

ASHRAE MEETING AGENDA – Las Vegas

TC 2.3 - Gaseous Contaminants/Removal Equipment

Research Subcommittee Meeting

Sunday 1/30/11

1. Welcome
2. Introductions
 - A. Sign-In
3. Review of Minutes from Albuquerque – no comments.
4. RAC Report
 - A. Liaison TC 2.3 – Iain Walker (LBL) – Iain attended the whole meeting so his comments are dispersed where the topics were discussed below.
5. Updates from Research Subcommittee Chairs Breakfast – This breakfast took place on Monday so notes added for information but not discussed at meeting.
 - A. 23 Tentative Research Projects (TRPs) are waiting for funding, 18 will go out for bid in Spring including our 1557.
 - B. Multi-Disciplinary Task Groups (MTGs) – framework created by TAC to form groups that address issues that cover several TCs. They will be encouraged to look for external funding.
 - C. Cross-Cutting, High Risk, Exploratory Research – to fund 0-1 ~\$100K proposals
 - D. “Ventilation and Indoor Air Quality in Retail Stores” – \$1.5 M project - bid and won by UT Austin. Praise to workers getting this written and out including our Gemma Kerr and Zied Driss.
6. Presentations/Up-Dates on Current Research Projects
 - A. 1457-TRP “By-product Production from Photocatalytic Oxidation Associated with Indoor Air cleaning Devices” - Dean Tompkins University of Wisconsin. [PMC- Kathleen Owen (Chair), Gemma Kerr, Matt Middlebrooks, Marilyn Listvan & Eric Kuiper]

The objective of this project is to investigate products released during photocatalytic oxidation of selected indoor air contaminants to obtain data and improve and make safer air cleaners that use this technology. Report from PMS was based on Dean’s progress report as Dean was unable to be in LV. His 52.2 duct is in storage because he cannot pay the rent on his offsite location. Instrument now available. Next step to calibrate instrument. He now has access to small chamber. He promised some data by next quarterly report; but not full-scale device testing. Dean really needs co-funding so if anyone can donate funds or needs an appropriate air cleaner tested in exchange for funding, this would help out. The subcommittee encourages anyone with funding to contact us.

We anticipate that Dean will require an additional no-cost extension. During a phone conference with PMS, Dean indicated that he would request additional funding from

ASHRAE, but so far he has not submitted any details to the PMS. Since he is proposing to perform work beyond the additional scope, it is feasible that ASHRAE would provide additional funds, but not until several cycles in the future due to current funds being already committed. Iain has not received recent quarterly reports since 2009 and states that additional funding would require a very good reason.

7. Work statements & RTARs

- A. 1548-RTAR In-Duct Full-Scale Laboratory-Evaluated Comparison of Photo-catalytic Oxidation (PCO) Filters Versus Dry-Scrubbing Media Filters. Dean Tompkins leading preparation of WS. Jensen Zhang, Nick Agopian, Mark Stutman, and Brad Stanley will co-author. In process. WS must be submitted and approved for bid by July 1, 2012 or topic will be dropped permanently by RAC. Dean has not submitted a WS.
- B. 1557-WS Evaluation Lab Comparison of Relative Performance of Gas Phase Filtration Media at High and Low Challenge Concentrations. Matt Middlebrooks will lead PES; Bill Lull, Paolo Tronville, Mark Stutman, and Nick Agopian will serve as PES. Iain Walker: on the list to go out for bid in Spring 2011. (mid April)
- C. 1579-RTAR Testing and Evaluation of Ozone Filters for Improving IAQ has been accepted. Nick Agopian is PES chair. Bill Lull, Aflal Rahmathullah, Ashish Mathur, Mark Stutman, and Gemma Kerr volunteered to serve on the PES. Leon Alevantis of California Department of Public Health, will represent EHC on the PES/PMS as they will co-sponsor. At Fall meeting this WS was Returned with instruction to work with Research Liaison to resolve RAC's comments before resubmitting. Nick resubmitted in Fall2010 after PMS worked on the first set of comments. Iain says it will come back again to address a new round of comments in a week or two. Several are administrative, but the substantive comment requires a more detailed set of Tasks items that the bidders can use to prepare their bids. 15 May 2011 is due date for next resubmission.
- D. 1625-RTAR Application of Indoor Air Quality Procedure, a draft RTAR prepared by Charlene Bayer was presented to the committee for comment. Charlene is working on this. Needs chair and liaison review, then vote, then submission to Mike Vaughn August 15th. Charlene sent it in, it came back with many questions which Nick now has. Charlene needs help determining how to address the questions and concerns. Once PMS revises the draft, Iain suggested we send it to him for review before submitting before 15 May 2011.

Unfinished business: Iain needs the Disposition of ASHRAE research from the PMS chair for RP-1243. They need documentation from the PMS chair to know that a technical paper was presented somewhere. Karin will resubmit to Iain and Mike Vaughn.

7. Research Plan 2011-2012 as suggested in Albuquerque. Progress check.

- A. Field performance of typical gas-phase air cleaning technologies over service life". Long-term performance of air cleaners, over 6-mo, 12-mo life-time. Full air cleaner (as opposed to media). In-situ. Monitor air cleaners in situ over time. Possibly look at using lab data to predict life, modeling, and correlations. How often should I check on how a filter is doing? Goal of research might be 'care and feeding of a gas-phase air cleaner, 'common features of effective and ineffective systems in the field'. (proposed by Pawel Wargocki but no champion, will ask Chris Mueller) No progress reported since last meeting. Some discussion of clarification of purpose. Comment by Pawel – this project

may be too large for a single RTAR and might be better broken into several. Charlene, Jeff to consider. No champion has emerged.

A separate idea was proposed by Jensen. It was suggested that this research could bridge the gap between 145.1 test results and model actual system performance. Concerns that media testing do not reflect filter bypass. Jensen to prepare RTAR for modeling. Matt proposed that GPC-27 guideline methods be incorporated.

- B. Cost of Ownership – ventilation vs IAQ. A big buzz word is cost of ownership, do we want to look at this with regard to cost savings, IAQP? What is the value of the energy savings (ROI) and the total cost of ownership for gas-phase filters in an implementation of the IAQP? Similar to LBNL-255E, Bill Fisk, “Can sorbent-based gas phase air cleaning for VOCs substitute for ventilation in commercial buildings?” (champion: Nick; WS assistance from Brad and Karin, Jeff, Pawel, Mark Stutman) No progress to report. Barney commented that ventilation alone will not get us to zero buildings. Extraction is required, but performance and lifetime is not known to the engineers. The questions are: Will it work? How long is it going to last? Jeff: How does overall cost of extraction (\$/cfm) compare to overall cost of ventilation alone (\$/cfm)? This would be a long-term project.

Comment: These last RTARs really tie together and need to be parsed and written to overlap.

TRG (Technical Resource Group) for IAQP will meet in Montreal. This group will be meeting monthly on the phone, 2nd Monday of each month. 55 parties have expressed interest. A new type of group, Multidisciplinary Task Group is being considered for projects that are too large for a single TC can manage and coordinate with other organizations (i.e. DOE).

- C. Sorbents as Air Cleaners” - Use of 145.1 “test rig” to study ability to regenerate desiccants upon cycling them through fresh-hot-purge gas (RP475 ... dozens of compounds studied). (Bill) No progress reported.
- D. “What’s actually on those spent filters anyway?” What’s on the filters when they are done (residue)? What can we learn from filters we throw away? Are we treating the airborne gases we think we are treating? What do we do with this information? Limit types of environment, perhaps. (Matt will ponder this and come back with ideas, assisted by Pete Freeman) (no actual champion) Group voted to drop this idea.

Other ideas

Evaluating air cleaner technologies/devices for treating formaldehyde (Jensen) Group did not want to delete item, but Jensen stepped down and no champion emerged. No progress to report. Jeff commented that Lawrence Berkeley is working a similar project. 2007 work published; more in progress. Jeff has contacts and should be able to find out the PI. He will inquire about what information they can share with us.

8. New business

Barney: Conduct a demo of the IAQP in a highly monitored and high profile facility – the ASHRAE building! The building is highly instrumented so a baseline could be established. Then, IAQP activities could be performed on the ‘living lab’. Dynamic Air is in there now. Install gas-phase and particulate filtration as a retrofit, and shut off the outdoor ventilation. There is room in the AHUs. Testing,

questionnaires, energy could all be tested. We could propose to TC2.4 Research, and other related TCs, for cooperation. Comments from TC2.9 members that RAC is reluctant to fund field research; they like lab research and do not feel that field research is adequately controlled. Group suggesting that industry participants would donate equipment and materials. Barney will inquire as to whether this type of project would be allowed.

Pawel, chair of EHC committee – TC2.3 Committee needs to nominate an expert to participate in the EHC effort to write a document on air cleaning

Next meeting, order a flip chart OR an LCD projector for the meeting.

9. Dinner plans were discussed.

10. Meeting adjourned

After the meeting Matt noted to Mark S. that Research co-chairs need to be informed of RTAR submissions. He proposed that in the future, the TC2.3 Research Subcommittee agenda should try to include updated activity that had occurred since the last meeting. Kathleen notes that all updated information that the chairs had was included this time. She reiterates that people need to get the latest data to me and that RTAR submissions should at least be copied to the chairs.