Comments of Three Mile Island Alert, Inc. on the Nuclear Regulatory Commission's Prepared Rule on Decommissioning

RIN 3150-AH45, 10 CFR Parts 20, 30, 40,50 & 72

Decommissioning Planning Proposed Rule Comments to Proposed Amendments to 10 CFR §20.1406 and §20.1501

Prepared by:

Eric J. Epstein, Chairman
Three Mile Island Alert, Inc.
4100 Hillsdale Road
Harrisburg, PA 17112
O: (717)-541-1101

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Office of the Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attn: Rulemaking and Adjudications Staff

May 8, 2008

Re: Comments of Three Mile Island Alert, Inc. on the Nuclear Regulatory Commission's Prepared Rule on Decommissioning RIN 3150-AH45, 10 CFR Parts 20, 30, 40,50 & 72 Decommissioning Planning Proposed Rule Comments to Proposed Amendments to 10 CFR §20.1406 and §20.1501

I. Introduction

Three Mile Island Alert, Inc. ("TMIA") is a safe-energy organization based in Harrisburg, Pennsylvania and founded in 1977. TMIA monitors the Peach Bottom Atomic Power Station, Susquehanna Steam Electric Station, and the Three Mile Island Nuclear Generating Station. TMIA has been actively involved with issues pertaining to nuclear decommissioning since the March 1979 accident at Three Mile Island (TMI) Unit-2 forced the premature shutdown of the reactor with no decommissioning funding in place.

A. TMIA supports the proposed change to §20.1406 that would make the regulation applicable to current licensees as well as license applicants.

B. TMIA supports the proposed change to §20.1501(a) that would replace the term "radioactive material" with "residual radioactivity."

C. TMIA disagrees with the NRC Staff's conclusion that current power reactor licensees' voluntary adherence to the NEI Groundwater Protection Initiative is sufficient to comply with the proposed amendments to 20.1406 and 20.1501.

D. Three Mile Island Alert's comments focus on economic assumptions embedded in II. Discussion, Letters "M" through "T", and the NRC's need to discuss and defeat economic reporting assumptions and residual contamination sources associated with Radioactive Scarp Metal and the storage of low-level, mixed, and high-level radioactive waste.

II. Background

Three Mile Island Alert does not dispute the nuclear industry's contention, that radiological decommissioning and radioactive waste isolation expenses are subject to change and likely to increase. Management, together with the shareholders of nuclear utilities, aggressively pursued the licensing, construction, and relicensing and uprate of nuclear generating stations fully cognizant that no commercial nuclear reactor had been decommissioned, and that a solution to nuclear waste disposal did not exist.

Many of the capital investment decisions were made prior to deregulation when the licensees had a rate recovery mechanism in place. The industry willfully pursued a financial investment in nuclear energy which was knowingly fraught with uncertainties. Furthermore, the industry has not actively sought a solution to the permanent storage and isolation of low-level and high-level radioactive waste.

It is unfair and inequitable to assess hostage rate payers or taxpayers for a corporation's investment strategy. Defensive rulemaking can not insulate limited liability corporations' from exposure costs associated with radiological decommissioning. TMIA argues that rate payer equity and corporate accountability necessitate that radiological decommissioning costs should be borne by the entities that are traditionally held responsible for management decisions -- the shareholder.

However, any rule that provides a sober and timely evaluation of decommissioning is a welcome development.

No prudent financial officer operating outside of the nuclear industry in the real world of Sarbanes-Oxley would accept funding formulas and rate recovery strategies that rely on so many fluid caveats and assumptions. David Hayward, president of Hayward Consulting stated, "...nuclear plant owners have historically underestimated the cost of decommissioning nuclear power plants. Third, the issue of disposing nuclear waste has not been fully settled."

TLG is the dominant contractor utilized by the industry to predict decommissioning costs. A close examination of their methodology and studies demonstrate that the proposed rule change fails to address pervasive economic assumptions deployed by the industry leader in decommissioning estimates.

For example, the industry continues to base decommissioning estimates on "field" studies extrapolated from small, minimally contaminated, and/or prematurely shutdown nuclear reactors. (2) The Nuclear Regulatory Commission ("NRC") and the Nuclear Energy Institute ("NEI") have participated in "phases" of the decommissioning of small, short lived or prematurely shutdown reactors. The industry further assumes that "partial experience" from these reference reactors can be extrapolated and applied with certainty to large commercial reactors operating for forty to sixty years. The industry's assertions of utilizing "relevant industry experience" are misleading.

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1 *Public Utilities Fortnightly*, "Plant Valuation: Book Value and Beyond", September 1, 1999, p. 58)

2 "Large reactors" referenced as being "decommissioned" were either prematurely shuttered or are smaller scale than contemporary "uprated" reactors" or had a "unique" status for the removal of LLW and HLW. For example, **Rancho Seco** (873 MWe) operated for 127 months before it was shut down in 1992 by a voter referendum**. San Onfore-1**, (436 MWe) only operated for 35% of it projected operating life (January 1968 to November 1992), **Trojan**, (1,080 MWe) operated for 40% of its operating life (May 1976 to November 1992) and was forced out of service due to chronic steam generating tube problems, and **Yankee Rowe** (167 MW), shutdown in 1992.

TMIA will point to examples from TLG's recent studies conducted at the ***Limerick Generation Station,*** the ***Peach Bottom Atomic Power Station Units 2 and 3***, and the ***Salem Generation Station Units 1 and 2*** (3) to highlight the NRC's failure to discuss and defeat economic reporting assumptions associated with residual contamination associated with Radioactive Scarp Metal and the storage of low-level, mixed and high-level radioactive waste.

III. TLG Case Studies

Obviously the age of the reactors, and the subsequent embrittlement that ensues, impact dismantlement and decommissioning. However, a five year cooling period "for the spent fuel to reside in the plant's storage pools when operations cease" postpones the inevitable with limited benefit. Large potions of the inventory will be moved into dry casks or have resided in the pools for decades. There is no appreciable decay over 60 months, yet worker turnover will accelerate. TLG noted in the Peach Bottom Study; but without clarification, "Based on this scenario and anticipated rate of transfer, spent fuel is projected to remain on the site for 26 years after the cessation of Unit 2 operations. Expenditures are included in the analysis for the isolation and continued operation of the spent fuel pools through the first five years of decommissioning...and for the operation of the ISIFI through the year 2039..." (TLG, Peach Bottom, p. 195, 2003)

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3 - ***Decommissioning Cost Analysis for Limerick Generation Station,*** prepared and completed by TLG for Exelon Nuclear, May, 2003, **unsigned**.

- ***Decommissioning Cost Analysis for Peach Bottom Atomic Power Station Units 2 and 3***, prepared and completed by TLG for **PSEG**, December 5, 2003.

- ***Decommissioning Cost Analysis for Salem Generation Station Units 1 and 2,*** prepared and completed by TLG for **PSEG**, December 5, 2003.

TLG also failed to factor the impact of of the utility industry's negotiated settlements with the Department of Energy. (4)

While most studies accepted by the NRC recognize that "spent fuel" will be stored on site for at least several decades, none of the studies indicate if this scenario is an impediment to decontamination, decommission, or site restoration to "Greenfield." (TLG, Limerick p. vii, Peach p. 184, and Salem p. 7, 2003)

"Greenfield" can not be established until the casks are shipped off site to a permanent repository.

While TLG 's methodology is vaguely outlined in the Limerick Study, it is more fully developed in the Peach Bottom and Salem Studies. Unfortunately, the methodology remains dependent on small scale facilities or plants that did not operate for 40+ years. For example, TLG asserts that: "This systematic approach for assembling decommissioning estimates ensures a high degree of confidence in the reliability of the resulting cost estimate" (TLG, Limerick p. x, Peach, p. 186, Salem, p. 9, 2003).

TLG's current estimates have increased three fold since 1995. The 1995 predictions witnessed a similar increase when compared to TLG's 1990 assessments. The graph on the following page does not produce a high degree of confidence in the reliability of the industry's decommissioning cost estimates. (Refer to Table 1 on p. 7)

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4 July 20, 2000 - "U.S. Energy Secretary Bill Richardson on Thursday said the government has agreed to allow PECO Energy Co. to defer up to $80 million in nuclear waste fee payments for its Peach Bottom plant in Pennsylvania, to compensate for the Energy Department's failure to store its waste...The deal allows PECO to reduce the projected charges passed into the Nuclear Waste Fund to reflect costs reasonably incurred by the company due to the department's delay." Press Release, U.S. Department of Energy. July 20, 2000.)

Table-1

Epstein Informal-I-3:

By what amount have nuclear decommissioning estimates increased since the last site specific study (1995) until the most recent analysis at the following facilities:

Generating Station(s)	*1985 Study/1995 Study*	*$ Increase*
Limerick 1 & 2	$272m/$986m	$714m
Peach Bottom 2 & 3	$273m/$947m	$674m
Salem 1 & 2	$271m/$701m	$430m

PECO Response:

Cost escalation has increased the 1996 TLG site-specific decommissioning cost estimates to the following amounts, in 2003$:

Limerick 1 & 2 - $1,040m
Peach Bottom 1, 2 & 3 $1,192m
Salem 1 & 2 $853m

B) Low-Level Radioactive Waste Management

TLG continues to utilize arbitrary projections from assumptions embedded in another era - the 1990s. These "new" projections do not account for mixed-wastes, hazardous waste or chemicals associated with nuclear power production. Moreover, without precise "inventories" and maintenance of "institutional memory" these tasks are inherently prone to delays and complications.

TLG correctly identified the benefits Salem enjoys from membership in the Atlantic Compact. Yet, TLG chooses to use "rate schedules" for Barnwell ***and*** Envirocare claiming it may prove more "cost effective" to ship LLW to Utah rather than South Carolina (TLG, Limerick p. xi, Peach p. 187, and Salem p. 10).

This claim is absurd and is based on speculation that a nonmember of a Compact could gain access to another site because the nonmember was paying more for LLW isolation at its own restricted facility. "It is also assumed that PSEG could access other disposal sites should it prove to be cost effective" (TLG, Salem, p.19).

TLG and the industry have failed to qualify and quantify the proportion, volume, curie content and classes of waste being shipped to Barnwell as opposed to Clive. However, it is implied in Appendix B (based on the cost of cask-liners) that all LLW will be shipped to "CNSI" in Barnwell (TLG, Limerick, p. 8).

Moreover, the costs (and savings) associated with LLW compaction have not been included in TLG's studies. (See Table-2)

Table-2

Epstein Informal-I-14b:

Do the Company estimates assume SEG's LLRW isolation compaction site in Tennessee will be operating and have enough capacity to accommodate all of the facilities identified in Informal Interrogatory 3?

PECO Response:

The 1996 TLG decommissioning cost estimates make no assumptions regarding SEG's LLRW facility in Tennessee.

When Barnwell closes this summer, the alternatives for LLW disposal from Pennsylvania licensees is limited. TLG assumes that Barnwell and Envirocare (5) (which currently accepts only Class "A" LLW) are suitable "prox[ies]" for cost predicting purposes (Limerick, Section 1, pp. 5-6, Peach p. 196, and Salem p. 19). In fact, TLG has explicitly recognized that "B" and "C" wastes are shipped to Barnwell, e.g., "More highly contaminated and activated materials will be sent to Barnwell" (Limerick, Section 3, pp. 11-12, Peach, Section 3, p. 11, and Salem, p. 40.)

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5 Energy*Solutions* operates two commercial low-level radioactive waste (LLRW) disposal facilities—one in South Carolina and the other in Utah. Both facilities dispose of waste from commercial and government generators.

The Barnwell facility is owned by the State of South Carolina and operated by Energy*Solutions*. Barnwell has been in operation since 1971 without interruption and is licensed to dispose of Class A, B, and C low-level wastes.

Energy*Solutions* is the owner-operator of the Clive facility, which has been in operation since 1988 and is licensed to dispose of Class A low-level waste only. (Source: Energy Solutions website, May 8, 2008).

C) High-Level Radioactive Waste Management

TLG's studies assume a facility for HLW will be operational by 2015 (Limerick, p. xii & Section 1, p. 5; Peach p. 188 & p. 195, Salem p. 11 & p. 18). In past studies, TLG simply omitted spent fuel disposal costs from decommissioning projections. But spent fuel is the main contributing factor in the escalation of decommissioning costs at Yankee Rowe. Thomas LaGuardia, the Company's witness, admitted the increase during cross examination:

Mr. Epstein: "Are you aware that the cost has increased for the decommissioning of Yankee Rowe from $247 million to $370 million over the last two years?"

Witness: "Yes. I'm aware of what the estimate concludes."

Mr. Epstein: "And half of the cost was attributable to spent fuel storage?"

Witness: "That's correct." (6)

Ironically, all of TLG's studies carefully traced the decades-old trail of delays. Without explanation, TLG now assumes a repository will be ready in a timely fashion (Limerick, Section 1, pp. 4-5, Peach pp. 194-195, Salem pp. 17-18). Even if this optimistic scenario is realized; it is irrelevant. Based on Peach Bottom's license extensions and Limerick and Salem's estimated operating lives, all three plants will be operating well beyond 2020.

The Studies do not indicate if the Waste Isolation Pilot Project (WIPP) facility is assumed to supplement Yucca Mountain. WIPP would have limited use in that the 2,150' deep geologic repository operated by the DOE only accepts transuranic wastes. Perhaps the stopgap site TLG has in mind is the "temporary" nuclear waste facility (40,000 tons for 40 years) proposed on the Skull Valley Goshute Indian Reservation in Utah.

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6 PP&L Base Rate Case, Page 450, Lines 11-25 and Page 451, Lines 1-12.

The data relied on to predict the opening date for Yucca Mountain is outdated and inaccurate (Limerick, Footnote #12, "Technical Schedule and Cost Uncertainties for Yucca Mountain Repository Project", GAO-02-191, December, 2001). The earliest Yucca could open is 2020 according to the DOE, but the projection is "out the window." (7)

Discussion in the Salem Study focuses on wet storage without making accommodations for dry cask technology (p.11). There is no rationale for maintaining the wet storage on site for "30 years" (p. 11) *after* the "cessation of operations". Nor has Salem announced plans to increase spent fuel waste storage through reracking.

Peach Bottom's dry cask storage facility is ignored. The discussion focuses on "storage pools" (p. 188). It is assumed the spent fuel pool will be in service; this time for "26 years," (p. 188) after the cessation of operations. This is illogical since Peach Bottom 1, 2 & 3 (out of the seven units included in the Pa PUC filing) are the first to come off-line, and in possession of the "highest number" in the Department of Energy's HLW que.

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7 "If the repository that the government is trying to develop at Yucca Mountain, near Las Vegas, could start accepting waste at the date now officially projected, in 2017, the damages would run about $7 billion, according to Edward F. Sproat III, director of the Office of Civilian Radioactive Waste Management."

"But that date is actually 'clearly out the window,, Mr. Sproat said in a conference call with reporters, because Congress under financed the effort to build the repository, among other problems, he said. Mr. Sproat said the goal of applying by this June for a license to build Yucca could no longer be met. If the repository opens in 2020, the damages would come to about $11 billion, he said, and for each year beyond that, about $500 million more. The industry says the total could reach $35 billion." ("New York Times," *As Nuclear Waste Languishes, Expense to U.S. Rises*, February 17, 2008.)

Limerick, the youngest of the seven units being reviewed by TLG, actually has the "lowest DOE number," but is presumed to maintain SFP storage for "23 years" after the cessation of operations (p. xii). Limerick's modeling is more precise and based on HOLTEC HI+STORM. This storage system allows licensees to include damaged fuel and increase the heat load (*Nuclear Fuel,* May 12, 2003).

Salem's projections are based on the assumption that dry casks will be deployed without factoring the possibility of reracking existing spent fuel cells.

Based on answers supplied to earlier Interrogatories submitted by Mr. Epstein, dry cask storage is either planned for Limerick, completed at Peach Bottom or intimated by PSEG for Salem.

PSEG has no "official plans to extend" spent fuel capacity through dry cask storage or re-racking at Salem. *However,* Salem 1 (p. 183) will lose fuel core off load in 2012, Salem 2 will follow in 2018 (p. 193). The consequences for this Case are serious. PSEG and Exelon must decide prior to the next Tariff Filing in 2010 whether or not to construct dry-cask storage or re-rack existing wet cells. Clearly, the amount of additional space constructed will indicate if the Company is seeking a license extension for Salem 1 & 2.

Exelon has stated that dry cask storage is in fact the spent fuel storage technology of choice at Peach Bottom, Limerick, and Salem. The data below clearly indicates that dry cask storage will give Limerick and Salem the opportunity to increase capacity to accommodate license extensions on or around the next Tariff Reconciliation. (Please refer to Table-2 on page 12)

To Exelon's credit, John W. Rowe, the chairman and chief executive of Exelon, has linked new nuclear construction to tangible progress on locating a High Level Waste site. (8)

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8 "New York Times," *Nuclear Backers Modify Stance on Waste,* January 31, 2005.

Table-3

Clarification of Epstein Informal-I-13, 28, and 32)

Please quantify the amount of spent fuel capacity available.

PECO Response

With dry cask storage, once constructed, each unit can continue to operate through its current licensed life plus an additional 20-year license renewal period. Loss-of-full-core discharge capability in the spent fuel pool has been or will be reached by the follow dates:

Limerick 1	2010
Limerick 2	2010
Peach Bottom 2	2000
Peach Bottom 3	2001
Salem 1	2011
Salem 2	2015

Peach Bottom 2 and 3 have dry cask storage capable of maintaining loss-of-full-core discharge capability for a 20-year extended life.

c) Site Restoration

The industry's term for "efficient" site restoration needs to be defined and examined to determine if it means economics, time-management or public health and safety? (Limerick, p.12, Peach, p. 188.) Efficient seems to be analogous to "economical" based on subsequent terminology, i.e. "cost effective." (Limerick p. xii, Peach p. 189, and Salem p. 11).

"It is unreasonable to anticipate that these structures would be repaired and preserved after the radiological contamination is removed" (Limerick p. xii, Peach p. 189, and Salem p. 11). Not only is this claim unsubstantiated, recent transactions refute this assertion. On April 9, 2003, FirstEnergy signed a purchase agreement with Framatome ANP of France to purchase "refurbished" high-injection pumps. FE concluded a similar deal with ConsumersEnergy to purchase the reactor head from Midland 2 in Michigan.

The industry and the NRC need to account for radioactive scrap metal (RSM) values, cannibalization of parts, potential sale value of consumer grade materials, and the impact of NRC regulations that allow for "Below Regulatory Concern" ("BRC") waste to be sold on the open market. The status quo is unacceptable.

Table-4

Total Scrap Metal Removed

Limerick	81,733 tons	(C-2, p. 23)
Peach Bottom	46,865 tons	(C-2, p. 21)
Salem	54,443 tons	(C-2, p.22)

"The existing plant equipment is considered obsolete and suitable for scrap as dead weight quantities." TLG is not charged with making speculative valuations, and it should not be assumed "for purposes of this estimate" that any sale of scrap generating process will somehow be 'offset…'"

Any value must be captured and returned to the rate payer on *a pro rata* basis or credited against decommissioning tariffs. Moreover, "Furniture, tools, mobile equipment such as forklifts, trucks, bulldozers and other property owned by" the licensee but purchased with rate payer money should be auctioned off with the proceeds flowing back to rate payers.

TMIA wants to make sure that rate payers capture the full value of their hostage investment, and don't suffer from the same poor management that federal taxpayers have been subject to by the National Nuclear Safety Administrations Management of Radioactive Scrap management.

"Experience at shut down generating stations has shown the plant facilities quickly degrade without maintenance, adding additional expense and creating potential hazards to the public and demolition work force" (Limerick, pp. xii-xiii, Peach p. 189, and Salem p. 11). If this is the case, than TLG has provided a compelling preference for DECON, and the extended presence of a skilled and robust work force.

TLG's assumptions fail to consider resale of RSM as well as the value of piping and metal that are determined to be "BRC." The assumption that resale values flow back to the licensee should be categorically rejected: "The treated material, meeting the regulatory and/or site release criterion, will be released as scrap, requiring no further cost consideration. Conditioning and recovery of the waste steam will be performed off site at a licensed processing center" (Limerick, Section 3, pp. 11-12, Peach, p. 217, Salem, Section 3, p. 12).

IV. Proportional Funding Commitments

One of the most disturbing and bizarre aspects of the radiological decommissioning is the "Who's on first? What's on second relationship?" between majority and minority shareholders of nuclear power plants. For example, the Susquehanna Electric Steam Station is owned by PPL (90%) and the Allegheny Electric Cooperative (10%). The Allegheny Electric Cooperative (AEC) AEC is scheduled to contribute 10% of the cost of decommissioning. Company consultant, TLG, estimated PPL's decommissioning share to be $724 million for 90% of the total cost of decommissioning. Based on this calculation, AEC 's 10% share of $804 million should be $79 million.

However, Allegheny is setting aside a figure based on 5% of the final decommissioning costs even though Laurence V. Bladen, Director of Finance and Administrative Services told Epstein that AEC is basing its decommissioning costs on data supplied by PPL. (Telephone conversation, March 30, 1995.) "Allegheny's portion of the estimated cost of decommissioning SESS is approximately $37.8 million and is being accrued over the estimated useful life of the plant." (Allegheny Electric Cooperative 1994 Annual Report, The Power of Initiative: Seizing Opportunities on the Horizon. Decommissioning Trust Fund, **Cost of Decommissioning Nuclear Plant**, p.49.) The cost projections have not changed since the AEC's 1993 Annual Report (p.27). (See 1995 Annual Report: Beyond Electricity, p.29.)

The impact of this uncertainty between decommissioning partners is clear. Since PPL has no enforcement mechanism to compel Allegheny Electric to fund 10% of the decommissioning costs for SESS, the question of financial responsibility looms large. Mr. Epstein queried the Company witness during PP&L Base Rate Case (1995), Mr. Ronald Hill, about the relationship:

Q: But there is actually no coordination?

A: There is coordination, but they're under no obligation to accept our estimate and to fund in the same manner that we do. They are obligated to come up with their share of the money at the end.

Judge Christianson: Coordination but not control.

Witness: That's right your honor.

Q: Do you know what method right now they're anticipating Susquehanna will be decommissioned as?

A: No, I don't.

Q: So it's possible they may be envisioning the decommissioning of Susquehanna say, entomb, whereas right now you're envisioning it as decon?

Witness: They may be. (Page 450, Lines 11-25 and Page 451, Line 1-12.)

The Allegheny Electric Cooperative is owned and controlled by fourteen (14) distribution cooperatives. AEC is not regulated by the Public Utility Commission nor does the company have publicly traded stock. Therefore, there is no behavior modifying mechanism afforded to state regulators or shareholders to oversee AEC's contributions. If current trends continue unabated, AEC's expected decommissioning savings will be grossly inadequate and will therefore undermine PPL's decommissioning plans for Susquehanna.

Any sudden and unexpected interruption in electric distribution, e.g., premature shutdown of Susquehanna, would further erode AEC's ability to make decommissioning contributions.

AEC's tenuous financial position in regard to inadequate decommissioning savings will place a greater fiscal burden on PPL and, thereby; 1) Create further uncertainties about PPL's ability to meet its financial commitments to decommission SESS; 2) Undermine TLG's net decommissioning estimates; and, 3) Dilute TLG's contingency factor.

The cost estimates for non-radiological decommissioning, (an imprecise term), are not mandated by the NRC although the agency stipulates that all nuclear power plants be returned to Greenfield, i.e. the original environmental status of the facilities prior to construction of the nuclear power plant. Licensees are not required to save for this final site phase which places additional strain on the companies ability to finance radiological and non-radiological decommissioning.

V. Conclusions and Unanswered Questions

The Commission needs to encourage more competitive bidding for decommissioning contractor services.

The NRC also needs to raise and address the following issues before while reviewing the proposed rule on decommissioning:

1) What are the quantifiable financial values associated with decommissioning choices, e.g., Decon v. Delayed Decon v. SAFSTOR v. Entombment? The NRC needs to set and enforce standards that qualify the cost of decommissioning assumptions and options.

2) The final site status, i.e., “Greenfield” needs to be factored into nuclear costs projections. Why is “Brownfield” not an option?

3) Many licensees must transport LLW and mixed waste destinations, beyond 500 miles yet costs are factored assuming Compact rates. Why has this accounting method remained outdated or not revised to account for the absence of LLW space? Why are compaction transportation costs are either omitted or unidentified?

4) Why aren’t spent fuel costs broken out proportionately to account for wet and dry storage?

5) How are DOE settlement payments to licensees accounted for?

6) What impact will Agreement states have on deciding how LLW waste is isolated, accounted for, and managed during decommissioning?

7) Undivided decommissioning costs assume amounts and methods are coordinated between reactor licensees. How is the NRC, who can coordinate but ***not compel*** licensees to set aside funds, going to enforce stricter accounting rules and higher savings' costs?

8) How will the NRC eliminate uncertainties created by minority ownership's inability to meet its financial commitments to decommission without undermining decommissioning estimates or diluting contingency factors?

9) Equipment Site Services vary wildly. The NRC needs to set standards and parameters for this category.

10) License extensions and uprates have created funding scenarios similar to fossil generating "service lives." Over-recovery, based on "service life" (45 to 55 years) as opposed to "life spans" (30 to 40 years) should be factored as a contingency in decommissioning planning.

11) The current NRC standard for "ALARA" is 25 millirem (MR) a year, whereas the EPA has a rough equivalent for chemically contaminated sites that is 15 millirem with >4 MR. originating from water. However, the major flaw in all three studies is that TLG did not account for state standards. For example, Maine, Massachusetts, New York and New Jersey have more restrictive state limits, i.e. 10 millirems or <.

How does the NRC plan to reconcile these divergent state and federal standards?

12) There are no contingencies in place in the event Yucca Mountain does not materialize. Why doesn't the NRC require scenarios that assume a HLW site is not available and factor the potential for early reactor closures?

13) The industry's term for "efficient" site restoration needs to be defined and examined to determine if it means economics, time-management or public health and safety.

14) The NRC needs to clarify and refine inert definitions, e.g., "Very low-level radioactive material...will be sent to Envirocare. More highly contaminated and activated material will be sent to Barnwell" (Limerick, Section 3, pp. 3-4, Peach, Section 3, p.11, and, Salem p.40).

The NRC should value the following LLW factors when projecting decommissioning costs:

1) Classification and value of LLW by curie content
2) Estimate number of LLW shipments from each reactor.
3) Factor waste compaction.
4) Provide estimates of mixed-waste disposal costs.
5) The above values need to be adjusted to factor uprates and license extensions.

15) Any LLW "released as scrap requiring no further cost consideration" must be qualified, quantified, and tracked for liability. All revenues or assets must necessarily be credited towards rate payer contributions (Peach p. 217 & Salem p. 40). The NRC needs to create tracking mechanism for RSM and the values derived from the resale of this asset.

16) Decontamination projections are uneven and need to account for difference in boiling water and pressurized water reactors.

17) "Transition Conditions": This term needs to be explicitly defined since there is a considerable amount of spent fuel and high-level radioactive waste present during the transition phase.

While the Studies presume no "additional cost of credit" for remediating solvents, caustics, toxics and other chemicals, it is unrealistic to believe that one can separate "legacy waste" for "destructive decontamination and decommissioning" activities. And since many plants are sited on essential waterways with immense commercial, consumer and recreational values, the licensee must assume responsibility for long-term effluent monitoring.