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NUCLEAR REGULATORY COMMISSION  
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**INFORMATION REPORT**

For: The Commissioners

From: Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

Thru: Executive Director for Operations ~~AS~~ *for LVB*

Subject: ASSURING LICENSEE FINANCIAL ARRANGEMENTS FOR RECOVERY FROM A MAJOR ACCIDENT

Purpose: To inform the Commission of alternatives for assuring that a licensee has adequate financial arrangements to facilitate recovery from a major accident. This is in response to the Commission's request of November 27, 1979.

Discussion: As noted above, the Commission requested the staff to address alternative approaches to assuring adequate financial arrangements in the event of a "major accident." Accordingly, this paper addresses licensee assurances of financial arrangements to cover an accident that at least causes very substantial damage to the licensee's facility and possibly causes property damage and/or personal injury to the public. Financial arrangements to cover costs of the accident at Three Mile Island are discussed at several points in the paper where they are pertinent to the Commission's request. This paper does not address licensee financial arrangements to cover the expenses of minor malfunctions that are not of a "major accident" character. Such minor expenses would normally be funded out of operating revenues or be capitalized and amortized over a period of years. These procedures are routine to utility finance and accounting.

The Atomic Energy Act of 1954 provides in Section 182.a that: "Each application for a license hereunder ... shall specifically state such information as the Commission, by rule or regulation, may determine to be necessary to decide such of the technical and financial qualifications of the applicant ... as the Commission may deem appropriate for the license." [42 U.S.C. Sec. 2232(a).] The Atomic Energy Commission adopted the relevant financial qualifications implementing regulations [10 CFR 50.33(f) and Appendix C to 10 CFR 50] in 1968. These regulations require (among other things) that an operating license applicant demonstrate that it has reasonable assurance of obtaining the funds to cover estimated operating costs and the estimated costs of permanently shutting the facility down and maintaining it in a safe condition.

The Commission provided guidance on the above regulations in its decision in Public Service Company of New Hampshire, et al. (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1 (1978) ("Seabrook"). The United States Court of Appeals for the First Circuit affirmed the Commission's decision in New England Coalition on Nuclear Pollution v.

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NRC, 582 F.2d 87 (1st Cir. 1978). Although the Commission's decision related to specific construction permits, it also provided generic guidance that is applicable to the determination of financial qualifications for both construction permits and operating licenses. The Commission noted in Seabrook that: "The regulations [10 CFR 50.33(f)] are amplified by Appendix C to 10 CFR Part 50, which sets forth guidance on the financial data required of license applicants. The appendix makes clear that the 'reasonable assurance' concept embodied in the regulation is more flexible than many of the Commission's safety criteria. It states that: 'The kind and depth of information described in this guide [Appendix C] is not intended to be a rigid and absolute requirement...'" (Seabrook at 9).

The operating license provision of the regulations relating to "permanently shutting the facility down and maintaining it in a safe condition" has been consistently interpreted by the staff and the licensing boards to mean the applicant's ability to finance a normal decommissioning operation. (The Commission did not consider this provision in Seabrook.) The provision has not been interpreted to include consideration of the more substantial costs that would result from an accident that damages the licensee's facility and possibly injures the public. Accordingly, the Commission's regulations do not explicitly require applicants to demonstrate financial assurances for recovery from a major accident. An exception to this is the provisions of the Price-Anderson Act which provide protection to the public for property damage and personal injury. This protection does not apply to property damage and other financial losses sustained directly by a licensee for its onsite property or for injury sustained by employees at the site.

It is noted that the staff is engaged in a comprehensive study of decommissioning which will include a proposed rule that would establish more explicit overall policy for nuclear facility decommissioning. The study includes an exhaustive review of methods for financing both planned and premature decommissioning. In this regard, the staff has recently published a draft report, "Assuring the Availability of Funds for Decommissioning Nuclear Facilities" (NUREG-0584, Rev. 1).

Costs related to the accident at Three Mile Island have caused serious financial difficulties for the three co-owners of the facility and for their parent company, General Public Utilities Corporation (GPU).<sup>1</sup>

<sup>1</sup>Under the provisions of the financial qualifications regulations, the staff is monitoring the financial condition of the licensees and is also analyzing their financial qualifications to operate TMI-1 safely. The latter activity is in accordance with the Commission's Order of August 9, 1979. The staff's analysis will include a determination of the licensees' ability to finance (1) the required modifications to TMI-1; and (2) the decontamination and restoration of TMI-2, to the extent that these two factors impact on the licensees' ability to operate TMI-1 safely.

GPU owns 100 percent of the common stock of the three operating subsidiaries. The subsidiaries and their respective ownership shares in TMI are as follows: Metropolitan Edison Company (Met-Ed) - 50 percent; Pennsylvania Electric Company (Penelec) - 25 percent; and Jersey Central Power and Light Company (JCP&L) - 25 percent. The co-owners are responsible for all operating and maintenance costs associated with TMI including those related to the accident in the same proportion as their ownership shares. This cost sharing is provided for in their joint Operating Agreement of September 27, 1978.

In its November 27, 1979 request, the Commission asked the staff to include in its considerations a requirement for adequate utility insurance or a commitment of a holding company's assets for accident recovery. Insurance provisions are discussed later in this paper. The assets of some electric utility holding companies (such as GPU) are largely the assets of its subsidiary operating companies (GPU's Met-Ed, Penelec, and JCP&L). The value of the parent company's assets exclusive of the subsidiaries is relatively small compared to the potential cost of a major nuclear accident. For example, the recorded value of GPU's assets (parent company only) on September 30, 1979 was \$1 million, exclusive of its equity investment in the subsidiaries (\$1,484 million on September 30, 1979). This equity investment consists of 100 percent of the subsidiaries' common stock.<sup>2</sup> In contrast, current preliminary estimates of the total of all costs (including costs of replacement power) related to the TMI accident range between \$1 billion and \$2 billion.

GPU's consolidated (including subsidiaries) total assets at September 30, 1979 were \$5.0 billion and were comprised of the following: (1) \$4.22 billion in net utility plant of the subsidiaries; (2) \$746 million in accounts receivable, deferred charges and other non-cash assets; (3) \$21 million in investments; and (4) \$13 million in cash. The subsidiaries' assets are largely in the form of utility plant, i.e., generation, transmission, distribution and service facilities. For example, of Met-Ed's \$1.3 billion total assets on September 30, 1979, \$1.1 billion was in utility plant. Of the remaining assets, only \$1.2 million was in cash. The remaining \$198 million was in accounts receivable, non-cash deferred charges, and other assets. Utility plant is largely an illiquid asset; i.e., it is not easily or quickly converted to cash. Such property would be of little value to a purchaser who does not also own the related equipment needed to produce and

<sup>2</sup>In order to make provisions for the substantial expenditures required for clean up and repair, replacement energy and other added costs resulting from the accident, GPU and the subsidiaries entered into a revolving credit agreement totaling approximately \$400 million with a group of banks. GPU's equity investment in the subsidiaries (the common stock of Met-Ed, Penelec and JCP&L) is pledged as security under the revolving credit agreement. Thus, the GPU holding company presently has no additional significant assets that could be pledged or sold to finance costs of the accident.

deliver electrical energy through an integrated utility system. The utility plant assets of a company that had experienced a major nuclear accident would be even less saleable because of the financial difficulties placed on the company's operations by the accident. It is also noted that approximately 50 percent of the assets of an investor-owned utility are subject to lien under the company's mortgage bond indenture. In any sale, such assets are first subject to the claims of bondholders.

Other electric utility holding companies (such as American Electric Power, Texas Utilities and Middle South Utilities) own certain non-electric subsidiaries engaged in such activities as coal mining, natural gas transmission and exploration for and procurement of generating fuel. These subsidiaries provide essential support services that are integral to the holding company's more basic responsibility of providing reliable and adequate electric service to the customers of its electric generation and transmission subsidiaries. The sale of the assets of the non-electric subsidiaries could adversely impact on the integrity of the holding company and its ability to provide electric service. It is possible, however, that such non-electric assets could be pledged as security for loans to help finance the costs of a major accident. It is noted, however, that the value of these non-electric assets is generally significantly less than the value of the holding company's consolidated electric assets. Therefore, the loan value of the non-electric assets in many cases would be relatively small compared to the costs of recovery from a major accident. Accordingly, the commitment of a holding company's assets to assure recovery from a major accident would probably not provide sufficient funds for the recovery. In this regard, it should be noted that many reactors are owned by licensees that are not subsidiaries of holding companies. Also, some reactors are financed by publicly-owned utilities that use bonded debt only. Such debt is secured either on the facility itself or on the revenues of the utility. In either case there are no equity-financed assets upon which loans for accident recovery could be secured.

The Commission also requested the staff to consider insurance coverage in its review of alternatives to assuring licensee recovery from a major accident. The various types of insurance coverage are discussed below in relation to the financial risks taken by nuclear power plant owners in the event of a major nuclear accident. These financial risks can be grouped into four broad categories: (1) the risk of physical damage to the company's own facility (the nuclear power plant); (2) the risk of personal injury to the company's employees; (3) the risk that an outage will require the company to purchase replacement power that is more costly than power that would have been produced by the nuclear facility; and (4) the risk of property damage or personal injury to third parties (the public). Financial losses resulting from public liability claims are covered (and are limited) by provisions of the Price-Anderson Act. The provisions of this Act

have been widely studied and debated; accordingly, the risk of financial loss from public liability is not discussed extensively in this paper.

#### Risk - Damage to Licensee's Property

Most power reactor licensees maintain, at their own discretion, the maximum available amount (\$300 million) of "all risk" private property damage insurance. A few licensees maintain less than the maximum available coverage. The coverage would pay for some or all damages to the facilities in the event of an accident. Such coverage is at the option of the individual utility and is not required by NRC. However, provisions of most utilities' bond indentures require the company to carry property damage insurance. An exception is the Tennessee Valley Authority which insures itself and does not carry the available private insurance. TVA has decided that it does not need outside insurance due to (1) the enormous size of its total assets and its rate base, (2) its independent authority to set its own rates, and (3) the financial resources it has as a corporation wholly owned by the United States.

At the time of the TMI accident, GPU's subsidiaries carried the maximum \$300 million of property damage insurance on the unit. Such insurance covers damage to the unit and core and decontamination expenses. The insurance does not cover replacement power costs (discussed below) while the unit is not generating electricity. The licensees estimate (based in part on the initial report of their consulting engineering firm) that decontamination and restoration of TMI-2 to service, including replacement of the core and an allowance for contingencies will cost between \$405 and \$430 million. The decontamination phase is estimated to account for at least \$200 million of the total. These estimates are subject to significant uncertainty until physical entry has been made into the containment and a more detailed assessment of conditions therein has been made. At this time, it is expected that the licensees will have to finance the full amount of costs above the \$300 million insurance coverage. It is not yet determined whether the Pennsylvania Public Utility Commission (PaPUC) and the New Jersey Board of Public Utilities (NJBPU) will allow such uninsured costs to be capitalized and recovered in the future through rates charged to customers by amortization or depreciation charges. To date, these costs have not been passed on to customers.

If it is decided that TMI-2 is to be decommissioned and not restored to service, the property damage insurance covers only decontamination (cleanup) costs and not the costs of decommissioning (such as dismantlement or entombment). Decommissioning costs would be borne by the licensees and/or the ratepayers depending on decisions of the PaPUC and the NJBPU. At the present time, the licensees are not making provisions for the costs of decommissioning TMI-2. The PaPUC and the NJBPU would also determine the treatment of (who would pay

for) the loss of the investment previously expended to design and construct the facility (\$750 million including nuclear fuel). However, if it is decided that the unit is to be restored to service, costs of restoration would be covered by any insurance remaining (within the total \$300 million limit) after expenditures for decontamination. As noted above, the licensees estimate that decontamination will cost at least \$200 million.

The foregoing discussion illustrates that the accident-related costs of decontamination, restoration and replacement power may well exceed (as with TMI-2) the replacement value of the facility. In addition, the present replacement value of many reactors in existence today exceeds \$1 billion. Accordingly, the current \$300 million limit on property damage insurance may not provide adequate protection against damage to a licensee's property.

#### Risk - Injury to Licensee's Employees

Depending on applicable state law, personal injury or death suffered by a licensee's employee(s) at the reactor site would be covered by benefits under one or more of the following programs: (1) workmen's compensation insurance, (2) private insurance carried by the licensee, or (3) self-insurance of the licensee. Self-insurance may be funded or it may simply rest on the assets of the company. Most states require the utility to carry the state's approved workmen's compensation insurance. However, some states allow the utility to purchase other approved insurance or to establish the company's own financial ability to pay employee's potential claims. At least one NRC licensee has chosen (and has been approved) to self-insure against this type of risk. Employees injured in a major nuclear accident may also have claims against vendors (e.g., the NSSS vendor) and/or against other employees of the licensee. In both instances, such claims are covered by provisions of the Price-Anderson Act. The potential financial consequences of this risk may be less than for other risks discussed in this paper. However, a catastrophic accident that kills or injures employees could result in sizeable claims against the insurance companies, the licensee, its vendors and/or other employees of the licensee.

#### Risk - Recoverability of Replacement Power Costs

Total replacement power costs due to the outage of both TMI units are expected to be considerably larger than the total of all TMI damage, modification and restoration costs. While replacement power costs are currently being partially recovered by the licensees through charges to customers, there is no assurance that any particular level of recoverability will be allowed in the future by the PaPUC and the NJBPU. With regard to NRC licensees in general, the recoverability of replacement power costs by investor-owned utilities is subject to the jurisdiction of the respective state public utility commissions. Such state commissions have authority to determine the degree of

recoverability (if at all) of replacement power costs. The courts have appellate review authority over such decisions. There can be no advance guarantee that replacement power costs resulting from a nuclear accident will be recovered at any level from an investor-owned utility's customers. Publicly-owned utilities such as municipals, state power authorities, rural electric cooperatives and TVA generally establish their own charges for service and can charge customers for replacement power costs at their own discretion. However, publicly-owned utilities are subject to pressures of the political subdivisions they serve. The degree of recoverability of the costs would likely be affected by such pressures and also by the magnitude of such charges relative to base rates already in effect.

The staff is monitoring the utility and nuclear industries' current joint effort to establish their own insurance pool (through a mutual insurance entity called Nuclear Electric Insurance Limited - "NEIL") to help cover the costs of replacement power required as a result of a nuclear accident. NEIL will provide its members (NRC licensees) insurance coverage against the additional expense incurred in obtaining replacement power during prolonged accidental outages of nuclear power generating units. Membership in NEIL will be available to United States electric utilities (including publicly-owned utilities), with an insurable interest in, or in the output of, one or more such nuclear units.

As presently envisioned, NEIL's insurance policies will be issued for a 1-year term and will provide for weekly insurance benefit payments. The weekly benefit amount desired may be selected by each member but may not exceed \$2 million per week for any one unit. Subject to special provisions with respect to multiple unit sites, the policy limit for any covered outage of a unit will be 52 weeks at 100 percent of the weekly benefit and 52 additional weeks at 50 percent of the weekly benefit. The policy provides for a deductible in that the first 26 weeks of any outage will not be covered. Each member will be required to pay an annual premium for insurance coverage. The annual premium for the maximum weekly benefit of \$2 million will be \$1.5 million, with a higher premium per unit for multiple unit sites. The members will also be liable for payment of a retrospective premium adjustment, limited to a multiple of five times the premium, in the event that losses (caused by accidental outages of nuclear units) exceed the accumulated funds available to NEIL.

NEIL intends to begin insurance operations as soon after March 31, 1980 as (1) aggregate premiums of at least \$50 million are received from applicants for membership, and (2) all governmental approvals necessary are obtained with respect to commencement of operations by NEIL. To permit timely startup of NEIL, participation commitments are required of all applicants by February 20, 1980. Such commitments would be subject only to the receipt by the applicants of any regulatory approvals required. Applicants are required to keep their commitments open until June 30, 1980.

In order to be accepted as a member, each applicant must also meet such standards of insurability as NEIL will establish with respect to the premises to be insured, the qualifications of personnel, and operating and maintenance practices. It is anticipated that in developing such standards, NEIL will require adherence by its members to relevant industry guidelines established by the Institute of Nuclear Power Operations (INPO). Recent published reports indicate a high level of interest (and an expected high level of participation) in NEIL by the electric utility industry.

Conclusion:

Each of the methods discussed above for providing funds to facilitate recovery from a major accident has advantages and disadvantages. However, at this time, we have the view that the industry's insurance program (NEIL) to cover replacement power costs has considerable merit. This mutual insurance pool of the electric utility industry would provide not only reasonable assurance that replacement power costs could be covered by a licensee, but would also provide additional safety assurances as established by INPO. Although this approach appears attractive, it is now in the final stages of implementation and its success cannot yet be determined. As discussed above, the effective date of NEIL insurance is expected to occur between March 31, 1980 and June 30, 1980. The staff proposes, therefore, to closely monitor the implementation of NEIL and to report to the Commission on such progress within six months of the implementation date.

Coordination:

The Antitrust and Indemnity Group of NRR concurs in this paper. The Office of the Executive Legal Director has no legal objection.



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