PDR-016

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

September 18, 1981

Ellyn R. Weiss, Esquire
Harmon & Weiss
1725 I Street, N.W.
Suite 506
Washington, DC 20006

IN RESPONSE REFER
TO FOIA-81-320

Dear Ms. Weiss:

This is in further response to your letter dated August 5, 1981 in which you requested, pursuant to the Freedom of Information Act, five categories of records pertaining to the MARCH code.

In our letter dated September 14, 1981, we notified you of records placed in the NRC Public Document Room (PDR) and informed you that additional records were undergoing review. Review of the remaining records subject to your request has been completed. At this time, we are placing the following records in the PDR in folder FOIA-81-320 under your name:

1. 6/81 Draft "Interim Technical Assessment of the MARCH Code", by Rivard, et. al., Sandia National Laboratory.

2. 7/29/81 Letter to Rivard from Cunningham, NRC, commenting on the above draft report.

3. 8/7/81 Letter to Rivard from Cybulskis and Denning, Battelle, commenting on the above draft report.

The record listed as item 1 above is a draft report which contains preliminary findings on the quality of the MARCH code. We wish to direct your attention to the fact that the report has numerous problems and errors, as noted in the letters listed as items 2 and 3, and is expected to undergo substantial modification before final publication.

This completes NRC's action on your request.

Sincerely,

J. M. Felton, Director
Division of Rules and Records
Office of Administration

HARMON & WEISS
1725 I STREET, N.W.
SUITE 506
WASHINGTON, D.C. 20006

GAIL M. HARMON
ELLYN R. WEISS
WILLIAM S. JORDAN, III
LEE L. BISHOP

TELEPHONE
(202) 833-9070

OF COUNSEL
L. THOMAS GALLOWAY

August 5, 1981

FREEDOM OF INFORMATION ACT REQUEST
FOIA-81-320
rec'd 8/11/81

Mr. Joseph Felton, Director
Division of Rules and Records
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: FREEDOM OF INFORMATION ACT REQUEST

Dear Mr. Felton:

Pursuant to The Federal Freedom of Information Act, I hereby request that copies of the following be made available:

1. Any memoranda, reports, documents, studies etc., authored by members of the NRC staff, ACRS staff and/or consultants to either dealings with the uses and/or limitations of the March computer code.

2. Any documents, memoranda, reports, studies, etc. by the NRC staff, ACRS staff and/or consultants, which involve use of the March code to assess the potential for hydrogen generation.

3. Any documents, memoranda, reports, studies, etc. by the NRC staff, ACRS staff and/or consultants, involving use of the March code to assess the potential for hydrogen generation for the Sequoyan and McGuire plants.

4. An NRC staff report to the ACRS dealing wholly or partially with the use of and limitations of the March code. (This report is mentioned in the July 13, 1981 issue of Nucleonics Week. A copy of the article is attached.)

5. Any documents, memoranda, reports, studies, etc. by the NRC, ACRS, nuclear industry, utility and/or consultants to any of the foregoing, involving use of the March code to analyze the progress of degraded core and core melt accidents.

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The request may be limited to material produced in 1979, 1980 and 1981.

As noted above, I am enclosing a copy of an article appearing in the July 13, 1981 issue of Nucleonics Week which should be of help in indicating the nature of the material which I am seeking.

Please call if I can be of assistance.

Very truly yours,

Ellyn R. Weiss

ERW:smq

Enclosure

an inordinate risk.

– The quantitative safety goals for nuclear power plants should be consistent with those applied to other technologies. The goals should try to ensure that incremental societal risks are commensurate with the societal benefits derived from the technology.

– And the goals should promote the rational allocation of societal resources for the purposes of reducing public risk in order to achieve the optimum benefit attainable for the cost.

Departing from the broad utility support for the AIF approach was the Tennessee Valley Authority, which gave instead qualified endorsement of the approach advanced by NRC's Advisory Committee on Reactor Safeguards in "An Approach to Quantitative Safety Goals for Nuclear Power Plants" (Nureg-0739). Characterizing the ACRS proposal as "a good starting point," TVA praised it as containing "most of the key principles that we consider essential to a reasonable and comprehensive safety goal." TVA urged, however, that NRC reduce "some of the complexity" of the ACRS proposal in the final safety goal in order to make easier its "public perception and understanding."

Reflecting the view of intervenors, Ellyn Weiss, attorney for the Union of Concerned Scientists, came down hard in June 26 comments on the NRC's safety goal efforts. "The safety goal and the risk assessments used to demonstrate that it has been met will not be used in a pure effort to advance scientific understanding," declared Weiss. "On the contrary, they will be used to make decisions which have great economic and political consequences for the organizations that will sponsor the work. One need look no further than the example of the misuse of Wash-1400 as the centerpiece of a national propaganda campaign actively encouraged by the AEC/NRC to confirm this. Unless the public can be assured that the means exist to verify compliance with a safety goal, it will be justifiably concluded that this represents an effort to mask the risks of nuclear power rather than to identify and understand them," Weiss said.

"A fundamental question which must be addressed has simply not been faced: Can quantitative safety goals be used in the regulatory process if quantitative risk assessment is incapable of yielding technically supportable results within an acceptable limit of certainty?

"UCS believes that the answer to this question is 'no.' Risk estimates which are inherently unreliable cannot legitimately be used as regulatory tools. They give the illusion of precision, but can be manipulated to support whatever the predetermined objective may be," she said.

Weiss denounced the AIF proposal as "objectionable" on several counts. She questioned AIF's assertion, for example, that goals "should be generally applicable to all technologies or risk-related activities." Saying that the purpose of a safety goal "is presumably to establish acceptable levels of risk from nuclear power," she warned that efforts to treat all risks as comparable "inevitably overlook" the unique and important nuclear risks.

The AIF suggestion that the safety goal should "reflect societal risks," Weiss said, "invites the standard-setter to enter a political quagmire that is not susceptible to resolution in an objective or noncontroversial way." For a safety goal to be "a useful tool for regulating nuclear power," Weiss said, it must meet the following conditions:

– Compliance with the goal must be technically verifiable within reasonably small uncertainty limits. Stating the uncertainty, however clearly, "is not a substitute for reducing it to acceptable levels when regulatory decisions are to be based upon quantitative assessment."

– Establishment and implementation of the goal must fairly account for the unique risks of catastrophic nuclear accidents, including economic costs.

– Establishment and implementation of the goal must not require NRC to resolve questions which are political in nature.

– The scientific and technical community outside the nuclear industry and NRC must be involved in establishing the goal and reviewing risk assessments.

– Both the safety goal and the quantitative risk assessments must be understood and accepted by the public as being unbiased and technically justified.

– And a quantitative safety goal cannot be a substitute for conservative deterministic criteria for the licensing of nuclear plants. – *Patricia Hinsberg*

THE LIMITATIONS OF THE MARCH COMPUTER CODE, AND ITS FUTURE, ARE INCREASINGLY DEBATED by NRC staff and the Advisory Committee on Reactor Safeguards. One NRC staffer says flatly, "We are not going to get rid of the March code." Says another, "I don't know. It's not clear. There are advantages of sticking with it just because of timing; it's there. With the time schedule and needs we have, there's an argument to fix it up, rather than starting from scratch." But ACRS Chairman J. Carson Mark asks, "Why in heaven's name is anyone in this day and age using the March code, invented before Wash-1400, to assess the hydrogen problem and apply it to Sequoyah and McGuire as if it made any sense? . . . Why in this day and age are people acting in that

...ity fashion?"

The March (for meltdown accident response characteristics) code is used to analyze progress of degraded-core and core-melt accidents. The major criticism of the code is that, while it may be used "in a general way to indicate trends," it is not accurate enough "for determining specific licensing criteria," according to an NRC staffer; yet ACRS members believe that is how the staff is using it.

William Kerr, chairman of the ACRS subcommittee on class-nine accidents, tells Inside NRC that he feels the code is being used "by people who in some cases don't understand its limitations . . . and don't have anything else and use it in desperation to draw conclusions not warranted on the basis of the code." The ACRS view, he says, is that more emphasis should be put on physical research on degraded-core problems. It's on such problems that "application of the March code is apt to give erroneous results," he says.

An NRC staffer says the code's major problem is "that it's being used in areas in which it's not intended to be used. It was intended to be used in risk assessment. . . . It's rather simplistic (and) people are attempting to ascribe more accuracy to it in other forms and when it's brought into licensing, it makes a more difficult situation." Another staffer, however, says the code is never used by itself to make licensing decisions. "We will require an independent assessment of key parameters for licensing decisions," he says.

Kerr's view is that, although the NRC staff has told the ACRS several times that licensing decisions are not made on the basis of the computer code alone, "we read reports by the NRC staff where it would appear that March has had a significant influence." Kerr says codes produce only what they're told to produce. A danger, he says, is that people are under pressure to do something, and so may use an inadequate code.

Kerr also says that people who are good at putting together codes are not necessarily good at assessing physical data. "(Enrico) Fermi was one of the few equally at home in both. Usually people who produce big codes have only a nodding acquaintance with physical phenomena." And Kerr worries that once time and money have been spent to produce a code, "you use it for everything."

The code has problems no matter how it is used. NRC staffers in a report to an ACRS subcommittee counted among the main problems a lack of sophistication in several areas. The reactor coolant system, for instance, should be treated in "a multivolume fashion," rather than as a single volume. Another difficult area for the code is in core meltdown and slumping, and still another concerns core-concrete interaction.

Core debris and water interaction are another problem, as is the hydrogen source term where modelling of the code is not adequate. Other areas of concern include the mass and energy balance, and the code's "fathomability." Says a staffer, "It's not easy to get into March and understand what it's doing in various aspects."

A Brookhaven National Laboratory researcher told the ACRS recently that it takes about 18 months to learn to use the code. "You have to use a code with intelligence," he said. "You just don't take a deck, run it, and get an output and show it to people. You must look very carefully at the input and be very aware of what is in it and be sure you have got a good solution," he said. And a staffer from Sandia National Laboratories warned that the code "does reduce phenomena to a false simplicity by ignoring complicating factors." -- *Joanne Dunn*

THREE MILE ISLAND ALERT DISPUTES ARGUMENTS BY NRC and Metropolitan Edison Co. that the commission order it is challenging in court is interlocutory and so not subject to the court's jurisdiction, telling the U.S. Court of Appeals for the District of Columbia Circuit that courts in the past had held similar orders to be final. The order TMIA is fighting is the March 23 dropping by the commission of the issue of Met Ed's financial qualifications from the TMI-1 restart proceedings. Met Ed, as an intervenor in the appeals court case, and NRC have asked the court to dismiss TMIA's petition for review (Inside NRC, 29 June, 7).

Arguing against dismissal, TMIA calls the commission order "a blatant example of arbitrary and capricious decision-making," adding that "case law states explicitly that an agency can be challenged for acting in opposition to its authorizing statute." TMIA contends its members "have a vital interest in ensuring that Three Mile Island be operated by a licensee that is not strapped by financial constraints, and thereby pressured into cost-cutting measures which might affect adversely the plant's safety." Says the group: "Indeed, this is precisely why the Atomic Energy Act and NRC regulations require that a licensee's financial qualifications be examined."

As an alternative, the group says, the court could hold in abeyance its petition for review, pending issuance of the order on restart by NRC. Met Ed, in a July 2 brief supporting its motion to dismiss the case, reiterates its position that court intervention at this time is inappropriate. "If and when the NRC issues an order allowing TMI-1 to restart, TMIA may at that time seek judicial review of the NRC's decision to allow restart before considering financial qualifications," the utility says.

NRC STAFF WON'T AGREE TO RECOMMEND RESTART OF TMI-1 UNTIL IT HAS EVIDENCE of "reasonable progress" on developing water level instrumentation, the Advisory Committee on Reactor Safeguards was told at a subcommittee meeting. "Unless they're working very much behind the scenes, there's no way they'll have it installed by January 1, 1982," a staff member said. "At the very minimum, we require to see some strong