Safety, Fire and Health Emergency Response Activities at Oil Producing and Refining Facilities After Hurricane Katrina

Sandra Barnes
Chevron North America Exploration & Production Company

Peter Sarmicanic
Chevron Products Company
Emergency Preparedness and Response Overview and Structure

The Company Operational Excellence Management System requires business units to maintain processes and procedures that address emergencies through:

- Prevention
- Preparedness
- Response
- Recovery

In the event of an emergency, response teams are called out in stages:

- Local
- Regional
- Worldwide and Functional Teams
Safety Fire and Health Functional Team (SF&HFT) Overview

This Team responds to an emergency by providing on-site guidance and direct assistance with:

- Health and Safety
- Fire Protection
- Toxicology
- Medical Services

Operating Company maintains responsibility and requests the Team’s assistance.

Team members work in different operating companies within the Corporation and are available for emergency call-out as needed.
Safety Fire and Health Functional Team (SF&HFT) Overview

- A designated call-out coordinator acts as a liaison between the Incident Command Staff and the Functional Team members to be deployed.
- SF&HFT HQ maintains supply Go-Kits
- Hurricane Katrina hit Mississippi and Louisiana August 29.
- First SF&HFT responders arrived in Pascagoula, MS on September 4 and Lafayette, LA on September 5.
Operations Overview

Pascagoula Refinery

- Pascagoula, Mississippi
- Company's largest refinery, with a capacity of 325,000 barrels per day
- 1600 employees

Gulf of Mexico Locations

- Shelf and Deepwater Gulf of Mexico
- Lafayette & New Orleans, LA offices
- Oil production of approx. 210,000 barrels per day
- Approx. 1400 employees and 3000 contractors
Response Support Activities

- Site safety and IH support
  - Site safety plans
  - IH monitoring plans and implementation
  - Re-entry clearance to process areas
  - Tailgate training

- Medical
  - On site physician and nurses for medical services & vaccinations
  - Referrals to Employee Assistance Program
  - Partner with site IH/Safety Team on proactive approach to handling safety and health issues
Challenges

- Basic infrastructure damage
- Transportation and access to sites
- Communications
- Accommodations
Challenges Continued

- Equipment and laboratory analysis
- Food/Water
- Weather
- Distractions to Personnel
- Uncommon task assignments
- Security
Lessons Learned

- Readiness paid off: SF&HFT well prepared and integrated readily with local response and operations
- Essential to have a central contact person/liaison
- Bring hard copies of resource documents
- Be innovative when planning communications
- Pre-stage people and equipment
- Enhance GO-kit tools (communications kit, first aid kit, personal hydrogen sulfide monitors)
Lessons Learned

- Communication difficult between command center and site safety staff
  - Have several backup communication methods to get safety message info to site safety staff as quickly as possible
  - Wireless email an important tool

- Many HES issues during spill cleanup and equipment decontamination (heat stress, lifting/rigging/cribbing, hygiene)
  - Anticipate and prepare for HES issues with a thorough site-specific safety plan
Heat Stress Evaluation – Recovery Heart Rate Monitoring

- Take recovery heart rate at beginning of rest period (radial pulse < 1 min after seated rest)
- If heart rate exceeds 110 bpm or adjusted maximum heart rate (see table), reduce next work cycle by one-third, keeping rest period the same
- If rate continues to exceed these numbers, reduce the work cycle again by one-third (see table)
- Easier to enforce at decon site; work/rest cycles less practical for remote oil spill cleanup

Source: Occupational Exposure to Hot Environments [(NIOSH) Pub. No. 86-113 (1986)]
Heat Stress Evaluation - Recovery Heart Rate Monitoring

Age Adjusted Maximum Heart Rates  [AMHR = 0.7 (220-age)]

<table>
<thead>
<tr>
<th>Age</th>
<th>Heart Rate</th>
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<th>Heart Rate</th>
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</thead>
<tbody>
<tr>
<td>18</td>
<td>141</td>
<td>34</td>
<td>130</td>
<td>50</td>
<td>119</td>
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<td>20</td>
<td>140</td>
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<td>127</td>
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<td>116</td>
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<td>137</td>
<td>40</td>
<td>126</td>
<td>58</td>
<td>113</td>
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<td>28</td>
<td>134</td>
<td>44</td>
<td>123</td>
<td>60</td>
<td>112</td>
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<tr>
<td>30</td>
<td>133</td>
<td>48</td>
<td>120</td>
<td>64</td>
<td>109</td>
</tr>
</tbody>
</table>

Initial rest period | First rest period change | Second rest period change | Third rest period change
Work Rest 45 minutes 15 minutes | Work Rest 30 minutes 15 minutes | Work Rest 20 minutes 15 minutes | Work Rest 15 minutes 15 minutes
Emergency Preparedness and Response Task Force

Meetings to discuss AIHA's role in Emergency Response were held at the Leadership Workshop 2004 and AIHce 2004. Based on the feedback received from attendees and survey results, a recommendation was made to the AIHA Board of Directors to form an Emergency Preparedness and Response Task Force. The Board has approved formation of the Task Force and its deliverables at the March Board meeting in Fairfax, Virginia.

The Emergency Preparedness and Response Task Force was announced and discussed at the AIHA Leadership Workshop in March 2005.

Hurricane Information (Katrina and Rita)

- AIHA Recommendations for Protecting Workers in the Aftermath of Hurricanes Katrina and Rita
- Letter to AIHA Members About Katrina
- Special Job Postings for Katrina Victims
- Find an accredited lab

Emergency Response Documents

- American Industrial Hygiene Association Industrial Hygienists' Role and Responsibilities in Emergency Preparedness and Response (06)
- IH Deployment Checklist
- IH Role in EPR
- EPR IH Reference (including links to other resources)
- Safety Officer Checklist
- Safety Officer Responsibilities
<table>
<thead>
<tr>
<th>Phase or Step</th>
<th>Recommended Action</th>
<th>ICS Form/Position</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Pre-deployment</td>
<td>Pack for 1 week duration</td>
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<td></td>
<td>Bring sunscreen, sunglasses, warm/cold/rain gear if needed</td>
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<tr>
<td></td>
<td>Bring documentation notebook and references:</td>
<td>214</td>
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<tr>
<td></td>
<td>- Incident Management Handbook</td>
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<td></td>
<td>- NIOSH Pocket Guide to Chemical Hazards</td>
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<td></td>
<td>- ACGIH TLVs and BEIs, current addition</td>
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<td></td>
<td>- USCG Standard Site Safety Plan (hardcopy and disc)</td>
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<td>- Laptop computer with internet/CD capabilities</td>
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<td></td>
<td>- CHRS and NIOSH Pocket Guide CDs</td>
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<td></td>
<td>- Cellular phone and pager</td>
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<tr>
<td></td>
<td>Misc: Binoculars, whistle, rain gear. Ask for MSDS and toxicological data on product if available</td>
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<td></td>
<td>Clipboard</td>
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<td></td>
<td>Roll of Caution Tape and Safety Flags</td>
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<tr>
<td>Arrival</td>
<td>Check into the Incident Command Post with Check-in Recorder</td>
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<tr>
<td></td>
<td>Receive briefing from your immediate supervisor</td>
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<td></td>
<td>Commence maintenance of Safety Officer Activity Log</td>
<td>214</td>
<td></td>
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<td></td>
<td>Review tog and site characterization data, conduct risk analysis</td>
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<td></td>
<td>Determine safety resources on scene, get comm plan</td>
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<td></td>
<td>Get site safety enforcement and monitoring pers into field ASAP</td>
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<td></td>
<td>Review daily meeting schedule</td>
<td>230</td>
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<td></td>
<td>Conduct survey of site: overflight or ground vehicle (1 hour max)</td>
<td>OPS</td>
<td></td>
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<td></td>
<td>Review Incident Action Plan if available</td>
<td>IAP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conduct site safety resource assessment, put in resources order</td>
<td>213</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review Incident Command Post Emergency/Fire Evac Plan</td>
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<td></td>
</tr>
</tbody>
</table>

**ICSM PLANNING CYCLE CHECKLIST**

<p>| Initial Response &amp; Assessment | Ensure proper site characterization &amp; assessment conducted | | |
| Incident Briefing | Note Safety concerns. Identify hazards for ongoing operations | 201 | |
| | Recommend safety precautions to IC/UC | | |
| Initial Unified Command Mitg (If in attendance) | Ensure facilities are adequate &amp; right support pers in place (safety) | | No Command/General Staff |
| | Consider operational period from fatigue/stress (24 hrs best) | | |
| | Listen to Ops brief, make recommendations for safety | | Full |
| UC Objectives Meeting (If in attendance) | Ensure Overarching Safety Objective is identified | 202 | No Command/General Staff |
| | “Minimize risks and control hazards to ensure no injuries to public or property” | | Close |</p>
<table>
<thead>
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</tr>
</thead>
</table>
| Command & General Staff Meeting | Ensure Overarching Safety Objective is identified  
"Minimize risks and control hazards to ensure no injuries to public  
& responders. "Safeguard the Public and Our People."  
Consider period objectives: "Complete SSP by next Op Period." |                    |                                            |
| Tactics Meeting       | Attend. Conduct risk assessment on OPS proposed tactics  
Develop PPE equipment list for Logistics to support OPS  
Note any additional Safety Field Observers needed. | 215               | Use 215-Safety for supp.                  |
| Prepare for Planning Meeting | Obtain safety update from field observers  
Brief Safety concerns and needs to Planning & other Section Chs.  
Prepare formal briefing for IC/UC on strategic safety issues  
Contact Site Safety Line Officers for latest safety update | 214               |                                            |
| Planning Meeting      | Listen closely & identify safety issues in briefings  
Challenge only those serious safety hazards not addressed earlier  
Keep Safety briefing short and on strategic level.  
Give overall impression of how safely the operations is running |                    |                                            |
| IAP Prep and Approval | Contact Safety Field Observers for input into Site Safety Plan  
Modify Site Safety Plan for inclusion in IAP  
Draft stand-alone Safety Message Use red paper.  
Complete Safety Message for ICS Objectives Form  
Complete Safety Messages for Div/Gp/Unit Assignments  
Review and approve medical plan | SSP A-? |                                           |
| Prepare for Operations Brief | Have Safety Line Officers report in-person prior to OPS brief  
Consider combining end-of-period brief with OPS op brief.  
Make Safety Poster for Safety brief |                    |                                            |
| Operations Briefing   | Brief safety concerns to next shift.  
Consider off-going safety observers to attend. Allow their input. | 214               |                                            |

**SAFETY OFFICER ICS INTERACTION CHECKLIST**

<table>
<thead>
<tr>
<th>Role</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources Unit Leader</td>
<td>Check to see status of personnel by viewing T Card Rack. Check fatigue.</td>
</tr>
<tr>
<td>Situation Unit Leader</td>
<td>Review Situation Map/Info to view WX, Ops status, New Ops</td>
</tr>
<tr>
<td>Situation Unit Leader</td>
<td>Consider posting safety information in Situation Status Display Area</td>
</tr>
<tr>
<td>Time Unit Leader</td>
<td>Review work hours of field personnel</td>
</tr>
<tr>
<td>Medical Unit Leader</td>
<td>Identify medical issues/trends, review medical log.</td>
</tr>
<tr>
<td>Environmental Unit Leader</td>
<td>Review environmental sampling &amp; monitoring data for human health concerns</td>
</tr>
<tr>
<td>Supply Unit Leader</td>
<td>Ensure PPE is being ordered/distributed in timely fashion</td>
</tr>
<tr>
<td>Food Unit Leader</td>
<td>Ensure proper food and water is being issued to personnel</td>
</tr>
<tr>
<td>Communications Unit Leader</td>
<td>Assist Communications in ensuring proper comms for all response personnel</td>
</tr>
<tr>
<td>Information Officer</td>
<td>Review press releases for accurate safety information. Review BNTMs.</td>
</tr>
<tr>
<td>Staging Area Manager</td>
<td>Ensure Staging Area is organized and clean</td>
</tr>
<tr>
<td>Air Operations Branch</td>
<td>Consider designating Director as Assistant Safety Officer if aviation safety qual’d</td>
</tr>
</tbody>
</table>
Please, Do Not Move Furniture Or Remove Pictures From Walls.

Thank You, Management
Useful Resources

- AIHA Emergency Response Task Force
  http://www.aiha.org/Content/InsideAIHA/Committees/EPRTF.htm

- OSHA Hurricane Recovery
  http://www.osha.gov/OshDoc/hurricaneRecovery.html

- NIOSH Emergency Response Resources
  http://www.cdc.gov/niosh/topics/emres/natural.html
Thank You

Sandra Barnes
Chevron North America Exploration and Production
sandrabarnes@chevron.com

Peter Sarmicanic CIH, CSP
Chevron Products Company
sarmipn@chevron.com