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Subject: Epi-AID Trip Report (EPI AID 2012-077):
Community Health Assessment Following Mercaptan Spill
Eight Mile, Mobile County, Alabama

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BACKGROUND

On July 27, 2012, the Alabama Department of Public Health requested CDC epidemiologic assistance to investigate possible health effects resulting from community exposure to mercaptan from contaminated ground and surface water in the Eight Mile community of Prichard, Alabama.

In 2008, a lightning strike was reported to have caused a leak of tert-butyl mercaptan (TBM) from its storage tank at the Gulf South Natural Gas Pumping Station, located at 3350 Suncrest Road, Prichard, Alabama (Figure 1). Residents have reported experiencing possible exposure and health symptoms including nausea, dizziness, headaches, general weakness, and respiratory and mucous membrane symptoms, such as eye, nose, and throat irritation since October 2011.

Mobile Gas identified and repaired one gas leak, but this did not resolve the odor that has been described as resembling putrid green onions. A water sample collected by Mobile Gas Service in January 2012, at a groundwater spring located at a beaver pond (Figure 1), contained 460 µg/L butyl-mercaptan, an industrial additive used in natural gas to detect leaks. Another water sample collected in February measured 14,000 µg/L butyl-mercaptan.

In April 2012, at the request of the Alabama Department of Environmental Management (ADEM), the US Environmental Protection Agency (Region 4) collected ambient air samples from the residential neighborhoods surrounding the pumping station. Split grab (1-minute) samples were collected on 3 consecutive days (April 24-26) at 11 locations¹. Samples were collected in the early morning hours starting at sun rise, when the odors typically concentrate near the ground and are the strongest. The sample was collected in the breathing zone, approximately 5 feet above the ground using a vacuum chamber. All samples contained methane concentrations (0.0002%) similar to a background location approximately 4.7 miles northeast of the spring. These low methane levels indicated that the source of the sulfur containing compounds were not emanating from an active gas line. The highest concentrations of three sulfur compounds were identified at the beaver pond spring: tert-butyl mercaptan, or TBM (230 ppbV), ethyl methyl sulfide, or EMS (72 ppbV), and diethyl sulfide, or DES (33 ppbV).

TBM has a skunk-like odor (odor threshold: 0.1 ppb). Thermal decomposition products include hydrogen sulfide and oxides of sulfur and carbon. Short term exposure may cause dermal and respiratory irritation, lack of sense of smell, nausea, vomiting, diarrhea, difficulty breathing, headache, drunk-like symptoms, cyanosis, lung congestion, kidney damage, convulsions, and even coma. TBM is not a carcinogen. There is no available information on adverse health effects associated with long term TBM exposure.

Inhalation and skin contact are expected to be the primary routes of occupational exposure to EMS. Based on single exposure animal tests, it is considered to be practically non-toxic to slightly toxic if swallowed, practically nontoxic if inhaled, no more than slightly toxic if absorbed through skin and moderately irritating to eyes and skin.

¹ United States Environmental Protection Agency, Region 4. Eight Mile / Prichard Air Study Prichard, Mobile County, Alabama, April 24-26, 2012. SESD Project Identification Number: 12-0375.

DES has a pungent garlic-like odor. Inhalation may cause headache, nausea, dizziness, drowsiness, and loss of consciousness. Prolonged or repeated exposure can cause allergic skin reactions. The Occupational Safety and Health Administration (OSHA) sets enforceable permissible exposure limits (PELs) to protect worker health. PELs are regulatory limits on the amount or concentration of a substance in the air, based on an 8-hour time weighted average (TWA) exposure. The PEL for most thiols is 500 ppbV.

STUDY OBJECTIVES

- 1) Assess the self-reported health effects in the community;
- 2) Determine the scope of the reported medical services received; and
- 3) Develop recommendations for prevention and response to future incidents.

METHODS

Our study consisted of a representative random sampling design survey of households in the Eight Mile community to help answer the requested study objectives. We took specific factors into account with respect to the health outcome and exposure to help develop our study design:

- Outcome assessment;
 - While a comprehensive medical chart review from all hospitals, emergency room departments, and primary care clinics may be useful, susceptible residents with little or no access to healthcare may not be appropriately captured. We therefore surveyed self-reported health outcomes among residents in the Eight Mile community and asked about medical-seeking practices.
- Exposure assessment;
 - Based on the EPA report, there is high temporo-spatial variability in TBM pollutant concentrations. We therefore decided to use self-reported or perceived exposures to assist us in assessing exposures among the residents of the Eight Mile Community.
 - As self-reported exposures can be prone to recall bias, we also included an objective measure of distance to the suspected source, the beaver pond spring (Figure 1). To maintain the confidentiality of residents, we did not collect identifiable information. Instead, we grouped households into zones with respect to their distance from the source.
 - The choice of the number, location, and shape of these zones depended on the following factors:
 - Pollutant characteristics:
 - The chemicals in question typically vaporize, stay close to the ground surface, and do not travel far from the source (assuming there is only one source). We chose one- and two-mile zones from the source to stay in

proximity to the source as well as to meet the sample size required for sufficient statistical power.

- Wind speed and direction:
 - Figure 2 shows the distribution of wind speeds and directions between 2005 – 2010 at two nearby meteorological stations:
 - Mobile downtown (latitude 30.626; longitude -88.068);
 - Mobile / Bates field (latitude 30.688; longitude -88.246);
 - Mobile / Bates field is more inland, less prone to the prevailing south-easterly Gulf winds, and may be more representative of the conditions in the Eight Mile community. As we are interested in long-term, year-round exposures, all households around the source may be at risk. We therefore generated a circular sampling area, centered at the beaver pond spring.
 - While we considered a control zone in another area, such as the site of the April 2012 EPA background station (EM01 on Figure 1), residents in these areas may be different from the Eight Mile Community with respect to different susceptibilities to health outcomes and different exposures from nearby factories that are unrelated to the pollutants of interest. We therefore centered both zones at the beaver pond spring to control for these extraneous factors.

- Location and density of at-risk households:
 - Assuming 50% prevalence of each health outcome of interest, we determined that we would need to complete surveys for at least 97 households per zone, so that the margin of error around the estimated prevalence was $\pm 10\%$, assuming a 95% confidence interval. We increased the sample size to 110 per zone (220 total), to account for potential non-response. We sampled two circular zones (1-mile and 2-mile radii), centered at the source (Figure 1).

Ten field study teams, comprising of 2 members, were trained immediately before fieldwork began, covering the background of the event, study objectives and methods. Training included consent ascertainment, interview techniques, safety instructions, and the roles and responsibilities of team members.

To obtain 110 samples from each zone and a block level map with streets, highway and water body information, we applied the GIS² CASPER³ tool (a set of program developed by CDC-GRASP⁴ and HSB⁵ to enhance the sampling and mapping method) in ESRI⁶ ArcMap 10.0 software. The GIS CASPER tool automatically generated the cumulative number of housing units and excluded blocks

² Geographic Information System

³ Community Assessment for Public Health Emergency Response

⁴ Geospatial Research Analysis and Services Program

⁵ Health Studies Branch, National Center for Environmental Health, CDC

⁶ Environmental Systems Research Institute

with “0” housing units from the sampling frame. Based on the cumulative house number per block (Census 2010 data), 26 and 66 blocks (proportional to the number of housing units per block) were selected from zones 1 and 2, respectively. We used the 2010 Census and randomly selected households with an equal probability of selection. Study teams were each assigned Census blocks within each zone that include selected households (Figure 3). The 220 households were divided equally among the teams. Each team was provided information on the total number of households in each Census block, which was divided by the number of homes to be surveyed. For example, if there were 30 homes in their designated area, of which they were to survey 3, the team would visit 1 in 10 homes. They would each randomly select a first household, and then systematically survey every 10th household. The team would continue to visit every 10th household within their Census block until they completed 3 interviews. In effect, this was an approximated random sample, with each household having an equal probability of selection. To facilitate navigation, printed street maps (PDF⁷ format) of each block showing geographical identifiers were generated. In addition, KMZ⁸ files were created in GIS to see aerial views of the selected blocks in Google Earth.

Prior to each interview, the teams completed a tracking form (Appendix A) to record the outcome of every interview attempt. This information served as the basis for calculating the response rates. Interview teams recorded each housing unit that was selected in the field and the interview outcome (e.g., completed interview, no answer). The second page of the tracking form was used by the interview teams to take notes in the field on households that were to be revisited. To maintain confidentiality, there was no way to link addresses to specific questionnaires.

In the event that field teams encountered a household with urgent needs that presented an immediate threat to life or health, they were to encourage or assist the household to call emergency services (911). In the event that calling 911 was not appropriate, the teams would complete a confidential referral form (Appendix B). This form would then be immediately communicated to the study team coordinator for rapid follow-up and communication with health service providers in the area, identified by the ADPH and MCHD.

After gaining verbal consent (Appendix C), one eligible household member (≥ 18 years of age) from the family was selected to speak for all household members when responding to the questionnaire (Appendix D). There was no specific formula for choosing the eligible individual to interview in selected housing units. The interview teams were instructed to use their judgment to determine the person to be interviewed. In general, any adult, regardless of gender, race, ethnicity, or religion, was eligible to participate in the assessment. If more than one adult person was present in the house, either could choose to serve as the respondent or an interviewer may have randomly chosen between them. The selected respondent was advised that he/she would report on the entire household; not just on himself or herself.

At the end of field work, data were entered into Epi-Info and analyzed with SAS statistical software. We have presented unweighted descriptive statistics of the community demographics and the prevalence of reported exposures to mercaptan-like odors, health complaints, and medical services sought or received.

⁷ Adobe Portable Document Format

⁸ Zipped / compressed Keyhole Markup Language file

We compared residents living within 1 (zone 1) and 2 miles (zone 2) of the beaver pond spring. The study's results were presented to the ADPH and MCDH on September 19, 2012 in Mobile, AL.

RESULTS

We completed 97 (88% of the n=110 goal) and 107 (97% of the n= 110 goal) surveys in zones 1 and 2, respectively (Table 1). The two zones did not vary with respect to demographic characteristics, with the exception of employment status (Table 2); there were more unemployed respondents in zone 1 (25.8%) than in zone 2 (12.2%), while there were more retired respondents in zone 2 (50.5%) than in zone 1 (36.1%). Our sample of respondents was representative of the population within the sampling frame, according to the 2010 Census data (Supplementary Table 1).

Table 3 presents the odor characteristics reported by respondents. Ninety-eight percent of respondents in zone 1 and 78% in zone 2 reported experiencing odors in the past 6 months. While 47.4% of residents in zone 1 and 58.9% in zone 2 reported experiencing odors for ≤ 4 years, 28.9% in zone 1 and 7.5% in zone 2 reported odors before the start of the mercaptan spill in 2008 (≥ 5 years). Odors were described like gas and rotten eggs in the majority of households in both zones. Of the 22.7% in zone 1 and 13.1% in zone 2 that reported other odor descriptions, most said they experienced "bad" or "chemical" smells (results not shown). Odors were most frequently reported both inside and outside their homes, followed by the beaver pond vicinity. Figure 4 presents the spatial distribution of Census blocks with at least 1 household reporting odor exposure; almost all Census blocks reported exposure within both zones.

Table 4 presents the characteristics of the strongest odors. Odor severity was greater in zone 1 (mean score 9.1/10) relative to zone 2 (mean score 7.8/10). Of households who reported exposures, the majority (89% in zone 1 and 64% in zone 2) reported worst exposures outdoors, around their home, especially in the early morning and evening hours (Figure 5). A variety of weather conditions appeared to affect odor severity in both zones. The majority of respondents reported odor severity not changing since they began. However, among those who reported a change, more subjects reported increased severity in zone 1, whereas more subjects reported decreased severity over time in zone 2.

More respondents in zone 1 reported exposures aggravating their physical and mental health, with decreased time spent outdoors and less frequently able to open their windows at home (Table 5). Specifically, more households complained of nasal congestion, dyspnea, cough, wheezing, loss of appetite, eye irritations, headache, dizziness, agitated behavior, difficulty concentrating, and worsening hypertension in zone 1 than in zone 2 (Table 6; Figure 6). A higher proportion of respondents reported ≥ 14 out of the past 30 days as being physically and mentally unhealthy, in addition to being unable to do normal activities (e.g. self-care, work, recreation) due to poor physical / mental health (Supplementary Table 2). These proportions were higher among respondents in both zones overall, as compared to two prior surveys in Mobile County⁹ and Alabama State¹⁰.

⁹ Buttke D, et al. Mental health needs assessment after the Gulf Coast oil spill—Alabama and Mississippi, 2010. *Prehosp Disaster Med.* 2012;27(5):1-8.

¹⁰ Behavioral Risk Factor Surveillance System (BRFSS) 2009, state data.

Most households had health insurance, with access to a regular physician and transportation to receive medical care (Table 7). Among those who reported health effects either in the past 30 days or since the odor began, there was no significant difference in the type of medical care sought between the 2 zones.

The main concerns reported by respondents (94.9% in zone 1 and 63.6% in zone 2) were related to health effects and clean-up or remediation of the mercaptan spill (Table 8).

Respondents living in zone 1 were more likely than those in zone 2 to report odors in any location [odds ratio (OR) = 13.74; 95% confidence interval (CI): 3.15 – 59.87; p=0.0005] or specifically in- or outside their home (OR = 4.41; 95% CI: 2.05 – 9.50; p=0.0002). In addition, female respondents were more likely than males to report odors in any location (OR = 3.53; 95% CI: 1.41 – 8.80; p=0.0069) or specifically in- or outside their home (OR = 2.53; 95% CI: 1.27 – 5.04; p=0.0086) (results not shown).

Finally, as an additional assessment of exposure, 10.3% of field team members reported odors in zone 1, whereas only 4.6% reported odors in zone 2.

RECOMMENDATIONS

Based on our current findings, we propose a few recommendations in preparation for potential future incidents. In addition to your current activities surrounding environmental risk assessment and evaluation of remediation strategies, we suggest that:

- Health care practitioners be provided information on:
 - Potential health effects of mercaptan exposures;
 - Approaches to prevent and manage exacerbations of existing chronic diseases, potentially due to mercaptan exposures (e.g. asthma, hypertension, mental health).
- The Mobile County Health Department prepare public health communication messages in advance to include:
 - Strategies to minimize exposures:
 - Limiting outdoor activity and keep windows closed in the evening and overnight hours (6pm – 8am);
 - Advising those with chronic respiratory (e.g. asthma) and cardiovascular (e.g. hypertension) conditions to have their medications readily available.

CONCLUSIONS

We conducted a representative random sampling design survey of households in the Eight Mile community of Prichard, Alabama, between September 12 – 14, 2012. We compared reported exposures

and health effects among 204 households living in two circular zones, located within 1- and 2-miles from the contaminated source. The two zones did not vary with respect to demographic characteristics. Almost all (98%) residents in the 1-mile zone and the majority (78%) of residents in the 2-mile zone reported experiencing odors in the past 6 months. Odor severity was greater in the 1-mile zone. As an additional assessment of exposure, more field team members reported odors in zone 1 than in zone 2. Significantly more subjects in the 1-mile zone reported exposures aggravating their physical and mental health, including shortness of breath, eye irritations and agitated behavior. Overall, over a third of residents sought care for symptoms attributed to the odor, primarily at their family doctor or community health center. The majority of respondents reported ≥ 14 out of the past 30 days as being physically and mentally unhealthy, in addition to being unable to do normal activities (e.g. self-care, work, recreation) due to poor physical / mental health. These proportions were higher than those reported in two prior surveys in Mobile County¹¹ and Alabama State¹².

¹¹ Buttke D, et al. Mental health needs assessment after the Gulf Coast oil spill—Alabama and Mississippi, 2010. *Prehosp Disaster Med.* 2012;27(5):1-8.

¹² Behavioral Risk Factor Surveillance System (BRFSS) 2009, state data.

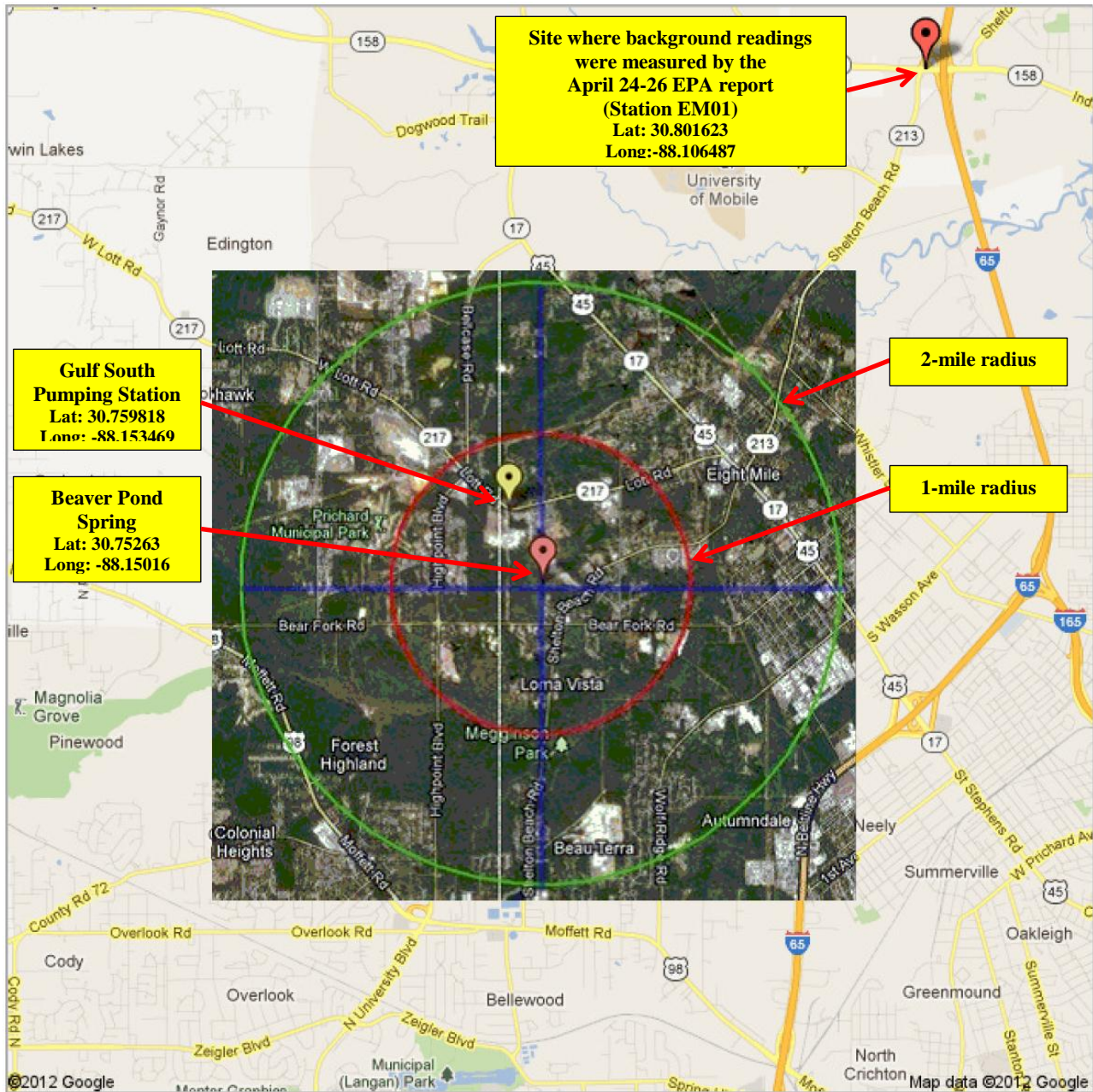


Figure 1. Map depicting the locations of the gas pumping station, beaver pond spring, and one- and two-mile radius study sampling frames in the Eight Mile community, Alabama (Acknowledgment: Prbasaj Paul (CDC/NCCDPHP); Source: Google, 2012)

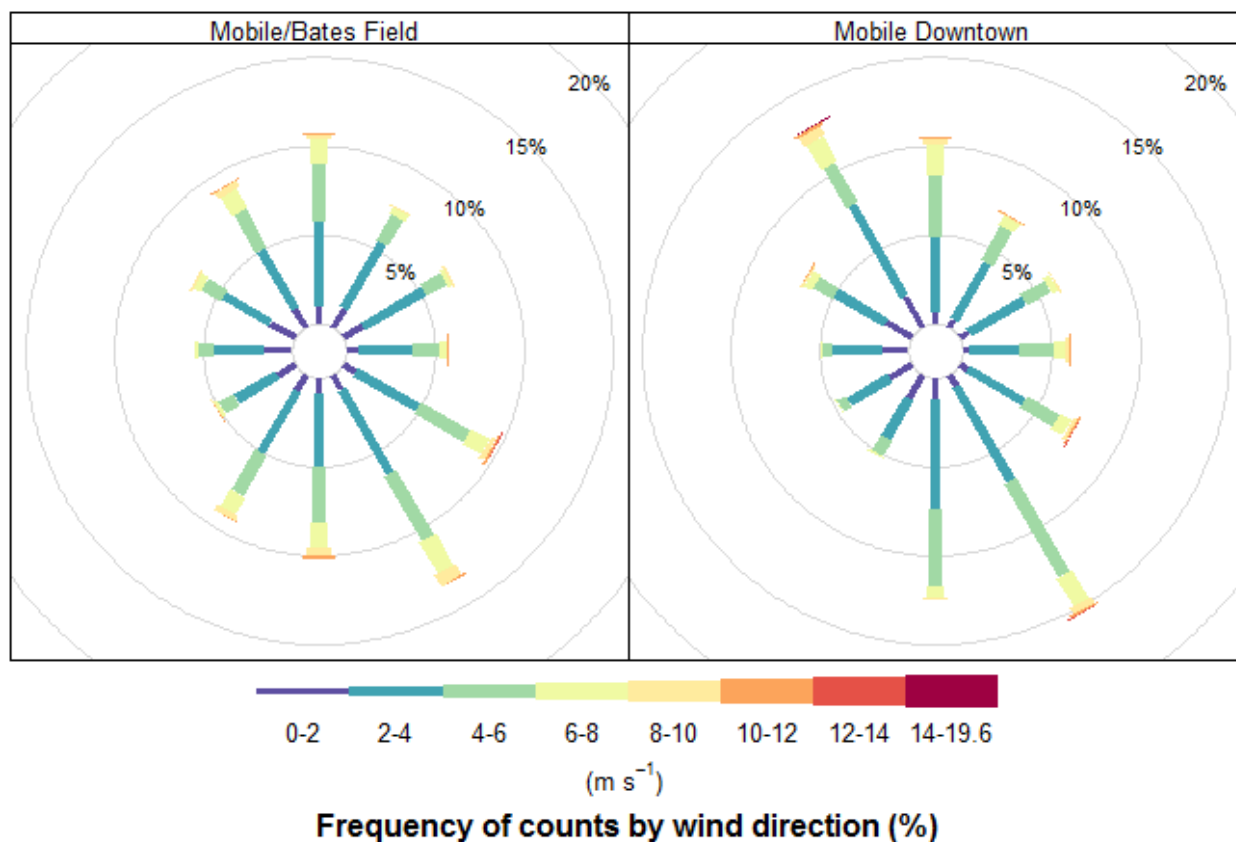


Figure 2. Wind Roses for Met Stations near Eight Mile, AL, 2005 – 2010

(Source: Integrated surface hourly weather observations from US Dept of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center (NCDC). Available online at <ftp://ftp.ncdc.noaa.gov/pub/data/noaa>)

Created by James Durant (ATSDR), using:

- Carslaw, D.C. and K. Ropkins, (2012) openair --- an R package for air quality data analysis. Environmental Modelling & Software. Volume 27-28, 52-61.
- David Carslaw and Karl Ropkins (2012). openair: Open-source tools for the analysis of air pollution data. R package version 0.6-0.
- R Development Core Team (2012). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org>.

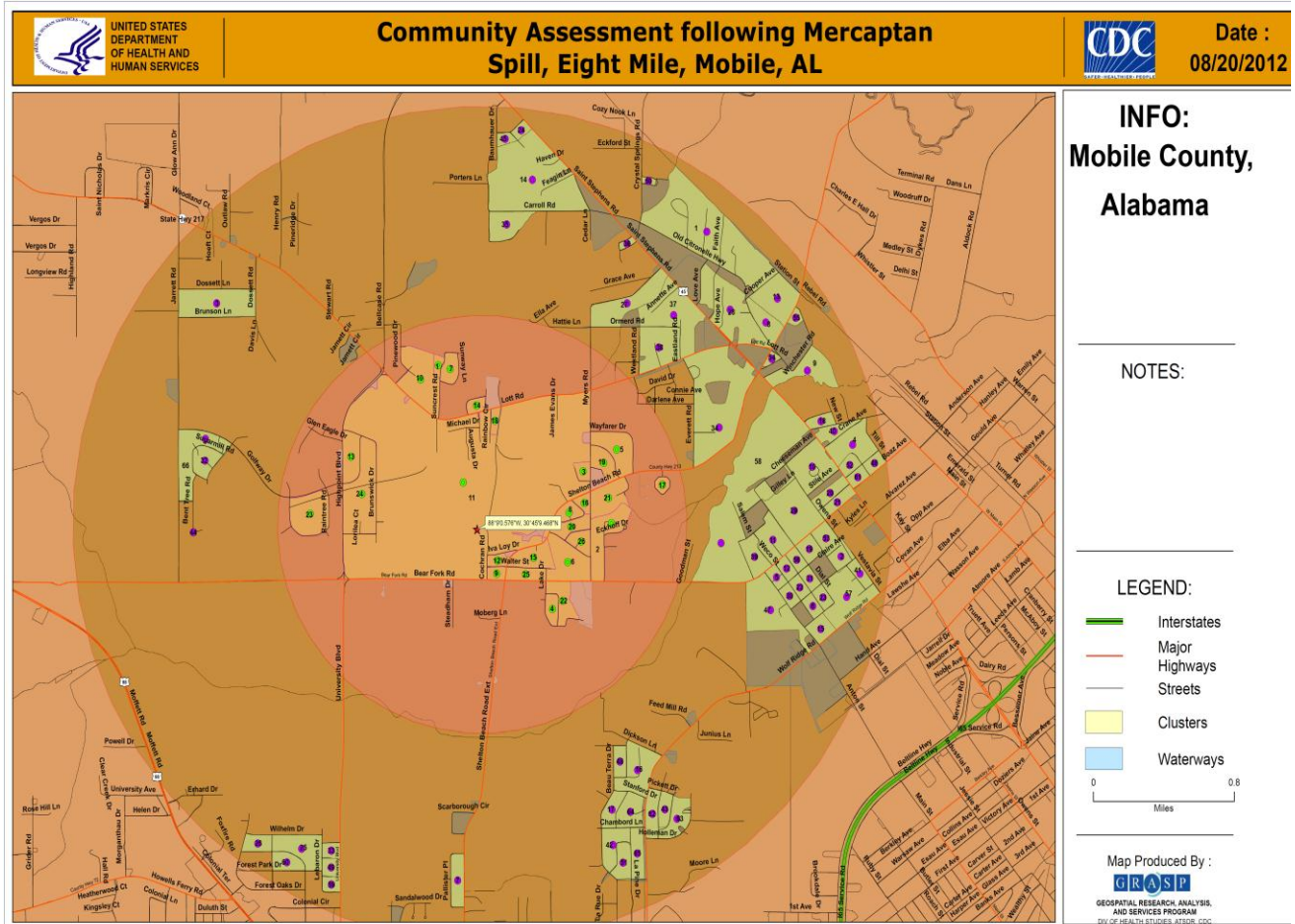


Figure 3. Census 2010 blocks to be surveyed in zones 1 (green) and 2 (purple), centered at the beaver pond spring. Created by Tesfaye Bayleyegn (CDC/NCEH/EHHE/HSB), using the CASPER GIS Tool in ArcGIS 10.0

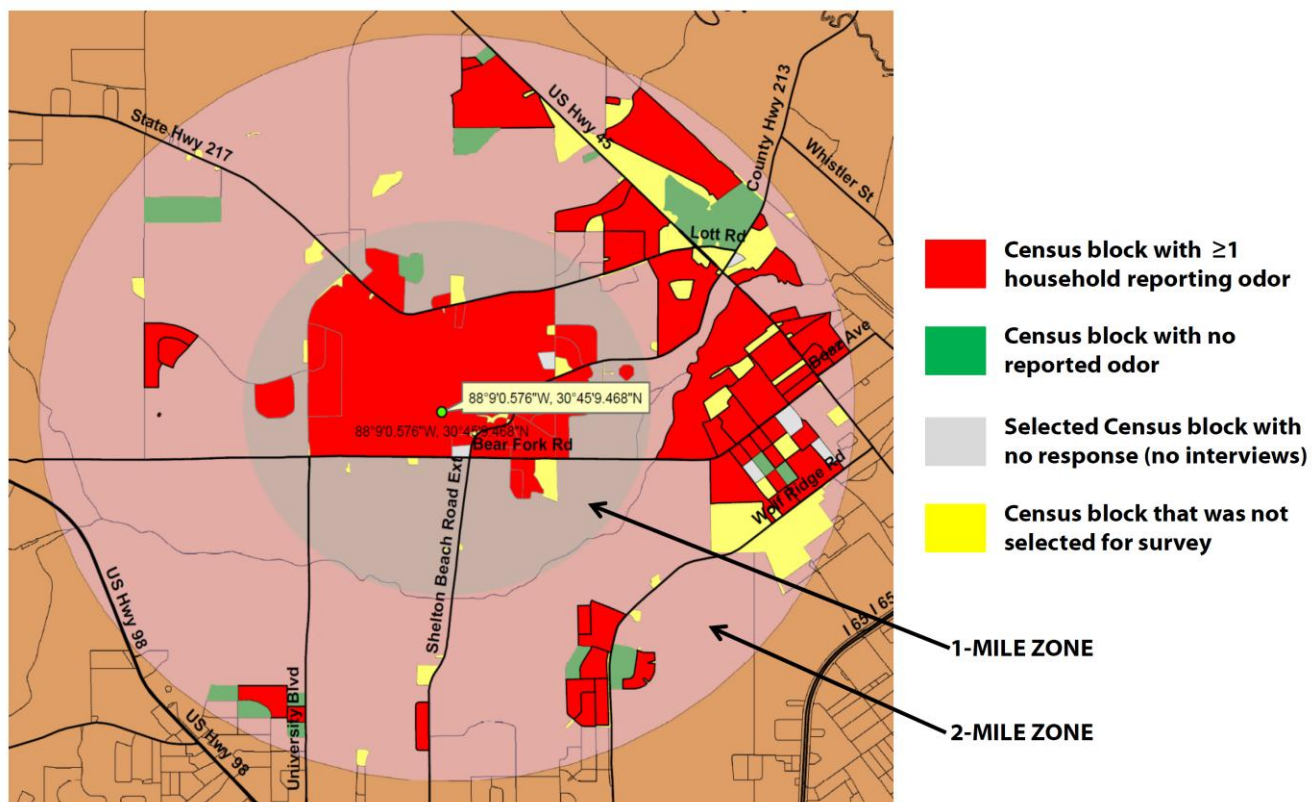


Figure 4. Spatial distribution of reported odor exposures, Eight Mile, AL, September 2012.
Created by Tesfaye Bayleyegn (CDC/NCEH/EHHE/HSB), using the CASPER GIS Tool in ArcGIS 10.0

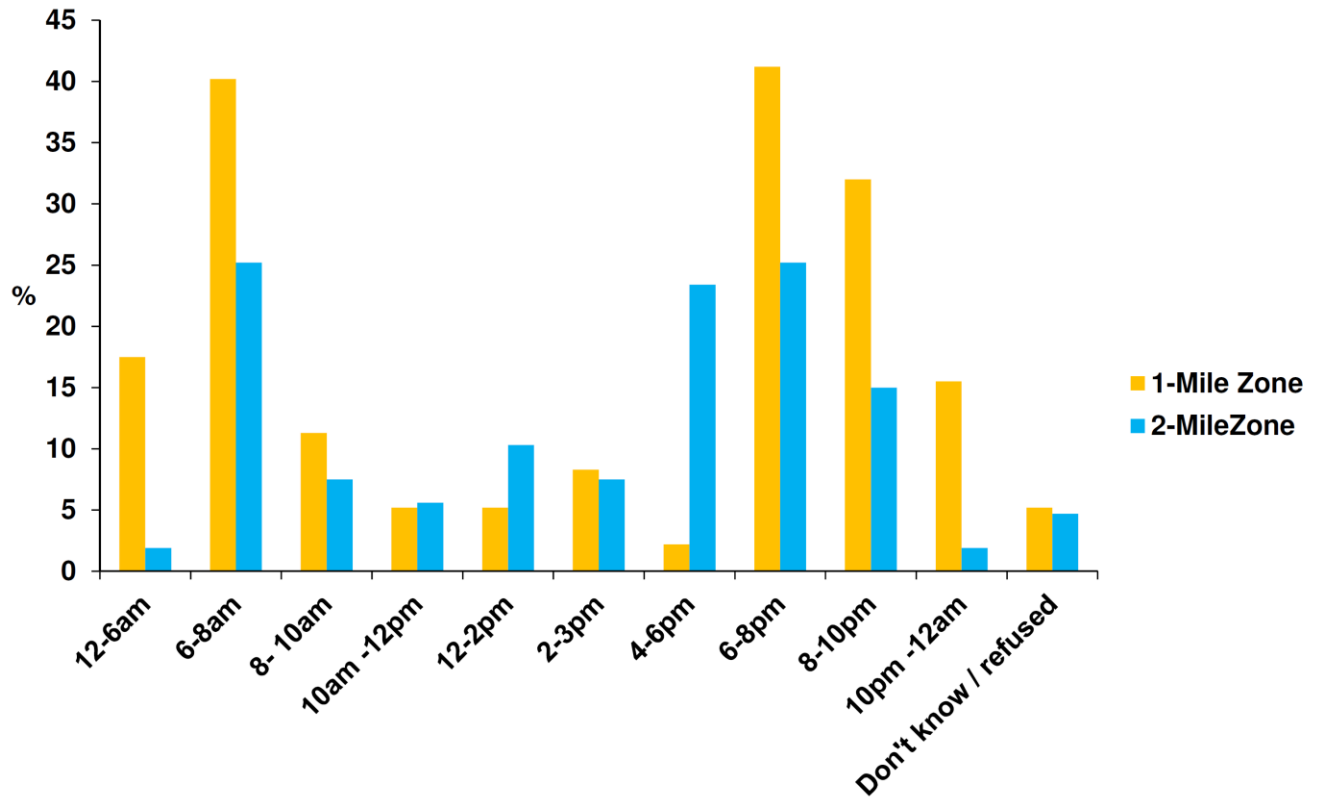


Figure 5. Temporal distribution of reported odor exposures, Eight Mile, AL, September 2012.

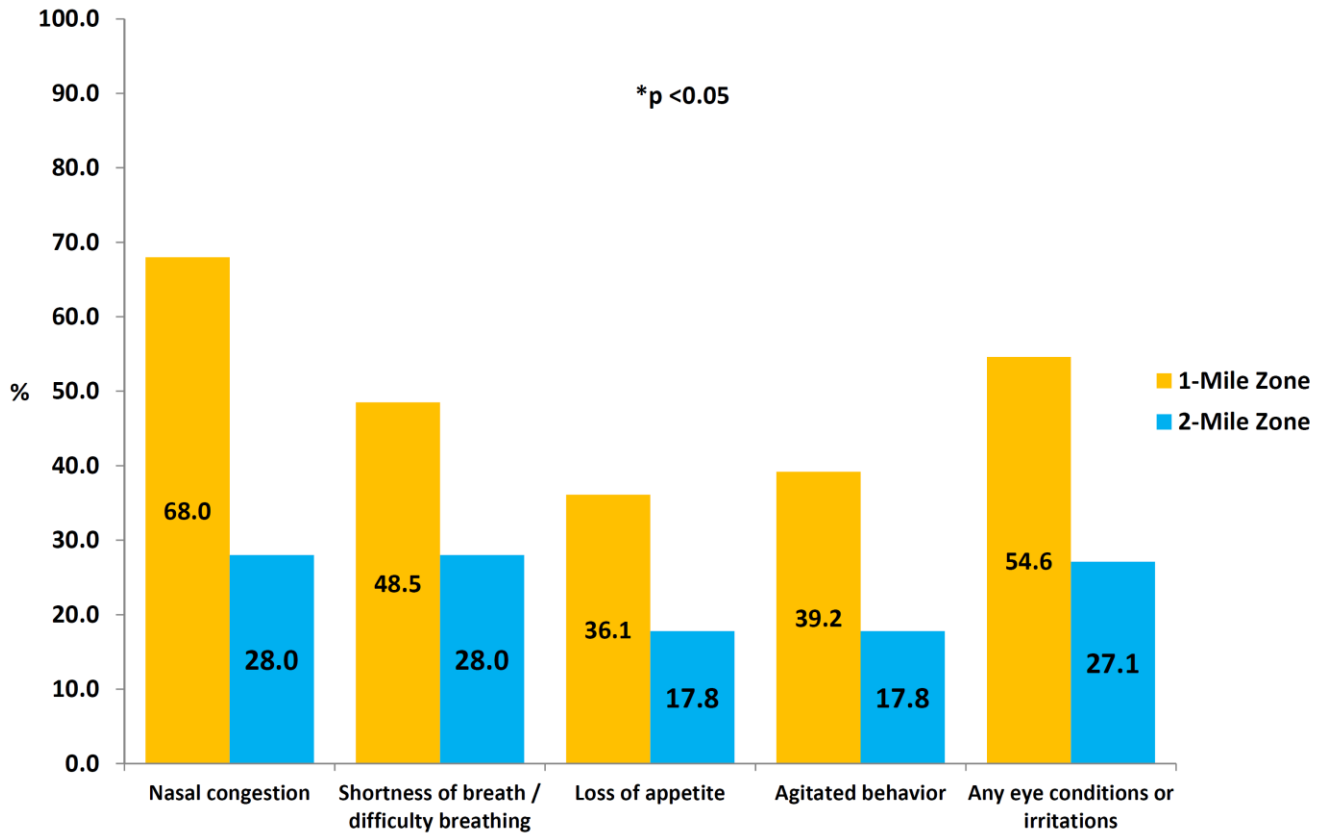


Figure 6. Household-level health complaints that significantly* vary by zone, Eight Mile, AL, September 2012.

Table 1. Questionnaire response rates from the Eight Mile Community, AL, September 2012

Questionnaire response	1-Mile Zone % (n = 97; goal = 110)	2-Mile Zone % (n = 107; goal = 110)	Overall % (N = 204; goal = 220)
Completion*	88.2	97.3	92.8
Contact [†]	49.7	51.9	50.8
Cooperation [‡]	80.2	73.8	77.0

* Percent of surveys completed in relation to the goal of 110 in each zone

† Percent of households randomly selected and completing an interview

‡ Percent of contacted households that were eligible and willing to participate in the survey

Table 2. Demographics of respondents in the Eight Mile Community, AL, September 2012

		Overall (n=204)	
Age Characteristics		mean	range
Age of adult respondents (years) (Q15)		52.5	(18.0 - 94.0)
Categorical Characteristics		%	95% CI
Age of all household members (years) (Q5)			
	≤ 2	5.2	(3.5, 6.9)
	3-5	5.2	(3.5, 6.9)
	6-9	5.7	(4.0, 7.5)
	10-17	10.4	(8.1, 12.7)
	18-25	11.3	(8.9, 13.7)
	26-40	15.7	(12.9, 18.4)
	41-65	32.5	(29.0, 36.0)
	66-75	9.8	(7.5, 12.0)
	≥76	4.2	(2.7, 5.7)
Gender (Q15)			
	Male	36.3	(30.0, 43.1)
	Female	58.3	(51.5, 64.9)
	Don't know / refused	5.4	(3.0, 9.4)
Race / ethnicity (Q18)			
	White, Non-Hispanic	17.7	(13.0, 23.5)
	Black, Non-Hispanic	80.9	(74.9, 85.7)
	Other	1.0	(0.3, 3.5)
	Don't know / refused	0.5	(0.1, 2.7)
Annual household income (\$) (Q22)			
	0 - <5,000	11.8	(8.0, 16.9)
	5,000 - <10,000	6.4	(3.8, 10.6)
	10,000 - <15,000	5.9	(3.4, 10.0)
	15,000 - <20,000	9.3	(6.0, 14.1)
	20,000 - <25,000	12.3	(8.4, 17.5)
	25,000 - <35,000	7.4	(4.5, 11.8)
	35,000 - <50,000	5.9	(3.4, 10.0)
	50,000 - <75,000	9.8	(6.4, 14.7)
	>75,000	5.4	(3.0, 9.4)
	Don't know / refused	26.0	(20.5, 32.4)
Length of time lived in Eight Mile (years) (Q16)			
	≤ 1	4.9	(2.7, 8.8)
	2 - 4	9.8	(6.4, 14.7)
	≥ 5	85.3	(79.8, 89.5)
Employment status (Q23A)			
	Employed	33.8	(27.7, 40.6)
	Unemployed	18.6*	(13.9, 24.5)
	Student	3.4	(1.7, 6.9)
	Retired	43.6*	(37.0, 50.5)
	Don't know / refused	0.5	(0.1, 2.7)
Work within Eight Mile (among employed)? (Q2B)			
	Yes	23.2	(14.8, 34.4)
	No	75.4	(64.0, 84.0)
	Don't know / refused	1.5	(0.3, 7.8)

* The two zones did not vary with respect to demographic characteristics, with the exception of employment status; there were more unemployed respondents in zone 1 (25.8%) than in zone 2 (12.2%), while there were more retired respondents in zone 2 (50.5%) than in zone 1 (36.1%).

Table 3. Odor characteristics reported by respondents in the Eight Mile Community, AL, September 2012

	1-Mile Zone (n=97)		2-Mile Zone (n=107)		Overall (n=204)	
	%	95% CI	%	95% CI	%	95% CI
Odor smelled in past 6 months (Q24)						
Yes	97.9	(92.8, 99.4)	77.6	(68.8, 84.4)	87.3	(82.0, 91.2)
No	2.1	(0.6, 7.2)	22.4	(15.6, 31.2)	12.8	(8.9, 18.0)
Odor duration (years) (Q25A)						
≤ 1	26.8	(19.0, 36.4)	47.7	(38.5, 57.0)	37.8	(31.4, 44.6)
2 - 4	20.6	(13.8, 29.7)	11.2	(6.5, 18.6)	15.7	(11.3, 21.3)
≥ 5	28.9	(20.8, 38.6)	7.5	(3.8, 14.1)	17.7	(13.0, 23.5)
Don't know / refused	23.7	(16.4, 33.1)	33.6	(25.4, 43.0)	28.9	(23.1, 35.5)
Odor description (Q25B)						
Gas	54.6	(44.7, 64.2)	29.9	(22.1, 39.2)	41.7	(35.1, 48.5)
Skunk	7.2	(3.5, 14.2)	7.5	(3.8, 14.1)	7.4	(4.5, 11.8)
Rotten eggs	19.6	(12.9, 28.6)	30.8	(22.9, 40.1)	25.5	(20.0, 31.9)
Onions	4.1	(1.6, 10.1)	5.6	(2.6, 11.7)	4.9	(2.7, 8.8)
Other	22.7	(15.5, 32.0)	13.1	(8.0, 20.8)	14.2	(10.1, 19.7)

Note that the column % may not sum to 100; respondents may fall into >1 category.

Table 3 continued on next page

Table 3. Odor characteristics reported by respondents in the Eight Mile Community, AL, September 2012 (continued)

	1-Mile Zone (n=97)		2-Mile Zone (n=107)		Overall (n=204)	
	%	95% CI	%	95% CI	%	95% CI
Odor location & frequency (Q25C)						
Indoors, at home	54.6	(44.7, 64.2)	24.3	(17.2, 33.2)	38.7	(32.3, 45.6)
Every day	18.6	(12.1, 27.4)	6.5	(3.2, 12.9)	12.3	(8.4, 17.5)
1 – 3 days per week	16.5	(10.4, 25.1)	7.5	(3.8, 14.1)	11.8	(8.0, 16.9)
4 - 6 days per week	8.3	(4.2, 15.4)	2.8	(1.0, 7.9)	5.4	(3.0, 9.4)
approx. once monthly	2.1	(0.6, 7.2)	3.7	(1.5, 9.2)	2.9	(1.4, 6.3)
less than once monthly	3.1	(1.1, 8.7)	2.8	(1.0, 7.9)	2.9	(1.4, 6.3)
Don't know / refused	51.6	(41.7, 61.2)	76.6	(67.8, 83.6)	64.7	(57.9, 70.9)
Outdoors, around home	85.6	(77.2, 91.2)	66.4	(57.0, 74.6)	75.5	(69.2, 80.9)
Every day	34.0	(25.4, 43.9)	20.6	(14.0, 29.2)	27.0	(21.3, 33.4)
1 – 3 days per week	23.7	(16.4, 33.1)	25.2	(18.0, 34.2)	24.5	(19.1, 30.9)
4 - 6 days per week	21.7	(14.6, 30.9)	7.5	(3.8, 14.1)	14.2	(10.1, 19.7)
approx. once monthly	3.1	(1.1, 8.7)	9.4	(5.2, 16.4)	6.4	(3.8, 10.6)
less than once monthly	1.0	(0.2, 5.6)	1.9	(0.5, 6.6)	1.5	(0.5, 4.2)
Don't know / refused	16.5	(10.4, 25.1)	35.5	(27.1, 44.9)	26.5	(20.9, 32.9)
Indoors, at work	3.1	(1.1, 8.7)	-	-	1.5	(0.5, 4.2)
Every day	1.1	(0.2, 5.6)	-	-	0.5	(0.1, 2.7)
1 – 3 days per week	1.0	(0.2, 5.6)	-	-	0.5	(0.1, 2.7)
4 - 6 days per week	-	-	-	-	-	-
approx. once monthly	1.0	(0.2, 5.6)	-	-	0.5	(0.1, 2.7)
less than once monthly	-	-	-	-	-	-
Don't know / refused	96.9	(91.3, 98.9)	-	-	98.5	(95.8, 99.5)
Outdoors, around work	4.1	(1.6, 10.1)	2.8	(1.0, 7.9)	3.4	(1.7, 6.9)
Every day	1.0	(0.2, 5.6)	0.9	(0.2, 5.1)	1.0	(0.3, 3.5)
1 – 3 days per week	1.0	(0.2, 5.6)	0.9	(0.2, 5.1)	1.0	(0.3, 3.5)
4 - 6 days per week	1.0	(0.2, 5.6)	0.9	(0.2, 5.1)	1.0	(0.3, 3.5)
approx. once monthly	-	-	-	-	-	-
less than once monthly	-	-	-	-	-	-
Don't know / refused	96.9	(91.3, 98.9)	97.2	(92.1, 99.0)	97.1	(93.7, 98.7)
Other: within 1 block from beaver pond	11.3	(6.5, 19.2)	9.4	(5.2, 16.4)	10.3	(6.8, 15.2)
Don't know / refused frequency	100.0	(96.2, 100.0)	100.0	(96.2, 100.0)	100.0	(98.2, 100.0)
Other: general area	2.1	(0.6, 7.2)	1.9	(0.5, 6.6)	2.0	(0.8, 4.9)
Don't know / refused frequency	100.0	(96.2, 100.0)	100.0	(96.2, 100.0)	100.0	(98.2, 100.0)
Other: Wolfridge Rd. & Shelton Beach Rd.	1.0	(0.2, 5.6)	-	-	0.5	(0.1, 2.7)
Don't know / refused frequency	100.0	(96.2, 100.0)	-	-	100.0	(98.2, 100.0)
Don't know / refused location	-	-	0.9	(0.2, 5.1)	0.5	(0.1, 2.7)

Note that the column % may not sum to 100; respondents may fall into >1 category.

Table 4. Strongest odor characteristics reported by respondents in the Eight Mile Community, AL, September 2012

	1-Mile Zone (n=97)		2-Mile Zone (n=107)		Overall (n=204)	
	mean	range	mean	range	mean	range
Strongest odor severity score (1-10) (Q25E)	9.1	(3.0 - 10.0)	7.8	(1.0 - 10.0)	8.5	(1.0 - 10.0)
	%	95% CI	%	95% CI	%	95% CI
Location of strongest odor (Q25D)						
Indoors, at home	3.1	(1.1, 8.7)	1.9	(0.5, 6.6)	2.5	(1.1, 5.6)
Outdoors, around home	88.7	(80.8, 93.6)	63.6	(54.1, 72.1)	75.5	(69.2, 80.9)
Indoors, at work	-	-	0.9	(0.2, 5.1)	0.5	(0.1, 2.7)
Outdoors, around work	-	-	1.9	(0.5, 6.6)	1.0	(0.3, 3.5)
Other	5.2	(2.2, 11.5)	9.4	(5.2, 16.4)	7.4	(4.5, 11.8)
Don't know / refused	3.1	(1.1, 8.7)	22.4	(15.6, 31.2)	13.2	(9.3, 18.6)
Time of strongest odor (Q25G)						
12am - <5:59am	17.5	(11.2, 26.3)	1.9	(0.5, 6.6)	9.3	(6.0, 14.1)
6am - <7:59am	40.2	(31.0, 50.2)	25.2	(18.0, 34.2)	32.4	(26.3, 39.1)
8am - <9:59am	11.3	(6.5, 19.2)	7.5	(3.8, 14.1)	9.3	(6.0, 14.1)
10am - <11:59am	5.2	(2.2, 11.5)	5.6	(2.6, 11.7)	5.4	(3.0, 9.4)
12pm - < 1:59pm	5.2	(2.2, 11.5)	10.3	(5.8, 17.5)	7.8	(4.9, 12.4)
2pm - <3:59pm	8.3	(4.2, 15.4)	7.5	(3.8, 14.1)	7.8	(4.9, 12.4)
4pm - <5:59pm	2.2	(14.6, 30.8)	23.4	(16.4, 32.2)	22.6	(17.4, 28.8)
6pm - <7:59pm	41.2	(32.0, 51.2)	25.2	(18.0, 34.2)	32.8	(26.8, 39.6)
8pm - <9:59pm	32.0	(23.5, 41.8)	15.0	(9.4, 22.9)	23.0	(17.8, 29.3)
10pm - <11:59pm	15.5	(9.6, 24.0)	1.9	(0.5, 6.6)	8.3	(5.3, 12.9)
Don't know / refused	5.2	(2.2, 11.5)	4.7	(2.0, 10.5)	4.9	(2.7, 8.8)
Weather conditions that worsen odor (Q25H)						
Not affected by weather	25.8	(18.1, 35.3)	13.1	(8.0, 20.8)	19.1	(14.3, 25.1)
Warmer, ≥ 95°F	21.7	(14.6, 30.8)	12.2	(7.2, 19.7)	16.7	(12.2, 22.4)
High humidity	16.5	(10.4, 25.1)	16.8	(10.9, 25.0)	16.7	(12.2, 22.4)
Rainy	24.7	(17.2, 34.2)	12.2	(7.2, 19.7)	17.7	(13.0, 23.5)
Sunny	9.3	(5.0, 16.7)	4.7	(2.0, 10.5)	6.9	(4.1, 11.2)
Windy	25.8	(18.1, 35.3)	27.1	(19.6, 36.2)	26.0	(20.5, 32.4)
Other	7.2	(3.5, 14.2)	5.6	(2.6, 11.7)	6.4	(3.8, 10.6)
Change in odor severity since it began (Q25F)						
Decreased	13.4	(8.0, 21.6)	26.2	(18.8, 35.2)	20.1	(15.2, 26.1)
Increased	30.9	(22.6, 40.7)	9.4	(5.2, 16.4)	19.6	(14.7, 25.6)
Varies	2.1	(0.6, 7.2)	1.9	(0.5, 6.6)	2.0	(0.8, 4.9)
No change	48.5	(38.8, 58.3)	37.4	(28.8, 46.8)	42.7	(36.1, 49.5)
Don't know / refused	5.2	(2.2, 11.5)	25.2	(18.0, 34.2)	15.7	(11.3, 21.3)

Note that the column % may not sum to 100; respondents may fall into >1 category.

Table 5. Impact of odor exposure reported by respondents in the Eight Mile Community, AL, September 2012

	1-Mile Zone (n=97)		2-Mile Zone (n=107)		Overall (n=204)	
	%	95% CI	%	95% CI	%	95% CI
Impact on physical health (Q25I)						
Worsen	41.2	(32.0, 51.2)	21.5	(14.8, 30.2)	30.9	(24.9, 37.5)
Improved	2.1	(0.6, 7.2)	11.2	(6.5, 18.6)	6.9	(4.1, 11.2)
No change	39.2	(30.1, 49.1)	42.1	(33.1, 51.5)	40.7	(34.2, 47.5)
Other	2.1	(0.6, 7.2)	0.9	(0.2, 5.1)	1.5	(0.5, 4.2)
Don't know / refused	15.5	(9.6, 24.0)	24.3	(17.2, 33.2)	20.1	(15.2, 26.1)
Impact on mental health (Q25J)						
Worsen	17.5	(11.2, 26.3)	12.2	(7.2, 19.7)	14.7	(10.5, 20.2)
Improved	3.1	(1.1, 8.7)	2.8	(1.0, 7.9)	2.9	(1.4, 6.3)
No change	60.8	(50.9, 70)	55.1	(45.7, 64.2)	57.8	(51.0, 64.4)
Other	1.0	(0.2, 5.6)	1.9	(0.5, 6.6)	1.5	(0.5, 4.2)
Don't know / refused	17.5	(11.2, 26.3)	28.0	(20.4, 37.2)	23.0	(17.8, 29.3)
Time spent outdoors (Q25K)						
Decreased	59.8	(49.8, 69.0)	39.3	(30.5, 48.7)	49.0	(42.2, 55.8)
Increased	1.0	(0.2, 5.6)	-	-	0.5	(0.1, 2.7)
No change	34.0	(25.4, 43.9)	38.3	(29.7, 47.8)	36.3	(30.0, 43.1)
Don't know / refused	5.2	(2.2, 11.5)	22.4	(15.6, 31.2)	14.2	(10.1, 19.7)
Opening house windows (Q25K)						
Decreased	33.0	(24.4, 42.8)	19.6	(13.2, 28.2)	26.0	(20.5, 32.4)
Increased	1.0	(0.2, 5.6)	-	-	0.5	(0.1, 2.7)
No change	62.9	(53.0, 71.8)	57.0	(47.6, 66.0)	59.8	(53.0, 66.3)
Don't know / refused	3.1	(1.1, 8.7)	23.4	(16.4, 32.2)	13.7	(9.7, 19.1)
Use of air conditioning (AC) unit at home (Q25K)						
Decreased	4.1	(1.6, 10.1)	1.9	(0.5, 6.6)	2.9	(1.4, 6.3)
Increased	25.8	(18.1, 35.3)	22.4	(15.6, 31.2)	24.0	(18.7, 30.3)
No change	67.0	(57.2, 75.6)	50.5	(41.1, 59.8)	58.3	(51.5, 64.9)
Don't know / refused	3.1	(1.1, 8.7)	25.2	(18.0, 34.2)	14.7	(10.5, 20.2)
Use of air filters, cleaners, purifiers, fresheners or deodorizer inside home (Q25K)						
Decreased	2.1	(0.6, 7.2)	1.9	(0.5, 6.6)	2.0	(0.8, 4.9)
Increased	29.9	(21.7, 39.6)	25.2	(18.0, 34.2)	27.5	(21.8, 34.0)
No change	63.9	(54.0, 72.8)	49.5	(40.2, 58.9)	56.4	(49.5, 63.0)
Don't know / refused	4.1	(1.6, 10.1)	23.4	(16.4, 32.2)	14.2	(10.1, 19.7)

Table 6. Household-level health complaints in the past 30 days reported by respondents in the Eight Mile Community, AL, September 2012

	1-Mile Zone (n=97)		2-Mile Zone (n=107)		Overall (n=204)	
	%	95% CI	%	95% CI	%	95% CI
Note that the column % may not sum to 100; respondents may fall into >1 category.						
Respiratory (Q6A)						
Sore throat	53.6	(43.7, 63.2)	40.2	(31.4, 49.7)	46.6	(39.9, 53.4)
Nasal congestion	68.0	(58.2, 76.5)	28.0	(20.4, 37.2)	54.4	(47.6, 61.1)
Sinus infection	51.6	(41.7, 61.2)	41.1	(32.3, 50.6)	46.1	(39.4, 52.9)
Shortness of breath / difficulty breathing	48.5	(38.8, 58.3)	28.0	(20.4, 37.2)	37.8	(31.4, 44.6)
Cough	65.0	(55.1, 73.7)	48.6	(39.3, 58.0)	56.4	(49.5, 63.0)
Wheezing	40.2	(31.0, 50.2)	24.3	(17.2, 33.2)	31.9	(25.9, 38.5)
Worsening of existing asthma	19.6	(12.9, 28.6)	12.2	(7.2, 19.7)	15.7	(11.3, 21.3)
Worsening of existing emphysema / chronic obstructive pulmonary disease	11.3	(6.5, 19.2)	5.6	(2.6, 11.7)	8.3	(5.3, 12.9)
Cardiovascular (Q6B)						
Chest pain	28.9	(20.8, 38.6)	26.2	(18.8, 35.2)	27.5	(21.8, 34.0)
Irregular heart beat	25.8	(18.1, 35.3)	21.5	(14.8, 30.2)	23.5	(18.2, 29.8)
Worsening of existing hypertension	36.1	(27.2, 46.0)	22.4	(15.6, 31.2)	28.9	(23.1, 35.5)
Worsening of any existing chronic cardiovascular disease	8.3	(4.2, 15.4)	6.5	(3.2, 12.9)	7.4	(4.5, 11.8)
Worsening of any existing diabetes	15.5	(9.6, 24.0)	11.2	(6.5, 18.6)	13.2	(9.3, 18.6)
Psychological (Q7)						
Difficulty concentrating	32.0	(23.5, 41.8)	16.8	(10.9, 25.0)	24.0	(18.7, 30.3)
Trouble sleeping/nightmares	52.6	(42.7, 62.2)	51.4	(42.1, 60.7)	52.0	(45.1, 58.7)
Dizziness	44.3	(34.9, 54.2)	29.9	(22.1, 39.2)	36.8	(30.5, 43.6)
General weakness	34.0	(25.4, 43.9)	22.4	(15.6, 31.2)	27.9	(22.2, 34.5)
Loss of appetite	36.1	(27.2, 46.0)	17.8	(11.7, 26.1)	26.5	(20.9, 32.9)
Agitated behavior	39.2	(30.1, 49.1)	17.8	(11.7, 26.1)	27.9	(22.2, 34.5)
Increased alcohol consumption	1.0	(0.2, 5.6)	3.7	(1.5, 9.2)	2.5	(1.1, 5.6)
Increased drug use	1.0	(0.2, 5.6)	1.9	(0.5, 6.6)	1.5	(0.5, 4.2)
Other psychological	3.1	(1.1, 8.7)	0.9	(0.2, 5.1)	2.0	(0.8, 4.9)
Other presentations (Q6C)						
Skin irritations including rash	44.3	(34.9, 54.2)	30.8	(22.9, 40.1)	37.3	(30.9, 44.1)
Any eye conditions or irritations	54.6	(44.7, 64.2)	27.1	(19.6, 36.2)	40.2	(33.7, 47.1)
Nausea / vomiting	34.0	(25.4, 43.9)	24.3	(17.2, 33.2)	28.9	(23.1, 35.5)
Diarrhea	26.8	(19.0, 36.4)	20.6	(14.0, 29.2)	23.5	(18.2, 29.8)
Headache	70.1	(60.4, 78.3)	57.0	(47.6, 66.0)	63.2	(56.4, 69.6)
Heat-related illness (e.g. hyperthermia)	6.2	(2.9, 12.8)	8.4	(4.5, 15.2)	7.4	(4.5, 11.8)
Other	3.1	(1.1, 8.7)	1.9	(0.5, 6.6)	2.5	(1.1, 5.6)
	mean	range	mean	range	mean	range
# days poor physical health (Q19)	9.9	(0.0 - 30.0)	8.3	(0.0 - 30.0)	9.1	(0.0 - 30.0)
# days poor mental health (Q20)	7.5	(0.0 - 30.0)	5.4	(0.0 - 30.0)	6.4	(0.0 - 30.0)
# days unable to do normal activities (e.g. self-care, work, recreation) due to poor physical / mental health (Q21)	6.0	(0.0 - 30.0)	4.3	(0.0 - 30.0)	5.1	(0.0 - 30.0)

Table 7. Household-level healthcare sought by respondents in the Eight Mile Community, AL, September 2012

		1-Mile Zone (n=97)		2-Mile Zone (n=107)		Overall (n=204)	
		%	95% CI	%	95% CI	%	95% CI
Insured (health) (Q8A)							
	Yes	78.4	(69.2, 85.4)	76.6	(67.8, 83.6)	77.5	(71.2, 82.7)
	No	20.6	(13.8, 29.7)	23.4	(16.4, 32.2)	22.1	(16.9, 28.2)
	Don't know / refused	2.1	(0.6, 7.4)	-	-	0.5	(0.1, 2.7)
Access to regular physician (Q8B)							
	Yes	81.4	(72.6, 87.9)	77.6	(68.8, 84.4)	79.4	(73.3, 84.4)
	No	16.5	(10.4, 25.1)	22.4	(15.6, 31.2)	19.6	(14.7, 25.6)
	Don't know / refused	2.1	(0.6, 7.2)	-	-	1.0	(0.3, 3.5)
Access to transportation to receive medical care (Q8C)							
	Yes	94.9	(88.5, 97.8)	93.5	(87.1, 96.8)	94.1	(90.0, 96.6)
	No	5.2	(2.2, 11.5)	3.7	(1.5, 9.2)	4.4	(2.3, 8.2)
	Don't know / refused	-	-	2.8	(1, 7.9)	1.5	(0.5, 4.2)
Among those with symptoms in past 30 days (Q8D)							
Healthcare sought?							
	Yes	69.5	(59.6, 77.8)	68.2	(57.9, 77)	68.9	(61.8, 75.1)
	No	28.4	(20.3, 38.2)	30.7	(22, 41)	29.5	(23.4, 36.5)
	Don't know / refused	2.1	(0.6, 7.4)	1.1	(0.2, 6.2)	1.6	(0.6, 4.7)
Type of healthcare sought							
	Community health center	10.5	(5.8, 18.3)	17.1	(10.6, 26.2)	13.7	(9.4, 19.4)
	Mental health clinic	-	-	-	-	-	-
	Family doctor	49.5	(39.6, 59.4)	42.1	(32.3, 52.5)	45.9	(38.8, 53.1)
	ER	6.3	(2.9, 13.1)	2.3	(0.6, 7.9)	4.4	(2.2, 8.4)
	Social Services	-	-	-	-	-	-
	Urgent care center	2.1	(0.6, 7.4)	2.3	(0.6, 7.9)	2.2	(0.9, 5.5)
	Free clinic	2.1	(0.6, 7.4)	1.1	(0.2, 6.2)	1.6	(0.6, 4.7)
	Other	6.3	(2.9, 13.1)	5.7	(2.5, 12.6)	6.0	(3.4, 10.4)
Among those who reported odor at any time (Q26A)							
Healthcare sought?							
	Yes	41.1	(31.7, 51.1)	31.3	(22.4, 41.9)	36.5	(29.8, 43.8)
	No	54.7	(44.7, 64.4)	62.7	(51.9, 72.3)	58.4	(51.1, 65.4)
	Don't know / refused	4.2	(1.7, 10.3)	6.0	(2.6, 13.3)	5.1	(2.7, 9.3)
Type of healthcare sought							
	Community health center	9.5	(5.1, 17)	7.2	(3.4, 14.9)	8.4	(5.2, 13.4)
	Mental health clinic	-	-	-	-	-	-
	Family doctor	29.5	(21.3, 39.3)	20.5	(13.2, 30.4)	25.3	(19.5, 32.1)
	ER	4.2	(1.7, 10.3)	1.2	(0.2, 6.5)	2.8	(1.2, 6.4)
	Social Services	-	-	-	-	-	-
	Urgent care center	2.1	(0.6, 7.4)	-	-	1.1	(0.3, 4.0)
	Free clinic	3.2	(1.1, 8.9)	-	-	1.7	(0.6, 4.8)
	Other	5.3	(2.3, 11.7)	2.4	(0.7, 8.4)	3.9	(1.9, 7.9)

Table 8. Main concerns reported by respondents in the Eight Mile Community, AL, September 2012

(Q27)	1-Mile Zone (n=97)		2-Mile Zone (n=107)		Overall (n=204)	
	%	95% CI	%	95% CI	%	95% CI
Health concerns	52.6	(42.7, 62.2)	41.1	(32.3, 50.6)	46.6	(39.9, 53.4)
Clean up	42.3	(32.9, 52.2)	22.4	(14.9, 31.5)	31.9	(25.9, 38.5)
Flammability	6.2	(2.9, 12.8)	0.9	(0.2, 5.1)	3.9	(2.0, 7.6)
Odor	5.2	(2.2, 11.5)	2.8	(1.0, 7.9)	3.4	(1.7, 6.9)
Changing activities	5.2	(2.2, 11.5)	4.7	(2.0, 10.5)	4.9	(2.7, 8.8)
Source	4.1	(1.6, 10.1)	5.6	(2.6, 11.7)	4.9	(2.7, 8.8)
Water contamination	3.1	(1.1, 8.7)	0.9	(0.2, 5.1)	2.0	(0.8, 4.9)
Accountability for clean up	2.1	(0.6, 7.2)	0.9	(0.2, 5.1)	1.5	(0.5, 4.2)
Communication	1.0	(0.2, 5.6)	2.8	(1.0, 7.9)	2.0	(0.8, 4.9)
Money	1.0	(0.2, 5.6)	1.9	(0.5, 6.6)	1.5	(0.5, 4.2)
Get worse	0.0	(0, 0)	3.7	(1.5, 9.2)	2.0	(0.8, 4.9)
Other	1.0	(0.2, 5.6)	1.0	(0.2, 5.1)	1.0	(0.3, 3.5)
Don't know / refused	1.0	(0.2, 5.6)	0.9	(0.2, 5.1)	1.0	(0.3, 3.5)
None	12.4	(7.2, 20.4)	23.4	(16.4, 32.2)	18.1	(13.5, 24.0)

Note that the column % may not sum to 100; respondents may fall into >1 category.

Supplementary Table 1. Comparison of respondent characteristics with Census 2010 data for sampling frame

	STUDY SAMPLE		CENSUS 2010	
	zone 1 %	zone 2 %	zone 1 %	zone 2 %
Ethnicity				
Non-Hispanic	100.0	97.2	99.0	99.0
Hispanic	0.0	2.8	1.0	1.0
Race				
White alone	19.6	15.9	10.5	13.7
Black alone	80.4	81.3	87.6	84.6
Other	0.0	1.9	1.9	1.7
Gender				
Male	38.1	34.6	44.4	47.3
Female	59.8	57.0	55.6	52.7
don't know / refused	2.1	8.4	-	-

Supplementary Table 2. Comparison of individual-level health-related quality of life reported by respondents in the three surveys: Eight Mile Community, AL, September 2012; Mobile County 2010; Alabama State 2009.

	1-Mile Zone (n=97)		2-Mile Zone (n=107)		Overall (n=204)		Mobile County 2010 [†]		Alabama State 2009 [‡]	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
≥14 physically unhealthy days out of past 30 days (Q19)	35.1	(26.3, 45.0)	25.2	(18.0, 34.2)	29.9	(24.0, 36.5)	19.7	(8.0, 31.4)	13.9	(12.8, 15.2)
≥14 mentally unhealthy days out of past 30 days (Q20)	23.7	(16.4, 33.1)	15.9	(10.2, 24.0)	19.6	(14.7, 25.6)	22.7	(10.9, 34.6)	13.2	(12.0, 14.4)
≥14 activity limitation days out of past 30 days (Q21)	20.6	(13.8, 29.7)	13.1	(8.0, 20.8)	16.7	(12.2, 22.4)	12.9	(5.2, 20.5)	10.2	(9.2, 11.3)

[†] Buttke D, et al. Mental health needs assessment after the Gulf Coast oil spill—Alabama and Mississippi, 2010. *Prehosp Disaster Med.* 2012;27(5):1-8.

[‡] Behavioral Risk Factor Surveillance System (BRFSS) 2009, state data.

Appendix A: TRACKING FORM

Date of interview: ____/____/____ (mm/dd/yyyy)

Interviewer's name:.....

Instructions: Use one tracking form per team's designated area. Mark an 'X' where appropriate, but try to choose only one best option for each of the 3 categories. Go as far down the list as possible for each site you visit.

Sampled Housing Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1) ACCESS														
House is Accessible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
House is Inaccessible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) TYPE OF DWELLING														
No housing structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Single Family Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Apartment or Condo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) DAMAGE														
None or Minimal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Damaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Destroyed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) ANSWER														
Door was answered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appears as though someone is home but no answer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appears vacant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nobody home after...														
1 st visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 nd visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 rd visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) INTERVIEW														
Language Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refused to Participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interview begun, not finished	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interview Completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey # (i.e., 1-24) from Completed Questionnaire:														

Appendix A: SAMPLE TRACKING FORM (reverse side)

Instructions: Use this page to keep notes on which houses may need return visits.

Sampled Housing Unit:

1.

2.

3.

4.

5.

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10.

11.

12.

13.

14.

Appendix A: TRACKING FORM (continued)

Date of interview: ____/____/____ (mm/dd/yyyy)

Interviewer's name:.....

Instructions: Use one tracking form per team's designated area. Mark an 'X' where appropriate, but try to choose only one best option for each of the 3 categories. Go as far down the list as possible for each site you visit.

Sampled Housing Units	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1) ACCESS														
House is Accessible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
House is Inaccessible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) TYPE OF DWELLING														
No housing structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Single Family Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Apartment or Condo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) DAMAGE														
None or Minimal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Damaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Destroyed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) ANSWER														
Door was answered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appears as though someone is home but no answer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appears vacant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nobody home after...														
1 st visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 nd visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 rd visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) INTERVIEW														
Language Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refused to Participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interview begun, not finished	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interview Completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey # (i.e., 1-24) from Completed Questionnaire:														

Appendix A: SAMPLE TRACKING FORM continued (reverse side)

Instructions: Use this page to keep notes on which houses may need return visits.

Sampled Housing Unit:

15.

16.

17.

18.

19.

20.

21.

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23.

24.

25.

26.

27.

28.

Appendix A: TRACKING FORM (continued)

Date of interview: ____/____/____ (mm/dd/yyyy)

Interviewer's name:.....

Instructions: Use one tracking form per team's designated area. Mark an 'X' where appropriate, but try to choose only one best option for each of the 3 categories. Go as far down the list as possible for each site you visit.

Sampled Housing Units	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1) ACCESS														
House is Accessible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
House is Inaccessible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) TYPE OF DWELLING														
No housing structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Single Family Home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Apartment or Condo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) DAMAGE														
None or Minimal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Damaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Destroyed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) ANSWER														
Door was answered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appears as though someone is home but no answer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appears vacant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nobody home after...	1 st visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2 nd visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3 rd visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) INTERVIEW														
Language Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refused to Participate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interview begun, not finished	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interview Completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey # (i.e., 1-24) from Completed Questionnaire:														

Appendix A: SAMPLE TRACKING FORM continued (reverse side)

Instructions: Use this page to keep notes on which houses may need return visits.

Sampled Housing Unit:

29.

30.

31.

32.

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41.

42.

Appendix B: CONFIDENTIAL REFERRAL FORM

Confidential Referral Form

Date: __/__/__ Time: __:__

Cluster No.: ____

Interviewer's Initials: ____

Name: _____

Address: _____

Contact Information:

Home telephone: ____ - ____ - ____

Cell phone: ____ - ____ - ____

E-mail: _____

Summary of Need:

Referral Made: Yes No

Referred to: _____

Appendix C: SCREENING & VERBAL CONSENT

Hello, we are _____ and _____ with the Mobile County Health Department. We have some information we would like to leave with you related to some health concerns.

Also, we are talking to residents in the Eight Mile community about their health in relation to the reported release of odorous gases. Your house is one of many that have been randomly chosen to be in this survey. If you agree to participate in this survey, we will ask you some general questions about your house and the people who live there. The survey should take no more than 15 minutes to complete. We will keep your answers private. You can refuse to be part of the survey or refuse to answer specific questions. Nothing will happen to you or your household if you choose not to be part of the survey.

You may have questions about this survey. If so, you can ask anyone here right now. If you would like to confirm that we were sent by the Mobile County Health Department, you can call the Mobile County Health Department at any of the following numbers: 251-690-8104 / 251-690-8895 / 251-690-8158.

Thank you very much for your time.

Screening Questions

Before we begin, we would like to ask a few questions to make sure that you are eligible to complete the survey:

Q1. Are you over 18 years old?

Is there someone available who lives in this house and is over 18?

If yes, continue

Q2. Do you currently live here in this house/apartment/condo?

If yes, continue

Note: The participant is eligible to complete the survey if they answered yes to each question.

If eligible: Are you willing to participate in the survey?

Thank you. We will now move on to the survey which should take no more than 15 minutes of your time.

If ineligible: Thank you. You are not eligible to complete the survey but we appreciate the time that you have spent speaking with us.

Appendix D: HOUSEHOLD QUESTIONNAIRE

1A) Date of interview: ____/____/____ (MM/DD/YY)
 1B) Time of interview: _____ (am/pm)
 1C) Interviewer's name:.....

2A) Zone: 1-mile 2-mile
 2B) Cluster #: _____
 2C) Household #: _____ (maintain consistency with TRACKING FORM in Appendix A)

3) Household type:
 Apartment **Attached** house **Detached** house Other: _____

Demographic Questions

4) How many adults 18 or older live in your household? _____ **DK** **Refused**

5) Looking at these age categories, how many people in your household fall into each group?
 __ ≤ 2yrs __ 3-5yrs __ 6-9yrs __ 10-17yrs __ 18-25yrs __ 26-40yrs
 __ 41-65yrs __ 66-75yrs __ ≥76yrs **DK** **Refused**

Health Outcomes

6) In the past 30 days, have you or any household members experienced any of the following: **(Please check all that apply.)**

Category	You	Household Member	Age(s) of household members with symptoms	Symptoms
6A) Respiratory symptoms /conditions <input type="checkbox"/> DK <input type="checkbox"/> Refused	<input type="checkbox"/>	<input type="checkbox"/>		Sore throat
	<input type="checkbox"/>	<input type="checkbox"/>		Nasal congestion
	<input type="checkbox"/>	<input type="checkbox"/>		Sinus infection
	<input type="checkbox"/>	<input type="checkbox"/>		Shortness of breath / difficulty breathing
	<input type="checkbox"/>	<input type="checkbox"/>		Cough
	<input type="checkbox"/>	<input type="checkbox"/>		Wheezing
	<input type="checkbox"/>	<input type="checkbox"/>		Worsening of existing asthma symptoms
	<input type="checkbox"/>	<input type="checkbox"/>		Worsening of existing emphysema or chronic obstructive pulmonary disease (also known as COPD)
	<input type="checkbox"/>	<input type="checkbox"/>	n/a	None
6B) Cardiovascular symptoms /conditions <input type="checkbox"/> DK <input type="checkbox"/> Refused	<input type="checkbox"/>	<input type="checkbox"/>		Chest pain
	<input type="checkbox"/>	<input type="checkbox"/>		Irregular heart beat
	<input type="checkbox"/>	<input type="checkbox"/>		Worsening of existing high blood pressure
	<input type="checkbox"/>	<input type="checkbox"/>		Worsening of any existing chronic cardiovascular disease
	<input type="checkbox"/>	<input type="checkbox"/>		Worsening of any existing diabetes (e.g. glucose control)
	<input type="checkbox"/>	<input type="checkbox"/>	n/a	None
6C) Other Presentations <input type="checkbox"/> DK <input type="checkbox"/> Refused	<input type="checkbox"/>	<input type="checkbox"/>		Skin irritations including rash
	<input type="checkbox"/>	<input type="checkbox"/>		Any eye conditions or irritations
	<input type="checkbox"/>	<input type="checkbox"/>		Nausea and/or vomiting
	<input type="checkbox"/>	<input type="checkbox"/>		Diarrhea
	<input type="checkbox"/>	<input type="checkbox"/>		Headache
	<input type="checkbox"/>	<input type="checkbox"/>		Heat-related illness such as hyperthermia
	<input type="checkbox"/>	<input type="checkbox"/>		Other (specify): _____
	<input type="checkbox"/>	<input type="checkbox"/>	n/a	None

Category	You	Household Member	Age(s) of household members with symptoms	Symptoms
7) Has anyone in your household experienced any of the following in the last 30 days? <input type="checkbox"/> DK <input type="checkbox"/> Refused	<input type="checkbox"/>	<input type="checkbox"/>		Difficulty concentrating
	<input type="checkbox"/>	<input type="checkbox"/>		Trouble sleeping/nightmares
	<input type="checkbox"/>	<input type="checkbox"/>		Dizziness
	<input type="checkbox"/>	<input type="checkbox"/>		General weakness
	<input type="checkbox"/>	<input type="checkbox"/>		Loss of appetite
	<input type="checkbox"/>	<input type="checkbox"/>		Agitated behavior
	<input type="checkbox"/>	<input type="checkbox"/>		Increased alcohol consumption
	<input type="checkbox"/>	<input type="checkbox"/>		Increased drug use
	<input type="checkbox"/>	<input type="checkbox"/>		Other (specify): _____
	<input type="checkbox"/>	<input type="checkbox"/>	n/a	None

8A) Do you have health insurance?

- Yes No DK Refused

8B) Do you have a regular physician?

- Yes No DK Refused

8C) Do you have transportation to receive medical care?

- Yes No DK Refused

8D) **If yes to questions 6A-C or 7:** did you or any member of your household seek help for any of the above physical or mental health conditions at any of the following locations? Please check all that apply:

- Community health center Mental health clinic Family doctor ER Social Services
 Urgent care center Free clinic Other (specify): _____
 Name of clinic _____
 No DK Refused

8E) If no, why not?

- Symptoms not bad enough Have no insurance Have no physician Have no transportation
 Other (specify): _____ DK Refused

9A) Do you, your household members, or any visitors smoke in your home?

- Yes No DK Refused

9B) How frequently do you, your household members, or any visitors smoke in your home?

- Never ≥ Once daily ≥ Once weekly ≥ Once monthly DK Refused

10) Do you use a gas stove for cooking in your home?

- Yes No DK Refused

SURVEY CONTINUED ON NEXT PAGE

11A) Is an air cleaner or purifier regularly used inside your home?

- Yes No DK Refused

11B) If **YES**, looking at the options below, what type is it? (**check all that apply**)

- DK Refused
- Ionic Breeze or similar device
 - Ozone generator
 - Filter - Is the filter on an:
 - air conditioning (AC) system
 - other device; please specify: _____
 - Other (please specify): _____

12A) Is an air conditioning (AC) system used inside your home?

- Yes No DK Refused

12B) If **YES**, looking at the options below, what type is it? (**check all that apply**)

- DK Refused
- Central AC system
 - Window unit
 - Other (please specify): _____

12C) Do you use natural gas to heat your home or water boiler?

- Yes No DK Refused

13) In the last 3 days: today or yesterday or the day before yesterday, have you either breathed fumes from or had any of the following on your skin (**check all that apply**)?

- DK Refused
- Air fresheners or room deodorizer
 - Gasoline
 - Bug or insect spray
 - Paint thinner, brush cleaner, or furniture stripper
 - Varnish, lacquer, wood stain, or wet paint
 - Solid toilet bowl deodorants
 - Mothballs
 - Fingernail polish or remover
 - Burning candles or incense
 - Other types or sources of fumes (please specify): _____

Now I am going to ask you questions about yourself only, not about other members in the household.

14) Are you a current smoker?

- Yes No DK Refused

15) What is your age and sex?

- Age: ____ DK Refused Male Female Refused

16) How long have you lived in the Eight Mile community? _____ (specify days / months / years)

- DK Refused

17A) What year did you move into this home? _____ (yyyy, e.g. 2010) DK Refused

17B) If moved here within the past 12 months, then ask:
What month did you move in? _____ (mm, eg 06 for June) DK Refused

18) What is your race/ethnicity?
 White, Non-Hispanic Black, Non-Hispanic Hispanic Asian
 Other: _____ DK Refused

19) Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?
Number: _____ DK Refused

20) Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?
Number: _____ DK Refused

21) During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?
Number: _____ DK Refused

22) Looking at the options below, what is your estimated annual household income in 2012?
 \$0-<\$5,000 \$5,000-<\$10,000 \$10,000-<\$15,000
 \$15,000-<\$20,000 \$20,000-<\$25,000 \$25,000-<\$35,000
 \$35,000-<\$50,000 \$50,000-<\$75,000 >\$75,000 DK Refused

23A) What is your current employment status?
 Employed Under-employed Unemployed - seeking work DK Refused
 Unemployed - student Unemployed - retired Unemployed - homemaker

If employed, ask:

23B) Do you work within or near the Eight Mile community?
 Yes No DK Refused

23C) What type of work do you do?
Specify: _____ DK Refused

SURVEY CONTINUED ON NEXT PAGE

Now I am going to ask you a few questions about the **strongest** odor you smell.

25D) Where do you smell the **strongest** odor?

- Indoors, at home Outdoors, at home
 Indoors, at work Outdoors, at work
 Other (please specify): _____ DK Refused

25E) On a scale of 1 to 10, 1 being ok, to 10 being extremely bad, how severe is the odor or smell at its strongest?

- 1 2 3 4 5 6 7 8 9 10 DK Refused

25F) Has the severity of the odor or smell changed since you first noticed it?

- Decreased Increased No Change DK Refused
 Other (please specify): _____

25G) Looking at the options below, what times of the day do you smell the odor (**check all that apply**)?

- 6am - <7:59am 8am - <9:59am 10am - <11:59am 12pm - < 1:59pm
 2pm - <3:59pm 4pm - <5:59pm 6pm - <7:59pm 8pm - <9:59pm
 10pm - <11:59pm 12am - <5:59am DK Refused

25H) Is the smell worse during any of the following weather conditions (**check all that apply**)?

- Warmer, $\geq 95^{\circ}\text{F}$ High humidity Rainy Sunny Windy
 Not affected by weather
 Other (please specify): _____ DK Refused

For the following questions, you can answer “increased”, “decreased” or “no change”

25I) How did the odor or smell affect your **physical** health since you first noticed it?

- Decreased Increased No Change DK Refused
 Other (please specify): _____

25J) How did the odor or smell affect your **mental** health since you first noticed it?

- Decreased Increased No Change DK Refused
 Other (please specify): _____

25K) Have you or any household members changed any of the following activities since the odor or smell began?

Refused

Time outdoors	<input type="checkbox"/> Decreased	<input type="checkbox"/> Increased	<input type="checkbox"/> No Change	<input type="checkbox"/> DK
Opening house windows	<input type="checkbox"/> Decreased	<input type="checkbox"/> Increased	<input type="checkbox"/> No Change	<input type="checkbox"/> DK
Use of air conditioning (AC) unit at home	<input type="checkbox"/> Decreased	<input type="checkbox"/> Increased	<input type="checkbox"/> No Change	<input type="checkbox"/> DK
Use of air filters, cleaners, purifiers, fresheners or deodorizer inside home	<input type="checkbox"/> Decreased	<input type="checkbox"/> Increased	<input type="checkbox"/> No Change	<input type="checkbox"/> DK

SURVEY CONTINUED ON NEXT PAGE

26A) Did you or any member of your household seek help for any of physical or mental health conditions possibly resulting from the odor? If so, which of the following locations did you visit? Please check all that apply:

- Community health center Mental health clinic Family doctor ER Social Services
 Urgent care center Free clinic Other (specify): _____
 Name of clinic _____
 No DK Refused

26B) If no, why not?

- Symptoms not bad enough Have no insurance Have no physician Have no transportation
 Other (specify): _____ DK Refused

27) What is/are your main concern(s) at this time?

- None DK Refused

Thank you for your time. Do you have any questions?

Questions 28A – H are for the interviewer him/herself at the end of the household survey (they are not to be answered by the household member):

28A) Interviewer's age?

Age: _____ (years)

28B) Interviewer's sex?

- Male Female

28C) Interviewer's race/ethnicity?

- White, Non-Hispanic Black, Non-Hispanic Hispanic Asian Other: _____

28D) Can you personally (interviewer) smell any odor outside the current household?

- Yes No DK

28E) If yes, on a scale of 1 to 10, 1 being ok, to 10 being extremely bad, how severe is the odor or smell?

- 1 2 3 4 5 6 7 8 9 10 DK

28F) How would you describe the smell of the odor?

- Skunk Rotten Eggs Onions DK
 Other (please specify): _____

28G) What are the weather conditions like at the time of the interview?

- Warm, $\geq 95^{\circ}\text{F}$ High humidity Rainy Sunny Windy
 Other (please specify): _____ DK

28H) Are you experiencing any new physical symptoms since you began this field study? (**Please check all that apply.**)

- None
 Sore throat Nasal congestion Sinus infection Shortness of breath
 Cough Wheezing Chest pain Irregular heart beat
 Nausea and/or vomiting Diarrhea Headache Dizziness
 General weakness Loss of appetite Agitated behavior Difficulty concentrating
 Skin irritations including rash Any eye conditions or irritations Heat-related illness such as hyperthermia
 Worsening of existing asthma symptoms Worsening of existing chronic obstructive pulmonary disease / emphysema
 Worsening of existing high blood pressure Worsening of existing chronic cardiovascular disease
 Worsening of existing diabetes (e.g. glucose control) Other (specify): _____

END OF SURVEY