount of blood is pooled in the skin. This condition, plus the blood pooled in the lower extremities when in an upright position, may lead to an inadequate return of blood to the heart and eventually to physical collapse. The symptoms of heat exhaustion are as follows:

- Weak pulse
- Rapid and usually shallow breathing

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ATTACHMENT 2: Weather Related Hazards and Self Monitoring Protocol (Cont'd)

Generalized weakness
Pale, clammy skin
Profuse perspiration
Dizziness
Unconsciousness
Appearance of having fainted (the patient responds to the same treatment administered to cases of fainting)

To provide emergency care for heat exhaustion, remove the employee to a cool place. Give employee relatively small sips of liquids which contain electrolyte replacements such as Gatorade or an equivalent fluid. If possible fan the patient to remove heat by convection, but do not allow chilling or over cooling. Treat the patient for shock and remove him to a medical facility if there is an indication of a more serious problem.

HEAT STROKE

Heat stroke is a profound disturbance of the heat regulating mechanism associated with high fever and collapse. Sometimes this condition results in convulsions, unconsciousness and even death. Direct exposure to the sun, poor air circulation, poor physical condition and advanced age (over 40 years) bear directly on the tendency for heat stroke. It is a serious threat to life and carries a 20% mortality rate. Alcoholics are extremely susceptible. The symptoms of heat stroke are as follows:

Sudden onset
Dry, hot and flushed skin
Dilated pupils
Early loss of consciousness
Full and fast pulse
Breathing deep at first, later shallow and even almost absent
Muscle twitching growing into convulsions
Body temperature reaching 105° to 106° or higher

When providing emergency care for heat stroke, remember that this is a true emergency. Transportation to a medical facility should not be delayed. Remove the patient to a cool environment if possible and remove as much clothing as possible. Assure an open airway. Reduce body temperature promptly by dousing the body with water or preferably by wrapping with a wet sheet. If cold packs are available, place them under the arms around the neck, at the ankles or any place where blood vessels that lie close to the skin can be cooled. Protect the patient from injury during convulsions, especially from tongue biting.

Please note that in the case of heat cramps or heat exhaustion "Gatorade" or its equivalent is suggested as part of the treatment regime. The reasoning for this type of liquid refreshment is that these beverages will replace much needed electrolytes to the system. Without these, electrolytes

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body systems can not function properly, thereby enhancing the represented health hazard. Therefore, when working in situations where the ambient temperature and humidity are high and especially in situations where protection levels A, B, and C are required, the Site Health and Safety Officer must:

Assure that all employees drink plenty of fluids and electrolyte replacement ("Gatorade" or its equivalent)

Assure that frequent breaks are scheduled so overheating does not occur

Revise work schedules, when necessary to take advantage of the cooler parts of the day (ie. 5:00 a.m. to 11:00 a.m. and 6:00 p.m. to nightfall)

When protective clothing must be worn, especially levels A and B, the suggested guidelines relating ambient temperature and maximum wearing time per excursion are:

<u>Ambient Temperature</u>	<u>Maximum Wearing Time per Excursion</u>
Above 90° F	15 minutes
85 - 90°	30 minutes
80 - 85°	60 minutes
70 - 80°	90 minutes
60 - 70°	120 minutes
50 - 60°	180 minutes

HEAT STRESS MONITORING

- A. HEART RATE EVALUATION: Establish heart rates early in the morning prior to site activities. Take a 30 second radial pulse (Exert slight pressure on the thumb-side of the wrist using the middle and ring fingers) multiples by two (2). Repeat this procedure early during the rest periods. If the heart rate exceeds 110 beats per minute, increase the length of the rest period.
- B. BODY TEMPERATURE: Log body temperatures using an oral thermometer. Temperatures should be taken prior to site activities and early during the rest periods (prior to eating, drinking or smoking, etc.). If the body temperatures exceeds 99.0° F, the length of the rest period must be extended and the employee may not return to work activities until the body temperature returns to 99.0° F or below.
- C. BODY WATER LOSS: Weigh employees prior to site activities and at the beginning of each rest period. (The clothing worn should be similar for each weighing.) Body water loss should not exceed 1.5% of the total body weight, if it does fluid intake and the rest period should be increased. (Fluids offered during extremely hot weather should be cool but not

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ice cold. Ice cold temperatures tend to constrict the blood vessels which have dilated to provide body cooling.)

The procedures listed may be accomplished by providing a log sheet and an area with a scale and thermometers. Train employees to utilize self-monitoring.

2.0

COLD WEATHER OPERATIONS

Field operations conducted during the winter months can create a variety of hazards to the employees. This may be especially true if personal safety measures require protective clothing, respiration devices, and other equipment are not adequately insulated to protect the employee from the cold. Frost bite and hypothermia are two of the conditions that may be experienced, and if not remedied, can be life threatening. Therefore, it is important that all personnel associated with field activities be able to recognize symptoms representative of these conditions, as well as being able to arrest the problem as quickly as possible.

HYPOTHERMIA:

Hypothermia is defined as a decrease in patient's core body temperature below 96°F. The body temperature is normally maintained by a combination of central (brain and spinal chord) and peripheral (skin and muscle) activity. Interferences with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered "cold" ambient temperature. Symptoms of hypothermia include:

- Shivering
- Apathy
- Listlessness
- Sleepiness, and unconsciousness

When providing emergency care for hypothermia, remember that this is a true emergency. Transportation to a medical facility should not be delayed. Remove the patient to as warm an environment as possible and keep patient wrapped in blankets or other protective clothing. The key to successful hypothermia emergency care is to raise the CORE body temperature, not only the peripheral tissue and extremities. Assure an open airway. Raise body temperature promptly by immersing the body in warm (not hot) water. If the patient is conscious, attempt to give him warm liquids. Protect the patient from injury during convulsions, especially from tongue biting.

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COLD WEATHER MONITORING

- A. **BODY TEMPERATURE:** Log body temperatures using an oral thermometer. Temperatures should be taken prior to site activities and early during the rest periods (prior to eating, drinking or smoking, etc.). If the body temperatures drops below 97.5° F, the length of the rest period within a heated environment must be extended and the employee may not return to work activities until the body temperature returns to 97.5° F or higher.
- B. **OBSERVATION BY FIELD TEAM LEADERS:** Observations of employees by supervisory personnel should be conducted to look for signs or disorientation, confusion, apathy, and the other symptoms of cold weather injury. Observational personnel should be those who are not exposed to the cold weather conditions who may not be affected by cold weather injury as well.
- C. **FROSTBITE:**

Frostbite is both a general and medical term given to localized area of cold injury. Unlike systematic hypothermia, frost bite rarely occurs unless temperatures are less than freezing and generally less than 20° F. Symptoms of frostbite are:

Skin exhibits a waxy or white appearance
Sudden blanching or whitening of the skin (and is firm to the touch)
Tissues are cold, pale and solid

To provide emergency care for frostbite, remove the employee to a warm place. Give employee relatively small sips of warm liquids. Apply warm (not hot) water to the affected areas and transport to a medical facility as soon as possible.

Workers should be trained for self monitoring procedures. However, cold weather injury may affect perception of existing patient conditions and therefore cloud the patient's ability to detect early or advance signs of cold weather injury. Hypothermia may be caused in ambient temperatures which might not normally be considered "cold" and care must be given to prevent loss of body heat. In addition to "cold" ambient temperatures, effects of the wind on body tissues may add to the injury experience in cold weather. The effect termed "wind chill" promotes evaporation of perspiration on the skin, gives the perception of colder temperatures than may actually exist and may speed up the on-set of frostbite and hypothermia. Protection of exposed skin from the wind will greatly reduce potential for damage due to the wind chill.

Notes:

