SUPPORTING STATEMENT ENVIRONMENTAL PROTECTION AGENCY

NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal)

1. Identification of the Information Collection

1(a) Title of the Information Collection

NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal), EPA ICR Number 2442.04, OMB Control Number 2060-0693.

1(b) Short Characterization/Abstract

The New Source Performance Standards (NSPS) for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) were proposed on February 3, 2014 (79 FR 6330); promulgated on March 16, 2015 (80 FR 13715); and amended on April 2, 2020 (85 FR 18448)¹. These regulations apply to new residential hydronic heaters, forced-air furnaces, or other central heaters manufactured either on or after May 15, 2015 and either sold or distributed in the United States. This information is being collected to assure compliance with 40 CFR Part 60, Subpart QQQQ.

The residential hydronic heater and forced-air furnace NSPS establishes a certification program, instead of the usual NSPS requirement, that each affected facility demonstrate compliance with emission limits through performance testing. Under this certification program, a single heating appliance is tested to demonstrate compliance with particulate matter (PM) emission limits for an entire model line which could consist of thousands of stoves. The use of a certification approach significantly reduces the compliance burden, including information collection, for the manufacturers of hydronic heaters and forced-air furnaces. Each manufacturer subject to Subpart QQQQ is required to keep records of all documentation pertaining to the certification testing for each model line, the results of the quality assurance program inspections, and a sealed sample of each heater or furnace upon which certification tests were performed and certification granted. Each approved test laboratory and third-party certifier must maintain records consisting of all documentation pertaining to each certification test, quality assurance program inspection, and audit test. Manufacturers must also submit the test reports and other documentation to EPA when they apply for a certificate of compliance for each model line. These reports and records are essential in determining compliance, and are required of all affected facilities subject to the NSPS.

Under subpart QQQQ, hydronic heater and forced-air furnace manufacturers, testing laboratories, and third-party certifiers are required to submit reports to the EPA and to maintain records for demonstrating compliance with the NSPS. The information supplied by the

¹ The 2020 amendments removed certain requirements from the rule for pellet fuel while retaining a provision in the rule that requires EPA-approved third-party organizations to specify minimum requirements as part of the pellet fuel certification process and provides a clarification of how the "prohibited fuels" provision applies to pallets. The final amendments did not impose any new information collection burden.

manufacturer to the EPA is used: (1) to ensure that the best system of emission reduction is being applied to reduce emissions from hydronic heaters and forced-air furnaces; (2) to ensure that the appliance tested for certification purposes is in compliance with the applicable emission standards; (3) to provide assurance that non-tested production model appliances have emission performance characteristics similar to tested models; and (4) to provide an indicator of continued compliance. Information supplied to the EPA by testing laboratories and third-party certifiers is used to either grant or deny laboratory accreditation and to assist in enforcement and compliance activities. Information supplied to the EPA by testing laboratories and certifying bodies/entities is used to either grant or deny laboratory accreditation, assure continued test lab proficiency, and to assist in enforcement and compliance activities.

Any manufacturer, approved test laboratory, or third-party certifier subject to these provisions of this part shall maintain a file containing these documents and retain this file for at least five years following the generation date of such reports and records.

There are approximately 10 hydronic heater manufacturers, 3 forced-air furnace manufacturers, and 11 laboratories acting as EPA-approved testing laboratories, third-party certifiers, or both (including 8 testing laboratories and 8 third-party certifiers) (aka: the "Affected Public") that would be subject to this final rule. There is some overlap between the approved testing labs and third-party certifiers. None of these facilities are owned by either state, local, or tribal entities or the Federal government. They are all owned and operated by privately-owned, for-profit businesses. We assume that they will all respond to EPA inquires.

This rule has a phased implementation schedule. For purposes of this supporting statement, we assume all respondents are in compliance with the Step 2 emission standards as of May 15, 2020. The 'burden' to the Affected Public may be found below in Table 1: Annual Respondent Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal). The Federal government's burden associated with the review of the reports submitted by the respondents may be found below in Table 2: Average Annual EPA Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal).

Based on our consultations with industry representatives, there are an average of one affected facility at each plant site and each plant site has only one respondent (i.e., the owner/operator of the plant site).

Over the next three years, approximately 24 respondents (10 hydronic heater manufacturers with 31 model lines, 3 forced-air furnace manufacturers with 3 model lines, and 11 laboratories that are either EPA-approved testing laboratories or third-party certifiers or both) per year will be subject to these standards, and no additional respondents per year will become subject to these standards. The estimate of the number of respondents is based on recent EPA certification data^{2, 3} and reflects new EPA-approved test laboratories and third-party

² The EPA-Certified Wood Heater Database is online at: <u>https://www.epa.gov/burnwise</u> and reflects wood burning hydronic heaters and forced-air furnaces certified by EPA as of January 22, 2021. Accessed October 21, 2021. 3 The listing of EPA-Approved Test Labs and Third-Party Certifiers for Residential Wood Heaters is online at: <u>https://www.epa.gov/burnwise/epa-approved-test-labs-and-third-party-certifiers-residential-wood-heaters</u> and

certifiers.

The Office of Management and Budget (OMB) approved the currently-active ICR without any "Terms of Clearance."

2. Need for and Use of the Collection

2(a) Need/Authority for the Collection

The EPA is charged under Section 111 of the Clean Air Act (CAA), as amended, to establish standards of performance for new stationary sources that reflect:

... application of the best technological system of continuous emissions reduction which (taking into consideration the cost of achieving such emissions reduction, or any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated. Section 111(a)(l).

The Agency refers to this charge as selecting the best demonstrated technology (BDT). Section 111 also requires that the Administrator review and, if appropriate, revise such standards every eight years. In addition, section 114(a) states that the Administrator may require any owner/operator subject to any requirement of this Act to:

(A) Establish and maintain such records; (B) make such reports; (C) install, use, and maintain such monitoring equipment, and use such audit procedures, or methods; (D) sample such emissions (in accordance with such procedures or methods, at such locations, at such intervals, during such periods, and in such manner as the Administrator shall prescribe); (E) keep records on control equipment parameters, production variables or other indirect data when direct monitoring of emissions is impractical; (F) submit compliance certifications in accordance with Section 114(a)(3); and (G) provide such other information as the Administrator may reasonably require.

In the Administrator's judgment, particulate matter emissions from wood burning hydronic heaters and forced-air furnaces either cause or contribute to air pollution that may reasonably be anticipated to endanger public health and/or welfare. Therefore, the NSPS were promulgated for this source category at 40 CFR Part 60, Subpart QQQQ.

2(b) Practical Utility/Users of the Data

The control of pollution from new residential hydronic heaters and forced-air furnaces reflects information as of April 7, 2021. Accessed October 21, 2021.

relies on the reduction of particulate matter emissions by proper appliance design. A representative unit for each model line is subjected to a certification test for particulate matter emissions for a range of operating conditions. The manufacturer also contracts with a third-party certifier, which reviews the test reports and quality assurance (QA) plans and conducts periodic QA audits to ensure that hydronic heaters and forced-air furnaces manufactured subsequent to the initial certification test continue to comply with the NSPS. Manufacturers must either renew or recertify their model lines every 5 years, or when they make changes to the model line that would exceed specified parameters.

The required certification test notification is used to inform the EPA when a new model line is expected to be tested. The EPA may then observe the testing, if desired. Emission test reports are needed as these are the EPA's record of a model line's initial capability to comply with these emission standards and serve as a record of the operating conditions under which compliance was achieved. The EPA compliance audit tests and QA annual audit reports are necessary to ensure continued compliance with these emission standards.

Adequate recordkeeping and reporting are necessary to ensure compliance with these standards as required by the CAA. The information collected from recordkeeping and reporting requirements is used for targeting inspections and is of sufficient quality to be used as evidence in court.

3. Non-duplication, Consultations, and Other Collection Criteria

The requested recordkeeping and reporting are required under 40 CFR Part 60, Subpart QQQQ.

3(a) Non-duplication

If the subject standards have not been delegated, the information is sent directly to the appropriate EPA regional office. Otherwise, the information is sent directly to the delegated state or local agency. If a state or local agency has adopted its own standards to implement the Federal standards, a copy of the report submitted to the state or local agency can be sent to the Administrator in lieu of the report required by the Federal standards. Therefore, duplication does not exist.

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

An announcement of a public comment period for the renewal of this ICR was published in the *Federal Register* (86 FR 8634) on February 8, 2021. No comments were received on the 'burden' published in the *Federal Register* for this renewal.

3(c) Consultations

The Agency has consulted industry experts and internal data sources to project the number of affected facilities and industry growth over the next three years. The primary source of information as reported by industry, in compliance with the recordkeeping and reporting

provisions in these standards, is the Integrated Compliance Information System (ICIS). ICIS is EPA's database for the collection, maintenance, and retrieval of compliance data for industrial and government-owned facilities. The growth rate for the industry is based on our consultations with the Agency's internal industry experts. Approximately 24 respondents will be subject to these standards over the three-year period covered by this ICR, including 10 hydronic heater manufacturers, 3 forced air furnace manufacturers, and 11 laboratories.

Industry trade associations and other interested parties were provided an opportunity to comment on the burden associated with these standards as they were being developed and these same standards have been reviewed previously to determine the minimum information needed for compliance purposes. In developing this ICR, we contacted both the Pellet Fuels Institute, at (651) 398-9154, and the Hearth, Patio & Barbecue Association, at (703) 522-0086.

It is our policy to respond after a thorough review of comments received since the last ICR renewal, as well as for those submitted in response to the first *Federal Register* notice. In this case, no comments were received.

3(d) Effects of Less-Frequent Collection

Less-frequent information collection would decrease the margin of assurance that manufacturers are producing residential hydronic heaters and forced-air furnaces that: (1) pass the initial certification test; and (2) continue to be manufactured in a way that ensures continuous compliance with these emission standards. If the information required by these same standards were collected less frequently, the likelihood of detecting violations would be reduced.

3(e) General Guidelines

These reporting or recordkeeping requirements do not violate any of the regulations promulgated by OMB under 5 CFR Part 1320, Section 1320.5.

These standards require the respondents to maintain all records, including reports and notifications for at least five years. This is consistent with the General Provisions as applied to these standards. The EPA believes that the five-year records retention requirement is consistent with the Part 70 permit program and the five-year statute of limitations on which the permit program is based. The retention of records for five years allows EPA to establish the compliance history of a source, any pattern of non-compliance, and to determine the appropriate level of enforcement action. The EPA has found that the most flagrant violators have violations extending beyond five years. In addition, EPA would be prevented from pursuing the violators due to either the destruction or nonexistence of essential records.

3(f) Confidentiality

Any information submitted to the Agency for which a claim of confidentiality is made will be safeguarded according to the Agency policies set forth in Title 40, chapter 1, part 2, subpart B - Confidentiality of Business Information (CBI) (see 40 CFR 2; 41 FR 36902,

September 1, 1976; amended by 43 FR 40000, September 8, 1978; 43 FR 42251, September 20, 1978; 44 FR 17674, March 23, 1979).

3(g) Sensitive Questions

The reporting or recordkeeping requirements in these standards do not include sensitive questions.

4. The Respondents and the Information Requested

4(a) Respondents/SIC Codes

The respondents to the recordkeeping and reporting requirements under NSPS Subpart QQQQ are manufacturers of new residential hydronic heaters and forced-air furnaces. NSPS Subpart QQQQ also applies to laboratories that either conduct or plan to conduct hydronic heater and forced-air furnace certification tests (or that that plan to become third-party certifiers for manufacturers). The United States Standard Industrial Classification (SIC) codes and the North American Industry Classification System (NAICS) codes for the respondents affected by the standards are shown in the following table:

Standard (40 CFR Part 60, Subpart QQQQ)	SIC Codes	NAICS Codes
Heating Equipment (except Warm Air Furnaces) Manufacturing	3433	333414
Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	3585	333415
Testing Laboratories	8734	541380

4(b) Information Requested

(i) Data Items

In this ICR, all the data that are recorded or reported is required by the NSPS for New Residential Hydronic Heaters and Forced-air Furnaces (40 CFR Part 60, Subpart QQQQ). The reporting and recordkeeping requirements for NSPS Subpart QQQQ were uniquely designed for the manufacturers, third-party certifiers, and testing laboratories. The records required by this regulation must be retained by the manufacturer, third-party certifier, and/or test laboratory for five years.

A source must make the following reports:

Notifications and Reports Required of Manufactu	irers
Notification of the date that certification testing will begin	§60.5476(h)

Notifications and Reports Required of Manufacturers				
Application for a certificate of compliance by a manufacturer	§60.5475(b), §60.5475(f)(1)			
Request for waiver from submitting certification test results.	§60.5475(g)			
Renewal of certification	§60.5475(i)			
Statement of discontinuation of manufacture of model line	§60.5475(i)			
Recertification when a change is made in heater design	§60.5475(k)			
Develop a Quality Assurance Program and submit with audits conducted by a third-party certifier	§60.5475(m)			
Review third-party certifier QA audit report and submit corrective actions and responses for any identified deficiencies	§60.5475(m)(5)			
Agree to a voluntary suspension of certification	§60.5475(n)(3)(ii)(D)			
Request that additional heaters from the same model line be tested	§60.5475(n)(3)(iv)			
Biennial report including certification of compliance for each model line, sales for each model by state, and certification of no changes requiring recertification have been made	§60.5479(d)			
Submittal of performance test data	§60.5479(f)			
For each certified model line, post the non-CBI certification test report to the manufacturer's website	§60.5479(g)			
Various requests, submittals, motions, filings, etc., under hearing and appeal procedures	§60.5481			
Reports Required of Testing Laboratories				
Application for approval to test as an accredited test lab	§60.5477(a)			
Submit report of compliance audit test	§60.5477(a)(2)(iv)			
Submit notifications of any suspended tests	§60.5477(a)(2)(viii)			
Submit accreditation credentials and all proficiency test results	§60.5479(b)			
Various requests, submittals, motions, filings, etc., under hearing and appeal procedures	§60.5481			
Reports Required of Third-Party Certifiers				
Report of unannounced QA program audits	§60.5475(m)(4)			
Application for approval to be accredited as a third-party certifier	§60.5477(d)			
Each certification test, quality assurance program inspection report and ISO-IEC accreditation credentials	§60.5479(b)			

Notifications and Reports Required of Manufacturers			
Various requests, submittals, motions, filings, etc., under hearing and appeal procedures	§60.5481		

A source must keep the following records:

Recordkeeping Required for Manufacturers				
Maintain records of all certification test data, results of QA program inspections, and emission test data	§60.5479(a)			
Retain sealed wood heater for 5 years after the certification test of the model	§60.5479(c)			
Maintain records for R&D heaters that qualify for exemption under §60.5472(b)(2)	§60.5479(h)			
Recordkeeping Required for Testing Laboratories				
Keep records of all documentation pertaining to certification tests, quality assurance program inspections and audit tests§60.5479(b)				
Recordkeeping Required for Third-Party Certifiers				
Keep records of all documentation pertaining to certification tests, quality assurance program inspections and audit tests§60.5479(b)				

Electronic Reporting

All reports are sent directly to the EPA electronically at <u>*WoodHeaterReports@epa.gov.*</u> Data obtained from both reports submitted and records maintained by the respondents will be used in compliance and enforcement programs.

(ii) Respondent Activities

Respondent Activities

Familiarization with the regulatory requirements.

Manufacturers must obtain a certificate of compliance for each model line of heater or furnace to be manufactured or sold, provide notification for testing, and conduct quality assurance activities.

Test laboratories must obtain EPA approval as a test lab and participate in a biennial proficiency testing program, and submit results of all proficiency tests to EPA.

Third party certifiers must obtain EPA approval as a certifier and submit reports of QA

Respondent Activities

inspection audits, certification tests, QA inspection reports, and accreditation credentials to EPA.

Write the notifications and reports listed above.

Enter information required to be recorded above.

Submit the required reports developing, acquiring, installing, and utilizing technology and systems for collecting, validating, and verifying information.

Develop, acquire, install, and utilize technology and systems for processing and maintaining information.

Develop, acquire, install, and utilize technology and systems for disclosing and providing information.

Train personnel to be able to respond to a collection of information.

Transmit, or otherwise disclose the information.

5. The Information Collected: Agency Activities, Collection Methodology, and Information Management

5(a) Agency Activities

The EPA conducts the following activities in connection with the acquisition, analysis, storage, and distribution of the required information:

Agency	Activities

Review applications for certification and renewal of certifications, audit reports, required to be submitted.

Provide notice to manufacturers of EPA compliance audit tests.

Provide notice of revocation or suspension of certifications.

Review test laboratory applications and provide approvals or notice of intent to revoke laboratory accreditation.

Review third-party certifier applications and provide approvals or notice of intent to revoke certifier approvals.

Evaluate laboratory proficiency tests.

Audit facility records.

Input, analyze, and maintain data in the Enforcement and Compliance History Online (ECHO) and ICIS.

5(b) Collection Methodology and Management

All reports are sent directly to the EPA electronically. Data obtained from reports submitted and records maintained by the respondents will be used in compliance and enforcement programs. Portions of the data obtained will be entered into a special database program maintained exclusively by the EPA and some of the data will be made available to the public on an EPA website. The EPA provides public access to the list of certified appliances and their emissions ratings online at: <u>https://www.epa.gov/compliance/wood-heater-compliance-monitoring-program</u>.

The records required by this regulation must be retained by the owner/operator for five years.

5(c) Small Entity Flexibility

Most of the manufacturers and laboratories affected by this rule are small entities (i.e., small businesses). A small entity for this industry is defined by the Small Business Administration as a firm having no more than 500 employees; therefore, the hydronic heater manufacturers, forced air furnace manufacturers, testing laboratories, and third-party certifiers are small entities. The impact on small entities (i.e., small businesses) was taken into consideration during the development of the regulation. The EPA took efforts to reduce the burden imposed on the small businesses affected by this regulation by including provisions that allowed models with existing certifications that meet Step 1 emission standards that meet specified (conditional) criteria to be automatically certified until the Step 2 emission standards with effective date (2020). The EPA believes that allowing this automatic conditional certification approval and including phased compliance dates in the final rule allows additional time for sources to come into compliance and helps to reduce the burden on small businesses by spreading out research and development (R&D) costs over several years. The rule also includes QA program requirements that align with existing safety QA procedures, thus avoiding duplicative procedures. The Agency considers these to be the minimum requirements needed to ensure compliance and, therefore, cannot reduce them further for small entities.

5(d) Collection Schedule

The specific frequency for each information collection activity within this request is shown at the end of this document in Table 1: Annual Respondent Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal).

6. Estimating the Burden and Cost of the Collection

Table 1 documents the computation of individual burdens for the recordkeeping and reporting requirements applicable to the industry for the subpart included in this ICR. The individual burdens are expressed under standardized headings believed to be consistent with the concept of 'Burden' under the Paperwork Reduction Act. Where appropriate, specific tasks and major assumptions have been identified. Responses to this information collection are mandatory.

The Agency may neither conduct nor sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB Control Number.

6(a) Estimating Respondent Burden

The average annual burden to industry over the next three years from these recordkeeping and reporting requirements is estimated to be 2,390 hours (Total Labor Hours from Table 1 below). These hours are based on Agency studies and background documents from the development of the regulation, Agency knowledge and experience with the NSPS program, the previously-approved ICR, and any comments received.

6(b) Estimating Respondent Costs

(i) Estimating Labor Costs

This ICR uses the following labor rates:

Managerial	\$153.55 (\$73.12 + 110%)
Technical	\$122.20 (\$58.19 + 110%)
Clerical	\$61.51 (\$29.29 + 110%)

These rates are from the United States Department of Labor, Bureau of Labor Statistics, March 2021, "Table 2. Civilian Workers, by occupational and industry group." The rates are from column 1, "Total compensation." The rates have been increased by 110 percent to account for the benefit packages available to those employed by private industry.

(ii) Estimating Capital/Startup and Operation and Maintenance Costs

The type of industry costs associated with the information collection activities in the subject standards are both labor costs, which are addressed elsewhere in this ICR, and the costs associated with testing, audits, labeling, and development of manuals. The capital/startup costs are one-time costs when a facility becomes subject to these regulations. Due to the nature of these standards, there are no operation and maintenance (O&M) costs.

Capital/Startup Costs					
(A)	(A) (B) (C) (D)				

(iii) Capital/Startup Costs

Data Collection Device	Capital/Start-Up for One Respondent/Unit	Number of New Respondents/Models per Year	Total Capital/Start- Up Cost (B x C)
Certification Test ^{a, b}	\$55,000	0 models	\$0
Cost of Permanent Label ^b	\$1,250	0 models	\$0
QA Performance Test ^c	\$55,000	4.33 models	\$238,095
EPA Compliance Audit Test ^d	\$63,564 per model	0.33 models	\$21,167
Owner's Manual ^e	\$3,750	0 models	\$0
ISO Accreditation-Test Laboratories ^f	\$75,000 per respondent	1.67 respondents	\$125,000
ISO Accreditation-Third-Party Certifiers ^g	\$75,000 per respondent	1.33 respondents	\$100,000
Annual Totals (rounded) ^h			\$484,000

^a We assume that, for all model lines that require re-certification during the three-year period of this ICR, that manufacturers will choose to renew the certification of their currently-certified models without testing by affirming that the central heaters are similar in all respects to the representative central heater submitted for testing and requesting a waiver from certification testing.

^b The cost of certification testing is \$55,000 per test (includes EPA testing (\$30,000), confirmation safety testing or full safety testing (\$22,500), and shipping of prototype(s)(\$2,500) costs)). Total costs of permanent labels are estimated to be \$1,250 per model.

^c Assumes each of the manufacturers will be required to test one of their models under their QA program during the three-year period covered by this ICR (2022-2025) at \$55,000 per test (includes EPA testing (\$30,000), confirmation safety testing or full safety testing (\$22,500), and shipping of prototype(s)(\$2,500) costs) (13 manufacturers * 1 model tested / 3 years = 4.33 models tested/year).

^d Assumes one model line will be audited by EPA during the three-year ICR period (2022 – 2025). Costs assume the cost of one appliance (based on the average cost of three appliances: 1 outdoor (\$11,571) and 1 indoor (\$11,543) hydronic heater and 1 forced-air furnace (\$2,579)) plus the cost of testing at \$55,000 (assumes EPA testing costs of \$30,000, full safety cost of \$22,500 and \$2,500 in shipping costs).

^e Assumes an average fixed cost of \$3,750 for owner's manual (revised or new, possibly bilingual) per model certified.

^f 8 testing labs are ISO accredited and these 8 labs are currently certified by EPA. 5 testing labs will require ISO re-accreditation and EPA recertification during the three-year period of this ICR. We assume an average cost to obtain ISO accreditation is \$75,000 based on cost estimates provided by manufacturers. (5 testing labs/3 years = 1.67 labs/year).

^g 8 third-party certifiers are ISO accredited and these 8 third-party certifiers are currently certified by EPA. 4 third-party certifiers will require ISO re-accreditation and EPA recertification during the three-year period of this ICR. We assume an average cost to obtain ISO accreditation is \$75,000 based on cost estimates provided by manufacturers. (4 third-party certifiers/3 years = 1.33 third-party certifiers/year).

^h Totals have been rounded to 3 significant figures. Figures may not add exactly due to rounding.

The total capital/startup costs for this ICR are \$484,000. This is the total of column D in the above table. There are no operation and maintenance (O&M) costs for this ICR.

The average annual cost for capital/startup costs to industry over the next three years of the ICR is estimated to be \$484,000. These are the recordkeeping costs.

6(c) Estimating Agency Burden and Cost

The only costs to the Agency are those costs associated with analysis of the reported information. The EPA's overall compliance and enforcement program includes such activities as the examination of records maintained by the respondents, periodic inspection of sources of emissions, and the publication and distribution of collected information.

The average annual Agency cost during the three years of the ICR is estimated to be \$12,600.

This cost is based on the average hourly labor rate as follows:

Managerial	\$69.04 (GS-13, Step 5, \$43.15 + 60%)
Technical	\$51.23 (GS-12, Step 1, \$32.02 + 60%)
Clerical	\$27.73 (GS-6, Step 3, \$17.33 + 60%)

These rates are from the Office of Personnel Management (OPM), 2021 General Schedule, which excludes locality rates of pay. The rates have been increased by 60 percent to account for the benefit packages available to Federal government employees. Details upon which this estimate is based appear at the end of this document in Table 2: Average Annual EPA Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal).

6(d) Estimating the Respondent Universe and Total Burden and Costs

Based on our research for this ICR, on average over the next three years, approximately 24 existing respondents will be subject to these standards. It is estimated that no additional respondents per year will become subject to these same standards. The overall average number of respondents, as shown in the table below, is 24 per year.

The number of respondents is calculated using the following table that addresses the three years covered by this ICR:

	Number of Respondents					
		Respondents That Submit Reports		Respondents That Do Not Submit Any Reports		
Y	ear	(A) Number of New	(B) Number of	(C) Number of Existing	(D) Number of	(E) Number of

	Number of Respondents					
	Respondents ^a	Existing Respondents	Respondents that keep records but do not submit reports	Existing Respondents That Are Also New Respondents	Respondents (E=A+B+C-D)	
1	0	24	0	0	24	
2	0	24	0	0	24	
3	0	24	0	0	24	
Average	0	24	0	0	24	

^a New respondents include sources with constructed, reconstructed and modified affected facilities.

Column D is subtracted to avoid double-counting respondents. As shown above, the average Number of Respondents over the three-year period of this ICR is 24.

The total number of annual responses per year is calculated using the following table:

Total Annual Responses							
(A)	(B)	(C)	(D)	(E)			
Information Collection Activity	Number of Respondents	Number of Responses	Number of Existing Respondents That Keep Records But Do Not Submit Reports	Total Annual Responses E=(BxC)+D			
Manufacturers ^a							
Certification test notification (new model lines) ^b	0	1	N/A	0			
Application for certification (new model lines) ^b	0	1	N/A	0			
Application for re-certification (existing model lines) $^{\rm c}$	13	0.52	N/A	6.8			
Biennial reporting ^d	13	1.31	N/A	17			
Review annual QA program audit report ^e	13	2.62	N/A	34			
Review QA program performance test results ^f	13	0.33	N/A	4.33			
Review EPA compliance audit testing ^g	1	0.33	N/A	0.33			
Test Laboratories ^a							
New application for test lab approval - needs to obtain ISO accreditation ^h	0	1	N/A	0			
New application for test lab approval - already has ISO accreditation ^h	0	1	N/A	0			
Re-application for test lab approval ⁱ	1.67	1	N/A	1.67			
EPA compliance audit testing ^j	1	0.33	N/A	0.33			
Biennial proficiency testing and report development ^k	8	0.5	N/A	4			
Third-Party Certifiers ^a							
New application for approval as a third- party certifier - needs to obtain ISO	0	1	N/A	0			

accreditation ¹				
New application for approval as a third- party certifier - already has ISO accreditation ¹	0	1	N/A	0
Re-application for approval as a third-party certifier ^m	1.33	1	N/A	1.33
QA program annual audit reports ⁿ	8	4.25	N/A	34
Certification test °	0	1	N/A	0
		· · · ·	Total	104

Assumptions:

^a We assume there are 10 hydronic heater manufacturers with 31 model lines and 3 forced-air furnace manufacturers with 3 model lines. We assume there are 11 laboratories with 8 acting as testing labs and 8 acting as third-party certifiers.

^b We assume that no manufacturers will certify new models during the three-year period of this ICR. 40 CFR 60.5476(h) requires manufacturers to notify EPA in advance of a certification test.

^c 40 CFR 60.5475(i) requires that existing certified model lines be re-certified every five years. We assume that, for all model lines that require re-certification during the three-year period of this ICR, that manufacturers will choose to renew the certification of their currently-certified models without testing by affirming that the central heaters are similar in all respects to the representative central heater submitted for testing and requesting a waiver from certification testing. (34 model lines/5 years/13 manufacturers = 0.52 model lines recertified each year per manufacturer).

^d 40 CFR 60.5479(d) requires manufacturers to submit a report every two years following issuance of a certification of compliance for each model line. (34 model lines/13 manufacturers/2 years = 1.31 reports/manufacturer/year).

^e Under 40 CFR 60.5479(m), manufacturers must conduct a quality assurance program for each certified model line. The quality assurance plan is audited annually by the third-party certifier. After receiving each audit report, the manufacturer must report to the third-party certifier and to the Administrator its corrective actions and responses to any deficiencies identified in the audit report. (34 model lines/13 manufacturers/audited once per year = 2.62 audit report responses/manufacturer/year).

^f We assume that each manufacturer will perform a quality assurance performance test on one model line under the quality assurance program during the three-year period.

^g Under 40 CFR 60.5475(n), EPA may require a manufacturer to perform compliance audit testing on a manufacturer's model line(s). We assume one model gets audited by EPA in the three-year period of this ICR. ^h We assume no new laboratories will apply for approval from EPA to perform testing under this program during the three-year period of this ICR.

¹ All 8 testing labs are ISO accredited and approved by EPA to perform testing. Five test labs will require ISO reaccreditation and EPA approval during the three-year period of this ICR. (5 testing labs/3 years = 1.67 testing labs/year).

^j Under 40 CFR 60.5475(n), EPA may require a manufacturer to perform compliance audit testing on a manufacturer's model line(s). We assume one model gets audited by EPA in the three-year period of this ICR. The testing lab performing this test is required to submit a report containing all documentation pertaining to the test to both the manufacturer and the Administrator.

^k Under 40 CFR 60.5477(a), all 8 testing labs participate in a proficiency testing program every 2 years.

¹ We assume no new laboratories will apply for approval from EPA to act as third-party certifiers under this program during the three-year period of this ICR.

^m All 8 third-party certifiers are ISO accredited and approved by EPA. Four certifiers will require ISO reaccreditation and EPA approval during the three-year period of this ICR. Each third-party certifier must submit ISO-IEC accreditation credentials to the Administrator. (4 third-party certifiers/3 years = 1.33 third-party certifiers/year).

ⁿ Under 40 CFR 60.5479(f), manufacturers must contract with third-party certifiers to conduct annual audits on the quality assurance program for each model line. The third-party certifier is required to submit a report of these audits to the Administrator and the manufacturer identifying any deviations and specifying corrective actions that need to be taken. (34 model lines/8 third-party certifiers/once per year audits = 4.25 audit reports/certifier/year).

° Third-party certifiers are required to submit certification tests to the Administrator. No new models are expected

to be tested/certified during the three-year period of this ICR.

The number of Total Annual Responses is 104.

The total annual labor costs are \$466,000. Details regarding these estimates may be found at the end of this document in Table 1: Annual Respondent Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal).

6(e) Bottom Line Burden Hours and Cost Tables

The detailed bottom line burden hours and cost calculations for the respondents and the Agency are shown in Tables 1 and 2 at the end of this document, respectively, and summarized below.

(i) Respondent Tally

The total annual labor hours are 2,390. Details regarding these estimates may be found below in Table 1: Annual Respondent Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal).

We assume that burdens for managerial tasks take 5% of the time required for technical tasks because the typical tasks for managers are to review and approve reports. Clerical burdens are assumed to take 10% of the time required for technical tasks because the typical duties of clerical staff are to proofread the reports, make copies and maintain records.

Furthermore, the annual public reporting and recordkeeping burden for this collection of information is estimated to average 23 hours per response.

The total annual capital/startup cost to the regulated entity is \$484,000. The cost calculations are detailed in Section 6(b)(iii), Capital/Startup vs. Operation and Maintenance (O&M) Costs.

(ii) The Agency Tally

The average annual Agency burden and cost over next three years is estimated to be 252 labor hours at a cost of \$12,600; see below in Table 2: Average Annual EPA Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40 CFR Part 60, Subpart QQQQ) (Renewal).

We assume that burdens for managerial tasks take 5% of the time required for technical tasks because the typical tasks for managers are to review and approve reports. Clerical burdens are assumed to take 10% of the time required for technical tasks because the typical duties of clerical staff are to proofread the reports, make copies, and maintain records.

6(f) Reasons for Change in Burden

There is a significant decrease in burden from the most-recently approved ICR as currently identified in the OMB Inventory of Approved Burdens. This is due to several considerations. The size of the industry (number of respondents) has decreased by half since the previously-approved ICR (2442.03), resulting in a significant decrease in both labor burden and capital costs for periodic re-testing and auditing of model lines. The decrease in the number of respondents is based on certification data collected by the EPA.⁴ This ICR includes a review of the regulations as amended on April 2, 2020 at 85 FR 18448, but these amendments did not increase burden. The regulations are anticipated to change over the next three years⁵, but these changes are not anticipated to increase or decrease burden. The growth rate for this industry is anticipated to be zero over the next three years as manufacturers have already certified to the 2020 standards, resulting in no expenses for testing new model lines. There is a slight increase in labor costs, which is wholly due to the use of updated labor rates. This ICR uses labor rates from the most-recent Bureau of Labor Statistics report (March 2021) to calculate respondent burden costs.

6(g) Burden Statement

The annual public reporting and recordkeeping burden for this collection of information is estimated to average 23 hours per response. 'Burden' means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information either 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 neither conduct nor sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB Control Number. The OMB Control Numbers for EPA regulations are listed at 40 CFR Part 9 and 48 CFR Chapter 15.

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 Number EPA-HQ-OAR-2020-0671. An electronic version of the public docket is available at <u>http://www.regulations.gov/</u>, which may be used to obtain a copy of the draft collection of information, submit or view public comments, access the index listing of the contents of the 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 in this document. The documents are also available for public viewing at the Enforcement and

⁴ The EPA-Certified Wood Heater Database is online at: https://www.epa.gov/burnwise and reflects wood burning hydronic heaters and forced-air furnaces certified by EPA as of January 22, 2021.

⁵ An amendment was proposed on May 22, 202 at 85 FR 31124 that would allow retailers to continue selling Step 1 heaters through November 30, 2020, but this rule has not been finalized.

Compliance Docket and Information Center in the EPA Docket Center (EPA/DC), WJC 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. Due to COVID-19 precautions, entry to the Reading Room is available by appointment only. Please contact personnel in the Reading Room to schedule an appointment. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the docket center is (202) 566-1752. 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 Officer for EPA. Please include the EPA Docket ID Number EPA-HQ-OAR-2020-0671 and OMB Control Number 2060-0693 in any correspondence.

Part B of the Supporting Statement

This part is not applicable because no statistical methods were used in collecting this information.

Table 1: Annual Respondent Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40CFR Part 60, Subpart QQQQ) (Renewal)

Burden Item	(A) Person- hours per occurrence	(B) No. of occurrence s per respondent per year	(C) Person- hours per respondent (C=AxB)	(D) Respondents per year ^a	(E) Technical hours per year (E=CxD)	(F) Managemen t hours per year (F=Ex0.05)	(G) Clerical person- hours per year (G=Ex0.1)	(H) Total Cost per year (\$)
Reporting Requirements								
Manufacturers			_		-	-		
1. Certification test notification (new model lines) ^c	2	1	2	0	0	0	0	\$0
2. Application for certification (new model lines) ^c	8	1	8	0	0	0	0	\$0
3. Application for recertification (existing model lines) ^d	8	0.52	4.18	13	54.4	2.7	5.4	\$7,399.95
4. Biennial reporting ^e	2	1.31	2.62	13	34.0	1.7	3.4	\$4,624.97
5. Review annual QA program audit report ^f	4	2.62	10.5	13	136	6.8	13.6	\$18,499.88
6. Review QA program performance test results ^g	2	0.33	0.67	13	8.7	0.4	0.9	\$1,177.73
7. Review EPA compliance audit testing ^h	8	0.33	2.66	1	2.7	0.1	0.3	\$362.38
Test Laboratories		I			1	ł		
1. Application for test lab approval (new) ⁱ								
a. Already has ISO accreditation	20	1	20	0	0	0	0	\$0
b. Needs to obtain ISO accreditation	80	1	80	0	0	0	0	\$0
2. Application for re-approval as a test lab ^j	20	1	20	1.67	33	1.7	3.3	\$4,534.28
3. EPA compliance audit testing ^k	20	0.33	6.7	1	6.7	0.3	0.7	\$905.95
4. Biennial proficiency testing and report development ¹	150	0.50	75	8	600	30	60	\$81,617.10
Third-Party Certifier								
1. Application for approval as a third-party certifier (new) ^m								
a. Already has ISO accreditation	20	1	20	0	0	0	0	\$0
b. Needs to obtain ISO accreditation	80	1	80	0	0	0	0	\$0
2. Application for re-approval as a third-party certifier ⁿ	20	1	20	1.33	27	1.3	2.7	\$3,627.43
3. QA program annual audit reports °	20	4.25	85	8	680	34	68	\$92,499.38

4. Certification test ^p	2	1	2	0	0	0	0	\$0
Subtotal for Reporting Requirements						1,820		\$398,433.19
Recordkeeping Requirements		·			·			•
Manufacturers								
1. Test and re-certification documentation ^q	1	0.52	0.52	13	6.8	0.3	0.7	\$924.99
2. QA parameter inspections ^r	2	4	8	13	104	5	10	\$14,147
3. Retained (sealed) stoves ^s	1	0	0	13	0	0	0	\$0
Test Laboratories							1	
1. Certification test, proficiency test, and audit test results ^t	2	12	24	8	192	9.6	19.2	\$26,117.47
Third-Party Certifier								·
1. Certification test, QA program inspection and audit tests ^u	2	12	24	8	192	9.6	19.2	\$26,117.47
Subtotal for Recordkeeping Requirements					569			\$67,307.00
Total Labor Burden and Costs (rounded) v					2,390			\$466,000
Total Capital and O&M Cost (rounded) v								\$484,000
GRAND TOTAL (rounded) ^v								\$950,000

Assumptions

^a We assume there are 10 hydronic heater manufacturers with 31 model lines and 3 forced-air furnace manufacturers with 3 model lines. We assume no new manufacturers and no new model lines during the three-year period of this ICR. We assume there are 11 laboratories with 8 acting as testing labs and 8 acting as third-party certifiers.

^b This ICR uses the following labor rates: Managerial \$153.55 (\$73.12+ 110%); Technical \$122.20 (\$58.19 + 110%); and Clerical \$61.51 (\$29.29 + 110%). These rates are from the United States Department of Labor, Bureau of Labor Statistics, March 2021, "Table 2. Civilian Workers, by occupational and industry group." The rates are from column 1, "Total compensation." The rates have been increased by 110 percent to account for the benefit packages available to those employed by private industry. Management person-hours and clerical person-hours are assumed to be 5 percent and 10 percent of technical person-hours, respectively.

^c We assume that no manufacturers will certify new model lines during the three-year period of this ICR.

^d All 34 existing certified model lines must be re-certified every five years. We assume that, for all model lines that require re-certification during the three-year period of this ICR, that manufacturers will choose to renew the certification of their currently-certified models without testing by affirming that the central heaters are similar in all respects to the representative central heater submitted for testing and requesting a waiver from certification testing. (34 model lines/5 years/13 manufacturers = 0.52 model lines recertified each year per manufacturer).

^e Manufacturers are required to submit a report every two years following issuance of a certification of compliance for each model line. (34 model lines/13 manufacturers/2 years = 1.31 reports/manufacturer/year).

^f Manufacturers must conduct a quality assurance program for each certified model line. The quality assurance plan is audited annually by the third-party certifier. After receiving each audit report, the manufacturer must report to the third-party certifier and to the Administrator its corrective actions and responses to any deficiencies identified

in the audit report. (34 model lines/13 manufacturers/audited once per year = 2.62 audit report responses/manufacturer/year).

^g We assume that each manufacturer will perform a quality assurance performance test on one model line under the quality assurance program during the three-year period. ^h EPA may require a manufacturer to perform compliance audit testing on a manufacturer's model line(s). We assume one model gets audited by EPA in the three-year period of this ICR.

ⁱ We assume no new laboratories will apply for approval from EPA to perform testing under this program during the three-year period of this ICR.

^j All 8 testing labs are currently accredited under ISO-IEC Standard 17025 to perform testing and are approved by EPA to perform testing under this rule. Five test labs will require ISO re-accreditation and EPA approval during the three-year period of this ICR. (5 testing labs/3 years = 1.67 testing labs/year).

^k EPA may require a manufacturer to perform compliance audit testing on a manufacturer's model line(s). We assume one model gets audited by EPA in the three-year period of this ICR. The testing lab performing this test is required to submit a report containing all documentation pertaining to the test to both the manufacturer and the Administrator.

¹ Assume 8 testing labs participate in proficiency testing every 2 years. 40 CFR 5479(b) requires that each approved test laboratory submit accreditation credentials and all proficiency test results to the Administrator.

^m We assume no new laboratories will apply for approval from EPA to act as third-party certifiers under this program during the three-year period of this ICR.

ⁿ All 8 third-party certifiers are ISO accredited and approved by EPA. Four third-party certifiers will require ISO re-accreditation and EPA approval during the three-year period of this ICR. Each third-party certifier must submit ISO-IEC accreditation credentials to the Administrator. (4 third-party certifiers/3 years = 1.33 third-party certifiers/year).

^o Manufacturers must contract with third-party certifiers to conduct annual audits on the quality assurance program for each model line. The third-party certifier is required to submit a report of these audits to the Administrator and the manufacturer identifying any deviations and specifying corrective actions that need to be taken. (34 model lines/8 third-party certifiers/once per year audits = 4.25 audit reports/certifier/year).

^p Third-party certifiers are required to submit certification tests to the Administrator. No new models are expected to be tested/certified during the three-year period of this ICR.

^q Assumes that manufacturers will spend one hour per certification test and recertification to keep the required records.

^r Quality parameter inspections are part of the existing safety inspections program. Assume that all manufacturers (13) will spend 2 hours per quarter to document results for each certified model.

^s Assumes that one stove is sealed and retained for each certification test. Assumes all stoves certified to 2020 standard are stored for the 3-year period.

^t Proficiency testing is required every two years for each lab. Assume that test laboratories will spend 2 hours per month to maintain the required records.

^u Quality assurance program inspections are performed annually for each certified model. Assume that third-party certifiers will spend 2 hours per month to maintain the required records.

^v Totals have been rounded to three significant values. Figures may not add exactly due to rounding.

Table 2: Average Annual EPA Burden and Cost – NSPS for New Residential Hydronic Heaters and Forced-Air Furnaces (40CFR Part 60, Subpart QQQQ) (Renewal)

Burden Activity	(A) EPA person- hours per occurrence	(B) No. of occurrences per year	(C) EPA person- hours per year (C=AxB)	(D) Respondents per year ^a	(E) Technical person- hours per year (E=CxD)	(F) Managemen t person- hours per year (F=Ex0.05)	(G) Clerical person- hours per year (G=Ex0.1)	(H) Total Cost per year (\$) ^b
1. Review certification test notification (new model lines) ^c	0.5	1	0.5	0	0	0	0	\$0
2. Observe certification test (new model lines) ^{c, d}	20	0.2	20	0	0	0	0	\$0
3. Review performance test report and application for certification (new model line) ^c	8	1	8	0	0	0	0	\$0
4. Review application for recertification of model line e	8	0.52	4.2	13	54.4	2.7	5.4	\$3,125.55
5. Review biennial reporting for certified models ^f	1	1.31	1.31	13	17.0	0.9	1.7	\$976.74
6. Review QA performance test results ^g	2	0.33	0.67	13	8.7	0.4	0.9	\$497.45
7. Review and approval of test lab credentials ^h	4	1	4	1.67	6.7	0.3	0.7	\$383.03
8. Review EPA Compliance Audit results ⁱ	40	0.33	13.3	1	13.3	0.7	1.3	\$765.30
9. Review test lab biennial proficiency test reports	10	0.5	5	8	40.0	2.0	4.0	\$2,298.20
10. Review and approval of third-party certifier credentials ^k	8	1	8	1.33	10.7	0.5	1.1	\$613
11. Review QA audit report ¹	2	4.25	8.5	8	68.0	3.4	6.8	\$3,906.94
TOTAL (rounded) ^m						252		\$12,600

Assumptions:

^a We assume there are 10 hydronic heater manufacturers with 31 model lines and 3 forced-air furnace manufacturers with 3 model lines. We assume no new manufacturers. We assume no new model lines will be tested/certified during the three-year period of this ICR. We assume there are 11 laboratories with 8 acting as testing labs and 8 acting as third-party certifiers.

^b This cost is based on the average hourly labor rate as follows: Managerial \$69.04 (GS-13, Step 5, \$43.15 + 60%); Technical \$51.23 (GS-12, Step 1, \$32.02 + 60%); and Clerical \$27.73 (GS-6, Step 3, \$17.33 + 60%). This ICR assumes that Managerial hours are 5 percent of Technical hours, and Clerical hours are 10 percent of Technical hours. These rates are from the Office of Personnel Management (OPM), 2021 General Schedule, which excludes locality, rates of pay. The rates have been increased by 60 percent to account for the benefit packages available to government employees. Management person-hours and clerical person-hours are assumed to be 5 percent and

10 percent of technical person-hours, respectively.

^c We assume no new manufacturers. We assume no new model lines will be tested/certified during the three-year period of this ICR.

^d Assumes that EPA will observe 20 percent of certification tests.

^e We assume there are 10 hydronic heater manufacturers with 31 model lines and 3 forced-air furnace manufacturers with 3 model lines. We assume that manufacturers will apply for recertification of all model lines whose certification expires during the three-year period of this ICR. (34 model lines/5 years/13 manufacturers = 0.52 model lines recertified each year per manufacturer).

^f We assume that the EPA will review biennial reports for each of the certified model lines over the 3-year ICR period. (34 model lines/13 manufacturers/2 years = 1.31 reports/manufacturer/year).

^g We assume that there will be one QA audit performance test per manufacturer under the QA program during the 3-year period.

^h All 8 testing labs are currently ISO accredited and are approved by EPA to perform testing under this rule. Five test labs will require ISO re-accreditation and EPA approval during the three-year period of this ICR. (5 testing labs/3 years = 1.67 testing labs/year).

¹ We assume that one model line for one of the manufacturers will be audited by the EPA during the ICR three-year period of this ICR.

^j We assume that each testing lab conducts a laboratory proficiency test every two years.

^kAll 8 third-party certifiers are currently ISO accredited and approved by EPA. Four certifiers will require ISO re-accreditation and EPA approval during the three-year period of this ICR. (4 third-party certifiers/3 years = 1.33 third-party certifiers/year).

¹We assume that EPA will review the annual QA audits performed by the third-party certifiers on each certified model line over the three-year ICR period. (34 model lines/8 third-party certifiers/once per year audits = 4.25 audit reports/certifier/year).

^m Totals have been rounded to three significant values. Figures may not add exactly due to rounding.