Deepwater Horizon
Onshore Clean-up Task Force
Heat Stress Management Plan
DATE: June 8, 2010

Unified Command Approvals:

<table>
<thead>
<tr>
<th>Role</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOSC</td>
<td></td>
<td>8 Jun 10</td>
</tr>
<tr>
<td>SOSC</td>
<td></td>
<td>8 Jun 10</td>
</tr>
<tr>
<td>Incident Commander</td>
<td></td>
<td>8 June 2010</td>
</tr>
</tbody>
</table>

"Copy"
# Deepwater Horizon
## Onshore Clean-up Task Force
### Heat Stress Management Plan

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<th>Issue Date:</th>
<th>06/08/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authority:</td>
<td>Incident Commander/Unified Command</td>
<td>Issuing Dept:</td>
<td>Safety Officer – Houma</td>
</tr>
<tr>
<td>Scope:</td>
<td>MC 252 - Houma</td>
<td></td>
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<tr>
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1.0 Introduction

1.1 Purpose

This plan is designed to reduce the risk of heat related disorders for the employees working On-Shore and Near-Shore clean-up operations in Louisiana.

1.2 Acronyms and Definitions

PPE - Personal Protective Equipment
HSM – Heat Stress Manager
HSA – Heat Stress Advisor

2.0 Heat Stress Management Plan

2.1 Rest Areas

Supervisors will review work locations for pre-existing shade areas. Teams will set up shade structures at the beginning of the shift and relocate them as workers move. Shade must be located within 100 yards of the work activity at all times. There must be enough shade available to accommodate the number of workers planned to be on their rest cycle at any one time.

2.2 Personal Protective Equipment

Refer to the PPE matrix in Appendix B based on the type of work you are doing.

2.3 Work/Rest Cycle

The work/rest cycle is a method of decreasing heat stress. The work rest plan for this action was developed in conjunction with Dr. Robert M. Bourgeois who is Board Certified in Occupational Medicine. This plan was designed to provide simple rules that can be easily implemented.

The work schedule will be based on 20 minute intervals. The HSA will use an air horn or other effective means to notify workers of the beginning and end of each interval.

<table>
<thead>
<tr>
<th>Work Schedule for Employees “not” using Protective Coveralls or Respiratory Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>40/20</td>
</tr>
<tr>
<td>Employees can work 40 minutes of every hour with 20 minutes spent at rest in the shade.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work Schedule for Employees who are using Protective Coveralls or Respiratory Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/40</td>
</tr>
<tr>
<td>Employees can work 20 minutes of every hour with 40 minutes spent at rest in the shade.</td>
</tr>
</tbody>
</table>

1 Can apply to DuPont Pro-Shield 1 or similar; Tychem QC or similar
* If at any time during the course of work, an employee feels signs or symptoms of heat disorder, they should immediately be moved to shaded area and consume liquids.

2.4 Acclimatization

- A gradual physiological adaptation that improves one’s ability to tolerate heat stress – evaporation of sweat
- Exposure guidelines assume workers are: healthy; un-medicated; heat acclimatized; and adequately hydrated.
- Acclimatization is a gradual process where the body adjusts to more stressors and heat levels. The body benefits from a smaller increase in body temperature, heart rate and increased sweat production while working in heat.
- Workers new to working in a hot environment, workers returning after 3 weeks of cooler weather, or returning after being sick will acclimatize by working 10 minutes per hour on days 1 and 2. On days 3 and 4, the work time can be increased to 15 minutes per hour. (with Dupont ProShield or TyChem)
- Workers new to working in a hot environment, workers returning after 3 weeks of cooler weather, or returning after being sick will acclimatize by working 20 minutes per hour on days 1 and 2. On days 3 and 4, the work time can be increased to 25 minutes per hour. (without Dupont ProShield or TyChem)

2.5 Training and Capability

Individuals performing onshore clean-up will be trained (verbally) prior to work in the:

- Hazards of heat stress
- Signs and symptoms
- Factors that may put them at risk (e.g. age, obesity, drug-use, alcohol)
- Responsibilities
- Use of protective clothing and equipment
- First-aid procedures

In addition, OSHA safety fact cards will be distributed.

2.6 Fluid Replacement

The water needed to replace body fluids varies among individuals, but generally workers should drink at least a liter of water for each hour of their shift. Water is the preferred liquid for preventing heat stress but from time to time it is necessary to replace electrolytes. When providing sports drinks it is imperative that the liquids other than water be low sugar options, such as Gatorade G2.

Workers should be encouraged to drink water prior to work, and avoid drinks with caffeine, alcohol, or large amounts of sugar, like soft drinks.

Lighter foods are recommended over heavy meals. Eat smaller meals at more frequent eating intervals.
2.7 Worker Protection
At a minimum the following worker protection should be used:

- Sun screen with SPF 50 should be applied to face, ears, neck, lips and any exposed skin. It should be reapplied at least every two hours.
- Hats that are broad-brimmed are preferable to baseball caps.
- Clothing should be light-colored, loose, and made of natural fabrics (e.g. cotton)
- Specific PPE where required (Glove, Boots and Dupont ProShield or TyChems)

3.0 Heat Related Disorders
There are several heat-related disorders and of them heat stroke is the most serious and can result in death. However it is important to be able to recognize the symptoms of all heat-related disorders, so information on the symptoms and immediate treatment for each heat-related disorder is provided for you in Appendix B.

4.0 Roles and Responsibilities

4.1 Heat Stress Manager (HSM)
- This employee will oversee operations of the HSA’s and the implementation of the heat stress management plan. He will provide information and support to the HSA’s and act as the liaison for Safety Officer at Houma Unified Command.

4.2 Heat Stress Advisor (HSA)
- Advise task force members based on the requirements of this management program.
- Prior to assigning tasks, the HSA must:
  - Describe tasks and job demands that may include, but are not limited to;
    - Working in hot weather with PPE (e.g. Dupont ProShield or TyChem suit, gloves, boots)
    - Walking and bending to pick up light objects
    - Heavy labor using shovels/pitch forks (e.g. for sand and tar balls)
    - Heavy lifting and pulling (e.g. stringing sweep boom)
    - Lifting weights up to 40lbs
  - Advise the individuals that they must be in good health and able to perform the general labor skills described
  - Specifically ask if people are able to perform the expected tasks
- If someone indicates that they cannot perform the requirements of the assignment (or is otherwise clearly unable to perform the job), the HSA must look for alternate assignments that the person is capable of performing. If an alternate assignment is not available, the HSA should meet with the individual and ask if there is an assignment the individual believes he or she can do. We do not need to make significant modifications to any assignment but must consider reasonable requests for modifications that would allow the employee to perform the core job functions. If no alternative position is available or modifications possible, the individual should be released.
Heat Stress Management Plan

- Provide recovery areas (Shade tents) as per Section 2.1
- Guide task force on work/rest schedules as per Section 2.3.
- Ensure sufficient water and/or low sugar electrolyte replacement (such as Gatorade G2) is available as per Section 2.6.
- Monitor the task force for signs and symptoms of heat stress as per Appendix A
- Where necessary acclimatize workers according to Section 2.4
- Provide worker training as per Section 2.8

4.3 Task Force Members
- Inform HSA of potential work limitations
- Be alert for heat illness signs in themselves and others
- Drink water before, during and after work
- Report heat stress signs/symptoms immediately

5.0 First Aid; Medical Attention and PPE Matrix
Heat-related disorder symptoms and first aid information is provided in Appendix A. Report heat stress related illnesses in accordance with the standard incident reporting protocols. The Medical Plan (IAP Form 206) provides phone numbers and addresses for local emergency services and hospitals.
Heat Stress Injury Symptoms and First Aid Measures

APPENDIX A

Heat Stroke

Heat stroke is the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106 degrees Fahrenheit or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not given.

Symptoms | First Aid
---|---
Symptoms of heat stroke include: Hot, dry skin (no sweating), Hallucinations, Chills, Throbbing headache, High body temperature, Confusion/dizziness, Slurred speech | Take the following steps to treat a worker with heat stroke:
- Call 911, notify their supervisor and make arrangement for transportation to medical facility identified in the Medical Plan (IAP Form 206).
- Move the sick worker to a cool shaded area.
- Cool the worker using methods such as:
  - Soaking their clothes with water.
  - Spraying, sponging, or showering them with water.
  - Fanning their body.

Heat Exhaustion

Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. Workers most prone to heat exhaustion are those that are elderly, have high blood pressure, and those working in a hot environment.

Symptoms | First Aid
---|---
Symptoms of heat exhaustion include: Heavy sweating, Extreme weakness or fatigue, Dizziness, confusion, Nausea, Clammy, moist skin, Palor or flushed complexion, Muscle cramps, Slightly elevated body temperature, Fast and shallow breathing | Treat a worker suffering from heat exhaustion with the following:
- Have them rest in a cool, shaded or air-conditioned area.
- Have them drink plenty of water or other cool, nonalcoholic beverages.
- Have them take a cool shower, bath, or sponge bath.

Heat Syncope

Heat syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

Symptoms | First Aid
---|---
Symptoms of heat syncope include: Light-headedness, Dizziness, Fainting | Workers with heat syncope should:
- Sit or lie down in a cool place when they begin to feel symptoms.
- Slowly drink water, clear juice, or a sports beverage.
- If they have or are fainting, then Call 911, notify their supervisor and make arrangement for transportation to medical facility identified in the Medical Plan (IAP Form 206).
# Heat Cramps

Heat cramps usually affect workers who sweat a lot during strenuous activity. This sweating depletes the body’s salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

<table>
<thead>
<tr>
<th><strong>Symptoms</strong></th>
<th><strong>First Aid</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscle pain or spasms usually in the abdomen, arms, or legs</td>
<td>Workers with heat cramps should:</td>
</tr>
<tr>
<td></td>
<td>• Stop all activity, and sit in a cool place.</td>
</tr>
<tr>
<td></td>
<td>• Drink clear juice or a sports beverage.</td>
</tr>
<tr>
<td></td>
<td>• Do not return to strenuous work for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.</td>
</tr>
<tr>
<td></td>
<td>• Seek medical attention if any of the following apply:</td>
</tr>
<tr>
<td></td>
<td>• The worker has heart problems.</td>
</tr>
<tr>
<td></td>
<td>• The worker is on a low-sodium diet.</td>
</tr>
<tr>
<td></td>
<td>• The cramps do not subside within one hour.</td>
</tr>
</tbody>
</table>

# Heat Rash

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather.

<table>
<thead>
<tr>
<th><strong>Symptoms</strong></th>
<th><strong>First Aid</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms of heat rash include:</td>
<td>Workers experiencing heat rash should:</td>
</tr>
<tr>
<td>Heat rash looks like a red cluster of pimples or small blisters.</td>
<td>• Try to work in a cooler, less humid environment when possible.</td>
</tr>
<tr>
<td>It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.</td>
<td>• Keep the affected area dry.</td>
</tr>
<tr>
<td></td>
<td>• Dusting powder may be used to increase comfort.</td>
</tr>
</tbody>
</table>
## Spill Response PPE Matrix

### APPENDIX B

<table>
<thead>
<tr>
<th>Task Number</th>
<th>Cleanup Technique</th>
<th>Description &amp; Requirements</th>
<th>Hard Hat</th>
<th>Safety Glasses</th>
<th>Rubber Boots</th>
<th>Steel-Toed Safety Shoes</th>
<th>Steel-Toe Leather</th>
<th>Scale</th>
<th>Suicide Suits or wetsuits</th>
<th>Slip-Resistant Footwear</th>
<th>Vented or Solid (PPE) Filters</th>
<th>PPE Hearing Protection</th>
<th>Leash Gloves</th>
<th>Face Shield</th>
<th>Safety Goggles</th>
<th>Kevlar Gloves</th>
<th>Front Vest or Life Jacket (USCG approved)</th>
<th>Skid or deck with protection</th>
<th>Wet suit or other types of coveralls</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Manual Scraping (Beach-Clean Up)</td>
<td>Oil is scraped from substrate manually using hand tools. Foot or light vehicular access</td>
<td>(5)</td>
<td>X</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>X</td>
<td>X</td>
<td>(4)</td>
<td>X</td>
<td>(4)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#2</td>
<td>Sump and pump vacuum</td>
<td>Oil collected in sump as it moves down the beach and is removed by pump to vacuum trucks. Requires recovery equipment</td>
<td>X</td>
<td>X</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
<td>X (secured)</td>
<td>X</td>
<td>X (2)</td>
<td>NA</td>
<td>(4)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#3</td>
<td>Manual removal of solid materials</td>
<td>Bonded materials and debris removed by hand, shovels, rakes, shovels, excavators, etc. Foot or light vehicular traffic</td>
<td>(5)</td>
<td>X</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
<td>(2)</td>
<td>(2)</td>
<td>X (3)</td>
<td>(2)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#4</td>
<td>Low pressure flushing (Decon Operations)</td>
<td>Low pressure water spray flushes oil from substrate. It is channeled to recovery points. Light vehicular traffic, requires equipment.</td>
<td>X</td>
<td>X</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>X (2)</td>
<td>X</td>
<td>(2)</td>
<td>X (4)</td>
<td>(4)</td>
<td>X (4)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#5</td>
<td>Manual sorbent application (Beach Clean-Up)</td>
<td>Sorbents are applied manually to contaminated areas in clean-up oil disposal containers for sorbents, test or flood access.</td>
<td>(5)</td>
<td>X</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>X (2)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#6</td>
<td>Manual scraping</td>
<td>Oil is scraped from substrate manually using hand tools and collected and deposited into bags or containers for disposal. Deployed piped systems for flood traffic</td>
<td>(5)</td>
<td>(4)</td>
<td>(5)</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>X (2)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#7</td>
<td>In-Situ Burning</td>
<td>Bonded material is burned to remove it from the substrate and control equipment</td>
<td>(5)</td>
<td>X</td>
<td>(5)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>(2)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#8</td>
<td>Recovery of oil from ground water groundwater</td>
<td>Contaminated oil is pumped out. Heavy equipment access.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>X (3)</td>
<td>NA</td>
<td>X (4)</td>
<td>(4)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#9</td>
<td>Beach / Non-Shore Cleanup Operations</td>
<td>SCAT-Pollution Investigation. Workers board small boats and patrol marshes and bayous to search for oil impact. Workers will not be physically monitoring</td>
<td>X</td>
<td>X (4)</td>
<td>(4)</td>
<td>X</td>
<td>(4)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>(2)</td>
<td>(4)</td>
<td>(4)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#10</td>
<td>Skimming Operations (water)</td>
<td>Use of on water skimming resources to remove oil from the water. Both SCOS and Contract Skimming vessels will be used.</td>
<td>(5)</td>
<td>X</td>
<td>X</td>
<td>(or steel toe boot with cover)</td>
<td>X</td>
<td>NA</td>
<td>X (secured)</td>
<td>X</td>
<td>NA</td>
<td>X (2)</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#11</td>
<td>High Pressure Cleaning (Decon Operations)</td>
<td>High pressure (&gt;3000 psi) water spray flushes oil from substrate. It is channeled to recovery points. Light vehicular traffic, recovery equipment</td>
<td>X</td>
<td>NA</td>
<td>X</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>(4)</td>
<td>X (2)</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#12</td>
<td>Manual Removal of solid materials (if the oil is dispersant is present)</td>
<td>Oil is removed using shovels, rakes and bulldozers, etc. Foot or light vehicular traffic</td>
<td>(5)</td>
<td>X</td>
<td>X</td>
<td>NA</td>
<td>(4)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#13</td>
<td>On-Shore Support (Shallow water jet ski operations)</td>
<td>Use of on water skimming resources to remove oil from the water. Both SCOS and Contract Skimming vessels will be used.</td>
<td>X</td>
<td>X</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>#14</td>
<td>Air Float Support Shallow water debris operations (NOT FOR WASHO DEPLOYMENT)</td>
<td>Handling of Taglines, putting boom and booms tending</td>
<td>Hard Impact</td>
<td>X</td>
<td>(secured)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Equivalent PPE can be substituted as long as it meets or exceeds the original specified product.

(1) Required only when overhead hazards are present.
(2) Portable floating device (PFD) is required when working on water, docks, barges, boats, piers.
(3) Optional if it's raining or liquid saturation is likely.
(4) Based on risk.
(5) Steel-toed boots required based on worksite conditions
NA - Not Applicable