

In the United States Court of Federal Claims

No. 00-697 C
(Filed December 18, 2009)

WISCONSIN ELECTRIC)	Breach of contract for removal of spent nuclear
POWER COMPANY,)	fuel; utility's condition with full performance in
)	the non-breach world of the 1987 ACR and the
Plaintiff,)	1991 ACR; difference between mitigation costs
v.)	in the breach world and costs that would have
)	been incurred with full government
THE UNITED STATES,)	performance in the non-breach world of the
)	1987 ACR and the 1991 ACR; offset for future
Defendant.)	costs of performance; waiver.

Richard W. Oehler, Seattle, WA, for plaintiff. *Donald J. Carney*, *Mary Rose Hughes*, *Emily C. C. Poulin*, and *Jay L. Griffiths*, of counsel.

Sharon A. Snyder, Commercial Litigation Branch, Civil Division, United States Department of Justice, Washington, D.C., for defendant, with whom were *Jeffrey S. Bucholtz*, Acting Assistant Attorney General, *Jeanne E. Davidson*, Director, and *Harold D. Lester, Jr.*, Assistant Director. *Alan J. Lo Re*, Senior Trial Counsel, *Russell A. Shultis*, *Sonia M. Orfield*, and *Stephen Finn*, Trial Attorneys. *Jane K. Taylor*, Office of General Counsel, United States Department of Energy, Washington, D.C., of counsel.

OPINION

Merow, *Senior Judge*

Wisconsin Electric Company (“WE”) claims damages in excess of \$90 million representing costs incurred in mitigating the government’s failure to perform its contractual obligations to collect, remove, transport and dispose of spent nuclear fuel (“SNF”) discharged from WE’s Point Beach nuclear generating facility on the shores of Lake Michigan. Electricity rates charged WE’s customers have included over \$215 million dollars in fees WE paid to the government for this disposal service, which was to commence not later than January 31, 1998, but which has yet to occur.

The court has jurisdiction over these claims. 28 U.S.C. § 1491(a); *PSEG Nuclear, L.L.C. v. United States*, 465 F.3d 1343 (Fed. Cir. 2006). The Department of Energy's ("DOE's") partial breach of its Standard Contract with nuclear utilities is well established. *Carolina Power & Light Co. v. United States*, 573 F.3d 1271, 1273 (Fed. Cir. 2009) ("*Carolina Power II*") (citing *Ind. Mich. Power Co. v. United States*, 422 F.3d 1369, 1376-77 (Fed. Cir. 2005) ("*Ind. Mich. II*") and *Me. Yankee Atomic Power Co. v. United States*, 225 F.3d 1336, 1343 (Fed. Cir. 2000)); *Pac. Gas & Elec. Co. v. United States*, 536 F.3d 1282, 1284 (Fed. Cir. 2008) ("*PG & E II*") ("A series of cases has established that DOE has partially breached the contract by failing to begin its performance on January 31, 1998.") (citing cases); *Yankee Atomic Elec. Co. v. United States*, 536 F.3d 1268, 1272 (Fed. Cir. 2008) ("*Yankee II*") ("[DOE's] failure to perform beginning on January 31, 1998 constituted a partial breach of the contract."); *Sacramento Mun. Util. Dist. v. United States*, 293 Fed. Appx. 766, 769 (Fed. Cir. 2008) ("*SMUD II*"); *Me. Yankee*, 225 F.3d at 1342 ("The breach involved all the utilities that had signed the contract – *the entire nuclear electric industry.*") (emphasis added). On October 8, 2004, this court granted WE's Motion for Partial Summary Judgment on Liability, to the extent that DOE's failure timely to begin disposal activities with respect to WE's SNF and/or high-level radioactive waste ("HLW") covered by the Standard Contract comprised a partial breach. Accordingly, this Opinion concerns mitigation damages.

DOE never commenced performance of its contractual disposal obligation, but the contract was not repudiated. At all relevant times DOE continued to collect the fees required under the contract. Accordingly, nuclear utilities may recover appropriately established incurred costs in mitigating DOE's partial breach, but may not recover future expenses. *Ind. Mich. II*, 422 F.3d at 1375-77. "If the breach of an entire contract is only partial, the plaintiff can recover only such damages as he or she has sustained, leaving prospective damages to a later suit in the event of future breaches." *Yankee II*, 536 F.3d at 1282 (citing *Ind. Mich. II*, 422 F.3d at 1376). Indeed, such "later" suits have begun to be filed.^{1/} WE's claim in this litigation is limited to costs incurred through February 28, 2007. In September of 2007, WE sold the Point Beach plant to a Florida Power and Light Company ("FP&L") subsidiary.

^{1/}See for example: *Yankee Atomic Elec. Co. v. United States*, Nos. 98-126 and 07-876; *Conn. Yankee Atomic Power Co. v. United States*, Nos. 98-154 and 07-875; *Me. Yankee Atomic Power Co. v. United States*, Nos. 98-474 and 07-877; *N. States Power Co. v. United States*, Nos. 98-484 and 07-608.

As a result, WE will not incur any “future damages” and this litigation comprises WE’s entire damage claim for the government’s breach of its contractual obligations.

The Point Beach facility has two reactors. A spent fuel pool (“wet pool”) between the two reactor units holds the fuel assemblies that have been discharged from the reactors after they have become “spent,” that is relatively inefficient for producing electricity. The pool has the capacity to hold a limited number of assemblies. At the time Point Beach was designed, SNF was removed from the site for reprocessing and reuse. The wet pool capacity was adequate for this method of operation. Reprocessing of SNF was subsequently eliminated with the result that the SNF remained in the pool and as discharges continued, capacity became a problem. The Nuclear Waste Policy Act of 1982, Pub.L. 97-425 (codified at 42 U.S.C. §§ 10101-10270) (“NWPA”), requires that nuclear utilities and the government, represented by DOE, enter into Standard Contracts wherein DOE agreed to remove, transport and dispose of utilities’ SNF starting no later than January 31, 1998. WE responded to DOE’s lack of contractual performance by building an on-site dry storage facility for SNF referred to as an Independent Spent Fuel Storage Installation (“ISFSI”) to serve as a substitute for the disposal DOE would have otherwise provided. WE’s claimed mitigation costs consist of the ISFSI construction, including internal labor, overhead, cost of capital and other expenses, the cost of casks for dry storage of SNF, expenditures in pursuit of private fuel storage at another location and Nuclear Regulatory Commission (“NRC”) fees.

Given liability, the government concedes WE is entitled to recover \$12,548,930. The balance of WE’s claimed damages are assailed as not foreseeable, not established with reasonable certainty, or costs that would have been incurred even absent a government breach – or were caused by reasons other than government delays. The government also insists WE’s otherwise recoverable mitigation costs should be reduced by a variety of additional expenses that the government contends WE would have incurred if DOE had performed its contractual obligations.

Trial on damages was held on September 10, 2007 through October 16, 2007. Twenty-seven witnesses testified; hundreds of exhibits and numerous deposition designations were admitted. Extensive post-trial briefs were filed, with supplemental briefing following the Federal Circuit decisions in *Yankee II*, *PG & E II* and *SMUD II* (collectively referred to on occasion hereinafter as the *Yankee* trio). Oral argument was held on September 26, 2008. A motion for reconsideration and to recall the mandate in the *Yankee* trio, along with a motion for reconsideration of an order denying a motion for enlargement of time to file a petition for panel rehearing and/or

a petition for rehearing *en banc*, was denied by the Federal Circuit on August 6, 2009. Following the Federal Circuit's Decision in *Carolina Power II*, additional briefs were filed in the instant matter on August 5th and 14th, 2009. A petition for rehearing and rehearing *en banc* in *Carolina Power II* was denied by the Federal Circuit on November 3, 2009.

With appreciation for the excellent efforts and cooperation of all counsel involved, the court finds that in the main, WE's mitigation decisions were foreseeable, commercially reasonable and substantially caused by DOE's failure to perform its contractual obligations. But for DOE's contractual performance failure, the costs awarded herein would not have been incurred by WE. The amount of the costs awarded were established with reasonable certainty. The court finds that in the hypothetical non-breach world of full DOE performance, under the applicable 1987 SNF disposal rate, WE would not have built an ISFSI for dry storage nor explored alternative storage possibilities represented by the costs awarded, but would have taken lesser measures to accommodate any contingencies. WE's dry storage project required authorization by the Wisconsin Public Service Commission which the court finds would not have occurred if DOE had commenced performance of its contractual SNF disposal obligations. Without the Public Service Commission authorization, the ISFSI would not have been built and the expenditures would not have been made. Even if DOE had performed at the 1991 SNF removal rate advocated by the government at trial, WE would not have built, nor have been authorized to build a dry storage facility, and the expenses for such a facility would not have been incurred.

In determining the amount awarded to WE, costs claimed for the expense of capital used to finance dry storage and other mitigating activities are not included as prohibited by statute and precedent. Also, certain NRC fees paid by WE are not awarded.

The offsets the government seeks are not adopted. These comprise costs that WE would have incurred in loading SNF to DOE casks or containers had the government timely commenced to perform its contractual disposal obligations. They are expenses that have been deferred, not avoided. *Carolina Power II*, 573 F.3d at 1277. Because Point Beach has been sold, WE will not incur these expenses in the future but FP&L, WE's successor, will, if contract performance eventually occurs. Presumably this future expenditure was factored into agreements between buyer and seller and can be considered for offset purposes when and if incurred.

FACTS

WE is a wholly-owned subsidiary of Wisconsin Energy Corporation (“WEC”), a publically-traded corporation. At all relevant times, WE owned Point Beach Nuclear Plant (“Point Beach”) located on a 1,260 acre site adjacent to Lake Michigan, approximately 100 miles north of Milwaukee, 35 miles southeast of Green Bay, Wisconsin. Nuclear-generated power from Point Beach’s two reactors supplies approximately 25 percent of the electricity to some 1.1 million residential and commercial customers in Wisconsin and the Upper Peninsula of Michigan. Point Beach is regulated by the NRC, the Federal Energy Regulatory Commission (“FERC”), the Public Service Commission of Wisconsin (“PSC”) and the Michigan Public Service Commission. The NRC issued a 40-year license for the Point Beach Unit 1 reactor in 1970 and for Unit 2 in 1973. In 2005, the NRC extended both licenses for an additional 20 years. Point Beach generates cost-effective and emission-free electricity.

Until 2000, WE managed Point Beach through its Nuclear Power Department with personnel located on-site and in Milwaukee. In 2000, WE, along with several other Midwest nuclear power utilities, formed the Nuclear Management Company (“NMC”) to operate their nuclear plants. Initial NMC members also included Wisconsin Public Service Company, Iowa Electric, Northern States Power and Consumer’s Energy. In 2000, WE transferred the Point Beach operating licenses to NMC, but continued to own Point Beach and handle its regulatory affairs through September 2007 about the time Point Beach was sold to FP&L.^{2/} (Tr. 5013:23-5014:5 (Weaver^{3/}); Tr. 104:8-105:11 (Baumann).) The mitigation expenses sought herein all pre-date the sale.

Electricity is generated in WE’s two pressurized water reactors, each rated originally at approximately 517 megawatts, upgraded to 535 megawatts. Uranium oxide pellets (little finger-sized) are inserted into 12-14 foot cylindrical metal rods,

^{2/}WE’s rights and obligations under the Standard Contract may be assigned along with a transfer of the SNF and/or HLW provided DOE is given notice within ninety days. (PX 41 at Art. XIV.)

^{3/}David Weaver, Nuclear Asset Manager at WE Energies, was in charge of updating WE’s decommissioning cost study in 1998. Decommissioning is the process of isolating SNF and dismantling the plant after it ceases operation.

bundled into approximately nine inch square fuel assemblies and placed in the reactor core. Each assembly contains about 200 fuel rods. (DX 283 at 3.)

In the reactor core, atoms of uranium-235 are split to produce heat, which is converted to steam to drive turbines and generate electricity. After three to four years, the fuel becomes relatively inefficient and is classified as “spent.” The reactor is shutdown, a pre-determined number of assemblies are removed from the core and replaced with fresh, “hotter” fuel – a refueling cycle. The removed assemblies are placed in sleeves in basket-like storage racks in the adjacent large concrete pool filled with treated water to protect against radioactivity. The wet pool, located between the two units, is monitored with highly sophisticated devices to protect the workers and the environment. With planning and technological advances, the length of time between refueling can increase and the number of assemblies removed and replaced with new, can decrease.

SNF is measured in metric tons uranium (“MTU”). One MTU is 2,204 pounds. Even though “spent,” SNF remains highly radioactive, capable of attaining criticality for many years. For the first five years after SNF is removed from the reactor, water is the only licensed storage medium. After five years, heat and radioactivity have reduced sufficiently to allow for dry storage on an ISFSI – where huge, specially-designed concrete containers are placed on specialized concrete pads. Transporting SNF in or out of the reactor, the pool and to the ISFSI is complex, expensive and highly regulated. *See Lower Alloways Creek v. Pub. Serv. Elec. & Gas Co.*, 687 F.2d 732, 737 (3^d Cir. 1982); *see generally* 10 C.F.R. pts. 72-73 (2007) (NRC regulations).

WE’s wet pool is approximately 68' long, 18' wide and 40' deep and filled with borated water to prevent criticality. The concrete wall and slabs range from 4 to 5 feet thick. Structural steel “H” piles support the bottom slab. The pool has a stainless steel liner with a leak detection system. There is about 25 feet of water above the submerged storage racks. The pool cask loading area, where a transfer cask is placed to move fuel assemblies in or out of the pool, is 8'3" by 7'10." (PX 318 at 8; DX 397 at WISC 00025304; PX 640 at 00060265.) Adjacent to the pool is a transfer canal used to move assemblies in and out of the pool and to store equipment.

Because of its size, configuration, structural and other concerns, the wet pool can hold only a certain number of assemblies. Point Beach’s licensed storage capacity is currently 1502 assemblies. Storage need is triggered by the removal of assemblies from the reactor core. “Full core reserve” (“FCR”) refers to retaining

sufficient empty spaces in the pool racks to hold all the assemblies in the reactor core. FCR for Point Beach is 121 assemblies. “Though the [NRC] does not require utilities to maintain such a [FCR], it encourages them to do so.” *Yankee II*, 536 F.3d at 1275. Reracking is the use of higher density racks, with a tighter configuration, allowing more assemblies to be stored in the pool. *Id.* If a nuclear power plant has no place to store SNF, it can no longer operate.

Federal responsibility for SNF disposal and the Nuclear Waste Policy Act

Historically, the disposal of commercial SNF has been a federal responsibility. *See Fla. Power & Light Co. v. Westinghouse Elec. Corp.*, 826 F.2d 239, 244 (4th Cir. 1987) (quoting legislative findings in support of the 1954 Atomic Energy Act that nuclear energy was “‘affected with the public interest . . . in the national interest to assure the common defense and security and to protect the health and safety of the public,’” and that “‘the stated policy of the Federal Government has always been that the safe disposal of [HLW] is to be accomplished under Federal management.’”) (citing 42 U.S.C. § 2021(e) and 1980 U.S. Code Cong. & Admin. News at 6934). During the 1970s, when Point Beach was built, SNF was reprocessed; therefore, the plant was not designed with storage sufficient to hold all the SNF that would be produced through the license period. *See Yankee I*, 73 Fed. Cl. 249, 253-55 (2006) (summarizing history in this regard), *aff’d in part, rev’d in part and remanded*, *Yankee II*, 536 F.3d 1268 (Fed. Cir. 2009). Nuclear plants constructed prior to 1977 generally did not have large wet pools. In 1977, President Carter effectively halted reprocessing. *Carolina Power & Light Co. v. United States*, 82 Fed. Cl. 23, 28 (2008) (“*Carolina Power I*”) (citing H.R. Rep. No. 97-491 (I) at 27 (1982)), *aff’d in part, rev’d in part and remanded*, *Carolina Power II*, 573 F.3d 1271 (Fed. Cir. 2009), *reh’g and reh’g en banc denied* (Nov. 3, 2009); *PG & E I*, 73 Fed. Cl. at 333, 354 (“‘[D]uring the Carter Administration, the U.S. determined that for nonproliferation purposes, it would abandon the plutonium recycle or reprocessing direction.’”) Wet pools were then the only storage option.

The 1983 passage of the Nuclear Waste Policy Act (“NWPA”) reaffirmed federal responsibility “to provide for the permanent disposal of [HLW] and such [SNF] as may be disposed of in order to protect the public health and safety and the environment.” 42 U.S.C. § 10131(a)(4). “Seeking to avoid the inefficient and potentially unsafe prospect of allowing individual utilities to recycle or dispose of their own SNF, Congress enacted the NWPA to ‘establish the Federal responsibility, and a definite Federal policy, for the disposal of’ spent nuclear fuel.” *Ind. Mich.*

Power, 422 F.3d at 1372 (quoting *Roedler v. DOE*, 255 F.3d 1347, 1350 (Fed. Cir. 2001) (citing 42 U.S.C. § 10131(b)(2) (2000))).

Under the NWPA, DOE is responsible for long-term storage of SNF and HLW and nuclear utilities were required to contract with DOE. 42 U.S.C. § 10222(b).^{4/} *Ind. Mich. II*, 422 F.3d at 1372; *N. States Power Co. v. United States*, 224 F.3d 1361, 1364 (Fed. Cir. 2000). The NWPA mandated certain terms of the Standard Contract, such as commencing performance by January 31, 1998, including fees charged to the utilities based on electricity generated and sold prior to April 7, 1983, and a

^{4/}42 U.S.C. § 10222(b) provides:

(1)(A) The Commission shall not issue or renew a license to any person to use a utilization or production facility under the authority of section 2133 or 2134 of this title unless--

(i) such person has entered into a contract with the Secretary under this section; or

(ii) the Secretary affirms in writing that such person is actively and in good faith negotiating with the Secretary for a contract under this section.

(B) The Commission, as it deems necessary or appropriate, may require as a precondition to the issuance or renewal of a license under section 2133 or 2134 of this title that the applicant for such license shall have entered into an agreement with the Secretary for the disposal of high-level radioactive waste and spent nuclear fuel that may result from the use of such license.

(2) Except as provided in paragraph (1), no spent nuclear fuel or high-level radioactive waste generated or owned by any person (other than a department of the United States referred to in section 101 or 102 of Title 5) may be disposed of by the Secretary in any repository constructed under this chapter unless the generator or owner of such spent fuel or waste has entered into a contract with the Secretary under this section by not later than--

(A) June 30, 1983; or

(B) the date on which such generator or owner commences generation of, or takes title to, such spent fuel or waste; whichever occurs later.

(3) The rights and duties of a party to a contract entered into under this section may be assignable with transfer of title to the spent nuclear fuel or high-level radioactive waste involved.

(4) No high-level radioactive waste or spent nuclear fuel generated or owned by any department of the United States referred to in section 101 or 102 of Title 5 may be disposed of by the Secretary in any repository constructed under this chapter unless such department transfers to the Secretary, for deposit in the Nuclear Waste Fund, amounts equivalent to the fees that would be paid to the Secretary under the contracts referred to in this section if such waste or spent fuel were generated by any other person.

continuing fee based on subsequent generation. 42 U.S.C. § 10222(a)(2)-(3), (5). These fees (which are included in the electricity rates paid by respective ratepayers/customers) are deposited into the Nuclear Waste Fund (“NWF”).^{5/} WE calculates its payments into the NWF as of December 31, 2006 are over \$215 million. The government calculates that amount as \$213.46 million. The difference is not material to the resolutions of the matters currently before the court. As of September 30, 2009, utility payments and credited interest to the NWF totaled \$30.2 billion. http://www.ocrwm.doe.gov/about/budget_and_funding.shtml (last visited Dec. 14, 2009).

The Standard Contract

On February 4, 1983, a proposed Standard Contract covering disposal of SNF/HLW was published in the Federal Register with a one-month comment period. Utilities, including WE, submitted comments, addressing the circumstance that the proposed contract did not contain performance standards and there was no opportunity for negotiation before the statutory deadline for signing. 42 U.S.C. § 10222(b)(2)(A) (June 30, 1983 deadline).

On April 18, 1983, the final Standard Contract was published. 48 Fed. Reg. 16590-01; 10 C.F.R. § 961.11. WE signed on June 16, 1983. (PX 41.) In return for payment of the fees mentioned, DOE contracted to “accept title to all SNF and/or HLW, of domestic origin, generated by [WE], provide subsequent transportation for such material to the DOE facility, and dispose of such material in accordance with the terms of this contract.” (*Id.* at 9.)

Both the Standard Contract and the NWPAA require DOE to begin performance by January 31, 1998. “[T]he Secretary, beginning not later than January 31, 1998,

^{5/}The NWF is “composed of payments made by the generators and owners of such waste and spent fuel, that will ensure that the costs of carrying out activities relating to the disposal of such waste and spent fuel will be borne by the persons responsible for generating such waste and spent fuel.” 42 U.S.C. § 10131(b)(4). Utility breach of contract claims cannot be settled by offsets to future payment obligations. *Ala. Power Co. v. DOE*, 307 F.3d 1300, 1313-14 (11th Cir. 2002). *See also Nevada v. DOE*, 400 F.3d 9 (D.C. Cir. 2005) (rejecting use of NWF to finance Nevada’s participation in NRC licensing hearings); *N. States Power Co. v. DOE*, No. 97-1064, 1998 WL 276581 (D.C. Cir. May 5, 1998) (declining to opine on use of NWF to pay breach damages).

will dispose of the [HLW] or [SNF] involved as provided in this subchapter.” 42 U.S.C. § 10222(a)(5)(B). “The services to be provided by DOE under this contract shall begin, after commencement of facility operations, not later than January 31, 1998 and shall continue until such time as all SNF and/or HLW from the civilian nuclear power reactors specified in Appendix A, annexed hereto and made a part hereof, has been disposed of. (PX 41 at 6.) The Standard Contract does not contain a performance rate; its integration clause dispels reliance on understandings, representations or promises and the like that were not incorporated.^{6/}

Procedural background

WE’s Complaint for mitigation damages was filed on November 16, 2000. On April 7, 2006, WE filed its Amended and Supplemental Complaint limiting its damages to costs incurred through December, 2005. On June 7, 2007, WE filed its Second Amended and Supplemental Complaint, updating its damage claim through February 28, 2007.

DISCUSSION

Standards for Decision

“Mitigation is appropriate where a reasonable person, in light of the known facts and circumstances, would have taken steps to avoid damage.” *Ind. Mich. II*, 422 F.3d at 1375. “[O]nce a party has reason to know that performance by the other party will not be forthcoming, . . . he is expected to take such affirmative steps as are appropriate in the circumstances to avoid loss by making substitute arrangements or otherwise.” *Id.*

^{6/}Article XXII.A of the Standard Contract provides:

This contract, which consists of Articles I through XXII and Appendices A through G, annexed hereto and made a part hereof, contains the entire agreement between the parties with respect to the subject matter hereof. Any representation, promise, or condition not incorporated in this contract shall not be binding on either party. No course of dealing or usage of trade or course of performance shall be relevant to explain or supplement any provision contained in this contract.

(PX 41 at 33.)

Expenses of mitigation efforts are recoverable if: “(1) the damages were reasonably foreseeable by the breaching party at the time of contracting; (2) the breach was a substantial causal factor in the damages; and (3) the damages are shown with reasonable certainty.” *Id.* at 1373 (citing *Energy Capital Corp. v. United States*, 302 F.3d 1314, 1320 (Fed. Cir. 2002)). Mitigating damages are to place the utility “in as good a position as it would have been had the breaching party fully performed.” *Id.* at 1373. Accordingly, “the non-breaching party should not be placed in a better position through the award of damages than if there had been no breach.” *Bluebonnet Sav. Bank, F.S.B. v. United States*, 339 F.3d 1341, 1344-45 (Fed. Cir. 2003) (citing *White v. Delta Constr. Int’l, Inc.*, 285 F.3d 1040, 1043 (Fed. Cir. 2002)) (“[T]he non-breaching party ‘should on no account get more than would have accrued if the contract had been performed.’”).

Illustratively, in *Indiana Michigan II*, the Federal Circuit upheld the denial of recovery on credited evidence that the “[utility’s] decision to perform a full, instead of a partial, rerack in 1995 was purely a business judgment which it would have had to pursue irrespective of DOE’s partial breach.” 422 F.3d at 1376.

Any costs that would have been incurred in the non-breach world must be deducted from appropriately established breach world mitigation expenses to determine the net incremental cost of mitigation, and although it may not be perfect, the 1987 Annual Capacity Report (“ACR”) process was selected by the Federal Circuit as the standard for the non-breach world for this equation. *Yankee II*, 536 F.3d at 1274 (“[T]his court vacates and remands with instructions that the Court of Federal Claims apply the Standard Contract acceptance rate identified in *Pacific Gas* to assess causation.”). Using record evidence, the court must compare the utility’s condition with full performance using SNF acceptance rates of the 1987 ACR, with the utility’s actions in the breach world – “the necessary comparison between the breach and non-breach worlds” in order to assess damages. *Id.* at 1273. “[W]ithout an express timetable for removal of the [plaintiff’s] waste . . . the [plaintiff] cannot show the expenses they might have avoided.” *Id.* While the “substantial factor” standard for assessing causation is acceptable, the “but-for” standard is preferred. *Id.* at 1272-73.

As noted in *Yankee II*, 536 F.3d at 1276, mitigation decisions must be commercially reasonable:

The record also shows that the reracks were reasonable even though early closure of some facilities rendered some of the efforts unnecessary. The Yankees are “not precluded from recovery . . . to the extent that [they have] made reasonable but unsuccessful efforts to avoid loss.” [*Ind. Mich. II*, 422 F.3d at 1375] (quoting Restatement (Second) of Contracts § 350 comment b). Because the rerack efforts were reasonable, foreseeable, and caused by the Government’s partial breach, their ultimate success and usage is irrelevant. Accordingly, this court affirms the trial court’s findings that the Yankees’ rerack decisions were “commercially reasonable” and “foreseeable to DOE at the time of contracting.” *Yankee I*, 73 Fed. Cl. at 279, 283.

The government bears the burden of establishing that any mitigation efforts were unreasonable. *SMUD II*, 293 Fed. Appx. at 772; *Old Stone Corp. v. United States*, 450 F.3d 1360, 1370 (Fed. Cir. 2006), *cert. denied*, __ U.S. __, 127 S. Ct. 1831 (2007) (“The government has not shown that it was unreasonable for OSC to replace the entire amount of regulatory capital that was eliminated by FIRREA.”); *Home Sav. of Am. v. United States*, 399 F.3d 1341, 1353 (Fed. Cir. 2005) (“When mitigating damages from a breach, a party ‘must only make those efforts that are fair and reasonable under the circumstances.’”).

Aware of DOE’s impending and admitted delays, WE asserts it responded appropriately, responsibly and reasonably to mitigate the serious consequences of DOE’s delays in removing SNF. Predicting it would exceed the capacity of its wet pool before DOE’s performance as delayed would begin, WE sought approval from the PSC to construct an ISFSI and to purchase and load dry storage casks. Dry storage was chosen because of the amount of SNF that would need to be stored and the length of time it was then anticipated to remain on-site. WE also participated in the development of Private Fuel Storage (“PFS”) and other potential off-site storage possibilities. If DOE had commenced to perform as required under the Standard Contract and at the rates in the 1987 ACR, WE insists it would not have built dry storage, nor expended sums on other alternative storage efforts sought as mitigation damages.

The parties agree that the template for damages is foreseeable and reasonable expenses caused by the DOE’s partial breach, less expenses that would have been incurred if DOE had performed timely in accord with the 1987 ACR process. WE requests damages of \$92,541,000. The government responds that most of these costs

would have been incurred in the non-breach world, or are otherwise not recoverable, but conceded at trial that WE was entitled at least to \$10,259,004 in mitigation damages. Following the *Yankee* trio, that amount rose to \$12,548,930. (Def. Supp. Br. [415] at 14.)

The breach world

Events at the time of the signing of the Standard Contract and thereafter inform the court's conclusions regarding the motivation and causation for WE's decisions in the breach world, and what would, or would not have, happened in the non-breach world.

Expectations, performance levels, foreseeability of dry storage and delays

Considerable evidence was introduced concerning the early understandings and expectations of DOE, WE and the nuclear power industry. Shortly after the signing of the Standard Contract, at a December 1983 industry meeting, a responsible DOE official stated that DOE intended to prevent the need for additional at-reactor SNF storage. Accordingly, that utilities might have to build additional storage if DOE failed to perform its contractual disposal obligations was foreseeable.

The basic strategy which we've outlined in the mission plan, is that beginning in 1998, utilities will not have to provide any additional storage facilities on site. During the first year of operation of the repository in 1998, we should be receiving fuel at a rate so that no utility would have to add any further storage facilities either on site or at another location.

(DX 493 at SN069599.) Early in the program, there was an understanding in the industry that a repository may be ready even before 1998.^{7/}

^{7/}The court admitted certain deposition and testimony from other SNF trials. (PX 1052; Tr. 6403:20-6407:8.) Included is the trial testimony of Loring Mills in the *Yankee I* trial. Mr. Mills worked for the Edison Electric Institute, a utility trade association, from 1976 until his retirement in 1993 as the Vice President of Nuclear Activities. "Representing the nuclear utility industry, Mr. Mills worked closely with [DOE] and other government officials in development of legislation for the disposal of [SNF]." *PG & EI*, 73 Fed. Cl. at 340-41 n.5. From his early discussions with DOE, Mr. Mills understood and expected DOE would begin receiving SNF even before 1998 at a rate at

(continued...)

DOE's December 20, 1983 Draft^{8/} Mission Plan confirmed this intention. "[T]he schedule was 'designed to provide an acceptance rate in the first five years such that no utility will have to provide additional storage capacity after January 31, 1998. Subsequently, the acceptance rate will be equal to or greater than the actual discharge rate of spent fuel each year.'" *PG & E II*, 536 F.3d at 1286 (citing *PG & E I*, 73 Fed. Cl. at 355 (quoting the 1983 Mission Plan – PX 52)). The rate discussed was at least equal to the annual industry discharge of SNF (around 2000 MTU) plus some to begin reducing inventory.^{9/} A January 31, 1998 start date was however, called "optimistic." (PX 52 at CTR-042-1076.)

In evaluating the adequacy of the NWF in December of 1983, it was assumed that DOE would perform at a rate sufficient to preclude additional at-reactor storage, equal or greater than the annual SNF generation rate. (PX 50, enclosure at 2 (FY 1984 Program Guidance for NWF Evaluations).)

DOE conveyed these objectives to Congress. In February 1984, Michael Lawrence, Acting Director of the Office of Civilian Radioactive Waste Management Office ("OCRWM")^{10/} testified before the House Subcommittee on Energy Conservation and Power, that the "fundamental objective" of the NWPA was to accept SNF "beginning not later than January 31, 1998," and that "achieving [that]

^{7/}(...continued)

least equivalent to the annual industry production rate, plus some to work off the backlog. He also believed that the 15-year period from the signing of the contract in 1983, and the deadline for commencement of performance in January of 1998, was sufficient to implement the program. (PX 1052 (Lawrence Dep. Desig. 5/20/02 Tr. 99:7-9 ("The purpose of the contract was to carry out the provisions of the [NWPA]")) and 187:15-188:8 (recalling plans and hopes were to have an acceptance rate after the first five years equivalent to the rate of utility discharge of SNF so that no utility would have to build additional storage after 1998.)).

^{8/}Despite its "draft" moniker, this report was required by the NWPA and was circulated to the nuclear industry for comment prior to issuance of a final report. The "mission plan . . . [would] provide an informational basis sufficient to permit informed decisions to be made in carrying out the repository program and the research, development, and demonstration programs required under this [Act]." 42 U.S.C. § 10221(a).

^{9/}Reduction of the inventory of SNF stored in utilities' wet pools was necessary to allow for eventual plant shut-down and decommissioning which returns the site to its previous state.

^{10/}DOE established ("OCRWM") to carry out its obligations under the Standard Contract and the NWPA. (PX 25.)

fundamental objective and implementing an appropriate waste acceptance schedule . . . will initially preclude the need for additional at-reactor storage by nuclear utilities after January 31, 1998, and, ultimately, remove all eligible waste from at-reactor storage.” (PX 58 at 2.) DOE’s April 1984 Draft Mission Plan included annual acceptance rates that ramped up to 3000 MTU. (PX 59.) DOE used a 3000 MTU rate in projecting total life cycle costs and assessing the adequacy of the utility fees charged in the Standard Contract. A 3000 MTU annual rate was used in DOE’s 1985 Final Mission Plan which reiterated the objective was to avoid plant shutdowns due to lack of pool space. (PX 97.)

As a contingency in case a permanent repository would not be available to meet the January 31, 1998 deadline, in the 1985 Mission Plan, DOE stated it would request congressional authorization to build a monitored retrievable storage facility (“MRS”), an interim solution, to receive and prepare SNF for emplacement in the repository by consolidating and loading SNF into canisters.^{11/} If authorized by Congress, an MRS would begin acceptance beginning as early as 1996 at 2200 MTU annually, increasing to 3000 MTU in 1998. *PG & E I*, 73 Fed. Cl. at 358. Without an MRS, acceptance in 1998 would be 400 MTU, increasing to 3000 MTU after five years. (PX 87 at 26.) These schedules were “illustrative” and “considerable variation” was possible. *PG & E II*, 536 F.3d at 1286 (citing *PG & E I*, 73 Fed. Cl. at 359).

DOE’s January 1987 Draft Mission Plan Amendment,^{12/} announced a five-year delay in the opening of the repository, from 1998 to 2003. (PX 109 at 5.) “This 1987 plan informed Congress that opening a permanent geologic repository by 1998 was no longer a realistic goal.” *PG & E II*, 536 F.3d at 1286. The Draft also requested that Congress approve DOE’s MRS proposal. *Id.*

Two months later, in March of 1987, DOE asked Congress for authorization to construct an MRS in Oak Ridge, Tennessee.^{13/} At that time, an MRS was the only

^{11/}Under the contract, standard fuel is bare fuel assemblies that would be transferred from the wet pool to DOE shipping containers and then canistered before emplacement in the repository or other interim storage facility.

^{12/}This “draft” Amendment was circulated to affected states and Indian Tribes pursuant to Section 301 of the NWPA. Following a comment period, the Amendment was submitted to Congress.

^{13/}Section 141 of the NWPA directed the Secretary of Energy to study the need for, and
(continued...)

way DOE would be able to commence performance by January 31, 1998. An acceptance rate sufficient to keep up with the industry annual rate of SNF production was retained. To dispel any doubt of its commitment to a repository, or inference that it would be other than temporary, DOE proposed that an MRS not accept any SNF until construction of the repository was authorized, and that the capacity of the MRS be limited to 15,000 MTU. Potential volunteer sites requested that DOE include these linkages, which were political in nature, not technical. DOE hoped these linkages would make it easier to attract an MRS host.

DOE's June 1987 Mission Plan Amendment, responding to comments received on the circulated draft, repeated the projected five-year delay in the repository ("from 1998 to 2003") and intention to begin acceptance in 1998 at an MRS if authorized by Congress. (PX 124 at 6.) The illustrative acceptance rate was 1200 MTU for five years starting in 1998, then 2000 MTU in 2003, with the repository commencing in 2003. (PX 124 at 61.)

While the Standard Contract did not specify an acceptance rate despite industry pressure to do so, it outlined a process for setting both individual and industry aggregate annual amounts. In June 1987, DOE issued its 1987 ACR (PX 123; DX 542) projecting acceptance of 1200 MTU in 1998, 2000 MTU in 2003 and 2650 MTU in years 2004 to 2007. The Federal Circuit selected the 1987 ACR as the best manifestation of the non-breach world. *PG & E II*, 536 F.3d at 1291-92.

The 1987 ACR contains an industry-wide listing of SNF, arranged chronologically starting with the oldest, coolest fuel, that which has been out of the reactor the longest, and an annual parsing of allocations for the first ten years. The list for 1998 (referred to as Year 1) contains the allocations of twenty-two utilities having the oldest (and coolest) 1200 MTU, including WE's allocation of 59.28 MTU – 151 assemblies. For 1999 (referred to as Year 2), the next-oldest 1200 MTU are segregated, and so on. Acceptance allocations to the utilities based on this age-ranking for SNF is referred to as "oldest fuel first" ("OFF").

While the Standard Contract allocates acceptance rights by OFF, any SNF could be selected to fulfill that allocation so long as it had been out of the reactor for at least five years. (PX 346 at WISC 00003809 ("**The contract does not imply that**

¹³/(...continued)
feasibility of, one or more MRS facility and report to Congress.

the [SNF] that leads to an allocation is the specific [SNF] that must be delivered. The Purchaser can distribute the allocation among any permanently discharged fuel that can be transported (more than five years old.)” (citing Scott Vance^{14/}) (emphasis in original)); PX 41 at App. E.B.3.)

Another report required by the contract, DOE’s Annual Priority Ranking (“APR”), also contained the industry-wide age ranking of SNF. (PX 238.) The APR triggered the time when a utility could submit a delivery commitment schedule (“DCS”) to DOE identifying the SNF, which again, did not have to be its oldest – that the utility “wishe[d] to deliver to DOE beginning sixty-three (63) months thereafter.” (PX 41 at Art. V.B.1.) DOE would approve or disapprove the DCS within three months and give reasons for any disapproval. The utility then has 30 days to submit a revised schedule, and could increase or decrease its SNF quantities by 20 percent. (*Id.* at Art. V.B. (“Purchaser shall have the right to adjust the quantities of SNF and/or HLW plus or minus (\pm) twenty percent (20%), and the delivery schedule up to two (2) months, until the submission of the final delivery schedule.”).) Utilities could exchange approved DCSs with other utilities, subject to DOE’s approval. (*Id.* at Art. V.E. (“Purchaser shall have the right to exchange approved delivery commitment schedules with parties to other contracts with DOE for disposal of SNF and/or HLW; **provided, however**, that DOE shall, in advance, have the right to approve or disapprove, in its sole discretion, any such exchanges.”) (emphasis in original).) DOE could grant priority to shutdown reactors and accept emergency deliveries. (*Id.* at Art. VI.B.1.b (“[P]riority may be accorded any SNF and/or HLW removed from a civilian nuclear power reactor that has reached the end of its useful life or has been shut down permanently for whatever reason.”); *Id.* at Art. V.D. (“Emergency deliveries of SNF and/or HLW may be accepted by DOE before the date provided in the [DCS] upon prior written approval by DOE.”).)

In the 1987 Amendments to the NWPAs, Congress directed the selection of Yucca Mountain as the site for the repository, a designation that has neither been repealed nor amended. 42 U.S.C. § 10172(a) & (b). The 1987 Amendments also

^{14/}Scott Vance, who testified at trial, received an engineering degree from Idaho State University in 1985 and master’s degrees in nuclear engineering and technology, and public policy from the Massachusetts Institute of Technology in 1988. Mr. Vance worked for various OCRWM contractors from 1988 to 2000, and assisted in the preparation of documents required by the Standard Contract. He was employed by a DOE contractor at the Pacific Northwest Nuclear Laboratory and worked on the development of DOE’s acceptance rate in the 1991 ACR. Mr. Vance then received a law degree and is a nuclear licensing attorney for the Tennessee Valley Authority.

authorized DOE to site, construct and operate one MRS, and established the Office of the Nuclear Waste Negotiator to attempt to find a state or Indian tribe host. *Id.* §§ 10162(b); 10242(a), (b)(2). But unlike DOE's proposal to preclude any **acceptance** of SNF at an MRS before construction of the repository was authorized, the linkage was stricter in that **construction** of an MRS was prohibited until the NRC authorized construction of the repository. This stricter linkage meant it would take longer for the MRS to be available. Also, the capacity of an MRS was reduced, capped at 10,000 MTU rather than the larger 15,000s MTU DOE proposed, until the repository started acceptance, and then no more than 15,000 MTU. "Because of these provisions, the industry quickly realized that DOE would be unable to get an MRS facility in place in time to meet its 1998 acceptance obligation." *PG & E II*, 536 F.3d at 1287.

DOE's Draft 1988 Mission Plan Amendment again admitted delay until 2003. "[U]nder current conditions, waste acceptance at a waste-management facility cannot begin in 1998; furthermore, the delay in the repository schedule and the linkages between that schedule and key milestones in the siting and construction of an MRS facility make it unlikely that the DOE will be able to start accepting fuel significantly before 2003." (PX 150 at 18-19.) The 1988 ACR repeated this admission. (PX 149 at 4.) These reports were widely distributed and utilities, including WE, followed and relied upon them.

DOE did not issue an ACR in 1989 and acknowledged that because of delays, utilities will need additional at-reactor storage. A draft admitted that the conditions imposed by the 1987 NWPA Amendments made it unlikely DOE would accept SNF significantly before 2003, which

will increase the Purchasers' need for at-reactor storage. As mandated by the Amendments Act, DOE is conducting an evaluation of the impacts of dry cask storage of SNF at reactor sites. The study is to consider the costs, the impacts on health, the environment and transportation, and the extent to which [NWF] monies can and should be used to support at-reactor dry cask storage. A summary of the study results and any subsequent actions by the Congress will be reported, as appropriate, [*** add Do we have anything to report yet? ***] in the ACR when available.

(PX 175 at 7 (bracketed material in original).)

DOE subsequently announced further delay from 2003 to 2010, in its November 1989 report to Congress. Construction authorization for the repository was not expected until 2005-2006 at the earliest, rendering an MRS (the construction of which was tied to construction authorization for the repository) by 1998 impossible. Even if Congress removed the linkages, an MRS could not be available until 2002. (PX 183 at vii, ix-x.) The MRS Commission reported in November of 1989 that because of the linkages, an MRS would not be operational more than three years before the repository – then forecasted for 2010. (PX 181 at xvi; Tr. 5275:24-5277:5 (Kouts¹⁵).)

DOE's 1990 ACR, included upper bounding¹⁶ rates starting at 1200 MTU/year and ramping-up to 3000 MTU/year. Lower bounding rates were 300, 400, 550 and 875 MTU/year for the first four years, and then 875 MTU/year through 2007. (PX 211 at 7.) The upper rates assumed Congress loosened the linkages. (*Id.* at 4.) The lower rates assumed no amendment. (*Id.*) The 1990 ACR repeated the "significant slip for the expected start of repository operations – from the year 2003 to approximately 2010." (*Id.*) Without congressional action to remove the linkages, even assuming a host site had been found and agreements reached, DOE would not be able to commence acceptance until 2007. (*Id.*)

In September 1991, the General Accounting Office ("GAO") reported that it was "highly unlikely" an MRS would be available by 1998. (PX 229 at 5, 15, 32 (relaying discussions with DOE officials who were in general agreement).)

DOE's 1991 ACR reiterated that an MRS would not be feasible by 1998 unless Congress removed the linkages. (PX 237 at 4 ("If the current linkages between MRS facility construction and repository construction authorization are maintained, it is estimated that commencement of facility operations and initial acceptance of SNF by DOE could not start until at least 2007.")) Nevertheless, the 1991 ACR used an acceptance rate that assumed Congress would remove the linkages and initial performance would be at an MRS. (PX 237 at 4 ("These acceptance rates assume

¹⁵Christopher Kouts is the Director of the Waste Management Office and the Acting Principal Deputy Director of OCRWM. As Acting Principal Deputy, he is responsible for the implementation and management of the overall program. As Director of the Waste Management Office, his responsibilities include the management of the Standard Contract.

¹⁶Generally, upper and lower bounding refer to maximum and minimum respectively. *S. Nuclear Operating Co. v. United States*, 77 Fed. Cl. 396, 417 n.24 (2007).

commencement of facility operations in 1998.”.) The rates were 400 MTU in 1998, 600 MTU in 1999, and 900 MTU in 2000 through 2007. (*Id.* at 5.) The 1991 ACR rates may not have comprised a good faith projection.

The record also suggests that DOE may have put forth the 1991 acceptance rates as a litigation strategy, to minimize DOE’s exposure for its impending breach, rather than as a realistic, good faith projection for waste acceptance. The Court of Federal Claims judge in the companion *Yankee Atomic Electric Co. v. United States*, 73 Fed. Cl. 249 (2006) (*Yankee I*) case credited the testimony of a former DOE contractor who stated at trial that the 1991 ACR was intended to limit DOE’s liability for breach of contract. *Id.* at 273. For these reasons, among others, this court concludes that the 1991 report does not present an acceptable acceptance rate under the Standard Contract.

PG & E II, 536 F.3d at 1291. Scott Vance, the DOE contractor who testified in the *Yankee I* trial, testified similarly at this trial. The court in *Carolina Power* concluded that “DOE’s actions from 1987 and thereafter were taken with an eye toward minimizing agency liability under the Standard Contract,” adding that “DOE’s David Zabransky^{17/} conceded at trial that, faced with massive litigation, the 900 MTU rate was an agency attempt to minimize its obligations under the Standard Contract.” 82 Fed. Cl. at 40.

The 1992 ACR had the same acceptance rates contingent on Congressional action, absent which performance would begin no earlier than 2007. (PX 297 at 4.)

By 1994, DOE knew that it was highly unlikely that Congress would remove the linkages. *Sys. Fuels*, 79 Fed. Cl. at 186 (citing *Sys. Fuels, Inc. v. United States*, 79 Fed. Cl. 37, 44 (2007) (citing Kouts Test.)). DOE formally announced “it would not begin SNF collection until 2010 because its planned storage repository would not be ready until then.” *Ind. Mich. II*, 422 F.3d at 1372 (citing DOE, Waste Acceptance Issues, 59 Fed. Reg. 27,007-08 (May 25, 1994)); *see also S. Nuclear*, 77 Fed. Cl. at 420 (“By 1994, MRS siting efforts ‘effectively ceased.’”). In *Indiana Michigan*, the Federal Circuit concluded that by 1994, there was no doubt DOE had partially breached the Standard Contract when “the government unequivocally announced in

^{17/}David Zabransky, former WE employee, was DOE’s Standard Contract contracting officer’s technical representative from 1995 to 2002, then contracting officer.

1994 that it would not meet its contractual obligations beginning in 1998.” Utilities then “had no choice but to hold the government to the terms of the Standard Contract while suing for partial breach” and take “mitigatory steps.” 422 F.3d at 1374-75. As discussed hereinafter, that was the latest date, not the earliest. Utilities could establish earlier awareness and recover for consequent mitigating activities and attendant costs. *Yankee II*, 536 F.3d at 1275-76.

DOE’s 1994 APR/ACR issued in March 1995, designated acceptance as Year 1, Year 2, and so on, and used the 1991 ACR rates. (DX 584 at 4 (“The projected nominal acceptance rates . . . reflect the capacity limit imposed by the Act on . . . a[n MRS] facility prior to repository operations.”).) This was the last ACR until 2004, nine years later.^{18/}

In 1995, President Clinton announced that he would veto proposed legislation removing the linkages between a repository and an MRS. *Carolina Power I*, 82 Fed. Cl. at 33 (citing *Sys. Fuels*, 79 Fed. Cl. at 47).

In its “Final Interpretation of Nuclear Waste Acceptance Issues,” DOE declared that it did “not have an unconditional statutory or contractual obligation to accept [HLW] and [SNF] beginning January 31, 1998, in the absence of a repository or interim storage facility constructed under the [NWPA].” 60 Fed. Reg. 21793-02, 21793-94 (May 3, 1995); *Me. Yankee v. United States*, 225 F.3d 1336, 1338 (Fed. Cir. 2000). Several utilities filed a petition for review of that Interpretation. *Ind. Mich. Power Co. v. DOE*, 88 F.3d 1272 (D.C. Cir. 1996). The D.C. Circuit vacated DOE’s interpretation, holding that under the NWPA, DOE’s obligation to commence performance no later than January 31, 1998 was unconditional, not dependent on a repository or other disposal facility, subject only to the utilities’ payment of fees. *Id.* at 1276.

Despite the D.C. Circuit’s ruling, DOE subsequently advised utilities that because there was no repository or interim facility, its delay was “unavoidable,” and therefore, the government was not liable for damages. On January 31, 1997, several utilities and public service commissions sought a writ of mandamus to compel DOE’s performance. *N. States Power Co. v. DOE*, 128 F.3d 754 (D.C. Cir. 1997). Holding that the utilities had a potentially adequate contract remedy, the D.C. Circuit declined

^{18/}The 2004 APR/ACR projected acceptance started in 2010 at 400 MTU, increased to 600, 1200, 2000 and then 3000 MTU starting in 2014. (PX 665 at 2.)

to order performance, but issued a writ of mandamus precluding DOE from asserting its delay was unavoidable because of a lack of a repository or interim storage authority.

[W]e preclude DOE from concluding that its delay is unavoidable on the ground that it has not yet prepared a permanent repository or that it has no authority to provide storage in the interim.

This necessarily means, of course, that DOE not implement any interpretation of the Standard Contract that excuses its failure to perform on the grounds of ‘acts of Government in either its sovereign or contractual capacity.’

128 F.3d at 760 (citation omitted). *See also Wisc. Elec. Power Co. v. DOE*, 211 F.3d 646, 648 (D.C. Cir. 2000) (deferring to the United States Court of Federal Claims for any contract remedies).

The Court of Federal Claims, in *Nebraska Public Power District v. United States*, held that the *Northern States* writ of mandamus is void *ab initio* because the D.C. Circuit “operated in excess of its jurisdiction and, specifically, without an appropriate waiver of sovereign immunity.” 73 Fed. Cl. 650, 673 (2006), appeal pending, No. 2007-5083 (Fed. Cir. docketed March 15, 2007). The appeal was submitted for consideration by a panel of the Federal Circuit on December 3, 2007, and by order dated June 4, 2009, the Federal Circuit, by its own action, announced its intention to consider the appeal *en banc*. Oral argument *en banc* was held on September 18, 2009, and a decision is pending as of the instant Opinion.

While recent government actions may question Yucca Mountain as the means and method of performance, utilities are precluded from declaring a repudiation or total breach. “As this court has already acknowledged, the NWPA and the terms of the Standard Contract foreclose any claim for total breach.” *Yankee II*, 536 F.3d at 1280 (citing *Ind. Mich. II*, 422 F.3d at 1374).

The NWPA itself, and the Standard Contract’s terms drafted pursuant to it, compelled Indiana Michigan to bring an action for partial, not total, breach. Had Indiana Michigan brought an action for total breach, DOE would have been discharged from further responsibility under the contract, a situation apparently not desired by appellant and foreclosed by statute. The NWPA directed that DOE and all nuclear utilities enter

into Standard Contracts, 42 U.S.C. § 10222(a)(1), and concomitantly conditioned the issuance and renewal of [NRC] operating licenses upon the execution of those contracts, *id.* § 10222(b)(1)(A). Additionally, the NWPA provided that DOE was exclusively responsible for SNF collection and disposal in the United States, thereby prohibiting Indiana Michigan or any other nuclear utility from seeking alternative disposal means. See 42 U.S.C. § 10131(a)(4), (b)(2); *Roedler*, 255 F.3d at 1350. Therefore, Indiana Michigan had no choice but to hold the government to the terms of the Standard Contract while suing for partial breach.

Ind. Mich., 422 F.3d at 1374.

Causation

DOE's failure to perform its contractual obligations was the "but for" and substantial causal factor in WE's dry storage decisions and expenditures in the breach world. In the non-breach world, if DOE had performed at the rates in the 1987 ACR, WE would not have built dry storage.

In 1983 and at least for a time thereafter, WE relied on DOE's timely performance. Both Mr. Sol Burstein^{19/} and Mr. Howard Shimon,^{20/} in industry groups

^{19/}The late Sol Burstein, who passed away in 2002, joined WE in 1965 when Point Beach was in the planning stages. He was a Senior Vice President and headed nuclear operations for 23 years. In 1973, he became Executive Vice Chairman of WE and continued in that role until he retired in the late 1980s. Mr. Burstein held a patent for a boiling water reactor super heat cycle and was a fellow with the American Society of Mechanical Engineers. Mr. Burstein was WE's primary decision-maker regarding nuclear issues. He was one of the early champions of commercial nuclear power and was very well known and respected nationally. He was frequently called upon to speak on behalf of the nuclear industry. Mr. Burstein was a member of the Utility Nuclear Waste Management Group ("UNWMG") Steering Committee and DOE appointed him to a technical review committee to develop criteria for an MRS.

^{20/}Howard Shimon has a B.S. in industrial engineering and an M.B.A. from Cornell University. He joined WE in September 1971 where he remained until February 1995. He was responsible for spent fuel storage at WE from 1976 to 1990, and was the Manager of Nuclear Fuels and Administrative Services from approximately 1985 until 1990, where he was responsible for departmental budgets and administrative services, including issues related to the Standard Contract. Mr. Shimon testified regarding WE's two rerackings; his involvement and leadership in nuclear

(continued...)

and communications with DOE, emphasized the importance of (1) the January 31, 1998 contract start deadline; (2) OFF; and (3) an acceptance or performance rate that would preclude the need for additional at-reactor storage or at least keep up with the industry annual discharge of around 2000 MTU.^{20/} While these statements are unilateral, they provide background and are probative on causation in the breach world. At the Atomic Industrial Forum in March of 1985, Mr. Burstein expressed the nuclear industry's hopes that DOE would accept at least 2000 MTU annually, the industry discharge rate: "[The industry's] desire is to have the receiving rate in 1998 at a level at least equivalent to the discharge rate. This receiving rate must be increased to allow all backlog material to be delivered within the first twenty years of the program." (PX 81 at 7-8.) WE's storage planning was based on DOE's performance and Mr. Burstein was apprehensive. "We are not totally satisfied with [DOE's] efficiency to date, nor with the fact that scheduled dates are being missed. **Our on-site storage programs are based on the contractual promise we have with DOE that they will start taking spent fuel no later than 1998.** That date must be held firm and inviolate." (*Id.* at 8 (emphasis supplied).)

On March 19, 1987, Mr. Burstein submitted a statement on behalf of Edison Electric Institute ("EEI"), the American Nuclear Energy Council, the Utility Nuclear Waste Management Group, the Electric Utility Companies' Nuclear Transportation Group and the Atomic Industrial Forum, to the Subcommittee on Energy Research and Development Committee on Science, Space and Technology of the United States House of Representatives. Noting that WE had at that time paid \$85 million dollars in fees under the Standard Contract, he reported that "[t]he industry is extremely concerned over the current state of affairs surrounding the NWPAs implementation. After electric utilities with nuclear energy programs have collected from electricity

^{20/}(...continued)

industry groups, particularly regarding enactment of the NWPAs and promulgation and implementation of the Standard Contract; WE's SNF management considerations and decisions in the late 1980s; and the composition of WE's Nuclear Power Department from the late 1970s until the early 1990s.

^{21/}As the court in *Carolina Power I* observed in discussing DOE's rate of performance at the level the government touted, "the Court cannot accept that Plaintiffs would have agreed to pay the same staggering fees under the Standard Contract in exchange for 70 percent less performance from DOE (acceptance of 900 MTUs per year, instead of 3,000 MTUs per year). At an acceptance rate of 900 MTUs per year, DOE would never achieve the goals of the NWPAs, because the acceptance rate would be less than one-half of the waste generated in any year." 82 Fed. Cl. at 40.

consumers and paid **\$2.7 billion** into the [NWF], DOE is facing unprecedented opposition to the continuation of NWPA implementation.” (PX 116 at 2-3 (emphasis added).)

In Congressional testimony in March 1987, Mr. Burstein again expressed his concern over DOE’s lack of progress. (PX 132 at 1 (Representative Udall characterized DOE’s implementation of the NWPA as in “shambles”).) Testifying on behalf of EEI, a trade association of nuclear utilities including WE,^{22/} he urged Congress not to link an MRS to authorization of the repository construction as was being proposed at the time. “Doing so would make the start-up of the MRS less certain, because it would await not only its own licensing, but also that of the first repository” (PX 134 at 3) and would “raise a significant question whether DOE will be able to meet its statutory and contractual commitment to begin to accept spent fuel in January 1998.” *PG & E II*, 536 F.3d at 1287.

Beginning in 1988, WE started exploring long-term storage options^{23/} including building another spent fuel pool and consolidating spent fuel rods. In 1988, WE, Sierra Nuclear (a cask manufacturer) and Electric Power Research Institute (“EPRI”) participated in a DOE demonstration project for a new ventilated storage cask (“VSC”) that held 17 assemblies – the VSC-17.^{24/} WE’s budget for this project was \$50,000 in 1988 and \$150,000 in 1989; EPRI contributed \$200,000; Sierra Nuclear, \$400,000 and DOE, \$400,000 (out of the NWF). In WE’s May 6, 1988 internal

^{22/} “In March of 1983, the member utilities of EEI provided approximately 78% of the nation’s electricity and served over 67 million customers.” *PG & E I*, 73 Fed. Cl. at 345. n.14 (citations to record omitted).

^{23/}Characterizing WE’s storage needs as “long-term” is relative in that DOE’s delays were then-contemplated to be measured in years. DOE’s contractual and statutory “long-term” disposal obligation, on the other hand, is measured in millennia.

^{24/} The VSC cask included a welded steel basket designed to hold fuel assemblies in storage sleeves. The basket is placed in a steel-lined concrete cask; the concrete cask is ventilated, allowing for air flow through four bottom vents and through the gap between the basket and the concrete cask liner, and out through four vents in the top of the cask. The flowing air removes heat from the SNF’s radioactive decay. The inner steel basket has one inch thick walls coated to reduce corrosion and allow for easy removal of contamination. The inner steel basket has a multilayer shield and a structural lid, both welded to the top of the basket. A thick cover plate is on the top of the cask. The reinforced concrete walls of the cask are 29 inches thick. The casks are 17.5 feet tall and 11 feet in diameter. Each weighs 132 tons when loaded. (PX 346 at 3551-53.)

memorandum authorizing participation in this project, annual savings were estimated at two million dollars compared to the cost of existing metal storage casks. DOE's then-current plan, described as "optimistic and risky"(PX 145 at WISC00061023), was for limited operation at a repository in 2003. Storage at least through 2003 was accordingly anticipated, and "[t]hrough 2003, it will be necessary to provide for the storage of 504 fuel assemblies that cannot currently be accommodated in the spent fuel pool." (*Id.*) The cask demonstration project was successful and the VSC-17 was the precursor to the VSC-24 later used at Point Beach. (Tr. 1333:18-1334:4 (Shimon) (explaining that the project successfully established the reliability of the codes that would permit the VSC cask to be licensed for commercial use).)

By letter, dated August 26, 1988 WE submitted comments on DOE's 1988 Draft Mission Plan Amendment statement that performance was not going to start in 1998 and probably would not commence until 2003 with an MRS. WE's comments insisted it was imperative that DOE commence acceptance by January 31, 1998, and reminded DOE of its contractual commitments for which at that time WE had paid over \$93 million. (PX 156 (signed by C.W. Fay, Vice President, Nuclear Power).)

In its 1988 Form 10-K, WE disclosed it was exploring storage alternatives because of DOE's delay.

[I]n June 1988 the DOE reported that it would not be able to accept utility spent fuel for disposal before 2003. [WE] is reviewing the options, including advanced technologies for on-site storage and the availability of away-from-reactor storage, for the storage of spent fuel generated at Point Beach after 1995 until the DOE accepts deliveries of spent fuel for disposal.

(PX 801, Tab 18 at 10.)

In May of 1989, WE commenced its dry storage project with its internal \$53,362,878 work order requisition which stated that "we are not certain when the [disposal] service [by DOE] will be provided. DOE has announced a schedule that calls for the operation of a repository in 2003." The preferred plan was for a dry storage facility with a capacity to hold about 45 casks, sufficient to store all WE's SNF until the end of its then-current operating license. (PX 170, 171 at 1.) Cost/benefits analyses of various options were summarized. An advantage of an ISFSI was its modular nature compared to the higher cost and inflexibility of building

an additional spent fuel pool.^{25/} Assuming DOE was not going to start performance until 2003, it was estimated that approximately 20 VSC-24 casks would be needed, to hold a total of 480 assemblies. (PX 171 at 9.)

In July of 1989, Mr. Shimon spoke publically and critically about DOE's delay.

The latest schedule we have seen for OCRWM's transportation activities shows the first shipment of spent fuel to a repository or to monitored retrievable storage beginning in 2003. It is generally considered optimistic to assume that a repository will begin operation by that date. With regard to monitored retrievable storage, there is the possibility that a federal facility could be operational earlier than 2003 if a host state were supportive of the project and shipments were not constrained by current linkages to the repository schedule. However, many issues must be resolved before a firm planning base for an MRS facility can be established.

(PX 178 at 2-3.)

In its 1989 Form 10-K, WE again disclosed that dry storage was being considered because of DOE's delay at that time until 2010. (PX 801 at KRGWE000192-93.) WE's 1990 Form 10-K included DOE's November 1989 admission that acceptance at a repository would be delayed until 2010, and WE's storage options. (PX 801 at KRGWE000202.)

At two industry meetings in November of 1990, Mr. Shimon stated that WE and other utilities were building dry storage because of DOE's delays. (PX 208 at 6; PX 209; Tr. 1321:25-1323:7; 1323:25-1325:10 (Shimon).)

PSC proceedings

WE sought PSC approval for a dry storage facility. Significant effort at trial was expended by both parties on WE's statements to the PSC that additional storage was needed by 1994 or 1995. The government argues these statements are proof that DOE's delays were not the reason WE built dry storage and that if DOE had timely commenced performance WE would still have built dry storage. Statements cited by

^{25/}Dry storage is passive with higher initial costs but lower operating and maintenance expenses compared to wet pools. Accordingly, economics favor dry storage long-term.

the government include those of WE Vice President Robert Link.^{26/} Mr. Link was mindful of the public antagonism faced by Northern States Power in connection with its dry storage project in neighboring Minnesota. “Northern States ran into very contentious issues before their own Public Service Commission and had significant intervention in their case as well.” (Tr. 369:8-11 (Link).) The opinion in *Northern States Power Co. v. United States*, 78 Fed. Cl. 449, 453 (2007), notes that following “long and difficult” administrative proceedings that took almost two years, the Minnesota Public Service Commission granted permission to load no more than 17 casks – enough to sustain operations through 2001, the year DOE was then projecting commencement of performance. Litigation ensued resulting in a ruling invalidating the Commission’s Order. *In re Application of Indep. Spent Fuel Storage Installation*, 501 N.W.2d 638, 648 (Minn. Ct. App. 1993). Action by the Minnesota legislature a year later allowed a 17-cask facility, but only under significant and expensive conditions. 78 Fed. Cl. at 453-54. Wisconsin had a moratorium on any new nuclear power plants and serious opposition to dry storage was anticipated. (Tr. 332:2-5 (Link).) WE made conservative assumptions in its PSC application in part, because of expected scrutiny. Witnesses also testified that a heightened sense of urgency – almost a worst case scenario – was necessary because of long lead times and unknowns. WE wanted a timely ruling on the application – not a deferral until WE’s needs were more desperate – or DOE’s delays more apparent.

Similarly, WE’s characterization to the PSC concerning when its wet pool would be “full” depends on the definition of that term. Assumption of either a one or a two FCR (121 and 242 spaces respectively) alters predictions about when the pool would be “full.” In this context, the record evidence shows that WE’s predictions of a “full” pool did not mean each rack space in the pool was filled, but “full” included a reserve of 121 or 242 spaces for unloading one or both cores. Also, some rack spaces may have been empty, but were damaged or had some protrusion

^{26/}Robert Link was the Vice President of WE’s Nuclear Department from May 1992 to late 1996. Mr. Link has a B.S. in nuclear engineering from Kansas State University. He completed continuing education courses in finance and business from the University of Wisconsin and strategic marketing courses at Harvard University. Except for a brief period, Mr. Link worked at WE from the time he graduated from Kansas State University until late 1996. While at WE, Mr. Link supervised the engineering, quality and regulatory affairs relative to Point Beach for about five years. He then was appointed assistant manager in systems planning which was responsible for analyzing future generation, transmission and distribution facilities and developing long-range plans required by the PSC.

that prevented their use. Additional spaces were filled with material other than SNF that could have been removed and stored elsewhere, thus making the spaces available.

The evidence demonstrates that while FCR was desirable and used by WE in its conservative advocacy before the PSC, it was not an absolute requirement either historically or operationally. Mr. Gary Krieser,^{27/} former WE Manager of Industry and Regulatory Services, testified:

Q. If Point Beach had operated until 1998 without dry storage, would Point Beach have had [FCR] in the permanent storage areas of the pool throughout that time?

A. There would have been times, certainly, as we approach 1998, where we would not have had FCR, but, again, like I say, it was a goal, and I think, overall, we would have been comfortable with that condition.

(Tr. 1532:3-11 (Krieser).) Regulators did not require FCR as noted in *Yankee II*, 536 F.3d at 1275: “[i]n addition to reserving space to accommodate SNF in pools, utilities ideally maintain sufficient pool capacity to permit discharge of all fuel assemblies from the reactor core into the pool to accommodate maintenance and repair operations. Though the [NRC] does not require utilities to maintain such a ‘full core reserve,’ it encourages them to do so.”

Planning for storage needed because of DOE’s delays was at that time fraught with unknowns. Dry storage was relatively new. Only a few nuclear power plants initiated dry storage prior to 1998.^{28/} *Sys. Fuels*, 79 Fed. Cl. at 49. The length of time needed for regulatory approvals, construction and acquisition of necessary casks and ancillary equipment, simply could only be estimated. This was a complex

^{27/}Mr. Krieser received a B.S. in nuclear engineering from the University of Wisconsin at Madison in 1972. Mr. Krieser began working at WE in the summer of 1977. He was the Manager of Industry and Regulatory Services from 1992 until late 1996, reporting directly to Mr. Link. Mr. Krieser also was the Director of Nuclear Fuel Services for NMC from 2000 until July 2002, at which time he joined Wisconsin Electric Power as Manager of Project Quality Assurance.

^{28/}This is not to say that dry storage was not foreseeable and the government does not argue to the contrary. As early as April of 1978, DOE wrote that dry storage was among the options addressed in an upcoming generic environmental impact statement. (PX 6 at WISC 00128762 (memorandum to all nuclear power reactor licensees).) Indeed, the foreseeability of dry storage is recognized in the *Yankee* trio, each of which involved the construction of dry storage.

engineering project with many variables. The massive structures involved were not off-the-shelf commodities. (Tr. 2735:23-2736:10 (Anundson^{29/}) (“[I]t turned out to be quite complex with all the different areas that were required. . . . There was no ‘Dry Storage for Dummies’ books. It was starting from scratch.”).) WE could not wait until storage was needed and look to the market to immediately supply needs. Just-in-time inventory was neither realistic nor reasonable.

In pre-application meetings with the PSC, WE proposed an ISFSI with 48 casks, sufficient to store all WE’s SNF through the end of its then-current operating license. WE reduced that number to 12 at the Commission’s urging, in the hopes of facilitating approval. The proposed ISFSI pad, however, retained a 48 cask capacity.

On November 15, 1991, WE filed its application with the PSC for approval to construct dry storage and purchase 12 VSC-24 casks and related equipment for \$12,865,000. (PX 236.) In a five-page cover letter, Mr. David Porter,^{30/} Senior Vice President, summarized WE’s consideration of alternatives. He wrote that the requested additional storage was needed by 1995 in order to maintain FCR, and that DOE’s performance was delayed until 2010.

Additional spent fuel storage capacity will be required at Point Beach in 1995 to allow for the continued operation of the plant while maintaining the capability to discharge one full-core of fuel assemblies to the spent fuel pool should the need arise.

[WE] has a contract with [DOE] for the removal and disposal of all spent fuel generated at Point Beach. The contract requires the DOE to begin acceptance of spent fuel in 1998. Currently, there is no federal facility for storing or disposing of the spent fuel. While the DOE is searching for a volunteer state to host an interim storage facility, it does

^{29/}Kevin Anundson has a B.S. in mechanical engineering from the University of Wisconsin. He testified regarding his role as the project manager for WE’s dry storage project. Mr. Anundson joined WE in January 1987 and the Nuclear Power Department in 1991. He left WE and the utility industry in 1997.

^{30/}David Porter, after serving in the Navy nuclear program, joined WE’s nuclear projects office in 1969. He worked at WE until he retired in 2002. Mr. Porter served as an inside director of WE from 1989 to 2000, and was Senior Vice President when he signed WE’s PSC dry storage application.

not expect that a disposal facility will be operational before the year 2010.

The [ISFSI] will provide for additional interim storage through at least 1998, and could be expanded as required to provide additional storage capacity until the DOE begins removal of spent fuel from the Point Beach site.

(PX 236 at 1.)

The dry storage facility proposed consisted of two concrete pads, each 50' wide by 250' long, 3' thick, surrounded by an 8' security fence and located about one-half mile from the plant. The project also included a shielded transfer cask and transporter. Some relatively minor modifications to the plant would also be necessary. (*Id.* at WISC 00014728, 14739.) WE proposed to load two casks in June of 1995, 1996 and 1997, and one cask in 1998.

As noted, although requesting only 12 casks, WE designed the ISFSI pad to be large enough to handle 48 casks, enough to store SNF through the end of Point Beach's then-licensed life. "[WE] believes that it is necessary to plan for the possibility that the DOE may not meet its schedule Due to the uncertainties of the development and operation of the federal Waste Management System, [WE] believes that construction of an ISFSI provides appropriate assurance that [SNF] can be stored safely with minimal cost. Additional spent fuel storage capacity can be added if and when needed to ensure continued plant operation." (PX 236 at 4.)

Robert Link was promoted to Vice President of WE's Nuclear Department in 1992 and re-evaluated the dry storage application at that time. From his extensive experience in plant operation and regulatory matters, particularly with the PSC, he viewed the then-pending PSC application as "critical" and a "life-and-death" project for WE. He knew Wisconsin had a nuclear moratorium; the PSC staff was not then particularly pro-nuclear; and he expected a number of groups would intervene to try to stop either the dry storage project or the replacement of the steam generator in Unit 2 (discussed later herein), either of which would effectively shut down Point Beach. He asked for staff evaluations to assure himself that these projects remained appropriate. He had overseen the replacement of the steam generator in Unit 1 and was cognizant of requirements there. He wanted to become familiar with long-term storage solutions, so different strategies were evaluated in light of then-expectations

concerning DOE's delays. Even if and when the PSC approved the project, WE was not obligated to proceed. (Tr. 351:24-25; 352:1-6 (Link).) Mr. Link testified that other fuel management options were considered, including building another wet pool; expanding the existing pool; reracking to allow for a greater density or array of fuel; extending fuel cycles; fuel consolidation – taking the rods out of and collapsing the fuel assembly so that it takes up less space; changing the reactor core design; and using a temporary rack in the cask pit area. (Tr. 515:14- 519:6 (Link).) His conclusion was that WE's pending PSC application should be implemented if approved. (Tr. 335:4-13 (Link) (“We evaluated different strategies, different opportunities in that regard, as well as what the status of DOE was in terms of meeting its obligation in 1998, and through those assessments and evaluations, I was satisfied that the already filed, actually, application for dry fuel storage that [WE] had filed, actually previous to my tenure as vice president, was the appropriate strategy to go forward with.”); Tr. 570:18-571:5; 579:23-580:3 (Zabransky) and 323:20-324:7 (Link) (Sol Bernstein, vice president of nuclear, and later Robert Link, also vice president of nuclear, had the authority to bind WE).)

The court credits trial testimony, including that of Messrs. Link and Krieser, which together with the preponderance of the evidence, supports the conclusion that DOE's delays were the substantial causal factor for dry storage and that “but-for” DOE's delays, WE would not have pursued it. Mr. Link testified:

Q. Given the results of the briefings that you received and the fact that [WE] could operate until 1998, as you indicated, why did you decide to proceed with the dry storage application?

A. It was clear in my mind that DOE was not going to be picking up fuel as required in 1998. As I mentioned before, to assure the continued viability of Point Beach as an asset to serve its customers and its stockholders, it was necessary to implement a strategy that was safe and efficient and had characteristics that would be compatible with being integrated to DOE's responsibility to take the spent nuclear fuel. Dry fuel storage had the attribute of modularization, and that is, as I mentioned before, you could build and grow it as necessary, but that means you wouldn't have to overextend your commitment in terms of storage capability.

Q. And why was it clear to you that DOE was not going to be picking up fuel as required in 1998?

A. I'm sorry. Could you repeat that?

Q. Why was it clear to you that, I believe you said it was clear to you that – I’m sorry, the Department of Energy would not be picking up in 1998, and I’m asking you the basis for that statement.

A. Well, my own personal knowledge, as I’ve stated before, in terms of interactions with [Nuclear Energy Institute], my colleagues of the industry, our own assessments, but DOE itself, in their proclamations, said they were not going to be ready until, at the earliest, 2003, and then later, later dates were pronounced. The Public Service Commission staff assessed that they would not be performing as well as the intervenors, essentially assessed that they would not be performed.

(Tr. 352:7-25; 353:1-22 (Link).)

That these assessments were made in the breach world was confirmed by Mr. Gary Krieser.^{31/}

So [WE] had already made a decision at that point, prior to Bob [Link] becoming vice president, to proceed with an application for the [PSC], for a dry storage facility at Point Beach, so when Bob came in, we were already on that path. When Mr. Link came into that position, we were already heading down that path. Bob was a pretty pragmatic person, I think, in many respects, so he wanted very clearly to understand what the situation was at Point Beach, as far as the spent fuel situation and the spent fuel pool and things of that nature. He wanted to, you know, to make sure that he clearly understood what the situation was and what the conditions were that we were dealing with. He also was very familiar with the [PSC] process for obtaining approval for projects, and he knew that the process was going to be a very contentious one. There was certainly going to be opposition, and it was going to be just a huge effort that we would have to put forth to gain approval for that project. So he wanted to, you know, make sure that in fact that was the right path

^{31/}Mr. Krieser received a B.S. in nuclear engineering from the University of Wisconsin at Madison in 1972. He began working at WE in 1977. Mr. Krieser was the Manager of Industry and Regulatory Services from 1992 until late 1996 and reported directly to Mr. Link. He was the Director of Nuclear Fuel Services for NMC from 2000 until July 2002, at which time he joined Wisconsin Electric Power as Manager of Project Quality Assurance. Mr. Krieser testified regarding WE’s spent fuel management activities from 1992 through 2000.

to be on. So he requested people, myself and people that reported to me, to conduct an evaluation of all the circumstances, number one, to evaluate whether or not dry storage was the right path to be on. We also looked at various other options and alternatives, such as extended fuel cycles, what would be the benefit of that, changing some of our core designs, taking into effect higher enrichments, higher burn-ups of fuel, that type of thing, looking at the fuel pool to determine if we had actually maximized the capacity of the pool, were there spaces that could be recovered for fuel purposes. And we looked at other things too, like the use of temporary racks in various parts of the pool, and the cask laydown area was one area, the fuel transfer canal, there were areas within the pool that we felt could be used for fuel storage, at least in a temporary basis, if we needed it.

Q. And what were the results of these evaluations that Mr. Link requested your group to perform?

A. I would say, in a nutshell, the conclusion was – and, of course, again, this was based on the fact that DOE was not going to be there in 1998. We needed to address the situation in a long-term fashion, so we needed a long-term solution, we essentially confirmed that that was certainly the case, and we also concluded that dry storage was really the best option to solving that particular problem.

Q. And why would you believe that dry storage was the best option for solving that particular problem?

A. Well, again, we needed a long-term solution. We were going to need considerable amount of additional storage space. Dry storage, at least the system that we were pursuing, was essentially a modular system. We could add it incrementally, cask-by-cask. The costs were reasonable, and it did offer the opportunity for substantial amount of additional storage.

Q. And I believe you mentioned that it was the opinion of folks at [WE] and possibly most, if not all, of the industry that DOE would not be performing in 1998, do you remember that discussion?

A. Yes, I do.

(Tr. 1521: 24-1524:25 (Krieser).)

Mr. Link was specific in his testimony before the PSC that Point Beach could operate until 1998 and a “full” pool by 1995 included a reserve of 121 spaces for

FCR. “[T]he pool will be full and the plant would have to be shut down in 1998 without additional storage capacity In order to maintain [FCR] in the spent fuel pool, additional capacity must be made available in 1995.” (PX 907 at 425-26.) In pre-filed testimony for an October 11, 1994 PSC hearing, Mr. Link testified that Point Beach could make it to 1998. “Given the number of assemblies currently in the pool and the current rate of additional spent fuel generation, the pool will be full and the plant would have to be shut down in 1998 without additional storage capacity.” (PX 355 at 6.) That DOE had a contractual as well as a statutory obligation to take the SNF did not mean that WE expected DOE to begin performance in January of 1998. It bears repetition that this October 1994 testimony was five months after DOE’s May 1994 Federal Register announcement that it would not begin performance by 1998, and did not have a legal obligation to do so in the absence of a repository.

The court also credits testimony of other witnesses generally in accord. David Zabransky, DOE’s contracting officer and government witness, admitted that WE represented to the PSC that Point Beach could operate until 1998 without dry storage albeit without room to unload the reactors. (Tr. 1164:16-1165:14 (Zabransky).) Others testified similarly. (Tr. 1530:19-1531:3 (Krieser) (“Q: Wasn’t it your understanding at this time that, if DOE had performed under the [S]tandard [C]ontract, that [WE] would not have built dry storage? A: There’s no question in my mind that that’s what we believed, and that was certainly my understanding, yes. Q: And does that remain your understanding today? A: Yes, it does.”); Tr. 2813:25-2814:18 (Conry)^{32/} (It was the general understanding of the nuclear power department that Point Beach could operate until 1998 without dry storage.); Tr.

^{32/}Marlin Conry was employed at WE from November 1983 through January 2000 as a chemical engineer and later as Supervisor of the Chemical Engineering and Mechanical Engineering groups. Mr. Conry spent more than 16 years in the nuclear power department at WE and was the project manager for the Unit 2 steam generator replacement project. Mr. Conry has a B.S. in chemical engineering from the University of Missouri and is a member of the American Institute of Chemical Engineers and the American Society of Mechanical Engineers.

2552:3-2553:6 (Farron)^{33/} (Point Beach could have operated until 1999 without dry storage).)

The PSC required an environmental impact statement (“EIS”), and issued a draft EIS in February of 1994, soliciting public comments. Alternatives to dry storage, including operating only during peak demand, were considered to extend the time before the pool would be full. While staying within NRC limits, the draft report stated that with a seven percent increase in “burnup” of fuel in the reactor core starting in 1995, Unit 1 could operate until 1998 and Unit 2 until 1999. (PX 326 at WISC00003940.) Replacement power, while technically feasible, would be more expensive than the proposed dry storage, and take up to eight or more years to implement. (*Id.*) The draft EIS concluded: “Point Beach would be shut down in 1999 if DOE does not begin taking spent fuel. If DOE begins taking spent fuel under present policies in 1998, Point Beach may be able to continue to operate.” (PX 326 at WISC 0003939.) The ESR pointed out that WE could delay the need for the dry storage proposed based on a combination of alternative, but that “the uncertainties of federal acceptance plans limit the meaningful assessment” of alternatives; therefore WE “has not attempted to evaluate these potential alternative combinations.” (PX 236 at 59.)

^{33/}Paul Farron received a B.S. in nuclear engineering from the University of Wisconsin in 1974 and at the time of trial was working toward a master’s degree in mechanical engineering at that institution. From 1976 to 1982, Mr. Farron worked at Commonwealth Edison as a nuclear engineer and became a licensed Senior Reactor Operator. From 1982 to 1984, he was employed in the NRC Office of Inspection and Enforcement and was responsible for communicating with power plants in response to events and managing escalated enforcement actions for proper operation of nuclear plants. Mr. Farron also worked as a consultant with Nuclear Energy Consultants, performing consulting services on a number of projects for nuclear utilities, DOE, and the NRC.

Mr. Farron has been employed at WE since June 1995. He joined WE as the Manager of the Strategic Issues group, a position he held until 2000. He was responsible for resolving issues that could impact Point Beach’s continued viability including spent fuel storage issues and WE’s dry storage project. He was heavily engaged in the Nuclear Energy Institute (“NEI”), Electric Power Research Institute (“EPRI”), and the Institute for Nuclear Power Operations (“INPO”). Mr. Farron served as the principal liaison with DOE regarding Standard Contract issues from 1995 until 2000. In 2000, Mr. Farron became WE’s Manager of State and Regulatory Affairs, a position he held at the time of trial. He is responsible for seeking PSC approval of major projects, engaging in state regulatory compliance issues before the PSC. He has been involved in more than 100 PSC proceedings.

Nuclear generation supplied approximately 25 percent of WE's electricity. (DX 3 at 6; Tr. 108:2-21 (Baumann).)^{34/} This generation was emission-free and comprised WE's most cost-efficient power source. The PSC staff estimated that if Point Beach was shut down in 1998, it would cost approximately \$300 million (\$25 million annually) **in additional costs to the ratepayers** for replacement energy. (PX 326 at WISC 00003885.) If Point Beach was converted to a coal-fired plant, sulfur-dioxide, nitrogen oxides, particulates, ash and carbon dioxide emissions would increase dramatically. (PX 326 at WISC 00003950-54.)

The PSC's final EIS published in August of 1994 was consistent with the draft. (PX 346 at WISC 00003553, 3588, 3634, 3650, 3661-65.) Shut-down of Unit 1 was predicted for spring of 1998 – Unit 2 in the fall of 1998. The EIS assumed no timely DOE performance at any removal rate.^{35/} These estimates are consistent with Mr. Hennessy's calculations discussed subsequently, and as prepared by the PSC, they independently corroborate WE's position that Point Beach could operate to 1998 with its existing spent fuel pool.

Some three years after WE's application was submitted, the PSC issued an Order in February 1995, authorizing the ISFSI construction and the purchase and loading of 12 VSC-24 casks. Confirming Mr. Link's predictions about the level of opposition, and supporting the conclusion that DOE's delays were the substantial causal factor for dry storage, the PSC's Final Order stated (in part):

The question of whether nuclear waste should be stored at Point Beach outside the existing plant building created intense controversy

^{34/}WE's service area totals 12,600 square miles with a population of over one million in southeast, east central and northern Wisconsin and the Upper Peninsula of Michigan. In addition to Point Beach's nuclear plant, WE's power generation system includes hydroelectric and fossil. (PX 374 at KRGWE002334.) "Except for hydroelectric facilities and one coal plant, these nuclear units provide some of the lowest cost generation on [WE's] system and are therefore operated in base-load service at full capacity whenever they are available." (*Id.*)

^{35/}The final EIS noted DOE's then recent-announcement that it did not have a legal obligation under the Standard Contract to commence acceptance absent an operational federal repository or storage site, and the PSC's participation in litigation against DOE seeking declaratory and other relief. (PX 346 at WISC 00003604.) The EIS also stated that WE did not believe longer operation using fuel with more uranium was possible. "[WE] does not see a way to reduce the size of a batch to 24 fuel assemblies while staying within the spent fuel pool rack enrichment limit of 4.75 percent." (*Id.* at WISC 00003634, 3651.)

among the public, in the local area, throughout the state, and beyond the state's borders. The Commission granted \$253,122 in intervenor compensation to citizens' groups to insure that all points of view were adequately represented. Several hundred people appeared at the hearings, and some of them attended more than two weeks of hearing.

The public and intervenor parties raised serious questions about the potential for an ISFSI to become a de facto permanent repository, perhaps for more waste than is generated at Point Beach. The length of time that spent nuclear fuel remains at Point Beach is not a function of the storage method. It is a function of the federal government's actions in siting and licensing a permanent repository or retrievable storage facility, and taking possession of the waste. This Commission has consistently urged the DOE to proceed with shouldering these responsibilities, and has supported legislation and participated in litigation to further that end.

(DX 82 at WISC00011696.)

DOE's delays from 1998 to 2010 and perhaps beyond, and WE's ability to operate until 1998 were recited. WE needed additional storage by 1995 in order to maintain FCR and "[w]ithout additional storage capacity to accommodate discharged spent fuel from continued operation, the plant would have to be shut down in 1998. At that point, it would have filled the storage capacity of the spent fuel pool and both reactors." (*Id.* at WISC 00011684-00011685.) "By 1998, assuming the present level of plant operation, the spent fuel pool and both reactors will be required to store the [SNF] generated at Point Beach. Without removing some of the spent fuel, it will become impossible to operate the plant past 1998." (DX 82 at WISC 00011701.)

The PSC acknowledged that (1) DOE was obligated to perform under the Standard Contract, but was not going to start in 1998; (2) WE had paid more than \$130 million to date (costs that had been passed on to ratepayers); and (3) "[i]t is unlikely that the DOE will have a permanent spent fuel repository in operation before the year 2023. When or whether DOE will begin taking spent nuclear fuel is a matter of speculation." (DX 82 at WISC 00011702.)

In its February 9, 1995 Final Order approving WE's application to build the ISFSI and purchase and load VSC-24 casks, the PSC concluded that: (1) without

additional storage, Point Beach would have to shut down in 1998 and additional storage would be needed to decommission the plant; and (2) Point Beach provides low-cost electricity, and its loss would have a major effect on the provision of electricity at reasonable rates. (PX 374.) The PSC summarized its analysis and conclusions that there were no viable alternatives to the ISFSI given DOE's failure to perform its contractual obligations. (PX 374 at 22.) "Dry cask storage for the [SNF] generated at Point Beach is superior to all the other storage options available at this time from an environmental, engineering and economic standpoint." (*Id.* at 23.)

The public convenience and necessity require [WE] to construct an ISFSI consisting of two concrete pads and 12 model VSC-24 casks, along with other ancillary construction as described in the findings of fact, for the purpose of storing 288 spent fuel assemblies from the Point Beach Nuclear Generating Plant, at an estimated cost of \$10,678,000.

(*Id.* at 24.)

The government does not question foreseeability with respect to WE's decision (and the PSC's approval) to purchase the VSC-24 system. Indeed, DOE's participation with WE in an early VSC demonstration project speaks to its foreseeable use and supports WE's initial decision to utilize that cask, one of only a few at that time approved by the NRC. The PSC noted that "[n]o cask which is currently licensed by the NRC has been shown to be clearly superior to the VSC-24 in engineering, safety, or environmental impact." (PX 374 at 22.) The VSC-24 was also used by at least one other utility during this time. *Sys. Fuels*, 79 Fed. Cl. at 49; *see also Kelley v. Selin*, 42 F.3d 1501, 1510-21 (6th Cir. 1995) (affirming NRC's approval of the VSC-24 cask at the Palisades nuclear plant).

The government takes the position that WE would have constructed an ISFSI even if DOE commenced performance in 1998. However, much of the evidence relied on by the government for its position that WE's expenditures were not caused by DOE's delays (and similarly would have been incurred in the non-breach world) reflects DOE's impending breach. At least by the late 1980's WE was aware of and responding to anticipated delay in DOE's performance. WE's actions and statements are viewed with this awareness. A plausible hypothetical but-for or non-breach world must be free of any taint of impending breach. For "measuring what, hypothetically, would have happened," the non-breach world must be "offense-free." *LePage's, Inc.*

v. 3M, 324 F.3d 141, 165 (3d Cir. 2003); *see also Bonjorno v. Kaiser Aluminum & Chem. Corp.*, 752 F.2d 802, 812 (3d Cir. 1984) (noting that a hypothetical world free of alleged trade restraint should be “free of the defendants’ exclusionary activities”); *In re Aluminum Phosphide Antitrust Litig.*, 893 F. Supp. 1497, 1501 (D. Kan. 1995) (comparison to actual world is to one “absent illegal conduct”). The Federal Circuit acknowledged that even the 1987 ACR – the standard for the non-breach world – could, to some extent be, tainted. *PG & E II*, 536 F.3d at 1291-92 (“This court has considered that even the 1987 report could reflect some distortion, given its preparation nearly contemporaneous with the 1987 Amendments Act. . . . The 1987 ACR process [nevertheless] provides the best available pre-breach snapshot of both parties’ intentions for an acceptance rate.”).

As previously noted, the government relies on Mr. Link’s PSC testimony that WE would need dry storage even if DOE performed. In his second day of PSC testimony, under cross-examination by counsel for intervenors, Mr. Link testified that “[w]e still need an ISFSI prior to 1998 which is the first date by which we believe DOE is obligated to take fuel. Yes, we considered DOE obligated to take fuel starting in 1998. That does not negate the need for the ISFSI.” (PX 907 at 534.) In other words, regardless of what the Standard Contract requires – DOE is not going to start performing on time and the ISFSI is needed. The government’s citation to, and interpretation of this testimony, does not take into consideration the context in which it was presented – the near certainty that contract performance would not commence for some period of years after 1998.

In support of its position that WE still believed DOE was going to begin performing in 1998, thus the pursuit of dry storage was unrelated to an anticipated breach, the government cites a WE internal newsletter “Synergy,” DX 283, published on June 26, 1992 (after WE’s PSC application was filed) which summarized the project and expected political opposition, citing the Minnesota dry storage project. (*Id.* at WEP006 0501.) The article entitled “Spent Fuel [–] What happens when the pool is full?” remarked that “[b]y mid-1995, the pool will be full.” (*Id.*) Again, however, “full” includes 121 spaces reserved for FCR. (*Id.* at WEP0060502.) The article’s inclusion of historical pool space, expectation that 53 previously unavailable spaces may become available with the purchase of a special handling tool, and anticipated political opposition to the PSC application, are not inconsistent with other statements WE made and do not detract from the preponderant evidence supporting DOE delay as the substantial factor causing WE’s dry storage project.

WE's mention in internal planning documents that DOE might perform in 1998 does not equate with reliance that DOE would begin to perform in 1998. The court credits witness testimony and documents, particularly DOE's notice to utilities that it would not be performing by 1998; assertion it had no obligation to do so in the absence of a repository, and WE's clear statement that DOE's delays were the reason dry storage was needed in its PSC Application and Forms 10-K for 1988 through 1991.

Other documents also inform the court's conclusion that DOE's delays caused the dry storage decisions and expenditures. An October 26, 1992 letter from Larry Martin, of the law firm of Quarles & Brady (WE's counsel in the PSC application) to Lynda Dorr, Assistant PSC Secretary, concerned a request by intervenor Citizens Utility Board ("CUB") for \$91,000 to perform several tasks. Mr. Martin proposed eliminating three of the tasks which would reduce the requested fee (and fees, including those of intervenors, are paid by WE and passed through to ratepayers). One of the proposed tasks was to review DOE's plans and likelihood of performance. Unnecessary, Mr. Martin asserted. DOE's plans were public, whether or when DOE would perform was a matter of great speculation and CUB would not be able to add substantively to that conjecture to assist the Commission. "Indeed, it is the uncertainty with respect to DOE's plans which prompted [WE's] development of the flexible spent-fuel storage installation plan proposed in this proceeding. That uncertainty will not be resolved in this proceeding by paying for CUB's speculation." (PX 266 at 2.) Mr. Link was copied on the letter.

The court determines on the basis of record evidence that DOE's substantial delay was the "but-for" cause and the substantial factor underlying WE's dry storage project.

The non-breach world

WE must also establish that the mitigation costs it seeks would not have been spent in the plausible non-breach world – the hypothetical universe where DOE performed starting on or before January 31, 1998 at the rates in the 1987 ACR. *Yankee II*, 536 F.3d at 1274 ("[T]his court interprets the Standard Contract as requiring the Department to accept SNF and HLW in accordance with the 1987 [ACR] process."); *PG & E II*, 536 F.3d at 1292 ("[T]his court concludes that the Standard Contract required DOE to accept SNF/HLW in accordance with the 1987 ACR process.").

While contesting the premise with rigorous cross-examination, the government did not introduce evidence of what WE would have done in the non-breach world. The government's expert Mr. Hamal did not opine on this matter. ("Q: So you never evaluated whether or not [WE] believed earlier in time like in the '80s or '90s whether DOE was going to be substantially delayed. And if so whether that would have impacted [WE's] analysis of its spent fuel storage alternatives, correct? A: I haven't offered an opinion on that, no." (Tr. 5970:12-20 (Hamal).)

For the following reasons it is concluded that dry storage would not have been built had DOE commenced performance by no later than January 31, 1998 at the 1987 ACR rates. If DOE had timely performed at the rates under the 1987 ACR, WE would have had a total of 482 assemblies removed through 2002 which would have alleviated WE's storage problems.

The PSC's Findings of Fact, Conclusions of Law, Certificate,^{36/} Order and Interim Order includes findings on the need for the ISFSI. (PX 374 at KRGWE002335-36.) Despite DOE's 1998 contractual start date, "there is no federal facility for storing or disposing of the spent fuel nor is one expected to be operating by 1998. DOE does not expect that any disposal facility will be operational before the year 2010. Other estimates range from 2023 to indefinite." (PX 374 at KRGWE002335.) Consequently, the PSC concluded, dry storage was needed in 1995 in order to maintain one FCR and the pool would be completely full in 1998. Alternatives were "very limited" "[b]ecause of the anticipated failure of the federal government to fulfill its promises." (*Id.* at KRGWE002343.)

The range of options in the non-breach world would not have been so constrained with full government performance commencing in 1998. WE had several alternatives it could explore. It could have reduced discharge quantity or frequency; used fuel management techniques; made previously unusable spaces usable; purchased a temporary cask pit (the cost of which WE deducted from its requested

^{36/}Under its authority and responsibility the PSC "certified" that:

The public convenience and necessity require [WE] to construct an [ISFSI] at its Point Beach Nuclear Generating Plant, which facility shall consist of 12 model VSC-24 dry casks and two concrete pads, with associated facilities as set forth in the findings of fact, at an estimated cost of \$10,678,000, subject to the conditions set forth in the order below.

(PX 374 at KRGWE002357.)

recovery); reduced generation; tolerated less than FCR; or a combination thereof so as to avoid dry storage.

Nuclear engineer William Hennessy,^{37/} employed by WE since 1989, was involved with core design, the acquisition of the offset fuel handling tool, dry storage and spent fuel management. He was promoted to Supervisor, Reactor Engineering in 1993 when WE's PSC dry storage application was pending. His responsibilities included "keeping track of the items that are placed in the spent fuel pool, knowing where they are, knowing what they are, and performing annual inventory of those components." (Tr. 845:25; 847:1-3 (Hennessy).) He understood at that time that DOE's performance would not start in 1998, therefore WE was constructing dry storage in order to continue operations. The court credits his testimony in concluding that DOE's delays caused WE to build dry storage, and that but-for these delays, in the non-breach world, dry storage would not have been built.

WE inventories its wet pool annually, using underwater cameras and other sophisticated equipment to count assemblies and check for damage, leaks or other problems in the assemblies or racks. Mr. Hennessy performed and signed WE's 1993 inventory, his first as Supervisor of Reactor Engineering. (PX 311.) Following the spring 1993 refueling, there were 1221 assemblies in the pool.

A December 16, 1993 internal memorandum (the Fieldhack memo, PX 321) utilized data from Mr. Hennessy's Reactor Engineering Group (he was copied on the report) and concluded that the pool had 1502 spaces: 1249 spaces filled with assemblies; 217 empty and "good;" and 36 used to store other than SNF. Of those 36 spaces (identified by grid numbers), two spaces, SA-23 and SA-62 were "inaccessible under the canal doors," because they were under the door hinges of the spent fuel pool canal doors and could not be used to store assemblies. Seventeen spaces contained debris baskets filled with radioactive materials from past modifications or maintenance. These non-fuel components could have been taken to a low-level disposal site in Barnwell, South Carolina or stored in an on-site mausoleum, thereby freeing those spaces. (Tr. 858:17-861:2 (Hennessy).)

^{37/}Mr. Hennessy has a B.S. and a master's degree in nuclear engineering from Iowa State University and has been a licensed professional engineer since approximately 1986. Mr. Hennessy has numerous plant operating certifications and worked on spent fuel pool issues at three other nuclear plants (Plant Vogtle in Georgia, the Duane Arnold plant in Iowa, and the Seabrook plant in New Hampshire – all owned by other utilities) prior to his employment at Point Beach.

A dummy assembly and a location spacer were stored in two spaces. The spacer was removed. WE could have removed the dummy assembly which is not highly radioactive. It could have been rinsed, bagged, tagged and stored somewhere out of the pool. Accordingly, these two spaces could have been cleared. (Tr. 862:4-22 (Hennessy).)

Nine spaces were categorized as damaged, including spaces that had protruding metal that could harm an assembly. These spaces were reinspected. Seven could be used without restriction; two could be used with restriction. (Tr. 862:25-864:13 (Hennessy).) Six spaces with brackets, used to hang tools or equipment, were listed as “[a]ccessible with OFHT^{38/} after modification.” The brackets were removed and all six spaces used to store assemblies. (Tr. 864:18-865:13 (Hennessy).)

In total, 251 spaces were either empty, emptied or could have been made available with minimal effort. Because there was adequate space in the pool at that time these actions were not taken. (Tr. 866:24-867:6 (Hennessy).) That does not mean that in the non-breach world, those spaces could or would not have been emptied. Subtracting the two spaces that were under the canal door hinges, WE’s effective pool capacity was 1500 spaces. (PX 381 (RW-859 NRC report at AHQR3640809).)

At trial, Mr. Hennessy methodically computed WE’s historical pool inventory starting in July of 1991 with 1109 fuel assemblies after the spring refueling discharge. This number is contained in the Environmental Screening Report (“ESR”)^{39/} submitted with WE’s PSC application in November of 1991. (PX 236 at WISC 00014796.) While elsewhere in the ESR it is reported that 1126 spaces are filled with SNF assemblies or other waste components, *Id.* at WISC 00014753, the accommodating and remedial measures to free-up spaces that could, and in some instances, were taken, accounts for the 17 space difference. As part of his trial testimony, with a

^{38/}Offset fuel handling tool.

^{39/}Although an ESR was not required, it was prepared by WE at the request of the PSC staff. The ninety-one page report includes detailed (1) description, environmental and cost analysis of the proposed ISFSI project; (2) consideration of alternatives including taking no action, reducing operations, conserving, using other dry cask technology, increasing pool storage, shipping to other locations, reprocessing, using higher burnup fuel (each assembly would provide more energy, stay in the reactor longer, thereby prolonging the time between refuelings and consequent discharge into the pool) and a combination of these. (PX 236 at WISC00014784-805.)

starting pool inventory of 1109, Mr. Hennessy assumed a 28 assembly-discharge for one reactor in the spring and a 28 assembly-discharge for the other reactor in the fall (replaced with new fuel assemblies inserted in the particular reactor core) which added to the total. Future pool inventory was predicted:

	After spring discharge	After fall discharge
1991	1109	1137
1992	1165	1193
1993	1221 ^{40/}	1249
1994	1277	1305
1995	1333	1361
1996	1389	1417
1997	1445	1473
1998	1501	

(Tr. 872:6-873:20 (Hennessy).)

Mr. Hennessy concluded that even without any fuel management techniques, change in the number of assemblies discharged in each reload or the length of time between refueling cycles, Unit 2 could have operated until the fall 1998 discharge and Unit 1 until the spring 1998 discharge. (Tr. 873:21-874:7 (Hennessy).)

As the supervisor of Reactor Engineering during this period, and having the opportunity to observe his demeanor, Mr. Hennessy's testimony is given considerable weight. His conclusions are also independently supported by other evidence.

Furthermore, in addition to freeing-up spaces, discharges into the pool could have been reduced by fuel management to extend the intervals between refueling to postpone discharges and prolong available pool space. "Yes, there would have been strategies that could have been employed to get us to through to 1998 and beyond." (Tr. 874:24-875:1 (Hennessy).)

^{40/}This is the same number that was in the September 1993 annual spent fuel inventory. (Tr. 873:2-9 (Hennessy).)

Q. Let's talk first about capacity changes that might have been possible in the pool. Describe those.

A. In the spent fuel pool, we could have increased the capacity of the pool by installing small racks in locations that had available holes in them, such as the periscope location and the tool storage location.

Q. What about fuel management strategies?

A. Regarding fuel management strategies, at that time, we were operating under 28 reload core designs, and we could have reduced the number of reloads to 24, for example, and gained four fuel assemblies per unit, per year. The sooner we started that strategy, the more we would have gained. If we could have gained eight fuel assemblies per year, beginning early on, you can see that there would have been quite a few – fewer fuel assemblies in the spent fuel pool over time.

Q. Any other strategies, besides shifting to the 24 feed – any, would there be any other fuel variables that could be changed to operate longer?

...

Q. For example, to make the fall outage occur later in time, could any steps have been taken to do so?

A. The unit could have been coasted down to make the fall outage run longer, which means a reduction in power as the fuel is burned up, and we have done that in the past.

(Tr. 875:3-876:15 (Hennessy).)

Mr. Hennessy testified that if DOE had started performance in 1998, dry storage would not have been built.

Q. Let's talk a little bit about what [WE] would have done if DOE had actually performed. If DOE had taken spent fuel starting in 1998 from Point Beach, would Point Beach have needed dry storage?

A. No, sir.

Q. What was your basis for saying so?

A. My basis for saying so is that, knowing we recovered spaces in the spent fuel pool and also that we could have changed our core operating strategy, had we chose to do so, we could easily have made it to 1998 without dry storage.

Q. If the racks had become – if dry storage had not been used, would there have been any problem with in-service testing or other requirements for the Point Beach spent fuel pool?

A. In-service tests and other types of tests are planned activities, the status of the spent fuel pool would have been known well ahead of time, and the planning of those activities could have been, could have accommodated conditions in the spent fuel pool.

Q. Would Boraflex testing have prevented Point Beach from operating until 1998?

A. No, Boraflex testing would not have prevented Point Beach from operating until 1998.

Q. Mr. Hennessy, are you familiar with the term [“FCR”]?

A. Yes, I am.

Q. And could you please just define [FCR]?

A. [FCR] is a strategy to maintain enough open spaces in the spent fuel pool to unload a reactor core.

Q. Was there a [FCR] policy at Point Beach[?]

A. There is no [FCR] policy at Point Beach.

Q. Has Point Beach operated without [FCR] while you’ve been at Point Beach?

A. Yes, twice, I believe.

Q. Why isn’t [FCR] a requirement?

A. I’m sorry, please repeat that.

Q. Is there a reason why [FCR] is not required?

A. [FCR] is not required because the reactor coolant system and decay heat removal systems in the reactor are perfectly capable of removing decay heat and maintaining the fuel assemblies safely in that condition. [FCR] is a business decision, it’s not a safety decision. Therefore, there’s no requirement for it.

Q. Would it have been possible to preserve [FCR] through a temporary rack and a cask pit?

A. Yes, it would be.

Q. And would there have been any operational impacts to having a cask pit rack for full core offload capability?

A. The operational impacts would be that, if we needed to load a cask, we would have to remove the cask pit rack.

Q. And would that have been a problem?

A. It would have required some additional work, but not a great deal of additional work.

Q. Was there any limit on how many times the plant could have operated with the pool configured with a cask pit rack with 121 spaces?

A. No the temporary rack would be qualified to the same extent that the permanent racks are, and therefore, there would be no limit to the number of times that we could use that.

Q. Would there be any limit on the duration of how long a cask pit rack could be used?

A. No.

(Tr. 892:9-25;893:1-25;894:1-25;895:1-16 (Hennessy).)

WE took some of these actions in the breach world which supports the plausibility and probability that WE would have taken these or similar actions in the non-breach world. In October of 1993, Mr. Hennessy worked with WE's fuel department (the 24 feed feasibility team) to evaluate switching from a 28 to a 24 assembly reload.^{41/} (Tr. 877 (Hennessy); PX 313 at 1 ("Reducing the number of feed assemblies is desirable to minimize the amount of high level waste produced at the plant.").)

Mr. Hennessy also helped develop the procedures for loading the VSC-24 casks and was familiar with the hydrogen ignition incident which led to the NRC's ban on use of that cask, addressed *supra*. He was tasked with recovering pool space in case the NRC did not lift the ban. He returned to the Fieldhack memo, PX 321, re-examined spaces, and on July 3, 1996, reported that seven of the nine spaces identified as damaged were immediately usable. The other two were later recovered with restrictions. (PX 423; Tr. 885.) Ten spaces that held trash baskets or other slightly contaminated low-level material were also recovered. WE contracted with WMG, Inc. to remove HLW from the pool which recovered four more spaces. (Tr. 885:23-887:6; PX 459 (June 1997 Report to WE from WMG, Inc.).) A vacuum device and a reactor vessel specimen basket were moved to the spaces under the door hinges, which as noted previously, were unuseable for SNF, resulting in two more available spaces. (Tr. 887:9-16 (Hennessy).) Removing brackets in late 1997 made six additional spaces available. (Tr. 887:19- 888:10 (Hennessy); PX 461.) A spacer

^{41/}Reducing from a 28 to a 24 assembly reload would correspondingly reduce the number of assemblies discharged to make room for the reload.

was removed, adding another space. Two more spaces (holding the dummy fuel assembly) could have been made available easily but were not. In sum, a total of 32 spaces were actually made available (and could have been available earlier) and another two could have been cleared, which would have brought the total additional spaces to 34. In the breach world, when a possible need was anticipated, WE found additional storage. WE would have reacted similarly in the non-breach world.

WE also considered installing racks in the periscope location, the tool location and the cask loading area. (Tr. 890:17-21 (Hennessy).) Mr. Hennessy testified that he investigated these possibilities because of the concern that dry storage might be halted again by the PSC. (Tr. 890:17-25; 891:1-2.) A mini-rack in the periscope area, if approved by the NRC, could hold four assemblies. Six assemblies could fit in the fuel elevator space and the tool storage area could hold a mini-rack with 16 assemblies. (Tr. 959:7-25; 960:1-6 (Hennessy).) Use of these mini-racks in the non-breach world would have increased pool capacity to 1526.

Mr. Michael Baumann,^{42/} Manager of Nuclear Fuel Commodities and Supply, performed a similar projected pool inventory starting after the spring 1994 discharge, with 1277 assemblies in the pool.^{43/} Discharges from the two reactors are staggered over time. Generally, one unit would discharge in the spring and the other in the fall.

^{42/}Mr. Baumann has a B.S. in nuclear engineering from the University of Wisconsin in Madison and worked for WE or NMC since 1986, first in radiological engineering, then in nuclear licensing. At various times he was Manager of Nuclear Fuel Services, Manager of HLW issues, and Manager of Nuclear Fuel Commodities and Supply.

^{43/}The government quarrels with the assumption of a 28 assembly discharge in each refueling cycle, asserting that Point Beach had 36, and then 32 assembly discharges, and it was only relatively recently that discharges were reduced to 28 assemblies.

The pool inventory was 1277 as of August of 1994 as reported in WE's Annual Inventory of Fuel Assemblies and other Devices. (PX 360.) Analysis of alternatives to dry storage in the EIS attached to WE's November 15, 1991 PSC application, recited the then-current use of a 28 assembly reload, significant cost savings from reducing reloads from 32 to 28 (up to a million dollars per year), commitment to continuing to explore even higher-burnups, and explanation that several options which could eliminate the need for dry storage were not explored because of DOE's delay. (PX 236 at 56-59.) Mr. Zabransky who was responsible for compiling the Dry Storage Capacity Requirements section of the EIS testified, that in November of 1991, a 28 assembly discharge was a reasonable projection. (Tr. 644:6-646:24 (Zabransky).)

The court credits witness testimony that 28 assembly discharge per reactor every twelve months was reasonable and indeed conservative. At the time of trial, WE was using 18 month cycles with a 36 assembly discharge per reactor for that period. (Tr. 125:15-18 (Baumann).)

(Tr. 124:12-126:1 (Baumann).) Assuming a twelve-month cycle with 28 assemblies discharged per reactor per year, he calculated that at the end of 1997 there would have been 1473 assemblies in the pool, and following the spring 1998 discharge, the pool inventory would be 1501. (Tr. 166:4-171:4 (Baumann).) He concluded that Unit 2 could have operated through the fall of 1998, and by unloading 24 rather than 28 assemblies from the reactor core in the fall, Point Beach could have stayed within the 1500 space pool capacity and operated “somewhat short of the spring of 1999.” (Tr. 170:14-171:1-4 (Baumann).) Also consistent with Mr. Hennessy’s testimony, Mr. Baumann testified there were fuel management techniques that could have reduced discharges into the pool and prolonged the time until the pool was full which would and could have been done if DOE’s timely performance was expected. Coasting (operating the core at less than capacity for four to six weeks) could also have extended times between reloads. Changing enrichment levels, using fatter diameter rods, higher burn-up assemblies or longer fuel cycles, and other measures could also have been used to maximize and extend pool capacity. (Tr. 171:6-173:2 (Baumann).) Those measures were not taken in the breach world because given no DOE performance they would not have alleviated the critical long and short-term needs that had to be addressed to prevent Point Beach from shutting down which would then require substituting replacement energy at a higher cost both economically and ecologically. WE “did not focus” on short-term storage solutions because, like the comparable situation in neighboring Minnesota, they “would not have satisfied the utility’s need for a long-term storage solution.” *N. States*, 78 Fed. Cl. at 461.

The evidence demonstrates that if DOE commenced full performance by no later than January 31, 1998, additional SNF storage on site would not be needed, and that WE’s acceptance allocations would gradually decrease pool inventory. As Point Beach has some of the oldest fuel, it has significant allocations in the first two years of DOE acceptance – 1998 and 1999. Mr. Shimon, former Manager of Nuclear Fuels and Administrative Services, testified:

The January 31, 1998 date for commencing removal was critical to [WE] because we expected to be able to provide our own storage through that date, and if the program commenced on January 31, 1998, we would not have to build additional storage. There was also an ordering philosophy in that contract that had to do with removal of oldest fuel first. And being one of the older nuclear plants in the country, we also had some of the oldest fuel, and this would entitle us to more of the early shipments than some of the newer plants.

(Tr. 1241:10-23 (Shimon).)

We were aware of the number of storage spaces that we had in the pool. We knew how many spaces were occupied, and we were able to project from our fuel cycles the number of spent fuel assemblies that would be discharged to the pool. Based upon all of those factors, the pool – we were convinced that the pool capacity would not be exceeded by January 31, 1998. . . . The rate would be sufficient to preclude utilities from having to add additional spent fuel storage capacity after January 31, 1998 and would work off the backlog of spent fuel over a reasonable period of time. . . . Based upon all of the discussions we had with DOE at that time and pronouncements that they made, we believed that they were in agreement with us.

(Tr. 1245:7-1246:10 (Shimon).)

An inventory of pool space over time in the non-breach world was prepared by WE's economic expert Mr. Richard Sieracki,^{44/} starting in 1998 with 1422 assemblies. This differs from Mr. Hennessy's and Mr. Baumann's inventory at the beginning of 1998 of 1473. This difference, while not material, is attributable to the "lost year of production" in the breach world where both reactors were shut down for a year; accordingly, there were no discharges of assemblies into the pool in that year. The court uses an earlier inventory perspective because WE's planning would be prior to 1997 recognizing the need for a long lead time for storage decisions, approvals and acquisitions. This lost year of production does not alter the result in this regard.

Other witnesses testified that WE would not have built dry storage if DOE had performed. (Tr. 427:12-17 (Link) (Q: "If DOE had performed, would [WE] have

^{44/}Richard Sieracki, Chief Executive Officer of The Kenrich Group LLC ("Kenrich"), graduated from the University of Illinois with a B.S. in civil engineering with a primary focus on construction management. His damage experience includes analyzing cost and schedule issues in connection with power plant project disputes. Mr. Sieracki has testified as an expert in numerous cases involving power plants, including several SNF cases. He was qualified by the court as an expert in damages analyses and construction cost estimating in the regulated public utility nuclear power and government contract areas. The scope of his work and testimony included development of a fuel management model to assess WE's spent fuel requirements in breach and non-breach scenarios, assisting WE personnel in developing the necessary technical and cost inputs, determining WE's breach on-site storage costs and non-breach temporary cask pit rack costs.

avoided the need to construct dry storage? A. Yes, if DOE performed under their obligation of the contract, we would not have pursued dry storage.”); Tr. 1527:12-19 (Krieser) (“Q: Did your group ever make a determination as to whether Point Beach could have operated until 1998 without dry storage? A: We evaluated that issue extensively and regularly, and we always were able to conclude that we could make it to 1998, and even slightly beyond, in some instances, without a dry storage facility.”); Tr. 2813:25-2814:18 (Conry) (It was the general understanding of the nuclear power department that Point Beach could operate until 1998 without dry storage.); Tr. 2511:11-24 (Farron) (“Q: When you joined [WE], did you gain an understanding regarding why [WE] had submitted its dry storage project application to the [PSC]? A: Basically, from the minute I took a position with [WE], I was informed that DOE was not going to pick up spent fuel in 1998, and it was a major concern for the utility because, after 1998, the plant did not have permanent storage, spent fuel storage capability in the spent fuel pool.”); Tr. 2552:23-2553:6 (Farron) (Point Beach could have operated until 1999 without dry storage); Tr. 2577:6-9 (Farron) (“Based on my knowledge and understanding, definitely the utility would have preferred to use something other than dry fuel storage in the nonbreach world.”); Tr. 1164:16-1165:14 (Zabransky) (WE indicated to the PSC that Point Beach could operate until 1998 without dry storage.).

Just because WE built dry storage and started loading casks in 1995 does not mean WE would have done the same in the non-breach world. The court credits witness testimony that once PSC approval was obtained, there was no reason to wait, particularly given DOE’s ever-receding predictions of the start of performance. (Tr. 1491:9-13 (Shimon) (“What I’m saying is that the date on which we made the facility operational was no longer relevant because there was no point in trying to get to 1998 since DOE was not coming.”); Tr. 1529:2-1531:3 (Krieser) (“So if you accept that there really was no reason to wait to construct the facility because we were going to need the facility under any circumstances at that point, and so it really made no sense whatsoever to wait . . . until the eleventh hour and cause us to have to rush to implement the system.”) And, pre-1998 loading restored or allowed for the maintenance of FCR, which was not required, but is preferred.

WE’s non-breach world position requires Point Beach to operate for a while without FCR. The government points to WE’s PSC application for the dry storage project that stressed the need to maintain FCR, and argues WE would not have operated without FCR and thus would have built dry storage and purchased and loaded casks in the non-breach world. By letter dated May 22, 1992, responding to

an inquiry by CUB as to why FCR was a goal even though it is not required by the NRC, WE responded with the advantages of FCR:

[WE] believes that maintenance of at least one [FCR] is a good operating practice because of the flexibility that this reserve affords during normal operations and maintenance activities.

- From time to time, it is necessary to remove all the fuel assemblies from the reactor vessel in order to perform NRC-required in-service inspection of the reactor vessel. Such an inspection is being performed on Unit 1 during the current (Spring 1992) refueling outage.
- The NRC also requires periodic surveillance of the spent fuel storage racks in order to verify the continued performance of the neutron absorbing material [Boraflex] used in the racks. The surveillance is performed on randomly selected storage cells and requires that spent fuel be moved at least five spaces away in all directions from the test cell. This involves the movement of up to 120 fuel assemblies.

Neither of these activities would be possible without the maintenance of at least one [FCR].

- In the past it has been necessary to perform maintenance activities on the reactor vessel or primary systems inside the containment. These activities have included the replacement of the Unit 1 steam generators and the upflow modification performed on both Unit 1 and Unit 2 reactor vessels. These projects would not have been possible without the availability of at least one [FCR].

(DX 54 at WISC 00003436.)

Before the PSC however, Mr. Link testified that Point Beach operated without FCR on several occasions – May through September of 1974, November 1974, March 1975 and mid-October through mid-December, 1979. (PX 907 at 505.) And, as noted FCR is not required. *Yankee II*, 536 F.3d at 1275 (“[U]tilities ideally maintain sufficient pool capacity to permit discharge of all fuel assemblies from the reactor core into the pool to accommodate maintenance and repair operations. Though the [NRC] does not require utilities to maintain such a “full core reserve,” it encourages them to do so.”).

The government argues that FCR was needed for Boraflex testing. The racks contain a chemical, Boraflex to addresses criticality. WE used to have mandatory, periodic testing of the effectiveness of Boraflex which required a FCR. These tests were done about every five years. In responding to questions posed by CUB, WE asserted that FCR was needed for Boraflex testing. Subsequently however, WE discontinued the use of Boraflex, and contends there is no reason why it could not have discontinued use of Boraflex earlier. While the government disagrees, this issue is essentially mooted in that WE asserts a temporary rack would have been used to achieve FCR in the non-breach world which would have accommodated any Boraflex testing. DOE defers to the utility whether and how to maintain FCR. (PX 44 (DOE's June 1983 letter asking the NRC "not discourage utilities from encroaching on FCR at their own discretion.").)

As noted, in the non-breach world, WE contends it would have maintained FCR capability with the purchase of a temporary rack capable of holding a full core that could be used in the cask pit area of the pool if needed. The cask pit would be required for loading to DOE casks so the cask pit rack would be inserted only if and when it was needed. WE deducts the cask cost from damages claimed. (PDX 60-Sieracki 62; PX 805 at KRGWE003346.)

DOE encouraged the use of a cask pit rack for FCR.

The definition of [FCR] is understated if it excludes the capacity represented by the cask laydown area. The only argument against the use of the latter is that when doing so, it is not possible for ship [sic] in or out of the pool. This would not appear germane to a utility whose primary problem is to pull a core and make a reactor repair as expeditiously as possible. Inclusion of cask laydown area postpones loss of FCR by one to five years.

. . .

The cask laydown area should be put into use as temporary storage as its use can provide a significant postponement in the need for additional spent fuel storage.

(PX 774 at 2-3 (Oct. 1983 DOE memo).)

"Cask pit racks are typically used to provide a temporary increased spent fuel storage capacity, particularly when spent fuel pools have large fuel inventories.

Holtec has designed cask pit racks allowing a utility to preserve full core discharge capabilities.” (PX 827 at 3 (June 2006 Singh revised written testimony).) In *PG & EI*, a temporary cask pit rack was considered as a mitigation contingency in case the dry storage application was not approved. 73 Fed. Cl. at 424-25. *See TVA v. United States*, 69 Fed. Cl. 515, 532 (2006) (noting possible use of temporary cask pit rack to restore FCR).

A cask pit rack would have provided sufficient space for temporary storage needs until 1998 (and beyond if needed), and in the non-breach world would have provided space in 1996 to unload the core of Unit 2 to replace the steam generator. Mr. Hennessy testified that the rack would have become integrated with plant operations and posed no hindrance or appreciable workload increase to these routine fuel management activities such as refuelings or inspections.

The court credits the testimony of Messrs. Link and Farron that in the non-breach world, WE would have favored a temporary rack over dry storage.

Q: Would you have preferred to use a temporary rack, rather than build dry storage, if DOE had performed under the standard contract?

A: Yes. If DOE would have performed, the temporary rack concept had advantages over dry storage. One of the first ones would have been cost. Another one would have been, at least in my opinion, the overall risk profile of the strategy, and what I mean by that is a temporary rack is rather simple in concept, and I’ll even use the word ‘traditional,’ in concept.

Racks were being, we had reracked the pool, as I said, twice already, a temporary rack is no more than another type of rack, so it was a more simple type of technology to employ, while dry storage offered more complexities and was actually still a developing technology.

It also would have mitigated the need to unload fuel that would have been put into dry storage, which would have cost additional dose [sic] and other costs and risks.

(Tr. 429:14-430:12 (Link).)

A: I think I’ve already stated that, and if DOE would have performed under the contract, we would have essentially gone forward without the

dry fuel storage and relied on the temporary strategy, if necessary, to retain the ability to get [FCR].

Q: And would a temporary strategy, such as a temporary rack, have permitted you to have maintained [FCR]?

A: Yes, it would have.

(Tr. 549:19-550:6 (Link).)

A temporary cask pit rack would have provided these benefits at a fraction of the cost of dry storage without the political contentiousness and uncertainties involved in building a new dry storage structure. It would have cost \$2,048,000 including labor, versus the ISFSI and 12 casks with a price tag of \$12.8 million in the PSC application and an actual nominal cost of \$20,683,000.

Additionally, the use of a temporary rack, the costs associated with a temporary rack would likely be less than what it is for dry storage, which I think we've since confirmed. What that means is we would not have to go on to the [PSC] for approval, so we would have avoided all the hearings, all the intervention that took place, that actually took place beginning of 1991 with the first application. It was also generally accepted that using wet storage, being a temporary rack or interim one, it was a lot easier to implement than dry fuel storage, and the ongoing O&M [operations and maintenance] costs with using a temporary rack were also much, much less, so I think there's clearly a number of reasons why [WE] would have elected to use an alternative if DOE was going to show up in 1998.

(Tr. 2577:23-2578:16; 2658:5-2569:20 (Farron) (indicating that if FCR was needed after 1996, WE would probably have installed a temporary rack in the cask laydown area of the pool); Tr. 344:17-347:3 (Link) ("Q: Could a temporary rack hold a full reactor core's worth of assemblies? [objections omitted] A: I was more than satisfied that a temporary rack could hold at least 121 fuel assemblies."); Tr. 549:19-550:6 (Link) (predicting that WE would have relied on a temporary rack to preserve FCR).)

Q. If you had thought that DOE was coming in 1998 and you were not going to build dry storage, are there things you could have taken or actions that the company could have taken to preserve or maintain [FCR]?

. . .
THE WITNESS: I mentioned earlier the fact that we had looked into the possibility of temporary racks. As we approach 1998 and we didn't have actual [FCR] in the permanent part of the pool, we certainly could have utilized a temporary rack if the need for [FCR] was required.

(Tr. 1532:12-1534:13 (Krieser).)^{45/}

While recognizing that Mr. Zabransky did not recall discussions concerning a temporary rack, the court credits the testimony of Marlin Conry, the engineer responsible for the steam generator replacement project, that in the breach world he and Mr. Zabransky considered using a temporary rack to provide FCR and found no structural or cooling limitations. (Tr. 2817:5-2819:3; 2833:5-19; 2832:2-17 (Conry).) No "show-stoppers" to NRC approval were identified. (Tr. 2817:5-2819:12 (Conry).) In the breach world, when PSC approved WE's dry storage, there was no reason to pursue a temporary rack.

A temporary cask pit rack was feasible

The government counters that a temporary rack was not technically feasible, therefore WE would have built dry storage to maintain FCR. WE in turn, presented expert testimony that a temporary rack was feasible and could have provided FCR in the non-breach world.

^{45/}The court overruled the government's objection that the question called for speculation. "THE COURT: [T]he government[']s position is that the burden of establishing the but-for world is on the Plaintiff, and apparently, the objections are designed so they can't prove that . . . I think the objection is inconsistent with the government's legal position in this regard." (Tr. 1533:10-24.)

Expert witness Dr. Krishna Singh,^{46/} opined that, based on his analysis of structural, criticality and shielding criteria, it was technically feasible for WE to have installed a 121 assembly temporary rack in the cask pit area in the mid-to-late 1990s.^{47/} “[B]ased upon extensive experience with NRC wet storage licensing efforts, it is my opinion that the NRC would have approved WE’s application to amend its operating license to add the 11x11 rack in the cask pit of the [Point Beach] pool.”^{48/} (PX 827 at 5.) The project posed “no intrinsic challenge” and “there would have been no technical basis to deny the license amendment.” (*Id.* at 20.) It would not be nearly as challenging as racking projects at other plants during this time. (*Id.* at 19.) “It could have been done. That’s the bottom line, that . . . they could have added a cask pit rack, and it would have been, as I said before, a project, a mundane project, it was not a challenge.” (Tr. 4396:15-20 (Singh); PX 827 at 19.)

^{46/}Dr. Krishna Singh is the President, Chief Executive Officer and founder of Holtec International (“Holtec”). He has masters and doctoral degrees in mechanical engineering from the University of Pennsylvania and is a fellow in the American Society of Mechanical Engineering. He has more than 30 years of engineering experience, including over 20 years in design and installation of wet pool storage racks. He has initiated more than 50 NRC operating licensing amendment efforts which required safety analyses, calculations, plant specification modifications, documentation and responses to NRC questioning. He holds numerous nuclear storage technology-related patents and has written dozens of publications concerning SNF storage. He has been qualified as an expert witness more than 10 times. Immediately prior to his trial testimony, Dr. Singh was in Ukraine where Holtec was awarded a contract to place Chernobyl’s nuclear fuel, which was stranded since a 1986 accident and plant shutdown, in dry storage.

Holtec has designed and manufactured spent fuel storage racks since 1986 when Dr. Singh founded the company. More than 70 percent of SNF produced in the United States in wet storage is in Holtec racks. Holtec has participated in several projects involving temporary cask pit storage racks. WE’s original SNF racks were manufactured by Wachter Associates which was purchased by US Tool & Die in 1981. Holtec subsequently acquired US Tool and Die.

Dr. Singh was qualified as an expert witness in: (1) engineering evaluation of SNF storage rack technology, (2) the NRC review process and criteria for SNF rack technology and operating license amendments, (3) the duration and extent of NRC review of operating license amendments, and (4) cost estimating related to SNF storage rack technology.

^{47/}The spent fuel pool includes an empty area, the cask pit, approximately eleven feet square, used for the insertion and loading of a transfer cask.

^{48/}The use of the temporary rack, because it would increase storage, would require NRC approval.

Dr. Singh was instructed to assume installation by January of 1996 in time for the steam generator replacement. He testified that the design, engineering, licensing, manufacture and installation would take a total of 30 months. (PX 827 at 4.) His conclusions were based on review of technical data of WE's pool and his experience with dozens of license amendment applications for other pool racking projects. "The NRC has **never** rejected an [Operating License] amendment application to equip a pool or cask pit with Holtec-designed racks." (PX 827 at 20 (emphasis in original).) He estimated the cost for the design, engineering and manufacturing of the rack at \$1,837,272, NRC fees of \$66,500 (approximately 500 hours of staff time), and internal labor at \$144,199, for a total cost of \$2,048,000 which WE deducted from its damages as costs that would have been incurred in the non-breach world. (*Id.* at 4,5; PX 805 at KRGWE003346.)

Dr. Singh explained that a temporary cask pit rack for Point Beach would have held 121 assemblies, a full core, and would be free-standing which would aid in insertion and removal. The rack could be removed, cleaned with high pressure water, stored on the pool deck and reinserted as needed, which would allow for other uses of the cask pit area.

There are two types of spent fuel storage racks – Region I and Region II. Region I racks are designed to hold SNF with any level of burn-up. Region II racks hold older fuel that has been burned longer or has been out of the reactor longer and is therefore less reactive – less hot. Region II racks are more closely spaced and allow the storage of more spent fuel assemblies in a given space compared to Region I racks. WE would have used a Region II cask pit rack. While fuel in the reactor core might not meet the Region II specifications because it would be too hot, other assemblies could be placed in the temporary rack, which would free spaces for the more reactive fuel coming from the core, which responds to the government's objection that fuel from the core could not have been placed in the temporary rack.

The government also questions the plausibility of a temporary cask pit rack due to: (1) weight issues; (2) difficulty in removing an existing anti-tipping frame which would be necessary to use the space; and (3) insufficient cooling capacity. The government also notes that WE rejected the idea of a temporary rack in the breach world which it argues renders its suggestion it would have pursued this path in the non-breach world disingenuous.

Weight would not have precluded NRC licensing

Asserting a temporary cask pit rack would be too heavy for the Point Beach pool, the government points to a study done by Bechtel Power Corporation in 1977 in connection with initial reracking, that a fraction of the supporting piles may be overstressed by seven percent with respect to the design yield. (DX 351 at 3.)

Approximately thirty years later, Dr. Singh analyzed the pool structure and concluded it would have no difficulty supporting the 93 ton weight of a loaded cask pit rack. (Tr. 4393:3-19 (Singh); PX 827 (June 2006 expert report).) The pool slab was built on grade – not elevated – thus the weight of a loaded temporary cask pit rack was “simply not an issue.”^{49/} (Tr. 4399:5-7 (Singh).)

In the breach world, in December of 2005 in considering transferring from the VSC-24 to the Nuclear Horizontal Modular Storage (“NUHOMS”) cask which is heavier than a loaded temporary cask pit rack,^{50/} WE engineers concluded that “the spent fuel pool structure including piles are adequate to support the NUHOMS transfer cask.” (PX 1045 at 10.) Both the VSC-24 and NUHOMS calculations were “QA [quality assurance]-scope calculations.” (PX 391 at WISC00123960 (QA-Scope box checked); PX 1045 at WISC 1045-001 (QA-scope box checked).) These safety-related calculations are subject to retention requirements and NRC review. (PX 652 at WXE0001 0156; 10 C.F.R. § 50.59.) James Becka,^{51/} Project Manager, Dry Fuel

^{49/}One third of the pools in this country are elevated, making structural concerns more serious. Point Beach’s addition of a temporary rack would be “entirely mundane.” It is a relatively small pool and narrow. The width of the pool determines its structural capacity. The slab is five feet, eight inches thick which is substantial for a pool of this size, and has steel and concrete piles into bedrock. (Tr. 4382:9-24; 4385:10-4386:7 (Singh).)

^{50/}The NUHOMS transfer cask is heavier (208,520 pounds – PX 1045 at 6) than a VSC-24 transfer cask (156,467 pounds – PX 391 at WISC00123962)) or a loaded temporary cask pit rack (93 tons – 186,000 pounds (Tr. 4393:3-19 (Singh).) A NUHOMS weighs as much as a 777 airplane (about 140 tons). (Tr. 5529:9-18 (Brewer).)

^{51/}Mr. Becka worked at Point Beach since 1992. As the Project Manager, Dry Fuel Storage Group, he supervised the fabrication of VSC-24 Cask Nos. 13-16 and the procurement of the NUHOMS. He was involved in the loading of all the casks at Point Beach except for the first two VSC-24s. Mr. Becka has a degree in civil engineering from Purdue University and has been a licensed Professional Engineer since 1986. He was a Captain in the United States Navy Reserve and

(continued...)

Storage Group, had no hesitancy about adding this load to the slab. (Tr. 1851:3-8 (Becka).)

The government relies on Mr. Krieser's 1994 PSC testimony that "analysis at that time []indicated that we were approaching limits on the spent fuel pool structural conditions." (Tr. 1599:24-1600:1 (Krieser).) He stated in deposition that the pool was essentially at its maximum weight. (Tr. 1600:12-22 (Krieser).) His comments, however, were directed to possible rod consolidation – repackaging SNF rods in a higher density array – which would be long-term storage, not the temporary cask pit usage proffered. And, his pre-filed PSC testimony, while discounting rod consolidation because of weight considerations, and because consolidation was not then widely used and was labor intensive, nevertheless concluded that "limited additional spent fuel could be accommodated." (PX 356 (Krieser's October 11, 1994 PSC testimony).)

That additional weight could be accommodated is confirmed not only by the NRC approval and subsequent use of two different heavy cask systems, but also confirmed by Dr. Singh. The court credits WE's position that in the non-breach world, with DOE performing its removal obligations, a temporary cask pit rack would have been used for the relatively short time needed for the replacement of the steam generators, for FCR or other contingencies. The rack could have been removed as needed for loading to DOE's casks.

Cooling capacity would not have prevented licensing of a temporary rack

The court also rejects the government's position that insufficient cooling capacity would have precluded licensing of the temporary cask pit rack. Mr. Hennessy testified that WE's Reactor Engineering Department concluded that the pool had sufficient cooling capacity to handle both a full pool and a loaded cask pit rack, and the discharge of a core into a cask pit rack would have no impact on a typical refueling schedule. He calculated that the maximum heat load of the pool, assuming 1502 filled spaces (a conservative number because, as noted, two of the spaces were not accessible) and a fully loaded cask pit rack (121 assemblies), would

^{51/}(...continued)

commanded several units, including a nuclear submarine squadron and a nuclear submarine base.

not be exceeded.^{52/} (Tr. 909:9-13 (Hennessy) (“The result was that the discharge of a full core in this hypothetical situation in the cask pit, with all permanent cells filled, for a total of 1623 fuel assemblies was within the capacity of the pool cooling system.”).) Mr. Link, who was the project manager for the installation of Point Beach’s improved cooling system in approximately 1979-1980, testified similarly.

The anti-tipping frame could have been removed

The government argues that the existing anti-tipping frame in the cask pit could not have been removed; therefore, a cask pit rack could not have been inserted in this area. The frame was not attached to the walls of the cask pit. Shims were placed between the frame and the pool walls and there are lift lugs on the top of the frame, all of which would aid in its removal. The frame could be removed with remote tools; divers would not be necessary. (Tr. 4392:4-11; 4407:6-12 (Singh).) If divers were needed, potential exposure to radiation could have been reduced by rearranging fuel in the pool so that cooler fuel was closer to the cask pit area, or using a lead shield or other devices. (Tr. 4445:17-4446-18 (Singh).)

The original rationale for the anti-tipping frame, to prevent a cask placed in the pit from falling and hitting a wall or an adjacent fuel rack, was faulty. Dr. Singh explained that parametric studies confirm that earthquake response on a large mass is less than on a smaller mass; therefore the massive casks that would be placed in that pit area really would not be impacted by the anti-tipping frame which he described as a technological dinosaur, a vestige of prior technology, a “useless appurtenance.”

The frame is shimmed to the walls, adjacent walls. The concept being that if there were an earthquake, the load from the racks will transfer to this frame, bottom of the frame here, the anti-tipping frame, that is, and then that load will ultimately get transmitted to the walls. That’s the concept behind this frame The concept was that a cask put in that space will be restrained from hitting adjacent racks if there were an

^{52/}Applying the heat standards of the American National Standards Institute (ANSI), the September 2006 decay heat calculation assumed a full pool (1502 assemblies) and a temporary rack with 121 assemblies from a full core offload as of December 5, 1998, for a total of 1623 fuel assemblies. (PX 739; PX 505 (heat calculation software manual); Tr. 897:16-909:23 (Hennessy).)

earthquake while the cask was in the pool. Unfortunately, the notion that this frame would support the cask is fundamentally flawed. The frame actually takes up space and, the small movement that a cask will sustain will cause the cask to hit the frame, which will in turn indeed hit the racks. The reality is that for the earthquake at Point Beach, if this frame were not there, the racks will be better off because the casks were subjected to the earthquake. They want movement. We have done a lot of cask simulations, and we know that the movement will be very small. So the bottom line, the basic statement is that I'm presenting for your consideration, is that this frame is not a safety device. It is a relic of the past, and it should be removed, whether or not a cask pit rack is put in.

(Tr. 4388-90 (Singh).) Responding to concerns about divers being used to help remove the frame, Dr. Singh testified that remote tools can be used. His company has removed as many as a thousand racks and appurtenances from pools using divers or remote means. The court credits his opinion and conclusion that removing the anti-tipping frame was well within the expertise of underwater construction capabilities at that time.

Cursory consideration of a temporary cask pit rack in the breach world does not preclude its use in the non-breach world

The government observes that there is no evidence WE seriously considered using a temporary cask pit rack. Of course not, WE responds. WE was operating in the breach world from about 1988. Nuclear utilities simply do not speculate about or analyze imaginary worlds. DOE's delays required a long-term solution which would not include a temporary cask pit rack. The PSC subsequently approved dry storage, providing the long-term storage needed, thereby avoiding earnest consideration of this option.

A temporary rack would have been used in the non-breach world

Dr. Singh's analysis was robust, not cursory, as suggested by the government. Also, that he did not opine that WE would have taken this action in the plausible non-breach world, is understandable and does not make his opinion as to the technical feasibility of this action, irrelevant.

Relying particularly on the thorough testimony and excellent credentials of Dr. Singh, a highly qualified expert, the court finds that a temporary rack for the cask pit area was a feasible means for WE to provide for whatever additional SNF storage needs would occur prior to the timely commencement of full government performance, the standard mandated by the Federal Circuit. *PG & E II*, 536 F.3d at 1292; *Yankee II*, 536 F.3d at 1273.

The government's expert witness, Warren Brewer,^{53/} did not dispute that a 121 assembly temporary rack could be installed in the cask pit area. (Tr. 5569:8-5570:10 (Brewer) ("Q: In fact, based on studies to-date, it's your view that a temporary rack most likely could be installed in the Point Beach pool, correct? A: I suspect a temporary rack of some size could be installed with whatever limitations come with that rack. . . . Q: Based on the studies to-date, isn't it your view that a temporary rack having 121 spaces most likely could be installed in the Point Beach pool? A: I think it's possible.")) Mr. Brewer described difficulties in removing the frame because the space is not plumb, but admitted that even if the frame had to be cut and removed in pieces, it could be done. While he believed the licensing process could be longer than Dr. Singh predicted, it could be done. Rather, his opinion was that a temporary rack would not meet WE's storage needs. "[M]y opinion is not, nor has it ever been, that

^{53/}Mr. Brewer has a masters degree in nuclear engineering from Massachusetts Institute of Technology, and a bachelors degree in electrical engineering from Louisiana Tech University. He also attended graduate courses at the Bettis Reactor Engineering School. Mr. Brewer has extensive experience in nuclear power plant operations and management, and has analyzed damage claims in other SNF cases before this court. Mr. Brewer is a principal and owner of ABZ, Inc. (he is the "B" in the title) which has a permanent staff of four engineers, none of whom are licensed professional engineers. Approximately 85 to 90 percent of ABZ's work has been for the government in SNF litigation. He was qualified as an expert in the field of nuclear engineering, including reactor regulation, nuclear plant and equipment design and cost estimating relating to nuclear facilities. *Cf. PG & E I*, 73 Fed. Cl. at 432-34 (granting motion *in limine* to preclude Mr. Brewer as an expert witness) and *Dairyland Power Co-op v. United States*, No. 04-106C, 2008 WL 5122339, at *12-13 (Fed. Cl. June 20, 2008) (denying motion to exclude Brewer's critique of utility's expert report of the increased costs of removing the reactor pressure vessel from the plant due to the presence of SNF); *Boston Edison Co. v. United States*, 80 Fed. Cl. 468, 477 n.12 (2008) (reciting that Mr. Brewer testified as a decommissioning cost expert); *Sys. Fuels*, 78 Fed. Cl. at 796-97 (citing to Mr. Brewer's expert opinion whether certain costs were incremental to DOE's partial breach); *Boston Edison Co. v. United States*, Nos. 99-447C, 03-2626, 2007 WL 4748060 (Fed. Cl. June 1, 2007) (denying motion *in limine* to exclude Mr. Brewer's testimony); *TVA*, 69 Fed. Cl. 515, 535 (2006) (citing Brewer's analysis).

such a rack is simply technically infeasible. That has never been my comment and isn't now." (Tr. 5571:11-14 (Brewer).)

The court concludes that in the non-breach world with DOE fully performing at the rates in the 1987 ACR, WE would not have built a separate dry storage facility, but rather would have taken measures to prolong available pool space for the short time until DOE started removing substantial amounts of SNF from its pools. Any space shortages and any need for FCR would have been accommodated with a temporary cask pit rack.

In the non-breach world, the PSC would not have approved the dry cask storage project; it would not have been built; the costs therefore would not have been incurred

Having found that WE met its burden to establish what it would have done in the non-breach world if DOE timely performed at the rates in the 1987 ACR and the costs thereof, it is further found that, in the non-breach world, the PSC would not have approved a WE dry storage project. The record of the PSC proceeding on WE's application in the breach world clearly shows that DOE's failure to perform was the key factor behind the PSC approval. With DOE fully performing, the PSC's statutory obligation not to approve construction of any project greater than necessary to meet the ratepayers' minimum needs would have doomed any WE request to spend some ten million dollars to meet, at the outside, a short-term shortage that could have been ameliorated by the fuel management techniques mentioned and/or the use of a temporary cask pit rack.

WE could not construct a dry storage facility without the approval of the PSC.^{54/} Under Wisconsin law, dry storage would not have been approved if the PSC found it would provide excess capacity.

The commission may refuse to certify a project if it appears that the completion of the project will do any of the following:

1. Substantially impair the efficiency of the service of the public utility.
2. Provide facilities unreasonably in excess of the probable future requirements.
3. When placed in operation, add to the cost of service without proportionately increasing the value or available quantity of service unless the public utility waives consideration by the commission, in the fixation of rates, of such consequent increase of cost of service.

Wis. Stat. § 196.49(3)(b).

The PSC's lengthy EIS, reciting these requirements slightly differently, stated that for approval, the Commission had to find that the ISFSI and 12 casks would not:

1. Substantially impair the efficiency of providing electricity;
2. Provide more facilities than are reasonably needed in the future; or
3. Increase the cost of power disproportionately to the increased or more valuable power provided by the project.

^{54/} The government does not deny PSC approval was required. (Def.'s Resp. Pl.'s PFF [388] at 241 ("PSCW approval is necessary for any capital expenditure, such as the ISFSI project or steam generator replacements, to be included within [WE's] rate base.")) The government contends PSC approval was required for "any modification." (*Id.* at 188 (citing Tr. 2589:22-2590:7 (Farron)); *see also* DX 15 at 2 (ISFSI Work Order Requisition of May 3, 1989 stating that "[a]pproval of the Public Service Commission of Wisconsin (PSCW) is required."). The cost threshold for required approval is a project cost of over \$100,000 for an electric utility with operating revenues of less than \$5,000,000 in the prior year. With operating revenues of between 5 and 250 million dollars, any project with estimated gross costs of more than 2 percent of revenue must be approved. With operating revenues of more than \$250 million, any project with estimated gross costs of more than five million dollars must be approved. After 2000, these amounts were adjusted for inflation. Wis. Adm. Code § PSC 112.05 (1995). This Code section was cited in WE's November 15, 1991 PSC application cover letter. (PX 236 at 1.)

(PX 346 at 15.) The PSC approved the dry storage project because DOE's breach required additional storage, reasoning that although WE had contracted with DOE to begin removing SNF in 1998, DOE had no storage or disposal facility and did not expect one until 2010; other estimates ranged from 2023 to indefinite. (PX 374 at 4, 12, 22.) Absent the breach, with DOE performance, there would exist no basis on which the PSC could approve the construction of a controversial separate dry storage facility. As WE hypothesized: "it is hard to conceive that the [PSC] would not have jumped at the opportunity for Point Beach to avoid dry storage in the non-breach world." (Pl.'s Reply Br. [407] at 47.)

The PSC proceedings were lengthy and contentious. The draft EIS generated 532 comments from a myriad of organizations and individuals. (PX 346 at WISC0003830-38.) Following extensive investigation, response to questioning and other vetting, public hearings were held on October 11-28, 1994. (PX 374 at 3.) Several hundred people attended. "The Commission granted \$253,122 in intervenor compensation^{55/} to citizens' groups to insure that all points of view were adequately represented." (*Id.* at 6.) Intervenors raised serious questions about the proposed ISFSI becoming a permanent repository, perhaps for SNF from other than Point Beach. (*Id.*) CUB sued to enjoin the project. The Dane County Wisconsin Circuit Court in a thirty-seven page decision dated December 22, 1995, invalidated PSC's approval, finding the EIS was inadequate. (PX 481 (*CUB v. PSC*, No. 95 CV 676 (Dane County Cir. Ct. Dec. 22, 1995).) The Court of Appeals reversed, giving deference to the PSC's finding that the EIS was adequate. *Citizens' Util. Bd. v. PSC*, 565 N.W.2d 554, 562-63 (Wis. Ct. App. 1997). Nevertheless, the PSC supplemented the EIS and held additional hearings. Supplemental findings included that the ISFSI and 12 VSC-24 casks were necessary to meet the reasonable needs of the public for power and **"will not . . . provide facilities in excess of probable future requirements, or add to the cost of service without proportionately increasing the value and available quantity of service."** (DX 3 at 28 (emphasis added).)

The original EIS in August of 1994 also considered possible excess capacity and reviewed alternatives to the proposed ISFSI, including building a second pool to hold all the SNF produced until the then-end of the respective licenses. That option, with an estimated cost of \$24 million and annual operating costs of \$500,000, was rejected as creating excess capacity if DOE performed. "This means that [WE] would have to spend money now for a pool that could hold 1152 fuel assemblies and a

^{55/}Presumably, this amount was added to the rate-base and recovered from rate payers.

transport cask loading/unloading space. If fuel shipment to DOE begins before the end of license, money spent on excess capacity would be wasted.” (DX 26A at 87.) These concerns certainly would have been magnified if it was considered that DOE would fully perform at the 1987 ACR rates. In that event, SNF would have been picked up quickly in the first two years when WE’s pool would otherwise be close to maximum capacity, and DOE’s removals would then more than keep up with the SNF discharge, resulting in a reduction of pool inventory.

The statutory standards against overbuilding were also cited in the PSC’s subsequent approval of an additional thirty-six casks on March 27, 2001. The PSC found these additional casks “will not provide facilities unreasonably in excess of [WE’s] probable future requirements[;] . . . the value or available quantity of [WE’s] electrical service will increase by an amount that is proportionate to the increase in cost-of-service[;] . . . [and] [t]he public convenience and necessity require completion of this project.”^{56/} (PX 592 at 3.)

The PSC rejected another utility’s proposal because cost was out of proportion to the value to the utility. In *Wisconsin Power & Light Co. v. Public Service Commission of Wisconsin*, 437 N.W.2d 888 (Wis. Ct. App. 1989), the court upheld the PSC’s finding that the proposed construction project ““would not significantly improve the efficiency or reliability of the [company’s] electrical system, and consequently it would add to the cost of electric service for all ratepayers without proportionately increasing the value of service.”” *Id.* at 893 (alteration in original).

As noted, WE has established that in the non-breach world, with DOE timely commencing performance at the rates in the 1987 ACR, WE would not have incurred the dry storage and other attendant incremental costs awarded herein. *Yankee II*, 536 F.3d at 1273 (citing *Glendale Fed. Bank, FSB v. United States*, 239 F.3d 1374, 1380 (Fed. Cir. 2001) (“instructing that plaintiffs bear the burden of demonstrating ‘what might have been’”) and *Bluebonnet Sav. Bank FSB v. United States*, 67 Fed. Cl. 231, 238 (2005) (“[B]ecause plaintiffs in this case are seeking expectancy damages, it is

^{56/}Indicative of the scrutiny and analysis, WE’s application to acquire thirty-six additional casks was filed on May 2, 2000. Public hearings were held in two locations on December 18 and 20, 2000. The public comment period closed on January 16, 2001. Briefing was completed on February 5, 2001. Interested parties included CUB, the Lake Michigan Coalition, Fawn Shillinglaw, the Local International Brotherhood of Electrical Workers and the Wisconsin Paper Council. (PX 592.)

incumbent upon them to establish a plausible ‘but-for’ world.”)). Construction of an ISFSI and purchase and loading of casks to cover any brief shortfall would run afoul of Wisconsin state law by creating a capital asset unreasonably in excess of WE’s probable future requirements, and the value to WE’s electrical rate-payers would not increase proportionately to the massive expenditures required. The venting of a WE application in the breach world would have likely been more strident in that, with relatively inexpensive alternatives available, the construction of a concrete football field-sized ISFSI with huge concrete casks, which would eventually have to be demolished when the plant was decommissioned, would not have passed regulatory scrutiny. Accordingly, it is found that it is highly unlikely that the expenditures for which judgment is granted herein would have been incurred or, with the existing regulatory regime, have been authorized to have been incurred, had DOE timely commenced full performance at the rates in the 1987 ACR. *Slattery v. United States*, 583 F.3d 800, 817 (Fed. Cir. 2009) (concluding the government did not establish clear error in the finding that it was “unlikely” the bank would have failed in the hypothetical non-breach world free of the government’s breach). Awarding these costs does not place WE in a better position than if DOE had performed.

WE met its non-breach world burdens – application of the 1987 ACR

The government asserts in supplemental briefing that, by not specifically applying the 1987 ACR rate at trial, by not having a witness predict what WE would have done if DOE had performed at the rates in the 1987 ACR, WE failed in its burden of proof, citing from *Yankee II* that “[w]ithout record evidence about the Yankees’ condition **with full Government performance**, the Court of Federal Claims could not perform the necessary comparison between the breach and non-breach worlds and thus could not accurately assess the Yankees’ damages.” (Def.’s Supp. Br. at 5 [415] (emphasis in original) (citing *Yankee II*, 536 F.3d at 1273).) The Federal Circuit selected the 1987 ACR from among several possible performance standards, recognizing it was not perfect, but was a prediction of the first ten years of performance made fairly close in time to contracting, when both parties for the most part assumed timely performance, even though amendment of the NWPA was necessary and there was already talk of delay. Neither party however advocated the 1987 ACR as the non-breach world standard.^{57/} Not to have predicted this particular rate for the hypothetical non-breach world was neither a failure of proof nor of

^{57/}The 1987 ACR, which like other ACRs issued by DOE, stated that it was not contractually binding, had not at that time been either argued or selected as the non-breach world standard.

defense. *See Carolina Power II*, 573 F.3d at 1275 (rejecting the government’s position that the utility waived the opportunity to prove damages under the 1987 ACR rate by not anticipating the Federal Circuit’s *sua sponte* selection of that rate).

On August 7, 2008, the court ordered supplemental briefs following the *Yankee* trio. On August 14, 2008, the government filed a motion for a status conference and an enlargement to time to file its supplemental brief. In that motion, the government stated that it learned that WE intended to present supplemental expert analysis in response to the *Yankee* trio during closing arguments (which had not yet been held). The government objected to this “trial supplementation by surprise.” (Def.’s Status Conf. Mot. [410] at 2.) WE responded that it did not seek to introduce new expert reports but only calculations confirming that the 1987 ACR rate did not affect WE’s position on causation. (Pl.’s Resp. Status Conf. Mot. [411] at 3.) While Supplemental Reports of experts Supko,^{58/} and Sieracki, were attached, WE’s Response stated they were not necessary for the court to conclude on the then-existing record that the 1987ACR would not impact WE’s causation analysis or its damages. (*Id.*) In the telephone status conference held on August 15, 2008, counsel were informed that the court had been able to apply the 1987 ACR rate to pre-existing record evidence without expert assistance.

Unspecified claims of prejudice or error are rejected. In *Carolina Power II*, the Federal Circuit declined the utility’s request to apply the minimal difference between the 1987 ACR and the rate used by the trial court because “the practical equivalency of the 1987 and 2004 rates [advocated at trial] may well be a matter that can be tested by fairly simple arithmetic, it is nonetheless a factual issue properly within the purview of the trial court.”). 573 F.3d at 1276. While somewhat tedious, the application of the 1987 ACR rates to known quantities and ranking of SNF is not difficult, and does not require expert testimony. There is ample evidence in the record of what WE would or could have done, or been allowed or required to do to meet short-term storage needs if DOE had performed at various levels, both greater

^{58/} Ms. Supko’s numbers vary a bit from the utility-specific allocations in the 1987 ACR because the discharge data did not include government-owned and non-utility company SNF included in subsequent DOE publications. *See Supko Supplemental Expert Report* filed on November 6, 2008 in *Power Authority v. United States*, 00-703, p. 7 n.6; *see also* Pl.’s Supp. Br. [416] at 11 n.5. The differences are not significant. The first variation is not until 2002, five years after WE’s critical need. Using either set of numbers, WE’s yearly allocations exceed its annual discharges after the first couple of years.

and less than the 1987 ACR. The 1987 ACR is in the record (PX 123; DX 542) as are costs, options, analyses, opinions and predictions as to actions that could or would have been taken. Application of the 1987 ACR rate was addressed at final argument. Applying the 1987 ACR rates caused the government to adjust the WE damages it conceded upwards because of the additional SNF which would have been picked-up under the more robust 1987 ACR, a concession that demonstrates conclusions can be readjusted with a change in assumptions.

The 1987 ACR includes a Table with an ordinal ranking of all domestic commercial SNF, chronologically by date of discharge from the reactor, with a separate entry for each discharge, starting with oldest. (PX 123, App. B.) The utility is identified along with the amount of SNF discharged on that date (in both number of assemblies and MTU), and in the far right-hand column, aggregate industry cumulative in MTU. Illustratively, the Table starts with 4.58 MTU discharged from Commonwealth Edison's Dresden I reactor in September of 1969, and continues through 22 pages, aggregating to 18,599.75 MTU with the last entry being 1.620 MTU discharged from the Houston Lighting and Power's South Texas reactor in January of 1989. (*Id.*, B.1- B.25.)

Under the 1987 ACR DOE picks up a total of 1200 MTU in 1998, which under OFF means that first 1200 MTU of allocations is available to the utilities with the oldest 1200 MTU. The industry cumulative total of 1186.70 MTU^{59/} (closest to 1200 MTU) is reached with the approximately 58 MTU discharged from Maine Yankee's reactor in May of 1975. (*Id.* at B.5.) Discharges above that line receive the initial allocations.

WE's allocations for 1998 are determined by simply selecting WE's discharges in that grouping of the oldest 1200 MTU. Annual allocations under the 1987 ACR are in MTU. Utility discharges are in MTU and number of assemblies. Cumulative aggregate data is only in MTU. Illustratively, WE's allocations under the 1987 ACR for 1998 are 16.279 MTU (41 assemblies – discharged in September of 1972); 28.632 MTU (74 assemblies – discharged in April of 1974) and 14.373 MTU (36 assemblies – discharged in October of 1974). (*Id.* at B.3-4.) These three discharges total 59.28 MTU (151 assemblies).

^{59/}1200 MTU is accepted in 1998. The next oldest fuel would bring the cumulative total over 1200 MTU.

For ease of reference, Appendix A of the 1987 ACR also lists the total annual allocations by utility gleaned from the previous exercise. WE's allocations for 1998 ("Year 1") are 151 assemblies/59.28 MTU explained immediately above. The next nine years allocations are provided in the same fashion. (*Id.* at A.1-42.)

Although the Standard Contract requires DOE to begin removal no later than January 31, 1998, and the 1987 ACR allocates on an annual basis, the contract is silent as to when during the "year" DOE would perform. The Standard Contract requires the parties to "seek to negotiate mutually acceptable schedule(s)." (PX 41 at Art. V.B.2; PX 1052 (Milner Dep. Desig. 5/1/02 Tr. 82:2-85:24 ("My personal opinion of [the DOE objectives on page 29 of the June 1985 Mission Plan] was that given the limitations of the spent fuel pools of various utilities, that in essence we would pick up the fuel before a utility ran out of pool storage capacity which would then force it to shutdown.")). Reasonableness and good faith are presumed as confirmed by testimony and evidence. *S. Nuclear*, 77 Fed. Cl. at 436 ("[A] provision which calls upon the parties to a contract to agree in the future on a specified point or contract term . . . imposes an obligation on the parties to negotiate in good faith.") (citations omitted).

Given two SNF discharges into the pool each year (one per reactor, each increasing the pool assembly inventory by 28), there are three possible scenarios during a "year" for DOE to remove WE's SNF allocation: (1) before the spring discharge; (2) after the spring discharge; or (3) after the fall discharge. The following timetable graphs depict the condition of WE's pool inventory with full government performance under the 1987 ACR. Applying WE's undisputed allocations under the 1987 ACR to pool assembly inventory starting after the 1997 fall discharge, the graphs illustrate why WE would not have built dry storage. Conservatively calculating, without any fuel management techniques or augmentation under the Standard Contract (such as the plus or minus twenty percent provision) and assuming 28-assembly discharges at both the spring and fall outages (a number that could have been reduced), while approaching capacity and possible need to use the temporary cask pit rack (which WE asserts it would have done in the non-breach world), DOE's performance would have quickly decreased pool inventory, providing additional storage space, thereby eliminating the need for dry storage.

DOE collection prior to spring discharge

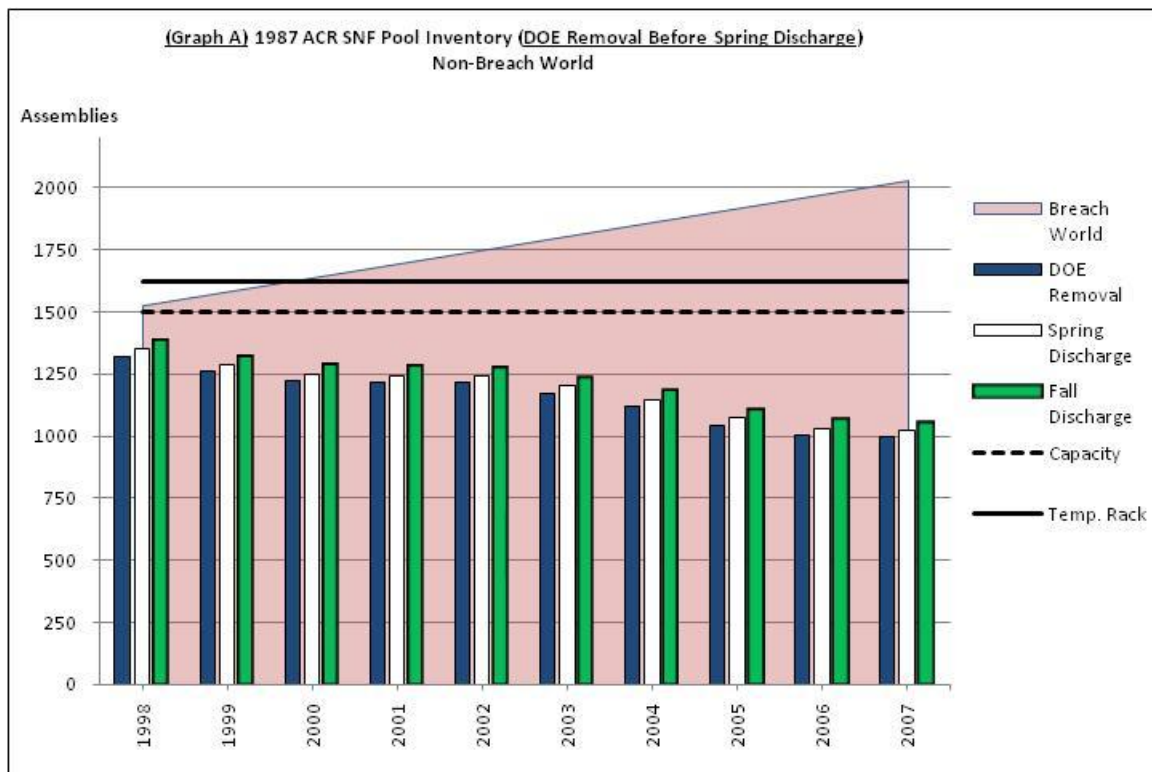
Table A and Graph A assume DOE removes WE's 1998 allocations from the 1987 ACR before WE's 1998 spring discharge. Starting with Mr. Hennessy's inventory of 1473 assemblies^{60/} after WE's 1997 fall discharge, Table A chronicles the rise and fall in the number of assemblies, with additions to, and subtractions from, the wet pool. DOE removes 151 assemblies (WE's 1998 allocation from the 1987 ACR) before WE's 1998 spring discharge, reducing the wet pool inventory to 1322 assemblies. With 28 assemblies discharged in the spring of 1998, pool inventory increases to 1350 assemblies, and 1378 assemblies after the 1998 fall discharge. Before the 1999 spring discharge, DOE removes 119 assemblies (WE's 1999 allocation in the 1987 ACR), reducing the pool inventory to 1259 assemblies. With 28 assemblies discharged in the spring of 1999, pool inventory increases to 1287 assemblies, and 1315 assemblies after the 1999 fall discharge. Successive inventory calculations for 2000 through 2007 (the last year in the 1987 ACR) are detailed using the same convention.

The series of bars in Graph A illustrate this plausible non-breach world of full government performance. In contrast, the background shading depicts WE's breach world's storage situation – what would have happened if WE, like the government, had done nothing. Capacity is rapidly exceeded. This comparative depiction (and the others following) illustrates that the absence of contract performance by the government was the actual and the substantial causal factor for SNF dry storage, and demonstrates that in the non-breach world of the 1987 ACR, dry storage would not have been needed.

^{60/}Mr. Hennessy's inventory was in assemblies, not MTU. Accordingly, the chart arithmetic uses assemblies from his inventory and WE's allocation of assemblies in the 1987 ACR.

**(Table A) - 1987 ACR DOE Removal Before Spring Discharge Using
1997 After Fall Discharge Inventory of 1473**

	SNF Pool Inventory (assemblies) after DOE Removal (shaded column)	Spring Discharge (28 assemblies added to pool)	Fall Discharge (28 assemblies added to pool)	1987 ACR DOE Removal (assemblies)
1998	1473 - 151 = 1322	1350	1378	151
1999	1378 - 119 = 1259	1287	1315	119
2000	1315 - 92 = 1223	1251	1279	92
2001	1279 - 62 = 1217	1245	1273	62
2002	1273 - 58 = 1215	1243	1271	58
2003	1271 - 98 = 1173	1201	1229	98
2004	1229 - 109 = 1120	1148	1176	109
2005	1176 - 131 = 1045	1073	1101	131
2006	1101 - 96 = 1005	1033	1061	96
2007	1061 - 64 = 997	1025	1053	64



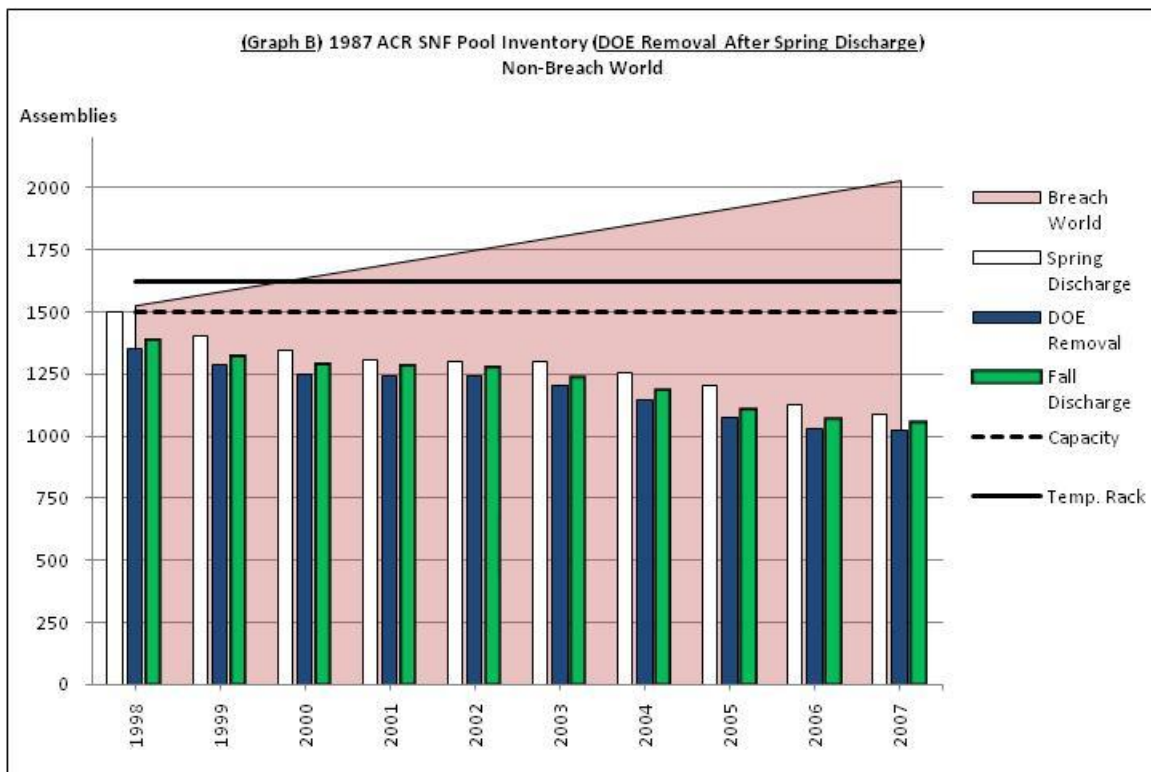
DOE collection after spring discharge

Table B and Graph B assume DOE removes WE's 1998 allocations from the 1987 ACR after WE's 1998 spring discharge. Starting with Mr. Hennessy's inventory of 1473 assemblies after WE's 1997 fall discharge, Table B chronicles the rise and fall in the number of assemblies, with additions to, and subtractions from, the wet pool. With 28 assemblies discharged in the spring of 1998, pool inventory increases to 1501 assemblies. DOE removes 151 assemblies (WE's 1998 allocation in the 1987 ACR), reducing wet pool inventory to 1350 assemblies. With 28 assemblies added in the 1998 fall discharge, inventory increases to 1378 assemblies. With 28 assemblies added in the 1999 spring discharge, inventory increases to 1406 assemblies. DOE removes 199 assemblies (WE's 1999 allocation in the 1987 ACR), reducing inventory to 1287. With WE's 1999 fall discharge of 28 assemblies, inventory increases to 1315 assemblies. Successive inventory calculations for 2000 through 2007 (2007 being the last year in the 1987 ACR) are detailed applying the same convention.

The series of bars in Graph B illustrate this plausible non-breach world of full government performance. In contrast, the background shading depicts the breach world's storage situation – what would have happened if WE, like the government, had done nothing. Capacity is rapidly exceeded. This comparative depiction (and the others following) illustrates that the absence of contract performance by the government was the actual and the substantial causal factor for SNF dry storage, and demonstrates that in the non-breach world of the 1987 ACR, dry storage would not have been needed.

**(Table B) - 1987 ACR DOE Removal After Spring Discharge Using
1997 After Fall Discharge Inventory of 1473**

	Spring Discharge (28 assemblies added to pool)	SNF Pool Inventory (assemblies) after DOE Removal (shaded column)	Fall Discharge (28 assemblies added to pool)	1987 ACR DOE Removal (assemblies)
1998	1501	$1501 - 151 = \mathbf{1350}$	1378	151
1999	1406	$1406 - 119 = \mathbf{1287}$	1315	119
2000	1343	$1343 - 92 = \mathbf{1251}$	1279	92
2001	1307	$1307 - 62 = \mathbf{1245}$	1273	62
2002	1301	$1301 - 58 = \mathbf{1243}$	1271	58
2003	1299	$1299 - 98 = \mathbf{1201}$	1229	98
2004	1257	$1257 - 109 = \mathbf{1148}$	1176	109
2005	1204	$1204 - 131 = \mathbf{1073}$	1101	131
2006	1129	$1129 - 96 = \mathbf{1033}$	1061	96
2007	1089	$1089 - 64 = \mathbf{1025}$	1053	64



Both Table and Graph B depict a brief minor encroachment on pool capacity (1501 assembly inventory following the 1998 spring discharge) one graphically, one numerically. To reiterate, using fuel management techniques to reduce the number of assemblies going into the pool, WE could and would have avoided exceeding the 1500 assembly capacity, or could and would have utilized a temporary cask pit rack to accommodate any SNF assembly causing the pool to exceed capacity, and for any other contingencies, worked with DOE to accelerate pickups, or utilized exchanges or other measures to avoid shutdown.

DOE collection after fall discharge

Table C and Graph C assume DOE removes WE's 1998 allocations from the 1987 ACR after WE's 1998 fall discharge.^{61/} Starting with Mr. Hennessy's inventory of 1473 assemblies after WE's 1997 fall discharge, Table C chronicles the rise and fall in the number of assemblies, with additions to, and subtractions from, the wet pool. With 28 assemblies discharged in the spring of 1998, pool inventory increases to 1501 assemblies. With 28 assemblies discharged in the fall of 1998, pool inventory increases to 1529 assemblies. DOE removes 151 assemblies (WE's 1998 allocation in the 1987 ACR), reducing the pool inventory to 1378 assemblies. With 28 assemblies discharged in the spring of 1999, inventory increases to 1406 assemblies and 1434 assemblies with the fall 1999 discharge. DOE removes 119

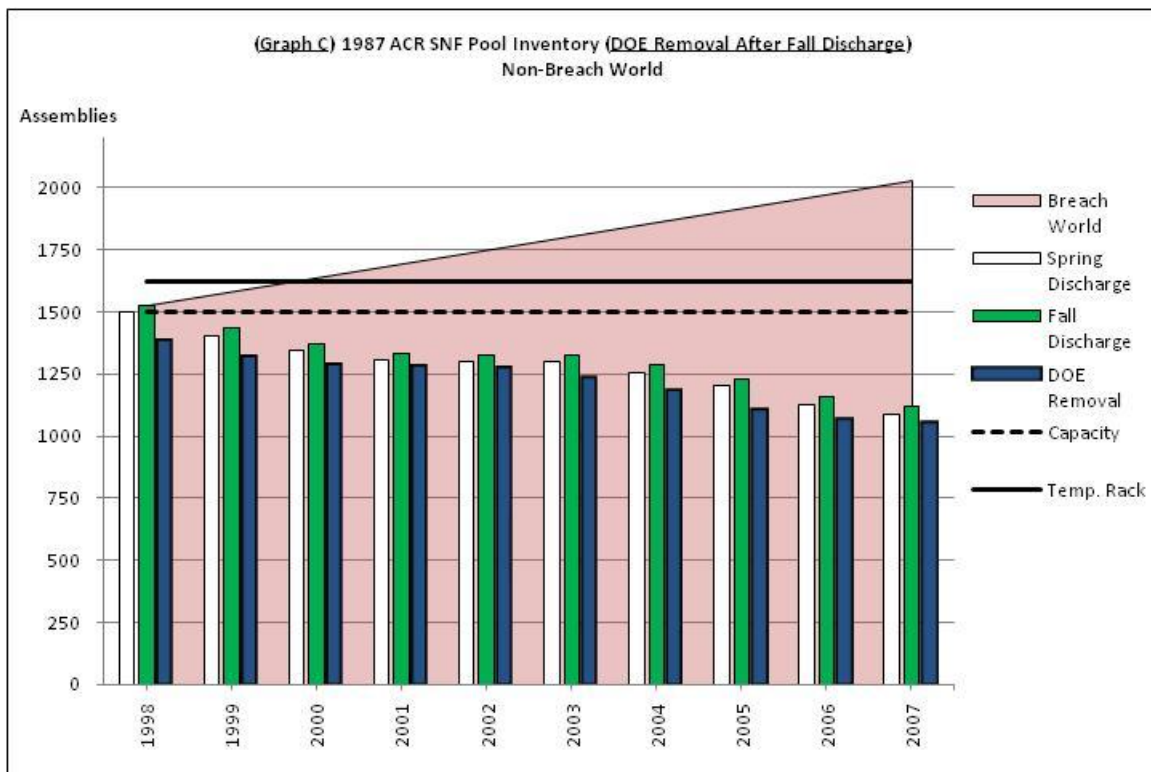
^{61/}It is not clear whether DOE removals would ever be after fall discharges in the non-breach world regardless of annual rates applied. The Standard Contract defines a year as the "period which begins on October 1 and ends on September 30." (PX 41 at Art. I (20).) Utility reporting of discharges was also on a fiscal year basis. (*Id.* at Art. IV.A.1.) Most of WE's fall discharges were predicted to be in September. Certainly in the non-breach world if DOE's pickup was on September 30, the very end of the fiscal year, that discharge would likely be postponed if necessary for a short time to allow for the reduction in pool inventory afforded by DOE's collections. (*Id.* at KRGWE002165 (ten-year discharge forecast for Unit 2 with six of ten years predicted to be in September).) WE's RW-859 with data as of December 31, 1992 for Unit 2 (the fall discharger) projected shutdown dates of September 25, 1993; October 8, 1994; September 30, 1995; and September 28, 1996, each with a 28 assembly discharge. (PX 280 at WISC00098967.) WE's RW-859 dated February 10, 1994 for Unit 2 projected shutdown dates of September 24, 1994; September 30, 1995; September 28, 1996; October 4, 1997; and October 3, 1998 with discharges from 24 to 28 assemblies. (PX 327 at HQR3640788.) Accordingly, in the non-breach world, in most instances, DOE's annual pick-ups would be (or could likely have been) before fall outages and consequent additions to the pool. WE's Final Delivery Schedule ("FDS") submitted in December of 1997 estimated delivery of WE's 1998 allotments between December 30 and 31, 1998, was in the breach world, where performance was not anticipated.

assemblies (WE's 1999 allocation in the 1987 ACR), reducing inventory to 1315 assemblies. Successive inventory calculations for 2000 through 2007 (2007 being the last year in the 1987 ACR) are detailed applying the same convention.

The series of bars in Graph C illustrate this plausible non-breach world of full government performance. In contrast, the background shading depicts the breach world's storage situation – what would have happened if WE, like the government, had done nothing. Capacity is rapidly exceeded. This comparative depiction (and the others following) illustrates that the absence of contract performance by the government was the actual and the substantial causal factor for SNF dry storage, and demonstrates that in the non-breach world of the 1987 ACR, dry storage would not have been needed.

**(Table C) - 1987 ACR DOE Removal After Fall Discharge Using
1997 After Fall Discharge Inventory of 1473**

	Spring Discharge (28 assemblies added to pool)	Fall Discharge (28 assemblies added to pool)	SNF Pool Inventory (assemblies) after DOE Removal (shaded column)	1987 ACR DOE Removal (assemblies)
1998	1501	1529	$1529 - 151 = \mathbf{1378}$	151
1999	1406	1434	$1434 - 119 = \mathbf{1315}$	119
2000	1343	1371	$1371 - 92 = \mathbf{1279}$	92
2001	1307	1335	$1335 - 62 = \mathbf{1273}$	62
2002	1301	1329	$1329 - 58 = \mathbf{1271}$	58
2003	1299	1327	$1327 - 98 = \mathbf{1229}$	98
2004	1257	1285	$1285 - 109 = \mathbf{1176}$	109
2005	1204	1232	$1232 - 131 = \mathbf{1101}$	131
2006	1129	1157	$1157 - 96 = \mathbf{1061}$	96
2007	1089	1117	$1117 - 64 = \mathbf{1053}$	64



Both Table and Graph C depict two brief minor encroachments on pool capacity (1501 assembly inventory following the 1998 spring discharge and 1529 following the 1998 fall discharge) one graphically, one numerically. To reiterate, using fuel management techniques to reduce the number of assemblies going into the pool, WE could and would have avoided exceeding the 1500 assembly capacity, or could and would have utilized a temporary cask pit rack to accommodate any SNF assembly causing the pool to exceed capacity, and for any other contingencies, worked with DOE to accelerate pickups, or utilized exchanges or other measures to avoid shutdown.

For the reasons previously stated, it also is highly unlikely that the PSC would have allowed WE to build the ISFSI regardless of the timing of DOE's collections.

The circumstance that WE's allocations were not calculated using the 1987 rates is irrelevant. At trial, the government advocated the lower rates of the 1991 ACR; WE used the higher rates advanced by its expert witness Eileen Supko.^{62/} Under the 1987 ACR, WE has more allocations (270 assemblies) in the first two years (1998 and 1999) than either the Supko or the 1991 ACR rates (151). Following the Federal Circuit's *PG & E II* decision, as noted, WE submitted supplemental affidavits of Supko and Sieracki applying the 1987 ACR rates showing no relevant changes.^{63/}

At trial Ms. Supko opined that in the non-breach world of the ERI rate, WE would not have run out of storage space and would not have built dry storage. She subsequently, post-trial, opined to the obvious – that with more SNF collected, WE still would not have run out of storage space and still would not have built dry storage. This is not new evidence; this is application of record data in a different fashion using a rate adopted by the Federal Circuit after trial. Under these circumstances, the absence of oral testimony as to a specific hypothetical, when the

^{62/}Expert witness Eileen Supko, has a B.S. in Nuclear Engineering from Pennsylvania State University. She is a Senior Consultant and owner of Energy Resources International, Inc., ("ERI") a consulting firm with extensive expertise in the nuclear power industry. She has testified as an expert in many SNF cases. (Tr. 3017; 3062:14-16 (Supko).)

^{63/}Alternatively and cumulatively, were it to be determined that DOE's performance in the non-breach world would have been at the rates in the 1991 ACR as the government has consistently argued in this court and to the Federal Circuit, the court's findings and conclusions would be the same. The Appendix to this Opinion by graphs illustrates the application of the 1991 ACR rate.

record contains the application of a similar, but more restrictive hypothetical, is of no relevant moment, particularly when computations are essentially ministerial.

The following illustrates WE's allocations under the 1987 ACR compared to the respective rates presented at trial. To repeat, WE's allocations in the early years are greater than those used by both the government and WE's expert, particularly in 1998 and 1999, when as trial evidence and the graphs above illustrate, capacity concerns would have been the greatest. Evidence that WE would not have built dry storage given government removals at lower removal rates clearly demonstrates that WE would not have built dry storage if the government removed still more SNF.

Year	1987 ACR ^{64/}		WE's Expert Trial Rate ^{65/}		Gov't's Expert Trial Rate ^{66/}	
	Assemblies	MTU	Assemblies	MTU	Assemblies	MTU
1998	151	59.28	41	16.28	41	16.28
1999	119	46.83	110	43	110	43.01
2000	92	36.74	82	32.557	50	19.77
2001	62	24.83	162	64.2	69	27.07
2002	58	23.28	125	50.17	92	36.74
2003	98	39.41	142	57.01	62	24.83
2004	109	43.75	75	29.93	25	10.04
2005	131	52.52	135	53.73	32	12.84
2006	96	38.48	100	37.82	40	16.07
2007	64	24.15	103	37.68	54	21.73
Totals 1998-1999	270	106.11	151	59.28	151	59.29
Totals 1998-2007	980	389.27	1075	422.377	575	228.38

^{64/}(PX 123.)

^{65/} (PX 791, Table 3.) Ms. Supko used the 3000 MTU annual rate with a five-year ramp-up (400 MTU in 1998; 600 MTU in 1999; 1200 MTU in 2000; 2000 MTU in 2001; and then 3000 MTU steady state. (*Id.* at 6.).

^{66/} (PX 237 at 5.) The 1991 ACR rates used by the government were 400 MTU in 1998; 600 in 1999 and 900 MTU annually through 2007.

WE's position at trial was that in the non-breach world, DOE would have picked up SNF at "a substantial rate," to preclude any additional at-reactor storage after January 31, 1998, and then robust enough to work-off the backlog. (Pl.'s Resp. Status Conf. Mot.[411] at 1.) Rather than "new" evidence or new opinion, WE simply had the 1987 ACR rate applied "through Ms. Supko's spent fuel allocation model (PX 791) and through the Kenrich fuel management model (PX 796) **to confirm that the *PG & E* [1987 ACR] acceptance rates do not change WE's damages in this case.**" (*Id.* at 4 (emphasis in original).)

The government is very familiar with the work of Supko and Kenrich from this and other SNF cases. Analysis by these experts travels a well-worn path. These experts were examined in deposition and at trial at length regarding models used to calculate Point Beach SNF allocations and pool inventories. The models did not change. The affidavits were supplied to the government ten days prior to the then-scheduled post-trial oral argument.

In turn, on September 17, 2008, prior to oral argument, the government filed its Supplemental Brief and expert reports from Messrs. Warren Brewer, Cliff Hamal^{67/}

^{67/}Cliff Hamal received his bachelor's degree from the United States Merchant Marine Academy, with dual majors in marine engineering (power systems and power plants as they apply to merchant ships) and marine transportation, and his Master of Science degree from Carnegie-Mellon University in industrial administration (economics, risk and business decision-making), subsequently re-titled a Master's in Business Administration. He was trained in nuclear power operations, attended a 13 month DOE course administered by General Electric that lead to certain qualifications in operating DOE nuclear power plants. He worked in power plant operations in cargo ships, then for General Electric at a DOE facility for three years in operations and training related to power plant operations. Mr. Hamal was then employed by Westinghouse, where he taught nuclear engineers and operators in various aspects of commercial nuclear operations, including reactor engineering, and then as a project engineer assigned to oversee services, including nuclear fuel and refueling operations, that Westinghouse provided to two commercial nuclear power plants, including Point Beach. He was qualified as a senior reactor operator, nuclear plant engineer, engineer officer of the watch and third assistant engineer. At the time of his testimony, Mr. Hamal was a consultant with LECG, an economic and finance consulting firm and had been since 1989. His consulting work concerning the economics of the electricity industry includes investment and anti-trust analyses. His experience includes electricity market design, including rate base prudence of a nuclear power plant; replacement power issues regarding an extended outage at a nuclear power plant; decision-making whether to modify a nuclear power plant, international nuclear fuel issues, and power plants profitability strategies. Mr. Hamal qualified as an expert witness more than 20 times. Mr. Hamal was qualified as an expert related to business decision-making, economic analysis, (continued...)

and Stephen Kiraly^{68/} applying WE's allocations under the 1987 ACR. Mr. Brewer opined that WE would have loaded 221 truck casks for delivery of allocated SNF to DOE between 1998 and 2006. Because the contract requires WE to bear the cost of loading to whatever mode of transportation DOE brings to the site to take away the SNF, Mr. Kiraly calculated that WE avoided loading costs totaled \$8,168,515.^{69/} (Def.'s Supp. Br. [415] at 12.) The validity of claiming this asserted cost as an offset is addressed *infra*.

In addition to using the 1987 ACR rates to urge higher avoided loading costs, the government also increased its concession of WE's minimum damages. The government's position at trial was that because of DOE's failure to begin collection at the 1991 ACR rates, WE would have built dry storage in the non-breach world and some casks purchases were attributable to DOE's delays. The government initially conceded that WE was entitled to mitigation costs of \$10,259,004 (the difference in the costs incurred in the breach world and the costs that would have been incurred in the non-breach world). With the Federal Circuit's adoption of the 1987 ACR as the non-breach world standard, while continuing to assert WE would have built dry storage, with the more robust acceptance schedule, the incremental difference in costs is greater. As a result, the government concedes that under the 1987 ACR WE's minimum damages equal \$12,405,189. (*Id.* at 17.)

^{67/}(...continued)

and the analysis of damages claims in the electric industry.

^{68/}Stephen Kiraly is a managing director at LitCon Group, LLC, a fifteen employee consulting firm with offices in Alexandria, Virginia and Pittsburgh, Pennsylvania, that provides financial analysis, forensic accounting and valuation services. He has a B.S. degree in accounting and an MBA with a concentration in accounting, both from the University of Tampa in Florida. He holds a Florida CPA license and has extensive accounting experience. He has performed damages analysis in a variety of contract cases, including claims for equitable adjustments in government contracts, false claims and allowable costs under government contracts. He calculated damages and testified in several other spent nuclear fuel cases. He was retained by the government to review WE's claimed costs, assess whether they had been incurred and attributable to the partial breach – compare costs that were incurred in the breach world and costs that would have been incurred in the non-breach world. He was qualified as an expert in damage analysis of construction and government contract cases and cost and pricing data relating to incurred costs and financial analysis. (Tr. 6073:3-6090:22 (Kiraly).)

^{69/}According to the government, Mr. Brewer's supplemental affidavit is based only on evidence in the pre-existing trial record. Mssrs. Hamal's and Kiraly's reports are offered only in the event that the court admits the supplemental affidavits of Supko and Sieracki.

As noted, the circumstance that trial evidence of WE's condition was not specifically directed to DOE's performance at the 1987 ACR level does not alter conclusions reached. WE did not argue that under the 1987 rate its response to the non-breach or the breach world would have been any different and neither did the government. The government did not dispute WE's allocations. The SNF removed numbers may vary, but the resultant responses and costs in the non-breach world are the same. While the government objects to including the supplemental expert reports in the record, no cognizable prejudice is alleged. Moreover, absent the expert reports, the record contained the requisite data enabling counsel and the court to perform the simple math. *See Astoria Fed. Sav. & Loan Ass'n v. United States*, 568 F.3d 944, 955 (Fed. Cir. 2009) (instructing trial court on remand to apply data in record to determine amount of increased federal agency fees thrift would have paid on asserted lost profits). "Whether additional trial proceedings should be conducted to permit further development . . . is a matter for the trial court to decide in the exercise of its discretion." *Fla. Power & Light Co. v. United States*, 307 F.3d 1364, 1370 (Fed. Cir. 2002). *See also Zenith Radio Corp. v. Hazeltine Research, Inc.*, 401 U.S. 321, 331-32, (1971) (Reopening record "to submit additional proof is addressed to [the trial court's] sound discretion."). The supplemental expert reports submitted by the parties are admitted.

Statute of limitations

The government asserts that any costs incurred more than six years before the filing of WE's Complaint on November 16, 2000, are barred. (Def.'s Ans. 2nd Am. Compl. [231] at 7.) The issue was also raised by the court at the beginning of trial. (Tr. 49:24-50:6.) The six year statute of limitations of 28 U.S.C. § 2501,^{70/} is a jurisdictional prerequisite to suit in the United States Court of Federal Claims that cannot be waived. *John R. Sand & Gravel Co. v. United States*, 552 U.S. 130, 134-35, 128 S. Ct. 750, 754-57, 169 L. Ed. 2d 591 (2008).

WE has costs that date back to 1988, although initial expenditures were relatively modest: \$14,195 in 1988; \$80,963 in 1989; \$68,644 in 1990; \$150,444 in 1991; \$217,487 in 1992; \$481,787 in 1993; and \$1,501,072 in 1994. (PX 1029 at KRGWE003832.) The court credits evidence that beginning in the 1980s, WE was

^{70/}"Every claim of which the United States Court of Federal Claims has jurisdiction shall be barred unless the petition thereon is filed within six years after such claim first accrues." 28 U.S.C. § 2501.

well aware that DOE's performance would be significantly delayed which was a substantial and "but-for" cause of its investigation of additional spent fuel storage beginning in 1988 and attendant expenditures, which would not have been incurred if DOE had commenced full performance at the levels of the 1987 ACR. Many of the same events WE cited as the basis for its reasonable belief prior to 1998 that the government would not timely perform are the same as those later cited by the Federal Circuit as supporting the Yankees' reasonable belief that commencing in the mid-1980s, DOE's performance would be delayed. In *Yankee II*, the Federal Circuit declined to limit recoverable mitigation expenses to those incurred after 1994, the year cited in *Indiana Michigan II* when it was "beyond debate that because the government unequivocally announced in 1994 that it would not meet its contractual obligations beginning in 1998, the utilities were in fact obligated to take mitigatory steps." 536 F.3d at 1274-76 (citing the record relied upon by the trial court in *Yankee I*, which included many of the events relied on by WE).

WE's pre-breach mitigation costs are recoverable even though incurred more than six years before WE's Complaint. While a party's obligation to mitigate may arise before performance is due, its claim does not. *Franconia Assocs. v. United States*, 536 U.S. 129, 144-45, 122 S. Ct. 1993, 2003, 153 L. Ed. 2d 132 (2002) (holding a claim "first accrued" not on the date of repudiation, but on the date performance was due). Accordingly, WE's claim for partial breach accrued no later than January 31, 1998 – the last date for commencement of performance under the Standard Contract. Its filing on November 16, 2000 was within the six year statutory period. *N. States*, 78 Fed. Cl. at 458-60 (including in mitigation costs, expenses in 1988 when, on facts presented, the utility has reason to know of impending breach).

Expenses

In addition to contesting causation for the dry storage project and associated cask loadings, the government contests several discrete categories of expenses for other reasons.

Costs of efforts to license VSC-24 for transportation

The PSC approved WE's construction of dry storage and the purchase of 12 VSC-24 casks. As a storage only cask, the VSC-24 would have to be returned to WE's wet pool and the fuel assemblies then transferred to an approved transportation cask before being shipped offsite. Movement of SNF involves costs and risks. As noted, after the acquisition of the VSC-24, the then-industry norm became dual-purpose casks – licensed for storage and transportation. Accordingly, in September of 2002, WE and two other utilities paid for efforts to license the VSC-24 for transportation. (PX 639 (Sept. 18, 2002 proposal to VSC-24 owners for transportation licensing feasibility evaluation).) Although not successful, the efforts were reasonable. (Tr. 5627:3-14 (Brewer).) They are direct costs incurred as a consequence of DOE's breach that would not have been expended in the non-breach world. Accordingly, awarding these costs would not place WE in a better position than if DOE had performed. The government's proposed deduction from damages for those costs is not supported by the preponderant record evidence.

TN-32Bs

Because of problems that developed after WE purchased 12 VSC-24 casks, WE contracted to acquire a different cask system – the TN-32B. The government contests the inclusion of costs associated with this second system.

In late 1994, WE purchased 12 VSC-24 casks and loaded the first in December of 1995.^{71/} As noted, state court litigation concerning the adequacy of the EIS developed by the PSC, halted further loading for a year. The Dane County Wisconsin Circuit Court vacated the PSC's dry storage authorization and remanded for further evaluation.^{72/} On remand, the PSC prepared two supplemental EISs, held additional

^{71/} PSC approval included the purchase and loading of 12 VSC-24 casks. The NRC requires either a site-specific license or a notice of use of approved equipment. The NRC had approved the VSC cask, PX 346 at 14, so WE was able to proceed under that license.

^{72/} The Dane County Circuit Court found that Point Beach could have operated until 1998 without dry storage. (PX 481 at WISC048-0002- 03 ("The pool will be filled by the fall of 1998 if no additional storage is provided. If no on-site facility is approved, it appears most likely that the plant will be required to cease operation in 1998, and would thereby cease generating additional waste.")). Deferring to the fact-finding of the PSC, the Wisconsin Court of Appeals reversed the

(continued...)

hearings and issued an order in May of 1996 authorizing WE to continue loading the VSC-24 casks and placing them on the ISFSI.

There was an explosion in May of 1996 when WE was loading the third VSC-24 cask. Reaction between boron in the pool water and the cask's carbo-zinc coating produced hydrogen which ignited during welding of the cask lid, lifting the five ton lid several inches, leaving it in place but tipped at a slight angle. WE immediately reported this incident to the NRC which sent an inspection team to the site to gather information and monitor WE's internal investigation. On June 3, 1996, the NRC issued a confirmatory action letter ("CAL") which prohibited WE from loading any more VSC-24 casks until the cause of the accident was determined and a solution approved. (PX 1034 (CAL 96-0005).) Although there were no injuries or radiological releases, and no apparent damage to the SNF or the cask, the NRC was concerned about the potential for more severe consequences. (*Id.*) WE stopped loading, secured the site and analyzed whether there were any concerns with the two casks that already had been loaded and placed on the ISFSI pad. WE also formed an internal recovery group which devoted considerable effort to study the event, identify causes and seek a solution to the hydrogen build-up. (PX 424 (eleven member Recovery Team Charter dated July 6, 1996).)

After extensive investigation, we concluded that the cause of the ignition was the production of hydrogen that was the result of a reaction between the zinc based paint on the inside of the cask and the fuel pool water, which is slightly acidic. That produced hydrogen, and eventually, the hydrogen became explosive and was ignited by the weld arc.

(Tr. 1556:23-1557:1-6 (Krieser).)

This was "a significant event, not only for the station, but really for the industry." (Tr. 2020:14-16 (Holzmann)^{73/}.) "It was a fairly serious incident. It

^{72/}(...continued)

underlying conclusion that the EIS was inadequate, but repeated the finding that Point Beach's pool would not be full until 1998. *CUB v. PSC*, 565 N.W.2d 554, 564 (Wisc. App. 1997).

^{73/}Michael Holzmann graduated from the University of Wisconsin, Eau Claire in 1985 with degrees in math and physics. He then served more than 6 years in the United States Navy as a Nuclear Submarine Officer before starting his employment at Point Beach in 1992. In 1999, he was

(continued...)

basically shut us down from conducting dry storage operations until we resolved several safety issues with the cask.” (Tr. 1685:10-13 (Becka).) WE proposed continuous purging of hydrogen gas during loading to prevent build-up and drafted revisions to its loading procedures. Costs of these remedial efforts are included in requested mitigation damages. Alternatives were discussed in case the VSC-24 could not be used, focusing on the TN-32B cask which had been used successfully at other plants. (Tr. 202:25-204:24 (Baumann).)

On May 16, 1997, the NRC issued another CAL to Sierra Nuclear directed to weld issues noted during inspection of cracking at the Palisades and Arkansas Nuclear One nuclear plants (owned by other utilities) which “may have far-reaching generic implications regarding the continued viability of the VSC-24 for dry spent fuel storage.” (PX 1035 at 1 (CAL 97-7-01).) Sierra Nuclear was required to find the root cause, assess the potential for delayed cracking in the welds in the 19 VSC-24 casks then in use, and propose remedial measures. WE was copied on the CAL.

On the same day, the NRC issued a CAL to WE with the same weld concerns and required WE “provide reasonable assurance that cracking, including possible undetected or delayed cracking, will not occur in the welds sealing the shield lid and structural lid to the MSB [multi-assembly sealed basket]” at least fourteen days before loading another VSC-24 cask.” (PX 453 (CAL 97-7-04) at 2.) WE was required to document its commitment to preclude loading until corrective actions were identified and implemented. (PX 1036.) WE could not load VSC-24s until these issues had been resolved to the NRC’s satisfaction. (Tr. 2022:8-11 (Holzmann).)

The CALs were eventually lifted. On September 12, 1997, approving WE’s procedures and remedial measures, the NRC closed-out CAL 96-0005. (PX 477.) On November 6, 1997, the NRC required Sierra Nuclear to respond to additional questions and expressed concern over lack of confirmatory testing, suggesting ultrasonic. (PX 1037.) On August 13, 1998, the NRC closed-out CAL 97-7-004A with conditions. WE was required to ultrasonically test the two VSC-24s then in use and inform the NRC of the results. Three conditions were placed on the fabrication and use of this cask. (PX 525.) WE was required to implement procedures to minimize gas generation and ignition and to respond to any ignition events. (PX 477.) WE had to implement controls on future cask welds. While testing did not

⁷³/(...continued)
the Dry Cask Loading Supervisor.

reveal any weld cracks, WE reasonably believed that if they had, the NRC would have again imposed restrictions on loading. (Tr. 1583:11-1584:8 (Krieser); Tr. 2063:7-2064:5 (Holzmann).)

Prior to the conditional resolution of CAL 97-7-004A, on August 11, 1998, the PSC authorized WE to purchase and load up to six TN-32s^{74/} in lieu of eight VSC-24 casks, if the VSC-24s were not then available, and the NRC approved the TN-32s. “The purchase of these casks, as a method of ensuring the reliability of Point Beach by providing a back-up option in case the VSC-24 cask remains unavailable to [WE], is reasonable.” (PX 524 at KRGWE002387.) The PSC’s approval merits consideration. *Yankee I*, 73 Fed. Cl. at 269, 292. While six were approved, WE contracted to acquire only three for \$5 million, costs included in mitigation damages.

In addition to the serious technical issues with the VSC-24, WE was concerned about the financial stability of its manufacturer, Sierra Nuclear, even after the company was acquired by British Nuclear Fuels, Ltd. (“BNFL”). WE was also concerned about the level of support that BNFL would provide for the single-purpose VSC-24 in view of a dual-purpose cask it was developing. Dual-purpose was rapidly becoming the dry storage norm.

From a technical nature, there were other concerns from the VSC-24 about the ability of Sierra Nuclear to continue to operate or function as a company because they didn’t have a lot of resources or money, and they clearly weren’t selling casks during this period of time. . . . But the industry was never sure whether or not BNFL bought that company out to continue to support the VSC cask 24s or to market another design.

(Tr. 2598:18-2599:11 (Farron). WE’s concerns regarding Sierra Nuclear and the VSC-24 cask were not alleviated. (Tr. 2602:13-24; 2604:22-2605:4 (Farron).)

Sierra Nuclear was also having considerable difficulties from an economic and a commercial standpoint. . . . So there were lots of problems being experienced from a quality assurance standpoint, as well as a commercial standpoint. In early ‘98, I think Sierra had gotten to the point where they really had a skeleton crew of employees, they were

^{74/}Any difference between a TN-32B and a TN-32 is not apparent.

down to seven or eight employees, and they were very rapidly becoming a nonplayer, if you will, in the cask marketplace.

(Tr. 1561:23-25; 1562:10-18 (Krieser).)

We were very concerned about the continued viability of Sierra Nuclear. In fact, they were, as I had mentioned earlier, in very dire straits at this point. . . .

Q: And did you have any concerns about whether the BNFL might be interested in Sierra Nuclear, but not necessarily the VSC-24 cask?

A: For sure. BNFL's primary interest in Sierra Nuclear, I believe, was their dual-purpose technology. They expressed interest in continuing to support the VSC-24 design, but clearly, their objective, primary objective was the dual-purpose casks.

(Tr. 1564:23-1566:5 (Krieser); Tr. 2051:17-2052:8 (Holzmann) ("They were interested in Sierra Nuclear, not in the VSC-24 design, the storage only design. [BNFL] was interested in Sierra Nuclear because of the transportable design.").)

Sierra Nuclear, at the time, there was some question at our company about their continued viability because now, you know, the casks that they designed was one that had, frankly, a flaw that nobody really wants to live with. The fact that no other, you know, utilities have ever ordered or used that canister design again is kind of a tribute to that point. So there was some question on the utilities' part at that time of the continued viability of Sierra Nuclear.

(Tr. 1780:16-1781:2 (Becka).)

WE selected the TN-32B cask because of concerns about the VSC-24s. Mr. Krieser^{75/} testified:

^{75/}Gary Krieser received a B.S. degree in nuclear engineering from the University of Wisconsin at Madison in 1972. He began working at WE in 1977. He was the Manager of Industry and Regulatory Services from 1992 until late 1996, reporting directly to Mr. Link. Mr. Krieser was the Director of Nuclear Fuel Services for NMC from 2000 until June 2002, at which time he joined Wisconsin Electric Power as Manager of Project Quality Assurance. He testified concerning WE's spent fuel management activities during the period from 1992 through 2000.

Q: Did you agree with the [PSC] that it was reasonable for [WE] to purchase the three TN-32Bs?

A: Absolutely. If you rewind the tape back to 1996 through the period up through 1998, obviously, you'd find a lot of significant issues associated with the VSC-24 cask system. Of course, we had the ignition incident, we had the lid weld issues, we had quality assurance difficulties with Sierra Nuclear, we had commercial and economic problems with Sierra Nuclear. It was a very long list of issues. That clearly did not give any confidence, quite frankly, that we would ever be able to load additional VSC-24 casks, so the approach that we took to employ a backup system, to me, was a completely prudent decision. I think the [PSC] agreed with that, and so it was totally appropriate, in my mind, to pursue that particular course of action.

(Tr. 1582:15-1583:10 (Krieser).)

The commercial reasonableness of the TN-32 purchase is amply supported. Indicative of regulatory vigor, the PSC grilled WE about its choice, requesting a description of alternatives and rationale for its selection of the TN-32. (PX 518.) WE's response includes a summary matrix of consideration of twelve different casks and conclusion that "the TN-32 is the best choice for successful deployment at Point Beach as an alternative to the VSC-24." (PX 519 at 2.)

WE was not alone in switching from the VSC-24. In *System Fuels*, the utility started using VSC-24 casks, but before they were all loaded, because the utility "had to investigate other cask suppliers because Sierra Nuclear was ceasing business operations and a system had to be found that could provide dry storage for 'hotter' fuel. The last VSC-24 cask supplied by Sierra Nuclear was loaded in June 2003." 79 Fed. Cl. at 49 (citations omitted). While the substituted system was different, the decision of another nuclear utility to switch from the VSC-24 speaks to the reasonableness of WE's decision in this regard.

The government does not dispute the impact of the VSC-24 CALs, but questions WE's position that these concerns lead to WE's decision to pursue a back-up cask. Reliance is placed on WE's optimism that the CALs would be lifted.^{76/} The

^{76/}The government cites to Mr. Holzmann's optimism that the NRC would eventually lift the
(continued...)

government also comments that WE had other problems with the NRC.^{77/} Regardless, WE eventually loaded its remaining VSC-24s. In short, the government argues that WE's purchase of three TN-32Bs as back-up was not reasonable, foreseeable nor caused by DOE's delays.

The parties also disagree over whether the costs of the TN-32Bs were included in WE's rate base. The government points out that both WE's application and the PSC approval was for the "use" of the TN-32B without mention of inclusion in rates. (PX 510; PX 524.) Correspondence from the PSC to an intervenor deferred issues about inclusion in the rate. (DX 79 (August 28, 1998 letter) ("Whether ratepayers will pay for unused casks may be determined in the fuel rate case that would be filed this fall.")) There was no fall 1998 rate case.

Mr. Farron, who worked with the PSC on WE's nuclear matters for more than twelve years, testified that the PSC's August 11, 1998 order was a prudence review that authorized inclusion of the costs of the TN-32Bs in the rate base. He also testified that he received a verbal confirmation from the PSC that these costs could be included in the rate base. The court also notes that, Mr. Metcalfe,^{78/} WE's financial expert, testified that WE advised him that the TN-32B costs were recovered in the rate base, an assumption in his damages opinion. Regardless of whether or not it was included in the rate base, WE spent the money.

The government's expert witnesses agreed that the acquisition of this alternative system was reasonable. (Tr. 5651:7-11, 20-23 (Brewer) ("I've never taken

^{76/}(...continued)

CALs so that loading of the VSC-24s would continue and to management planning updates that assumed loading would resume. (Tr. 2123:10-2124:9 (Holzmann); DX 200.)

^{77/}In December of 1996, the NRC fined WE \$325,000 "in civil penalties for performance deficiencies and violations of NRC requirements in various activities." (PX 801 at KRGWE000274.) The relevance of these infractions is not clear.

^{78/}Kenneth Metcalfe is a Certified Public Accountant and Certified Valuation Analyst. He has a B.S. in Business Administration from Georgetown University and is President of the Kenrich Group, LLC, a national consulting firm, with expertise in accounting, finance and engineering, including the preparation and evaluation of economic damage claims arising in the public utility industry. He has testified as an expert witness in several SNF cases and in this case was qualified as an expert in accounting, financial and economic issues and economic damages in the regulated public utility, nuclear power and public contract industries.

exception, and I don't think anyone has taken exception to the idea that the concerns that led [WE] to starting down the TN-32 metal cask path were unreasonable or irrational It's really more, I think that whole issue is really more a question of at what point, if ever, should they have simply stopped the process."); Tr. 5898:2-10 (Hamal) ("I start by looking at the situation [WE] found itself in, in the spring of '98 when it decided to order the TN-32B casks as a contingency plan in case there were further problems on the VSC-24 casks. I don't disagree with that conclusion. I do not reach – you know, reach an opinion that it was unreasonable for them to order these casks in the first place.").) Furthermore, Mr. Brewer did not offer an opinion whether it was reasonable for WE to complete the fabrication of the TN-32B casks. (Tr. 5651: 24-25; 5652:1-3 (Brewer).)

The court reiterates that the necessity for dry storage was foreseeable. WE's acquisition of the TN-32Bs was commercially reasonable, vetted and approved by the PSC. That they were not used does not exclude these expenses from damages. The Federal Circuit in *Yankee II* rejected the government's request to exclude from mitigation damages the costs of the additional spent fuel racks purchased because of DOE's partial breaches, but subsequently rendered redundant.

This court also assesses the reasonableness of the Yankees' reracks in light of the record evidence that these mitigation efforts allegedly began years before necessary and allegedly proved completely unnecessary because the reactors shut down early. The record shows that the reracks were not premature. Rather, the record shows that the Government placed the Yankees in a position requiring immediate steps to find alternate storage and to "accept responsibility to guard against the environmental impact of improperly-disposed and maintained SNF, a situation which the NWPA was enacted to avoid." [*Ind. Mich. II*, 422 F.3d 1375.] In that position, "[i]t would have been improvident for [the Yankees] to have waited until January 1998 before deciding what to do with [their] nuclear waste." *Id.* Accordingly, the trial court found, and this court affirms, that in light of the amount of time required to engineer, fabricate, and install new racks, the Yankees' rerack schedule was reasonable.

The record also shows that the reracks were reasonable even though early closure of some facilities rendered some of the efforts unnecessary. The Yankees are "not precluded from recovery . . . to the

extent that [they have] made reasonable but unsuccessful efforts to avoid loss.” *Id.* (quoting Restatement (Second) of Contracts § 350 comment b). Because the rerack efforts were reasonable, foreseeable, and caused by the Government’s partial breach, their ultimate success and usage is irrelevant. Accordingly, this court affirms the trial court’s findings that the Yankees’ rerack decisions were “commercially reasonable” and “foreseeable to DOE at the time of contracting.” *Yankee I*, 73 Fed. Cl. at 279, 283.

Yankee II, 536 F.3d at 1276 (first alteration added). *See also Home Sav.*, 399 F.3d at 1353 (upholding fair and commercially reasonable mitigation efforts).

WE loaded the third VSC-24 cask (the previous loading was aborted with the flaming incident) on September 10, 1998 and the fourth and fifth by November 1998. In June 1999 there was another flaming incident at another utility’s plant. (PX 558 (July 23, 1999 report).)

The government complains that WE could have resumed loading of the VSC-24s, and with the loading of the third VSC-24 cask on September 10, 1998, WE no longer faced a potential shutdown by spring of 2000. At that time, WE could have stopped fabrication of the TN-32Bs as permitted under the purchase order. Also the flaming incident at another utility’s plant did not prevent WE from loading casks in 1999 through 2003; therefore, WE’s “fears” that the NRC may again stop WE from loading more VSC-24s were not serious. Accordingly, Mr. Kiraly proposed to reduce or adjust WE’s claim by \$5,058,733 for TN-32B costs considered unnecessary. (Tr. 6155:11-20 (Kiraly); DX 625 at WXE0220135.)

WE responds that the NRC’s lifting of the CALs was conditional and either required inspections or ultrasonic testing could have reinstated loading restrictions. Concerns about the financial stability of Sierra Nuclear continued. And, WE believed that even if it did not need the TN-32Bs, its ability to sell them to another utility would be enhanced if the casks were completed. Two of the three were completed. WE attempted to sell the casks in 2000 without success. (Tr. 1584:12-1586:14 (Krieser); 2608:7-2609:11 (Farron).) Government expert Mr. Brewer admitted it made sense to complete fabrication to increase marketability, and agreed there are circumstances where it could be reasonable to have a backup cask. (Tr. 5616:1-16 (Brewer).)

The government correctly points out that WE's TN-32B contract allowed for termination. "Buyer may terminate work on this order for its own convenience in whole or in part by written notice at any time." (DX 161 at WISC 00064081.) The price for termination, however, would have been the value of work in progress, profit of ten percent plus any subcontractor cancellation fees. (*Id.*) If WE had terminated in the spring of 2000 as the government suggests, those costs were estimated as from \$2.5 to \$3.2 million. (Tr. 6294:22-6304:9 (Metcalf).)^{79/}

WE is "not precluded from recovery . . . to the extent that [it] has made reasonable but unsuccessful efforts to avoid loss." *Ind. Mich. II*, 422 F.3d at 1375 (alteration in original). See *SMUD II*, 293 Fed. Appx. at 772 ("It is the Government's burden to show that it was unreasonable for SMUD to pursue dual-purpose storage canisters to mitigate the Government's breach." (citing *Old Stone Corp. v. United States*, 450 F.3d 1360, 1370 (Fed. Cir. 2006).) WE would not have had the VSC-24s, or the problems with the VSC-24s, or the TN-32Bs if DOE had performed in the non-breach world at the 1987 ACR rate. In the breach world, the acquisition of these casks, authorized by the PSC, was a commercially reasonable, direct consequence of, and caused by, DOE's delays. They would not have been acquired in the non-breach world of 1987 ACR full performance. Accordingly, awarding these costs would not place WE in a better position than if DOE had performed. The court concludes that WE reasonably determined that it could not rely solely on the VSC-24 casks being free of future problems, technical or otherwise. WE could use the TN-32Bs or they could serve as a back-up if there were additional problems with the VSC-24s until WE obtained a successor cask. WE's concerns about the VSC-24 casks and its manufacturer, together with its business prediction that completing the casks would avoid large termination costs, and the completed casks would be easier to sell in a breach world where the industry was scrambling to find storage, all support the commercial reasonableness of WE's decision in this regard. The government's proposed damages deduction for TN-32B costs is rejected.

The government also argues that WE should not recover the cost of these casks because they were included in its sale of Point Beach to FP&L.

^{79/}The court finds WE's financial expert, Mr. Metcalfe's, testimony estimating these cancellation charges was appropriate rebuttal and limited in scope, and **denies** the government's motion that this testimony be stricken.

WE responds that there is no record evidence that FP&L paid WE specifically for the TN-32Bs. Also, as the damages cutoff date is prior to the sale to FP&L, any potential offset after that date is not relevant in this litigation.

Under the teachings of *Indiana Michigan*, the instant litigation is limited to actual incurred costs. To be consistent, any offsets would also be limited to those arising during that same period. See *Carolina Power II*, 573 F.3d at 1277 (rejecting possible future offsets). By its sale of Point Beach to FP&L, WE waived any further damages arising out of DOE's partial breach. It is beyond the scope of this litigation to consider whether the government could assert any TN-32B offset in future litigation, if any, brought by FP&L.

The NUHOMS dual-purpose cask

The capacity of WE's ISFSI was 48 casks. WE loaded 12 VSC-24 casks as approved by the PSC and requested PSC authorization to purchase up to 36 additional casks at an estimated cost of \$35.7 million. (PX 575 (May 2, 2000 application); PX 576 (May 10, 2000 corrected application).) To remain flexible, WE did not specify a cask type, but its preference was to transition to dual-purpose casks, a newer technology encouraged by the PSC.^{80/}

Although [WE] would prefer to use dual[-]purpose casks, which are certified [by the NRC] both for storing and for transporting [SNF], the company stated that it does not have sufficient time to implement a dual-purpose system at Point Beach to prevent the loss of full core off-load capability in 2002. As a result, [WE] declared that the first four dry casks it intends to procure are VSC-24 casks, the same as the 12 it has loaded to date. VSC-24 casks are certified for storage only, not for transport. The Commission agrees that this decision is reasonable,

^{80/}Advantages of dual-purpose storage systems include reduction in labor and environmental risks in that the SNF in dry storage would not need to be returned to the spent fuel pool, removed from the storage casks and placed in a transportation vessel, with transfer taking place in the spent fuel pool. Earlier, the PSC recognized the advantages of dual-use casks in its February 9, 1995 Order approving the ISFSI stating that the "licensing and fabrication of a multi-purpose cask for storage, transportation and disposal" appeared to be "environmentally superior to dry cask storage" because handling of assemblies would be reduced; however, this option was not "available now, or likely to be available soon." (PX 374 at 11.)

although it encourages [WE] to consider dual[-]purpose casks in the future because they will eliminate the need to unload storage casks and place spent fuel assemblies in casks that are certified for transport.

(PX 592 at 9-10 (March 27, 2001 PSC Final Decision).)^{81/}

WE solicited proposals for dual-purpose casks, receiving responses from Holtec, Transnuclear, Inc. and NAC International, Inc. Transnuclear's NUHOMS cask was selected. NMC entered into a Purchase Order with Transnuclear on March 5, 2002. (PX 692; PX 724.)

NUHOMS dual-purpose casks are huge, when loaded weighing as much as a 777 aircraft (about 140 tons). (Tr. 5529:9-18 (Brewer).) Unlike the cylindrical casks encasing the VSC-24s that are placed vertically on the ISFSI, because of their flat sides and squarish corners, NUHOMS are placed horizontally side-by-side on the ISFSI. (PX 740.009 (photo of NUHOMS on WE's ISFSI).)

WE cites several advantages of the NUHOMS compared to the VSC-24, including: (1) easier to load due to horizontal rather than vertical design, (2) safer to load, (3) less time to load and consequent lower loading costs, (4) higher burn-up capability,^{82/} and (5) because it was dual-purpose, it had the potential to avoid repackaging the SNF for shipment off-site, thereby reducing labor and possible radiation exposure. Also, because other NMC plants were purchasing NUHOMS, WE received a price advantage. Ms. Supko opined that WE's decision to acquire NUHOMS was reasonable and foreseeable. She predicted that dual-purpose containers would be accepted at the repository; would enhance the ability to ship to any private fuel storage location; and were contemplated under the 1987 ACR (PX

^{81/}Findings included: "[t]he construction of additional dry casks will not provide facilities unreasonably in excess of [WE's] probable future requirements[:]" and "[w]hen the additional dry casks are placed in operation, the value or available quantity of [WE's] electric service will increase by an amount that is proportionate to the increase in cost-of-service." (PX 592 at 3.)

^{82/}NUHOMS can store hotter SNF. In 2001 when WE chose the NUHOMS system, the VSC-24 cask was licensed to hold only the older and colder Westinghouse Standard assemblies which had been discharged from Point Beach reactors through 1987. (Tr. 1773:20-1774:5(Becka).) By 2003, the NRC expanded the type of fuel that could be stored in the VSC-24, but by that time, the NUHOMS decision had been made. (Tr. 1567:1-16 (Krieser).)

123 at 2), the Draft EIS for Yucca Mountain (PX 619) and DOE's Supplement to the Final EIS for Yucca Mountain, 71 Fed. Reg. 60490, 60492 (October 13, 2006).

The government responds that dual-purpose casks were neither foreseeable nor reasonable, and it was and is speculative whether these casks will be an acceptable waste form under the Standard Contract which requires delivery to DOE of either bare assemblies or assemblies stored in an approved canister. Rationale that a dual-purpose system would facilitate shipment to any private or other storage facility is (and was) conjecture the government adds, and it is asserted, accounting records do not support the claim that VSC-24 loading evolutions were more labor intensive. While no other utility was using single-purpose containers, it is argued that this does not support assessing the higher cost for dual-purpose casks as damages. The government also asserts that the greater weight of NUHOMS will preclude their removal from the plant site by either rail or barge. Ms. Supko's opinion favoring dual-purpose casks is disparaged as not in her area of expertise and the government notes that she admitted there is no assurance DOE would accept fuel contained in dual-purpose systems.

In *SMUD II*, the Federal Circuit described the shift to dual-purpose casks as "near universal," rejecting the government's position on foreseeability and reasonableness. 293 Fed. Appx. at 772 (noting the government did not appeal the issue in *Yankee I* or *PG & E I*). Damages in other SNF cases have included costs for a switch to dual-purpose casks. In *Dominion Resources, Inc. v. United States*, 84 Fed. Cl. 259, 268 (2008), the utility constructed an ISFSI in 1998, initially loading the TN-32, later the NUHOMS system. See *SMUD I*, 70 Fed. Cl. at 353-54.

The use of multi-purpose storage containers was foreseeable and actually foreseen by DOE. *Yankee I*, 73 Fed. Cl. at 289. Dry storage of SNF is a complex, relatively new and evolving technology. Change and improvement is not unexpected. To limit foreseeability and recoverability of mitigation damages to decades-old technology is neither reasonable nor desirable. As the Federal Circuit observed, utilities were forced to was "accept responsibility to guard against the environmental impact of improperly-disposed and maintained SNF, a situation which the NWPA was enacted to avoid." *Yankee II*, 536 F.3d at 1276 (citing *Ind. Mich. II*, 422 F.3d at 1375). Responsibility for this ultra-hazardous activity, includes, and indeed requires, use of technological advances.

The government did not establish that this near-universal shift to dual-purpose technology was unreasonable. *Old Stone*, 450 F.3d at 1370. The court concludes that WE's decision to switch from the VSC-24 to the NUHOMS cask system was commercially reasonable, foreseeable and caused by DOE's delays, and declines the government's request to exclude these costs from damages. If DOE had timely started full performance at the rates in the 1987 ACR, these costs would not have incurred. Accordingly, awarding these costs would not place WE in a better position than if DOE had performed. The method, if any, for future removal of WE's SNF, stored in NUHOMS, for disposal by DOE, is beyond the scope of this litigation.

Private Fuel Storage

The government seeks to deduct from damages \$1,225,758 in costs WE incurred from 1994 until 1999 in pursuit of private offsite storage for its SNF. (Def.'s PFF [386] ¶385.)

In the mid-1990s, a group of nuclear utilities began to investigate the development of an off-site facility at which spent fuel could be maintained in dry storage until DOE honored its contractual obligations and accepted the spent fuel. Some of those nuclear utilities (including WE) formed a company (now named Private Fuel Storage, LLC) to pursue an initiative with the Skull Valley Band of Goshutes Indians Tribe in Utah to develop and attempt to license a private spent fuel storage facility on the Goshute[']s Reservation.^{83/}

(PX 794 at 19 (May 8, 2006 Revised Expert Report of the Kenrich Group); PX 388 at WISC 00009885 (Acknowledgment and Agreement signed by Mr. Link on May 19, 1995 "to participate in and fund a portion of the costs of the planning of, and the study of the feasibility of, the Facility").) This effort became known as Private Fuel Storage ("PFS").^{84/} From 1994 to 1999, WE spent \$883,503 on PFS. (DX 625 at WXE 0220011, 0220080-83.)

^{83/}Negotiations began with the Mescalero Apache Tribe in New Mexico, then with the Goshute Indian Tribe in Utah.

^{84/}Private Fuel Storage, L.L.C. is a Delaware limited liability corporation, incorporated on September 6, 1995.

In 1997, WE stopped contributing to PFS when success became questionable and injection of “additional equity” would be considerable. (Tr. 1552:3-1554:4 (Krieser); Tr. 2657 (Farron); PX 454 (May 1997 letter informing PFS that WE would not be participating in Stage four).)

Q. And did you indicate that [WE] has withdrawn as investors from the [PFS] project?

A. Yes, we officially withdrew in 1997. I think we would have withdrawn sooner, but the agreement with the utilities was that, at each milestone, the utilities could make a decision whether they wanted to continue with the project or not, and we had just reached a milestone, I believe it was an agreement, the agreement for the site with the host, and they agreed with the Goshute Tribe at that point in time. They reached agreement.

Q. The fact that [WE] is no longer an investor in the [PFS] project, does that necessarily preclude [WE] from being a customer of a [PFS] project?

A. No, that does not preclude us from being a customer.

(Tr. 2716:24-2717:24 (Farron).)

These costs were not presented to the PSC; they were not included in the rate base. (Tr. 4803 (Metcalf); DX 227 at 1 (PSC letter to intervenor that the cost of participation in the PFS consortium was disallowed and not included in the rate base).) The costs were eventually written-down. (Tr. 2998:24-25; 2999:2-3 (Straub⁸⁵); Tr. 4803 (Metcalf).)

WE also investigated potential storage at Owl Creek, Wyoming and Oak Ridge, Tennessee and offshore and international disposal with a British company (BNFL) and the African nation of Cape Verde. (Tr. 1554:5-24 (Krieser); 539:10-24 (Link).) Roger Newton, an assistant to Mr. Link, developed a proposal for an international

⁸⁵Ione Straub has more than 20 years of accounting experience at WE, specifically in the Nuclear Power Department, including during the development and implementation of the dry storage project. Ms. Straub joined WE in 1981 after receiving a B.A. in business administration from the University of Wisconsin, Madison. She retired from WE in 2002 and then worked part-time in a medical office and as a contract employee for WE in the preparation of its claims in this litigation.

repository – the Newton Project.^{86/} (DX 185; Tr. 537:8-539:9 (Link).) WE spent \$342,255 in legal expenses on these off-site matters. (Jt. Stip. Re. Pl.’s Claim for Legal Costs [369] at 1.)

Off-site private storage was reasonably foreseeable. The NWPA references off-site storage. 42 U.S.C. § 10155(h) (“[N]othing in this chapter shall be construed to encourage, authorize, or require the private or Federal use, purchase, lease, or other acquisition of any storage facility located away from the site of any civilian nuclear power reactor and not owned by the Federal Government [on the date of the enactment of the NWPA].”). In 1983 when he was DOE’s SNF program director, Robert Morgan cited as a goal the avoidance of additional off-site as well as on-site storage costs: “beginning in 1998, utilities will not have to provide any additional storage facilities on site. During the first year of operation of the repository in 1998, we should be receiving fuel at a rate so that no utility would have to add any further storage facilities either on site **or at another location.**” (DX 493 at SN069599 (emphasis added).) *See Ind. Mich.*, 422 F.3d at 1376 (“DOE should have foreseen that its breach would force Indiana Michigan to find alternate storage for its SNF.”); *N. States*, 78 Fed. Cl. at 466.

WE asserts that DOE’s delays were the reason why private off-site possibilities were investigated. WE was concerned whether the PSC would authorize sufficient storage so that WE could continue to operate until the end of its license. Only 12 casks were initially approved. WE estimated it would need approximately 36 additional casks and believed that the PSC would be more amenable to approving additional casks if WE was investigating private off-site storage. (Tr. 1551:25-1553:1 (Krieser) (PFS had the potential to get the SNF off-site and out of Wisconsin).)

^{86/}The Newton project involved a partnership with France or a French company to develop an underground repository on an uninhabited French island. While profit potential was mentioned in this 1995 outline, it was last on a list of several potentials. The primary purpose for the project was to solve the problem caused by the domestic nuclear industry running out of spent fuel storage, and absent a storage solution, the industry might cease to exist. Despite at that time some \$600 million paid by ratepayers into the NWF, the Yucca Mountain repository was years behind schedule, billions of dollars over budget and “it is highly questionable whether the repository will ever open.” (DX 185 at 14.) Any profit motive does not detract from the DOE delays comprising the underlying substantial cause of these efforts in the breach world. These efforts would not have been expended in the non-breach world as DOE would collect and dispose of WE’s SNF.

The PSC and intervenors in WE's PSC proceedings were concerned that the ISFSI would become a *de facto* repository, and advocated private off-site storage as a possible solution, although it may not have solved WE's immediate needs. (Tr. 422:15-423:3 (Link); PX 357 at 10 (responding to criticism that the proposed ISFSI would be permanent, Mr. Link testified before the PSC that WE was pursuing private off-site storage, including a possible facility on Mescalero Apache tribal land).) The Lake Michigan Coalition criticized WE for not sufficiently exploring this possibility. (PX 592 at 8.)

The court credits witness testimony that pursuit of private storage was in reaction to DOE's delay. With DOE's full performance in the non-breach world, there would have been no reason to seek a private SNF storage solution.

- (Tr. 1551:3-24 (Krieser) ("Our strategy to deal with DOE's lack of performance always included an intention to pursue away-from-reactor storage facilities, and that would include industry wide initiatives, as well as some of our own.").)
- (Tr. 422:15-423:13 (Link) ("Q: And what was the thinking in pursuing [PFS]? A: Well, as I think we've discussed already, one of the characterizations by the intervenors and concerns that they represented was that the project at Point Beach, the dry fuel storage project at Point Beach would ultimately become what they called a *de facto* permanent storage. And they obviously, and the commission staff did not want that to happen because of the high speculation as to not only when, but some of the intervenors questioned whether if DOE would ever fulfill their obligation.").)
- (Tr.425:10-20 (Link) ("Q. In participating in PFS, did [WE] have any financial motives? A. No, we were primarily motivated to work with the industry on resolving basically what I'll call an interim problem that DOE was creating by their nonperformance to take fuel, and so we, like some other utilities, were trying to join forces and make some sense out of it. It was simply that. We did not anticipate really making any money out of it in that regard.").)
- (Tr. 1552:3-1555:4 (Krieser) ("Q: And why did [WE] pursue PFS? A: I think what I stated just a minute ago was the reason for that. It was an

opportunity, a potential opportunity for us to ship spent fuel from Point Beach, it was an away-from-reactor storage opportunity, if you will. Q: Did there come a time when [WE] decided to withdraw from PFS? A: Yes, there was. We were a very active participant in this project from the beginning, up through early 1997, I think I would say. And at that point, the project was beginning to run into considerable opposition from – there were regulatory issues that were involved. . . . And they were going to be requiring a considerable amount of injection of additional equity into the project, and considering all the issues that we felt were out there affecting the possible success of the project, we decided at that point that we were going to withdraw from our participation, and we did.”.)

- (Tr. 1553:25-1554:4 (Krieser) (“Q: And if DOE had performed under the standard contract, do you believe that [WE] would have pursued the PFS initiative? A: Not at all.”).)

The record does not show that WE retains any ownership interest in PFS.^{87/}

The government argues that *Indiana Michigan II* precludes the recovery of PFS-related costs. The *Indiana Michigan* opinion is limited to its facts. *Id.* 1375-76 (“on these facts, the trial court’s findings that *Indiana Michigan* is not entitled to damages is supportable. . . . [and] [t]he credited evidence also showed that the utility’s investment in the private storage facility was speculative and that the high cost of the venture was unforeseeable.”). See *Yankee II*, 536 F.3d at 1273-74 (limiting *Indiana Michigan*’s holding on timing of duty to mitigate to its facts, not precluding recovery for earlier mitigation expenses). “The law does not require that the specific method of mitigation be foreseeable.” *SMUD II*, 293 Fed. Appx. at 772 (explaining that foreseeability constrains the type of loss – additional SNF storage to mitigate DOE’s delays – not the specific methods of mitigation) (citing *Citizens Fed. Bank v. United States*, 474 F.3d 1314, 1321 (Fed. Cir. 2007) (“If it was foreseeable that the breach would cause the other party to obtain additional capital, there is no

^{87/} “THE COURT: Do you know if [WE] retains any ownership interest in PFS at the present time?

MR. CARNEY: No, it does not, Your Honor.” (Final Arg. Tr. 86:11-14.)

requirement that the particular method used to raise that capital or its consequences also be foreseeable.”).

Private offsite storage was a commercially reasonable mitigation response. PFS was cited as a possible future storage solution in a 2001 DOE report to Congress.

Transport of the SNF to licensed off-site storage facilities has been successfully done in the United States for many years. This includes transshipment of SNF to other reactor sites owned by the utility. Shipments could also be made to a licensed facility owned by another company, . . . the proposed Private Fuel Storage (PFS) facility which is currently undergoing licensing review by the NRC, or the Owl Creek Project planned for Wyoming by the NEW Company.

(PX 590 at 7 (Jan. 2001 DOE, Spent Fuel Management Alternatives Available to Northern States Power Company, Inc., *et al.*) (footnote omitted).)^{88/} PFS was noted as a possible contingency in DOE’s 2002 draft Yucca EIS. “DOE recognizes interim storage at the [PFS] facility in Utah to be a reasonably foreseeable future action and has included this proposed action” *S. Nuclear*, 77 Fed. Cl. at 444 (referencing draft EIS). (PX 786 at Table 7-1 at 4 (noting 1997 Environmental Report for PFS’s proposed ISFSI license application, NRC initiation of development of a draft EIS and scoping meeting on June 2, 1998).)

The NRC granted PFS a license on February 22, 2006.^{89/}
<http://www.nrc.gov/reading-rm/doc-collections/news/2006/06-028> (last visited Oct. 21, 2009).
 Attaining an NRC license speaks to the commercial reasonableness of this venture.

Participation by other utilities lends support to a conclusion that WE’s PFS activity was reasonable in the circumstances involved. *See Dairyland Power Coop. v. United States*, 82 Fed. Cl. 379, 381, 387 (2008) (“declin[ing] to find that *Indiana Michigan II* precludes the recovery of PFS-related expenses as a matter of law” and

^{88/}DOE produced this report in response to a congressional request to identify “all alternatives that are available to Northern States Power Company and the Federal Government to allow the company to continue to operate the Prairie Island nuclear generating plant until the end of the term of the license issued to the company.” (PX 590 at 3.)

^{89/}Ms. Supko prepared PFS’s spent fuel projections included in the NRC’s EIS. (Tr. 3040:18-25; 3041:1-15 (Supko).)

denying the government's motion for summary judgment on recoverability of more than \$10 million spent towards development of private off-site alternatives for storage of its SNF); *N. States*, 78 Fed. Cl. at 465 (finding *Indiana Michigan* was not dispositive on this issue and including \$24,720,000 in PFS in damages); *Sys. Fuels, Inc. v. United States*, 78 Fed. Cl. 769, 782 (2007) (noting that the utility considered but rejected private fuel storage due in part to its considerable cost); *S. Nuclear*, 77 Fed. Cl. at 445 (limiting *Indiana Michigan* to its facts but declining to award PFS-related costs advanced by the utility's parent corporation and "on this record, foreseeability and substantial causation were not established."); *PG & EI*, 73 Fed. Cl. at 429-30 (concluding the utility's expenditures on PFS were speculative and not foreseeable); *TVA*, 69 Fed. Cl. 515, 529 (2006) (noting that TVA evaluated private storage possibilities); *Entergy Nuclear Indian Point 2, L.L.C. v. United States*, 64 Fed. Cl. 515, 522 (2005) (noting utility's mitigation costs included private fuel storage); Pl.'s Pretrial Mem. [75] at 22-23, *S. Calif. Edison v. United States*, No. 04-109 (Fed. Cl. Feb. 13, 2009) (noting formation of PFS because of uncertainties and delays in DOE's performance, potential problems with on-site dry storage and consequent expenditure of over two million dollars); J. Prelim. Status Rep. [49] at 3-4, *Ill. Power v. United States*, No. 04-133 (Fed. Cl. Mar. 5, 2009) (representing possible future motions concerning recoverability of \$1.7 million for exploring private fuel storage). *See generally Devia v. NRC*, 492 F.3d 421, 422 (D.C. Cir. 2007) (describing PFS as a "consortium of eight nuclear utilities" that applied to the NRC to build and operate an ISFSI); *Utah v. Dep't of Interior*, 256 F.3d 967, 968 (10th Cir. 2001) (addressing a May 1997 lease between the Skull Valley Band of Goshute Indians and PFS, a limited liability corporation composed of electric utility companies); *Skull Valley Band of Goshute Indians v. Nielson*, 376 F.3d 1223, 1227, 1240-54 (10th Cir. 2004) (describing PFS, a party plaintiff, as a consortium of utilities and holding federal law preempted state statutes restricting private spent fuel storage); *Bullcreek v. NRC*, 359 F.3d 536 (D.C. Cir. 2004) (rejecting Utah's challenge to federal statutes and regulations concerning SNF).

The government contends PFS was not reasonable mitigation because any private facility was not going to be ready in time to meet WE's storage needs, and it was more costly – storage at PFS would be \$1,000,000 per cask and \$20,000 per cask annually for O&M, versus \$300,000 per cask and \$20,000 per cask annually for O&M at WE's ISFSI. (Def.'s PFF [386] ¶ 371.)

Mr. Link testified before the PSC in October of 1994 that WE strongly supported private storage efforts, and that along with other utilities, was putting

together a business plan with the Mescalero Apache Tribe in New Mexico for a possible ISFSI on tribal land, then-estimated to start in 2003. While he testified this would be too late for WE's immediate needs and would be more expensive than dry storage, he was responding to an inquiry about what WE was doing to avoid the requested ISFSI from becoming a permanent waste dump. (DX 275 at 15-16.) Even if PFS was not expected to be ready until 2003, it would have been able to handle or at least ameliorate WE's storage needs if the PSC did not approve WE's second round of cask loading, and WE needed storage to the end of its license. Moreover, the Standard Contract requires not only the removal of WE's SNF, but also its "disposal."^{90/} Action taken to prevent Point Beach from becoming a *de facto* repository or disposal facility, with permanent WE responsibility for storage, was reasonable and foreseeable.

WE's PFS decisions and consequent expenses were caused by DOE's delays. If DOE had performed at the rates in the 1987 ACR, neither the decisions nor the expenditures would have been made. WE asserts the government does not contest causation, only reasonableness of its mitigation choices, and on that accord, the government bears the burden of establishing that WE's decisions were not reasonable. Regardless of whether the government's points go to causation or reasonableness, the court concludes that WE has met its burdens in this regard. While PFS was expensive, it was fundamentally a possible solution for DOE's delays. The court also concludes that WE's PFS decisions and expenditures were foreseeable and commercially reasonable and the amounts thereof were established with requisite certainty. *Yankee II*, 536 F.3d at 1276. *See also Home Sav. of Am. v. United States*, 399 F.3d 1341, 1353 (Fed. Cir. 2005) (upholding fair and commercially reasonable mitigation efforts). The expenditures would not have been incurred in the non-breach world of the 1987 ACR and recovering these costs would not place WE in a better position than if DOE had performed.

^{90/}DOE "shall accept title to all SNF and/or HLW," "provide subsequent transportation for such material to the DOE facility and dispose of such material." (PX 41 at Art. IV.B.) "Disposal" is the "emplacement in a repository . . . whether or not such emplacement permits recovery of such waste" (*Id.* at Art. I.8.)

NRC fees

The NRC issues operating licenses to commercial nuclear power plants under to 10 C.F.R. Part 50 (“Part 50”). Dry storage operational licenses fall under 10 C.F.R. Part 72 (“Part 72”). The NRC also assessed fees for services.

Part 170 fees

In 1983 when the Standard Contract was signed, the NRC charged hourly rate fees for direct services under 10 C.F.R. Part 170 (“Part 170”). Examples of Part 170 fees include review of license applications or amendments. Inspections also generated Part 170 fees. WE paid \$175,891 in Part 170 fees related to dry storage: \$149,816 from 1996 through 2002; \$13,716 in 2003; and \$12,360 in 2005. (DX 625 at WXE0220126; PX 1029 at KRGWE003854; DX 299 at 6.)

WE asserts these fees were foreseeable and caused by DOE’s delays. In the non-breach world, WE would not have paid them because there would have been no dry storage facilities or activities to inspect or license. Given the conclusion that the DOE’s delays caused WE to build and load the ISFSI, which would not have occurred in the non-breach world, there is no dispute over the recovery of Part 170 fees as costs of mitigation.^{91/}

Part 171 fees

In 1983, when the Standard Contract was signed, the NRC did not assess annual license fees, or charge for generic services such as research or rule-making that applied to more than one licensee.

^{91/}

[MS. SNYDER:] [W]ith respect to the Part 170 fees, which are specific fees related to the ISFSI at [Point Beach], our argument is, there is no causation for those because our argument is, they would have had the ISFSI, they should have paid it, and it’s not because of the DOE delay.

THE COURT: If there is causation, I take it that you would not object to it.

MS. SNYDER: To the Part 170 fees.

THE COURT: If there were causation.

MS. SNYDER: I think it would be hard to argue otherwise.

(Final Arg. Tr. 157:15-158:1.)

In 1986, Congress granted the NRC authority to assess annual license fees in the Consolidated Omnibus Reconciliation Act of 1985, Pub. L. No. 99-272, 100 Stat. 82 (1986), which also required that the NRC collect approximately 33 percent of its budget through fees.^{92/} For the first time, the NRC instituted a Part 171 annual operating reactor fee on Part 50 licensees. See Annual Fee for Power Reactor Licensees and Conforming Amendment, 51 Fed. Reg. 33,224 (Sept. 18, 1986); 10 C.F.R. § 171.15(c). There was no annual generic fee on Part 72 dry storage facility licensees.

In 1990, Congress passed the Omnibus Reconciliation Act of 1990 (“OBRA-1990”), Pub. L. No. 101-508, 104 Stat. 1388 (1990), which required that the NRC recover 100 percent of its annual budget from generic and specific activity fees. Revision of Fee Schedules; 100% Fee Recovery, 56 Fed. Reg. 14,870 (Apr. 12, 1991). As a result, the NRC instituted a Part 171 annual generic fee on Part 72 dry storage licensees seven years after the Standard Contract was signed, and eight years before DOE’s performance was to commence. There was no annual Part 171 generic fee for wet storage.

Included in WE’s claim are \$908,700 in Part 171, Part 72 dry storage NRC license fees. (DX 625 at WXE0220126 (sum of Project/WBS Code 1203430).) It is WE’s position that because DOE’s delays caused the construction of dry storage, and in the non-breach world, dry storage would not have been built, these fees are recoverable.

The government resists responsibility for dry storage or any of its attendant costs. In 1983 when WE entered the Standard Contract, NRC fees for generic activities did not exist. It is argued the additional fee resulted not from regulatory concerns but from a congressional cost directive which comprises an asserted intervening act – a step removed from DOE’s breach which serves to cut off causation. The government cites *Old Stone Corp. v. United States*, 450 F.3d 1360, 1376 (Fed. Cir. 2006) and *Myerle v. United States*, 33 Ct. Cl. 1 (1897).

^{92/}In 1987, Congress increased this amount to not less than 45 percent. Omnibus Reconciliation Act of 1987, Pub. L. No. 100-203, 101 Stat. 1330 (1987); Annual License Fees for Fiscal Year 1990 for Power Reactor Licenses, 55 Fed. Reg. 7510-03 (Mar. 2, 1990) (estimating collection of approximately \$195 million in fees based on a FY 1990 budget of \$438.8 million, with anticipated fees of \$115 million in Part 171 annual fees; \$57 million in Part 170 licensing and inspection fees; and \$23 million from the NWF).

In *Old Stone*, a *Winstar* case, the Federal Circuit held that, while it may have been foreseeable the thrift would need additional cash because of the government's breach, other collateral adverse consequences of raising that cash – selling its best asset that would have reaped future profits – must also be foreseeable. “[E]ven if the need for replacement capital was foreseeable, that hardly establishes that the adverse consequences alleged to flow from the need to make infusions were foreseeable.” 450 F.3d at 1376. Citing from the *Restatement (Second) of Contracts*, the Federal Circuit explained “[t]he mere circumstance that some loss was foreseeable, or even that some loss of the same general kind was foreseeable, will not suffice if the loss that *actually occurred* was not foreseeable.” 450 F.3d at 1376 (citing Section 351 cmt. a (1981) (emphasis and alteration in original).) Similarly, *Myerle* held that damages are limited to those proximately caused by the breach free from any intervening incident – “there must not be two steps between cause and damage.” 33 Ct. Cl. at 19. As WE correctly observed, *Old Stone* and *Myerle* do not foreclose recovery of NRC fees; rather, they applied fundamental foreseeability concepts, the application of which would not preclude recovery here.

At issue here is not the underlying loss or damage – additional storage including the construction and loading of dry storage – but the collateral and reasonable costs/fees of those foreseeable mitigation decisions. In awarding collateral costs of internal labor in *Carolina Power II* and *SMUD II*, the Federal Circuit did not discuss foreseeability. Similarly, *SMUD II* confirmed that foreseeability constrains the type of loss, not necessarily the precise means of mitigating that loss. “[T]he law does not require that the specific method of mitigation be foreseeable. Rather, the foreseeability prong applies to the type of loss, not to the means of mitigation.” *SMUD II*, 293 Fed. Appx. at 772 (citing *Citizens Fed. Bank v. United States*, 474 F.3d 1314, 1321 (Fed. Cir. 2007) (“If it was foreseeable that the breach would cause the other party to obtain additional capital, there is no requirement that the particular method used to raise that capital or its consequences also be foreseeable.”). The Federal Circuit discounted a similar argument in *Fifth Third Bank*, a *Winstar* case, where the amount of damages was due in part to change in market conditions. “Fifth Third was not required to demonstrate that the [g]overnment could have foreseen at the time of contracting that the market conditions might be less than favorable when it later breached the contract.” *Fifth Third Bank v. United States*, 518 F.3d 1368, 1376 (Fed. Cir. 2008). See *Astoria Fed. Sav. & Loan*, 568 F.3d at 954-56 (instructing trial court to calculate additional regulatory assessments consequent to larger asset portfolio in non-breach world); *S.*

Nuclear, 77 Fed. Cl. at 405 (“While the general response to a breach must be foreseen, the particular way that a mitigating decision is implemented need not.”).

Incremental, incidental or consequential expenses, directly and proximately caused by, or resulting from, foreseeable mitigation decisions are recoverable. *Restatement (Second) of Contracts* § 350 cmt. h (1981) (providing that “costs incurred in a reasonable but unsuccessful effort to avoid loss are recoverable as incidental losses”); *Restatement (Second) of Contracts* § 347 cmt. c (1981) (explaining that “[i]ncidental losses include costs incurred in a reasonable effort, whether successful or not, to avoid loss, as where a party pays brokerage fees in arranging or attempting to arrange a substitute transaction”).

Moreover, that WE, as well other contracting nuclear utilities, would be subject to substantial regulatory oversight because of DOE’s breaches was foreseeable. As the Federal Circuit observed, “the production of energy from nuclear sources is one of the most highly regulated human activities.” *Commonwealth Edison Co. v. United States*, 271 F.3d 1327, 1348 (Fed. Cir. 2001 (*en banc*)) (quotations and citation omitted). The NRC’s predecessor agency, the Atomic Energy Commission, began charging fees for specific services in 1968. *License Fees for Facility Licenses and Materials Licenses*, 33 Fed. Reg. 10923 (Aug. 1, 1968).

Licensing and other fees assessed on mitigating substitute performance have been included in damages in other cases. Costs of heat load analysis required as part of a license amendment were included in damages in *Dominion Resources, Inc. v. United States*, 84 Fed. Cl. 259, 274 (2008). *Carolina Power I* included \$1.9 million in legal and communications expenses incurred in connection with NRC regulatory proceedings. 82 Fed. Cl. at 49. *Northern States* included NRC cask transportation license costs in damages. 78 Fed. Cl. at 469-70.

Pre-1999 Part 171 dry storage annual fees were a direct result of WE’s reasonable, foreseeable mitigation for DOE’s delays and are accordingly included in mitigation costs awarded herein. If DOE had performed at the rates in the 1987 ACR, they would not have been incurred because dry storage would not have been built.

1999 fee restructuring

In 1999, the NRC again changed its fee structure, eliminating the Part 171 dry storage annual fee, and converting the annual Part 50 operating reactor fee into a

spent fuel storage/reactor decommissioning (“SFS/RD”) fee which applied regardless of whether a licensee had wet or dry storage. This change shifted the agency’s generic dry storage costs to the larger, entire class of operating reactors. (Tr. 4262:8-25 (Rabideau).) WE requests inclusion of the estimated dry storage portion of the SFS/RD fee in damages.

The parties dispute the motivation and significance of the 1999 creation of the SFS/RD fee, factors implicated in causation. WE concludes that the fee was created in reaction to, and caused by DOE’s delays, and there is record support for that position. The NRC considered seeking legislation to amend the NWPA so that its generic dry storage costs could be paid out of the NWF. (Tr. 4165:24-25; 4166:1-5 (Rabideau); PX 967.) The NRC acknowledged that licensees would incur costs “as a result of the delays in the DOE’s [waste disposal] program.” (Tr. 4152:25-4153:2 (Rabideau).) In part because of DOE’s delays, the NRC determined all licensees would eventually need dry storage.^{93/} (PX 947 (Spent Fuel Storage and Decommissioning Fee Study, Oct. 1998 at 4) (“With the continued delay of DOE taking possession of spent fuel, some utilities must then resort to dry storage for more storage capacity. . . . It is likely that, in the absence of a high level waste repository, all licensees will need dry storage capacity eventually.”); PX 1044 (64 Fed. Reg. 31448, 31455 (June 10, 1999) (“The fact that DOE is not taking possession of the spent fuel does not relieve NRC of the OBRA-90 requirement to recover approximately 100 percent of its budget authority through fees, including those costs associated with generic spent fuel storage activities.”).) The NRC also wished to avoid any perceived disincentive to dry storage because there was an annual fee on dry but not on wet storage.

WE’s position is that these fees would not have been assessed in the non-breach world because the NRC would not have been concerned with mounting storage needs and favoring wet storage over dry. In the non-breach world, fewer than ten ISFSIs would have been constructed. Thus, the class of ISFSI licensees would have been small, fewer than “all licensees.” The fee could not have been imposed across the industry in the non-breach world because the NRC may only allocate generic fees “fairly and equitably” among licensees. 42 U.S.C. § 2214(c)(3). In the non-breach world, dry storage fees would have remained specific to those utilities with dry storage which would not have included WE. WE also cites the testimony of

^{93/} The number of ISFSIs increased from 10 in 1998 to 38 at the time of trial. (Tr. 3367:13-15 (Supko).)

Jack Gadzala^{94/} who worked for the NRC from 1988 to 1997, that in his opinion, if DOE had performed, the NRC would never had imposed this fee.

In addition to causation and foreseeability, the government contests the certainty of the dry storage portion of this fee which admittedly had to be estimated.

WE counters that the reasonable certainty standard was satisfied in this regard. Examining budgets and other records, Peter Rabideau, NRC Deputy Chief Financial Officer, segregated eighty percent of the underlying costs of the NRC included in this fee as either relating to spent fuel storage or not, and then calculated the ratio of spent fuel storage costs to the identified eighty percent, and applied that ratio to the remaining twenty percent.^{95/} Based on the resulting formula, WE asserted that the storage-related portions of the SFS/RD fees in 1999-2007 were: 1999: \$107,925; 2000: \$225,845; 2001: \$307,177; 2002: \$333,166; 2003: \$468,866; 2004: \$301,780; 2005: \$251,602; 2006: \$286,972. (PX 1029 at KRGWE003886 (April 2007 Kenrich Revised Work Papers).)

“Determining the amount of damages to award . . . is not an exact science, and the methodology of assessing and computing damages is committed to the sound discretion of a district court.” *Carolina Power II*, 573 F.3d at 1276 (citations omitted). Damages for breach “need not be ‘ascertainable with absolute exactness or mathematical precision.’” *Ind. Mich. II*, 422 F.3d at 1373 (quoting *San Carlos Irrigation & Drainage Dist. v. United States*, 111 F.3d 1557, 1563 (Fed. Cir. 1997).) “[W]here responsibility for damage is clear, it is not essential that the amount thereof be ascertainable with absolute exactness or mathematical precision: It is enough if the evidence adduced is sufficient to enable a court or jury to make a fair and reasonable approximation.” *Nat’l Austl. Bank v. United States*, 452 F.3d 1321, 1327 (Fed. Cir.

^{94/}Jack Gadzala was a licensing engineer for WE and later NMC at the Point Beach Nuclear Plant from 1998 to 2007. Mr. Gadzala managed the Point Beach Licensing Group’s budget and reviewed and approved NRC fee invoices for payment. He testified regarding his knowledge of Point Beach’s NRC fees. Prior to joining WE, from 1988 to 1997, Mr. Gadzala worked for the NRC and was a resident NRC inspector at Point Beach from 1989 until 1994.

^{95/}THE COURT: Just out of curiosity, for all the items with which you have indicated that they might be related to storage or that you can’t tell one way or the other, could you tell with any of the items whether they would be dry storage or wet storage?

THE WITNESS: I was not able to tell whether they would be dry or wet.

(Tr. 4255: 24-25; 4256:1-6 (Rabideau).)

2006) (citing *Bluebonnet Sav. Bank v. United States*, 266 F.3d 1348, 1355 (Fed. Cir. 2001).) *See also Restatement (Second) of Contracts* § 352 cmt. a (1981) (“Damages need not be calculable with mathematical accuracy and are often at best approximate.”).

The court concludes, however, that regardless of the accuracy of its allocations advanced, WE did not establish that these fees were incremental – that WE would not have paid required NRC fees in these amounts, during these times, in the non-breach world. In that generic costs for both wet and dry spent fuel storage were spread among all licensees, WE would have paid these fees regardless of whether or not it had dry storage. To obtain a 100 percent recovery of its costs, NRC had to assess fees from somewhere. Also, Mr. Rabideau testified that this fee change would have occurred in 1999 even if DOE had begun performance in 1998.^{96/} (Tr. 4051:12-4053:22; 4076:16-24 (Rabideau).) As Deputy Chief Financial Officer for the NRC in 1998 and 1999, considering his career at that agency in budget and strategic planning since 1978, observing his demeanor and the circumstances involved, his testimony in this regard is credited.^{97/}

Because WE did not establish it would not have paid fees in these amounts had DOE performed, these fees are not incremental. Also, with the NRC under a full-cost recovery mandate, absent citation to evidence that the NRC’s staff or other costs would have decreased in the non-breach world, recovery of these costs would have required assessments. The government points to the record evidence that the total NRC fees paid by WE did not increase despite the changes involved. As a result, it cannot be said, on this record, that these amounts would not have been incurred by WE absent DOE’s delays. Accordingly, absent a recovery of post-1999 fees, there

^{96/}At trial the government repeatedly objected to questioning Mr. Rabideau as to what would have happened in the non-breach world as speculative. In accord with the *Yankee* trio, which requires comparative speculation, such testimony is relevant, particularly when the government asserts WE failed to satisfy its evidentiary burdens.

^{97/}

Q. In your opinion, if the [DOE] had begun accepting spent fuel from the utilities in 1998, would the fee rule change have occurred?

A. I believe it still would have occurred, and that’s because there were fairness issues regarding the fee itself, and one of the things a 1999 fee rule tried to do was resolve those fairness issues.

(Tr. 4076:16-24 (Rabideau).)

is no need to address the government's argument as to the accuracy of Mr. Rabideau's parsing and estimating of NRC costs, or of the inclusion of a surcharge.

Internal labor

The dry storage project was complex and labor intensive, requiring the diversion of personnel from several WE departments including Operations, Health Physics, Reactor Engineering, Maintenance, Instrumentation and Controls, Non-Destructive Examination, Chemistry, Security, Administration, Civil Engineering, Mechanical Engineering, Electrical Engineering and Radiological Engineering. (Tr. 177:11-178:5; 180:19-183:13 (Baumann); PX 1010 (Dec. 1, 1995 Point Beach Nuclear Plant ISFSI Evaluation and Summary of Compliance, Attachment 4).) Personnel recorded their time to project codes specific to the dry storage project, an allocation reviewed and approved by a supervisor. This time is included in WE's claim along with pension, benefits and administrative costs.

Mr. Baumann, WE's Manager of Nuclear Fuel Commodities and Supply, testified to this effort. After several contentious years, the PSC approved the project subject to WE's filing a 10 C.F.R. § 72.212 report with the NRC. WE's sixty-five page report dated December 1, 1995, included a summary of operational steps which hint at the complexity of cask loading. WE's Operations Department developed procedures and had oversight responsibility.^{98/} The Health Physics Department evaluated and monitored the radiological safety of personnel and the public. Reactor Engineering selected the SNF to be placed in the casks and monitored loading. The Maintenance Group welded and sealed the casks. The Instrument and Control Group installed temperature monitoring equipment; the Nondestructive Examination Group tested the integrity of the welds; the Chemistry Group developed procedures for sampling and testing; and the Security Group was responsible for protection of all of the plant's equipment. (Tr. 179-83 (Baumann).)

Seventy to eighty individuals were used to load a VSC-24. Mr. Holzmann, Shift Manager, Operations Group, testified about the impact of the diversion of so

^{98/}Illustratively, Operations moved the ventilated concrete cask ("VCC") on-site, loaded the multi-assembly sealed basket ("MSB") into the transfer cask, placed the transfer cask into the pool, loaded assemblies into the MSB, removed the cask from the pool, prepared the MSB for storage, loaded the MSB into the VCC, and transferred and placed it on the ISFSI. "Tip-over" or drop testing, cleaning and surveillance were also required. (PX 1010 at WISC00056974.)

many personnel. “So what in essence that does is it removes the resource that you currently have participating in a dry storage load activity unavailable to perform other maintenance activities at Point Beach.” (Tr. 2007:25-2008:10 (Holzmann).) The efforts would not have been expended in the non-breach world of the 1987 ACR. Those people would have been able to do the jobs they were hired to do. (Tr. 1747:15-1754:19 (Becka) (explaining that dry storage efforts prevented these employees from doing other work).) Internal labor was used where feasible because the selected workers were known, better trained, more familiar with Point Beach and considered more reliable, less expensive and less of a security risk than outside contractors. Nuclear utilities typically have a backlog of maintenance and other work, and the diversion of substantial labor to the dry storage project increased that backlog.

The government retreated from its trial position that internal labor costs were not incremental unless a person spent more than fifty percent of his or her time over a six-and-a-half year period (April of 1999 to December of 2005) on the dry storage project. After a trial in another case the Federal Circuit rejected a similar, but lesser, threshold:

It does not matter if 10 employees dedicated 100 percent of their time or 100 employees dedicated 10 percent of their time to mitigation work. So long as [the utility] is only asking for reimbursement for the total number of hours its employees worked on mitigation projects and can prove that its employees did in fact spend that time on those projects, it is entitled to recover.

SMUD II, 293 Fed. Appx. at 774. Following *SMUD II*, government expert Mr. Kiraly removed previous deductions advanced. (Def.’s Supp. Brief [415] Ex. C, ¶¶ 4-6.)

WE may recover for its costs for internal labor without “prov[ing] how it would have used its internal labor pool absent breach.” *SMUD II*, 293 Fed. Appx at 773. “The trial court’s requirement of proof of how SMUD would have employed its labor force had it not been required to divert resources to [breach-related projects] is unprecedented.” *Id.* Absent recompense for diverted use of internal talent and skill, the Federal Circuit predicted, “aggrieved parties [would be encouraged] to hire outside contractors – likely at greater expense – to perform mitigation-related work rather than utilize internal resources already familiar with the facility and its operations.” *Id.* (citing *S. Nuclear*, 77 Fed. Cl. at 442-43).

Internal labor costs have been awarded in other SNF cases. *Dominion Resources, Inc. v. United States*, 84 Fed. Cl. 259, 280 (2008) included in damages “costs for the total hours its employees spent working on mitigation projects as long as plaintiffs prove that their employees in fact worked on mitigation projects during those hours.” *Carolina Power II* rejected a government expert’s requirement that an employee spend fifty percent or more of their time on a breach-related project in a given year (a more lenient standard than the fifty percent in a six and one-half year period used by government expert Mr. Kiraly in the instant case) because “[e]very hour that a [utility] employee spent on a breach-related project was an hour that the employee did not spend doing other productive work for [the utility].” 82 Fed. Cl. at 47. While the government’s appeal in *Carolina Power* included overhead, it did not include the award of internal labor. *See also Sys. Fuels*, 79 Fed. Cl. at 67 (“the charges for internal labor shall be allowed as mitigation costs, without any reduction”); *N. States*, 78 Fed. Cl. at 468 (“Our concern here . . . is . . . whether the cost was incurred to ameliorate the effects of a breach. And since every use of a resource has an opportunity cost – namely, the alternative use of that resource – it is quite appropriate to recognize as a cost of mitigation any diversion of labor that was applied to the accomplishment of that mitigation.”); *S. Nuclear*, 77 Fed. Cl. at 442 (“Having heard testimony of the efforts required to mitigate, reimbursement for these costs, caused by DOE’s partial breach, reasonably foreseeable and established with reasonable certainty, are included in mitigation costs awarded herein.”); *PG & E I*, 73 Fed. Cl. at 408 (“To the extent that the costs of [the utility’s] internal labor were in fact performed on a ‘breach-related project,’ . . . the court finds that such labor costs should properly be awarded to plaintiff.”); *Yankee I*, 73 Fed. Cl. at 322.^{99/} *Cf. Dominion Res.*, 84 Fed. Cl. at 283 (rejecting some costs where accounting system did not contain employee hours, amounts or tasks, and “first hand testimony” was not offered); *Sys. Fuels*, 79 Fed. Cl. at 68 (excluding some claimed estimated labor costs); *Sys. Fuels*, 78 Fed. Cl. at 769 (disallowing unsupported employee costs).

At bottom, it is WE’s burden to establish how much time its personnel spent on mitigation work. Government expert Mr. Kiraly testified to lack of detail for salaried workers in WE’s older accounting systems. WE objected, arguing assertions of lack of support violated a pretrial Stipulation. While the government’s foundational objection may have been dropped in its supplemental brief and in final argument, the court nevertheless rejects it here as counter to the Stipulation mentioned. Commendably, the parties cooperated in an ordered pretrial audit of

^{99/}The government’s appeal did not include the award of internal labor costs.

claimed costs – a process that facilitated efficient discovery and resulted in a Joint Stipulation that most of WE’s claimed costs were adequately supported from a books and records perspective.^{100/} While recoverability may be contested, the numbers were not, which significantly reduced expense, trial time, testimony and exhibits. The Stipulation provides:

1. The parties agree, with the two exceptions noted below, that all costs through February 28, 2007 that are included in WE’s claim were incurred by WE and are traceable to and supported by WE’s accounting records. These costs include (1) outside services and materials costs, (2) the NRC Power Reactors’ Annual Fees, (3) employee expenses, (4) the Pension and Benefits Labor Adder, and (5) labor costs. In addition, the Government does not deny the accuracy of the budgeted Administrative and General cost rates used by WE in its claim. The Government, however, contests whether WE legally is entitled to recover these claimed monies in this action.
2. The Government contests the accuracy of the weighted average cost of capital contained in WE’s claim.
3. The Government contests the accuracy of the calculated offset from WE’s claim for the procurement and installation of a temporary storage rack.

(J. Stip. Re. Accuracy of Pl.’s Costs [350] at 1.) To the extent the government has not fully dispensed with Mr. Kiraly’s criticism in this matter, the court concludes that his criticism of lack of documentation is not consistent with this Stipulation.

The court further finds that, independent of the Joint Stipulation, WE met its burden of establishing its internal labor costs, including that for salaried staff, to a reasonable certainty. *Yankee II*, 536 F.3d at 1273 (citing *Ind. Mich. II*, 422 F.3d at 1373). That these costs were incurred and represented efforts related to dry storage was the subject of testimony by lay and expert witnesses at trial. Ione Straub, with more than twenty years of accounting experience at WE, including in the Nuclear Power Department during the development and implementation of the dry storage project, testified about WE’s procedures for insuring the accuracy of labor costs. The hours spent by WE personnel were, at least for some period of time, “booked” to

^{100/}Further to this audit, there was a three-day meeting including dialogue between counsel and WE personnel.

specific account numbers assigned to the dry storage project. Time sheets were reviewed and “signed off” by a supervisor before processing. (Tr. 2883:7-17 (Straub).) Indeed, WE’s records were sufficient to allow Mr. Kiraly to segregate those employees and staff who spent less than a majority of their time in a six-year period on dry-storage, which, he suggested, should be excluded from damages. If documentation was adequate for that purpose, it is adequate for the reasonable certainty standard.

Also, WE’s economic expert Mr. Metcalfe worked with WE personnel to identify activities and costs related to DOE’s delays in commencing performance, analyzing underlying internal accounting and payroll records. He verified and evaluated WE’s accounting controls which he concluded were equal to, and in some instances greater than, industry standards. (Tr. 4520:4-8; 4527:11-4528:1; 4545:23-4551:22 (Metcalfe).)

The government is held to the parties’ Stipulation, but independent of the Stipulation, the court concludes that these costs together with the dry storage nature of the effort underlying the costs was established with reasonable certainty.

Administrative and General Costs

Administrative and general (“A&G”) costs, overhead or indirect costs “include those costs to support [the] finance area of the company, the accounting information technology of purchasing, the stores area, corporate secretary function, legal department, any of the areas of the company that are necessary in order to accomplish the work that is performed within the individual projects in the business units.” (Tr. 2884:20-2885:3 (Straub).) These are “the costs that you typically wouldn’t think of when working on a project, but without them, work would not get done.”^{101/} (Tr. 2893:2-4 (Straub).)

The government seeks to deduct \$1,733,273 of A&G costs for two reasons; first because WE did not establish that A&G costs increased as a result of DOE’s

^{101/} A&G includes costs of office space, furniture, supplies, maintenance and depreciation of buildings in Milwaukee and the assets of Washington Gas, a separate entity. (Tr. 2951:6-13 (Straub); Tr. 4614:20-4615:1, 4807:22-4808:5, 4812:10-17 (Metcalfe).) A&G costs are approximately 3 percent of WE’s total nominal damages. (Tr. 4622:23-24 (Metcalfe).)

delays; and secondly, because the A&G costs included were budgeted not actuals. (Def.'s Post-Trial Br. [387] at 112.)

The Federal Circuit recently upheld the award of proportional overhead expenses added to hours charged to breach-related project codes despite a dearth of evidence whether total overhead was affected by the breach. *Carolina Power II*, 573 F.3d at 1277. (“The record thus shows that the trial court did not clearly err in holding that Progress Energy should be allowed to recover an appropriate portion of these indirect overhead costs.”).

WE adds A&G to billings to all entities outside of the company and to nonutility customers in percentages detailed in the Affiliated Interest Agreement (PX 1043.1, App. A) approved by the PSC.^{102/} “The primary purpose of the [A]ffiliated [I]nterest [A]greement is to ensure that, when the company does work for one of the nonutility affiliates and others, that the rate payers are not subsidizing the nonutility affiliates, such that all the costs are borne at a burden of the rate payer, that whoever is the beneficiary of those services also shares in the burden of those costs.” (Tr. 2886:14-22 (Straub).) Revised A&G rates^{103/} ranged from 15.72% in 1990 to 36.08% in 2006. (PX 1047 at KRGWE003917.)

That these costs were supported from a books and records perspective was encompassed by the Stipulation. (Tr. 3734:4-10 (the court) (“In addition, the government does not deny the accuracy of the budgeted administrative and general cost rates used by WE in its claim. The government, however, contests whether [WE] legally is entitled to recover those claim monies in this action.”).)

The government distinguishes WE’s A&G compilations from the accounting system in *Carolina Power* that charged indirect expenses to particular projects together with a finding that the utility had diverted warehousing and management resources to the ISFSI. In contrast, the A&G in WE’s claim was not recorded at the

^{102/}The Affiliated Interest Agreement limits charges to fair market value, grants the PSC continuing oversight with right to amend, and admonishes that use of employees and property by the affiliates must be minimized under Wisc. Stat. § 196.795(5)(r) and (s). (PX 1042, App. A at 4.) Allowable overhead includes office space, equipment, approved rate of return adjusted by tax impact, as well as administrative and general support. (*Id.* at 4-5.)

^{103/}Percentage rates were “revised” – reduced by Mr. Metcalfe to eliminate components of return on shareholder equity, perceived by WE to be improper for inclusion in damages.

project level, but was added by Mr. Metcalfe^{104/} and Ms. Straub testified she was unaware of any increase in A&G. (Tr. 2968:7-11 (Straub).)

The court sees no meaningful distinction between a utility adding A&G costs at the project level as in *Carolina Power* and WE's expert applying a PSC-approved enhancer. It is not contended that the pool of overhead expenses or components would be less if added at the project level. Also, that WE's indirect costs include depreciation and overhead of a building outside the Point Beach location does not alter the reality (and Stipulation) that these costs were properly supported from a books and records perspective as part of WE's overhead. Overhead is by its nature not directly linked to mitigating efforts. *Carolina Power II*, 573 F.3d at 1276 (recognizing "wide discretion in assessing appropriate quantum of damages").

Overhead has been included in damages in other SNF cases. "[O]verhead costs are recoverable as long as a utility can demonstrate that 'overhead costs were incurred and are properly attributable to mitigation projects and activities.'" *Dominion Res.*, 84 Fed. Cl. at 281. As with recovery of internal labor in these cases, "[i]f overhead costs were not allowed, 'plaintiffs' other projects would be more expensive than anticipated.' Absent DOE's partial breach, plaintiffs could have allocated their resources to other projects." *Id.* (citing *Carolina Power I*, 82 Fed. Cl. at 48). *See also Sys. Fuels*, 79 Fed. Cl. at 63-64 (including allocated overhead except capital suspense loader which captured administrative and engineering time not charged to a particular project because it occurred in increments of less than 30 minutes); *N. States*, 78 Fed. Cl. at 468; *S. Nuclear*, 77 Fed. Cl. at 441-43; *PG & E I*, 73 Fed. Cl. at 407-08; *Cf. Sys. Fuels*, 78 Fed. Cl. at 798-800 (recognizing overhead may be included in mitigation damages, but finding failure of proof that A&G costs increased because of dry storage): *TVA*, 69 Fed. Cl. at 542 (failing proof of relationship to dry storage project, overhead costs are not recoverable).

As noted, A&G rates were approved by the PSC and factored into billings charged to nonutility affiliates to ensure that ratepayers were not subsidizing work performed for third parties. Denying inclusion in mitigation damages would similarly subsidize DOE's partial breach. In this breach world, for many years a significant portion of WE's effort has been to perform work made necessary by the government's

^{104/}Although WE's accounting system from 1989 to 1996 charged A&G at the project level, those are not the charges used in the claim.

failure timely to initiate the SNF disposal operation it contracted to accomplish. That surrogate performance has an administrative cost. Under the Standard Contract, the government can charge for its overhead. Overhead is included in recovery in government contracts under the Federal Acquisition Regulations (“FAR”), cost accounting standards and other government contract claims. *M.H. McCloskey, Jr., Inc. v. United States*, 66 Ct. Cl. 105, 121 (1928) (allowing recovery of “overhead, including payments for superintendents, timekeepers, office and telephone, car fares, and incidental expenses”). *See also ACE Constructors, Inc. v. United States*, 70 Fed. Cl. 253, 279 (2006), *aff’d*, 499 F.3d 1357 (Fed. Cir. 2007). Reasonably allocable company-level administrative costs can and should be fairly included in internal labor costs.

The government points out that WE’s A&G rates were budgeted – predicted under generally accepted accounting principles (“GAAP”) at the beginning of each year. At the end of the year, actual overhead may be less. WE admits that if actual overhead is higher or lower than budgeted, no “true-up” is made. Failure to reconcile or “true-up” could create a windfall the government asserts. The court credits testimony that in some years A&G projections were higher than actuals, and in other years, they were lower; typically they were pretty close. (Tr. 3008:19-3010:9 (Straub).) Even if the A&G amounts had not been encompassed by the Stipulation, given the extensive regulation and venting, the court declines to deny or adjust the amount of A&G on this basis. The government’s proposed reduction is not supported by the preponderant record evidence and is rejected.

Pension and benefits, travel expenses and meals

Also included in WE’s claim are pension and benefit costs totaling \$536,000. (Tr. 4623:2-3 (Metcalf).) In another SNF case the government conceded that employee benefit costs such as pension expenses are generally a proper component of internal labor costs. *Sys. Fuels*, 79 Fed. Cl. at 65 (conceding inclusion in mitigation damages employee benefits costs except for a small portion chiefly consisting of expenses for retirees and non-qualified plans for executives and officers). Here, under the Stipulation, the government does not question the accuracy of these additions, but together with internal labor charges generally, asserts these expenses were not incremental. For the same reasons internal labor is included in the damages awarded herein, pension and benefit costs are also allowed as damages.

Another sum involved is \$617,135 for employee expenses such as travel reimbursements and meals. (Def.'s Post-Trial Br. [386] at 111.) The government avers that some of these costs were not incremental in that they would have been incurred in the non-breach world, and as to others the government contests their support – that the costs could not be linked to employee time or effort. As to the latter, the Joint Stipulation precludes objections in this regard. Furthermore, WE established that these expenses, which were reimbursements to named employees, were reviewed and approved by a supervisor or supervisor's designee prior to payment. The employee expenses were then charged to specific dry storage project codes or accounts recording expenses that knowledgeable WE personnel determined were caused by DOE's breach. Ms. Straub and Mr. Metcalfe testified to the accounting support. The court concludes that WE has met its burdens as to these employee-reimbursed expenses and no valid basis exists to exclude them from WE's claim.

Cask loading offset

Under the Standard Contract WE is responsible for the costs of loading to DOE casks. (PX 41 at IV.A.2.(a) (“The Purchaser^{105/} shall arrange for, and provide, all preparation, packaging, required inspections, and loading activities necessary for the transportation of SNF and/or HLW to the DOE facility.”).) Accordingly, the government argues, the costs that WE would have incurred in loading its allotments under the 1987 ACR to DOE casks in the non-breach world should be deducted or offset from damages.

Using the 1991 rate advocated by the government, and based on input from its expert, Warren Brewer, Mr. Kiraly deducted a total of \$3.68 million in avoided loading costs from WE's claim. (Def.'s PFF [408-8] ¶ 625.) With DOE collecting more SNF under the 1987 ACR, WE would have loaded more casks. Accordingly, in supplemental filings, government expert Mr. Kiraly increased the proposed offset to \$8,168,515. (Def.'s Supp. Br. [415] at 12.)

These costs have been deferred, not avoided and deferred costs are not current offsets. The Federal Circuit in *Yankee II* rejected the government's virtually identical position that a fee to be paid to DOE when it first collects SNF should be an offset

^{105/}Under the Standard Contract, WE is the “Purchaser.” (PX 41 at KRGWE002118.)

to damages.^{106/} That fee remains a future obligation of the utility and the Federal Circuit explained that in a partial breach case, the cost of a future obligation is not a present offset to damages.

While this view of the Yankees' obligation correctly recites this court's rule that 'the non-breaching party should not be placed in a better position through the award of damages than if there had been no breach,' *Bluebonnet*, 339 F.3d at 1345, the application of that rule does not make the Yankees' one-time payment a condition precedent or offset for an award of damages. In simple terms, the comparison of breach and non-breach worlds does not convert this case from a suit for partial breach of contract into a case for a total breach of contract. Because this case presents a partial breach of contract, the Yankees' ongoing contractual obligation has not yet matured under the terms of the contract itself.

As this court has already acknowledged, the NWPA and the terms of the Standard Contract foreclose any claim for total breach. *See Ind. Mich. [II]*, 422 F.3d at 1374 (noting that the Department would have been discharged from further responsibility for disposal of SNF and HLW if the utility would have pursued a claim for total breach-an outcome foreclosed by the NWPA). Indeed, the Yankees "had no choice but to hold the government to the terms of the Standard Contract while suing for partial breach." *Id.* If this case featured a total breach, then the Government would be entitled to an offset for the disposal fees that are not yet due. However, in this partial breach scenario, the Yankees-the non-breaching party-have no obligation to make payments that have not yet become due. When those obligations mature, the Yankees must then comply with the ongoing requirements of the contract:

Damages are calculated on the assumption that both parties will continue to perform in spite of the breach. They therefore compensate the injured party only for the loss it suffered as the result of the delay or other defect in performance that constituted the breach, **not for the loss**

^{106/}Under the Standard Contract, a utility had the option to accrue interest and to defer paying fees covering SNF discharged before April 7, 1983 (1.0 mill per kilowatt-hour) until DOE commenced to perform. (PX 41 at VIII.B.2(c).)

of the balance of the return performance. Since the injured party is not relieved from performing, there is no savings to it to be subtracted.

. . .

In this partial breach case where the parties' performance obligations survive, the non-breaching party is not at this time responsible for obligations that must be performed later, when they mature. In this case, the Yankees have sued for partial breach to recover storage costs caused by the Government's protracted performance delay. All parties--the Yankees and the Government--retain their substantive rights and obligations under the contract. Thus, the Government must still permanently dispose of the SNF and HLW; the Yankees must still pay the one-time fee, with interest, before the first delivery of waste to the Department but subsequent to institution of a valid DCS.

Yankee II, 536 F.3d at 1280-81. The application of this reasoning to the future obligation to load SNF to DOE casks was recently confirmed in *Carolina Power II*.^{107/} “Just as the utilities cannot now collect damages not yet incurred under the ongoing contract, the government cannot prematurely claim a payment that has not become due.” *Carolina Power II*, 573 F.3d at 1277 (citing *Yankee II*, 536 F.3d at 1281).

Because Point Beach has been sold, the government asserts that WE will never bear this expense. However, FP&L Point Beach, as assignee, stands in WE's shoes. *See Amber Res., Co. v. United States*, 538 F.3d 1358, 1378 (Fed. Cir. 2008). Both the NWPA and the Standard Contract permit assignments.^{108/} Presumably this contingent

^{107/}The government's offset position has been uniformly rejected. *Dominion Res.*, 84 Fed. Cl. at 278-79; *Sys. Fuels*, 79 Fed. Cl. at 70-71; *Sys. Fuels*, 78 Fed. Cl. at 797; *N. States Power*, 78 Fed. Cl. at 468-69; *PG & E I*, 73 Fed. Cl. at 416; *SMUD I*, 70 Fed. Cl. at 372; *TVA*, 69 Fed. Cl. at 542.

^{108/}“The rights and duties of the Purchaser may be assignable with transfer of title to the SNF and/or HLW involved[.]” (PX 41 at XIV.) *See Dominion Res.*, 84 Fed. Cl. at 285-87 (upholding assignment of partial breach claims); *Vt. Yankee Nuclear Power Corp. v. United States*, 84 Fed. Cl. 339, 343-44 (2008) (enforcing assignment of breach claims under the Standard Contract); *Boston Edison Co. v. United States*, 80 Fed. Cl. at 471-72 (citing *Rochester Gas & Elec. Corp. v. United* (continued...))

obligation was factored into the transaction.^{109/} No rationale has been presented why this performance should be paid for twice – once as a deduction from incremental incurred costs and again absorbed as a cost when DOE performs.

Moreover, the amount of future cask loading expenses is unknown, making any offset speculative.^{110/} *Carolina Power I*, 82 Fed. Cl. at 52. DOE has not yet identified the type or size of cask that it will use; nor is it clear whether WE's dual-purpose casks will be accepted for transportation to the disposal site.^{111/} "Prior decisions have concluded that '[a]s matters now stand, any benefit inhering in [the utility] because of delayed loading costs would be entirely speculative. It is not possible to ascertain the method DOE will ultimately use for SNF acceptance.'" *Sys. Fuels*, 79 Fed. Cl. at 71 (quoting *TVA*, 69 Fed. Cl. at 542).

A utility could possibly argue that, if its casks are not used for transporting, its costs to load from the ISFSI to DOE casks will be greater than its costs to load from the spent fuel pool. On the other hand, the government may argue that the costs of

^{108/}(...continued)

States, 64 Fed. Cl. 431 (2005) (holding that the NWPA's express authorization for assignments of the Standard Contract supersedes the Assignment of Contracts Act, 41 U.S.C. § 15 and the Assignment of Claims Act, 31 U.S.C. § 3727); *Entergy Nuclear Indian Point 2*, 64 Fed. Cl. at 522-23 (denying government standing motion, finding assignee of Standard Contract had privity); *Entergy Nuclear Generation Co. v. United States*, 64 Fed. Cl. 336, 343 (2005) (same); cf. *Delmarva Power & Light Co. v. United States*, 542 F.3d 889, 892-94 (Fed. Cir. 2008) (discussing assignment of taking claim).

^{109/}WE's understanding that FP&L and the government may have reached a settlement that may have considered this offset does not alter the court's conclusions herein.

^{110/}The costs to load from the spent fuel pool to casks and then to the ISFSI are incremental in that these efforts would not have been necessary if DOE had performed. And, as discussed further herein, the employees engaged in these loading efforts were doing work that they would not have been required to do but for DOE's partial breach. In contrast, future loading to DOE casks by WE personnel is what was required by the contract.

^{111/}The government's proposed offset assumes DOE will use truck casks. Given the proximity to Lake Michigan, use of barges cannot be ruled out. And as WE points out, there is a railhead available for heavy-haul shipments in and out of Point Beach. In the steam generator replacement in 1996, Westinghouse shipped a 200-ton part of the steam generator to the site by rail. From there, the equipment was hauled across by multi-axle hydraulic, self-propelled transporter to Point Beach, crossing several bridges without incident.

loading from the ISFSI will be less.^{112/} These future issues are beyond the scope of this litigation.

In their original report dated July 14, 2005, Messrs. Metcalfe and Sieracki estimated an offset of \$4.7 million of costs to load to DOE in the non-breach world. (DX 498 at WXE002-0022.) This offset was not included in their second report dated May 8, 2006, upon instruction of counsel. (PX 794 at 18.) The government's attempt to find particular significance in this change is unavailing. Mr. Metcalfe removed the offset following the Federal Circuit's opinion in *Indiana Michigan II* precluding future damages, in which case deduction for future expenses such as cask-loading for transfer to DOE would not be appropriate.

There is no windfall, nor will there be, because while WE, although incurring the substantial expenses of building and loading the ISFSI, did not incur cask loading costs from the spent fuel pool to hypothetical DOE casks, its successor, FPL, will, if and when contract performance commences.

It is the government's burden to establish reductions to damages. *Caroline Hunt Trust Estate v. United States*, 470 F.3d 1044, 1052 (Fed. Cir. 2006) (characterizing the government's argument that the plaintiff bore the burden to establish damage reductions to be "without merit," and explaining "[t]his court has previously held that 'it [is] the government's burden to prove with reasonable certainty the quantum of benefit retained by the [aggrieved party] despite the government's breach.'" (alteration in original) (citing *Westfed Holdings, Inc. v. United States*, 407 F.3d 1352, 1370 (Fed. Cir. 2005) and *Lisbon Contractors, Inc. v. United States*, 828 F.2d 759, 769 (Fed. Cir. 1987))). The government's requested offset is denied as premature.

Partial summary

To recap, WE damages without the deduction for NRC fees granted above are as follows:

^{112/}Moreover, as the 1987 ACR-assumed initial performance at an MRS has not materialized, the dry storage facilities built by WE and other utilities because of DOE's delayed performance have become *de facto* interim storage facilities, and DOE avoids what would have been two moves of SNF – from the utility site to interim storage, and then from interim storage to the repository.

**Summary of WE's Total Past Nominal Damages,
By Category (Through 2/2007) Including Trial Adjustment**

Category	Breach Costs	Non-Breach Costs	Total Nominal Damages
ISFSI Licensing, Engineering, Construction And Maintenance	\$ 20,683,000	\$ -	\$ 20,683,000
Dry Casks	\$ 31,536,000	\$ -	\$ 31,536,000
Cask Pit Rack	\$ -	\$ 2,048,000	\$ (2,048,000)
Private Fuel Storage	\$ 884,000	\$ -	\$ 884,000
Spent Fuel Management	\$ 1,282,000	\$ -	\$ 1,282,000
Total	\$ 54,385,000	\$ 2,048,000	\$ 52,337,000

(Pl.'s PFF [375] ¶ 236.)

Financing expenses as mitigation costs

WE's claim includes approximately \$44.2 million representing the costs of funding its dry storage project through financing mechanisms approved by the PSC. WE proposed rates of return designed to attract capital. (Tr. 6117:12-24 (Kiraly); Kiraly DDX 5-13.) The PSC staff and any intervenors presented competing views. The resulting authorized rates are WE's costs of capital – the amounts WE was allowed to pay for money needed to fund operations, including building dry storage, amounts which were included in the rate base. WE's claim includes weighted average cost of capital, "weighted" referring to adjustments taken to reflect the impact of taxes. Percentages for corporate funding were calculated and applied to the dollar amounts of WE's incremental expenses to compose this category of costs.

Before trial, on August 16, 2007, the court denied the government's motion for partial summary judgment that these costs were, as a matter of law, precluded, concluding genuine issues of material facts were stated. (Order [334] at 10-20.)

Initially, the government would deduct all capital costs asserted, arguing WE suffered no net economic loss because financing costs were absorbed by the

ratepayers. Based on prior precedent the court does not accept the government's pass-through defense. *Hughes Communications Galaxy, Inc. v. United States*, 38 Fed. Cl. 578 (1997) rejected the defense that a third party paid for breach costs asserted. The government there sought to limit damages for its breach of contract to launch satellites, because the higher prices Hughes had to pay for replacement launches were offset by the increased income Hughes was able to garner from its customers by doing so – that is, the higher costs were “passed through.” Irrelevant, Hughes argued and the court agreed. An injured party's recovery from third parties does not decrease the amount of the wrongdoer's liability. Rather than following the non-breaching party's business acumen in mitigating,

[t]he inquiry is best ended at ‘the first step’ – did the party who suffered a breach pay more for procurement of services? If so, the court will not look to whether its pricing structure incorporates those new costs.

...

[T]he government may not assert by way of defense the fact that Hughes recovered from its customers some or all of the increased costs of launching the satellites caused by the government's breach. Hughes is entitled to receive the benefit of its bargain. What Hughes chose to do with that benefit has no impact on the damages calculation in this case.

38 Fed. Cl. at 582. The Federal Circuit affirmed. *Hughes Commc'ns Galaxy, Inc. v. United States*, 271 F.3d 1060, 1072 (Fed. Cir. 2001). *See also Roedler v. DOE*, 255 F.3d 1347 (Fed. Cir. 2001) (denying ratepayers standing to sue for breach of the Standard Contract).^{113/}

In any event, some portion of the recovery in this litigation will be returned to WE's ratepayers, thus any “pass-through” bounces back. The PSC ordered reimbursement to the rate payers.

If [WE] recovers any of its expenses associated with dry cask storage from the [DOE], or from another federal entity, it shall return the

^{113/}The government's observation that WE sold its casks to the Wisconsin Energy Fuel Trust and leased them back, therefore, at minimum financing costs should be denied for those items, does not alter the court's conclusions herein.

amounts recovered to its ratepayers. [WE] shall notify the Commission when it receives these funds, and request the Commission to determine the proper accounting procedures needed to distribute the funds to ratepayers.

(PX 592 at 13 (March 27, 2001 PSC Decision granting WE authority to acquire and place up to 36 additional dry casks).) Subsequently, the PSC authorized WE “to defer any settlements received from the [DOE] related to [SNF] disposal fees, net of any incremental litigation fees, until future rate proceedings when the revenue requirement impacts are known.” (PX 686 (Jan. 18, 2005 PSC Order).)

By statute, interest on a claim against the United States may be awarded only if provided for by contract or statute. “Interest on a claim against the United States shall be allowed in a judgment of the United States Court of Federal Claims only under a contract or Act of Congress expressly providing for payment thereof.” 28 U.S.C. § 2516(a).

Because in the absence of a clear, explicit waiver of sovereign immunity from liability for interest, the United States government . . . pays all judgments and amounts due in what economists call ‘nominal dollars’ rather than in economic ‘real dollars,’ and because Congress has not statutorily waived the government’s sovereign immunity from interest payments . . . we affirm.

Sandstrom v. Principi, 358 F.3d 1376, 1377 (Fed. Cir. 2004). *See England v. Contel Advanced Sys., Inc.*, 384 F.3d 1372, 1379 (Fed. Cir. 2004) (“The no-interest rule is an aspect of the basic rule of sovereign immunity It has been construed to apply broadly to claims for interest.”) (citations omitted); *Ind. Mich. I*, 60 Fed. Cl. 639, 660 (2004), *aff’d*, 422 F.3d 1369 (Fed. Cir. 2005) (rejecting a request for average after-tax cost of capital because it was equivalent to prejudgment interest). There is no provision in either the Standard Contract^{114/} or the NWPA that specifically authorizes the recovery of the financing costs asserted here.

While WE uses various terms to describe the costs asserted, if at bottom, the claim is “interest,” attempts to re-label will go unrewarded. *See Library of Congress*

^{114/}Depending on the option chosen to pay the one mill per kilowatt-hour, the utility could be liable for interest. (Tr. 4573:8-22 (Metcalf); PX 41 at Art. VIII.B.2(a) & (b); B.4; C.)

v. Shaw, 478 U.S. 310, 321 (1986) (“[T]he character or nature of ‘interest’ cannot be changed by calling it ‘damages,’ ‘loss,’ ‘earned increment,’ ‘just compensation,’ ‘discount,’ ‘offset,’ or ‘penalty,’ or any other term, because it is still interest and the no-interest rule applies to it.”) (citing *United States v. Mescalero Apache Tribe*, 207 Ct. Cl. 369, 389, 518 F.2d 1309, 1322 (1975)); *Blake v. Califano*, 626 F.2d 891, 894-95 (D.C. Cir. 1980) (noting economic distinction between interest and delay or inflation factor, nonetheless prohibited by the no-interest rule.); *Sterling Sav. Ass’n v. United States*, 80 Fed. Cl. 497, 519 (2008) (“No matter what term plaintiff uses, compensation for the belated receipt of money violates the no-interest rule absent an express statutory waiver of sovereign immunity from liability for interest.”).

WE defines its claim as not interest on an anticipated judgment – which would be interest **on** its claim, but interest **as** a distinct substantive element of its claim – no different than the costs of the casks or expenses of internal labor, which would not have been incurred if DOE had performed.^{115/} Also, the reimbursement WE seeks is based on market variables, as approved by the PSC, which fluctuated. In contrast, prejudgment interest is a static statutory rate.

The seminal case *Bell v. United States*, 186 Ct. Cl. 189, 404 F.2d 975 (1968) included interest paid by a contractor on loans in determining the amount of an equitable adjustment under the “Changes” provision of the contract. Inclusion in costs would not run afoul of 28 U.S.C. § 2516(a) or decisions thereunder, the Court of Claims explained because of the terms of the contract. The statutory bar applied to breach claims is not encompassed by that provision:

The statute and its policy apply to demands for damages in ‘breach’ claims against the United States where the plaintiff seeks compensation for delay in payment. The demand here is not based upon a ‘breach’ but

^{115/}The price of capital to fund mitigation expenses has been characterized as a cost, not interest. Ralph C. Nash & John Cibinic, *Interest on Borrowings: a Legitimate Cost in Damages Calculations*, 21 Nash & Cibinic Report, No. 12, ¶ 69 (Dec. 2007) (“28 U.S.C. § 2516 doesn’t deal with costs. It bars recover[y] of interest on *claims*. Such interest is an entirely different matter – being an imputed amount that is added to recovery on a claim to compensate the contractor for the fact that recovery of the amount found owed has been delayed while the claim is being adjudicated. If some court would articulate the difference between interest on borrowings as a cost and interest on a claim in this way, we might end the litigation on this issue.” (citing *Sys. Fuels*, 78 Fed. Cl. 769 and *Sys. Fuels*, 79 Fed. Cl. 37)).

upon a change compensable under the ‘Changes’ article which entitles the contractor to reimbursement for the resulting ‘increase . . . in the cost of performance of this contract.’ Extra interest on the borrowed money became due from [the contractor] because of the slowdown, and under generally accepted principles was undoubtedly an increased cost of contract performance attributable to the change.

186 Ct. Cl. at 205-06, 404 F.2d at 984. Those financing costs were “‘in the very same category as more tangible costs of construction,’” which are allowable, and not compensation for delay in payment – “‘breach’ cases [where the contractor] had to borrow money because the Government did not timely pay them sums due and owing.” 186 Ct. Cl. at 206, 404 F. 2d at 984.

Subsequent authorities apply these principles. *See England v. Contel*, 384 F.3d at 1379 (“The [no-interest] rule has been held not only to bar the recovery of interest on substantive claims against the government, but also interest costs incurred on money borrowed as a result of the government’s breach or delay in payment.”) (citation omitted). The Federal Circuit also quoted from *J. D. Hedin Constr. Co. v. United States*, 197 Ct. Cl. 782, 456 F.2d 1315, 1330, that “[i]nterest paid on bank loans made because of financial stringency resulting from a breach by the Government of a contract between it and the borrower is not recoverable as an item of damage.”

In *Wickham Contracting Co. v. Fischer*, 12 F.3d 1574 (Fed. Cir. 1994), the Federal Circuit addressed recovery of interest a contractor paid on loans which was included in a request for an equitable adjustment for government-caused delay in a contract subject to the Contract Disputes Act (“CDA”), 41 U.S.C. § 609. While 28 U.S.C. § 2516(a) “‘generally prohibits the award of interest against the federal government,’” this prohibition “‘does not bar an interest award as part of an equitable adjustment under a fixed-price contract if the contractor has actually paid interest because of the government’s delay in payment.’” *Wickham*, 12 F.3d at 1582-83 (quoting *Gevyn Constr. Corp. v. United States*, 827 F.2d 752, 754 (Fed. Cir. 1987)). “[A] contractor may recover interest actually paid on funds borrowed because of the government’s delay in payments and used on the delayed contract.” *Wickham*, 12 F.3d at 1582. While interest on borrowed funds may be recoverable, expenses for equity financing is prohibited. *Wickham*, 12 F.3d at 1582 (“Interest on equity capital is not recoverable.”).

The parties disagree about whether allowance of interest as a cost under *Wickham* depends upon the Changes clause or some other contractual provision. It is, however, not necessary to reach the question of whether *Wickham* is based upon a contract clause which does not exist in the Standard Contract. Even if WE is correct and recovery of interest under *Wickham* does not require a contractual source, thus opening the door to recovery of the interest as a cost it seeks, *Wickham* does require a segregate debt not present here. In *Wickham* recovery was denied “because [the claim] showed neither that borrowed funds were used in connection with the [contract] project, nor that the borrowing resulted from the [government’s] delay.”) 12 F.3d at 1583; *see also Dravo Corp. v. United States*, 219 Ct. Cl. 416, 427, 594 F.2d 842, 847 (1979) (“[I]t is clear that this court still holds to the view that direct tracing to a specific loan or necessity for increased borrowing is still required to be proven in order for a contractor to recover for interest costs under an equitable adjustment theory.”).

Costs to obtain replacement capital have been awarded in *Winstar* cases where the government’s breach of contract to allow negative net worth to “count” towards required regulatory capital, led to pursuit of large amounts of replacement capital at a price. If those costs were established along with foreseeability, causation and non-incurrence in the hypothetical non-breach world, recovery has been upheld.

In *Bluebonnet*,^{116/} this court affirmed the Court of Federal Claims’ finding that it was foreseeable that a thrift would be “forced to seek even more capital to meet heightened regulatory requirements” and that it was also foreseeable that the costs and risks associated with meeting these requirements would have other negative economic consequences such as “increas[ing] the costs of securing debt or equity financing.

Citizens Fed. Bank v. United States, 474 F.3d 1314, 1321 (Fed. Cir. 2007) (citations omitted) (alteration in original). *See LaSalle Talman Bank v. United States*, 317 F.3d 1363, 1375 (Fed. Cir. 2003) (affirming award of cost of replacement capital including equity capital because of government’s breach as an element of expectation damages,

^{116/}*Bluebonnet Savings Bank v. United States*, 266 F.3d 1348, 1355 (Fed. Cir. 2001) affirmed the recovery of increased financing costs caused by the government’s breach. *See also Centex Corp. v. United States*, 55 Fed. Cl. 381, 390 (2003), *aff’d*, 395 F.3d 1283 (Fed. Cir. 2005) (“[F]oreseeable financing costs can be an element of expectancy damages.”).

recognizing that “[a]ll capital raised by a corporation has a cost . . . [and] that the payment of dividends is a capital cost.”).

Applying this precedent, prior SNF cases have denied recovery of financing costs because of the absence of specific or separate dry storage financing, or a showing that the utility’s financing needs increased. *Consumers Energy Co. v. United States*, 84 Fed. Cl. 670, 674 (2008) concluded that a “one-to-one correspondence between a debt instrument and a specific capital project” might not be required, but because there was no showing of increased borrowing or relationship of any borrowing to the mitigating dry storage project, summary judgment in favor of the government was entered. “A specific correspondence between the loan instrument and the SNF storage project may not be required; however, more is required than the mere assertion that Consumers Energy entered into short and long-term financing to pay for capital expenditures.” 84 Fed. Cl. at 675 (citing *Gevyn Constr. Corp. v. United States*, 827 F.2d at 754). *See also Dominion Res.*, 84 Fed. Cl. at 285 (interest denied for lack of causal link between borrowed funds and mitigation efforts); *Carolina Power I*, 82 Fed. Cl. at 53-54 (2008) (“[p]laintiffs failed to provide any evidence tying any borrowed money to specific projects,” and in “the absence of any evidence establishing a direct causal connection between the cost of borrowing and specific breach-related projects renders Plaintiffs’ \$1,996,045 AFUDC [Accounting for Funds Used During Construction] claim not recoverable.”); *Sys. Fuels, Inc. v. United States*, 79 Fed. Cl. 37, 69 (2007) (“Failing to have established that its claimed financing costs are directly related to required borrowing through specific debt instruments, [plaintiff] cannot recover its costs of capital.”); *N. States Power Co.*, 78 Fed. Cl. at 471-72 (“Absent proof of any borrowings with which the interest claim can be causally identified, however, plaintiff’s cost of capital damages become conceptually indistinguishable from prejudgment interest, i.e., interest on a claim.”); *Ind. Mich. I*, 60 Fed. Cl. 639, 660 (2004), *aff’d*, *Ind. Mich. II*, 422 F.3d 1369 (Fed. Cir. 2005) (finding that a request for “average after-tax cost of capital” was equivalent to a request for prejudgment interest and rejecting the request); *S. Nuclear*, 77 Fed. Cl. at 449 (denying financing costs of parent corporation).

In *System Fuels, Inc. v. United States*,^{117/} the court concluded: “if causation is established, a private party to a government contract may recover an amount charged by a lender for borrowed funds that were loaned to mitigate a breach of contract.” 78

^{117/}There are two *System Fuels* cases. One is currently on appeal to the Federal Circuit; the other is awaiting a determination on the cost of capital.

Fed. Cl. 769, 807 (2007). The government's insistence that there be a "one-to-one" matching between a borrowing or fund-raising effort and the ISFSI project at issue was rejected, and additional briefing was sought to determine the "cost of borrowed funds with reasonable certainty." 78 Fed. Cl. at 809. Following supplemental briefings, that determination is pending.

WE did not parse its interest costs with the certainty precedent requires but applied various percentages to the nominal dollars of its incremental incurred costs. Apart from intricate details of its debt and equity financing, WE did not identify any segregated funding source for its mitigation expenses. Absent any specific borrowing or a showing of increased borrowing, to meet its mitigation needs the constraints of the statutory bar of 28 U.S.C. § 2516 applied in *Wickham* apply here.^{118/} WE has not established a causal link between its capital structure and the construction and other costs incurred because of DOE's breach. Furthermore, WE has not convinced the court that its capital financing costs would have been any different in the non-breach world. As such, WE has not persuaded the court that these various percentages tendered are incremental.

It is recognized that to deny recovery to WE and ultimately its ratepayers any recovery of its cost of capital ignores the realities of utility financing at the corporate rather than the project level. While there may be economies of scale and other reasons for not issuing debt instruments for specific projects, the controlling precedent does not support recovery in the absence of segregate debt.

As an alternative, WE urges recovery of \$747,865 – the Allowance for Funds Used During Construction ("AFUDC"), an amount approved by the PSC in November of 1995 as a line-item cost specifically and only for the dry storage project. WE booked AFUDC to the dry storage project account. (Tr. 2868:4-14 (Straub).)

<u>Cost Item</u>	<u>Cost Estimate</u>
Material	\$ 3,380,000
Installation	950,000
Engineering	1,060,000
12 VSC-24 Storage Casks	3,783,000
Miscellaneous Expenses	775,000
AFUDC	<u>730,000</u>
Total Gross Project Costs	<u>\$ 10,678,000</u>

^{118/}At Final Argument, WE's counsel stated: "I've conceded that we can't point to a specific debt instrument and say, 'Here is the debt we issued for the ISFSI.' It's a large company. It doesn't do its financing that way." (Final Arg. Tr. 97:19-22.)

(PX 374 at 8 (Feb. 9, 1995 PSC Order approving the dry storage project).) AFUDC is a FERC-dictated formula for calculating the estimated debt and equity costs of capital funds necessary to finance new construction during the time that the asset is under construction. When the asset – the ISFSI – is placed into service, presumably the asset is paid for thus extinguishing the debt. (Tr. 4566:12-14 (Metcalf)) (“AFUDC is generally allowed to public utilities for capital items before they go into service.”) AFUDC is a finite, not a continuing charge, making it less interest-like and provides a return on investment for shareholders prior to the asset being added to the rate base. (Tr. 2866:18-2868:15 (Straub); 4566:6-4567:5; 4597:13-25 (Metcalf).)

The government argues AFUDC also is the functional equivalent of prejudgment interest and is barred by 28 U.S.C. § 2516(a).

AFUDC was recovered in *TVA*, citing *Wickham*, as “a widely-accepted, FERC-mandated standard for calculating the cost of the funds used in building the dry storage facilities,” rejecting “the government’s contention that *Wickham* and *Gevyn Construction* should be extended by requiring a match between capital expenditures and specific debt instruments.” 69 Fed. Cl. at 542. Subsequent cases have denied recovery of AFUDC. *Consumers Energy*, 84 Fed. Cl. at 676-77; *Dominion Res.*, 84 Fed. Cl. at 284-85; *Carolina Power I*, 82 Fed. Cl. 23, 53-54 (issue was not raised on appeal); *Sys. Fuels*, 79 Fed. Cl. 37, 70.

While WE points to record evidence that AFUDC was a separately-approved line item of the ISFSI, approved by the PSC (and apparently added to the rate base) and booked to the dry storage project codes, at bottom WE was unable to establish that AFUDC or any of the interest costs asserted were incremental as required by Federal Circuit precedent. As a subset of the utility’s capital structure, the AFUDC charge suffers from the same defects as the other financing costs advanced. There is no tracing to a borrowing, no showing of increase in borrowing because of the dry storage project, and conversely no showing of a decrease in borrowing thereafter. In the non-breach world of DOE’s performance WE did not establish that its capital needs would have been any different. Accordingly, even if these charges are not included in the statutory bar of interest against the sovereign, the court concludes that there has been a failure of proof and these costs are not included in damages awarded.

Unavoidable delays

After trial, in responding to WE's Proposed Findings of Fact that DOE partially breached the Standard Contract by failing to commence performance by January 31, 1998 (a matter on which the court had long ago entered summary judgment), the government responded to the statement as one of law, not fact, and in a footnote added that liability for partial breach was not contested at trial because the government was specifically enjoined by a writ of mandamus from the United States Court of Appeals for the District of Columbia Circuit from relying upon the "Unavoidable Delays" clause of the Standard Contract ^{119/}to excuse its delays, citing *N. States Power Co. v. DOE*, 128 F.3d 754, 760 (D.C. Cir. 1997).

The effect of the writ of mandamus upon our ability to defend the liability phase of this case cannot be overstated. The D.C. Circuit has eliminated one of the central provisions of the Standard Contract that governs the parties' liability in the event of delays in SNF acceptance. With this clause, DOE would have had the ability to present an absolute defense to liability in this case. Without it, DOE now faces billions of dollars in damages claims. The writ of mandamus wholly changes the nature of the Standard Contract, essentially and inappropriately creating a contract (one without an "Unavoidable Delays" clause) between the parties to which DOE never agreed, and preventing us from relying upon CP&L's [sic – presumably Carolina Power & Light] own written

^{119/}

A. Unavoidable Delays by Purchaser or DOE

Neither the Government nor Purchaser shall be liable under this contract for damages caused by failure to perform its obligations hereunder, if such failure arises out of causes beyond the control and without the fault or negligence of the party failing to perform. In the event circumstances beyond the reasonable control of the Purchaser or DOE – such as acts of God, or of the public enemy, acts of Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and unusually severe weather – cause delay in scheduled delivery, acceptance or transport of SNF and/or HLW, the party experiencing the delay will notify the other party as soon as possible after such delay is ascertained and the parties will readjust their schedules, as appropriate to accommodate such delay.

(PX 41 at Art. IX.A.)

acknowledgment that DOE's delays in acceptance would be "unavoidable."^{120/}

We have consistently argued that the D.C. Circuit overstepped its jurisdiction and authority in issuing this writ of mandamus (given that the judicial review provision of the NWPA, 42 U.S.C. § 10139, does not permit the D.C. Circuit to review contract administration matters). Recently, in *Nebraska Public Power District v. United States*, 73 Fed. Cl. 650, 673 (2006) (Allegra, J.), this Court determined that the writ of mandamus was void because, in issuing the writ, the D.C. Circuit "operated in excess of its jurisdiction and, specifically, without an appropriate waiver of sovereign immunity." This Court subsequently certified its decision for interlocutory appeal to the United States Court of Appeals for the Federal Circuit, *Nebraska Public Power District v. United States*, 74 Fed. Cl. 762 (2006), and, on March 1, 2007, the Federal Circuit issued an order granting Nebraska Public Power's petition for permission to appeal. *Nebraska Public Power District v. United States*, Misc. Docket No. 843, 2007 WL 779291 (Fed. Cir. Mar. 1, 2007). On December 3, 2007, after the completion of the trial in this matter, the United States Court of Appeals for the Federal Circuit heard oral argument in *Nebraska Public Power District v. United States*, No. 2007-5083 (Fed. Cir.). The Government reserves the right to challenge any determination of liability with respect to the Standard Contract if the writ of mandamus is lifted or otherwise deemed inapplicable.

(Def.'s Resp. to Pl.'s PFF[388] ¶2 n.1.) The pendency of *Nebraska Public Power* was also noted in a two sentence footnote on the first page of Defendant's Supplemental Brief [415], filed after trial and after the Federal Circuit's *Yankee* trio Opinions.

The government did not question the validity of this mandamus, nor its efficacy in this action either in this court or before the D.C. Circuit. Unlike the action taken in other SNF cases, the unavoidable delays clause was not plead as an affirmative defense nor was leave (conditional or otherwise) sought to do so. (Def.'s Ans. 2nd

^{120/}It does not appear that WE made such an admission. The court presumes this portion of the footnote was an inadvertent carry-over from another SNF case.

Am. and Suppl. Compl. [327] filed June 25, 2007.)^{121/} On January 30, 2007, in *Systems Fuels, Inc.*, the government asserted unavoidable delays as an affirmative defense not to liability but to damages.

To the extent that the defense is not barred by the United States Court of Appeals for the District of Columbia Circuit's writ of mandamus in *Northern States Power Co. v. United States Department of Energy*, 128 F.3d 754 (D.C. Cir. 1997), plaintiffs' damages would be affected by the "unavoidable delays" clause of the standard contract.

Def.'s Ans. to Second Am. Compl. and Suppl. Compl. [125] at 48, *Sys. Fuels v. United States*, No. 03-2624 (Fed. Cl. Jan. 30, 2007).

In the instant case, the government conceded liability in an August 15, 2001 filing that, in light of *Maine Yankee*, *Northern States* and others, "DOE's inability to **begin** the services to be provided by the Standard Contract by January 31, 1998 constituted a **partial** breach of the Standard Contract." (Def.'s Resp. to Mot. Partial S. J. [169] at 2 (emphasis in original) (citing Def.'s Resp. [26] to Court's July 24, 2001 Order [24] at 2-3).)^{122/} Subsequently, any impact of the unavoidable delays clause on either liability or damages was not mentioned in the government's June 4, 2004 Response [169] to WE's Motion for Partial Summary Judgment on Liability [165] (which the court granted in part on October 8, 2004 [172]) some three years before trial.

More than six years after WE filed its Complaint on November 16, 2000, in its Memorandum of Contentions of Fact and Law [277] filed on January 30, 2007, again in a footnote, the government concluded on pages 13-14 that the writ precluded DOE from excusing its delay as unavoidable because of lack of a repository or interim storage authority, which, it is alleged, precluded DOE from presenting an absolute defense to liability in this matter (without saying what that defense would be) or how,

^{121/}The government did not assert any affirmative defenses in its original Answer and neither the unavoidable delays clause nor the validity of the writ was among the affirmative defenses raised in its Answer to the Amended Complaint. (Def's Ans. [178] filed Nov. 16, 2000; Def.'s Ans. 1st Am. Compl. [231] filed April 20, 2006.)

^{122/}While general liability to the Standard Contract holders was conceded, the government contended that without an acceptance rate determination, liability as to a particular utility could not be assessed.

or whether, the government's concession some six years earlier was meaningful. Neither did the government seek modification or clarification from the D.C. Circuit which "retain[ed] jurisdiction over [*Northern States*] pending compliance with the mandate issued herewith." 128 F.3d at 761.

Subject matter jurisdiction may be raised at any time, even *sua sponte* by the court, or initially on appeal. *Fanning, Phillips & Molnar v. West*, 160 F.3d 717, 720 (Fed. Cir. 1998) (quoting *Booth v. United States*, 990 F.2d 617, 620 (Fed. Cir. 1993)). The unavoidable delay suggested by the government does not implicate this court's subject matter jurisdiction,^{123/} but is an avoidance or affirmative defense. RCFC 8(c)^{124/} requires that a party "must affirmatively state" defenses such as laches, license, payment, release, res judicata – "any avoidance or affirmative defense." The unavoidable delays provision footnotes advocated would address liability for breach. See 5 Charles Alan Wright & Arthur R. Miller, *Federal Practice & Procedure* § 1271 (2004); *Stockton E. Water Dist. v. United States*, 76 Fed. Cl. 497, 508-12 (2007) (discussing government's assertion that the sovereign acts doctrine shielded it from liability). Indeed in its Answer, the government recently conditionally raised the clause as an affirmative defense to liability and/or damages.

To the extent that the defense is not barred by the United States Court of Appeals for the District of Columbia Circuit's writ of mandamus in *Northern States Power Co. v. United States Dep't of Energy*, 128 F.3d 754 (D.C. Cir. 1997), the "unavoidable delays" clause of the standard contract would affect or eliminate the Government's liability for, and/or plaintiff's ability to recover, damages for DOE's delay.

Def.'s Answer and First Affirmative Defense [7], *SMUD*, No. 09-587 (Fed. Cl. Nov. 8, 2009) at 9. The same affirmative defense is in the government's Answer filed in *Alabama Power*. Def.'s Answer and First Affirmative Defense [20] at 20, *Ala. Power Co. v. United States*, No. 08-237 (Fed. Cl. Nov. 17, 2008).^{125/}

^{123/}Arguments made to the *Nebraska Public Power* en banc court include the subject matter jurisdiction of the D.C. Circuit to enjoin pleading in the United States Court of Federal Claims.

^{124/}During this litigation there have been several amendments to the Rules of the Court of Federal Claims. Any variation in Rule 8 does not alter the court's conclusions herein.

^{125/}*Alabama Power* is the second damages case and follow-on to *Southern Nuclear*.

The government did not move to amend its Answers in this case. No reason has been suggested why this or similar language could not have been earlier and formally asserted, subjected to discovery and fully vented at trial, which it was not. Clearly, all concerned would be prejudiced if the validity of the writ was raised at this late date. Any potential defense therein was waived. *Former Employees of IBM Corp. v. Chao*, 292 Fed. Appx. 902, 907, 2008 WL 4097478, at *4 (Fed. Cir. 2008) (“A defendant’s failure to plead an affirmative defense will result in the waiver of that defense and its exclusion from the case.” (citing 5 Wright & A. Miller, *Federal Practice and Procedure* § 1278 (3d Ed. 2004))); *Diversey Lever, Inc. v. Ecolab, Inc.*, 191 F.3d 1350, 1353 (Fed. Cir. 1999) (“an affirmative defense must be raised in response to a summary judgment motion, or it is waived.”); *Pandrol USA, LP v. Airboss Ry. Prods.*, 320 F.3d 1354, 1366-67 (Fed. Cir. 2003) (concluding that by failing to raise in response to motion for summary judgment, defendant waived possible defense to liability); *Te-Moak Bands of W. Shoshone Indians of Nev. v. United States*, 948 F.2d 1258, 1262-63 (Fed. Cir. 1991) (denying motion to amend after an eight-year delay, holding that the moving party bears the burden of showing that the delay was justified); *Englewood Terrace L.P. v. United States*, 86 Fed. Cl. 720, 728-30 (2009) (collecting cases of waiver of substantive claims); *S. Nuclear*, 77 Fed. Cl. at 456-57 (enumerating instances where the government raised jurisdiction, validity or applicability of D.C. Circuit’s writ of mandamus and argued the absence of a repository excused its breach); *Rockwell Automation, Inc. v. United States*, 70 Fed. Cl. 114, 122-24 (2006) (disallowing amendment of answer because of undue delay); *Brunner v. United States*, 2007 WL 5177408, at *1 (Fed. Cl. Apr. 5, 2007) (denying leave to amend to add affirmative defense of prior material breach made eight years after filing Answer and five years after close of discovery).

Early venting of avoidance or substantive defenses preserves judicial resources and fosters efficiency. This is not an instance where the unavoidable delays clause was just discovered. The government drafted the contract. The government has not shown good cause for failure to raise the issue of the validity of the D.C. Circuit’s mandamus order and the application, if any, of the unavoidable delays clause earlier. Accordingly, the court concludes that in this case the government waived any defense based on the application of the unavoidable delays clause.^{126/}

^{126/} Absent waiver, it is not clear that the government has cited any “unavoidable delay” which “arises out of causes beyond its control.” The contracting officer’s statement which resulted in the D.C. Circuit’s mandamus order cited “technical problems; regulatory delays; roadblocks to (continued...) ”

Independently, as a defense to liability, the avoidance defense would fail as a matter of law. Liability for partial breach is well-established and, as noted, at least as it pertains to DOE's failure to begin performance, was here conceded. *Carolina Power II*, 573 F.3d at 1273 ("In this case as in others, the record shows that the United States partially breached its contracts with domestic nuclear utilities to store [HLW] and [SNF]."); *PG & E II*, 536 F.3d at 1284 ("A series of cases has established that DOE has partially breached the contract by failing to begin its performance on January 31, 1998."); *Yankee II*, 536 F.3d at 1272 ("The Department's failure to perform beginning on January 31, 1998 constituted a partial breach of the contract."); *SMUD II*, 293 Fed. Appx. at 769 ("The Department's failure to perform beginning

^{126/}(...continued)

implementation of interim or monitored retrievable storage; funding restrictions; litigation delays; and consultation requirements" as the bases for the lack of any government liability. *N. States*, 128 F.3d at 760.

The unavoidable delays clause addresses liability for damages if the delay "arises out of causes beyond the control and without the fault or negligence of the party failing to perform." (PX 41 at Art. IX.A.) The "party" failing to perform is the "government." The Standard Contract recites that it is a contract with "the UNITED STATES OF AMERICA (hereafter referred to as the 'Government'), represented by the UNITED STATES DEPARTMENT OF ENERGY (hereinafter referred to as 'DOE')." (*Id.* at KRGWE002118.) See *Yankee I*, 73 Fed. Cl. at 258 n.14 (citing 48 Fed. Reg. at 16,591 which responds to comments solicited that the Standard Contract's definition of DOE be expanded to include any successor agencies as "unnecessary," in part because "the Purchaser is not contracting, as such, with DOE, but rather with the United States of America . . . represented by the U.S. Department of Energy.")

The government has not been specific in this litigation as to how past delay(s) were "unavoidable." Mr. Kouts testified that appropriations out of the NWF to DOE have been less than requested. (Kouts testimony and KDX 1 & 2.) DOE's requests are subject to Congressional appropriation. The considerable unappropriated balance of the NWF is an asset for general federal budget purposes. (PX 947 (Response of Freedom of Information Act including NRC Spent Fuel Storage and Decommissioning Fee Study – October 1998 at 11) ("Contributions to the NWF are used to balance the national budget.")) The government does not suggest the NWF is insufficient. To the contrary, utility fees paid to the NWF have exceeded appropriations. Any appropriation shortfalls from a robust NWF are not beyond the control of the government. They are actions (or inactions) of, or within the control of, the government. *S. Nuclear*, 77 Fed. Cl. at 454 n.50. The "government" includes the Congress. Thus, any failure by the Congress to appropriate money from the NWF, if a cause of delay, is not beyond the control of the government. Litigation involving failure to submit an adequate Environmental Impact Statement is not beyond the control of the government. Failure to obtain required licenses from the NRC is not beyond the control of the government. In short, even if the unavoidable delay clause could now be pleaded as a defense, the record does not indicate the existence of any delay cause beyond the control of the government and without its fault or negligence.

January 31, 1998 constituted a partial breach of the contract.”); *Ind. Mich. v. United States*, 422 F.3d 1369, 1372 (Fed. Cir. 2005) (noting prior precedent holding DOE liable for breach); *Me. Yankee*, 225 F.3d at 1342 (“The breach involved all the utilities that had signed the contract – **the entire nuclear electric industry.**”) (emphasis added).

Accordingly, it is concluded that the government has waived defenses as to liability or damages and the validity or application of the *Northern States* writ of mandamus.

CONCLUSION

For public health and safety reasons, the federal government has long assumed responsibility for disposal of highly radioactive waste such as that involved in this litigation. As provided by the NWPA in 1983, the United States, represented by DOE, entered into contracts with domestic nuclear utilities, including WE, under which in return for payment of fees funded by WE’s electricity consumers, calculated to cover costs of developing and implementing the waste disposal system required by that contract, DOE was to start removing, transporting and disposing of utility SNF no later than January 31, 1998. The contracts have been breached by a series of substantial delays. WE’s construction of dry storage, purchase and loading of casks and other mitigating measures, and consequent incurred costs, were a result of, and substantially caused, by DOE’s delays. WE established that in the plausible non-breach world where DOE timely commenced full performance under the 1987 ACR, these decisions and expenditures would not have been made. By preponderant evidence, it is concluded that WE has proven the following incremental damages, comprising the difference between its established actual expenses of reasonable and foreseeable mitigation substantially caused by DOE’s partial breaches, less expenses that would have been incurred in the non-breach world.

Accordingly, upon consideration of the evidence, testimony and argument, and for the reasons set forth above, it is **ORDERED** that:

(1) WE is entitled to recover on all elements of its claimed nominal damages (\$54,385,000) except for amounts identified as the dry storage related portion of NRC SFS/RD fees for the years 1999 through 2007 totalling \$2,283,333.

(2) In addition, there is deducted, \$2,048,000, the expenses of a temporary cask pit rack which WE would have incurred in the plausible non-breach world discussed above.

(3) No cost of capital or expenses of financing mitigation costs are awarded.

(4) The Clerk shall enter final judgment in favor of plaintiff for **\$50,053,667.**^{127/}

IT IS SO ORDERED.

s/ James F. Merow

James F. Merow

Senior Judge

^{127/} Upon entry of final judgment, except to the extent granted herein, all pending motions are denied as moot.

Appendix

In the non-breach world of the 1991 ACR, WE would not have built dry storage

Were it to be determined that the 1991 ACR defined the non-breach world, WE would not have built dry storage. With three possibilities for DOE's collections, the following express timetables illustrate wet pool inventory in that non-breach world, with background shading depicting the breach world.

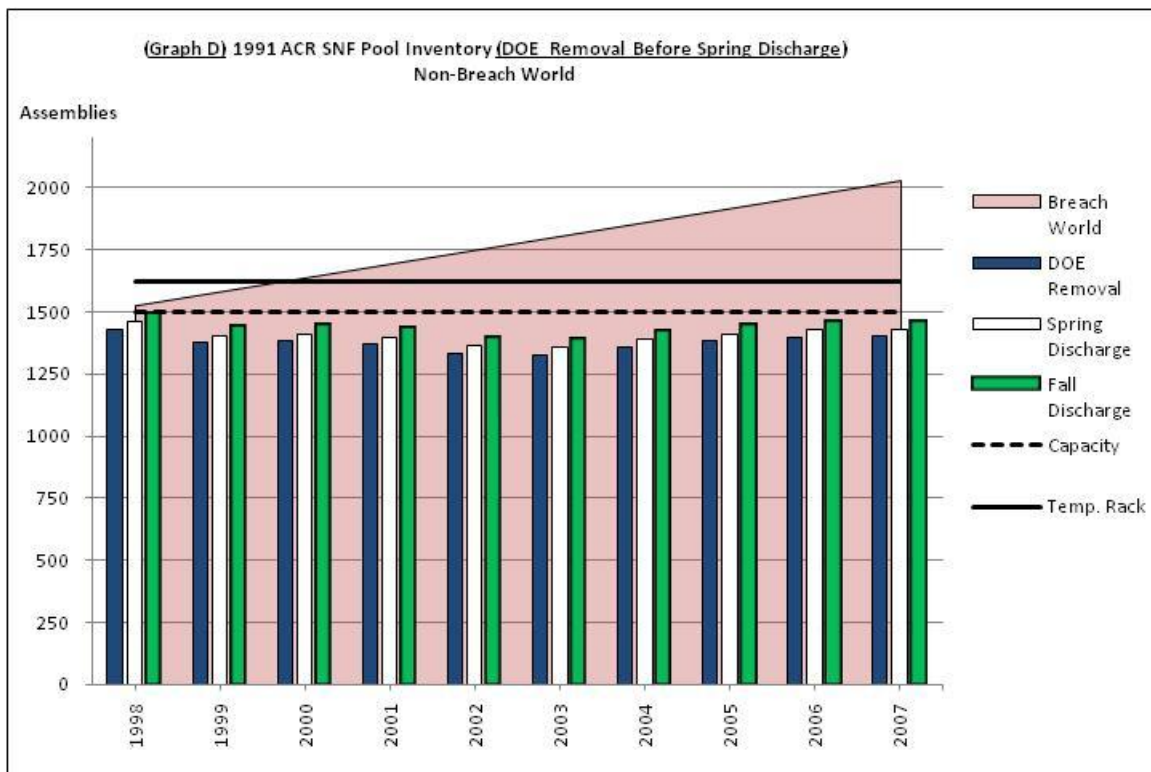
DOE collection prior to spring discharge

Table D and Graph D assume DOE removes WE's 1998 allocations from the 1991 ACR before WE's 1998 spring discharge. Starting with Mr. Hennessy's inventory of 1473 assemblies after WE's 1997 fall discharge, Table D chronicles the rise and fall in the number of assemblies, with additions to, and subtractions from, the wet pool. Before WE makes any further discharges, DOE removes 41 assemblies (WE's 1998 allocation in the 1991 ACR), reducing the pool inventory to 1432 assemblies. With 28 assemblies discharged in the spring of 1998, pool inventory increases to 1460 assemblies, and 1488 assemblies after the 1998 fall discharge. Before the 1999 spring discharge, DOE removes 110 assemblies (WE's 1999 allocation in the 1991 ACR), reducing pool inventory to 1378 assemblies. With 28 assemblies discharged in the spring of 1999, pool inventory increases to 1406 assemblies and 1434 after the 1999 fall discharge. Successive inventory calculations for 2000 through 2007 (2007 being the last year in the 1991 ACR) are detailed using the same convention. At the reduced performance level of the 1991 ACR, WE's wet pool does not exceed capacity. The temporary cask pit rack would have been available if the need would have arisen.

The series of bars in Graph D illustrate this non-breach world advocated by the government. In contrast, the background shading depicts WE's breach world's storage situation – what would have happened if WE, like the government, had done nothing. Capacity is rapidly exceeded. This comparative depiction illustrates that the absence of contract performance by the government was the actual and the substantial causal factor for SNF dry storage, and demonstrates that even under the 1991 ACR advocated by the government at trial, dry storage would not have been needed.

**(Table D) - 1991 ACR DOE Removal Before Spring Discharge Using
1997 After Fall Discharge Inventory of 1473**

	SNF Pool Inventory (assemblies) after DOE Removal (shaded column)	Spring Discharge (28 assemblies added to pool)	Fall Discharge (28 assemblies added to pool)	1991 ACR DOE Removal (assemblies)
1998	1473 - 41 = 1432	1460	1488	41
1999	1488 - 110 = 1378	1406	1434	110
2000	1434 - 50 = 1384	1412	1440	50
2001	1440 - 69 = 1371	1399	1427	69
2002	1427 - 92 = 1335	1363	1391	92
2003	1391 - 62 = 1329	1357	1385	62
2004	1385 - 25 = 1360	1388	1416	25
2005	1416 - 32 = 1384	1412	1440	32
2006	1440 - 40 = 1400	1428	1456	40
2007	1456 - 54 = 1402	1430	1458	54



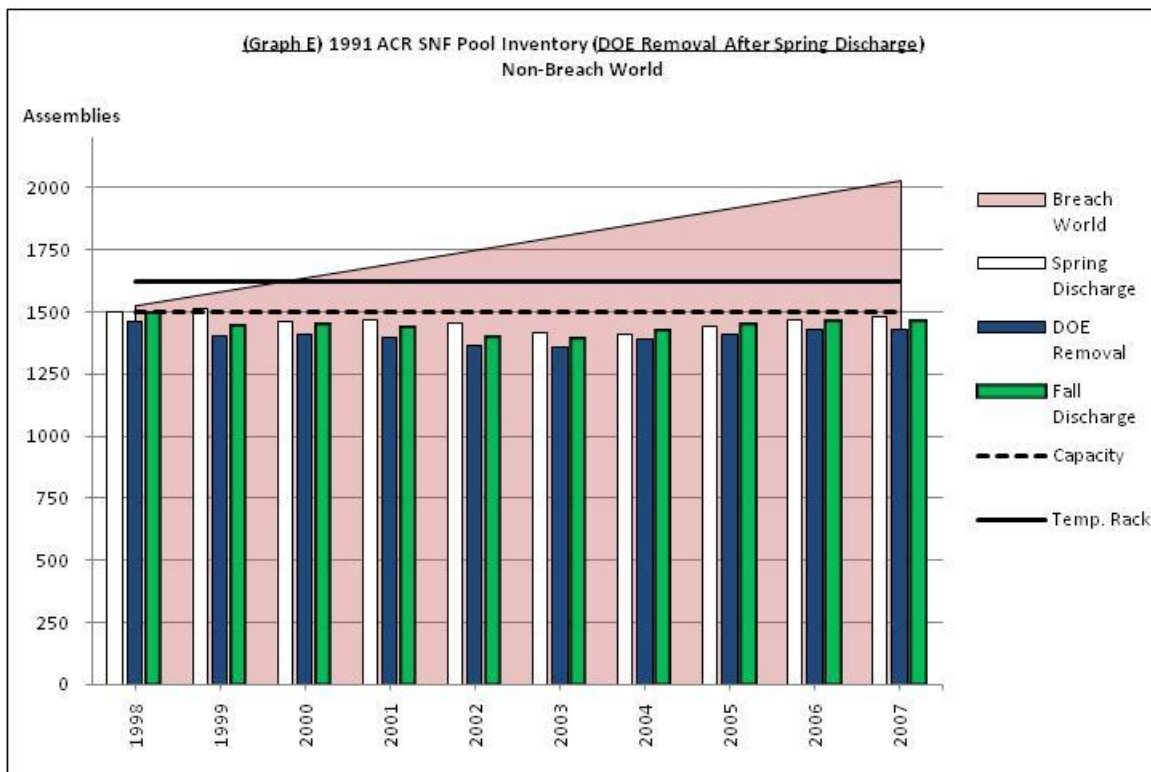
DOE collection after spring discharge

Table E and Graph E assume DOE removes WE's 1998 allocations from the 1991 ACR after WE's 1998 spring discharge. Starting with Mr. Hennessy's inventory of 1473 assemblies after WE's 1997 fall discharge, Table E chronicles the rise and fall in the number of assemblies, with additions to, and subtractions from, the wet pool. With 28 assemblies discharged in the spring of 1998, pool inventory increases to 1501 assemblies. DOE removes 41 assemblies (WE's 1998 allocation in the 1991 ACR), reducing the pool inventory to 1460 assemblies. With 28 assemblies added in the 1998 fall discharge, inventory increases to 1488. With 28 assemblies discharged in the spring of 1999, inventory increases to 1516 assemblies. DOE removes 110 assemblies (WE's 1999 allocation in the 1991 ACR), reducing pool inventory to 1406 assemblies. With the fall 1999 discharge of 28 assemblies, inventory increases to 1434 assemblies. Table E also illustrates, in the same fashion, 2000 through 2007 (2007 being the last year in the 1991 ACR), with the Data Table following detailing additions to, and removals from, the wet pool inventory. At the reduced performance level of the 1991 ACR, WE's wet pool would exceed capacity by one assembly following the spring 1998 discharge and 16 assemblies following the spring 1999 discharge. It is concluded that it is highly likely that, using fuel management techniques, any short term over-capacity could and would have been prevented. The temporary cask pit rack would have been available if the need would have arisen.

Again, the series of bars in Graph E illustrate this non-breach world advocated by the government. In contrast, the background shading depicts WE's breach world's storage situation – what would have happened if WE, like the government, had done nothing. Capacity is rapidly exceeded. This comparative depiction illustrates that the absence of contract performance by the government was the actual and the substantial causal factor for SNF dry storage, and demonstrates that even under the 1991 ACR advocated by the government at trial, dry storage would not have been needed.

**(Table E) - 1991 ACR DOE Removal After Spring Discharge Using
1997 After Fall Discharge Inventory of 1473**

	Spring Discharge (28 assemblies added to pool)	SNF Pool Inventory (assemblies) after DOE Removal (shaded column)	Fall Discharge (28 assemblies added to pool)	1991 ACR DOE Removal (assemblies)
1998	1501	$1501 - 41 = \mathbf{1460}$	1488	41
1999	1516	$1516 - 110 = \mathbf{1406}$	1434	110
2000	1462	$1462 - 50 = \mathbf{1412}$	1440	50
2001	1468	$1468 - 69 = \mathbf{1399}$	1427	69
2002	1455	$1455 - 92 = \mathbf{1363}$	1391	92
2003	1419	$1419 - 62 = \mathbf{1357}$	1385	62
2004	1413	$1413 - 25 = \mathbf{1388}$	1416	25
2005	1444	$1444 - 32 = \mathbf{1412}$	1440	32
2006	1468	$1468 - 40 = \mathbf{1428}$	1456	40
2007	1484	$1484 - 54 = \mathbf{1430}$	1458	54



DOE collection after fall discharge

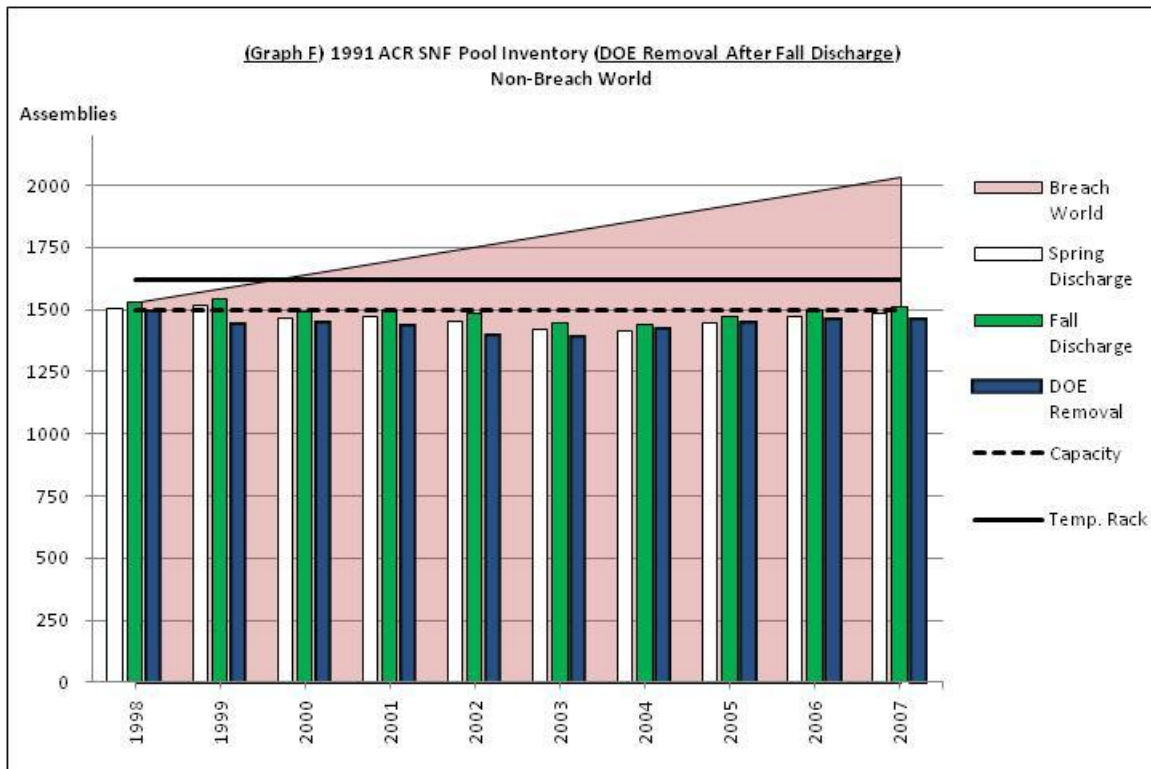
Table F and Graph F assume DOE removes WE's 1998 allocations from the 1991 ACR after WE's 1998 fall discharge. Starting with Mr. H of 1473 assemblies after WE's 1997 fall discharge, Table F chronicles the rise and fall in the number of assemblies, with additions to, and subtractions from, the wet pool. With 28 assemblies discharged in the spring of 1998, pool inventory increases to 1501 assemblies and 1529 assemblies with the fall 1998 discharge. DOE removes 41 assemblies (WE's 1998 allocation in the 1991 ACR), reducing the pool inventory to 1488 assemblies. With 28 assemblies discharged in the spring of 1999, inventory increases to 1516 assemblies and 1544 assemblies with the fall 1999 discharge. DOE removes 110 assemblies (WE's 1999 allocation in the 1991 ACR), reducing pool inventory to 1434 assemblies. Successive inventory calculations for 2000 through 2007 (2007 being the last year in the 1991 ACR) are detailed applying the same convention.

At the reduced performance level of the 1991 ACR, WE's wet pool would exceed capacity in 1998 and 1999. It is concluded that it is highly likely that, using fuel management techniques, any short term over-capacity could and would have been prevented. The temporary cask pit rack would have been available if the need would have arisen.

The series of bars in Graph F illustrates this non-breach world advocated by the government in the same fashion. In contrast, the background shading depicts the breach world's storage situation – what would have happened if WE, like the government, had done nothing. Capacity is rapidly exceeded.

**(Table F) - 1991 ACR DOE Removal After Fall Discharge Using
1997 After Fall Discharge Inventory of 1473**

	Spring Discharge (28 assemblies added to pool)	Fall Discharge (28 assemblies added to pool)	SNF Pool Inventory (assemblies) after DOE Removal (shaded column)	1991 ACR DOE Removal (assemblies)
1998	1501	1529	1529 - 41 = 1488	41
1999	1516	1544	1544 - 110 = 1434	110
2000	1462	1490	1490 - 50 = 1440	50
2001	1468	1496	1496 - 69 = 1427	69
2002	1455	1483	1483 - 92 = 1391	92
2003	1419	1447	1447 - 62 = 1385	62
2004	1413	1441	1441 - 25 = 1416	25
2005	1444	1472	1472 - 32 = 1440	32
2006	1468	1496	1496 - 40 = 1456	40
2007	1484	1512	1512 - 54 = 1458	54



For the reasons previously stated, even under the reduced allocations in the 1991 ACR, it also is highly unlikely that the PSC would have allowed WE to build the ISFSI regardless of the timing of DOE's collections.