IQ 03.2
0320030258

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

Jacqueline Elder
Assistant Executive Director
Office of Hazard Identification and Reduction

Tel: 301-504-7645
Fax: 301-504-0407
Email: jelder@cpsc.gov

November 21, 2003

Mr. David B. Calabrese
Vice President, Government Relations
Association of Home Appliance Manufacturers
1111 - 19th Street, NW
Washington, DC 20036

Re: Information Quality Guidelines – *Final Report on Electric Clothes Dryers and Lint Ignition Characteristics, May 2003*

Dear Mr. Calabrese:

I am writing in response to your recent letter in which you requested pursuant to the Data Quality Act, section 515 of appendix C to P.L. 106-554, and CPSC's implementing guidelines, that the U.S. Consumer Product Safety Commission (CPSC) retract or substantially revise the May 2003 CPSC staff report, *Final Report on Electric Clothes Dryers and Lint Ignition Characteristics.* Your request for retraction is based on the assertion by the Association of Home Appliance Manufacturers (AHAM) that the report does not adhere to the Information Quality Guidelines of either the CPSC or the Office of Management and Budget. In particular, your letter challenges the objectivity and utility of the report, and further requests that reports of any supplemental work not be released to the public since you believe such information also would not adhere to the Information Quality Guidelines.

The CPSC staff report presents the results of testing conducted on electric clothes dryers and test apparatus designed to emulate components producing heat and airflow characteristics that are typical in dryers. We believe that the design and execution of the tests were valid and consistent with sound principles of scientific research and experimental design. The objectives and design of each stage of testing are clearly stated in the report, and the report accurately describes the results of the tests conducted. The report characterizes the operation of an electric clothes dryer under various conditions, and we believe that the report helps to quantify certain characteristics of lint accumulation and ignition. CPSC staff believes that this information can be used to better understand possible conditions influencing dryer fires and lead towards potential improvements in product standards.

CPSC staff believes that this report makes a significant contribution to the body of knowledge regarding dryer operation and factors that may lead to ignition conditions within a dryer, and that it meets the criteria for objectivity and utility as defined in the Information Quality Guidelines.

Your letter states, "The facts and conclusions presented in the CPSC staff report lack objectivity, in that they are biased, unreliable, incomplete and based on unsound analytical techniques. The test methods described in the Report are not representative of real world conditions, were developed to test a hypothesis of questionable utility in and relation to the real world, and did not generate results that supported the conclusions set forth in the Report. Thus the findings and conclusions presented in the Report are misleading." A detailed response according to the points made in your letter is presented below. The points have been summarized for brevity to capture the most significant content.

Objectivity of the CPSC Staff Report

1. *The information presented throughout the Report incorrectly implies that lint and dryer design defects cause dryer fires. No such causation was demonstrated in the work described in the Report.*

The CPSC staff estimates that there were 15,600 fires associated with clothes dryers in 1998.[1] These estimates are based on information collected by the National Fire Protection Association (NFPA) and the National Fire Incident Reporting System (NFIRS). There is a broad professional community that addresses the causes of such fires, including fire prevention organizations, insurance agencies, product certification organizations, fire and forensics investigators, and consumer safety advocates. Fire investigators have studied evidence from many fires that were concluded to have originated in a clothes dryer. In its January 2002 report, *U.S. Home Product Report: Appliances and Equipment Involved in Fires,*[2] NFPA reported that "Lack of Maintenance" was the leading cause of clothes dryer fires and that the first material ignited in almost 28 percent of the fires was "dust, lint, and fibers."

CPSC staff testing was conducted to quantify the characteristics of dryer operation in typical clothes dryer designs. CPSC staff testing showed that lint begins to accumulate in a dryer even when the dryer is installed according to manufacturer instructions and the lint screen is cleaned between drying cycles. Our testing also showed that seals currently used in the dryers tested may not prevent lint accumulation within the dryer chassis.

Testing was also conducted to quantify the physics and conditions that may contribute to the ignition of lint. The staff tests indicated that, under normal operating conditions, the heater housing did not reach temperatures sufficient to cause ignition of lint. Ignition only occurred

[1] Mah, J., *1998 Residential Fire Loss Estimates*, Directorate for Epidemiology, U.S. Consumer Product Safety Commission, 2001
[2] Rohr, Kimberly D., *The U.S. Home Product Report (Appliances and Equipment Involved in Fires)*, January 2002, Fire Analysis and Research Division, NFPA, Quincy, MA, January 2002

when airflow was reduced (simulating a blockage) and the high-limit thermostat was bypassed (simulating a failed-closed thermostat). The specific test criteria and results were described in the report, and CPSC staff was careful to avoid broad conclusions or implications that fall outside of those criteria and results.

The CPSC staff report does not identify or allege specific defects in current dryer designs. Like all CPSC staff test analyses conducted in support of voluntary standards work, the purpose was to advance the understanding of product operation and factors that could contribute to potentially hazardous conditions.

2. *The lint ignition test methods used and reported in the Report are wholly deficient, without substantial basis in real life conditions.*

CPSC staff measured temperature and airflow in four sample clothes dryers under controlled conditions that simulated exhaust blockages of 0%, 25%, 50%, 75% and 100%. The data from these tests were used to simulate the environment around an electric clothes dryer heater. The test setup was chosen to include those components that are typical in clothes dryer designs, particularly the component that produces the most heat within a clothes dryer and the airflow through and around the heater, and to eliminate all other dryer design variables. The test configuration allowed the staff to control conditions to simulate those that were previously measured in actual dryers and that might be anticipated during real world operation. The test apparatus accounted for the physics of airflow and temperature near a clothes dryer heater. The staff tests indicated that, under normal operating conditions, the heater housing did not reach temperatures sufficient to cause ignition of lint. Ignition occurred only when airflow was reduced (simulating a blockage) and the high-limit thermostat was bypassed (simulating a failed-closed thermostat). The testing also indicated that, when lint is ingested into the heater, it is possible for the lint to ignite combustible materials placed downstream.

3. *The presentation in the Report of the information from the lint ignition test is out of context and misleading. The presentation implies that lint accumulates in areas of the dryer that are subject to ignition by the heater and that this ignited lint is a fire hazard. However, there is no empirical evidence, either in the lint ignition test or to AHAM's knowledge that lint actually accumulates in these areas of a dryer or that lint actually ignites in those areas and is transported after ignition to other parts of the dryer.*

In 2002, AHAM, in cooperation with member clothes dryer manufacturers, investigated 191 clothes dryer fire incidents to provide more detailed information on the causes of clothes dryer fires. AHAM's analysis of the data was reported in *AHAM Analysis of Industry Data on Clothes Dryer Fire Incidents, August 2002.* In addition, in response to CPSC staff questions regarding the report, AHAM provided some supplemental information.[3]

Of the 191 incidents investigated, three were associated with external fire, and there was no evidence of fire observed for 25 of the samples. For an additional 64 dryers, the precise factor contributing to the fire could not be determined. Of the remaining 99 incidents, 11

[3] Letter from W. Morris, Association of Home Appliance Manufacturers, to A. Lee, CPSC, October 16, 2002

incidents were associated with "lint flash over only," and 17 incidents were associated with "lint flashover involving other components." In the supplemental information provided by AHAM regarding these 28 incidents, accumulation of lint was observed at the clothes dryer base, motor and/or burner. The amount of lint reportedly accumulated in these areas varied from light to heavy.[4] The data provided by AHAM show that, for the dryers that were involved in fire incidents associated with lint ignition, lint was reported to have accumulated on and near the heater.

The lint ignition testing discussed in the CPSC report does not present data or testing to demonstrate that lint accumulates on or near the heater for all clothes dryers. The CPSC staff tests demonstrated that lint accumulates in a dryer even when the dryer is installed according to manufacturer instructions, it is properly exhausted, and the lint screen is cleaned between drying cycles. CPSC staff concluded that lint accumulation begins with the first uses of a clothes dryer. The testing discussed in the report demonstrated that lint can be ignited by the same heat characteristics as those exhibited by dryer heaters. These results demonstrate that the possibility for lint ignition in a clothes dryer exists.

3a. *In fact, lint accumulation is not a significant contributor to hazardous dryer fires. Applying the ratios determined in the August 2002 AHAM Analysis from 191 actual inspections of dryer fires, where 1% of fires that breached the dryer involved lint, AHAM submits that the failure rate is 3.9 parts per BILLION for "fires" that could have been caused by lint.*

As noted above, in the *AHAM Analysis of Industry Data on Clothes Dryer Fire Incidents*, AHAM concluded that of the 191 incidents investigated, only 2 of the 28 incidents reportedly involving lint ignition were "hazardous" in that the fire breached the product not due to user involvement. AHAM's failure rate calculation of 3.9 parts per billion is based on the following data and information:

- AHAM estimates that there are 80 million clothes dryers in use in the United States,
- CPSC staff estimates that there were 15,600 clothes dryer fires in 1998,
- 2 of 191 incidents were identified as ones involving lint ignition resulting in fires that breached the product.

Like CPSC's in-depth investigations, the AHAM report provides useful information about clothes dryer fire incidents. However, it is not sufficient to determine statistically valid failure rates attributable to any specific cause. In addition, CPSC staff believes that <u>all</u> fires in clothes dryers have the potential to develop into a hazardous condition and should be prevented.

CPSC staff has seen no evidence to support the AHAM assertion that lint accumulation is not a significant contributor to hazardous dryer fires. A number of fire and consumer safety organizations have developed guidelines for consumers that emphasize the importance of regular dryer maintenance and removing or preventing lint accumulation as a fire prevention measure.

---

[4] *Table 5,Location and Degree of Lint When it was a Contributing Factor*

4. *The recommendations in the Report imply that there are multiple design defects in current dryer designs that contribute to fires. Major changes to the dryer thermal and lint handling systems are not warranted and may instead introduce new risks.*

The results of the CPSC staff tests are summarized as conclusions in the report; there are no recommendations or statements implying levels of recommended changes to the dryer thermal and lint handling system in the report. The CPSC staff report does not identify or allege specific defects in current dryer designs.

Utility of the CPSC Staff Report

1. *The only facts that are established in the lint ignition test described in the report are that (a) lint burns, and (b) dryer airflow and temperatures are affected by blockage. These facts are of questionable utility to the public in considering and using dryers, since they provide no guidance as to the cause of dryer fires or the possible prevention of fires.*

The CPSC staff report was intended to identify areas where safety could be improved. CPSC staff believes that the information that blocked exhaust ducts can cause elevated temperatures is of utility to the public in helping them prevent an overheated clothes dryer. The CPSC staff also believes that the information that lint is combustible is of importance to the public in preventing fires. The voluntary standard[5] requires in Section 7.1.2.13 that clothes dryers be marked with the statement, "Caution – A clothes dryer produces combustible lint." The CPSC staff believes that manufacturers and standards bodies can also use the knowledge gained by this testing to determine whether additional steps can be taken to make clothes dryers safer.

2. *The conclusions reached in the Report based on the lint ignition test are of questionable utility to the public, because there is no relationship established between actual lint accumulation and ignition or hazard.*

The results of the CPSC staff tests are summarized as conclusions in the report. CPSC staff did not attempt to establish a direct cause-and-effect relationship between lint accumulation and clothes dryer fires but, rather, relied on the substantial body of evidence (as described above) that indicates lint is a contributor to a portion of clothes dryer fires. The CPSC staff believes that the facts that lint accumulates in a clothes dryer and is combustible are of importance to the public in preventing fires from occurring in clothes dryers.

Concerns related to the ignition of lint are based on the presence of lint in locations where lint may be ignited by a spark, fire source or sufficient heat. CPSC staff tests demonstrated that lint accumulates inside a clothes dryer even when the dryer is installed according to manufacturer instructions and properly exhausted, and the lint screen is cleaned between drying cycles. CPSC staff tests also demonstrated that, if lint is drawn into a heater, it could further ignite materials downstream, and that lint can ignite near a heat source such as the heater in an electric clothes dryer. CPSC staff considers the demonstration of foreseeable conditions that

[5] Underwriters Laboratories Safety of Standard, UL 2158 – *Electric Clothes Dryers*

could potentially lead to fires within a clothes dryer to be valuable in determining methods to avert the future possibility that any such fires occur. There are no requirements in the current voluntary standard to prevent lint accumulation within a dryer.

3. *The conclusion that a requirement should be imposed to limit the amount of air leakage into the dryer's interior during normal operation is of little utility, because it is not supported by any empirical data or correlation demonstrating that air leakage at this location presents a fire risk.*

The results of the CPSC staff tests are summarized as conclusions in the report; there are no conclusions in the report that any requirements should be imposed. However, CPSC staff believes that steps can be taken in clothes dryer design and construction to minimize the amount of lint accumulation in the dryer interior. Taking steps to reduce the accumulation of lint will reduce any opportunity for lint to ignite.

4. *The conclusion that a requirement should be imposed to limit the amount of air leakage into the dryer's interior when the exhaust venting is partially blocked is of little utility, because it is not supported by any empirical data or correlation demonstrating that air leakage at this location presents a fire risk and would merely be redundant.*

The results of the CPSC staff tests are summarized as conclusions in the report; there are no conclusions in the report that any requirements should be imposed. However, CPSC staff believes that steps can be taken in clothes dryer design and construction to minimize the amount of combustible lint in the dryer interior. Taking steps to reduce lint within a clothes dryer will reduce any opportunity for lint to ignite.

5. *The conclusion that a requirement should be imposed to limit the maximum temperature of the heater housing surface under conditions of failed safety controls and blocked exhaust venting is of little utility, because heater housing temperatures are already limited by thermal devices. All four designs tested have a back-up device for the high-limit thermostat, which already limits the temperature of the heater housing surface and inlet air temperature under all conditions of failed operating and high-limit devices.*

The results of the CPSC staff tests are summarized as conclusions in the report; there are no conclusions in the report that any requirements should be imposed. However, CPSC staff conducted supplementary testing on four clothes dryers of different designs, and presented preliminary results at a meeting held at AHAM on August 28, 2003. This testing showed that for some designs, the back-up device might not sufficiently limit the temperature on the surface of the heater housing to prevent ignition of combustibles on the housing under the conditions reported.

6. *The conclusion that a requirement should be imposed to limit the maximum temperature at the heater intake under all conditions is of little utility, because thermal devices already limit heater intake temperatures. All four designs tested limit the temperature at the*

heater intake with the high-limit thermostat under blocked exhaust conditions and with the high-limit backup device under high-limit failure conditions.

The results of the CPSC staff tests are summarized as conclusions in the report; there are no conclusions in the report that any requirements should be imposed. However, data presented in the report demonstrate that combustibles near the heater intake may ignite before the high limit thermostat activates under the conditions reported.

7. *The conclusion that a requirement should be imposed to prevent sizable combustible materials (e.g. lint) from being drawn into the heater intake is of little utility, because lint does not accumulate near the heater intake and sizeable combustible material is not ingested or ignited in the heater intake.*

The results of the CPSC staff tests are summarized as conclusions in the report; there are no conclusions in the report that any requirements should be imposed. However, CPSC staff tests demonstrated that lint accumulates inside a clothes dryer even when the dryer is installed according to manufacturer instructions and properly exhausted, and the lint screen is cleaned between drying cycles. CPSC staff tests also demonstrated that, if lint is drawn into a heater, it could further ignite materials downstream. CPSC staff considers the demonstration of foreseeable conditions that could potentially lead to fires within a clothes dryer to be valuable in determining methods to avert the future possibility that any such fires occur. There are no requirements in the current voluntary standard to prevent lint accumulation within a dryer or to prevent ignition of lint.

8. *The conclusion that a requirement should be imposed to prevent embers from entering into the tumbler is of little utility, because burning embers in a dryer are extinguished and cause no damage. AHAM provided evidence to CPSC staff that large lint balls, greater than 0.3 grams, which are artificially ignited within the tumbler, are extinguished and do not damage the clothes load.*

The results of the CPSC staff tests are summarized as conclusions in the report; there are no conclusions in the report that any requirements should be imposed. The CPSC staff testing demonstrated that the potential exists for lint to ignite and be carried by the airflow further downstream, and that if embers come into contact with combustible materials they can ignite those materials. CPSC staff believes that precautions should be taken to prevent embers from entering the tumbler and potentially igniting a load of clothing or other combustible materials.

9. *The conclusion that a requirement should be imposed to notify customers when the dryer is cycling on the high-limit thermostat or when the primary (control) thermostat fails to cycle is of limited utility, because it would result in counterproductive false alarms and will at most duplicate existing safeguards.*

The results of the CPSC staff tests are summarized as conclusions in the report; there are no conclusions in the report that any requirements should be imposed. However, CPSC staff believes that an indication to the consumer that the clothes dryer is operating at high

temperatures may lead the consumer to take remedial actions sooner, by maintaining the dryer according to manufacturer instructions or contacting a service professional. CPSC staff is encouraged that AHAM agreed to discuss this requirement further in the Underwriters Laboratories (UL) Standards Technical Panel for Electric Clothes Dryers.

Harm to the Clothes Dryer Industry as a Result of the CPSC Staff Report

Your letter raises the concern that the public, media, fire departments and legal entities may misinterpret or misuse the CPSC staff report. CPSC staff agrees that any interpretation of this report should be made within the proper context. The report was intended to be a body of data to be used by the technical community, appliance manufacturers and standards organizations to explore possible product enhancements or performance requirements to prevent fires in clothes dryers. The report is not an indictment of any clothes dryer design or manufacturer. It does not conclude that lint ignition is the primary cause of clothes dryer fires. It is a report on the results of a set of experiments designed to determine whether there are components and conditions associated with clothes dryer operations that can lead to the ignition of lint. Our intention is that the knowledge gained by the CPSC staff research will be used constructively to further help prevent dryer fires.

CPSC staff believes that the report, *Final Report on Electric Clothes Dryers and Lint Ignition Characteristics,* is accurate, objective, and contributes significantly to the body of knowledge regarding clothes dryer operation and potential causes of dryer fires. We believe that the report merits consideration by the UL Standards Technical Panel for UL 2158 – *Electric Clothes Dryers* based on areas of concern identified in our research. CPSC staff believes that the industry and fire prevention community must continue to seek improved product performance standards that will help to reduce or eliminate clothes dryer fires.

The views expressed in this letter are those of the CPSC staff and have not been reviewed or approved by the Commission. Please be advised that you may appeal this response by submitting an appeal to the Office of the Executive Director, U.S. Consumer Product Safety Commission, Washington, D.C. 20207 within 30 days of your receipt of this letter. Guidance on the content of an appeal is set out in the CPSC Information Quality Guidelines available on the CPSC web site at www.cpsc.gov/library/infoguidelines.html.

Sincerely,

Jacqueline Elder

Jacqueline Elder

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

OFFICE OF THE GENERAL COUNSEL

William H. DuRoss, III
General Counsel
Tel: 301-504-7626
E-Mail: wduross@cpsc.gov

November 20, 2003

Mr. David B. Calabrese
Vice President, Government Relations
Association of Home Appliance Manufacturers
1111 19th St., N.W., Suite 402
Washington, D.C. 20036

Dear Mr. Calabrese:

Under separate cover, CPSC technical staff is responding substantively to your letter of September 12, 2003 that requested retraction or substantial revision of the May 2003 CPSC staff report, *Final Report on Electric Clothes Dryers and Lint Ignition Characteristics.* I thought it might be helpful to concurrently summarize for you the CPSC administrative correction mechanism process that governs the AHAM request under the Commission's Information Quality Guidelines (the Guidelines) and the remaining steps available to AHAM should you wish to pursue them.

As you are most likely aware, the Commission developed the Guidelines, including the administrative correction mechanism, pursuant to the Data Quality Act, Section 515 of Appendix C to P.L. 106-554, and the guidance issued by the President's Office of Management and Budget concerning implementation of the Act. The Guidelines, including the correction procedures, were issued by the Commission pursuant to its vote of October 3, 2002. The administrative correction mechanism appears on the CPSC web site as part of the Commission's Information Quality Guidelines at www.cpsc.gov/library/infoguidelines.html.

Upon receipt in the CPSC Office of the Secretary, the AHAM submission was reviewed by our Office of the General Counsel to confirm that the necessary information regarding the requested correction was provided. That is:

- The identity of the requestor;
- A specific description of the information to be corrected;
- Potential adverse impacts from the information identified for correction; and

- A specific reason why and how the information should be corrected.

The CPSC Executive Director then submitted the request to the Assistant Executive Director for Hazard Identification and Reduction, who is knowledgeable about the subject matter. In consultation with members of her staff as appropriate, the Assistant Executive Director made the initial determination on your request, as reflected in her letter to you of this date.

If AHAM is not satisfied with CPSC's initial response, it may submit an appeal to the Executive Director at the Office of the Executive Director, U.S. Consumer Product Safety Commission, Washington, D.C. 20207. The appeal must be submitted within thirty (30) calendar days of AHAM's receipt of the letter from the Assistant Executive Director for Hazard Identification and Reduction informing you of the CPSC staff's initial determination on the request. An entity other than AHAM is not permitted to appeal the determination. The appeal must identify the original AHAM request for correction and specify the aspect of the initial determination that is being appealed. The submission must describe the basis for the appeal and how AHAM believes that the initial response failed to resolve the request.

An appeal would be evaluated by an agency official, typically at the Executive Director level. The review would be limited to the basis of the appeal. AHAM would be notified of the decision regarding the appeal within sixty (60) calendar days unless the review required longer. In that case, AHAM would be advised that more time was required, and would be provided with an explanation of why, along with an estimated decision date.

I hope that the forgoing description of the CPSC administrative correction mechanism and the current status of the AHAM request are of use to you. Of course, feel free to call me if you wish to discuss this matter further.

Sincerely,

W. H. DuRoss, III

AHAM
association of home appliance manufacturers

1111 19th street, nw ▲ suite 402 ▲ washington, dc 20036
202.872.5955 ▲ fax 202.872.9354 ▲ www.aham.org

258

FQ03-2

September, 12, 2003

Mr. Todd A. Stevenson
Secretary
U.S. Consumer Product Safety Commission
Room 502
4330 East-West Highway
Bethesda, MD 20814

Re. Information Quality Guidelines – Final Report on Electric Clothes Dryers and Lint Ignition Characteristics – May 2003

Dear Sir/Madam:

The Association of Home Appliance Manufacturers (AHAM) writes to request that the Consumer Product Safety Commission retract in its entirety the Final Report on Electric Clothes Dryers and Lint Ignition Characteristics (Report) issued by its Directorate for Engineering Sciences in May 2003, on the ground that the Report does not adhere to the Information Quality Guidelines of either the CPSC or the Office of Management and Budget (OMB). In addition, we request that any work being done to supplement the Report not be released or published to the public, since that work also would not adhere to the Information Quality Guidelines. AHAM's members include all the major manufacturers in the United States of clothes dryers.

The OMB has issued government-wide information quality guidelines under Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554), "to ensure and maximize the quality, utility, objectivity, and integrity of information disseminated by federal agencies." Pursuant to the OMB guidelines (67 Fed. Reg. 8452, February 22, 2002), the CPSC issued in March 2003 revised draft Information Quality Guidelines (Guidelines) (http://www.cpsc.gov/LIBRARY/infoguidelines.html). The CPSC's Guidelines set forth the "CPSC's information quality standards, and an administrative mechanism by which the public can seek correction of information disseminated by the CPSC."

Under the Guidelines, "objectivity" of information means "a focus on ensuring that information is accurate, reliable, and unbiased and that information products are presented in an accurate, clear, complete, and unbiased manner." The "utility" of information under the Guidelines relates to "the usefulness and availability of the information for its intended use."

The Report is the type of information product that the Guidelines are intended to address. However, it lacks the objectivity and utility required by the Guidelines. The facts and conclusions presented in the Report lack objectivity, in that they are biased, unreliable,

incomplete, and based on unsound analytical techniques. The test methods described in the Report are not representative of real world conditions, were developed to test a hypothesis of questionable utility in and relation to the real world, and did not generate results that supported the conclusions set forth in the Report. Thus the findings and conclusions presented in the Report are misleading. Their dissemination is not only of little utility to the public but is actively and unfairly harmful to the industry, by presenting "inaccurate or misleading information which reflects adversely upon the safety of [a] class of consumer products". 15 U.S.C. §2055(b)(7). The Report will therefore be of little usefulness in improving the safety of clothes dryers and will instead encourage meritless claims and lawsuits against dryer manufacturers while further delaying pursuit of the actual causes of dryer fires.

Therefore, pursuant to the administrative correction mechanisms established by the CPSC and set forth in the Guidelines, the Report should be retracted, or, at the very least, substantially revised as soon as possible. The failure to retract or substantially revise the Report and its continued dissemination will create and maintain a false impression on the part of the public as to possible correlations among lint, clothes dryers, and possible lint fires in clothes dryers.

The industry fully shares in the objective of the Report to determine the causes of clothes dryer fires and to address them to prevent fires. However, AHAM submits that the pervasive deficiencies of the Report in objectivity and utility cannot be cured by piecemeal correction and the Report should be retracted in its entirety.

We discuss below in detail the specific deficiencies of the Report, the harm that will result if the Report is not retracted quickly and the specific retractions that should be made in the event the Report is not retracted in its entirety.

The Lack of Objectivity of the Report

1 The information presented throughout the Report incorrectly implies that lint and dryer design defects cause dryer fires, particularly in the Executive Summary, and Sections 1.0 (Introduction), 2.3 (Task 3: Monitor Lint Distribution), 2.4 (Task 4: Determine Characteristics for Lint Ignition), 3.0 (Discussion), and 4.0 (Summary and Conclusions). No such causation was demonstrated in the work described in the Report.

2 The lint ignition test methods used and reported in the Report are wholly deficient, without substantial basis in real life conditions.

a. No empirical data from actual incidents were used to design the test set up and test conditions.

b. Little of the testing and the Report was devoted to lint accumulation or to how lint could be ignited where lint accumulation actually occurs.

c. The lint ignition test described in the Report had almost no relation to actual dryer construction and did not simulate actual dryer conditions or operations.

i. A vertical heater housing was modified and tested horizontally.

ii. The horizontal heater housing configuration tested is atypical of actual horizontal heater housings.

iii. Operating thermal devices were omitted in the test set up, as well as high-limit thermostat backups.

iv. Large lint samples (harvested from a dryer lint screen) were attached randomly to the heater housing, where lint does not actually accumulate.

v. Lint balls were injected into the heater that were 100 times larger than those that can pass through the inlet grill of the heater.

vi. Lint balls were simply injected into a heater until one ignited, with no justification for such a test.

vii. Lint and towels were strapped as targets inside a glass tube close to the heater, in a situation that would not occur in an actual dryer.

viii. The air flow paths and obstructions to the heater were atypical of actual dryer configurations.

3 The presentation in the Report of the information from the lint ignition test is out of context and misleading. The presentation implies that lint accumulates in areas of the dryer that are subject to ignition by the heater and that this ignited lint is a fire hazard. However, there is no empirical evidence, either in the lint ignition test or to AHAM's knowledge, that lint actually accumulates in these areas of a dryer or that lint actually ignites in those areas and is transported after ignition to other parts of the dryer.

a. In fact, lint accumulation is not a significant contributor to hazardous dryer fires. Applying the ratios determined in the August 2002 AHAM Analysis of Industry Data on Clothes Dryer Fire Incidents (AHAM Analysis) (document attached) from 191 actual inspections of dryer fires, where 1% of fires that breached the dryer involved lint, AHAM submits that the failure rate is 3.9 parts per BILLION for "fires" (very broadly defined to include burning smells, hot smells, melting of foam or plastic, discoloration of the load, leaking gas supply lines) that could have been caused by lint. A copy of the AHAM Analysis has been provided to

CPSC staff and is available upon request.

b. The AHAM Analysis shows that there is no support for the theory that lint build-up causes reduced air flow that result in elevated component temperatures and fires.

c. The AHAM Analysis demonstrates that there are multiple contributing factors causing dryer fires, and lint is not a primary, or even significant, contributor to dryer fires.

d. Where the load was retrievable in the AHAM Analysis, 83% had trace amounts of vegetable oils, animal fats, fuel oils and petroleum distillates, leading to the inference that these elements were a likely contributor to fires.

4 The recommendations in the Report imply that there are multiple design defects in current dryer designs that contribute to fires. However, the Report presents no evidence (a) of any such defects, (b) that defects exist which contribute to actual dryer fires, or (c) that the general and generic design changes recommended would reduce the incidence of dryer fires. Major changes to the dryer thermal and lint handling systems are not warranted and may instead introduce new risks.

a. In fact, all dryers are designed with protections against exhaust blockage, hazardous temperatures and multiple component failure.

b. Dryer design has progressed to an extremely safe level when units are installed, used and maintained according to the manufacturer's recommendations.

c. In the overwhelming number of dryers studied in the AHAM Analysis, the thermal devices operated as designed.

The Lack of Utility of the Report

1 The only facts that are established in the lint ignition test described in the Report are that (a) lint burns, and (b) dryer air flow and temperatures are affected by blockage. These facts are of questionable utility to the public in considering and using dryers, since they provide no guidance as to the cause of dryer fires or the possible prevention of fires.

2 The conclusions reached in the Report based on the lint ignition test are of questionable utility to the public, because there is no relationship established between actual lint accumulation and ignition or hazard.

a. The conclusion that lint accumulates inside a dryer is of little utility, because there is no test or field evidence that lint alone is a hazard or has any relationship to the lint ignition test as to the lint locations tested.

b. The conclusion that lint on the heater housing and in proximity to the heater intake can ignite is of little utility, because there is no test or field evidence that lint accumulates in those locations and densities similar to that in the lint ignition test.

c. The conclusion that material downstream of the heater can be ignited by lint ingested by the heater is of little utility, since that has no relationship to conditions in an actual dryer.

3 The conclusion that a requirement should be imposed to limit the amount of air leakage into the dryer's interior during normal operation is of little utility, because it is not supported by any empirical data or correlation demonstrating that air leakage at this location presents a fire risk.

a. In the four designs (A, B, C, D) studied in the lint ignition test, the tumbler is at a negative pressure with respect to the cabinet interior, which would tend to draw lint into the tumbler. The industry seals the tumbler to cabinet interface and other air system interfaces as well as reasonably possible, in order to optimize dryer performance. Therefore, lint is drawn into the tumbler and unlikely to escape from the tumbler.

b. Any lint that does escape into the dryer interior due to the tumbling of the clothes load and movement of the tumbler are in amounts that are small and inconsequential.

c. The industry avoids the presence of flammables in components and wiring near the base, where lint may accumulate.

d. If lint on the base does ignite, it will self-extinguish after charring on the surface.

4 The conclusion that a requirement should be imposed to limit the amount of air leakage into the dryer's interior when the exhaust venting is partially blocked is of little utility, because it is not supported by any empirical data or correlation demonstrating that air leakage at this location presents a fire risk and would merely be redundant.

a. The exhaust venting being partially blocked tends to pressurize the outlet side of the blower and exhaust system.

b. The exhaust venting being partially blocked reduces air flow into the cabinet and into the heater intake as well as out the exhaust.

c. The partial blockage therefore also reduces the likelihood of ingesting lint into the dryer interior.

d. UL 2158 and ANSI Z21 both already test for exhaust vent blockage.

5 The conclusion that a requirement should be imposed to limit the maximum temperature of the heater housing surface under conditions of failed safety controls and blocked exhaust venting is of little utility, because heater housing temperatures are already limited by thermal devices. All four designs tested have a back-up device for the high-limit thermostat, which already limits the temperature of the heater housing surface and inlet air temperature under *all* conditions of failed operating and high-limit devices.

6 The conclusion that a requirement should be imposed to limit the maximum temperature at the heater intake under all conditions is of little utility, because thermal devices already limit heater intake temperatures. All four designs tested limit the temperature at the heater intake with the high-limit thermostat under blocked exhaust conditions and with the high-limit backup device under high-limit failure conditions.

7 The conclusion that a requirement should be imposed to prevent sizeable combustible materials (e.g. lint) from being drawn into the heater intake is of little utility, because lint does not accumulate near the heater intake and sizeable combustible material is not ingested or ignited in the heater intake.

a. "Sizeable combustible material" is not drawn into the heater intake in actual dryer operation and will not pass through the inlet grill, in any of the four designs tested.

b. Lint does not accumulate to any consequential degree near the heater intake, as described in the Report regarding the lint accumulation testing with Design A.

c. For Design D, almost no lint accumulation is found near the heating element after over 10 years of life, since the air intake is distributed around the circular heating element.

d. Lint balls that are smaller than ¼" in diameter, weighing less than 0.005 grams, must be within about two inches of the heater intake of Design A to be drawn in.

e. When a small lint ball is drawn into the heater intake, it does not ignite due to its speed through the heater box and limited contact with the heater element.

f. With restricted airflow, lint balls do not enter the heater intake at all.

8 The conclusion that a requirement should be imposed to prevent embers from entering into the tumbler is of little utility, because burning embers in a dryer are extinguished and cause no damage. AHAM provided evidence to CPSC staff that large lint balls, greater than 0.3 grams, which are artificially ignited within the tumbler, are extinguished and do not damage the clothes load.

9 The conclusion that a requirement should be imposed to notify consumers when the dryer is cycling on the high-limit thermostat or when the primary (control) thermostat fails to cycle is of limited utility, because it would result in counterproductive false alarms and will at most duplicate existing safeguards.

a. Cycling on the high-limit thermostat is neither abnormal nor a hazard.

b. The high-limit thermostat is backed up by another thermal device in all four designs tested, to limit the heater housing and inlet air temperatures for blocked vent conditions.

c. UL 2158 already includes a heating test with a 25% blocked lint screen and a restricted vent, during which test the dryer cannot cycle on the high-limit thermostat.

d. If the dryer does cycle on the high-limit thermostat due to a blocked exhaust or a failure of the primary (control) thermostat, the consumer will request a service call due to wet clothes and excessive drying times.

e. Nonetheless, as previously discussed with CPSC technical staff, we agree to investigate this matter further within the context of a UL Standards Technical Panel, in conjunction with information gathered on contaminated load research.

<u>The Harm to the Clothes Dryer Industry as a Result of the Report</u>

1 The Report has misled the public and will continue to do so if not retracted.

a. Recent television reports in St. Paul/Minneapolis have informed viewers that:

i. "Most families run their clothes dryer seven times a week. It's a great convenience, but can also put you in great danger. A Consumer Product Safety Commission study, released today, points out some alarming flaws in the way most dryers are designed."

ii. "[The CPSC's] critical report issued within the last few days, called the venting of dryers not adequate and noted lint that accumulates can easily ignite."

iii. "The kinks [in the exhaust hose] can catch the lint and once that lint totally blocks the hose, the heat has nowhere to escape and the clothes in the dryer catch on fire."

b. The Cozen & O'Connor Subrogation & Recovery Alert of June 23, 2003, which is relied upon by the insurance industry, informed readers that:

i. "The U.S. Consumer Product Safety Commission ("CPSC") estimates that at least $84.4 million in property damage results annually from fires caused by clothes dryers."

ii. "Blocked or inadequate airflow through the exhaust duct is the most common source of dryer fires."

2 Local fire departments will rely on the Report to establish the causes of dryer fires.

3 Plaintiffs' counsel, experts, insurance companies, and consumers will rely on the Report to pursue meritless lawsuits.

Specific Retractions that are Requested in the Event the Report is Not Retracted in Its Entirety

1 Statements implying that linty air leakage from internal or external ducting creates a hazard. The Report presents no evidence that this is a hazard.

2 Statements about hazardous accumulations of lint on the heater housing. The Report presented no data showing such accumulations occurring in a dryer, and industry testing and field experience demonstrate that no such accumulations occur.

3 Statements about lint accumulation near the heater intake. The Report presented no data showing hazardous accumulation levels in that area.

4 Statements about lint being ingested by the heater. The Report presented no evidence of this actually occurring in a dryer.

5 Statements about embers igniting additional lint or fabric in the air stream. The Report presented no evidence that embers are transported or ignite other materials in a dryer.

6 All the lint ignition test results and conclusions, as they in no way simulated actual dryer conditions with respect to:

a. Orientation of heater housing

b. Size of lint samples ingested

c. Artificial method of ingesting lint samples

d. Quantity of lint samples ingested for single run

e. Omission of barriers to ingested lint

f. Arbitrary location, size and attachment of target materials

g. Air flow that is directed along a straight path from intake to exhaust and that does not reflect the actual random air flow in a tumbler with a load

h. Back up safety device for high-limit thermostat omitted as well as operating thermostat, which are present in all actual dryer designs

* * *

Dryer design has advanced to a safe level when units are installed, used and maintained according to the manufacturer's recommendations. All dryer designs are protected against exhaust blockage, hazardous temperatures, and multiple component failure. Nonetheless, AHAM recognizes the need for better data on the actual causes of dryer fires and welcomes the CPSC's efforts to gather such data. However, we believe that the focus of the CPSC's efforts are misguided and should be redirected toward further study of dryer load composition, and combustible venting materials. Its efforts should be based on empirical data from real world testing. The Report is not an objective or useful contribution in these efforts and should be retracted.

We welcome the opportunity to discuss these issues with you.

Sincerely,

David B. Calabrese
Vice President
Government Relations

AHAM Analysis of Industry Data on Clothes Dryer Fire Incidents

August, 2002

Prepared by:
Association of Home Appliance Manufacturers
1111 19th Street, N.W., Suite 402
Washington, DC 20036
202-872-5955
202-872-9354 fax
www.aham.org

BACKGROUND

Clothes dryers are manufactured and design-certified in accordance with the voluntary American National Standards for safety. The number of clothes dryers in homes has significantly increased, with dryers currently in use in over 80% of U.S. residences. In 1996, market data indicated that clothes dryers were in 81.5 million homes, compared to 54 million homes in 1982. Over the same period of time, fire incidents involving dryers had declined. Despite this decline, the report published by the National Fire Protection Association (NFPA) estimated that approximately 15,000 residential fires involving clothes dryers occurred in 1996 based on fire reports.

Fire reports are generated whenever a fire department responds to a consumer complaint. The range of what is meant by the term "fire" is very large. It could include the presence of a smell that is foreign to the consumer, to melting of certain plastics, foam materials, or discoloration of items in the load to the combustion of the load or the dryer

The U.S. CPSC issued a report in February 2000 indicating what it believed to be the causes of clothes dryer fires based on the data available at that time. The CPSC report included specific recommendations to the applicable voluntary standards development organizations. The work conducted by CPSC assumed that fires were caused by reduced airflow that results from lint buildup. The CPSC report concluded that reduced airflow causes elevated temperatures over long periods of time which could prematurely degrade critical components (wires, connectors, thermostats, motors, etc.), setting the stage for a potential fire.

The Association of Home Appliance Manufacturers (AHAM) and its participating member companies have been working with the CPSC staff and representatives of Underwriters Laboratories Inc. (UL) and CSA International (CSA) and have met several times to discuss issues related to dryer fires safety. Although there was a great deal of discussion on the purported causes of clothes dryer fire incidents, there was only consensus on the need for better data on actual causes of fires. Some of the chief deficiencies noted were (1) lack of definition of dryer fires, (2) lack of dryer fire frequency distribution by severity, and (3) lack of determination on alleged dryer failures versus root cause. As a result, industry representatives agreed to collect field incident data on clothes dryer fires in an attempt to better understand the potential causes of fires involving clothes dryers. In November 2000, a meeting was held at CPSC headquarters at which time the elements of the incident survey program were agreed upon.

INVESTIGATION

AHAM and member companies who manufacture clothes dryers conducted a data collection program on clothes dryer fire incidents from February 2001 through August 2001. The goal of the survey was to collect data from approximately 200 reported incidents. In the end, data was collected on a total of 191 clothes dryer incidents. The number of clothes dryer incidents that each manufacturer compiled was based on an approximation of that company's market share as published by industry trade magazines. Commencing February 1, 2001, each company obtained data on each of their known incidents by examining and testing their products until their designated number of incidents was obtained.

Investigation by Survey Participants

Incident data was gathered by participants using the parameters identified in the survey forms attached to this report as "Annex A." The collection process was conducted in three phases: initial screening of complainants who alleged a clothes dryer fire (typically by telephone), fire scene investigation, and laboratory inspection of the dryer and load (if available). Alleged fire events investigated were those that met one of the following criteria:

- the company toll-free telephone call center assistant determined a fire might have occurred based on the consumer's description (e.g., consumer mentions smoke, odor, flames, etc.);
- the service technician found evidence of a fire and either the service technician or the consumer called the call center assistant;
- a claim for fire damage was made; or
- civil litigation proceedings were initiated

During the initial screening process, profile information was gathered from the complainant, such as the type of dryer, age of dryer, whether the fire department or insurance company was contacted, day and time of alleged incident and whether the dryer was operating when the alleged incident occurred. The complainant was also questioned as to the recent drying performance of the dryer; whether the lint screen was cleaned regularly, when the dryer was last used, and when the dryer was last serviced. Information was also gathered from the complainant as to the contents of loads being dried and types and amounts of detergents and softeners used. Additionally, the complainant was specifically questioned as to whether the load had been exposed to flammable type liquids or chemicals, such as cooking oils, tanning or personal care oils, paints, oils, thinners or glues. In all cases, an attempt was made to obtain the dryer load.

Next, wherever possible, a fire scene investigation was made. This involved going to the alleged fire scene location as soon as possible and examining the clothes dryer, its exhaust system and the general surrounding area. Specific attention was paid to the proximity of other appliances, types of laundry detergents and softeners used, and the storage of flammable liquids. The condition, physical characteristics and installation of the power cord (for electric and gas dryers), gas supply line (for gas dryers) and dryer vent/exhaust system were carefully examined.

Finally, when available, each clothes dryer was collected from the complainant and evaluated by each manufacturer in their own laboratory. During this phase of the investigation, each dryer was thoroughly examined with respect to its external and internal condition. The dryer was examined for lint accumulation in the lint screen and the amount of lint on the base, motor and heater box, including any degree of lint blockage in the dryer or dryer vent. The condition of the motor, gas burner, heating element, thermostats (cycling and high-limit) and safety devices (one-shots) were examined. Electrical tests were performed on all electrical components to determine if they had operated as intended and general condition after the fire incident. The condition of

internal wiring, controls and control panel, and power cords and connections were examined. In addition, when the load was available, a chemical load analysis was conducted to determine if the load was exposed to any types of flammable liquids or chemicals.

As a result of data gathered during all three phases of the investigation, each clothes dryer investigation was assigned one of the following damage descriptions:

0:	- Smoke, hot, odors, no evidence of a fire
1:	- Charring of load. - No product damage. - Single component failure in which damage limited to the component. - Lint fires that produced no product damage.
2:	- Load damage (burned). - Dryer still operable. - No baffles melted.
3:	- Fire caused product damage only (excluding smoke and odor damage. - Dryer may have showed melted baffles. - Dryer not operable. - Components needed replacement (other than single component failure as defined in level 1).
4:	- Fire breached product because of user involvement (i.e. user opened the door)
5:	- Fire breached product, NOT due to user involvement.

Compilation and Review of Data

Manufacturers sent their investigative findings to AHAM. Once the industry data was aggregated and coded to de-identify the individual company, the individual company data was not retained. AHAM staff then analyzed the data, consulting with the industry technical experts as necessary.

Observations

Attached, as "**Annex B**," is a summary of the foregoing observations and analysis. Listed below are key learnings worthy of mention.

- The ratio of fire reports on electric and gas clothes dryers matches the ratio of electric and gas clothes dryers installed in US residences. The data does not indicate a higher rate of incidents with either fuel type.

- In the vast majority of installations investigated, foil and plastic type transition ducting (ducting used to connect the dryer vent to the house exhaust system) were used despite the fact that clothes dryer manufacturer's installation instructions, and user's manuals, and frequently warning labels specify that only rigid or flexible metal ducting should be used.

- In 91 percent of the incidents investigated, the accumulation of lint on the screen was less than 25 percent. This suggests that most users of clothes dryers are frequently removing lint from the lint screen. This evidence does not support the theory that lint build-up in clothes dryers is causing reduced air throughput resulting in elevated components temperatures and fires. In the cases investigated where lint was identified as a potential contributing factor in a fire event, over 95 percent of the cases were categorized with a damage description of 3 or below, and over half of those were categorized with a damage description of 1.

- 85 percent of the cases investigated included dryers less than 5 years old and over 50 percent of the dryers were less than 2 years old. (*Consumers may be more inclined to report on incidents of odor, smoke or fire with newer dyers.*)

- In the cases where some evidence of a fire was observed, no one cause stands out as a leading contributor to dryer fires. Many different potential contributing factors were identified, including the load, electrical system, mechanical system, and gas system.

- In 66 out of the 191 incidents investigated, the drum was identified as the area of involvement.

- In 41 out of 191 cases when the load was retrievable, the contents were analyzed for trace contaminants. In 34 of the 41 cases, the analysis revealed trace amounts of vegetable oils, animal fats, fuel oils and petroleum distillates (kerosene and diesel). The presence of trace contaminants is not indicative of the root cause, but bears further investigation.

- Revisions were made to the safety standards for clothes dryers approximately a decade ago to require redundant safety components and to increase the robustness of critical components. In the overwhelming number of dryers investigated, operating and safety components, such as the cycling thermostat, high-limit thermostats and one-shot devices operated as designed.

- For the 13% of dryer incidents categorized a 4 or 5 for damage, the precise factor contributing to the fire was unknown in many of the cases.

NEXT STEPS

In review of the facts gathered from reported events and the key learnings, there does not appear to be a clearly identifiable cause of dryer fires. The following subjects should be given further comprehensive consideration:

1. **Fire Containment Test** - In an effort to minimize damage resulting from a fire, it may be possible to develop a containment test that would confine a fire-type incident to the dryer. It should be noted that this would require research to develop a repeatable method, and may provide an opportunity for industry, government and others to work together. If this initiative is pursued, both dynamic (while the dryer is operating) and static tests should be considered.

2. **Combustible Venting Materials** - AHAM has already successfully implemented changes to the National Fuel Gas Code to require that non-combustible materials be required for venting gas clothes dryers. This requirement already exists in many building and mechanical codes used throughout the U.S. However, we believe there are still many installations where the codes are overlooked and combustible materials such as flexible vinyl are used, which can contribute to fire spread. Even if a fire is contained within the dryer, plastic ducting can provide an escape path. Interested parties should discuss if there is a means to ban by law from the marketplace the availability or use of certain combustible products that are commonly used to vent dryers.

3. **Composition of Loads** - Evidence suggests that dryer fires might be caused by potentially ignitable liquids and chemicals contained on the clothes. An education campaign could be considered to make people more aware of the dangers of drying certain types of materials.

AHAM believes the best forum to discuss the above topics would be under the auspices of a balanced group of interested parties, such as a UL Standards Technical Panel and the ANSI Z21/CSA Gas Subcommittee. Industry members are eager to lead the development of a standard that reduces the consumer risk associated with dryer fires, as we are expressly interested in any attempts to reduce clothes dryer fire incidents.

Annex A

I. Initial Screening Process from Complainant

Commencing February 1, 2001, manufacturers should generate a separate form for each complaint using the parameters that are outlined in the following pages. All alleged fire samples should be collected for inspection. Alleged fire samples are those that meet one of the following criteria:

- the 800 Call Center Assistant determined a fire might have occurred based on the consumer's description (e.g., consumer mentions smoke, odor, flames, etc.);
- the service technician found evidence of a fire & either the service technician or the consumer called the 800 Call Center Assistant;
- a claim for fire damage is made; or
- a lawsuit was filed

In addition, data gathered should include information from consumers, hotlines, fire departments, insurance claims and/or litigation during the survey time period.

Profile Information gathered from Consumer

- ☐ Who installed? _____
- ☐ Previously owned? YES NO
- ☐ Type of dryer? Electric Natural LP Other
- ☐ How old is the dryer? _____

Incident details gathered from Consumer

- ☐ Fire Department contacted? YES NO
- ☐ Insurance contacted? YES NO
- ☐ Day and time of incident _____
- ☐ Was the dryer running? YES NO If so, how long? _____
- ☐ If the dryer was NOT running, how long since last load? _____
- ☐ Who discovered the incident & how did they respond? _____

_____

- ☐ List clothing items in dryer load _____

_____

Product and Laundry Information gathered from the consumer

- ☐ What type of venting materials is used _____
- ☐ How long is the run to the exterior exhaust? _____
- ☐ Any recent service on the dryer?_____
- ☐ When was last time maintenance was performed on the dryer & by whom?

  _____
- ☐ Did the consumer use a pretreater, if so what type?_____
- ☐ List type, brands & amount of detergents & softeners used for this and previous loads.

  _____

  _____
- ☐ Describe if there is something new or different with load (Clothes/detergents)

  _____
- ☐ How often is the lint screen cleaned? _____
- ☐ How long has it been taking for a load to dry? _____
- ☐ Was the load exposed to cooking oil? What type, how much?

  _____
- ☐ Could the load have been exposed to tanning or personal care oils? What type?

  _____
- ☐ Was the dryer exposed to any fumes from paint, oils, thinners, or hobbies?

  _____
- ☐ Is the load available? YES NO. ***(If so, have the customer leave the clothes inside the dryer drum.)***

II. Fire Scene Inspection

A fire scene inspection will be made on as many samples as possible. This would involve going to the fire scene location as soon after the report is made and collect the following information. The service individual should not touch the controls on the unit or the timer, but merely document the condition of the dryer and surrounding area. The pictures will not be submitted to AHAM in the analysis, but will be used by the manufacturer to assist in the accuracy of information given in Part I (note any discrepancies) and the product examination in Part III.

Please take pictures of the following:

- ☐ Dryer as found
- ☐ Dryer location (at time of incident)
- ☐ General laundry area
- ☐ Wall 1
- ☐ Wall 2
- ☐ Wall 3
- ☐ Wall 4
- ☐ Dryer vent (include several showing the vent run)
- ☐ Laundry detergents, fabric softeners,
- ☐ Outlet dryer was plugged into
- ☐ Dryer cord plug
- ☐ Nearby appliances (i.e. washer, water heater, furnace, etc.)
- ☐ Gas supply line (Gas Dryers)
- ☐ Outside exhaust vent hood
- ☐ Anything unique or unusual about installation

Please Note the following and check/fill in below:

Dryer Vent

Approximate length of vent run: _____ ft Number of 90 degree turns/elbows: _____

Describe condition of vent system (e.g., back of dryer, transition duct, exhaust duct & vent terminal): _____

_____

_____

Vent Material

☐ Plastic ☐ Foil ☐ Flexible Metal ☐ Rigid Metal ☐ None (not vented)

If none of the above, please describe: _____

Dryers – Type of Power

☐ Electric ☐ Natural Gas ☐ L.P. (propane) ☐ Other - Specify _____

Any Other Observations

_____

_____

_____

III. Inspection of Alleged Fire Sample

Each sample should be collected from the consumer to evaluate by each participating manufacturer. Each sample collected will be sent to a designated individual within the company to perform the evaluation in order to maintain consistency. The evaluator should refer to the information provided in Section I and Section II during the analysis. Any discrepancies with Section I data should be noted in the appropriate area below.

As the unit is disassembled, photographs should be taken to document the condition of the unit. These photographs do not need to be included with the data submitted to AHAM, but should be taken to document the process and condition if questions arise.

The following items will be identified:

Dryer Date of Manufacture: Year _____
Month _____

Dryer Installation Date: Year _____
Month _____

Fuel Type:
- Electric ☐
- Gas ☐
- Unknown ☐

Answer different than Section I ☐ Yes

Dryer Vent Material:
- Rigid Metal ☐
- Flexible Metal ☐
- Foil ☐
- Plastic ☐
- Unknown ☐
- Other ☐

Answer different than Section I ☐ Yes

Dryer running at time? (as stated by consumer)
- Yes ☐
- No ☐
- Unknown ☐

Dryer running at time? (as determined by analysis)
- Yes ☐
- No ☐
- Unknown ☐

Lint screen in place?
- Yes ☐
- No ☐

Lint Screen Blockage:
- 0% ☐
- 25% ☐
- 50% ☐
- 75% ☐
- 100% ☐
- Unknown ☐

Amount of Lint on Base: Light ☐ Medium ☐ Heavy ☐

Amount of Lint on Motor: Light ☐ Medium ☐ Heavy ☐

Amount of Lint on Gas Burner: Light ☐ Medium ☐ Heavy ☐

Motor Centrifugal Switch:
- Good ☐
- Bad ☐

Heating Element:
- L1 – L2 _____ ohms
- L1 – GRND _____ ohms
- L2 – GRND _____ ohms

Thermostats:

Type/Name _____
- open ☐
- closed ☐

In Specification
- yes ☐
- no ☐

Type/Name _____
- open ☐
- closed ☐

In Specification
- yes ☐
- no ☐

Type/Name _____
- open ☐
- closed ☐

In Specification
- yes ☐
- no ☐

One-Shot Devices:

Type/Name _____

open ☐
closed ☐

Type/Name _____

open ☐
closed ☐

Type/Name _____

open ☐
closed ☐

Examination of Internal Wiring:

No damage ☐
Localized melted wiring ☐ Location _____
Severe Damage Throughout ☐
Other comments: _____

Examination of power cord and connections:

No damage ☐
Localized damage ☐ Describe _____
Other comments: _____

Product Damage Level:

0 ☐
1 ☐
2 ☐
3 ☐
4 ☐
5 ☐

Damage Level Definitions:

Level 0: Smoke, Hot, Odors, no evidence of a fire
Level 1: Charring of load, No Product damage, single component failures in which damage limited to the component, lint fires that didn't do product damage.
Level 2: Load Damage (burned), Dryer still operable, no baffles melted
Level 3: Fires that did product damage. Melted baffles, Dryer not operable, components need to be replaced (other than single component failures as defined in level 1)
Level 4: Fire breached product because of user involvement. (i.e. they opened the door)
Level 5: Fire breached product, NOT due to user involvement

Area(s) of involvement: _____

Where is the primary damage: (e.g. drum, base, console, exhaust vent, etc.)

Where is the secondary damage: (e.g. drum, base, console, exhaust vent, etc.)

Load Examination:
If load was analyzed for oils or ignitable liquids, list findings:

Other observations:

List any areas of discrepancy between Section I (consumer responses) and Section II (photographs of fire scene):

Potential contributing factors to incident (if unknown state "Unknown Cause"):

Annex B

Overall Report Summary

Fuel	QTY	%
Electric	135	71%
Gas	56	29%
Total	191	100%

Transition Duct	QTY	%
Foil	39	35%
Plastic	41	37%
Flexible Metal	10	9%
No data	7	6%
Rigid Metal	6	5%
Metal (not specified)	7	6%
Total	110	100%

Age	QTY	%
Less Than 1 Year	51	27%
1 to 2 Years	47	25%
2 to 3 Years	23	12%
3 to 4 Years	16	9%
4 to 5 Years	23	12%
5 to 10 Years	13	7%
Over 10 Years	15	8%
Total	188	100%

Contributing Factor	QTY	%
Unknown	64	34%
No Fire Found	25	13%
Electrical System	18	9%
Lint B (Lint flash over involving other components)	17	9%
Mechanical System (drum bearings)	13	7%
Lint A (Only lint flash over)	11	6%
Mechanical System	11	6%
Load A (Load was analyzed and traces contaminants identified.)	7	4%
Thermostat A (Failure of thermostat caused incident at thermostat)	6	3%
Gas System	6	3%
Thermostat B (Incident caused failure of thermostat at load)	5	3%
Load B (Load was not available for analyzing. Based on inspection of dryer, load was likely cause of incident.)	4	2%
External Fire	3	2%
Installation	1	1%
Total	191	100%

Dryer Running?	QTY	%
Yes	104	78%
No	29	22%
Total	133	100%

Damage Description	QTY	%
0	36	19%
1	47	25%
2	26	14%
3	58	30%
4	5	2%
5	19	10%
Total	191	100%

Lint Screen Blockage	QTY	%
0	110	71%
25	31	20%
50	6	4%
75	5	3%
100	1	1%
Screen Missing	1	1%
Screen Destroyed	1	1%
Total	155	100%

Area of Involvement	QTY	%
Drum	66	35%
Base	41	21%
No Fire Found	32	17%
Rear of Bulkhead	10	5%
Console (Control)	9	5%
Terminal Block	8	4%
Gas Valve	6	3%
Motor	4	2%
Gas Burner/Funnel	4	2%
Trap (Air) Duct	4	2%
Timer	2	1%
Heater Box/Inlet Grill	3	2%
Entire Machine	1	1%
Blower	1	1%
Total	191	100%

Load Analysis	QTY	%
Yes	41	22%
No	149	78%
Total	190	100%

Heating Element	QTY	%
In spec	84	45%
Out of spec	0	0%
No data	89	48%
NA	14	7%
Total	187	100%

Cycling T-Stat	QTY	%
In spec	108	57%
Out of spec	9	5%
No data	59	31%
NA	15	8%
Total	191	100%

Limit T-Stat	QTY	%
In spec	107	56%
Out of spec	2	1%
No data	67	35%
NA	15	8%
Total	191	100%

One-Shot1	QTY	%
Closed	102	53%
Open	40	21%
No data	40	21%
NA	9	5%
Total	191	100%

One-Shot2	QTY	%
In spec	1	1%
Out of spec	0	0%
No data	88	81%
NA	20	18%
Total	109	100%

Wiring Condition	QTY	%
Damaged	22	12%
Not damaged	39	20%
No data	130	68%
Total	191	100%

Contributing Factor vs. Damage Description

	Damage Description						
Contributing Factor 1	**0**	**1**	**2**	**3**	**4**	**5**	**Grand Total**
Electrical System	2	12		3		1	18
External Fire				2		1	3
Gas System		3		1	1	1	6
Installation		1					1
Lint A		11		0			11
Lint B	1	4		10		2	17
Load A			1	3		3	7
Load B		1	1	2			4
Mechanical System		2	1	6		2	11
Mechanical System (Drum bearings)			1	10		2	13
No Fire Found	24	1					25
Thermostat A		4		2			6
Thermostat B		4	1				5
Unknown	9	4	21	19	4	7	64
Grand Total	**36**	**47**	**26**	**58**	**5**	**19**	**191**

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

Patricia M. Semple
Executive Director

Office of the Executive Director

Tel: 301-504-7907
Fax: 301-504-0121
Email: psemple@cpsc.gov

March 19, 2004

Mr. David B. Calabrese
Vice President, Government Relations
Association of Home Appliance Manufacturers
1111 Nineteenth Street, N.W.
Washington, DC 20036

Re: Information Quality Guidelines – *Final Report on Electric Clothes Dryers*

Dear Mr. Calabrese:

I am writing in response to your January 21, 2004 letter on behalf of the Association of Home Appliance Manufacturers (AHAM) concerning the CPSC staff's Final Report on Electric Clothes Dryers and Lint Ignition Characteristics (May 2003)(hereinafter called "Dryer Report"). Your letter constitutes an appeal under the CPSC's draft Information Quality guidelines. As set forth below, I have decided to grant your appeal in part and to deny it in part.

Background

Your appeal raised issues in three main areas. First, you expressed the view that the agency's process for addressing requests of this type is "fatally flawed" because it does not require external peer review. Second, you took issue with the staff's November 21, 2003 response to many of the points raised in your original request. In particular, you disputed the statement that "there are no conclusions in the [Dryer Report] that any requirements should be imposed" on clothes dryers. You pointed to a separate May 30, 2003 letter, in which CPSC staff did recommend changes to the voluntary standard for clothes dryers. Third, you objected that the initial response did not address the "demonstrated harm" allegedly resulting from distribution of the Dryer Report.

Decision

In the following sections, I respond to each of your three main issues.

1. The Review Process

At the outset, let me address your comments on the review process under CPSC's Information Quality guidelines. We agree that independent peer review is a powerful technique for evaluating and strengthening scientific work. By the same token, we acknowledge that peer review may be appropriate and beneficial in resolving disputes that arise under our Information Quality guidelines. However, I cannot agree that peer review is necessary in all such cases or that the absence of mandatory peer review constitutes a fatal flaw in our guidelines.

To address your concerns in this case, I asked the Commission's General Counsel, who had not been involved in development of the Dryer Report or the response to your original request, to review your appeal and to give me his recommendations. I believe this approach should eliminate any doubt about the agency's objectivity in addressing your appeal.

2. The Request for Withdrawal

After careful review of your appeal, I find no basis for withdrawing the Dryer Report. I am persuaded, however, that the recommendations contained in the staff's May 30, 2003 letter should be reexamined in light of the points you raise. Accordingly, we have decided to withdraw the May 30, 2003 letter pending reevaluation. After a suitable review of this issue, we may decide to renew some or all of these recommendations, to undertake further research or to take a different approach.

3. The Harmful Effects of the Report

Your appeal argues that the Dryer Report may be used by third parties to pursue meritless lawsuits. As you recognize, this is not our intent, and we do not sanction such use. Therefore, I have directed the staff to ensure that any copy of the Dryer Report that is made available to the public after this date contain the following statement in a prominent location:

"The experiments described in this research report were undertaken to support future advances in clothes dryer safety. This report should not be used to suggest that current clothes dryers are unsafe or defective."

This statement will also be added to the Dryer Report that is accessible through our website.

Conclusion

The foregoing decision constitutes the final resolution of your appeal in this matter. We welcome your interest and participation in future research concerning the safety of clothes dryers and other products of interest to AHAM and its members.

Sincerely,

Patricia M. Semple

U.S. CONSUMER PRODUCT SAFETY COMMISSION

OFFICE OF THE EXECUTIVE DIRECTOR

4330 East West Highway (Bethesda)
Washington, D.C. MD 20207
tel 301-504-7907
fax 301-504-0121

FAX TRANSMITTAL

TO: David Calabrese

FAX#: 202.872.9354

FROM: Patsy Semple

DATE: 3.19.04

RE: Information Quality Guidelines

PAGES: 4 , including this cover sheet

COMMENTS/MESSAGE:

AHAM
association of home
appliance manufacturers

1111 19th street, nw ▲ suite 402 ▲ washington, dc 20036
202.872.5955 ▲ fax 202.872.9534 ▲ www.aham.org

January 21, 2004

Ms. Patricia Maguire Semple
Executive Director
Office of the Executive Director
U.S. Consumer Product Safety Commission
Washington, D.C. 20207

Re: Appeal Under Information Quality Guidelines – Final Report on Electric Clothes Dryers and Lint Ignition Characteristics – May 2003 IQ 03-2

Dear Ms. Semple:

The Association of Home Appliance Manufacturers (AHAM) writes to appeal the initial response of the Consumer Product Safety Commission ("CPSC") to AHAM's request made in our letter dated September 12, 2003 (the "Request"). A copy of the September 12 letter is enclosed. AHAM's members include all the major manufacturers in the United States of clothes dryers.

AHAM requested that the CPSC retract in its entirety the Final Report on Electric Clothes Dryers and Lint Ignition Characteristics (the "Report") issued by its Directorate for Engineering Sciences in May 2003, on the grounds that the Report does not adhere to the Information Quality Guidelines of either the CPSC or the Office of Management and Budget ("OMB"). In addition, we requested that any work being done to supplement the Report not be released or published to the public, since that work also would not adhere to the Information Quality Guidelines.

In a letter dated November 20, 2003, from William H. DuRoss III, and a letter dated November 21, 2003, from Jacqueline Elder (the "November 21 Letter"), the CPSC staff explained the process by which AHAM's Request was reviewed and the appeal process that is available, and rejected AHAM's Request in its entirety. We received both letters on November 24. Copies of the November 20 and 21 letters are enclosed.

AHAM appeals the rejection of its Request on the grounds that the response does not address AHAM's concerns and do not comply with the Information Quality Guidelines of either the CPSC or the OMB.

Following the Executive Summary below, we discuss in detail the deficiencies in the November 21 letter and submit that AHAM's Request should be resolved by the retraction of the Report in its entirety. Failure to retract the Report may have the untoward result of diverting resources

away from research into the major causes of dryer fires and instead focus on ancillary and inconsequential issues. This would not further the important goal of further limiting the occurrence of dryer fires.

EXECUTIVE SUMMARY

The November 21 letter attempts to avoid the issues raised by AHAM by claiming that the Report did not make the specific conclusions and recommendations that AHAM challenged, when in fact the Report did so; and by claiming that the data and work described in the Report were objective and useful, when in fact they did not comply with the Information Quality Guidelines in those respects. This is made clear by a letter dated May 30, 2003, from Arthur Lee, Project Manager for Clothes Dryers, Division of Electrical Engineering, of the CPSC's Office of Hazard Identification and Reduction, to Joe Musso of Underwriters Laboratories Inc. ("UL") (the "May 30 Letter"), a copy of which was sent to AHAM. A copy of the May 30, 2003 letter is enclosed.

Initially, however, AHAM points out that the CPSC's administrative correction mechanism under its revised draft Information Quality Guidelines (the "Guidelines"), is wholly deficient. The same CPSC staff who performed the work being challenged are judge and jury of AHAM's challenge. We believe that the appeal process must be modified in a way, including external, independent peer review, that will have reliability, independence and transparency.

Under the CPSC's Guidelines, issued pursuant to the OMB's guidelines, information disseminated by the CPSC must have objectivity and utility. The information contained in the Report have neither. The information lacks objectivity because they are based on test methods that are not reflective of real world conditions and were developed to test a hypothesis that is either obvious (i.e. that lint can burn) or totally irrelevant (i.e. can balls of lint be ignited). Therefore, the information lacks utility in and relation to the real world. The results generated by the test methods reported did not support the conclusions of the Report. The Report instead is actively and unfairly harmful to the electric clothes dryer industry. Accordingly, it should be retracted in its entirety.

The November 21 letter attempts to avoid dealing with the merits of AHAM's Request, by claiming that "there are no conclusions in the report that any requirements should be imposed," even as it repeatedly states that the Report shows that "steps can be taken in clothes dryer design and construction to minimize the amount of lint accumulation in the dryer interior." Indeed, the May 30 letter forwards the Report to UL, summarizes the Report's discussion of the results the staff developed from the tests they performed and *recommends that no less than 8 new requirements be developed* for inclusion in the prevailing industry standard, UL 2158. This consistent characterization of the Report by the CPSC staff demonstrates that the CPSC

understands that the Report indeed contains conclusions regarding requirements for dryer design.

The November 21 letter does not, and cannot, claim that the Report demonstrates that lint causes dryer fires and justifies the 8 new requirements that are recommended to minimize the supposed risk of lint fires in dryers. On the contrary, the November 21 letter concedes that "CPSC staff did not attempt to establish a direct cause-and-effect relationship between lint accumulation and clothes dryer fires." There was, in fact, no relationship demonstrated between *actual* lint accumulation in dryers and *actual* ignition or hazard in dryers, to justify the recommendation of 8 new requirements to be included in UL 2158. Indeed, AHAM's Request showed that lint accumulation is not a significant contributor to hazardous dryer fires.

The November 21 letter concedes that the test methods described in the Report do not reflect real life but incorporate layers upon layers of simulations, without any evidence that the simulations can be applicable to actual product use. Showing that lint collects in dryers, lint burns, and dryer air flow and temperatures are affected by exhaust, does not contribute to any "body of knowledge regarding clothes dryer operation and potential causes of dryer fires." AHAM's Request demonstrated that the test conditions described in the Report have little, if any, real world basis, and the November 21 letter does not, and cannot, refute that demonstration. Nonetheless, the staff recommended changes and made statements implying recommended changes in dryer design, based on the tests described in the Report.

Rather than address AHAM's Request on the merits, the November 21 letter repeatedly celebrates the obvious, by claiming that "the information that lint is combustible is of importance to the public in preventing fires." Similarly, the November 21 letter does not address the demonstrated harm being caused by the Report, but merely avers the good intentions of the CPSC staff. AHAM does not suggest bad faith on the part of the staff, but does seek to ameliorate the actual harm being inflicted by the Report and to address the Report's great susceptibility to misinterpretation and abuse.

The industry fully shares in the objective of the Report, that is to determine the causes of clothes dryer fires and to prevent these fires. However, AHAM submits that the pervasive deficiencies of the Report in objectivity and utility cannot be cured by piecemeal correction and the Report should be retracted in its entirety. The November 21 letter does not address the issues raised by AHAM's request and provides no basis for retention of the Report, not to speak of issuance, of the Report.

THE CPSC DATA QUALITY ACT REQUEST REVIEW PROCESS IS FATALLY FLAWED

At the outset, it is clear that the appeal process itself is fundamentally flawed, in that the very persons whose work is being challenged, are the ones who are reviewing the merits of the

challenge. AHAM's request was reviewed by the Assistant Executive Director for Hazard Identification and Reduction and her staff because they are knowledgeable about the subject matter. Indeed they are knowledgeable, because they are the authors of the Report. However, they cannot be objective adjudicators of the merits of AHAM's Request, or of this appeal. Likewise, we are concerned that the evaluation of AHAM's appeal will be similarly flawed.

AHAM submits that a peer review process is the appropriate mechanism by which our Request should be evaluated. Peer review is generally accepted as the best mechanism by which to evaluate scientific and technical work. Indeed, the OMB issued for comment a proposed Bulletin on Peer Review and Information Quality (68 Fed. Reg. 54023-54029, September 15, 2003), to supplement its information quality guidelines pursuant to the Information Quality Act which provides "new guidance to realize the benefits of meaningful peer review of the most important science disseminated by the Federal Government regarding regulatory topics." The OMB proposes that "agencies conduct peer reviews of the most important scientific and technical information relevant to regulatory policies that they disseminate to the public, and that the peer reviews are reliable, independent, and transparent."

The CPSC process for an internal initial review of AHAM's Request clearly lacks the reliability, independence and transparency that the OMB proposes should be the standard. The CPSC's appeal process must be modified to correct these defects. This should include a peer review by an independent external panel to which AHAM and the CPSC staff can present their positions both orally and in writing. We would be pleased to explore with you and your staff the specifics of such a peer review process, to ensure reliability, independence and transparency.

AHAM'S REQUEST

The OMB has issued government-wide information quality guidelines under Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554), "to ensure and maximize the quality, utility, objectivity, and integrity of information disseminated by federal agencies." Pursuant to the OMB guidelines (67 Fed. Reg. 8452, February 22, 2002), the CPSC issued in March 2003 the Guidelines (http://www.cpsc.gov/LIBRARY/infoguidelines.html). The CPSC's Guidelines set forth the "CPSC's information quality standards, and an administrative mechanism by which the public can seek correction of information disseminated by the CPSC."

Under the Guidelines, "objectivity" of information means "a focus on ensuring that information is accurate, reliable, and unbiased and that information products are presented in an accurate, clear, complete, and unbiased manner." The "utility" of information under the Guidelines relates to "the usefulness and availability of the information for its intended use."
The Report is the type of information product that the Guidelines are intended to address.

However, it lacks the objectivity and utility required by the Guidelines. The facts and conclusions presented in the Report lack objectivity, in that they are biased, unreliable, incomplete, and based on unsound analytical techniques. The test methods described in the Report are not representative of real world conditions, were developed to test a hypothesis of questionable utility in and relation to the real world, and did not generate results that supported the conclusions set forth in the Report. Thus, the findings and conclusions presented in the Report are misleading. Their dissemination is not only of little utility to the public, but is actively and unfairly harmful to the industry, by presenting "inaccurate or misleading information which reflects adversely upon the safety of [a] class of consumer products". 15 U.S.C. §2055(b)(7). The Report will therefore be of little usefulness in improving the safety of clothes dryers and will instead encourage meritless claims and lawsuits against dryer manufacturers while further delaying pursuit of the actual causes of dryer fires.

Therefore, pursuant to the administrative correction mechanisms established by the CPSC and set forth in the Guidelines, the Report should be retracted, or, at the very least, substantially revised as soon as possible. The failure to retract or substantially revise the Report and its continued dissemination will create and maintain a false impression on the part of the public as to possible correlations among lint, clothes dryers, and possible lint fires in clothes dryers. It may therefore have the effect of diverting attention and resources from what may be more significant causes of dryer fires, and therefore fail to achieve the goal of further diminishing the risk of dryer fires.

THE NOVEMBER 21 LETTER IS DISINGENUOUS AND PROVIDES NO SUPPORT FOR THE REPORT

The theme of the November 21 letter, stated no less than seven times and paraphrased another two times, is that the "results of the CPSC staff tests are summarized as conclusions in the report; there are no conclusions in the report that any requirements should be imposed." Its premise is that the Report merely "presents the results of testing conducted on electric clothes dryers and test apparatus designed to emulate components producing heat and airflow characteristics that are typical in dryers." This is not an accurate representation of the Report. The staff went to elaborate lengths to deconstruct dryers, which are designed to manage the inevitable creation of lint and its ignition. If the paper's authors were to look at normal operating dryers they would find charred lint contained inside. The challenge in designing dryers is to manage the lint charring by creating air flows, baffles, small holes in drums and diversion so as to prevent fires. As the joint CPSC/AHAM study of dryers involved in fires discovered, lint is not singly the cause of dryer fires.

Instead, the report constructs a bench test to discover that large balls of lint can be ignited by high temperatures. Most troubling, the tests do not "emulate... heat and airflow...typical in

dryers" – they completely ignore them. This refutes the claim that the test done by the staff is fair and representative

The theme of the November 21 letter is belied by the May 30 letter, which forwarded a copy of the Report to UL and "presents *recommendations* from the U.S. Consumer Product Safety Commission (CPSC) staff regarding revisions to UL 2157 [sic] – Electric Clothes Dryers to address the hazard associated with clothes dryer fires and ignition of lint," based the results documented in the Report. The May 30 letter states that the "CPSC staff *recommends* that the following *new requirements* be developed for inclusion in the voluntary standard to address fire hazards associated with clothes dryers" and sets forth no less than *8 recommended requirements for construction, performance and warning and notification,*[1] along with a recommendation that "UL conduct additional tests to determine if premature failure of the high-limit thermostat occurs due to extended exposure to high ambient temperatures." (Emphasis added.) Indeed, the November 21 letter contends that the Report "merits consideration by the UL Standards Technical Panel for UL 2158 – Electric Clothes Dryers based on areas of concern identified in our research." It repeatedly states that "steps can be taken in clothes dryer design and construction to minimize the amount of lint accumulation in the dryer interior. Taking steps to reduce the accumulation of lint will reduce any opportunity for lint to ignite."

The November 21 letter is further belied by the 96-slide presentation that the staff made on July 29, 2003 at a meeting with representatives from AHAM, Underwriters Laboratory and several other organizations, on "Electric Clothes Dryers and Lint Ignition Characteristics". In this lengthy presentation, the CPSC staff summarized their work and concluded with 6 slides that repeated the 8 recommendations in the May 30 letter, and added a 9th recommendation.[2]

Given this consistent presentation of the Report by the CPSC staff, it is highly disingenuous to characterize the Report as containing no conclusions regarding actions to be taken on requirements to be added to the ANSI standards. If this tactic is successful, then all future data issued by the CPSC can be protected from the rigors of the Data Quality Act merely by couching the operative materials in a transmittal letter.

---

[1] The 8 recommended requirements are: (1) improve the connection of the home exhaust ducting to the clothes dryer male duct to minimize the amount of air leakage; (2) limit the amount of air leakage into the dryer's interior during normal operation; (3) limit the amount of air leakage in the dryer's interior when the exhaust venting is partially blocked; (4) limit the maximum temperature of the heater housing surface under the conditions of failed safety controls and blocked exhaust venting; (5) limit the maximum temperature at the heater air intake under all conditions; (6) prevent sizeable combustible material (e.g.) lint from being drawn into the heater intake; (7) prevent embers from entering into the tumbler; and (8) notify consumers when the dryer is cycling on the high-limit thermostat or when the primary (control) thermostat fails to cycle.

[2] The additional recommendation is to improve the pressure fit between the home exhaust ducting and the clothes dryer male duct.

Moreover, notwithstanding the statements of the November 21 letter, the tests described in the Report were not conducted on apparatus that emulated meaningfully "components producing heat and airflow characteristics that are typical in dryers." AHAM's Request demonstrated the lack of real world basis for the test conditions described in the Report, and the November 21 letter does not, and cannot, refute that demonstration.

Similarly, merely demonstrating that lint collects in dryers, that lint burns and that dryer air flow and temperatures are affected by exhaust blockage, does not contribute significantly to any "body of knowledge regarding clothes dryer operation and potential causes of dryer fires." There was no relationship established between *actual* lint accumulation in dryers and *actual* ignition or hazard in dryers. There was only a leap of faith that the presence of lint that can burn means that dryer fires are significantly caused by lint, sufficient to justify the recommendation of 8 new requirements to be included in the prevailing industry standard, UL 2158.

The November 21 letter in fact further demonstrates the lack of objectivity and utility of the Report and further buttresses the appropriateness and need in retracting the Report in its entirety.

THE LACK OF OBJECTIVITY OF THE REPORT

1 **The information presented throughout the Report incorrectly implies that lint and dryer design defects cause dryer fires**, particularly in the Executive Summary, and Sections 1.0 (Introduction), 2.3 (Task 3: Monitor Lint Distribution), 2.4 (Task 4: Determine Characteristics for Lint Ignition), 3.0 (Discussion), and 4.0 (Summary and Conclusions). No such causation was demonstrated in the work described in the Report.

The November 21 letter attempts to address this issue by pointing out that the National Fire Protection Association had reported that "'lack of maintenance' was the leading cause of clothes dryer fires and that the first materials ignited in almost 28 percent of the fires was 'dust, lint, and fibers.'" It also attempts to respond by describing the CPSC testing as showing that lint accumulates in dryers even in the best of conditions, and lint ignites in certain abnormal operating conditions. It claims that the Report "does not identify or allege specific defects in current dryer designs" and was simply intended to "advance the understanding of product operation and factors that could contribute to potentially hazardous conditions."

The fact is that the staff recommends in its May 30 letter that 8 new requirements be added to the applicable ANSI standards, all with the purposes of further limiting the accumulation of lint, further lowering the already low probability of lint accumulating where there may be sufficiently high temperatures to cause ignition, and further cutting the chances of high temperatures occurring in a dryer. There is no justification for these new requirements unless there is a

showing that lint causes dryer fires. The November 21 letter does not, and cannot, claim that the Report makes that showing. This failure highlights the lack of utility and objectivity of the Report. There is no causation shown, yet burdensome new requirements are recommended on the assumption of causation implied in the Report.

2 **The lint ignition test methods used and reported in the Report are wholly deficient, without substantial basis in real life conditions.**

a. No empirical data from actual incidents were used to design the test set up and test conditions.

b. Little of the testing and the Report was devoted to lint accumulation or to how lint could be ignited where lint accumulation actually occurs.

c. The lint ignition test described in the Report had almost no relation to actual dryer construction and did not simulate actual dryer conditions or operations.[3]

The November 21 letter concedes that the test methods described in the Report do not reflect real life; these tests involved layers upon layers of *simulations* of ostensibly real life conditions. First, these tests included simulated exhaust blockages and simulated environments surrounding an electric clothes dryer heater. Importantly, the test setup included only components that produce heat within a clothes dryer and airflow through and around the heater, without assembling the components in any way resembling real life dryers. The staff sought to simulate conditions that might be anticipated during operation, without any evidence that those conditions actually occur in real life.

The November 21 letter demonstrates the deficiencies in the test, conceding that it showed that "[i]gnition occurred only when airflow was reduced (simulating a blockage) and the high-limit thermostat was bypassed (simulating a failed-closed thermostat)", without any demonstration that the combination of blockages and failed closed thermostats are a significant real life phenomenon. The fact that the best the November 21 letter could claim for the test, is that it "also indicated that, when lint is ingested into the heater, it is possible for the lint to ignite

---

[3] There are at least 8 areas in which the test deviated substantially from normal dryer operating conditions: (1) a vertical heater housing was modified and tested horizontally; (2) the horizontal heater housing configuration tested is atypical of actual horizontal heater housings; (3) operating thermal devices were omitted in the test set up, as well as high-limit thermostat backups; (4) large lint samples (harvested from a dryer lint screen) were attached randomly to the heater housing, where lint does not actually accumulate; (5) lint balls were injected into the heater that were 100 times larger than those that can pass through the inlet grill of the heater; (6) lint balls were simply injected into a heater until one ignited, with no justification for such a test; (7) lint and towels were strapped as targets inside a glass tube close to the heater, in a situation that would not occur in an actual dryer; and (8) the air flow paths and obstructions to the heater were modified to be atypical of actual dryer configurations.

combustible materials placed downstream," simply proves the meaninglessness of the exercise While lint does burn, and lint can possibly set other things in the vicinity on fire too, this can only happen if there is sufficient mass of lint ingested. However, the CPSC injected lint balls into its atypical set up that were 100 times larger than what can pass through the inlet grill of the heater.

3 **The presentation in the Report of the information from the lint ignition test is out of context and misleading.** The presentation implies that lint accumulates in areas of the dryer that are subject to ignition by the heater and that this ignited lint is a fire hazard. However, there is no empirical evidence, either in the lint ignition test or to AHAM's knowledge, that lint actually accumulates in these areas of a dryer or that lint actually ignites in those areas and is transported after ignition to other parts of the dryer.

In fact, lint accumulation is not a significant contributor to hazardous dryer fires. Applying the ratios determined in the August 2002 AHAM Analysis of Industry Data on Clothes Dryer Fire Incidents (the "AHAM Analysis") from 191 actual inspections of dryer fires, where 1% of fires that breached the dryer involved lint, the failure rate is 3.9 parts per BILLION for hazardous fires that could have been caused by lint.[4] A copy of the AHAM Analysis has been provided to the CPSC staff and is attached.

The November 21 letter does not address these facts, but takes refuge in the statement that AHAM's data "show that, for the dryers that were involved in fire incidents associated with lint ignition, lint was *reported* to have accumulated on and near the heater." The November 21 letter, in fact, concedes that the Report "does not present data or testing to demonstrate that lint accumulates on or near the heater for all clothes dryers." Yes, "lint can be ignited by the same heat characteristics as those exhibited by dryer heaters." However, the staff makes no showing how that unsurprising fact supports the recommended new requirements they propose.

By simply declaring that the "CPSC staff believes that all fires in clothes dryers have the potential to develop into a hazardous condition and should be prevented" and recommending new requirements be added to the applicable ANSI standards because it "has seen no evidence to support the AHAM assertion that lint accumulation is not a significant contributor to hazardous

---

[4] The AHAM Analysis also demonstrated that (1) there is no support for the theory that lint build-up causes reduced air flow that result in elevated component temperatures and fires; (2) there are multiple contributing factors causing dryer fires, and lint is not a primary, or even significant, contributor to dryer fires; and (3) where the load was retrievable, 83% had trace amounts of vegetable oils, animal fats, fuel oils and petroleum distillates, leading to the inference that these elements were a likely contributor to fires, more than lint. The November 21 letter claims that the AHAM Analysis "is not sufficient to determine statistically valid failure rates attributable to any specific cause." If so, then the Report contains even *less* valid data to support the conclusions that lint is a hazard in dryers and that 8 new requirements are needed to address that hazard.

dryer fires," the staff reveals the very weak reeds indeed upon which it seeks to hang such onerous new requirements. (Emphasis in original.) It sets the process on its head. Is there then an assumption to be rebutted, that lint accumulation is a significant factor? We submit that the assumption that should hold until disproved is that lint accumulation is *not* a significant factor, especially in light of the data gathered in the AHAM Analysis.

4 **The recommendations in the Report imply that there are multiple design defects in current dryer designs that contribute to fires.** However, the Report presents no evidence (a) of any such defects, (b) that defects exist which contribute to actual dryer fires, or (c) that the general and generic design changes recommended would reduce the incidence of dryer fires. Major changes to the dryer thermal and lint handling systems are not warranted and may instead introduce new risks.[5]

The November 21 letter could say only that "there are no recommendations or statements implying levels of recommended changes to the dryer thermal and lint handling system in the report. The CPSC staff report does not identify or allege specific defects in current dryer designs."

This claim is completely contradicted by the Report, and by the May 30 letter. There are both recommended changes and statements implying recommended changes.

The Report notes (at p. 133) that "lint accumulates inside a dryer with properly vented exhaust ducting and with properly maintained lint screen...lint on the heater housing and in proximity to the heater intake can ignite..., and material downstream of the heater can be ignited by lint ingested by the heater." It also notes (at p. 133-34) that "the length of the dryer's exhaust duct extending out of the dryer may not allow the house duct to slide far enough onto the dryer's exhaust duct to provide a secure pressure fit" while "using rigid external ducting does not allow for a secure pressure fit around the dryer's exhaust duct." The Report observes (p. 135) that lint "accumulation occurs even when the dryer's lint screen has been cleaned after each usage, and the dryer is properly exhausted." Moreover, "seals in the dryer's interior exhaust venting may not be adequate to prevent linty air from escaping into the dryer's interior." (Report p. 135.) The Report concludes (p. 135) that "lint that accumulates on the heater housing can ignite under conditions of a failed high-limit thermostat and a blocked exhaust vent" and that "lint accumulating near the heater intake can ignite before the high-limit thermostat switches the heater element off." It found (p. 136) that "lint ingested by the heater and embers expelled from the heater exhaust can easily ignite additional lint or fabric in the air stream, resulting in additional embers in the dryer system and exhaust vent." Finally, the Report concluded (p. 136)

---

[5] In fact, all dryers are designed with protections against exhaust blockage, hazardous temperatures and multiple component failure. Dryer design has progressed to an extremely safe level. And, in the overwhelming number of dryers studied in the AHAM Analysis, the thermal devices operated as designed.

that "the high-limit thermostat may prematurely fail when subjected to high ambient temperatures." All of these conclusions are the results of the staff's test method, not actual dryer design. The November 21 letter does not, and cannot, address AHAM's demonstration in its Request of the lack of objectivity or utility of these aspects of the Report.

Following these conclusions, the May 30 letter recommended that 8 new construction, performance and warning and notification requirements be added to the prevailing industry standard, UL 2157 [sic], to improve the connection of the home exhaust to the clothes dryer male duct, to limit the air leakage into the dryer's interior during normal operation and when the exhaust venting is partially blocked, to limit the maximum temperature of the heater housing surface under conditions of failed safety controls and blocked exhaust venting and at the heater intake under all conditions, to prevent sizeable combustible material from being drawn into the heater intake and embers from entering into the tumbler, and to notify consumers when the dryer is cycling on the high-limit thermostat or when the primary thermostat fails to cycle. The May 30 letter also recommends that "UL conduct additional tests to determine if premature failure of the high-limit thermostat occurs due to extended exposure to high ambient temperatures." -

THE LACK OF UTILITY OF THE REPORT

1 **The only facts that are established in the CPSC lint ignition test described in the Report are that (a) lint burns, and (b) dryer air flow and temperatures are affected by blockage.** These facts are of no utility to the public in considering and using dryers, since they provide no guidance as to the cause of dryer fires or the possible prevention of fires. And, they are based only on the demonstrations CPSC staff constructed, not on real-world scenarios.

It is a feeble response indeed, in the November 21 letter, that "the information that blocked exhaust ducts can cause elevated temperatures is of utility to the public in helping them prevent an overheated clothes dryer" and that "the information that lint is combustible is of importance to the public in preventing fires." On the contrary, this information is of no utility and only highlights the obvious.

2 **The conclusions reached in the Report based on the lint ignition test are of questionable utility to the public, because there is no relationship established between actual lint accumulation and ignition or hazard.**[6]

The November 21 letter concedes that "CPSC staff did not attempt to establish a direct cause-and-effect relationship between lint accumulation and clothes dryer fires but, rather, relied on the substantial body of evidence (as described above) that indicates lint is a contributor to a portion of clothes dryer fires," reiterating that "the facts that lint accumulates in a clothes dryer and is combustible are of importance to the public in preventing fires from occurring in clothes dryers."

First, there is no such "substantial body of evidence" as AHAM's Request and the AHAM Analysis demonstrate. Second, if the "portion of clothes dryer fires" that the Report addresses is the 3.9 parts per BILLION that could have been caused by lint, then it is hard to see what is the utility of the Report, when there are so many other causes that could benefit more from research and attention.

3 **The conclusion that a requirement should be imposed to limit the amount of air leakage into the dryer's interior during normal operation is of little utility, because it is not supported by any empirical data or correlation demonstrating that air leakage at this location presents a fire risk.**[7]

The November 21 letter has no response to this deficiency in the Report but merely repeats its mantra that "there are no conclusions in the report that any requirements should be imposed." The May 30 letter recommends a "requirement to limit the amount of air leakage into the dryer's interior during normal operation." Either this recommendation is based on the Report (for which

---

6 There is no test or field evidence that lint alone is a hazard or has any relationship to the lint ignition test as to the lint locations tested, so that knowing lint accumulates inside a dryer is of little utility. There is no test or field evidence that lint accumulates in those locations and densities similar to that in the lint ignition test. It is common knowledge that lint accumulates in a dryer. The test method used by the staff created artificial lint accumulation and masses of lint not found in normal dryers so that knowing that lint on the heater housing and in proximity to the heater intake can ignite is of little utility. And the conclusion that material downstream of the heater can be ignited by lint ingested by the heater is of little utility, since that has no relationship to conditions in an actual dryer.

7 In the four designs (A, B, C, D) studied in the lint ignition test, the tumbler is at a negative pressure with respect to the cabinet interior, which would tend to draw lint into the tumbler. The industry seals the tumbler to cabinet interface and other air system interfaces as well as reasonably possible, in order to optimize dryer performance. Therefore, lint is drawn into the tumbler and unlikely to escape from the tumbler into the dryer interior. Moreover, any lint that does escape into the dryer interior due to the tumbling of the clothes load and movement of the tumbler are in amounts that are small and inconsequential. In any event, the industry avoids the presence of flammables in components and wiring near the base, where lint may accumulate. Finally, if lint on the base does ignite, it will self-extinguish after charring on the surface. AHAM has demonstrated this to CPSC and others by video tape at several meetings.

there is no support) or it has no basis.

4 **The conclusion that a requirement should be added to the ANSI standards to limit the amount of air leakage into the dryer's interior when the exhaust venting is partially blocked is of little utility, because it is not supported by any empirical data or correlation demonstrating that air leakage at this location presents a fire risk and would merely be redundant.**[8]

The November 21 letter has no response to this deficiency, but merely repeats its mantra that "there are no conclusions in the report that any requirements should be imposed." The May 30 letter recommends a requirement "to limit the amount of air leakage in the dryer's interior when the exhaust venting is partially blocked."

5 **The conclusion that a requirement should be imposed to limit the maximum temperature of the heater housing surface under conditions of failed safety controls and blocked exhaust venting is of little utility, because heater housing temperatures are <u>already</u> limited by thermal devices.** All four designs tested have a back-up device for the high-limit thermostat, which already limits the temperature of the heater housing surface and inlet air temperature under *all* conditions of failed operating and high-limit devices.

The November 21 letter points out that the CPSC staff presented preliminary results of supplemental testing at a meeting on August 28 that purported to show that the back-up device might not sufficiently limit the temperature on the surface of the heater housing. These preliminary supplemental results do not affect the fact that, as AHAM's Request pointed out on September 12, all the devices tested have both high-limit and back-up devices limiting the temperature of the heater housing surface and inlet air temperature under all conditions of failed operating and high-limit devices. Therefore, the staff's conclusion is of no utility.

The May 30 letter recommends a requirement "to limit the maximum temperature of the heater housing surface under the conditions of failed safety controls and blocked exhaust venting."

6 **The conclusion that a requirement should be added to the ANSI standards to limit the maximum temperature at the heater intake under all conditions is of little utility, because thermal devices already limit heater intake temperatures.** All four designs tested limit the temperature at the heater intake with the high-limit

---

[8] The exhaust venting being partially blocked tends to pressurize the outlet side of the blower and exhaust system. It also reduces air flow into the cabinet and into the heater intake as well as out the exhaust. The partial blockage therefore also reduces the likelihood of ingesting lint into the dryer interior. In any event, UL 2158 and ANSI Z21 both already test for exhaust vent blockage.

thermostat under blocked exhaust conditions and with the high-limit backup device under high-limit failure conditions.

The November 21 letter merely repeats its mantra that "there are no conclusions in the report that any requirements should be imposed" and notes that "combustibles near the heater intake may ignite before the high limit thermostat activates under the conditions reported." However, as the AHAM Request demonstrated, there is no significant evidence that combustibles in amounts sufficient to support combustion are near the heater intake in actual products.

The May 30 letter recommends a requirement "to limit the maximum temperature at the heater air intake under all conditions."

7 **The conclusion that a requirement should be imposed to prevent sizeable combustible materials (e.g. lint) from being drawn into the heater intake is of little utility, because lint does not accumulate near the heater intake and sizeable combustible material is not ingested or ignited in the heater intake.**[9]

The November 21 letter repeats its mantra that "there are no conclusions in the report that any requirements should be imposed" and notes that the test demonstrates that "lint accumulates inside a clothes dryer" and that "if lint is drawn into a heater, it could further ignite materials downstream." The CPSC staff considers this to be a "demonstration of foreseeable conditions that could potentially lead to fires within a dryer" that is "valuable in determining methods to avert the future possibility that any such fires occur."

It is not contested that lint accumulates inside a dryer and that lint in a heater may ignite materials downstream. However, as the AHAM Request demonstrates, these two facts do not add up to any demonstration of "foreseeable conditions that could potentially lead to fires within a dryer." The May 30 letter recommends a requirement be added to the ANSI standards "to prevent sizable [sic] combustible material (e.g. lint) from being drawn into the heater intake."

8 **The conclusion that a requirement should be imposed to prevent embers from entering into the tumbler is of little utility, because burning embers in a dryer**

---

[9] "Sizeable combustible material" is not drawn into the heater intake in actual dryer operation and will not pass through the inlet grill, in any of the four designs tested. Moreover, lint does not accumulate to any consequential degree near the heater intake, as described in the Report regarding the lint accumulation testing with Design A. For Design D, almost no lint accumulation is found near the heating element after over 10 years of life, since the air intake is distributed around the circular heating element. In fact, lint balls that are smaller than ¼" in diameter, weighing less than 0.005 grams, must be within about two inches of the heater intake of Design A to be drawn in. When a small lint ball is drawn into the heater intake, it does not ignite due to its speed through the heater box and limited contact with the heater element. With restricted airflow, lint balls do not enter the heater intake at all. Thus, the CPSC supposition was not verified.

are extinguished and cause no damage. AHAM provided evidence to the CPSC staff that large lint balls, greater than 0.3 grams, which are artificially ignited within the tumbler, are also extinguished and do not damage the clothes load.

The November 21 letter repeats its mantra that "there are no conclusions in the report that any requirements should be imposed" and notes the test demonstrated that "the potential exists for lint to ignite and be carried by the airflow further downstream, and that if embers come into contact with combustible materials they can ignite those materials." As AHAM demonstrated, and the November 21 letter does not, and cannot, refute, embers are extinguished in dryers and do not ignite the clothes load. This conclusion is of little utility.

The May 30 letter recommends a requirement "to prevent embers from entering into the tumbler."

9 **The conclusion that a requirement should be added to the standards to notify consumers when the dryer is cycling on the high-limit thermostat or when the primary (control) thermostat fails to cycle is of limited utility, because it would result in counterproductive false alarms and will at most duplicate existing safeguards.**[10]

The November 21 letter repeats its mantra that "there are no conclusions in the report that any requirements should be imposed" and argues that a notification "may lead the consumer to take remedial actions sooner." It does not even attempt to address the issue AHAM's Request raises of false alarms and redundancy. Nonetheless, as previously discussed with the CPSC technical staff, we agree to investigate this matter further within the context of the UL Standards Technical Panel, in conjunction with information gathered on contaminated load research.

The May 30 letter recommends a requirement "to notify consumers when the dryer is cycling on the high-limit thermostat or when the primary (control) thermostat fails to cycle."

---

[10] Cycling on the high-limit thermostat is neither abnormal nor a hazard. Moreover, the high-limit thermostat is backed up by another thermal device in all four designs tested, to limit the heater housing and inlet air temperatures for blocked vent conditions. In any event, UL 2158 already includes a heating test with a 25% blocked lint screen and a restricted vent, during which test the dryer cannot cycle on the high-limit thermostat. Finally, if the dryer does cycle on the high-limit thermostat due to a blocked exhaust or a failure of the primary (control) thermostat, the consumer will request a service call due to wet clothes and excessive drying times.

THE HARM TO THE CLOTHES DRYER INDUSTRY AS A RESULT OF THE REPORT

1 The Report has misled the public and will continue to do so if not retracted.

a. Recent television reports in St. Paul/Minneapolis have informed viewers that the CPSC study shows that dryers have "alarming flaws" that can put consumers "in great danger."[11]

b. The Cozen & O'Connor Subrogation & Recovery Alert of June 23, 2003, which is relied upon by the insurance industry, informed readers that "[b]locked or inadequate airflow through the exhaust duct is the most common source of dryer fires."[12]

2 Local fire departments will rely on the Report to establish the causes of dryer fires.

3 Plaintiffs' counsel, experts, insurance companies, and consumers will rely on the Report to pursue meritless lawsuits.

The November 21 letter doesn't even attempt to address the demonstrated harm to the clothes dryer industry that is being caused by the dissemination of the Report, but merely disclaims any intent to harm and "agrees that any interpretation of this report should be made within the proper context." They are correct. We do not accuse the CPSC staff of any bad intent, but only seek to ameliorate the actual harmful effects of the Report, and to address the fact that the Report lends itself to misinterpretation. It is important to either retract the Report, or state that its test methods and findings are of no relevance to actual clothes dryers.

SPECIFIC RETRACTIONS THAT ARE REQUESTED IN THE EVENT THE REPORT IS NOT RETRACTED IN ITS ENTIRETY

In the Request, AHAM requested that, in the event the Report is not retracted in its entirety,

---

11 "Most families run their clothes dryer seven times a week. It's a great convenience, but can also put you in great danger. A Consumer Product Safety Commission study, released today, points out some alarming flaws in the way most dryers are designed." Those television reports also claimed that the "critical report issued within the last few days, called the venting of dryers not adequate and noted lint that accumulates can easily ignite." After all, "[t]he kinks [in the exhaust hose] can catch the lint and once that lint totally blocks the hose, the heat has nowhere to escape and the clothes in the dryer catch on fire."

12 This influential publication also indicated the substantial financial impact from the "most common source of dryer fires" by reporting that "[t]he U.S. Consumer Product Safety Commission ("CPSC") estimates that at least $84.4 million in property damage results annually from fires caused by clothes dryers."

certain specific retractions be made to the Report. The specific retractions requested are:

1 Statements implying that linty air leakage from internal or external ducting creates a hazard. The Report presents no evidence that this is a hazard.

2 Statements about hazardous accumulations of lint on the heater housing. The Report presented no data showing such accumulations occur in a dryer, and industry testing and field experience demonstrate that no such accumulations occur.

3 Statements about lint accumulation near the heater intake. The Report presented no data showing hazardous accumulation levels in that area.

4 Statements about lint being ingested by the heater. The Report presented no evidence of this actually occurring in a dryer.

5 Statements about embers igniting additional lint or fabric in the air stream. The Report presented no evidence that embers are transported or ignite other materials in a dryer.

6 All the lint ignition test results and conclusions, as they in no way simulated actual dryer conditions with respect to:

a. Orientation of heater housing

b. Size of lint samples ingested

c. Artificial method of ingesting lint samples

d. Quantity of lint samples ingested for single run

e. Omission of barriers to ingested lint

f. Arbitrary location, size and attachment of target materials

g. Air flow that is directed along a straight path from intake to exhaust and that does not reflect the actual random air flow in a tumbler with a load

h. Back up safety device for high-limit thermostat omitted as well as operating thermostat, which are present in all actual dryer designs

At the very least, there should be a clarifying statement issued that, in fact, the Report described only a bench test approach to investigating the potential of lint ignition , and not a study of actual clothes dryer operations and risks. In addition, such a statement should clarify that further research will be needed to determine what, if any, applicability the test results described in the Report would have to actual clothes dryer design.

In all events, AHAM urges that any further research by the CPSC be done with greater transparency, and in the context of the research that is being planned jointly by UL and AHAM. Moreover, consistent with the intent to realize "the benefits of meaningful peer review of the most important science disseminated by the Federal Government regarding regulatory topics," we urge that future reports by the CPSC of the nature of the Report be issued in draft for technical review and comment before being disseminated in final form.

* * *

As noted in AHAM's Request, all dryer designs are protected against exhaust blockage, hazardous temperatures, and multiple component failure. Nonetheless, AHAM recognizes the need for better data on the actual causes of dryer fires, which is the intent of the research being planned by UL and AHAM. However, we believe that the focus of the CPSC's efforts on lint are misguided and should be redirected toward further study of dryer load composition, and combustible venting materials. Its efforts should be based on empirical data from real world testing. The Report is not an objective or useful contribution in these efforts and should be retracted.

We welcome the opportunity to discuss these issues with you.

Sincerely,

David B. Calabrese

David B. Calabrese
Vice President
Government Relations

Enclosures:
Letter, dated September 12, 2003, from David B. Calabrese
Letter, dated November 20, 2003, from W.H. DuRoss III
Letter, dated November 21, 2003, from Jacqueline Elder
Letter, dated May 30, 2003, from Arthur Lee

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

Arthur Lee
Electrical Engineer
Division of Electrical Engineering
Office of Hazard Identification and Reduction

Tel: 301-504-7539
Fax: 301-504-0533
Email: alee@cpsc.gov

May 30, 2003

Mr. Joe Musso
STP Chair – Appliances Global Standards
Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062

Dear Mr. Musso:

This letter presents recommendations from the U.S. Consumer Product Safety Commission (CPSC) staff regarding revisions to UL 2157 – *Electric Clothes Dryers* to address the hazard associated with clothes dryer fires and ignition of lint.

In 1998, there were an estimated 15,600 clothes dryer (gas and electric) fires[1]. To address this hazard, CPSC staff initiated testing in 2002 to evaluate the effects of lint accumulation and above-normal operating temperatures in a clothes dryer and to determine whether such conditions may result in lint ignition and/or dryer fires. The results of the staff tests are documented in the enclosed report, *Final Report on Electric Clothes Dryers and Lint Ignition Characteristics, May 2003.*

The results of the CPSC staff tests showed that lint that accumulates inside a clothes dryer can ignite if the lint contacts certain areas of the heater housing, if the lint is in proximity to the heater, or if the lint is ingested into the heater box. Some of the observations and conclusions noted by staff in the enclosed report include:

- The length of the clothes dryer male duct may not be adequate to provide a secure pressure fit with the home's exhaust ducting.

- The home's rigid exhaust ducting cannot be compressed to fit snugly around the dryer male duct, possibly leading to separation and allowing lint to enter into the dryer's chassis.

[1] Mah, J., "Table 1, Estimated Residential Structure Fires Selected Equipment 1998," *1998 Residential Fire Loss Estimates*, Directorate for Epidemiology, US Consumer Product Safety Commission, 1998.

- In general, the dryers tested cycled on the high-limit thermostat when the exhaust vent was 75 or 100 percent blocked, which caused the temperatures near the heater to increase significantly.

- When the primary thermostat was bypassed (simulating a thermostat failure), the dryer operated at higher than normal temperatures – temperatures similar to those measured when the exhaust vent was blocked 50 to 75 percent. In general, a failed-closed primary thermostat did not cause the dryer to cycle on the high limit thermostat for the unblocked exhaust vent condition.

- Lint begins to accumulate inside a dryer chassis upon first use. Lint accumulates on dryer components, including the heater and the dryer floor. This accumulation occurs even when the lint screen has been cleaned after each usage, and the dryer is properly exhausted.

- Seals in the dryer interior exhaust ducting may not be adequate to prevent linty air from escaping into the dryer's interior.

- Lint that accumulates on the heater housing can easily ignite under conditions of a failed high-limit thermostat and a blocked exhaust vent.

- Lint accumulating near the heater intake can ignite before the high-limit thermostat switches the heater element off.

- Lint ingested by the heater and embers expelled from the heater exhaust can easily ignite additional lint or fabric in the air stream resulting in additional embers in the dryer system and exhaust vent.

- The high-limit thermostat may prematurely fail when subjected to high ambient temperatures.

The CPSC staff recommends that the following new requirements be developed for inclusion in the voluntary standard to address fire hazards associated with clothes dryers:

<u>Construction Requirements</u>

1. Requirements to improve the connection of the home exhaust ducting to the clothes dryer male duct to minimize the amount of air leakage.

<u>Performance Requirements</u>

1. Requirement to limit the amount of air leakage into the dryer's interior during normal operation.

2. Requirement to limit the amount of air leakage in the dryer's interior when the exhaust venting is partially blocked.

3. Requirement to limit the maximum temperature of the heater housing surface under the conditions of failed safety controls and blocked exhaust venting.

4. Requirement to limit the maximum temperature at the heater air intake under all conditions.

5. Requirement to prevent sizable combustible material (e.g. lint) from being drawn into the heater intake.

6. Requirement to prevent embers from entering into the tumbler.

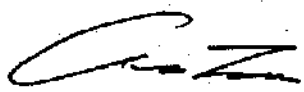
Warning and Notification

1. Requirement to notify consumers when the dryer is cycling on the high-limit thermostat or when the primary (control) thermostat fails to cycle.

We also recommend that UL conduct additional tests to determine if premature failure of the high-limit thermostat occurs due to extended exposure to high ambient temperatures.

Thank you for the opportunity to provide the enclosed CPSC staff report and comment on provisions of UL 2157 – *Electric Clothes Dryers*. We believe that the enclosed report will be helpful in identifying factors that contribute to clothes dryer fires, and we look forward to participating in further discussions on this standard. The views expressed in this letter are those of the CPSC staff and have not been reviewed or considered by the Commission.

Sincerely,



Arthur Lee
Project Manager for Clothes Dryers
Division of Electrical Engineering

Cc: Wayne Morris, AHAM
James R. Beyreis, UL/Northbrook
Gordon Gillerman, UL/Washington
Colin Church, CPSC

Enclosure:
Final Report on Electric Clothes Dryers and Lint Ignition Characteristics, May 2003
1 CD