**ADMINISTRATION OF THE US NUCLEAR TECHNICAL ADVISORY GROUP (NTAG) FOR ISO/TC85**

*NIST Cooperative Agreement No. 70NANB4H1136 with ASTM*

**ANNUAL REPORT**

**01/14/08 to 08/15/08**

**A. OVERVIEW**

**Background**. The United States participates actively in the *nuclear fuel, reactor technology* and *radiation protection* standards development efforts of the International Organization for Standardization (ISO). The US Nuclear Technical Advisory Group (NTAG) coordinates the US involvement in this standards development effort. Since 2000, ASTM International has administered NTAG, which is responsible for the US review and balloting of all the standards developed by ISO Technical Committee 85 (ISO/TC85) on *Nuclear Energy.* The administration of NTAG is funded by a grant from the US Government and by contributions from US industry. Active US involvement with ISO is critical because it allows direct US influence in the development of international standards that govern many aspects of US business activities both here and overseas. All project goals of the original 3-year NIST Cooperative Agreement were accomplished, and progress was discussed in semiannual reports and in the Final Report dated February 22, 2004. After a formal limited competition in the summer of 2004, ASTM International and NIST executed a new 5-year Cooperative Agreement No. 70NANB4H1136 starting on August 15, 2004 for ASTM to continue to administer NTAG. The US Department of Energy, the US Nuclear Regulatory Commission and NIST continue to provide the funding for this grant, but the release of the funds is conditional on ASTM securing a 25% industry "cost share" contribution. This requirement is being partially met by ASTM donating its normal 15% indirect costs while at the same time the nuclear industry is being asked to provide or renew past financial donations.

**Membership**. Technical experts from the US now review all the nuclear standards being developed or revised by ISO, and the US chairs an important subcommittee (SC6 on *Reactor Technology*) and several working groups. Although membership of NTAG has grown to 154 "active" participants, an aggressive effort to recruit new members representing US industry continues. As a result, the United States now has an average of 4 technical experts formally placed on each of the 25 active ISO working groups. A number of the new experts have already been interacting with their counterparts in other countries in the development and updating of international nuclear–related standards, and the US has been instrumental in forcing the forward movement of several standards of interest to the United States. The updated NTAG Membership Address List is now available on the NTAG web page.

**NTAG Management Team**. The duties of the NTAG officers, US Overall Advisors, Technical Experts and other contributors are described in the NTAG Operating Procedures.

Todd Sandler continues as the NTAG Administrator, but will be replaced by Joe Koury in September 2008.

ASTM appointed George W Campbell as Chair with the support of the other 3 Vice-Chairs and the NTAG Administrator. The NTAG Secretary position is held by Gary Smith. Don Spellman has once again agreed to be the US Overall

Advisor for SC-6 to replace Wade Richards who was elected as the Convener of SC-6.

The NTAG management team has 24 members including the NTAG Chair, 3 Vice Chairs, Secretary, Administrator, the NTAG Federal Liaison, the US Overall Advisors and Deputy Advisors, the International Liaison and a new Liaison to TC 223 on Emergency Preparedness.

**Periodic Meetings of the NTAG Chair and Four Vice-Chairs**.

The executive committee has continued to conduct its business via teleconference. The major effort by NTAG for this period was to organize and host the ISO TC 85 meeting in Orlando FL in June 2008.

**TC 85 Biennial meeting**
The ISO TC 85 meeting was very successful. It was attended by over 150 individuals from 15 countries. A new business plan was approved that will allow TC 85 to meet the standard needs for the world wide growth of nuclear power reactors. The resolutions from this meeting are attached.

The program included 15 administrative meetings at the TC 85 full committee and various subcommittee levels. These meetings served to update the TC 85 work program, including its coordination with that of other international nuclear organizations (IAEA, IEC, etc.), as well as to update the TC 85 operating procedures. However, the heart of the TC 85 meeting was the conduct of over 77 standards working group meetings at which great progress was made by technical experts in the selection of new work items and in the development of international nuclear standards.

The support of AREVA-NP in sponsoring the TC 85 meeting banquet on Wednesday evening was essential to the success of this meeting. An outstanding meal was served to the volunteer delegates, who enjoyed the social event as a well-deserved interlude in their technical endeavors. This sponsorship by AREVA-NP, including its coordination by Susan Hess of the AREVA Lynchburg office, is greatly appreciated by the U. S. Nuclear Technical Advisory Group. A letter of appreciation was sent to Susan Hess.

The support of Westinghouse in sponsoring the TC 85 meeting opening reception on Sunday evening was very important to the success of this meeting.
This sponsorship by Westinghouse, including its coordination by Tom Meston of the Westinghouse Monroeville office, is greatly appreciated by the U. S. Nuclear Technical Advisory Group. A letter of appreciation was sent to Tom Meston.

The support of GE-Hitachi Nuclear Energy in sponsoring the TC 85 meeting refreshment breaks conducted between every morning and afternoon meeting session was very important to the success of this meeting. This sponsorship by GE-Hitachi Nuclear Energy, including its coordination by Jim Klapproth of the GE-Hitachi Nuclear Energy Wilmington office, is greatly appreciated by the U. S. Nuclear Technical Advisory Group. Letters of appreciation were sent to Jim Klapproth and to JacK Fuller, the CEO of GE-Hitachi Nuclear Energy.

## B. REPORT ON SC2 (Radiation Protection)

ISO/TC85/SC2 on *Radiation Protection* is a major subcommittee of TC85, with 12 active working groups. Ken Swinth is the US Overall Advisor for SC2 while the Health Physics Society Standards Committee (HPSSC) acts as the secretariat for SC2 by supporting its US activities. The number of deputy advisors for SC2 has been increased from two to four to expand the group of individuals familiar with the ISO and NTAG processes. The deputy advisors and their overlapping areas of responsibilities are: William Hopkins (WGs 4, 5, 11, 14 & 20); Sandy Perle (WGs 2, 11, 17, 18, 19, 20 & 22); Joseph Rotunda (WGs 4, 13, 14, 17, 18, 19 & 21); and Christopher Soares (WGs 2, 5, 13, 19, 21 & 22). The United States now has 46 technical experts serving on the various SC2 working groups.

A meeting of SC2 was held in Orlando, Florida; 16-20 June 2008 as part of the TC85 (Nuclear Energy) biennial meeting. The plenary meeting of SC2 was held on June 19. The U.S. delegation for SC2 consisted of: KL Swinth (US Head of Delegation for SC2, HOD), Rick Cummings, John Glissmeyer, Tom Little, Mike Unterwegger, and John Rodgers. The meetings were held at the Hilton Hotel in Orlando, Florida. The facilities were very good and were convenient. ASTM International organized and hosted the meeting; Areva hosted the banquet while GE and Westinghouse hosted other smaller events such as coffee breaks. Technical tours were not

provided. The facilities were excellent and the hotel had enough meeting rooms and audio-visual equipment to accommodate the large number of working groups. The next meeting of SC2 is planned for Vienna, Austria. TC85 (Nuclear Energy) meets every other year with all of the subcommittees while Subcommittee 2 (SC2) usually meets annually. Individual working groups may have more frequent meetings depending on the state of their projects. Complete sets of resolutions and committee minutes for SC2 (Radiation Protection) as well as TC85 and all of the subcommittees will be available and these will not be repeated. They will be posted on the AFNOR livelink site and later on the ASTM web site http://www.astm.org/COMMIT/ISO/ISOTC85/TC85_SubcomInfo.htm. . Ken Swinth presented a report on ISO activities to the Health Physics Society Standards Committee (HPSSC) meeting which met at the Health Physics Society meeting in Pittsburgh (13-17 July 2007).

## Opening Session/Welcome

The openings for the TC85 and TC85/SC2 sessions were back to back. The sessions were basically welcoming sessions to the meeting. George Campbell gave the welcome for the ASTM. Bernard Sevestre (Deputy Director of Saclay) head of TC 85 gave the overall welcome and highlighted the new business plan (N981) and noted it would be discussed in the TC85 plenary session . He noted that nuclear power is poised for additional growth; 30 nuclear power reactors and 9 research reactors are presently under construction. He also noted that standards that are not needed are not used just as standards that are not known are not used. He said that part of the new business plan is to make sure that standards are needed and that they are known (publicized). It was also noted that there is a strong international demand for harmonization of national codes, standards and regulations and that this should play directly into the international standards process. Some of the points such as the promotion of standards over technical regulations, working on global relevance, providing guides for conformity assessment ( accreditation standards), training and enhanced tools for standards development have been made at previous meetings.

During the SC2 introduction it was noted that SC2 now maintains 66 international standards and has 21 in process. There was also a demonstration of the new computer tools available and it was noted that the global directory, livelink and the AFNOR site will all be linked in the future. It was noted elsewhere that in the future voting will be done directly on the website, documents will be submitted directly to the site and notifications of document availability will be automatically sent out. This is an evolving process and a couple of years ago I thought that most of these tools would be available now. We were told that the tools and sites would be brought into operation in the next few months. Posting of the standards on the site is already operational.

## TC85/SC2 Working Group Sessions

The meetings of the working groups in Orlando included working groups 2, 5, 11, 13, 14, 17, 18, 19, 21and 22. I spent most of my time with working group 2 due to my convenorship of SG0, but attempted to follow the work of WG17 because of my interest in the 7503 series of standards (contamination measurement) which are now undergoing revision in this working group. I met separately with members of other working groups to discuss their progress and any problems; particularly with US participation.

WG2--Reference radiations – Peter Ambrosi, Germany
The group met in Spain a year ago. The progress at that meeting was discussed along with the status of WG standards. A general standard, “Reference radiation fields-definitions and fundamental concepts.” is under development to consolidate some of the common elements of the reference radiation standards (i.e. definitions, phantoms, quantities, etc.) and that eventually a single standard for each reference radiation will replace the basic series of three now in place. Comments were available on the draft (ISO/CD29661) and considerable time was spent in reviewing the comments. After review, it was felt the enough information was available to develop the DIS version and, hopefully, get it out for formal review before the next meeting.

There was some discussion within the group and with the SC2 chair about a problem with publication of a standard with errors introduced by the ISO editorial staff. This has happened before and it is not clear why the proofs are not consistently made available to the working group. The group also discussed the potential banning of CsCl sources with in the US because of concerns over terrorist activities. These sources are central to some of the calibration standards developed by the group. Attendance at the working group meeting was about 12.

WG5 -- Materials and devices for protection against radiation- Gilbert Bruhl, France
This group is working on several standards and the group met in Orlando. They have a new standard on ventilation in the works and will need to coordinate closely with SC6, reactor technology since the standard seems to cross over into this area. SC6 felt that the standard needed to be seen by some additional experts related to their working groups. The group is also preparing to submit new work items on iodine traps and HEPA filters.

WG11 – Sealed sources – Mike Krzaniak, Canada
Review of the radionuclide gauges standard (ISO 7205) will be delayed to permit coordination with efforts by the IEC on a related standard. Jeff Ramsey of Canada was nominated to be co-convenor of the group.

WG 13 – Performance requirements for internal dose evaluation of bioassay results
The group reviewed standards and will submit the following for DIS review:

- 27048: "Dose assessment of workers exposed to internal radiation in the workplace."
- 28218: "Performance criteria for radiobioassay."

WG 14 – Air monitoring and control--Dr. John Glissmeyer, US
The group met to review an extensive set of comments on the DIS version of ISO 2889, "Sampling airborne radioactive materials…"The standard was submitted for FDIS ballot shortly after the Florida meeting.

WG 17- Radioactivity measurements—Dominique Calmet, France
The work of the disbanded WG 9, Surface contamination, now resides in this working group. It is clear that the 7503-1,2,3 series needs revision and the work falls under Christoph Schuler as project leader within WG17. The present standards are entrenched in national systems and the exact approach to the revision is still under discussion. Based on discussion at several meetings it has been decided to. The original proposal was to replace the existing standards with two standards integrating existing guidance and new technology which evolved to "cleaning-up" the present series of three standards and adding a fourth to reflect advanced technology for surface contamination measurements. It has been decided to let the present 7503 series continue until a revision is available and then submit a new work item proposal. It sounds like the UK will prepare a draft revision for consideration.

The supporting standard, ISO 8769, "Reference sources for calibration of surface contamination monitors," was reviewed and will be revised and submitted by December.

The standard ISO/CD 11665, "Measurement of radon 222 in the environment," will be submitted for CD ballot by 20 July. The standard ISO/FDIS 11929, "Determination of detection limit…" will be submitted for ballot by 15 Dec.

WG 18 -- Biological dosimetry –
The group proposed the submission of a new work item on EPR for biological dosimetry. Will assume that France will submit a new work item within the next few months.

WG 19 – Individual monitoring of external radiation
The group is being reformed. Vivian Klammert (Italy) will no longer be convenor and will be replaced by F Quennic (France) with Per Drake (Sweden) acting as co-convenor. A document on

new directions for the working group will be submitted to national bodies soon along with a request for experts. A conflict has arisen between IEC and ISO on external dosimetry standards and some efforts are needed to define the boundaries between the groups. Passive dosimeters are not instruments, but they require instruments to be read out.

WG21 – Radiation protection for exposures to cosmic radiation in civilian aircraft – Bottollier-Depois, France
The draft and comments were reviewed and ISO/DIS20785-2, "Dosimetry for exposures to cosmic radiation in civilian aircraft—Pt.2; characterization of instrument response" will be submitted by 16Feb.

WG22 – Ionizing radiation dosimetry and protocols in medical applications – Bernard Aubert, France

The group will have an ad hoc meeting on "TLD dosimetry for photon and electron radiation in therapy," in Germany before the end of 2008. The group also asked national bodies to consider existing documented guidance as the basis for related ISO standards.

WG 4(gamma radiography and irradiators), and WG20 (illicit trafficking of radioactive materials) did not meet in Orlando. These working groups do not have any items requiring attention at this time.

SC2 Advisory Group

The purpose of the Advisory Group is to advise WG convenors on new work items, to explore new ideas and fields not related to present work items and to provide advice on maintenance of existing standards. The group consists of the WG convenors and a representative from each P member country. KL Swinth is the official US representative. No presentations were made on new work items. Raquel Barquero (Spain) is the new convenor of the Advisory Group and led the meeting.

Several topics were put forward for consideration as potential standards including:

- Surface contamination in nuclear medicine (to be considered during revision of 7503 standards)
- Extremity dosimetry in medicine and protection of hands (positrons).
- Neutron measurements and dosimetry in medicine.
- Reconciliation of differences when multiple dosimeters are worn.
- Patient dosimetry during therapy (I-131).
- Pulsed radiation dosimetry and it was noted that electronic dosimeters will not measure pulsed radiation.

Someone noted that Cf-252 production is no longer funded (verification ?). It was also noted that the NAS is recommending replacement of sources (CsCl) with machine generated sources.

The group again spent time discussing liaisons and concerns over the IEC effort on passive dosimeters and readers (IEC62837-1) which conflicts with agreed areas of standards development. A letter was written by SC2 to seek cooperation in the development of standards of mutual interest. The reply was read at the meeting and can only be characterized as insulting. Basically it implied cooperation was the last resort. Questions arose about the joint standards developed with the IEC as done on the quality standards such as ISO/IEC 17025, 9002, 17011, etc. The ISO representative noted that this area was established as a joint work area and that there is not a normal mechanism for cooperatively developing standards. It was noted that there is some crossover of working group members and some felt that this was an adequate solution. It is a territorial issue, but I wonder what the IEC reaction would be if ISO undertook a primarily

instrumentation standard. It sounds like the N42, N13 issue over standards and it is interesting to note that some of the same personalities are involved on the IEC side.

TC85/SC2 Plenary Session

During the secretariat report the status of the standards was presented. Twenty countries are P members (participants) in TC85/SC2 and twelve O members (observers). TC85/SC2 maintains approximately 66 published standards (report available). SC2 averages 4-6 published standards per year with 21 items in progress.

Liaison reports were given. Highlights from some of the reports include the following:

- The IAEA is revising the basic safety standard and will revise the supporting documents. There will be a new structure for safety standards and a conference on radiation protection in radiotherapy in France in 2009.
- The ICRU liaison noted that ISO/IEC Guide 98 (guide to GUM) is available(?) and also noted that the GUM (Guide to Uncertainty in Measurement) and the VIM (Vocabulary….) will be available free on-line in July.
- The IEC liaison noted that they have 45 standards with 13 in development among 7 working groups. They have 66 standards in their portfolio.

The reports of the working groups were given in order. The general status of work is noted in the previous section. The specific reports and resolutions are available on the web site or from the author.

The SC2 plenary meeting went quite well. Mr. Diakonoff prepares most of the resolutions on his laptop prior to the meeting, which speeds things up. Eugene Pauli is retiring as TC85/SC2 chair at the end of the year and will be replaced by Alain Rannou. Dr. Rannou is advisor to the director of the Human Radiation Protection Division of the French Institute of Radiological Protection and Nuclear Safety (IRSN). He has acted as scientific advisor to Pauli for the past three years. A short resume is available upon request.

General Observations by Ken Swinth

There continues to be a loss of the formal protocol of the ISO meetings over the years. Not just at the ISO level, but within several of the member countries. In general I think the meeting went well and some real progress was made. I am afraid that the IEC-ISO conflict will not be resolved quickly, but I think that there is a willingness on the part of most individuals to move forward despite the issues involved. I am impressed by the development of the on-line tools by the ISO. Hopefully, they will be well used in the future. The software for formatting standards and the on-line tools would be helpful additions to HPS standards work. One has to question if it is a trend to have increasing dominance of international nuclear safety standards by the French including a French company hosting the major social event (banquet).

The U.S. (HPS and others) continue to have an opportunity to provide ISO/TC85/SC2 with suggested topics for standards through the Advisory Group. A prioritized listing needs to be developed based on the state of the standard and the willingness of individuals to participate. The U.S. might also propose recently developed national standards for consideration by ISO. Several HPS standards could be candidates including the recent HPS standard on fetal dosimetry.

**C. REPORT ON SC5 (Nuclear Fuel Technology) Calvin Hopper**

Prior to the 20 June 2008 ISO TC85 Plenary Meeting, SC5 was comprised of 7 working groups:
1) WG1 - Measurement methods for chemical and physical characterization of UF6, UO2 and

$UO_2/Gd_2O_3$ – *SIS Convener*
2) WG3 - Measurement methods for determination and characterization of input and end products of reprocessing plants – *AFNOR Convener*
3) WG4 - Standardization for transport containers for $UF_6$– *BSI Convener*
4) WG5 - Standardization of measurement methods for the characterization of solid and solidified waste forms, and for the corrosion of their primary containers – *AFNOR Convener*
5) WG8 - Standardization of calculations, procedures and practices related to criticality safety– ANSI Convener, Calvin Hopper
6) WG9 - Trunnions for spent fuel element shipping casks– *AFNOR Convener*
7) WG12 - Measurement methods for chemical and physical characterization of MOX pellets– *BSI Convener*

ISO TC85 and SC5 has recently acknowledged the shift in non-reactor nuclear facility needs and emphases from the standardization of fuel chemistry, accountability, and fabrication to the needs for standardization of waste management issues, general packaging and transportation, decommissioning, and further standardization in the areas of nuclear criticality safety.

At the 20 June 2008 ISO TC85 Plenary Meeting in Orlando, Florida the ISO TC85 SC5 Chair presented the newly approved working group structure for SC5.

- Working Groups 1, 3 and 12 have been merged into Working Group 1 and titled Analytical methodology in nuclear fuel cycle – Convenor Mike James (BSI).
- WG 5 has been expanded to include Waste management – Convenor B Amerkraz (AFNOR)
- WG 8 remains unchanged - Criticality control of nuclear fuel cycle – Convenor Calvin Hopper (ANSI)
- Working Groups 4 and 9 have been merged into Working Group 4 and titled Transportation of Radioactive Materials – Convenor Pierre Malesys (AFNOR) and a Co-Convenor R Pollard (BSI)
- A new Working Group (not presently numbered) is under evaluation for addressing Decommissioning issues for non-reactor nuclear facilities – Convenor R Yetts (BSI)

Progress of SC5 during the first half of 2008 included:

- the approval of four ISO standards
  1) ISO 18213-4:2008 – Nuclear fuel technology -- Tank calibration and volume determination for nuclear materials accountancy -- Part 4: Accurate determination of liquid height in accountancy tanks equipped with dip tubes, slow bubbling rate
  2) ISO 18213-5:2008 – Nuclear fuel technology -- Tank calibration and volume determination for nuclear materials accountancy -- Part 5: Accurate determination of liquid height in accountancy tanks equipped with dip tubes, fast bubbling rate
  3) ISO 18213-6:2008 – Nuclear fuel technology -- Tank calibration and volume determination for nuclear materials accountancy -- Part 6: Accurate in-tank determination of liquid density in accountancy tanks equipped with dip tubes
  4) ISO 22875:2008 – Nuclear energy -- Determination of chlorine and fluorine in uranium dioxide powder and sintered pellets

and

- the continuing development of fifteen ISO standards
  1) ISO/PRF 9278 – Nuclear energy - Uranium dioxide pellets -- Determination of density and volume fraction of open and closed porosity
  2) ISO/DIS 9463 – Nuclear energy -- Nuclear fuel technology -- Determination of plutonium in nitric acid solutions by spectrophotometry
  3) ISO/DIS 10276 – Nuclear energy -- Fuel technology -- Trunnions for packages used to transport radioactive material
  4) ISO/AWI 11311 – Nuclear fuel technology -- Criticality safety -- Critical values for homogeneous plutonium - Uranium oxide fuel mixtures outside of reactors
  5) ISO/NP 11320 – Nuclear fuel technology -- Criticality safety -- Emergency

prepardness and response

6) ISO/DIS 13465 – Nuclear energy -- Nuclear fuel technology -- Determination of neptunium in nitric acid solutions by spectrophotometry
7) ISO/DIS 15646 – Nuclear fuel technology -- Resintering test for $UO_2$, $(U,Gd)O_2$ and $(U,Pu)O_2$ pellets
8) ISO/PRF 18213-3 – Nuclear fuel technology -- Tank calibration and volume determination for nuclear materials accountancy -- Part 3: Statistical methods
9) ISO/DIS 21483 – Determination of solubility in nitric acid of plutonium in unirradiated mixed-oxide fuel pellets (U, Pu) $O_2$
10) ISO/PRF 21484 – Nuclear fuel technology -- Determination of the O/M ratio in MOX pellets -- Gravimetric method
11) ISO/PRF 21614 – Determination of carbon content of $UO_2$, $(U, Gd)O_2$ and $(U, Pu)O_2$ powders and sintered pellets -- Combustion in a high-frequency induction furnace -- Infrared absorption spectrometry
12) ISO/DIS 22765 – Sintered $(U, Pu)O_2$ pellets -- Guidance for ceramographic preparation for microstructure examination
13) ISO/DIS 26062 – Nuclear technology -- Nuclear fuels -- Procedures for the measurement of elemental impurities in uranium- and plutonium-based materials by inductively coupled plasma mass spectrometry
14) ISO/FDIS 27467 – Nuclear criticality safety -- Analysis of a postulated criticality accident
15) ISO/CD 27468 – Nuclear fuel technology -- Criticality evaluation methodology for PWR burn up credit (BUC)

Calvin Hopper remains as the US NTAG Overall Advisor for SC5. Additionally, continuing Deputy Advisors for SC5 include: Charles Pietri for Working Group 1, Analytical methodology in nuclear fuel cycle; Ron Knief for Working Group 5, Waste characterization, containers, and management, Working Group 8 Nuclear criticality safety, and the developing Working Group on Decommissioning; and Rick Rawl for Working Group 4, Transportation of radioactive materials.

## D. REPORT ON SC 6 (Reactor Technology)

**Introduction.** The United States holds the international Secretariat of ISO/TC 85/SC 6 on *Reactor Technology*. Wade Richards (NIST) is the chairman of the subcommittee, Thomas Myers serves as Secretary, and there are three working group convenors: Dimitrios Cokinos leads WG 1, *Reactor Analyses and Measurements*; Tawfik Raby leads WG 2, *Research and Test Reactors*; and Francois Bouteille leads WG 3, *Power Reactor Siting, Design, Operation and Decommissioning*. An ad hoc working group for Reactor Fuel Siting, Design, Operation and Decommissioning had made no progress in the previous 12 months and that ad hoc group was disbanded. Each working group's progress is reported below.

**Annual SC 6 Meeting**. The subcommittee met June 16 in Orlando, Florida, during the same week as the TC 85 meeting. There were approximately 15 attendees at the subcommittee meeting, with Canada, France, Korea, Sweden, and the United States having P-member representation. South Africa was present as an O-member. Bernard Sevestre and Fabienne Ramirez, the chair and secretary of TC 85, respectively, also attended.

WG1

An NWIP for decay heat power in light water reactors was written and is available for balloting. The content of the proposed standard is nearly complete. It was also reported that

isotope manufacturers have expressed an interest in a standard for isotope production and an NWIP has been written for Nuclear Data for Isotope Production Calculations for Medical and Other Applications and was presented at the meeting.

WG2
An NWIP for Technical Specifications for Research Reactors was written and is in the balloting stage. The content of the proposed standard is nearly complete. Three other NWIPS have been written: Qualifications, Training, and Certification of Personnel at Research and Test Reactors, Emergency Planning at Research and Test Reactors, and Radiation Protection at Research and Test Reactors. These were presented at the meeting.

WG3
An NWIP was written for methodology to characterize activated wastes resulting from nuclear power plant dismantling and was presented at the meeting. A proposed work item for methodology of the surveillance of the irradiation of reactor pressure vessels was also presented and discussed. There was a detailed presentation of essential safety requirements for nuclear construction codes for Generation IV reactors was made.

The following resolutions were adapted by the subcommittee:

SC 6 Orlando 2008/1
SC 6 will establish a liaison with TC 223, "Societal Security" for standard's development by SC6 in the area of emergency planning at research and test reactors.

SC 6 Orlando 2008/2
SC 6 will collaborate with SC 2 in the further development of a standard for radiation protection at research and test reactors.

SC6 Orlando 2008/3
SC 6 will request participation by those members of the Generation IV International Forum (GIF) who are existing P-members, to develop a standard for the technical requirements of design and fabrication codes for GEN IV Nuclear Reactors.

SC6 Orlando 2008/4
SC 6 will collaborate with SC 5 to develop methodologies to characterize activated nuclear power plant systems, structures, and components prior to dismantling.

**Summary.** WG1, WG2, and WG3 have work items in development and there was noticeable progress during the subcommittee meeting by each of the working groups.

**OTHER BUSINESS**
• Mr. Donald Spellman has agreed to be the liaison for SC 6 to the American Nuclear Society (ANS) Nuclear Facility Standards Committee and the ANS Standards Board.
**E. REPORT ON WG3 (Dosimetry for Radiation Processing**)

**NTAG REPORT ON**
**ISO/TC85 WG3: Dosimetry for Radiation Processing**

The United States holds the chairmanship of Working Group 3 (WG3*) Dosimetry for Radiation Processing*, which reports directly to the main Technical Committee ISO/TC85. Mr. John Logar, Sterigenics International, is the convener of ISO/TC85 WG3 and Mr. John Williams, Baxter Healthcare, is the U.S. Overall Advisor to ISO/TC85 WG3. Mr. Williams has nominated Mrs.

Denise Cleghorn, Boston Scientific, to be the Deputy Advisor of ISO/TC85 WG3. An official approval is expected this fall.

**Balloted Standards**

ISO/TC85 WG3 met the week of June15th, 2008 during the ISO/TC85 meeting in Orlando, FL. The working group met for a day and a half and reviewed 4 standards that went to DIS ballot including a negative that has since been resolved. All four are scheduled to go to publication following review of the comments and recommendation by the ASTM task groups. Those standards are:

*ISO/ASTM 51205 – Practice for Use of a Ceric-Cerous Sulfate Dosimetry System*
*ISO/ASTM 51538 – Practice for Use of the Ethanol-Chlorobenzene Dosimetry System*
*ISO/ASTM 51818 – Practice for Use of Dosimetry in an Electron-Beam Facility for Radiation Processing at Energies between 80 and 300 keV*
*ISO/ASTM 51900 – Guide for Dosimetry in Radiation Research on Food and Agricultural Products*

The responses to the comments were accepted by the corresponding ASTM E10.01 Task Group and the standards are being prepared for publication.

**Addition of Closely Related Standards**

A resolution was passed following editorial comments regarding closely related ASTM standards. This would enable our five existing documents to enter the ISO/ASTM framework. This resolution needs to be balloted and approved prior to implementation. This will also allow us to include TG-hh and TG-ff standards.

Criteria for the new agreement
- Scope in Radiation processing
- No counterpart in ISO
- A need for a Standard in this area

This process will be voted upon in the near future and with we will should be able to submit the closely related standards below for incorporation into the ISO/ASTM format.

- ASTM E 1026-04 *Practice for Using the Fricke Reference Standard Dosimetry System*
- ASTM E 2232-02 *Guide for Selection and Use of Mathematical Methods for Calculating Absorbed Dose in Radiation Processing Applications*
- ASTM E 2303-03 *Guide for Absorbed-Dose Mapping in Radiation Processing Facilities*
- ASTM E 2304-03 *Practice for Use of a LiF Photo-Fluorescent Film Dosimetry System*
- ASTM E 2381-04 *Guide for Dosimetry in Radiation Processing of Fluidized Beds and Fluid Streams*

**ISO Standards for Systematic Review:**

The following ISO/ASTM standards have begun their 5-year systematic review. The standards have balloted to begin the review process under the revised maintenance agreement. The Review Meetings for the following standards were held in Denver, Colorado, June 23rd – 25th, 2008.

- ISO/ASTM 52216:2002 *Practice for Dosimetry for a Self-Contained Dry-Storage Gamma-Ray Irradiator*
- ISO/ASTM 51702:2004 *Practice for dosimetry in gamma irradiation facilities for radiation processing*
- ISO/ASTM 51204:2004 *Practice for dosimetry in gamma irradiation facilities for food processing*
- ISO/ASTM 51275:2004 *Practice for use of a Radiochromic dosimetry system*
- ISO/ASTM 51310:2004 *Practice for use of a Radiochromic Optical Waveguide dosimetry system*
- ISO/ASTM 51540:2004 *Practice for use of a Radiochromic Liquid dosimetry system*

The following ISO/ASTM standards will begin their 5-year systematic review.

- ISO/ASTM 51940:2004 *Guide for dosimetry for sterile insect release programs*
- ISO/ASTM 51607:2004 *Practice for use of an Alanine-EPR dosimetry system*

**ISO TC85 Updates**

The ISO TNB board changed their revision policy. Once a standard is published as a new standard or published following a revision it is considered a new standard and will require a review in 3 years. This is an automatic process. The only time the standard will stay on the 5-year review cycle is if it is re-approved (no changes). An item for consideration is ISO ASTM all docs have more than 3 year date and in practice we always revise our documents and would default to a 3-year cycle. According to our maintenance procedure the standards need to be reviewed by ISO and ASTM at the same time so this will prompt an earlier review cycle through ASTM

Also, both the ISO/TC 85 ISO representative and the secretary have left their respective positions. There will be a new learning process regarding the ISO/ASTM process for their replacements.