

FINANCIAL RISK MANAGEMENT ISSUES FOR LOW LEVEL RADIOACTIVE WASTE DISPOSAL FACILITIES

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ABSTRACT

With the approaching operation of low level radioactive waste (LLRW) disposal facilities under the control of states directly or through interstate compacts, issues of operational management must become a focus of concern. Financial risk management issues present specific concerns which must be addressed prior to operation to protect the facility operator, the states involved in the compact (facility owner), the shippers of LLRW, and the generators of LLRW, from claims by employees and the public.

Since the development of nuclear insurance in the form of the Nuclear Energy Liability Policy, numerous financial risks have emerged that are not covered under the blanket of nuclear liability insurance. These risks have been recognized by the insurers and specifically excluded from coverage. In order to adequately assess the issues of financial risk for LLRW disposal facilities, a comprehensive Financial Risk Assessment is required.

Given the need for a comprehensive Financial Risk Management Assessment and the complexity of issues surrounding the interstate compacts, it is necessary that the states, compacts and facility operators, join together to resolve financial responsibility questions prior to the onset of operation. This resolution will require the determination of a total financial risk package for all involved parties and for all phases of LLRW disposal. This is not a technological problem, but rather one of determining the appropriate financial mechanisms to assure that funds will be available in the future to handle any contingencies that may arise. Resolution is a necessary part of ensuring public confidence in the management of LLRW disposal facilities.

INTRODUCTION

With the approaching operation of low level radioactive waste (LLRW) disposal facilities under the direct control of states or interstate compacts, issues of facility operational management must become a focus of concern. Financial risk management issues present specific concerns required by prudent business practices and regulatory requirements to be addressed prior to facility operation to protect the facility operator, the states involved in the compact (facility owner), the shippers of LLRW, and the generators of LLRW, from claims by employees and the public. Concerns associated with new and evolving risks, along with concerns associated with the risks traditionally associated with nuclear materials must be closely examined prior to facility operation. To fully understand these issues, it is first important to understand the genesis of liability insurance for the nuclear industry.

NUCLEAR LIABILITY INSURANCE

In 1954 the United States Congress authorized private industry to utilize nuclear energy. The Atomic Energy Act of 1954 directed the United States Atomic Energy Commission (and its successor agency, the United States Nuclear Regulatory Commission) to establish and maintain regulatory control over the use of nuclear materials as a means of protecting the public against potential serious injury. The purpose of the legislation was then, and remains now, to

protect the public and to encourage the development of nuclear energy.

At the time the Atomic Energy Act of 1954 was passed, there had never been the need for insurance companies to consider the insurance problems that were commensurate with the private use of nuclear energy. It was clearly evident that special insurance would be required to meet the real exposures of nuclear hazards and to assure the public that financial indemnity mechanisms were in place. When insurance executives met in 1956 to decide how to provide nuclear indemnity insurance, it was clear that the types of insurance then available would not provide the coverage supporters of nuclear power thought necessary and which Congress believed were required to protect the public in the event of a catastrophic nuclear accident.

The problem of inadequate capacity is not unusual for today's complex and technologically advanced risks. However, in 1956 it was unprecedented that insurance would not be available to cover the risks associated with any industrial undertaking. To provide the necessary nuclear liability insurance to reactor operators, the insurance industry formed two insurance pools in 1957. These pools, the American Nuclear Insurers and Mutual Atomic Energy Liability Underwriters were able to make available \$60 million limits of liability insurance. Today, the pools offer \$200 million of nuclear liability insurance protection to nuclear power plant operators. If an accident results in the release of nuclear material that causes bodily injury or property loss to the

general public, this insurance will respond to liability for the damages caused.

While the \$60 million limit of liability was substantial in 1957, it was not considered adequate to cover the nuclear exposure. Therefore, a 1957 amendment to the Atomic Energy Act of 1954 devised a system of financial protection against nuclear liabilities of potentially catastrophic proportions. Under this amendment, known as the Price Anderson Act, the Federal Government provided up to \$500 million of indemnity for liability in excess of the \$60 million of financial protection purchased from the insurance pools by reactor operators. This Act also provided that no liability existed for loss in excess of this sum. Congress would determine the need to provide funds for loss beyond the \$560 million total in the event of a nuclear occurrence.

The Price Anderson Act is reviewed every ten years. In 1975, Congress amended the Act to begin a phase out of government indemnification. The 1975 Amendments established a system of retroactive assessments where each operator of a nuclear facility would be assessed by the insurance pools up to \$5 million per reactor for a pro rata share of loss. This assessment would be made in the event of a nuclear occurrence that exceeded the insurance available from the pool. The 1975 Amendments also reduced the amount of government indemnity by the amount of the pool's insurance limit plus the secondary financial protection exceeding \$60 million. Thus, when the number of reactors insured reached 100, the Government's indemnity role ended.

In 1987, the provisions of the Price Anderson Act expired with respect to any reactor that had not received its construction permit from the Nuclear Regulatory Commission prior to that date. Renewal of the Price Anderson Act was extensively debated in Congress. In 1988, President Regan signed legislation renewing the Price Anderson Act for fifteen years. The law increased each reactor operator's liability for assessments from \$5 million to \$66.15 million per reactor per nuclear incident. The total amount of financial protection now exceeds \$7 million.

The principal policy of insurance issued by the insurance pools to operators of nuclear facilities is the United States, and the only one directly related to the Price Anderson Act, is the Nuclear Energy Liability Policy - Facility Form. The policy is written without a fixed expiration date. For organizations that generate and handle nuclear materials, but which are not nuclear power plant operators, the pools offer the Nuclear Energy Liability Policy - Suppliers and Transporters Form. The coverage is essentially the same as that offered with the Facility Form policy with the exception that no payment is made under the Suppliers and Transporters Form policy until all applicable Facility Form policy coverages are exhausted. Both policy forms are also

used by educational institutions and health care institutions throughout the United States.

As waste disposal is an integral part of the nuclear fuel cycle, the insurance pools have provided third party nuclear liability insurance for private low level radioactive waste (LLRW) disposal facilities since 1957. While the government's indemnity, through the Price Anderson Act, was not applicable to LLRW disposal facilities, the insurance pool's coverage provided vital financial protection for damages then perceived to be potentially caused by nuclear hazards. In 1987, however, the pools temporarily suspended writing any new policies for LLRW disposal facilities and suspended writing Suppliers and Transporters Form policies in general. The suspension was the result of expanding environmental liabilities and disagreement between the pools and their insureds over the coverage provided for environmental impairment. Emerging environmental regulations, such as those creating the Superfund, had by 1987 created a new set of risks not anticipated when the Nuclear Energy Liability Policy was conceived and written. No existing policies were cancelled, leaving the currently operating waste disposal sites covered by the insurance pools for the traditional catastrophic nuclear hazards, but exposed to an evolving set of environmental hazards.

LOW LEVEL RADIOACTIVE WASTE DISPOSAL LIABILITY INSURANCE

In January, 1990, American Nuclear Insurers issued an environmental endorsement (coverage restriction) to their nuclear liability insurance policies. The endorsement followed a moratorium on providing coverage for LLRW facilities. The purpose of the endorsement is to clarify the intended scope of the pool's insurance coverage. To this end, the endorsement makes it clear that the existing policy Forms provide coverage only for damages because of bodily injury to a third party or offsite property damage caused by nuclear operations. This includes nuclear contamination, regardless of whether the contamination is caused by a sudden event or the general accumulation of nuclear material. The endorsement is clear that the Facility Form and the Suppliers and Transporters Form policies do not provide insurance protection for onsite environmental protection obligations, onsite clean up costs and governmental response costs (including CERCLA), leaving waste disposal facilities without a source of onsite nuclear environmental impairment coverage.

The endorsement does provide a new coverage for offsite environmental liability, including governmental response costs, arising out of either an Extraordinary Nuclear Occurrence (as defined by the Nuclear Regulatory Commission) or arising out of a transportation incident. The pools reasoned that these costs could be tied to clearly

identifiable events as contrasted with everyday operations. As the criteria for an Extraordinary Nuclear Occurrence apply over to power reactor facilities, the new coverage does not apply under Facility Form policies issued to waste disposal or other non power reactor facilities or under Supplier and Transporter Form policies. However, the new coverage proposed for transportation incidents does apply under these policies.

The liability insurance available from the nuclear insurance pools provides vital protection from catastrophic loss resulting from the traditional nuclear energy hazards. However, substantial financial risks have emerged since development of the Nuclear Energy Liability Policy. The nuclear insurance pools have taken a first step in providing coverage for currently evolving environmental risks. Substantial risks, however, remain uncovered by the pools. These risks must be addressed to properly protect the public and those entities involved with LLRW disposal facility operation. Simply purchasing the Nuclear Energy Liability Policy available from the nuclear insurance pools, is not sufficient to prudently protect LLRW disposal facilities.

LLRW DISPOSAL FACILITY LIABILITY ISSUES

The financial risks associated with LLRW disposal facility operation have traditionally been viewed as offsite property damage resulting from nuclear contamination and bodily injury to third parties resulting from nuclear hazards. As previously discussed, the Nuclear Energy Liability Policy has been endorsed to include coverage for the evolving risk of offsite environmental liability resulting from a nuclear incident. However, several additional concerns currently exist from evolving environmental risks, along with concerns associated with emerging trends in litigation, all of which are not covered by nuclear liability insurance.

The issue of onsite clean up of contamination under environmental laws such as the Comprehensive Environmental Response, Compensation and Liability Act presents a large and growing risk to LLRW disposal facility operations. Under this law all parties associated with the generation, transportation and disposal of waste are financially responsible for clean up of contamination regardless of their degree of participation in the process. Therefore, without sufficient insurance to cover potential clean up costs, waste generators (such as hospitals and utilities) and waste shippers may be held liable for clean up costs unpaid by LLRW disposal facility operators. In these types of situations, all potentially responsible parties are typically sued in an effort to find the deepest pockets.

The costs of responding to regulatory and court requirements in an offsite clean up caused by the slow spread of contamination (as opposed to a sudden accidental release) are currently not covered by nuclear liability insurance. These costs when combined with legal defense costs

(also not covered by nuclear liability insurance) can often surpass the actual cost of contamination clean up.

In our litigious society, new theories of liability are being created with the effect of increasing liability and the likelihood of recovery. The concept of negligence is often replaced by strict liability (liability without fault), particularly for litigation involving toxic contamination. Punitive damage awards, often far out of proportion to actual compensatory damages, are commonplace. The burden of proof to recover damages is being reduced, and in some cases totally eliminated. Recoveries are being allowed for the emotional distress of fearing illness absent any present injury. Additionally, there exists a growing potential for mass litigation based on statistical evidence of harm. The financial risks associated with these trends must be considered in the prudent long term operation of a LLRW disposal facility. Issues such as class action suits by workers for job related illness and other non third party injuries must be given reasoned consideration in today's litigious environment.

Financial responsibility issues involving LLRW compacts are further complicated by the large number of entities involved with the compacts. With the discovery of some type of damage or injury, lawsuits would be filed against the operator of the LLRW disposal facility. In the absence of insurance or some other means of indemnity, the operator's liability would be limited to its assets. This being the case it is likely that the compact (if it is a legal entity) would also be sued along with the states participating in the compacts. Many states have statutory immunity against such suits, but others do not. Compacts exist with some member states having immunity and others not leaving those without immunity to potentially shoulder the burden of liability. Finally, as previously discussed, in the instance of environmental contamination, every entity involved in the LLRW disposal process will certainly be involved in the resulting lawsuits. Generators and shippers both will be identified as potentially responsible parties.

REGULATORY REQUIREMENTS FOR FINANCIAL RESPONSIBILITY

Federal regulations for licensing LLRW disposal facilities require only that the applicant for a license, to operate a LLRW disposal facility, show sufficient financial strength to be able to conduct all licensed activities over the planned operating life of the LLRW disposal facility, including costs of construction and disposal. This responsibility can be met by a variety of means including:

- Insurance Provided by a Commercial Insurer
- Insurance Provided by a Captive Carrier
- Risk Retention/purchasing Groups
- Surety Bonds

- Standby Letters of Credit
- Financial Tests and Corporate Guarantees
- Escrow/trust Accounts

The Low Level Radioactive Waste Policy Act of 1980 makes each state responsible for providing the disposal of its radioactive wastes. The burden of defining the specific requirements for an adequate financial responsibility program, therefore fall primarily with the state. Some states, such as Pennsylvania, have aggressively addressed the issue of financial responsibility. The State of Pennsylvania has adopted low level waste legislation which includes a rebuttable presumption applying to both bodily injury and property damage within a three mile radius of the LLRW disposal facility site. In effect, this makes the assumption that any damage from nuclear hazards within the three mile radius has been caused by the LLRW disposal facility, shifting the burden of proof from the claimant to prove damage or injury, to the LLRW disposal facility to demonstrate that the damage or injury was not caused by its operation.

This type of complex state requirement for financial responsibility makes the analysis of potential risks very important. When coupled with the many environmental risks that are now emerging, the potential for creative claims by workers and other non third parties, and the routine issues of fire, property and casualty risks, the need for careful financial risk assessments for LLRW disposal facilities becomes clear.

FINANCIAL RISK ASSESSMENTS

Financial Risk Assessments provide a comprehensive evaluation of the hazards involved with LLRW disposal facility operation, the financial risks associated with those hazards and, finally, the financial mechanisms available to insure or indemnify against such financial risks. Assessments are required for LLRW disposal facilities to ensure that all relevant hazards are appropriately identified, including those that may emerge over the next several years. As previously discussed, new hazards associated with LLRW disposal facility operation are being perceived by regulators, courts and the public. Without identification and subsequent quantification in terms of financial risks, these hazards will certainly result in economic losses to all parties involved with LLRW disposal.

A comprehensive Financial Risk Assessment should begin with a detailed hazard analysis. The hazard analysis should consist of a comprehensive look at the technical hazards existing over the life of the LLRW disposal facility. It should analyze onsite activities during construction, operation, closure and post closure maintenance, developing potential hazard scenarios and endangered parties.

An analysis of State and Federal statutes, rules and regulations should also be performed. This should include requirements during construction, operation, closure and post closure maintenance. The analysis must be performed specifically for the states involved and look at issues of immunity, presumption and limits of liability to provide adequate input to a financial risk analysis.

A review of applicable court decisions and pertinent tort law should be a part of the Financial Risk Assessment in order to assess the impacts of precedents and case law in defining the hazards associated with a LLRW disposal facility. This review should be coupled with a review of the hazards recognized by good business practices in the nuclear industry as well as the hazardous materials industry.

Input from the hazard analysis, the analysis of State and Federal Requirements, the legal review and the review of good business practices should be integrated to eliminate overlap and, most importantly, so synergistically determine whether any hazards have been omitted. The resulting list of hazards must then be quantified in terms of financial risk.

In analyzing the financial risks commensurate with the hazards of LLRW disposal facility operation, an exposure matrix should be developed to identify and evaluate exposures that might give rise to losses from hazards associated with shipping, transporting, handling and storage of LLRW materials. The analysis should classify exposures by frequency and severity and break them out by class of exposure: employee, onsite property, offsite property, onsite tort claims, offsite tort claims, and governmental response costs. An integral part of the risk analysis must be a consideration of risk management.

Risk management practices attempt to reduce financial risks through physical and administrative changes to the LLRW disposal facility operation. The owners and operators of LLRW disposal facilities, as well as the generators of LLRW material, are each in a position to greatly influence the magnitude of financial risks by the development and implementation of individual risk management programs that recognize LLRW exposures.

Finally, the Financial Risk Management Assessment should review financial mechanisms available to insure against the risks defined for the LLRW disposal facility operation. This review must be comprehensive and, in many circumstances creative, looking for all available methods to indemnify against financial risks. In some cases it may be necessary to create new mechanisms as was done with the nuclear insurance pools and the Price Anderson Act in 1957.

CONCLUSION

Given the number of critical liability and property risk management issues that need to be considered and resolved

in operating interstate LLRW compacts, the management of hazardous materials, and growing public concerns expanding legal liabilities, it is clearly necessary that the states, compacts and facility operators join together to resolve financial responsibility questions prior to the onset of LLRW disposal facility operation. This resolution will require the determination of a total financial risk package for all involved parties and for all phases of LLRW disposal.

This is not a technological problem, but rather one of determining the appropriate financial mechanisms to assure that funds will be available in the future to handle any contingencies that may arise. Resolution is a necessary part of ensuring public confidence in the management of LLRW disposal facilities.