




UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555-0001

December 20, 2004

MEMORANDUM TO: ACNW Members
ACNW Staff

FROM: 
Michele S. Kelton
Technical Secretary, ACNW

SUBJECT: CERTIFIED MINUTES OF THE 154TH MEETING OF THE ADVISORY
COMMITTEE ON NUCLEAR WASTE (ACNW) OCTOBER 19-21, 2004

The proposed minutes of the subject meeting have been certified as the official record of the proceedings for that meeting.

Attachment:
Certified Minutes of the 154th
Meeting, October 19-21, 2004

cc: J. Larkins, ACRS/ACNW
H. Larson, ACNW/ACNW
A. Bates, SECY (O-16C1)
S. Jones, NMSS (T-8A23)
J. Dixon-Herrity, EDO (O-16E15)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555-0001

MEMORANDUM TO: Michele S. Kelton, Technical Secretary
Advisory Committee on Nuclear Waste

FROM: Michael T. Ryan, Chairman
Advisory Committee on Nuclear Waste

SUBJECT: PROPOSED MINUTES OF THE 154TH MEETING OF THE
ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW)
OCTOBER 19-21, 2004

I certify that, based on my review of these minutes¹, and to the best of my knowledge and belief, I have observed no substantive errors or omissions in the record of this proceeding subject to the comments noted below

Comments:

A handwritten signature of Michael T. Ryan in cursive script, written over a horizontal line.

Michael T. Ryan, Chairman

12-17-2004
Date

¹ Minutes of 154th meeting held on October 19-21, 2004, dated December 17, 2004



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555-0001

December 17, 2004

MEMORANDUM TO: Michael T. Ryan, Chairman,
Advisory Committee on Nuclear Waste

FROM: *Michele S. Kelton*
Michele S. Kelton, Technical Secretary
Advisory Committee on Nuclear Waste

SUBJECT: PROPOSED MINUTES OF THE 154TH MEETING OF THE
ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW)
OCTOBER 19-21, 2004

Enclosed are the proposed minutes of the 154th meeting of the ACNW. This draft is being provided to give you an opportunity to review the record of this meeting and provide comments. Your comments will be incorporated into the final certified set of minutes as appropriate. Please provide your corrections and comments to me.

Please note that these minutes are being issued in two parts: (1) main body (working copy form) and (2) appendices. The appendices are being sent only to those members who have requested them.

A copy of the certified minutes with appendices will be forwarded to each member

Enclosure: As stated

cc w/o Encl. 2: ACNW Members
ACNW Staff
J. Larkins, ACRS/ACNW

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CERTIFIED

12/17/2004

By MICHAEL T. RYAN

Issued: 12/17/04

CERTIFIED MINUTES OF THE 154TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE OCTOBER 19-21, 2004

The U.S. Nuclear Regulatory Commission (NRC) Advisory Committee on Nuclear Waste (ACNW or the Committee) held its 154th meeting October 19-21, 2004, at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland. The ACNW published a notice of this meeting in the *Federal Register* on October 18, 2004 (69 FR 61418) (Appendix A). This meeting served as a forum for attendees to discuss and take appropriate action on the items listed in the agenda (Appendix B). The entire meeting was open to the public.

A transcript of selected portions of the meeting is available in the NRC's Public Document Room at One White Flint North, Room 1F19, 11555 Rockville Pike, Rockville, Maryland. Copies of the transcript are available for purchase from Neal R. Gross and Co., Inc., 1323 Rhode Island Avenue, NW., Washington, DC 20005. Transcripts may also be downloaded from, or reviewed on, the Internet at <http://www.nrc.gov/reading-rm/doc-collections/acnw/tr/> at no cost.

Michael T. Ryan, ACNW Chairman, and ACNW Members Ruth F. Weiner and Allen Croff attended this meeting. For a list of other attendees, see Appendix C.

I. CHAIRMAN'S REPORT (OPEN)

[Dr. John Larkins was the Designated Federal Official for this portion of the meeting.]

Dr. Michael Ryan, ACNW Chairman, convened the meeting at 8:07 a.m. and briefly reviewed the agenda. He also stated that the meeting was being conducted in conformance with the Federal Advisory Committee Act. In addition, Dr. Ryan asked members of the public who were present and had something to contribute to the meeting to inform the ACNW staff so that time could be allocated for them to speak. He concluded his report by noting the following items of interest.

- Dr. Richard S. Denning, Battelle, Columbus, has been appointed the newest Member of the Advisory Committee on Reactor Safety. Dr. Denning is an internationally recognized expert in risk analysis and the behavior of nuclear reactors during severe accidents. He has been associated with advisory committees on reactor and nonreactor nuclear facility safety, including the Department of Energy's (DOE's) Advisory Committee on Nuclear Facility Safety.

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- During a September 30, 2004, hearing, Senator Peter Domenici of New Mexico said legislation is needed soon to ensure that generators have access to low-level radioactive waste disposal facilities. A recent GAO report stated that after 2008, LLW generators will not have a place to dispose of Class B and C LLW. In 2003, the volume of LLW disposal was approximately 12 million cubic feet.

In 2003, Envirocare disposed of 99 percent of the Class A LLW and Barnwell disposed of 99 percent of the Class B and C LLW. Envirocare stated it should be able to receive more than Class A LLW if it receives approvals from the Utah legislature and its Governor.

- A 100-page report on the status of NRC's decommissioning program is available on the agency's electronic documents system, ADAMS. The accession number is ML0422500080.
- *Geophysical Research Letters* has accepted for publication a paper by Mr. Neil Coleman and Drs. Bill Hinze and Bruce Marsh, who are all affiliated with the ACNW. The title of this paper is "Testing Claims about Volcanic Disruption at Potential Geologic Repository at Yucca Mountain."

II. WORKING GROUP ON WORKING GROUP ON THE REVIEW OF THE INTERNATIONAL COUNCIL ON RADIATION PROTECTION (ICRP) JUNE 2004 RECOMMENDATIONS (OPEN)

[Mr. Neil Coleman was the Designated Federal Official for this section of the meeting.]

Overview of the Draft ICRP Recommendations

Dr. Donald Cool of NMSS gave the first presentation, an overview of the draft recommendations from the International Commission on Radiological Protection (ICRP). The recommendations were made available for review earlier this year on the ICRP Web site at www.icrp.org. He said that ICRP has been providing advice and guidance in radiation protection for more than 50 years. Their last set of recommendations was published in 1990. They have been going through a much more open public consultation process in developing the new set of draft recommendations. ICRP has requested comments on their draft recommendations by the end of December, 2004. ICRP plans to make available the foundation documents on which their recommendations were based, but these documents are not yet available. One of the documents addresses low dose extrapolation. Another is a compendium document on effective dose epidemiology. An ICRP committee on modeling has produced other foundation documents on the dosimetric quantities and weighting factors. Another report provides formal definitions of the individual dose recipients. Dr. Cool said a fifth foundation document related to optimization will probably not be available as soon as the others.

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Dr. Cool said that the recommendations contain proposals for new values for both radiation weighting factors (alpha, beta, gamma, protons, and neutrons) and the tissue weighting factors that are used to derive effective dose equivalents. The weighting factor has increased for the female breast and decreased for the gonads, which has resulted in a fairly considerable reduction in the estimated contribution of hereditary effects to the overall risk of radiation.

In the recommendations, what were previously called deterministic effects are now called tissue reactions. Dr. Cool said that this is the topic that ICRP chose for acute effects like the burns and the various radiation syndromes that are related to large doses of radiation. The recommendations include discussions of cancer mechanisms (epidemiology and updates), genetic susceptibility, hereditary effects, an apparent decrease in the contribution of heritable effects over the first two generations, and various noncancer diseases and bystander effects. With respect to the nominal risk coefficient for cancer induction, Dr. Cool said that ICRP has found some small reductions. In ICRP Publications 60 and 90, the fatal cancer nominal probability coefficient is listed as 5% per sievert. The 2005 number is 4.4% per sievert. The detriment number is similarly reduced from 7.3 to 6.5% per sievert. ICRP doesn't see these as large differences.

ICRP's general system of protection is based on justification, limitation, and optimization. Justification of net benefit is primarily for the appropriate authorities. Radiological considerations are only one input. ICRP recommendations apply only to practices that are declared justified and to natural controllable sources. Patient exposures need separate consideration.

Limitation is applied through recommended dose constraints that quantify the most fundamental levels of protection for workers and the public from single sources in all situations. The word "limit" is used in the context of the quantity which would be applied to the protection of a particular individual from all of the possible sources to which the individual might be exposed. The maximum constraints for a single source are as follows: 100 mSv for emergency situations, 20 mSv for occupational exposures, and 1 mSv for public exposure. ICRP recommends that its system of protection not be applied to materials with concentrations for natural radionuclides below 1 Bq/g (for U-238 and Th-232) and below 10 Bq/g (for K-40). For artificial radionuclides, the system of protection should not apply to materials with concentrations below 0.01 Bq/g for alpha emitters and below 0.1 Bq/g for beta and gamma emitters.

Optimization provides complementary protection beyond the constraints in order to improve protection for individuals from a source. In its draft recommendations, ICRP has broadened the meaning of optimization, but it is not entirely clear what "broadened"

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means. ICRP encourages the involvement of stakeholders in the decisionmaking process in terms of what the optimum solution would be. And there is a bit of discussion about the use of collective dose versus what ICRP calls the "dose matrix," the various attributes of the dose that are important to the decision.

Dr. Cool said that protection of the environment is a new area into which ICRP has been pushing aggressively over the last few years. ICRP's aim is to develop a policy and framework for environmental radiological protection that will provide a common approach for dealing with doses to humans and doses to the environment. A task group of the main Commission is trying to develop reference fauna and flora (e.g., a reference tree, a reference rabbit, a reference frog) as one way of benchmarking and quantifying the effects that may or may not be seen in the environment. ICRP clearly does not see there is actually a problem which requires significant changes to effluents or the protection that is currently provided in most circumstances. A fifth committee on environmental protection will be formed in the summer of 2005, with a 4-year charter.

Update on ICRP Recommendations on Quantities Used in Radiation Protection

Dr. Keith Eckerman of Oak Ridge National Laboratory gave an update on ICRP's recommendations regarding numerical limits used in radiation protection. Dr. Eckerman is familiar with the ICRP recommendations regarding radiation and tissue weighting factors and the application of factors for external exposure. His presentation focused on the new values and what has changed significantly since 1990.

Dr. Eckerman described two of the ICRP foundation documents: one from Committee 1, "Biological and Epidemiological Information on Health Risks Attributable to Ionizing Radiation," and the other from Committee 2, "Basis for Dosimetric Quantities Used in Radiological Protection." The two documents should be available on the ICRP Web site in November of 2004.

Dr. Eckerman reviewed the dose limits that had been previously described in ICRP Publications 26 and 60. ICRP proposes to change the radiation weighting factor for protons from 5 to 2. The weighting factor for neutrons (a continuous curve depending on energy) remains under review, particularly for effects at high energies.

Dr. Eckerman reviewed the tissue weighting factors from ICRP 26 and ICRP 60 and the changes proposed in the new draft recommendations. The weighting factor for gonads would go down from 0.2 to 0.05, and the weighting factor for the female breast would increase from 0.05 to 0.12. A value of 0.01 is now proposed for the brain, kidney, and salivary glands. The life span study of A-bomb survivors had major input to ICRP's recommendations. The three main data sources for computing nominal risk estimates

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are (1) the baseline cancer incidence rates; (2) site-specific cancer incidence risk estimates, and (3) 5- and 20-year cancer survival statistics.

The Committee 1 foundation document looked at the linear no-threshold consideration and commented that the DNA damage information mechanisms support linearity down to about a few tens of milligray. Dr. Eckerman said Committee 1 wasn't going to be able to address bystander effects and genomic instability considerations with respect to risk considerations.

Dr. Eckerman said that a "health detriment" was being made to consider the incidence and lethality of the cancer, and to reflect on the quality of life of cancer survivors. The data are really being averaged over an Asian and European-American population. Information from the A-bomb survivors is being translated to other populations and the detriment examined within those population groups. For the whole population, the health detriment is 6.5% per Sv. ICRP 60 had a value of 7.3% per Sv. As to the adult worker, the nominal detriment coefficient is now 4.9% per Sv. The ICRP 60 value was 5.6% per Sv. These are the nominal detriment numbers. The numerical changes are not very significant to the overall course of setting radiation protection guidance.

Hereditary risk has been revised significantly downward to approximately 20 cases per 10,000 per Sv, rather than the 100 cases that were considered in ICRP 60. So there is a real reduction in the hereditary risk. In addition, there's a recognition that not all of these hereditary effects are really lethal, so a lethality fraction of 0.8 has been introduced. On the other hand, the breast cancer risks are higher by about a factor of three. The reason is largely that those A-bomb survivors that were exposed as juveniles are now older and contributing new data on breast cancer. Other studies indicate a corresponding risk of breast cancer.

Nominal detriment coefficients are averaged over Asian and European-American populations. Phantom development has been improved. Tissue weighting factors are gender averaged. Organ doses are gender specific.

Public Comments

Ralph Andersen (of the Nuclear Energy Institute) asked Dr. Cool to elaborate on the distinction between dose limits and dose constraints. Dr. Cool said that ICRP's use of limit relates to all sources to which an individual is exposed. Constraint relates to a single source to an individual. With respect to how NRC regulates, NRC is mostly concerned with ICRP's constraints. You have a particular source or a small set of sources that are controlled and you are also looking to provide specific protection from exposure for individuals. ICRP suggests we are dealing with a constraint in assuring

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that individuals are receiving acceptable protection and then designing optimized ALARA dose reduction programs [within the constraint] to further reduce their exposure.

Ralph Andersen commented on the NRC staff's efforts to put together a licensing framework for new reactors. He said that "potential exposure" plays a dominant role in the framework they're constructing. The framework was described in a public meeting last month by NRC research staff. The concept of "potential exposure" is new.

Dr. Ryan asked John Garrick's "so what?" question. What's different about having a dose limit? Are we gaining anything by considering these new ICRP recommendations in terms of fundamental radiation protection practices and the safety of workers and the public? Dr. Cool said the pragmatic answer to the question was that there is not much to be gained. There's a clear recognition that radiation protection programs around the world are functioning and do seem to be providing the appropriate protection.

Mr. Holahan said that the Commission is going to ask the same question of the staff and the various advisory committees once ICRP's document has gone final with regard to potential rulemaking. For NRC to revise Part 20 will require rulemaking, and some sort of increased health and safety benefit will need to be demonstrated to justify the revision.

Ms. Lynne Fairbent (of the American Association of Physicists in Medicine) said that some of the ICRP recommendations might be inconsistent with recommendations being considered by the National Council on Radiation Protection (NCRP). Ms. Fairbent wondered if the NRC staff or some of the NCRP members who are on the expert panel could talk about where the NCRP process is and also how the staff might decide which way to go if an ICRP recommendation contradicts an NCRP recommendation. NCRP Commentary 111 versus the caregivers recommendation in the draft ICRP recommendation is an example in the medical area where there could be a contradiction.

Dr. Vetter said that NCRP appeared to be waiting for BEIR VII to come out before deciding what to do. Dr. Vetter said he would address treatment of members of the public as caregivers in his presentation.

Individual Protection (Selection of Constraints)

Mr. Holahan gave an overview of major issues regarding limits and constraints. He described the major differences between 10 CFR Part 20 and the draft ICRP recommendations. ICRP's goal is to make the system of radiation protection more coherent and comprehensive. ICRP also recognizes the need for regulatory stability. ICRP portrays its recommendations as evolutionary, not revolutionary. The 2005 recommendations maintain the Publication 60 limits for combined dose from all regulated sources. ICRP recommends dose constraints that quantify the most fundamental levels of

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protection for workers and the public from single sources in all situations. The recommendations update the radiation and tissue weighting factors in effective dose, revise the nominal risk coefficients, and decrease the detriment risk coefficient. The potential implication for NRC licensees is that the draft 2005 recommendations would supercede recommendations in Publications 60 and 26. Adoption would require a major revision of dose assessment methodologies. Recent ICRP publications have revised dose assessment methodologies, anatomical and physiological data, biokinetic information, and radiological and tissue weighting factors, and have developed new age-dependent dose conversion coefficients.

Mr. Holahan discussed NRC's ongoing evaluation of the ICRP recommendations. The agency will examine other information, including BEIR VII, DOE's low-dose research program, and United Nations Scientific Committee on the Effects of Atomic Radiation. NRC will consider regulatory options and cost and will submit options and recommendations to the Commission. Adopting the recommendations would have significant impacts on commercial power reactors (several million dollars per plant in capital costs, nearly a half a million dollars per plant in annual costs, and a 2-100% increase in collective dose. Adopting the ICRP recommendations would require extensive changes in scheduling modifications and determining how maintenance is done. System decontamination, remote tooling, and robots would be essential.

Mr. Michael Boyd (EPA) gave a talk with the title "An EPA Perspective on the ICRP's Proposed Individual Protection Requirements." He briefly described how individual radiation protection standards are set in three different EPA offices: the Offices of Air and Radiation, Water, and Solid Waste and Emergency Response. Mr. Boyd explained that the role of Federal guidance in setting individual standards is to advise the President on radiation matters directly or indirectly affecting the public and to guide all Federal agencies in developing radiation standards. The 1960 Federal guidance issued under President Eisenhower had a public dose limit of 500 millirem. This does meet the ICRP's current definition of limit because the dose was dose from all sources to an individual member of the public. The 1960 guidance said that when the sources of exposure are not all known, the per capita dose should not exceed 170 millirem. The guidance recommended that individual doses be as far below this guideline as practicable.

Mr. Boyd then reviewed the 1987 Federal guidance on occupational exposure. It included a limit (constraint) of 5 rem/yr committed effective dose equivalent. The guidance recommended limiting fetal doses and doses to workers younger than 18 years to 500 mrem. The 1987 guidance required ALARA and did not define "radiation worker." Proposed Federal guidance for the general public (FGGP) considers two options: with and without an expressed public dose limit. One option is a public dose

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limit of 100 mrem consistent with ICRP's 1990 and 2005 recommendations. Both options stress optimization as the key to radiation protection without specifying values for individual source limits (constraints).

Mr. Boyd compared the EPA standards with the new ICRP proposals. ICRP's constraint for emergency responders (10 rem) is lower than the constraint in EPA's guidance for lifesaving scenarios (25 rem). Otherwise ICRP's constraint is not inconsistent. The ICRP worker constraint is 2 rem, while EPA's Federal guidance "limit" is 5 rem + ALARA. The ICRP 60 public dose limit is consistent with FGGP option 2 (100 mrem), but EPA's source "constraints" are generally well below the proposed ICRP individual constraint, which is also 100 mrem. Mr. Boyd said EPA had not yet adopted a minimum constraint.

In most cases, ICRP's proposed exclusion levels appear not to exceed levels permitted under existing EPA regulations. Some "triggers" for consultation in the EPA/NRC memorandum of understanding are close to ICRP's artificial exclusion level of 2.7 pCi/g. EPA does not regulate natural K-40, but ICRP's exclusion level seems too high at 270 pCi/g. Mr. Boyd said it was unclear where ICRP got this number.

Dr. Edgar Bailey (of the Conference of Radiation Control Program Directors, CRCPD) made comments about the ICRP recommendations from his perspective. CRCPD consists of the Radiation Control Program Directors and staff members in the 50 states, D.C., and U.S. territories. CRCPD includes the program directors in the 33 Agreement States, who regulate x-ray usage and approximately 80% of all radioactive materials licensees. Dr. Bailey said that changes in terminology, such as now proposed by ICRP, have not historically improved licensees' understanding of the regulations. Changing terminology always involves the reeducation of workers and regulators. It may improve understanding for the developers of guidance but not necessarily for the users and regulators. Dr. Bailey considers that "dose" reductions do not necessarily represent what is achievable in the public's eyes. Reductions tend to be perceived by the public as meaning that radiation is somehow more hazardous than earlier thought. Groups and individuals who oppose uses of radiation use this perception to discredit both users and regulators. Dose reductions would require increased shielding in new designs and increased controls on emissions, and would lead to questions about existing facilities. Dose reductions would also have potential impacts on decommissioning, including the costs of characterization, cleanup verification, and the need for waste disposal. As the level goes down for cleanup, the waste volumes go up geometrically. That is a problem. At 25 millirem, there is a lot less waste than there will be at 1 millirem. Dr. Bailey said these issues need to be looked at. We need to look at some of the potential fallout of implementing the recommendations. For example, one of the biggest factors in reducing overexposure to industrial radiographers and radiologists

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was simply going to 5 rem a year because it gave them time to react and move their employees around or restrict their employees' work. Dr. Bailey said ICRP's draft recommendations about flora and fauna could introduce large problems, depending on if and how the recommendations were implemented by NRC and EPA.

Dr. Richard Vetter gave his personal views about the ICRP recommendations based on his knowledge, experience, and input from ACMUI (NRC's Advisory Committee on the Medical Use of Isotopes). He noted that ICRP refers to sources being the cause of an exposure, and do not necessarily refer to physical sources. The source could be a nuclear medicine department, a hospital, etc.

Dr. Vetter noted the broad scope of ICRP's recommendations. They apply to all controllable sources, even emergencies. The justification of medical exposure is whether it does more good than harm to a patient. The medical practice must be justified and the procedures of a practice must also be justified. Practitioners are responsible for justifying procedures. Dr. Vetter said the three classes of exposure are occupational, medical, and public. There are no constraints on the medical exposure of patients as a part of their diagnosis or treatment, but the procedures must be justified. Under the ICRP recommendations, failure to maintain restrictions on dose (constraints) would be classified as "failure." This is very negative and could be counterproductive. Dr. Vetter said that the term "failure" should be reserved for limits. In an ALARA program, goals are set, and when a goal is not met, there is an investigation. But failure to meet a goal doesn't shut down a program. NRC does not cite a licensee for violating regulations because an ALARA goal was missed. Missing a goal is not a program failure. Dr. Vetter said that in the ICRP's 2005 recommendations missing a goal is considered a failure, implying that some punitive measure could occur as a result of the failure.

Dr. Vetter said that dose constraints were intended to provide protection to the most exposed individual within a class (e.g., the public) from a single source, for example, the most exposed individual who visits a waiting room in a hospital. This is a very small population, a fraction of the population. Dr. Vetter said if you go to a hospital and look at the people visiting that hospital, you will generally observe that most of the people there are older people. If this observation is correct, the risk to these most exposed individuals is actually quite small. Dr. Vetter said the impression he gets from contacts with physicists is that the constraint in this situation should probably be based on the probability of exposure, rather than the most exposed individual. What is the probability that an individual will receive 100 millirem, not what is the dose in a particular case to the most exposed individual? In the hospital's case, the most exposed individual will usually be someone who is rather old.

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Dr. Vetter discussed ICRP's application of dose constraints to the exposure of women. There is normally no reason to distinguish women from men for controlling occupational exposure unless a woman is pregnant. Once the pregnancy is declared, protection of the fetus should be considered. Working conditions should make it unlikely that dose to the fetus will exceed 1 mSv during the remainder of the pregnancy. Dr. Vetter has looked at data from monitoring exposures of pregnant workers at the Mayo Clinic. Five percent of the women received more than 1 millisievert, not a large number, and most were under 100 millirem. Only a small number received more than 100 millirem. These women were rotated out of the higher exposure jobs. For example, a pregnant nurse could rotate from the radionuclide therapy floor to some other area in the hospital.

This might be more difficult to do in a small community hospital, given medical trends. The use of technetium-99m will decrease. The use of positron emitters will increase. With positron emitters rated at 511 keV, about 4 times the energy of technetium-99m, exposure will likewise go up. So the ability to move pregnant workers will become increasingly challenging for the medical community, especially for community hospitals. Dr. Vetter said there had been suggestions that pregnant workers could experience some discrimination in hiring especially if they looked pregnant. There is some worry about that in the medical community.

ICRP places no limitation on medical exposure. ICRP does not intend to limit this dose to the individual patient because that could reduce the effectiveness of the diagnosis or treatment, which is entirely between the doctor and the patient. But constraints do apply. There are constraints on medical exposure, but they apply to workers and members of the public. So ICRP says a constraint of a few millisievert is reasonable but should not be used rigidly. This applies to care-givers for radionuclide therapy patients.

Dr. Vetter said ICRP considered public constraints inappropriate for individuals who volunteer for research studies. Humans who participate in these studies are basically considered patients and their participation is subject to the ethics and controls of the institutional review board, which controls doses very tightly. ICRP says discharges to sewers and airborne effluents should also be assessed. Dr. Vetter said a number of publications in the literature show that both have been assessed. Discharges to the sewer result in minimal exposure to employees in the sewage treatment plant, and hospitals typically demonstrate that their effluents are less than 10 millirem. This is being done on a fairly routine basis. Exposures in the waiting room are typically accidental except for applications of radioiodine.

With regard to recommended dose limits, Dr. Vetter said the U.S. occupational dose limit is 5 rem. ICRP now recommends 2 rem, which was also recommended in ICRP

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60. However, reducing the limit to 2 rem would be problematic for hospitals, particularly for small hospitals and small categories of workers in small hospitals and medical facilities. The people in the hospitals that get the higher doses typically work in the cardiac lab or the electrophysiology lab. Sometimes reducing dose is counterproductive. For example, cardiologists save people's lives. Cardiologists get doses higher than 2 rem per year, but in Dr. Vetter's opinion and the opinion of many physicists and medical researchers, the higher doses are justified by the results. The constraint of 0.3 millisieverts per year would also be problematic for public exposures. Visitors to a waiting room are an example. An occupancy factor take this into account. What is not taken into account is the probability that the "occupant" is the same person.

Dr. Vetter said that was why, instead of looking at this issue in terms of the most exposed individual, we should look at the issue in terms of the probability of any one person being exposed. From the hospital perspective, shielding is designed to meet the 100 millirem criterion. Applying the ICRP constraint might require adding shielding based on calculation. Would it be necessary to go back and reshield hospitals? A lot of hospitals will go out of business before doing that.

In summary, Dr. Vetter said that constraints for public exposure from medical facilities are problematic, especially for x-ray facilities.

Public Comments

Ms. Fairbrent commented on a point raised by Dr. Vetter. Cost estimates show that adopting ICRP's constraints for the public would be drastic for industry. In the new report, NCRP backed off from adopting the constraint for diagnostic x-ray facilities and therapy facilities. Shielding is going to come out at 100 millirem. Adoption of the ICRP recommendation would have a far from trivial impact on the community. And it's not clear that the recommendation really provides any increase of safety to the public or to the worker in this case.

Ralph Andersen said it was unclear what a source is with respect to applying a constraint.

Optimization of Protection (With respect to ALARA)

Dr. Cool discussed optimization of protection. Optimization is a fundamental principle of radiation protection that hasn't changed. As envisioned in the ICRP recommendations, optimization not only reduces dose but incorporates other elements of a broad definition of protection, for example, avoiding accidents and potential exposures. Optimization is intended to be a systematic, forward-looking, iterative process, that

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involves both qualitative and quantitative judgments. The "frame of mind" is to continuously question whether protection is the best for the circumstances. ICRP does not see optimization and ALARA as equivalent. ALARA is retained in regard to individual doses. Regulatory authorities must establish clear policy and requirements, while operators are responsible for optimization in all phases of their activities. Optimization occurs in the constraint on individual dose from a source. Collective dose is now seen by ICRP as not providing sufficient information for making decisions. It is not to be used on its own to make decisions. Dr. Cool said ICRP recommended the use of a "dose matrix" for decisionmaking. The information needed includes numerous factors such as attributes of an exposed population, exposure characteristics of the dose distribution, distribution of exposures in space and time, and social, environmental, technical, and economic considerations. ICRP supports significant stakeholder involvement and recognizes that the process and level of involvement will vary. ICRP recommends that the "best available technology" be used to control emissions. ICRP sees this as a complementary approach that supports optimization.

Dr. Dana Powers (Sandia National Labs) also spoke about optimization. He agreed that optimization and ALARA are not identical. Optimization is clearly distinct. Dr. Powers discussed the practical aspects of ALARA engineering. In his work he audits a lot of ALARA engineering reviews. The audits consider routine aspects of operational activities at nuclear facilities and are qualitative. Computation is seldom done. He finds ALARA to be absolutely crucial for maintaining low worker doses and even falling worker doses. ALARA is possible because of linearity. Engineers function best in a linear world, and though the world may in fact not be linear, we can capture a huge amount of technology with linear models. Anything you do that's going to make ALARA nonlinear will have a negative effect on the effectiveness of ALARA measures. So when you see signs of nonlinearity creeping in, (consideration of social and economic factors, anything that makes the problem multivariable), it is discouraging. As practiced now in a linear mode, ALARA is very well established, very well understood, and very functional. The process should not be made more complicated.

Dr. Powers commented on the ICRP phrase "best available technology." Whether the phrase is used for ALARA or for emissions to the environment, as a regulatory body NRC has to be very cautious about this concept. It's not the use of best available technology that we want to achieve. We want to achieve an adequate level of protection, and seldom find that the best available technology is the only way to achieve an adequate level of protection. Anytime a regulatory agency prescribes how an engineering organization must do its job, the agency is probably interfering with that job. It certainly becomes a problem for a regulatory agency whose mission is to provide adequate protection of the public health and safety.

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Dr. Powers said ICRP associates optimization with safety culture. This is an area the Advisory Committee on Reactor Safeguards has been extremely interested in. He said his group has found many different definitions of safety culture. It's extremely difficult to monitor and measure safety culture, and it is a concept that can't easily be regulated. ICRP would be far better off if it identified the attributes of safety culture that it wants to be incorporated, including ALARA practices, rather than "calling out" safety culture itself. The ICRP recommendations also refer to continuous improvement. Continuous improvement can lead to a focus on the minutia because you can get improvement by looking at things that are small and familiar, whereas things that are big and difficult are tough to improve. We need to be very careful trying to regulate for continuous improvement rather than regulate to minimize risk because we really want people to go after the big contributors to risk and not the minutia. Dr. Powers said ALARA regulations should be kept simple. ALARA must be a linear, single-objective function that's comprehensible and can be carried out routinely. This is especially true when we have a quantitative measure of reasonably achievable, as we do. Introducing best available technology requirements into ALARA regulations is a route to assuring we'll stop doing ALARA.

Public Comments

Ralph Andersen said it was very important to maintain the single-objective focus for ALARA and not mess it up with a bunch of other variables.

He said the new ICRP recommendations incorporate the idea that if you protect the individual, you have protected the population. If that premise really underlies the new recommendations, then it's a very short step to imply that collective dose has no relevance to ascertaining the quality of protection provided.

Michael Boyd (EPA) expressed his thoughts on the utility of collective dose. It's generally thought of as being useful in managing worker doses, worker scenarios. It is very useful in defining collective dose in space and time, and doing the kinds of regulatory impact analyses that are required when EPA issues new regulations to help estimate the actual number of lives, the cancers averted or lives saved. So collective dose has some utility there.

Chairman Ryan disagreed with the use of collective dose in managing worker doses. When you multiply trivially small doses by some risk estimator and say cancers or deaths occur as a result, you do not properly account for the conservatism in the calculation model. Scientifically, you're at risk of being just flat-out wrong. As Milt Levenson, a former member of the ACNW would point out, if something is four or five or six orders of magnitude conservative, it's no longer conservative, it's wrong. So we have to be careful that collective dose is a useful metric in the situation, whether it's the

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workplace or a truncated assessment or to meet a legal requirement. We've got to be very careful not to allow collective dose to be used in situations where it is going to be interpreted numerically and success or failure will be judged by the numbers when in fact the numbers don't mean anything in absolute terms.

Ralph Anderson commented on the environmental radiological protection area. Despite having sat through 2 years of interactions with the ICRP and reading the most recent recommendations, he still can't find where they made the case for the need for a new stand-alone framework for environmental protection.

III. UPDATE ON THE STATUS OF THE LICENSE TERMINATION RULE (LTR)

[Mr. Richard Major was the Designated Federal Official for this section of the meeting.]

Mr. Robert Johnson, NMSS, presented a number of accomplishments in the application of the License Termination Rule (LTR) for fiscal year (FY) 2004. He outlined plans for FY 2005–2007 and gave several site-specific examples of the application of the LTR (Shieldalloy and Fansteel). Finally, Mr. Johnson suggested some potential topics for review by the ACNW.

Recently there have been eight issues associated with LTR analysis. The ACNW was briefed on the eight issues on May 28, 2003. The Commission approved actions for these issues on November 17, 2003. Among the issues was the intentional mixing of contaminated soils. ACNW reviewed this issue on July 20, 2004 (see the ACNW report issued July 30, 2004).

In May 2004, the staff issued a regulatory issue summary (RIS) for 2004–2008. The RIS explains the LTR analysis to licensees and stakeholders and identifies opportunities for stakeholders' comments and invites early feedback. The RIS summarizes nine issues associated with the LTR. The Commission has approved implementation of options for dealing with two of the nine issues, institutional controls and realistic scenarios.

Mr. Johnson discussed the various Commission approvals of and comments on the nine issues covered in the RIS.

1. **Institutional controls**—The Commission approved a risk-informed graded approach with new options (dual restrictions and a long-term control license) for the NRC monitoring and enforcing role. The staff has requested public comments on draft guidance be shared with the Commission.
2. **Unimportant quantities**—The Commission approved the recommendation that 0.05 weight percent of uranium and thorium not be used as a decommissioning criterion.
3. **Separate uranium/thorium uninitiated release standard (a release standard higher than the LTR)**—The Commission approved a recommendation not to develop a new standard.

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4. **On-site disposal standard**—The Commission approved the recommendation to use the current practice of a “few millirem” and up to 100 millirem with sufficient financial assurance. The Commission added a third option of 25 millirem without financial assurance for short-lived radionuclides.
5. **Relationship between LTR and control of solid materials**—The Commission approved the recommendation to include a description of the differences in the RIS. The staff was asked to clarify the reduction in conservatism in the LTR analysis and impact on offsite removal of material after license termination.
6. **Realistic exposure scenarios**—The Commission approved the recommendation of postulating reasonably foreseeable land use (e.g., don't postulate a resident farmer if the land will be used for industrial purposes).
7. **Changes to financial assurance to prevent future legacy sites**—The Commission approved recommendations for additional measures to ensure adequate funds are available to decommissioning sites.
8. **Changes to licensee operations to prevent future legacy sites**—The Commission approved recommendations for operating facilities to minimize contamination and increase licensee monitoring and reporting for high-risk sites. The Commission also approved enhancement of NRC inspection and enforcement of high-risk sites, but wants the guidance being developed to specify how much monitoring is enough.
9. **Intentional mixing**—The Commission approved current practices of mixing to meet waste acceptance criteria. Mixing was also approved to meet LTR criteria in limited, case-by-case circumstances.

In the upcoming year, the staff intends to revise the decommissioning guidance in NUREG-1757 (consolidated NMSS guidance). The revised guidance documents will cover for issues: institutional controls, on-site disposal, realistic scenarios, and intentional mixing. The staff will involve stakeholders in revising the guidance through workshops for Agreement States and licensees. The four draft guidance documents should be ready for public comment by September 2005. The final guidance will be issued 1 year later.

Inspection and enforcement procedures for operating sites will also be revised in the coming year. The procedures are intended to (1) enhance monitoring reporting and minimize contamination, (2) develop a risk-informed, performance-based approach, and (3) identify high-risk operating sites and activities. The revised inspection and enforcement procedures will be developed by September 2005.

The staff is also preparing a rulemaking and supporting guidance to prevent future legacy sites. The rulemaking will require changes in financial assurance and licensee operations. The

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proposed rule and draft guidance will be ready for public comment in September 2006 and will be finalized in September 2007.

Mr. Johnson discussed the implementation of the institutional control options at the Shieldalloy facility in Newfield, New Jersey. The site has large amounts of uranium/thorium slag, about 1 million cubic feet. The site is near homes, farms, and commercial facilities. The facility is using a risk-informed graded approach and has a long-term control (LTC) license. Although the State of New Jersey has objected to the restricted use and LTC license, the NRC Chairman responded that the LTC allows the restricted use option and that Federal oversight enhances long-term control. An LTC license is an amendment to the current site license, which is not terminated. Agency records will be maintained in a single docket file and NRC would review the site every 5 years before reviewing the license. The licensee must implement access and land use controls, site surveillance, maintenance, monitoring, reporting, record retention, and stakeholder involvement. The licensee must maintain sufficient financial assurance through the use of a trust. The risk-informed graded approach to institutional controls requires durable institutional controls for hazards of long duration. The controls must be tailored to mitigate potential failure of institutional controls and engineered barriers that are significant to meet dose criteria.

Currently 11 sites are implementing the realistic scenario approach. Mr. Johnson used the Fansteel site as an example of how realism is being used in license termination. The licensee believes the site will be used for industrial purposes into the foreseeable future. The NRC staff supported the licensee's industrial scenario. The State of Oklahoma challenged the industrial scenario and proposed a resident farmer scenario. (The site is located next to a port on the Arkansas River. There are farms on the opposite bank of the river.) The Atomic Safety and Licensing Board upheld the staff's decision in favor of an industrial scenario.

The Kiski Valley Waste Water treatment facility concentrates radionuclides in the sludge left behind following water treatment. The licensee has proposed to dispose of the sludge onsite, rather than removing the sludge as it still operates. Less likely uses of the land were analyzed to assess future land use. Even agricultural use by an intruder produced a 20 mrem annual dose. The Commission approved the staff recommendation of no further decommissioning actions.

A number of areas were suggested for ACNW review during FY 2005: the draft guidance documents on institutional controls, realistic scenarios, and intentional mixing; the risk-informed approach to identifying high-risk operating sites and activities will be ready for review by the summer of 2005.

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IV. CONSOLIDATED ISSUE RESOLUTION STATUS REPORT (OPEN)

[Mr. Michael Lee was the Designated Federal Official for this section of the meeting.]

The Integrated Issue Resolution Status Report (IIRSR, NUREG-1762) documents the technical bases for the NRC staff positions taken during key technical issue (KTI) resolution meetings with the U.S. Department of Energy (DOE) on the Yucca Mountain geologic repository program. The first edition of the NUREG-1762 was issued in 2000. The document follows the outline in the Yucca Mountain Review Plan (YMRP, NUREG-1804) and relies on the review methods and acceptance criteria outlined in the YMRP to judge the extent to which there is closure with DOE (i.e., issue resolution, at the staff level) on data needs and analytical approaches necessary to ensure a complete and high-quality license application.

At its 154th meeting, Dr. James Rubenstone (representing the NMSS staff) briefed the ACNW on the status of the 2004 update to NUREG-1762. (At the time of the October briefing, the 2004 update to NUREG-1762 was still undergoing internal review and was available to the Committee.) In anticipation of a December 2004 license application submittal to construct the repository, Dr. Rubenstone said that the NRC staff decided to update NUREG-1762 before the submittal to reflect recent DOE progress in addressing the information needs requests associated with the 293 DOE/NRC KTI agreements and the NRC staff reviews thereof. He noted that NUREG-1762 identifies the information the staff considered important in formulating its views, including the results of earlier reviews of DOE and DOE contractor reports expected to support the license application. NUREG-1762 also reflects the independent confirmatory investigations by the NRC staff and its technical assistance contractor, the Center for Nuclear Waste Regulatory Analyses, and other publicly available information. Dr. Rubenstone noted that the 2004 update of NUREG-1762 will also reflect the independent work of NRC's recent 2002-03 high-level radioactive waste (HLW) Risk Insights Initiative. Lastly, Dr. Rubenstone said the staff will use the YMRP, the latest update of the IIRSR, NRC's independent performance assessment results, and the HLW Risk Insights Initiative to review DOE's license application.

After his presentation, Dr. Rubenstone responded to questions and comments from the ACNW Members and staff. At times he was assisted by Dr. King Stablein. The following rebuttal points are noteworthy:

- The NRC staff is not making regulatory (compliance) findings in NUREG-1762 to judge the acceptability of the information submitted by DOE (in response to a question from ACNW Member Ryan).
- A substantial number of KTI agreements will probably not be "closed" (in the sense that the NRC staff has no additional questions) before the license application is submitted because NRC staff is still reviewing DOE information submittals (in response to a question from ACNW Member Ryan).

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- The status of issue resolution is indeterminant based on the types of information currently contained in the IIRSR. To understand the "true" status of issue resolution in a particular area (based on the current definition¹), an observer would need to evaluate the NRC staff responses to DOE information submittals in conjunction with the IIRSR. The NRC staff agreed to separately provide the ACNW with a list of the KTI agreements that identifies their status as open, closed, or currently undergoing review (in response to questions from ACNW Member Ryan and ACNW staffer Lee).
- Performance assessment insights obtained from the pre-closure safety assessment computer code will not be integrated into the 2004 NUREG-1762 update because the code is still under development (in response to a question from ACNW Member Weiner).

V. ACNW 2005 ACTION PLAN

The Committee began a detailed review of the draft fiscal year (FY) 2005 Action Plan and the associated transmittal letter due to the Commission in December 2004. The Committee reviewed the goals and objectives and linked them to NRC's Strategic Plan for FY 2004-2009. The Committee then reviewed high-priority Tier 1 topics and considered other topics (Tier 2 topics) which the Committee may address as time and resources permit. The Committee has made substantial progress in identifying and clarifying priority areas.

Committee members agreed to refine three priority topics: (1) low-level radioactive waste, (2) waste incidental to reprocessing, and (3) transportation of radioactive materials. The Committee will also add the proposed WGMs for FY 2005 and finalize its Action Plan at the next ACNW meeting.

The meeting adjourned at 12:00 noon on Thursday, October 21, 2004.

¹Previously, the intent of issue resolution was to reduce the number and kinds of critical issues that might be litigated during any potential licensing hearing by early pre-licensing consultations between the respective staffs. The intent of these consultations was to reach closure on acceptable methods and approaches to demonstrate compliance with NRC's regulations through formal agreement. This process was intended to assure that critical topics were open to public review in order to obtain input from, and technical consensus on, the issues under discussion from DOE, stakeholders, and other interested parties. More recently, the focus of issue resolution has been to ensure that DOE provides the NRC staff with sufficient information to ensure a complete and high-quality license application rather than reaching closure *per se*.

this Notice are: The Environmental Assessment (ML042520538), and Letter dated July 12, 2004 transmitting Final Status Survey Report (ML041970459). Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at (800) 397-4209 or (301) 415-4737, or by e-mail to pdr@nrc.gov.

These documents may be viewed electronically at the NRC Public Document Room (PDR), O 1 F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852. The PDR reproduction contractor will copy documents for a fee. The PDR is open from 7:45 a.m. to 4:15 p.m., Monday through Friday, except on Federal holidays.

Dated at King of Prussia, Pennsylvania this 5th day of October, 2004.

For the Nuclear Regulatory Commission,
John D. Kinneman,
Chief, Nuclear Materials Safety Branch 2,
Division of Nuclear Materials Safety, Region 1.

[FR Doc. 04-23339 Filed 10-15-04; 8:45 am]

BILLING CODE 7590-01-P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Nuclear Waste; Notice of Meeting

The Advisory Committee on Nuclear Waste (ACNW) will hold its 154th meeting on October 19–21, 2004, Room T-2B3, 11545 Rockville Pike, Rockville, Maryland. The Working Group Meeting scheduled for October 19, 2004 will be held in the NRC Auditorium.

The Working Group Chairman will state the Working Group Meeting (WGM) objectives and provide a technical session overview. Invited experts will also be introduced at this time. The purposes of the WGM are: (1) To develop the information necessary to provide a letter report to the Commission; (2) to understand the technical bases for the draft June 2004 ICRP recommendations; (3) to review these recommendations against current NRC regulations and practice; and (4) to identify aspects of the ICRP recommendations that may warrant further study.

The schedule for this meeting is as follows:

Tuesday, October 19, 2004—NRC Auditorium

8:30 a.m.–8:40 a.m.: *Opening statement (Open)*—The ACNW

Chairman will open the meeting with brief opening remarks.

8:40 a.m.–9:10 a.m.: *NRC Staff Overview of June 2004 ICRP*

Recommendations (Open)—The Committee will hear a presentation and hold a discussion with a representative of the NRC staff regarding an overview of the June 2004 draft ICRP recommendations.

9:10 a.m.–10 a.m.: *Biological Aspects of Radiation Protection (Open)*—The Committee will hear a presentation and hold a discussion with an expert familiar with the radiation biology foundations of the ICRP recommendations. The emphasis of this presentation is on the extension of previous knowledge based on ongoing studies of radiation exposure cohorts.

10:15 a.m.–11:15 a.m.: *Update on ICRP Recommendations regarding Quantities Used in Radiation Protection (Open)*—The Committee will hear a presentation and hold a discussion with a representative of ORNL regarding radiation and tissue weighting factors and applications of factors for external exposure. The focus of this presentation will be on the new values derived and what has changed significantly since 1990.

11:15 a.m.–11:45 a.m.: *Public Comments (Open)*—Attendees to be provided an opportunity to make comments relevant to the purposes and objectives of the Working Group.

1 p.m.–3:30 p.m.: *Individual Protection (Selection of Constraints) (Open)*—The Committee will hear presentations and hold discussions with the panel of representatives from the NRC staff, EPA, CRCPD and the Mayo Clinic focused on the draft ICRP recommendations regarding limits and constraints. This technical session will focus on selection of constraints and limits and how such selections have been implemented and developed in the radiation protection practices in the United States. The thrust of this panel will be a discussion as to whether the 2004 draft recommendations imply significant change.

3 p.m.–3:30 p.m.: *Public Comments (Open)*—Attendees to be provided an opportunity to make relevant comments consistent with the purposes and objectives of the Working Group.

3:45 p.m.–5 p.m.: *Optimization of Protection (Open)*—The Committee will hear presentations and hold discussions with a representative of the NRC staff and a member of the ACRS regarding the optimization of protection in the June 2004 draft ICRP recommendations and how these principles are related to the current practices of ALARA in NRC regulated activities.

5 p.m.–5:30 p.m.: *Public Comments (Open)*—Attendees to be provided an opportunity to make comments relevant to the purposes and objectives of the Working Group.

5:30 p.m.–5:45 p.m.: *Closing Comments (Open)*—The Working Group Chairman will summarize the results of the Working Group and discuss possible follow-up activities.

Wednesday, October 20, 2004

10 a.m.–10:05 a.m.: *Opening Statement (Open)*—The ACNW Chairman will make opening remarks regarding the conduct of today's sessions.

10:05 a.m.–11:30 a.m.: *Update on the Status of the License Termination Rule (LTR) (Open)*—The Committee will receive an update by a representative of the NRC staff on the status of activities involving the LTR.

1 p.m.–2:30 p.m.: *Consolidated Issue Resolution Status Report (Open)*—The Committee will receive an update from a representative of the NRC staff on the current status of the Consolidated Issue Resolution Status Report.

2:30 p.m.–4:30 p.m.: *ACNW 2005 Action Plan (Open)*—The ACNW Committee will continue its discussion of potential topics for inclusion in the 2005 Action Plan.

Thursday, October 21, 2004

8:30 a.m.–8:35 a.m.: *Opening Remarks by the ACNW Chairman (Open)*—The Chairman will make opening remarks regarding the conduct of today's sessions.

8:35 a.m.–11:45 a.m.: *Preparation of ACNW Reports (Open)*—The Committee will discuss potential ACNW reports on matters discussed during this meeting. It may also discuss possible reports on matters discussed during prior meetings.

11:45 a.m.–12 Noon: *Miscellaneous (Open)*—The Committee will discuss matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

Procedures for the conduct of and participation in ACNW meetings were published in the *Federal Register* on October 16, 2003 (68 FR 59643). In accordance with these procedures, oral or written statements may be presented by members of the public. Electronic recordings will be permitted only during those portions of the meeting that are open to the public. Persons desiring to make oral statements should notify Mr. Howard J. Larson, [Telephone 301-415-6805], between 7:30 a.m. and 4 p.m. e.t., as far in advance as

practicable so that appropriate arrangements can be made to schedule the necessary time during the meeting for such statements. Use of still, motion picture, and television cameras during this meeting will be limited to selected portions of the meeting as determined by the ACNW Chairman. Information regarding the time to be set aside for taking pictures may be obtained by contacting the ACNW office prior to the meeting. In view of the possibility that the schedule for ACNW meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should notify Mr. Howard J. Larson as to their particular needs.

Further information regarding topics to be discussed, whether the meeting has been canceled or rescheduled, the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted, therefore can be obtained by contacting Mr. Howard J. Larson.

ACNW meeting agenda, meeting transcripts, and letter reports are available through the NRC Public Document Room at pdrc@nrc.gov, or by calling the PDR at 1-800-397-4209, or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS) which is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> or [http://www.nrc.gov/reading-rm/doc-collections/ACRS & ACNW](http://www.nrc.gov/reading-rm/doc-collections/ACRS&ACNW) Mtg schedules/agendas).

Video Teleconferencing service is available for observing open sessions of ACNW meetings. Those wishing to use this service for observing ACNW meetings should contact Mr. Theron Brown, ACNW Audiovisual Technician (301-415-8066) between 7:30 a.m. and 3:45 p.m. e.t., at least 10 days before the meeting to ensure the availability of this service. Individuals or organizations requesting this service will be responsible for telephone line charges and for providing the equipment and facilities that they use to establish the video teleconferencing link. The availability of video teleconferencing services is not guaranteed.

Dated: October 12, 2004.

Andrew L. Bates.

Advisory Committee Management Officer
 ER Doc. 04-23235 Filed 10-15-04 8:45 am
 BILLING CODE 7590-01-P

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Nuclear Waste Meeting on Planning and Procedures; Notice of Meeting

The ACNW will hold a Planning and Procedures meeting on October 20, 2004, Room T-2B3, 11545 Rockville Pike, Rockville, Maryland.

The entire meeting will be open to public attendance, with the exception of a portion that may be closed pursuant to 5 U.S.C. 552b(c) (2) and (6) to discuss organizational and personnel matters that relate solely to internal personnel rules and practices of ACNW, and information the release of which would constitute a clearly unwarranted invasion of personal privacy.

The agenda for the subject meeting shall be as follows:

Wednesday, October 20, 2004—8:30 a.m.—9:30 a.m.

The Committee will discuss proposed ACNW activities and related matters. The purpose of this meeting is to gather information, analyze relevant issues and facts, and formulate proposed positions and actions, as appropriate, for deliberation by the full Committee.

Members of the public desiring to provide oral statements and/or written comments should notify the Designated Federal Official, Mr. Howard J. Larson (Telephone: 301/415-6805) between 7:30 a.m. and 4:15 p.m. (ET) five days prior to the meeting, if possible, so that appropriate arrangements can be made. Electronic recordings will be permitted only during those portions of the meeting that are open to the public.

Further information regarding this meeting can be obtained by contacting the Designated Federal Official between 7:30 a.m. and 4:15 p.m. (ET). Persons planning to attend this meeting are urged to contact the above named individual at least two working days prior to the meeting to be advised of any potential changes in the agenda.

Dated: October 8, 2004.

John H. Flack,

Acting Associate Director for Technical Support, ACRS/ACNW.

ER Doc. 04-23237 Filed 10-15-04 8:45 am

BILLING CODE 7590-01-P

NUCLEAR REGULATORY COMMISSION

(NUREG/CR-6850)

EPR/NRC-RES Fire PRA Methodology for Nuclear Power Facilities, Draft for Comment

AGENCY: Nuclear Regulatory Commission (NRC).

ACTION: Notice of availability of "EPR/NRC-RES Fire PRA Methodology for Nuclear Power Facilities, Draft Report for Comment," and request for public comment.

SUMMARY: The Nuclear Regulatory Commission (NRC) is announcing the availability of NUREG/CR-6850, "EPR/NRC-RES Fire PRA Methodology for Nuclear Power Facilities Volume 1 and 2, Draft for Public Comment."

DATES: Comments on this document should be submitted by December 17, 2004. Comments received after that date will be considered to the extent practicable. To ensure efficient and complete comment resolution, comments should include references to the section, page, and line numbers of the document to which the comment applies, if possible.

ADDRESSES: Members of the public are invited and encouraged to submit written comments to Michael Lesar, Chief, Rules and Directives Branch, Office of Administration, Mail Stop T6-D59, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Hand-deliver comments attention to Michael Lesar, 11545 Rockville Pike, Rockville, MD, between 7:30 a.m. and 4:15 p.m. on Federal workdays. Comments may also be sent electronically to NRCREP@nrc.gov.

This document is available at the Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> under Accession No. ML042800183 and ML042800196; on the NRC Web site at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/docs4comment.html>; and at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD. The PDR's mailing address is USNRC PDR, Washington, DC 20555; telephone (301) 415-4737 or (800) 397-4205; fax (301) 415-3548; e-mail PDR@NRC.GOV.

FOR FURTHER INFORMATION, CONTACT: J.S. Hyslop, Probability Risk Assessment Branch, Office of Nuclear Regulatory Research, telephone (301) 415-6354; e-mail jsh2@nrc.gov; or Mark H. Sallev, Probability Risk Assessment Branch



APPENDIX B

UNITED STATES NUCLEAR REGULATORY COMMISSION ADVISORY COMMITTEE ON NUCLEAR WASTE WASHINGTON, D.C. 20555-0001

October 7, 2004

AGENDA 154th ACNW MEETING OCTOBER 19-21, 2004

**TUESDAY, OCTOBER 19, 2004, NRC AUDITORIUM, TWO WHITE FLINT NORTH,
ROCKVILLE, MARYLAND**

WORKING GROUP REVIEW OF THE INTERNATIONAL COUNCIL ON RADIATION PROTECTION (ICRP) JUNE 2004 RECOMMENDATIONS

- 1) 8:30 - 8:40 A.M. Opening Statement (Open) (MTR/JTL)
The ACNW Chairman will open the meeting with brief opening remarks.

The Working Group Chairman will state the Working Group Meeting (WGM) objectives and provide a technical session overview. Invited experts will also be introduced at this time.

WGM Purposes

The purposes of the WGM are: (1) to develop the information necessary to provide a letter report to the Commission; (2) to understand the technical bases for the draft June 2004 ICRP recommendations; (3) to review these recommendations against current NRC regulations and practice; and (4) to identify aspects of the ICRP recommendations that may warrant further study.

- 2) 8:40 - ~~9:10~~ A.M. NRC Staff Overview of June 2004 ICRP Recommendations
(Open)

2.1) Don Cool, NRC, will provide an overview of the June 2004 draft ICRP recommendations.

2.2) Discussion

- 3) ~~9:10~~ - 10:00 A.M. Biological Aspects of Radiation Protection (Open)

9:30

3.1) Presentation by an expert familiar with the radiation biology foundations of the ICRP recommendations.

The emphasis of this presentation is on the extension of previous knowledge based on ongoing studies of radiation exposure cohorts.

10:00 - 10:15 A.M. *BREAK*****

10:45 - 11:00

- 4) ~~10:15 - 11:15 A.M.~~ ^{9:30 - 10:45} Update on ICRP Recommendations regarding Quantities Used in Radiation Protection (Open)
 4.1) Presentation by Keith Eckerman, ORNL, an expert familiar with the ICRP recommendations regarding radiation and tissue weighting factors and applications of factors for external exposure. The focus of this presentation will be on the new values derived and what has changed significantly since 1990.
 4.2) Discussion
- 5) ~~11:15 - 11:45 A.M.~~ ^{11:00 - 12:20} Public Comments (Open)
 Attendees to be provided an opportunity to make comments relevant to the purposes and objectives of the Working Group.
~~12:00~~
11:45 - 1:00 P.M. *LUNCH*****
- 6) 1:00 - 3:30 P.M. Individual Protection (Selection of Constraints) (Open)
 Individual presentations or panel discussions with focus on the draft ICRP recommendations regarding limits and constraints. This technical session will focus on selection of constraints and limits and how such selections have been implemented and developed in the radiation protection practices in the United States. The thrust of this panel will be a discussion as to whether the 2004 draft recommendations imply significant change.
 1:00 - 1:30 P.M. ^{1:00} 6.1) Overview on major issues regarding limits and constraints; differences between 10 CFR Part 20 and the draft ICRP recommendations - Vince Holahan, NRC
 1:30 - 2:00 P.M. ^{1:30} 6.2) Presentation on EPA's Views on the New ICRP Recommendations - Michael Boyd (EPA)
 2:00 - 2:30 P.M. ^{2:00} 6.3) Presentation by Edgar Bailey (CRCPD)
 2:30 - 3:00 P.M. ^{2:30} 6.4) Presentation by Richard Vetter (Mayo Clinic)
- 7) ~~3:00 - 3:30 P.M.~~ ^{3:30 - 3:40} Public Comments (Open)
 Attendees to be provided an opportunity to make relevant comments consistent with the purposes and objectives of the Working Group.
~~3:30~~ ^{3:40 - 3:55}
3:30 - 3:45 P.M. *BREAK*****
- 8) ~~3:45 - 5:00 P.M.~~ ^{3:45 - 4:15} Optimization of Protection (Open)
 This technical session will examine the principles of optimization of protection in the June 2004 draft ICRP recommendations and how these principles are related to the current practices of ALARA in NRC regulated activities.
 3:45 - 4:15 P.M. ^{3:45} 8.1) Presentation by Don Cool, NRC
 4:15 - 4:45 P.M. ^{4:15} 8.2) Presentation by Dana Powers, a member of the Advisory Committee on Reactor Safeguards (ACRS)

- 4:40 4:50
- 9) ~~4:45~~ - 5:15 P.M. Public Comments
- 10) ~~5:15~~ - 5:30 P.M. Discussion of items for a possible letter report
4:50 - 5:20
- 11) 5:30 - 5:45 P.M. Closing Comments (Open) (MTR/NMC)
The Working Group Chairman will summarize the results of the Working Group and discuss possible follow-up activities.
- 5:45 P.M. **Adjourn**

WEDNESDAY, OCTOBER 20, 2004, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

- 12) 10:00 - 10:05 A.M. Opening Statement (Open) (MTR/JTL)
The Chairman will make opening remarks regarding the conduct of today's sessions.
- 13) 10:05 - 11:30 A.M. Update on the Status of the License Termination Rule (LTR) (Open) (MTR/RKM)
The Committee will receive an update by a representative of the NRC staff on the status of activities involving the LTR.

11:30 - 1:00 P.M. *LUNCH*****

- 14) 1:00 - 2:30 P.M. Consolidated Issue Resolution Status Report (Open) (MTR/MPL)
The Committee will receive an update from a representative of the NRC staff on the current status of the Consolidated Issue Resolution Status Report.
- 15) 2:30 - 4:30 P.M. ACNW 2005 Action Plan (Open) (MTR/JTL)
The ACNW Committee will continue its discussion of potential topics for inclusion in the 2005 Action Plan.

THURSDAY, OCTOBER 21, 2004, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

- 16) 8:30 - 8:35 A.M. Opening Statement by the ACNW Chairman (Open) (MTR/JTL)
The Chairman will make opening remarks regarding the conduct of today's session.
- 17) 8:35 - 11:45 A.M. Preparation of ACNW Reports (Open) (All)
The Committee will discuss potential reports on:
17.1) UO₂ Dissolution (RFW/RPS)
17.2) Report on September 2004 Igneous Activity Working Group (MTR/MPL)

- 17.3) Draft ICRP Standard (MTR/NMC)
- 17.4) Report on License Termination Rule Update (MTR/RKM)
- 17.5) Consolidated Issue Resolution Status Report (MTR/MPL)

18) 11:45 – 12:00 Noon Miscellaneous (Open)

The Committee will discuss matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

12:00 Noon Adjourn 154th ACNW Meeting

NOTE:

- **Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.**
- **Thirty-five (35) hard copies and (1) electronic copy of the presentation materials should be provided to the ACNW.**
- **ACNW meeting schedules are subject to change. Presentations may be canceled or rescheduled to another day. If such a change would result in significant inconvenience or hardship, be sure to verify the schedule with Mr. Howard Larson at 301-415-6806 between 8:00 a.m. and 4:00 p.m., several days prior to the meeting.**

APPENDIX C: MEETING ATTENDEES

**154TH ACNW MEETING
OCTOBER 19-21, 2004**

ACNW STAFF

John Larkins
Neil Coleman
John Flack
Michele Kelton
Latif Hamdan
Michael Lee
Richard Major
Richard Savio

CONSULTANT

James Clarke

ATTENDEES FROM THE NUCLEAR REGULATORY COMMISSION

OCTOBER 19, 2004

P. Reed	RES
R. Einziger	NMSS
R. Schaaf	NRR
V. Holahan	RES
J. Rubenstone	NMSS
J. DeCicco	NMSS
T. Essig	NMSS
M. Waters	NMSS
S. Wastler	NMSS
T. Harris	NMSS
R. Meck	RES
P. Justus	NMSS
A. Turner	NMSS
J. Mitchell	RES
S. Murata	NMSS
D. Cool	NMSS
T. Brack	STP
T. Mo	RES
G. Powers	RES
S. Bush-Goddard	RES
G. Gnugnoli	NMSS
R. Pedersen	NRR

APPENDIX C
154TH ACNW MEETING
OCTOBER 19-21, 2004

ATTENDEES FROM THE NUCLEAR REGULATORY COMMISSION (CONT'D)

OCTOBER 20, 2004

J. Shepherd	NMSS
G. Gnugnoli	NMSS
K. Banovac	NMSS
A. Turner	NMSS
D. Widmayer	NMSS
A. Ridge	NMSS
C. McKenney	NMSS
J. Rubenstone	NMSS
K. Stablein	NMSS
P. Reed	RES
M. Young	OGC
P. Justus	NMSS
D. Brooks	NMSS
R. Codell	NMSS
S. Murata	NMSS

OCTOBER 21, 2004

V. Holahan	RES
D. Cool	NMSS

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC

OCTOBER 19, 2004

J. York	Bechtel-SAIC Co.
N. Henderson	Bechtel-SAIC Co.
J. Shaffner	MTS E
E. Von Tiesenhausen	CCCP
L. Fairbent	AAPM
R. Andersen	Nuclear Energy Institute
C. Flannery	Self
M. Boyd	U.S. Environmental Protection Agency
Han-Haing Tseng	FCMA, Taiwan
J. Phifer	Department of Energy
J. Russell	Center for Nuclear Waste Regulatory Analyses

APPENDIX C
154TH ACNW MEETING
OCTOBER 19-21, 2004

ATTENDEES FROM OTHER AGENCIES AND GENERAL PUBLIC (CONT'D)

OCTOBER 20, 2004

E. von Tiesenhausen
J. Shaffner
N. Henderson
Han-Haing Tseng

CCCP
PARRALAX/BAH
Bechtel-SAIC Co.
FCMA, Taiwan

OCTOBER 21, 2004

E. von Tiesenhausen
N. Henderson

CCCP
Bechtel-SAIC Co.

APPENDIX D: FUTURE AGENDA

The Committee approved the following topics for discussion during its 155th meeting, scheduled for November 16–18, 2004:

- Semiannual Briefing of the Office of Nuclear Material Safety and Safeguards Division Directors
- International Transportation Meetings
- Content and Format of the U.S. Department of Energy Yucca Mountain License Application
- ACNW 2005 Action Plan
- Working Group Planning Session
- Preparation of ACNW Reports

APPENDIX E
LIST OF DOCUMENTS PROVIDED TO THE COMMITTEE

[Note: Some documents listed below may have been provided or prepared for Committee use only. These documents must be reviewed prior to release to the public.]

MEETING HANDOUTS

<u>AGENDA</u>	<u>DOCUMENTS</u>
<u>ITEM NO.</u>	

WORKING GROUP REVIEW OF THE INTERNATIONAL COUNCIL ON RADIATION PROTECTION (ICRP) JUNE 2004 RECOMMENDATIONS

- | | |
|------------------|---|
| 2 & 3 | <u>NRC Staff Overview of June 2004 ICRP Recommendations</u> <ol style="list-style-type: none">1. Overview of Draft ICRP Recommendations, presented by Donald Cool, NMSS [<u>Viewgraphs</u>] |
| 4 | <u>Update on ICRP Recommendations Regarding Quantities Used in Radiation Protection</u> <ol style="list-style-type: none">2. Radiation Protection Quantities, presented by Keith Eckerman, Oak Ridge National Laboratory [<u>Viewgraphs</u>] |
| 6 | <u>Individual Protection (Selection of Constraints)</u> <ol style="list-style-type: none">3. 2005 ICRP Recommendations—Significant Change?, presented by E. Vincent Holahan, RES [<u>Viewgraphs</u>]4. An EPA Perspective on the ICRP's Proposed Individual Protection Recommendations, presented by Michael Boyd, EPA [<u>Viewgraphs</u>]5. ICRP June 2004 Recommendations, presented by Edgar Bailey, Conference of Radiation Control Program Directors [<u>Viewgraphs</u>]6. Potential Impact of ICRP 2005, presented by Richard Vetter, Advisory Committee on the Medical Use of Isotopes [<u>Viewgraphs</u>] |
| 8 | <u>Optimization of Protection</u> <ol style="list-style-type: none">7. Optimization of Protection, presented by Donald Cool, NMSS [<u>Viewgraphs</u>] |
| 13 | <u>Update on the Status of the License Termination Rule</u> <ol style="list-style-type: none">8. Accomplishments and Plans for License Termination Rule Analysis Actions, presented by Robert Johnson, NMSS [<u>Viewgraphs</u>] |

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154TH ACNW MEETING
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MEETING HANDOUTS (CONT'D)

<u>AGENDA</u>	<u>DOCUMENTS</u>
<u>ITEM NO.</u>	

14	<u>Consolidated Issue Resolution Status Report</u>
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- | | |
|----|---|
| 9. | Integrated Issue Resolution Status Report, An Update of the Report Issued in 2002, presented by James Rubenstone, NMSS [Viewgraphs] |
|----|---|

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MEETING NOTEBOOK CONTENTS

**TAB
NUMBER**

DOCUMENTS

Agenda, 154th ACNW Meeting, October 19–21, 2004, dated October 7, 2004

Color Code - 154th ACNW Meeting, dated October 8, 2004

Opening Statement by ACNW Chairman

1. Introductory Statement by ACNW Chairman, Tuesday, October 19, 2004, undated
2. Items of Interest for 154th ACNW Meeting, undated
3. Introductory Statement by ACNW Chairman, Wednesday, October 20, 2004 undated
4. Introductory Statement by ACNW Chairman, Thursday, October 21, 2004 undated

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Update on the Status of the License Termination Rule

5. Table of Contents
6. Schedule
7. Status Report
8. NRC Regulatory Issue Summary 2004–08 Results of the License Termination Rule Analysis
9. Nuclear Regulatory Commission Staff Guidance for a Long-Term Control Possession-Only License at the Shieldalloy Metallurgical Corporation Site In Newfield, New Jersey
10. LTR Analysis Followup Action (*Internal Use Only*)
11. Staff Requirements – SECY-03-0069—Results of the License Termination Rule Analysis

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154TH ACNW MEETING
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MEETING NOTEBOOK CONTENTS (CONT'D)

<u>TAB</u> <u>NUMBER</u>	<u>DOCUMENTS</u>
14	<u>Consolidated Issue Resolution Status Report</u> 12. Status Report