

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.
1791 Tullie Circle, N.E./Atlanta, GA 30329
404-636-8400**

TC/TG/TRG MINUTES COVER SHEET

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

TC/TG/TRG NO 3.4 DATE February 16, 2017

TC/TG/TRG TITLE Lubrication <http://tc34.ashraetcs.org/>

DATE OF MEETING January 31, 2017 LOCATION Las Vegas, NV

Members and Committee PRESENT	Status	Members and Committee ABSENT	Status	ADDITIONAL ATTENDANCE
Chris Seeton	Chair/VM	Knut Petry	MNQ/VM	Sarah Kim
Scott Wujek	VChair/VM	Marc Scancarello	VM	Ken Lilje
Julie Majurin	Hand/VM	John Senediak	VM	Wasim Akram
Greg Smith	Resrch/VM	Stephen Spletzer	VM	Sheli Porter
Dave Vincent	Web/VM	Rob Yost	Stand/VM	Scott Gustafson
Roberto Urrego	VM	Ed Hessel	Prog	Chris Campo
Joe Nigro	VM			Steve Kujak
Chris Reeves	VM			Tony Barthel
Sonny Sundaresan	VM			Jian Sun-Blanks
Joe Karnaz	Sec			Joe Nigro
				Rob Chevasco
				Amy Shifflett
				Ian Li
				Sage Tomlinson
		ADDITIONAL ATTENDANCE		Peter Hayes
		Elyse Sorenson		Sean O'Malley
		Bill Morton		Bruce Griffith
		Angel Mendez		Enrique Villavicencio
		William Kopko		Barrie Spence
		Don Fenton		Rosine Rohatgi
		Corey Anderson		Etoe Silva
		Danny Halel		

DISTRIBUTION

All Members of TC/TG/TRG plus the following:

TAC Section Head: Jay Kohler	Manager Of Standards – Stephanie Reiniche Manager Of Research & Technical Services – Mike Vaughn
Steve Kujak – RAC Roberto Aguilo – Handbook Neils Bidstrup – Standards	TAC Chair - Michael Bilderbeck

Note: "These draft minutes have not been approved and are not the official, approved record until approved by this committee."

Call to Order – Chris Seeton

Chris Seeton called TC 3.4 meeting to order at 1:30 pm on January 31st, 2016 in Las Vegas at Caesars Palace Messina Room. Members and guests introduced themselves. Guests were welcomed and invited to participate. A sign-up sheet was circulated. The Chair reviewed the ASHRAE Ethics Statement.

Confirmation of Quorum – Joe Karnaz

With 8 of 13 voting members present a quorum was established. One more member joined later to make 9 voting members present.

Approval of 2017 Winter Meeting Agenda and 2016 St Louis Meeting Minutes– Chris Seeton

A motion was made by Sonny Sundaresan to approve the agenda for today's meeting in Las Vegas, the motioned was seconded by Greg Smith, and the motion carried 7-0-0-(CNV).

A motion was made by Sonny Sundaresan to approve the St. Louis minutes as written, the motioned was seconded by Roberto Urrego, and the motion carried 6-0-1 (CNV). Greg Smith abstained because he was not at the St. Louis meeting.

Liaisons

Jay Kohler – TAC Section 3 Head – Jay thanked all the attendees for their efforts in support of ASHRAE. Mentioned that CEC has responded to previous request by Section 3 to have a refrigeration track cycle every winter ASHRAE instead of summer as it is now. Our voices were heard and starting after Chicago the Refrigeration Track will be in the winter session. He discussed the efforts to coordinate activity amongst the Section 3 committees regarding research and programs activities. ASHRAE has been asked about providing badges for committee members that do not register, this would allow for ASHRAE to get a more accurate count, there will be no cost.

Don Fenton – Handbook Liaison - Said it appears our committee is on schedule. We should be ready to submit by spring of this year.

Steve Kujak – Liaison – Research activities have been funded so prioritization was not needed on projects. RAC has requested when RTARs are submitted and vote contains abstentions, the reason needs to be documented. Steve offered to provide a short presentation to the committee on the workings of RAC, this was thought to be a good idea. It was asked that Steve provide the RAC spreadsheet he receives out to the research subcommittee chairs prior to the research subcommittee meeting.

TC Chair Breakfast – Chris Seeton

- CEC is allowing programs to be presented during the TC meetings and will list these in the program book.
- Presenters need to sign a potential source of bias disclosure.
- CEC has complained that program presentations are not being uploaded in a timely manner and a three strike rule is being employed.
- Panel discussion and Debate are newer programs that are being added.
- Long Beach contains a Refrigeration Track.
- Chicago will have a mini-track on Low GWP Refrigerants
- Discussion on combining Section 3 programs and research.
- New ASHRAE Technology Portal available – free access to members.
- Importing a TC roster can be done into MS-Outlook
- TC remote participation meetings are available and are being used. Our committees typically have quorum so we usually don't need to use this.

Subcommittee Reports

Research – Greg Smith

Update was provided from Research Chair meeting regarding status of RTAR and WS that have been submitted in the various Section 3 committees. A process to award ASHRAE dollars through the Innovative Research Grant (IRG) was discussed. Currently 33 research proposals were reviewed and 6 qualified to move forward for further consideration, \$125,000 will be rewarded.

“Physical Property Measurements of HFO/Lubricant Mixtures” based on an old RTAR submission RTAR 1628 is being rewritten as a work statement for submission. This work could be helpful as data to be used for RTAR 1728 so it will be attempted to provide a draft WS for RAC and committee review to vote no later than Long Beach. To be worked on by Joe Karnaz, Chris Seeton, and Scott Wujek.

RTAR 1728 was submitted “Development of a Model for the Prediction of Oil/Refrigerant Mixture Properties of Low GWP Refrigerants and Synthetic Oils”. Overseen by Julie Majurin, with help from Wasim Akram, Tony Barthel, and Scott Wujek. Work statement is being worked on, the RAC Liaison commented that this needed to be completed and voted on by July 21st, 2108 to remain on the RAC list.

Work Statement 1721 – Oil Return and Retention in Unitary Split Systems Gas Lines with HFC and HFO refrigerants. This is sponsored by TC 8.11 and was conditionally approved by them. Previously TC 3.4 voted along with TC 10.3 to cosponsor. Scott Wujek bid on Work Statement so Chris Seeton took over as our contact on this project. The PES is meeting at this ASHRAE to recommend a contractor

A RTAR has been proposed named “Foaming Properties of Low GWP Refrigerant and Oil Mixtures”. The work statement was submitted and returned with comments. The chair distributed the revised draft work statement to the TC by email on Monday. More time is needed by the committee to review before deciding the next direction. Work Statement was prepared by Julie Majurin and Ivan Rydkin.

RP1774 “Effects of System Chemicals Towards the Breakdown of Lubricants and Lower GWP Refrigerants” is cosponsored by TC 3.4. The contractor is Spauschus and a brief update on the project was provided.

Previous Research Ideas:

1. Preferential Solubility –

A proposed title is: “Preferential Solubility of High Glide Blends in Lubricating Oils and System Effect on Fractionation”

The committee decided to keep this on the long-term research plan.

New Proposed Research Ideas:

1. “Effect of Lubricant and Refrigerant Mixtures on Microchannel Heat Exchanger Performance” was proposed by TC 8.4 and has asked TC 3.4 to be a cosponsor, Scott Wujek provided some background and will be the TC 3.4 representative.

A motion was made by Greg Smith to cosponsor the research brought forth by TC 8.1, the motioned was seconded by Julie Majurin, and the motion carried 8-0-0(CNV).

2. A research idea on the effect of oil drop size on heat exchanger efficiency was tabled for future discussion.

Program – Ed Hessel (Joe Nigro substituting)

TC 3.4 related programs in Las Vegas:

No programs presented.

Programs of interest to the group where mentioned:

Tuesday – Seminar 39 Low GWP Refrigerants and Their Applications Part 1

Seminar 56 Low GWP Refrigerants and Their Applications Part 2

Wednesday – Paper Session 22 Refrigeration Systems and Low GWP Refrigerants

Current Potential Submissions

- Long Beach
 - Program subcommittee chairs for TC 3.2, 3.3 and 3.4 met and came up with a program for Long Beach which is a seminar titled “Contamination Control and Lubricant Consideration During Retrofits of Low GWP Refrigerants”. They would like TC 3.4 to cosponsor this seminar (TC 3.3 will be the cognizant TC). Currently 3 speakers (Shrieve, Chemours, Parker) and looking for another from a system manufacturer. Deadline for submission is February 6th, 2017.

A motion was made by Joe Nigro to cosponsor the Long Beach Seminar, the motioned was seconded by Sonny Sundaesan, and the motion carried 8-0-0 (CNV).

- Chicago
 - Section 3 programs along with MTG programs have been challenged by CEC to put together a Low GWP mini track session for Chicago. The session will contain 4-5 programs so could result in 15-20 slots for presentation. TC 3.1 has come up with a skeleton outline and will work with the other groups over the next couple months on the plan to submit to ASHRAE staff which will lead. The meetings will take place at the Expo in coordination with AHR.

New Ideas:

- Low GWP Lubricant Fundamentals
- New Refrigerant Glide and Compatibility

These ideas were discussed and tabled for further discussion in Long Beach.

An idea was brought to the TC to have a combined Section 3 Program meeting and would take place on Monday 10:30-noon. The program subcommittee chairs will work on this and communicate back to TCs on the direction suggested.

Handbook - Julie Majurin

The handbook chapter is moving along. Some issues with the Portal were worked out. Updating chapter with HFO's, tribology, PAG technology and reorganizing the chapter. They are looking at digitizing Daniel Plots but this will require maintenance by the TC so this needs to be considered. June 8th is the deadline for submission but the Standard Liaison mentioned this is not necessarily a hard stop. The group will try to have a draft ready for TC committee vote in review by the deadline and no later than allowing appropriate time to vote in Long Beach.

Handbook subcommittee members include Julie Majurin (chair), Ed Hessell, Wasim Akrim, Sheli Porter, Chris Seeton, and Scott Wujek.

Standards – Rob Yost (Chris Seeton substituting)

Standard 86 “Methods of Testing the Floc Points of Refrigeration Grade Oils” – chaired by Warren Clough. *This standard was reauthorized and paperwork submitted in St. Louis so no further work is needed.*

Standard 99 “Refrigeration Oil Description” – chaired by Chris Seeton. This standard has been changed to a guideline with name GPC 40 and the draft submitted to ASHRAE. The draft was returned with minor editorial changes and next step will be to submit for public review and comments.

Standard 172P “Method of Test for Insoluble Materials in Synthetic Lubricants and HFC Refrigerant Systems” chaired by Ed Hessell. The public review draft has been completed with no comments and first gallery proof has been returned with request for minor changes which are being addressed.

SPC 218 “Method of Test for Lubricant and Refrigerant Miscibility Determination”– chaired by Brad Boggess. The committee met to review the round robin test that was completed by five labs. Results for upper critical solution temperature were somewhat similar and one result for the lower critical solution temperature was higher than the other four. Work continued on writing the standard.

- **New Ideas**

A previous idea brought to the committee on material compatibility was decided is best fitted into TC 3.2. This idea will be dropped from this committee.

Webmaster – Dave Vincent

The website is up to date. The roster will be included on the website if provided.

MTG Update –Low GWP Lower Alternative Refrigerants – TC 3.4 Represented by Joe Karnaz

The MTG committee has increased their efforts since they are in charge of implementing the 1 million dollars that ASHRAE has committed for low GWP flammability research. The committee has implemented full functioning teams for Research, Programs and Codes/Standards. The committee met on Sunday evening to

mainly discuss the four on-going research projects and work statements. The group will also meet on Wednesday morning to complete additional committee business.

Membership – Chris Seeton/Joe Karnaz

Management Team

Chair	Chris Seeton
Vice-Chair	Scott Wujek
Secretary	Joe Karnaz
Programs	Ed Hessell
Standards	Rob Yost
Research	Greg Smith
Webmaster	Dave Vincent
ALI Coordinator	Scott Gustafson
MTG Low GWP Liaison	Joe Karnaz

Voting Members

Chris Seeton	Knut Petry
Scott Wujek	Chris Reeves
Roberto Urrego	Marc Scancarello
Dave Vincent	Joe Nigro
Rob Yost	John Senediak
Sonny Sundaresan	Steve Spletzer
Julie Majurin	

The full roster was reviewed with the group in the room to see if some roster maintenance was needed to remove individuals that we know are no longer involved with ASHRAE.

Old Business – Chris Seeton

No new business.

New business – Chris Seeton

Steve Kujak brought to the attention of the committee that other TC's, particularly TC 8.1 are confused with the scope of TC 3.4 and thing it is related to compressor lubrication. This raised the question of whether we should be doing more with tribology concepts. This will be considered.

Next meeting

2016 ASHRAE Annual Meeting; Long Beach, CA; June 24 – June 28th, 2017.
TC 3.4 will meet Tuesday, June 27th.

Adjourn – Chris Seeton

The chair closed the meeting at 3:10 pm through a motion by Sonny Sundaresan and second by Dave Vincent.

Respectfully submitted,
Joe Karnaz – Secretary