Technical Announcement

U. S. Department of the Interior
Bureau of Ocean Energy Management
Gulf of Mexico OCS Region

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Determination of Net Flux of Reactive Volatile Organic Compounds at the Air-Water Interface in the Gulf of Mexico

OCS Study BOEMRE 2010-043

The Bureau of Ocean Energy Management (BOEM), Gulf of Mexico OCS Region, announces the availability of a new study report, *Determination of Net Flux of Reactive Volatile Organic Compounds at the Air-Water Interface in the Gulf of Mexico.*

Reactive volatile organic compounds (RVOC's) originate from anthropogenic, geogenic, and biogenic sources in the Gulf of Mexico and may contribute to low-level ozone and haze if transported to NO_X-rich urban areas. This pilot study looked for a methodology that could yield better estimates of geogenic and biogenic sources of RVOC's to the atmosphere. Lab studies to develop the RVOC sampling and analysis methods were followed by field evaluation of the lab-generated methodologies. Additional objectives of this project were to preliminarily examine the concentration of RVOC's at the sea surface-atmosphere interface in the northern Gulf of Mexico and to provide a quantitative methodology for more accurate estimates of RVOC loads contributed by natural sources and/or processes.

Sampling and analysis procedures were developed and validated for the onsite microFAST gas chromatography (microFast GC) and lab-based gas chromatograph-time-of-flight-mass spectrometer instrument systems (GC-TOFMS) using sorbent tubes. Samples were collected at several coastal and one offshore location.

The instrumentation detected low part per billion levels of RVOC's, from compounds as volatile as ethane and ethylene to the less volatile BTEX compounds, with a relatively large number of both onsite analyses as well as conventional laboratory-based analyses. Furthermore, it demonstrated the potential to rapidly analyze a large number of air and water samples that would be needed to accurately estimate flux from the OCS area.

This report is available only in compact disc format from the Bureau of Ocean Energy Management, Gulf of Mexico OCS Region, at a charge of $15.00, by referencing OCS Study BOEMRE 2010-043. The report may be downloaded from the BOEM website through the Environmental Studies Program Information System (ESPIS). You will be able to obtain this

report also from the National Technical Information Service in the near future. Here are the addresses. You may also inspect copies at selected Federal Depository Libraries.

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