



## STANDARDS COORDINATING COMMITTEE 28 (NONIONIZING RADIATION)

### *Approved Minutes*

#### **SCC-28 Main Committee Holiday Inn Riverwalk Hotel 215 St. Mary's Street San Antonio, TX Sunday, November 19, 2000**

##### **1. Call to Order**

The meeting was called to order by Chairman Osepchuk at 8:05 AM. Each of the attendees introduced him/herself. The list of attendees is shown in Attachment 1.

##### **2. Approval of Agenda**

Upon a motion by T. McManus and a second by J. Cohen, the agenda was unanimously approved without modification. (See Attachment 2.)

##### **3. Approval of June 10, 2000 Meeting Minutes**

Upon a motion by M. Meltz and a second by M. Murphy, the minutes of the June 2000 meeting were unanimously approved without modification.

##### **4. IEEE Standards Activities Report**

D. Scozzafava discussed the issue of charging non-SA members fees to vote on IEEE standards. She noted that this issue is still under consideration by the SA Board of Governors and has received a lot of opposition by members of the Standards Board. The Board of Governors should make a decision by the end of the year as to whether or not there will be a fee. If the board decides that a fee is appropriate, the amount of the fee will also have to be decided. Scozzafava also reported that the US Technical Activities Group for IEC TC 106 (assessment of human exposure to electric, magnetic and electromagnetic fields) is soliciting members.

##### **5. Executive Secretary's Report**

Petersen elaborated on the issues discussed by Scozzafava. He noted that the issue of a fee for non-SA members ("invited experts") is a hot topic that generated more than 50 responses to a

questionnaire sent to the Standards Board on the issue. The predominant view was against a fee but there was agreement that there should be some control over the number of “invited experts” in each balloting group. (See Attachment 3.) Petersen also discussed IEC TC-106 pointing out that the first meeting was held in Montreal a few weeks ago. So far the following work items have been approved:

- Procedure for the measurement of SAR from wireless handsets
- Calculation methods of induced current in the human body by electric or magnetic field in low and intermediate frequency range
- Procedure to characterize the EM fields from base stations for mobile telephones
- Measurement methods for low-frequency electric and magnetic fields of domestic appliances with regards to human exposure.

He said that a new work item – a generic product standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions of exposure standards and guidelines – is also being considered. Petersen also noted that extensions for several SCC-28 PARs will be required next year. These include P1472 (safe distances from RF transmitting antennas when using blasting caps during explosive operations), PC95.1 and PC95.3. If extensions are not granted, the existing PARs will be administratively withdrawn next December. He said that he saw no reason why extensions would not be granted.

## **6. Chairman’s Report**

Chairman Osepchuk briefly reviewed the history of the C95.1 standard pointing out that development of C95 standards has always been a collaborative effort by industry, academia and the government agencies. He described how the original committee was established in 1960 and was first chaired by Professor Herman Schwan. Osepchuk paid tribute to Professor Schwan by pointing out that he was a profound thinker, was very practical and helped establish the ideals that the committee helped promulgate over the years. The committee was much smaller than it now is and the first few standards were much simpler than the 1991 standard. Osepchuk went on to review some of SCC-28’s noteworthy achievements. He described the activities of SC-1, chaired by Howard Bassen, that is in the process of balloting on a revision of the measurement standard C95.3-1991. Parts of the revision have been adopted by IEC TC-85 and appear in the generic standard being prepared by TC-85/WG-15. He described the work of SC-2 under the chairmanship of Ric Tell, including the recently published revision of C95.2 on warning signs and symbols and the ongoing work to develop a practice that describes the elements of a model RF safety program. He also described the activities of SC-3 including its somewhat tumultuous history. SC-3, now under the chairmanship of Kent Jaffa, is about ready to ballot on a draft safety standard for exposure to electric and magnetic fields at frequencies below 3 kHz. Osepchuk pointed out that SC-4 first applied the concept of SAR as a basis for RF exposure limits and now, under the co-chairmanship of C. K. Chou and John D’Andrea, is in the process of preparing the revision of the 1991 standard. SC-5, under the co-chairmanship of Drew Koban and John DeFrank, has completed a draft recommended practice specifying safe distances from RF sources standard for blasting operations. This standard is undergoing balloting by SCC-28.

Osepchuk explained how the IEEE process is open and transparent at every level and how the committee is mindful of the points of view of all stakeholders including academia, government agencies, industry, etc. He noted that the meetings of the subcommittees and main committee are open to everyone and that detailed mailings are sent twice a year to the members, observers and interested parties. He explained how the technical expertise resides within the subcommittees that actually develop the standards, how the stakeholders are represented on the main committee and how the IEEE SA-Standards Board ensures that due process has occurred. He concluded by

saying that the interest in this issue continues to increase – along with the level of effort of all involved.

## **7. Treasurer's Report**

A. Varanelli reported a balance of \$13,410 in the SCC-28 account but pointed out that invoices from the Munich meeting have not yet been received. He also reported that the SCC-28 website is operational, updated every month and that there has been a fair amount of activity on the site.

## **8. Membership Committee Report**

T. McManus reported that the EXCOM has recently approved nine new SCC-28 members – all from outside of the US. He asked the committee to welcome the following new members:

- Dr. William Scanlon – University of Ulster, Ireland
- Shaiela Kandel – Scientific Adviser to the Prime Minister of Israel
- Dr. David Black, MD – Founder of Information Technology Medicine Associates, Ltd., New Zealand
- Dr. Art Thansandote – Head of the Electromagnetics Unit of the Radiation Protection Bureau, Health Canada
- Dr. Philip Chadwick – formerly with NRPB and now with the Department of Health, United Kingdom
- Dr. Konstantinos Halkiotis – NIR Dept, Greek Atomic Energy Commission
- Dr. Vitas Anderson – Senior Researcher, Telstra Research Laboratories, Australia
- Dr. Tammy Utteridge – Institute of Medical and Veterinary Science, Australia
- Dr. Ulf Bergqvist – Researcher at the University of Linkoping, Sweden

McManus explained that if anyone is interested in joining SCC-28 they should contact him.

Chou asked if the new members who were just welcomed are also members of SC-4 and if they are not they should be invited to join. He said that he would like to propose that all members of SCC-28 automatically become members of SC-3 and SC-4 – McManus replied that he would discuss this at the EXCOM meeting later in the day.

## **9. International Liaison Committee Report**

M. Murphy reviewed the goals of the International Liaison Committee, recent meetings, upcoming meetings and comments of new members. (See Attachment 4.) He pointed out that the goal of the committee is to increase SCC-28 awareness of international standards-setting activities and vice versa. He noted that SCC-28 has invited speakers from Russia, China, Bulgaria and other countries to give presentations at SCC-28 meetings and he briefly discussed the new SCC-28 brochure and the worldwide mailing to key people in close to 180 countries. The mailing included a complimentary copy of C95.1, background information on SCC-28, and an invitation to the Munich meeting last June. He noted that a number of those contacted attended last June's meeting and he pointed out that there is an increased international interest in SCC-28 activities and a number of the participants in the ICNIRP meetings held earlier in the week are attending this meeting. Another goal is to increase the number of international members, which as discussed earlier has been successful. The goal is to have about one-third of the members from outside of the US – about the same ratio as IEEE membership. Currently about 20 percent of the members of SCC-28 are from countries other than the US.

Murphy discussed the interaction between ICNIRP and SCC-28 that began in June with a joint meeting between the leadership of SCC-28 and the leadership and a number of members of ICNIRP. He noted that a similar meeting was held November 17<sup>th</sup> and a decision was made to hold a joint-sponsored workshop on thermophysiology sometime within the next 12 to 18 months. He also noted that IEEE SCC-28 has been accepted as a member of the WHO International Advisory Committee and will be represented at their future meetings.

The International Standards Harmonization meetings were reviewed next. Murphy said that he did not have any new information about the Millennium Workshop that is scheduled to be held in Crete next October. S. Johnson noted that although the Greek government has been involved in a fair amount of research, no new results have been reported. The research appears to be standard, e.g., effects on quail eggs, rat fetuses, etc., but suffers from the same problems as do many studies in this field, e.g., inadequate dosimetry. Murphy also discussed the recent meeting in Xi'am China and said that it was excellent and an improvement over the earlier meetings in China. He said that there has been some progress at these meetings in establishing the framework of a standard, e.g., who should be protected. Once the framework is established the details would be worked out. Murphy noted that the date for the Israel meeting is March 26-29, 2001. He suggested that the EBA meeting next fall might be an appropriate venue for SCC-28 and ICNIRP to hold the joint workshop on thermophysiology.

Murphy then introduced Shaeila Kandel who was invited to give a presentation on activities in Israel. He pointed out that she works in the Office of the Prime Minister and represents Israel at the WHO meetings and is concerned with developing EMF regulations.

Ms. Kandel reviewed the latest events in Israel (see Attachment 5). She said that a number of concerns have been raised that led to an increase in the number of scientists that are interested in carrying out research but who do not have the appropriate expertise. She said that many of these scientists are formulating populist opinion, e.g., via the Internet. Also, the one versus two-tier issue is of some concern. She felt that although a single tier could be supported by the science, two tiers would be adopted – perhaps more than two tiers to include the electrosensitive. She concluded her presentation by describing some of the events that have recently occurred in Israel and how some members of the public are pushing for limits lower than ICNIRP – limits even lower than those being implemented in Switzerland.

M. Meltz pointed out that research without proper funding is inappropriate and suggested that SCC-28 should establish a team that could address the question of “how to do research.” He said that there is considerable expertise on SCC-28 in the field of dosimetry and exposure systems, on how to conduct *in vitro* and *in vivo* experiments, on epidemiology, standards harmonization, etc. He said that the problem is that some countries are establishing regulations that are not based on the science, e.g., Italy and Switzerland. Klauenberg said that he supports the concept of a rapid response team that could go out and explain the standards to communities, industry, etc. Kandel responded that while that would be appropriate, the real issue is that credible scientists are not always believed by the public.

McManus said that there is a major effort in the EC to try to offset the activities of the activists. He said that he recently attended a conference “Science and Governance” during which these issues were discussed. (See Attachment 6.) Participants included the science advisors to the US, UK, France, Italy, Spain, etc. He said that the pace of scientific developments in biology versus telecommunications frightens the EU governments. The subject of the conference was the anticipation and management of problems such as BSE, biological experimentation, and modern telecommunications. There was some agreement by the attendees that a new kind of research is needed – research that would appease the public, i.e., precautionary research. He said that it is important that the public have a role in deciding what research is done and that the 6<sup>th</sup> Framework

Programme on Research now in preparation would require all new proposals to include information on how it would appease the public. A communique in 2001 will set policy and describe funding for the 6<sup>th</sup> Framework Programme on Research. White papers will be issued including one on how the public would be involved. He said that a joint research council was set up at the start of the EU, when nuclear energy was the concern. The council started with five members and they are now looking for a new role. There is a proposal to reform the council as the EU Academy of Science. The academy would deal with issues where there appears to be gaps in the scientific knowledge and are topics of concern to the public, e.g., provide answers to questions relating to genetically modified foods.

McManus said that he spoke with some of the chief technical advisors attending the meeting and obtained a number of papers that were discussed at the meeting. He said that the Chief Technical Advisor to Prime Minister Blair, Sir Robert May, is leaving that post to become President of the Royal Society. He said his paper (see Attachment 7) recommends that the Commission should use the best scientific advice available. Advances in new understanding of the molecular science of life have left governments all over the world unaware. The paper also pointed out that distrust for the new is not a recent event and gave as an example the cowpox vaccine for smallpox that led to the establishment of an Anti-Vaccine Society. Osepchuk noted that the conference included science advisors from all over the world and asked what role the science advisors from non-EU countries played. McManus said that they were invited because the EC needed to get the best advice available. He also said that the Joint Research Council expects to obtain the best advice available on all issues and is identifying the world's leading experts. McManus said that he has been contacted and he offered a list of experts on EMF issues from SCC-28. Osepchuk noted that Sir Robert May discusses how openness and transparency is important in making decisions and distinguishes between the two. He said that openness means allowing everyone to participate in the process – transparency means letting everyone know how decisions are made.

A. Brecher said that she is involved with National Science Technology Committees and the issue seems more of conflicting advice than lack of advice. She asked rhetorical questions about how to proceed and whether an education program is necessary and also criticized the SCC-28 website as being uniquely uninformative. Osepchuk said that he recognizes the deficiencies of the website and steps are being taken to resolve this issue. He added that regarding education, one organization that was formed to expand communications is COMAR. He said that COMAR has issued several Technical Information Statements and Entity Position Statements on number of issues of concern to the public. McManus said that the council is aware of the first issue, i.e., conflicting advice. D. Black pointed out that the EU position seems to be moving away from ICNIRP and towards the precautionary principle (PP) and all resources should be considered to resolve the issue. D. Sena pointed out that there are differences in attitude between different people and countries regarding PP. She said that one study of the attitude of 100 people on the cellphone issue revealed that the majority felt that the known benefits far outweigh any potential harm.

## **10. ICES and Fundraising**

Osepchuk reviewed the evolution of the concept of an umbrella organization for SCC-28 and 34. He said that the idea originated at the time of the international mailing when SCC-28 contacted a number of key people in approximately 180 countries to invite them to the Munich meeting. He said that the issue of visibility was discussed at that time at a meeting at IEEE where it was pointed out that the name of the committee could be changed to something more descriptive. One proposal was the International Council on Electromagnetic Safety (ICES). This was aired at a meeting with members of the Trans Atlantic Business Dialog (TABD) – a group whose concern is international standards harmonization and the lack of transparency in the ICNIRP process.

Osepchuk pointed out that the new name would be more descriptive of the scope of SCC-28 and add to its visibility, particularly outside of the US. It will also help make IEEE a more important force.

Osepchuk also reviewed the WHO standards harmonization efforts. He pointed out that the following four working groups have been established: WG-1 (Terminology and Definitions), WG-2 (Literature Review), WG-3 (Risk Assessment), and WG-4 (Social/Economic Impact). The plan is to hold a series of meetings to flesh out the framework of a document that could be used by individual countries. Convergence of the numbers, i.e., the basic restrictions and reference levels, would occur later.

## 11. Subcommittee Reports

- a) **SC-1 (Techniques, Procedures, Instrumentation and Computation).** H. Bassen reported that the revision of the measurement standard, C95.3-1991 is now being balloted by the subcommittee. He noted that there were two negative ballots – both of which raised good points. As soon as these are incorporated and an annex prepared that will discuss methods of determining the peak spatial-average SAR in thin sections of the body, such as the pinna, the revised document will be sent to the subcommittee for approval. This will be a recirculation ballot that points out the changes – members of the balloting group do not have to respond unless they want to change their original vote. The reason for including the SAR averaging issue in an annex of C95.3 is that it was felt that this would be the proper place to discuss detailed measurement and computational protocols – not in C95.1. This issue relates to the “pinna proposal” developed by SC-4 that is important to SCC-34’s efforts to develop a protocol for measuring the SAR associated with the use of hand-held radio transceivers such as cellphones.

Bassen also reported that the main goal of COMAR is the dissemination of information useful to the general public and engineers and that links to SCC-28 and SCC-34 will be placed on the COMAR website.

- b) **SC-2 (Terminology, Units of Measurements and Hazard Communication).** R. Tell reported that one of SC-2’s projects was recently completed – namely, publication of IEEE C95.2-1999 (warning signs and symbols). He said that the 1999 standard is consistent with ANSI Z535 (warning signs). The second project, now under development, is a recommended practice that would provide the elements of an RF radiation safety program. He said that the subcommittee would meet early next year to work on the draft – a reasonably complete draft should be available by June. The question of whether the document should be a “guide” or a “recommended practice” has not yet been resolved. The question of the need for an extensive glossary of commonly used terms was also discussed but no decision was made on this issue.
- c) **SC-3 (Safety Levels with respect to Human Exposure, 0 to 3 kHz).** K. Jaffa reported that SC-3 met from 1-5 PM the previous day. He said that the subcommittee now has 74 members and progress is being made on drafting a standard. The 4<sup>th</sup> draft is out for comments – comments are due December 15<sup>th</sup>. The comments will be incorporated into a 5<sup>th</sup> draft and at the same time an SC-3 balloting group will be established to formally vote on the standard. Jaffa also reported that P. Mason presented material on numerical modeling at the meeting, W. Bailey gave a presentation on chronic effects, McManus gave a report on EU activities and Curtis gave an update on the status of the IAC/RAPID report. Curtis said that the report has been finalized and is now being reviewed. McManus asked if it would be possible to obtain a copy of the IAC report to get some

idea of what it contains – Brecher responded that it cannot be distributed until it is sent to Congress. She added that it has been at the White House since September 1<sup>st</sup>.

- d) **SC-4 (Safety Levels with respect to Human Exposure, 3 kHz to 300 GHz).** C. K. Chou reported that 69 people from 10 different countries attended yesterday's SC-4 meeting. The major effort of SC-4 is completing the revision of the 1991 standard. The literature evaluation is proceeding much slower than originally anticipated and is slowing down progress. The subcommittee acknowledges the problem and at the September meeting of the Revision Working Group high priority papers were identified for immediate review. Chou said that at yesterday's meeting the decision was made to prioritize the high priority papers. He said that additional reviewers are needed to complete the reviews. The next meeting of the Revision Working Group will be held in Tempe, AZ in March.

Chou also reported that a working group led by B. Roberts reviewed Ashley's proposal for a revision of C95.1. The working group concluded that while Ashley put considerable thought and effort into the basis for the revision, it was really impractical for a number of reasons. It did, however, bring up issues that have to be considered, e.g., whether measurements are to be made with or without a person in the field. SC-4 will write to Ashley to thank him for his efforts and his continuing support and interest.

Chou reported that the issue of dissemination of the literature review results was discussed at length at the meeting. The issue is whether or not the results of the literature evaluation should be released to all the members of the Risk Assessment Working Group (RAWG) and whether the members of the working group should sign non-disclosure agreements agreeing not to distribute the information any further. The issue will be raised with IEEE Counsel – specifically the question of liability if the literature review results are widely disseminated and whether a non-disclosure agreement has any binding in a practical sense.

Chou also reported that the rationale for the pinna proposal was approved by SC-4 and that Co-chair D'Andrea is preparing new timelines for the revision of C95.1. Meltz pointed out that the subcommittee is trying to identify team leaders for the RAWG, e.g., on cancer, mutagenesis, etc., and noted that this is volunteer work that often goes unrecognized. Because of this, he suggested that a document describing the underlying basis of the standard could be prepared for publication in the peer-reviewed scientific literature. He said that this could be a compilation of the reports already being prepared by members of the RAWG. Chadwick said that he supports this idea but cautioned that the word "standard" means something different outside the US. He suggested leaving the word "standard" out of the title of any paper and instead consider using a title such as *RF and Cancer – A Review* but make sure that the paper is closely linked to the revision. Black said that he also supports publication of reviews tied to the basis of the revision and pointed out that one strong point of ICNIRP is that their guidelines, including the rationale, are published in the peer-reviewed literature. He added that the weak point is their closed process. The strong point of IEEE, he said, is the open process and transparency – the weak point is that the standard is an IEEE document. Having the rationale/basis for the standard published in *Health Physics* or a similar journal should broaden the acceptance of the revision. Osepchuk directed Meltz to formulate a specific proposal for going forward and having a document prepared for publication in the peer-reviewed literature.

## **FOR ACTION**

**M. Meltz will formulate a proposal for the preparation and publication in the refereed literature of a document that describes the rationale and basis of the revision of IEEE C95.1-1991.**

- e) **SC-5 (Safety Levels with respect to Electro-Explosive Devices).** Co-Chair Koban reported that the Draft *IEEE Recommended Practice for Determining Safe Distances From Radio-frequency Transmitting Antennas When Using Electric Blasting Caps During Explosive Operations*, IEEE P1472, has been balloted by SCC-28. The ballot was conducted by the IEEE Balloting Center – 89% approval was obtained. The subcommittee is now in the process of addressing the negative ballots and comments from the Institute of Manufacturers of Explosives. He said that the revised draft would be sent to Secretary Petersen by the end of the year. Petersen will submit the revision to the Balloting Center with the request that a recirculation ballot be conducted. This is done rather quickly as a default ballot – ballots are returned only if there is a change in the original vote. The goal is to have the recirculation completed before the March meeting of the Standards Board.

## **12. New Business**

No new business.

## **13. Plans for Future Meetings**

Osepchuk reported that the next meeting of SCC-28 and its subcommittees would be held June 8-10, 2001, in St. Paul, MN, immediately before the BEMS meeting. He said that no arrangements have been made for the fall 2001 meeting but Ireland and other locations outside of the US are being considered. Anyone with suggestions should submit them to the Chair.

## **14. Adjournment**

There being no further business, upon a motion by J. D'Andrea, a second by C. K. Chou, and unanimous approval by the committee the meeting was adjourned at 11:04 AM.



**STANDARDS COORDINATING COMMITTEE 28  
(NONIONIZING RADIATION)**

**Attachments**  
**SCC-28 Main Committee**  
**Holiday Inn Riverwalk Hotel**  
**215 St. Mary's Street**  
**San Antonio, TX**  
**Sunday, November 19, 2000**

1. List of Attendees
2. Tentative Agenda
3. Copy of Overhead – Fees for Non-SA Members to Vote on IEEE Standards
4. Copy of Overheads – International Liaison Committee Report
5. Copy of Overheads – Presentation on Activities in Israel
6. Summary of T. McManus's Presentation
7. Copy of Sir Robert May's Paper *Bringing Science into Governance*

**SCC-28 Main Committee**  
**Holiday Inn Riverwalk Hotel**  
**215 St. Mary's Street**  
**San Antonio, TX**  
**Sunday, November 19, 2000**

**Attendance List**

<b>Name</b>	<b>Affiliation</b>	<b>Country</b>	<b>Status</b>
1. Adair, Eleanor	USAF	US	M
2. Bailey, William	Exponent	US	O
3. Barbin, Mandel	Motorola	US	O
4. Baron, David	Holiday Inn	US	O
5. Bassen, Howard	FDA/CDRH	US	M
6. Black, David	Inst of Occ & Env Med	NZ	O
7. Bodermann, Ralf	Siemens	Germany	O
8. Brecher, Aviva	Dot -	US	M
9. Cao, Zhaojin	CAPM	China	O
10. Chadwick, Philip	Department of Health	UK	M
11. Chou, C. K.	Motorola	US	M
12. Clemens, Chris	TNO Physics and Elec Lab	Netherlands	O
13. Cleveland, Robert	FCC	US	M
14. Cohen, Jules	Independent Consultant	US	M
15. D'Andrea, John	Naval Health Research Det	US	M
16. Daly, James	BICC General	US	M
17. DeFrank, John	US Army CHPPM	US	O
18. Erdreich, Linda	Exponent	US	M
19. Ericksen, Dane	Hammett & Edison	US	M
20. Gardner, Robert	MOD D SEF Pol	UK	M
21. Gettman, Ken	NEMA	US	O
22. Gorsuch, Gregory	Dept of the Navy	US	M
23. Haes, Donald	MIT	US	M
24. Hammer, Wayne	SPAWAR Systems	US	O
25. Hernandez, Martin	FPL	US	O

<b>Name</b>	<b>Affiliation</b>	<b>Country</b>	<b>Status</b>
26. Ivans, Veronica	Medtronic Inc.	US	M
27. Herz, Michael	Pacific Gas & Elec	US	O
28. Jaffa, Kent	PacifiCorp	US	M
29. Johnston, Sheila	Neuroscience Consulting	UK	M
30. Kandel, Shaiela	Env Rad Soreq NRC	Israel	M
31. Klauenberg, B. Jon	USAF	US	M
32. Koban, G. Andrew	Navan Surf Warfare	US	M
33. Lang, Sakari,	Nokia	Finland	O
34. Lathrop, Janet	Resource Strategies, Inc.	US	O
35. Mason, Patrick	USAF/AFRL/HEDR	US	O
36. McManus, Tom	Dept Public Enterprise	Ireland	M
37. Meltz, Martin	University of Texas	US	M
38. Miller, Ruth Douglas	Kansas State University	US	O
39. Murphy, Michael	USAF AFRL/HEDR	US	M
40. Osepchuk, John	Full Spectrum Consulting	US	M
41. Petersen, Ronald	Bell Labs/Lucent Technologies	US	M
42. Roberts, Brad	US Army CHPPM	US	M
43. Scanlon, William	Univ of Ulster	Ireland	M
44. Sirugo, Jon	Southern CA G&E	US	M
45. Scozzafava, Denise	IEEE	US	L
46. Sena, Deborah	Bell Labs/Lucent Technologies	US	O
47. Sheppard, Asher	Asher Sheppard Consulting	US	M
48. Sirugo, Jon	Southern California Edison	US	M
49. Tattersall, John	DERA	UK	M
50. Tell, Richard	Richard A. Tell Assoc	US	M
51. Thansandote, Art	Health Canada	Canada	M
52. van Rongen, Eric	Health Council of the Netherlands	Holland	O
53. Varanelli, Arthur	Raytheon	US	M
54. Watkins, Cleveland	Independent Consult	US	O
55. Williams, Louis Jr	Louis Williams Consulting	US	M

M = Member; O = Observer; L = Liaison



**STANDARDS COORDINATING COMMITTEE 28  
(NONIONIZING RADIATION)**

**TENTATIVE AGENDA**

**SCC-28 Main Committee  
November 19, 2000  
Holiday Inn Riverwalk  
San Antonio, Texas**

- |   |                        |
|---|------------------------|
| <b>1. Call to Order</b>                             | <i>Osepchuk</i>        |
| <b>2. Approval of Agenda</b>                        | <i>Osepchuk</i>        |
| <b>3. Approval of June 10, 2000 Meeting Minutes</b> | <i>Petersen</i>        |
| <b>4. IEEE Standards Activities Report</b>          | <i>Scozzafava</i>      |
| <b>5. Executive Secretary's Report</b>              | <i>Petersen</i>        |
| <b>6. Chairman's Report</b>                         | <i>Osepchuk</i>        |
| <b>7. Treasurer's Report</b>                        | <i>Varanelli</i>       |
| <b>8. Membership Committee Report</b>               | <i>McManus</i>         |
| <b>9. International Liaison Committee Report</b>    | <i>Murphy</i>          |
| <b>10. ICES and Fundraising</b>                     | <i>Osepchuk</i>        |
| <b>11. Subcommittee Reports</b>                     |                        |
| SC-1  | <i>Bassen</i>          |
| SC-2  | <i>Tell</i>            |
| SC-3  | <i>Jaffa</i>           |
| SC-4  | <i>Chou – D'Andrea</i> |
| SC-5  | <i>DeFrank – Koban</i> |
| <b>12. New Business</b>                             | <i>Osepchuk</i>        |
| <b>13. Plans for Future Meetings</b>                | <i>Osepchuk</i>        |
| <b>14. Adjournment</b>                              |                        |

## **Invited Experts Fee Discussion**

- **IEEE SA BOG sent a questionnaire to Stds Bd, WG's to comment on a proposed \$50 "invited expert" fee**
- **Over -50 emails responded (Key Issues):**
  - **Predominate view was no fee - but some control to number of invited experts**
  - **Can "Invited Experts" vote as an observer or liaison?**
  - **Questions on who can actually vote on a ballot?**
- **Action:**
  - **Dennis Bodson to summarize/present to the BOG for action.**
  - **BOG feedback at IEEE-SA Dec2000 Std Brd meeting**



***Presentation by T. McManus to SCC 28, 19 November 2000, San Antonio***

**Report on recent meeting “Science and Governance”**

This meeting was attended by around 500 delegates from around the world. The Commissioner for Research (Philippe Busquin) gave a keynote address. Many MEPs were present. Chief scientific advisers to governments rubbed shoulders. The former advisers to Jimmy Carter and Bill Clinton (John Brademas) and Tony Blair (Sir Robert May) also gave excellent presentations. French, Italian and Spanish “Chief Scientists” and various directors general of national and international laboratories and scientific foundations gave the in-fill talks.

What was it all about?

European governments are frightened. The pace of scientific development, particularly in the fields of biology and communications, is raising more concern among the public and many unforeseen problems (real and imaginary) than can be anticipated by regulation or put back into Pandora’s box after they’ve escaped. The anticipation and managing of such problems was the subject matter of the conference.

Three priority areas of science have been identified as a prime source of public concern:-

- Food,
- Biological experimentation,
- Telecommunications.

Where once research was classified into three categories: basic, applied, and problem solving, it was now necessary to add a fourth – precautionary research. No one had a clear view of how precautionary research should be defined. However one thing was clear – the public must now have a participatory role in deciding what research should be done. This is where “governance” comes in.

The new regime will be timed to coincide with the launch of the 6<sup>th</sup> Framework Programme for Research in 2002. Methods and schemes for public involvement in and the “ownership” of specific scientific research projects and research objectives generally will be developed over the next 12 months or so. The Nice summit in December 2000 will have a section of its communiqué devoted to science and governance and may hint at the new (or additional) role planned for the Joint Research Centre\*. Senor Prodi is producing a White Paper for June 2001 which will set out further details including the funding to be provided.

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\* The JRC was set up to look at atomic research when the EU had six members but was not supported by the French.

If one leg is 'public involvement' the other is the JRC. It is anticipated that the JRC will sit at the centre of a virtual network or web of European research and scientific institutions to become an effective European Academy of Science. The idea is that if a government or government department has a problem with, for example, genetically modified potato crisps (I do not jest), plants that produce drugs, animals that produce human spare parts, or UWB telecommunications technology, they will go to JRC and JRC will provide the best answer available once it has contacted appropriate specialists through its virtual network. The name being given this technical service is: "A European Scientific and Technical Reference System in a Global Context".

T. McManus then quoted from the speech given by Sir Robert May, president-elect of the Royal Society of London. This is attached to this document (Attachment 7). In a discussion following his speech Sir Robert stated that industrial and military experts should not be barred from groups providing high quality advice on the grounds of conflict of interest. "Everyone had a conflict of interest", he said.

**TMcM**

## **ATTACHMENT 7**

Sir Robert May AC FRS  
Former Chief Scientific Adviser  
and President-Elect the Royal Society,  
United Kingdom

### **Introduction**

Today's pace of advance in scientific understanding increasingly presents challenges for the ages-old dialogue between policy makers and the public. This trend is likely to continue, and therefore I very much welcome the consideration of 'Science and Governance' that this conference and its distinguished contributors signify. If we are to benefit from scientific advance, we need wide and open discussion about possible worries and unintended consequences, in ways which command public confidence and trust.

In particular, I thank Mr. Allgeier and Mr. Mitsos for inviting me to join this round-table discussion, and the JRC for arranging this event. I think this conference comes at a particularly opportune time.

The Commission's European Research Area initiative has not only highlighted the increasing importance of research and technology as drivers for competitiveness, growth and employment, but also brought to the fore the need to ensure we make the best use of scientific expertise when taking decisions. The forthcoming Commission White Paper on Governance, which will explore the issues of scientific evidence and advice in the broad context of EU governance, will be a crucial next milestone.

### **The Challenge**

Advances in science and technology, especially those emerging from a new understanding of the molecular basis of life, have happened so rapidly that governments the world over have been caught unawares, first by the possibilities of

the technology itself and secondly by the public's reaction. They have been left scrambling to make policies in a context of scientific uncertainty and vociferous public opinion.

In recent years, in Britain in particular, trust and confidence has been eroded with respect to a number of scientific issues, of which BSE is the most notable example. Other European countries have had similar experiences.

Distrust for the new is not a recent phenomenon. In the past, it manifested itself in more draconian terms. Some 400 years ago Giordano Bruno was burnt at the stake for propagating Copernican theories and Galileo was forced to recant his beliefs. These, however, were the reactions of the establishment. An example of a more populist reaction, and one which would be recognisable today, was that to the introduction of cowpox vaccination against smallpox about 200 years ago. Proposals for mass vaccination in England were met with violent protests and the establishment of an Anti-Vaccine Society.

But even today the evidence does not support the conclusion that people distrust science or scientists in general. According to recent studies from a range of countries the majority of people think that science and technology were making our lives healthier, easier and more comfortable. Studies of this type have been carried out in the USA (1997; 87% agreed), New Zealand (1997; 85%), Japan (1995; 51%), UK (2000; 67%) and the recent Eurobarometer indicates that similar levels of support exist across the member states of the EU (at least for technologies other than nuclear energy and genetic engineering).

Recent studies in the UK also indicate that scientists who are seen to be 'independent' (e.g. university professors) are among the most trusted sources of advice on a number of difficult issues, including BSE and pollution. They certainly scored better than journalists, businessmen and politicians.

At the same time less than 50% of people in the UK and New Zealand thought that the benefits of science were greater than the harmful effects. Furthermore, these studies

indicate that people in the UK have much less trust in scientists when they are labelled as 'Government scientists'.

In an effort to counter these elements of distrust, many governments and scientific institutions have put in place public understanding of science programs. But naive expectations that if only the public understood more science they would find it more acceptable have not been justified. Detailed surveys such as the 1992 Eurobarometer show that those countries whose citizens score highest on quizzes about scientific facts and methods also are more likely to worry about the unintended consequences of new technologies. I think this is how it should be! The more we understand the nature of scientific enquiry and its applications, the more we understand that although on balance the results have greatly improved our lives, there can be adverse unintended consequences (for example, climate change, loss of biodiversity). Responding to public concerns is not only right on philosophical grounds, but I think it holds the promise of helping us avoid unintended adverse consequences from well intentioned actions in the future.

### **Guidelines for Science Advice in Policy Making**

We need to move forward to a world where we consult widely, and where decisions are taken openly. We must recognise, however, that this has a cost, and that it may be difficult and uncomfortable at times.

Some countries, including the UK, have published guidance on how scientific issues should be tackled. The Canadian example is of particular interest as their Federal Government has to take account of the interests of the different Provinces. Their guidelines, which are set out in a 1999 report from their Council of Science and Technology Advisers, are an excellent example of the way ahead. They focus on the following key areas:

*Early identification of issues.* Decision makers need to anticipate the issues for which science advice will be required. They need to cast their net widely,

consulting internal, external and international sources, to assist in this identification.

*Inclusiveness.* Advice should be drawn from a wide variety of scientific sources and from experts in many disciplines to capture the full diversity of scientific thought and opinion.

*Sound science and science advice.* There must be procedures for ensuring the quality, integrity and objectivity of the science, and to ensure that scientific advice is considered seriously in decision making.

*Uncertainty and risk.* There should be a risk management approach, with regulatory bodies having clearly defined approaches to risk management, knowing when a precautionary approach should be applied, and ensuring that uncertainty is weighted fairly and communicated effectively. (The 'Precautionary Principle' itself, unfortunately, is rapidly coming to mean all things to all people, and in some of its more simplistic manifestations runs the risk of becoming a recipe for paralysis).

*Transparency and openness.* These two are not the same. Transparency implies a clear articulation of how decisions are reached and that policies are presented in open for <sup>all</sup> with the public having access to the findings and advice of scientists as early as possible. This should allow the public to reassure themselves that decisions have been taken in their interests and allow failures in analysis to be challenged. Openness, however, implies allowing interested parties to be included in the decision making process through consultation. In this way new policies can take account, from the outset, of the attitudes and values held by the public.

*Review.* There should be subsequent review of science based decisions to determine whether recent advances in knowledge have had an impact on the science and scientific advice underlying the decisions.

Finally there should be strategies for ensuring the guidelines themselves are implemented by those who are supposed to operate them, and for monitoring their effectiveness.

Of course, the great majority of scientific advice needed by policy makers is routine. It involves thoroughly understood scientific issues, and the decision path has been generally agreed. It is the remaining minority of advice with which we need particularly to concern ourselves. These are the cases where scientific advice is needed on questions which go beyond the boundaries of current understanding.

In such cases there is greatest need for the very highest calibre of scientific advice, from people with a demonstrated capacity to think in original and lateral ways. Here, there is no decision path laid out and the little evidence that is available is of variable quality and relevance.

Where these difficult scientific cases arise, we must resist the temptation to obtain advice through a closed coterie of officials. We should draw on established scientists without creating new layers of bureaucracy. We should also, where appropriate, engage some people with expertise outside the area under examination, to make sure that a sufficiently wide range of viewpoints is brought to bear. How are we going to do this at the European or at the International level?

The answer is to make use of existing bodies which are capable of seeking out the relevant scientists and scientific expertise and bringing them together. We already have a potential network of academies which are in a position to recommend excellent scientists from around Europe: national bodies such as the Royal Society (London), the Academie des Sciences (Paris), Accademia Nazionale dei Lincei and the Deutsche Forschungsgemeinschaft as well as the Academia Europaea.

There are existing precedents for such a network approach: at a *global level* we have the Inter-Academies Panel on International Issues which through the Inter-Academies Council is developing a group to look at just these difficult global issues; and at a *European level* we have organisations such as ALLEA (the All European Academies)

or Euro-CASE, the European Council of Applied Sciences and Engineering. Euro-CASE is an organisation of academies of applied sciences and engineering from seventeen different European countries. This provides independent and balanced advice on technological issues with a clear European dimension. We should look at these models and see how they could be adapted to meet our needs.

But what role might there be here for our hosts today, the JRC? In looking at the future work of the JRC, the High Level Panel, Chaired by Viscount Davignon, recently recommended that "... a primary function [of the JRC] should be to *facilitate* the gathering and fair assessment of information on science and technology matters to inform the EU institutions on the current state of knowledge on a given scientific subject." Under this scenario, it is clear that the JRC could, where appropriate, provide an important link between the EU's institutional customers and a network of academies.

But our basic aim must be kept clearly in view at all times. It is to seek advice on key and difficult issues from the very best scientists, as identified by their established peer organisations, with the minimum of bureaucratic apparatus.

### **Envoi**

In conclusion, scientific progress during the 20<sup>th</sup> Century has made life better, but has had some unintended consequences. In the 21<sup>st</sup> Century this pattern is, I think, likely to intensify, especially as we learn more about the molecular machinery of life itself. All this adds up to great challenges for policy makers.

Scientific understanding, or scientific uncertainties, mediate and constrain the dialogue between the policy makers and the public. But in many important issues – both of safety and of ethics – science alone rarely gives unarguable answers. As Brecht wrote in his play on the Life of Galileo "The chief aim of science is not to open a door to infinite wisdom, but to set a limit to infinite error."

There are no easy solutions. Dialogue with citizens plays a part but only a part. We need to have mechanisms in place to ensure best use is being made of the scientific expertise we have available. And we have to change the culture of those who would prefer to make the decisions behind closed doors. Only by being inclusive, open and transparent can we hope to earn the confidence of a modern public.

October 2000