

Atomic Industrial Forum, Inc.
7101 Wisconsin Avenue
Bethesda, MD 20814-4805
Telephone: (301) 654-9260
TWX 7108249602 ATOMIC FOR DC

July 22, 1985

Mr. William J. Dircks
Executive Director, Operations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Dircks:

The AIF Committee on Reactor Licensing and Safety has been asked by our industry to examine existing NRC regulations and other requirements for the purpose of identifying those areas where revision in the source term assumptions emerging from the research underway since the Three Mile Island accident are likely to result in material change in current requirements. The results of this review are summarized in the enclosed recommendations. These recommendations should be viewed in the context of the enclosed July 19, 1985, letters to Chairman Palladino related to these areas from Mr. Wallace Behnke, Chairman of the AIF Policy Committee on Nuclear Regulation. We have identified the following ten areas which we believe warrant reexamination on a high-priority basis using the methodology to be set forth in the Commission's Policy Statement on Safety Goals for the Operation of Nuclear Power Plants and the most current source term information:

1. Emergency off-site planning and response
2. Probabilistic risk assessment and cost-benefit analysis
3. Containment leak rate testing
4. Containment purging and venting
5. Containment spray system additives
6. Containment filtration
7. Isolation valve leakage
8. Secondary containment leakage
9. Stand-by gas treatment
10. Control room and technical support center ventilation

Our purpose in writing is to urge the NRC to assign a high priority to the review of these requirements. Our Committee is anxious to work with you and your staff to bring about an early resolution of these matters.

Sincerely,

Murray R. Edelman

Murray R. Edelman
Chairman, AIF Committee on
Reactor Licensing and Safety

8508260260 850820
PDR ORG EPSAIF
PDR

MRE:seu
Enclosure

EDO --- 000853

COMMITTEE ON REACTOR LICENSING AND SAFETY RECOMMENDATIONS ON

REGULATORY APPLICATION OF NEW SOURCE TERM INFORMATION

BACKGROUND

The Atomic Industrial Forum Committee on Reactor Licensing and Safety has recently formed a special action group on regulatory application of new source term information.* The purpose of this group is to examine areas where new source term information can be applied in the regulatory process and make recommendations thereon. Through the efforts of IDCOR, ANS, NRC, EPRI, and APS, we believe that sufficient information and study exists to conclude that the current source term assumptions which serve as the basis for regulatory requirements, licensing commitments, and ESF design features are overly conservative and should be reduced. We also believe that this new information should be implemented in a timely matter in regulatory areas where such application can reduce costs to consumers with no decrease in the protection of the public health and safety. In this regard, our special action group met and has made a preliminary examination of the areas in which new source term information should be expeditiously applied in the regulatory process. The following areas are viewed to be high priority:

EMERGENCY OFF-SITE PLANNING

Off-site emergency planning under current regulatory requirements requires a very large amount of utility, federal, state and local resources. For example, typical utility costs for implementing current emergency planning requirements around a nuclear plant site are in the range of 2 to 5 million dollars; the annual utility maintenance cost associated with such requirements typically ranges from \$250,000 - 2.5 million dollars. Additional resources are required at the federal, state and local levels. While utilities are clearly committed to adequate emergency preparations to protect individuals living around nuclear plants even for the highly unlikely event of an accident which would impact public health and safety, they are also concerned with the adverse psychological impacts of certain current practices associated with prompt notification and plans for rapid widespread evacuation. We believe that the examination of current emergency planning requirements in the context of their costs vs. their public health and safety benefits would show many of these requirements to be clearly excessive and therefore neither

* As used herein, the term "source term" should be interpreted as new information concerning the nature and timing of release and dispersion of fission products as a result of severe accidents.

cost nor safety effective. Such a showing would be even more clearly emphasized if the new source term information were used in such cost-benefit analyses. We consider this to be a high priority area where new source term information can be most beneficial in assessing the cost and safety effectiveness of current emergency planning regulatory requirements.

PROBABILISTIC RISK ASSESSMENT AND COST-BENEFIT ANALYSES

Source term information also plays a significant role in the calculation of public risk posed by nuclear plant designs or accident scenarios associated with such designs. Cost-benefit analyses are one of several considerations in the NRC's decision making process for the resolution of Unresolved Safety Issues and the generation of new requirements, as well as for prioritizing safety research. Thus, using the new source term information to determine the public risk/benefit for these cost-benefit analyses could have a significant impact on NRC decision-making regarding backfits. In this regard, NRC staff use of obsolete source terms could lead to imposition of backfits which would be confirmed to be inappropriate in light of new source term information. In addition, NRC review of existing regulations for cost and safety effectiveness could be significantly influenced by adoption of new source term information. We consider the implementation of new information into cost-benefit analyses used by NRC to support backfits or to review existing regulations to be high priority.

In addition, there are a number of other areas in which application of new source term information could have significant positive effects on the design, construction and operation of nuclear power plants. However, most of these areas are based on the use of the source terms specified in TID 14844 and associated regulatory guidance (e.g., R.G. 1.3 and 1.4). Accordingly, it appears that the source terms currently used in regulatory documents must be modified in order to take advantage of the new information. Such changes may require complex and lengthy administrative procedures which could delay usage of new source term information. We have identified the following areas as being of significant benefit should new source term information be adopted as the basis for current requirements associated with them. Therefore, we would recommend that whatever changes can be made in an expeditious manner to improve regulatory requirements in these areas should be initiated with the highest priority:

CONTAINMENT RELATED AREAS

Containment Leak Rate Testing

Containment leak rate testing (both local and integrated) is generally time consuming and expensive. In addition, the integrated leak rate test is on the critical path during refueling outages. Using the new source term as the basis for selecting the allowable leakage rate and required test frequency would reduce the time and difficulty of performing these tests, with attendant cost savings but without any attendant reduction in the protection of the public health and safety. Costs associated with containment leak rate testing range from \$250,000 - \$500,000 per plant. In addition, the integrated leak rate test usually represents several critical path days to startup at a cost of approximately \$500,000 per day. If the integrated leak rate test frequency could be reduced, a cost saving of many millions of dollars per plant over its lifetime could be realized. In addition, if the leakage rate could be increased, the cost and difficulty in complying with local leak rate testing requirements and acceptance criteria would be reduced. Also the need for repeating integrated leak tests, which has occurred in a few cases, would be virtually eliminated. We would recommend that priority attention be given to this issue and a procedure be identified to expeditiously revise requirements for the frequency of containment leak rate testing and criteria for the allowable leakage rate on the basis of new source term information.

Containment Purging and Venting

In view of the new source term information, we believe the staff should re-evaluate its current criteria for containment purging and venting. An increase in the minimum number of hours utilities are allowed to purge and vent on the basis of reduced source terms combined with PRA can provide reduced occupational exposure and would permit prompt entry for inspection, trouble shooting or maintenance. It appears that this criteria could be changed expeditiously.

Containment Spray Systems

The requirement for containment spray additives (usually NaOH) appears to be of little or no use in removing iodine in the containment atmosphere following a large fission product release to containment, since new source term information shows that very little elemental iodine would reach the containment atmosphere under any known accident sequence. Many utilities owning existing plants could eliminate the safety-related active system and, if necessary, switch to a passive or simple

*Do I want to remove NaOH active
whole containment spray systems.*

manually controlled active corrosion control system to take the place of the corrosion controlling action of the safety-related NaOH injection system. The cost of such changes would be off-set by operations and maintenance costs for the current spray additive systems and the risks of corrosion from inadvertant operation of the active safety-related system. For future plants the cost saving would be millions of dollars per plant since installation of active NaOH injection systems would be unnecessary.

Other Containment Enhancement Features

In addition to the above, certain containment systems have incorporated unique and costly features to meet the requirements of 10 CFR 100 using current source term criteria. In some cases, these features are site specific; in others they are part of a design standard. Typical of these are:

- Standby Gas Treatment System
- Secondary Containment
- Isolation Valve Leakage Control Systems

Current plants incorporating such features could realize significant benefits from reduced need for testing, inspection and maintenance if these features were no longer treated as safety-related. Future plants that would need these features to meet current requirements could realize cost savings in excess of 10-25 million dollars if the new source term information allowed elimination of some or all of them.

ENGINEERED SAFETY FILTRATION SYSTEMS

There are a number of filtration systems now treated as safety-related in current plants that incorporate charcoal absorbers for iodine removal. It appears that many of these should either be eliminated or removed from the safety-related category. Such actions would result in significant cost savings and possible reduced exposure to operating personnel due to elimination of the need for periodic testing and replacement requirements. These are estimated to be in the range of \$10,000 - \$30,000 per year per plant. For new plants, savings of at least 3-5 million dollars could be realized.

CONTROL ROOM AND TECHNICAL SUPPORT CENTER EMERGENCY VENTILATION SYSTEMS

The control room and TSC emergency ventilation systems also appear to be areas for economic savings by basing their design (or the need for the system at all) on new source term information. Cost savings for these for some plants could be in the half million dollar range.

Our group has identified several other areas where adoption of new source term information could result in improved and simplified practices, more realistic public information and/or significant cost savings, including:

- siting criteria,
- environmental reports,
- emergency procedure guidelines,
- emergency operational facilities criteria,
- post accident environmental monitoring.

However, in these recommendations, we have focused on areas where adoption of the new source term information should, in our judgment, receive the NRC's highest priority.