UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MD 20814

This document has been electronically approved and signed.

THIS MATTER IS SCHEDULED FOR A BALLOT VOTE.

DATE: September 19, 2012

TO: The Commission
Todd A. Stevenson, Secretary

THROUGH: Cheryl A. Falvey, General Counsel
Kenneth R. Hinson, Executive Director

FROM: Patricia M. Pollitzer, Acting Assistant General Counsel
Barbara E. Little, Attorney, OGC

SUBJECT: Petition CP 11-1; Request for Standard for Gas Fireplaces with Glass Fronts

BALLOT VOTE Due: September 25, 2012

The U.S. Consumer Product Safety Commission (CPSC) received a request, dated May 23, 2011, from Carol Pollack-Nelson, Ph. D, asking that the CPSC initiate rulemaking to require safeguards on the glass fronts of vented gas fireplaces to protect consumers from burns received by coming into contact with the glass front. Subsequently, the CPSC received another submission from William Lerner, asking that the CPSC initiate rulemaking to require a warning system that would alert consumers when the glass front exceeds a certain temperature. The request from Dr. Pollack-Nelson was docketed as a petition, CP 11-1, and it was published in the *Federal Register* on June 8, 2011. The *Federal Register* notice also mentioned Mr. Lerner's submission.

In March 2012, CPSC staff submitted a briefing package to the Commission in response to the Pollack-Nelson petition and the Lerner submission. The briefing package contained information with respect to the hazard, the behavior of young children, contact burn injuries, incident data, market information, voluntary standards, and public comments. The Commission voted in accordance with the staff recommendation to defer the petition for 6 months and direct staff to update the Commission on the progress of applicable standards developments at the end of the 6-month period.

Staff has prepared this report to update the Commission on the status of the standards development process for protective barriers. As detailed more fully in the attached report, while the standards process continues to move forward, it is not yet complete. Based on the information contained in this report, staff recommends that the Commission continue to defer making a decision on the petition until staff is able to confirm that the protective barrier requirements have been published. Staff will continue to monitor the voluntary standards process and provide an update to the Commission within 6 months on the progress of the

standards development for ANSI Z21.88, "ANSI Standard for Vented Gas Fireplace Heaters," and ANSI Z21.50, "ANSI Standard for Vented Gas Fireplaces." Staff will also continue to monitor the voluntary standards process and provide an update to the Commission on the progress of the standards development for ANSI Z21.11.2, "Standard for Gas-Fired Room Heaters, Volume II, Unvented Room Heaters."

Please indicate your vote on the following options:

I. Grant the petition.

_____ _____
(Signature) (Date)

(a) Direct staff to draft an advance notice of proposed rulemaking.

_____ _____
(Signature) (Date)

(b) Direct staff to draft a notice of proposed rulemaking.

_____ _____
(Signature) (Date)

II. Defer the petition until the ballot process in the standards development process is completed and staff is able to confirm that the protective barrier requirements have been published. Staff will continue to monitor the voluntary standards process and provide an update to the Commission within 6 months on the progress of the standards development for ANSI Z21.88, "ANSI Standard for Vented Gas Fireplace Heaters," and ANSI Z21.50, "ANSI Standard for Vented Gas Fireplaces." Staff will also continue to monitor the voluntary standards process and provide an update to the Commission on the progress of the standards development for ANSI Z21.11.2, "Standard for Gas-Fired Room Heaters, Volume II, Unvented Room Heaters."

_____ _____
(Signature) (Date)

III. Deny the petition.

_____ _____
(Signature) (Date)

IV. Take other action (please specify).

_____
_____
_____
_____

_____ _____
(Signature) (Date)

Attachment: Status Report to the Commission on Standards Development Activities to Address the Burn Hazards Associated with the Contact of Hot Glass Fronts of Vented Gas Fireplaces

UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MD 20814

This document has been electronically approved and signed.

Memorandum

Date: September 18, 2012

TO : The Commission
Todd A. Stevenson, Secretary

THROUGH: Mary T. Boyle, Acting General Counsel
Kenneth R. Hinson, Executive Director

FROM : DeWane Ray, Assistant Executive Director
Office of Hazard Identification and Reduction
Ronald A. Jordan, Project Manager, Hot Glass Petition Team
Directorate for Engineering Sciences

SUBJECT : Status Report to the Commission on Standards Development Activities to Address the Burn Hazards Associated with the Contact of Hot Glass Fronts of Vented Gas Fireplaces

Background

On May 23, 2011, Dr. Carol Pollack-Nelson, of Independent Consulting, Inc., filed a petition, requesting that the U.S. Consumer Product Safety Commission (CPSC) initiate rulemaking to require safeguards to protect consumers from burns caused by contact with the glass fronts of vented gas fireplaces. At the time of the request, the governing voluntary standards group for vented gas fireplaces, the American National Standards Institute (ANSI) Z21 Vented Gas Warm Air Heater Technical Advisory Group (TAG)[1] had not published any new standards provisions to address the issues raised in the petition. Dr. Pollack-Nelson's request was docketed as a petition, CP 11-1, and the Commission published a notice in the *Federal Register* on June 8, 2011, requesting public comments (76 Fed. Reg. 33179). The Hot Glass Team was established to review the public comments and other information related to this issue and provide a briefing package of its findings to the Commission.

The Hot Glass Team completed its work and submitted a briefing package to the Commission on March 21, 2012. The team found that glass fronts of vented gas fireplaces pose a risk of severe burn

[1] The Z21/83 Committee and the Canadian Standards Association (CSA)–America are Accredited Standards Developers (ASD) and are jointly accredited by the American Nation Standards Institute (ANSI) to develop standards for gas-fired appliances and accessories. The Z21/83 Committee establishes Technical Advisory Groups (TAG) to develop performance and construction standards for particular product groups. Because United States and Canadian requirements are harmonized through Z21/83/CSA, these standards are designated to reflect that harmonization. Thus, the full US/Canadian designation for these standards are ANSI Z21.50•CSA 2.22, American National Standard/CSA Standard for Vented Gas Fireplaces, and ANSI Z21.88•CSA 2.33, American National Standard/CSA Standard for Vented Gas Fireplace Heaters.

injury not previously addressed by any of the governing voluntary standards (ANSI Z21.88-2009 and ANSI Z21.50-2007). The team also found that, although not within the scope of the petition, unvented gas fireplaces equipped with glass fronts pose similar burn injury risks. The team found that an intervention to prevent contact with a glass front would provide the greatest level of protection to consumers from intentional and accidental contact.

Prior to completion of the March 21, 2012 briefing package, the Vented Gas Warm Air Heater TAG completed comprehensive draft protective barrier coverage for vented gas fireplaces and fireplace heaters and an aggressive schedule to publish a final standard as early as July 2012. On March 27, 2012, the Commission voted unanimously (4-0) to defer the petition for 6 months to allow the voluntary standards process to continue, and directed staff to update the Commission at the end of the 6-month period on the progress of standards developments in ANSI Z21.88, "ANSI Standard for Vented Gas Fireplace Heaters," and ANSI Z21.50, "ANSI Standard for Vented Gas Fireplaces" and other applicable ANSI standards. This report provides an update on the status of the standards development process for protective barriers and covers the activities of the:

1. ANSI Z21 Vented Gas Warm Air Heater Technical Advisory Group
   (develops standards for vented gas fireplaces, ANSI Z21.50, and vented gas fireplace heaters, ANSI Z21.88);
2. Hearth, Patio, and Barbecue Association
   (industry trade association);
3. ANSI Z21/83 Technical Committee
   (oversight committee for all Z21 gas appliance standards); and the
4. ANSI Z21 Unvented Gas Warm Air Heater Technical Advisory Group
   (develops standards for unvented decorative gas fireplaces and unvented gas fireplace heaters, ANSI Z21.11.2).

1. ANSI Z21 Vented Gas Warm Air Heater Technical Advisory Group Activities

On March 7 and 19, 2012, the vented gas heater TAG met and adopted draft protective barrier coverage for vented gas fireplaces, covered by ANSI Z21.50, and vented gas fireplace heaters, covered by ANSI Z21.88. One of the essential provisions of the draft requirements specifies that if the glass front of a vented gas fireplace or fireplace heater exceeds 172^{o}F, then the fireplace or fireplace heater would be required to be equipped with a protective barrier that would prevent contact with the glass front. Another essential provision of the draft standard would ensure that a protective barrier not pose a potential burn hazard if contacted. This was a more technically challenging aspect of the standards development because burn potential cannot be evaluated in the same manner as temperature determinations using typical temperature measurement devices. Rather, evaluation of a surface's burn potential hazard is based on the temperatures of human skin, the hot surface, and any insulating material in between. In addition, there are a number of other parameters that are factored into burn potential evaluation, but they cannot be measured with a temperature measurement device.

The relevant standards that use these parameters for burn potential hazard evaluation and measurement are ASTM C1055-03, "Standard Practice for Heated System Surface Conditions that Produce Contact Burn Injuries," and ASTM C1057, "Standard Practice for Determination of Skin Contact Temperature from Heated Surfaces Using a Mathematical Model and Thermesthesiometer."

These standards specify the threshold at which irreversible burn injuries occur and provide two alternative methodologies for evaluating a surface's burn potential. One methodology involves a mathematical model calculation; the other methodology involves the use of a measurement device, known as a thermesthesiometer. The ANSI Z21 Vented Gas Warm Air Heater Working Group and the ANSI Z21 TAG specified both methodologies in the burn hazard potential provisions of the draft standard. However, given the limitations (*i.e.*, overly complex and inflexible) of the calculation method, the measurement device, using the thermesthesiometer, will likely be the most widely used method.

Although the measurement device approach and the use of thermesthesiometers will likely be the method of choice, many of the TAG members were not familiar with the device or how to use it properly. Concerns were raised during the proceedings of the TAG about the repeatability, reproducibility, and reliability of measurements obtained using a thermesthesiometer. These types of concerns were reflected in comments submitted by TAG members on the draft protective barrier provisions and discussed during the March 7 and 19, 2012, TAG meetings. After a discussion of these concerns, the TAG voted on and passed the draft protective barrier provisions and sent them to the ANSI Z21/83 Technical Committee (TC) for final approval.

2. Hearth, Patio, and Barbecue Association Activities

On January 24, 2012, representatives from the Hearth, Patio, and Barbecue Association (HPBA) met with each of the Commissioners to discuss HPBA's Fireplace Glass Front Safety Program and their participation in the ANSI Z21 Vented Gas Warm Air Heater TAG activities to develop protective barrier coverage for vented gas fireplaces and fireplace heaters. Their discussion included:

- performance criteria for protective barriers;
- consideration of mandatory or optional protective barriers;
- measurement device (*i.e.*, thermesthesiometer) to evaluate the burn hazard potential of a protective barrier; and
- estimated standards development schedule for protective barriers.

As previously mentioned, many of the TAG and HPBA members were unfamiliar with thermesthesiometers. The lack of familiarity with thermesthesiometers and their proper use and reliability were concerns that arose in discussions during Working Group and TAG meetings, and which led to HPBA, on April 19, 2012, requesting that the Canadian Standards Association (CSA) delay the protective barrier standard development until they could address these concerns.

To help address these concerns, the HPBA contracted with Exponent, Inc. (Exponent), an engineering and scientific consulting firm, to conduct testing of thermesthesiometers to demonstrate to their members the efficacy and proper use of the device. HPBA informed staff that they would base their letter ballot vote, and any additional proposals or comments to the Z21/83 TC or vented heater TAG, on the outcome of the testing conducted by Exponent. Exponent's findings were presented to the Z21/83 TC at their July 17, 2012, meeting. A summary of Exponent's findings was

forwarded to CPSC staff in an e-mail dated August 14, 2012, from HPBA. Based on its testing and analysis[2], Exponent concluded the following:

1. Thermesthesiometers that are built, calibrated, and used in accordance with ASTM C1057 are the appropriate tool to evaluate burn potential hazard of protective barriers.
2. Testing of three of the hottest fireplace inserts demonstrated that some available barriers can prevent irreversible burn injuries after 5 seconds of contact with the barrier.
   - Exponent recommends acquiring data for longer than 5 seconds to ensure that sufficient data are collected.
3. Testing revealed that the amount of force (*i.e.*, 2.5 to 10 pounds of force, lpf) applied doesn't have a significant effect on thermesthesiometer measurements.
4. Exponent believes that the hottest location on each different thermal mass on a protective barrier should be tested.
5. The following techniques are appropriate for measuring glass temperature:
   - calibrated infrared thermometer,
   - calibrated thermal imaging camera, and
   - calibrated temperature probe or sensor.

HPBA cast a letter ballot with the Z21/83 TC, approving the protective barrier coverage.

3. ANSI Z21/83 Technical Committee Activities

The draft protective barrier coverage that had been approved by the ANSI Z21 Vented Gas Warm Air Heater TAG in March 2012 was sent to the ANSI Z21/83 TC for final approval. CSA considered the concerns raised by HPBA in their April 19, 2012 request to delay the standards development process on protective barriers. However, CSA staff instead opted to postpone the letter ballot process for the protective barrier coverage for ANSI Z21.50 and ANSI Z21.88 until May 22, 2012, to allow Exponent to complete their testing and the results to be shared with HPBA and Z21/83 members. This opened a 45-day letter ballot period that closed on July 6, 2012. The letter ballot vote tally included 16 ballots approving the coverage, two disapproving ballots, two absentee votes, and one abstention.

Staff reviewed the concerns and comments provided by the two disapproving ballot voters, but staff did not believe they were technically compelling.[3,4] In fact, of the disapproving votes and comments within the proposed text (eight each for ANSI Z21.88 and ANSI Z21.50), in staff's opinion, 12 of 16 were basically editorial in nature and would not have any impact on the performance standard. Regarding the four comments that were technical, the commenter did not provide technical evidence to substantiate the stated concerns. By contrast, supporters of the protective barrier requirements, most notably the HPBA, provided substantial technical evidence that addressed the efficacy of the standard in general, and the use of a thermesthesiometer, in particular. These

[2] Exponent's test and analysis was conducted on gas fireplace inserts that were setup in accordance with their manufacturer's installation instructions; ASTM C1055-03, "Standard Practice for Heated System Surface Conditions that Produce Contact Burn Injuries;" and ASTM C1057-03, "Standard Practice for Determination of Skin Contact Temperature from Heated Surfaces Using a Mathematical Model and Themesthiometer. "

[3] Memorandum to Hot Glass Petition File, "CPSC Staff Review of Recirculation Ballot of Disapproving Votes and Comments on Protective Barrier Coverage for ANSI Z21.50." R. Jordan, July 31, 2012.

[4] Memorandum to Hot Glass Petition File, "CPSC Staff Review of Recirculation Ballot of Disapproving Votes and Comments on Protective Barrier Coverage for ANSI Z21.88." R. Jordan, July 31, 2012.

provisions were approved by a majority (*e.g.*, over two-thirds) of the voting members of the Z21/83 TC. In staff's opinion, none of the comments justified delaying completion and publication of the protective barrier requirements.

As a result of the two disapproving ballot votes, CSA rules require that the Z21/83 TC return the disapproving votes with comments to Z21/83 TC members in an approximately 45-day recirculation ballot vote process. According to CSA staff, the purpose of the recirculation ballot process is to allow the approving Z21/83 TC members to hear the disapproving votes and comments and to change their votes, if persuaded by the disapproving votes and comments. In addition to the disapproving votes and comments, the recirculation ballot also included the protective barrier coverage that had been approved by the other voting Z21/83 TC members.

The 45-day recirculation ballot vote process began on July 17, 2012, and ended on September 4, 2012. CSA staff indicated that the approval of the protective barrier coverage was upheld during the recirculation ballot vote[5] and that the estimated publication date is January 2013 and the estimated effective date of the standard is January 2015. CSA staff has indicated that by ANSI rule, the TC is also required to extend a "Right to Appeal" to disapproving members. Disapproving members have 6 weeks to notify ANSI of their intent to appeal—September 4 through October 15, 2012. The appeals process is a separate process from the voting process.

4. ANSI Z21 Unvented Gas Warm Air Heater Technical Advisory Group Activities

As mentioned earlier, CPSC staff found that unvented gas fireplace heaters equipped with glass fronts pose similar burn injury risks. The ANSI Z21 Unvented Gas Warm Air Heater Technical Advisory Group (ANSI Z21.11.2) is the governing standards group for unvented gas fireplaces and fireplace heaters. As of May 2012, this TAG had not fielded, nor were they engaged in, the development of protective barrier requirements for unvented gas fireplaces and fireplace heaters. CPSC staff developed and sent a standards proposal to the ANSI Z21.11.2 TAG on May 14, 2012, requesting that protective barrier requirements be adopted into the ANSI Z21.11.2 for this unvented gas fireplaces. Staff attended a Z21.11.2 TAG meeting on June 15, 2012 to advocate for the development of a protective barrier requirement. The TAG accepted the proposal as "Information Only" and stated that it would be more prudent for them to take action on the proposal after the standard was adopted for vented fireplaces. No technical issues or concerns were raised about any of the provisions in the proposed coverage.

Current Status of Standards Development

CSA postponed the start and close of the Z21/83 Technical Committee letter ballot process for protective barriers to give HPBA's contractor, Exponent, adequate time to start and complete testing that would help overcome lingering concerns that HPBA and TAG members had about their lack of familiarity, proper use, and reliability of thermesthesiometers. The letter ballot vote tally for protective barrier coverage for ANSI Z21.50 and ANSI Z21.88 resulted in more than the two-thirds majority of votes required by CSA rules for new or revised standards to be approved. In staff's opinion, the disapproving votes that were cast, and the rationales for those votes, were not technically compelling and were not substantiated. However, CSA rules require that negative votes be subjected to a recirculation ballot process to allow members to reconsider their vote, if they find the justification provided by the negative voters persuasive. The recirculation ballot period began on

[5] Email from C. Rake, CSA to R. Jordan, CPSC, dated September 11, 2012.

July 17, 2012, and concluded on September 4, 2012, adding additional time to the standards process. The approval of the protective barrier coverage was upheld during the recirculation ballot vote; however, as a result of the delays encountered during the process, the publication date of the standard has been delayed by approximately 6 months. No significant changes were made to the protective barrier coverage during the Z21/83 letter ballot process or the recirculation ballot process; the requirements remain comprehensive, and staff believes, as currently written, they should continue to be effective in reducing the risk of severe contact-burn injuries. The original estimate for a publication date was July 2012. The new estimated publication date is January 2013.[6]

In addition, HPBA staff requested that CSA make the effective date of the standard January 2015. HPBA has indicated that, despite the delays in the publication and effective dates of the standard,[7] all newly manufactured products and existing product lines previously certified and currently up for recertification,[8] must meet the protective barrier requirements now. According to HPBA, the reason for requesting an extended effective date was to allow manufacturers time to prevent a certification backlog as a result of newly certified products and due to existing products that had to be recertified. HPBA's rationale for an extension on the effective date does not seem unreasonable.

Conclusion:
No significant changes were made to the protective barrier coverage during the Z21/83's letter ballot and recirculation ballot processes; the requirements remain comprehensive, and staff believes, as currently written, the requirements should continue to be effective in reducing the risk of severe contact burn injuries. Publication of protective barrier requirements for vented gas fireplaces covered by ANSI Z21.50 and vented gas fireplace heaters covered by ANSI Z21.88 have been delayed from the July 2012 date originally specified by CSA and HPBA to January 2013. HPBA requested an effective date of January 2015 from CSA to allow its members time to handle any backlog created by the new requirements.

The standards process continues to move forward and there are positive indications that new production, as well as existing product lines that are undergoing recertification, meet the new requirements. However, staff recommends that the Commission continue to defer making a decision on the petition until staff is able to confirm that the protective barrier requirements have been published. Staff will continue to monitor the voluntary standards process and provide an update to the Commission within 6 months (March 2013) on the progress of the standards development for ANSI Z21.88, "ANSI Standard for Vented Gas Fireplace Heaters," and ANSI Z21.50, "ANSI Standard for Vented Gas Fireplaces." Staff will also continue to monitor the voluntary standards process and provide an update to the Commission on the progress of the standards development for ANSI Z21.11.2, "Standard for Gas-Fired Room Heaters, Volume II, Unvented Room Heaters."

[6] Email from C. Rake, CSA, to R. Jordan, CPSC, July 26, 2012.
[7] Telephone Log of Conversation between R. Jordan, CPSC and T. Stroud, HPBA, August 23, 2012.
[8] According to HPBA staff, all product lines that already been certified to the ANSI Z21 standards, must be recertified to their respective ANSI Z21standard every 5-years, Telephone Log of Conversation between R. Jordan, CPSC and T. Stroud, HPBA, August 23, 2012."