

Mississippi Resources Oil Spill

Community Air Sampling and Analysis Plan

Version 1.0

Prepared On Behalf Of:

Complete Environmental

Prepared By:

Center for Toxicology and Environmental Health, L.L.C.

5120 North Shore Blvd

Little Rock, AR 72118

501-801-8500

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Version 1.0			
	Name/Organization	Signature	Date Signed
Prepared by:	Kelly Scribner, Ph.D. / CTEH	<i>Kelly Scribner</i>	4/16/15
Reviewed by:	Chase Selby / CTEH		4/16/15
Approved by:	Chase Selby / CTEH		4/17/15
Approved by:			
Approved by:			
Approved by:			
Approved by:			

Air Monitoring and Sampling Strategy

CTEH® is focusing on the mixtures, and chemicals, chosen below because they are among the most important and readily monitored hazards of spilled crude oil. The possible hazards of crude oil vary by the source and type of the crude as well as with the environmental conditions associated with the spill. Monitoring and sampling for some chemicals or indicators of the presence of crude oil may be conducted less frequently or even discontinued as product-specific information becomes available or as initial monitoring and sampling results indicate that these chemicals and indicators do not pose a health concern.

Free-roaming handheld real-time air monitoring may be conducted in a variety of areas based on levels of activity, proximity to the release, and site conditions. Fixed-location handheld real-time locations may be established in the Community Area in order to provide concentration averages that may be observed and analyzed over time in distinct geographic locations in the community.

Radio-telemetry RAE Systems® AreaRAE/MultiRAE Pro units may be deployed in all monitoring plans to allow for continuous air monitoring in multiple areas. AreaRAE/MultiRAE Pro readings may be received and monitored in a centralized location by CTEH® personnel to allow for recognition, communication, and response to changing conditions.

Discrete air samples may be collected and sent to an off-site laboratory for chemical analysis. These analytical air sampling techniques may be used to provide air quality data beyond the scope of real-time instruments.

Plan 1: Community Exposure Monitoring

Objective: Report air levels before they reach those causing nuisance issues

Analyte	Action Level	Action to be Taken	Basis	Instrument	Detection Limit	Notes	Correction Factor
Total VOCs	0.5 ppm	Report reading to PM. Assess for the presence of benzene/toluene/hexane, if requested	Approximate background level - Reading sustained for 5 minutes	MultiRAE AreaRAE	0.1 ppm	Measuring range: 1 – 200	NA
Benzene	Detection	Sample only as requested, Report reading to PM	Inform PM/PTD of potential off-site issues	UltraRAE	0.05 ppm	UltraRAE - Change SEP tube frequently	NA
				Gastec tube #121L	0.05 ppm	Range: 0.1 to 65 Volume: Variable	Var.
Toluene	Detection	Sample only as requested, Report reading to PM	Inform PM/PTD of potential off-site issues	Gastec tube #122L	0.5 ppm	Range: 1 to 100 Volume: Variable	Var.
Hexane	Detection	Sample only as requested, Report reading to PM	Inform PM/PTD of potential off-site issues	Gastec tube #102L	1 ppm	Range: 4 to 1200 Volume: Variable	Var.
Hydrogen Sulfide	Detection	Exit Area, report reading to PM	Inform PM/PTD of potential off-site issues	MR Sensor	1 ppm	MultiRAE - Measuring range: 0 – 100 ppm	NA
				MR Pro Sensor	0.1 ppm	MR Pro - Measuring range: 0 – 100 ppm	NA
				MultiRAE PID	0.1 ppm	Measuring range: 0 – 100 ppm	3.3
				Gastec tube #4LL	0.1 ppm	Range: 0.25 to 120 Volume: Variable	Var.

Analyte	Action Level	Corrected Value	Action to be Taken	Basis	Instrument	Detection Limit	Notes	Correction Factor
LEL	1 %	2.5 %	Notify PM	Elevated LEL sustained 1 min	MultiRAE AreaRAE	1 %	Measuring range: 1 – 100%	2.5*
LEL	4 %	10 %	Exit area and Notify PM		MultiRAE AreaRAE	1 %	Measuring range: 1 – 100%	2.5*

*Rough estimate based on common crude oil volatiles.

Analytical Methods			
Analyte	Media/Can	Method	Notes
VOCs	Mini - Cans	EPA TO-15 with TICs	
Benzene	Charcoal tube	NIOSH 1501	

General Information on Procedures (Assessment Techniques) Used

Procedure	Description
Guardian Network	A Guardian network may be established with AreaRAEs equipped with electrochemical sensors will be positioned at established locations around the work zone. The AreaRAEs will be telemetering instantaneous data at 15-second intervals to a computer console. MultiRAE Pros may also be used in the network. The data will be visible in real-time at the computer console and will be monitored 24 hours per day by CTEH personnel.
Hand-held Survey	CTEH staff members may utilize handheld instruments (e.g. MultiRAE Plus; ppbRAE, Gastec colorimetric detector tubes, etc.) to measure airborne chemical concentrations. CTEH will use these hand-held instruments primarily to measure for potential breathing zone exposures. Additionally, measurements can be made at grade level, as well as in elevated workspaces, as indicated by chemical properties or site conditions. CTEH may also use these techniques to verify detections observed by the AreaRAE network.
Fixed Real-Time Monitoring locations	Multiple community locations may be identified and monitored at the same location approximately once per hour using hand-held instruments. This allows use statistical analysis more effectively than with a random approach.
Analytical sampling	Analytical sampling may be used to validate the fixed station and hand-held data monitoring data, or to provide data beyond the scope of the real-time instruments. Analytical samples may be collected as whole air samples in evacuated canisters or on specific collection media, and sent to an off-site laboratory for further chemical analysis.
Particulate Monitoring Network	A network of data-logging particulate monitors may be set up and positioned around the Community Area.



Monitoring Plans

Sampling Plans	Description
Community Exposure Monitoring	Potential Community breathing zone exposures in residential and commercial locations in the area immediately surrounding the Work Area.

Quality Assurance/Quality Control Procedures

Method	Procedure
Real-time	<ul style="list-style-type: none">• Real time instruments may be calibrated in excess of the manufacturer's recommendations.<ul style="list-style-type: none">○ At a minimum whenever indicated by site conditions or instrument readings.• Co-located sampling for analytical analysis may be conducted, if necessary, to assess accuracy and precision in the field.• Lot numbers and expiration dates may be recorded with use of Gastec colorimetric tubes.
Analytical	<ul style="list-style-type: none">• Chain of custody documents may be completed for each sample.• Level IV data validation may be performed on the first sample group analyzed.• Level II data validation may be performed on 20% of all samples.• Level IV data validation may be performed on 10% of all samples.
Other	

Glossary

Term	Definition
Sustained	Instrument reading above the action level continuously for the listed time period.
Excursion Limit	Whenever a reading exceeds a ACGIH® TLV reading by 3 times (if the chemical does not have a STEL or Ceiling based action level), exit the area and notify the PM
Breathing zone	The area within an approximate 10-inch radius of an individual's nose and mouth.

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<ul style="list-style-type: none"> <i>In the section titled:</i> 			
	Name/Organization	Signature	Date Signed
Prepared by:			
Review by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			

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<ul style="list-style-type: none"> <i>In the section titled:</i> 			
	Name/Organization	Signature	Date Signed
Prepared by:			
Review by:			
Approved by:			
Approved by:			
Approved by:			
Approved by:			