

Minutes of the Meetings
of the
Executive Committee
of the
International Association for the Properties of Water and Steam
held in
Greenwich, London, UK
1st – 6th September 2013

Plenary Session. Sunday, 1st September 2013. 9:20pm (39 people in attendance)

The President of IAPWS, Professor Tamara Petrova, welcomed the Executive Committee (EC) and other IAPWS members to Greenwich for the Executive Committee (EC), Working Group (WG) and General Committee Meetings of IAPWS. The President officially opened the 2013 EC Meetings by introducing the National Delegates. Each of the Member and Associate Member countries of IAPWS was in attendance with the exception of Argentina/Brazil, Greece and Italy.

The President asked the delegate of BIAPWS to provide some opening comments. McCann welcomed everybody to Greenwich and to the 2013 IAPWS meetings and ICPWS Conference. He briefly reviewed some of the events planned for the ICPWS week. He recognized the sponsors for the meetings: Veolia Water, Swan Analytical Instruments, ABB, Ecolutia, and RSC.

1. Adoption of Agenda

Provisional agendas had been posted on the IAPWS Website for all IAPWS members by the Executive Secretary. There were no further agenda suggestions from the EC. The agenda was then approved by the Heads of all National Delegations and forms Attachment 1 of these minutes.

2. IAPWS Business and Appointment of Committees

2.1 Releases, Advisory Notes, ICRNs and Technical Guidance Documents

The Executive Secretary indicated that four documents had been circulated to the National Committees during the year since the Boulder meeting for final review prior to being approved before or during the current EC Meeting. The Executive Secretary reminded the EC of these documents:

- Draft of IAPWS Statutes and By-Laws. Distributed 4th April 2013. A few minor suggestions were received, which were incorporated into the final which was then distributed to National Committees on 10th July 2013.

- Advisory Note Number 5: *Industrial Calculation of the Thermodynamic Properties of Seawater*. Distributed 22nd July 2013. No objections had been received by 1st September 2013. The document will be reviewed by the TPWS working group during the week prior to approval at the Friday EC.
- Revised Guideline: *The Critical Locus of Aqueous Solutions of Sodium Chloride*. Distributed on 2nd November 2012. One minor change was received from Canada, the changes were made and the Guideline was approved on 2nd February 2013.
- Technical Guidance Document: *Steam Purity for Steam Turbines*. Distributed on 28th May 2013. No objections had been received by 1st September 2013. The document will be reviewed by the PCC working group during the week prior to approval at the Friday EC.

The respective Working Groups will report to the EC at the Friday meeting on any further changes prior to requesting approval.

2.2 Press Release.

The President asked McCann and Guzonas to develop a Press Release on the IAPWS and 16th ICPWS proceedings during the week. Petrova also requested Bellows to provide any assistance to the committee after developing the Press Release for the last 15 years. The Clerks of Minutes from each WG were asked to provide input. The Press Release is discussed in Minute 17.1 and is Attachment 8.

2.3 Evaluation Committee on International Collaboration.

The President indicated that no proposals had been received by the Executive Secretary prior to the meeting, and that any suggestions from WGs should be given to the Executive Secretary by the end of day. The President then reminded the EC that the Committee to review any proposals received would consist of the WG Chairmen, with the President and Executive Secretary as ex. officio members. A chairman would be chosen by the Committee.

2.4 IAPWS Awards Committees

2.4.1 Helmholtz Award Committee

The President indicated that there was a Helmholtz Awardee this year. The Executive Secretary then reminded the EC that the Helmholtz Committee for the 2014 award would consist of a member from Russia, USA, BIAPWS, Canada and Czech Republic. Russia will provide the committee chairman. The President asked delegate Orlov to organize the committee and to report back to the EC on Friday with the names of the members of this committee (Minute 16.1).

2.4.2 Honorary Fellow Award Committee

The President requested that Bellows remain on the Committee for a second year as the Chairman for 2014. The IAPWS President requested that Kretzschmar join the two man committee. The President would be ex. Officio.

2.5 IAPWS Website.

The President requested that Harvey form an unofficial committee to discuss search engine access priority to ensure that the IAPWS documents are found easily by people worldwide. Harvey was asked to report back at the Friday EC with a plan.

2.6 Preparation for the General Meeting

2.6.1 IAPWS Statutes and By-Laws

The President requested that the chairman of the committee formed in Plzen provide a status report. Harvey first reminded the EC that currently the Statutes can only be changed at a General Meeting by a two-thirds vote of the EC Members present at the meeting in association with each ICPWS. He indicated that the committee (Svoboda and Watanabe) had developed a draft to include the items raised in Boulder and a few other items that had been raised by the committee. This version was sent to the National Committees of IAPWS for review. A few minor changes had been received and a final version sent to the EC for consideration at Greenwich before presenting this version to the General Meeting. The main changes to the Statutes and By-Laws include:

- Information on the IAPWS Technical Guidance Documents was added as a major activity and objective of IAPWS.
- The IAPWS Bank Account will be kept in a currency of convenience to the Executive Secretary. In future the IAPWS dues for a year will be in that currency converted from Swiss Francs on 1st January of that year. Concern was expressed about the IAPWS bank account in the event that the Executive Secretary is not able to work.

The President requested that the US Delegate (Friend) report back on this issue at the Friday EC.

- Two procedures have been included to address associate members: those coming in to IAPWS and those former Members moving away.
- The procedure for changing the statutes only at ICPWS is difficult to manage. The suggested change is that approval of $\frac{3}{4}$ of the EC at annual meetings will be required to approve changes.
- ICRNs will move to a five year cycle.
- It is suggested to eliminate the Executive Secretariat and to have the Executive Secretary appointed by the EC.

The President asked the EC if there were any other comments or objections to putting these changes forward at the General Meeting for approval. There were no comments and no objections.

2.6.2 Host Country for 17th ICPWS

The Executive Secretary indicated that the next country in line to host the 17th ICPWS is the Czech Republic followed by the US, and requested that the head of the Czech Republic National Committee discuss the possibility of holding the next conference by the end of 2013. If it is not possible then the request would be made to the US to provide an answer by the next EC meeting in Russia in 2014.

2.7 Other Business Requiring Extensive Discussions

No other business was raised by the EC.

3. EC Mandate to Working Groups and Membership

The President then provided the following mandates to the WG Chairmen for action during the week.

3.1 Releases, Guidelines and Certified Research Needs.

The Executive Secretary indicated that five ICRNs had either expired already or will expire in September 2013 and thus needed attention by the WGs during the week: #16 on thermophysical properties of seawater, #17 on amines, #22 on steam chemistry in the phase transition zone (PTZ), #24 on thermal conductivity of water at low pressure / high temperature, and #25 on corrosion mechanisms..

3.2 Working Group Directions.

The President emphasized that each WG Chairmen should only report to the EC on Friday about those activities that need approval or discussion by the EC.

4. Preview by the WG Chairmen of the Week's Activities

President Petrova requested each WG Chairman to review briefly the main topics which would be covered in their WGs during the week. The details of the WG meetings are covered in detail in Minutes 7 to 11 (Attachments 3 to 7).

The President closed the opening session of the EC at 10:15am.

Activities During the 16th ICPWS Conference Week in Greenwich

The first day activities of the WGs and Executive Committee were followed on Monday to Thursday by the symposia and workshops of the 16th ICPWS.

The full IAPWS program for the week is shown in Attachment 2.

Executive Committee Meeting. Friday, 6th September 2013

President Petrova opened the continuation of the EC Meeting at 8:40 am. Each of the Member and Associate Member countries of IAPWS was in attendance with the exception of Argentina/Brazil, France, Greece, Italy and Switzerland. In total there were 24 people assembled for the EC meeting.

Petrova first asked the EC if there were any additional items that should be added to the Agenda. None were suggested. The Executive Secretary showed the latest Agenda with additional items relating from the Sunday EC Meeting.

5. Acceptance of Minutes of Previous Meeting

President Petrova asked for comments and changes to the minutes of the EC meeting held in Boulder, USA in 2012. No changes were noted, thus the 2012 Minutes were accepted.

6. President's Report

President Petrova indicated that she had given her report at the General Meeting (GM) on Tuesday and asked the EC if this needed to be repeated. The EC were pleased with the GM report.

7. Report and Recommendations of the Thermophysical Properties of Water and Steam (TPWS) and the Industrial Requirements and Solutions (IRS) Working Groups and the Subcommittee on Seawater (SCSW)

TPWS Chairman Harvey opened this item by indicating that he would report on activities within TPWS, IRS and SCSW during the week. He then highlighted only those activities from the working sessions during the week which needed action by the EC or which he thought were of interest to the EC. He indicated that all of the WG activities had been conducted jointly with the exception of separate meetings for IRS and the Subcommittee on Seawater which are reported in Minutes 8 and 9. Full Minutes and the Agenda for TPWS can be found in Attachment 3.

- 7.1 Advisory Note 5 on the Properties of Seawater for Industrial Use. As per Minute 2.1 this document had been circulated to National Committees. The Working Groups (WG) reviewed and approved, and recommended adoption by the Executive Committee (EC).

The EC approved Advisory Note 5 Unanimously.

- 7.2 Task Group on Supercooled Water. Chairman Harvey informed the EC that IAPWS-95 can be recommended as a pure-fluid reference model for the formulation of thermodynamic properties of seawater, and when discussing IAPWS-95 outside its range of validity then “extrapolated IAPWS-95 formulation” should be used.
- 7.3 Metastable and Low Temperature Water. Chairman Harvey informed the EC of three Task Groups:
- Task Group to work on possible Guideline on thermodynamic properties of supercooled water with the following members: Hruby (chair), Anisimov, Feistel, Hellmuth, Holton, and Orlov.
 - Task Group to examine behavior of IAPWS-95 for superheated liquid with the following members: Kretzschmar (chair), Feistel, Hruby, Orlov, and Rukes.
 - Task Group to re-examine some uncertainty estimates of IAPWS-95 in light of new data with the following members: Harvey (chair), Trusler, and Wagner.

- 7.4 Harvey indicated that there had been progress on the new formulation for thermodynamic properties of heavy water, and that the WG expects this to be ready for evaluation in 2014.
- 7.5 Harvey indicated that ICRN-24 (Thermal conductivity of H₂O at low pressures and high temperatures) was extended by three years at the Boulder meeting but that some revisions were needed before being posted on the IAPWS Website. The TPWS Chairman will address this in the near future.
- 7.6 The TPWS Chairman informed the EC that Advisory Note 2 had been updated to reflect the latest documents.
- 7.7 TPWS Membership. Chairman Harvey requested that the following new TPWS WG members are approved:
- S. Bell (NPL, UK).
J. Lovell-Smith (NMI, New Zealand).
S. Herrmann (TU Zittau/Görlitz, Germany).

The EC approved these Membership Additions Unanimously.

8. Report and Recommendations of the Industrial Requirements and Solutions (IRS) Working Group

IRS Chairman Weber indicated that many of the activities of IRS during the week had been reported in the TPWS report. Minutes for IRS and the Agenda can be found in Attachment 4. He covered the following items with the EC.

- 8.1 Proposed Guideline on Fast Water/Steam Properties based on Spline Interpolation. Chairman Weber informed the EC that the work presented should be developed into a guideline, and that a draft proposal already exists. The guideline will contain a description of the general method and its application to IAPWS-IF97 and IAPWS-95. An Evaluation Task Group was set up consisting of Novy (chair), Blangetti, Miyagawa, Pawellek, Bonifay and Weber.
- 8.2 Task Group on Industrial Survey. Weber informed the EC that there had been no progress and that the Task Group will be discontinued after the guideline on fast property calculations is available.
- 8.3 Task Group on Advisory Notes. The Chairman informed the EC that: a) the current set of advisory notes is suitable, b) an additional advisory note summarizing all documents relevant for industrial purposes will be developed, c) the task group will prepare such a document for the 2014 meeting, and d) the WG formally renamed the task group “Industrial Advisory Note”.

- 8.4 IRS Membership. Chairman Weber requested that the following new member be approved:

F. di Mare (German Aerospace Center (DLR), Germany)

The EC approved this Membership Addition Unanimously.

9 Report and Recommendations of the Subcommittee on Seawater (SCSW)

SCSW Chairman Pawlowicz indicated that many of the activities of SCSW during the week had been reported in the TPWS report. Minutes for SCSW can be found in Attachment 5. He covered the following items with the EC.

- 9.1 The SCSW Chairman informed the EC that there had been three IAPWS/BIPM Workshops during the ICPWS week: a) pH (with 30 participants), b) salinity/density (with 25 participants), and c) Relative Humidity (RH) (with 13 participants). Each workshop had resulted in a number of JCS tasks to be worked on over the next year. In terms of future IAPWS/BIPM cooperation, the following two suggestions were made by BIPM representatives in the workshops (Bell (chair CCT/WG6), Lovell-Smith (CCT/WG6), Spitzer (CCQM), Seitz (CCQM) and Heinonen (CCT/WG6)):

- IAPWS should send a representative to the next CCQM/BIPM Meeting (April 2014, location TBD)
- IAPWS should send a representative to the next CCT/BIPM Meeting (June 2014, Paris)

In relation to these two suggestions, the SCSW Chairman proposed to the EC that IAPWS funding is made available for IAPWS representatives to attend these two meetings as follows:

- CCQM/BIPM Meeting - Pawlowicz or substitute (~\$3,000US)
- CCT/BIPM Meeting - Hellmuth or Feistel (~\$2,000US)

This resulted in some discussion from the EC which resulted in a proposal to the EC that IAPWS will provide support for two official IAPWS people to attend the two BIPM meetings in 2014. At this stage US Delegate Friend suggested that approval should be delayed until after the financial discussions. The EC returned to this item at the end of the meeting with an amendment proposed by the US Delegate that the total expenses are not to exceed \$5000 US.

The EC then approved this proposal unanimously.

10. Report and Recommendations of Physical Chemistry of Aqueous Systems Working Group (PCAS)

Chairman Nakahara provided the PCAS Report to the EC. Full Minutes can be found in Attachment 6. He covered the following items with the EC:

- 10.1 PCAS Officers. Chairman Nakahara will step down as chair of the PCAS WG after the London meeting. The chairman requested to the EC that Anderko will take over as chair and Sedlbauer will be appointed as vice chairman.

The EC approved these PCAS Officer Changes Unanimously.

The President acknowledged the five years that Nakahara had lead the PCAS WG and the EC provided applause.

- 10.2 PCAS Membership. Chairman Nakahara requested that the following new member be approved:

L. Qiu (AECL, Canada)

The EC approved this Membership Addition Unanimously.

11. Report and Recommendations of Plant Cycle Chemistry Working Group (PCC)

Chairman Rziha highlighted those activities that needed action / approval by the EC. A full written report of the PCC WG activities forms Attachment 7. He covered the following items with the EC

11.1 Technical Guidance Documents.

Steam Purity for Turbine Operation. Chairman Rziha informed the EC that this document had been prepared over the last two years and was discussed in Boulder. During 2013 the draft was finalized and circulated to the Task Group, PCC, Editorial Committee and National Committees as indicated in Minute 2.1. No comments had been received as a result of the NC review and the PCC had conducted a final review at the Sunday meeting. Chairmen Rziha requested that the EC approve this document.

The EC approved the Steam Purity Technical Guidance Document Unanimously.

Corrosion Product Sampling and Analysis. Chairman Rziha informed the EC that this document had been prepared over the last year since Boulder. During 2013 the draft was finalized and circulated to the Task Group and to all the PCC members. The comments received were reviewed at the Sunday PCC meeting and the final changes will be made by the end of September 2013. Chairmen Rziha requested that the EC approve this document for Postal Ballot following review by the Editorial Committee.

The EC approved this Technical Guidance Document (TGD) for Postal Ballot Unanimously.

A BIAPWS delegate (Cooper) suggested that the TGD could be numbered to ease the process of revision. The President requested that PCC discuss this possibility at the next meeting in Moscow.

11.2 ICRNs

ICRN 17 on Amines. The Chairman reported that the revision of this ICRN will be completed by 15th October 2013 and it will need a new closing date. Additionally a new ICRN on filming amines will be developed for discussion in Moscow.

ICRN 22 on Steam Chemistry in the Phase Transition Zone. There was no information on this ICRN so it will be discussed in Moscow.

ICRN 25 on Corrosion Mechanisms that are related to the presence of contaminants in steam / water circuits, particularly in boiler water. This was finalized during the week and circulated to PCC members present. It now needs a light review by the Editorial Committee and will then be forwarded to National Committees for a Postal Ballot.

11.3 PCC Membership. Chairman Rziha requested that the following new members be approved:

W. Hater (BKG Water Solutions, Germany)
H. Kido (MHI, Japan)

It should be mentioned that an administrative error had occurred in the membership discussion at PCC and Kido had not been proposed for PCC membership at that time. The Japanese delegate (Nakahara) notice this. After some discussion the Executive Secretary suggested that the EC approve Kido for membership but Chairman Rziha will need to inform the PCC members.

The EC approved these Membership Additions Unanimously with the caveat that the PCC Chairman needs to inform the members of PCC.

12. Editorial Committee Report

Editorial Committee Chairman Harvey reported that in the preceding year, the Editorial Committee had reviewed the following documents:

- Revised Guideline on the Critical Locus of Aqueous Solutions of Sodium Chloride.
- Technical Guidance Document: Steam Purity for Turbine Operation.
- Advisory Note 5: Industrial Calculation of the Thermodynamic Properties of Seawater.
- Informal review and editing of Closing Statement for ICRN-23 (Dew Point for Flue Gas of Power-Plant Exhaust).

Editorial Committee Members. Harvey indicated that McDougall had resigned from the Editorial Committee and requested that Cook (Canada) be appointed.

The EC approved the Addition of Cook to the Editorial Committee Unanimously.

At this point the Executive Secretary discussed that all IAPWS documents included the mailing addresses of the President and the Executive Secretary. He then suggested that in today's communication world this was not needed, and that e-mails and telephone numbers would suffice. There were no objections from the EC. A Canada delegate (Pawlowicz) suggested that IAPWS should investigate having the e-mail addresses as IAPWS.org.

13. Membership and Associates

13.1 Members Defaulting on Dues.

The President asked the Executive Secretary to report on the members that are deficient in paying their dues. All IAPWS Members have paid their 2013 dues.

13.2 Reports on Associate Members

The Executive Secretary requested the delegate from each Associate Member and potential Associate Member to provide a short update.

Australia. Chairman Joy indicated that activities in ANAPWS were moving along nicely with an initial concentration on power plant chemistry. They are seeking other possible involvements in sea water, carbon sequestration and thermodynamics. ANAPWS now has 45 members. They are involved in two major conference activities in Australia: Australasian HRSG Users Group (AHUG) and API PowerChem. An Australian wide steering committee has been formed. Joy indicated that they are planning to apply for IAPWS Membership at the Moscow Meeting in 2014.

New Zealand. Chairman Addison provided an update on NZAPWS. They have been targeting the last quarter 2013 for industry funding. They are planning another one-day symposium in early 2014 and to apply for full IAPWS Membership at the Moscow Meeting in 2014. NZAPWS members have already been heavily involved in the development of the latest IAPWS TGDs on Steam Purity and Corrosion Products.

France. The Executive Secretary had received a note from the French NC Chairman Dorey after meeting with him during the ICPWS week along with five other French attendees. At the present time the French NC of IAPWS had not yet recovered, but the French delegates at Greenwich had shown good will to bring a new start to the French NC. A process has been established to identify and link people together. There is hope that a foundation meeting will be organized in the future.

Switzerland. The Executive Secretary had received a note from the Swiss NC Chairman that there were seven members, but the committee had not yet been able to acquire financial commitment.

South Africa. Delegate Marais indicated that South Africa is intending to establish a national committee and become a member of IAPWS. This has been launched by Eskom, the national utility that has a large array of power stations. Discussions have also taken place with potential members that include: Petrochemical (Sasol), Paper and Pulp (SAPPI), Sugar (Hullett), Academic Institutions (Stellenbosch) and a Research Institution (CSIR). They plan to hold an initial formulative workshop in November 2013.

Argentina/Brazil, Greece and Italy. The US Delegate, Friend, requested an update on the membership status of these three Associate Members. The Executive Secretary indicated that there has been no contact on membership with these members for a number of years. Friend indicated that the revised Statutes and By-laws were approved by the General Meeting on Tuesday and that to be fair to the incoming Associate Members and potential Associate Members, these three previous members should be contacted by the Executive Secretary.

14. Executive Secretary's Report

14.1 Financial, Auditors and IAPWS Dues

The Executive Secretary reported that IAPWS remained on a sound financial footing with currently over \$60,000 in the US bank account. The status as at 22nd August 2013 in the bank account had been provided to each National Delegate present at the EC meeting.

The Executive Secretary next reported that the 2012 financial statements had been forwarded to the IAPWS Auditors in January 2013. Both Dr. Hencke of VDI in Germany and Professor Savarik in Czech Republic had reviewed and approved the financial statements. Savarik's report had also been provided to the Heads of all the National Delegates present, but Hencke's had not been received until the week before the IAPWS meetings.

The Executive Secretary proposed that these organizations continue to act as auditors.

The EC Approved this Unanimously.

The Executive Secretary proposed to the EC that the dues structure for member countries remains unchanged for 2014.

The EC Unanimously Agreed to this Proposal.

The Executive Secretary had also provided a rough estimate of the income and known planned expenditures for 2013 / 2014.

14.2 Time and Place of the 2014, 2015 and 2016 Meetings

2014 IAPWS Meetings. The Head of the Russian NC, Orlov, indicated that the Russian NC looks forward to welcoming IAPWS and the EC to Moscow. The meetings will be supported by the Russian NC and Moscow Power Engineering Institute on 23 – 27 June 2014. Two local hotels have been booked and will be reserved up to 1st May 2014. Visa application will be critical and the application process will start at the beginning of 2014. Information will be available at www.IAPWS.org and <http://twi.mpei.ac.ru/rnc/iapws2014>. There will an accompanying person's program.

2015 IAPWS Meetings. The Head of SIAPWS NC, Hellman, indicated that SIAPWS has agreed to host the 2015 meetings in mid-September in Stockholm.

2016 IAPWS Meetings. The Head of the German NC, Kretzschmar, indicated that the German NC would like to invite IAPWS to Dresden. Initial details will be provided in Moscow.

Future Years and the 17th ICPWS. The Head of the Czech Republic NC, Hruby, had already indicated at the GM that the Czech National Committee will support the 17th ICPWS. Discussion of the EC focused on whether this would be in four or five years, and the New Zealand delegate, Addison, indicated a willingness to hold an annual meeting and will discuss with the NC.

15. Guidelines, Releases, Certified Research Needs, and International Collaborations

The President indicated that the Releases and ICRNs had been discussed within the WG Reports so no further action was required by the EC.

15.1 International Collaborative Projects.

The President indicated that no international collaborations had been suggested in 2013.

16. IAPWS Awards

16.1 IAPWS Helmholtz Award

The President reported that the 2013 Helmholtz Award had been presented to Hank Ashbaugh of Tulane University at the ICPWS Plenary Session on Monday.

Petrova then asked the Russian Delegate, Orlov, for the names of the 2014 Helmholtz Award Committee. The 2014 Helmholtz Committee will consist of: Chairman Orlov (Russia), Friend (USA), Guzonas (Canada), Vinš (Czech Republic) and McCann (BIAPWS).

Nominations will be due to the Executive Secretary by 31st January 2014.

The 2013 Helmholtz Committee Chairman, Kretzschmar, indicated that some thought should be given to an age restriction because different countries had varying “highest earned degrees” as required by the IAPWS Statutes and By-Laws and within the Helmholtz procedures. The consensus of the EC was that this had been discussed a number of times at past EC meetings. Finally it was decided that the committee for 2014 should again consider this factor and report back to the EC in Moscow.

16.2 IAPWS Honorary Fellowships

The President reported that Feistel (Germany) had been elected an Honorary IAPWS Fellow, following the established procedures and after unanimous approval through the postal ballot conducted by the Executive Secretary. The Fellowship Award was then presented to Feistel by the IAPWS President.

Petrova then reminded the EC of the Awards Committee for 2014 with Bellows as Chairman and Kretzschmar as member with the IAPWS President as ex.-officio member.

Nominations are due to the Executive Secretary by 31st January 2014.

17. New Business

17.1 Press Release

The President mentioned that McCann and Guzonas had been asked on Sunday to develop a Press Release. This was developed with input provided by each WG and SC. McCann briefly projected the developed Press Release which is Attachment 8. The President indicated that this release will be sent to all NCs and WGs of IAPWS and it should be distributed as widely as possible and sent to any journals and publications.

17.2 IAPWS Website Visibility for IAPWS Products

The President requested Harvey to report on input received during the week on how to improve the visibility of IAPWS products when searched on the internet. Harvey provided the following inputs:

- Continue what we are doing by making individual pages for each document which includes a link to that document. The WG chairs were requested to develop these pages and send them to Harvey.
- Insert as many links to IAPWS.org in as many published papers as possible.
- Hire an expert in internet searching to help structure the IAPWS.org site and the web pages.

The PCC chairman indicated that PCC had discussed this and supports IAPWS providing funds to allow the TGD to be found faster and more often. The question of who to hire was raised by the EC. Discussion resulted in a proposal that all NC will provide suggestions by 31st October 2013, and that if two or more are found then EC approves the expenditure without conducting a postal ballot.

The EC Approved this Motion Unanimously.

17.3 BIAPWS Feedback on the 16th ICPWS and Discussion on the 17th ICPWS

BIAPWS Feedback. The Head of BIAPWS NC, McCann, indicated that BIAPWS had three main criteria for judging the success of the 16th ICPWS. The first was attendance and there had been 229 people from 28 countries in attendance during the week. The second was the technical content and this was very difficult to judge because of the very wide range of topics, but BIAPWS hoped that each WG had been satisfied. The third factor was satisfaction with the venue and facilities. McCann also provided a couple of thoughts for the next organizers of an ICPWS. The first was that a list of IAPWS requirements should be provided and the second that these were available to the host country as early in the process as possible. These comments lead to an open discussion by the EC. The IAPWS President mentioned that it is important to develop a detailed

agenda as early as possible (six months before ICPWS) which includes dates, locations, and timing for presentations. A BIAPWS delegate, Cooper, indicated that the ICPWS is an IAPWS event and that IAPWS people need to be involved in the early decisions along with the local organizing committee (LOC) so that substantial revisions do not need to be made in the key dates for things like meetings of the international program committee (IPC), call for papers, date for abstracts, date for paper or presentation submissions, and paper reviews.

The consensus of the EC developed for a motion that a short document should be developed by the Executive Secretary in conjunction with the BIAPWS Chairman. The main content would be a skeleton of main procedural ICPWS dates and requirements.

The EC approved this Motion Unanimously

The Executive Secretary indicated that BIAPWS needs to provide for IAPWS auditing a final accounting and balance sheet for the 16th ICPWS which clearly indicates how the IAPWS donation was used.

Action: BIAPWS to provide a Final Accounting to the Executive Secretary by the end of 2013.

The final item on the 16th ICPWS came from the US Delegate, Friend, who thanked BIAPWS for arranging the conference and hoped that this had been tremendously beneficial in advertising IAPWS for the membership of BIAPWS. The EC applauded. Another request was then raised for BIAPWS to provide a detailed listing of attendees (names, affiliations, telephone, e-mails) to the Executive Secretary before the end of September 2013 for continuing IAPWS business.

This request was approved unanimously by the EC.

17th ICPWS. The Head of the Czech Republic NC indicated initial enthusiasm for holding the 17th ICPWS. He will respond officially to the Executive Secretary by the end of 2013 and indicate whether the date will be 2017 or 2018.

17.4 IAPWS Bank Account.

The US delegate, Friend, indicated that there was an open item from the discussion on Sunday about the Statutes and By-Laws (Minute 2.6) concerning the signatures required on the IAPWS bank account. Friend had discussed with a number of members during the week and made the motion that the Executive Secretary will report back at the EC meeting in Moscow in 2014.

This motion was approved unanimously by the EC.

17.5 Other New Business

President Petrova asked the EC if there was any further business. No other business was raised.

17.6 Reports from National Committees.

Written reports on progress in member countries were not reported to the EC but were either distributed to other members and the Executive Secretary during the IAPWS/ICPWS week, or sent to the Executive Secretary after the meetings. They are attached to these minutes as follows:

BIAPWS	Attachment 9
Canada	Attachment 10
Czech Republic	Attachment 11
Germany	Attachment 12
Russia	Attachment 13
Switzerland	Attachment 14

17.7 Participants

Attachment 15 provides a list of participants at the IAPWS EC and WG Meetings and at the 16th ICPWS in Greenwich, London, UK in September 2013.

17.8 List of Members

An up-dated list of members of the Executive Committee, Working Groups, and Honorary Fellows will be developed by the Executive Secretary following the Greenwich Meetings. This will be forwarded electronically to the Head of each National Committee and the Working Group Chairs.

18. Closing Remarks and Adjournment

The President thanked McCann and his BIAPWS NC colleagues for hosting the IAPWS and ICPWS Greenwich Meetings. She also thanked everybody for participating at this EC meeting. Then she formally closed the 2013 EC meeting at 12:40pm.