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Nuclear Information and Resource Service

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Mr. John C. Hoyle
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United States Nuclear Regulatory Commission
Washington, DC 20555

Mr. Hoyle:

February 07, 1997

Nuclear Information and Resource Service (NIRS) submits the following comments in response to the U.S. Nuclear Regulatory Commission (NRC) Draft Policy Statement On Restructuring and Economic Deregulation of the Electric Utility Industry as published in the Federal Register on September 23, 1996. [Fed. Reg. Volume 61, Number 185, Page 49711-49714]

NIRS recognizes that the U.S. electric utility industry has entered a period of economic deregulation and restructuring which will lead to increased competition in the electricity industry. The NRC acknowledges in its draft policy statement that utility deregulation could cause an indeterminate number of nuclear utilities to break up by divesting their reactors from their transmission and distribution assets. Utility mergers, corporate spin-offs, and other forms of restructuring can ultimately change the corporate entity which legally owns, operates, and carries the liability for nuclear reactors. Of major concern, current owners could legally cease to be the "electric utility" originally licensed by NRC to operate the nuclear reactor. NRC currently believes that the federal agency's primary concerns with utility deregulation should focus on the adequacy of the licensees' decommissioning funds. Principally, NRC is concerned with the degree and pace at which utility deregulation and restructuring occur and how those changes could affect previous NRC conclusions about the licensees' ability to provide adequate funds for safe operation and decommissioning through direct access to the rate base.

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By the authority of the Atomic Energy Act of 1954 and through implementation of a finalized version of its policy paper, NRC intends to "increase cooperation with State and Federal rate and financial regulators to "promote dialogue" and "minimize the possibility of rate deregulation or other actions that would have an adverse safety impact." [emphasis added]

The NRC has stated that nuclear safety issues arising out of reactor operation and utility deregulation are adequately addressed through the state public utility commissions. The NRC has stated that "the rate process assures that funds needed for safe operation will be made available to regulated electric utilities."¹

NIRS contends that electric utility deregulation poses an increase in nuclear hazards. NIRS further challenges the NRC assumption that nuclear power safety issues are adequately funded through the State Public Utility Commissions and that adequate funds can be assured through the rate structure as unsupported by recent widely publicized events which are receiving increased regulatory attention. These events suggest that electric utility deregulation presents a set of unique hazards and complexities affecting declining margins of safety that are currently unaddressed by the NRC draft policy statement.

"Reengineering" Nuclear Operations To Meet Competition

The nuclear power industry is rapidly aging with mounting evidence of significant systems degradation and a corresponding increase in cost for testing, surveillance, and maintenance, including the repair and replacement of major safety-related structures and components. NIRS contends that the nuclear utilities are in the least favorable position to reduce their "bottom-line costs" for an inherently dangerous technology. As a result of competitive pressure, nuclear utility efforts to control costs are more likely to result in the steady erosion of worker and public safety margins.

A clear example of the direct result of economic pressure and impact on nuclear safety is the recent exposes of historical events evolving out of cost cutting practices by Northeast Utilities, headquartered in Berlin, CT. Throughout the 1980's Northeast Utilities enjoyed a comfortable position of respect and leadership in the nuclear utility industry with an above average performance on such basic indicators as NRC's Systematic Analysis of Licensee Performance (SALP) and unit capacity factors for its Millstone units. Up until 1996, Northeast

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Utilities' Connecticut Yankee atomic power station in Haddam Neck, CT shared that same limelight.

However, as early as 1987, NRC began documenting its concerns as Northeast Utilities initiated programmatic cost reductions measures which led to procedural noncompliances. As a direct result of Northeast Utilities' cost concerns and a "megawatt fever", the comprehensive upgrading of safety procedures and enforcing compliance became impediments to Northeast Utilities' overall financial plan. Personnel performance appraisals were often based on meeting due dates as opposed to assuring quality in procedures. This practice subsequently led to quality problems. It was identified that long-standing "procedural noncompliance was at the heart of many of the issues and events that had been drawing increased attention from the NRC since the late 1980's."² By 1991, NRC concern with the lack of procedural compliance and quality in the utility's performance resulted in the Northeast Utilities "Performance Enhancement Program" (PEP) of 42 action items. However, Northeast Utilities efforts to redress these noncompliance issues unraveled to the point that "PEP became little more than a checklist of uncoordinated activities and paper shuffling which was incapable of resolving the deep seated cultural, technical, programmatic and process deficiencies that have been at the root of NU declining performance for years."³ Northeast Utilities accomplished little more than the paperwork verification process and skimmed over or omitted "the real world" validation of the procedural quality and adherence issues. In 1994, Northeast Utilities was about to embark upon the "reengineering" of its nuclear operations in preparation for wholesale and retail competition in the electric utility industry when NRC raised concerns about the number of validation failures for the PEP action items. For all practical purposes, NRC declared the PEP a failure and began to explore other avenues for addressing the utility's safety performance decline.

One of Northeast Utilities most dramatic exposes, which also brought increased scrutiny to NRC's lack of regulatory oversight, was made by a Northeast Utilities whistleblower in a formal emergency enforcement action petition to NRC in 1995. Subsequently, the whistleblower publicly revealed in a national news magazine that Northeast Utilities had routinely violated their NRC licensing bases for twenty years in order to cut costs.⁴ During the refueling operation of

² "Focused Audit of the Connecticut Light and Power Company: Nuclear Operations," R.C. Brown & Associates, Inc., December 31, 1996, Connecticut Department of Public Utility Control, p.37.

³ Focused Audit, R.C. Brown & Associates, p. 38.

Connecticut's Millstone Unit 1 reactor, the company routinely ignored a mandated 250 hour reactor cool down in order to expedite the procedure to 60 hours without fully analyzing the procedure's safety. Similarly, Northeast Utilities' Millstone Units 2 , 3 and the now permanently closed Haddam Neck reactor in Connecticut were discovered to have operated outside of regulatory compliance and outside of the bounds of the utility's design bases and safety analysis as a result of management decisions designed to cut costs.

As a result of increasing public exposure and federal scrutiny, an internal NU Event Response Team was chartered to determine the cause for "inaccuracies" in the Updated Final Safety Analysis Report (UFSAR). The UFSAR is the voluminous document used to demonstrate a reactor's compliance with NRC safety standards governing routine operations and emergency conditions. Any physical changes made to the station and revisions to supporting analyses are required to be periodically updated. Information contained in the UFSARs is used by the operator for emergency procedures, training and the baseline for any future modifications of the reactor systems and procedures. The company's own internal report revealed that Millstone's safety evaluation "did not fully address regulatory requirements" and "NU did not see the UFSAR as a document that was required to be accurate."⁵

Numerous other examples of safety violations by Northeast Utilities as a result of economic shortcuts and failure to honor past commitments are illustrated by the R.C. Brown & Associates Inc. audit for the Connecticut Department of Public Utility Control of Northeast Utilities' nuclear operations management. The audit examined management levels from NU's board of trustees to its executive and senior managers for a 10-year period that ended Aug. 30, 1996. The 100-plus page report to state regulators concluded the utility's management "lost focus on the safe operation" of its nuclear power plants, and instead placed "primary importance on financial issues, geographical expansion and the pending threat of wholesale and retail competition." The audit concluded that, as a group, NU's trustees "were and continue to be unqualified to oversee the management" of a regulated utility so heavily dependent on nuclear power.⁶

⁴ "Blowing The Whistle on Nuclear Safety," TIME, March 4, 1996, pp 47-54.

⁵ "CR 7007-Event Response Team Report," Northeast Utilities System, Feb. 22, 1996, p. 1.

⁶ Focused Audit, R.C. Brown & Associates, Conclusions and Recommendations, p.227

In October 1996, both Moody's Investors Service and Standard & Poor's Rating Group lowered their ratings on about \$2.4 billion worth of Northeast Utilities debt because of the Millstone difficulties. The company said last month that several of its large operating units in New Hampshire might be forced to seek bankruptcy protection if state officials adopt a controversial utility deregulation plan. That prompted Moody's to consider further downgrades for debt worth about \$4 billion, and Standard & Poor's said it is also considering further downgrades. This increasing economic pressure illustrates a downward spiral adversely affecting not only Northeast Utilities nuclear operations in Connecticut but also NU's management and safe operation of the Seabrook Station in New Hampshire.

Northeast Utilities' Connecticut Yankee atomic power station was permanently closed following the company's board of trustees appraisal of the utility's economic analysis completed in October, 1996. Up until 1996, Connecticut Yankee was rated as a better-than-average performer. The reactor at Haddam Neck, Connecticut was never placed on the NRC's Problem Plant List for troubled reactors. Yet when confronted in 1996 with the parent company's malpractice at the Millstone units and revelations resulting from stepped up inspections at the Haddam Neck station, Connecticut Yankee's owners were unwilling and unable to take the financial risk of addressing the multitude of safety inadequacies subsequently revealed. One striking example provided analysis that reactor's emergency core cooling system was inadequate and had posed a safety risk to the public health over the 28 years of the reactor's operation without successfully coming to the attention of federal or state oversight. Connecticut Yankee is a striking example of safety-significant events overtaking and revealing a utility that has been gambling with the public's health and safety in order to advance the company's financial plan.

The adverse impact of nuclear economics driving declining safety margins is not unique to the four Northeast Utilities reactors. Another emerging example before the NRC is the Maine Yankee nuclear power station in Wiscasset, Maine. Maine Yankee once prided its electricity generating performance as a "low cost producer in a high cost region." Previously considered to be a good performer, Maine Yankee Atomic Power Company is now revealed to have prioritized the financial interests of its co-owners over addressing noncompliance and deteriorating safety-significant systems, structures, and components. A NRC 1996 Independent Safety Assessment Team (ISAT) report indicated that the management response to economic pressure

was a root cause for the large backlog of operator workarounds that contributed to Maine Yankee's addition to the NRC's Watch List in January, 1997. The ISAT report stated ---

"Economic pressure to be a low-cost energy producer has limited available resources to address corrective actions and some plant improvement upgrades."⁷

Furthermore, the ISAT reported---

"Unlike most utilities, MYAPC does not retain earnings and does not set aside reserve funds for unplanned requirements, except those required by law. All monies in excess of operational expenses are periodically returned to the owners. The owner utilities are required to either capitalize or immediately finance emergent requirements from their operating budgets. The 1995 steam generator sleeving project is an example of an unplanned requirement at the plant causing severe financial impact to several owners."⁸

In fact, a close inspection of all the reactors on the NRC Watch List is likely to indicate a root cause seated in a utility priority to maximize their economic interests while generating large maintenance backlogs and failure to adequately address noncompliance issues.

The revelation of extensive noncompliances and discrepancies between the Northeast Utilities and Maine Yankee Atomic Power Company reactors' original design and their actual configuration and operating procedures subsequently lead to the NRC issuing an industrywide Request For Additional Information (RAI) letter on October 9, 1996 seeking the identify the degree to which other nuclear power licensee's have failed to accurately document their UFSAR and comply with their respective safety design and licensing bases. All nuclear utilities were required to respond under oath within 120 days. According to NRC, the agency has been aware since the mid-1980's that design bases information was not being properly maintained and modifications were being made without the licensees having an understanding of the plant design bases. It is yet to be determined the number and degree of reactors that have been operating outside their design bases and in unanalyzed conditions. The accurate reconstitution of the reactor design and licensing bases represents a daunting task for licensees, particularly for the majority of older reactors. Of particular concern is the degree of confidence that can be placed in the validation process. As NRC points out, "Reestablishment of design bases without

⁷ Independent Safety Assessment Of Maine Yankee Atomic Power Company, US NRC October 7, 1996, p. 71.

⁸ Ibid., p. 68.

reconstitution of the supporting design documents, as necessary, may not provide a sufficient level of information for future modifications or current plant operation, or to quickly respond to operating events."⁹

NIRS contends that this potentially constitutes an additional level of complication and uncertainty to cost beneficial licensing actions performed or to be performed by licensees in response to increased competition which has not been evaluated in the NRC draft policy statement.

In an increasingly deregulated market, NIRS contends that more and more utilities face increasing pressure to prioritize financial interests over safety. The effort to seek economic relief is likely to lead to even more innovative practices of "reengineering" safety programs and initiatives in order to reevaluate or outright ignore costly safety compliance. Similarly increasing economic pressure will tend to foster an utility attitude of "minimal compliance" and failure to honor past commitments as evidenced by reactors on the NRC Watch List. Given the short list of the examples of the Millstone units, Haddam Neck, and Maine Yankee as at one time or another inappropriately carrying the mantle of "good performers", it is of increasing concern that NRC currently can not accurately determine the extent and scope that economics plays in the reduction of reactor safety margins and the deferral of safety significant issues.

The NRC draft policy statement has not adequately addressed these and other historical nuclear hazards brought on by managerial malpractice in response to economic pressures.

NIRS warns that such inappropriate and dangerous managerial practices have and will continue to adversely affect nuclear power operations under increased competition brought on by utility deregulation and restructuring. NIRS contends that in a deregulated market the NRC must increase its regulatory scrutiny with emphasis on meaningful enforcement actions to reverse a historically recognized industry trend.

⁹ "Request For Information Pursuant To 10CFR50.54(f) Regarding Adequacy and Availability of Design Bases Information," U.S.N.R.C., October 9, 1996, p.2.

As a direct result of increased competition, aging nuclear power reactors are extending their operational cycles to longer and longer periods from 12 months to 18 months to 24 months with the potential adverse affect from time-dependent degradation mechanisms on safety-related components and systems.

Nuclear utilities are seeking to reduce operation and maintenance costs by extending their reactor operation cycles. Extending operational cycles undermines the public's safety margin by effectively lengthening the periods between surveillance, testing, inspection, and maintenance of safety-related systems. This cost-saving trend occurs at precisely the wrong time for the nuclear industry. Nuclear power reactors have already evidenced signs of accelerating deterioration due to "premature" aging of susceptible materials that fabricate safety-related systems such as steam generators, reactor pressure vessels, and reactor core internal components.

In one recent example on December 11, 1996 NRC staff conducted an Operating Reactors Events Briefing for senior NRC managers identifying that "several potentially significant events have occurred where a contributing cause was the use of high burnup fuel designs associated with longer fuel cycles."¹⁰ NRC identified that the cause was the result of "inadequate review of the impact of longer fuel cycles on fuel design, operation characteristics, operating margin, and accident analysis."¹¹ NRC noted that the multiple reactor concerns included metallurgical, mechanical, and chemical effects which resulted in the failure of control rods to fully insert, distinctive CRUD patterns on fuel, and fretting of fuel rods.

The issue of steam generator tube deterioration in Pressurized Water Reactors (PWR) presents another example where long standing and mounting uncertainties over steam generator tube integrity, safe operation and utility efforts to run longer operational cycles are in direct conflict. In a staff report to the NRC Commissioners on steam generator tube deterioration, Dr. Brian Sheron stated---

"...recent inspections have identified many more indications than were anticipated. What we are seeing is that when a plant now may go in and find a few indications on one outage, they'll go in the next outage and maybe find tens or maybe a couple hundred and then the next outage or two they are going to see thousands. So what you are seeing is a time-dependent phenomena."¹²

¹⁰ "Multiple Plants Concerns Associated with the Use of High Burnup Fuel Designs and Longer Core Operating Cycles," Operating Reactors Events Briefing 96-15, U.S.N.R.C., December 19, 1996, Attachment

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¹¹ Ibid.

Consequently, the longer reactor operational cycles provide for longer incubation times for unsurveilled steam generator tube degradation. The safety significance of steam generator tube rupture is analyzed by NRC in NUREG/CR -6365, "Steam Generator Tube Failures." Idaho National Engineering Laboratory states in its report to NRC--

"Our analysis shows that if more than 15 tubes rupture during a main steam line break, the system response could lead to core melting. Although spontaneous and induced steam generator tube ruptures are small contributors to the total core damage frequency calculated in probabilistic risk assessment, they are risk significant because the radionuclides are likely to bypass the reactor containment building. The frequency of steam generator tube ruptures can be significantly reduced through appropriate and timely inspections and repairs or removal from service. However, a continuing issue has been exactly what constitutes an appropriate and timely inspection and which degraded tubes are still fit for service. There have been many different approaches to this problem throughout the world. Also, the most widely used inspection equipment is not able to detect and size all the degradations of concern."¹³ (Emphasis added)

Similarly, the Boiling Water Reactor (BWR) industry is experiencing the age-related deterioration of multiple safety-related components. This degradation of vital components is also a time-dependent issue. Numerous safety-related internal reactor vessel components have been identified by NRC as fabricated of susceptible materials (type 304 steel) subjected to age-related degradation. NRC issued NUREG/CR-5754 "Boiling-Water Reactor Internals Aging Degradation Study" in September, 1993 which analyzed 25 of these components and the aging mechanisms. The study concludes "Reactor internals, while they perform safety-related functions such as core cooling and core support, are not components of the reactor primary containment system. ... Failure of internals could create conditions that may challenge the integrity of the reactor primary containment system, but they do not affect the effectiveness of the primary containment systems. However, aging-related failures may require extensive shutdown time for repair works."¹⁴

¹² "Commissioners Briefing on Steam Generator Tube Issues," U.S. N.R.C. Memorandum and Transcript, March 5, 1996, p.49.

¹³ "Steam Generator Tube Failures," NUREG/CR-6365, U.S.N.R.C., May 15, 1996, Abstract.

¹⁴ "Boiling Water Reactor Internals Aging Degradation Study," NUREG/CR-5754, U.S.N.R.C., Oak Ridge National Laboratory, August, 1993, p. 42.

Increased economic pressure as already witnessed is an incentive for utilities to reduce the refueling and maintenance outage time periods. In a deregulated electricity market, NIRS is concerned that pressure to reduce outage times will further stress utilities to expedite testing, surveillance, maintenance and repair schedules. A controversy already exists between the regulator and the industry as to what constitutes appropriate and timely inspections of safety-related equipment. NIRS contends that economic pressure is simultaneously driving the expedited refueling outages while utilities are significantly extending station operating cycles.

The NRC's draft policy paper has not addressed the issue of time-dependent degradation and the consequences of extending operating cycles and expediting outage times as a result of utility deregulation.

NIRS contends that the NRC should curtail operating cycles longer than 18 months. NRC should then require the utility to significantly increase the degree of inspections of safety-related systems following an 18 month operating cycle with the reactor shutdown.

Utility deregulation further impacts reactor safety by encouraging utilities to conduct more "on-line maintenance" to a wider range of systems, structures and components.

As the direct result of increased economic pressure, utilities are seeking to reduce the refueling and maintenance outage times, nuclear utilities are placing increased emphasis on inspecting, testing and maintaining both safety and non-safety related equipment while the reactor is at full power. This procedure is referred to as "on-line maintenance." The procedure intentionally disables systems and equipment such as emergency diesel generators, auxiliary feed water pumps, or entire trains of a redundant safety features with the reactor at full power. NRC has noted that "In the extreme, this could result in all of the equipment in a division being out of service at the same time with unexamined risk consequences while literally being in compliance with plant TS [technical specifications]."¹⁵ Furthermore, the NRC Inspection Manual for the Maintenance Rule states "In order to minimize outage time and reduce costs, many licensees are increasing the amount of preventive maintenance being performed during plant operation. This can result in the simultaneous removal of multiple systems from service, which can result in significant increases in risk during these periods... The NRC is concerned that risk can

¹⁵ "Evaluation of On-Line Maintenance," NRC Inspection Manual, Temporary Instruction 2515/126, October 27, 1994, p.4.

significantly increase during periods when multiple redundant or diverse systems are unavailable due to preventative maintenance."¹⁶ [emphasis added]

While NRC states in its draft policy statement that the agency is seeking to minimize the adverse safety impact from utility deregulation, the NRC currently allows more on-line maintenance despite staff warnings "that some licensees are performing more maintenance on-line without assessing the risk consequences."¹⁷ The NRC draft policy statement has failed to address the issue of increased frequency of on-line and preventative maintenance to a wider range of systems, structures and components as a result of increased competition and the rise in risks to public health and safety.

NIRS contends that this trend represents a dangerous erosion to the public safety margin by subordinating the "defense-in-depth" philosophy in the licensee's design bases and technical specifications to mounting competitive pressure. As more and more on-line maintenance is conducted to a wider range of systems, structures, and components, there is an obvious associated rise in the risk factors. Risk assessments often assume that these risk factors are independent random events. Probability Risks Assessments do not adequately model the intentional, simultaneous removal of redundant and diverse components and systems for maintenance which will remain inoperable for unspecified lengths of time. Once defective systems, structures or components are discovered, maintenance, repair or replacement operations would be required. This further delays bringing an operable system, division, or component back into service. These unspecified and unpredictable periods of down time represent intervals of operation at reduced margins of safety.

Utility deregulation will likely compound the already apparent underaccrualment for nuclear decommissioning and waste costs through the "fund as you go" approach.

Nuclear power stands in dramatic contrast to its competitors because of the decommissioning and nuclear waste issue. NIRS contends that the rapid inflation of decommissioning and nuclear waste costs will continue to out-pace the amount of the utilities' collected funds through the rate base. This economic reality warns that increased energy

¹⁶ "Maintenance Rule," NRC Inspection Manual, Inspection Procedure 62706, August 31, 1995, p. 17.

¹⁷ "The State of the Nuclear Industry," Remarks of NRC Chairman Ivan Selin before the American Nuclear Society, November 14, 1994.

competition and consumers choosing alternate electricity sources will likely result in utility defaults on decommissioning and nuclear waste funding.

In a report prepared for the New Hampshire Public Utility Commission to analyze the impact on electric utilities by New Hampshire legislation requiring the development and implementation of a statewide plan to restructure New Hampshire's electrical utility industry, the question of bankruptcy was raised for two New Hampshire utilities involved with the Seabrook nuclear power station; Public Service of New Hampshire (PSNH) and North Atlantic Energy Services.¹⁸ North Atlantic Energy Services operates the Seabrook nuclear power station and sells power to PSNH. The two New Hampshire utilities are subsidiaries of the already financially troubled Northeast Utilities. The heart of the problem focuses on how deregulation of New Hampshire's electricity market and increased competition could force New Hampshire utilities to write off up to \$800 million in stranded costs in the controversial Seabrook nuclear power station. The state electricity deregulation plan handed over to the New Hampshire Public Utilities Commission on January 3, 1997 in order move towards cheaper power and in favor of open market competition would leave the nuclear utilities with liabilities exceeding assets.

The issue of large uncovered decommissioning liabilities remains a concern as current NRC regulations do not address who pays for the cost of decommissioning if the accrued funds, for whatever reason, are insufficient to finish the decommissioning task. If charges are placed on current nuclear power users while utility restructuring increases regional competition, consumers are likely to avoid buying nuclear generated electricity thereby avoiding contribution to the decommissioning fund. Therefore, there is a concern that an indeterminate number of nuclear utilities will default on their decommissioning liabilities as a result of increased electricity competition. Under such a scenario of a nuclear utility bankruptcy and default on decommissioning liabilities, the health and safety of the public and the quality of the surrounding environment is of paramount concern.

The issue is exacerbated by the sky-rocketing of costs projected for the completion of the decommissioning task. The Yankee Rowe nuclear power station, managed by Yankee Atomic Electric Company, is an example of the "real world" of run-a-way costs for decommissioning nuclear power stations. The small Yankee Rowe nuclear power station (179 megawatts) in

¹⁸ "Estimates of Electric Utility Stranded Costs Associated with the Introduction of Retail Competition in the New Hampshire Generation Service Market," La Capra Associates, Boston, MA, January 2, 1997.

Western Massachusetts was closed late in 1991 and began a controversial prompt dismantlement program. The 1994 cost estimates for Yankee Rowe, roughly 1/6 the size of a conventional Pressurized Water Reactor, was estimated at \$370 million.¹⁹ This figure represented a \$123 million increase from just two years earlier when the reactor closed. The cost of decommissioning Rowe represents a figure 10 times the original price tag to build the reactor in 1960. Yankee Rowe's actual cost to complete decommissioning is likely to rise to \$500 million. While the figures for cost of completion of reactor construction in comparison to the final decommissioning price tag are not to be represented as a direct ratio for determining the likely cost of decommissioning reactors 4 to 6 times larger than Rowe, NIRS does wish to point out that during the construction phase of nuclear power stations, the reliance on an economy of scale to complete later reactors, such as Seabrook and Shoreham, backfired with tremendous cost overruns.

Estimating the expected cost of decommissioning is complicated by the lack of industry experience, an incomplete technology, dramatic inflation, and a variety of assumptions regarding the economy of scale and learning involved with the decommissioning process. Since every low level nuclear waste facility ever opened is currently leaking, the absence of any nuclear waste management technology with any significant degree of environmental confidence represents another uncertainty for the final disposition of decommissioned wastes. NIRS contends the cost of decommissioning is directly related to the volume and curie count of the radioactive debris created during such an operation.

Similarly, high-level nuclear waste funding by electric utilities continues to incur a short fall in funding a long term management strategy and program. Current estimates place the nuclear waste fund short fall at anywhere from \$4 to \$12 billion dollars. This increasing short fall suggests that the current one mil per kilowatthour surcharge is inadequate in reflecting the mounting cost of long term management for high-level nuclear waste. Consequently, utility restructuring and deregulation will further exacerbate this already identified funding short fall with the increased risk of a default on nuclear waste management liabilities. NIRS contends that any default to the U.S. taxpayer is unacceptable as a further subsidization of the nuclear industry. All costs and liabilities should be borne on the nuclear waste generators.

¹⁹ "Officials Raise By \$123 Million Estimate of Dismantling Reactor," New York Times, November 4, 1994, page A24.

Therefore, NIRS supports a call for nuclear utilities be required to set-aside adequate funds for decommissioning and nuclear waste management in upfront external accounts.

Should a licensee recover any "stranded costs" through legislation, such money should be placed in external accounts to be used for decommissioning nuclear reactor facilities.

Sincerely,

A handwritten signature in cursive script, appearing to read "Paul Gunter", with a long horizontal flourish extending to the right.

Paul Gunter, Director
Reactor Watchdog Project
NIRS
Washington, DC