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CPSC-I-00-1160

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INTERAGENCY AGREEMENT

NUMBER CPSC-I-00-1160

BETWEEN THE

U.S. CONSUMER PRODUCT SAFETY COMMISSION

AND THE

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

A. INTRODUCTION:

The U. S. Consumer Product Safety Commission, hereinafter referred to as CPSC, and the National Institute of Standards and Technology, hereinafter referred to as NIST, hereby agree that NIST shall provide modeling of carbon monoxide test data from residential gas ranges, and provide the results to CPSC, with all work being performed in accordance with the terms and conditions set forth below.

B. TITLE:

Modeling of Carbon Monoxide Emissions Test Data from Residential Gas Ranges

C. PURPOSE:

The purpose of this Interagency Agreement (IAG) is to obtain services from the National Institute of Standards and Technology (NIST) to estimate the levels of CO that would be found in typical U.S. residences, including single-family homes and apartments, under some likely-use conditions. NIST personnel shall perform these calculations using a spreadsheet approach. The results produced under this agreement shall be used by CPSC staff to conduct health effects assessments and, if appropriate, to support development or improvement of product standards to reduce the risk of CO exposure from various gas range/ovens.

D BACKGROUND INFORMATION

1 The U.S. Consumer Product Safety Commission (CPSC) staff is investigating emissions of carbon monoxide (CO) from residential gas-fired range/ovens during various consumer use conditions. CPSC staff have completed tests to measure carbon monoxide emissions from range/ovens through incident investigations. From information gathered from outside organizations, CPSC staff has learned that range/ovens are sometimes used as space heaters and that some consumers line the oven bottoms with aluminum foil to catch food drippings. These usage patterns, as well as normal usage, have been linked to the production of unhealthy levels of CO by national health research organizations Some State health departments have

expressed concerns that gas range/ovens emit unhealthy levels of CO. Academic and research organizations have conducted limited laboratory and field testing of gas range/ovens that indicate they emit elevated levels of CO during known patterns of consumer use.

2 CPSC's Range Emissions test program was implemented in an effort to understand how gas range/ovens perform during various use patterns. The purpose of the test program was to investigate whether gas range/ovens generate harmful levels of CO during certain consumer uses and to support recommendations to revise the ANSI voluntary standard for range/ovens (ANSI Z21 1 Household Cooking Appliances) as necessary. The testing focused on range top burner and oven burner emissions from 30-inch, freestanding gas range/ovens, with self-cleaning features. Units were selected from the leading manufacturers, which comprise about 90% of the residential gas range market

3 The potential CO exposure scenarios replicated in CPSC staff's gas range/oven testing are based on information obtained from outside sources, such as academic institutions, as well as incidents CPSC has investigated. The scenarios included the following consumer uses of gas range/ovens·

a. Normal usage
b. Use as a space heater
c. Use with the oven bottom lined with aluminum foil

E OBJECTIVE

1 The objective of this study is to estimate indoor CO emissions for some typical use conditions in residential buildings, based on the CPSC staff's emissions test results, and to determine the need for further modeling analysis to assess the impacts of these emissions on indoor CO levels.

F DESCRIPTION OF WORK

1 CPSC staff took measurements of CO emission rates (cc/kJ), fuel consumption (kJ/h), O_2 levels (%), and O_2 consumption (-cc/kJ) for a series of residential gas range/ovens tested under various use conditions These measurements were taken in a large chamber at different air exchange rates and, therefore, different ambient O_2 levels.

2. For each appliance and use condition, NIST shall predict indoor CO levels in typical apartments and single-family homes. The simulations shall include a range of home sizes and air exchange rates, including typical and reasonable worst case conditions The exact set of conditions modeled shall be chosen in consultation with the CPSC project officer. CPSC shall provide NIST with a test data file

consisting of approximately 240 CO emission rates. NIST shall perform these calculations using a spreadsheet approach to determine the CO concentrations that could be expected under a set of typical use conditions that will be selected in consultation with CPSC staff

3. NIST shall furnish all necessary personnel, materials, services, and facilities to perform the work set forth below.

   a. CPSC will provide NIST with test results consisting of approximately 240 sets of data consisting of CO emission rates in units of volume per unit time, e.g cc/h. NIST's technical experts shall group the source strength data into not more than ten groups of similar usage and source strength characteristics prior to meeting with CPSC staff. NIST staff shall meet with CPSC staff within two weeks after the effective date of the IAG to identify the environmental conditions to be used in the calculations. At this meeting, NIST and CPSC technical staff will examine the results of the grouping of source strengths, and resolve any questions regarding details associated with the proposed study, methodology, and scheduling. (See Section J.1. & .2.)

   b. NIST shall use the grouped CO emissions test data from gas range/oven testing, supplied by the CPSC, to predict the level of CO that could be reached in residences under the conditions chosen in consultation with CPSC staff. The conditions will include two residence volumes, and three air exchange rates. Output data shall include predictions of the steady state and one-hour and eight-hour average indoor CO levels. Modeling results shall be presented by NIST in a spreadsheet or tabular form no later than Nine (9) weeks from the effective date of the agreement.

   c. At the conclusion of the effort, NIST shall prepare a Final Letter Report, describing findings and modeling results and shall provide it to CPSC The Letter Report shall include all references to materials reviewed, products evaluated, and individuals or organizations contacted with specific manufacturer names coded. Output data shall include predictions of one-hour and eight-hour average indoor CO concentrations. Modeling results shall be presented in spreadsheet or tabular form. The Letter Report shall completely discuss background information on the procedures followed and the assumptions made for the calculations, and shall make recommendations for the need of any additional analysis. (See Section G.2., & J 5)

G. REPORTING REQUIREMENTS

1 All documents and data shall be provided in two forms namely·

   a. conventional paper or hardcopy of text, drawings. spreadsheets and related materials, and

b. computer diskette.

2. NIST shall submit a Letter Report to the Project Officer, including a spreadsheet of the calculation results. A copy of the cover letter will be provided to the Contracting Officer no later than Nine (9) weeks from the effective date of the agreement. (See Section J.5. & F 3 c.)

   a NIST shall contact CPSC staff immediately if difficulties are encountered in performing the required calculations. If necessary, CPSC and NIST staff shall meet to discuss the difficulties and find a solution to allow completion of the task As determined as necessary, the CPSC or NIST Project Officer may initiate telephone reviews or meetings to discuss progress or problems.

   b. NIST shall provide to the CPSC staff an oral progress report at midpoint (approximately 4 weeks after IAG is awarded) of the Period of Performance and an oral report on progress after analysis is complete (See Section J 3. & 4.)

3 Letter Report Requirements

   a Format - The Letter Report shall be in the following format·

   b Printed on 8 ½" x 11" durable grade white paper

   c. The Title Page shall include:

      (1) The IAG Number and Title

      (2) NIST's name

   d Each page of the Letter Report shall include:

      (1) The IAG number

      (2) The page number

4. Content – The Letter Report shall contain the following:

   a. statement of the objectives

   b. An executive summary

   c. A listing of all references

   d. An explicit statement of all assumptions used in the analysis

e A detailed description of the methods, protocols, and parameters used in the calculations

f A detailed description of the results and other relevant information. The results shall be provided in qualitative and spreadsheet form

g. A spreadsheet of the results of the calculated CO concentrations

h. Recommendations for additional analyses, if needed

5 Software (diskettes), drawings, sketches, spreadsheets, and other computer-generated data that are submitted pursuant to the requirements of this Statement of Work shall be transmitted by a transmittal letter indicating the number of the associated task(s) or subtask(s) The letter of transmittal shall briefly explain the material.

H. DISCLOSURE OF INFORMATION:

1. The NIST shall submit to the Commission any report, manuscript or other document containing the results of work performed under this Agreement, before such document is published or otherwise disclosed to the public, to assure compliance with Section 6(b) of the Consumer Product Safety Act (15 U S C Section 2055(b)). Commission regulations (16 C.F.R. Part 1101), and a Commission directive (Order 1450 2). These provisions restrict disclosure by the Commission or its agents of information that (1) permits the public to identify particular consumer products or (2) reflects on the safety of a class of consumer products. Prior submission allows the Commission staff to review the information and comply with the applicable restrictions. CPSC should be advised of the NIST desire to submit or publish an abstract or a report as soon as practical

2. Any publications of or publicity pertaining to, the work performed under this Agreement shall include the following.

"This project was funded by Consumer Product Safety Commission (CPSC) The content of this publication does not necessarily reflect the views of the Commission, nor does mention of trade names, commercial products, or organizations imply endorsement by the Commission.

I. PERIOD OF PERFORMANCE

The period of performance for this work shall begin on the effective date of the IAG and shall not extend beyond Nine (9) weeks from the effective date of the agreement. This agreement may be modified by mutual consent of CPSC and NIST, or may be terminated by either party upon thirty (30) -days advance written notice to the other party

J. DELIVERY OF PERFORMANCE

The following items shall be performed or delivered by NIST to CPSC in accordance with the following quantities and schedule:

ITEM	QUANTITY	DELIVERY OR PERFORMANCE
1. CPSC will provide gas range test data to NIST. (See Section F 3 a.)	One	Within 2 working days after the effective date of the IAG
2 Initial meeting at NIST with CPSC staff to review source strength grouping and finalize environmental conditions. (See Section F.3.a)	One	Within 2 weeks after the effective date of the IAG
3. Oral report on progress. (See Section G 2.b.)	One	At midpoint of project (approximately 4 weeks after IAG is awarded)
4. Oral report on progress after analysis is complete. (See Section G.2.b.)	One	Within 6 weeks after effective date of the IAG.
5. Final Letter Report w/ spreadsheet* (See Section F 3 c. & G.2.)	One original & Five copies & one diskette copy	Within 9 weeks after effective date of the IAG.
6. Telephone meetings to discuss difficulties/progress. (See Section G 2 a.)	As required	Indeterminate

*The Letter Report shall also be provided on 3-½ inch, 1.44-megabyte diskettes. The data shall be compatible with the Microsoft Word for Windows 97

K. GOVERNMENT FURNISHED MATERIALS

1. The CPSC will furnish to NIST for use in connection with this IAG the materials set forth below:

   a. Gas Range/Oven Emissions Test Data

2. All materials provided hereunder are for exclusive use in performance of this IAG. Any such material not expended in performance of this IAG shall be returned to CPSC upon completion of the IAG

3 All other materials required in the performance of this IAG shall be furnished by NIST

L CPSC PROJECT OFFICERS

1. Project Officer(s)1

   a Donald W Switzer (Contracting Officers Technical Representative)
   Consumer Product Safety Commission
   Directorate for Engineering Sciences
   Division of Electrical Engineering, Room 611
   4330 East West Highway
   Bethesda, Maryland 20814
   (301) 504-0508. ext. 1303.
   Email address: dswitzer@cpsc.gov

2. Secondary Project Officer(s)

   b. Michael Babich
   U.S. Consumer Product Safety Commission
   Directorate for Health Sciences, Room 600
   4330 East West Highway
   Bethesda, Maryland 20814
   (301) 504-0994, ext. 1383
   Email address: mbabich@cpsc.gov

3. The CPSC Project Officer is responsible for·

   a. Monitoring NIST technical progress, including surveillance and assessment of performance; and

   b Performing technical evaluation as required, assisting NIST in the resolution of technical problems encountered during performance; and

   c. Inspection and acceptance of all items required by the agreement.

4 The CPSC Project Officer is not authorized to and shall not:

   a. Make changes in scope of work, contract schedules and/or specifications to meet changes and requirements,

   b. Direct or negotiate any change in the terms, conditions, or amounts cited in the contract; and

   c Take any action that commits CPSC or could lead to a claim against CPSC.

M. NIST PROJECT OFFICER

The Project Officer for NIST is as follows

Andrew Persily
NIST
Indoor Air Quality and Ventilation Group
Building Environment Division
Building and Fire Research Laboratory
Building 226, Room A313, Mail Stop 8633
Gaithersburg, Maryland 20899 -8633
(301) 975-6418

Andrew Persily shall serve as NIST's principal researcher and shall be available to work on this study for not less than 50% of his normal working hours

N. DISAGREEMENTS.

In the event that CPSC and NIST have a disagreement arising under this interagency agreement, the parties shall cooperatively seek to resolve the disagreement by themselves. If the disagreement cannot be resolved between them, the parties agree to seek the assistance of a third party in resolving the disagreement

O METRIC and CUSTOMARY UNITS

The CPSC and NIST are committed to the use of the metric system of units as required by Executive Order 12770, however, most of the Range Emissions reference works as well as the products in the marketplace employ customary units. Since this study is based on available literature and hardware, customary units shall be provided in addition to the primary use of SI units This approach is consistent with the Plan for the Implementation of Metrication for the Consumer Product Safety Commission, May 1992

P ESTIMATED REIMBURSABLE COSTS & BILLING

1. The CPSC agrees to reimburse NIST for the actual costs of its services, up to a maximum of $17,000 for all work called for under this agreement

2. NIST shall provide a billing for agreed upon costs to the CPSC Agency Payment Officer . It is mutually agreed that these billings shall represent the actual costs of the articles and services provided. Any funds provided by CPSC in advance, but unexpended by NIST by June 9, 2000, shall be returned to CPSC prior to July 1, 2000.

   For questions or information regarding payments, contact the following individual

   CPSC Agency Payment Officer·

   Ms. Cecelia R Smith, Agency Payment Officer

Division of Financial Management
Consumer Product Safety Commission
4330 East West Highway, Room 522
Washington, D.C. 20207
(Phone· (301) 504-0018 ext 1135)

CPSC Accounting and Appropriation Data: $17,000.00
00 EXOB-PS 4400 00 0021725 25.3101

Q. EXPENSE STATEMENT

1. NIST shall submit monthly expense statements to CPSC in accordance with the instructions herein.

a. An original expense statement shall be sent concurrently with the monthly vouchers to the address identified in Section M.

b. Where applicable, the following costs shall be itemized

(1) Supplies and Expenses/Materials & Services
(2) Payroll Expenses (unburdened labor hours & categories)
(3) Support Burden
(4) Overhead
(5) Other Expenses

R. AUTHORITY

1	NIST & CPSC	Economy Act of 1932, as amended, General Authority: 31 U S.C 1535,
2.	CPSC Authority	Section 27(g) of the Consumer Product Safety Act, 15 U S C 2076(g).

S. FASA Compliance:

As the servicing agency, NIST agrees to act in full compliance with Section 1074 of the Federal Acquisition Streamlining Act (FASA) of 1994 entitled ECONOMY ACT PURCHASES.

APPROVED AND ACCEPTED FOR THE CONSUMER PRODUCT SAFETY COMMISSION·

APPROVED AND ACCEPTED FOR THE NATIONAL INSTITUTE of STANDARDS & TECHNOLOGY

BY Robert J Frost	BY Jack Snell, Director, BFRL
SIGNATURE	SIGNATURE: James Hill for Jack Snell
TITLE Contracting Officer	TITLE Deputy Director, BFRL
DATE. 3/15/00	DATE: 14 MAR 2000

03/13/00