

ASHRAE MEETING MINUTES - Denver

TC 2.3 - Gaseous Air Contaminants/Removal Equipment TC Meeting

Tuesday, June 28, 2005

13:00 - 15:30

Adam's Mark Hotel – Governor's Sq. 17 (C)

NOTICE:

These meeting minutes have been approved and are official.

- The meeting was called to order at 13:03 pm by Chairman Eric Kuiper. The attendees that completed the meeting attendee sheet(s) were:

Name	Email address
(Voting Members)	
Karin Foarde	kkf@rti.org
Bob Hendry	bob.hendry@gtri.gatech.edu
Gemma Kerr	gemma.kerr@inairenvironmental.ca
Ez Khalifa	ez@ecs.syr.edu
Eric Kuiper (Chairman, International)	erik@mail.ashrae.org
Chris Muller	chris_muller@purafil.com
E.C. "Chuck" Schroeter	fsifla@bellsouth.net
Paolo Tronville (International Member)	paolo.tronville@polito.it
Derald Welles	dwelles@ix.netcom.com
Nick Agopian	nagopian@dectron.com
(Corresponding Members and Guests)	
Marilyn Listvan	listv001@umn.edu
William Lull	TC23@garrisonlull.com
Jeff Roseberry	jeffr@promarkassociates.com
Dean Tompkins	dtompki@wisc.edu
Doug VanOsdell	dww@rti.org
Monroe Britt	mbritt@clair.com
H.E. Barney Burroughs	heburroughs@mindspring.com
Kyung-Ju Choi	kchoi@aafintl.com
John Copley	jcopley@customfilter.net
Joe Enneking	Joe.enneking@nucon-int.com
Mark Renn	mrenn@aafintl.com
Charles Seyffer	cseyffer@nycap.rr.com
Dave Witham	dave-w@uvdi.com
Phil Winters	pwinters@filtrationgroup.com

Terri Wytko	twytko@ari.org
Julie Ferguson	jmferguson@adiflorida.com
Chang Sohn	c-soh@cecer.army.mil
Paula Leuasseur	paula@cglcarbon.com
Stan Slabinski	sslabinski@bry-air.com
Dave Branson	djbranson@csg.net
Colin Branson	colin@bransons.org
Mort Blatt	mhblatt@earthlink.net
Chuck Dunn	cdunn2@lumalier.com
Steve Slayzak	steve_slayzak@nrel.gov
Mark Stutman	stutmanm@camfilfarr.com
Stephen Martin	smartin1@cdc.gov
Mike Vaughn	morts@ashrae.net
Art Soma	art.soma@huntermfgco.com
John Vunovich	John.Vunovich@huntermfgco.com
Gary Phetteplace	gephet@crrel.usce.army.mil
Dave Chosnowski	davidc@uic.edu
(Liaisons)	
Brian Rock (Applications Chapter Revision)	hvacman@ku.edu

- Attendee’ self-introductions were made.
- Minutes to be published within 60 days following the minutes.
- Roster check was made. Voting members present at the TC meeting include:

- 1) Eric Kuiper (Chair and International Member)
- 2) Bob Hendry
- 3) Gemma Kerr
- 4) Karin Foarde
- 5) Derald Welles
- 6) Chuck Schroeter
- 7) Chris Muller
- 8) Paolo Tronville (International Member)
- 9) Ez Khalifa
- 10) Nick Agopian

Paul Nelson, Brian Krafthefer, and Matt Middlebrooks. A quorum was achieved with 10 voting members present out of a total of 13.

Voting Members present – 10

A motion was made and seconded to approve the meeting minutes of Orlando. There was no discussion. Voting on approval of the Orlando minutes was as follows: Voting Results: 9, 0, 1, 3, 13 (For, Against, Abstain, Absent, Total).

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Brian Rock (Applications Chapter Revision) – Due March 15, 2006. Please vote to allow it for approval by the Chicago meeting.

Subcommittee Reports Made:

Planning (Dean Tompkins, Chair)

- A review of the Kansas City Planning Sub-committee minutes provided for discussion of Planning's goals/aims:
 - How (sponsored) ASHRAE research affects TC 2.3 gas-phase
 - How to reach the "grass roots" (or ASHRAE members) re: gas-phase remediation
 - Develop a Primer as educational materials for introduction into gas-phase remediation
 - Develop a document on how to perform "trouble-shooting" on a gas-phase remediation installation
 - How to Model fair cleaners in buildings
 - How to dispose of used materials?
 - Develop a Survey for soliciting information from "grass roots" members/customers/end-users.
- A review of the action items from Nashville suggested that the Powerpoint/PDF-based TC 2.3 presentation (originally developed by D. VanOsdell) be revised into two presentations:
 - 1) A brief (~15-min) discussion of TC 2.3 – Who and What We Are?
 - 2) TC 2.3 – Longer tutorial on gas-phase contaminants and removal theory and practice.
- Discussed the continued development of a road map for TC 2.3. The idea of collaborating with TC 2.4 to produce a complete filtration presentation was discussed. There seemed to be some consensus on accomplishing this with TC 2.4, because the concept of filtration by most individuals immediately focuses on particle filtration.
- The idea of presenting a seminar for gas-phase filtration was discussed; e.g.: J. Copley's proposed seminar for Denver on "Getting Back to Basics" will support one of the Planning's goals.
- There was some desire expressed to compile all the Planning meeting minutes so that it can be posted. It was discussed that the first TC 2.3 planning meeting was the Boston meeting (June, 1997). The first minutes from the main meeting minutes was in Minneapolis, possibly earlier.
- KJ Choi expressed that *education* and *communication* should be integral to the scope and mission statement of the TC 2.3 Planning sub-committee. Other committee members present concurred.
- Action Items from this meeting include:
 - D. VanOsdell to re-send his TC 2.3 tutorial presentation (PDF format) to sub-committee members. Limited dissemination of the presentation is encouraged at this stage because the presentation has not been reviewed.
 - M. Listvan will assist D. VanOsdell in reviewing the TC 2.3 presentation, with the possibility of using it for future needs (e.g., ASHRAE Seminar, other).

- Review the Survey Form from 2001, combine it with the Survey Form handed out by D. Tompkins at this meeting. It would be the desire to send out this Survey Form to TC 2.3 members. Also:
 - An effort by N. Agopian, E. Kuiper, and M. Listvan will occur to place the Survey Form onto the TC 2.3 web-site. It is believed that the survey should take no longer than about 5-10 min to complete. There was brief mention of how to encourage individuals visiting the TC 2.3 web-site to fill out the survey.
- B. Krafthefer will send D. Tompkins information regarding the development of a scope, mission statement, and all past meeting minutes for the Planning Sub-committee. D. Tompkins and E. Kuiper will draft long-term plan and present it at the Denver sub-committee meeting.
- The TC 2.3 Website sub-committee chair (N. Agopian) will consider scanning all past TC Meeting Minutes so that they can be posted onto the TC 2.3 web-site.

Jim Kubakowa (TC 9.5) – Residential and small building applications ... There will be news releases that will be put out. Marilyn has an action item to review the press releases that Jim Kubakowa has performed.

Membership (Nick Agopian, Chair)

Rolling off – Paul Nelson, Brian Rock, Gemma Kerr, Nick Agopian

Rolling on – KJ Choi, Dean Tompkins, Ron Domitrovic, John Copley, Barney Burroughs.

Each member is encouraged to update your biographies at the ASHRAE web-site whether there is not any update or not in your personal information.

The secretary will be Nick Agopian after this meeting.

Four current voting members will be rolling off after the June Meeting in Denver – Nick Agopian, Brian Krafthefer, Paolo Tronville, and Gemma Kerr. Those wanting to become voting members will notify Eric or Nick by February 16 to be considered after the Denver (June 2005) ASHRAE meeting. The current TC 2.3 leadership team is:

- Chair – Eric Kuiper
- Vice Chair – Dean Tompkins
- Secretary – Nick Agopian
- Research – Karin Foarde
- Planning – Dean Tompkins
- Membership – Nick Agopian
- Standards – Brian Krafthefer
- Program – Dean Tompkins
- ALI Coordinator (ASHRAE Learning Institute) – Doug VanOsdell
- Handbook – Gemma Kerr

- International – Paulo Tronville, Eric Kuiper
- Website – Nick Agopian
- Publications – Marilyn Listvan

Meeting attendees desiring to become corresponding members were asked to indicate this on the meeting attendee sheet(s) and to Dean Tompkins / Nick Agopian.

Research (Karin Foarde, Chair)

RTARs will be accepted three times per year: May 15, Aug. 15, Dec. 15. Tie the RTARs to the TC's strategic plan.

The TC 2.3 Research Subcommittee meeting time slot will be moving from 16:00–18:00 to 17:00–19:00 on Sundays.

Presentation / Up-date on Current Research Project(s):

- a. **1243-RP** “Detection And Measurement Of Gaseous Byproducts of Fungal Growth That Affect Indoor Environments - Phase II”. Don Cortes/Elliott Horner, AQS. [PMC- Karin Foarde (Chair), Paul Nelson, Brian Krafthefer, Marilyn Listvan, Gemma Kerr and Charlene Bayer].

Objectives are to develop MVOC database, improve sampling protocol, and expand usable mVOC list. Phase II is complete. At the Orlando meeting, AQS promised a final report would be provided to ASHRAE and the PMC in about 1 month. However, they did not deliver. The PMC chair contacted them and they have promised the final will be delivered June 30th.

- b. **1302-TRP** “Comparison of Gas Phase Air Filtration Equipment (GPAFE) Lab Tests to Field Experience. [PMC- Gemma Kerr (Chair), Bill Lull, Paolo Tronville, Nick Agopian, and Phil Winters]

The objective of this project is to provide directly comparable performance data and or methods (i.e., correlate approaches) to make comparisons for various media used in GPAFE designs at both accelerated (high challenge concentration) and application (very low challenge concentration) conditions within a lab setting. The project has been awarded and the contract signed. ASHRAE MORT will forward information to the PMC002E

Work Statements and RTARs:

- a. **RTAR# 2005-43** “By-product Production from Photocatalytic Oxidation Associated with Indoor Air Cleaning Devices” has been accepted. B. Hendry will prepare a work statement. WS must be submitted ASHRAE by 8/15/05.
- b. **RTAR# 2005-42** “Inter-Laboratory Evaluation of ASHRAE SPC 145.1P Test Method for Gas-Phase Air Cleaning Media” was accepted. Chris will write work statement with assistance from P. Tronville. WS must be submitted ASHRAE by 8/15/05.

TC 2.3 2004-2005 Research Plan

Projects	Person Responsible	Priority
Inter-Laboratory Evaluation of ASHRAE SPC 145.1P Test Method for Gas-Phase Air Cleaning Media	Chris Muller, Paolo Tronville, Nick Agopian	1
By-product production from photocatalytic oxidation associated with indoor air cleaning devices	Bob Hendry, Brian Krafthefer, Gemma Kerr, Eric Kuiper	2

TC 2.3 2005-2006 Research Plan

Projects	Person Responsible	Priority
Determining/evaluating remaining life of filter bed material	William Lull, Gemma Kerr, Nick Agopian	1
How Would Gas Phase/Particulate Filtration Equipment Protect Against an External/Internal Release of Threat Agents	Nick Agopian	2
Investigate filters for 2 nd hand smoke – Determination of contaminants of concern & ETS removal effectiveness for SSPC 62	Nick Agopian	3
Real lab environment comparison tests of PCO vs. carbon filter (flow, pressure drop, RH, temp, multiple VOCs, etc)	Dean Tompkins	4
Energy Implications of IAQ Measures: A Comparison	Brian Krafthefer	4

A motion was made to approve the Research Project Plan as listed above. Voting Results: 9, 0, 1, 3, 13 (For, Against, Abstain, Absent, Total).

Program (Dean Tompkins, Chair)

• **Programs presented in Denver (June 25-29, 2005):**

SEMINAR 47: Overview of Gas Phase Contaminant Removal (co-sponsor: None; Chair: John Copley)

SYMPOSIUM DE-05-05: Applications of UV Photocatalysis for Gaseous Contaminants (co-sponsor: None; Chair: Marilyn Listvan)

Review of Program: 4 talks were given; 40 individuals (audience) attended. Audience had numerous questions. Apparently more and more PCO commercial installations are generating interest.

• **Program items for future meetings were prioritized through votes of attendees as follows:**

CHICAGO, IL (January 21-25, 2006)

1. **SEMINAR:** Field Test Results for UV Systems (Chair: Mort Blatt)
2. **SEMINAR:** Gas Phase Filtration: Case Studies (Chair: Chris Muller/Dean Tompkins)
3. **FORUM:** Measurements of Gas-Phase Contaminants: Input for GPC 27 (Chair: Bill Lull)
4. **FORUM:** Review/Update on Odors/Source(Chair: Brian Krafthefer)

A motion was made to approve the program and seconded in the TC to accept the list above, ranked in order shown above, for Chicago. Voting Results: 9, 0, 1, 3, 13 (For, Against, Abstain, Absent, Total).

There is discussion provided by the liaison for Programs of either (a) going to 1 ½ hour programs instead of 2 hours, or (b) dropping the Wednesday programs.

A motion was made NOT to cut Wednesday programs and seconded. Voting Results: 9, 0, 1, 3, 13 (For, Against, Abstain, Absent, Total).

Powerpoint presentations are allowed to be placed on the individual TC and ASHRAE Web-site.

Handbook (Gemma Kerr, Chair)

TC 2.3 is responsible for three Handbook Chapters.

Handbook Chapter – Nick Agopian, Doug Vanosdell, Brian Krafthefer, Karin Foarde, and xx.

- Ch. 13 – Finished and nothing more needed to do.
- Ch. 12 – Finished and nothing more needed to do.
- Ch. 45 – Doug VanOsdell is leading the re-write of Ch. 45 – “Control of Gaseous Indoor Air Contaminants” (Due: March 2006).

Tasks to be completed – Gemma will be getting input from contributors.

ASHRAE House or ASHRAE building – e.g., sample calculation are capable of using it.

Standards (Brian Krafthefer, Chair – Absent; Paolo Tronville provided the report.)

- GPC 27 – (3-5 PM on Sunday) – Bill Lull – How to advise engineers in the field to get good gas testing. “Measurement Procedure for Gaseous Contaminants in Indoor Environments.” Bill encouraged members to join the committee.
- ISO Standard – ISO TC 142 is being re-activated. There will be opportunity for individuals who will be developing a true global standard. In the next few months there will be development of a new business standard. There was discussion of whether ASHRAE could be tagged . Chris Muller (Chair of SPC 145) offered that SPC 145 text/verbiage to assist with developing the ISO standard.

A motion was made to work through ASHRAE and ANSI to establish a working group inside ISO TC 142. Such working group would develop a standard for testing gas-phase removal devices. Motion was seconded. No discussion. The vote was 9, 0, 1, 3, 13 (For, Against, Abstain, Absent, Total).

- SPC 145 – Chris Muller provided an update.
 - 145.1 (Media Method of Test): Report Form was approved. Section 8, References (Sec. 10), Appendix, and the Forward need further review.
 - 145.2 (Test Duct Method) – No real change in status. Doug VanOsdell expects that SPC 145.2 will be originated via converting a Method of Test developed for a government project. Doug solicited real help.
- SPC 185 – Test Method for testing Airborne Biologicals with UVGI (Derald Welles, Chair, reporting) - You have to ask to join the SPC. First meeting will hopefully occur in Chicago.

September 23, 2005 – There is a public review for SPC 161 (Air Quality within Commercial Aircraft; Eric Kuiper reported).

Publications (Marilyn Listvan, Chair)

Fifteen people were present. Scanning the IAQ Proceedings CD was discussed. 11 volumes are needed to scan for archival purposes. A request was made to solicit individuals for assisting with the scanning; scanning needs to have OCR (optical character recognition) capability; Acrobat 7 is required. Individuals who offer to sign-up will get a free CD.

Marilyn will work with Jim Kubakawa on preparing a news release on TC 9.5 – Who is MERV anyway?

Bill Lull will begin a re-vise a 3rd edition to a book entitled “Conservation in Environments for Libraries and Archives” – looking for reviewers and input.

ETS book has gone through its 4th revision and is still not in an acceptable form. It will be published by . ASHRAE is looking for additional case studies. There will be a third party printing it and will be available at the ASHRAE bookstore.

ASHRAE is – “Impact of Standard 90.1 for ...” – KJ Choi volunteered for authoring this document.

ASHRAE Insights (Ken Turner) is looking for good articles.

Chris Muller has a publication coming out ... inquire with him about its title.

Website (www.ashrae.org) (Nick Agopian, Chair)

Nick indicated that the TC 2.3 will be revised and will have a Member’s (Voting) section (it will have a login-name and password). ASHRAE wants to limit access to certain documents so as to

reduce the possibility of individuals getting documents under-review (DRAFT meeting minutes and DRAFT Standards). All approved meeting minutes will be available to all individuals. The web-site will be up and running within 30 days.

Marilyn Listvan indicated that Manuscript Central may be possibly used for review of everything including draft standards.

TC Liaison Work:

TC 4.10 – Indoor Environmental Modeling (working on materials emissions). They are co-sponsoring a Symposium on emissions and IAQ. – “Modeling Adsorption of Building Materials”

Gemma Kerr will be an official liaison to TC 4.10

Chris Muller – official liaison to SSPC 62.1

User’s manual has been approved for publication. There are requirements for air cleaning for PM 10 and ozone. There are examples of using the enhanced chemical and particulate filtration. The 2004 version still references the 1989 Max standards. There will to 100 million new homes that will require enhanced air cleaning due to ozone and PM 10. Guideline 19P is being worked on. The education subcommittee is

Barney Burroughs – official liaison to SSPC 62.2 and Homeland Security

No action that is pertinent or pending; User’s Manual is going forward under a sub-contract. The delivery of the manual is in six months. Homeland Security guideline title, purpose, and scope was approved at this meeting and including external (blast, explosion) and internal (chem/bio, remediation, radiation). There will be two seminars – embassy design and remediation tactics.

Karin Foarde – official liaison for TG2.UVAS

Derald Welles – official liaison for SPC 185

Nick Agopian – official liaison for TG2.BCBRR

Handbook chapter has been drafted and considers both blast and chem/bio. There is some discussion of separating the Chapter into two parts – Blast and Chem/Bio. The Handbook chapter will be presented in Applications.

Marilyn Listvan – official liaison for TC 9.5

The SARS request is not relevant to TC 2.3, but was discussed and brought forth by Marilyn Listvan.

Derald Welles – official liaison for TC 9.6 (Healthcare)

Met yesterday and is aimed at identifying energy usage in hospitals.

Erik Kuiper – official liaison for SPC 161

Marilyn Listvan – official liaison for TC 2.4

Chuck Shoerter – official liaison for TC 9.11 (Clean-room spaces)

TC 9.11 desires to have in its scope clean-room spaces for hospitals.

Doug Vanosdell – official liaison for TC 5.4

New Business:

Thank-you Letters to Employers --- If you will liked to be officially recognized by ASHRAE to your boss or supervisor for your work in ASHRAE, you can fill in a form.

A motion was made and seconded to adjourn the meeting. The voting results: 9, 0, 1, 3, 13 (for, against, abstain, absent, total).

Meeting adjourned at 15:15.