

Draft  
September 22, 1980  
Eugene L. Saenger, M.D.

Release of Radioactive Substances in the  
Event of a Major Reactor Accident: Protection of Individuals  
and the Public

Summary: This document proposes that an international expert committee or panel be convened in the spring of 1981 to consider the subject of Protection of the Public following Release of Radioactive Substances from Nuclear Power Reactor Accidents.

This subject has evoked intense public concern, apprehension and, in not infrequent instances, panic and riot. At the present there seems to be no clearcut national or international policies to deal with such potential hazards even though the frequency of occurrence of major accidents affecting the public health is to the present time rare.

This meeting will be sponsored by WHO, PAHO and the NCRP. Attendance will be limited to invited experts from several countries utilizing nuclear power as an important energy source and who have considered and developed various alternative plans for protection of the public in the event of a malfunction of sufficient magnitude to affect the public health.

The Proceedings of the Conference would be published.

Most of the topics addressed in this symposium have been considered only briefly or conceptually but not specifically. The only exception to this statement concerns the use of stable iodide because of the concern over the volatile radioiodines. The probabilities and procedures for coping with air, ground and water contamination require determinations as to whether preventive or therapeutic procedures are needed. If such decisions are positive it then becomes necessary to prepare procedures both for the individual, the public health and the environment.

## Release of Radioactive Substances in the Event of a Major Reactor Accident: Protection of Individuals and the Public

### BACKGROUND:

In the United States consideration of this subject grew out of earlier work culminating in Report 55 of the NCRP entitled "Protection of the Thyroid Gland in the Event of Releases of Radioiodine". This report evaluated the use of stable iodide and other blocking agents for protection of the thyroid gland in the event of release of radioiodine and compared these agents to evacuation and shelter. This report was released in 1977 and in late 1978 the Food and Drug Administration approved the use of one blocking agent, potassium iodide, for use both in human beings and in animals for use with animal feed. Since then the possible methods of distribution have been studied extensively. Potassium iodide was made available under emergency conditions at the time of the Three Mile Island (TMI) incident in March of 1979 although it was not necessary to use this preparation.

Discussions and research on the subject of thyroid blocking have continued. Some authors have advocated wider use of blocking agents than had originally been suggested in report 55. Others have recommended that the use of blocking agents is inappropriate, and under certain circumstances either sheltering or evacuation should be employed.

Other countries at the time of this writing (summer 1980) have taken different positions than the United States. For example, Great Britain has for some years advocated the use of sodium iodate because of its longer shelf life and stability. West Germany is proposing the use of blocking doses of iodide similar to the program carried out in the United States. France does not utilize blocking agents. Varying policies are under considerations by other European countries but no firm positions are clarified at present. South American and Latin American countries are considering the question of blocking agents, evacuation and also sheltering.

In addition some questions have been raised by public health authorities as to protection of the public in the event of the release of radionuclides other than the volatile iodines following a reactor accident, e.g., strontium 90 and cesium 137. Much discussion and public concern has developed concerning the release of noble gases such as krypton-85. The matter of venting krypton-85 was evaluated by NCRP for consideration by the Governor of Pennsylvania in relation to Three Mile Island.

During the past several years within the United States and other countries, there have been many examples of successful evacuation of large numbers of people - up to 10,000 or more - because of spills of toxic chemicals mostly occurring in transportation accidents. These evacuations have been carried out in a most orderly fashion without rioting, looting, assaults on elderly persons, women and children, and with successful return of persons to their dwellings.

Lacking clear-cut directives as to the proper measures to be taken under the many different conditions possible in the rather rare event of a major catastrophe and because of the marked apprehension of large numbers of the public because of the possibilities of such an event occurring, it was thought desirable to evaluate this situation

further. In order to do this an initial step would be to invite a number of scientists and public health authorities who have given these matters serious consideration and who have had practical experience and have published on these topics.

Concurrent proposals were made to WHO to suggest its sponsorship so that a conference would be international in scope and to the Board of the NCRP so that if a conference could be put together the proceedings of such a conference could be promptly and properly recorded and made available to the public using the excellent staff support of the NCRP to produce a well prepared report of the meeting. Necessary approval for such a conference has been received by the Board of the NCRP and from WHO from Dr. E. Komarov.

At present a small executive committee is in the process of formation in order to invite the expert participants. Efforts have begun to develop sufficient funding for this projected meeting.

It is proposed that this meeting be held in May 1981 in Washington, D.C. This site has been selected because it is the site of the Pan American Health Organization, a division of the World Health Organization and also because it is the headquarters of the NCRP. All of these circumstances combining to simplify arrangements for the meeting and for the preparation of an appropriate report at the completion of the meeting.

It is proposed to invite and support the travel of approximately 30 individuals of whom about 15 would come from overseas and 5 from the United States. Travel and lodging of these individuals would require support and an honorarium of approximately \$500 per individual for the preparation of a document in publishable form to be available prior to the conference itself. In addition other participants from the United States would be invited with the request that their own organizations would furnish their necessary travel and expense of manuscript preparation.

Among the topics to be included in the conference are the following:

1. Health indications for population evacuation.
2. Medical supervision of populations in the accident area.
3. Use of preventive medication in treatment for exposed populations.
4. Other health actions to be considered.

Separate sessions would be held in regard to possible reactor accidents with release of radioactive materials and subsequent discussion then held on the question of iodine, strontium, cesium, other radioactive compounds, sheltering, evacuation and others.

BUDGET

Travel and honorarium for \$40,000

20 individuals

Secretarial services for the 10,000

committee

Site arrangements in Washington 10,000

Preparation of the report 30,000

Telephone, mailing, misc. office 5,000

expenses

Overhead - 10%

34,300

TOTAL \$149,300