

IAPWS

Power Cycle Chemistry (PCC) Working Group

Minutes of IAPWS PCC WG Meetings

Location: Stockholm, Sweden, June 29, 2015 – July 3, 2015

Acting Chairman: Michael Rziha
Members present: See PCC Attachment A

Monday 29th June 2015

Chairman M. Rziha welcomed all participants and working group members.

Agenda

Amendments / Adoption of Agenda

There were following changes and amendments to the drafted agenda:

- Adding “Numbering of Technical Guidance Documents” as third item to No 5 of PCC WG Meeting on Monday 29th June 2015
- Presentation of R. Blum “Efficient and clean thermal power plants for the future” was shifted from the joint PCC/PCAS WG Meeting on Tuesday to the IAWPS Symposium on Wednesday.
- Presentation of O. Yegoshina “Operative estimation of cycle chemistry at thermal power plants using statistical algorithms” was withdrawn.

Week program: split up of PCC for joint workshops and task groups.

M. Rziha described the proceedings for the WG meetings, summarized the overall schedule and gives an outlook of the upcoming meeting.

Appointment of Clerk of Minutes

A. Drexler was asked and agreed to act as the Clerk of Minutes.

Approval of Minutes of PCC WG in Moscow, 2014

The minutes were approved without any corrections.

Progress Reports on PCC Activities 2014/2015

Review of Actions from last PCC WG Meeting

Film-forming amine: Task group (W. Hater (chair), T. Petrova, W. Cook, M. Lendi) to prepare white paper on film forming amines for next meeting – provide by April 30, 2015.

Status: TGD on FFA is under preparation. Target is to have the TGD ready for EC approval by next year's IAPWS annual meeting (see also topic 5.4).

Corrosion Product Sampling for Cycling Plants: Task group includes: D. Addison (chair), P. McCann, W. Cook

Status: ongoing – task group will have the TGD ready for EC approval by next year's IAPWS annual meeting.

Demineralized Make-up Water. Task group includes Gary Joy (chair), Paul McCann, Kirk Buecher, Jim Bellow, H. Hirano and Michael Rziha

Status: ongoing – Task group have the TGD ready for EC approval by next year's IAPWS annual meeting

International Collaboration

No international collaborations are currently ongoing. B. Dooley asks the PCC WG members for proposal. W. Cook and D. Addison proposed an international collaboration regarding a 2-electrode and/or 3-electrode high temperature electrochemistry flow cell. The PCC WG members agreed to present this proposal of an international collaboration to the EC.

W. Cook and D. Addison to prepared a proposal for the EC decision.

IAWPS TGD – Status and future developments

Status of present and future development

B. Dooley gives a presentation of the background, content and target of the IAWPS TGDs. Currently 6 technical guidance documents are released (see <http://www.iapws.org/techguide.html>) and are being recognized as the standard documents internationally.

Approval on amendments of TGDs

The amendments for the TGD on instrumentation, as well as for the 2 TGD's on treatments (Volatile and Phosphate / Caustic) for cycling and fast start up plants had been finished and approved by PCC. Those are ready for approval by EC to be published now.

Instrumentation. F.-U. Leidich proposed to include a section regarding the pros and cons of the three available degassing techniques for measuring of degassed conductivity in the TGD amendment. After discussion PCC WG decided not to add an amendment, but to settle a small task group providing information on the next meeting.

Task Group: F.-U. Leidich (Chair), M. Lendi, M. Hellman, M. Rziha

Action: to summarize available public information for the next meeting in 2016.

Corrosion product sampling. There is need for support regarding load-follow operation.

A task group has been established to prepare a white paper

Task Group: D. Addison (Chair), K. Tompson, F.-U. Leidich, M. Rziha, A. Whitney, D. Lister
Action: to prepare a draft of the white paper until End of December 2015

Numbering of IAWPS Technical Guidance Documents

M. Rziha asked the WG members regarding the introduction of a numbering system of the TDGs. W. Hater and P. Mc Can supports such a system. W. Cook pointed out that such a system has to be consistent within all IAWPS working groups. M. Rziha proposed to add the year of revision. The WG members decided to support the development of a numbering system of the TGDs.

Action: M. Rziha to inform the editorial committee about the decision.

Setting of new task groups

Film-forming amine. B. Dooley proposed to form a task group for preparing a TGD on film-forming amines as there are lot of uncertainties and open questions, i.e. no universal guideline is existing. He recommends the participation of all vendors of filming amines.

Action: Task Group Members to prepare a skeleton of draft: M. Vermeersch, F. Dyachenko, P. Hattingh, A. Witney, A. Drexler, D. Lister, W. Hater (Chair), M. Lendi within this week

HRSG HP Evaporator Tube Sampling and Deposits analysis.

Task group members: P. James, P. McCann, B. Dooley, P. Hattingh

Demin Water. G. Joy gives an update regarding work have been done for the TGDs of demineralized make-up water, which could not be prepared.

Task Group: G. Joy, P. McCann, K., Bruecher, J. Bellow, H. Hirano, M. Rziha

Action: Task group will prepare a skeleton within this week

TGDs and ICRN

Geothermal. D. Addison gives a presentation on the white paper. The white paper will be circulated reflecting New Zealand experience to all interested parties and PCAS to ask for feedback, comments etc. by end of 2015.

Action: D. Addison circulated white paper

ICRNs – Review and possible new additions

Update Amine Guideline

Jim Bellows gave an overview of the current status of the work. He mentioned that there are might be potential for a future ICRN on acetic acid. The next steps will be discussed in 2016.

ICRN#17 Amines

The draft of the ICRN#17 was never be approved by the EC. M. Rziha proposed not to finalize the draft as J. Bellows is working on the amine guideline and a TGD on film-forming amine is being prepared. B. Dooley noted that the #17 will be never used for an ICRN in future, so there is no issue stopping the work on it. The WG group decided to stop any work on the ICRN#17.

ICRN#22 PTZ

The work on the ICRN#22 is not finished yet. Mr Stasny proposed to extent the ICRN for another 2 years. As A. Rudge has left the IAWPS, Mr. Stasny will remain the responsible alone.

Action: M. Rziha will bring up this proposal to the EC for approval.

ICRN#29 Sampling

D. Lister prepared a draft on this ICRN, but due to misunderstandings it was missed in the minutes of meeting in Moscow. M. Rziha will circulate the proposal to the members of PCC WG and ask for comments within one month. Afterwards the proposal will be passed to the editorial committee.

Action: M. Rziha will inform the EC regarding this procedure.

ICRN#26 Aluminum

M. Rziha reminds that the ICRN#26 is in place and asks for contribution.

Action: G. Joy, F.-U. Leidich and M. Rziha will provide an overview presentation at the meeting 2016 in Dresden.

Chemical guidelines for solar thermal power plants

G. Joy raised the question of preparing a guideline for solar thermal power plants. M. Rziha mentioned that the interests in solar thermal power plants have been decreased in the last years according to his opinion. B. Dooley supports this and would put low priority on such a guideline. It was decided not to follow up this issue.

Need for new ICRNs

G. Joy proposed to set up a new ICRN regarding the behavior of condensate polishing plants on the unit cycle. M. Rziha mentioned that great work was conducted by K. Daucik in 1990s and also an ICRN on Decomposition of Ion Exchange Resins was in place (ICRN#18).

Action: G. Joy will contact K. Daucik and probably prepare a draft for a new ICRN until the next meeting in 2016.

There were no further proposals for new ICRNs.

Activities of standard organizations

EN Standard 12952-12:2003 and 12953-10:2003

M. Rziha gave a presentation prepared by P. McCann who has left the meeting earlier dealing with the European Standards

- 12952-12:2003 (Water-tube boilers and auxiliary installations - Part 12: Requirements for boiler feedwater and boiler water quality) and
- 12953-10:2003 (Shell boilers - Part 10: Requirements for boiler feedwater and boiler water quality)

This PCC WG discussed how to proceed and how to approach the European standard committee for a contribution of IAWPS.

Action: The national member should be approached the European standard committee via their national IAWPS committees.

Action: G. Joy will contact ISO and gathering information which the target to send an IAWPS delegate to relevant international standards committees.

Technical Guidance Documents

TGD on film-forming amines

W. Hater presented the results of the Sub-Task Group meeting. The goal of the TGD is to provide guidance whether FFA can be used and are an option for particular fossil or combined cycle plant.

Action: Sub-Task Group to provide a TGD until the upcoming meeting 2016.

S. Uchida noted that H. Hirano and K. Fruzzetti would like to participate also the sub-task group. After setup of the draft version of the TGD the nuclear group will discussed the preparation of an addendum.

Action: W. Hater to distribute the draft version of the TGD to the nuclear group within PCC.

TGD on Monitoring of corrosion product sampling in cycling power plant

D. Addison gives an overview of the results gathered within this week. M. Rziha noted that start-up and shut-down of power plants are nowadays much faster than in the past, which has an influence on the corrosion products. D. Lister noted that the iron solubility change should be also considered

Action: Task Group to prepare a white paper for the 2016 meeting.

TGD on Demin Water

G. Joy gives an update of the results of the task group meeting. B. Dooley remarked that the TGD should definitely include the nuclear plants. M. Rziha supported that by mentioning the similarity of demin water plants in nuclear and fossil plants.

Action: Task group to provide a TGD until the upcoming meeting 2016

Discussion of future PCC activities and task groups

The PCC WG agreed that no further task groups are needed. M. Rziha appreciated the huge process that PCC made since the last 10 years.

B. Dooley asked regarding the status of creating an open and closed area on the OPAL webserver. (see EC minutes of 2014).

Action: M. Rziha to address this issue at the EC meeting.

A member of the Swedish committee proposed to conduct a short introduction of each speaker prior their presentation.

Action: M. Rziha to conduct in the next meeting as proposed

F.U. Leidich proposed to create a kind of “yellow pages” of all PCC WG members.

Action: M. Rziha to present at the EC meeting.

PCC Public relations

The article published in the PowerPlant Chemistry Journal reporting about the annual meeting should be continued.

Action: M. Rziha to take care of provision of an article to Power Plant Chemistry Journal.

M Rziha encouraged the PCC WG members who are acting in an organizing committee of conference dealing with IAPWS issues to bring IAPWS in by using the logo etc.

D. Lister recommends using the well-known steam table as an argument to increase the awareness level of IAPWS. S. McGee brings up to establish a kind of an “IAPWS slogan”. W. Hater noted to update the Wikipedia IAPWS item.

W. Hater proposed that update the IAPWS Website with a new lay-out as of 2015 standard.

Action: M. Rziha to present these proposals at the EC meeting.

Priority list review

The priority list was not continuously renewed in the last years. M. Rziha ask shall we reanimate the priority list or to close the list and do not continue for future.

B. Dooley noted that the process is out of date, but the PCAS chairman should be informed if the list is withdrawn as the list was used in the past for collaboration between PCC and PCAS.

The priority list will be withdrawn.

Action: M. Rziha informs the PCAS Chairman.

Changes in the PCC Membership and Election of Officers

Election of Officers

K. Tompsson resigned as vice-chairman of the PCC working group. M. Rziha appreciated his contribution and work in the past. M. Rziha proposed F.-U. Leidich as vice-chairman. No objections were there.

S. Uchida has to step down from the IAWPS activities. M. Rziha thanks for his good contributions and very good contributions since many years. W. Cook will take over the chair of the nuclear group after the meeting this year.

Changes in the PCC Membership

- Roger Lundberg (Sweden) was proposed by M. Hellman and seconded by M. Rziha
- Nobuo Ishihara (Japan) was proposed by S. Uchida and seconded by D. Lister
- Keith Fruzzetti (USA) was proposed by S. Uchida and seconded by W. Cook
- Joung Hae Lee (Korea) was proposed by M. Rziha and seconded by M. Hellman

PCC unanimously accepted these new members.

Dates and venue of the next meeting

Annual Meeting 2016

The meeting in 2016 will be 11 – 16 September 2016 in Dresden (Germany).

17th ICPWS

Planning begin of September 2018 in Prague.

Action: M. Rziha will proposed late August instead of begin of September to the organizing committee due to probably conflict with NPC2018, EUROCORR, opening of university.

Proposed Topics / Suggestion of PCC WG:

- Water treatment by membrane techniques
- Recycle of water / zero liquid discharge
- Chemistry in cycling plants
- Geothermal chemistry
- Air cooled condenser → operational chemical experience
- Experiences with USC plants
- Nuclear power
- Condensate Polishing
- Sampling and Instrumentation
- High Temperature oxidation
- Aluminum in water-steam cycle
- Seawater cooling and discharge
- Operational experience with new treatments chemicals (PAA, FFA, etc.)

Miscellaneous and Adjournment

M. Rziha asked for any further items of discussion, there were none.

M. Rziha thanks all working group member for the fruitful and productive meeting and appreciated their contribution.

Adjournment 14:30 hours.

IAPWS

Power Cycle Chemistry (PCC) – Nuclear Session

Minutes of IAPWS PCC Nuclear Session Meeting

Location: Stockholm, Sweden
Date: 30 June 2015, 10:30 – 12:00

Acting Chairman: S. Uchida (Japan)
Participants: Derek Lister (Canada), Willy Cook (Canada), Steve McGee (Canada), Keith Fruzzetti (USA), Andreas Drexler (Germany), Nobuo Ishihara (Japan), Hideo Hirano (Japan), Joung Hae Lee (Korea)

S. Uchida welcomed all participants.

IAPWS nuclear overview

S. Uchida gave an overview about IAPWS documents

- IAPWS certified research needs (ICRN) and
- IAPWS Technical guidance documents (TGD).

and the release process and timeline of those documents according to IAPWS statutes. He provided a list of ICRNs and TGDs and a few examples (see attachment).

The different objectives of Guidelines and Technical Guidance Documents were described.

Nuclear TGDs – Future possibilities

Issuing a technical guidance for e.g. instrumentation for nuclear is quite challenging due to the extending documents issued by many other institutes and organizations (EPRI, VGB others) that are working in this field.

K. Fruzzetti supports the ICRN from an EPRI perspective as an interesting and useful tool for deriving areas for R&D. IAPWS technical guidance documents on a high level (i.e. generic) are seen as complementary to existing guidelines.

The participants discussed possible topics which could be covered by TGDs. Two topics were mentioned:

(a) Film-forming amine technology.

It was agreed that it would be beneficial to add a separate section to the TGD on film-forming amines currently in preparation by the PCC task group. H. Hirano, K. Fruzzetti and A. Drexler announced their wish to take part in creating such a section.

(b) Sampling.

It was agreed to set up a new separate TGD for sampling in NPP in 2016. It was mentioned that due to increasing load follow operation of NPPs this topic is quite interesting for operators. N. Ishihara, K. Fruzzetti and A. Drexler announced their wish to take part in creating this TGD.

Contribution to the ICPWS

S. Uchida gave an overview about the last Conferences in Kyoto, Berlin and Greenwich and reminded on the upcoming conference in 2018 in Czech Republic. K. Fruzzetti noted that the Nuclear Plant Chemistry Conference in 2018 is planned to take place between mid-September and mid-October 2018 in US (San Francisco).

S. Uchida remarked on the next IAPWS annual meeting in 2016 (Dresden) and the following in 2017 (Kyoto).

Miscellaneous

The leadership of S. Uchida of the Nuclear Group is recognized and appreciated. W. Cook will take over the Chair within the PPC WG after the current meeting.