NUCLEAR LIABILITY INSURANCE INTEREST IN

RADIOACTIVE WASTE MANAGEMENT AT UTILITY POWER REACTORS

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ABSTRACT

The potential for costly nuclear liability claims is often a hidden dimension to the effective management of radioactive waste programs. In order to help members of the audience to be more aware of this potential, this paper briefly introduces the radioactive waste manager to such subjects as: the nuclear liability insurance policy; radioactive waste emission and personnel exposure claims; claims avoidance and claims defense strategy; and the role of the ANI Nuclear Engineering Department (NED) in this overall process.

INTRODUCTION

The routine management of radioactive wastes generated as a result of power plant operations leads to the potential for both off-site environmental contamination and the radioactive exposure of on-site workers. Environmental contamination and the radioactive exposure of workers may in turn lead to the development of third party nuclear liability claims alleging either or both bodily injury or property damage. It is my purpose today to make you aware and mindful of the claims potential and, to some extent, what is entailed in claims defensibility, particularly as pertains to your radioactive waste management program.

The nuclear insurance pools, through the nuclear liability policies we issue, agree to indemnify insureds for particular aspects of their nuclear liability arising from the nuclear hazard. I am sure that I speak for the industry as well as ANI when I state that, through the insurance mechanism, we have put in place a means to provide recompense for just claims. Nevertheless, it is vitally important that as the number of nuclear liability claims begin to increase, the nuclear industry and the nuclear pools must also be certain that we have put in place the means to defend our separate and mutual interests within the legal system.

The address today touches briefly upon the following four areas:

1. Nuclear Pool structure and nuclear liability coverages.
2. Claim experience to date, with a view to illustrate the linkages between nuclear operations and claims made.
3. The basic elements of claim avoidance and claim defensibility as related to radioactive waste management.
4. The role of the NED in assisting reactor operators to better accomplish the above.

Nuclear Liability Insurance Coverage

In 1957, an amendment to the Atomic Energy Act of 1954 was added to require that the owners/operators of nuclear facilities furnish proof of financial protection against all offsite third party liability that might occur from the hazardous properties of nuclear materials in an amount equal to that available through private insurance. The liability beyond that amount would be assumed by the Federal Government. This amendment is known as the Price Anderson Act.

The Price Anderson Act covered three basic areas:

1. It required prospective owners or operators of certain nuclear facilities to show proof of financial protection as a prerequisite for an operating license. For the owner or operator of a nuclear power reactor, with rated capacity of 100 MWe or more, the level of financial protection is set, in almost all cases, at the maximum amount available at reasonable cost and on reasonable terms from private sources.

2. It established a program of granting government indemnity, for a fee, to the owners or operators of certain nuclear facilities for amounts which exceeded required financial responsibility levels.

3. It established a limitation on liability with respect to the conduct of certain nuclear activities. In the case of nuclear power reactor operations, the limitation on liability was set at $560 million.

In order to provide the large sums of money required to accommodate the financial protection needs of the owners/operators of nuclear facilities, the insurance companies formed associations called "Pools." The member companies of these pools then pledge assets that in the aggregate provide sufficient resources to underwrite these high capital risks - risks that no one insurance company could afford. American Nuclear Insurers (ANI) and the Mutual Atomic Energy Liability Underwriters (MAELU) are two such Pools.

In 1957 the Pools were able to provide an initial layer of financial protection of $60 million with the Federal Government providing an additional $500 million for liability in excess of this amount. This is how the legal limit of liability, or cap, was set at $560 million. It was the intent of the Federal Government that as insurance capacity increased the government's responsibility would decrease.

Over the years there have been several statutory revisions in the Price Anderson Act. The insurance Pools have also increased their capacity. In 1966 provisions for an Extraordinary Nuclear Occurence (ENO) were added. This clause provides for a waiver of defense endorsement. In other words, should an accident occur, resulting in substantial discharge or dispersal of radioactive material offsite or, substantial radiation levels offsite; and the NRC determines that the occurence has resulted in or will probably result in substantial damages to persons and property located offsite, the waiver of certain defense provisions is activated which results in a "no-fault" condition.

In 1977, the Secondary Financial Protection (SFP) layer was added. In the event the initial insurance capacity is exceeded the SFP layer is called upon, and each power plant is assessed a prorata share of public liability up to $5 million per accident (maximum of $10 million annually). This provision was added to even further reduce the Federal Government's liability in the commercial industry. According to this provision, the Government would only be liable for the difference between the cap and the sum total of the primary and secondary layers.

1977 Example

A) pools provided = $140m.
B) SFP provided = $5m. x (62 plants) = $310m.
C) Fed. Gov. provided balance = $110m.

Total $560 million

In 1982, with the primary financial protection layer at $160 million, the 80th reactor was licensed to operate. The primary and secondary layers then equaled the liability cap and the government's direct indemnity role was eliminated.

At the time of this writing, the total nuclear liability financial protection available to an operating power reactor is $650 million with essentially a floating cap.

1985 Example

A) pools provided = $160m.
B) SFP = $5m.x (98 plants) = $490m.

Total $650 million

Thus, private insurance companies and utilities both have substantial assets at risk.

Specifically, what types of liability are covered? The nuclear liability insurance covers liability for damages directly caused by the nuclear energy hazard.

The "nuclear energy hazard" means the radioactive, toxic, explosive, or other hazardous properties of nuclear material, but only if:

(1) the nuclear material is at the facility or has been discharged or dispersed therefrom without intent to relinquish possession or custody thereof to any person or organization, or

(2) the nuclear material is in an insured shipment which is away from any other nuclear facility and is in the course of transportation, including the handling and temporary storage incidental thereto, within

(a) the territorial limits of the United States of America, its territories or possessions, or Puerto Rico; or

(b) international waters or airspace, provided that the nuclear material is in the course of transportation between two points located within the territorial limits described in (a) above and there are no deviations in the course of the transportation for the purpose of going to any other country, state or nation, except a deviation in the course of said transportation for the purpose of going to or returning from a port or place of refuge as the result of an emergency.

This coverage includes offsite bodily injury and property damage sustained by members of the general public, and bodily injury to onsite personnel, i.e., nuclear workers who elect to sue someone other than their employer in tort.

"Bodily injury" means bodily injury, sickness, or disease, including death resulting therefrom sustained by any person.

"Property damage" means physical injury to or destruction or radioactive contamination of property, and loss of use of property so injured, destroyed or contaminated, and loss of use of property while evacuated or withdrawn from use because possibly so contaminated or because of imminent danger of such contamination.

Claims involving bodily injury or third party property damage would likely be covered by nuclear liability insurance . (Worker's Compensation claims, however, are not covered.) The nuclear liability coverage extends to insure the interest of contractors, vendors and manufacturers, and any other person who may be liable, except the U.S. Government or any of its agencies.

There are two other items worthy of note. The total liability of the pools (presently $160 million) includes payments in settlement of claims and payments for expenses incurred in the investigation, negotiation, settlement, and defense of any claim or suit. Also, the total liability stated in the policy is the total for the life of the policy. In other words, each payment made by the pools under this policy will reduce the limit of liability allowed under this policy. However, to date, limits have always been reinstated.

Claims Experience

What types of recovery are being sought under the nuclear liability policies in actual practice? We can look at the types of claims and losses that were associated with the Three Mile Island II accident, as a way to address this question.

As of November 1985, total pool claims expense and loss payments totalled over $46,000,000. Some of this amount was used to pay covered losses such as lost wages and living expenses due to the recommended evacuation of pre-school children and pregnant women. It was also used to pay a consolidated class action suit settlement for property claims which included business/economic losses to individuals and businesses within twenty-five miles of the site. More recently, another settlement was made amounting to approximately $14 million. Two hundred and eighty claims for alleged physical and emotional injuries were settled without any admission of liability for the injuries.

During the last several months, over 135 new suits, involving more than 2,900 new plaintiffs, have been filed in state and federal courts in connection with the Three Mile Island accident. In general, the new suits allege "bodily injury" resulting from radition exposure. The types of bodily injury claimed to have been caused by radiation include about every type of known cancer and other health problems, including AIDs. It should be noted that these health problems are common to any general population and no causal link has been established between the alleged bodily injury and radiation exposure. The important thing to observe is the significant increase in new claims.

Claims Avoidance in Radioactive Waste Management

It was originally contemplated that the greatest nuclear liability exposure would arise from a major plant catastrophe involving the unplanned release of large amounts of radiation to the environment. Industry history and claims analysis suggest that this may not be true. Claim review would suggest that exposure stems from claims in two broad areas not related to plant catastrophe at all. They are: claims alleging bodily injury and property damage resulting from releases of radioactive materials to the environment, even though the release may be well within regulatory limits; and occupational radiation worker exposures, also within limits. It is our belief that proper management of radioactive waste as well as the establishment of adequate means to defend those claims which may arise will help to mitigate both of these concerns.

In the process of conducting nuclear liability inspections throughout the industry we have seen a wide diversity in the application of radioactive waste management programs. Some of the programs we have seen provide reasonable assurance of minimizing utility exposure to claims and consequently the Pools' assets. On the other hand, some practices have, in fact, resulted in inadvertent releases and, in some cases, large claims filed against the insured. Recently, for example, a substantial claim was filed against one of our insureds for alleged damages associated with the normal release of radioactive liquid effluents to the environment. Based on the concept of nuclear liability, it can be viewed that both we, the nuclear insurance Pools, and you, the waste generators, have a stake in any payments made as a result of these claims. Thus, it is in our mutual interest to be conscientious in our efforts to achieve effective radioactive waste management.

In terms of insurance loss potential, we believe that the major objectives of an effective radioactive waste management program should be to control, measure, and minimize the amount of radioactive material and effluents from a nuclear power station, as well as to maintain occupational radiation exposure as low as reasonably achievable. In order to accomplish this effectively, a radioactive waste management program should contain procedures, policies and controls ranging from organization and responsibilities, to waste minimization and processing techniques, to eventual release, shipment or onsite storage. With regard to environmental releases, most facility effluents are well within regulatory limits and are as low as reasonably achievable. However, discharging within regulatory limits has not prevented nuclear liability claims. We at ANI are not advocating a reduction in discharge limits. A reduction in limits could increase the likelihood of violations, due to the potential of exceeding unnecessarily stringent requirements. Instead, the utility must have a strong, defendable, documented environmental program that would minimize the probability of claims resulting from environmental releases and put the insured and insurer in a better position to defend those claims that do occur.

ANI has formed an in-house task force to study environmental matters and to recommend loss control action. ANI's Environmental Task Force working with some industry input has determined that such a program should consist of the following basic parts:

1. A Realistic Model to calculate offsite doses.
2. A Software Surety Program to maintain the model's computer codes.
3. A comparison of environmental data to predictions and an iterative process to make the model more realistic.
4. Documentation that reflects both model and software development as well as the data gathered in the Monitoring Program.
5. A Quality Assurance Program that assures not only the performance, but the effectiveness of the Environmental Monitoring Program.

With the proper controls and documentation covering the wide range of the waste "cycle," a facility should be able to effectively reduce its vulnerability to nuclear liability claims.

Occupational radiation worker exposure is a concern of the entire nuclear industry, not just to those involved in radioactive waste management. This paper is not intended to focus on radiation protection; however, it should be noted that waste processing and handling contributes significantly to a facility's total worker exposure. As with effluent releases, claims are being submitted for worker exposure below the regulatory limits. Not only should individual exposure be reduced, but the total number of workers should be reduced (each individual is a potential claim). Exposure to waste processors and handlers can be reduced with a little effort up front. Facilities should practice aggressive waste minimization and reduction techniques. Processing systems should be designed and operated to minimize worker exposure. Operating/work spaces should be adequately shielded, ventilated and lit; and where possible, remote operating capabilities should be employed. Once processed, waste should be stored in facilities designed to minimize exposure, prevent container degradation, and prevent the release of radioactive material to the environment. In recent years, industry advances in the field of waste minimization and processing have been outstanding. These efforts have been spurred on by the rising cost of waste processing and burial; however, continued progress in these areas should lead to a greater reduction in worker exposure.

Role of the Nuclear Engineering Department

Although American Nuclear Insurers and Mutual Atomic Energy Liability Underwriters are two separate insurance pools, they share a unique working relationship. ANI performs the underwriting and engineering functions for both nuclear liability pools.

The Nuclear Engineering Department of ANI is composed of approximately thirty staff engineers and health physicists whose major purpose is to assess and minimize the risk for the insurance underwriters. In order to accomplish this, each staff member must function in two roles: first, as a Facility Engineer, who is responsible for the general insurance risk assessment activities in all disciplines at plants specifically assigned to him; second, as a Cognizant Engineer who must develop expertise in a specific discipline (e.g., Operations, Maintenance, Waste Management, etc). ANI nuclear engineers who inspect insured sites interact with their technical counterparts at these sites to minimize shared risk.

Through the use of their industry experience, regulatory guides, industry standards, and good engineering practices, these cognizant engineers develop inspection criteria to evaluate operational programs at reactor facilities to assist in underwriting the risk. In general, these criteria focus on programs that may cause incidents which have the potential to give rise to third party nuclear liability claims, and/or provide the proper evaluation, and if need be, the just defense of said claims.

In order to encompass the broad scope of the radioactive waste topic, ANI/MAELU has developed criteria in four significant areas. These areas are: Radioactive Waste Transportation, Radioactive Waste Management, Environmental Monitoring, and Effluent Monitoring.

In addition, task forces are developed as the need arises. Their purpose is to evaluate generic risks with potential large scale implications. Once an evaluation is made, a specific course of action is taken. The aforementioned Environmental Task Force is one such example.

As stated earlier, the Nuclear Engineering Department's function is risk assessment and loss control. We at ANI do not view ourselves as regulators, but as fellow stake-holders in the safe operation of nuclear facilities. In the area of Radioactive Waste Management, nuclear engineers visiting insured sites will work in concert with site employees to transfer and establish good practices which minimize off-site releases, keep personnel exposures to a minimum, and put in place good claims defense practices.

CONCLUSION

The member companies of the insurance pools have placed huge assets at risk through the nuclear liability insurance policies that they issue. The utilities themselves have placed huge assets at risk through the direct liability they bear and through the Secondary Financial Protection policy. Industry history and claims analysis show that a discernable element of risk to these assets stems from occupational radiation worker exposure and releases of radioactive material to the environment. In order to assess and reduce these risks, the ANI/MAELU Nuclear Engineering Department has developed criteria in four areas directly related to radioactive waste management. In addition, the specifically formed ANI Environmental Task Force has developed a program that will help to limit claims and improve the defensibility of claims that do occur, specifically regarding effluent releases to the environment. The radioactive waste manager is asked to manage his program with due regard to claims potential which is often a hidden financial dimension. We believe that the implementation of the ideas discussed herein will lay the foundation for an effective radioactive waste management program.

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