

# CERTIFIED

MINUTES OF THE ACRS SUBCOMMITTEE MEETING  
ON ADVANCED REACTORS  
JANUARY 21 & 22, 1982  
ARGONNE, ILLINOIS

*ACRS-1945*  
*PDR 8/30/82*

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ISSUED: APR. 6, 1982

The ACRS Subcommittee on Advanced Reactors met at the Argonne National Laboratory at Argonne, Illinois, on January 21 and 22, 1982, to hear presentations and discussions with Drs. P. Slovic, R. Kasperson and C. Marrett on risk aversion and perception. The Subcommittee also continued the review of a report that will be submitted to the ACRS on LMFBR safety philosophy and technical issues. The meeting notice, attendee list and handouts received at the meeting are shown in Attachments 1, 2 and 3, respectively. A draft copy of the LMFBR Safety Philosophy and Technical Issues report is in Attachment 4.

Dr. Carbon in his opening remarks stated that the country may want in the future to develop a commercial-size LMFBR. This subcommittee is interested in developing philosophy and technical issues to ensure the public health and safety, which also includes mental health.

Dr. Roger Kasperson, Clark University, discussed the matter of public response to nuclear power. He stated that data base for his presentation was derived from public opinion polls, psychometric studies, clinical analysis, votes and referenda and protests and demonstrations.

Highlights of his presentation are as follows:

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- U.S. public opinion surveys have, until recently, indicated that a majority of Americans has consistently favored the development of nuclear power. This majority is an eroding one, however. The slippage was apparent prior to Three Mile Island but it has been accelerated by that event.
- Many people link nuclear plants and nuclear weapons; there is a widespread public concern that a plant can and will explode.
- While Americans cite a number of advantages of nuclear power development (energy independence, lower fuel costs, less pollution) they clearly harbor deep concerns about this technology.
- Environmentalists have no confidence in DOE concepts on technology including nuclear technology.
- Public fear may be caused by ignorance and misinformation. If the public is involved in the decision process and becomes more educated or knowledgeable about this technology, public erosion may be arrested and public acceptance of nuclear power may result.
- According to a Harris poll about 47% of the public favor the building of breeder reactors and 28% oppose, and those "not sure" or "no answer" constitute 26%. Of those opposing the building of breeder reactors strong opposition comes from the environmentalists (85%) and from the media (71%).

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Prof. Cora Marrett, University of Wisconsin, discussed concerns of the public about nuclear safety. Prof. Marrett was a member of the President's Commission that investigated the Three Mile Island 2 accident. Prof. Marrett quoted from the President's Commission report, a conclusion:

"We are convinced that, unless portions of the industry and of its regulatory agency undergo fundamental changes, they will over time totally destroy public confidence and, hence, they will be responsible for the elimination of nuclear power as a viable source of energy."

Prof. Marrett's presentation focused on public opinion polls. She stated that generally polls do not discover the depth or precision of the attitudes which respondents report. The surveys are more likely to give evaluations rather than knowledge or understanding of issues.

Public attitude before TMI shows that more people supported than opposed the construction of additional nuclear plants. A few weeks after TMI the number of those opposing and supporting nuclear power was nearly identical. Since then, support for construction has risen but not to the levels reached in the mid-1970's.

Throughout the 1960's and 1970's science and technology experienced some erosion in public confidence. Despite some waning of confidence,

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the public still sees science and technology far more beneficial than harmful to society and support for science and technology exceeds that for nuclear power.

Safety is of primary concern on nuclear energy. The greater the worry about plant safety, the greater the opposition to the continuation of the nuclear program. Public concerns about nuclear power include catastrophic explosion, radiation release, and nuclear waste. Indirectly, nuclear development raises the specter of nuclear terrorism, nuclear proliferation, and loss of civil liberties.

The polls illuminate public concerns about nuclear safety, but they provide no clear blueprints for designing systems to meet those concerns. Prof. Marrett stated that the public expects technical decisions to be made by technical experts, although the public does not wish to be ignored entirely.

P. Slovic, Decision Research, Inc., discussed the topic of Perceived Risk and Opposition to Nuclear Energy. Based on his study, some of the public perceptions of nuclear power are as follows:

- Nuclear power's benefits appear unappreciated, being lower than those of home appliances, bicycles, and general aviation.

- Nuclear power risks are judged extremely high.
- Respondents want nuclear power to be safer than they now perceive it to be.
- The perception of nuclear power as extremely risky is not because deaths attributable to it are viewed as worse than deaths from other causes. Research indicates that individual deaths are seen to be about equally serious, regardless of the mode of death. Nor is fear of nuclear power based on fear of radiation per se. The risks of medical x-rays appear to be underestimated.
- Nuclear power risks are seen as catastrophic; serious reactor accidents are quite likely and would result in hundreds, even millions of immediate deaths and severe irreparable environmental damage over vast geographic areas.
- People's fears of nuclear power are not irrational. In part, these fears are determined by extensive media coverage given to nuclear risks, awareness of experts' past mistakes and current disputes and association between nuclear power and the proliferation and use of nuclear weapons.

## ADVANCED REACTORS

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Dr. Slovic stated that attempts to "educate" or reassure the public and bring their perceptions in line with those of industry face major obstacles for the following reasons:

- The low probability of catastrophic reactor accidents makes empirical demonstrations of safety difficult.
- More discussion of rare accidents may increase their imagination and make people more concerned.
- Education is likely to be ineffective unless it is seen as a two-way affair, with each side willing to respect the insights and intelligence of the other.

Dr. Slovic stated that acceptance of nuclear power is a slow path. It requires an uncontrovertible, long-term safety record, a responsible agent that is respected and trusted, and a clear appreciation of benefit. A quicker path would be forged by a severe energy shortage which would enhance the perceived benefits of nuclear power and increase society's tolerance of its risk.

Dr. Slovic presented some opinions on social issues and what the NRC can do about them. His opinions are as follows:

- Give social issues a prominent place on its agenda of issues relevant to determining adequate protection of the public's health and safety.

- Attempt to derive qualitative and quantitative safety goals based on reasonable assumptions with regard to to these issues.
- Encourage scientists, politicians, and the public to study these issues and to propose ways in which the safety goals could be made more responsive to social values.
- Provide a management plan for future evolution of the safety goals that incorporates mechanisms for their revision in light of improved understanding of social and technical issues.

Dr. Slovic cited a proposed goal:

Core melt accidents, with radioactive releases resulting in offsite land contamination or severe somatic or health effects are intolerable. The probability of such an event, while not expected to be zero, must be low enough so that more likely than not, it will never occur during the cumulative lifetimes of all reactors existing, under construction, or proposed (6000 reactor years). He stated that an accident probability of  $10^{-4}$  per reactor year would satisfy this policy ( $p = .45$  of 1 or more accidents). A probability of  $10^{-5}$  would do even better ( $p = .06$  of 1 or more accidents).



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In conclusion, Dr. Slovic stated that development and regulation of nuclear power need to be based upon an understanding of the ways in which people think about risk and uncertainty. The nuclear industry must recognize that public opposition stems from something more than ignorance and may, in part, be based on considerations that have nothing to do with accident risks. Action is needed to reduce conflict and build trust and mutual respect on all sides of the nuclear issue. High priority should be given to the design of an environment in which two-way communication and constructive debate can take place.

The second reading of the proposed report to the ACRS on safety issues and philosophy was initiated. Appropriate sections of the report will be modified to account for some of the issues raised during the presentations by Drs. Slovic, Kasperson, and Marrett.

The following chapters were read and comments made: Introduction, Safety Philosophy, 1, 2, 3, 4, 5, 6, 7, 8, 10, and 12. The other chapters will be reviewed by the Subcommittee and its consultants and comments sent directly to the author of the chapters. It was stated that at least two more meetings will be required before the report is completed.

Dr. Carbon stated that the ACRS, because of apparent conflict of interest, requested that Dr. L. Koch not serve as an ACRS consultant.

#### FUTURE MEETING

The next meeting of the Advanced Reactors Subcommittee is tentatively scheduled for March 18 and 19, 1982 at the Argonne National Laboratory in Argonne, IL.



will hear the report of its Subcommittee on Human Factors and consultants who may be present regarding proposed NRC requirements regarding design of nuclear power plant control rooms and safety parameter display systems.

**8:30 P.M.-6:00 P.M.: Future Committee Activities (Open)**—The members will discuss the proposed scope of and schedule for anticipated activities of ACRS subcommittees and full Committee activities.

**Saturday, January 9, 1982**

**8:30 A.M.-10:30 A.M.: Safety Research Program Budget (Closed)**—The Committee members will discuss the proposed ACRS report to the U.S. Congress on the proposed NRC Safety Research Program Budget for FY 1983.

This session will be closed to discuss matters which relate solely to the internal personnel rules and practices of the agency and information of a personal nature where disclosure would constitute unwarranted invasion of personal privacy and information the premature release of which would be likely to significantly frustrate proposed agency action.

**10:30 A.M.-11:15 A.M.: Design of Control Rooms and Safety Parameter Display Systems (Open)**—ACRS report/comments regarding proposed NRC requirements for design of control rooms and safety parameter display systems.

**11:15 A.M.-12:00 Noon: Reports of ACRS Members Regarding Foreign Regulatory Policies and Requirements (Closed)**—Members of the Committee will report on recent activities related to foreign nuclear regulatory policies and practices.

This session will be closed to discuss information provided in confidence and considered privileged by a foreign source.

**12:00 Noon-1:30 P.M.: Concluding Session (Open)**—The members will complete discussion of items considered during this meeting.

Members will also exchange views regarding the reliability of AC/DC electrical systems in nuclear power plants.

Proposed changes in ACRS procedures related to the conduct of ACRS activities will be discussed.

Procedures for the conduct of and participation in ACRS meetings were published in the Federal Register on October 7, 1980 (45 FR 66535). In accordance with these procedures, oral or written statements may be presented by members of the public, recording will be permitted only during those portions of the meeting when a transcript is being kept, and questions may be asked only by members of the Committee, its

consultants, and Staff. Persons desiring to make oral statements should notify the ACRS Executive Director as far in advance as practicable so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements. Use of still, motion picture and television cameras during this meeting may be limited to selected portions of the meeting as determined by the Chairman.

Information regarding the time to be set aside for this purpose may be obtained by a telephone call to the ACRS Executive Director (R. F. Fraley) prior to the meeting. In view of the possibility that the schedule for ACRS meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the ACRS Executive Director if such rescheduling would result in major inconvenience.

I have determined in accordance with Subsection 10(d) Pub. L. 92-463 that it is necessary to close portions of this meeting as noted above to discuss matters which relate solely to the internal personnel rules and practices of the agency (5 U.S.C. 552b(c)(2)). Proprietary information relating to the matters being considered and information considered privileged and provided in confidence by a foreign source (5 U.S.C. 552b(c)(4)), information of a personal nature where disclosure would constitute unwarranted invasion of personal privacy (5 U.S.C. 552b(c)(6)) and information the premature release of which would be likely to significantly frustrate proposed agency action (5 U.S.C. 552b(c)(9)(B)).

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 a prepaid telephone call to the ACRS Executive Director, Mr. Raymond F. Fraley (telephone 202/634-3265), between 8:15 A.M. and 5:00 P.M. EST, the meeting. In view of the possibility that the schedule for ACRS meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the ACRS Executive Director if such rescheduling would result in major inconvenience.

I have determined in accordance with Subsection 10(d) Pub. L. 92-463 that it is necessary to close portions of this meeting as noted above to discuss Proprietary Information relating to the matter being considered (5 U.S.C. 552b(c)(4)), information which will be involved in an adjudicatory proceeding

(5 U.S.C. 552b(c)(10)), and information considered privileged and provided in confidence by a foreign source (5 U.S.C. 552b(c)(4)).

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 a prepaid telephone call to the ACRS Executive Director, Mr. Raymond F. Fraley (telephone 202/634-3265), between 8:15 A.M. and 5:00 P.M. EDT.

Dated: December 21, 1981.

John C. Hoyle,

Advisory Committee Management.

(PR Doc. 81-3087) Filed 12-24-81; 8:45 am

BILLING CODE 7580-01

#### Advisory Committee on Reactor Safeguards; Subcommittee on Advanced Reactors; Meeting

The ACRS Subcommittee on Advanced Reactors will hold a meeting on January 21 and 22, 1982, at the Argonne National Laboratory, Building 208, Room C-234, Argonne, IL. The Subcommittee will continue discussion regarding possible design considerations, issues, and criteria for future commercial advanced reactors and plans to prepare a report to submit to the ACRS. Experts in the field of risk perception and aversion will address/discuss those matters with the Subcommittee. Notice of this meeting was published November 25.

In accordance with the procedures outlined in the Federal Register on September 30, 1981 (46 FR 47903), oral or written statements may be presented by members of the public, recordings will be permitted only during those portions of the meeting when a transcript is being kept, and questions may be asked only by members of the Subcommittee, its consultants, and Staff. Persons desiring to make oral statements should notify the Designated Federal Employee as far in advance as practicable so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements.

The entire meeting will be open to public attendance except for those sessions during which the Subcommittee finds it necessary to discuss proprietary information. One or more closed sessions may be necessary to discuss such information. (SUNSHINE ACT EXEMPTION 4). To the extent practicable, these closed sessions will be held so as to minimize inconvenience to members of the public in attendance.

ATTACHMENT 1

The agenda for subject meeting shall be as follows:

*Thursday and Friday—January 21 and 22, 1982*

*8:30 a.m. until the conclusion of business each day.*

The Subcommittee and its consultants will discuss possible design considerations, issues, or criteria for future commercial advanced reactors and plan to prepare a report to submit to the ACRS.

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 a prepaid telephone call to the cognizant Designated Federal Employee, Mr. Elpidio Igne (telephone 202/634-1414) between 8:15 a.m. and 5:00 p.m., EST.

I have determined, in accordance with subsection 10(d) of the Federal Advisory Committee Act, that it may be necessary to close some portions of this meeting to protect proprietary information. The authority for such closure is Exemption (4) to the Sunshine Act, 5 U.S.C. 552b(c)(4).

Dated: December 21, 1981.

John C. Hoyle,

*Advisory Committee Management Officer.*

(FR Doc. 81-38912 Filed 12-24-81; 8:45 am)

BILLING CODE 7590-01-01

#### **Advisory Committee on Reactor Safeguards; Subcommittee on Fluid Dynamics; Meeting**

The ACRS Subcommittee on Fluid Dynamics will hold a meeting on January 22, 1982 at the Holiday Inn Convention Center, 1020 South Figueroa, Windsor Room Right, Los Angeles, CA. The Subcommittee will continue its review of the Mark III containment modifications and discuss the status of the Unresolved Safety Issues on Mark I and II containments.

In accordance with the procedures outlined in the Federal Register on September 30, 1981, (46 FR 47903), oral or written statements may be presented by members of the public, recordings will be permitted only during those portions of the meeting when a transcript is being kept, and questions may be asked only by members of the Subcommittee, its consultants, and Staff. Persons desiring to make oral statements should notify the Designated Federal Employee as far in advance as practicable so that appropriate arrangements can be made to allow the

necessary time during the meeting for such statements.

The entire meeting will be open to public attendance except for those sessions which will be closed to protect proprietary information (Sunshine Act Exemption 4). One or more closed sessions may be necessary to discuss such information. To the extent practicable, these closed sessions will be held so as to minimize inconvenience to members of the public in attendance.

The agenda for subject meeting shall be as follows:

*Friday, January 22, 1981—8:30 a.m. Until the Conclusion of Business*

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

The Subcommittee will then hear presentations by and hold discussions with representatives of the NRC Staff, their consultants, and other interested persons regarding this review.

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 a prepaid telephone call to the cognizant Designated Federal Employee, Mr. Paul Boehner (telephone 202/634-3267) between 8:15 a.m. and 5:00 p.m., EST.

I have determined, in accordance with Subsection 10(d) of the Federal Advisory Committee Act, that it may be necessary to close portions of this meeting to public attendance to protect proprietary information. The authority for such closure is Exemption (4) to the Sunshine Act, 5 U.S.C. 552b(c)(4).

Dated: December 21, 1981.

John C. Hoyle,

*Advisory Committee Management Officer.*

(FR Doc. 81-38913 Filed 12-24-81; 8:45 am)

BILLING CODE 7590-01-01

[Docket No. 50-10]

#### **Commonwealth Edison Co.; Issuance of Amendment to Facility Operating License**

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 35 to Facility Operating License No. DPR-2, issued to the Commonwealth Edison Company (the licensee), which revised the Technical Specifications for operation of Unit 1 of Dresden Nuclear Power Station

(the facility) located in Grundy County, Illinois. The license amendment is effective as of its date of issuance.

This amendment authorizes the chemical cleaning of the Primary Cooling System and revises the Technical Specifications to allow deletion of requirements for maintaining containment integrity during the chemical cleaning of the cooling system and exclusion of the radioactive liquid storage tanks in the seismically designed Chemical Cleaning Building from the above-grade curie limitations. This amendment does not authorize operation of Unit 1 subsequent to the chemical cleaning. The Commission will consider such operation as a separate licensing action.

The applications for the amendment comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I; these findings are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The environmental impact of the chemical cleaning has been assessed in NUREG-0686 entitled "Final Environmental Statement Related to Primary Cooling System Chemical Decontamination at Dresden Nuclear Power Station, Unit No. 1", dated October 1980. The Commission has determined that the issuance of the technical specification change portion of the amendment will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of that portion of the amendment. An environmental impact statement evaluating the chemical decontamination authorized by this amendment was prepared and issued in October 1980.

For further details with respect to this action, see (1) the applications for amendment dated December 19, 1974, as supplemented, and November 14, 1979, (2) Amendment No. 35 to License No. DPR-2, and (3) the Commission's related Safety Evaluation and Final Environmental Statement.<sup>1</sup> All of these

<sup>1</sup> The Final Environmental Statement (NUREG-0686) is available for purchase. Contact the National Technical Information Service, Springfield, VA 22161.

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS MEETING  
ON

ADVANCED REACTORS

JANUARY (21) and 22, 1982, ARGONNE, ILLINOIS

ATTENDEES PLEASE SIGN BELOW

PLEASE  
PRINT

NAME	BADGE NO.	AFFILIATION
(1/21) Carbon (M. CARBON)		ACRS Mbr
2. Mark (C. MARK)		" " "
3. Siegel (S. SIEGEL)		ACRS Consultant
4. Lipinski (W. LIPINSKI)		" "
5. Hartung (J. HARTUNG)		" "
6. Golden (G. GOLDEN)		" "
7. Green		" "
8. Stone (P. SLOVIC)		Decision Res. Inc.
9. Kasperson (R. KASPERSON)		Clark Univ.
10. Marrett (C. MARRETT)		UNIV. of WISCONSIN
11. Igne (E. IGNE)		Designated Federal Employee
12. Jussi VAURIO	24290/24290	ANL
13.		
(1/22) Carbon		
14. Mark		
15. Siegel		
16. Lipinski		
17. Hartung		
18. Golden		
19. Green		
20. Stone		
21.		
22. Recorder - Jane Beech		Alderson Reporting