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JOINT ACRS/ACNW SUBCOMMITTEE
MEETING MINUTES
MARCH 26, 1996
ROCKVILLE, MARYLAND

INTRODUCTION

The Joint ACRS/ACNW Subcommittee held a meeting on March 26, 1996, in Room T-2B3, 11545 Rockville Pike, Rockville, Maryland to hear from the NRC staff and representatives of the Massachusetts Emergency Management Agency and the National Council on Radiation Protection and Measurements (NCRP)on three subjects: the activities of the Spent Fuel Project Office, decommissioning, and the health effects of low-level radiation. The meeting was open to public attendance. Roxanne Summers was the Designated Federal Official for this meeting. Several written comments were received from the public but no requests for time to make oral statements. The meeting was convened by the Subcommittee Chairman at 8:30 a.m. and adjourned at 6:05 p.m. on March 26, 1996.

ATTENDEES

ACRS Members

T. Kress, Vice Chairman
R. Seale
W. Shack
D. Miller

ACNW Members

J. Garrick, Subcommittee Chairman
M. Steindler

Principal NRC Speakers

W. Travers, NMSS
C. Haughney, NMSS
M. Weber, NMSS
S. Weiss, NRR
C. Trottier, RES
J. Glenn, RES
C. Paperiello, NMSS
M. Pollycove, NMSS
C. Willis, NRR

DESIGNATED ORIGINAL

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Invited Speakers

J. Muckerheide, Massachusetts Emergency Management Agency

R. Kathren, National Council of Radiation Protection and Measurements

In addition, about 18 other NRC staff members and 15 others attended the meeting. A listing of those attendees who registered is available in the ACRS office files. Public participation during this meeting consisted of seven written statements which were read aloud or made a part of the written record.

DISCUSSION OF AGENDA ITEMS

Dr. John Garrick, Subcommittee Chairman, convened the meeting, introduced the other Subcommittee members, and made the following opening remarks:

- the purpose of the meeting is to review issues that were of interest to both the Advisory Committee on Reactor Safeguards (ACRS) and the Advisory Committee on Nuclear Waste (ACNW)

- the meeting is being held in accordance with the provisions of the Federal Advisory Committee Act,

- the meeting has three topics for discussion and each discussion will be led by a Subcommittee member: Dr. Kress, the activities of the Spent Fuel Project Office; Dr. Garrick, decommissioning; and Dr. Steindler, health effects of low-levels of ionizing radiation. The purpose of the health effects portion of the meeting is to gather preliminary information and to determine if the subject warrants further attention.

- at the conclusion of the discussion of technical topics, a fourth portion of the meeting will be held to discuss follow-up actions, the need for future meetings, potential topics of interest, and other items.

SPENT FUEL PROJECT OFFICE (SFPO)

[Note: Mr. N. Dudley was the Designated Federal Official for this portion of the meeting.]

Introduction

Dr. Thomas Kress introduced the presentation by noting that the SFPO staff has appropriate regulations, an action plan to resolve open issues, and a draft standard review plan. He stated that the staff licensing and certification reviews consist of a defense-in-depth approach and the use of design-basis type accidents. Dr. Kress expressed an interest in hearing about staff plans for the application of risk analysis to spent fuel storage issues.

NRC Staff Presentation

Mr. William Travers, Director, SFPO, Office of Nuclear Materials Safety and Safeguards (NMSS), provided information on the creation, responsibilities, and organizational structure of the SFPO. He presented the current and anticipated dry cask storage system review casework, the Dry Cask Storage Action Plan, and the draft Standard Review Plan for Dry Cask Storage Systems. The SFPO was created to centralize regulatory activities associated with the proliferation of applications for spent fuel transportation and storage systems, caused by the lack of a permanent spent fuel repository. Many different single purpose transportation casks and dry storage systems have been licensed. The staff expects to receive vendor applications for the design and manufacture of dual-purpose and multi-purpose canisters.

Dry storage of spent fuel at licensee facilities can be licensed under a general license, 10CFR Part 72 Subpart K, or a site specific license, 10CFR Part 72. Issues being addressed by the SFPO staff include inconsistent licensee performance, fabricators and vendors not observing quality assurance program principles, poor documentation of design change evaluations for unreviewed safety questions, and lack of public confidence.

Mr. Charles Haughney, Deputy Director, SFPO, explained the near-term and long-term issues presented in the Dry Cask Storage Action Plan. The most safety significant issues are fuel handling, consideration of burnup credit, proper closure and sealing of cask lids, the handling of failed fuel in storage and transportation casks, and moving heavy loads. The staff plans several workshops and public outreach activities to explain SFPO expectations.

The Subcommittee members and the SFPO staff discussed regulatory requirements associated with certified transportation casks, the use of burnup credit in criticality calculations, the potential for cask corrosion, the role of risk assessment in the regulatory process, the licensing criteria for dual-purpose canisters, and the maintenance of high-performance systems over long periods of time. The Subcommittee expressed the desire to obtain additional information on staff activities related to the application of burnup credit, storage of failed fuel elements, licensing of multi-purpose casks, and the results of the Brookhaven National Laboratory risk studies.

Conclusion

The Subcommittee decided not to comment on the Standard Review Plan for Dry Cask Storage Systems at this time.

DECOMMISSIONING

[Mr. Howard J. Larson was the Designated Federal Official for this portion of the meeting.]

Chairman B. J. Garrick introduced the topic, noting that background information would be presented on the status of decommissioning activities for both reactors and nonreactor facilities. The present status of the decommissioning rule previously reviewed by ACRS and the proposed residual contamination rule previously reviewed by ACNW were also on the agenda.

He noted that a fax had been received from the Citizen's Awareness Network providing comments on the decommissioning rule and on the effects of low-levels of ionizing radiation and stated that these comments would be entered into the record.

Dr. Garrick noted several issues related to the topic, such as:

1. the delay in the Federal waste system to begin accepting spent fuel,

2. the continuing unavailability of off-site low-level radioactive waste disposal sites,

3. the high cost associated with maintaining the reactor spent fuel pool, and

4. the bases for the decommissioning cost estimates and funding evaluations (further complicated by the case of prematurely shutdown reactors).

NRC Presentation

He then introduced the first speaker, Mr. M. F. Weber, NMSS, who presented an overview of NRC's decommissioning program and responsibilities. The Office of Nuclear Reactor Regulation (NRR) is responsible for the licensing of power reactor decommissionings prior to removal of fuel and the licensing of nonpower reactor decommissionings, whereas NMSS is responsible for the subsequent power reactor decommissioning activities and the decommissioning activities for materials and fuel cycle facilities. NMSS is also responsible for NRC's Site Decommissioning Management Plan (SDMP). Regional Offices are responsible for the inspection and enforcement of licensee decommissionings and the licensing of materials facility decommissioning. Currently, the Office of Nuclear Regulatory Research (RES) is responsible for developing a rule to establish and update decommissioning requirements.

Mr. Weber then discussed the decommissioning of materials facilities, noting that the NRC terminates about 300 licenses each year, with less than 10% being classed as nonroutine. In

addition, NMSS is reviewing the status of formerly terminated licenses. He outlined the decommissioning process for fuel cycle and SDMP facilities and discussed several policy issues (e.g., poor recordkeeping; lack of schedule constraints, adequate procedures for termination and surveys, and residual radioactivity standards; and inadequate financial assurance requirements). After discussing solutions underway for each policy issue, Mr. Weber closed with a summation of remaining challenges.

Dr. Steindler asked about the status of NRC research efforts in this area and was told that NMSS owes RES a "User Need" letter. That letter has been delayed due to the dearth of internal resources necessary for outlining such related needs.

Mr. S. Weiss, NRR, the next presenter, discussed decommissioning alternatives (DECON, SAFSTOR AND ENTOMB), noting that 64 research and test reactor licenses have been terminated, 11 such reactors with Possession-only Amended Licenses, and 17 power reactors in the decommissioning process (Pathfinder and Shoreham have been completed and Ft. St. Vrain is in the process of being dismantled). The status of each power reactor undergoing decommissioning was next highlighted.

He also discussed the current regulatory process for premature decommissioning and current rulemaking activities (e.g., radiological release criteria for decommissioning facilities, the decommissioning rule, revisions to the spent fuel pool fire sequence, physical protection for storage of spent fuel, and decommissioning cost and funding evaluations). Technical guidance documents currently in process are: the preparation of a Standard Format and Content Guide for Decommissioning, staff guidance for review and inspection planning, and a new guide to replace Regulatory Guide 1.86, which is important in establishing the acceptable level of residual radioactivity.

Committee members asked the significance of the 60-year period for SAFSTOR and ENTOMB and were informed that the period was based on the half-life of cobalt-60 (i.e., after approximately 10 half-lives, little or no CO-60 would remain). In response to a question asking how a state could impact - or stop - the decommissioning of a power reactor facility, Mr. Weiss noted the laws of some states granted such authority to the state.

Ms. C. A. Trottier, RES, next discussed the proposed decommissioning rule, summarizing its principal requirements and the positions provided in the comment letters (34) received. (It was noted that the proposed rule had been previously discussed with the ACRS, who had written a Committee letter to the Commission on the topic.) She discussed comments both for and against each of the proposed rule changes. The proposed final draft rule was expected to be submitted to the Executive Director

for Operations shortly and would go to the Commission in April.

In responding to Dr. Kress' question regarding the impact of the public comments on the initial draft, Ms. Trottier noted that although a few changes were made to the rule as a result of public comments, she did not consider any of them to be "major." Dr. Garrick asked if any reactor decommissioning had been completed under budget. It was believed that both Shoreham and Ft. St. Vrain had been decommissioned for less than the anticipated cost level.

Dr. J. Glenn next discussed the rulemaking issues associated with the Radiological Criteria for License Termination (a topic previously discussed with the ACNW). After discussing the background and history of the rule, he noted that 101 comments had been received, representing a broad spectrum. The general reaction to the issues raised in the Federal Register Notice [15 millirem/year, use of ALARA (as low as reasonably achievable), restricted release, 100 millirem/year cap, use of Site Specific Advisory Boards] varied, as did the reaction to the general provisions related to use of the Environmental Protection Agency (EPA) drinking water standard and the requirement for a 1000-year post-decommissioning performance analysis calculation.

In response to a question from a Subcommittee member, he stated that he was unable to provide final staff recommendations since the document is in the rulemaking process. Dr. Glenn indicated, in response to another question, that the staff would have to look into the question of whether NRC must comply if the EPA should decide to set a lower standard.

Conclusion

The Committee will consider this topic again when the related Brookhaven National Laboratory study is completed.

HEALTH EFFECTS OF LOW-LEVELS OF IONIZING RADIATION

[Ms. Roxanne Summers was the Designated Federal Official for this portion of the meeting.]

Dr. Garrick began the afternoon portion of the meeting by reading written statements submitted by members of the public and by entering into the record those that were too long to be read aloud. Dr. Steindler noted that the proceedings of an international conference in 1992 stated that epidemiological studies of human populations cannot definitively show the existence of adverse effects of low doses of radiation. He also mentioned the recent Health Physics Society position that quantification of radiation doses of less than 5 rem per year or 10 rem per lifetime is unwarranted. Dr. Steindler concluded by

stating that more studies on this subject are being published and the NRC would have to address the issue. He then introduced Carl Paperiello.

NRC Presentation

Carl Paperiello, Director, NMSS, began by stating that, as a physicist, a scientist, and a health physicist, he did not believe the linear no-threshold theory was valid. However, as a regulator, he applied that theory every day. The application of a collective dose is based on that theory and both are pervasive at the NRC, explicitly and implicitly.

Dr. Paperiello pointed out that the 5-rem limit for workers has an empirical basis and that, in fact, no health effects have ever been found in the working population. Nevertheless, the basic principles of Part 20 are derived from a linear model, and much of the NRC procedures and guidance are derived from 10 CFR Part 20 regulations. The ALARA principle is a consequence of the linear model. If it were found to be erroneous, the practical implications would be broad and deep, particularly for nonoccupational exposure, and would affect limits imposed by NRC, Department of Energy (DOE), and EPA.

He stated that the costs associated with establishing dose limits in the range of 10 to 20 millirem/year and the methods to demonstrate compliance are resource-intensive for the NRC, and clean-up costs for NRC licensees and DOE facilities are likely to be in the billions of dollars. This suggests that the theoretical basis for these risk estimates should be reexamined, particularly when comparable limits are not being applied to other, more widespread sources of radiation at comparable levels. He recommended that Subcommittee members study the background documents showing how the linear model grew from a pragmatic hypothesis to what appears to be presented as an unquestioned given scientific fact today.

James Muckerheide

Mr. Muckerheide, Massachusetts Emergency Management Agency, began by stating that, as a result of a request by the Massachusetts Governor's Advisory Council on Radiation Protection, he became aware of a large body of information on the health effects in terms of human populations and to a lesser extent, radiobiological data. He referred to a report from 1973 by Norman Frigerio that could not prove the linear model through a rigorous analysis. Mr. Muckerheide pointed out that parts of Massachusetts contain levels of naturally-occurring radiation that vary by a factor of 100. Therefore the level of clean-up of Yankee Rowe, for example, might, if applied to another part of the State, require removing granite from the earth or even removing the State House building.

Mr. Muckerheide gave detailed descriptions of a number of other studies (e.g., in China, by Sohei Kondo; by Walinder from Sweden; by Jaworowski, of Poland; and by Bernard Cohen and Robley Evans in the United States) that questioned the linear theory based on the fact that high levels of naturally occurring radiation did not produce the expected higher cancer or mortality ratios. Mr. Muckerheide also referred to studies of certain human populations exposed to high industrial radiation doses, such as the radium dial painters, who also had lower-than-expected levels of cancer.

He pointed out that a number of biological studies have found a lack of correlation between health effects and the linear model, or even a inverse correlation, and these studies were consistently termed "anomalous." He traced the fear of radiation to a well known industrialist named Eben Byers who drank large quantities of Radithor (a mineral water containing large amounts of naturally occurring radioisotopes) for three years and died in 1932. At that point, the Food and Drug Administration took over regulatory authority for radiation and radioactivity and public fear set in.

Mr. Muckerheide concluded by saying that the President of the Health Physics Society, Marvin Goldman, estimated that a trillion dollars is being spent for negligible, if any, public health benefits in clean-up and decommissioning, not to mention the failure to take advantage of nuclear technology. The regulators, whether state, local, or national, add to the perception of risk when they over-respond to incidents that have no real potential health effects, thus confirming the public's fear.

National Council for Radiation Protection and Measurements (NCRP) Presentation

Ronald Kathren, Chair of the NCRP Scientific Committee SC1-3 that prepared Report 121 on "Principles and Application of Collective Dose in Radiation Protection," stated that the scientific bases for the report included reviewing the existing evidence of genetic and somatic effects, both on a cellular level and on animal and human studies. The report concluded that the evidence that existed when the report was written "was consistent with a linear, no-threshold response at low doses." The report also noted, however, that "few experimental studies and essentially no human data can be said to prove or even provide direct support for the concept of collective dose."

Mr. Kathren stated that collective dose really addresses societal risk, not individual risk, and it differentiates between the two. He discussed four of the nine recommendations made by the report:

- that the concept of collective dose is but one of many for assessing acceptability of a facility or a practice in which there will be an associated radiological exposure;

- that regulatory limits should not be set in terms of collective dose and that collective dose applications should be limited to those stochastic effects and to the dose range in which risk and dose are assumed to be proportional and dose rate-independent;

- that present and future population uncertainties must be considered when predicting effects far into the future;

- that when the collective dose is smaller than the reciprocal of the relevant risk coefficient, it should be noted that the most likely number of excess cancers is zero.

Health Physics Society

Mr. Charles Willis, NRR, was asked to give a brief account of the position that the Health Physics Society (HPS) recently published. Mr. Willis is on the Board of Directors of HPS. He stated that it is the opinion of HPS that the secondary effects of overprotecting the population from radiation were devastating: the ten thousand people a year that are killed by failure to use radiation as a means of pasteurizing food, the impact of research in medicine, etc. are resulting in a great deal of damage. The reason for choosing 10 rem per lifetime, while allowing 5 rem per year was simply because the BEIR V report used the 10 rem cutoff, saying it was not clear that an effect from amounts below that could be detected. On a question by Dr. Steindler, Mr. Willis replied that the 5 rem per year did not assume that someone would have that rate of exposure throughout a lifetime. The 10 rem per lifetime was also an estimate, not an absolute cutoff.

Dr. Pollycove, NRC Visiting Medical Fellow

Dr. Pollycove began by describing how the damage to DNA is caused predominantly by free radicals produced by ionizing radiation but is also caused by other basic damage. The mutations initiate changes in the DNA which then develop, induce cancer, and form tumors. In the absence of data from the effect of low doses, it seemed reasonable to extrapolate and use the linear model. Where data from low doses showed little or no effect, the tendency was to use only the data points that showed high dose damage and consider the data showing decreased risk as anomalous. Although early epidemiological studies showed that areas with high background radiation had decreased mortality and decreased cancer, compared to low background areas, these studies were discarded because of poor controls, poor public health data and measurements, lack of individual dosimetry, etc..

However, Dr. Pollycove stated that good data with high statistical power and good controls now exist. He cited a 10-year study by Johns Hopkins University of 700,000 nuclear shipyard workers that demonstrated a decrease in mortality of

those who had received 0.5 rem or more of lifetime exposure, with some exposures as high as 40 or 50 rem. The mortality rate was .76 percent that of the control group, with a 95 percent confidence limit of .73 to .79, and there was no increase in leukemia, lymphatic or hematopoietic cancers. The control group of nonshipyard workers was carefully matched with shipyard workers as to age, level of health, etc., and the shipyard workers not exposed to radiation had exactly the same mortality rate as those in the outside control population.

Dr. Pollycove also discussed several other studies, including Hiroshima and Nagasaki data, Canadian data, and the B.L. Cohen study comparing radon levels in U.S. counties with cancer statistics. He stated that when these studies have shown a beneficial effect from low doses of ionizing radiation, they have also frequently been dismissed as anomalies.

He then pointed out that the 1994 UNSCEAR report provides extensive documentation of many cellular repair mechanisms, including the immune system, that are stimulated by low-dose radiation. He added that there is no essential difference between the intrinsic damage to DNA as a result of normal cellular metabolism and damage caused by radiation. Altogether, DNA undergoes about 10,000 mutations per hour per cell, or 240,000 mutations per day per cell. The additional damage done by a dose of 20 rem would be 400 mutations--a very small addition compared to 240,000. Dr. Pollycove explained that the body's repair mechanism handles this level of damage well in most people under the age of 45 to 50. Because the ability to repair the 240,000 mutations gradually decreases with age (about 1 percent/year), susceptibility to cancer noticeably increases around 45-50 years.

Dr. Pollycove stated that the repair mechanism is actually boosted by radiation in the lower dose ranges. The additional incremental damage is very small but the additional stimulatory effect of low-dose radiation causes a decrease in cancer cells, even in those areas not actually irradiated. This effect can be seen in a Japanese experimental study that consistently showed patients with non-Hodgkin's lymphoma having a 90 percent survival rate using the low-dose (e.g., 10 rem twice a week) radiation treatment, compared with a survival rate of 35-36 percent with chemotherapy. The UNCSEAR 1994 report shows many repair mechanisms -- nearly 1,000 references -- similarly affected by low-dose radiation stimulation. At much higher doses of radiation (e.g., 200 rem), the cellular repair function is itself impaired and the beneficial effect is negated.

Finally, Dr. Pollycove demonstrated the use of a mathematical model developed by Dr. Kenneth Bogen at Lawrence Livermore National Laboratory, called a cytodynamic model based on known biological mechanisms of repair. This model predicts incidence

of cancer as a result of radiation exposure.

The key point emphasized by Dr. Pollycove is that the function to study is not the number of mutations produced but the DNA repair capacity. When stimulated at low doses, a beneficial effect on the repair mechanism is obtained, and when impaired at high doses, a detrimental effect occurs. The key is the repair mechanism, whether it is affected by genetics, aging, or radiation. It is a consistent picture that can be modeled and adjusted.

Dr. Pollycove concluded by stating that the key to science is a simple statement: if the theory disagrees with the experiment, the theory is wrong.

Discussion

During a brief discussion period that followed Dr. Pollycove's presentation, Mr. Kathren stated that there may or may not be a hormetic effect. The original linear theory was based on a study of radiation effects on fruit flies in the 1920s by Herman Mueller. That study and concern about nuclear fallout caused the various groups to use a linear, non-threshold theory because it was a simple, relatively satisfying mathematical relationship, and almost anyone could understand it.

Dr. Steindler summarized the session as follows:

- Carl Paperiello presented the practical constraints under which the NRC operates, which may differ from the science.
- Jim Muckerheide indicated that the evidence against the linear hypothesis was strong and much of it had been suppressed until recently.
- Ron Kathren gave a carefully qualified and circumscribed discussion of the collective dose calculations, pointing out that collective doses are societal, not individual.
- Dr. Pollycove presented data from the UNSCEAR report and elsewhere that substantiated an understandable mechanism for stimulation of the DNA repair mechanism by radiation.

Dr. Steindler identified the problem of the quality of control populations and the impact of the surrounding environment that could confound the data or at least challenge them. He noted that what has been discussed at this meeting would not only cause a major shift in essentially all regulations, but would have an enormous economic impact and could probably be implemented only after extensive litigation. Dr. Steindler posed the following questions: Would the NRC Commissioners consider that a worthwhile effort? Do we have a mechanism for determining the

threshold? How good is the science?

To the last question, Dr. Pollycove stated that he trusted the data in the Nuclear Shipyard Workers Study and the Canadian fluoroscopy study because both studies were designed to prove the opposite, and everything possible was done to avoid getting data that refuted the linear theory. When such data were obtained in the Canadian study, they were hidden. Although DOE spent $10 million for the shipyard study, the report was never released. It was finally published in the Health Physics Newsletter.

Mr. Muckerheide added that there is data not being fairly addressed. Not all the answers are available because some of the sources of data and sources of work have been interrupted. Funds have not been made available to disprove the linear theory, although funds are available for studies to prove negative effects of radiation exposure.

Mr. Paperiello suggested that while regulators are applying very low dose restrictions on some sources of radiation, other naturally occurring sources are being ignored. The background radiation dose from exposure to coal ash is ten times natural background, for example. We use the pronouncements of certain groups such as NCRP because that is all we have.

Dr. Miller stated that NRC regulations should be based on scientific truth. NRC should be conservative, but when there is sufficient data to reexamine its regulatory basis, NRC should do it and deal with the consequences. NRC should not regulate in the realm of politics but in the realm of science.

Dr. Kress suggested that the NRC does not deal well with uncertainties, particularly large and unquantified uncertainties.

Dr. Garrick stated that the information on which the public can base an opinion is rarely presented in a form that can be easily understood. The remediation phase of the weapons sites is an ideal situation to try to remedy this, with costs ranging from $250 billion to a trillion dollars. The impact of regulating on the linear theory versus the hormesis theory should be quantified in terms of resources, cost, and safety.

Mr. Muckerheide added that there were experiments that could prove the effect of low doses.

Conclusion

Drs. Garrick and Steindler would draft a letter to be approved by both Full Committees.

SUBCOMMITTEE COMMENTS AND CONCERNS

Spent fuel storage:

Subcommittee Members raised concerns in the following areas:

- regulatory requirements associated with certified transportation casks
- the use of burnup credit in criticality calculations
- the potential for cask corrosion
- the role of risk assessment in the regulatory process
- the licensing criteria for dual-purpose canisters
- the maintenance of high-performance systems over long periods of time.

The Subcommittee asked for additional information on :

- staff activities related to the application of burnup credit
- storage of failed fuel elements
- licensing of multi-purpose casks
- the results of the Brookhaven National Laboratory risk studies.

Decommissioning

Subcommittee Members raised concerns in the following areas:

- assuring that the spent fuel pool remains functional while large components of the reactor are being removed
- the need for a code to model the consequences of partial drainage of the pool

Health Effects of Low Levels of Ionizing Radiation

Subcommittee Members raised concerns in the following areas:

- the quality of control populations and the impact of the surrounding environment that affect the data obtained on health effects of low levels of radiation
- whether the data currently available is adequate and

whether it has been fairly addressed

- low dose restrictions are applied to some sources of radiation but not to others
- NRC's regulatory basis should be scientific truth, not political truth
- the NRC does not deal well with uncertainties, particularly those that are large and unquantified
- information for the public is not presented in a form that is easily understood by the general public
- the NRC should quantify the impact of regulating on the linear theory vs. the hormesis theory in terms of resources, cost, and safety.

SUBCOMMITTEE RECOMMENDATIONS

- Spent fuel storage would not be discussed further by the Subcommittee. The Standard Review Plan would not be recommended for review by a Full Committee at this time.
- Decommissioning would be discussed again when the results of the Brookhaven study were available.
- A report to the Commission on the health effects of low-level radiation would be drafted by Drs. Garrick and Steindler, to be forwarded to both Full Committees for signature.
- The next meeting of the Subcommittee would be held on August 1-2, 1996. The subjects, in addition to decommissioning, would include the agency's safety analysis philosophy and expert judgment.
- Dr. Garrick would remain the Subcommittee Chairman for this year. Dr. Kress would become the Chairman for the following year. The membership of the Committee would remain the same, but additional members from either Full Committee were welcome to attend and participate fully.

The meeting adjourned at 6:05 p.m. on March 26, 1996.

For further details with respect to the proposed action, see the licensee's letter dated November 18, 1991, as supplemented by letter dated July 10, 1992, which are available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Brooks Memorial Library, 224 Main Street, Brattleboro, VT 05301.

Dated at Rockville, Maryland, this 27th day of February, 1996.

For the Nuclear Regulatory Commission.

Ledyard B. Marsh,

Director, Project Directorate I-1, Division of Reactor Projects—I/II, Office of Nuclear Reactor Regulation.

[FR Doc. 96-5205 Filed 3-5-96; 8:45 am]

BILLING CODE 7590-01-P

Public Workshop on the Nuclear Regulatory Commission's Materials Licensing Process

AGENCY: Nuclear Regulatory Commission (NRC).

ACTION: Notice of meeting.

SUMMARY: The NRC will hold a public workshop in Rockville, Maryland, to receive input from licensees and the public on its recent initiative to redesign the materials licensing process. All interested licensees, and members of the public are invited to attend this workshop. The NRC has prepared a workshop agenda and background information on the project. They will be available for review after April 11, 1996. Attendees, who would like a package in advance of the meeting, should call, fax, or E-mail the contact listed in this notice. Interested parties, unable to attend the workshop, are encouraged to provide written comments pertinent to the process, by May 11, 1996.

DATES: The workshop will be held on April 25, 1996, beginning at 9 a.m. and ending at 5 p.m.

ADDRESSES: The public workshop will be held in the NRC auditorium at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland. Visitor parking around the NRC building is limited; however, the workshop site is located adjacent to the White Flint Station on the Metro Red Line. Seating for the public will be on a first-come, first-served basis. Written comments may be provided at the workshop or to the Secretary, U.S. Nuclear Regulatory Commission, Washington DC 20555, Attention: Docketing and Service Branch. Written comments should be submitted on or before May 11, 1996. Copies of the agenda and related documents can be obtained, after April 11, 1996, from the NRC contact listed below, or from the NRC's Public Document Room, 2120 L Street NW, Lower Level, Washington, DC 20555; telephone 202-634-3273; fax: 202-634-3343.

FOR FURTHER INFORMATION, CONTACT: Sally L. Merchant, Office of Nuclear Material Safety and Safeguards, Mail Stop T 8-F-5, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone 301-415-7874; fax: 301-415-5369; INTERNET: SLM2@NRC.GOV.

SUPPLEMENTARY INFORMATION: In October 1994, the NRC began to examine its materials licensing process to identify ways to improve it, while maintaining or raising the level of public safety. An improved process would: perform licensing reviews and associated tasks an order of magnitude faster than the current practice; reduce the resources associated with the current licensing practice; and take full advantage of information technology. The staff is using a technique called Business Process Redesign, a process of fundamentally changing the way that work is performed, to achieve significant improvements in speed, cost, and quality.

A detailed plan for implementing this new process was presented to the Commission in May 1995. On June 16, 1995, the Commission directed the staff: (1) to proceed with the detailed design and testing of the new process; (2) to coordinate its efforts closely with the Agreement States, licensees, and the public; (3) to separate the payment of licensing fees from the process of issuing a license and continue to streamline fees; and (4) extend certain qualified licenses for an additional 5 years, on a one-time basis. A final rule to extend qualified licenses was published on January 16, 1996, and effective on February 15, 1996. Implementation of the new licensing process is scheduled to begin early in 1997.

This workshop is one of a series of interactions with the Agreement States, licensees, and the public to gather suggestions and ideas to ensure the success of this licensing initiative. A transcript of this workshop will be available for inspection, and copying for a fee at the NRC Public Document Room, 2120 L Street, NW, Lower Level, Washington, DC 20555, on or about May 23, 1996.

The workshop will be open to the public, and the public will be provided opportunities throughout the workshop to comment on issues under discussion.

Dated: February 29, 1996.

Donald A. Cool,

Director, Division of Industrial and Medical Nuclear Safety, NMSS.

[FR Doc. 96-5204 Filed 3-5-96; 8:45 am]

BILLING CODE 7590-01-P

Advisory Committee on Reactor Safeguards and Advisory Committee on Nuclear Waste Subcommittee Meeting

The ACRS and ACNW Subcommittee will hold a joint meeting on March 26, 1996, Room T-2B3, 11545 Rockville Pike, Rockville, Maryland.

The meeting will be open to public attendance.

The agenda for the subject meeting shall be as follows:

Tuesday, March 26, 1996—8:30 a.m. until the conclusion of business.

The Joint Subcommittee will discuss the protocol of the Joint Subcommittee, the activities of the Spent Fuel Program Office, the status of the decommissioning rule and related matters, and perspectives regarding the health effects of low-level radiation. 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 Committees.

Oral statements may be presented by members of the public with the concurrence of the Subcommittee Chairman; written statements will be accepted and made available to the Committee. Electronic recordings will be permitted only during those portions of the meeting that are open to the public, and questions may be asked only by members of the Subcommittee, their consultants, and staff. Persons desiring to make oral statements should notify the cognizant ACRS/ACNW staff member named below five days prior to the meeting, if possible, so that appropriate arrangements can be made.

During the initial portion of the meeting, the Subcommittee, along with any consultants who may be present, may exchange preliminary views regarding matters to be considered during the balance of the meeting.

The Subcommittees will then hear presentations by and hold discussions with representatives of the NRC staff, their consultants, and other interested persons regarding these matters.

Further information regarding topics to be discussed, whether the meeting has been cancelled or rescheduled, the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted therefor can be obtained by contacting the Senior

Program Analyst, Roxanne Summers (telephone 301/415–7371) between 7:45 a.m. and 4:30 p.m. (EST). Persons planning to attend this meeting are urged to contact the above-named individual one to two working days prior to the meeting to be advised of any potential changes in the proposed agenda, etc., that may have occurred.

Dated: February 28, 1996.

John T. Larkins,

Executive Director, ACRS/ACNW.

[FR Doc. 96–5207 Filed 3–6–96; 8:45 am]

BILLING CODE 7590-01-P

OVERSEAS PRIVATE INVESTMENT CORPORATION

Board of Directors; Sunshine Act Meeting

TIME AND DATE: Tuesday, March 12, 1996, 1:00 p.m. (OPEN Portion); 1:30 p.m. (CLOSED Portion)

PLACE: Offices of the Corporation, Twelfth Floor Board Room, 1100 New York Avenue, N.W., Washington, D.C.

STATUS: Meeting OPEN to the Public from 1:00 p.m. to 1:30 p.m.; Closed portion will commence at 1:30 p.m. (approx.)

MATTERS TO BE CONSIDERED:

1. President's Report
2. New Appointment
3. Approval of December 12, 1995 Minutes (Open Portion)
4. Meeting schedule through March, 1997

FURTHER MATTERS TO BE CONSIDERED: (Closed to the Public 1:30 p.m.)

1. Finance Project in Brazil
2. Insurance Project in Colombia
3. Finance Project in Argentina
4. Insurance Project in Brazil
5. Finance Project in Paraguay
6. Insurance Project in Morocco
7. Global Investment Fund
8. Investment Fund in South Asia
9. Investment Fund in Latin America
10. Investment Fund amendment in the NIS and Baltic States
11. Pending Major Projects
12. Approval of December 12, 1996 Minutes (Closed Portion)

CONTACT PERSON FOR INFORMATION: Information on the meeting may be obtained from Connie M. Downs at (202) 336–8438.

Connie M. Downs,

OPIC Corporate Secretary.

[FR Doc. 96–5422 Filed 3–4–96; 2:07 pm]

BILLING CODE 3210-01-M

SECURITIES AND EXCHANGE COMMISSION

[Rel. No. IC–21791; 811–3961]

John Hancock Capital Growth Fund; Notice of Application

February 28, 1996.

AGENCY: Securities and Exchange Commission ("SEC").

ACTION: Notice of Application for Deregistration under the Investment Company Act of 1940 (the "Act").

APPLICANT: John Hancock Capital Growth Fund.

RELEVANT ACT SECTION: Section 8(f).

SUMMARY OF APPLICATION: Applicant seeks an order declaring that it has ceased to be an investment company.

FILING DATE: The application was filed on January 5, 1996 and amended on February 26, 1996.

HEARING OR NOTIFICATION OF HEARING: An order granting the application will be issued unless the SEC orders a hearing. Interested persons may request a hearing by writing to the SEC's Secretary and serving applicant with a copy of the request, personally or by mail. Hearing requests should be received by the SEC by 5:30 p.m. on March 25, 1996, and should be accompanied by proof of service on applicant, in the form of an affidavit or, for lawyers, a certificate of service. Hearing requests should state the nature of the writer's interest, the reason for the request, and the issues contested. Persons may request notification of a hearing by writing to the SEC's Secretary.

ADDRESSES: Secretary, SEC, 450 5th Street, N.W., Washington, D.C. 20549. Applicant, 101 Huntington Avenue, Boston, Massachusetts 02199–7603.

FOR FURTHER INFORMATION CONTACT: Deepak T. Pai, Staff Attorney, at (202) 942–0574, or Alison E. Baur, Branch Chief, at (202) 942–0564 (Division of Investment Management, Office of Investment Company Regulation).

SUPPLEMENTARY INFORMATION: The following is a summary of the application. The complete application may be obtained for a fee at the SEC's Public Reference Branch.

Applicant's Representations

1. Applicant is an open-end management investment company. On February 3, 1984, applicant filed a registration statement under the name Criterion Technology Fund, Inc., a Texas corporation, pursuant to section 8(b) of the Act. Applicant reorganized as a Massachusetts business trust on December 17, 1984, and registered an indefinite number of shares under the Securities Act of 1933 on December 31, 1984. The registration statement was declared effective on September 26, 1985, and applicant's initial public offering commenced thereafter. Applicant underwent several name changes, and as of December 22, 1994, was known as the Transamerica Capital Growth Fund. On December 22, 1994, The Berkeley Financial Group, a John Hancock subsidiary, acquired the Transamerica group of funds and applicant became known as the John Hancock Capital Growth Fund.

2. On May 16, 1995, applicant's Board of Trustees ("Trustees"), including a majority of Trustees who were not interested persons of applicant, approved an agreement and plan of reorganization (the "Agreement"), and recommended that applicant's shareholders approve the Agreement. Under the Agreement, applicant would transfer all of its assets and liabilities to John Hancock Growth Fund ("Growth Fund"), a portfolio of John Hancock Capital Series, for shares of Growth Fund. Pursuant to rule 17a–8 of the Act, applicant's Trustees found that participation in the reorganization was in the best interest of applicant and that the interests of applicant's existing shareholders would not be diluted.[1] Proxy materials were filed with the SEC and were distributed to shareholders on July 21, 1995. A meeting held on September 8, 1995, applicant's shareholders approved the Agreement.

3. Pursuant to the Agreement, on September 15, 1995, applicant transferred all of its assets and liabilities to Growth Fund in exchange for shares of Growth Fund. Immediately thereafter, applicant distributed the shares of Growth Fund to applicant's shareholders in complete liquidation. Upon completion of the reorganization, each shareholder of applicant owned shares of Growth Fund with the same net asset value as the shares of applicant owned by the shareholder immediately prior to the reorganization.

4. Applicant and Growth Fund each assumed its own expenses in connection with the reorganization. No brokerage commissions were incurred in connection with the reorganization.

[1] Although purchases and sales between affiliated persons generally are prohibited by section 17(a) of the Act, rule 17a–8 provides an exemption for certain purchases and sales among investment companies that are affiliated persons of one another solely by reason of having a common investment adviser, common directors, and/or common officers. Applicant and John Hancock Capital Series may deemed to be affiliated persons of each other by reason of having a common investment adviser, common directors, and/or common officers.

DRAFT AGENDA: JOINT ACRS/ACNW SUBCOMMITTEE MEETING: MARCH 26,1996

1) 8:30 - 8:35 a.m. Introduction by Subcommittee Chairman
Dr. B. John Garrick

2) 8:35 - 10.30 a.m. Spent Fuel Project Office (SFPO)
W. Travers, C. Haughney, SFPO

- Overview of SFPO Scope and Responsibilities
- Dry Cask Storage Action Plan
- Dry Cask Storage Draft Standard Review Plan
- Dry Cask Storage Inspection Procedures
- Current Independent Spent Fuel Storage Installation (ISFSI) Safety Issues
- Status of Multi-Purpose Canister Design

10:~~30~~ 20 - 10:~~45~~ 40 a.m. ***BREAK***

3) 10:~~45~~ 40 - 12:30 a.m. Decommissioning
C. Trottier, J. Glenn, RES; Sy Weiss, NRR

- Overall agency program; systems approach
  Reactors, Fuel Facilities
  Materials Licensees
- Facility status
- Lessons learned
- Actions to be taken: NRC and Committees

12:30-1:30 p.m. ***LUNCH***

4) 1:30 - 3:30 p.m. Health Effects of Low-Level Radiation

- Introduction:
  C. Paperiello, Director, NMSS
- Implications of new data for linear, no-threshold theory
  J. Muckerheide, Massachusetts Emergency Management Agency
- NCRP Views and Collective Dose Report (NCRP 121)
  R. Kathren, Washington State University
- Recent medical studies showing effects of low-level radiation
  M. Pollycove, NRC Visiting Medical Fellow

~~4~~ 3:30 - ~~4~~ 3:45 p.m. ***BREAK***

5) ~~4~~ 3:45 - 6:0~~0~~ 5 p.m. Discussion of Subcommittee Future Activities, Protocol

6:0~~0~~ 5 p.m. Adjournment

Presentation materials to be provided to the ACRS: 25 copies

TRANSCRIBED PORTIONS OF THE MEETING.