Florida Department of Environmental Protection

Odors Associated with Deepwater Horizon Gulf Oil Spill

National Air Quality Conference – 2012 Ambient Monitoring

Denver, Co

May 2012

Tammy Eagan

Explosion of Deepwater Horizon

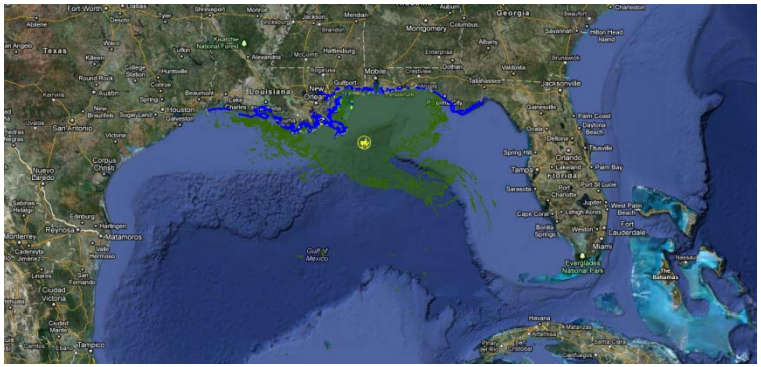
- April 20, 2010 the explosion of Deepwater Horizon started the release of an estimated 4.9 million barrels of crude oil.

Monitoring Response

- April 27th, Florida was receiving odor complaints from 7 counties surrounding Tampa Bay
- There was VOC monitoring for that day and nothing unusual was identified
- April 28th EPA began monitoring along the coast

Odor Complaints

- Odors around Tampa Bay were from the spill
- Later, a NOAA research flight followed the plume from the spill to within 3 miles of Tampa



Monitoring Response

- Initially, the results of TO-14, TO-15, TO-11 and the data from TAGA bus were being examined
- No concentrations of concern were found

Media Reports

Health officials order air quality testing after fuel smell blankets metro area

Published: Thursday, April 29, 2010, 5:06 PM Updated: Thursday, April 29, 2010, 5:59 PM

By **Times-Picayune Staff**

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The state departments of **Health and Hospitals and Environmental Quality** said the strong odor blanketing much of coastal Louisiana and the metro New Orleans area is "possibly" the result of the massive oil spill in the Gulf of Mexico.

The Associated Press

The agencies have requested continuous air quality testing and monitoring from the Environmental Protection Agency, and DEQ officials said they have increased the frequency of air sampling at its Kenner and Chalmette monitors.

These samples will receive expedited turnaround by EPA labs. If it is determined that air quality issues exist, state officials will immediately inform local authorities and "take any other action deemed appropriate to protect public health and safety," they said in a statement.

Who knew?

- With the host of experienced folks, from the oil industry and super fund clean-up
- No one was able to identify this smell

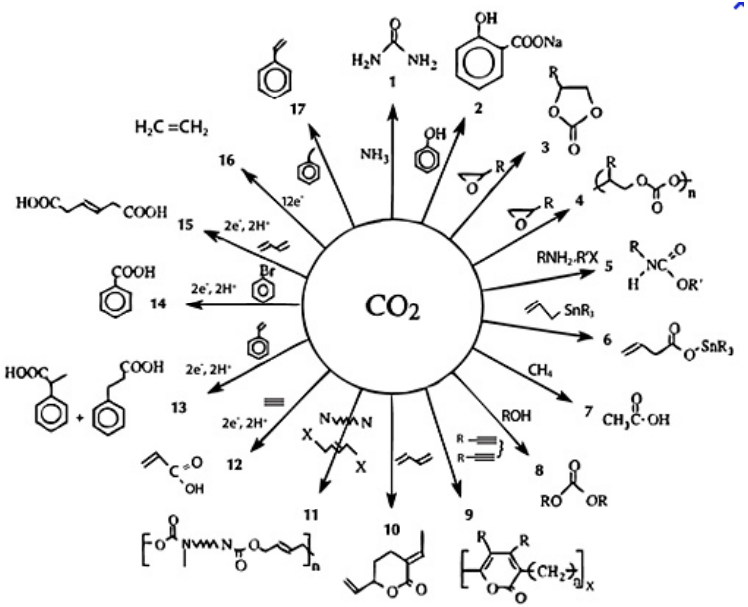
Hunting for the smell

- There was one chemist who had suspected alkanes and the folks at Region 4 SESD did as well
- But the analysis of available data could not identify a specific compound

The Message

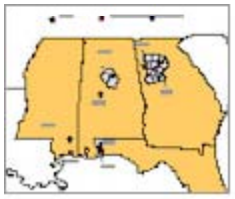
- Initial response was to monitor for the obvious, HAPS
- No dangerous levels were found, but the smell was unidentified and it was not satisfying to tell the public that is probably wasn't dangerous

A possibility….



- Suspecting that an alkane may have been the responsible agent, I requested permission to analyze a set of alkane data that was mentioned at a SEARCH briefing I attended.

Special Thanks

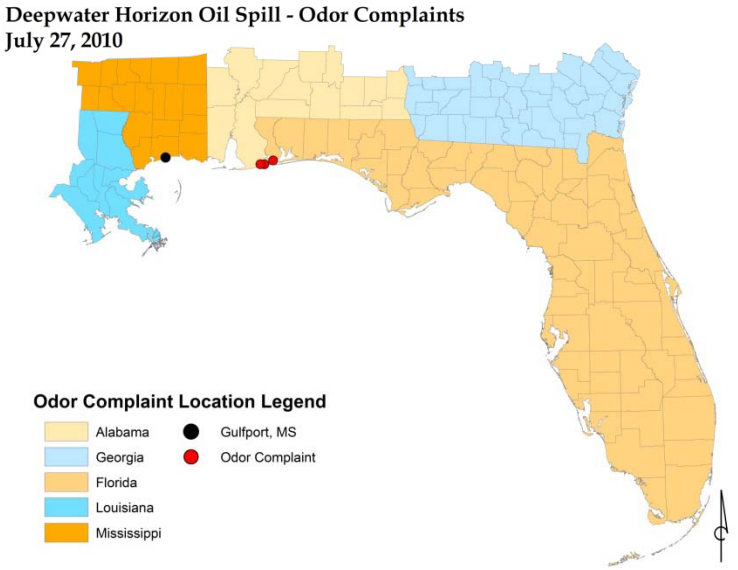


SEARCH, SouthEastern Aerosol Research Characterization

- The owners of the data had done a short study which did not result in anything of interest to them
- They did release the data for this investigation
- SEARCH is funded by the Southern Company

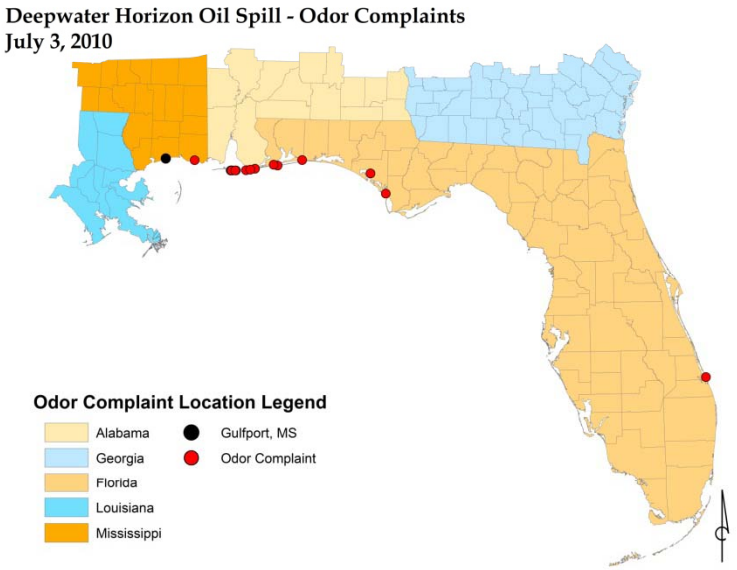
Data Set

- 11 samples total
- 2 days with no odor complaints
- 2 days odor complaints clearly coexisted with the sampling
- Even Nonparametric tests required more data, so 2 more were added

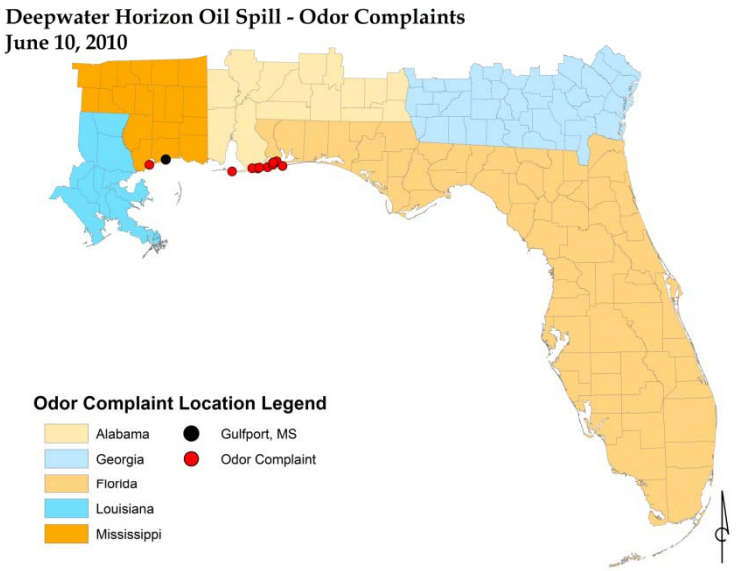


Odor Data from Region 4 SESD

- For the additional odor complaint, I chose July 3rd
- Complaints were all to the east of the sampling location, but likely impacted Gulfport



Potential identification



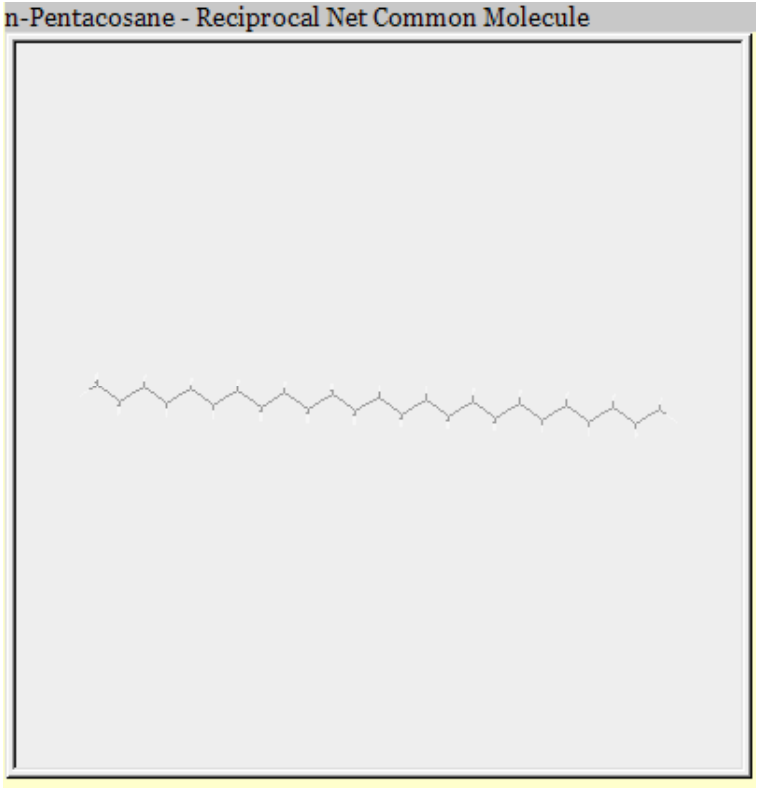
- Of the 45 alkanes for which I had data, three resulted in being significantly different

Three significant compounds

- n-pentacosane
- n-octacosane

Potential Health Effects
Eye: May cause eye irritation.
Skin: May cause skin irritation. May be harmful if absorbed through the skin.
Ingestion: May cause irritation of the digestive tract. May be harmful if swallowed.
Inhalation: May cause respiratory tract irritation. May be harmful if inhaled.
Chronic: No information found.

- n-hentriacotane
- Health effects have not been fully studied



Contact Information

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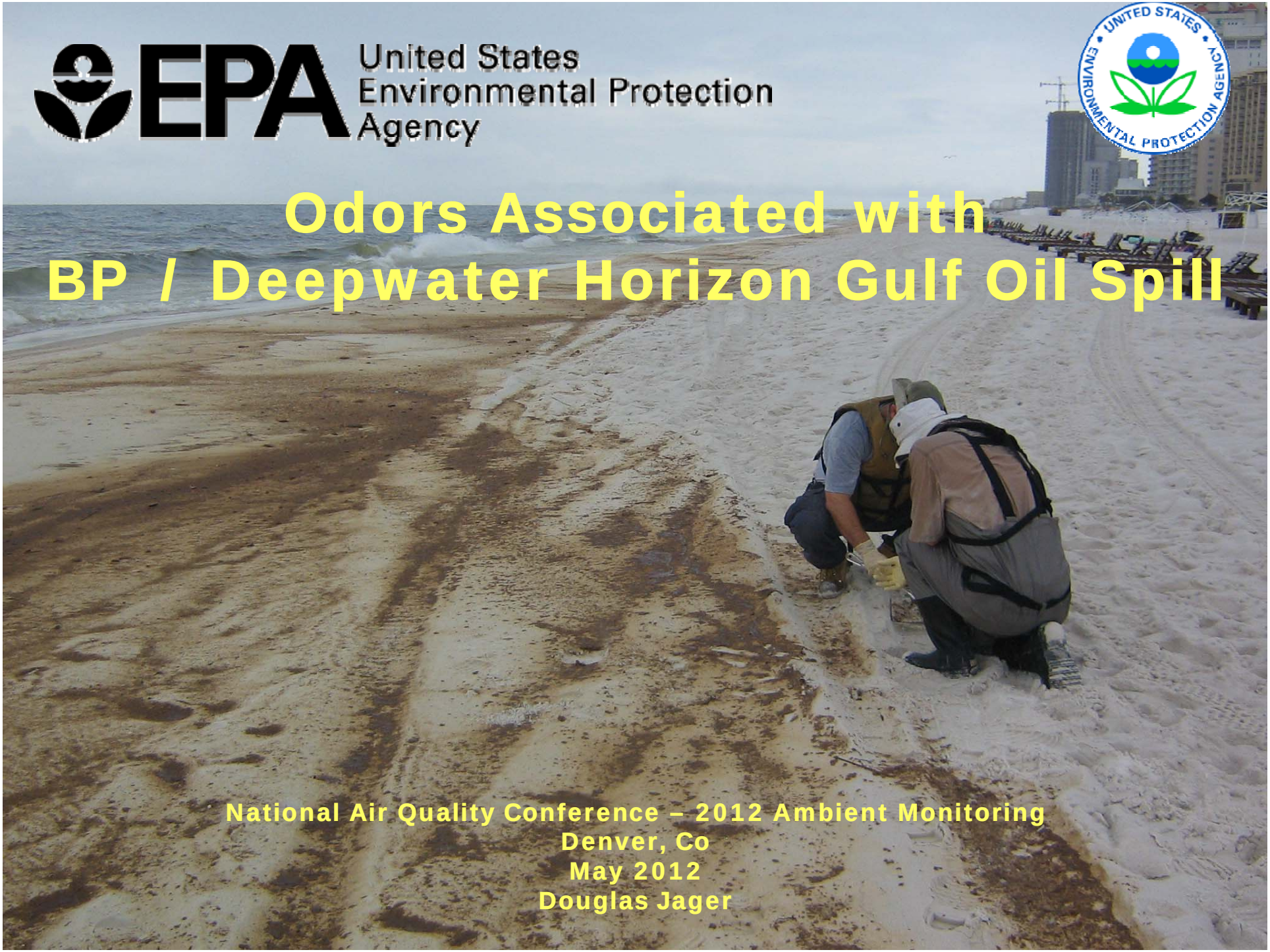

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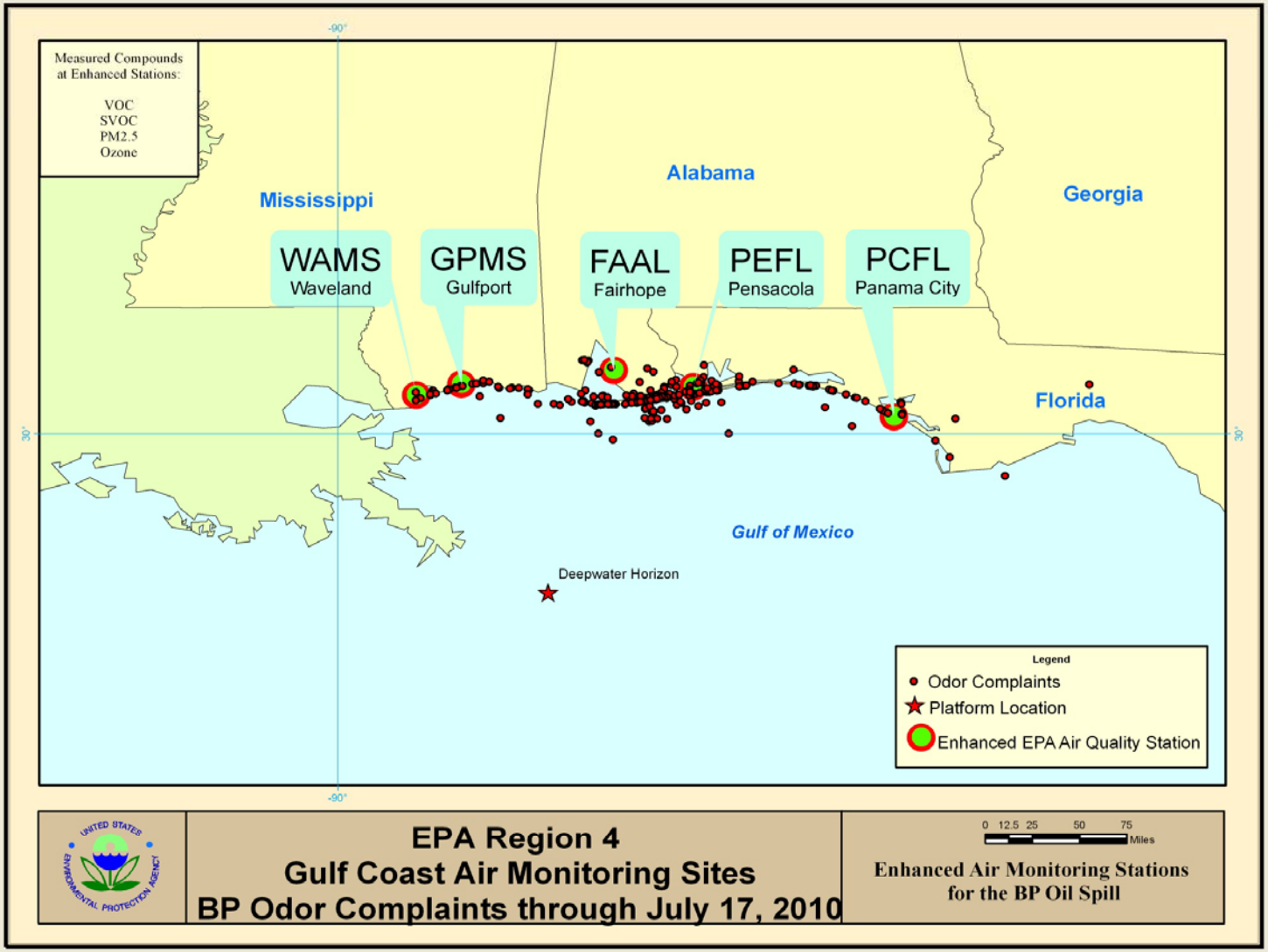
Douglas Jager

EPA United States Environmental Protection Agency



SESD Project ID: 10-0436

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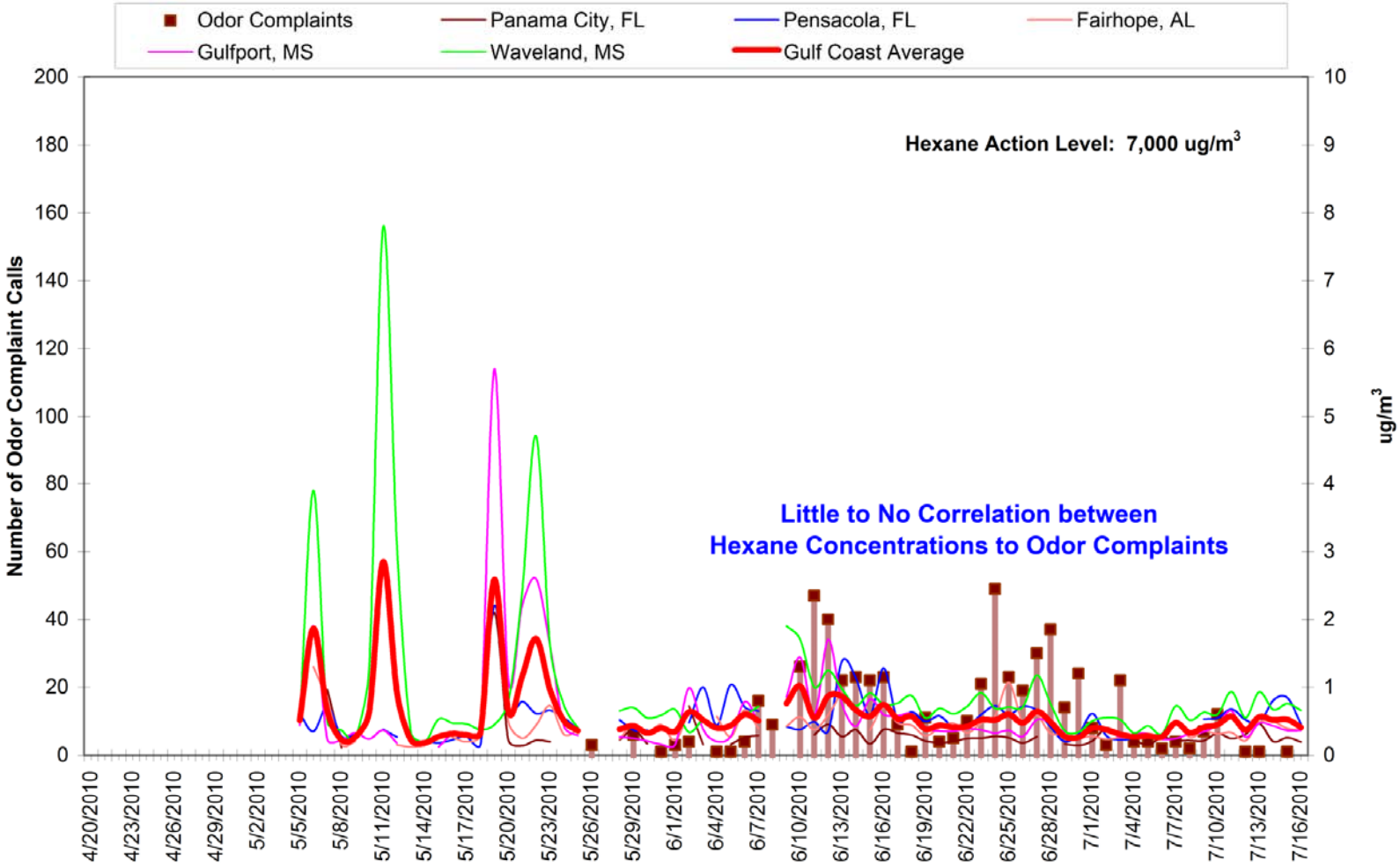
Hexane Detections | EPA R4's Enhanced Network



EPA Region 4's Science and Ecosystem Support Division

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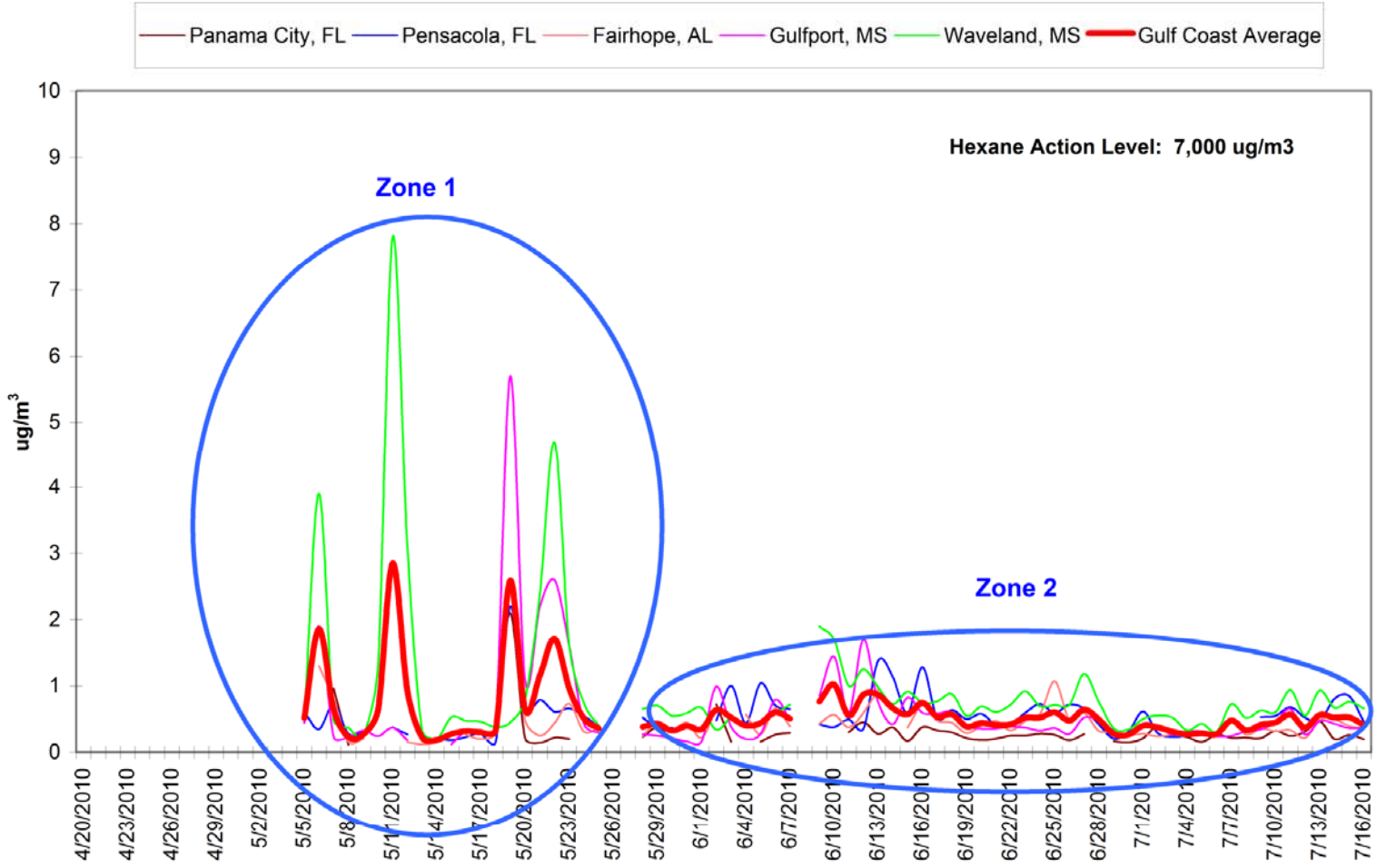

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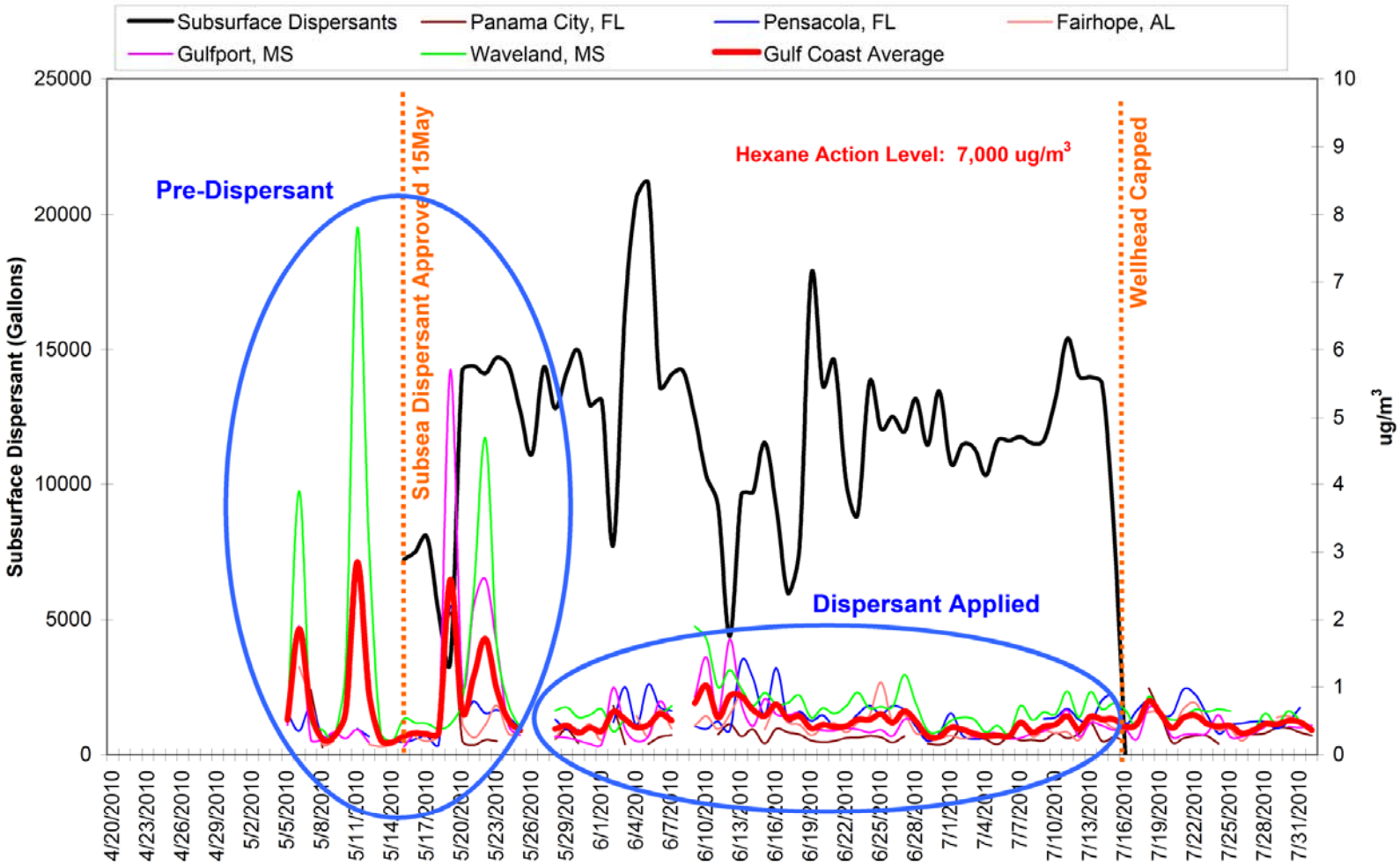
Hexane Concentrations: (May) vs (June & July)

- So what could have happened during the May-June timeframe that would have made the Hexane concentrations have such different concentration profiles?

- EPA Approved the use of subsurface dispersants on May 15.

United States Environmental Protection Agency

Hexane Detections | EPA R4's Enhanced Network



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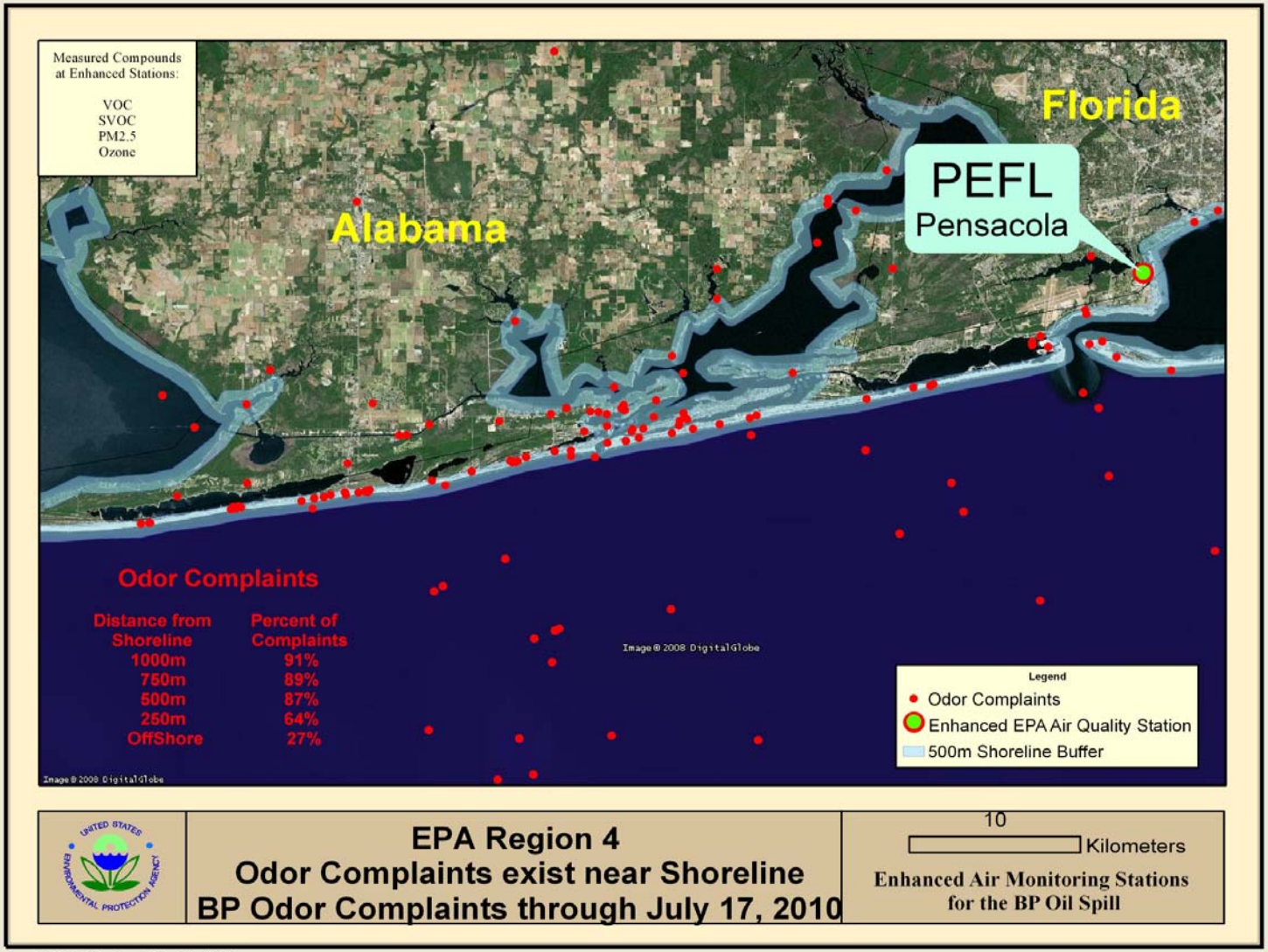

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