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**FINAL**

**TC/TG/MTG/TRG MINUTES COVER SHEET**

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG No. 3.3 DATE July 15, 2020

TC/TG/MTG/TRG TITLE Contaminant Control

DATE OF MEETING June 9, 2020 LOCATION Austin, TX – Virtual Meeting

MEMBERS PRESENT	YEAR APPTD ENDS	MEMBERS PRESENT	YEAR APPTD ENDS	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Chris Reeves - Chair	2020	Valerie Lisi	2022	Angel Mendez (Vice-Chair)
Joe Karnaz	2021			Rob Yost (Standards)
Elyse Sorenson (Webmaster)	2021			Tony Barthel (Research)
Ivan Rydkin (Handbook)	2020			Marc Scancarello (MTG Liaison)
Brad Boggess	2020			Steve Kujak (Programs)
Jian Sun-Blanks	2021	MEMBERS ABSENT		EX-OFFICIO MEMBERS ABSENT
John Senediak (late, 3pm)	2022	Robert Urrego	2021	Frank Nagy (Secretary)
Ngoc Dung (Rosine) Rohatgi	2022	Alice Riemer		
Casey Scruggs	2023	Sonny Sunderesan	2022	

**DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:**

TAC Section Head: Barbara Minor	SH3@ashrae.net
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	Steve Kujak – Research Don Fenton - Standards
Mike Vaughn, Manager of Research & Technical Services	MORTS@ashrae.net

**Note: These draft minutes have not been approved and not the official, approved record until approved by the TC.**

## Minutes – TC 3.3 Refrigerant Contaminant Control

### 1) Call to Order – Chris Reeves

Chair Chris Reeves called the meeting to order at 2:00 pm on Tuesday, June 19, 2020. In response to COVID 19 pandemic, ASHRAE exercised abundant caution and replaced “in-person meetings” with virtual meetings conducted online using the Zoom web application. Guests were recognized and welcomed. In lieu of self-introductions, a roll call of the voting members was taken and a quorum was confirmed with 9 of 13 voting members present.

ASHRAE Code of Ethics – A mention of the Code was made to remind all members and guests of the Code and that it is to be adhered to whenever at an ASHRAE meeting.

**MOTION #1:** to approve the Austin agenda with two minor changes: Angel Mendez not being a voting member listed on the agenda, and Sonny Sunderesan listed as a voting member who passed away last year was made by Joe Karnaz and seconded by Rosine Rohatgi. Motion passed 8-0-0 CNV.

**MOTION #2:** to approve the Orlando minutes as written was made by Brad Boggess and seconded by Rosine Rohatgi. Motion passed 7-0-1 CNV (Valerie Lisi abstained because she did not attend the Orlando meeting).

### 2) Report on TC 3.0 Chair Breakfast Meeting – Chris Reeves, Angel Mendez

- Virtual TC Chair Breakfast meeting held May 27. Angel Mendez reported discussions of mergers TC groups and 3.2 and 3.3 were mentioned. ASHRAE society year extended to August 1<sup>st</sup> meaning that TC leadership rollover date is now August 1<sup>st</sup>.

#### Liaison Comments:

- Barbara Minor (TAC Section 3 Chair) commented about the challenges and efforts involved in pulling together the virtual ASHRAE summer meeting. Barbara expressed her appreciation for the everyone’s efforts and patience to organize and participate in the virtual meetings.

## Sub-Committee Reports

### 3) Programs – Steve Kujak

- Steve was unable to attend virtual combined TC 3 meeting. Chris Reeves attended and shared following topics discussed in Orlando as potential Program ideas for the upcoming Chicago meeting
  - 1.Refrigerant composition shifts during leaks – real system analysis and thermodynamic cycle evaluation.
  - 2.Filter/Dryer requirements for various refrigerant types
  - 3.Oil separators
  - 4.Contaminant effects on bearings
  - 5.Outcome of AHRI/DOE white paper on material compatibility studies

- Steve shared additional notes for Programs from the Orlando meeting that are similar to the above

TC 3.3 – Rob Yost -Contaminant Control Device Design and Practices for LGWP Refrigerants. Rob confirmed interest in chairing this seminar. Minimum of 2 speakers are needed for a session.

- 1) History of contaminant controls devices from CFCs to HFCs
  - **Not viable now, Glen Steinkoenig no longer has access to relevant information**
  - **Brad Boggess will contact colleagues at Emerson White Rogers for interest in presenting this topic. Chris Reeves will also reach out to other Parker contacts to fill in.**
- 2) Equipment and devices to control oil contaminations
  - **Similar to #1, Brad will also discuss with Emerson White Rogers.**
- 3) Refrigerant compositions new and used – Rob, Ivan (**confirmed**)
- 4) Process chemical and contaminants on low GWP AHRI.
  - **Rosine commented some of this information was previously presented at ASHRAE but will review and expand on uses/considerations relevant to process chemicals. Rosine agreed to submit an abstract to Rob.**

**MOTION #3:** to propose a seminar for Chicago chaired by Rob Yost on Contaminant Control Devices for use with low GWP refrigerants made by Joe Karnaz and seconded by Brad Boggess. Motion passed 8-0-0 CNV.

- ASHRAE portal for submitting seminar proposals is open until August 3<sup>rd</sup>. Rob requested abstracts be submitted to him by August 1<sup>st</sup> for time to prepare the seminar proposal.
- New Ideas
  - Brad Boggess mentioned a survey of Purdue Conference papers for possible presentation at ASHRAE.

#### 4) Handbook – Ivan Rydkin

- Meeting scheduled with Casey Scruggs to review. Anticipate updates to be minor.
- Shelby Kent volunteered to join the Handbook subcommittee.
- Next publication scheduled for 2022.

#### 5) Standards - Rob Yost

- SPC 35-2014 – Method of Testing Desiccants for Refrigerant Drying
  - Amber Saylor reported meeting scheduled to complete title, purpose, and scope.
- SPC 63.1 – Method of Testing Liquid Line Filter Driers
  - Rob reported this method rolled into SPC 35 recommended it be removed from this list.
- SPC63.2 – Method of Testing Liquid Line Filter Drier Filtration Capacity
  - In revision cycle and anticipate ASHRAE update request for Chicago meeting.
- SPC 78 – Method of Testing Flow Capacity of Suction Line Filters and Filter Driers
  - Like 63.2, anticipate vote to be taken in Chicago to determine if action is required.
- SPC 219 – Method of Testing Acid Filters
  - Rob commented a more descriptive title name is desired, for example, the removal of organic acids by filter driers. Meeting of 219 with John Senediak held last week and draft is nearly complete. Next step is send to Standards for distributing the SPC for public review.
- New ideas
  - None.

## 6) Research – Tony Barthel

- Research Chairs breakfast held July 14.
  - Steve Kujak is rolling off as RAC liaison for section 3 and Chee Sheng Ow is rolling on. Thanks to Steve for his support for TC3.3.
  - There are training modules for both PMS and PES participation.
  - As with everything in 2020, the Covid-19 pandemic has affected the ASHRAE research budget. Typical funds for ASHRAE research in a year is \$2.6-2.7M with funds collected in one society year used in the next society year. This year will be closer to \$1.7M. The winter expo is a significant source of funding for ASHRAE research so if the Chicago meeting gets canceled then that will have a major impact.
  - Unsolicited Research Projects (URP) will not be considered for now.
  - Grants in aid (funding for graduate students) will be minimized.
  - Innovative Research Grants and New Investigator Awards will be delayed.
  - RTAR, TRP, WS work should still be done and some projects will get funding (especially when there is a co-funding source), but with less money it is possible that projects will be delayed before going out for bid.
- WS 1790 – *Water Solubility and the Distribution of Water between Vapor and Liquid Phases of low GWP refrigerants*- Brad Boggess
  - Brad Boggess previously submitted changes to Work Statement to voting members in March. 2 additional bidders have been identified bringing the total to 4; these additional bidders were added since the last vote, no content changes were made. **Action: Chris Reeves to follow-up on tally of March vote and review with Brad if another letter ballot vote is necessary.**
- RTAR 1856 – *Determine the Effect and Allowable Limits of Moisture and Contaminants in CO2 Systems* – Ivan Rydkin.
  - Accepted with comments. Comments were minor and Work Statement is expected to be submitted by August deadline.
- New Ideas
  - None.

## 7) Low GWP MTG – Marc Scancarello

- Full committee has not met yet.
- Research MTG meeting held
  - RP1806 – *Flammable Refrigerants Post Ignition Simulation and Risk Assessment*
    - ORNL leading project is moving forward. Completion date TBD.
  - RP1855 – *Determination of the Impact of Combustion By-Products Hydrogen Fluoride (HF) and Carbonyl Fluoride (COF<sub>2</sub>) on the Safe Use of Flammable Fluorinated Refrigerants*
    - Steve Kujak reported the draft report received and in review by PMS members.
  - WS1884 – *Incorporation of Odorants in Flammable Refrigerants*
    - WS submitted to TC 3.1. Anticipate the WS making to RAC for the August review cycle.

## 8) Webmaster – Elyse Sorenson

- Website is current and up to date.

9) Membership – Chris Reeves

- **TC 3.2/3.3 merger**
  - Chris reviewed the title, scope, and management team for the new, combined TC. Approved by advisory council.

**Title: Refrigerant System Chemistry and Contaminant Control**

**Scope: TC 3.2 is concerned with all chemical reactions and contaminant control inside refrigerant systems. The primary focus includes effects of temperature, pressure, and materials on chemical reaction rates. It also includes sources, generation, as well as control of water and other contaminants, Materials of interest include refrigerants, lubricants, additives, manufacturing chemicals, and materials of construction. Scope includes identifying and quantifying contaminants that affect properties and performance of system components such as filters and driers. It is also concerned with contaminants during recovering, recycling, and reclaiming refrigerants.**

<b>Management Team</b>	
<b>Name</b>	<b>Position</b>
Joseph Karnaz	Chair
Elyse Sorenson	Vice Chair
Steven Baker	Secretary
William (Brad) Boggess	Program Subcommittee Chair
Anthony Barthel	Research Subcommittee Chair
Gregory Smith	Handbook Subcommittee Chair
Ivan Rydkin	Handbook Subcommittee Chair
Robert Yost	Standards Subcommittee Chair
David Vincent	Webmaster
Chris Campo	Ali Coordinator
Marc Scancarello	MTG Low GWP Refrigerants
Jessica Jude	MTG Guide for RAC Plant Assessments

<b>Voting Membership</b>		
<b>Name</b>	<b>Position</b>	<b>Term</b>
Joseph Karnaz	Member	2023
Steven Baker	Member	2021
Casey Scruggs	Member	2023
Gregory Smith	Member	2024
Ivan Rydkin	Member	2024
Robert Yost	Member	2021
David Vincent	Member	2021
Elyse Sorenson	Member	2022
Justin Allemann	Member	2024
Julie Majurin	Member	2023
Jian Sun-Blanks	Member	2022
Danny Halel	Member	2021
Sarah Kim	Member	2021
Ngoc Dung (Rosine) Rohatgi	Member	2022
Valerie Lisi	Member	2022
John Senediak	Member	2022
Roberto Urrego	Member	2021
Knut Petry	Member Non Quorum	2023

- Joe Karnaz stated the TC is at the maximum number of voting members of 18. Going forward in 2021 when 6 voting members will roll off, all 6 will probably not be replaced to help with achieving a quorum.
- Brad Boggess brought up the previously discussed subject having term limits for subcommittee chairs. Joe mentioned the Orlando discussion where perhaps an informal Chair/Vice-Chair format could be adopted for this TC; further discussion planned for the upcoming Chicago meeting. May encourage others to volunteer for these leadership positions if they know it is not an assignment for “life”.

#### **10) Old Business – Chris Reeves**

No old business was brought before the committee.

#### **11) New Business – Chris Reeves**

None.

#### **Next Meeting**

2020 ASHRAE Winter Meeting Chicago held as joint TC, TC 3.2. Meeting length will remain the same as currently, 2.5 hours.

#### **Adjournment – Chris Reeves**

The meeting was adjourned at 3:15 pm through a motion by Joe Karnaz.

Respectfully submitted,

Steven Baker – Secretary (substitute for Frank Nagy)