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TO: Office of the Secretary
FROM: Tim Johnson, ESEE

RE: Attendant at CO detector workshop - Task Force # 2 - Field & Laboratory Testing
of Detector Performance. Workshop held 2/8/95 at CPSC.

Attendance

Commission staff:

Tim Johnson, ESEE

Non-commission staff:

Greg Traynor - Lawrence Berkeley Laboratory (co-chair)
Frank Poskolil - Northern Illinois Gas Company.
Nick Bellavia - BRK Brands Inc.
Wendy Gifford - BRK Brands Inc.
Ed McFadden - McFadden & Associates
John Sutter - American Sensors
Bob Graig - System Sensor
Sheldon Himelfarb - Washington Gas
John Girman - EPA
Susan Womble - EPA
Bob Fegley - EPA
Richard Leukroth - EPA
Tom Barakat - Seatt Corp.
Ted Williams - GRI
Jim Ranfone - AGA
Raymon Kay - Orland Park, IL Fire Department
Bob Flegal - CCI Controls

attachments: 1 - DRAFT copy of workshop minutes.

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Task Force #2
Field & Laboratory Testing of Detector Performance

Minutes of
8 February 95 Meeting

1. Kevin Teichman of EPA, interim cochair, called the meeting to order, and distributed copies of the following: (1) a list of the six CO Detector Task Forces, identifying their titles, scopes, and issues to be addressed; (2) information on the members of the Task Forces and Steering Committee; (3) "Indoor Air Pollution: An Introduction for Health Professionals" published by EPA, CPSC, et al.; and (4) a preliminary agenda for the meeting.
2. Meeting participants then introduced themselves. The list of meeting participants which was circulated is attached.
3. Teichman asked if any of the meeting participants wanted to be made members of the Task Force. Ed McFadden of McFadden Associates requested consideration as a member in the "Other Interested" category, and was advised to send a short CV or resume to Elizabeth Leland, CPSC, of the Steering Committee.

AI #1 Ed McFadden to send a short CV or resume to Elizabeth Leland of the Steering Committee requesting consideration as a Task Force 2 member in the "Other Interested" category.

Later in the meeting, Tom Barakat of Seatt Corp. requested consideration as a Task Force member in the "CO Detector/Component Manufacturers" category. If so appointed, this would result in 4 Task Force members in this category, requiring resolution by the Steering committee.

AI #2 Tom Barakat to send a short CV or resume to Elizabeth Leland of the Steering Committee requesting consideration as a Task Force 2 member in the "CO Detector/Component Manufacturers" category.

AI #3 Greg Traynor to work with the Steering Committee to resolve Task Force 2 membership in the "CO Detector/Component Manufacturers" category.

3. Greg Traynor of Lawrence Berkeley Laboratory and Don Switzer were elected cochairs. Kevin Teichman of EPA volunteered to take notes of major decisions and keep track of action items.

4. After discussion, the following revised scope was agreed to by the meeting participants:

"To identify needs and develop recommendations for field and laboratory

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performance/testing of installed residential CO detectors/alarms for consumer applications and portable CO meters/analyzers for response personnel.”

In addition, two “issues to be addressed” were added to the list distributed at the beginning of the meeting: (1) failure to trip (false negatives) and (2) categories of test, e.g., design, Q/A, in-service application.

5. Discussion then ensued on the relationship of Task Force 2 to Task Force 4: “Standards Evaluation” with respect to residential CO detectors/alarms. It was agreed that Task Force 4 should focus on qualification testing, i.e., laboratory testing prior to installation to test compliance with the UL standard. The possible objectives for Task Force 2 are described below (Item #13).

During this discussion, the following materials were deemed desirable for Task Force distribution: (1) a translation of a Japanese in situ test, currently being translated for GRI and to be provided by Ted Williams of GRI; (2) available ASTM protocols for CO meters/analyzers to be provided by John Girman of EPA; (3) available EPA protocols for CO meters/analyzers to be provided by Susan Womble of EPA; (4) similar protocols as well as information on temperature effects prepared by Steve Colome to be provided by Williams; and (5) information on CO detector standards for industrial settings to be provided by Ed McFadden.

- AI #4 Ted Williams to provide to Traynor for distribution a translation of a Japanese in situ test, currently being translated for GRI.
- AI #5 John Girman to provide to Traynor for distribution available ASTM protocols for CO meters/analyzers.
- AI #6 Susan Womble to provide to Traynor for distribution available EPA protocols for CO meters/analyzers.
- AI #7 Ted Williams to provide to Traynor for distribution similar protocols as well as information on temperature effects prepared by Steve Colome.
- AI #8 Ed McFadden to provide to Traynor for distribution information on CO detector standards for industrial settings.

This raised discussion about who should receive these materials. It was agreed that all Task Force delegates would be sent all such information, typically by the cochairs, with the minutes to the meeting, within 30 days. With respect to others, it was decided that the meeting attendees would receive the meeting minutes and pursue getting those materials they needed from either the cochairs or a delegate in their classification category. It was also recommended that this decision on mailing materials be passed on to the Steering Committee.

AI #9 Greg Traynor to inform the Steering Committee of Task Force 2 recommendation concerning mailing materials to Task Force delegates and other participants.

6. Since the scope of Task Force 2 includes portable CO instruments, participants discussed how best to involve representatives from the portable instrument industry. It was agreed that Traynor would contact someone representing this industry to participate in the next Task Force meeting. In addition, Raymond Kay of the Orland Fire Department, Bob Flegal of CCI Controls, and McFadden offered to provide information on portable instrumentation that can be used to measure CO.

AI #10 Greg Traynor to contact someone representing the portable CO instrument industry to participate in the next Task Force meeting.

AI #11 Raymond Kay, Bob Flegal, and McFadden to provide to Traynor for distribution information on portable instrumentation that can be used to measure CO.

The Task Force agreed that its scope would not include writing standards for portable equipment. Rather, it was suggested that the Task Force identify the types of existing portable equipment currently available, comment on its appropriateness, and develop procedures for using this equipment and interpreting the results, especially with respect to the integrated values determined by CO detectors/alarms.

7. When queried about the availability of diagnostic techniques for testing detector/alarm performance, participants discussed the following. First of all, there is a test button that tests the detector/alarm circuitry, although this procedure does not provide information on sensor performance. Some sensors (i.e., those employing chemical techniques) can be tested by examining the color of the sensor. Others (i.e., those employing optical techniques) can be evaluated by using shaded glass. In addition, a test gas can be used, e.g., a small vial of CO that, for example, could provide a CO concentration of approximately 200 ppm under normal conditions (which would cause the detector/alarm to trip after about 20 minutes). John Sutter of American Sensors offered to distribute such samples to the Task Force participants.

AI #11 John Sutter to distribute CO test gas samples used to evaluate field performance of detector/alarm sensors to the Task Force participants.

8. The issue of detector/alarm location was discussed, both with respect to where and where not to deploy sensors. One common rule of thumb is to deploy detectors/alarms within 40 feet of sleeping areas, in large part because of the increased susceptibility to CO during sleeping. When asked where not to deploy the detectors/alarms or how high off the floor, manufacturers offered that this information is frequently manufacturer-specific and that they were open to suggestions.

9. Williams mentioned that GRI has data on CO dispersion in houses (a) where the flue from a

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gas furnace was intentionally disconnected and (b) with gas stoves. Similarly, Traynor mentioned LBL data showing that the pollutants from unvented appliances initially hug the ceiling of the space.

AI #12 Ted Williams to provide to Traynor for distribution GRI data on CO dispersion in houses (a) where the flue from a gas furnace was intentionally disconnected and (b) with gas stoves.

AI #13 Greg Traynor to provide for distribution LBL data showing that the pollutants from unvented appliances initially hug the ceiling of the space.

10. In addition, Williams presented data on CO concentrations in and around a gas oven. Also, he presented a figure showing prevalence data on where in houses detector/alarms trip (although data are not available on where detectors/alarms are typically located for comparison).

AI #14 Ted Williams to provide to Traynor for distribution data on (a) CO concentrations in and around a gas oven and (b) where in houses detector/alarms trip.

11. Kay provided perspectives from the point of view of fire department response personnel. While commenting that each department responds differently, he provided Traynor with the latest copy of the form his department uses when responding to a CO call.

AI #15 Greg Traynor to distribute the latest version of the Orland Fire Department response form.

In addition, Kay stated that, when the cause of the CO alarm cannot be found, his department leaves a detector/alarm that the department has confidence in with the consumer. If a field test for the operation of a detector/alarm, including sensor operation, were available, response personnel would consider it. Such a test could eliminate return visits to the home to retrieve the fire department's detector/alarm.

When queried how long response personnel are on site, Kay mentioned it varied from 15 minutes to 2-3 hours. Gas utility representatives stated that their response visits averaged about 30 minutes.

12. Although it is primarily the domain of Task Force 4, participants briefly discussed some of the proposed revisions to UL 2034. Paraphrasing the proposed revised standard, when an detector/alarm trips and homeowners report headache or nausea, they should call the fire department and provide fresh air to dilute possible CO concentrations. When a detector/alarm trips and homeowners are not experiencing any symptoms, they should reset the detector/alarm, turn off any potential sources, and contact a qualified technician.

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It was noted that UL may add a cyclical test based on rush hour ambient CO concentrations to the standard, although this additional test is not available for public review. Some participants felt a cyclical test simulating an indoor combustion source would be more appropriate.

The deadline for comments to the revised standard is 10 February 95. Task Force participants felt the proposed revised standard would require all manufacturers to change their labelling and instructions and that some would also need to make product changes. Nick Bellavia of BRK Brands agreed to provide Traynor with a copy of proposed UL changes to the standard.

AI #16 Nick Bellavia to provide Traynor for distribution a copy of proposed changes to the UL standard.

13. Participants identified six possible objectives for the Task Force. These objectives follow in the order they were presented. Where notable discussion occurred on a particular objective, it is summarized.

- (a) Provide information on the performance of portable CO meters/analyzers
- (b) Propose an on-site field test that can be used to test that the detector/alarm is responding to CO. Such a test could either be used by response personnel or as a maintenance item for consumers.
- (c) Propose an on-site field test that can be used to test that the detector/alarm turns off at low CO concentrations. Participants agreed that the proposed revised UL standard will address this concern by requiring a reset button that will clear the detector/alarm. This button in combination with a portable CO meter/analyzer will meet the purpose of this test. Such a test is still needed, however, for those detectors/alarms that are currently in homes or in the marketplace.
- (d) Perform laboratory testing on detectors/alarms to evaluate their performance beyond the current UL tests, e.g., emphasize possible interferences, realistic simulated combustion sources. Williams discussed GRI's two phase testing in this regard. In Phase I, GRI will be testing detectors/alarms from 9 manufacturers, 12 from each. This testing will include basic performance tests.

AI #17 Ted Williams to make a presentation at the next Task Force meeting on the results of GRI's Phase I testing of detectors/alarms.

In Phase II, GRI will perform more detailed testing on 5-6 detector/alarm technologies. At this time, the protocol for the Phase II testing is being reviewed.

AI #18 Ted Williams to provide to Traynor for distribution and Task Force member comments GRI's proposed protocol for its Phase II testing of

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detectors/alarms.

(e) Perform random field testing of detectors/alarms.

(f) Conduct a national survey of CO exposures. Such a survey could rely on CO passive monitors, and should emphasize attention on the tail of the population distribution.

14. Participants briefly discussed the causes for false alarms. Wendy Gifford of BRK Brands/First Alert offered to provide her company's field test follow-up data. In addition, Jim Ranfone of AGA provided Traynor with a UL document with information on possible causes.

AI #19 Wendy Gifford to provide traynor for distribution her company's field test follow-up data on possible causes for false alarms.

AI #20 Greg Traynor to provide for distribution the UL document with information on possible causes as well.

15. The next meeting of the Task Force is tentatively set for the week of April 24th in Chicago, IL. Possible agenda items include a brief presentation on portable CO equipment, a presentation on Steve Colome's environmental cell for detector/alarm testing, and a presentation by Ted Williams on the results GRI's Phase I testing of detector/alarm performance. In addition, the Task Force will need to outline the report on its activities and recommendations.

AI #21 Greg Traynor to work with Ted Williams and/or others to arrange a meeting site in Chicago for the next Task Force meeting, coordinating with the meeting plans of the other Task Forces (especially Task Group 4).

AI #22 Greg Traynor to distribute an agenda for the next Task Force meeting prior to the meeting.