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**DRAFT**

**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. 3.4 DATE January 27, 2021

TC/TG/MTG/TRG TITLE Lubrication

DATE OF MEETING January 26, 2021 LOCATION Virtual

MEMBERS PRESENT	YEAR APPTD ENDS	MEMBERS ABSENT	YEAR APPTD ENDS	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Greg Smith	2022	Danny Halel	2021	Scott Wujek – Research Subc
Joe Karnaz	2024	Steve Kujak	2022	Chris Campo – Programs Subc
Rosine Rohatgi	2021			Casey Scruggs – Handbook Subc
Sarah Kim	2021			Sheli Porter – Standards Subc
Ed Hessell	2023			Stuart Dols – Section Head
Rob Yost	2023			
Julie Majurin	2023			
Ivan Rydkin	2022			
Raymond Drost	2024			

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

TAC Section Head: William Dols	SH3@ashrae.net
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	Chee Sheng Ow – Research Theresa Weston – Standards Frederick Betz – Handbook
Mike Vaughn, Manager of Research & Technical Services	MORTS@ashrae.net

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

Minutes – TC 3.4 Lubrication

**Call to Order – Greg Smith**

Greg Smith called TC 3.4 meeting to order at 10:04 am EST on January 26, 2021 via Virtual Zoom Conference Call. Participates were asked to sign in with name and email address using the Zoom Chat function.

Voting members introduced themselves. A quorum was established with 9 of 11 members present.

The Chair reviewed the ASHRAE Ethics Statement.

A quick review of the agenda was made.

**Approval of 2021 Winter Virtual Meeting Agenda and 2020 Summer Virtual Meeting Minutes**

*A motion was made by Julie Majurin to approve the Virtual agenda as written, the motion was seconded by Rosine Rohatgi, the motion carried 8-0-0(CNV).*

*A motion was made by Rob Yost to approve the 2020 summer virtual minutes as written, the motion was seconded by Julie Majurin, the motion carried 8-0-0(CNV).*

A review of the roster was made.

Current Voting	Current Management Team
Danny Halel (2021)	Greg Smith – Chair
Rosine Rohatgi (2021)	Casey Scruggs – Vice Chair
Sarah Kim (2021)	Joe Karnaz - Secretary
Greg Smith (2022)	Scott Wujek – Research
Steve Kujak (2022)	Chris Campo – Programs
Ivan Rydkin (2022)	Casey Scruggs – Handbook
Julie Majurin (2023)	Sheli Porter – Standards
Rob Yost (2023)	Dave Vincent – Webmaster
Ed Hessell (2023)	Joe Karnaz – Low GWP MTG
Joe Karnaz (2024)	Danny Halel – Low GWP MTG
Raymond Drost (2024)	Scott Wujek - ALI

The chair noted that three members will be rolling off at the end of this society year and asked if anyone was interested in rolling on as a voting member; Those stepping forward to become voting members are – Casey Scruggs; Dave Vincent; Sheli Porter and Steve Baker.

## **TC Chair Breakfast – Greg Smith**

- Stuart Dols is the new Section 3 Head
- ASHRAE continues to emphasize the need for TC rationalization. TC merger discussions continue, each TC is asked to review and confirm their continuation each society year
- Rollover rosters for the 21-22 society year are due January 26<sup>th</sup>
- ASHRAE is encouraging TCs to have interim meetings throughout the year and TAC will maintain a listing of these meetings on a webpage [www.ashrae.org/technical-resources/technical-committees](http://www.ashrae.org/technical-resources/technical-committees)
- CEC is always looking for TC support in identifying people that are potential Technical Session Chairs and reviewers of Technical Sessions. If you have an interest, please contact you TC Chair
- ASHRAE is still planning on a face-to-face meeting in Phoenix June 26-30, 2021. Seminar and forum proposals are due Monday, February 8, 2021.

## **Liaisons**

Stuart Dols (TAC Section Head) – Stuart introduced himself as the new head of Section 3. He provided some details through the following PowerPoint slide:

### Section Head Announcements – Winter 2021

- Stuart Dols [sh3@ashrae.net](mailto:sh3@ashrae.net)
  - NIST, Energy and Environment Division, Indoor Air Quality and Ventilation Group
- Reports and Forms due “Tuesday night” (soon after main TC meeting)
  - Roster Update – TC Chair should receive a link
  - Activity Form – the usual
  - FG Evaluation Form
    - New, related to reorg
    - Subjective
    - TC “leadership” should fill out first draft and I will send along to TAC
- Communication & Resources
  - Update website – minutes and agendas
  - Basecamp
  - <https://www.ashrae.org/technical-resources/technical-committees>
  - <https://www.ashrae.org/technical-resources/technical-committees/tc-training-and-presentations>
- If you have any comments or questions, please contact me and I will do my best to address them and/or bring them to the TAC’s attention.

Matt Archey – Chapter Technology Transfer; Introduced himself and commented they are always looking for technical speakers for various chapter meetings; Please contact Matt at [r03vccttc@ashrae.net](mailto:r03vccttc@ashrae.net) if you have interest.

## **Subcommittee Reports**

### **Research – Scott Wujek**

The combined Section 3 research subcommittee meeting took place on Monday January 25<sup>th</sup> via a Zoom conference call. Ideas generated at that meeting will be discussed in the individual TC meetings.

It was noted that due to the time of this meeting our new RAC liaison, Chee Sheng Ow who is in New Zealand, would not be able to attend. Chris Seeton who is RAC Liaison to Section 8 provided the following update.

- Currently research dollars are tight; ASHRAE relies on the AHR show, which did not take place, and fund raising for support, which is down. This has reduced the budget by about 50%. Chris encouraged anyone interested in supporting ASHRAE research to go to the website to contribute.
- Since last April RAC has not funded any projects. Those projects that had been approved are in a queue awaiting support. Any new projects are on hold for approval.
- With the US Covid Bill tying in HFC Phaseout, this might create other research opportunities for this TC.

### Projects –

RP 1879 “Foaming Properties of Low GWP Refrigerant and Oil Mixtures” – Ivan Rydkin Chair; Contractor approval was done via letter ballot last summer and is one of the RAC projects in the queue for moving forward.

RP 1721 “Oil Return and Retention in Unitary Split Gas Lines with HFC and HFO Refrigerants”. This is sponsored by TC 8.11 Unitary and Room Air Conditioners and Heat Pumps; TC 3.4 is a co-sponsor with Chris Seeton as our representative. Purdue University is the PI, work has been moving along slowly; partly because of the large test matrix that was proposed, this was anticipated, but also due to Covid shutdown of labs at Purdue during the Spring and Summer last year. Work has resumed this Fall and Purdue has asked Shrieve to provide some lubricant-refrigerant interaction PVT data to help in the research. It is anticipated there will be a one-year no cost extension to the project.

RTAR 1891 “Tribological Interaction Data with Lubricants and Refrigerants”. Elyse Sorenson is the chair. The work statement is progressing. It was noted that December 15<sup>th</sup>, 2021 is the deadline so there is time for progress to be made.

With the current lack of funding, no other research ideas were generated in this meeting and the Section 3 combined meeting. Past ideas listed below will be kept in the minutes for future reference.

Other research ideas previously discussed remaining in the minutes:

- Preferential solubility of high glide refrigerant blends and lubricants – system effect of fractionation. This is still under consideration and will remain in the list to develop a RTAR.
- Investigate Alternatives for R-12 in Standard 86. This is still under consideration; Chris Campo is leading; a call was made for volunteers to help draft an RTAR. There was some discussion that this might be best to switch to a paper exercise/seminar presentation first to see what next steps develop for a research need.
- Electrical Properties of Lubricant-Refrigerant mixtures, extension of TC 3.1 refrigerant electrical property work. TC 3.1 has developed an RTAR but has decided should not include lubricant. Future work with lubricant may be needed and it was suggested that TC 3.4 work on an RTAR and have ready when this time comes.
- Identify gaps for research work which may be needed around lubricants and retrofit scenarios with low GWP refrigerants. Julie Majurin volunteered to see if she could identify and summarize what these gaps might be and report back to the TC.

### **Program – Chris Campo**

Section 3 Programs Subcommittee meeting took place on January 25<sup>th</sup> via a Zoom virtual meeting. Ideas generated at that meeting will be discussed in individual TC meetings.

TC 3.4 is sponsoring a program at this Winter Virtual Conference; Seminar 8: Lubricant Properties and Their Lubrication in Compressors with Low GWP Refrigerants; This will be a virtual Live Session that will take place February 9<sup>th</sup>. Kristin Sullivan is the chair and speakers are Joe Karnaz from Shrieve Chemical Products and Wasim Akram from Trane Technologies.

There was some discussion about trying to put a program together for Phoenix around lubricants for low temperature refrigeration mainly focusing on applications for Covid vaccine storage. Based on the discussion it was decided to also include others like equipment manufactures and material considerations into the seminar.

*A motion was made by Joe Karnaz for the TC to sponsor a seminar for Phoenix titled, "Working Fluid and Application Considerations for Low Temperature Refrigeration" chaired by Chris Campo, the motion was seconded by Greg Smith, the motion carried 8-0-0(CNV).*

Chris Seeton volunteered to contact an equipment manufacturer to see about their participation potential.

Based on discussion at the Section 3 combined meeting it was decided that we would focus on putting together a Section 3 program for Las Vegas based on the Refrigeration Track. Brad Boggess volunteered to setup a meeting with the other Section 3 program and committee chairs to discuss topics and the approach being ready to relay this information to the various committees during the Phoenix meeting to be able to submit by the program

deadline. The committee was encouraged to provide ideas to Chris Campo for him to pass along at the meeting with Brad.

A list of future ideas generated from previous discussions will remain on the list.

- Estimating Accelerated Chemical Stability Using Equipment Operation
- Thermal, Chemical and Materials Compatibility of Refrigerants and Lubricants Through the Years
- A future program around Lubricants for Natural Refrigerants was suggested.
- Current State of Lubricant and Refrigerant Properties

### **Handbook – Casey Scruggs**

The handbook committee consisting of Casey Scruggs, Brad Boggess, Elyse Sorenson, Chris Seeton and Amber Saylor has met a few times and reviewed Chapter 12. A significant task is incorporating PVT data from several new refrigerants and lubricant combinations with focus on R-454 series, R-448A, R-449A, R-32, R-1234yf and R-1234zeE. The committee is slated to be done with additions and review by end of February and will have draft ready for TC committee review and vote. Deadline for submission to ASHRAE is shortly after the summer meeting.

### **Standards – Sheli Porter**

Standard 86 “Methods of Testing the Floc Points of Refrigeration Grade Oils” – This standard is being revised by committee of Brad Boggess (Chair), Casey Scruggs, Scott Wujek, Dave Vincent and Sheli Porter; their first meeting is scheduled for February.

GPC 40 “Refrigeration Oil Description” – Scott Wujek is the chair and paperwork was submitted after the Orlando meeting to revise the standard. This is up for vote by the SPLS committee.

Standard 172 “Method of Test for Insoluble Materials in Synthetic Lubricants and HFC Refrigerant Systems”. A committee has been established with balance; Ed Hessell (Chair), Joe Karnaz, Brad Boggess, Elyse Sorenson, Rosing Rohatgi and Scott Wujek. Paperwork was submitted by the committee to ASHRAE to expand scope of the standard to include other refrigerants beyond HFCs. Standards came back saying that the committee will still need to go through the process of a revision. With this revision the committee will address the previous safety issue with fluid overcharge of the glass tube and harmonization across this standard, Standard 86, Standard 218 and Standard 97. Standard 97 is in the process of finishing this and Chris Seeton (Std 97 chair) and Ed Hessell will meet to discuss.

SPC 218 “Method of Test for Lubricant and Refrigerant Miscibility Determination”– No action is needed at this time.

There was some discussion on TC 3.4 role in Guideline 6 revision when it comes up. TC 3.1 is working on this and Lauren Huffman is leading, Sheli was advised to discuss the situation with Lauren.

**MTG Update –Low GWP Lower Alternative Refrigerants – TC 3.4 Represented by Joe Karnaz and Danny Hale!**

The MTG has not met yet for this ASHRAE. Work continues on a couple of research projects which have been slowed due to Covid. One particular project related to TC 3.4 is WS 1884 “Incorporation of Odorants in Flammable Refrigerants”, the initial look has switched to Standard 97 stability testing to screen compatibility.

**Webmaster – Dave Vincent**

The website was migrated from an onsite server to the cloud. The website is up to date.

**Old Business – Greg Smith**

No old business.

**New business – Greg Smith**

Greg discussed the Functional Group form and TACs recent question to TCs to discuss their future. TC 3.4 committee feels they are in good shape with no need to make changes.

**Next meeting**

2021 ASHRAE Summer Meeting in Phoenix

**Adjourn – Greg Smith**

*The chair closed the meeting at 11:13am through a motion by Julie Majurin to adjourn.*