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**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	Docket Nos. 50-247-LR
)	and
ENTERGY NUCLEAR OPERATIONS, INC.)	50-286-LR
)	
(Indian Point Nuclear Generating Units 2 and 3))	
)	October 26, 2009

**HUDSON RIVER SLOOP CLEARWATER, INC.'S MOTION FOR LEAVE TO
ADD NEW CONTENTIONS BASED UPON NEW INFORMATION**

The designers of commercial nuclear reactor sites, like Indian Point, assumed that spent fuel, a highly radioactive form of nuclear waste, would only remain on-site for approximately 5 years, to allow the radioactivity in the waste to decay sufficiently to allow it to be transported off-site to another facility for reprocessing or disposal.¹ However, reprocessing of this waste in the United States never occurred in any appreciable quantity and ceased altogether in the 1970s. The replacement for reprocessing was supposed to be a long term repository for nuclear waste, but that has been repeatedly delayed. Most recently, the administration has taken actions that make it unlikely that the planned repository at Yucca Mountain will ever open. Instead, the Department of Energy ("DOE") intends to convene a panel of experts to review all long-term options. By default, in the absence of a central disposal facility, waste has

¹Out of an overabundance of caution, Clearwater has attempted to contact the NRC Staff to consult on this issue, but Clearwater had to file before the Staff responded because it did not want to miss any filing deadlines.

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accumulated at reactor sites like Indian Point, turning those sites into nuclear waste dumps in addition to nuclear waste producers. The recent votes of the Commissioners make it clear that waste will remain at reactor sites for the foreseeable future and it is impossible to predict when any waste might be removed. Instead, the country still continues to grapple with how to dispose of nuclear waste, which we have failed to resolve for the last half century. Meanwhile any waste generated during any period of extended operation would continue to accumulate at Indian Point and there are no identified acceptable disposal alternatives.

I. New Information is Available

On September 24, 2009, the Commission decided not to amend the Waste Confidence Rule to find generically that a centralized waste disposal facility for spent fuel will be available 50-60 years after the current licenses for nuclear power stations expire because it did not have an adequate basis for making that prediction. Specifically, the current waste confidence rule states *inter alia* that a central waste repository will open within 30 years after power generation at reactors ceases. The Staff proposed amending the waste confidence rule to lengthen the time at which the off-site disposal will become available 50 to 60 years after power generation ceases:

51.23 Temporary storage of spent fuel after cessation of reactor operation – generic determination of no significant environmental impact.

(a) The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor in a combination of storage in its spent fuel storage basin and at either onsite or offsite

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independent spent fuel storage installations. Further, the Commission believes there is reasonable assurance that sufficient mined geologic repository capacity will be available within 50-60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.²

However, two of the three current Commissioners refused to vote to enact this new rule, because of the current uncertainty about the nation's approach to long term spent fuel disposal created by the administrations ongoing re-examination of how to move forward on this issue. *See* Votes from Commissioners Klein and Svinicki, attached as Exhibits 2 and 3, respectively. They voted against amending the waste confidence rule because they are no longer able to predict when a geological waste repository would commence accepting the spent fuel waste currently being stored on-site. *Id.* Commissioner Klein stated that the Commission must take into account “how the Administration’s recent announcements of changes in the Nation’s high-level waste (HLW) repository program should affect the proposed update.” Exhibit 2 at 1. More baldly, Commissioner Svinicki stated “plainly put, this is a particularly difficult time to be in the prediction business,” because the administration is in the process of reassessing long term spent fuel disposal options. Exhibit 3 (“Svinicki Decision”) at 1-2. In a nutshell, the Commission does not currently have confidence that a central waste repository for spent fuel will be available within 50-60 years.

²<http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2009/secy2009-0090/enclosure-2.pdf>

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Commissioner Svinicki also made it clear that this is significant because “waste confidence is at heart an exercise in compliance with NEPA.” *Id.* at 2. Furthermore, indefinite onsite storage raises a “conundrum created in trying to envelope a National Environmental Policy Act (NEPA)-worthy environmental analysis of the impacts of the storage of spent nuclear fuel for an indefinite period [onsite].” *Id.* Although the staff could do the required NEPA analysis associated with such storage, that analysis would be challenging and would take years to conduct. *Id.* This shows that the potential impacts of long term onsite storage are significant. Finally, although the Commissioners cannot say when offsite disposal facilities for spent fuel will be available, Commissioner Svinicki remains confident that such facilities will eventually be created. *Id.* at 3.

II. Nuclear Waste Management Has Been Fraught With Difficulty and Delay

A. History of U.S. Nuclear Waste Management

Since the 1950’s the disposal of our country’s nuclear waste is replete with false starts, delays, and substantial problems that have left us at a loss for how to safely dispose of the waste generated by the use of nuclear power. Gordon Thompson, *Environmental Impacts of Storing SNF & HLW from Commercial Nuclear Reactors: A Critique of NRC’s Waste Confidence Decision & Environmental Impact Determination* (February 2009)(“Environmental Impacts”), See generally Jason Hardin, *Tipping the Scales: Why Congress and the President Should Create a Federal Interim Storage Facility for High-Level Waste*, 19 J. Land Resources & Env’tl. L. 293 (“Tipping the Scales”).

At the time the first commercial reactor sites commenced operation it was assumed that the fuel would be moved from the sites to be reprocessed. Facilities were

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not designed to store the full amount of spent fuel that the reactor would generate during its 40-year operational life, let alone storing waste for a 20-year license renewal and decommissioning process. Instead, they were designed to temporarily store waste in water-filled pools adjacent to reactors. The pools were to hold the spent fuel assembly in low-density open racks until it would be taken for reprocessing. *Environmental Impacts* at 11 citing NRC 1979- U.S. NRC GEIS on Handling and Storage of Spent Light Water Power Reactor Fuel, NUREG-0575. After the spent fuel cooled on the racks in the pool, it was to be removed from the reactor site and taken to a reprocessing facility.

Reprocessing however proved disastrous and people feared that reprocessing would lead to nuclear proliferation. From 1966-1972 spent fuel was being recycled at a reprocessing facility near West Valley, New York. During its time of operation the facility reprocessed only 640 metric tons of spent fuel. The plant met with regulatory problems that required expensive modifications and in 1975 the facility stopped accepting spent fuel. Within 5 years, the company operating the facility opted out of its lease for the site leaving the State of New York with waste that was not reprocessed.

In 1977, President Carter banned reprocessing because of fears that it would lead to nuclear proliferation and as demonstrated by the West Valley fiasco, that reprocessing was not economical. *Id.* at 11. When reprocessing was abandoned spent fuel accumulated in the pools. *Id.* In 1982 it became clear to Congress that the spent fuel pools were not designed as indefinite storage facilities and the efforts to devise a permanent solution to nuclear waste disposal had not been adequate. *Tipping the Scales* at 295-96.

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In response, Congress enacted the Nuclear Waste Policy Act of 1982 (“NWPA”). NWPA set forth four objectives³: 1) to develop repositories to protect the public and the environment from spent fuel and HLW; 2) to establish federal responsibility and define federal policy for the entire project; 3) to define the relationship between the federal government and the states and tribes with respect to spent fuel/HLW disposal; and 4) to establish a Nuclear Waste Fund, financed by the nuclear utilities to pay for the waste disposal. 42 U.S.C. § 10131(b)(2000). Under the NWPA, DOE was also required to site a permanent repository and to design acceptance of spent fuel and HLW by January 31, 1998 and to enter into contracts with the utilities. NWPA required the utilities to enter into a contract with the DOE to obtain a license to operate.

In 1983, DOE published a plan for a firm schedule to accept the waste beginning no later than January 31, 1998. *Pacific Gas & Electric Co. v. U.S.*, 536 F.3d 1283, 1286, 2008 U.S. App. LEXIS 16637 (Fed. Cir. 2008). The DOE plan also outlined a contingency plan because it was not optimistic the repository would be ready by the deadline set by Congress. The contingency plan called for the DOE to request that Congress approve a monitored retrievable storage (MRS) facility as an interim solution to remove the waste from the reactor site. *Id.* at 1286.

In 1985, the DOE issued a follow up plan providing for 2 schedules, one with the MRS facility and one without. In 1987, the DOE issued another new plan informing Congress that opening a permanent repository by 1998 was no longer realistic. Congress

³Originally Congress directed the creation of two permanent repositories, however as time passed without the development of even a single repository congress pushed the DOE in the direction of Yucca Mountain and called for only that repository.

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amended the NWPA by passing the Nuclear Waste Policy Amendments Act of 1987

(“1987 Amendments”) to direct DOE to develop the single repository at Yucca Mountain and cease activities at other sites. *Id.* at 1287. The 1987 Amendments also precluded the MRS facility construction until the NRC authorized a permanent storage repository.” *Id.* In 1991, DOE again amended its plan for storage of NSF. This plan proposed an MRS facility, but noted that part of the 1987 Amendments would need to be repealed to build the facility. *Id.*

In 1995, after 12 years of analyzing the feasibility of a single permanent repository and – 6 years after the January 31, 1998 acceptance date – the DOE issued a final finding on waste acceptance issues, concluding that DOE had no statutory obligation to accept waste until a storage facility is built. *Id.*

By the late 1990’s, it was clear to some in Congress that a temporary solution was needed to remove wastes from reactor sites while a permanent repository was built. In fact, Congress introduced legislation for 4 straight years seeking to create a federal interim storage facility at Yucca Mountain to alleviate the problems caused by continued on-site storage. *Tipping the Scales* at 303-304. None of this legislation was enacted and no temporary waste site has been created.

In this past decade, the substantial opposition to Yucca Mountain and DOE’s approach to acceptance of waste for disposal has played out in numerous lawsuits. Bentley Mitchell, *Diffusing the Problems: How Adopting a Policy to Safely Store America’s Nuclear Waste May Help Combat Climate Change*, 28 J. Land Resources & Env’tl. L. 375 (“Diffusing the Problems”) at 386. In 2004, the D.C. Court of Appeals

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vacated an EPA radiation protection standard to the extent that it required DOE to show compliance for only 10,000 years following disposal. *Nuclear Energy Institute, Inc. v. EPA*, 373 F.3d 1251 (D.C. Cir. 2004). The decision of the D.C. Court of Appeals is a serious setback for the Yucca Mountain project and the plan is in “serious jeopardy.”

The current review of options surrounding waste disposal will in all likelihood prevent a repository from being constructed any time in the near future.

In addition, industry is using the courts to reclaim money utilities provided under the Nuclear Waste Fund, which was established by Congress in the NWPA to pay for the disposal of spent fuel. NUREG-1350 at 75. As of Dec. 31, 2008, the fund totaled \$16 billion and utilities have had success in several courts on its claims for money damages and for return of money paid due to the DOE’s failure to accept nuclear waste by January 31, 2008. *Maine Yankee Atomic Power Co. v. U.S.*, 225 F.3d 1336, 1343 (Fed. Cir. 2000). More than 50 years has passed and to date spent fuel remains stored at reactor sites and will remain there for the foreseeable future.

B. Accumulation of Spent Fuel at Reactor Sites

Since reprocessing ended in 1977 and there is no DOE repository, spent fuel has been accumulating at reactor sites. On-site storage is accomplished using pools, which are designed to temporarily store low-density levels of spent fuel and in “dry cask storage.”

The U.S. generates 2,000 metric tons of nuclear waste per year. As of December 31, 2002 there were 42,268 metric tons of spent fuel at reactor sites.

http://www.eia.doc.gov/cneaf/nuclear/spent_fuel/ussnfddata.html, last visited October 21,

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2009. Since 2002, the U.S. has generated approximately 12,000 metric tons of additional spent fuel bringing the total accumulated waste at reactor sites to 54,000 metric tons of spent fuel. This is far greater than was imagined when commercial nuclear reactors were constructed.

Yucca Mountain will hold about 77,000 metric tons.⁴ NRC Fact Sheet Yucca Mountain license review.⁴ The DOE office of Civilian Radioactive Waste Management estimates that by 2035 we will have approximately 105,000 metric tons of waste. *Id.* As such, even if Yucca Mountain were to open, it would not have sufficient capacity to take the additional waste that would be generated during any extended period of operation.

III. The Commission Has Repeatedly Amended The Waste Confidence Rule

In 1979, the NRC Commission began to assess “whether radioactive wastes can be safely stored on-site past the expiration of the existing facility licenses until offsite disposal or storage is available. 44 Fed. Reg. 61372, 61373 (October 25, 1974). After a 5 year analysis the Commission issued 5 waste confidence findings. The Commission found:

- (i) reasonable assurance that safe disposal of high-level waste and spent fuel in a geologic repository is technically feasible,
- (ii) that repository capacity will eventually be available,
- (iii) that high-level waste and spent fuel will be safely managed until repository

⁴ <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-yucca-license-review.html>, last visited October 26, 2009.

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capacity is available,

- (iv) that spent fuel generated in any reactor can be stored safely and without significant environmental impacts for extended periods, and
- (v) that spent fuel storage will be available as needed.

49 Fed. Reg. 34658 (August 31, 1984). The timing of the repository has been repeatedly amended. In 1984, Commission found that the repository would open in 2007-2009. *Environmental Impacts* at 7. In 1990, the Commission extended that date to 2025. *Id.* Most recently the Commission had proposed extending this time to 2049-2059, *Id.*, but, as discussed above, has recently decided it no longer has sufficient information to make a new rule about when, or even if, a new repository will open. In addition, in 1984, the Commission amended 10 CFR Part 51 of its regulations to provide a generic determination that for at least 30 years beyond the expiration of the reactor operating license, no significant impacts will result from the storage of spent fuel in the reactor facility pools or in dry casks.

In making the 1990 extension to this generic finding, the Commission provided that “it would consider undertaking . . . a reevaluation [of the availability of the repository] when the pending repository development and regulatory activities had run their course or if a significant and pertinent unexpected event occurred, raising substantial doubt that the continuing validity of the Waste Confidence findings.” 64 Fed. Reg. 68005 (December 6, 1999) (emphasis added).

In 2007, the NRC Staff was asked by the Commission to prepare a memo on waste confidence that stated that an assessment or update might consider whether the

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earlier 100-year confidence in on-site or off-site storage remains valid; whether fuel from new reactors warrants any possible changes to waste confidence findings; and whether the Commission's earlier expectations regarding a timeline for a permanent repository should be modified or updated. *Id.*

On October 9, 2008 the NRC opened a proposal to amend the waste confidence rule for public comment. The proposed rule would have lengthened the time at which the off-site disposal will become available to 50- 60 years beyond the licensed life for operation, removing the reference to the completion of a repository by the first quarter of this century. Two of the three current Commissioners refuse to endorse this change, finding that the current uncertainty about the nation's approach to long term spent fuel disposal means that they cannot vote for this proposed rule at the present time. *See* Exhibits 1 and 2, attached. As Commissioner Sviniki noted:

Plainly put, this is a particularly difficult time to be in the prediction business. That said, however, the Court in *State of Minnesota v. NRC* (D.C. Cir. 1979) noted this approach and stated that "[t]he breadth of the questions involved and the fact that the ultimate determination can never rise above a prediction suggest that the determination may be a kind of legislative judgment for which rulemaking would suffice." As the Atomic Energy Commission's first Chief of the Environmental and Sanitary Engineering Branch, Mr. Joseph Lieberman, sagely cautioned in 1960, however, in voicing his confidence that the nuclear industry would grow "in a rational way without being hamstrung by its own wastes": "[O]ne has to be very careful to distinguish between aspiration, reality, and speculation in this field."

Thus, while the government had an aspiration to have solved this problem by now, it is apparent that reality has intervened, and that at this moment a finding about when the wastes that would be generated during any period of extended operation would leave the site would be purely speculative.

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IV. The Issue of Nuclear Waste Disposal Is Once More Under Review

The U.S. nuclear waste disposal dilemma is now being extensively reevaluated once more by all the stakeholders. The recent change in political leadership has brought a profound change in federal policy toward Yucca Mountain. President Obama's administration has determined that Yucca Mountain is not the best option for disposing of waste and has publicly stated that it has plans to remove all funding from the continued examination of Yucca Mountain waste repository. In fact, as of 2011 the White House will no longer provide funds in the budget for Yucca Mountain. Elaine Hiruo, *Global Power Report* "White House will not seek funds in 2011 budget for nuclear waste repository at Yucca Mountain," August 6, 2009. In addition, Senate Majority leader Harry Reid is determined to keep waste away from Yucca Mountain. In fact, Sen. Reid has pronounced Yucca Mountain "dead" on numerous occasions.⁵

Indeed even the DOE is moving us away from Yucca Mountain. Elaine Hiruo *Global Power Report*, "DOE's moves to 'orderly shutdown' of repository project" May 11, 2009. Bringing us back around full circle to where the commercial spent fuel disposal nominally began, the DOE is now revisiting the concept of fuel reprocessing. In October 2008, through the GNEP program at DOE the US government is pursuing "alternative" nuclear fuel cycles. *Environmental Impacts* at 14. In its draft impact statement on processing of spent fuel the DOE states that this is being considered "to reduce the hazards associated with disposal of spent fuel, DOE/EIS-0346 at s-1.

⁵ <http://www.kxnt.com/pages/4913954.php?>

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A DOE report on the likely need for a second repository, required under the 1982 US Nuclear Waste Policy Act (NWPA), has considered three alternative scenarios for dealing with spent fuel generated beyond 2010: remove Yucca Mountain's statutory capacity limit; site and build a second repository; or prolong the storage of spent fuel at reactor sites. Nuclear Engineering International, "Radwaste Management - No limits for Yucca Mountain?" March 4, 2009. The DOE has recognized that Yucca may never be built... and some nuclear plants already implementing changes to make their on-site storage facilities permanent, rather than temporary. *Diffusing the Problem* at 390. In addition, in March 2009, Secretary Steven Chu announced that the DOE would be creating a blue ribbon panel to develop a plan for handling nuclear waste.⁶

The NRC is also reevaluating the issue of spent fuel and the viability of the Yucca Mountain repository. This re-evaluation is demonstrated by the recent commission vote of no confidence in the waste confidence rule. Additionally, the NRC has acknowledged that the administration of President Barack Obama announced that it would terminate the Yucca Mountain program, while developing a disposal alternative. NUREG-1350 at 85

Observers and commentators are also opening up dialogue about the continued unsettled waste disposal issues in this country and stressing that "the temporary storage facilities on-site at nuclear plants across the United States are nearing the end of their intended lifespan, and the waste needs to be permanently stored." *Diffusing the Problem* at 390. In addition, commentators believe that "many of the assumptions underlying on-site storage are unproven in the real world." *Id.* at 392.

⁶ <http://www.businessinsider.com/doe-will-have-a-blue-ribbon-panel-figure-out-nuclear-waste-2009-3>, last visited October 21, 2009.

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Even those who espouse expansion of nuclear power are calling for action on the waste storage problem. A recent U.S. Chamber of Commerce Report entitled "Revisiting Nuclear Waste Policy," called for a review of the country's policy for the disposal of spent fuel now concluding that "many of the facts, conditions, and assumptions that were in place in 1982 when the current policy was crafted are no longer accurate or germane." Commentators have also said that "the political landscape has recently changed, making it more likely that construction of the Yucca Mountain project be halted – and that a single concentrated repository is unlikely to be built in the near future." *Diffusing the Problem* at 387.

V. Storage On Site In Wet Pools and Dry Casks Is The Default Solution

Over the last 60 years, an effort to develop a policy for disposal of spent fuel has taken many twists and turns, but the reality of waste disposal has not changed much. Spent fuel will be stored on-site for at least the renewal period of the license. *Id.* At first the spent fuel was stored in low density pools, however because this waste has accumulated, pools are now tightly and densely packed with spent fuel. *Environmental Impacts* at 11. Many reactor spent fuel pools, including those at Indian Point, have reached capacity and now some of the spent fuel waste from 45 reactors, including Indian Point Units 2 and 3, is stored in dry casks on-site as well as in high density spent fuel pools. *Id.* at 11-12; IPEC Newsletter.⁷ There is currently no other option because permanent waste disposal solution is as distant as ever and there are no civilian facilities to reprocess spent fuel in the United States. The reality is that it is highly likely that the

⁷ <http://www.safesecurevital.org/pdf/IPNewsletter071609.pdf>, last visited October 26, 2009.

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additional waste generated during any period of extended operation would remain on the site for the foreseeable future.

ARGUMENT

This argument demonstrates that Clearwater meets the substantive contention admissibility requirements of 10 C.F.R. § 2.309(f)(i)-(vi), in addition to the requirement for presenting new and significant environmental information, and all other requirements.

I. Specific Statement of the Contentions

Petitioners must “provide a specific statement of the issue of law or fact to be raised or controverted.” 10 C.F.R. § 2.309(f)(1)(i). The new contentions are:

Clearwater EC-7

The environmental analysis carried out to assess the potential impacts of relicensing Indian Point Units 2 and 3 is inadequate because it provides an insufficient analysis of the potential impacts of additional waste storage on site, the alternative methods of accomplishing such storage, and potential alternatives to additional waste storage on the site, including the no-action alternative.

Clearwater SC-1

The license renewal application requesting the relicensing of Indian Point Units 2 and 3 is inadequate because it provides insufficient analysis of the aging management of the dry casks and spent fuel pools that could be used to store waste on the site in the long term. In addition, both the applicant and the NRC Staff have failed to establish that any combination of such storage will provide adequate protection of safety over the long term.

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II. Explanation of Basis

At this preliminary stage, Clearwater does not have to submit admissible evidence to support a contention, rather it has to “[p]rovide a brief explanation of the basis for the contention,” 10 C.F.R. § 2.309(f)(1)(ii), and “a concise statement of the alleged facts or expert opinions which support the . . . petitioner’s position.” 10 C.F.R. § 2.309(f)(1)(v). This rule ensures that “full adjudicatory hearings are triggered only by those able to proffer . . . minimal factual and legal foundation in support of their contentions.” *In the Matter of Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 N.R.C. 328, 334 (1999) (emphasis added).

Here, the facts discussed above supported by the Declaration of Dr. Gordon R. Thompson (attached as Exhibit 1) provide the factual basis of the contention. The legal basis of the contention is that because the Commission cannot currently make a determination about when off-site disposal options will be available for spent fuel, the existing waste confidence rule can no longer allow the NRC to comply with the Atomic Energy Act (“AEA”) and the National Environmental Policy Act (“NEPA”) without a thorough analysis of the safety and environmental issues raised by the indefinite on-site storage of the additional spent fuel to be generated, which is one of the foreseeable outcomes of licensing an extended period of operation. Although the Commission has taken no formal action to revoke the existing waste confidence rule, the Commission cannot logically assert that it is confident that a waste repository will exist within 30 years after cessation of operation when two of the three current commissioners have found such a repository may not be available within 60 years of that time and have taken

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the Commission out of the “prediction business” of trying to guess when offsite spent fuel disposal could commence. Thus, because long term or indefinite storage of additional wastes on the Indian Point site would be the likely result of allowing the reactor to continue operating, the applicant must provide the NRC with a basis to conclude that such storage meets the safety requirements of the AEA or the NRC Staff must devise its own basis. In addition, to comply with NEPA, the NRC must provide a site specific assessment of the environmental impacts that have not been generically addressed.

A. NRC’s Reliance on the Waste Confidence Decision

The NRC has determined it need not perform site-specific environmental reviews of medium-term onsite spent fuel storage because of the Commission’s waste confidence rule.

The current waste confidence rule states *inter alia* that a central waste repository will open within 30 years after power generation at reactors ceases and that the storage of waste on the site for the interim period prior to the opening of the repository will not cause significant environmental impacts:

§ 51.23 Temporary storage of spent fuel after cessation of reactor operation--generic determination of no significant environmental impact.

(a) The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel storage

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installations. Further, the Commission believes there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.

(b) Accordingly, as provided in §§ 51.30(b), 51.53, 51.61, 51.80(b), 51.95, and 51.97(a), and within the scope of the generic determination in paragraph (a) of this section, no discussion of any environmental impact of spent fuel storage in reactor facility storage pools or independent spent fuel storage installations (ISFSI) for the period following the term of the reactor operating license or amendment, reactor combined license or amendment, or initial ISFSI license or amendment for which application is made, is required in any environmental report, environmental impact statement, environmental assessment, or other analysis prepared in connection with the issuance or amendment of an operating license for a nuclear power reactor under parts 50 and 54 of this chapter, or issuance or amendment of a combined license for a nuclear power reactor under parts 52 and 54 of this chapter, or the issuance of an initial license for storage of spent fuel at an ISFSI, or any amendment thereto.

52. This section does not alter any requirements to consider the environmental impacts of spent fuel storage during the term of a reactor operating license or combined license, or a license for an ISFSI in a licensing proceeding.

10 C.F.R. § 51.23. In turn, 10 C.F.R. § 51.95 provides that no environmental analysis of spent fuel storage for the interim period is required during individual license renewal proceedings:

[i]n connection with the renewal of an operating license . . . the supplemental environmental impact statement . . . need not discuss . . . any aspect of the storage of spent fuel for the facility within the scope of the generic determination in § 51.23(a) and in accordance with § 51.23(b).”

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10 C.F.R. § 51.95. This is reflected in the Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437 (“GEIS”), which omits any analysis of post-operation environmental impacts related to nuclear waste storage. Instead, the GEIS explicitly acknowledges the Commission’s generic determination of no significant environmental impact codified at 10 C.F.R. § 51.23, and states that “in accordance with this determination the rule also provides that no discussion is required concerning environmental impacts of spent-fuel storage for the period following the term of the reactor operating license, including a renewed license.” *See id.* § 6.4.6.3.

The GEIS further relies upon the Commission’s waste confidence rulemaking to arrive at the conclusion that “[o]n-site storage of spent fuel *during the term of a renewed operating license* is a Category 1 issue.” GEIS § 6.4.6.7 (emphasis added). While the GEIS states that the “[c]urrent and potential environmental impacts from spent-fuel storage have been studied extensively and are well understood” *see* GEIS § 6.4.6.3, the GEIS contains no new analysis related to environmental impacts of spent fuel storage (including spent fuel pool accidents), and appears to rely entirely on the 1990 Waste Confidence rulemaking review.

Indeed, the GEIS explicitly cites rationale provided in the Waste Confidence Decision: “[i]ndustry experience with spent-fuel storage, coupled with supplemental studies of the integrity of pool and dry storage systems, indicates that spent fuel generally can be stored on site with minimal environmental impacts”; “[e]xtended pool storage provides a benign environment that does not lead to degradation of the integrity of spent-fuel rods”; “studies of fuel rod or cladding failures indicate that fuel rods should remain

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secure *well beyond the period of plant life extension.*” *See id.* § 6.4.6.2 (citing Waste Confidence Decision Review, 55 Fed. Reg. 38474 (Sept. 18, 1990) (emphasis added)).

Based on this “analysis,” the NRC concluded that “[w]ithin the context of a license renewal review and determination . . . there is ample basis to conclude that continued storage of existing spent fuel and storage of spent fuel generated *during the license renewal period* can be accomplished safely and without significant environmental impacts.” *Id.* § 6.4.6.7 (emphasis added).

In accordance with the GEIS, NRC has consistently rebuffed challenges relating to the environmental impacts of on-site spent fuel storage, and disallowed any site-specific review of such issues. In the Turkey Point nuclear power plant relicensing proceeding, an intervenor raised a contention asserting that spent fuel could not be safely stored given the location of the Turkey Point facility. *See Florida Power & Light Co.* (Turkey Point Nuclear Generating Plants, Units 3 and 4), LBP-01-06, 53 N.R.C. 138, 146-150 (2001). The Atomic Safety and Licensing Board (the “Board” or the “Licensing Board”) there quickly rejected the contention since “the issue of onsite spent fuel storage is a . . . Category 1 issue that cannot be examined further in a license renewal proceeding.” *Id.* The board also specifically noted that any questions related to environmental impacts of spent fuel after the renewal term were “barred by the Commission’s Waste Confidence Rule.” *Id.*

On appeal, the Commission upheld this decision, finding that “Part 51’s license renewal provisions cover environmental issues relating to onsite spent fuel storage generically. All such issues, including accident risk, fall outside the scope of license

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renewal proceedings.” *See Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 N.R.C. 3, 21-22 (2001). The Commission explained the NRC’s reliance on the GEIS for the generic disposition of spent fuel storage related issues, stating that

[t]he NRC has spent years studying in great detail the risks and consequences of potential spent fuel pool accidents, and the GEIS analysis is rooted in these earlier studies. NRC studies and the agency's operational experience support the conclusion that onsite reactor spent fuel storage, which has continued for decades, presents no undue risk to public health and safety.”

Id. Given the discussion in the GEIS as cited above, such studies and operational experience are ostensibly those which underlie the Waste Confidence rulemaking.

In the Pilgrim and Vermont Yankee nuclear power plant relicensing proceedings, the Massachusetts Attorney General raised contentions asserting the failure to address new and significant information related to environmental impacts of on-site spent fuel storage. *See Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), Docket No. 50-293, Massachusetts Attorney General’s Request for A Hearing and Petition for Leave to Intervene with Respect to Entergy Nuclear Operations Inc.’s Application for Renewal of the Pilgrim Nuclear Power Plant Operating License and Petition (May 26, 2006), ADAMS Accession No. ML061630088; *Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), Docket No. 50-271, Massachusetts Attorney General’s Request for A Hearing and Petition for Leave to Intervene with Respect to Entergy Nuclear Operations Inc.’s Application for Renewal of the Vermont Yankee

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Nuclear Power Plant Operating License (May 26, 2006), ADAMS Accession No.

ML061640065.

The Licensing Boards reviewing Massachusetts' petitions rejected these contentions, finding that the potential environmental impacts of storing spent fuel in pools for an additional 20 years – including the risk of spent fuel pool accidents – already had been generically addressed in the GEIS as a “Category 1” issue that does not require a site-specific impacts analysis. *See* LBP-06-20, 64 N.R.C. 131, 152-61 (2006); LBP-06-23, 64 N.R.C. at 280-300. These boards went on to conclude that because “Category 1” environmental impacts findings are codified in NRC regulations, such findings normally may not be attacked in individual NRC adjudicatory proceedings, unless the Commission waives the rule at issue for a particular proceeding, or the rule is changed or suspended due to a rulemaking review. *See* LBP-06-20, 64 N.R.C. at 155-61; LBP-06-23, 64 N.R.C. at 288-99.

In August 2006, the Massachusetts Attorney General filed a Petition for Rulemaking (“PRM”) requesting that the NRC vacate the general characterization in the GEIS that the environmental impacts of spent fuel pool storage are insignificant and revoke the regulations which excuse consideration of such impacts in NEPA decision-making documents. *See Proposed Amendment to 10 C.F.R. Part 51 (Rescinding finding that environmental impacts of pool storage of spent reactor fuel are insignificant)*, Massachusetts Attorney General's Petition for Rulemaking to Amend 10 C.F.R. Part 51 (August 25, 2006), ADAMS Accession No. ML062640409 (hereinafter “Massachusetts AG PRM”).

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The Commission denied this petition for rulemaking, concluding that the spent fuel pool environmental impact findings in the GEIS were valid for the concerns articulated by Massachusetts, i.e. that spent fuel pool accidents and potential terrorist attacks could result in an catastrophic spent fuel pool fire. *See* The Attorney General of Commonwealth of Massachusetts, The Attorney General of California; Denial of Petitions for Rulemaking, Docket No. PRM-51-10, NRC-2006-0022 and Docket No. PRM-51-12, NRC-2007-0019, 73 Fed. Reg. 46204 (August 8, 2008). That is, NRC affirmed the general conclusions in the GEIS that on-site storage of spent nuclear reactor fuel, including high-density pool storage, had no significant adverse environmental impacts on the human environment. *Id.* at 46,212.

In the current relicensing proceeding related to Indian Point, review of environmental impacts of spent fuel storage have similarly been precluded to date. The draft supplemental environmental impact statement relies on the GEIS to conclude that “there are no impacts of onsite spent fuel associated with license renewal.” Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38, Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3, Draft Report for Comment, Main Report (U.S. Nuclear Regulatory Commission December 2008) (“Indian Point DSEIS”) at 6-7. The DSEIS further specifically cites to the generic determination of no significant impact codified at 10 C.F.R. § 51.23 to explain the lack of discussion of environmental impacts of long-term onsite nuclear waste storage. *See id.* at xiv.

The Licensing Board has also disallowed adjudication of issues related to environmental impacts of on-site spent fuel storage. In relation to Riverkeeper’s

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Contention EC-2 related to the impacts of, *inter alia*, spent fuel pool fires, the Board relied upon the designation of spent fuel storage environmental impacts as a Category 1 issue to deem the contention beyond the scope of the proceeding. *See Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), LBP-08-13, 68 N.R.C. ___ (slip op. July 31, 2008), at 180-81.

Riverkeeper subsequently raised a similar new contention, Contention EC-4, stating that “[t]he NRC Must Address the Spent Fuel Storage Impacts at Indian Point in a Supplemental GEIS.” *See Riverkeeper, Inc.’s New and Amended Contentions Regarding Environmental Impacts of High-Density Storage of Spent Fuel*, Docket Nos. 50-247, 50-286 (Sept. 5, 2008). This contention was based on newly recognized information about site-specific mitigation measures that undermined the NRC’s generic environmental impact finding in the GEIS. The Board similarly rejected this contention, finding that “New Contention 4 deals with spent fuel storage impacts that the Commission has stated is a Category 1 issue, outside the scope of our proceeding.” *Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3)*, Memorandum and Order, Denying Riverkeeper’s Request to Admit Amended Contention EC-2 and New Contentions EC-4 and EC-5), Docket Nos. 50-247-LR and 50-286-LR, ASLBP No. 07-858-03-LR-BD01 (December 18, 2008), at 12.

Thus, based on the generic findings of the license renewal GEIS, there has been no site-specific review of environmental impacts of on-site spent fuel storage during the term of license renewal, let alone beyond that time-frame, for Indian Point, or any other nuclear power plant. However, all of the legal reasoning excluding environmental

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analysis of spent fuel disposal issues is based upon the key premise contained in the rule that waste would only be stored on the site temporarily and at most for 30 years beyond the expiration of the license.

B. The Commission Has Undermined Part of the Waste Confidence Decision

The new information presented in this filing undermines the assumption that the additional waste that would be generated during any period of extended operation would remain on the site for less than 30 years and in fact shows that even the Commission cannot now predict how long it might remain. At this point it is clear that despite half a century of effort, we have made little progress toward identifying a safe and environmentally acceptable means of disposing of spent fuel in the long term. First, reprocessing failed and, even if successful, would have created risks of nuclear proliferation that successive administrations found unacceptable. In the section of the Nuclear Waste Policy Act entitled, "Nuclear Waste Fund," in the discussion about contracts to be entered into by DOE with generators of high level radioactive waste, Congress stated that "in return for payment of fees established by [§ 10222], the Secretary, beginning not later than January 31, 1998, will dispose of the high-level radioactive waste or spent nuclear fuel involved as provided in this subtitle." Nuclear Waste Policy Act, 42 U.S.C. § 10222(a)(5)(B). Thus, Congress envisioned a central repository for nuclear waste would be ready by 1998. But the alternative of long-term geological storage ran into serious technical and political problems to such an extent that the administration has now decided to abandon efforts to build such a repository at Yucca

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Mountain. Instead, the administration is convening a panel to explore all the options available.

Although there is no doubt that the government intends to fulfill its obligation under the Nuclear Waste Policy Act to dispose of the spent fuel, even the Commission is currently unable to predict when and how that might be done. It is problematic to reconcile the requirement of the Atomic Energy Act that licensing actions must be accompanied by a finding of adequate protection of safety with the long-term failure to devise an adequate solution for waste disposal. The Second Circuit in *Natural Resources Defense Council, Inc. v. United States Nuclear Regulatory Commission*, 582 F.2d 166 (1978) noted that although it is very difficult to find that the long term disposal of this waste will be safe, when the means of accomplishing such disposal is not known, Congress had taken no action to prevent the Commission granting licenses that allow the continued accumulation of such wastes. The Court noted that Congress knew at the time it passed the AEA that no such means was available, but it nonetheless intended that licenses be issued for nuclear power generation.

The continued validity of this holding is now doubtful, because providing waste disposal facilities for spent fuel has proved far more difficult than Congress expected in 1954 when it passed the AEA. The history of high level waste disposal is that approaches that looked promising, such as Yucca Mountain, turned out to be far more technically complex than initially thought. Illustrating this truth, a few years after the Second Circuit rejected NRDC's challenge, Congress made the basis of its inaction to that point explicit by stating in the Nuclear Waste Policy Act that a spent fuel disposal

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repository would be available by 1998. Thus, it is now clear that Congress's inaction prior to 1998 was based upon an erroneous assumption that a disposal facility for spent fuel would be in place by now. Even though this assumption proved false, in the Energy Policy Act of 2005 Congress provided loan guarantees to help finance a few new nuclear power plants. Thus, it now appears that the legislature is prepared to assume that even if a central waste repository does not open, means will be devised to safely store the wastes at reactor or other sites for the very long term, if not indefinitely.

This view is confirmed by Commissioner Svinicki, who approvingly quotes Judge Tamm's concurrence in *Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979), which states "if the Commission determines it is not reasonably probable that an offsite waste disposal solution will be available when the licenses of the plants in question expire, it must then determine whether it is reasonable probable that spent fuel can be stored safely onsite for an indefinite period." Svinicki Decision at 2-3 accord *Potomac Alliance v. NRC*, 682 F.2d 1030, 1038 (D.C. Cir. 1982). The opinion in the *Minnesota* case also makes clear that NRC cannot claim that waste disposal concerns are never relevant to licensing because Congressional inaction has actually been based upon the repeated assurances of the NRC that a solution to that issue is at hand. *Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979). Furthermore, courts subsequently found that while the provision of centralized waste disposal could be termed a generic issue, where issues involve particularized situations, such as when waste will be stored at individual reactor sites, they cannot be resolved generically. *Limerick Ecology Action v. NRC*, 869 F.2d 719, 738 (3rd Cir. 1989).

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To avoid consideration of the implications of onsite waste storage during individual license proceedings, the Commission approached this issue through rulemaking on waste confidence. It supported this rulemaking by affirming its confidence in the environmental integrity and safety of onsite storage for up to 70 years, which is a mere ten years beyond the cessation of licensed power generation activities for the oldest spent fuel. The Commission envisioned storage of spent fuel for this period in both wet pools and dry casks. For example, in the 1990 Waste Confidence Decision review, the Commission first found confidence that storage of spent fuel in wet pools for this time period is safe and has insignificant environmental impact:

The Commission addressed structure and component safety for extended operation for storage of spent fuel in reactor water pools in the matter of waste confidence rulemaking proceeding. The Commission's preliminary conclusion is that experience with spent fuel storage provides an adequate basis for confidence in the continued safe storage of spent fuel for at least 30 years after expiration of a plant's license. The Commission is therefore confident of the safe storage of spent fuel for at least 70 years in water pools at facilities designed for a 40-year lifetime. . . The Commission has also found that experience with water-pool storage of spent fuel continues to confirm that pool storage is a benign environment for spent fuel that does not lead to significant degradation of spent fuel integrity. Since 1984, utilities have continued to provide safe additional reactor pool storage capacity through re-racking, with over 110 such actions now completed.

Review and Final Revision of Waste Confidence Decision, 55 Fed. Reg. 38474, 38510 to 38512 (September 18, 1990).

The Commission then found that storage in dry casks has even less impact than storage in wet pools. It based this finding on an Environmental Assessment ("EA")

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associated with the rule related to interim monitored retrievable storage, which assessed dry storage of spent fuel for a period of 70 years after receipt of spent fuel from a reactor.

The EA found that:

[i]n consideration of the safety of dry storage of spent fuel, the Commission's preliminary conclusions were that [its] confidence in the extended dry storage of spent fuel is based on a reasonable understanding of the material degradation processes, together with the recognition that dry storage systems are simpler and more readily maintained. In response to Nuclear Waste Policy Act of 1982 authorizations, the Commission noted "... the Commission believes the information above [on dry spent fuel storage research and demonstration] is sufficient to reach a conclusion on the safety and environmental effects of extended dry storage. All areas of safety and environmental concern (e.g., maintenance of systems and components, prevention of material degradation, protection against accidents and sabotage) have been addressed and shown to present no more potential for adverse impact on the environmental and the public health and safety than storage of spent fuel in water pools.'

Review and Final Revision of Waste Confidence Decision, 55 Fed. Reg. 38474, 38510 (September 18, 1990).

The Commission did not clearly define the interaction of the 70 years for wet storage, which started at the time the plant was originally licensed, and the 70 years for dry storage, which started much more recently. However, the Commission's updated waste confidence rulemaking found that while, "spent fuel can probably be safely stored without significant environmental impact for longer periods, the Commission does not find it necessary to make a specific conclusion" that spent fuel could be safely stored in dry casks without environmental impact for 100 years, as suggested by a commenter.

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Indeed, the Commission explicitly stated that it did not intend the waste confidence rule to support indefinite onsite storage: “[t]he Commission supports timely disposal of spent fuel and high-level waste in a geologic repository, and by this Decision does not intend to support storage of spent fuel for an indefinitely long period.” *Id.* at 38482.

Thus, the Commission’s generic findings with respect to onsite fuel storage in both wet pools and dry casks relate only to the period 30 years beyond the expiration of the license. 10 C.F.R. § 51.23(a). In its latest decision to defer on the proposal to revise the waste confidence rule, the Commission has finally recognized that it is currently impossible to predict when spent fuel will actually leave reactor sites. Thus, the time has finally come when this Board must recognize that it is reasonably probable that an offsite waste disposal solution will not be ready when the licenses for Indian Point 2 and 3 expire or even 30 years after the licenses expire. As the D.C. Circuit has twice recognized, in light of the reasonable prospect of indefinite storage at reactor sites well beyond this timeframe, the Atomic Energy Act requires site-specific review of the safety impacts of indefinite onsite storage. Because it is somewhat unclear to Clearwater who is responsible for this task, Clearwater has contended that it should be done by either the applicant or the Staff. In addition, because the casks and pools in which some of the spent fuel is already stored, and more will be stored in the future, are long lived passive components that the licensee cannot assume will be moved within 30 years after power generation ceases, the applicant must provide an adequate aging management plan for both of these components.

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C. The NRC Must Perform Further Environmental Review Pursuant to NEPA

The National Environmental Policy Act (“NEPA”) establishes a “national policy [to] encourage productive and enjoyable harmony between man and his environment,” and was intended to reduce or eliminate environmental damage and to promote “the understanding of the ecological systems and natural resources important to” the United States. *Dept. of Transp. v. Pub Citizen*, 541 U.S. 752, 756 (2004) (quoting 42 U.S.C. § 4321). The application of NEPA’s requirements, under the rule of reason relied on by the NRC, is to be considered in light of the two purposes of the statute: first, ensuring that the agency will have and will consider detailed information concerning significant environmental impacts; and second, ensuring that the public can both contribute to the body of information and can access the information that is made public. *San Luis Obispo Mothers For Peace v. NRC*, 449 F.3d 1016 (June 2, 2006). The Supreme Court has identified NEPA’s “twin aims” as “plac[ing] upon an agency the obligation to consider every significant action[,and] ensur[ing] that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process.” *Baltimore Gas & Elec. Co. v. Natural Res. Def. Counsel, Inc.*, 462 U.S. 87, 97 (1983)

NEPA is the “basic charter for protection of the environment.” 40 C.F.R. § 1500.1. Its fundamental purpose is to “help public officials make decisions that are based on understanding of environmental consequences, and take decisions that protect, restore and enhance the environment.” *Id.* NEPA requires federal agencies to examine the environmental consequences of their actions before taking those actions, in order to

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ensure “that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast.” *Robertson v. Methow Valley Citizens Council* (*Robertson*), 490 U.S. 332, 349 (1989).

NEPA goes beyond the Atomic Energy Act (“AEA”) in mandating that the NRC consider alternatives to its licensing actions that may have detrimental effects on the environment. 10 C.F.R. § 51.71(d). The primary method by which NEPA ensures that its mandate is met is the “action-forcing” requirement for preparation of an EIS, which assesses the environmental impacts of the proposed action and weighs the costs and benefits of alternative actions. *Robertson*, 490 U.S. at 350-51. An EIS must be searching and rigorous, providing a “hard look” at the environmental consequences of the agency’s proposed action. *Id.* at 349; *Marsh v. Oregon Natural Resources Council*, 490 U.S. 260, 374 (1989).

The environmental impacts that must be considered in an EIS include “reasonably foreseeable” impacts which have “catastrophic consequences, even if their probability of occurrence is low.” 40 C.F.R. § 1502.22(b)(1). The Commission has held that probability is the “key” to determine whether an accident is “reasonably foreseeable” or whether it is “remote and speculative” and therefore need not be considered in an EIS. *Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station)*, CLI-90-7, 32 NRC 129, 131 (1990). *See also Limerick Ecology Action v. NRC*, 869 F.2d 719, 745 (3rd Cir. 1989), *citing Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 551 (1978).

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As Commissioner Svinicki acknowledges, to comply with NEPA, the Commission used to rely upon its confidence that the central waste repository would open within 30 years. Now everyone, including the Commission, has recognized that is not going to happen. Furthermore, even if the planned repository at Yucca Mountain were to open within 60 years, it would not be big enough to accommodate the additional waste that would be generated during any extended period of operation at Indian Point. Accordingly, in order to comply with the tenets of NEPA in light of the facts presented herein, NRC must consider the environmental impacts of indefinite long-term onsite spent fuel storage in a supplemental environmental impact statement.

Furthermore, the NRC must study the alternative means of long-term onsite storage, as well as the no-action alternative. Moreover, all other foreseeable means of long-term waste disposal need to be assessed prior to licensing, because it is currently unclear which option will actually be selected.

III. The Deferral Of the Waste Confidence Rulemaking Is “New and Significant” Information

As required by 10 C.F.R. § 51.92(a), if an EIS has been prepared but the proposed action has not been taken, the NRC Staff must supplement the EIS if, inter alia, “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” Notably, Section 51.92(a)(2) does not contemplate the preparation of an EA as a supplement to an EIS. In addition, 10 C.F.R. §§ 51.59(c)(3) and (c)(4) require the supplemental EIS prepared at the license renewal stage to address “significant new information.” NRC regulations for the preparation of ERs by license renewal applicants also require that an ER must address “new and

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significant information regarding the environmental impacts of license renewal of which the licensee is aware." 10 C.F.R. § 52.53(c)(3)(iv).

Here, the new information is undoubtedly new, because Commissioner Svinicki cast the decisive notation vote on the issue on September 24, 2009. In addition, this information that the Commission is not currently in the "prediction business" regarding long term waste disposal is highly significant. For the first time, it is both legally and factually clear that spent fuel produced during any period of extended operation could well remain on the Indian Point site for more than 30 years after power generation ceases. Indeed, at this stage, the Commission cannot predict when a waste disposal facility to take the waste might be available, nor even what form that facility might eventually take. Finally, while the NRC Staff and Entergy may argue that the Commission may get back into the "prediction business" at some point, that would constitute irrelevant speculation. Of course, if at some point in the future, the Commission acts decisively on waste confidence the validity of the asserted contentions would need to be reexamined. However, at present, it is very clear that even though the Commission expects waste to remain on reactor sites for longer than 30 years after power generation ceases, it has made no generic findings on safety or environmental impact of on-site spent fuel storage beyond that time period. The current contentions are designed to ensure that the agency plugs this gap.

The NRC Staff cannot now say these unassessed impacts are minor or insignificant. Commissioner Svinicki points out that the Staff has informed her assessing the impacts from the indefinite long term storage "would be challenging, would take a

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number of years, and would confront many analytical uncertainties.” Svinicki Decision at 2.

IV. The New Contentions Are Within The Scope of License Renewal

Although the existing rules do not contemplate the assessments that Clearwater contends is missing, it is clear that to issue a valid license, the NRC must comply with NEPA. For example, in the *San Luis Obispo* case discussed supra, the Court required an analysis that the NRC said was not required by its rules. In the environmental arena, the scope of license renewal is therefore synonymous with the requirements of NEPA. Furthermore, the Ninth Circuit reiterated NEPA’s direction on uncertain consequences, which requires an agency to deal with uncertainties by including in the EIS “a summary of existing credible scientific evidence which is relevant to evaluating the reasonable foreseeable significant adverse impacts on the human environment, and... the agency’s evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.” 40 C.F.R. §§ 1502.22(b)(3), (4). The court construed the regulation to apply to those events with potentially catastrophic consequences “even if their probability of occurrence is low, provided that the analysis of impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.” 40 C.F.R. § 1502.22 (b)(4). The notion that spent fuel could remain on the Indian Point site for more than 30 years after power generation ceases is way beyond mere conjecture. Even the Commission has acknowledged it cannot predict when spent fuel might leave the site. Indeed, the facts show that such a result is the likely consequence of the current confusion on long-term waste disposal.

Second, the safety contention raises issues about the aging of long-lived passive components, which are at the heart of the relicensing safety review.

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V. The New Contentions Raise Multiple Material Disputes

The regulations require petitioners to “[d]emonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.” 10 C.F.R. § 2.309(f)(1)(iv). A showing of materiality is not an onerous requirement, because all that is needed is a “minimal showing that material facts are in dispute, indicating that a further inquiry is appropriate.” *Georgia Institute of Technology*, CLI-95-12, 42 N.R.C. 111, 118 (1995); *Final Rule, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process*, 54 Fed. Reg. 33,171 (Aug. 11, 1989).

At present, there is no indication that the NRC Staff or Entergy intend to carry out the required environmental or safety analysis of long term spent fuel storage. As indicted above, the NRC Staff has explicitly relied upon the GEIS and the NRC’s generic determination of no significant impact to evade any discussion of the environmental impacts of on-site waste storage. *See* DSEIS at xiv, 6-7. Entergy has also failed to put forward any aging management plan for the spent fuel storage casks. In the absence of such analyses it is clear there is material dispute about compliance with NEPA and AEA. Moreover, Clearwater expects that the answers to this Petition will demonstrate sharp factual and legal disputes between the parties that will need to be resolved through a hearing.

For example, one factual dispute is already clear. The many reports produced by Clearwater's expert Dr. Gordon Thompson make it plain that he believes that storage of spent fuel in wet pools is far less safe than the NRC Staff believe and that the staff should take further steps to improve the safety of spent fuel pools. However, to date this issue has been legally excluded from the proceeding because of the waste confidence rule.

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Because it is now clear that the Commission envisages long-term use of wet pools as well as dry casks, this material dispute is properly raised by the safety contention.

VI. The New Contentions Are Timely

Clearwater believes that to show timeliness, it need only show that the contentions meet the timing criteria of 10 C.F.R. § 2.309(f)(2), not 10 C.F.R. § 2.309(c). Nonetheless, out of an overabundance of caution Clearwater shows below that it actually meets both tests for the timing of new contentions.

Petitioners may add timely new contentions after filing their initial petition, so long as they act in accordance with 10 C.F.R. § 2.309(f)(2). *Entergy Nuclear Vermont Yankee, L.L.C.* (Vermont Yankee Nuclear Power Station), LBP-05-32, 62 NRC 813 (2005). The Commission's regulations allow for a new contention to be filed upon a showing that:

- (i) The information upon which the amended or new contention is based was not previously available;
- (ii) The information upon which the amended or new contention is based is materially different than information previously available; and
- (iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.

10 C.F.R. § 2.309(f)(2)(i)-(iii). Thus, when the Board found that action by the licensee mooted an admitted contention, the Board allowed the intervenors to file a new contention, but required the new contention to be timely in accordance with 10 C.F.R. § 2.309(f)(2). *In the Matter of AmerGen Energy Company* (License Renewal for Oyster Creek Nuclear Generating Station), LBP-06-16, 63 N.R.C. 737, 744-45 (2006). Similarly, the Board in the Vermont Yankee license renewal proceeding recently recognized that the time to file contentions is placed at a very early stage, when the renewal application is docketed. *Entergy Nuclear Vermont Yankee L.L.C. and Entergy*

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Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), LBP-07-15, slip op.

at 6 n. 12 (November 7, 2007) *available at* ML073110424. After the initial time to present contentions has expired, new contentions must meet a timeliness test. When significant new information becomes available this test should be a relatively simple matter to meet. *Id.* at 5; 10 C.F.R. § 2.309(f)(2). However, in the absence of new information the applicable test is more stringent. LBP-07-15 slip op. at 6. The Board also noted that “normally a great deal of new and material information becomes available to the public after the docketing” through application amendments or the safety evaluation report. LBP-07-15, slip op. at 6 n. 12. This information can then be used to file new contentions, satisfying the AEA requirement that the public must be afforded an opportunity to request a hearing on all material safety issues. *Id.*

Here, the new contention meets the requirements of 10 C.F.R. § 2.309(f)(2)(i) and (ii) because it is based upon new information that was “not previously available,” and is “materially different than information previously available.” Turning to the last element, the Commission and on occasions the Board has interpreted the “timely fashion” requirement of 10 C.F.R. § 2.309(f)(2)(iii) as being 30 days from the availability of the new information upon which the new contention is based. *E.g. Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-4, 59 NRC 31, 46 (2004). Because this motion is based on the deciding vote by Commission Svinicki, which was dated September 24, 2009, it is within the timeliness requirement of 10 C.F.R. § 2.309(f)(2)(iii).

NRC Staff and Entergy may argue that the regulations require Clearwater to meet the timeliness test for a late-filed contention contained in 10 C.F.R. § 2.309(c). Although

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this is not correct, even if the 10 C.F.R. § 2.309(c) standard applies, Clearwater meets that standard. The standard contained in Section 2.309(c) is that late-filed contentions will be admitted based upon a balancing of the following factors:

- (i) Good cause, if any, for the failure to file on time;
- (ii) The nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding;
- (iii) The nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding;
- (iv) The possible effect of any order that may be entered in the proceeding on the requestor's/petitioner's interest;
- (v) The availability of other means whereby the requestor's/petitioner's interest will be protected;
- (vi) The extent to which the requestor's/petitioner's interests will be represented by existing parties;
- (vii) The extent to which the requestor's/petitioner's participation will broaden the issues or delay the proceeding; and
- (viii) The extent to which the requestor's/petitioner's participation may reasonably be expected to assist in developing a sound record.

In evaluating the admissibility of a late-filed contention, the first and foremost factor is whether good cause exists that will excuse the late-filing of the contention. *See Commonwealth Edison Co. (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 NRC 241, 244 (1986)*. The good cause element has two components that may impact on a presiding officer's assessment of the timeliness of a contention's filing: (1) when was sufficient information reasonably available to support the submission of the late-filed contention; and (2) once the information was available, how long did it take for the contention admission request to be prepared and filed. *See Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), LBP-99-3, 49 NRC 40, 46-48 (assessing late-filing factors relative to petition to intervene), aff'd, CLI-99-10, 49 NRC*

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318 (1999); *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation),
LBP-01-13, 53 NRC 319, 324 (2001).

First, and most importantly, Clearwater has good cause for not submitting the contentions earlier, because they could not have filed the proposed contention before Commissioner Svinicki made her notation vote dated September 24, 2009 and they have filed this motion promptly thereafter. Second, Clearwater is already a party to this proceeding. Third, as demonstrated in the declarations filed with Clearwater's initial petition to intervene dated December 10, 2007, Clearwater has individual members who live close to the plant and have intense interest in the potential environmental impacts license extension could cause. Fourth, if the proposed contentions were admitted it would be likely to have a material effect on the licensing decision that is before the Commission. Fifth, Clearwater currently has no other available means to protect their interests because in the absence of an admitted contention, the required analyses would not be done. Sixth, the other parties in this proceeding do not have any admitted contentions that would require a similar analysis. Seventh, although Commissioner Svinicki believes the analysis required by the new environmental contention could take a number of years, that would be preferable to violating NEPA. Not admitting the contention could lead to more delay if a Circuit Court were to find on appeal that analysis of the spent fuel issues is essential to comply with NEPA. Finally, at present the record is insufficient to allow the Commission to conclude that the environmental and safety analysis supporting the Indian Point relicensing is adequate. Thus, admitting the contentions would assist the Commission in developing a sound record.

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CONCLUSION

For the foregoing reasons, this Board should admit Clearwater's proffered contentions EC-7 and SC-1 into this proceeding.

Manna Jo Greene

Manna Jo Greene
Environmental Director
Hudson River Sloop Clearwater, Inc.
112 Market St.
Poughkeepsie, NY 12601
845 454-7673 x 113

/s/

Ross Gould
Board of Directors
Hudson River Sloop Clearwater, Inc.
10 Park Avenue #5L
New York, NY 10016
917-658-7144

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	Docket Nos. 50-247-LR
)	and
ENTERGY NUCLEAR OPERATIONS, INC.)	50-286-LR
)	
(Indian Point Nuclear Generating Units 2 and 3))	
)	October 26, 2009

**HUDSON RIVER SLOOP CLEARWATER, INC.'S MOTION FOR LEAVE TO
ADD NEW CONTENTIONS BASED UPON NEW INFORMATION**

The designers of commercial nuclear reactor sites, like Indian Point, assumed that spent fuel, a highly radioactive form of nuclear waste, would only remain on-site for approximately 5 years, to allow the radioactivity in the waste to decay sufficiently to allow it to be transported off-site to another facility for reprocessing or disposal.¹

However, reprocessing of this waste in the United States never occurred in any appreciable quantity and ceased altogether in the 1970s. The replacement for reprocessing was supposed to be a long term repository for nuclear waste, but that has been repeatedly delayed. Most recently, the administration has taken actions that make it unlikely that the planned repository at Yucca Mountain will ever open. Instead, the Department of Energy ("DOE") intends to convene a panel of experts to review all long-term options. By default, in the absence of a central disposal facility, waste has

¹Out of an overabundance of caution, Clearwater has attempted to contact the NRC Staff to consult on this issue, but Clearwater had to file before the Staff responded because it did not want to miss any filing deadlines.

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accumulated at reactor sites like Indian Point, turning those sites into nuclear waste dumps in addition to nuclear waste producers. The recent votes of the Commissioners make it clear that waste will remain at reactor sites for the foreseeable future and it is impossible to predict when any waste might be removed. Instead, the country still continues to grapple with how to dispose of nuclear waste, which we have failed to resolve for the last half century. Meanwhile any waste generated during any period of extended operation would continue to accumulate at Indian Point and there are no identified acceptable disposal alternatives.

I. New Information is Available

On September 24, 2009, the Commission decided not to amend the Waste Confidence Rule to find generically that a centralized waste disposal facility for spent fuel will be available 50-60 years after the current licenses for nuclear power stations expire because it did not have an adequate basis for making that prediction. Specifically, the current waste confidence rule states *inter alia* that a central waste repository will open within 30 years after power generation at reactors ceases. The Staff proposed amending the waste confidence rule to lengthen the time at which the off-site disposal will become available 50 to 60 years after power generation ceases:

- 51.23 Temporary storage of spent fuel after cessation of reactor operation – generic determination of no significant environmental impact.
- (a) The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor in a combination of storage in its spent fuel storage basin and at either onsite or offsite

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independent spent fuel storage installations. Further, the Commission believes there is reasonable assurance that sufficient mined geologic repository capacity will be available within 50-60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.²

However, two of the three current Commissioners refused to vote to enact this new rule, because of the current uncertainty about the nation's approach to long term spent fuel disposal created by the administrations ongoing re-examination of how to move forward on this issue. See Votes from Commissioners Klein and Svinicki, attached as Exhibits 2 and 3, respectively. They voted against amending the waste confidence rule because they are no longer able to predict when a geological waste repository would commence accepting the spent fuel waste currently being stored on-site. *Id.*

Commissioner Klein stated that the Commission must take into account "how the Administration's recent announcements of changes in the Nation's high-level waste (HLW) repository program should affect the proposed update." Exhibit 2 at 1. More baldly, Commissioner Svinicki stated "plainly put, this is a particularly difficult time to be in the prediction business," because the administration is in the process of reassessing long term spent fuel disposal options. Exhibit 3 ("Svinicki Decision") at 1-2. In a nutshell, the Commission does not currently have confidence that a central waste repository for spent fuel will be available within 50-60 years.

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²<http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2009/secy2009-0090/enclosure-2.pdf>

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Commissioner Svinicki also made it clear that this is significant because “waste confidence is at heart an exercise in compliance with NEPA.” *Id.* at 2. Furthermore, indefinite onsite storage raises a “conundrum created in trying to envelope a National Environmental Policy Act (NEPA)-worthy environmental analysis of the impacts of the storage of spent nuclear fuel for an indefinite period [onsite].” *Id.* Although the staff could do the required NEPA analysis associated with such storage, that analysis would be challenging and would take years to conduct. *Id.* This shows that the potential impacts of long term onsite storage are significant. Finally, although the Commissioners cannot say when offsite disposal facilities for spent fuel will be available, Commissioner Svinicki remains confident that such facilities will eventually be created. *Id.* at 3.

II. Nuclear Waste Management Has Been Fraught With Difficulty and Delay

A. History of U.S. Nuclear Waste Management

Since the 1950’s the disposal of our country’s nuclear waste is replete with false starts, delays, and substantial problems that have left us at a loss for how to safely dispose of the waste generated by the use of nuclear power. Gordon Thompson, *Environmental Impacts of Storing SNF & HLW from Commercial Nuclear Reactors: A Critique of NRC’s Waste Confidence Decision & Environmental Impact Determination* (February 2009)(“Environmental Impacts”), See generally Jason Hardin, *Tipping the Scales: Why Congress and the President Should Create a Federal Interim Storage Facility for High-Level Waste*, 19 J. Land Resources & Env’tl. L. 293 (“Tipping the Scales”).

At the time the first commercial reactor sites commenced operation it was assumed that the fuel would be moved from the sites to be reprocessed. Facilities were

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not designed to store the full amount of spent fuel that the reactor would generate during its 40-year operational life, let alone storing waste for a 20-year license renewal and decommissioning process. Instead, they were designed to temporarily store waste in water-filled pools adjacent to reactors. The pools were to hold the spent fuel assembly in low-density open racks until it would be taken for reprocessing. *Environmental Impacts* at 11 citing NRC 1979- U.S. NRC GEIS on Handling and Storage of Spent Light Water Power Reactor Fuel, NUREG-0575. After the spent fuel cooled on the racks in the pool, it was to be removed from the reactor site and taken to a reprocessing facility.

Reprocessing however proved disastrous and people feared that reprocessing would lead to nuclear proliferation. From 1966-1972 spent fuel was being recycled at a reprocessing facility near West Valley, New York. During its time of operation the facility reprocessed only 640 metric tons of spent fuel. The plant met with regulatory problems that required expensive modifications and in 1975 the facility stopped accepting spent fuel. Within 5 years, the company operating the facility opted out of its lease for the site leaving the State of New York with waste that was not reprocessed.

In 1977, President Carter banned reprocessing because of fears that it would lead to nuclear proliferation and as demonstrated by the West Valley fiasco, that reprocessing was not economical. *Id.* at 11. When reprocessing was abandoned spent fuel accumulated in the pools. *Id.* In 1982 it became clear to Congress that the spent fuel pools were not designed as indefinite storage facilities and the efforts to devise a permanent solution to nuclear waste disposal had not been adequate. *Tipping the Scales* at 295-96.

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In response, Congress enacted the Nuclear Waste Policy Act of 1982 (“NWP”).

NWPA set forth four objectives³: 1) to develop repositories to protect the public and the environment from spent fuel and HLW; 2) to establish federal responsibility and define federal policy for the entire project; 3) to define the relationship between the federal government and the states and tribes with respect to spent fuel/HLW disposal; and 4) to establish a Nuclear Waste Fund, financed by the nuclear utilities to pay for the waste disposal. 42 U.S.C. § 10131(b)(2000). Under the NWPA, DOE was also required to site a permanent repository and to design acceptance of spent fuel and HLW by January 31, 1998 and to enter into contracts with the utilities. NWPA required the utilities to enter into a contract with the DOE to obtain a license to operate.

In 1983, DOE published a plan for a firm schedule to accept the waste beginning no later than January 31, 1998. *Pacific Gas & Electric Co. v. U.S.*, 536 F.3d 1283, 1286, 2008 U.S. App. LEXIS 16637 (Fed. Cir. 2008). The DOE plan also outlined a contingency plan because it was not optimistic the repository would be ready by the deadline set by Congress. The contingency plan called for the DOE to request that Congress approve a monitored retrievable storage (MRS) facility as an interim solution to remove the waste from the reactor site. *Id.* at 1286.

In 1985, the DOE issued a follow up plan providing for 2 schedules, one with the MRS facility and one without. In 1987, the DOE issued another new plan informing Congress that opening a permanent repository by 1998 was no longer realistic. Congress

³Originally Congress directed the creation of two permanent repositories, however as time passed without the development of even a single repository congress pushed the DOE in the direction of Yucca Mountain and called for only that repository.

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amended the NWPA by passing the Nuclear Waste Policy Amendments Act of 1987 (“1987 Amendments”) to direct DOE to develop the single repository at Yucca Mountain and cease activities at other sites. *Id.* at 1287. The 1987 Amendments also precluded the MRS facility construction until the NRC authorized a permanent storage repository.” *Id.* In 1991, DOE again amended its plan for storage of NSF. This plan proposed an MRS facility, but noted that part of the 1987 Amendments would need to be repealed to build the facility. *Id.*

In 1995, after 12 years of analyzing the feasibility of a single permanent repository and – 6 years after the January 31, 1998 acceptance date – the DOE issued a final finding on waste acceptance issues, concluding that DOE had no statutory obligation to accept waste until a storage facility is built. *Id.*

By the late 1990’s, it was clear to some in Congress that a temporary solution was needed to remove wastes from reactor sites while a permanent repository was built. In fact, Congress introduced legislation for 4 straight years seeking to create a federal interim storage facility at Yucca Mountain to alleviate the problems caused by continued on-site storage. *Tipping the Scales* at 303-304. None of this legislation was enacted and no temporary waste site has been created.

In this past decade, the substantial opposition to Yucca Mountain and DOE’s approach to acceptance of waste for disposal has played out in numerous lawsuits. Bentley Mitchell, *Diffusing the Problems: How Adopting a Policy to Safely Store America’s Nuclear Waste May Help Combat Climate Change*, 28 J. Land Resources & Envtl. L. 375 (“Diffusing the Problems”) at 386. In 2004, the D.C. Court of Appeals

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vacated an EPA radiation protection standard to the extent that it required DOE to show compliance for only 10,000 years following disposal. *Nuclear Energy Institute, Inc. v. EPA*, 373 F.3d 1251 (D.C. Cir. 2004). The decision of the D.C. Court of Appeals is a serious setback for the Yucca Mountain project and the plan is in "serious jeopardy."

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The current review of options surrounding waste disposal will in all likelihood prevent a repository from being constructed any time in the near future.

In addition, industry is using the courts to reclaim money utilities provided under the Nuclear Waste Fund, which was established by Congress in the NWPA to pay for the disposal of spent fuel. NUREG-1350 at 75. As of Dec. 31, 2008, the fund totaled \$16 billion and utilities have had success in several courts on its claims for money damages and for return of money paid due to the DOE's failure to accept nuclear waste by January 31, 2008. *Maine Yankee Atomic Power Co. v. U.S.*, 225 F.3d 1336, 1343 (Fed. Cir. 2000). More than 50 years has passed and to date spent fuel remains stored at reactor sites and will remain there for the foreseeable future.

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B. Accumulation of Spent Fuel at Reactor Sites

Since reprocessing ended in 1977 and there is no DOE repository, spent fuel has been accumulating at reactor sites. On-site storage is accomplished using pools, which are designed to temporarily store low-density levels of spent fuel and in "dry cask storage."

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The U.S. generates 2,000 metric tons of nuclear waste per year. As of December 31, 2002 there were 42,268 metric tons of spent fuel at reactor sites.

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http://www.eia.doe.gov/cneaf/nuclear/spent_fuel/ussnfddata.html, last visited October 21,

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2009. Since 2002, the U.S. has generated approximately 12,000 metric tons of additional spent fuel bringing the total accumulated waste at reactor sites to 54,000 metric tons of spent fuel. This is far greater than was imagined when commercial nuclear reactors were constructed.

Yucca Mountain will hold about 77,000 metric tons. NRC Fact Sheet Yucca Mountain license review.⁴ The DOE office of Civilian Radioactive Waste Management estimates that by 2035 we will have approximately 105,000 metric tons of waste. *Id.* As such, even if Yucca Mountain were to open, it would not have sufficient capacity to take the additional waste that would be generated during any extended period of operation.

III. The Commission Has Repeatedly Amended The Waste Confidence Rule

In 1979, the NRC Commission began to assess “whether radioactive wastes can be safely stored on-site past the expiration of the existing facility licenses until offsite disposal or storage is available. 44 Fed. Reg. 61372, 61373 (October 25, 1974). After a 5 year analysis the Commission issued 5 waste confidence findings. The Commission found:

- (i) reasonable assurance that safe disposal of high-level waste and spent fuel in a geologic repository is technically feasible,
- (ii) that repository capacity will eventually be available,
- (iii) that high-level waste and spent fuel will be safely managed until repository

⁴ <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-yucca-license-review.html>, last visited October 26, 2009.

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capacity is available,

(iv) that spent fuel generated in any reactor can be stored safely and without significant environmental impacts for extended periods, and

(v) that spent fuel storage will be available as needed.

49 Fed. Reg. 34658 (August 31, 1984). The timing of the repository has been repeatedly amended. In 1984, Commission found that the repository would open in 2007-2009.

Environmental Impacts at 7. In 1990, the Commission extended that date to 2025. *Id.*

Most recently the Commission had proposed extending this time to 2049-2059, *Id.*, but, as discussed above, has recently decided it no longer has sufficient information to make a new rule about when, or even if, a new repository will open. In addition, in 1984, the Commission amended 10 CFR Part 51 of its regulations to provide a generic determination that for at least 30 years beyond the expiration of the reactor operating license, no significant impacts will result from the storage of spent fuel in the reactor facility pools or in dry casks.

In making the 1990 extension to this generic finding, the Commission provided that "it would consider undertaking . . . a reevaluation [of the availability of the repository] when the pending repository development and regulatory activities had run their course or if a significant and pertinent unexpected event occurred, raising substantial doubt that the continuing validity of the Waste Confidence findings." 64 Fed. Reg. 68005 (December 6, 1999) (emphasis added).

In 2007, the NRC Staff was asked by the Commission to prepare a memo on waste confidence that stated that an assessment or update might consider whether the

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earlier 100-year confidence in on-site or off-site storage remains valid; whether fuel from new reactors warrants any possible changes to waste confidence findings; and whether the Commission's earlier expectations regarding a timeline for a permanent repository should be modified or updated. *Id.*

On October 9, 2008 the NRC opened a proposal to amend the waste confidence rule for public comment. The proposed rule would have lengthened the time at which the off-site disposal will become available to 50- 60 years beyond the licensed life for operation, removing the reference to the completion of a repository by the first quarter of this century. Two of the three current Commissioners refuse to endorse this change, finding that the current uncertainty about the nation's approach to long term spent fuel disposal means that they cannot vote for this proposed rule at the present time. *See* Exhibits 1 and 2, attached. As Commissioner Sviniki noted:

Plainly put, this is a particularly difficult time to be in the prediction business. That said, however, the Court in *State of Minnesota v. NRC* (D.C. Cir. 1979) noted this approach and stated that "[t]he breadth of the questions involved and the fact that the ultimate determination can never rise above a prediction suggest that the determination may be a kind of legislative judgment for which rulemaking would suffice." As the Atomic Energy Commission's first Chief of the Environmental and Sanitary Engineering Branch, Mr. Joseph Lieberman, sagely cautioned in 1960, however, in voicing his confidence that the nuclear industry would grow "in a rational way without being hamstrung by its own wastes": "[O]ne has to be very careful to distinguish between aspiration, reality, and speculation in this field."

Thus, while the government had an aspiration to have solved this problem by now, it is apparent that reality has intervened, and that at this moment a finding about when the wastes that would be generated during any period of extended operation would leave the site would be purely speculative.

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IV. The Issue of Nuclear Waste Disposal Is Once More Under Review

The U.S. nuclear waste disposal dilemma is now being extensively reevaluated once more by all the stakeholders. The recent change in political leadership has brought a profound change in federal policy toward Yucca Mountain. President Obama's administration has determined that Yucca Mountain is not the best option for disposing of waste and has publicly stated that it has plans to remove all funding from the continued examination of Yucca Mountain waste repository. In fact, as of 2011 the White House will no longer provide funds in the budget for Yucca Mountain. Elaine Hiruo, *Global Power Report* "White House will not seek funds in 2011 budget for nuclear waste repository at Yucca Mountain," August 6, 2009. In addition, Senate Majority leader Harry Reid is determined to keep waste away from Yucca Mountain. In fact, Sen. Reid has pronounced Yucca Mountain "dead" on numerous occasions.⁵

Indeed even the DOE is moving us away from Yucca Mountain. Elaine Hiruo *Global Power Report*, "DOE's moves to 'orderly shutdown' of repository project" May 11, 2009. Bringing us back around full circle to where the commercial spent fuel disposal nominally began, the DOE is now revisiting the concept of fuel reprocessing. In October 2008, through the GNEP program at DOE the US government is pursuing "alternative" nuclear fuel cycles. *Environmental Impacts* at 14. In its draft impact statement on processing of spent fuel the DOE states that this is being considered "to reduce the hazards associated with disposal of spent fuel, DOE/EIS-0346 at s-1.

⁵ <http://www.kxnt.com/pages/4913954.php?>

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A DOE report on the likely need for a second repository, required under the 1982 US Nuclear Waste Policy Act (NWPA), has considered three alternative scenarios for dealing with spent fuel generated beyond 2010: remove Yucca Mountain's statutory capacity limit; site and build a second repository; or prolong the storage of spent fuel at reactor sites. Nuclear Engineering International, "Radwaste Management - No limits for Yucca Mountain?" March 4, 2009. The DOE has recognized that Yucca may never be built... and some nuclear plants already implementing changes to make their on-site storage facilities permanent, rather than temporary. *Diffusing the Problem* at 390. In addition, in March 2009, Secretary Steven Chu announced that the DOE would be creating a blue ribbon panel to develop a plan for handling nuclear waste.⁶

The NRC is also reevaluating the issue of spent fuel and the viability of the Yucca Mountain repository. This re-evaluation is demonstrated by the recent commission vote of no confidence in the waste confidence rule. Additionally, the NRC has acknowledged that the administration of President Barack Obama announced that it would terminate the Yucca Mountain program, while developing a disposal alternative. NUREG-1350 at 85

Observers and commentators are also opening up dialogue about the continued unsettled waste disposal issues in this country and stressing that "the temporary storage facilities on-site at nuclear plants across the United States are nearing the end of their intended lifespan, and the waste needs to be permanently stored." *Diffusing the Problem* at 390. In addition, commentators believe that "many of the assumptions underlying on-site storage are unproven in the real world." *Id.* at 392.

⁶ <http://www.businessinsider.com/doc-will-have-a-blue-ribbon-panel-figure-out-nuclear-waste-2009-3>, last visited October 21, 2009.

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Even those who espouse expansion of nuclear power are calling for action on the waste storage problem. A recent U.S. Chamber of Commerce Report entitled "Revisiting Nuclear Waste Policy," called for a review of the country's policy for the disposal of spent fuel now concluding that "many of the facts, conditions, and assumptions that were in place in 1982 when the current policy was crafted are no longer accurate or germane." Commentators have also said that "the political landscape has recently changed, making it more likely that construction of the Yucca Mountain project be halted – and that a single concentrated repository is unlikely to be built in the near future." *Diffusing the Problem* at 387.

V. Storage On Site In Wet Pools and Dry Casks Is The Default Solution

Over the last 60 years, an effort to develop a policy for disposal of spent fuel has taken many twists and turns, but the reality of waste disposal has not changed much. Spent fuel will be stored on-site for at least the renewal period of the license. *Id.* At first the spent fuel was stored in low density pools, however because this waste has accumulated, pools are now tightly and densely packed with spent fuel. *Environmental Impacts* at 11. Many reactor spent fuel pools, including those at Indian Point, have reached capacity and now some of the spent fuel waste from 45 reactors, including Indian Point Units 2 and 3, is stored in dry casks on-site as well as in high density spent fuel pools. *Id.* at 11-12; IPEC Newsletter.⁷ There is currently no other option because permanent waste disposal solution is as distant as ever and there are no civilian facilities to reprocess spent fuel in the United States. The reality is that it is highly likely that the

⁷ <http://www.safesecurevital.org/pdf/IPNewsletter071609.pdf>, last visited October 26, 2009.

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additional waste generated during any period of extended operation would remain on the site for the foreseeable future.

ARGUMENT

This argument demonstrates that Clearwater meets the substantive contention admissibility requirements of 10 C.F.R. § 2.309(f)(i)-(vi), in addition to the requirement for presenting new and significant environmental information, and all other requirements.

I. Specific Statement of the Contentions

Petitioners must "provide a specific statement of the issue of law or fact to be raised or controverted." 10 C.F.R. § 2.309(f)(1)(i). The new contentions are:

Clearwater EC-7

The environmental analysis carried out to assess the potential impacts of relicensing Indian Point Units 2 and 3 is inadequate because it provides an insufficient analysis of the potential impacts of additional waste storage on site, the alternative methods of accomplishing such storage, and potential alternatives to additional waste storage on the site, including the no-action alternative.

Clearwater SC-1

The license renewal application requesting the relicensing of Indian Point Units 2 and 3 is inadequate because it provides insufficient analysis of the aging management of the dry casks and spent fuel pools that could be used to store waste on the site in the long term. In addition, both the applicant and the NRC Staff have failed to establish that any combination of such storage will provide adequate protection of safety over the long term.

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II. Explanation of Basis

At this preliminary stage, Clearwater does not have to submit admissible evidence to support a contention, rather it has to “[p]rovide a brief explanation of the basis for the contention,” 10 C.F.R. § 2.309(f)(1)(ii), and “a concise statement of the alleged facts or expert opinions which support the . . . petitioner’s position.” 10 C.F.R. § 2.309(f)(1)(v). This rule ensures that “full adjudicatory hearings are triggered only by those able to proffer . . . minimal factual and legal foundation in support of their contentions.” *In the Matter of Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 N.R.C. 328, 334 (1999) (emphasis added).

Here, the facts discussed above supported by the Declaration of Dr. Gordon R. Thompson (attached as Exhibit 1) provide the factual basis of the contention. The legal basis of the contention is that because the Commission cannot currently make a determination about when off-site disposal options will be available for spent fuel, the existing waste confidence rule can no longer allow the NRC to comply with the Atomic Energy Act (“AEA”) and the National Environmental Policy Act (“NEPA”) without a thorough analysis of the safety and environmental issues raised by the indefinite on-site storage of the additional spent fuel to be generated, which is one of the foreseeable outcomes of licensing an extended period of operation. Although the Commission has taken no formal action to revoke the existing waste confidence rule, the Commission cannot logically assert that it is confident that a waste repository will exist within 30 years after cessation of operation when two of the three current commissioners have found such a repository may not be available within 60 years of that time and have taken

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the Commission out of the "prediction business" of trying to guess when offsite spent fuel disposal could commence. Thus, because long term or indefinite storage of additional wastes on the Indian Point site would be the likely result of allowing the reactor to continue operating, the applicant must provide the NRC with a basis to conclude that such storage meets the safety requirements of the AEA or the NRC Staff must devise its own basis. In addition, to comply with NEPA, the NRC must provide a site specific assessment of the environmental impacts that have not been generically addressed.

A. NRC's Reliance on the Waste Confidence Decision

The NRC has determined it need not perform site-specific environmental reviews of medium-term onsite spent fuel storage because of the Commission's waste confidence rule.

The current waste confidence rule states *inter alia* that a central waste repository will open within 30 years after power generation at reactors ceases and that the storage of waste on the site for the interim period prior to the opening of the repository will not cause significant environmental impacts:

§ 51.23 Temporary storage of spent fuel after cessation of reactor operation--generic determination of no significant environmental impact.

(a) The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel storage

installations. Further, the Commission believes there is reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time.

(b) Accordingly, as provided in §§ 51.30(b), 51.53, 51.61, 51.80(b), 51.95, and 51.97(a), and within the scope of the generic determination in paragraph (a) of this section, no discussion of any environmental impact of spent fuel storage in reactor facility storage pools or independent spent fuel storage installations (ISFSI) for the period following the term of the reactor operating license or amendment, reactor combined license or amendment, or initial ISFSI license or amendment for which application is made, is required in any environmental report, environmental impact statement, environmental assessment, or other analysis prepared in connection with the issuance or amendment of an operating license for a nuclear power reactor under parts 50 and 54 of this chapter, or issuance or amendment of a combined license for a nuclear power reactor under parts 52 and 54 of this chapter, or the issuance of an initial license for storage of spent fuel at an ISFSI, or any amendment thereto.

52. This section does not alter any requirements to consider the environmental impacts of spent fuel storage during the term of a reactor operating license or combined license, or a license for an ISFSI in a licensing proceeding.

10 C.F.R. § 51.23. In turn, 10 C.F.R. § 51.95 provides that no environmental analysis of spent fuel storage for the interim period is required during individual license renewal proceedings:

[i]n connection with the renewal of an operating license . . . the supplemental environmental impact statement . . . need not discuss . . . any aspect of the storage of spent fuel for the facility within the scope of the generic determination in § 51.23(a) and in accordance with § 51.23(b).”

10 C.F.R. § 51.95. This is reflected in the Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437 (“GEIS”), which omits any analysis of post-operation environmental impacts related to nuclear waste storage. Instead, the GEIS explicitly acknowledges the Commission’s generic determination of no significant environmental impact codified at 10 C.F.R. § 51.23, and states that “in accordance with this determination the rule also provides that no discussion is required concerning environmental impacts of spent-fuel storage for the period following the term of the reactor operating license, including a renewed license.” *See id.* § 6.4.6.3.

The GEIS further relies upon the Commission’s waste confidence rulemaking to arrive at the conclusion that “[o]n-site storage of spent fuel *during the term of a renewed operating license* is a Category 1 issue.” GEIS § 6.4.6.7 (emphasis added). While the GEIS states that the “[c]urrent and potential environmental impacts from spent-fuel storage have been studied extensively and are well understood” *see* GEIS § 6.4.6.3, the GEIS contains no new analysis related to environmental impacts of spent fuel storage (including spent fuel pool accidents), and appears to rely entirely on the 1990 Waste Confidence rulemaking review.

Indeed, the GEIS explicitly cites rationale provided in the Waste Confidence Decision: “[i]ndustry experience with spent-fuel storage, coupled with supplemental studies of the integrity of pool and dry storage systems, indicates that spent fuel generally can be stored on site with minimal environmental impacts”; “[e]xtended pool storage provides a benign environment that does not lead to degradation of the integrity of spent-fuel rods”; “studies of fuel rod or cladding failures indicate that fuel rods should remain

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secure *well beyond the period of plant life extension.*” See *id.* § 6.4.6.2 (citing Waste Confidence Decision Review, 55 Fed. Reg. 38474 (Sept. 18, 1990) (emphasis added)).

Based on this “analysis,” the NRC concluded that “[w]ithin the context of a license renewal review and determination . . . there is ample basis to conclude that continued storage of existing spent fuel and storage of spent fuel generated *during the license renewal period* can be accomplished safely and without significant environmental impacts.” *Id.* § 6.4.6.7 (emphasis added).

In accordance with the GEIS, NRC has consistently rebuffed challenges relating to the environmental impacts of on-site spent fuel storage, and disallowed any site-specific review of such issues. In the Turkey Point nuclear power plant relicensing proceeding, an intervenor raised a contention asserting that spent fuel could not be safely stored given the location of the Turkey Point facility. See *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plants, Units 3 and 4), LBP-01-06, 53 N.R.C. 138,

146-150 (2001). The Atomic Safety and Licensing Board (the “Board” or the “Licensing Board”) there quickly rejected the contention since “the issue of onsite spent fuel storage is a . . . Category 1 issue that cannot be examined further in a license renewal proceeding.” *Id.* The board also specifically noted that any questions related to environmental impacts of spent fuel after the renewal term were “barred by the Commission’s Waste Confidence Rule.” *Id.*

On appeal, the Commission upheld this decision, finding that “Part 51’s license renewal provisions cover environmental issues relating to onsite spent fuel storage generically. All such issues, including accident risk, fall outside the scope of license

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renewal proceedings.” See *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 N.R.C. 3, 21-22 (2001). The Commission explained the NRC’s reliance on the GEIS for the generic disposition of spent fuel storage related issues, stating that

[t]he NRC has spent years studying in great detail the risks and consequences of potential spent fuel pool accidents, and the GEIS analysis is rooted in these earlier studies. NRC studies and the agency’s operational experience support the conclusion that onsite reactor spent fuel storage, which has continued for decades, presents no undue risk to public health and safety.”

Id. Given the discussion in the GEIS as cited above, such studies and operational experience are ostensibly those which underlie the Waste Confidence rulemaking.

In the Pilgrim and Vermont Yankee nuclear power plant relicensing proceedings, the Massachusetts Attorney General raised contentions asserting the failure to address new and significant information related to environmental impacts of on-site spent fuel storage. See *Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), Docket No. 50-293, Massachusetts Attorney General’s Request for A Hearing and Petition for Leave to Intervene with Respect to Entergy Nuclear Operations Inc.’s Application for Renewal of the Pilgrim Nuclear Power Plant Operating License and Petition (May 26, 2006), ADAMS Accession No. ML061630088; *Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station), Docket No. 50-271, Massachusetts Attorney General’s Request for A Hearing and Petition for Leave to Intervene with Respect to Entergy Nuclear Operations Inc.’s Application for Renewal of the Vermont Yankee

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Nuclear Power Plant Operating License (May 26, 2006), ADAMS Accession No.

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The Licensing Boards reviewing Massachusetts' petitions rejected these contentions, finding that the potential environmental impacts of storing spent fuel in pools for an additional 20 years – including the risk of spent fuel pool accidents – already had been generically addressed in the GEIS as a “Category 1” issue that does not require a site-specific impacts analysis. See LBP-06-20, 64 N.R.C. 131, 152-61 (2006); LBP-06-23, 64 N.R.C. at 280-300. These boards went on to conclude that because “Category 1” environmental impacts findings are codified in NRC regulations, such findings normally may not be attacked in individual NRC adjudicatory proceedings, unless the Commission waives the rule at issue for a particular proceeding, or the rule is changed or suspended due to a rulemaking review. See LBP-06-20, 64 N.R.C. at 155-61; LBP-06-23, 64 N.R.C. at 288-99.

In August 2006, the Massachusetts Attorney General filed a Petition for Rulemaking (“PRM”) requesting that the NRC vacate the general characterization in the GEIS that the environmental impacts of spent fuel pool storage are insignificant and revoke the regulations which excuse consideration of such impacts in NEPA decision-making documents. See *Proposed Amendment to 10 C.F.R. Part 51 (Rescinding finding that environmental impacts of pool storage of spent reactor fuel are insignificant)*, Massachusetts Attorney General’s Petition for Rulemaking to Amend 10 C.F.R. Part 51 (August 25, 2006), ADAMS Accession No. ML062640409 (hereinafter “Massachusetts AG PRM”).

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The Commission denied this petition for rulemaking, concluding that the spent fuel pool environmental impact findings in the GEIS were valid for the concerns articulated by Massachusetts, i.e. that spent fuel pool accidents and potential terrorist attacks could result in a catastrophic spent fuel pool fire. *See* The Attorney General of Commonwealth of Massachusetts, The Attorney General of California; Denial of Petitions for Rulemaking, Docket No. PRM-51-10, NRC-2006-0022 and Docket No. PRM-51-12, NRC-2007-0019, 73 Fed. Reg. 46204 (August 8, 2008). That is, NRC affirmed the general conclusions in the GEIS that on-site storage of spent nuclear reactor fuel, including high-density pool storage, had no significant adverse environmental impacts on the human environment. *Id.* at 46,212.

In the current relicensing proceeding related to Indian Point, review of environmental impacts of spent fuel storage have similarly been precluded to date. The draft supplemental environmental impact statement relies on the GEIS to conclude that “there are no impacts of onsite spent fuel associated with license renewal.” Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38, Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3, Draft Report for Comment, Main Report (U.S. Nuclear Regulatory Commission December 2008) (“Indian Point DSEIS”) at 6-7. The DSEIS further specifically cites to the generic determination of no significant impact codified at 10 C.F.R. § 51.23 to explain the lack of discussion of environmental impacts of long-term onsite nuclear waste storage. *See id.* at xiv.

The Licensing Board has also disallowed adjudication of issues related to environmental impacts of on-site spent fuel storage. In relation to Riverkeeper’s

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Contention EC-2 related to the impacts of, *inter alia*, spent fuel pool fires, the Board relied upon the designation of spent fuel storage environmental impacts as a Category 1 issue to deem the contention beyond the scope of the proceeding. See *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), LBP-08-13, 68 N.R.C. ___ (slip op. July 31, 2008), at 180-81.

Riverkeeper subsequently raised a similar new contention, Contention EC-4, stating that “[t]he NRC Must Address the Spent Fuel Storage Impacts at Indian Point in a Supplemental GEIS.” See *Riverkeeper, Inc.’s New and Amended Contentions Regarding Environmental Impacts of High-Density Storage of Spent Fuel*, Docket Nos. 50-247, 50-286 (Sept. 5, 2008). This contention was based on newly recognized information about site-specific mitigation measures that undermined the NRC’s generic environmental impact finding in the GEIS. The Board similarly rejected this contention, finding that “New Contention 4 deals with spent fuel storage impacts that the Commission has stated is a Category 1 issue, outside the scope of our proceeding.” *Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3)*, Memorandum and Order, Denying Riverkeeper’s Request to Admit Amended Contention EC-2 and New Contentions EC-4 and EC-5), Docket Nos. 50-247-LR and 50-286-LR, ASLBP No. 07-858-03-LR-BD01 (December 18, 2008), at 12.

Thus, based on the generic findings of the license renewal GEIS, there has been no site-specific review of environmental impacts of on-site spent fuel storage during the term of license renewal, let alone beyond that time-frame, for Indian Point, or any other nuclear power plant. However, all of the legal reasoning excluding environmental

analysis of spent fuel disposal issues is based upon the key premise contained in the rule that waste would only be stored on the site temporarily and at most for 30 years beyond the expiration of the license.

B. The Commission Has Undermined Part of the Waste Confidence Decision

The new information presented in this filing undermines the assumption that the additional waste that would be generated during any period of extended operation would remain on the site for less than 30 years and in fact shows that even the Commission cannot now predict how long it might remain. At this point it is clear that despite half a century of effort, we have made little progress toward identifying a safe and environmentally acceptable means of disposing of spent fuel in the long term. First, reprocessing failed and, even if successful, would have created risks of nuclear proliferation that successive administrations found unacceptable. In the section of the Nuclear Waste Policy Act entitled, "Nuclear Waste Fund," in the discussion about contracts to be entered into by DOE with generators of high level radioactive waste, Congress stated that "in return for payment of fees established by [§ 10222], the Secretary, beginning not later than January 31, 1998, will dispose of the high-level radioactive waste or spent nuclear fuel involved as provided in this subtitle." Nuclear Waste Policy Act, 42 U.S.C. § 10222(a)(5)(B). Thus, Congress envisioned a central repository for nuclear waste would be ready by 1998. But the alternative of long-term geological storage ran into serious technical and political problems to such an extent that the administration has now decided to abandon efforts to build such a repository at Yucca

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Mountain. Instead, the administration is convening a panel to explore all the options available.

Although there is no doubt that the government intends to fulfill its obligation under the Nuclear Waste Policy Act to dispose of the spent fuel, even the Commission is currently unable to predict when and how that might be done. It is problematic to reconcile the requirement of the Atomic Energy Act that licensing actions must be accompanied by a finding of adequate protection of safety with the long-term failure to devise an adequate solution for waste disposal. The Second Circuit in *Natural Resources Defense Council, Inc. v. United States Nuclear Regulatory Commission*, 582 F.2d 166 (1978) noted that although it is very difficult to find that the long term disposal of this waste will be safe, when the means of accomplishing such disposal is not known, Congress had taken no action to prevent the Commission granting licenses that allow the continued accumulation of such wastes. The Court noted that Congress knew at the time it passed the AEA that no such means was available, but it nonetheless intended that licenses be issued for nuclear power generation.

The continued validity of this holding is now doubtful, because providing waste disposal facilities for spent fuel has proved far more difficult than Congress expected in 1954 when it passed the AEA. The history of high level waste disposal is that approaches that looked promising, such as Yucca Mountain, turned out to be far more technically complex than initially thought. Illustrating this truth, a few years after the Second Circuit rejected NRDC's challenge, Congress made the basis of its inaction to that point explicit by stating in the Nuclear Waste Policy Act that a spent fuel disposal

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repository would be available by 1998. Thus, it is now clear that Congress's inaction prior to 1998 was based upon an erroneous assumption that a disposal facility for spent fuel would be in place by now. Even though this assumption proved false, in the Energy Policy Act of 2005 Congress provided loan guarantees to help finance a few new nuclear power plants. Thus, it now appears that the legislature is prepared to assume that even if a central waste repository does not open, means will be devised to safely store the wastes at reactor or other sites for the very long term, if not indefinitely.

This view is confirmed by Commissioner Svinicki, who approvingly quotes Judge Tamm's concurrence in *Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979), which states "if the Commission determines it is not reasonably probable that an offsite waste disposal solution will be available when the licenses of the plants in question expire, it must then determine whether it is reasonable probable that spent fuel can be stored safely onsite for an indefinite period." Svinicki Decision at 2-3 accord *Potomac Alliance v. NRC*, 682 F.2d 1030, 1038 (D.C. Cir. 1982). The opinion in the *Minnesota* case also makes clear that NRC cannot claim that waste disposal concerns are never relevant to licensing because Congressional inaction has actually been based upon the repeated assurances of the NRC that a solution to that issue is at hand. *Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979). Furthermore, courts subsequently found that while the provision of centralized waste disposal could be termed a generic issue, where issues involve particularized situations, such as when waste will be stored at individual reactor sites, they cannot be resolved generically. *Limerick Ecology Action v. NRC*, 869 F.2d 719, 738 (3rd Cir. 1989).

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To avoid consideration of the implications of onsite waste storage during individual license proceedings, the Commission approached this issue through rulemaking on waste confidence. It supported this rulemaking by affirming its confidence in the environmental integrity and safety of onsite storage for up to 70 years, which is a mere ten years beyond the cessation of licensed power generation activities for the oldest spent fuel. The Commission envisioned storage of spent fuel for this period in both wet pools and dry casks. For example, in the 1990 Waste Confidence Decision review, the Commission first found confidence that storage of spent fuel in wet pools for this time period is safe and has insignificant environmental impact:

The Commission addressed structure and component safety for extended operation for storage of spent fuel in reactor water pools in the matter of waste confidence rulemaking proceeding. The Commission's preliminary conclusion is that experience with spent fuel storage provides an adequate basis for confidence in the continued safe storage of spent fuel for at least 30 years after expiration of a plant's license. The Commission is therefore confident of the safe storage of spent fuel for at least 70 years in water pools at facilities designed for a 40-year lifetime. . . The Commission has also found that experience with water-pool storage of spent fuel continues to confirm that pool storage is a benign environment for spent fuel that does not lead to significant degradation of spent fuel integrity. Since 1984, utilities have continued to provide safe additional reactor pool storage capacity through re-racking, with over 110 such actions now completed.

Review and Final Revision of Waste Confidence Decision, 55 Fed. Reg. 38474, 38510 to 38512 (September 18, 1990).

The Commission then found that storage in dry casks has even less impact than storage in wet pools. It based this finding on an Environmental Assessment ("EA")

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associated with the rule related to interim monitored retrievable storage, which assessed dry storage of spent fuel for a period of 70 years after receipt of spent fuel from a reactor.

The EA found that:

[i]n consideration of the safety of dry storage of spent fuel, the Commission's preliminary conclusions were that [its] confidence in the extended dry storage of spent fuel is based on a reasonable understanding of the material degradation processes, together with the recognition that dry storage systems are simpler and more readily maintained. In response to Nuclear Waste Policy Act of 1982 authorizations, the Commission noted "... the Commission believes the information above [on dry spent fuel storage research and demonstration] is sufficient to reach a conclusion on the safety and environmental effects of extended dry storage. All areas of safety and environmental concern (e.g., maintenance of systems and components, prevention of material degradation, protection against accidents and sabotage) have been addressed and shown to present no more potential for adverse impact on the environmental and the public health and safety than storage of spent fuel in water pools.'

Review and Final Revision of Waste Confidence Decision, 55 Fed. Reg. 38474, 38510 (September 18, 1990).

The Commission did not clearly define the interaction of the 70 years for wet storage, which started at the time the plant was originally licensed, and the 70 years for dry storage, which started much more recently. However, the Commission's updated waste confidence rulemaking found that while, "spent fuel can probably be safely stored without significant environmental impact for longer periods, the Commission does not find it necessary to make a specific conclusion" that spent fuel could be safely stored in dry casks without environmental impact for 100 years, as suggested by a commenter.

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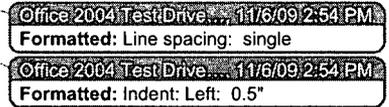
Indeed, the Commission explicitly stated that it did not intend the waste confidence rule to support indefinite onsite storage: “[t]he Commission supports timely disposal of spent fuel and high-level waste in a geologic repository, and by this Decision does not intend to support storage of spent fuel for an indefinitely long period.” *Id.* at 38482.

Thus, the Commission’s generic findings with respect to onsite fuel storage in both wet pools and dry casks relate only to the period 30 years beyond the expiration of the license. 10 C.F.R. § 51.23(a). In its latest decision to defer on the proposal to revise the waste confidence rule, the Commission has finally recognized that it is currently impossible to predict when spent fuel will actually leave reactor sites. Thus, the time has finally come when this Board must recognize that it is reasonably probable that an offsite waste disposal solution will not be ready when the licenses for Indian Point 2 and 3 expire or even 30 years after the licenses expire. As the D.C. Circuit has twice recognized, in light of the reasonable prospect of indefinite storage at reactor sites well beyond this timeframe, the Atomic Energy Act requires site-specific review of the safety impacts of indefinite onsite storage. Because it is somewhat unclear to Clearwater who is responsible for this task, Clearwater has contended that it should be done by either the applicant or the Staff. In addition, because the casks and pools in which some of the spent fuel is already stored, and more will be stored in the future, are long lived passive components that the licensee cannot assume will be moved within 30 years after power generation ceases, the applicant must provide an adequate aging management plan for both of these components.

C. The NRC Must Perform Further Environmental Review Pursuant to NEPA

The National Environmental Policy Act (“NEPA”) establishes a “national policy [to] encourage productive and enjoyable harmony between man and his environment,” and was intended to reduce or eliminate environmental damage and to promote “the understanding of the ecological systems and natural resources important to” the United States. *Dept. of Transp. v. Pub Citizen*, 541 U.S. 752, 756 (2004) (quoting 42 U.S.C. § 4321). The application of NEPA’s requirements, under the rule of reason relied on by the NRC, is to be considered in light of the two purposes of the statute: first, ensuring that the agency will have and will consider detailed information concerning significant environmental impacts; and second, ensuring that the public can both contribute to the body of information and can access the information that is made public. *San Luis Obispo Mothers For Peace v. NRC*, 449 F.3d 1016 (June 2, 2006). The Supreme Court has identified NEPA’s “twin aims” as “plac[ing] upon an agency the obligation to consider every significant action[,and] ensur[ing] that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process.” *Baltimore Gas & Elec. Co. v. Natural Res. Def. Counsel, Inc.*, 462 U.S. 87, 97 (1983)

NEPA is the “basic charter for protection of the environment.” 40 C.F.R. § 1500.1. Its fundamental purpose is to “help public officials make decisions that are based on understanding of environmental consequences, and take decisions that protect, restore and enhance the environment.” *Id.* NEPA requires federal agencies to examine the environmental consequences of their actions before taking those actions, in order to



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ensure “that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast.” *Robertson v. Methow Valley Citizens Council (Robertson)*, 490 U.S. 332, 349 (1989).

NEPA goes beyond the Atomic Energy Act (“AEA”) in mandating that the NRC consider alternatives to its licensing actions that may have detrimental effects on the environment. 10 C.F.R. § 51.71(d). The primary method by which NEPA ensures that its mandate is met is the “action-forcing” requirement for preparation of an EIS, which assesses the environmental impacts of the proposed action and weighs the costs and benefits of alternative actions. *Robertson*, 490 U.S. at 350-51. An EIS must be searching and rigorous, providing a “hard look” at the environmental consequences of the agency’s proposed action. *Id.* at 349; *Marsh v. Oregon Natural Resources Council*, 490 U.S. 260, 374 (1989).

The environmental impacts that must be considered in an EIS include “reasonably foreseeable” impacts which have “catastrophic consequences, even if their probability of occurrence is low.” 40 C.F.R. § 1502.22(b)(1). The Commission has held that probability is the “key” to determine whether an accident is “reasonably foreseeable” or whether it is “remote and speculative” and therefore need not be considered in an EIS. *Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station)*, CLI-90-7, 32 NRC 129, 131 (1990). See also *Limerick Ecology Action v. NRC*, 869 F.2d 719, 745 (3rd Cir. 1989), citing *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 551 (1978).

As Commissioner Svinicki acknowledges, to comply with NEPA, the Commission used to rely upon its confidence that the central waste repository would open within 30 years. Now everyone, including the Commission, has recognized that is not going to happen. Furthermore, even if the planned repository at Yucca Mountain were to open within 60 years, it would not be big enough to accommodate the additional waste that would be generated during any extended period of operation at Indian Point. Accordingly, in order to comply with the tenets of NEPA in light of the facts presented herein, NRC must consider the environmental impacts of indefinite long-term onsite spent fuel storage in a supplemental environmental impact statement.

Furthermore, the NRC must study the alternative means of long-term onsite storage, as well as the no-action alternative. Moreover, all other foreseeable means of long-term waste disposal need to be assessed prior to licensing, because it is currently unclear which option will actually be selected.

III. The Deferral Of the Waste Confidence Rulemaking Is "New and Significant" Information

As required by 10 C.F.R. § 51.92(a), if an EIS has been prepared but the proposed action has not been taken, the NRC Staff must supplement the EIS if, inter alia, "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." Notably, Section 51.92(a)(2) does not contemplate the preparation of an EA as a supplement to an EIS. In addition, 10 C.F.R. §§ 51.59(c)(3) and (c)(4) require the supplemental EIS prepared at the license renewal stage to address "significant new information." NRC regulations for the preparation of ERs by license renewal applicants also require that an ER must address "new and

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significant information regarding the environmental impacts of license renewal of which the licensee is aware." 10 C.F.R. § 52.53(c)(3)(iv).

Here, the new information is undoubtedly new, because Commissioner Svinicki cast the decisive notation vote on the issue on September 24, 2009. In addition, this information that the Commission is not currently in the "prediction business" regarding long term waste disposal is highly significant. For the first time, it is both legally and factually clear that spent fuel produced during any period of extended operation could well remain on the Indian Point site for more than 30 years after power generation ceases. Indeed, at this stage, the Commission cannot predict when a waste disposal facility to take the waste might be available, nor even what form that facility might eventually take. Finally, while the NRC Staff and Entergy may argue that the Commission may get back into the "prediction business" at some point, that would constitute irrelevant speculation. Of course, if at some point in the future, the Commission acts decisively on waste confidence the validity of the asserted contentions would need to be reexamined. However, at present, it is very clear that even though the Commission expects waste to remain on reactor sites for longer than 30 years after power generation ceases, it has made no generic findings on safety or environmental impact of on-site spent fuel storage beyond that time period. The current contentions are designed to ensure that the agency plugs this gap.

The NRC Staff cannot now say these unassessed impacts are minor or insignificant. Commissioner Svinicki points out that the Staff has informed her assessing the impacts from the indefinite long term storage "would be challenging, would take a

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number of years, and would confront many analytical uncertainties.” Svinicki Decision at 2.

IV. The New Contentions Are Within The Scope of License Renewal

Although the existing rules do not contemplate the assessments that Clearwater contends is missing, it is clear that to issue a valid license, the NRC must comply with NEPA. For example, in the *San Luis Obispo* case discussed supra, the Court required an analysis that the NRC said was not required by its rules. In the environmental arena, the scope of license renewal is therefore synonymous with the requirements of NEPA. Furthermore, the Ninth Circuit reiterated NEPA’s direction on uncertain consequences, which requires an agency to deal with uncertainties by including in the EIS “a summary of existing credible scientific evidence which is relevant to evaluating the reasonable foreseeable significant adverse impacts on the human environment, and... the agency’s evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.” 40 C.F.R. §§ 1502.22(b)(3), (4). The court construed the regulation to apply to those events with potentially catastrophic consequences “even if their probability of occurrence is low, provided that the analysis of impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.” 40 C.F.R. § 1502.22 (b)(4). The notion that spent fuel could remain on the Indian Point site for more than 30 years after power generation ceases is way beyond mere conjecture. Even the Commission has acknowledged it cannot predict when spent fuel might leave the site. Indeed, the facts show that such a result is the likely consequence of the current confusion on long-term waste disposal.

Second, the safety contention raises issues about the aging of long-lived passive components, which are at the heart of the relicensing safety review.

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Y. The New Contentions Raise Multiple Material Disputes

The regulations require petitioners to “[d]emonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.” 10 C.F.R. § 2.309(f)(1)(iv). A showing of materiality is not an onerous requirement, because all that is needed is a “minimal showing that material facts are in dispute, indicating that a further inquiry is appropriate.” *Georgia Institute of Technology*, CLI-95-12, 42 N.R.C. 111, 118 (1995); *Final Rule, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process*, 54 Fed. Reg. 33,171 (Aug. 11, 1989).

At present, there is no indication that the NRC Staff or Entergy intend to carry out the required environmental or safety analysis of long term spent fuel storage. As indicted above, the NRC Staff has explicitly relied upon the GEIS and the NRC’s generic determination of no significant impact to evade any discussion of the environmental impacts of on-site waste storage. *See* DSEIS at xiv, 6-7. Entergy has also failed to put forward any aging management plan for the spent fuel storage casks. In the absence of such analyses it is clear there is material dispute about compliance with NEPA and AEA. Moreover, Clearwater expects that the answers to this Petition will demonstrate sharp factual and legal disputes between the parties that will need to be resolved through a hearing.

For example, one factual dispute is already clear. The many reports produced by Clearwater's expert Dr. Gordon Thompson make it plain that he believes that storage of spent fuel in wet pools is far less safe than the NRC Staff believe and that the staff should take further steps to improve the safety of spent fuel pools. However, to date this issue has been legally excluded from the proceeding because of the waste confidence rule.

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Because it is now clear that the Commission envisages long-term use of wet pools as well as dry casks, this material dispute is properly raised by the safety contention.

VI. The New Contentions Are Timely

Clearwater believes that to show timeliness, it need only show that the contentions meet the timing criteria of 10 C.F.R. § 2.309(f)(2), not 10 C.F.R. § 2.309(c). Nonetheless, out of an overabundance of caution Clearwater shows below that it actually meets both tests for the timing of new contentions.

Petitioners may add timely new contentions after filing their initial petition, so long as they act in accordance with 10 C.F.R. § 2.309(f)(2). *Entergy Nuclear Vermont Yankee, L.L.C.* (Vermont Yankee Nuclear Power Station), LBP-05-32, 62 NRC 813 (2005). The Commission's regulations allow for a new contention to be filed upon a showing that:

- (i) The information upon which the amended or new contention is based was not previously available;
- (ii) The information upon which the amended or new contention is based is materially different than information previously available; and
- (iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.

10 C.F.R. § 2.309(f)(2)(i)-(iii). Thus, when the Board found that action by the licensee mooted an admitted contention, the Board allowed the intervenors to file a new contention, but required the new contention to be timely in accordance with 10 C.F.R. § 2.309(f)(2). *In the Matter of AmerGen Energy Company* (License Renewal for Oyster Creek Nuclear Generating Station), LBP-06-16, 63 N.R.C. 737, 744-45 (2006).

Similarly, the Board in the Vermont Yankee license renewal proceeding recently recognized that the time to file contentions is placed at a very early stage, when the renewal application is docketed. *Entergy Nuclear Vermont Yankee L.L.C. and Entergy*

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Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), LBP-07-15, slip op.

at 6 n. 12 (November 7, 2007) available at ML073110424. After the initial time to present contentions has expired, new contentions must meet a timeliness test. When significant new information becomes available this test should be a relatively simple matter to meet. *Id.* at 5; 10 C.F.R. § 2.309(f)(2). However, in the absence of new

information the applicable test is more stringent. LBP-07-15 slip op. at 6. The Board also noted that “normally a great deal of new and material information becomes available to the public after the docketing” through application amendments or the safety evaluation report. LBP-07-15, slip op. at 6 n. 12. This information can then be used to file new contentions, satisfying the AEA requirement that the public must be afforded an opportunity to request a hearing on all material safety issues. *Id.*

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Here, the new contention meets the requirements of 10 C.F.R. § 2.309(f)(2)(i) and (ii) because it is based upon new information that was “not previously available,” and is “materially different than information previously available.” Turning to the last element,

the Commission and on occasions the Board has interpreted the “timely fashion” requirement of 10 C.F.R. § 2.309(f)(2)(iii) as being 30 days from the availability of the new information upon which the new contention is based. *E.g. Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-4, 59 NRC 31, 46 (2004). Because this motion is based on the deciding vote by Commission Svinicki, which was dated September 24, 2009, it is within the timeliness requirement of 10 C.F.R. § 2.309(f)(2)(iii).

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NRC Staff and Entergy may argue that the regulations require Clearwater to meet the timeliness test for a late-filed contention contained in 10 C.F.R. § 2.309(c). Although

this is not correct, even if the 10 C.F.R. § 2.309(c) standard applies, Clearwater meets that standard. The standard contained in Section 2.309(c) is that late-filed contentions will be admitted based upon a balancing of the following factors:

- (i) Good cause, if any, for the failure to file on time;
- (ii) The nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding;
- (iii) The nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding;
- (iv) The possible effect of any order that may be entered in the proceeding on the requestor's/petitioner's interest;
- (v) The availability of other means whereby the requestor's/petitioner's interest will be protected;
- (vi) The extent to which the requestor's/petitioner's interests will be represented by existing parties;
- (vii) The extent to which the requestor's/petitioner's participation will broaden the issues or delay the proceeding; and
- (viii) The extent to which the requestor's/petitioner's participation may reasonably be expected to assist in developing a sound record.

In evaluating the admissibility of a late-filed contention, the first and foremost factor is whether good cause exists that will excuse the late-filing of the contention. *See Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 NRC 241, 244 (1986). The good cause element has two components that may impact on a presiding officer's assessment of the timeliness of a contention's filing: (1) when was sufficient information reasonably available to support the submission of the late-filed contention; and (2) once the information was available, how long did it take for the contention admission request to be prepared and filed. *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-99-3, 49 NRC 40, 46-48 (assessing late-filing factors relative to petition to intervene), *aff'd*, CLI-99-10, 49 NRC

318 (1999); *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-01-13, 53 NRC 319, 324 (2001).

First, and most importantly, Clearwater has good cause for not submitting the contentions earlier, because they could not have filed the proposed contention before Commissioner Svinicki made her notation vote dated September 24, 2009 and they have filed this motion promptly thereafter. Second, Clearwater is already a party to this proceeding. Third, as demonstrated in the declarations filed with Clearwater's initial petition to intervene dated December 10, 2007, Clearwater has individual members who live close to the plant and have intense interest in the potential environmental impacts license extension could cause. Fourth, if the proposed contentions were admitted it would be likely to have a material effect on the licensing decision that is before the Commission. Fifth, Clearwater currently has no other available means to protect their interests because in the absence of an admitted contention, the required analyses would not be done. Sixth, the other parties in this proceeding do not have any admitted contentions that would require a similar analysis. Seventh, although Commissioner Svinicki believes the analysis required by the new environmental contention could take a number of years, that would be preferable to violating NEPA. Not admitting the contention could lead to more delay if a Circuit Court were to find on appeal that analysis of the spent fuel issues is essential to comply with NEPA. Finally, at present the record is insufficient to allow the Commission to conclude that the environmental and safety analysis supporting the Indian Point relicensing is adequate. Thus, admitting the contentions would assist the Commission in developing a sound record.

CONCLUSION

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For the foregoing reasons, this Board should admit Clearwater's proffered contentions EC-7 and SC-1 into this proceeding.

Manna Jo Greene

Manna Jo Greene
Environmental Director
Hudson River Sloop Clearwater, Inc.
112 Market St.
Poughkeepsie, NY 12601
845 454-7673 x 113

/s/ _____
Ross Gould
Board of Directors
Hudson River Sloop Clearwater, Inc.
10 Park Avenue #5L
New York, NY 10016
917-658-7144

November 6, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

Entergy Nuclear Operations, Inc.)
(Indian Point Nuclear Generating)
Units 2 and 3))

Docket Nos.
50-247-LR
and 50-286-LR

CERTIFICATE OF SERVICE

I certify that on November 6, 2009 copies of the foregoing Corrected Petition for New Contentions and Corrected Petition for New Contentions Redline were served on the following by first-class mail and e-mail:

Lawrence G. McDade, Chair Atomic Safety and Licensing Board Panel Atomic Safety and Licensing Board U.S. Nuclear Regulatory Commission Washington, D.C. 20555 E-mail: Lawrence.McDade@nrc.gov	Judge Kaye D. Lathrop 190 Cedar Lane East Ridgeway, CO 81432 E-mail: Kaye.Lathrop@nrc.gov
Richard E. Wardwell Atomic Safety and Licensing Board U.S. Nuclear Regulatory Commission Washington, D.C. 20555 E-mail: Richard.Wardwell@nrc.gov	Office of the Secretary Rulemakings and Adjudications Staff U.S. Nuclear Regulatory Commission Washington, D.C. 20555 E-mail: HEARINGDOCKET@nrc.gov

Additionally, I certify that on November 6, 2009 copies of the foregoing Corrected Petition for New Contentions and Corrected Petition for New Contentions Redline were served on the following by e-mail:

<p>John J. Sipos, Esq. Assistant Attorney General Office of the New York Attorney General for the State of New York The Capitol Albany, NY 12224 E-mail: John.Sipos@oag.state.ny.us</p>	<p>Martin J. O'Neill, Esq. Kathryn M. Sutton, Esq. Paul M. Bessette, Esq. Mauri T. Lemoncelli, Esq. Morgan, Lewis & Bockius, LLP 1111 Pennsylvania Ave. N.W. Washington, D.C. 20004 E-mail: martin.oneill@morganlewis.com pbessette@morganlewis.com ksutton@morganlewis.com</p>
<p>Diane Curran, Esq. Harmon, Curran, Spielberg & Eisenberg, LLP 1726 M. Street NW, Suite 600 Washington, DC 20036 E-mail: dcurran@harmoncurran.com</p>	<p>Office of Commission Appellate Adjudication U.S. Nuclear Regulatory Commission Washington, D.C. 20555 E-mail: OCAAMAIL@nrc.gov</p>
	<p>William C. Dennis, Esq. Entergy Nuclear Operations, Inc. 440 Hamilton Avenue White Plains, NY 10601 E-mail: wdennis@entergy.com</p>
<p>Gregory Spicer, Esq. Assistant County Attorney Office of the Westchester County Attorney Michaelian Office Building 148 Martine Avenue, 6th Floor White Plains, NY 10601 E-mail: gssl@westchestergov.com</p>	<p>Joan Leary Matthews, Esq. Senior Attorney for Special Projects New York State Department of Environmental Conservation 625 Broadway, 14th floor Albany, New York 12233-5500 E-mail: jlmatthe@gw.dec.state.ny.us</p>

<p>Zachary S. Kahn, Esq., Law Clerk Atomic Safety and Licensing Board Panel U.S. Nuclear Regulatory Commission Washington, D.C. 20555 E-mail: Zachary.Kahn@nrc.gov</p>	<p>Thomas F. Wood, Esq. Daniel Riesel, Esq. Ms. Jessica Steinberg, J.D. Sive, Paget and Riesel, P.C. 460 Park Avenue New York, NY 10022 E-mail: driesel@sprlaw.com jsteinberg@sprlaw.com</p>
<p>Robert D. Snook, Esq. Assistant Attorney General 55 Elm Street, P.O. Box 120 Hartford, CT 06141-0120 E-mail: Robert.Snook@po.state.ct.us</p>	<p>John L. Parker, Esq. Regional Attorney, Region 3 New York State Department of Environmental Conservation 21 South Putt Corners New Paltz, NY 12561 E-mail: jlparker@gw.dec.state.ny.us</p>
<p>Elise N. Zoli, Esq. Goodwin Procter, LLP 53 State Street Boston, MA 02109 E-mail: ezoli@goodwinprocter.com</p>	<p>Janice A. Dean, Esq. Assistant Attorney General Office of the Attorney General 120 Broadway, 26th Floor New York, NY 10271 E-mail: Janice.dean@oag.state.ny.us</p>
<p>Sherwin E. Turk Beth N. Mizuno Brian G. Harris David E. Roth Andrea Z. Jones Office of General Counsel Mail Stop: 0-15D21 U.S. Nuclear Regulatory Commission Washington, D.C. 20555-0001 E-mail: Sherwin.Turk@nrc.gov; Beth.Mizuno@nrc.gov; brian.harris@nrc.gov; David.Roth@nrc.gov; andrea.jones@nrc.gov;</p>	<p>Daniel E. O'Neill, Mayor James Seirmarco, M.S. Village of Buchanan Municipal Building 236 Tate Avenue Buchanan, NY 10511-1298 E-mail: yob@bestweb.net</p>
<p>Mylan L. Denerstein, Esq. Executive Deputy Attorney General 120 Broadway, 25th Floor New York, NY 10271 E-mail: mylan.denerstein@oag.state.ny.us</p>	<p>Phillip Musegaas, Esq. Deborah Brancato, Esq. Riverkeeper, Inc. 828 South Broadway Tarrytown, NY 10591 E-Mail: phillip@riverkeeper.org dbrancato@riverkeeper.org</p>

Michael J. Delaney, V.P. – Energy New York City Econ. Development Corp. 110 William Street New York, NY 10038 E-mail: mdelaney@nycedc.com	
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/s/

Ross Gould

November 6, 2009