

Kansas City PM Characterization Study

Final Report

Appendix C

Round 1 Recruitment

Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

Sponsors:

National Renewable Energy Laboratory, U.S. Department of Energy
Federal Highway Administration, U.S. Department of Transportation
STAPPA-ALAPCO Emission Inventory Improvement Program
Coordinating Research Council Inc. (Project No. E-69)

Prepared for EPA by
Eastern Research Group, Incorporated
Austin, TX

Bevilacqua-Knight Incorporated
Oakland, CA

NuStats LLC
Austin, TX

Desert Research Institute
Reno, NV

EPA Contract No. GS 10F-0036K

October 27, 2006
Revised April 2008 by EPA staff



United States
Environmental Protection
Agency

EPA420-R-08-009
April 2008

Interviewer Training Guide

EPA KANSAS CITY PROJECT:

Characterizing Exhaust Emissions from Light-Duty Gasoline Vehicles in the
Kansas City Metropolitan Area

Study Goal: Use random sampling methodology to *recruit* and test vehicles so that emissions data are representative of a metropolitan area so that emissions testing can be conducted on the vehicles. Testing data will be used in revising a major Air Quality Model.

Study Background: Mobile sources (cars, trucks) significantly contribute to ambient concentrations of air pollution (NO_x, Ozone, Particulate Matter (PM)). Studies suggest that mobile sources can contribute to over half of the PM measured in urban areas. Recent and past emissions testing studies have tried to estimate the contribution of PM to air pollution, but these studies have obstacles such as recruitment of vehicles using non-random sampling techniques, high non-participation rates, and high costs associated with trying to entice persons to participate. Because of this, none of the studies conducted to date can be used to accurately represent the distribution of vehicle emissions in a large population.

5.2.1 - Recruitment pilot study/ Incentive pretest

Purpose – The purpose of this task is to identify the incentives that will be necessary to ensure participation by regional households. The result will be the creation of an effective motorist recruitment incentive package for vehicle testing and instrumentation, as well as providing the best assurance for a high response rate. **The sole purpose of the pretest is to find what will be the minimum incentive (\$, car rental, taxi) that will get car owners to participate in the study?**

Household Sample Design – The demographic and fleet characteristics of the households that participated in the Kansas City Regional Household Travel Survey will be reviewed and categorized in order to draw a random sample of households for contact in the incentives test. This will be supplemented by a random general population sample, as both are anticipated for inclusion in the full study. **The goal for the incentives test is to include a geo-demographic representation of Kansas City residents**, not necessarily a sample that is representative of the regional vehicle fleet. The fleet characteristics will be considered for the full study testing. Here, the pilot is concerned with identifying incentives necessary to offer to the vehicle owners for participating in the study.

Develop Incentive Options – As identified in the proposal, specific incentives (or combinations thereof) that will be investigated include cash (different levels), rental cars (different quality), gas tank refill, car wash, and guaranteed rides. A matrix of options with varying levels as well as combinations of options will be developed to ensure a thorough testing during the survey.

Survey Instrument – The survey was designed to test respondent reaction to the incentive options for both, vehicle testing as well as vehicle instrumentation. The survey will begin with a brief explanation of the project and what is being requested of the respondent in terms of vehicle testing and instrumentation. Then the respondent will be presented with varying levels and

Interviewer Training Guide, Page 2

combinations of incentives to identify the optimal mix for ensuring high participation rates and minimizing non-response. This survey will be conducted in English and Spanish, based on the language preference of the respondent. We anticipate about 5% of the interviewers to be in Spanish, based on language incidences in a current transportation study of the Kansas City region. The questionnaire is designed for administration using computer-aided telephone interviewing (CATI) technology. The power of the CATI software will allow for a thorough and random testing of the incentive options. The survey will be designed for an interview that might last up to 20 minutes.

FREQUENTLY ASKED QUESTIONS

Selection

Q: How are households selected?

A: Since it is not cost effective to survey every single household within the Kansas City area, a representative sample is being taken that focuses on the geographic location, household size, and number of vehicles available to each household.

Q: I just participated in a Travel Study; is this the same thing?

A: {Answer goes here}.

Q: How do you select which vehicle to use or which one I should bring in?

A: Based on information gained from previous studies and available vehicle registration data, a vehicle listing of specific makes, models, and vehicle condition is used to determine which vehicles to test

Testing

Q: Who will conduct the emission test at Lenexa?

A: BKi (Bevilacqua Knight, Inc) specializes in conducting vehicle emission testing for research studies.

Q: What type of emissions data will be collected?

A: {Answer goes here}.

Q: Will I be able to view the videotape of my vehicle?

A: The videotape will be used to document the vehicle's condition before and after testing. Viewing the videotape will only be necessary if upon return, the vehicles condition is in question.

Q: Will I be liable for any fines or penalties if my vehicle fails emission quality test?

A: {Answer goes here}.

Q: Will I need to show proof of insurance?

A: {Answer goes here}.

Q: How long will my vehicle be tested? (How many miles will be placed on my vehicle)

A: {Answer goes here}.

Scheduling

Q: What are the hours I can drop off and pick up my vehicle?

A: {Answer goes here}.

Q: Can my vehicle be picked up at home?

A: At the current time, at home vehicle pick up is not an option.

Demographic Specific

Q: Why do you need my household's income?

A: Since each participating household represents a cross section of households in the study area, we need to make sure that we have the right mix of household income. Previous research has shown that both the mode of travel and vehicle condition vary greatly based on household income. To get an accurate selection of vehicles in the region, we must collect information from households at all income levels.

Q: Why do you need other demographic data?

A: Since each participating household represents a cross section of households in the study area, we need to make sure that we have the right mix of household demographics. To get an accurate selection of vehicles in the region, we must collect information from households of all demographics.

Recruitment Questionnaire

Kansas City Emissions Testing Program Round 1 Scheduling Questionnaire

Hi, my name is _____ and I'm calling on behalf of the U.S. Environmental Protection Agency and the Mid-America Regional Council. May I speak with [**FNAME** **LNAME**]? [If new person, reintroduce, if same person, continue]. The EPA and MARC have collaborated on a program to measure air pollution from cars and trucks in the Kansas City region. This breakthrough study is the first major study in the U.S., focusing on emissions from cars and trucks under real world driving conditions. It is very important because vehicle emissions include very small particles like what is found in smoke or soot. These particles can be inhaled contributing to heart and respiratory disease. So this study will help to measure those particles coming from vehicles in the Kansas City region.

For this study, vehicles will be tested for a 24 period at our testing facility in Wyandotte.

Given your preference of drop off dates, we ask you to drop off your vehicle before 1 pm on one day, and pick it up after 5 pm the next day, but can work around your schedule. While the testing is being conducted a rental car and a token of appreciation will be given to you. The company performing the test is BKI, an industry leader in atmospheric, emission, and particle testing. They are licensed and insured, and accept full responsibility for the vehicle while in its care. Each vehicle is videotaped when it's dropped off, and again before it's picked up to verify its condition before and after the testing. The specific information about your vehicles admissions will be kept confidential.

To see if you qualify I would like to obtain some information about your vehicles.

1. I show that you live in **COUNTY** county. Is that correct? IF NOT, What county do you live in?

CASS COUNTY, MO	29037	
CLAY COUNTY, MO	29047	
JACKSON COUNTY, MO	29095	
PLATTE COUNTY, MO	29165	
JOHNSON COUNTY, KS	20091	
LEAVENWORTH COUNTY, KS	20103	
WYANDOTTE COUNTY, KS	20209	
OTHER, SPECIFY COUNTY AND STATE	77777	INELIGIBLE-
TERMINATE		
DK/RF	99999	INELIGIBLE-
TERMINATE		

2. And is your home zip code **ZIP**? IF NOT, OBTAIN
Our records indicate your household has **HHVEH** available for testing.
3. We are interested in testing the **YEAR**, **MAKE** **MODEL**, is this vehicle available for testing?

4. Does the vehicle run on another fuel besides gasoline?
5. How many exhaust outlets (Tailpipes) does the vehicle have?
6. Does the vehicle have 4WD? If yes, is the 4WD option able to be turned off?

If you are able to help us with this important study, we will provide you with a rental car and ****INCENT**** for your time.

7. We have an opening on ****ASSN****, would you be able to bring your vehicle in for testing on this day? If not, what day/ date would work best for you? [One drop down selection]

If it is convenient, we ask that you drop off your vehicle before 9 am, so it will be ready for you to pick up the following day between 4 pm and 6 pm. Does this time frame work for you?

8. Does this time work for you? If not we can definitely work around your schedule, but it may require the testing facility to keep your vehicle an extra day.
9. What time do you think you can drop off your vehicle? (Based on time, change drop off date)
10. We are also interested in testing another Household vehicle, are you interested if offered an additional ****INCENT****. [Loop back using 2nd vehicle]
11. And what is your name? (FIRST AND LAST) [Confirm name if MARC sample]
12. So that I can send you a packet of information about the study, I need to confirm/obtain your home address.
ADDRESS, CITY, STATE, ZIP
13. Your telephone number is ###-###-####, in case there is a change in testing, or the testing facility has some information about vehicle, may I have a number where you can be reached on the testing day?
14. Do you have an email address where I can send a reminder?

We are also planning on calling you 2 days before your scheduled testing date, to remind you and confirm that you received our information packet. If you have any question please feel free to contact us at 1-888-###-####. Thank you so much for your help and participation in this very important study!

Vehicles Scheduled by Date

Scheduled by date

Assignment	Test Date	Total
695	Tuesday, 7/13	4
696	Wednesday, 7/14	2
697	Thursday, 7/15	3
698	Friday, 7/16	3
699	Saturday, 7/17	3
701	Monday, 7/19	6
702	Tuesday, 7/20	6
703	Wednesday, 7/21	6
704	Thursday, 7/22	5
705	Friday, 7/23	4
706	Saturday, 7/24	4
708	Monday, 7/26	4
709	Tuesday, 7/27	6
710	Wednesday, 7/28	5
711	Thursday, 7/29	5
712	Friday, 7/30	6
713	Saturday, 7/31	5
715	Monday, 8/2	5
716	Tuesday, 8/3	5
717	Wednesday, 8/4	5
718	Thursday, 8/5	5
719	Friday, 8/6	5
720	Saturday, 8/7	4
722	Monday, 8/9	5
723	Tuesday, 8/10	6
724	Wednesday, 8/11	6
725	Thursday, 8/12	5
726	Friday, 8/13	4
727	Saturday, 8/14	4
729	Monday, 8/16	4
730	Tuesday, 8/17	5
731	Wednesday, 8/18	6
732	Thursday, 8/19	2
733	Friday, 8/20	3
734	Saturday, 8/21	6
736	Monday, 8/23	6
737	Tuesday, 8/24	6
738	Wednesday, 8/25	6
739	Thursday, 8/26	7
740	Friday, 8/27	4
741	Saturday, 8/28	7
743	Monday, 8/30	7
744	Tuesday, 8/31	5
745	Wednesday, 9/1	6
751	Tuesday, 9/7	1
752	Wednesday, 9/8	7
753	Thursday, 9/9	7

Assignment	Test Date	Total
754	Friday, 9/10	7
755	Saturday, 9/11	5
757	Monday, 9/13	5
758	Tuesday, 9/14	7
759	Wednesday, 9/15	7
760	Thursday, 9/16	7
761	Friday, 9/17	6
762	Saturday, 9/18	7
764	Monday, 9/20	5
765	Tuesday, 9/21	7
766	Wednesday, 9/22	6
767	Thursday, 9/23	7
768	Friday, 9/24	5
769	Saturday, 9/25	5
771	Monday, 9/27	7
772	Tuesday, 9/28	7
773	Wednesday, 9/29	5
774	Thursday, 9/30	6

Study Brochure

What's in it for me?

In addition to the free rental car, every study participant receives an appreciation gift as well as the knowledge that they contributed to a ground-breaking study in how vehicle emission levels are measured.

What if I have additional questions?

If you have any questions or would like additional information, please contact:

Gene Tierney, EPA
Tierney.Gene@epamail.epa.gov

Todd Ashby, MARC
tashby@marc.org

OR

call the toll-free participant hotline:
800-275-2209

visit the project website:
<http://www2.ergweb.com/projects/KansasCity/>

Kansas City Emissions Study

Project Leaders:



MARC
Mid-America Regional Council

Help us to
better
measure
vehicle
emission levels

Project Leaders:



MARC
Mid-America Regional Council

What is the Kansas City Emissions Study?

This landmark study led by the Environmental Protection Agency (EPA) and the Mid-America Regional Council (MARC), will measure air pollution from cars and trucks in the Kansas City region. Vehicle emissions include tiny particles (like in smoke and soot) that, when inhaled, contribute to heart and respiratory disease. It's the first major study in the United States that will look at vehicle emissions under real world driving conditions. In addition, this effort will be a role model for other regions across the nation.

Why is my participation important?

Your involvement is so important because EPA and MARC will be able to measure emissions from many types of vehicles in a real-life setting. The results will provide the input needed to make air quality modeling more accurate and serve as a role model for other regions.

During this study, it's critical that we test emissions from all types of vehicles: new and old, compact and luxury, cars and SUVs, vehicles that smoke and those that don't. The test results are confidential and there are no consequences to any vehicle owner regardless of the emissions testing outcome.

How does the testing work?

Participants bring their vehicles to a central facility and drop them off for testing. Owners may choose the most convenient drop-off and pick-up times, between the hours of 7am and 6pm, seven days a week. Vehicles will be needed for 24-72 hours, depending on the scheduled drop-off time.

Each participant is provided a free rental car for use while their vehicle is being tested. And everyone in the study receives an appreciation gift as a way of saying 'thank you' for your time and cooperation.

Some vehicles may qualify for a second stage of testing that involves putting special emissions detection equipment in your vehicle for 24 hours. If your auto is eligible for this stage, a technician at the testing facility will discuss it with you. Participants in this test will receive an additional appreciation gift.

Why is my vehicle needed for 24 hours?

Unlike emissions testing during a car inspection, which only takes a few minutes, this study requires vehicles to go through a

cold-start test following 12 hours of sitting without being used.

Where do I take my vehicle?

The test facility is located west of downtown Kansas City, in Wyandotte, with easy access from I-70, I-435, I-635, and I-35.



The standard check-in process includes

videotaping each vehicle before and after the testing to verify it's condition. Eastern Research Group, the study lead, will take full responsibility for vehicles while under the care of the test facility. The facility itself is fully licensed and insured, and has been designed with the care and security

Why are emissions a problem?

Personal automobiles are big polluters because of the sheer number of vehicles on our roads today. We may not realize it because we can't always see it, but driving a car pollutes our air. Besides particles, exhaust pollutants include hydrocarbons, nitrogen oxides (NOx), carbon monoxide (CO) and carbon dioxide (CO₂). Hydrocarbons and NOx, when mixed in the presence of sunlight, form ground-level ozone, which irritates the eyes, damages the lungs, and aggravates respiratory problems. NOx also contributes to forming acid rain. Carbon monoxide reduces the flow of oxygen in the bloodstream - a risk for persons with heart disease. Fuel evaporation also contributes to hydrocarbon pollution, such as during refueling.



Kansas City Emissions Study
c/o 3006 Bee Caves Road, Suite A-300
Austin, Texas 78746

Toll-free Participant Hotline:
800-275-2209

Todd Ashby, MARC
tashby@marc.org

Gene Tierney, EPA
Tierney.Gene@epamail.epa.gov

Recruitment Letter

<Name>
<Address>
<city>, <State> <zip>

Dear John,

Thank you for agreeing to participate in the **Kansas City Emissions Study**. The study is being conducted by a team of experts led by Eastern Research Group (ERG), the Mid-America Regional Council (MARC), and the United States Environmental Protection Agency (EPA).

Your vehicle testing date is: <<**Date**>>

Vehicle: <<**Year**>>, <<**Make**>> <<**Model**>>

If you drop off your vehicle by 9am on your testing date, in most cases you may pick up your vehicle anytime after 4pm the following day. If you drop-off after 9am or on a Saturday, your pick-up day and time will vary. A testing facility representative will determine your pick-up time once they check in your vehicle. If these times are not convenient, alternate drop off and pick up times are available. Please call 800-275-2209 for more details.

For your convenience, we have included a detailed map with directions from your home to the testing facility. The map is intended as a guide, it does not take into consideration any construction along the route. **If you have any trouble finding the facility, please call 913-299-9480.**

Please be sure to bring the following to your appointment:

- 1) Completed Owner's Survey,
- 2) Driver's License, and
- 3) Proof of insurance card.

When you arrive at the facility, a representative will check in your vehicle and provide you with a rental car and the appreciation gift of <incentive> that was discussed in the phone interview.

If you have any general questions concerning this important survey, please contact Todd Ashby of MARC at 816-474-4240 or send an email to tashby@marc.org or Gene Tierney of EPA at Tierney.Gene@epamail.epa.gov. For scheduling or other information about your appointment, please call 800-275-2209. Thank you for your participation.

Sincerely,

Dr. Charles A. Eddy
Chair of MARC's Board of Directors
and Council member, Kansas City, Missouri

Gene Tierney
Director Center for Air Quality
and Modeling, U.S. EPA

Kansas City Emissions Study Participant Questionnaire

Thank you for participating in this vehicle emission study. Please take a few minutes to respond to the following questions. Your answers will help us correlate vehicle history to emission patterns.

Owner name: <first> <last>

Vehicle: <make>, <model>, <year>

Testing date: <Date>

1. Last brand of gasoline purchased was:

☐ a. Shell

☐ b. BP

☐ c. Other: _____

☐ d. Exxon

☐ e. Chevron

☐ f. Texaco

☐ g. Don't know

2. What grade of gasoline was this?

☐ a. Regular

☐ b. Premium

☐ c. Super

3. How long ago was the last oil change? _____

4. What brand of motor oil was used? _____

5. What was the oil viscosity? (example: 10W30) _____

6. What oil additives are being used? _____

7. Within the last year, have major repairs been performed (this includes rebuilding or replacing the engine, transmission or catalyst)?

☐ a. Yes (briefly describe):

☐ b. No

☐ c. Don't know

8. Briefly describe any drivability or engine running problems. _____

**If you have any questions or if you need to change your testing appointment,
please call 1-800-275-2209.**

*Please bring this form, your driver's license and your proof of insurance card
with you to the testing facility.*

Office Use: Date Received: _____

Vehicle Make, model, yr. _____ License Tag # _____