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DRAFT TECHNICAL MEMORANDUM
CLEAN PRODUCTS MARKET ANALYSIS

RAMBOLL ENVIRON

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APPENDICES

1. SURVEY PLAN

Ramboll Environ US Corporation (Ramboll Environ) is conducting a market survey for the Metropolitan Washington Council of Governments (MWCOG) to determine the extent to which cleaner product formulations are sold within the Metropolitan Washington region, which consists of the District of Columbia and parts of Maryland and Virginia (DC-MD-VA). The District of Columbia and Maryland have adopted low sulfur heating oil requirements and the 2009 Ozone Transport Commission (OTC) Model Rule for Motor Vehicle and Mobile Equipment Refinishing and Recoating (MVMERR). Virginia has not adopted comparable rules and does not appear to have plans to do so in the foreseeable future. Depending on product distribution networks, manufacturers and distributors may voluntarily elect to sell products in Northern Virginia that comply with the more stringent regulations (e.g., lowest pollutant levels) in DC and Maryland. Ramboll Environ understands that the results of the market survey may result in MWCOG/member air agencies applying to the United States Environmental Protection Agency (USEPA) for State Implementation Plan (SIP) credit for the voluntary sale of cleaner products and corresponding reductions in air emissions in the Northern Virginia area.

First, Ramboll Environ reviewed the USEPA data and documentation requirements for obtaining SIP credit and baseline emissions data available from MWCOG and government agencies. Based on this documentation, we identified the data required from the survey for emissions reductions calculations for both automotive refinishing coatings and heating oil industries in the MWCOG region. As a next step, Ramboll Environ sought to identify relevant organizations, through trade associations and individual companies, to identify potential survey participants. Synthesizing this information, Ramboll Environ drafted a methodology for conducting the survey and a draft survey questionnaire.

The Survey Plan outlines our plan to conduct the survey, and seeks MWCOG's comments on the approach, the sampling plan, and the survey instrument. This Survey Plan has been formatted to become a chapter of the Final Report. The remainder of the Survey Plan comprises five sections. Section 1.1 identifies the purpose and need for the survey. Section 1.2 provides the approach and methodology for developing and conducting the survey. Section 1.3 describes the sampling plan. Section 1.4 summarizes the survey instrument, and Section 1.5 summarizes the Survey Plan. A copy of a draft Survey Questionnaire is provided in the Appendix.

1.1 Purpose and Need

The methodology used to identify the markets for heating oil and automotive refinishing coatings, and the products sold in these markets, requires significant and specific data be collected from available sources. Ramboll Environ will consider what data and information are currently available from known secondary sources, what data will need to be gathered through interviews, surveys, and other methods, and what information is reasonably estimable through professional judgment or information available publicly or collected through the survey.

1.2 Approach and Methodology

In conducting the survey, Ramboll Environ will consider that the information collected may be used to apply for SIP credit for the voluntary sale of cleaner products and resulting reductions in air emissions (volatile organic compounds (VOCs) from automotive refinishing and particulate matter (PM) from heating oil combustion). This consideration informs the development of our questionnaire and information gathering process.

In general, USEPA requires that voluntary measures seeking SIP credit must met the following requirements:

- **Quantifiable** – Emission reductions must be estimated and protected for future years based on demographic information like sales and population growth.
- **Surplus** – Emission reductions must be additional to what is required by law. If a jurisdiction ultimately adopts a more stringent regulation, only the surplus emission reduction during the voluntary period is counted.
- **Enforceable** – Alternative emission reduction measures must be included if follow-up monitoring by the jurisdictions indicate that projected emission reductions have not occurred.
- **Permanent** – The emission reductions must occur for the specific time period for which SIP credit is applied.
- **Adequately Supported** – Adequate personnel and resource are necessary to support the voluntary measure.

1.2.1 Determining Emissions Reductions

Ramboll Environ will determine emissions reductions based on a combination of surrogate factors (e.g., employment statistics and population) and existing commonly used emission factors for both the automotive refinishing and residential heating oil products. Baseline emission inventory data and calculation methodologies will be based on existing procedures and example documentation from each jurisdiction (VA, MD, DC). These emission reduction calculations will follow the USEPA's requirements for emission reduction estimations under voluntary stationary source emission reduction programs.

For each product group, the annual estimated emissions reductions will be determined by calculating the emissions difference between the use of both standard and cleaner products. This will be accomplished using existing emission factors and survey responses. The exact method of calculation will depend on available metrics for the two industries and are described in Sections 1.2.1.1 and 1.2.1.2 below.

1.2.1.1 Estimating Projected Emissions Reductions – Automotive Coatings

While surveying individual automotive refinishing businesses to request the amount of refinishing coatings used and the VOC contents of the coatings and calculating per facility emission reductions would be the most accurate way to quantify emission reductions, such an approach would be infeasible given the data burden to individual businesses, which would discourage survey participation. In estimating projected emission reductions for the automotive refinishing industry within the MWCOG area, Ramboll Environ will follow the annual emission calculation methodology used by the Virginia Department of Environmental Quality (VADEQ) for the 2007 SIP for the 8-hour Ozone Standard. A baseline emissions estimation for the automotive refinishing industry using this method involves an employee-based emission calculation, commonly used in area source emission inventories[1] [2]:

$$Annual\ Emissions\ (\frac{lbs}{year}) = (FIPS\ Activity\ Level)\ \times (EF) \times (Reactivity) \times (1 - (CE\ \times\ RP\ \times\ RE))$$

Where:

[1] Eastern Research Group, Inc. 2001. Introduction to Area Source Emission Inventory Development. Prepared for Area Sources Committee, Emission Inventory Improvement Program. January.

[2] TRC Environmental Corporation. 1997. Industrial Surface Coating Volume III, Chapter 8. Prepared for Area Sources Committee, Emission Inventory Improvement Program, https://www.epa.gov/sites/production/files/2015-08/documents/iii08.pdf

- FIPS Activity Level = Employment information (number of employees)
- EF = Emission factor (pounds VOC per employee)
- Reactivity = Unknown factor (VADEQ sets Reactivity to 1); photochemical reactivity
- CE = Control efficiency/100 (VADEQ sets CE to 0.36); amount of emissions that are controlled
- RP = Rule penetration/100 (VADEQ sets RP to 1); portion of the industry affected by the regulation
- RE = Rule effectiveness/100 (VADEQ sets RE to 1); estimated effectiveness of the rule

Ramboll Environ will estimate projected emissions reductions by determining a "no-reductions"[3] emissions scenario and comparing this to an emissions scenario which includes estimated reductions from voluntary adoption of lower VOC formulations. Two of the factors in the above equations will be varied between the two scenarios:

- FIPs Activity Level: Baseline and projected employment numbers for the industry. A potential data source is Virginia Employment Commission data for NAICS 811121, Automotive Body, Paint, and Interior Repair and Maintenance.
- Emission Factor: Baseline employee-based emission factor, multiplied by an adjustment factor consisting of the fraction of the market using product formulations cleaner than formally required by law (i.e., in line with the 2009 OTC Model Rule) and the estimated emission reduction in following the 2009 OTC Model Rule compared to the 2002 OTC Model Rule effective in the VOC Emission Control Areas in Virginia (including Northern Virginia). According to the 2011 National Emissions Inventory (2015) for SCC 2401005000 (Automotive Refinishing), the emission factor is 94.69 lb VOC/employee.

Maryland assumed a 65% reduction in VOC emissions (compared to 2002 baseline emissions) during regulatory analysis supporting its adoption of the 2009 OTC Model Rule. The 65% reduction is based on the California Air Resources Board (CARB) Suggested Control Measure (SCM) estimate of the 2005 SCM emission reductions from the 2002 CARB baseline emissions. Similar reductions of 65% are expected when going from the 2002 OTC MERR Model Rule to the 2009 OTC MVME Model Rule.[4]

1.2.1.2 Estimating Projected Emissions Reductions – Home Heating Oil

As residential heating oil is a consumer product, estimating emissions reductions will require a top-down approach to quantify total fuel usage and then using a surrogate factor to distribute this amount within the Metropolitan Washington area. Information needed for this emissions estimate includes:

- Current and projected residential fuel oil consumption per household (Potential source: EIA Residential Energy Consumption Survey (RECS))[5]
- Housing profile data for households within the MWCOG area (Potential source: 2008 MWAQC PM2.5 SIP)[6]

[3] The "no-reductions" emissions scenario refers to a scenario where the FIPs Activity Level is adjusted based on projected industry employment data, while the employee-based emission factor remains constant.

[4] http://www.otcair.org/upload/Documents/Reports/TSD_All_Final_10182016.pdf

[5] http://www.eia.gov/consumption/residential/

[6] The 2008 MWAQC $PM_{2.5}$ SIP uses "Household" growth factors as a growth surrogate for Residential Fuel Combustion. Household Growth Factors for 2002-2009 are included in Table 4-1 within this SIP.

- Emission factor of PM based on sulfur concentration[7] of combustible fuels (Potential sources: AP-42 Emission Factors; 2009 Uncontrolled Emission Inventory for the Metro Washington Nonattainment Area[8]; McDonald (BNL) 2009 – Evaluation of Gas, Oil and Wood Pellet Fueled Residential Heating System Emissions Characteristics[9])
- Fraction of the market voluntarily distributing lower-sulfur residential heating oil in Northern Virginia, Maryland, and the District of Columbia (Source: Survey results)

Projected PM reductions for home heating oil will be calculated comparing estimated PM emissions from baseline heating oil usage with estimated PM emissions from use of lower-sulfur heating oil. Baseline estimates will be determined by calculating PM emissions based on current regulatory standards and heating oil consumption for each region. Reduced emissions estimates will be calculated similarly, adjusting emission factors based on the percentage of regional markets using lower-sulfur heating oil and corresponding emission factors.

1.2.2 Identify User Industries and Trade Associations, Manufacturers, Distributors

Ramboll Environ has initiated contact with select trade associations including the American Coatings Association (ACA Automotive Refinish Committee), American Petroleum Institute, Petroleum Marketers Association of America, and the Mid-Atlantic Petroleum Distributors' Association to determine potential avenues to distribute the survey and/or identify potential participants. During the month of January, Ramboll Environ will continue to establish contact with trade associations and individual companies in an effort to identify potential survey participants. Actual numbers of participants will depend on the responses we receive from these trade associations and other efforts to identify potential participants, through input from trade association and industry contacts. This process may need to remain flexible as we continue discussions with contacts. Other methods of respondent identification may be required. The Ramboll Environ team will continue to pursue other methods as identified and as appropriate.

Ramboll Environ will attempt to survey all identified market participants to maximize the response rate and obtain the best representation of the market, aiming for a 25 to 30 percent rate of participation. Once the survey process is complete, Ramboll Environ will complete a review to determine the extent to which the market is represented by survey participants.

1.2.2.1 Automotive Coatings

The businesses using coatings subject to the MVMERR regulations are facilities engaged in autobody and collision repair, fleet operator repair and paint, auto dealer repair and paint, and aftermarket automotive customizing and detailing. The coatings are manufactured by a relatively small number of national and international coating manufacturers and sold nationally or regionally by distributors to individual businesses. Ramboll Environ's approach focuses on the manufacturers and distributors, who are expected to be more familiar with whether their products meet the more stringent 2009 OTC Model Rule VOC limits.

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[7] AP-42 emission factor of Filterable PM for a residential furnace (SSC A2104004/A2104011) is listed as 0.4 lb/1000gal (a note indicates that pre-1970s burner designs may emit filterable PM as high as 3 lb/1000gal). This PM factor is not dependent on the sulfur content of the fuel. https://www3.epa.gov/ttnchie1/ap42/ch01/final/c01s03.pdf

[8] The 2009 Uncontrolled Emission Inventory for the Metro Washington Nonattainment Area for SCC Code 2104004000 (Residential Distillate Oil Combustion) is provided in Appendix D to the 2008 MWAQC $PM_{2.5}$ SIP. This includes $PM_{2.5}$ and SO_2 (tons/year) inventories for DC, Charles County, Frederick County, Montgomery County., Prince George's County, Arlington County, Alexandria City, Fairfax County, Fairfax City, Falls Church City, Loudoun County, Prince William County, Manassas City, Manassas Park City.

[9] Roger McDonald at the Brookhaven National Laboratory/ies compares oil fired heating appliances with middle distillate fuels (sulfur ranges from 11 to 1520 ppm). His results show a linear relationship between fuel sulfur content and PM emissions in mg/MJ. https://www.bnl.gov/isd/documents/71376.pdf

In order to collect appropriate usage and distribution data for automotive coating products, Ramboll Environ has identified a number of national and international coatings manufacturers, as well as major coatings distributors to survey. These entities include, but are not limited to: AkzoNobel, BASF, Cumberland, DuPont, Evercoat, Chem Spec USA, Axalta Coating Systems, Bayer, PPG Industries, Sherwin-Williams, and Valspar. These entities represent key players in the automotive coating industry and it is currently assumed that these entities represent the majority of the market in the Metropolitan Washington area, which will be confirmed. The ACA will provide additional information regarding the current market for automotive refinishing coatings, as well as advertise the survey to relevant ACA members and manufacturers. Once the survey process is complete, Ramboll Environ will review the responses to determine the extent to which respondents represent the automotive refinishing coatings market in the Metropolitan Washington area.

1.2.2.2 Heating Oil

Ramboll Environ's survey effort regarding residential heating oil will focus on distributors and wholesalers in order to capture a representative sample of the residential heating oil market. The types of distributors in the Metropolitan Washington area include small, direct distributors and large distributors. The direct distributors collect product from pipeline and/or port terminals and deliver directly to end users. Large distributors collect and store product from terminals at regional bulk storage locations, from which they then distribute to end users. Such users will be identified through fuel seller permits, interviews with trade associations and industries including the Virginia Petroleum Council and the Petroleum Marketers Association of America, and distributor information gathered via interviews from "last-mile" residential heating oil providers. Once the survey process is complete, Ramboll Environ will review the responses to determine the extent to which respondents represent the heating oil market.

1.3 Survey Methodology

The survey will be used to collect information that will determine the viability of applying for SIP credit. Two separate questionnaires will be developed; one for the automotive refinishing coatings and one for the heating oil industries. The content of each questionnaire will be based on a review of EPA documentation and discussions with industry. The surveys will be disseminated via email as a Word questionnaire, and will be preceded by an informal marketing effort that will alert potential respondents to the objective and importance of completing the survey. Administration of the survey online through a web-based application such as SurveyMonkey was also considered. However, distribution of a Word document via email is anticipated to be more secure and appropriate for the preferred survey format.

1.3.1 Encouraging Participation in the Survey

Before disseminating the survey, Ramboll Environ will seek to coordinate with trade associations for manufacturers and distributors of automotive refinishing coatings and heating oil to generate awareness of our survey and to encourage participation from their membership. We will prepare language requesting the trade associations, in coordination with MWCOG, announce that Ramboll Environ is conducting a survey on behalf of MWCOG, explain the benefits of participation, and advocate for members to complete the survey. While conversations are still ongoing in the heating oil industry, the ACA has agreed to provide feedback on the draft survey and distribute and advertise the final survey to their members. This announcement will serve to advertise the survey and increase the visibility and response rate by alerting the potential respondents to this project and its goals. This announcement will be followed by an outreach effort by Ramboll Environ. The transmittal letter (or

email) for the survey will include language on how the anonymity and confidentiality of individual company responses will be maintained. Before sending the survey to all potential respondents, we intend to beta test the survey with one or two willing participants for each industry.

Ramboll Environ will use a two-contact approach to obtain measurable survey responses. Approximately two weeks after emailing the survey, the Ramboll Environ team will attempt to reach the contact persons for each non-responding entity by email or phone. If the effort is successful and the identified contact persons are reached, the contact information will be confirmed and the recipient will be encouraged to complete the survey as soon as possible. A systematic protocol will be used to explain objectives of the survey and obtain accurate information from the recipient. If Ramboll Environ is unsuccessful in reaching the contact persons, the team will attempt to leave messages for the identified individuals. Another round of follow-up through emails or phone calls will be conducted two weeks after the first round. Ramboll Environ will attempt to reach the targeted survey recipients at least two times before considering the entity a non-respondent. Approximately four weeks after the survey is sent to all contacts, Ramboll Environ will review the list of respondents to determine if any known large distributors or manufacturers have not responded. From that list, an additional contact will be made in a final attempt to gather data from those entities considered to have a significant market presence.

During the survey process, Ramboll Environ will review the surveys as received for completeness and accuracy. In case clarifications or additional information are needed, the relevant contact person will be reached via phone or email to fill in the missing details.

Following the completion of the survey process, Ramboll Environ will compile all of the responses into an Excel spreadsheet for analysis, removing any information that may identify a particular firm.

1.3.2 Description of the Survey Tool

The survey will be conducted using a Word questionnaire, sent via email. The Word questionnaire will be structured so that the appropriate answer boxes can be checked and supplemental information can also be provided by typing in the appropriate box.

Participants will be reminded that survey responses will be kept confidential and no individual information will be provided to other parties, including MWCOG, trade associations, or non-team members at Ramboll-Environ. MWCOG will not request, or be entitled to see, any individual respondent data, as all data will be processed, consolidated and shared in aggregate prior to release. All information will be compiled and consolidated prior to analysis and distribution of results to MWCOG, so as not to disclose any individual firm-specific data. Disclaimer language will be included in the cover letter to the survey, and a Non-Disclosure Agreement will be signed, if requested by participants.

1.3.3 Identifying Questions for the Survey

The survey questions were developed considering that MWCOG may use the results to apply for SIP credit for the voluntary use of cleaner products and resulting reductions in air emissions. This consideration informs the development of our questionnaire and information gathering process, as explained in the Approach and Methodology section of this Survey Plan.

Because of the different regulations and products available for automotive refinishing coatings and heating oil, different survey instruments will be sent to representatives from the two industries. A

summary of the regulations in each jurisdiction will be provided in the survey submittal letter for reference.

The survey first seeks to understand if the surveyed entity provides different product formulations to Northern Virginia than to DC or Maryland. If the answer is no, and the same product is sold to Northern Virginia as to DC and Maryland, it can be assumed that the product meets the DC and MD standards for emissions. If a different product is sold to Virginia, an attempt will be made via the survey to understand what product is sold in the Northern Virginia region.

The second part of the survey seeks to understand the relative market share of each respondent in Northern Virginia, and the product supply portfolio of each respondent, in order to estimate emission reductions.

The draft survey questions for automotive coating and heating oil industries are provided in the Appendix.

1.4 Summary

This Plan was developed to provide MWCOG with an understanding of the approach and methodology of the survey process. This is the first step in determining the market for cleaner product formulations in the Metropolitan Washington region. Once this Plan is approved by MWCOG, the survey process will be initiated and the necessary data will be collected and compiled for analysis, in order to assess the feasibility of applying for SIP credit.

QUESTIONNAIRE COVER LETTER

SAMPLE DRAFT COVER LETTER LANGUAGE

Ramboll Environ US Corporation (Ramboll Environ) is conducting a market survey on behalf of the Metropolitan Washington Council of Governments (MWCOG) to determine the extent to which cleaner product formulations [industry-specific language to be inserted] are sold within the Metropolitan Washington region, which consists of the following counties and cities:

- **District of Columbia**
- **Maryland**: Charles County, Frederick County, Montgomery County, Prince George's County
- **Northern Virginia:** City of Alexandria, Arlington County, City of Fairfax, Fairfax County, City of Falls Church, Loudoun County, City of Manassas, City of Manassas Park, Prince William County

[Map of regions to be included]

Depending on product distribution networks and availability, manufacturers and distributors may voluntarily elect to sell products in Northern Virginia that comply with the more stringent regulations (e.g., lowest pollutant levels) established in DC and Maryland. [Industry specific regulations to be provided]. In the case of widespread voluntary adoptions of cleaner products, MWCOG and its member air agencies can apply for State Implementation Plan (SIP) credit from the United States Environmental Protection Agency (USEPA) for the voluntary sale of cleaner products and corresponding reductions in air emissions in Northern Virginia.

The survey seeks to understand the extent of adoption of cleaner product formulations in the Metropolitan Washington region and the feasibility of applying for SIP credit for corresponding emission reductions. The results will provide information about the effects of differing regulations in multi-state metropolitan regions, and provide information on the extent to which the industry is voluntarily reducing emissions by selling cleaner products than required.

One of Ramboll Environ's primary business services is conducting confidential surveys and professionally managing sensitive information provided by different organizations. All information collected from individual firm respondents will be

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compiled and consolidated prior to analysis and distribution, so as not to disclose any individual firm data. By participating in the survey, you will also have the opportunity to review the draft language of our findings before publication to MWCOG to ensure no identifying language is included. All individual information will be kept confidential and no individual information will be provided to MWCOG, relevant trade associations, or any other parties, including non-team members at Ramboll Environ. Neither MWCOG nor the trade associations will be entitled to request or see individual respondent data, as all data will be processed, consolidated, and shared in aggregate prior to release. Since we understand the importance of properly handling sensitive information, only Ramboll Environ team members who are aggregating survey results to the regional level will be allowed to see individual responses. If there are further questions regarding the confidentiality of your response, please contact Christine Ng at Ramboll Environ, and a Non-Disclosure Agreement can be prepared and signed.

When you have completed your survey, please return by either e-mail or U.S. mail to:

Ramboll Environ
Attn: Christine Ng
4350 North Fairfax Drive
Suite 300
Arlington, VA 22203
cng@ramboll.com

We appreciate your assistance in this process and look forward to hearing from you.

Yours sincerely,

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AUTOMOTIVE REFINISHING COATINGS QUESTIONNAIRE

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DRAFT Survey Questions – Coatings for Motor Vehicle and Mobile Equipment Non-Assembly Line Refinishing and Recoating

1) Firm Identification

a. Respondent Name: _____

b. Respondent Title: _____

c. Company Name: _____

d. Address: _____

_____

e. Contact Phone: _____

f. Contact E-mail: _____

2) How would you describe your operations with regard to Motor Vehicle and Mobile Equipment Non-Assembly Line Refinishing and Recoating Coatings?

☐ Manufacturer

☐ Distributor

☐ End User

☐ Other (please describe): _____

_____

3) a. In which MWCOG (Metropolitan Washington Council of Governments) region(s) do you operate? (Select all that apply)

☐	☐	☐
Northern Virginia (City of Alexandria, Arlington Co., City of Fairfax, Fairfax Co., City of Falls Church, Loudoun Co., City of Manassas, City of Manassas Park, Prince William Co.)	**District of Columbia** (District of Columbia)	**Maryland** (Charles Co., Frederick Co., Montgomery Co., Prince George's Co.)

b. What are the number of persons your firm employs in each of these regions?

Northern Virginia: _____ Persons or Full-Time Employees (FTE) (please circle one)

District of Columbia: _____ Persons or FTE

Maryland: _____ Persons or FTE

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4) a. Are you aware that Maryland and DC have more stringent volatile organic compound (VOC) regulatory emission limits for mobile equipment repair and refinishing coatings than Virginia (including Northern Virginia)?

☐ Yes

☐ No

b. If you operate/manufacture/distribute in more than one of these three regions, please select the statement that best represents your operations.

(Please select one)

☐ (1) We sell the same product(s) within Northern Virginia as in Maryland and DC, which means our Northern Virginia product meets the limits required by MD and DC.

☐ (2) Our product(s) sold in Northern Virginia meet Virginia requirements only, and do not meet the stricter limits required by MD and DC.

☐ (3) Both (1) and (2), depending on product types. Please specify product types in Question #5.

☐ (4) Not Applicable

c. Do you anticipate any future changes in products or operations that would affect your response to Question #4a above?

☐ Yes

☐ No

Please explain: _____

(What changes and when?) _____

_____

_____

5) If you selected either (2) or (3) in Question #4a above, how do the volatile organic compound (VOC) contents of products in Northern Virginia differ from DC and Maryland?

_____

_____

_____

_____

_____

_____

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6) For products supplied in the **Northern Virginia** region (districts listed in Question #3), what is your estimated sales volume for each of the following product categories?[1]
Please provide sales both for 2015 and the average over the years 2012 through 2015, if available.

Coating Product Category	Average VOC Content (specify pounds/gallon or grams/liter)	Sales Volume (gallons) 2015	Sales Volume (gallons) 2012 through 2015 average
Automotive pretreatment primer:			
Automotive primer-surfacer:			
Automotive primer-sealer:			
Single stage topcoat:			
2 stage basecoat/clearcoat:			
3 or 4-stage basecoat/clearcoat:			
Automotive multi-colored topcoat:			
Automotive specialty:			

a. In the next year, do you anticipate changes in the VOC content of products you supply to the **Northern Virginia** region? (if applicable)

☐ Yes

☐ No

☐ Not Applicable

b. Please explain:

7) What is your estimated market share in each of these regions (percent)?[1]

Northern Virginia	District of Columbia	Maryland
%	%	%

[1] All information will be compiled and consolidated prior to analysis and distribution, so as not to disclose any individual firm data. Ramboll Environ will keep all individual information confidential and no individual firm information will be provided to other parties.

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8) If unable to answer Question #7, what are your estimated total sales in each of these regions?

Northern Virginia	**District of Columbia**	**Maryland**
$ _____	$ _____	$ _____

9) What are the NAICS (North American Industry Classification System) code(s) for your operations (if known)?

Primary NAICS code: _____

Secondary NAICS code(s): _____

(if applicable) _____

_____

_____

10) Any additional information and/or comments

RESIDENTIAL HEATING OIL QUESTIONNAIRE

RAMBOLL ENVIRON

DRAFT Survey Questions – Residential Heating Oil

1) Firm Identification

a. Respondent Name: _____

b. Respondent Title: _____

c. Company Name: _____

d. Address: _____

_____

e. Contact Phone: _____

f. Contact E-mail: _____

2) How would you describe your operations with regard to residential heating oil?

☐ Terminal

☐ Bulk Distributor or Supplier (including operation of bulk storage tanks)

☐ Small/Direct Distributor

☐ Other (please describe): _____

_____

3) a. In which MWCOG (Metropolitan Washington Council of Governments) region(s) do you operate?

(select all that apply)

☐	☐	☐
Northern Virginia (City of Alexandria, Arlington Co., City of Fairfax, Fairfax Co., City of Falls Church, Loudoun Co., City of Manassas, City of Manassas Park, Prince William Co.)	**District of Columbia** (District of Columbia)	**Maryland** (Charles Co., Frederick Co., Montgomery Co., Prince George's Co.)

b. What are the number of persons your firm employs in each of these regions?

Northern Virginia: _____ Persons or Full-Time Employees (FTE) (please circle one)

District of Columbia: _____ Persons or FTE

Maryland: _____ Persons or FTE

4) If you operate/distribute in more than one of these three regions, does the heating oil supplied in each region have the same maximum sulfur content?

☐ Yes

☐ No

☐ Not Applicable

5) If you operate/distribute in more than one of these three regions, please select the statement that best represents your operations:

(Please select one)

☐ (1) We sell the same product within Northern Virginia as in Maryland and DC, which means our Northern Virginia product meets the strictest sulfur content limits imposed by MD and/or DC (current limit of 500 parts per million or 0.05%).

☐ (2) Our product sold in Northern Virginia meets Virginia requirements only, and does not meet the stricter sulfur content limits required by MD and/or DC.

☐ (3) Not Applicable

6) What are the NAICS (North American Industry Classification System) code(s) for your operations (if known)?

Primary NAICS code: _____

Secondary NAICS code(s): _____

(if applicable) _____

_____

_____

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*The following section (Questions 7 through 11) refers to heating oil product sold/distributed within the cities and counties included in the **Northern Virginia** region. If you do not sell or distribute heating oil within this region, please skip this section and continue with the next section (Question 12).*

NORTHERN VIRGINIA

7) What is your estimated annual throughput for each of the following heating oil products (by sulfur content) in the **Northern Virginia** region?[2]
Please provide your total throughput for 2015 for each class of home and commercial/industrial heating oil, if applicable.

Maximum Sulfur Content Per Specification	Residential 2015 Throughput (gallons)	Commercial / Industrial 2015 Throughput (gallons)
15 ppm (parts per million) or 0.0015%:		
500 ppm or 0.05%:		
2,000 ppm or 0.2%:		
Other (please specify):		

8) Do you anticipate changes in the sulfur content and volumes of residential heating oil supplied to the **Northern Virginia** region in the next year? Next three years? Next ten years?

By 2018	By 2020	By 2028
☐ Yes	☐ Yes	☐ Yes
☐ No	☐ No	☐ No
☐ Not Applicable	☐ Not Applicable	☐ Not Applicable

Please explain:

[2] All information will be compiled and consolidated prior to analysis and distribution, so as not to disclose any individual firm data. Ramboll Environ will keep all individual information confidential and no individual firm information will be provided to other parties.

9) What are your projected sales volumes of residential heating oil for the **Northern Virginia** region over the next year? Next five years?[3]

2017 through 2018: _____

2017 through 2021: _____

10) From which terminal, pipeline, and/or supplier do you obtain heating oil for distribution in the **Northern Virginia** region?
Please explain:

Source(s): _____

_____

_____

Location(s): _____

_____

_____

11) What is your estimated market share in the **Northern Virginia** region?[3]

_____ %

[3] All information will be compiled and consolidated prior to analysis and distribution, so as not to disclose any individual firm data. Ramboll Environ will keep all individual information confidential and no individual information will be provided to other parties

RAMBOLL ENVIRON

*The following section (Questions 12 through 16) refers to heating oil product sold/distributed within the **District of Columbia** region. If you do not sell or distribute heating oil within this region, please skip this section and continue with the next section (Question 17).*

DISTRICT OF COLUMBIA

12) What is your estimated annual throughput for each of the following heating oil products (by sulfur content) in the **District of Columbia** region?[4]

Please provide your total throughput for 2015 for each class of home and commercial/industrial heating oil, if applicable.

Maximum Sulfur Content Per Specification	Residential 2015 Throughput (gallons)	Commercial/Industrial 2015 Throughput (gallons)
15 ppm (parts per million) or 0.0015%:		
500 ppm or 0.05%:		
2,000 ppm or 0.2%:		
Other (please specify):		

13) Do you anticipate changes in the sulfur content and volumes of residential heating oil supplied to the **District of Columbia** region in the next year? Next three years? Next ten years?

By 2018	By 2020	By 2028
☐ Yes	☐ Yes	☐ Yes
☐ No	☐ No	☐ No
☐ Not Applicable	☐ Not Applicable	☐ Not Applicable

Please explain:

[4] All information will be compiled and consolidated prior to analysis and distribution, so as not to disclose any individual firm data. Ramboll Environ will keep all individual information confidential and no individual firm information will be provided to other parties.

RAMBOLL ENVIRON

14) What are your projected sales volumes for the **District of Columbia** region over the next year? Next five years? [5]

2017 through 2018: _____

2017 through 2021: _____

15) From which terminal, pipeline, and/or supplier do you obtain heating oil for distribution in the **District of Columbia** region?

Please explain:

Source(s): _____

_____

_____

Location(s): _____

_____

_____

16) What is your estimated market share in the **District of Columbia** region?[5]

_____ %

[5] All information will be compiled and consolidated prior to analysis and distribution, so as not to disclose any individual firm data. Ramboll Environ will keep all individual information confidential and no individual firm information will be provided to other parties

RAMBOLL ENVIRON

*The following section (Questions 17 through 21) refers to heating oil product sold/distributed within the cities and counties included in the **Maryland** region. If you do not sell or distribute heating oil within this region, please skip this section and continue to Question 22.*

MARYLAND

17) What is your estimated annual throughput for each of the following heating oil products (by sulfur content) in the **Maryland** region?[6]

Please provide your total throughput for 2015 for each class of home and commercial/industrial heating oil, if applicable.

Maximum Sulfur Content Per Specification	Residential 2015 Throughput (gallons)	Commercial / Industrial 2015 Throughput (gallons)
15 ppm (parts per million) or 0.0015%:		
500 ppm or 0.05%:		
2,000 ppm or 0.2%:		
Other (please specify):		

18) Do you anticipate changes in the sulfur content and volumes of residential heating oil supplied to the **Maryland** region in the next year? Next three years? Next ten years?

By 2018	By 2020	By 2028
☐ Yes	☐ Yes	☐ Yes
☐ No	☐ No	☐ No
☐ Not Applicable	☐ Not Applicable	☐ Not Applicable

Please explain:

[6] All information will be compiled and consolidated prior to analysis and distribution, so as not to disclose any individual firm data. Ramboll Environ will keep all individual information confidential and no individual firm information will be provided to other parties.

19) What are your projected sales volumes for the **Maryland** region over the next year? Next five years?[7]

2017 through 2018: _____

2017 through 2021: _____

20) From which terminal, pipeline, and/or supplier do you obtain heating oil for distribution in the **Maryland** region?

Please explain:

Source(s): _____

_____

_____

Location(s): _____

_____

_____

21) What is your estimated market share in the **Maryland** region?[7]

_____ %

[7] All information will be compiled and consolidated prior to analysis and distribution, so as not to disclose any individual firm data. Ramboll Environ will keep all individual information confidential and no individual firm information will be provided to other parties

22) Any additional information and/or comments?