

**PART A OF THE SUPPORTING STATEMENT**

**Populations, Usage and Emissions of Diesel Nonroad Equipment**

**OMB Control Number 2060-0553**

**EPA ICR Number 2156.02**

## 1 IDENTIFICATION OF THE INFORMATION COLLECTION

### 1(a) Title of the Information Collection

The collection is entitled:

Populations, Usage and Emissions of Diesel Nonroad Equipment

### 1(b) Short Characterization/Abstract

In response to recommendations from the National Research Council of the National Academy of Sciences, EPA is continuing a systematic data collection designed to improve the methods and tools used by the Agency to estimate emissions from nonroad equipment. Data to be collected include populations, usage rates (activity) and ‘in-use’ or ‘real-world’ emission rates.

The collection is a survey, to be conducted by the Office of Transportation and Air Quality (OTAQ) in the Office of Air and Radiation (OAR). Development of rapid in-use instrumentation promises to substantially reduce the cost of emissions measurement for nonroad equipment. This study will combine rapid in-use measurement capability with statistical survey design to improve the representation of nonroad engine populations. The goal is to continue a pilot survey designed to develop methods and protocols needed to collect data on populations, activity and in-use emissions of diesel nonroad equipment. Response to the survey is voluntary.

The target population includes nonroad equipment used by commercial establishments in the construction and manufacturing sectors. The study area for this collection will include areas in EPA Regions 5 and 7. To estimate the prevalence of equipment ownership in the target sectors, 1,500 establishments will be requested to respond to brief interviews regarding their equipment ownership and use. The total sample size for instrumented measurement is 100 equipment pieces, with 50 pieces targeted for emissions and usage measurement, respectively.

Emissions and usage will be measured using portable on-board electronic instrumentation. Emissions instrumentation will measure carbon dioxide (CO<sub>2</sub>) and several air pollutants on an instantaneous basis during normal operation over a period of one to three days. Air pollutants to be measured include carbon monoxide (CO), total hydrocarbons (THC), oxides of nitrogen (NO<sub>x</sub>) and particulate matter (PM). The usage instrument will measure engine on/off over a period of approximately three months.

Data will be collected during normal operation at the respondents’ facilities or work sites. Following quality-assurance and analysis, the data will be stored in OTAQ’s Mobile Source Observation Database. The information collection will involve 517 respondents per year, requiring 99 hours per year at an annual total cost to those respondents of \$6,716. For the agency, the collection will require 4,455 hours per year at an annual total cost to the agency of \$322,415.

## 2 NEED FOR AND USE OF THE COLLECTION

### 2(a) Need/Authority for the Collection

The term ‘nonroad equipment’ describes a very diverse class of machinery and vehicles that: (1) are powered by internal combustion engines and (2) are used for purposes other than transportation. Common examples include crawler dozers, backhoes, tractors, forklifts, cranes, generators, pumps and lawnmowers.

Nonroad equipment contribute substantially to mobile-source emissions, with their contribution in relative terms expected to increase as emissions from highway vehicles are controlled (Kean, Sawyer & Harley 2000). Based on estimates derived from diesel fuel sales published by the Energy Information Administration (EIA 2001) and estimates from the NONROAD model, fuel consumption in nonroad equipment accounts for 15-18% of all distillate fuel supplied to the U.S. market in 2000 (57.2 billion gallons). In addition, the sectors selected for inclusion in this survey (construction and manufacturing) are important in terms diesel fuel consumption and emissions. In the same year, the targeted sectors accounted for approximately 35% of nonroad diesel fuel consumption, which corresponds to approximately 8% of all diesel fuel consumed by mobile sources (44.9 billion gallons) where mobile sources include highway vehicles, locomotives, marine vessels and nonroad equipment.

An emissions inventory is an estimate of the quantity of a pollutant emitted to the atmosphere in a given geographic area during a given time period. For example, an inventory can represent the quantity of carbon monoxide emitted by various sources in Washtenaw County, Michigan during the spring of 2004. Within an inventory, emissions are typically allocated by source category, with sources classified as “stationary,” “area,” or “mobile.” Stationary sources include large facilities with identifiable emissions outlets, such as coal-fired power plants or industrial boilers. Area sources include activities for which emissions are diffuse. Examples include feedlot operations, dry cleaners or wildfires. As the name implies, mobile sources move from place to place. They include highway motor vehicles (cars and trucks) and nonroad equipment.

At the request of Congress, the National Academy of Sciences published a report on EPA’s emissions inventory modeling for mobile sources (NRC 2000). A committee of technical experts was given the primary charge of conducting a detailed review of the MOBILE model. Nonetheless, the report bears mention in the context of nonroad equipment inventories because the committee also took the opportunity to make comments concerning EPA’s NONROAD model. Under the heading of “Technical Issues Associated with the MOBILE Model,” the committee remarked that

*As future Tier 2 vehicle standards and corresponding sulfur-reduction regulations reduce on-road mobile-source emissions, non-road emissions will become a larger fraction of the total emissions. The NONROAD model is extremely data driven, and there are many gaps in the available data. EPA should place more emphasis on improving both the emissions factors and activity data in this model. (p. 74)*

In the executive summary, the committee emphasized the need for EPA to design and implement programs to expand and improve the data used to support emissions inventory estimation for nonroad equipment, and added that:

*The plan should include the population and activity data and real-world emissions factors for gasoline and diesel engines (p. 13).*

The recommendations in the NRC report have influenced the concept and design of EPA's new inventory model for highway vehicles, the Motor Vehicle Emissions Simulator (MOVES). Similarly, this survey is intended as the first step in a program to respond to recommendations concerning the quantity and representativeness of the supporting inventory modeling for nonroad engines.

On the basis of these recommendations, the goal of this collection effort is to continue pilot work initiated during the previous approval. This work is designed to develop methods and protocols to collect data on populations, activity and in-use emissions of diesel nonroad equipment.

Emissions measurement by portable instrumentation is becoming increasingly important, particularly for nonroad engines. However, substantial technical challenges remain in acquisition of reliable data. An important technical issue for portable measurement is the difficulty in acquiring reliable measurements of engine speed and torque during operation. Solving this problem is important because parameters are key in describing the operational and emissions behavior of diesel engines.

For recently manufactured engines, the electronic control system is a source of data for these parameters. To date, we have found that accessing the CAN is more difficult than anticipated. However, we have learned that it will be necessary to integrate additional hardware and software into the instrumentation. This collection proposes to develop and test methods for acquisition of data streams from the CAN.

Additionally, to measure PM without rapidly overloading the measurement medium, it is necessary to acquire a sample stream of exhaust that is of known volume and directly proportional to the total exhaust flow.

To date, particulate matter has often been measured on an aggregate basis, meaning that particulate is collected on a medium such as a filter over a period such as 15-60 minutes. The mass collected (g) can then be divided by the time period (hr) to estimate the average emission rate over the time period measured. However, methods involving aggregation do not allow detailed study of particulate emissions in relation to the specific behavior of the engine during the measurement period.

To explore the relation between engine behavior and emissions, greater emphasis is being placed on the measurement of particulate matter on a continuous basis, meaning that emissions are measured repeatedly over brief time periods such as seconds to tens of seconds.

Continuous measurement requires the adaptation of new technologies, such as the instrument proposed for use in this collection, the quartz-crystal microbalance (QCM). The QCM contains a quartz crystal set to vibrate at a known frequency. During measurement, a sample stream containing particulate is directed over the crystal. As the crystal collects particulate, its vibration frequency changes. A previously-established calibration between vibration frequency and mass loading allows translation of changing frequencies to cumulative loading, and ultimately, to sequential loading. For the QCM to be successfully applied, it is critical to draw the proportional sample flow, as mentioned, and it is essential that the sample flow respond extremely rapidly to changes in the engines power output. This collection proposes to integrate and test these two instruments in the field, and to evaluate the proportionality of the sample flow.

#### 2(a)(4) Legislative Basis

The legislative basis for this data collection is Section 103(a)(1)(2)(3) of the Clean Air Act, which requires the Administrator to:

“conduct ... research, investigations, experiments, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, and control of air pollution, ...” and “cooperate with ... pollution control agencies and other appropriate public or private agencies, institutions, and organizations, and individuals in the conduct of such activities, ...” and “conduct investigations and research and make surveys concerning any specific problem of air pollution in cooperation with any air pollution control agency ...”

In addition, Section 103(b)(1) of the Clean Air Act authorizes the Administrator to:

“collect and make available, through publications and other appropriate means, the results of and other information, including appropriate recommendations by him in connection therewith, pertaining to such research and other activities.”

The full text of the relevant sections is provided in Appendix A-1.

#### 2(b) Practical Utility/Users of the Data

The principal users of the data will be EPA technical staff, for purposes of methods development and quality-assurance of results obtained.

The results will also guide and inform design of future collections. Supporting analyses will evaluate the adequacy of the proposed sample frames. They will investigate the efficiency of stage sampling. The collection will provide valuable experience in collection of probability samples of nonroad equipment, and in development of rapport with respondents. Finally, analysis and evaluation of the initial collection will enable evaluation of the cost-effectiveness of the design.

In addition, the initial results will guide and inform sample size analyses. Data collected will provide highly valuable estimates of variability in key variables, as well as scenarios and expected differences needed for more refined power analyses.

### 3 NONDUPLICATION, CONSULTATIONS, AND OTHER COLLECTION CRITERIA

#### 3(a) Nonduplication

In development of this collection, EPA has attempted to locate sources of data that would partially or wholly duplicate the information to be collected. No such duplication was found.

To our knowledge, no other agency conducts portable emissions monitoring of nonroad equipment during operation in the field. One previous study, conducted by Environment Canada and the Northeast States for Coordinated Air Use Management (NESCAUM), collected field emissions data for four nonroad engines and one on-highway vehicle (Ainslie et al. 1999). While the data are useful in themselves, they cannot be considered a representative sample, and EPA's collection effort must be broader in scope.

#### 3(b) Public Notice Required Prior to ICR Submission to OMB

The initial announcement of the public comment period for the proposed ICR amendment was placed in the Federal Register on August 9, 2007 (72 FR 44843). One comment was received. This comment was considered when preparing this ICR. In addition, a second Federal Register Notice will be published concurrent with submission of this collection to OMB.

#### 3(c) Consultations

Revisions to this collection since the approval of the previous collection have been developed in consultation with survey research professionals contracted to conduct sampling and recruitment. The primary technical contact is :

Robert Santos  
Senior Institute Methodologist  
The Urban Institute  
2100 M Street, NW  
Washington, DC 20037

#### 3(d) Effects of Less Frequent Collection

For each respondent, participation in the survey is a one-time event. Thus, periodic reporting is not requested or required.

#### 3(e) General Guidelines

Commercial establishments participating in this collection will not be requested to plan, generate, or retain any records or information. Participation in the program by each owner is on

a voluntary basis. Further, this information collection complies with the guidelines in the Paperwork Reduction Act (5 CFR 1320.5(d)(2)). Specifically, the collection does not require the respondents to:

- Report information to EPA more often than quarterly;
- Prepare a written response to a collection in fewer than 30 days after receipt;
- Submit more than one original document;
- Retain any records for more than three years;
- Participate in a statistical survey that is not designed to produce data that can be generalized to the universe of study;
- Use a statistical data classification that has not been reviewed and approved by OMB; and
- Submit any information that they may consider to be confidential, without EPA demonstrating that it has instituted procedures to protect the information=s confidentiality to the extent permitted by law.

### 3(f) Confidentiality

Data will be collected under a pledge of confidentiality for exclusively statistical purposes, as defined in the Confidential Information Protection and Statistical Efficiency Act of 2002 (CIPSEA). Thus, in accordance with CIPSEA, EPA will not use or disclose survey results in identifiable form for any non-statistical purpose.

To protect the confidentiality of respondents, the following items allowing direct identification of individual establishments, whether obtained from sample frames or through one or more of the survey instruments, will not be disclosed or directly linked to survey results.

- Establishment name(s)
- Establishment address(es)
- Establishment phone number(s)
- Establishment contact name(s)
- Equipment serial number(s)
- Engine serial number(s)
- Addresses or locations of respondents' facilities or work site(s)
- Work shifts for selected equipment pieces

The following additional items, whether obtained from the sample frame or through one or more survey instruments, will be protected from disclosure as necessary to protect individual respondents from identification through indirect means. The methods considered for prevention indirect disclosures are briefly described for each item, drawing on approaches recommended for the protection of public-use microdata by the Federal Committee on Statistical Methodology (FCSM 2004).

*Economic Sector.* This variable is of potential value if differences in equipment ownership or usage rates are apparent between sectors. However, detailed reporting of economic sub-sectors may create disclosure risks in combination with other establishment descriptors or through the possibility of matching with other publicly available files. Therefore, if reporting of sector appears to add utility to the file, the level of reporting detail for economic sector will be restricted to the 2-digit NAICS level, which is the level proposed for stratification and analysis for this collection.

*Number of Employees.* As a measure of establishment size for mining, construction and manufacturing establishments, this measure may be very useful, but its publication could also result in disclosure risks for some respondents. One option to protect this variable would be coding of responses, using the same establishment size classes proposed for use in calculating sampling weights. In addition the proposed size classes include top-coding at a value of 50 employees, a value low enough to protect highly visible large establishments.

*Geographic location.* Due to the small sizes of respondent pools in many sampling units, combinations of PSU with establishment-size and economic-sector variables could lead to disclosure risks for some respondents. Therefore, due to the potential value of establishment-size and economic-sector variables, the level of detail in reporting of geographic locations of respondents within the study area will be severely limited. For this collection, the only geographic information to be considered for reporting will be an indication of whether the respondent resides inside or outside of a Metropolitan Statistical Area.

*Number of Equipment Pieces.* As an additional measure of establishment size, responses for this variable would be treated similarly to those for the number of employees.

*Equipment Type:* in the case of highly unique or specialized equipment types, knowledge of equipment type could give industry experts an important clue as to the identity of some respondents. Therefore, if reporting of equipment type were considered to distinguish any respondents as unique in the population or sample, individual values would be withheld on a case by case basis. Another option would be to categorize unique equipment types into a generic *Other equipment* category.

*Engine rated power.* As the typical size indicator for diesel engines, the potential presence of very large values, e.g., 2,000 hp, could aid knowledgeable data users in narrowing down the identity of some respondents, especially in combination with equipment type. One option would be to top-code power ratings at a value in the range of 600 to 1,000 hp. However, given the value of power rating in the quality assurance of emissions measurements, it could be more useful if actual power ratings were retained and other establishment descriptors were suppressed



to protect respondents. In such cases, EPA would consider suppression of values for economic-sector, establishment size and equipment type variables, as necessary to obscure the uniqueness of particular respondents.

The identifying information listed above will not be used for any purpose other than contacting establishments to solicit or clarify responses, to arrange site visits, to obtain equipment or engine specifications, or to calculate sampling weights and non-response weights. This information will not be stored with or directly linked to survey results, but in files stored in secure locations. A unique respondent ID number will be used in the database, with the link to the personal information also stored in secure files. Contractors retained to conduct interviews and data collection will be bound by confidentiality clauses that hold them to the same standards to be followed by EPA personnel.

The initial letter sent to respondents will include the following pledge of confidentiality:

‘The information your establishment provides will be used for statistical purposes only. In accordance with the Confidential Information Protection provisions of Title 5, Subtitle A, Public Law 107-347 and other applicable Federal laws your responses will be kept confidential and will not be disclosed in identifiable form to anyone other than employees or agents without your consent. By law, every EPA employee as well as every agent, such as interviewers and technicians, is subject to a jail term, a fine or both if he or she discloses ANY identifiable information about your establishment.’

### 3(g) Sensitive Questions

The questionnaires do not ask any sensitive questions pertaining to sexual attitudes/behavior or religious beliefs.

## 4 THE RESPONDENTS AND THE INFORMATION REQUESTED

### 4(a) Respondents/NAICS Codes

As defined in Part B, section 2(a) A Target Population and Coverage, @ respondents to the survey will be commercial establishments in four economic sectors, listed below and identified with corresponding NAICS codes.

<u>Sector</u>	<u>NAICS Code</u>
Construction	23
Manufacturing	31-33

These sectors do not comprise the entire universe for the use of nonroad equipment. Other sectors are of interest with respect to diesel equipment use, for example, wholesale trade (NAICS 42) and retail trade (NAICS 44-45), as well as municipalities and government agencies. However, we have limited the scope of this collection, to keep effort commensurate with expected resources. In addition, a limited scope is consistent with the emphasis that this collection will place on the development and evaluation of feasible methods for collection of the targeted information from establishments in different sectors.

#### 4(b) Information Requested

##### 4(b)(i) Data Items, Including Recordkeeping Requirements

*Reporting Items.* All items that respondents will be requested to report are listed and described in Part B, Section 3, “Questionnaire Development.” The survey will employ three instruments, the “Equipment Ownership Questionnaire,” the “On-site Equipment Inventory,” and the “Equipment Identification, Description and Instrumentation Parameters” attached as appendices to Part B of the Supporting Statement.

*Recordkeeping Items.* This collection will not request or require respondents to compile or maintain any records.

##### 4(b)(ii) Respondent Activities

Respondent activities for this data collection include:

- respond to Equipment Ownership Questionnaire (by phone interview)
- respond to interview portion of On-site Equipment Inventory (by phone or personal interview)
- provide interviewer/technician access to equipment (during site visits)

In this collection, the degree of participation will differ between establishments in the Establishment sample and those in the Equipment sample.

## 5 THE INFORMATION COLLECTED B AGENCY ACTIVITIES, COLLECTION METHODOLOGY, AND INFORMATION MANAGEMENT

The following sections describe Agency activities related to survey design, oversight, and analysis, maintenance and distribution of the information collected. The primary activities associated with the actual collection of information will be performed by EPA personnel or contractors hired by the Agency.

### 5(a) Agency Activities

In conduction of the survey, the agency will perform the following activities:

- Develop questionnaires and data forms
- Administer telephone interviews
- Travel to and within primary sampling units (PSUs)

- Administer site visits
- Quality-assure completed interviews
- Load interview responses into computer database
- Quality-assure electronic emissions and activity measurements
- Load emissions and activity data into computer database
- Analyze survey results

## 5(b) Collection Methodology and Management

The questionnaires to be used for the collection are final versions developed following experience in several PSUs during the previous approval period.

Due to the brevity and simplicity of the questionnaires, we have used the telephone interview as the primary collection mode for descriptive information regarding establishments, their operations and equipment collected during the screening interviews. Making the initial contact by phone allows interviewers to interact with multiple potential respondents, in order to identify and make contact with a knowledgeable respondent.

Once contact with a knowledgeable person is made, it is simpler and less burdensome to simply complete the interview at that time. Asking respondents to respond to a mail or internet questionnaire would increase burden at that point.

Detailed information regarding equipment specifications will be collected through direct inspection by trained technicians. In addition, emissions and activity data will be collected by on-board electronic instrumentation. The instrumentation is portable, non-intrusive and can collect data over specified measurement periods with minimal maintenance. The instrumentation is described further in Part B, Section 4(a), "Collection Methods."

These approaches bring two significant benefits. First, they reduce respondent burden in that respondents will not be asked to provide detailed information on specific equipment pieces, nor asked to recall usage patterns for specific equipment pieces over periods of weeks to a year. Second, the reliability and objectivity of the information collected will be improved through consistent application of pre-specified approaches by knowledgeable technicians.

To ensure data quality for interview information, each interview response will be reviewed for completeness and internal consistency. Emissions and activity data collected via instrumentation will be quality-assured through use of computer algorithms. Time series for key variables will also be plotted and visually checked on a case-by-case basis.

Data will be stored in the "Mobile Source Observation Database," (MSOD), an Oracle7 database residing on an Agency server. This database is available to the public on request on CD-ROM, and can also be accessed from the server via a viewer based on Microsoft Access7. Thus, users need not be equipped with Oracle software or expertise to access the database.

### 5(c) Small Entity Flexibility

As described above, collection methods for the survey have been designed to keep the burden of participation to a minimum, for both small and large respondents. Additionally, participation in the data collection is voluntary, giving small entities flexibility to decline participation at their option.

### 5(d) Collection Schedule

The tentative schedule below assumes that clearance for this collection will be obtained by March, 2008. For each task, we show the date targeted for its completion.

<i>Task</i>	<i>Date to be Completed</i>
Draw samples	February, 2008
Field PSUs in Region 7	May, 2008
Field PSUs in Region 5	September, 2011

## 6 ESTIMATING THE BURDEN AND COST OF THE COLLECTION

### 6(a) Estimating Respondent Burden

Table A.1 presents initial estimates of burden and cost for respondents participating in the collection. In large establishments, we assume that the knowledgeable respondent would often be a staff member such as a fleet manager or senior mechanic, whereas in smaller establishments, the knowledgeable respondent is more likely to be an owner or proprietor. For this collection, we have listed the times for interview response primarily under the heading of “Managerial.” Estimated times for a knowledgeable respondent to complete the Ownership and Inventory interviews and to provide equipment access are 8 minutes, 17 minutes and 25 minutes, respectively.

### 6(b) Respondent Costs

Table A.1 presents estimated burden and cost to respondents.

#### 6(b)(i) Labor Costs

Labor Costs are based on estimates of “wages and salaries” reported by the Bureau of Labor Statistics in *Employer Cost of Employee Compensation* (BLS, 2007). The values used represent compensation rates for “Goods Producing Industries,” which include Mining, Construction and

Manufacturing. We translated the BLS worker categories into corresponding ICR labor categories as follows. “Managerial, professional and related” workers were designated as “Managerial.” Correspondingly, “construction and maintenance” workers were designated as “Technical,” and finally, “sales and office” workers were designated as “Clerical.” To represent the complete cost of labor, the total compensation rates have been increased by an additional 100% to account for respondents’ overhead costs. Corresponding compensation rates for each category are listed in Table A.1.

6(b)(ii) Capital and Operations Costs

For respondents, participation in this collection will not require any capital or startup costs, nor will it require operating or maintenance costs. Thus, no costs in either of these two categories are represented in Table A.1.

Table A.1 Annual Respondent Burden and Cost<sup>1</sup>

Respondent Activity	Respondent Time by Labor Category (hr/respondent)			Subtotal (hr/respondent)	Labor Cost (\$/respondent)	No. Respondents	Total time (hr)	Total Cost (\$)
	Managerial (\$70.92/hr)	Technical (\$40.30/hr)	Clerical (\$36.22/hr)					
Screening Interview	0.133	0.00	0.00	0.133	\$9.46	500	66.6	\$4,723
Follow-up Contacts	0.083	0.05	0.00	0.133	\$7.93	33	4.4	\$262
Schedule Site inventory	0.083	0.05	0.00	0.133	\$7.93	33	4.4	\$262
On-site inventory interview	0.117	0.05	0.00	0.167	\$10.29	33	5.5	\$ 340
Schedule Emissions/activity measurement	0.083	0.03	0.00	0.117	\$7.25	33	3.85	\$240
Emissions/activity measurement	0.333	0.083	0.00	0.417	\$27.00	33	13.75	\$ 890
<b>TOTAL</b>							98.5	\$6,720

<sup>1</sup> Rows and columns may not sum exactly due to independent rounding.

## 6(c) Agency Burden and Cost

Table A.2 presents Agency burden and cost, with separate estimates presented for Contractor personnel and Agency staff.

### 6(c)(i) Agency Burden

#### 6(c)(i)(1) *Screening Interviews*

Table A.2 presents estimated agency labor hours for each activity listed above in Section 4(a). We have separated labor hours into two components, those hours to be worked by Agency staff and those to be worked by contractor personnel. In general, the contractor will conduct the phone interviews, enter the data and perform initial quality assurance, following which the contractor will transfer the data to EPA. Agency personnel will then load the results into an EPA database and perform quality-assurance and substantive analyses.

For contractor personnel, most of the time represents the conduction of interviews, follow-up and scheduling. Time for interviews includes 8 minutes for interview completion following a successful contact. For agency staff, we assume that three technical people spend two hours per week in meetings with the contractor, to oversee progress.

#### 6(c)(i)(2) *Emissions and Activity Measurement*

Tables A.3 also presents Agency and contractor hours for site inventories and subsequent field work to be performed under contract. Thus, recruitment, interviewing and instrumentation will be performed by contract personnel. EPA staff will play active roles in oversight and quality assurance, and data analysis.

Contractor labor estimates for field work assume that a field team of 6.3 members can perform emissions measurement on 1.5 equipment pieces per work week, along with associated activity measurement. Each work week is assumed to be 55 hours, and the target number of pieces to be measured determines the number of weeks that the team will be in the field. The product of the number of personnel, the length of the work week and the length of the field campaign determine the total number of person-hours contributed by contractors.

Contractor hours for quality assurance and analysis assume that four contract personnel will contribute 0.25 full-time equivalents to the project over a period of 25 weeks. This allocation is equivalent to one person working full-time on the project over this period.

### 6(c)(ii) Agency Costs

#### 6(c)(ii)(1) *Labor Costs*

*Contract Labor Costs.* Labor Costs for contract personnel are taken from *Employer Costs for Employee Compensation* (BLS, 2007). Values used represent “wages and salaries” for selected worker categories under the heading of “Service-providing Industries.” We assumed equivalence between BLS worker categories and ICR Labor categories as listed below, with their respective hourly compensation rates:

BLS Worker Category	ICR Labor Category	Total Compensation (\$/hr)
Management, professional and related	Managerial	32.35
Management, professional and related	Technical	32.35
Sales and Office	Clerical	14.59

The labor category “technical” represents an engineer, with academic training at the Bachelor’s Degree level, also having received project-specific training in the installation and operation of the on-board instruments. To represent “fully-loaded” compensation rates, we increased the total compensation rates by an additional factor of 100% to represent contractor overhead costs.

*Agency Labor Costs.* Labor Costs for EPA staff were taken from the 2007 General Schedule for Civilian Federal Employees. Based on the Schedule, we have assumed average hourly labor costs of \$50.54 for managerial personnel, \$36.36 for technical personnel, and \$17.25 for clerical personnel. These assignments correspond to levels of GS-15, GS-13 and GS-7, respectively, at step-5 pay rates. We have multiplied the hourly labor rates by a “benefits multiplier” of 1.6, to represent the total cost of employment for Federal staff (OEI, 1999).

6(c)(ii)(2) *Capital and Operations Costs*

*Screening Interviews.* Capital costs represent the cost of purchasing databases of establishments for the study area to serve as the sample frame. Given a cost of \$0.10 per record, a listing of 25,000 establishments for the study area comes to approximately \$2,500. For the more-detailed supplementary frame, we estimated cost for a 15-county study area at \$4,000 per county for a total cost of approximately \$60,000.

Operating costs associated with the interviews represent the costs of supplies and postage for the initial letter to be mailed to respondents.

*Emissions and Activity Measurement.* We estimate that approximately five emissions-measurement instruments and approximately 60 activity-measurement units will be used to conduct the data collection. Because a separate program and budget exist to develop and acquire these instruments, which are intended for use with multiple projects, we have assigned no capital or startup costs for the equipment sample. Operating costs for emissions and activity measurement represent costs for additional equipment and tools, and for consumables such as batteries and calibration gases.



Table A.3 Annual Agency Burden and Cost

Information Collection Activity	Labor Hours Per Respondent <sup>2</sup>									Labor Costs (\$/Respondent)			Capital Cost	O & M Cost	No. Establ.	Total Time (hr) <sup>2</sup>	Total Cost (\$) <sup>2</sup>
	EPA			Contractor				Total		EPA	Cont.	Total					
	Man.	Tech.	Cler.	Man.	Tech.	Techn.	Cler.	EPA	Cont.								
Administer telephone interviews		0.024		0.014	0.162		0.004	0.024	0.180	1.40	11.58	12.97	41.50	0.00	500	102	27,210
Quality-assure completed interviews		0.003		0.002	0.024		0.001	0.003	0.027	0.19	1.71	1.90	0.00	0.00	500	15	950
Load results into computer database		0.002		0.002	0.024		0.001	0.002	0.027	0.09	1.71	1.81	0.00	0.00	500	14	903
Analyze survey results		0.003		0.004	0.048		0.001	0.003	0.053	0.19	3.43	3.62	0.00	0.00	500	28	1,806
Conduct site inventories		0.666		2.079	14.38		0.866	0.666	17.33	39	1,095	1,134	0.00	0.00	33	599	37,774
Conduct emissions measurements		1.332		16.63	115.0		6.930	1.332	138.6	77.50	8,765	8,842	120.00	1,558	17	2330	157,865
Conduct activity measurements		1.332		6.93	47.93		2.889	1.332	57.75	77.50	3,650	3,730	500.00	275.00	17	984	71,946
Quality-assure emissions measurements		0.75		0.960	6.65		0.400	0.75	8.00	43.63	505.9	549.5	0.00	0.00	17	146	9,150
Quality-assure activity measurements		0.75		0.84	5.810		0.350	0.75	7.00	43.63	442.6	486.3	0.00	0.00	17	130	8,096
Load data into database		0.75		0.36	2.490		0.150	0.75	3.00	43.63	189.7	233.4	0.00	0.00	17	62	3,885
Analyze results, draft report		0.75		0.240	1.660		0.100	0.75	2.00	43.63	126.5	170.1	0.00	0.00	17	46	2,832
<b>TOTAL</b>																4,455	322,415

1 Rows and columns may not sum exactly due to independent rounding.

2 Labor categories are abbreviated as follows: "Man.," "Tech.," "Techn.," and "Cler." Represent "Managerial," "Technical," "Technician," and "Clerical" personnel, respectively.

6(d) Estimating the Respondent Universe and Total Burden

Table A.1 presents annual burden and costs for respondents, by activity. The respondent universe is determined by the proposed sample sizes. We anticipate up to 500 completed interviews, at a total annual burden and cost to respondents of 67 hours and \$4,723, respectively. For emissions and activity measurement, we anticipate that 17 establishments will participate, with the total annual burden and cost to respondents estimated of 32 hours and \$1,993, respectively. See Table A.4, below.

Table A.3 presents total burden and cost for the Agency, by activity. For the Agency, numbers of respondents, burdens and cost vary interviews and field work. For screening interviews, the respondent universe is 500 establishments, at an estimated burden and cost to the Agency of 160 hours and \$30,867. For emissions and activity measurement, we anticipate 17 establishments at a estimated Agency burden and cost of 4,295 hours and \$291,547.

6(e) Bottom Line Burden Hours and Cost Tables

6(e)(i) Respondent Tally

Table A.4 presents total Respondent burden hours and costs. Estimates are presented separately for the Establishment and Equipment samples.

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Table A.4 Total Estimated Annual Respondent Burden and Cost

Collection Component	No. Respondents	No. Activities	Total Hours	Total Labor Cost	Total Capital Cost	Total O&M Cost
Screening Interviews	500	500	67	\$4,723	\$0	\$0
Emissions and Activity Measurements	17	95	32	\$ 1993	\$0	\$0
Total	517	595	99	\$6,716	\$0	\$0

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## 6(e)(ii) Agency Tally

Table A.5 below presents total burden and cost to the Agency for the Establishment and Equipment Samples, and by Respondent Group within the Equipment Sample.

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Table A.5 Total Estimated Annual Agency Burden and Cost

Collection Component	No. Respondents	No. Activities	Total Hours	Total Labor Cost	Total Capital Cost	Total O&M Cost
Screening Interviews	500	2,000	160	\$ 10,138	\$20,729	\$ 0
Emissions and Activity measurement	17	120	4,295	\$271,060	\$10,323	\$10,164
Total	517	2,120	4,455	\$281,198	\$31,052	\$ 10,164

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## 6(f) Reasons for Change in Burden

There is a reduction in burden due to program changes from the previous ICR. First, we propose to contact fewer respondents overall. Second, the burden for each respondent has decreased. Current estimates are based on experience acquired during the previous approval, and show that estimates in the previous submission were overestimated.

## 6(g) Burden Statements

The public reporting and recordkeeping burden for this collection of information is estimated to average 8 minutes per response for respondents participating only in screening interviews, and 20 minutes per response for respondents also participating in emissions and usage measurement. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID No. EPA-HQ-OAR-2003-0225, which is available for public viewing at the Air and Radiation Docket in the EPA Docket Center (EPA/DC), EPA West, Room 3334, 1301 Constitution Ave., NW, Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Air and Radiation Docket is (202) 566-1742. An electronic version of the public docket is available at [www.regulations.gov](http://www.regulations.gov). This site can be used to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. When in the system, select "search," then key in the Docket ID Number identified above. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, Attention: Desk Office for EPA. Please include the EPA Docket ID No. EPA-HQ-OAR-2003-0225 and OMB control number 2060-0553 in any correspondence.

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APPENDIX A-1

Relevant Sections of Statutes

The Statutes relevant to this collection are '103(a) and '103(b) of the Clean Air Act, listed below:

Sec. 103. (a) The Administrator shall establish a national research and development program for the prevention and control of air pollution and as part of such program shall -

- (1) conduct, and promote the coordination and acceleration of, research, investigations, experiments, demonstrations, surveys, and studies relating to the causes, effects (including health and welfare effects), extent, prevention, and control of air pollution;
- (2) encourage, cooperate with, and render technical services and provide financial assistance to air pollution control agencies and other appropriate public or private agencies, institutions, and organizations, and individuals in the conduct of such activities;
- (3) conduct investigations and research and make surveys concerning any specific problem of air pollution in cooperation with any air pollution control agency with a view to recommending a solution of such problem, if he is requested to do so by such agency or if, in his judgment, such problem may affect any community or communities in a State other than that in which the source of the matter causing or contributing to the pollution is located;
- (4) establish technical advisory committees composed of recognized experts in various aspects of air pollution to assist in the examination and evaluation of research progress and proposals and to avoid duplication of research; and
- (5) conduct and promote coordination and acceleration of training for individuals relating to the causes, effects, extent, prevention, and control of air pollution.

(b) In carrying out the provisions of the preceding subsection the Administrator is authorized to -

- (1) collect and make available, through publications and other appropriate means, the results of and other information, including appropriate recommendations by him in connection therewith, pertaining to such research and other activities;
- (2) cooperate with other Federal departments and agencies, with air pollution control agencies, with other public and private agencies, institutions, and organizations, and with any industries involved, in the preparation and conduct of such research and other activities;
- (3) make grants to air pollution control agencies, to other public or nonprofit private agencies, institutions, and organizations, and to individuals, for purposes stated in subsection (a)(1) of this section;

(4) contract with public or private agencies, institutions, and organizations, and with individuals, without regard to sections 3648 and 3709 of the Revised Statutes (31 U.S.C. 529; 41 U.S.C. 5);

(5) establish and maintain research fellowships, in the Environmental Protection Agency and at public or nonprofit private educational institutions or research organizations;

(6) collect and disseminate, in cooperation with other Federal departments and agencies, and with other public or private agencies, institutions, and organizations having related responsibilities, basic data on chemical, physical, and biological effects of varying air quality and other information pertaining to air pollution and the prevention and control thereof;

(7) develop effective and practical processes, methods, and prototype devices for the prevention or control of air pollution; and

(8) construct facilities, provide equipment, and employ staff as necessary to carry out this Act.

In carrying out the provisions of subsection (a), the Administrator shall provide training for, and make training grants to, personnel of air pollution control agencies and other persons with suitable qualifications and make grants to such agencies, to other public or nonprofit private agencies, institutions, and organizations for the purposes stated in subsection (a)(5). Reasonable fees may be charged for such training provided to persons other than personnel of air pollution control agencies but such training shall be provided to such personnel of air pollution control agencies without charge.