



## Deepwater Horizon Response: Protecting Health

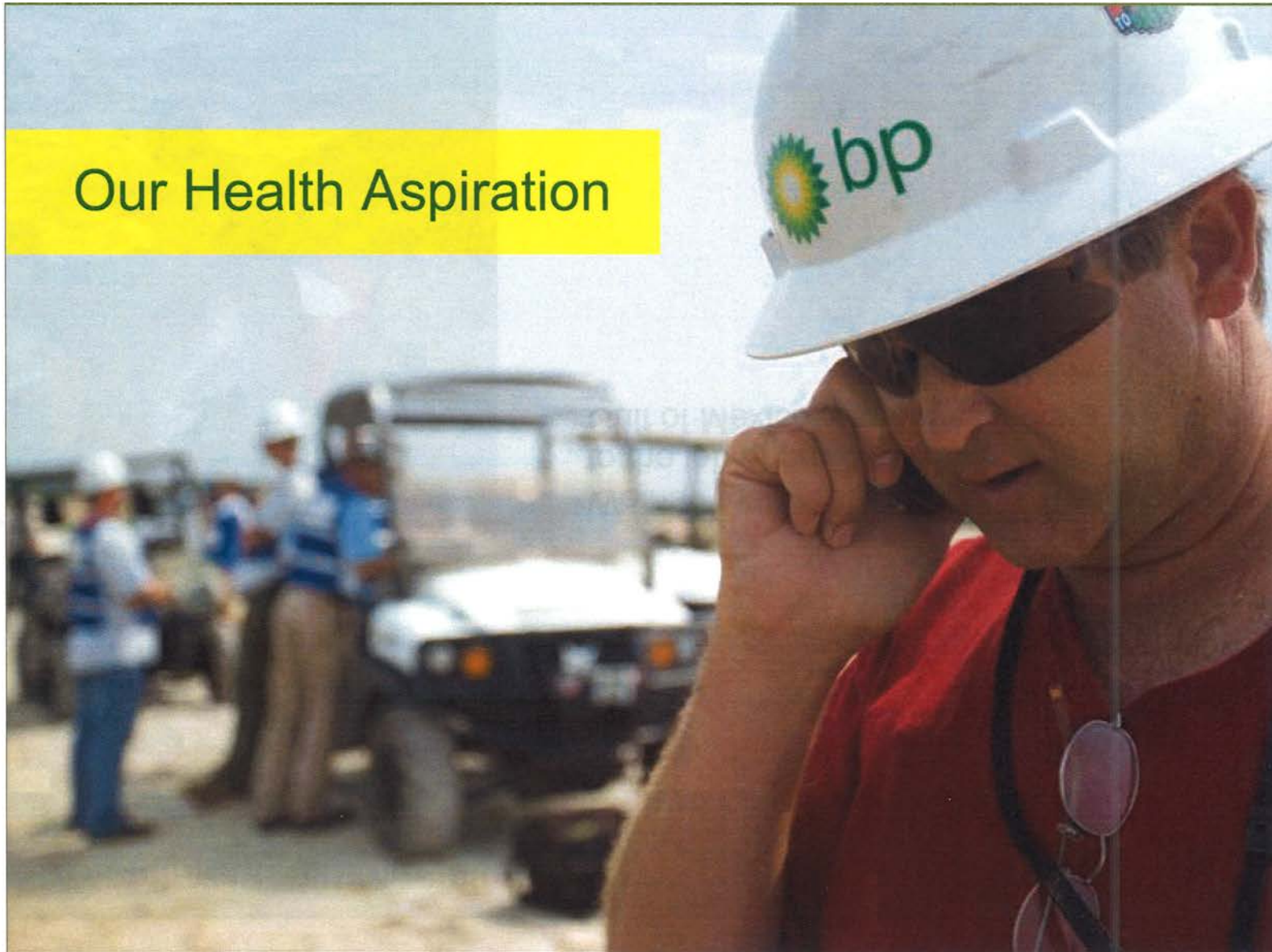
Dr Richard J L Heron  
Vice-President Health, BP

## Four parts to the story



1. Our Health Aspiration
1. Our response to Deepwater Horizon
1. Public health
- The future

## Our Health Aspiration





## Protecting health of Gulf of Mexico Response Workers and local communities



We had to turn our attention quickly to the job of protecting the health of Gulf of Mexico response workers

We have a systematic approach to managing potential health risks



Identify  
Potential  
Hazards

Risk  
Assessment

Risk  
Management

Response



## Our response to Deepwater Horizon



## An unprecedented situation



48,000 workers



5 states



Difficult climatic conditions



Potential hazards

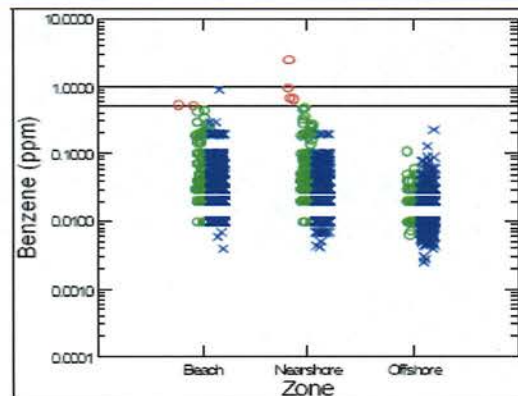
## A subsea release



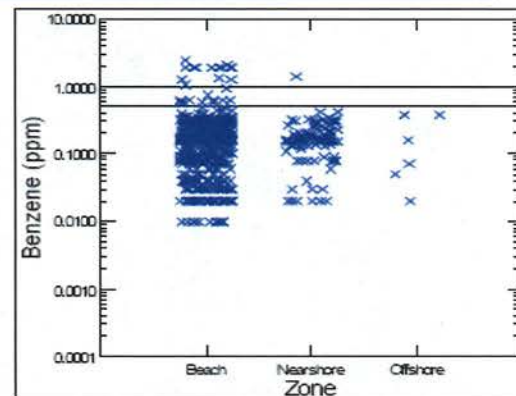
- Subsea releases are unlike surface-to-surface spills
- Potential health hazards are moderated prior to the oil reaching the surface, and breakdown by weathering continues at the surface due to wind, wave and sun action
- Low molecular weight, more volatile components are not present in weathered oil
- Predominantly hydrocarbons - C10 or greater
- Primary potential exposure hazard - physical contact with the skin



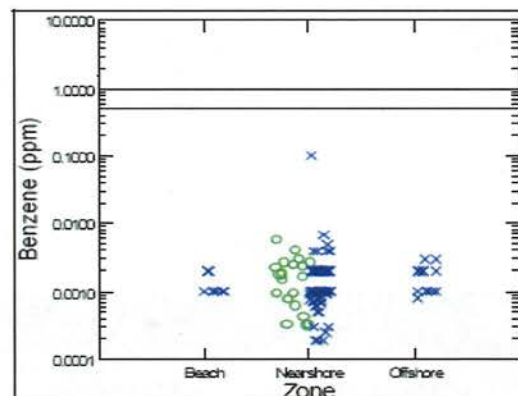
# Industrial hygiene sampling summary for benzene



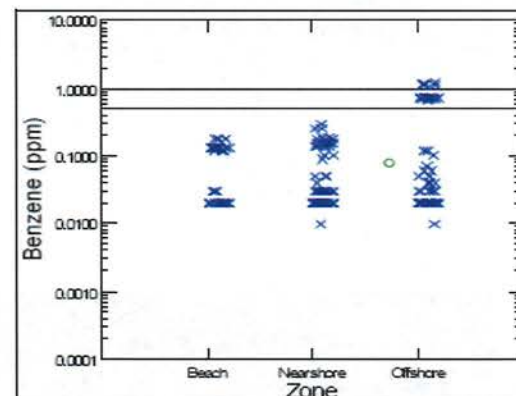
**Figure 1:** BP benzene measurements, by Zone. (blue = non-detect, green = (detect  $\leq$  0.5 ppm), red = (detect > 0.5 ppm))



**Figure 2:** OSHA benzene measurements, by Zone. (blue = non-detect, green = (detect  $\leq$  0.5 ppm), red = (detect > 0.5 ppm))

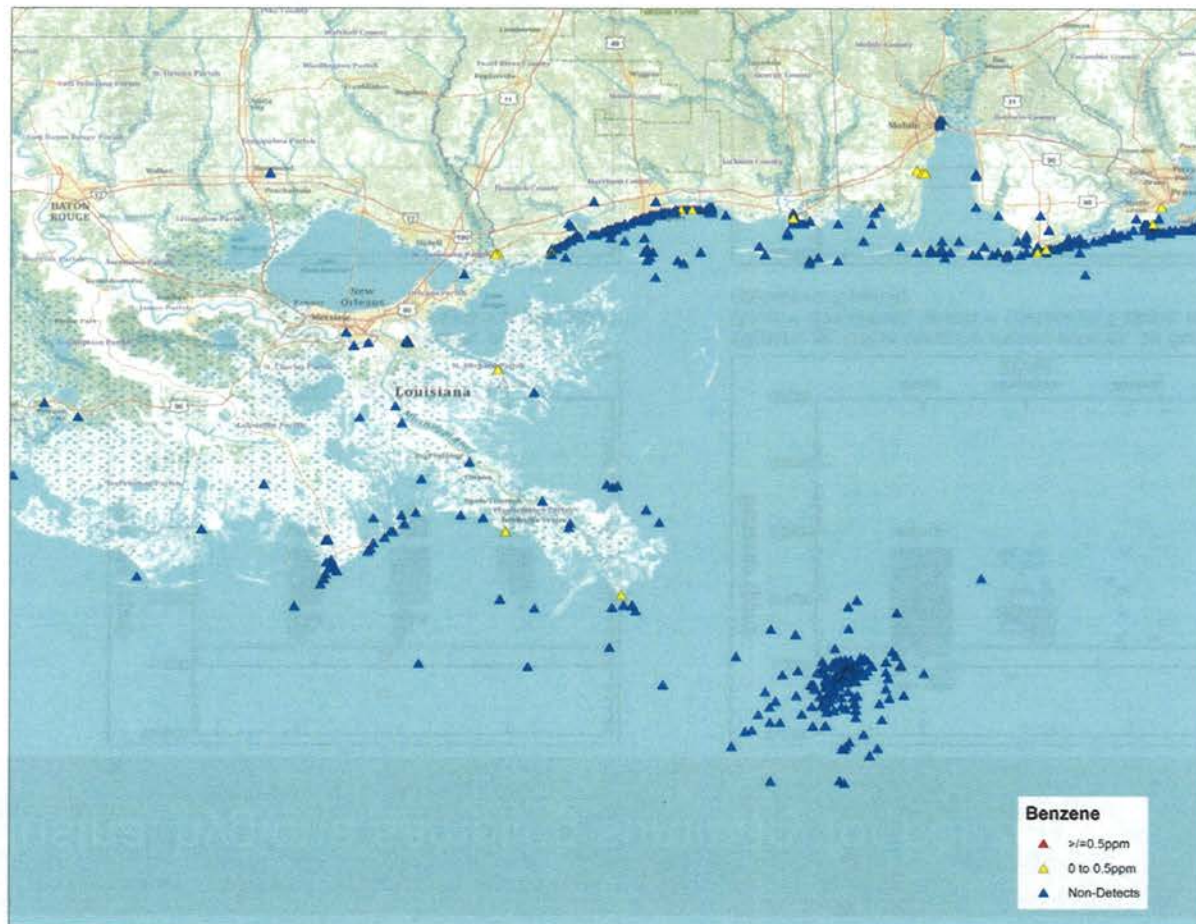


**Figure 3:** NIOSH benzene measurements, by Zone. (blue = non-detect, green = (detect  $\leq$  0.5 ppm), red = (detect > 0.5 ppm)) (9 detects were Summa Canister general area samples)

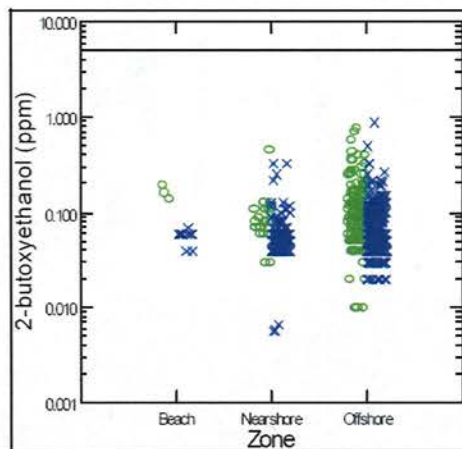


**Figure 4:** USCG benzene measurements, by Zone. (blue = non-detect, green = (detect  $\leq$  0.5 ppm), red = (detect > 0.5 ppm))

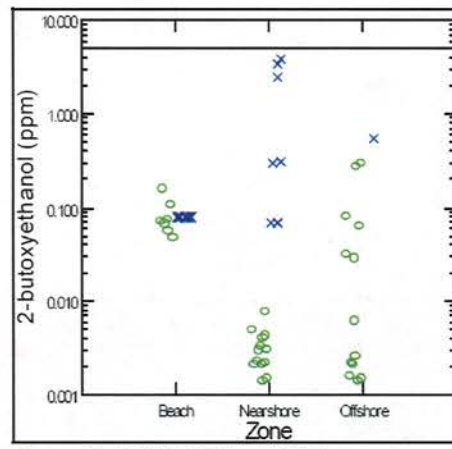
## Benzene samples mapped



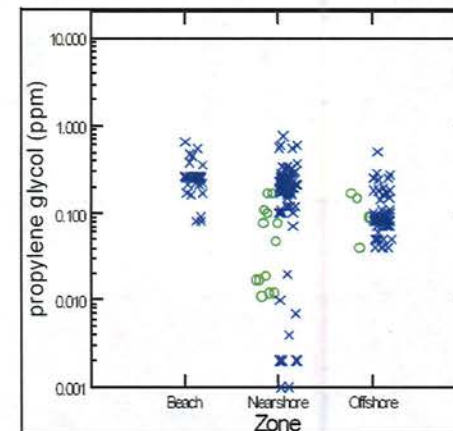
# Dispersants



**Figure 1:** BP 2-butoxyethanol measurements, by Zone. (NIOSH REL = 5 ppm) (blue = non-detect, green = (detect ≤ 5 ppm), red = (detect > 5 ppm))



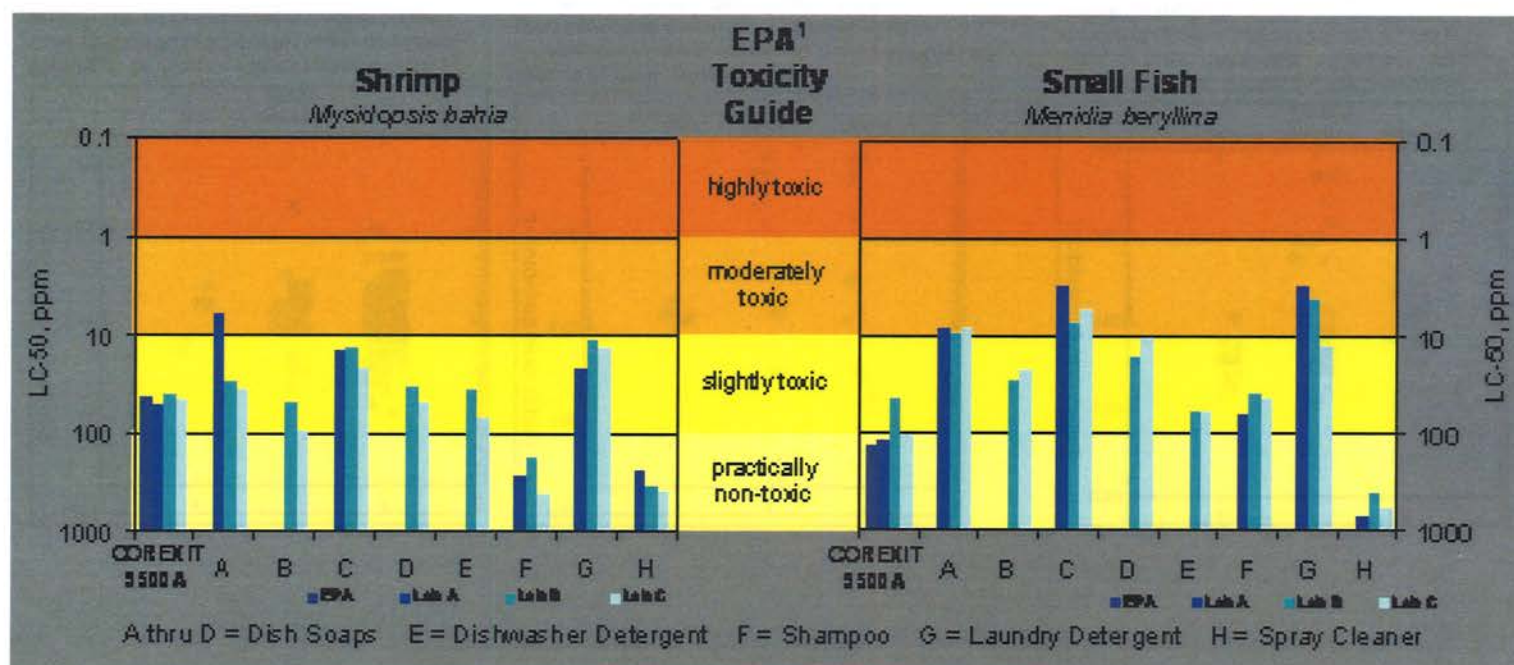
**Figure 2:** OSHA, NIOSH, and USCG 2-butoxyethanol measurements, by Zone. (NIOSH REL = 5 ppm) Normalized exposures for all zones. (blue = non-detect, green = (detect ≤ 5 ppm), red = (detect > 5 ppm))



**Figure 3:** OSHA, NIOSH, and USCG propylene glycol, by Zone. (AIHA WEEL = 10 mg/m³) (blue = non-detect, green = (detect ≤ 10 mg/m³), red = (detect > 10 mg/m³))



# Dispersant Tests



## A range of working environments



At source



Vessels of Opportunity



De-contamination



Incident Command Posts

## Working with Government Agencies and Third parties



- United States Coast Guard (USCG)
- Occupational Safety and Health Administration (OSHA)
- Department of Health and Human Services (HHS)
- National Institute for Occupational Safety and Health (NIOSH)
- Environmental Protection Agency (EPA)
- Food and Drug Administration (FDA)
- Contractors
- Local communities
- Gulf Coast universities
- Charities



We had to put resources in place very quickly



CONTRACTED WORKFORCE



FACILITIES



SPECIALIST EXPERTISE

## Identifying potential hazards was the first priority...



CHEMICAL



BIOLOGICAL



HUMAN FACTORS



PHYSICAL (Heat)

Identify  
Potential  
Hazards

Risk  
Assessment

Risk  
Management

Response

...and then we had to assess the potential risks

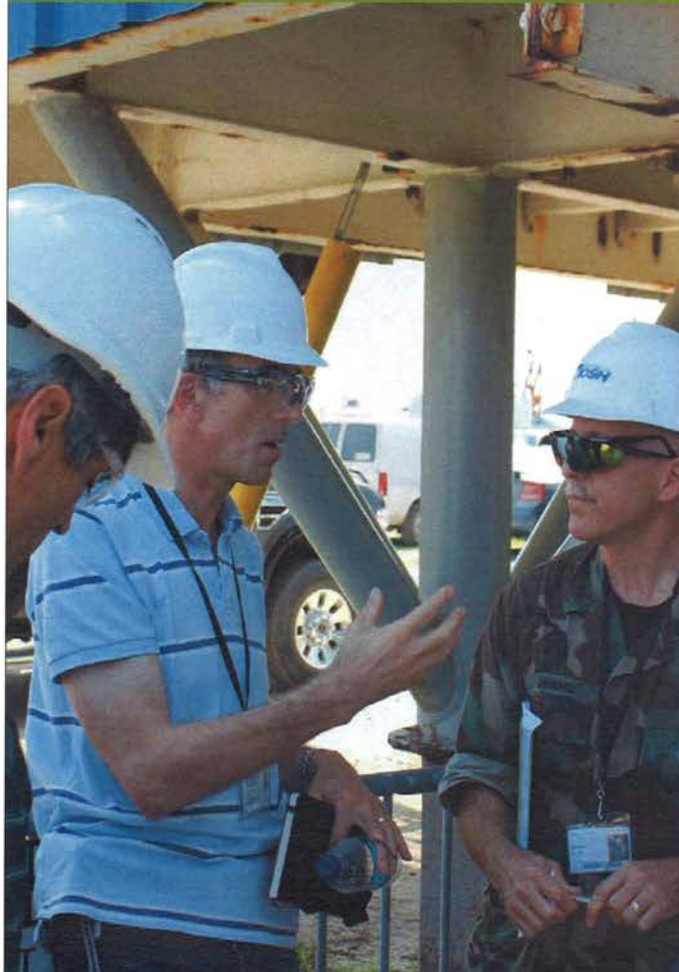


- Potential risks to workers
- Potential risks to local communities





...and co-operate with others in coordinating our activities with them effectively



- Making continuous improvements
- Providing reassurance and information



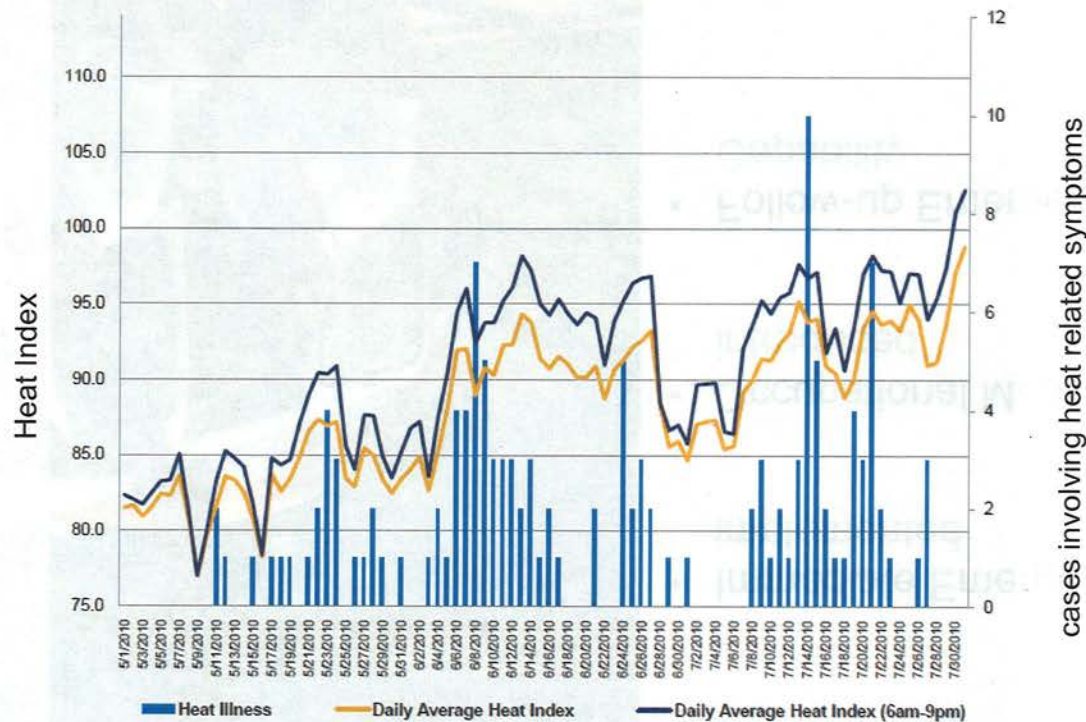
## The resources to respond to medical needs



- Immediate Emergency Response  
implemented
- Occupational Medicine Capability  
introduced
- Follow-up Emergency Response  
Capability

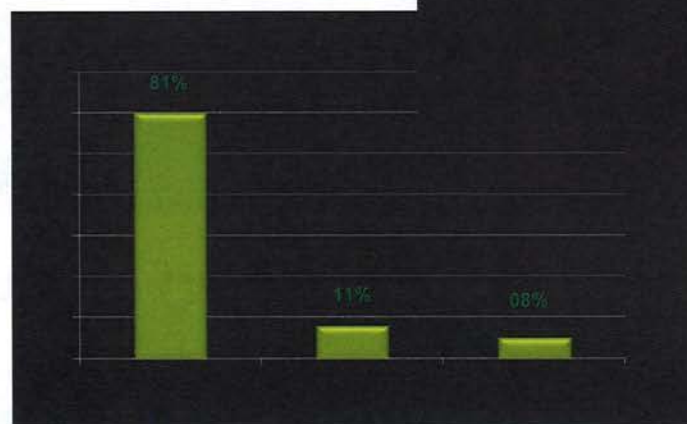
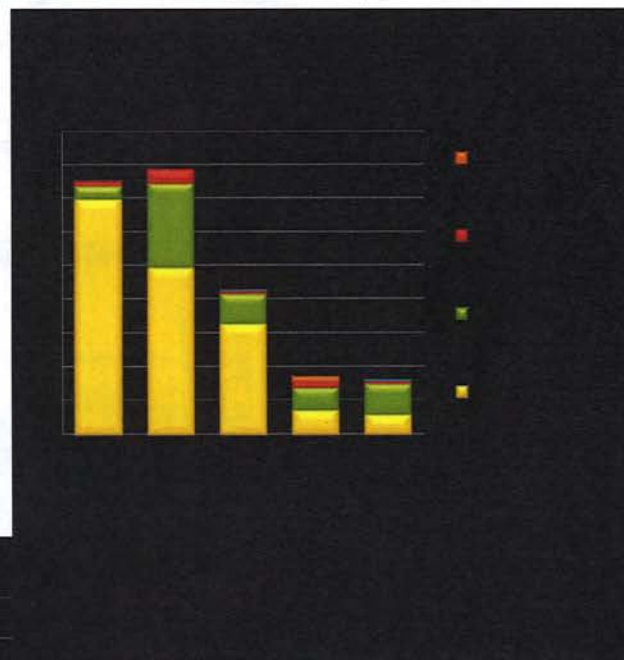
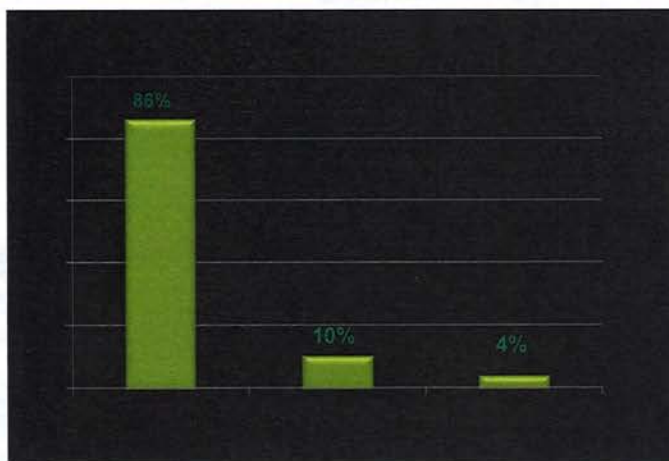


# Relationship between Heat Index and Case Presentations





## Illnesses and Injuries That Occurred during the Response (to February 2011)



## Health and the Community



## The Future - Looking ahead on health



TRACKING  
AND MONITORING



WORKING WITH  
LOCAL COMMUNITIES  
AND CHARITIES



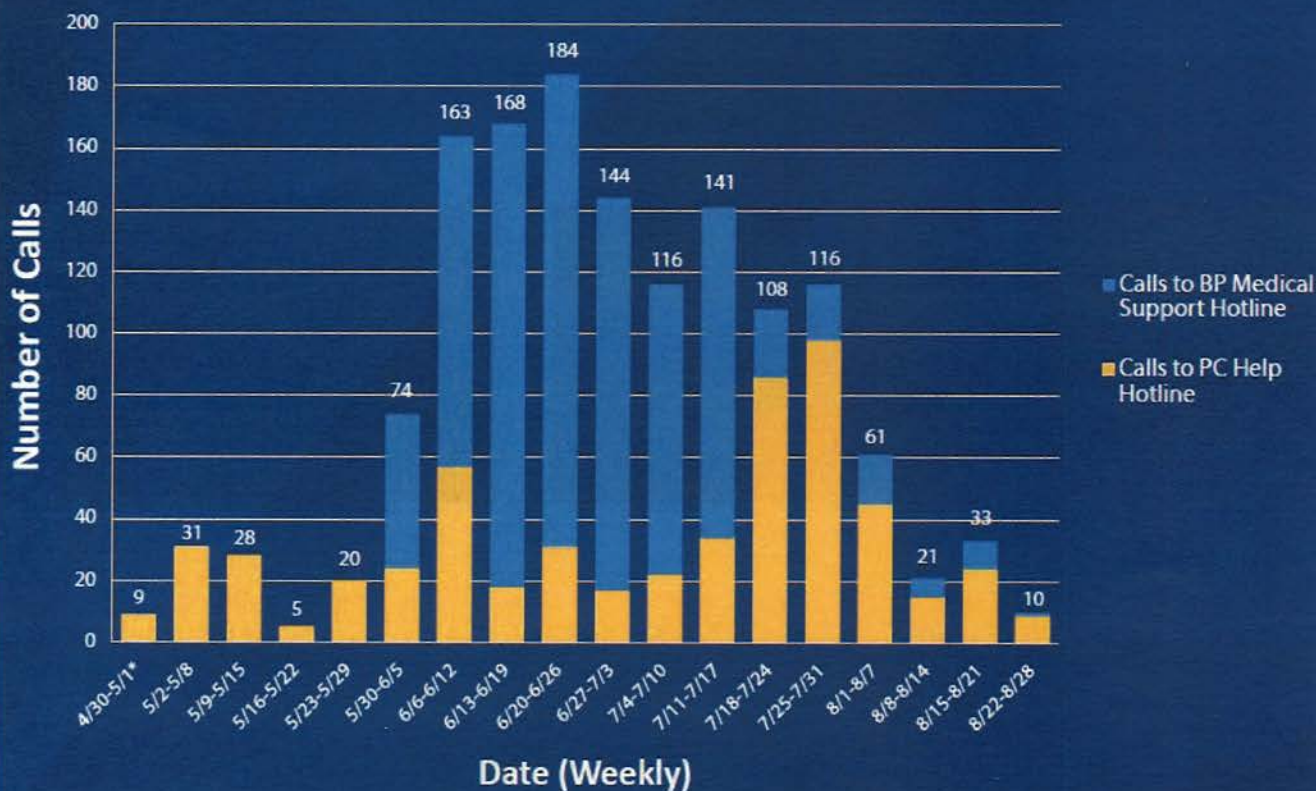
UNDERSTANDING  
POTENTIAL LONGER  
TERM HEALTH EFFECTS



## Poison Control Center and BP Hotline Calls

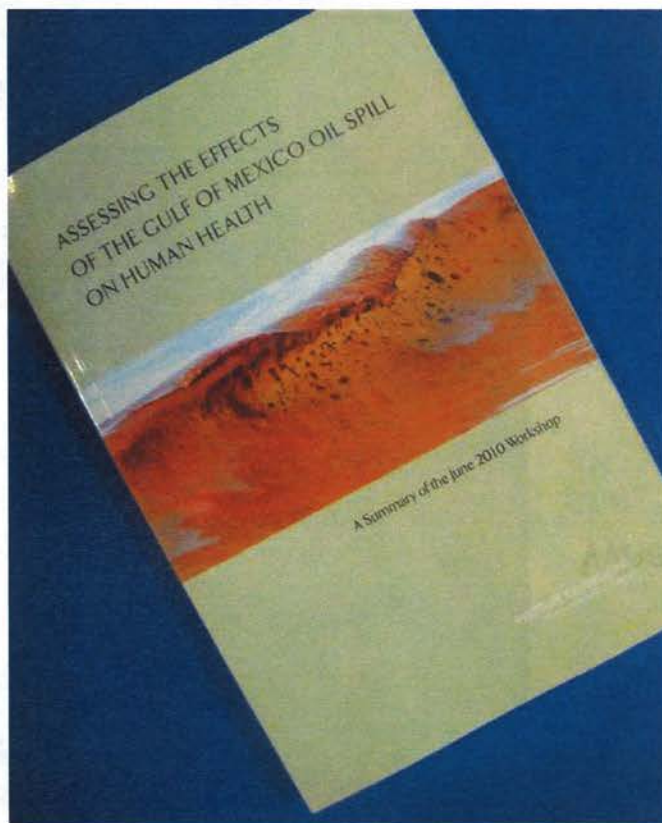


### Total oil spill-related calls to the PCCs in the Gulf States April 30 – August 28, 2010



\*Gulf Oil Spill call surveillance started on April 30, so the first bar represents data only for April 30 to May 1

## Long-term health studies and local outreach



- BP provided \$10 million in support of GuLF Study led by NIEHS
- Study formally launched February 28, 2011
- BP provided \$52 million to help fund behavioral health support across US Gulf Coast

## Lessons Learned from the Response



### What we learned:

- Quickly mobilising and coordinating activities of a large contracted workforce
- Working with multiple agencies and regulators simultaneously
- Importance of clarity of instructions and clear lines of responsibility



Thank you for listening. Any questions?

