

## MINUTES OF COMMISSION I

56th ICCP MEETING, Budapest, 13 and 14/09/2004

Chair: Walter Pickel, Secretary: Deolinda Flores

### Opening remarks

The commission I meeting was held on Monday afternoon and all-day Tuesday and was attended by 26 and 16 members of Commission 1 and 5 and 4 guests respectively. The Chairman outlined the programme for the sessions and presented the opening remarks. The working groups and items presented and discussed in the meeting were:

- Accreditation Programme
- Standardization Working Group
- Peat Petrography Working Group
- Review of new methodologies and techniques in Organic Petrology
- Temporal variation of coal
- New Handbook Editorial Group
- Microscope session and ICCP Commission I Services

The Minutes of the previous meeting were accepted as published in the ICCP Newsletter.

### Accreditation Programme – Aivars Depers

The activities of the AP were presented considering the following two items: 1. Accreditation Programme – 2003-2004 Report, and 2. Accreditation Programme - Review.

#### 1. Accreditation Programme – 2003-2004 Report

On behalf of the Convener the Chair presented the report summarising the 2003-2004 activities as follows:

#### SUMMARY 2003 EXERCISE

- exercise completed in December, 2003;
- no appeals were received;
- 13 petrographers from 8 laboratories in 5 countries participated;
- certificates were sent in January, 2004;
- 2 petrographers were denied accreditation for the maceral content and vitrinite reflectance methods;
- one petrographer did not submit data;
- 8 petrographers were accredited for both methods; 2 petrographers were accredited for maceral content method only;
- list of accredited petrographers was updated and placed on the ICCP website in March, 2004.

#### 2004 EXERCISE

- 71 petrographers from 34 laboratories in 14 countries participated;
- average number of petrographers per laboratory = 2.08;
- 6 new petrographers;
- timetable for the exercise was modified, e.g., samples were sent later than planned (11/6/04)
- some laboratories had problems with the timetable, e.g., payment of fees on time;
- all data had to be received by the end of August, 2004;
  - 44 sets of results received (62%);

- 2 petrographers withdrew from exercise;
- 2 laboratories indicated they would miss the deadline;
- a number of laboratories had equipment or standards problems – these are being resolved;
- 9 petrographers sent data in incorrect format, e.g., JPEG, Adobe, Excel or CorelDraw (5.1Mb); 4 data sheets were hand written;
- a number of petrographers were asked to re-submit their data due to minor to major transliteration errors.
- to date, 55 sets of results received (80%).

#### MOUNTED SAMPLE AUDIT

- progressing well;
- large number of samples recovered;
- some are lost some are still being used;
- small number of laboratories resisting attempts to recover samples.

#### 2. Accreditation Programme: Review

Walter Pickel presented the convener's "position paper", which summarises the history of the Accreditation Programme, the current status of the accreditation scheme and some aspects concerning Aivars' *modus operandi*. This document had been sent earlier in the year, by the Chair, to all members of Com I for comments/suggestions as part of the review process, however, only a few comments were received. A detailed report was received from Alan Cook with 19 recommendations. The Convener sent additional comments to this report to the Accreditation Committee for consideration.

To increase the feedback from commission I, recommendations from the replies were presented for comments and vote. The following recommendations were discussed and put to a vote:

DECISION 1. The procedures for entry be kept as simple as possible – that is the KISS principles should be used. A target of 12 months between applying for entry and accreditation seems a reasonable target.

DECISION 2. There may be circumstances where screening of entry analysts is required, but this should not be at the expense of simple and rapid entry for experienced petrologists.

DECISION 3. The cut-off values be retained at 1.5 but be kept under careful review having regard to the aims of the accreditation program.

DECISION 4. It is recommended that petrologists applying for accreditation be encouraged to comment on return of their results on the analysis with regard to difficulty of the analysis, polishing problems, contamination.

These comments could be collected by the Convener and discussed during the meeting.

DECISION 5. Where a cut-off date is given for return, this date should be used for interpretation of data sets. The most obvious way of reinforcing cut-off dates is by not giving accreditation for those missing the date for another 6 months.

DECISION 6. Participants be required to sign a confidentiality agreement.

DECISION 7. That terminology be simplified to Accredited and “Failed, not-Accredited”. Persons who fail after a period of being Accredited be designated as Re-accredited in terms of internal records, and Accredited in terms of external records.

DECISION 8. Accreditation data include the number of years over which Accreditation has been held, either since entry or since the last Re-accreditation.

DECISION 9. Additional accreditation programs be added as appropriate.

DECISION 10. The practice of annual reporting of the program to Council and to Commission I be continued. Consistent with the requirements of the statutes, a more broad ranging and analytical review be presented every four years, with the next four yearly presentation to be presented for the round of meetings 2007.

Decisions on the following recommendations were delayed:

RECOMMENDATION 1. The above recommendation may not work, so it is also desirable that the returned results do NOT include the group means and the group standard deviations. Some other way may be developed of allowing access to some information on these, especially the standard deviations – for example return might contain the actual standard deviations together with values for the group means within ranges (class intervals of 0.15 % for vitrinite reflectance SDs and 0.4 % for vitrinite content SDs for example).

RECOMMENDATION 2. A separate sub-program be developed for those administering the Accreditation program so that there is greater feed-back between the analysis and the administration sides of the program.

RECOMMENDATION 3. That the structure adopted as a result of Recommendation 12 be such as to allow the convener to become accredited.

Further comments were made on the preferred size and shape of distributed polished blocks. However the convener is moving towards distributing only unmounted samples in future exercises.

A significant amount of samples in the AP are from Australia and new samples from other sources are required. These new samples should have different grades of difficulty as well as a large range of vitrinite content. Maria Mastarlez offered to provide some samples from Illinois. German and Chinese coals might also be useful additions.

Further discussion arose in connection with the standardization working group presentation about the option for ICCP to provide standard coal sets for interested petrographers. Lavern Stasiuk and Walter Pickel will follow up this option and as an initial step it was suggested to check if the mounted blocks of the AP, which are not going to be used in the future, are suitable.

A report by Aivars to council was tabled at the second council meeting and will be appended to the council minutes.

**Standardization Working Group – Harold Read**

Walter Pickel presented the next round-robin exercise, as proposed by the convener Harold Read, to be conducted on two low rank coal samples, with the objective of evaluating the application of the new ICCP Huminite Classification. The Classification should be read carefully before attempting the analysis.

Participants are invited to analyse the samples:

- Maceral groups
- Telohuminite reflectance (random) – measured on gelified tissue.

Petrographers experienced with low rank (brown coal/lignite) should attempt further sub-divisions, at least maceral sub-groups. (Petrographers with less experience with these coals are encouraged to attempt sub-groups analysis.)

In addition to the requested analyses, comments are invited regarding the Classification definitions and the ease/difficulty with analysing the two samples.

One sample is mainly textinite, ungelified to slightly gelified; the other sample is highly gelified.

It is intended to send out polished grain mounts to participants later this year.

Analysis results and comments should be returned by March/April 2005 to allow sufficient time to send collated results to all participants well before the 2005 ICCP meeting.

10 members enrolled in this exercise at the meeting. Members, who had not been able to attend the meeting but are interested to participate, are welcome and can request the samples from Harold Read or Walter Pickel.

#### **Review of new methodologies and techniques in Organic Petrology – Lila Gurba**

The Convener gave a summary on progress of the WG activities. The White Paper, with a description of some methods and techniques, was presented at the ICCP Meeting in Copenhagen and is available from the ICCP web site. Some new additions will be appended and a CD and a hardcopy of the extended white paper will be prepared.

Lila Gurba also proposed for the near future the preparation of a new white paper concerning “Clean Coal Technologies – *Application of Organic Petrology*”. To emphasise the importance of this subject the convener gave a presentation pointing out some aspects concerning the importance of coal as a vital fuel in the world’s energy system versus the climate changes due to fossil-fuels use. The strategies to control atmospheric CO<sub>2</sub> levels using Clean Coal Technologies were also outlined. The Convener wishes to encourage everybody who is working in this field to submit an extended abstract or paper as a contribution to the white paper.

#### **Temporal Variation of Coals – Lopo Vasconcelos**

The Convener summarized the activities/difficulties of this working group since Rio Meeting in 2000. Members interested to send petrographic data of coals from these countries please contact the Convenor of the WG as soon as possible. A final report will be prepared before the next meeting summarising all available data and will be presented in the next meeting. A database including all data collected could also be prepared during the next year and made available to members.

#### **Peat Petrography WG – Kimon Christanis**

This WG was established last year during the Utrecht Meeting. The aims of this WG are: (i) to bring together petrographers, who deal with the petrographical and petrological features of peat, but also scientists from other disciplines that have an interest in “peat science”; (ii) to examine the applicability of the existent maceral

terminology; (iii) to assess/evaluate the necessity of a nomenclature scheme for the micropetrographic constituent of peat, and, (iv) to propose a terminology that will accomplish the specifications for a comprehensive description of peat microscopic constituents.

A report of the first round-robin was presented by Stavros Kalaitzidis on behalf of the Convener. For this first round-robin exercise a collection of photomicrographs was distributed among the participants (in PDF format by e-mail) and each participant was requested to identify/classify the constituents marked on the photomicrographs. 16 Members expressed the willingness to participate however only 11 members conducted the exercise.

The exercise included photomicrographs in reflected white light from a topogenous peat in Philippi (NE Greece). Some difficulties were encountered in the identification of some macerals. It is evident from the participant's comments that fluorescence is very important for peat petrography. A variety of terms have been used by the participants for describing Huminites.

49 photomicrographs including 85 points had been circulated to be identified. According to the preliminary assessment of the results, which was presented, the average agreement in the predominant maceral is about 60%, ranging between 24-100%. The agreement increases, if replies are grouped under maceral subgroups. These results indicate that the huminite classification is applicable to Peat Petrography. A final report on the round robin exercise is expected shortly and will be published in the Newsletter as soon as available.

The next exercise will be performed using photomicrographs again (white reflected light and fluorescence).

#### **New Handbook Editorial Group – Petra David and Walter Pickel**

Petra David presented the 2003/2004 a report on the activities related the preparation of the New ICCP Handbook Edition. The structure proposed by the conveners was sent to all members of Com I by email for comments/suggestions. The origin of terms in different editions and publications were given. Members were also invited to answer some questions arisen by the conveners concerning the structure and the items that must be included or excluded. Comments were received from Isabel Ruiz, Angeles Gomez, Alan Cook and Claus Diessel.

This document was discussed in detail and it is expected that the New ICCP Handbook Edition will be a very complete, actual and robust publication, which will include the previous editions, and all the documents published and developed within the ICCP activities. Petra David informed that all of these documents are, at this moment, in a digital format due to the valuable collaboration of some ICCP members. Walter Pickel informed that there are some sheets (Liptinite, Microlithotypes and Carbonimerites) ready and approved by the Commission and the Plenary Session. However photomicrographs are needed prior to publication in the Handbook.

During the discussion it was decided to exclude the items Laser Microscopy FAMM and Advanced X ray diffraction from the list of the Handbook items. On the other hand, Scanning electron microscopy and Transmission electron microscopy are methods that will be included; Barbara Kwiecienska will prepare and send a short description for both. Coke and Combustion residues classifications developed within the ICCP working group activities will be included as well as a DOM classification. There are items that need to be written, reviewed or completed. Some members agreed to incorporate a small group to do this hard work. These items and collaborators are:

- definition of terms using available standards (Alan Cook, Alan Davis, Isabel Ruiz and Walter Pickel)
- rank and coalification (Isabel Ruiz)
- sample preparation and polished blocks – reference to ISO standards
- thin sections
- Coal Blend Analysis (Isabel Ruiz)
- Automation and colour image analysis (Dave Pearson)
- Combustion residues (Diego Alvarez, Angeles Gomez and Ed Lester)
- Oxidation

It was decided that it would be favourable to include a glossary of terms. It is expected that a first draft of the Handbook will be available by the 1st of April.

**“Presentation of the new “Hilgers” instrument to measure reflectance with a monochrome digital camera” – Carl Hilgers**

Carl Hilgers presented an instrument with the new software – DISKUS– to measure vitrinite reflectance. This software consists of:

- Software DISKUS for image acquisition, storage and processing;
- Program DISKUS-Fossil to measure maceral reflectance; and,
- Program DISKUS-Maceral for maceral analysis.

This new system requires a monochromatic camera, a reflected light microscope with a stabilised light source and a motorized stage.

In connection with a motorized microscope stage, DISKUS assists a semi-automatic method of analysis. All data are archived and the analysis details are stored. Complete reports can be generated.

The instrument was available for further inspection and ‘playing’ at the microscope session and during most of the meeting. It was also used successfully to calibrate various reflectance standards against the ICCP standard (YAG), an opportunity for which the conveners of this service group, Dave Pearson and Walter Pickel, are very grateful.

Details on the instrument and software can be obtained from Carl Hilgers.

**Microscope Session**

The microscope session was very successful. Four microscopes (two equipped for both reflected and transmitted light and two others equipped for reflected white light and fluorescence excitation) were available and were assisted by J. Gombos from Micro-Analytica of Budapest. These equipment was available not only during the microscope session that took place Tuesday (14/09) but also during all meeting. So participants could take advantage and discuss particular problems in small groups. In addition, Carl Hilgers and his instrument were available. Carl Hilgers gave a second ‘hands on’ presentation of vitrinite reflectance analysis with this instrument during the microscope session. Four samples (Central Asturian Carbonaceous shale-Spain, Posidonian shale-Germany, Puertollano shale-Spain and Irati shale-Brazil) of the qualifying system for reflectance analysis W.G., supplied by Angeles Gomez, were looked at and discussed. Problems concerning the presence of more than one vitrinite population and rather different criteria between participants to select the appropriated vitrinites for taking the readings were discussed. It was an excellent opportunity to discuss and improve the difficult task of measure vitrinite reflectance in DOM.

Samples supplied by Walter Pickel were also looked at and discussed. The problem of the identification of Bituminite was vividly debated by an active group of members.

Thanks to Maria Hamor Vidor, J. Gombos and Carl Hilgers for this unique opportunity and for all technical assistance during this meeting.

**ICCP Services – Standard Calibration –Carl Hilgers, Dave Pearson, Walter Pickel**

Before the meeting Walter Pickel had sent an email to all ICCP members offering the service to calibrate the reflectance standards against the ICCP Reflectance Standard (a YAG having a reflectance of 0.90%). Many members brought their standards and Carl Hilgers assisted by Dave and Walter carried out the calibration. 8 standards were calibrated in Budapest, another 6 were taken to the Pearson lab in Victoria where they were calibrated by Dave Pearson and Walter Pickel after the meeting.

Com I would like to thank Carl Hilgers very much for his technical assistance and his patience.

Deolinda Flores, Walter Pickel, Porto, Sydney, October 2004.