In the United States Court of Federal Claims

No. 04-106 C
(Filed: December 23, 2009)

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DAIRYLAND POWER COOPERATIVE,	*	Spent Nuclear Fuel; Standard Contract; "But for" test; 1987 Acceptance Capacity Schedule (ACS); Annual Priority Ranking (APR); SAFSTOR; Exchanges Provision; Failed Fuel; ISFSI; Overhead and G&A; Reactor Pressure Vessel (RPV); Private Fuel Storage (PFS)
Plaintiff,	*	
v.	*	
THE UNITED STATES,	*	
Defendant.	*	
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OPINION

DAMICH, Judge.

This case is one of a number of cases before the Court of Federal Claims involving contracts ("the Standard Contract")[1] between nuclear utilities and the United States Department of Energy ("DOE") for the disposal of spent nuclear fuel ("SNF") and/or high-level radioactive waste ("HLW"). Plaintiff, Dairyland Power Cooperative ("Dairyland"), an electric generation and transmission cooperative, signed the Standard Contract on June 15, 1983. In 2004, Dairyland filed suit against Defendant, the United States ("the Government") for partial breach

[1] "Standard Contract for the Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste," published at 10 C.F.R. § 961.11.

of the Standard Contract. This court has jurisdiction over this matter pursuant to the Tucker Act, 28 U.S.C. § 1491(a)(1). *PSEG Nuclear, L.L.C. v. United States*, 465 F.3d 1343, 1344 (Fed. Cir. 2006). Summary judgment was granted in Dairyland's favor on the issue of contractual liability on April 27, 2006, and only the issue of damages is currently before the Court. Order of April 27, 2006; *see Maine Yankee Atomic Power Co. v. United States*, 225 F.3d 1336, 1343 (Fed. Cir. 2000). The United States Court of Appeals for the Federal Circuit has held that nuclear utilities cannot recover future costs that may result from DOE's partial breach of the Standard Contract. *Indiana Mich. Power Co. v. United States*, 422 F.3d 1369, 1376 (Fed. Cir. 2005) (holding "a claimant may not recover, at the time of the first suit for partial breach, prospective damages for anticipated future nonperformance resulting from the same partial breach." (citations omitted)). Therefore, Dairyland has limited its damages claim to costs incurred through December 31, 2006. Pl.'s Am. Compl. ¶¶ 24, 25. Dairyland retains the right to bring another suit seeking recovery of damages incurred after December 31, 2006. *See Indiana Mich. Power Co.*, 422 F.3d at 1377-78. A trial regarding damages commenced on July 7 and concluded on July 23, 2008.[2]

Dairyland's total damages claim is $54,309,926[3], which includes the following specific categories: (1) $28,142,984 in SAFSTOR[4] costs; (2) $1,672,551 in insurance costs; (3) $10,936,901 for Private Fuel Storage, LLC ("PFS") ($8,669,517 in capital contributions and $2,267,384 in costs from Dairyland to Genoa Fuel Tech, Inc. ("GFT"));[5] (4) $7,472,324 in costs associated with the removal of the Reactor Pressure Vessel ("RPV");[6] (5) $2,986,807 in applied overhead; and (6) $3,098,359 in general and administrative costs ("G&A"). *See* PX 730.[7]

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[2] During trial in this matter, the Court heard from the following witnesses, in order of appearance: Loring E. Mills, former executive with Edison Electric Institute; John W. Bartlett, former Director of DOE's Office of Civilian Radioactive Waste Management ("OCRWM"); Ivan Stuart, Dairyland's fact and expert witness in the nuclear industry; Frank C. Graves, Dairyland's expert witness in economics and the electric utility industry; Christopher Kouts, an official with OCRWM; John D. Parkyn, manager of special projects at Dairyland and chairman of Private Fuel Storage; Roger E. Christians, plant manager at Dairyland's La Crosse Boiling Water Reactor ("LACBWR"); Michael A. Brasel, engineer at Dairyland; Keith A. Stubbendick, director of accounting at Dairyland; Charles V. Sans Crainte, vice president of generation at Dairyland; Charles Wilkins, Dairyland's expert in cost accounting and damages; Seymour J. Raffety, engineer at Dairyland; Robert L. Morgan, former director of OCRWM; Todd D. Smith, Dairyland's expert in the cost of decommissioning nuclear facilities; David K. Zabransky, official with OCRWM; Jonathan Neuberger, Economists, Inc., the Government's expert regarding damages; Warren Brewer, ABZ, Inc., the Government's expert regarding decommissioning costs; and R. Larry Johnson, Veris Consulting, LLC, the Government's expert regarding accounting issues. The Court also admitted deposition testimony and trial testimony (from previous trials in other SNF cases) as listed in Plaintiff's Notice of Designations, filed April 29, 2008 (docket # 259), and Defendant's Notice, filed June 23, 2008 (docket # 310).

[3] The total damages claim is slightly different from that reflected in PX 730, due to two mathematical errors in that exhibit: Plaintiff's claim for RPV removal is actually $7,472,324 (see *infra* n.23); and Plaintiff's claim for LACBWR Applied Overhead actually totals $2,986,807.

[4] SAFSTOR is the storage of SNF in the wet pool.

[5] Dairyland created GFT, a separate and distinct for-profit corporation, which then invested in PFS. *Dairyland Power Coop. v. United States*, 82 Fed. Cl. 379, 381 (2008).

[6] This amount represents the difference between the costs incurred for the removal of the RPV in the breach world and the estimate of cost that would have been incurred in the non-breach world.

[7] Throughout this Opinion, this Court will use the following abbreviations: "PX" for Plaintiff's exhibits; "DX" for Defendant's exhibits (for a specific page in an exhibit, the page number will be indicated; if it is unclear, the last

On August 7, 2007, however, shortly after the conclusion of trial, the United States Court of Appeals for the Federal Circuit issued three opinions that directly bear on the damages calculation in this matter: *Pacific Gas & Electric Co. v. United States*, 536 F.3d 1282 (Fed. Cir. 2008); *Yankee Atomic Electric Co. v. United States*, 536 F.3d 1268 (Fed. Cir. 2008); and *Sacramento Municipal Utility District v. United States*, Nos. 2007-5052, 2007-5097, slip op. 2008 WL 3539880 (Fed. Cir. Aug. 7, 2008). Of particular relevance, in *Pacific Gas & Electric*, the Federal Circuit held that the rate at which SNF would have been accepted by the Government should be calculated based on the 1987 Annual Capacity Schedule ("ACS") process.[8] Post-trial briefing in this matter initially concluded on December 18, 2008. Upon review of the post-trial briefing and the trial record, because there had been no fact or expert testimony nor any calculation of Dairyland's damages based on the 1987 ACS process, a second round of post-trial briefing ensued and concluded on March 30, 2009.[9]

For the reasons explained below, this Court awards Dairyland $37,658,902 in damages. This amount includes damages based on the Court's conclusion that Dairyland's SNF would have been picked up by the end of 1998 pursuant to the exchanges provision of the Standard Contract. In the alternative, however, the Court finds that Dairyland's SNF would have been picked up at least by January 2006.

I. Background

A. History of the Spent Nuclear Fuel ("SNF") Program

Most commercial nuclear reactors use nuclear fuel made of enriched uranium, U235, in pellet form. Stip. ¶ 1. These pellets are placed within long tubes made of cladding that are fastened together by tie plates and spacer bars within an array. Stip. ¶ 2. This array is called an assembly. *Id.* The assembly is placed in the sealed core of the nuclear reactor, called the

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four digits of the Bates number stamped on the document will be used); "PDX" and "DDX" for expert witness demonstrative exhibits; trial transcripts will indicate the page and line number and witness name, e.g., "Tr. Page#:line number (witness name)"; "Stip." refers to the parties' Joint Stipulations of Fact filed June 6, 2008; prior trial transcripts or deposition testimony will indicate the witness name, case name, date of testimony, page and line number, e.g., "Name, Case name, Date, Tr. Page#:line number."

[8] According to the Federal Circuit:

> While the Standard Contract did not spell out a particular numeric or descriptive acceptance rate, it did set forth the specific mechanism for calculating that rate, that is, the ACS process. While not explaining the ACS process in great detail, the contract specified that the ACS process was the basis for calculating an acceptance rate. In sum, the language of the contract specifies that the ACS process provides the contractual acceptance rate . . . . [T]he 1987 report is an ACS report that contemplated full and timely performance. Thus, this report presents the most reasonable measure of the contractual acceptance rate. Accordingly this court offers the Court of Federal Claims on remand the opportunity to recalculate damages based on that rate.

Pacific Gas & Elec. Co., 536 F.3d at 1289, 1292.

[9] On November 16, 2009, Plaintiff filed (albeit without leave) a notice of additional authority regarding *Carolina Power & Light Co. v. United States*, 573 F.3d 1271 (Fed. Cir. 2009) (mandate issued November 10, 2009, following the denial of Defendant's petition for rehearing en banc). Plaintiff notes *Carolina Power*'s implicit directive that the trial court make specific factual findings based on the 1987 ACS process. *Id.* at 1276.

Reactor Pressure Vessel ("RPV"), wherein a fission reaction produces steam that drives a turbine to generate electricity. Stip. ¶ 3; Pl.'s Am. Compl. ¶ 8; *see Yankee Atomic Elec. Co. v. United States*, 73 Fed. Cl. 249, 252, 305 n.54 (2006). Nuclear fuel can be used for a limited amount of time, after which it cannot economically sustain power production, and it must be removed from the RPV. Stip. ¶ 4; *Pacific Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n*, 461 U.S. 190, 195 (1983) ("A nuclear reactor must be periodically refueled and the 'spent fuel' removed.").[10] Generally, as is the case with Dairyland, SNF is stored in a wet pool after it is removed from the reactor. *See Pacific Gas & Elec. Co.*, 461 U.S. at 195; Stip. ¶ 5. Prior to 1977, Dairyland and other utilities assumed that SNF would be reprocessed; therefore, wet pools were designed for short-term storage. *See Pacific Gas & Elec. Co.*, 461 U.S. at 195. On April 7, 1977, President Carter indefinitely suspended reprocessing of spent fuel from commercial nuclear power plants and, in October 1977, DOE announced its "Spent Fuel Policy" implementing President Carter's suspension. *Fla. Power & Light Co. v. Westinghouse Elec. Co.*, 826 F.2d 239, 251 (4th Cir. 1987); Tr. 83:5-7; 87:6-8 (Mills).

In an effort to deal with SNF that was accumulating at reactors after the ban on reprocessing, on January 7, 1983, Congress enacted the Nuclear Waste Policy Act ("NWPA"), 42 U.S.C. §§ 10101-10270 (1982). The NWPA authorized DOE "to enter into contracts with any person who generates or holds title to [HLW] or [SNF] of domestic origin for the acceptance of title, subsequent transportation, and disposal of such waste or spent fuel." *Id*. § 10222(a)(1). Pursuant to the NWPA, DOE drafted the Standard Contract providing for the Government's acceptance, transportation, storage, and disposal of SNF and HLW, the costs of which would be borne by the "generators and owners" thereof. *Id*. § 10131(b)(4). On February 4, 1983, DOE published a notice of proposed rulemaking in the Federal Register which contained the draft terms for the Standard Contract as mandated by the NWPA. 48 Fed. Reg. 5458 (Feb. 4, 1983); Stip. ¶ 37. Comments were required to be submitted by March 7, 1983. 48 Fed. Reg. at 5458; Stip. ¶ 38. In response to the notice, Dairyland submitted comments. PX 49; Tr. 1272:8-25; 1273:1 (Parkyn). On April 18, 1983, DOE issued the Standard Contract as a final rule. 48 Fed. Reg. 16,590 (Apr. 18, 1983); Stip ¶ 40. Nuclear utilities were required to enter into the Standard Contract to renew their operating licenses. *Indiana Mich. Power Co.*, 422 F.3d at 1372 ("Nuclear plant operators and utilities were mandated by Congress to enter into Standard Contracts, the terms of which are presented at 10 C.F.R. § 961.11, as a prerequisite to obtaining renewal of their operating licenses." (citing 42 U.S.C. § 10222(a)(1); *Maine Yankee Atomic Power Co.*, 225 F.3d at 1337 ("The [NWPA] effectively made entry into such contracts mandatory for the utilities[.]"))).

B. The Standard Contract

On June 15, 1983, Dairyland, having no other options if it wished to continue operation, executed the Standard Contract with DOE, which contained the same terms as those provided in

[10] According to the Standard Contract, "spent nuclear fuel" means "fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing." *Standard Contract for Disposal of Spent Nuclear Fuel and/or High Level Radioactive Waste* ("Standard Contract"), 10 C.F.R. 961.11, art. I (18) (2009); PX 62.

the final rulemaking promulgated by DOE on April 18, 1983. Stip. ¶ 41;[11] Tr. 1272: 1-7 (Parkyn). The Standard Contract applies to the delivery by Dairyland "to DOE of SNF and/or HLW of domestic origin from civilian nuclear power reactors, acceptance of title by DOE to such SNF and/or HLW, subsequent transportation, and disposal of such SNF and/or HLW and, with respect to such material, establishes the fees to be paid by Purchaser for the services to be rendered hereunder by DOE." Standard Contract, art. II; *see* PX 62. The delivery of SNF to DOE was to begin "not later than January 31, 1998 . . . ." Standard Contract, art. II. Because the Standard Contract did not contain a firm acceptance rate, not later than July 1, 1987, DOE was to issue an annual capacity report ("ACR") for planning purposes. Standard Contract, art. IV(B)(5)(b). Pursuant to the Standard Contract, the ACR "set forth the projected annual receiving capacity for the DOE . . . and the annual acceptance ranking . . . for ten (10) years following the projected commencement of operation of the initial DOE facility." *Id.* The ACR delineated for Purchaser what portion, if any, of DOE's finite acceptance capacity would be available in a given year based on an "oldest fuel first" ("OFF") priority ranking. Tr. 2611:8-9; 2612:14-25; 2613:1-8 (Zabransky). Beginning on April 1, 1991, DOE was obligated to "issue an annual acceptance priority ranking ['APR'] for receipt of SNF and/or HLW at the … repository." Standard Contract, art. IV(B)(5)(a). The APR is a listing of all spent fuel discharges based on the date of discharge with the oldest fuel ranked first on the list. Tr. 2610:23-25; 2611:1-7 (Zabransky). In essence, the APR set the ranking and divided this ranking into annual increments.[12] Tr: 2613:9-13 (Zabransky). According to the Standard Contract, delivery of SNF to DOE was to proceed according to a Delivery Commitment Schedule ("DCS"). Standard Contract, art. V(A); PX 62; Tr. 2609:13-25; 2610:1-7 (Zabransky). After DOE issued its proposed APR, "the Purchaser shall submit to DOE the delivery commitment schedule(s) which shall identify all SNF and/or HLW the Purchaser wishes to deliver to DOE beginning sixty-three (63) months thereafter." Standard Contract, art. V(B)(1); Tr. 2613:14-23 (Zabransky). DOE then had three months to approve or disapprove the DCS. Standard Contract, art. V(B)(1).[13] For the delivery of SNF covered by a DCS, the Purchaser was then required to submit "final delivery schedules not less than twelve (12) months prior to the delivery date specified therein." Standard Contract, art. V(C).

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[11] The parties' Joint Stipulations of Fact at ¶ 41 indicates that the Standard Contract was promulgated as a final rule on April 14, 1983; however, the Court believes that this is a typographical error. The Standard Contract was promulgated as a final rule on April 18, 1983. 48 Fed. Reg. at 16,590. This date was correctly cited in the Joint Stipulations at ¶ 40.

[12] According to the Federal Circuit:

> In lieu of a firm rate for SNF/HLW acceptance and disposal, the Standard Contract required DOE to issue annual capacity reports (ACRs) . . . . In addition to the annual reports, the Standard Contract also required DOE to issue annual acceptance priority rankings . . . . This court refers to this entire process as the acceptance capacity schedule or ACS process.

Pacific Gas & Elec. Co., 536 F.3d at 1285-86.

[13] It is notable that the Standard Contract's reservation of authority to DOE to approve or disapprove DCSs did not shield the Government from liability for breach of the Standard Contract in its failure to accept SNF in January 1998. *Maine Yankee Atomic Power Co.*, 225 F.3d at 1342. The same logic is applicable contrary to the Government's argument that its authority to approve or disapprove exchanges inherently precludes Plaintiff's recovery of damages based on exchanges. *See* this Court's discussion of approval of exchanges *infra*.

The OFF acceptance schedule was not the only means by which DOE could accept SNF from a Purchaser. Pursuant to the Standard Contract, "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." Standard Contract, art. V(E) . Use of this "exchanges provision" in the Standard Contract could allow a utility to advance its position in the OFF priority ranking. However, to use this provision in the Standard Contract, the utility would have needed to locate another utility willing to switch positions; additionally, DOE retained the right to approve or disapprove any exchange. *Id*.; Tr. 127:13-25; 128:1 (Mills). The Standard Contract also contains a provision that allows for priority acceptance from shut-down reactors. Tr. 190:20-24 (Mills). In diverging from the OFF acceptance schedule, the Standard Contract states, "Notwithstanding the age of the SNF and/or HLW, priority 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." Standard Contract, art. VI(B)(1)(b).

DOE's obligation to dispose of SNF also included "other than standard" fuel. Standard Contract, art. VI(A)(2)(b). According to Appendix E of the Standard Contract, other than standard fuel also incorporated "failed fuel." *Id.* Prior to delivery of other than standard fuel, however, the Purchaser must have obtained "delivery and procedure confirmation" from DOE. *Id.* DOE would then have advised Purchaser of the technical feasibility of disposing of other than standard fuel on the currently agreed-to schedule within 60 days after receipt of the confirmation request. *Id*.

The Standard Contract requires that "all costs associated with the preparation, transportation, and the disposal of spent nuclear fuel and high-level radioactive waste from civilian nuclear power reactors shall be borne by the owners and generators of such fuel and waste . . . ." Standard Contract, pmbl. The Standard Contract has been described as a full cost recovery contract. Tr. 468:3-16 (Bartlett). To that end, the Standard Contract contains a specific methodology for the payment of fees to DOE. Standard Contract, art. VIII. Dairyland has paid all of its fees as required by the Standard Contract. Pl.'s Comp. ¶ 16; Def.'s Answer ¶ 16.

C. DOE's Breach of the Standard Contract

Despite the fact that Dairyland has paid all fees required by the Standard Contract, DOE did not begin acceptance of SNF and/or HLW by January 31, 1998. To date DOE has not accepted any SNF from Dairyland or any other utility. *See Maine Yankee Atomic Power Co.*, 225 F.3d at 1338. The fact that DOE was not going to perform as required by the Standard Contract became apparent long before 1998. In March 1987, DOE submitted a proposal to Congress which recommended the construction of an interim Monitored Retrievable Storage ("MRS") facility. PX 117. In this proposal, DOE indicated that a final repository was not likely to open until 2003. PX 117 (#1905); Tr. 1120:23-25; 1121:1-3 (Kouts). Additionally, DOE proposed to limit MRS acceptance to 15,000 metric tons and to preclude MRS acceptance of any waste until the geological repository was authorized. PX 117 (#1881). After reviewing DOE's March 1987 proposal, on December 22, 1987, Congress amended the NWPA and directed DOE to develop a single repository at Yucca Mountain in Nevada. Nuclear Waste Policy

Amendments Act of 1987 ("Amendments Act"), 42 U.S.C. §§ 10172-10204 (1990), Pub. L. No.100-203, § 5021, 101 Stat. 1330-227. The Amendments Act also included a provision that precluded waste acceptance until authorization of the geologic repository. 42 U.S.C. § 10134(d). The limit on MRS acceptance was also lowered to 10,000 metric tons until the first repository was operational. 42 U.S.C. § 10168 (d)(3); Tr. 1124:2-14 (Kouts). Because of the restrictions that Congress placed on the MRS, and DOE's own admission that a geological repository was unlikely to open until 2003, the utilities began to realize as early as 1987 that performance in 1998 would be unlikely. The Amendments Act essentially doomed the MRS as a potential method for waste acceptance prior to the opening of a geological repository. Tr. 1125:7-20 (Kouts).

On May 25, 1994, DOE's Office of Civilian Radioactive Waste Management ("OCRWM") promulgated a Notice of Inquiry advising the utilities that it "currently projects that the earliest possible date for acceptance of [SNF] for disposal . . . is 2010." Notice of Inquiry, 59 Fed. Reg. 27,007, 27,008 (May 25, 1994); PX 306. One year later, in a "final interpretation of nuclear waste acceptance issues," the same office advised that it "has become apparent that neither a repository nor an interim storage facility constructed under the Act will be available by 1998. DOE currently projects that the earliest possible date for acceptance of waste for disposal at a repository is 2010." Department of Energy final interpretation of nuclear waste acceptance issues, 60 Fed. Reg. 21,793, 21,794 (May 3, 1995); PX 331. In this respect, the Federal Circuit specifically observed, "It is 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." *Indiana Mich. Power Co.*, 422 F.3d at 1375. The Federal Circuit subsequently elaborated on this point, observing,

> This statement, however, does not set 1994 as the earliest possible date for any duty to mitigate. Rather, this passage reveals that this court in *Indiana Michigan* viewed 1994 as the latest possible date for the utilities' duty to mitigate . . . . [T]his court recognizes that no one could reasonably dispute that a duty to mitigate existed in 1994. This statement, however, is not a ruling that the duty to mitigate did not arise until 1994, but instead suggests that the duty could have arisen earlier.

Yankee Atomic Elec. Co., 536 F.3d at 1275.

D. La Crosse Boiling Water Reactor ("LACBWR")

1. The History and Construction of LACBWR

Dairyland is an electric generation and transmission cooperative that generates and transmits electricity to 25 distribution cooperatives and 19 municipal utilities located in Wisconsin, Minnesota, Iowa, and Illinois. Stip. ¶ 7. The cooperatives are members of Dairyland, and the municipal utilities comprise another class of membership in Dairyland. Stip. ¶ 8. Due to Dairyland's organizational structure, it is exempt from federal income taxes provided that no more than 15% of its gross revenues comes from nonmembers of the cooperative. Stip. ¶ 9. Dairyland is the sole owner of LACBWR, the nuclear plant at issue in the instant litigation.

Stip. ¶ 10. LACBWR was designed to produce 50 megawatts of electric power. *Id.*; Tr. 1256:13-15 (Parkyn).

On June 6, 1962, Dairyland and the Atomic Energy Commission ("AEC") entered into a contract under which the AEC would construct and own the nuclear reactor portion of LACBWR, and Dairyland would construct and own the turbine generator portion of the facility. Stip. ¶ 14; Tr. 1255:12-25; 1256:1-6 (Parkyn). Dairyland agreed to operate and maintain its portion of LACBWR and purchase all steam produced from the plant. Stip. ¶ 14. LACBWR was designed by Sargent and Lundy of Chicago, an architectural and enginnering firm, and built by Allis-Chalmers Company of West Allis, Wisconsin. Stip. ¶ 16. LACBWR obtained criticality, i.e., sustained a nuclear fission in the reactor core, on July 11, 1967. Stip. ¶ 17; Tr. 1259:5-6 (Parkyn). After LACBWR attained criticality, the AEC accepted the facility from Allis-Chalmers, and Dairyland began to operate the plant on November 1, 1969. Stip. ¶ 18; Tr. 1259:9-15 (Parkyn). On August 6, 1973, the AEC sold the reactor portion of LACBWR and two cores of nuclear fuel to Dairyland for one dollar. Stip. ¶ 19; Tr. 1259:16-25; 1260:1-2 (Parkyn). The AEC granted Dairyland a provisional operating license on August 28, 1973. Stip. ¶ 20. However, less than 14 years later, in April of 1987, Dairyland's management decided for economic reasons to shut LACBWR down permanently. Stip. ¶ 21; Tr. 1267:15-25; 1268:1-10 (Parkyn). On August 4, 1987, the provisional operating license was modified by the Nuclear Regulatory Commission ("NRC") to a possession-only license. Stip. ¶ 22; Tr. 1270:10-15 (Parkyn).

2. SNF Storage at LACBWR

Dairyland's wet pool at LACBWR contains 333 fuel assemblies, comprising a total of 38 metric tons of uranium ("MTU"). Stip. ¶ 29; Tr. 1614:18-23 (Brasel); 1885:15-16 (Sans Crainte). To increase storage capacity, Dairyland first re-racked its wet pool in 1976. Tr. 1374:6-9 (Parkyn). It then undertook another re-rack in 1979, which was completed in 1980. Stip. ¶¶ 26-27; Tr. 1374:10-12 (Parkyn). As a result of the two re-racks, Dairyland's 38 MTU of SNF are currently stored in a two-tier rack in the wet pool. Stip. ¶ 30; Tr. 1544:17-20 (Christians). This storage of SNF in the wet pool is called SAFSTOR, wherein the plant is essentially placed in mothballed condition until it can be decommissioned at a later time. Dairyland's wet pool also contains failed fuel. Tr. 1526:6-14 (Christians). Dairyland has identified at least 51 assemblies with displaced fuel, missing fuel or visibly defective fuel rods. Stip. ¶ 32. Some of the displaced material has fallen from the assemblies and it is now in less accessible locations in the spent fuel pool. Stip. ¶ 34; DX 431. Additionally, there is SNF material stored in debris buckets in the spent fuel pool. Stip. ¶ 35; Tr. 1541:1-14 (Christians); DX 379. Dairyland has not conducted a physical inventory of the fuel in the wet pool because the process would have required "handling materials over stored fuel in the lower rack, and would have increased the risk of a fuel handling accident, the risk of fuel assembly damage, and the risk of further fuel rod segment displacement from existing damaged fuel assemblies in the upper rack." DX 431; *see also* Tr. 1553:19-24 (Christians).

3. Dairyland's Mitigation Efforts

By the late 1980s to early 1990s, it became clear to Dairyland that DOE was not going to begin accepting SNF as of the 1998 start required by the Standard Contract. Tr. 1279:1-12; 1287:2-13 (Parkyn); Pl.'s First Post-Trial Br., Sept. 19, 2008, 10. Therefore, as clearly noted by the Federal Circuit, Dairyland had a duty to mitigate. *Indiana Mich. Power Co.*, 422 F.3d at 1375. In an effort to remove SNF from Dairyland's site, the company invested in PFS as an interim storage solution for its SNF. Tr. 1299:4-16; 1300:1-4 (Parkyn). In 2005, Dairyland also began to explore on-site dry cask storage. Tr. 1609:17-20 (Brasel). In a dry cask storage project, Dairyland would remove the SNF from the wet pool, place it in a canister, and then transport the canister to an on-site Independent Spent Fuel Storage Installation ("ISFSI"). Tr. 1608:6-15 (Brasel). Dairyland is seeking damages in this action through 2006; however, only limited work was done on the on-site storage effort in 2005 and 2006. Tr. 1610:5-12 (Brasel). In addition to the mitigation damages, Dairyland also claims as damages SAFSTOR costs, insurance, overhead and G&A costs, and the increased cost of RPV removal due to the presence of SNF in the wet pool. PX 730. Each of these categories of damages will be discussed in detail below.

II. Standards for Decision

A. Damages

Dairyland's claimed damages include general losses that, but for the breach, would not have been incurred. Its claimed damages also include losses incurred in an effort to mitigate the breach. The recoverability of these latter losses logically follows from the duty of the non-breaching party to mitigate its damages. "Once 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." Restatement (Second) of Contracts § cmt. b (1981). *See also System Fuels, Inc. v. United States*, 79 Fed. Cl. 37, 51-52 (2007) ("If one party to a contract provides notice that it does not intend to perform under the contract, the other, non-breaching party acquires an obligation to mitigate, *i.e.*, to take steps to avoid further losses or damage stemming from the breach."). The principle that mitigation damages are recoverable extends to cases, such as the instant one, involving a partial breach. *Indiana Mich. Power Co.*, 422 F.3d at 1375 (there is "no reason why efforts to avoid damages in contemplation of a partial breach should not also be recoverable"). Accordingly, the non-breaching party may recover its mitigation losses as well as its general losses due to partial breach. "'[T]he general principal is that all losses, however described, are recoverable.'" *Id.* at 1373 (citing Restatement (Second) of Contracts § 347 cmt. c) (1981). "Mitigation is appropriate where a reasonable person, in light of the known facts and circumstances, would have taken steps to avoid damage." *Id.* at 1375.

"The remedy for breach of contract is damages sufficient to place the injured party in as good a position as it would have been had the breaching party fully performed." *Indiana Mich. Power Co.*, 422 F.3d at 1373 (citing *San Carlos Irrigation & Drainage Dist. v. United States*, 111 F.3d 1557, 1562 (Fed. Cir. 1997)). Accordingly, the non-breaching party must provide this Court with "record evidence about [its] condition with full Government performance, [or] the Court of Federal Claims [cannot] perform the necessary comparison between the breach and

non-breach worlds and thus [cannot] accurately assess the [] damages." *Yankee Atomic Elec. Co.*, 536 F.3d at 1273. More specifically, the non-breaching party must prove that all of its damages, however characterized, were foreseeable, were caused by the breach, and were reasonably certain. *Indiana Mich. Power Co.*, 422 F.3d at 1373 (citing *Energy Capital Corp. v. United States*, 302 F.3d 1314, 1320 (Fed. Cir. 2002)). The three elements of foreseeability, causation, and reasonable certainty are equally applicable to mitigation damage claims as well as general damage claims. *Id.* at 1376 ("The presence of a duty to mitigate does not perforce make the pre-breach costs incurred by [the utility] to store its SNF recompensable; appellant must prove foreseeability, causation, and reasonableness.").

1. Foreseeability

"Foreseeability is a question of fact . . . ." *Bluebonnet Sav. Bank, F.S.B. v. United States*, 266 F.3d 1348, 1355 (Fed. Cir. 2001). Foreseeability is determined at the time the contract was executed. *See Indiana Mich. Power Co.*, 422 F.3d at 1373; *Bohac v. Dept. of Agric.*, 239 F.3d 1334, 1340 (Fed. Cir. 2001); *Prudential Ins. Co. v. United States*, 801 F.2d 1295, 1300 (Fed. Cir. 1986); *Northern Helex Co. v. United States*, 524 F.2d 707, 714 (Ct. Cl. 1975). The non-breaching party must demonstrate that both the magnitude and type of damages or injury were foreseeable at the time of contract formation. *See Landmark Land Co. v. FDIC*, 256 F.3d 1365, 1378 (Fed. Cir. 2001); *Wells Fargo Bank v. United States*, 88 F.3d 1012, 1023-24 (Fed. Cir. 1996). However, the non-breaching party need not demonstrate that a particular means of responding to the breach was foreseeable. *See, e.g.*, *Citizens Fed. Bank v. United States*, 474 F.3d 1314, 1321 (Fed. Cir. 2007), citing Joseph M. Perillo, 11 *Corbin on Contracts* Sec. 56.7 at 108 ("What is required is merely that the injury actually suffered must be one of a kind that the defendant had reason to foresee and of an amount that is not beyond the bounds of reasonable prediction."); *see also Southern Nuclear Operating Co. v. United States*, 77 Fed. Cl. 396, 405 (2007) ("While the general response to a breach must be foreseen, the particular way that a mitigating decision is implemented need not.").

2. Causation

Causation, like foreseeability, is a question of fact. *Bluebonnet Sav. Bank, F.S.B.*, 266 F.3d at 1356. There are two potential standards by which this Court may determine causation, the "but for" test and the "substantial factor" test. In the "but for" test, the breaching party is liable for those damages that it directly and entirely caused. *See Citizens Fed. Bank v. United States*, 474 F.3d 1314, 1318 (Fed. Cir. 2007). In the "substantial factor" test, the breaching party is liable for those damages for which the breach was a substantial causal factor. *Indiana Mich. Power Co.*, 422 F.3d at 1373 (citing *Energy Capital*, 302 F.3d at 1320). This Court has discretion to select an appropriate causation standard. *Citizens Fed. Bank*, 474 F.3d at 1318 Although in *Indiana Michigan* the Federal Circuit upheld the trial court's decision to apply the "substantial factor" standard of causation, in a more recent spent nuclear fuel decision, the Federal Circuit has described the more traditional "but for" causation test as "preferred" over the "substantial factor" test. *Yankee Atomic Elec. Co.*, 536 F.3d at 1272-73. Accordingly, out of an abundance of caution, in this specific spent nuclear fuel case, the Court employs the "but for" test herein. Therefore, the non-breaching party "must show that but for the breach, the damages alleged would not have been suffered." *San Carlos Irrigation & Drainage Dist.*, 111 F.3d at

1563 (citing *Standard Havens Prod., Inc. v. Gencor Indus., Inc.*, 953 F.2d 1360, 1374 (Fed. Cir. 1991)).

3. Reasonable Certainty

Finally, reasonable certainty is also a question of fact. *Bluebonnet Sav. Bank, F.S.B.*, 266 F.3d at 1356-58. The standard is well-established: "[c]ertainty is sufficient if the evidence adduced enables the court to make a fair and reasonable approximation of the damages." *Locke v. United States*, 283 F.2d 521, 524 (Ct. Cl. 1960). "[W]here responsibility for damages is clear, it is not essential that the amount thereof be ascertainable with absolute exactness or mathematical precision[.]" *San Carlos Irrigation & Drainage Dist.*, 111 F.3d at 1563 (citing *Electronic & Missile Facilities, Inc. v. United States*, 416 F.2d 1345, 1358 (Ct. Cl. 1969); *see also Indiana Mich. Power Co.*, 422 F.3d at 1373. Proof need only support a fair and reasonable approximation of its damages. *See, e.g., Energy Capital Corp. v. United States*, 302 F.3d at 1329; *Hughes Commc'n Galaxy, Inc. v. United States*, 271 F.3d 1060, 1067-68 (Fed. Cir. 2001); *Ace-Federal Reporters, Inc. v. Barram*, 226 F.3d 1329, 1333 (Fed. Cir. 2000); *Locke*, 283 F.2d at 524. However, recovery for speculative damages is precluded. *San Carlos Irrigation & Drainage Dist.*, 111 F.3d at 1563 (citation omitted); *see also Indiana Mich. Power Co.*, 422 F.3d at 1373.

B. Reduction of Dairyland's Claim

Although the non-breaching party has a duty to mitigate, the existence of a breach of contract and allegation of costs incurred does not demonstrate that the non-breaching party's costs of mitigation are recoverable. The breaching party, in an effort to reduce the damages, may establish that the non-breaching party's mitigation efforts or particular claimed costs were not reasonable. *See* Restatement (Second) of Contracts § 350(2) (1981); *Sacramento Mun. Util. Dist. v. United States*, 70 Fed. Cl. 332, 367 (2006); *Tennessee Valley Auth. v. United States*, 69 Fed. Cl. 515, 528 (2006). The breaching party, however, is not obligated to prove that it made the best choice in mitigation. *Citizens Fed. Bank v. United States*, 66 Fed. Cl. 179, 185 (2005), *aff'd*, 474 F.3d 1314 (Fed. Cir. 2007) ("Monday-morning quarterbacking is irrelevant to an award of mitigation costs."); *see also In re Kellett Aircraft Corp.*, 186 F.2d 197, 198 (3d Cir. 1950) ("Where a choice has been required between two reasonable courses, the person whose wrong forced the choice cannot complain that one rather than the other was chosen."). In addition, the breaching party may establish that, as a result of the breach, the non-breaching party received a benefit by avoiding certain costs, thereby requiring that the non-breaching party's claimed damages be correspondingly reduced by the gain. *See Bluebonnet Savs. Bank, F.S.B. v. United States*, 339 F.3d 1341, 1345 (Fed. Cir. 2003) ("[T]he non-breaching party should not be placed in a better position through the award of damages than if there had been no breach." (citing *White v. Delta Constr. Int'l, Inc.*, 285 F.3d 1040, 1043 (Fed. Cir. 2002)).

C. Acceptance Rate

As previously noted, subsequent to the conclusion of trial in this matter, the Federal Circuit held that "the 1987 report is an ACS report that contemplated full and timely performance. Thus, this report presents the most reasonable measure of the contractual

acceptance rate." *Pacific Gas & Electric Co.*, 536 F.3d at 1292. The Federal Circuit also definitively rejected the 1991 ACS process, the process advanced by the Government in the instant case, because it "does not reflect the parties' intent regarding the contractual acceptance rate." *Id.* at 1291. Based on these decisions, this Court is bound to use the acceptance rates in the 1987 ACR.

III. Dairyland's Damages Claim

A. SAFSTOR and Insurance Costs

Dairyland claims as damages the costs it incurred to maintain its wet pool in SAFSTOR mode that it would not have incurred if DOE had not breached the contract. The principal inquiry, then, is when DOE would have completed acceptance of SNF from LACBWR in the non-breach, "but for" world and whether the final pick-up of SNF would have relieved Dairyland of its SAFSTOR expenses.

1. The 1987 ACS Process

As instructed by the Federal Circuit, this Court's calculation of Dairyland's acceptance schedule in the "but for" world is premised on the acceptance rates in the 1987 ACR: 1200 MTU per year for 1998 through 2002, ramping up to 2000 MTU per year by 2003, and then to 2650 MTU per year from 2004 through 2007. *Pacific Gas & Electric Co.*, 536 F.3d at 1292; PX 126 (#3077). The acceptance rate found in the 1987 ACR, however, is only one component of the ACS process; the Court must also determine Dairyland's position in the acceptance queue by looking at the APR. The 1987 APR is the starting point for this Court, but not the final word, for this data because, as discussed further below, this Court believes that the 2004 APR is more accurate because it provides actual, rather than projected, data.

The 1987 APR is found in Tables A.1 through A.10 of PX 126. In the third column of the chart below, the rate of acceptance is taken from the 1987 ACR.

Chart I

Year of Program	Year	Annual Acceptance [ACR][14] in Metric Tons of Uranium (MTU)	Cumulative Acceptance in Metric Tons of Uranium (MTU)	LACBWR Acceptance [APR] in Metric Tons of Uranium (MTU)[15]
1	1998	1200	1200	9.710
2	1999	1200	2400	0
3	2000	1200	3600	3.853
4	2001	1200	4800	3.373
5	2002	1200	6000	0
6	2003	2000	8000	4.739
7	2004	2650	10,650	2.398
8	2005	2650	13,300	6.097
9	2006	2650	15,950	2.606
10	2007	2650	18,600	2.591
Totals		18,600	18,600	35.367

A review of this chart reveals that in the "but for" world using only the information in the 1987 ACR, DOE would have picked up 32.776 MTU of Dairyland's SNF prior to calendar year 2007, the damages period at issue in this case. Because Dairyland has 38 MTU of SNF in its wet pool, Tr. 844:2-3 (Graves), using both the 1987 ACR and the 1987 APR, even in the "but for" world of DOE's full performance, Dairyland would still have had 5.224 MTU of SNF in its wet pool at the end of 2006.

2. The 1987 ACR Rates with the Actual Discharge Data Found in the 2004 APR/ACR

In the 1987 ACS process, the listing of spent fuel by discharge date, provided in Appendix B, was based, however, on "discharge information [that] was obtained from the Purchasers' Nuclear Data Form, RW-859, 1985 submittals." PX 126 (#3128). Therefore, the data found in this table after 1985 are based on projections, not actual information. In the "but for" world, by contrast, in performing the Standard Contract, DOE would not have had to rely on projected discharge information; rather, it would have relied upon actual discharge data. This discharge data can be found in the Acceptance Priority Ranking & Annual Capacity Report of July 2004. PX 588. Appendix A of the APR/ACR of July 2004 specifically states:

> In accordance with the Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (10 CFR Part 961) (Standard Contract), an Acceptance Priority Ranking (APR) listing has been generated based on information as reported to the Department by the Purchasers on the Nuclear Fuel

[14] This acceptance rate is found in Table 2.1 of the June 1987 Annual Capacity Report. PX 126 (#3077).

[15] This APR is found in Table A.1 through A.10 of the June 1987 Annual Capacity Report. It was then cross-referenced with the listing of spent fuel by date of discharge in Appendix B of the Annual Capacity Report. Appendix B carried the amount of SNF in MTU to three decimal places; the Court has done the same. PX 126 (#3088-51).

Data Survey Form, RW-859. The 2004 APR listing is based on SNF discharges through December 31, 2002.

PX 588 (#2408).

The chart below reflects Dairyland's acceptance schedule using the acceptance rate found in the 1987 ACR, as required by the Federal Circuit, with an APR that reflects actual discharge data that DOE would have relied upon in the "but for" world.

Chart II

Year of Program	**Year**	**Annual Acceptance [ACR][16] in Metric Tons of Uranium (MTU)**	**Cumulative Acceptance in Metric Tons of Uranium (MTU)**	**LACBWR Acceptance [APR] in Metric Tons of Uranium (MTU)[17]**
1	1998	1200	1200	6.9
2	1999	1200	2400	3.0
3	2000	1200	3600	3.9
4	2001	1200	4800	3.4
5	2002	1200	6000	0
6	2003	2000	8000	1.5
7	2004	2650	10,650	5.7
8	2005	2650	13,300	6.2
9	2006	2650	15,950	7.9
10	2007	2650	18,600	0
Totals		18,600	18,600	38.5

Dairyland had (and still has) 38 MTU of SNF in its wet pool and, because it is a shut-down reactor, it is no longer discharging fuel. Therefore, using the actual discharge data that would have been available in the "but for" world, the Court finds that DOE would have picked up all of Dairyland's remaining SNF in 2006.[18] The Court further finds that the final pick-up would have concluded at least by the end of the first quarter of the calendar year and most likely even by the end of January of that year. These findings are based on the Court's conclusion that: 1) Dairyland's remaining SNF would have been only 7.9 MTU at most; 2) DOE's program for SNF acceptance in this "but for" world would have been operating for eight years, with the DCS procedures well matured in practice; 3) Dairyland would have had an overarching incentive to have arranged final SNF pick-up as quickly and early as possible in 2006; and 4) the LACBWR plant is geographically situated with notably convenient roadway and rail access which would have facilitated SNF removal. In addition, the Court's conclusion in this regard is based on the

[16] This acceptance rate is found in Table 2.1 of the June 1987 Annual Capacity Report. PX 126 (#3077).

[17] This APR is found in Appendix A of the 2004 APR/ACR. PX 588 (#2409-43). This was not cross-referenced with the allocation found in Appendix B because this chart relies on the acceptance rate found in Table 1, which is different from the acceptance rate found in the 1987 ACR. PX 588 (#2404).

[18] The Court's determination in this regard is in the alternative to the Court's finding, *infra*, that Dairyland's SNF would have been picked up in its entirety by utilization of the exchanges provision of the Standard Contract.

testimony of Mr. Kouts that, in every pick-up from Dairyland over the eight years, regardless of the stated APR for that year, DOE would have taken at least enough additional SNF to have completely loaded every cask utilized. *See* Tr. 1224:3-1226:12 (Kouts) (although discussed in the context of the 1991 ACR, Mr. Kouts's testimony remains relevant to this point of loading a full cask at every delivery); *see also*, Tr. 2708:22-2709:10 (Zabransky). This "full cask" loading can only lead to the conclusion that, going into calendar year 2006, there would have been even less than 7.9 MTU left on site and that the final pick-up would have been completed quite early in the year.

Dairyland presented evidence that its SAFSTOR cost for the full calendar year of 2006 was $4,035,040. PX 730. The Court awards Plaintiff such costs for 11 months of that period, for a pro-rated total of $3,698,786.63. Dairyland's insurance cost is also awarded for 2006, but similarly pro-rated; thus, $300,353.17. *Id*.

3. Exchanges Provision

In addition to the acceptance of SNF according to the OFF schedule, the Standard Contract allowed for utilities to exchange places in the queue. As the Federal Circuit noted, "[t]he Standard Contract included provisions setting priority for acceptance of waste (generally through an oldest fuel first (OFF) scheme) and allowed utilities to swap approved delivery commitment schedules (the Exchanges provision)." *Pacific Gas and Electric Co.*, 536 F.3d at 1285. Indeed, the Standard Contract specifically states, "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." Standard Contract, art. V(E) .

Dairyland, supported by the testimony of its expert Frank Graves, argues that in the "but for" world Dairyland would have advanced its place in the queue via exchanges with other utilities such that all its fuel would have been removed by DOE in 1998, the first year of performance. The Government opposes this assertion by arguing: (1) that any damages awarded based on the exchanges provision would be "unduly speculative as a matter of law" (Tr. 63:18-21 (Opening Statement)) — primarily because of the approval right given to DOE ; (2) that the exchanges market would not have developed quickly enough to have Dairyland's fuel out by 1998 (Def.'s Post-Trial Br., October 1, 2008, 17); and (3) that the economic model presented by Mr. Graves in his trial testimony is not reliable, due to numerous flaws (Def.'s Post-Trial Br. 40).

a. DOE's Right to Approve Exchanges

In support of its argument that damages based on the exchanges provision are too speculative — primarily due to DOE's right to approve — the Government points the Court to two other Court of Federal Claims SNF decisions that have so held, namely, *Pacific Gas & Elec. Co. v. United States*, 73 Fed. Cl. 333 (2006), *aff'd in part, rev'd in part, and remanded (on other grounds)*, 536 F.3d 1282 (Fed.Cir. 2008**)** ("PG&E") and *Sacramento Mun. Util. Dist. v. United States*, 70 Fed. Cl. 332 (2006), *reversed and remanded (on other grounds)*, 293 Fed.Appx. 766 (Fed.Cir. 2008) ("SMUD"). In addition, the Government refers the Court to *San Carlos*

Irrigation & Drainage Dist. v. United States, 111 F.3d 1557 (Fed. Cir. 1989), a case cited in both of these opinions.

In *SMUD*, although the court concluded that relying on the exchanges provision was speculative, this Court was not able to determine precisely what the basis was for this conclusion.[19] In *PG&E*, the court explained in detail the reasons for its conclusion and specifically noted that DOE's right of approval was a factor in reaching it. 69 Fed. Cl. at 533. The court, however, had precluded the testimony of Mr. Graves, who was also offered as an expert witness on this topic in *PG&E*, by granting the Government's motion in limine. *Id*. at 435. As the court was careful to state that its conclusion regarding exchanges was based on "the preponderance of the credible evidence adduced at trial," *id*. at 413, and since the testimony of Mr. Graves was not adduced at that trial, this Court does not find the court's conclusion particularly persuasive in this case.

In *San Carlos*, the plaintiff ("SCIDD"), an irrigation and drainage district, sought damages for the loss of water and hydroelectric power. Of most relevance to the issue under consideration here was SCIDD's argument that it was entitled to an award of damages for water lost due to malfunctioning spillway gates that the government was obliged to maintain. *San Carlos,*113 F.3d at 1561. SCIDD's claim was denied as too speculative because "[t]oo many contingencies-including, most importantly, *the discretion of the agency* to dispose of excess water-exist[ed] in the causal chain from the government's breach to the asserted lack of water. . . ." *Id*. at 1563 (emphasis added). The Government appears to believe that *San Carlos* means that any discretion by a government agency renders a claim for damages to be speculative.

However, a close reading of the quotation above reveals (1) that whereas "too many" contingencies in the causal chain are fatal, the mere existence of contingencies in the causal chain is not, and (2) that the most important contingency in the chain of "too many" contingencies in *San Carlos* was the discretion of the agency, although the *mere existence* of agency discretion does not break the causal chain. Therefore, *San Carlos* teaches that the trial court must make a determination of whether there are too many contingencies in the causal chain and that an important contingency to look at is agency discretion.

In order to understand more clearly why the Federal Circuit in *San Carlos* concluded that there were too many contingencies in the causal chain, the facts in that case must be examined.

In 1924, Congress authorized construction of the Coolidge Dam across the Gila River in Arizona as part of an irrigation project. *San Carlos*, 111 F.3d at 1559. In 1931, SCIDD entered

[19] "To accept SMUD's position, the court would need to speculate about whether SMUD would have been successful in trading SMUD's acceptance priority with another utility or convincing DOE to accept SMUD's SNF early. The law does not permit the court to do so." *Sacramento Mun. Utility Dist.,* 70 Fed. Cl. at 375. Following this sentence, the reader is referred to footnote 40, which states: "Under the Standard Contract, DOE was supposed to issue a proposed priority acceptance, pursuant to DCS's submitted by each utility, as approved by DOE. *See* PX 44 at Art. V, VI(B)(1)(b). The Standard Contract also provided that DOE may give acceptance priority to "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. VI(B)(1)(b). The court finds that the evidence presented on the acceptance rate under the terms of the Standard Contract to be highly speculative, therefore, the court declines to make any determination of the acceptance rate based on this record." *Id*.

into a contract with the Department of the Interior concerning the allocation of water from the dam. In 1983 a storm caused the dam's spillway gates to become inoperable. *Id.* at 1560**.** Small spills continued from 1983 to 1985. *Id.* at 1561. The Federal Circuit found: "If the spillway gates had functioned properly, the Reservoir would have held additional water." *Id.* at 1560. The Federal Circuit, in a prior decision, had found that there was a contractual duty on the part of the Government to keep the dam and spillways in good repair. *Id.* at 1561 (citing *San Carlos Irrigation & Drainage Dist. v. United States*, 877 F.2d 957, 959-60 (Fed. Cir. 1989)). SCIDD filed suit in 1986 seeking damages for loss of water. *Id.* Despite the condition of the dam and spillways, SCIDD irrigators actually received all the water that they needed during the years immediately following the spills. *Id.* at 1562**.** The most relevant part of SCIDD's damages claim for this case was that it did not receive as much water as it needed in 1990 when it needed more than usual amounts. *Id.* Specifically, SCIDD argued that, had the dam and spillways been properly maintained, water in excess of SCIDD's requirements in the years immediately following the spills would have been stored so that it would have been available in 1990 when SCIDD's water needs increased. Although the court recognized that a purpose of federal irrigation projects was to store water in wet years for use in arid years, it held that damages for not receiving adequate allocations of water several years after the spills or damages for losing surplus water were too speculative. *Id.* The court mentioned a few factors that presumably entered into its conclusion: (1) excess water may be supplied outside the irrigation district, (2) DOI has the discretion to store water only as safety conditions permit, and (3) water in the dam may evaporate naturally. *Id.* at 1563. In the end, SCIDD was "unable to prove that but for the breach, more water would have been directed to its use *nine years* after the breach." *Id.*

San Carlos was not an SNF case. Essentially, the case was about the lack of surplus water. The contingencies in *San Carlos* included agency discretion, but they also included the vagaries of nature. The agency discretion was over the maintenance of water levels, not reasonable approval of actions by contracting parties. There is no mention in *San Carlos* of expert testimony or of, for example, a study of weather conditions and water storage capabilities, i.e., a model, analogous to what was done by Mr. Graves in this case. The only fact that seems comparable in *San Carlos* and in the instant case is that a number of years is involved. In any event, it is clear that *San Carlos* does not stand for the proposition that the moment agency discretion is introduced in the causal chain, the chain necessarily becomes broken or attenuated and the damages claim based on it speculative.

In the end, the contingencies in the causal chain of each case are specific to the facts of each case. Thus, this Court intends to base its decision on exchanges, as the court did in *PG&E*, on "the preponderance of the credible evidence adduced at trial."

The evidence at trial in the instant case clearly demonstrated that DOE intended that the exchanges provision in the Standard Contract would in fact be utilized by the nuclear utilities. As early as 1983, DOE contemplated the use of exchanges to allow a utility to alter its place in the OFF queue. The Civilian Radioactive Waste Management Program Mission Plan, issued on December 20, 1983, specifically stated,

> While the Department's acceptance rate during the initial five years is set to prevent, in the aggregate, the need for utilities to provide additional on-site

> storage after 1998, it is possible that an individual utility may face a need for expanded storage due to the timing of its shipment allocation. The planning basis assumes that, after 1998, individual utilities who actually realize this need will arrange for the right to ship fuel to the Department from a utility who is next in the queue in shipment allocation (subject to prior approval by the Department based on submittal of a request no less than six months prior to the scheduled delivery date). The use of such brokering arrangements should prevent the need for any utility to expand on-site storage and minimize transshipments.

PX 70(#1071,1073).[20]

In addition, Mr. Zabransky, a nuclear utility specialist and contracting officer for Standard Contracts at DOE and the Government's witness from OCRWM, testified that the exchanges provision would have been used by the utilities. Tr. 2688:24-25; 2689:1-24 (Zabransky). Mr. Zabransky testified that not only would exchanges have worked but that DOE would have facilitated the use of exchanges. Tr. 2690:9-18 (Zabransky).

In the breach world DOE also attempted to facilitate an exchanges market. In 1995, DOE created an electronic bulletin board accessible to all contract holders on which it planned to post all approved Delivery Commitment Schedules which would facilitate exchanges between the utilities. PX 852. Mr. Zabransky also testified regarding this electronic bulletin board for exchanges. Tr. 2690:19-23; 2693:21-25; 2694:1-11; 2695:3-10 (Zabransky). Robert Morgan, former Director of DOE's Nuclear Waste Policy Act ("NWPA") Project Office, in a letter written contemporaneous with contract formation, explained the exchanges provision as follows:

> The majority of utilities commented that they should have 'exchange' or 'swapping' rights to ship their SNF and/or HLW to our repository. After consideration, aside from some complex record keeping, this poses no great problem to us, and consequently, we have accepted this suggestion. It will require our approval, and we intend to be reasonable.

PX 54 (#0899). It was the understanding of the parties at the time of contract formation that DOE would be reasonable when approving exchanges requested by parties. PX 54 (#0899); PX 60; Tr. 128:13-25; 129:1-25; 130:1-11 (Mills). Dr. John Bartlett, a former Director of OCRWM, also testified that the utilities would engage in exchanges, which he termed "swaps." Tr. 437:20-25; 438:1-9; 440:7-24 (Bartlett). The Government raises some issues that could arise before an exchange could be approved, such as the timing, the type of power plant, the availability of the correct cask and whether the utility had the proper training. Tr. 2640:18-25; 2641:1-20 (Zabransky); Def.'s Post-Trial Br. 18. However, none of these issues amounts to a legal prohibition on exchanges.

The Government's contractual obligation of good faith and fair dealing clearly requires that it could not be merely capricious in approving or disapproving properly requested

[20] While this statement addressed the use of exchanges to avoid the necessity of additional on-site storage, there is no reason to believe that in the "but-for" world the exchanges provision would not have been used by a shut-down utility to advance its position in the queue, thereby allowing for the removal of SNF from the wet pool.

exchanges. The various possible, legitimate grounds for disapproval that the Government recites are, of course, hypothetical. In the "but for" world, they may or may not have been applicable to Dairyland and thus inherently cannot now be factually rebutted. The Government, however, should not benefit thereby from the posture in which its breach has placed Plaintiff. "The defendant who has wrongfully broken a contract should not be permitted to reap advantage from his own wrong by insisting on proof which by reason of his breach is unobtainable." *Locke v. United States*, 151 Ct. Cl. 262, 267, 283 F.2d 521, 524 (1960).

In the "but-for" world, the exchanges provision would likely have been used, and DOE would have picked up fuel in a manner most efficient for both parties to the contract. The evidence supports the conclusion that not only would utilities have taken advantage of the exchanges provision, but DOE would have facilitated it in the "but-for" world, as it started to do in 1995 when it created its electronic bulletin board.

b. Development of the Exchanges Market

Defendant also argues that utilization of the exchanges provision would not have occurred at the earliest until several years after the start of the SNF acceptance program in January 1998 in the non-breach world.

David Zabransky concurred at trial that in theory the spent fuel exchanges "would work much like pollution offset credits, a willing seller will find a willing buyer, an exchange will be proffered, and a deal will be accepted . . ." Tr. 2689:11-16 (Zabransky). When asked next to confirm that exchanges would actually work on a "global" basis, however, Mr. Zabransky demurred somewhat. "I think the caveat I've given is that, *when markets mature*, yes." Tr. 2689: 25-2690:4 (Zabransky) (emphasis added).[21] Mr. Zabransky opined that the utilities would not have engaged in exchanges until several years ("maybe three or four years, five years." Tr. 2707:1 (Zabransky)) after the SNF acceptance system had been operating without interruption. By a "mature system," he meant "one where it's operating, people know how it's operating, and people expect it to continue to operate without interruption." Tr. 2707:15-17 (Zabransky).

Based on such testimony, the Government argues that, prior to such a point in the SNF acceptance system, "it would be hard for any utility to justify agreeing to move back in the queue to allow Dairyland to accelerate its scheduled removal of fuel from LACBWR." Def.'s Post-Trial Br. 22. "Based upon this record, it was neither foreseeable nor reasonably certain that DOE would, through the mechanism of exchanges, remove every single SNF assembly at LACBWR in the very first year of performance." *Id.* Defendant further points out that Dairyland had no notes, memoranda, or documents on the subject of exchanges, had never engaged in any discussions about exchanges with other utilities, and had never sought a utility partner for such exchanges.

Contrary to Mr. Zabransky's own speculation that exchanges would not have taken place until the SNF acceptance system itself had matured, it is clear, upon review of the Standard Contract that there was plenty of opportunity for the exchanges provision to have been employed

[21] The context of Mr. Zabransky's comments makes it clear that he is referring to the maturity of the SNF acceptance process, with the exchanges process developing thereafter.

well in advance of the start of the SNF pick-up in the non-breach world. Article IV(B)(5)(a) provides that, beginning April 1, 1991, DOE would issue annual priority rankings (APRs). Article V(B)(1) provides that, as of January 1, 1992, the utility purchasers would begin submitting their DCSs. The DCSs would identify the SNF or other high level waste proposed for delivery to DOE beginning 63 months thereafter. Pursuant to the exchanges provision, art. IV(E), utilities with approved DCSs could "exchange" their DCSs with other utilities, provided that an exchange request be submitted to DOE at least six months in advance of the scheduled delivery date (and dependent on DOE approval, as discussed above).

As Plaintiff argues:

> Thus for exchanges affecting DOE's acceptance starting not later than January 31, 1998, utilities could have submitted exchange requests through July 1997. Therefore, built into the provisions of the Standard Contract was a period of between five and ten years in which the market could have developed over time and still supported exchanges for acceptance in 1998.

Pl.'s Second Post-Trial Brief, December 18, 2008, 32.

Utilities situated similarly to Dairyland would have had strong economic incentives to have bargained for exchanges with other utilities further ahead in the OFF queue but with less pressing circumstances. Tr. 853:11-20 (Graves). Dairyland had in fact submitted comments in 1983 in advance of the promulgation of the Standard Contract suggesting the need for a "transfer" campaign. PX490 at 2; Tr. 1295:6-17 (Parkyn). Dairyland's interest in exchanges was also intensified when the LACBWR plant shut down operations in 1987. Tr. 1295:22-1296:7 (Parkyn).

Although evidence of any actual negotiation by Dairyland with other utilities to obtain an exchange would certainly have strengthened its claim that there would have been a viable exchanges system in the "but for" world, the lack of such documentation is neither fatal to Dairyland nor surprising. First of all, as already noted, DOE itself set up an electronic bulletin board with information on approved DCSs in order to facilitate exchanges. Tr. 2690:19-23; 2695-6-10 (Zabransky). Furthermore, Dairyland did attend and participate in "several industry formats" on how the exchanges provision would work. Tr. 1296:8-14 (Parkyn). In addition, in 1997, Dairyland did meet with a prospective "broker" among all the utilities to pursue exchanges, but the inquiry proved fruitless because of the Government's failure to begin acceptance under the Standard Contract in 1998. Tr. 1452:20-1453:23 (Christians). Finally, as the Court has noted *supra*, the utilities began to realize as early as 1987 that DOE performance in 1998 would be unlikely. Certainly by 1994, when DOE gave notice in the Federal Register that the earliest likely date for SNF acceptance was 2010, the utilities would have seen the futility of time-consuming negotiations over actual exchanges. In sum, Dairyland has provided sufficiently convincing evidence of its pre-existing interest in utilizing the exchanges process.

In the non-breach world, Dairyland would have had plenty of time to pursue and to reach agreement on exchanges with utilities that would have been scheduled for 1998 SNF acceptance in the OFF queue pursuant to the APRs. Those utilities would have submitted their DCSs at least 63 months ahead of their proposed 1998 pick-up dates. Within that 63-month period, Dairyland and similarly situated utilities seeking to "buy" an accelerated position in the queue then would have had several years within which to develop an exchanges market with utilities in a position to sell their places in line. The buyers and sellers of exchanges then needed only six months in advance of the 1998 acceptance dates, per the approved DCSs, to submit their exchange requests and obtain DOE approval. The opportunity thus afforded the utilities to reach agreement on exchanges is quite evident. The likelihood of such agreement is enhanced by the Government's acknowledgement that DOE would have worked to facilitate the exchanges. Tr. 2690:9-18 (Zabransky).

The Court is convinced that a viable exchanges market would have developed in the non-breach world in advance of the SNF acceptance start in 1998 and that Dairyland would have been sufficiently positioned under the timetable and terms of the DCS and exchanges provisions of the Standard Contract to make use of exchanges.

c. Sufficiency of Dairyland's Evidence Regarding Exchanges

To show that, by utilizing the exchanges provision, it would not have incurred SAFSTOR costs from 1999 to 2006 absent DOE's breach, Dairyland presented expert testimony from Frank Graves, an economic consultant. Tr. 749:10-15, 756:4-21 (Graves). Much of Mr. Graves's testimony concerned a study he had undertaken that allowed him to predict when Dairyland would have been out of SNF had DOE not breached. Tr. 757:1-11 (Graves). To make that prediction, Mr. Graves created a model simulating how various projections of DOE's removal capacity would have been allocated among the utilities based on need. Tr. 757:14-23 (Graves).

Mr. Graves's model relied on public data from DOE reports to determine how much SNF each utility had, how much space remained in its wet pool, and when—if it was still operating—its wet pool would reach capacity. Tr. 772:12-773:10 (Graves). Mr. Graves then estimated each utility's cost of maintaining its SNF, thereby determining the cost per ton of SNF that each utility could avoid by obtaining early acceptance allocations. Tr. 781:2-18, 822 (Graves). Mr. Graves described some utilities as being in a "must-move" condition. Tr. 781:2-10 (Graves). A utility reached a must-move condition when it stood to avoid high costs under one of two circumstances: either (1) its wet pool was full, requiring it to build an ISFSI, or (2) because it was shut down and therefore could cease operating a wet pool as soon as its SNF was out. *Id.*

Of the utilities that would have been in a must-move condition in 1998, Mr. Graves found that those maintaining only small quantities of SNF would be willing to pay the most per ton for early acceptance allocations. Tr. 836-839 (Graves). His model indicated that Dairyland, which was in a must-move condition from the outset because its reactor was shut down, had among the least SNF and therefore would have been willing to pay among the most for each ton of 1998 acceptance allocations. Therefore, even under a range of possible acceptance rates, including the

1991 ACR, Mr. Graves concluded that Dairyland certainly would have had all of its SNF removed in 1998. Tr. 870:13-14 ("It turns out they always get out in 1998 . . . .") (Graves).[22]

The Government, while not presenting a study showing a different result, fervently criticizes the one performed by Mr. Graves. According to the Government, Mr. Graves's study is flawed, highly speculative, and unreliable. First, the Government argues that the assumptions Mr. Graves made were inappropriate. Def.'s Post-Trial Br. 41. The Government complains that Mr. Graves did not take into account the possibility that DOE might not approve of a requested exchange or the costs to DOE of facilitating exchanges. *Id.* at 41-42. However, the Court cannot see a realistic way for Mr. Graves to have incorporated the possibility of non-approvals or Government costs of approvals into his model, and the Government has not offered any suggestion of how it could have done so. The same is true of the Government's next criticism—that Mr. Graves's model "assumes, without factual support, that DOE would accept failed fuel on the same schedule as non-failed fuel." *Id.* at 41. The Court is unsure what basis Mr. Graves would have had for treating failed fuel differently, much less how to do so.

The Government's most effective criticism of Mr. Graves's study came from its expert economist, Dr. Jonathan Neuberger. Dr. Neuberger testified that Mr. Graves's model was statistically flawed. Tr. 2862:5-2867:2 (Neuberger). Dr. Neuberger pointed out that Mr. Graves used only publicly available data from a handful of utilities in developing his cost estimates, rather than obtaining a random sample. Tr. 2862:8-13 (Neuberger). As a result, Mr. Graves had to estimate industry-wide costs based on data from only 14 utilities. Tr. 2862-63 (Neuberger). And even among those 14 utilities, he was not able to obtain complete costs for all of his cost categories for each of them. Tr. 2862-63. For example, Mr. Graves's estimate for the cost of operating a wet pool was drawn from only three sites. Tr. 2866. His estimate for ISFSI costs was drawn from 10 sites. Tr. 2867. Dr. Neuberger advised the Court that he did not think that Mr. Graves's model provides a reliable estimate of damages. Tr. 2873.

Notwithstanding Dr. Neuberger's testimony, the bulk of the Government's criticisms are not particularly helpful to the Court. For example, the Government insinuates that Dairyland might not have been "financially capable of purchasing allocations from other utilities," and criticizes Mr. Graves for "assum[ing]" that this would not have been an obstacle for Dairyland. Def.'s Post-Trial Br. 41. Yet, the alternative to purchasing early allocations would have been for Dairyland to continue to incur SAFSTOR costs. If purchasing early allocations to avoid SAFTOR costs would have saved Dairyland money, the Court has been presented with no serious argument as to why Dairyland could not have arranged the necessary financing, in spite of any alleged weakness in its own balance sheet.

Moreover, even when the Government points out legitimate shortcomings in Mr. Graves's analysis, it fails to convince the Court that Mr. Graves's overall conclusions are inaccurate. For example, the Government criticizes Mr. Graves for assuming that all nuclear utilities would have been willing to participate in exchanges. *Id.* Indeed, there was some

[22] Subsequent to Mr. Graves's testimony and trial in this case, the Federal Circuit issued its *Pacific Gas & Electric Co.* decision holding that the 1987 ACR established the applicable acceptance rate. 536 F.3d at 1292. It is particularly notable that Mr. Graves obtained the same result in his exchanges analysis using the more stringent 1991 ACR, because that is the schedule that the Government has favored during litigation. See *id.* at 1291.

dialogue during the Government's cross examination of Mr. Graves that questioned whether a particular utility that Mr. Graves had cited solely as an illustrative example of a potential exchange partner might actually have been willing only to trade allocations among other utilities owned by its parent company. Tr. 999-1006 (Graves). While the Court is willing to indulge the proposition that there might have been a few utilities that would not have considered exchanges regardless of the potential financial incentives, the Government did not make any showing that this would have substantially affected Mr. Graves's conclusions. To the contrary, Mr. Graves testified that his results remained basically the same across a wide range of varied circumstances. Tr. 765:8-13 ("To the contrary, I actually simulate this problem under a whole host of extremely unidealistic sensitivity cases, which show, even under what I think are really implausibly severe stresses on the willingness to exchange, you get the same results.").

Of course, had the Government wanted to show the Court that a perfect model, one that accounts for every conceivable contingency, yields different results from those of Mr. Graves, the Government was free to present the Court with a superior study of its own. But the Government elected not to do so. Instead, the Government seeks only to show that Mr. Graves's study is completely unreliable and of no value whatsoever. It has not succeeded.

The Government may have overestimated the severity of Dairyland's burden here. To prevail regarding its exchanges claim, Dairyland need only establish that a preponderance of the evidence shows that it would have exchanged acceptance allocations in order to be out of SNF in 1998. *See Pac. Gas & Elec. Co.*, 73 Fed. Cl. at 413. In this case, Dairyland has carried that burden. Mr. Graves provided convincing testimony that a combination of two elements of Dairyland's particular circumstance — its shut down status and its relatively small quantity of SNF — would have given Dairyland ample incentive to purchase the necessary 1998 acceptance allocations from a utility that stood to benefit far less from those allocations. This basic point shines through the Government's attacks on Mr. Graves's methodology and cost estimation.

The Court has no doubt that Mr. Graves's study is imperfect. His model has flaws. His reliance on only the cost data that was publicly available leaves the study vulnerable to criticism. However, the Court is also cognizant that there has been no suggestion that the study represents any lackluster effort on Mr. Graves's part. The Government has never suggested that Mr. Graves picked certain data selectively, or failed to use all that was reasonably available to him. Regardless, Mr. Graves's study clearly cannot be given the same weight that a statistically-sound one would be afforded. To varying degrees, each of the Government's criticisms detracts from the persuasiveness of Mr. Graves's testimony. However, Dairyland's decision to elicit testimony regarding Mr. Graves's study does not mean that the Court will necessarily require an irreproachable scientific study if Dairyland can carry its burden with use of an imperfect one.

Even fully considering the Government's criticisms, Mr. Graves's testimony retains its basic evidentiary value. In questioning Mr. Graves, Dairyland put on expert testimony that tends to show that a combination of two elements of Dairyland's particular circumstance — its shutdown operating status and its small quantity of SNF — would have induced Dairyland to pay among the most per unit for early acceptance rights. Notwithstanding flaws going to the precision of Mr. Graves's results, Dairyland proffered convincing testimony that it probably would have advanced to the front of the queue and been out of SNF in 1998. Although the

Government revealed flaws in Dairyland's expert's study casting some doubt on the precision of its calculations, the Government did not effectively counter Dairyland's case regarding exchanges. The Court finds that Dairyland has proven by a preponderance of the evidence that it would have utilized exchanges and had its SNF removed by DOE by the end of 1998.

Dairyland requests $33,282,048 in SAFSTOR costs (inclusive of insurance, overhead, and G&A)[23] on the basis that it would not have incurred such costs from 1999 to 2006 had DOE not breached. However, the Government points out that "purchasing early acceptance rights would have cost Dairyland something, and such costs would operate to offset its damages claim. In the event that the Court elects to credit Dairyland's exchanges theory, it should offset any award to account for these costs . . . ." Def.'s Post-Trial Br. 41 n.27. Dairyland did not seriously contest the appropriateness of offsetting damages on this basis.[24]

However, determining a fair amount by which to offset Dairyland's damages presents a challenge. Dairyland's expert, Mr. Graves, testified that Dairyland's cost to purchase 1998 acceptance allocations would have been about $2 million. Tr. 844:17-25 (Graves). During cross examination, Mr. Graves agreed that, in his model, Dairyland's costs of exchanging ran "from roughly one million dollars through 21.2 million dollars," depending on various circumstances. Tr. 972.

Here, the Government's expert, Dr. Neuberger, provided testimony that has convinced the Court that Mr. Graves's $2 million estimate requires substantial upward adjustment. Dr. Neuberger explained that Mr. Graves's model favored buyers such as Dairyland by calculating the price that all buyers in a given year would have to pay based on the marginal bid price. Tr. 2833-36. In other words, in Mr. Graves's model, the price of exchanges for all buyers is set at an amount just above the first unsuccessful bidder's willingness to pay. According to Dr. Neuberger, "Mr. Graves assumes that all of these consultants are helping buyers, not the sellers. I don't see why those consultants wouldn't work on behalf of sellers to get the highest possible price, not the lowest possible price." Tr. 2836:13-18. The Court agrees that Mr. Graves's model assigns the vast majority of the benefits of exchanges to buyers such as Dairyland. *See* Tr. 2836:3-4 (Neuberger).

The Court has not been presented with any legitimate reason to believe that buyers could have captured the bulk of the exchange benefits. The Court is convinced that all utilities would have assigned significant value to their allocations, and would have behaved as sophisticated and well-advised negotiators. Buyers would only have induced sellers to part with their allocations

[23] *See* Def.'s Second Post-Trial Br. 11.

[24] In its post-trial briefing, Dairyland asserts the alternative argument that if the exchanges provision of the Standard Contract would have not allowed for the removal of its SNF by 1998, the provision that accorded shut-down reactors priority acceptance would have. Pl.'s Second Post-Trial Br. 28-30; Standard Contract, art. VI(B)(1)(b). While cognizant that should Dairyland prevail based on its priority acceptance argument there might not be any offset for exchange costs, the Court notes that on the argument of priority acceptance Dairyland's sparse evidence was not concrete and its presentation was therefore decidedly less convincing than its argument regarding exchanges. Moreover, Dairyland's own position was that the priority acceptance provision should be "viewed as a fallback measure to have ensured the timely decommissioning of shutdown reactors in the event of difficulties with exchanges." *Id.* at 29. Given the Court's decision that exchanges would have allowed Dairyland to deliver its fuel promptly in 1998, the Court need not decide whether the priority acceptance provision would have been utilized.

by offering to share the benefits of such a bargain. Thus, as Dr. Neuberger testified, "you could have situations [resulting in] any price, up to and including the willingness to pay amounts." Tr. 2834:13-15. Both buyers and sellers would have come to the negotiating table demanding no less than a fair share of the benefits of the bargain. By considering the manner in which such a negotiation must be expected to unfold, the Court is able to fashion "a fair and reasonable approximation of the damages" here. *Locke*, 282 F.2d at 524 (Ct. Cl. 1960) ("If a reasonable probability of damage can be clearly established, uncertainty as to the amount will not preclude recovery. . . . [The Court] may act upon probable and inferential as well as direct and positive proof."); *San Carlos Irrigation & Drainage Dist.*, 111 F.3d at 1563 ("not essential that the amount [of damages] be ascertainable with absolute exactness or mathematical precision"). If both buyer(s) and seller(s) demanded a fair share of the benefits of exchanges, an agreement would most likely be struck, on average, by agreeing to split the expected benefits equally between buyer and seller. In other words, Dairyland's cost of exchanges would have been approximately half of what it expected to save through exchanges.

Thus, the Court will reduce Dairyland's SAFSTOR damages by one-half of what Dairyland would have expected to save. Of course, no one can know what Dairyland would have expected its costs to be at the time. However, one can expect that Dairyland could have projected its costs for 1999 through 2006 based on earlier years, and the Court has no reason to believe such projections would not have been close to the amounts Dairyland has actually incurred. Accordingly, the Court finds that the best evidence of what those projections would have been is the amount Dairyland is actually claiming for SAFSTOR damages now. Therefore, exchanges would have cost Dairyland half of its claimed SAFSTOR damages. The Court will offset Dairyland's SAFSTOR damages by that amount and award Dairyland the other half, or $16,641,024.

4. Failed Fuel

Neither side disputes that Dairyland has failed fuel in its wet pool at LACBWR. *See* DX 292; DX 490. The Government argued during and after trial that in the "but for" world Dairyland's failed fuel would not have been picked up from LACBWR. With failed fuel remaining in the wet pool, even if its standard SNF had been removed, Dairyland would still have incurred the expense of a majority of its claimed damages, such as, for example, SAFSTOR and RPV removal. However, based on the evidence presented at trial via the testimony of Plaintiff's witnesses Mr. Parkyn, Mr. Brasel, and Mr. Stuart, as discussed below, the Court concludes that Dairyland's failed fuel would not have impeded the timetable for removal of its standard SNF in the non-breach, "but for" world and that the failed fuel would have been picked up on the same schedule as Dairyland's SNF.

First, it is important to note that the Standard Contract provides that DOE's obligation to dispose of SNF also extends to "other than standard fuel." Standard Contract, art. VI(A)(2)(b). Other than standard fuel, which includes failed fuel, is defined in Appendix E of the Standard Contract. *Id.* DOE's general obligation regarding failed fuel acceptance is clearly evident, despite the further provisions that 1) prior to delivery of other than standard fuel, Purchaser must obtain delivery and procedure confirmation from DOE and 2) DOE is required to advise Purchaser of the technical feasibility of disposing of other than standard fuel on the currently

agreed to schedule within 60 days after receipt of the confirmation request. *Id*. As Plaintiff properly has noted, these provisions establish DOE's responsibility to pick up Dairyland's failed fuel on the same schedule as its standard SNF "unless it would have been technically infeasible to have done so." Pl.'s First Post-Trial Br. 31.

During trial, in support of Plaintiff's contention that failed fuel pick up would have been technically feasible, Mr. Parkyn testified that Private Fuel Storage, LLC (PFS) had indeed been designed to accommodate failed fuel and had obtained NRC certification of canisters to handle failed fuel. Tr. 1310-11 (Parkyn). He explained that the procedures generally call for the failed fuel to be put into cans within the basket of a cask. *Id.* Mr. Brasel testified that Dairyland's cask vendor had developed a plan to handle its failed fuel by placing it in damaged fuel cans and had contracted for casks in which it could be stored and transported. Tr. 1613-16 (Brasel). Dairyland's expert witness, Ivan F. Stuart, testified to the absence of technical impediments, including transportation:

> Q. Mr. Stuart, how is failed fuel handled with respect to transportation? How is it transported?
>
> A. The failed fuel, as long as it can be placed into a failed fuel canister as dictated by the NRC, may then be loaded into a transport cask and otherwise handled the same way as intact fuel.

Tr. 613:1-8 (Stuart). This testimony and the Standard Contract's reference to "canisters for containment of failed fuel," art. IV(A)(2)(b), bolster Dairyland's argument that failed fuel would have been picked up in the "but for" world. Defendant did not credibly contradict Mr. Stuart and was unconvincing in its contention that the likelihood of failed fuel acceptance was too speculative given DOE's role in delivery and procedure confirmation. The Government's fact witnesses raised a myriad of potential technical impediments (fuel assemblies in poor condition; some of Plaintiff's fuel has oxidized and turned into U308 "yellowcake," possibly "a new phenomenon" in spent fuel pools; failed fuel requires special handling; cask design would be difficult and would require modifications; etc.). In essence, however, the Government's evidence amounted to a recitation of the obvious in the "but for" world, that all spent fuel acceptance, not just failed fuel, necessarily would have raised technical issues. "Difficulties in determining what DOE would have done had the DOE commenced performance as required under the Standard Contract does not shield defendant from liability." *Southern Nuclear Operating Co.*, 77 Fed. Cl. at 432 (citing *Locke*, 283 F.2d at 524 (1960). The Court is persuaded by Plaintiff's fact and expert evidence and concludes that Dairyland's failed fuel would have been picked up by DOE at the same time as its SNF.

B. On-Site Dry Cask Storage Project

In 2005, Dairyland began to explore on-site dry cask storage of its SNF. Tr. 1609:17-20 (Brasel). As stated previously, in a dry cask storage project, Dairyland would remove the SNF from the wet pool, place it in a canister, and then transport the canister to an on-site IFSFI. Tr. 1608:6-15 (Brasel). Dairyland is seeking $1,072,467 through 2006 for planning for this project. According to Mr. Brasel, Dairyland performed "fairly limited work" on the project, such as

hiring Sargent & Lundy to do some "scoping studies" and to put together a project work plan, and having some conversations about casks with Holtec, an NRC-certified cask vendor. Tr. 1610:7-12 (Brasel). Mr. Christians testified that Dairyland did not explore building an ISFSI earlier because prior to 2005 Dairyland was under the impression that it was too costly and too risky and that the LACBWR site could not accommodate such a facility. Tr. 1460:21-1462:11 (Christians). Mr. Christians went on to state that the cost of an ISFSI was one of the reasons why Dairyland wanted to collaborate with PFS so that the costs of dry storage could be shared. Tr. 1461:6-11 (Christians). With the maturation of the industry, however, and after hiring a consultant, Dairyland decided that it was practicable to construct an ISFSI on site. Tr. 1462:12-1463:22 (Christians). The Government does not clearly contest recovery for the costs of the on-site dry cask storage project except insofar as its general argument against recovery for overhead and G&A applies to it. Def.'s Second Post-Trial Br., Dec. 18, 2008, 11.

Although Plaintiff incorporated its damages claim for dry cask storage into its SAFSTOR calculation, see PX 730 at 6, Defendant has accurately isolated and calculated that claim, including applicable overhead and G&A costs in its Second Post-Tr. Br. at 11. The Court awards Plaintiff recovery of $1,072,467 for dry cask storage planning expenses.

C. Overhead and G&A Costs

Dairyland claims as damages overhead and general and administrative costs. Overhead includes items such as office space, human resources, and computer services provided in support of LACBWR operations. G&A includes the general and administrative costs of running Dairyland.

At trial, the Court heard extended testimony regarding the overhead and G&A costs incurred. Keith A. Stubbendick, Dairyland's director of accounting, provided the Court with testimony regarding Dairyland's organizational structure and accounting system. Dairyland's expert witness, Charles Wilkins, testified as to the overhead and G&A costs incurred by Dairyland as a result of DOE's partial breach. Mr. Wilkins's testimony was needed because in the normal course of business Dairyland does not calculate overhead and G&A rates. Tr. 2049:15-23; 2053:19-25; 2054:1-8 (Wilkins). Nonetheless, according to Mr. Wilkins, Dairyland did incur those costs and "they do account for those costs as part of their general ledger, and it's shown in their financial statements, but they don't go the additional step of converting all of that into a set of indirect rates, meaning overhead and G&A . . ." Tr. 2054:2-8 (Wilkins). Mr. Wilkins calculated applicable general overhead and G&A rates at LACBWR and testified that the rates are what would apply to the direct costs Dairyland incurred due to the Government's breach in order to derive Dairyland's indirect costs due to the breach. Tr. 2070:15-2072:20 (Wilkins). The Government argues that because Dairyland does not allocate overhead and G&A costs in its normal course of business, these costs are "inconsequential" and should be rejected. Dairyland, however, is in the business of producing energy, and its accounting system is set up to support that business. It is unreasonable to assume that its accounting system would be set up with an eye to litigation. Thus, to prepare its damages claim, Dairyland hired Mr. Wilkins, an expert in overhead and G&A damages calculation.

The Government also argues that Dairyland's overhead and G&A rates were not "incremental" to DOE's partial breach and are therefore not recoverable, Tr. 3134:23-3135:8 (Johnson), but there is no legal support for this contention. It is not disputed that Dairyland spent time and attention on the various tasks associated with mitigating DOE's breach at LACBWR. As the trial court observed in *Carolina Power & Light Co. v. United States*, 82 Fed. Cl. 23, 48 (2008), *aff'd in relevant part*, 573 F.3d 1271, 1277 (Fed. Cir. 2009), "Overhead, by definition, is a cost of doing business, and for some period of time, part of Progress Energy's 'business' was mitigating DOE's partial breach. Overhead recovery is necessary to compensate Plaintiffs fully." Accordingly, Dairyland should be able to recover its mitigation damages "so long as it establishes that the claimed expenses were caused by the breach." *See Sacramento Mun. Util. Dist.*, 2008 WL 3539880, at *6 (*citing Indiana Mich. Power Co.*, 422 F.3d at 1373). The Government disputed Mr. Wilkins's cost allocation methodology and the particular allocation of various costs into overhead or G&A cost pools, and complains that Dairyland did not identify how it would have allocated those resources absent the breach. Mr. Wilkins, however, explained that "indirect costs become damages . . . because . . . there are certain resources that are consumed because of the consumption of breach related activities and, therefore, if breach related direct costs occur, then I believe that breach related indirect costs should occur in the form of overhead and G&A." Tr. 2126:19-2127:1 (Wilkins). As Plaintiff further points out, "a plaintiff's proof of damages need not specify exactly what transactions would have transpired absent a government breach." Pl.'s First Post-Trial Br. 38 (citing *Energy Capital Corp.*, 302 F.3d at 1329). Mr. Wilkins's expert testimony provides the Court a foundation sufficient to award overhead and G&A costs to Plaintiff as noted above in the discussion of SAFSTOR and dry cask storage damages as well in the calculation of RPV and PFS damages, *infra*.

D. Increased RPV Removal Costs

Dairyland does not claim as damages the full cost to remove the RPV from LACBWR; rather, Dairyland claims the increased cost incurred to remove the RPV due to the presence of SNF in its wet pool. The RPV, as distinct from the SNF, is classified as low-level radioactive waste. According to Dairyland, an additional $7,453,467 was spent to remove the RPV through the side of LACBWR's reactor building rather than through the top, as it would have been done if SNF had not been present. PX 730. Dairyland asserts that even if the Government had not partially breached the Standard Contract, SNF would still have been removed from the wet pool by 2006, allowing Dairyland to remove the RPV for millions less in the "but for" world.[25] The Government does not contest the foreseeability or causation of the RPV removal. It contends, however, that Dairyland's cost estimate for removal of the RPV in the "but for" world is neither reliable nor reasonably certain, focusing in particular on the ability of Dairyland to "self-perform" certain elements of RVP removal; the application of Dairyland's cost estimate methodology to the elements of grout removal, fabrication of the shipping container, and nozzle-cutting; removal of the bioshield wall; and contingency.

The standard required to determine the certainty of damages is well-established: "[c]ertainty is sufficient if the evidence adduced enables the court to make a fair and reasonable approximation of the damages." *Locke*, 283 F.2d at 524. To make a fair and reasonable approximation of the increased cost for removal of the RPV, this Court must have "record

[25] Pl.'s Notice of Filing of Declaration and Charts, Declaration of Frank C. Graves, March 16, 2009, at 1.

evidence about [Dairyland's] condition with full Government performance . . . [to] perform the necessary comparison between the breach and non-breach worlds and . . . accurately assess the [] damages." *Yankee Atomic Elec. Co.*, 536 F.3d at 1273.

1. The Breach World

LACBWR permanently shut down in 1987 approximately three years before the end of its operating license, and at that time Dairyland began to plan for the decommissioning of LACBWR. Removal of the RPV was an integral part of the decommissioning process. Tr. 1467:2-4 (Christians). The RPV is located in the reactor building adjacent to the fuel storage pool in the reactor vessel cavity. Tr. 1464:16-19 (Christians). There are approximately three feet between the RPV and the spent fuel pool. PX 855; Tr. 1465:13-16 (Christians). The RPV is a large, thick-walled tank that houses the reactor core. Tr. 1464:10-13 (Christians). Water in the RPV circulates past the reactor core; steam is then generated, which turns the adjacent turbine producing energy. Tr. 1464:13-15 (Christians).

In June 1994, Dairyland hired Sargent & Lundy, which designed LACBWR, as a consultant to determine the cost to decommission the plant. PX 312; Tr. 1467:5-24 (Christians). Sargent & Lundy's report was the first outside review of Dairyland's prior internal decommissioning plans. Tr. 1467:25; 1468:1-4 (Christians). The report proposed two methods to remove the RPV: to segment the RPV into pieces and remove it from the reactor building in casks via the freight door ("segmentation") or to grout all of the internal components in place and remove the RPV through the top of the building with a crane. PX 312; Tr. 1469:24-25; 1470:1-7 (Christians). The most cost-effective method according to the Sargent & Lundy report would be one-piece removal through the top of the reactor building. PX 312; Tr. 1472:23-25; 1473:1-7 (Christians). Significantly, one-piece removal through the top of the building would also decrease the amount of radiation exposure. PX 312; Tr. 1473:8-13 (Christians). Both of the proposed methods assume that the spent fuel would be removed from the adjacent wet pool prior to RPV removal. Tr. 1472:9-14 (Christians). Even after Sargent & Lundy submitted its 1994 report, Dairyland further investigated the option of removing the RPV via segmentation through the freight door and independently determined that this option would have been too expensive. PX 402; PX 355; Tr. 1503:16-25; 1504:1-25; 1505:1-3 (Christians).

The removal of the RPV at Dairyland was divided into two phases. Tr. 1580:1-3 (Brasel). The first phase was a planning phase; the second was removal and transportation. The RPV, whether segmented or in one piece, would need to be stored off-site. Dairyland contemplated its storage in Barnwell, South Carolina, the site of a low-level radioactive waste acceptance facility overseen by the South Carolina Department of Health and Environmental Control and run by Chem Nuclear. Tr. 1579:15-16 (Brasel). Dairyland contracted with Duratek, the parent company of Chem Nuclear, to determine the scope of the work and to discuss the state's acceptance of Dairyland's RPV. Tr. 1579:11-25; 1580:4-8 (Brasel). In April 2005, Duratek provided Dairyland with a revised proposal and then a more specific report for phase I of the removal of the RPV. PX 621; PX 635. On July 29, 2005, Dairyland informed Duratek that Dairyland's Board of Directors approved and authorized the purchase of Duratek's services to remove and to dispose of LACBWR's RPV. PX 646 (#9957).

The second phase was the actual removal and transportation of the RPV to the Barnwell facility. Tr. 1580:1-8 (Brasel). Removal of the RPV became more urgent because Barnwell would be closing in June 2008 to waste from out-of-compact states (Wisconsin among them). Tr. 1579:11-19; 1627:3-7 (Brasel); Tr. 1917:2-Tr. 1919:3 (Sans Crainte). Until 2008, it had been accepting low level, out-of-state class A, B and C waste (such as Dairyland's RPV). Tr. 1477:1-4 (Christians). In addition to the compressed time frame due to Barnwell's impending closure, the other significant complication was the SNF in the wet pool due to DOE's partial breach of the Standard Contract. Dairyland hired Duratek and Chem Nuclear to bring their overall experience to bear on the difficulty of RPV removal in light of SNF in the adjacent pool and to provide liaison with the South Carolina Health and Environmental Control department. Tr. 1579:20-25 (Brasel).

In March of 2006, Dairyland began the removal of the RPV from LACBWR. Tr. 1506:15-21 (Christians). The first step in RPV removal was grouting the internal components of the RPV. The grouting allowed for ease of removal and transportation; additionally, it provided some shielding for radiation. Tr. 1596:8-16 (Brasel). To grout the RPV, it was injected with low-density cellular concrete, which is a lightweight concrete mixture. Tr. 1595:16-25; 1596:1-7 (Brasel). To remove the RPV, a T-shaped portion of the reactor building wall was cut away with a diamond wire saw. PX 856; Tr. 1580:21-25; 1581:1; 1583:2-6 (Brasel). After the reactor building wall was removed, a frame and a door were installed to cover the T-shaped hole. Tr. 1581:2-8; 1585:21-25; 1586:1-18 (Brasel). Next, the operating floor (701 floor) was removed so that the concrete bioshield wall was accessible. Tr. 1581:9-12 (Brasel). The bioshield wall was then removed with a diamond wire saw because the presence of fuel in the building required Dairyland to maintain certain seismic requirements; the RPV was then exposed. PX 856; Tr. 1581:12-15; 1588:2-25; 1589:1-9; 1590:5-18 (Brasel). Additionally, Dairyland was required to abate the paint on the bioshield wall prior to removal because SNF was present in the adjacent wet pool. Tr. 1590:19-25; 1591:1-9; 1592:6-18 (Brasel). A gantry crane was installed onto the operating floor and extended to the outside of the reactor building. Tr. 1581:16-18 (Brasel). Installation of the gantry crane required the modification of Dairyland's existing polar crane to allow the gantry crane sufficient space while still maintaining the 50-ton capacity of the polar crane. Tr. 1594:21-25; 1595:1-15 (Brasel). The nozzles that connected the RPV to the reactor building were then cut, and the crane was used to lift the RPV approximately 20 feet above an intermediate floor and out the T-shaped door of the reactor building to the canister outside the reactor building. Tr. 1581:18-24 (Brasel). The RPV was then placed inside the canister and further grouted within the canister. The top of the canister was welded shut and the canister placed in a horizontal position on a heavy-haul trailer for transportation to Barnwell. Tr. 1582:7-11 (Brasel). The total cost for RPV removal was $18,288,290,[26] which is not contested by the Government. PX 730, p. 17; Tr. 1764:10-22 (Stubbendick).

[26] Of this total, $18,019,015 was for Duratek (including Chem Nuclear); $121,382 was for engineering consulting by Sargent & Lundy; and $147,893 was to the Lawrence construction vendor (for "roll-up doors" on the side of the reactor building after it was cut open for RPV removal). Tr. 1765:3-8 (Stubbendick).

2. The "But For" World

Dairyland claims that it incurred $7,453,467 in *additional* costs for RPV removal because of the presence of SNF in the adjacent wet pool.[27] To recover this increased amount, the Court must compare the evidence presented regarding what would have been Dairyland's costs absent the breach to the actual costs of the RPV removal steps detailed above. *See Yankee Atomic Elec. Co.*, 536 F.3d at 1273. Even in the "but for" world, Dairyland would have had to remove the RPV; however, as determined earlier herein, the Court has determined that, utilizing the exchanges provision, Dairyland's fuel would have been picked up in 1998. Even without exchanges, the Court has further concluded that, consistent with the 1987 ACR and the 2004 APR, Dairyland's SNF — stored in the wet pool adjacent to the RPV — would have been picked up prior to February 2006.

With no fuel in the adjacent wet pool, there is ample evidence that Dairyland would have removed the RPV through the top of the reactor building. As early as July 1994, Sargent & Lundy had recommended removal through the top of the building. PX 312 (#3527-34). According to the Sargent & Lundy report, "[o]ne-piece removal of reactor pressure vessels is not a new or untried technique." PX 312 (#3528). The report specifically found that for Dairyland the "most cost-effective removal method is a one-piece removal of the RPV and internals through an opening in the containment dome." *Id*. In addition to Sargent & Lundy's report, Dairyland independently concluded that removal of the RPV through the top of the reactor building would have been effective. Tr. 1507:5-8 (Christians).

Dairyland not only contemplated the removal of the RPV through the roof of the reactor building in the "but for" world, but also explored that method of removal in the breach world. Tr. 1474:5-13 (Christians). In 2004, Duratek, the contractor hired to remove the RPV, and representatives from Dairyland met with the Nuclear Regulatory Commission ("NRC") to discuss removal of the RPV. Tr. 1474:14-19 (Christians). Removal through the top of the building was discussed with the NRC. The NRC, however, did not want Dairyland to pursue this method of removal due to the presence of SNF. DX 387; Tr. 1474:8-25; 1475:1-6 (Christians). According to an NRC meeting report:

> The preferred approach is to remove the intact RPV (while spent fuel is being stored in the adjacent spent fuel pool), use a Gantry crane to lift the vessel, remove a section of the bioshield and building wall to move the RPV laterally out of the containment vessel, and place the RPV in a pre-staged packaging container for transport and disposal at Barnwell.

PX 610 (#1084).

[27] As noted *infra*, Plaintiff's expert testified that it would have cost Dairyland $10,815.966 to remove the RPV in the non-breach world. Subtracting $10,815,966 from $18,288,290 (the total cost in the actual world for RPV removal), PX 730, #8900, the Court calculates $7,472,324 as Dairyland's increased cost of RPV removal due to the presence of SNF. This is $18,857 more than Dairyland has claimed as damages. The Court cannot find anything in the record to account for this discrepancy. Therefore, based on the testimony and evidence presented, the Court concludes that the difference between the breach world and non-breach world costs is $7,472,324.

During trial, Dairyland put on evidence demonstrating that removal of the RPV through the top of the reactor building in the "but for" world was technically feasible. In the "but for" world, there would have been no SNF in the wet pool; therefore, it is likely that NRC would have approved of removal through the top of the building. DX 387; Tr. 1474:14-25; 1475:1-6 (Christians). In addition to the Sargent & Lundy report that proposed this method of removal, Mr. Brasel testified how removal of the RPV through the top of the reactor building would have been accomplished. First, the top of the reactor building and the water tank would have been cut and removed. Tr. 1603:23-25; 1604:1-2 (Brasel). Removal of the top of the reactor building would have required less time and labor than was required to remove the wall in the breach world. Tr. 1606:19-20 (Brasel). The wall of the reactor building was 1 ¼ inches of steel and nine inches of concrete; however, the top of the building has concrete only at the top of the dome and the steel is only ½ thick. Tr. 1606:7-18 (Brasel). The RPV would have been grouted with a low-density cellular concrete and then removed with a large mobile crawler crane that had the capacity to reach through the top of the building to grab the RPV and move it through the existing internal crane girders. Tr. 1603:11-23; 1604:3-6; 16-23 (Brasel).

Dairyland's expert witness, Todd Smith,[28] then provided the Court with a cost estimate for removal of the RPV through the top of the reactor building in the "but for" world. Tr. 2449:10-14 (Smith). Mr. Smith has an undergraduate degree in accounting and a master's degree in business administration, both from Thomas College. Tr. 2448:11-15 (Smith). He is currently the business manager of the dry fuel storage operation for Maine Yankee, Connecticut Yankee and Yankee Rowe nuclear utilities. Tr. 2435:15-20 (Smith). All three Yankee plants have been decommissioned and only the dry fuel storage operation remains. Mr. Smith is responsible for all expenditure, budgeting, cost estimating, and procurement at the Yankee sites. Tr. 2436:9-16 (Smith). In addition to his work for the Yankees, Mr. Smith also provides consulting services to nuclear utilities involved in large projects and does work as an expert. Tr. 2436:17-23 (Smith). Prior to working as the business manager for all three Yankee plants, Mr. Smith worked for each of the three Yankees over a ten- to twelve-year period during different phases of the decommissioning process. Tr. 2437:6-21 (Smith). In 1998 at Maine Yankee, Mr. Smith was a cost engineer who provided a comprehensive physical decommissioning budget, which included removal of its RPV. Tr. 2438:10-22; 2442:2-15 (Smith). The decommissioning of the Maine Yankee plant was projected to cost approximately $550 million and was completed for approximately $497 million. Tr. 2444:9-15 (Smith). When decommissioning of Maine Yankee was 80 percent complete, Mr. Smith went to Connecticut Yankee to reorganize the budget and to assist in the decommissioning project at that facility. Tr. 2438: 23-25; 2439:1-25 (Smith). After his tenure with Connecticut Yankee, Mr. Smith worked on the decommissioning of Yankee Rowe, which was completed within his $75 million estimate. Tr. 2440:23-25; 2441:3-23 (Smith). Prior to his work at the Yankee plants, Mr. Smith worked at Cianbro, a

[28] The Government contends in its first post-trial brief that Mr. Smith was never qualified as an expert; however, neither *in limine* or at trial did the Government contest Mr. Smith's qualification as an expert; rather, counsel stated, "[O]ur concerns with Mr. Smith are largely with how he's applied his methodology to the facts in this case. I have a lengthy set of questions on those, which I can address in my cross-examination, or I could do those as voir dire." Tr. 2448:23-25; 2449:1-4. The Court determined that any challenge to Mr. Smith's application of this methodology to the facts did not affect his qualification and could properly be addressed during cross-examination. While there was no direct pronouncement that Mr. Smith was accepted as an expert, it is clear from the record that he is a qualified expert, and his testimony will be treated as such.

heavy construction contractor, as a cost engineer and estimator, scheduling engineer, and administrative manager from 1992 to 1997. Tr. 2446:14-25; 2447:1-25; 2448:1-10 (Smith).

Dairyland provided Mr. Smith with the 1994 Sargent & Lundy report, which reviewed two methodologies for removal of the RPV in the "but for" world: segmentation or through the top of the reactor building. Tr. 2451:10-25; 2452:1-4 (Smith). Of the two options presented by Sargent & Lundy for removal, Mr. Smith focused on removal of the RPV through the top of the reactor building because the segmentation method had not been performed elsewhere in the industry and posed a substantial safety risk. By contrast, based on his experience, he considered removal of the RPV through the top of the building to have been feasible. Tr. 2452:15-25; 2453:1-8 (Smith). The non-breach cost estimate provided by Mr. Smith was thus an estimate for removal of the RPV without SNF present in the adjacent wet pool. Tr. 2452:5-14 (Smith). Using the Sargent & Lundy study as a starting point, Mr. Smith met with the operations group at Dairyland, determined the sequence of work that would have been performed in the "but for" world, and then reduced the work sequence to a cost estimate. Tr. 2453:17-25; 2454:1-4 (Smith). Removal of the RPV was broken down to 15 scopes of work and then a specific estimate provided for each individual scope. Tr. 2456:25 – 2473:12 (Smith). According to Dairyland's expert, the total cost to remove the RPV through the top of the reactor building would have been $10,815,966. Tr. 2477:5-11 (Smith).

In contesting Mr. Smith's cost estimate for removal of the RPV in the "but for" world, the Government provided the expert testimony of Warren Brewer. Mr. Brewer has an undergraduate degree in electrical engineering from Louisiana Tech University, a master's degree in nuclear engineering from Massachusetts Institute of Technology, and attended Bettis Reactor Engineering School. Tr. 2921:19-25 (Brewer). Mr. Brewer was a nuclear engineer, responsible for the design, construction, maintenance, operation and disposal of reactor and reactor plants in naval ships, for the Division of Naval Reactors, which is a joint organization of the Department of Defense and the Department of Energy. Tr. 2922:17-25; 2923:1-5 (Brewer). After leaving the Division of Naval Reactors, Mr. Brewer started consulting for the nuclear industry with Pickard, Lowe & Garrick. Tr. 2924:8-24 (Brewer). In 1987, Mr. Brewer left Pickard and formed ABZ, where he currently works. Tr. 2925:2-25; 2926:1 (Brewer). During his expert testimony, Mr. Brewer disputed Mr. Smith's cost estimate with respect to such matters as self-performance; the costs of grouting, fabrication of the shipping container, and nozzle-cutting; removal of the bioshield wall; and contingency. These matters are addressed below.

a. Self-Performance of the RPV Removal

In the breach world, Duratek served as Dairyland's "prime contractor" on the RPV removal and in turn utilized several subcontractors to assist it on the project. Tr. 1579:8-10 (Brasel). Dairyland hired Duratek to manage the RPV removal taking into account the presence of SNF in the wet pool and in light of the impending deadline presented at the Barnwell facility in South Carolina. "We were under a very short time frame because of Barnwell's closure to out-of-compact states . . . so we had to move quickly." Tr. 1579:16-19 (Brasel). In Mr. Smith's estimation of the cost of RPV in the "but for" world, on the other hand, he calculated that Dairyland would have "self-performed" many of the elements of the overall project. Self-performance included not

only performance by Dairyland's own personnel, but also direct contracting with individual service vendors. Mr. Smith specifically stated:

> Q. Next criticism from Mr. Brewer, 5.1.2 on page seven, he complains that the basic assumption that DPC would self-perform the RPV removal in the but-for world is unsupported and unreasonable. How do you respond to that criticism?
>
> A. When I visited the LACBWR facility for the very first time, and we spoke of work scopes and sequences and, you know, during that meeting, it was stated -- I understand Mr. Brasel made it pretty clear when I asked how do you plan on [hearsay objection omitted] . . . . When I asked the question of who would be performing the work for the dry fuel storage campaign, Mike Brasel stated that they planned on self-performing the work. . . . I certainly was under the impression, if I word it improperly, over and above that, I've been on three different commercial nuclear decommissioning in the last 10 years, performed, been involved in over a billion dollars' worth of decommissioning.
>
> We've had situations where we've hired decommissioning oversight contractors, as I testified earlier, DOC contractors to perform the work. We found that that was not the best approach to decommissioning, and we found that we much prefer -- when I say, "we," myself, as well as the entire executive management team of the decommissionings that I was on, that the most effective way would be to self-perform the work, to put the utility in direct contact with the specialty contractors and pull out the general contractor from the middle, i.e., DuraTek [sic] under the breach scenario.
>
> We successfully performed our work under a self-performance environment, and I believe that a self-performance environment is a very cost-effective and intelligent way to conduct business within the decommissioning realm of the nuclear industry.

Tr. 2480:6-25; 2481:1-25; 2482:1-19 (Smith).

According to Mr. Brewer, Dairyland would not have self-performed the RPV removal in the "but for" world. He argued that Dairyland's hiring of Duratek in the breach world is indicative of what it would have done in the non-breach world. "So the time at which Dairyland would have made the decision about to self-perform or not self-perform would have been the same in both cases, the conditions would have been the same. There would be no reason they would choose differently in that world." Tr. 2958:18-24 (Brewer). Mr. Brewer's conclusion is rebutted, however, by the evidence presented at trial. The credited testimony is that, in the "but for" world, SNF would not have been present in the wet pool and would have thus made removal of the RPV easier than it was in the breach world. Without the SNF, the RPV removal project would have been less sensitive, particularly in obtaining authorizations from the NRC, and would not necessarily have warranted the overall coordination of a prime contractor. *See, e.g,* Tr. 1474:5-25; 1475:1-6 (Christians); Tr. 1625:4-25 (Brasel); Tr. 2529:9-17 (Smith).

For example, in the breach world, the RPV had to be removed through the side of the building, which required the careful use of a diamond wire saw to cut away not only a substantial portion of the concrete reactor building wall, Tr. 1583:2-25; 1584:1-24 (Brasel), but also the bioshield wall. Mr. Brasel specifically testified:

> Q. Why was the bioshield wall removed in blocks with the Diamond Wire cutting method that you've described?
>
> A. Well, because we have fuel in the building, we had licensing requirements we had to meet, certain seismic requirements, things like that, forces, impacts that we could not get above a certain level.
>
> Going in and ramming it down or some other method would cause us to exceed that, and so we need a precise cut. We need to maintain as much of the material there as possible to maintain the mass of the building to resist those seismic forces, to maintain a licensing basis.

Tr. 1590:5-18 (Brasel).

The Government's argument against Dairyland's self-performance in the "but for" world amounts to little more than an assertion which fails to take into account the significant factor of SNF presence in the wet pool in the breach world. The Court concludes that it is more likely that Dairyland would have self-performed the removal of the RPV in the "but for" world.

b. Costs for Self-Performance in the "But For" World

Mr. Smith's estimate of costs in the "but for" world includes lesser expense for certain tasks, such as grouting, fabrication of the shipping container, and cutting the nozzles connected to the RPV, compared to the line item figures under the Duratek contract. The Government argues that these tasks would have entailed the same cost in the "but for" world, because the work itself would have been the same even if contracted for directly with specialty contractors. Tr. 2946:1-7 (Brewer). "[R]eal data from real activities is the best estimate, if it's available." Tr. 2946:17-18 (Brewer).

Mr. Smith, however, noted that the Duratek contract was an overall, fixed-price contract that assigned costs, somewhat arbitrarily, to certain subtasks of the RPV removal project but with little or no detail sufficient to determine whether the assigned cost adequately reflected the true cost of that element of the project. See PX 646; Tr. 2489:17-25: 2490:1-3 (Smith). As he explained,

> Q. And the final subcriticism, that you established your estimate without an understanding of what factors would explain a large difference between your estimate and what's listed in the DuraTek [sic] contract. How do you respond?

A. And, again, I'll use the same explanation as -- the numbers that were utilized in the breach world contract are one line item. They do not represent -- it's my understanding and it's my opinion, they do not represent the cost of performing the work.

There was a contractor, DuraTek [sic], that utilized these specialty contractors and arguably put a level of profit on the job from the utilization of these contractors in order to come up with an estimate which is entirely normal in the industry. That's standard in the industry.

So my nonbreach world is an estimate of cost and what it would take from these specific specialty contractors to do the work, which is different from the breach world, where DuraTek [sic] established a cost from a specialty contractor, and then they incorporated it into their contract, and then they negotiated a bottom line number in their contract as to what it would take to not only perform this work, but to manage the work at the same time.

Tr. 2487:5-25; 2488:1-8 (Smith).

In order to develop his cost estimate, based on direct contracting via Dairyland's self-performance in the "but for" world without the complicating factor of SNF in the wet pool, Mr. Smith obtained quotes from either a comparable or the actual vendor utilized by Duratek for grouting, fabrication of the shipping container, and nozzle-cutting. The costs Mr. Smith obtained for these tasks were less than the line item amounts reflected in the Duratek contract. For example, Mr. Smith estimates the costs for fabrication of the shipping container would have been $729,923. The Government asserts, by contrast, that the cost for fabrication in the real-world, per the Duratek contract, was $1.5 million. Mr. Smith explained the apparent disparity at trial:

Q. Now, in the actual world, Dairyland incurred a cost of 1.5 million to have the shipping container fabricated by Brilex Industries, is that right?

A. That's not correct.

Q. What's wrong with that statement?

A. Well, Brilex never contracted with Dairyland. Dairyland never contracted with individual specialty contractors, they contracted with DuraTek [sic]. So in order to understand the true cost to fabricate the container from Brilex, you'd have to ask DuraTek [sic] what Brilex charged them as a cost.

Tr. 2562:11-23 (Smith).

Although the Duratek contract included a line item for "fabrication" at the amount of $1.5 million, it provided no details or specifics for that line item. PX 646 (#0053). In an effort to substitute for the lack of information in the fixed-price contract, Mr. Smith contacted Brilex, the company that fabricated the shipping container, to ascertain what it

charged Duratek. Due to a strict confidentiality agreement, it was precluded from providing that information. Tr. 2485:5-10 (Smith). Unable to verify the fabrication cost from the actual fabricator in the breach world, Mr. Smith obtained a specific quote from another fabricator to include in his estimate. "I went to another qualified company that does large scale fabrication work, that has done large scale fabrication in the nuclear industry, and obtained a quote accordingly. Tr. 2485:11-15 (Smith). The single line item in the Duratek contract for fabrication, by contrast, was not properly quantified and did not include a detailed cost based on the size of the container to be fabricated. Tr. 2484:3-17 (Smith). Additionally, based on his experience and comparison to other estimates, Mr. Smith did not believe that the cost in the Duratek contract represented the actual cost of fabrication by Brilex. Tr. 2486:21-25; 2487:1-4 (Smith).

In the "but for" world, the cost estimate for grouting provided by Mr. Smith was $109,955 (based in part on his experience at the Maine Yankee nuclear utility plant, Tr. 2465:10-17; 2466:3-8 (Smith)); whereas the dollar amount associated with grouting under the Duratek contract was $825,000. Tr. 2945:13-25; 2946:1-20 (Brewer). Similarly, the Government contends that the cost incurred for the cutting of the nozzles in the "but for" world would have been identical to the actual cost incurred in the breach world. In the "but for" world, Mr. Smith estimated that the cost for nozzle cutting would have been $355,000. Tr. 2466:21-23 (Smith). Under the Duratek contract, nozzle cutting was listed at $1.8 million, PX 646 (#0053), although this line item in the Duratek contract suffered from the same deficiency of detail as that relating to the cost of fabrication of the shipping container. Mr. Smith, however, obtained his "but for" estimate for cutting the nozzles directly from Bluegrass Cutting, the company that performed the work in the breach world. Tr. 2466:9-20; Tr. 2488:9-19 (Smith). Mr. Smith's estimate for the nozzle cutting specifically delineates the number and size of the nozzles to be cut in the "but for" world.

Because the Duratek contract provides no breakdown of, or back-up for, the costs for fabrication of the shipping container, grouting, and nozzle-cutting, the Court is not convinced that the fixed-price contract in the breach world is the best indicator of such costs in the "but for" world. *See General Ry. Signal Co. v. WMATA*, 875 F.2d 320, 325 (D.C. Cir. 1989) (line item totals did not presumptively reflect the reasonable costs of work under a lump-sum construction contract). To the contrary, the Court finds credible the more detailed individual estimates of Mr. Smith.

c. Removal of the Bioshield Wall

The parties agree that the bioshield wall would need to have been removed in the "but for" world in order to extract the RPV. They disagree on the method of removal that would have been used. According to the record testimony, the bioshield wall was removed with a diamond wire saw due to seismic requirements in place because of the presence of SNF in the adjacent wet pool. Tr. 1590:5-18 (Brasel). Regarding the bioshield, Mr. Smith specifically stated:

> Q. The next criticism from Mr. Brewer is that, 5.1.7, is that the cost -- that you didn't include a cost for a removal of the bioshield wall in the but-for world, how do you respond?
>
> A. I actually agree to some extent with Mr. Brewer on this point, where the method that was used to remove the bioshield wall in a breach world contract was a surgical removal of concrete, because of the fact that the spent fuel was still in the reactor building.
>
> In a decommissioning setting, without spent fuel being in the reactor building, you would use much cruder methods of demolishing the bioshield wall that I have direct experience with, you would, instead of surgically removing with diamond wire, cutting, and lifting, you would mobilize an excavator with a 15,000 foot pound hoe ram attached to the end of it, and you would demolish it in the matter of a day or two. It's a very different process.
>
> So I do agree that I should have given a credit, but the size of that credit is, you know, less than $10,000. It's a matter of a week's worth of time with a hoe ram and an excavator because you're not constrained by the fuel being in the reactor building.

Tr. 2490:4-25; 2491:1-6 (Smith). Because the Court concludes, and the parties agree, that the bioshield wall would still have needed to be removed, the Court must deduct the cost of the removal of the bioshield wall from the award to Dairyland. Mr. Smith testified that the cost of the removal of the bioshield wall in the "but for" world would have been $10,000, and the Government did not contest this cost. The Court, therefore, will deduct $10,000 from the RPV removal award to account for the removal of the bioshield wall in the "but for" world.

d. Contingency

In creating the estimate for the RPV removal in the "but for" world, Mr. Smith calculated a "contingency" of 15%. A contingency accounts for an unforeseen event within a defined scope of work. Tr. 2473:19-25; 2474:1-2 (Smith). The larger the contingency, the lower Dairyland's recovery would be in this case. Including a contingency is common in estimating. Tr. 2474:10-12 (Smith). The contingency is determined based on the maturity of the estimate. Tr. 2474:15-16 (Smith). In an immature, very conceptual estimate where the scope of work is not clear, the contingency will be higher. Tr. 2474:16-19 (Smith). Where the estimate is clear, the scope of work is specifically delineated, and hard quotes have been provided by specialty contractors, the contingency is lower. Tr. 2474:13-25; 2475:1-7 (Smith). Mr. Smith determined, based on his experience, that a 15% contingency was appropriate. Tr. 2475:8-25 (Smith). In most other estimates, Mr. Smith used a contingency of 10%; however, due to some uncertainties, Mr. Smith increased the contingency to 15% for Dairyland's RPV removal in the "but for" world. Tr. 2475:12-25 (Smith). In contesting the use of the 15% contingency, the Government directs the Court to another utility's decommissioning cost

study which used a contingency of 50%. DX 199. However, this decommissioning cost study was for rate-making purposes to fund a decommissioning trust and was created well in advance of the actual decommissioning. DX 199; Tr. 2597:11-25; 2598:1-25; 2599:1-18 (Smith). The Court finds that a decommissioning cost study used for rate-setting is not comparable to the actual, mature estimate created by Mr. Smith for RPV removal, which contains specific subcontractor costs. The Court concludes that the 15% contingency used in the "but for" world is appropriate, and no offset for a different contingency is warranted.

3. The Court's Conclusion regarding RPV Removal Costs

After review of the Government's arguments that Dairyland's cost estimate for removal of the RPV in the "but for" world is neither reliable nor reasonably certain, the Court concludes that the only adjustment in Plaintiff's claim that is warranted is the subtraction of $10,000 to account for the cost of removing the bioshield wall in the "but for" world. Accordingly, Dairyland is awarded $7,462,324 in direct costs, plus $483,962 in overhead and G&A,[29] for a total of $7,946,286.

E. Private Fuel Storage, LLC, Costs

1. Dairyland's investment in PFS through GFT

Dairyland also claims as damages monies invested in PFS. PFS is a Delaware limited liability company that was formed by a consortium of eleven utilities in an attempt to locate, license, build and operate a spent fuel storage facility. Stip. ¶ 46. According to testimony at trial and exhibits admitted into the record, the eleven utility partners decided to create off-site SNF storage due to the Government's impending partial breach of the Standard Contract. DX 193; Tr. 1300:5-25; 1301:1-10; 1382:5-23 (Parkyn). However, Dairyland did not directly invest in PFS. Instead, in 1995 Dairyland created GFT, a Wisconsin subsidiary wholly owned by Dairyland. Stip. ¶ 44. There are three members of GFT's board, John Parkyn, Charles San Crainte, and Keith Stubbendick, and all are employees of Dairyland and are compensated by Dairyland. Tr. 1299:25; 1300:1-4; 1314:12-21; 1315:14-17 (Parkyn). Dairyland participated in PFS through GFT to avoid potential legal liability and unfavorable tax treatment. Tr. 1313:5-25; 1314:1; 1378:16-24; 1379:7-11 (Parkyn). Additionally, Mr. Parkyn is chairman of the board and the chief executive officer for PFS. He is not, however, paid for this position. Tr. 1299:14-25; 1300:1-4 (Parkyn). To invest in PFS, money was transferred from Dairyland to GFT; in return, shares in GFT were issued to Dairyland, and the money was invested by GFT in PFS. Tr. 1853:7-23 (Stubbendick). The total amount claimed as damages for Dairyland's indirect investment in PFS is $10,936,901: $8,669,517 in capital contributions made through GFT, PX 762, and $2,267,384[30] in costs incurred by Dairyland on behalf of GFT, PX 763. The costs

[29] *See* Def.'s Second Post-Trial Br. 11.

[30] PX 763 and PX 730 differ in the amount of the costs claimed by Dairyland on behalf of GFT. According to the summary sheet in PX 763, Dairyland's expenses for GFT totaled $2,153,667. This total, however, reflects only the costs incurred until June 2006. Dairyland is claiming costs through December 2006, which totaled $2,267,384. *See* PX 730. Testimony at trial accounted for the costs from June 2006 to December 2006. Tr. 1745:13-25; 1746:1-10

represent administrative expenses, related primarily to personnel, which Dairyland incurred for the benefit of GFT in support of PFS. Tr. 1758:9-17 (Stubbendick).

The PFS spent fuel storage initiative was designed to create a temporary storage facility. DX 193; Tr. 1379:24-25; 1380:1-25 (Parkyn). Dairyland decided to invest in PFS because at the time there were no viable containers to store its SNF on-site, investment in PFS permitted Dairyland to share the high cost of constructing an interim storage facility, and storing SNF off-site would allow Dairyland to decommission the shut-down LACBWR. Tr. 1303:10-25; 1304:1 (Parkyn). When looking for a site for its private storage facility, PFS reviewed a DOE list of voluntary host sites. Among the locations on the list was the Skull Valley Band of Goshutes Indian Tribe of Utah, which was ultimately chosen. Tr. 1301:11-25; 1302:1-23 (Parkyn). In 2006, PFS was licensed by the NRC to allow construction and operation on land belonging to the Skull Valley Band. Tr. 1299:4-13 (Parkyn). However, after the site was licensed, and the lease was conditionally approved by the Bureau of Indian Affairs, the Department of the Interior failed to give final approval to the lease, and at the time of trial in this case, litigation was pending in U.S. District Court for the District of Utah. Tr. 1318:19-25; 1319:1-15 (Parkyn).

2. The Government's Arguments in Opposition to Dairyland's PFS Investment

The Government makes four arguments in opposition to Dairyland's claim for its investment in PFS. First, the Government contends that the Federal Circuit's holding in *Indiana Michigan* precludes Dairyland's recovery of monies invested in PFS. *Indiana Mich. Power Co.*, 422 F.3d at 1376. The Government then argues Dairyland's investment in PFS is a collateral and independent undertaking that is not the direct result of DOE's breach. In essence, the Government seems to assert that its breach is not the "but for" cause of Dairyland's investment, through GFT, in PFS. Third, the Government claims that the evidence adduced at trial reveals that Dairyland's investment in PFS, through GFT, was not foreseeable. Finally, the Government requests that, if this Court were to award Dairyland damages associated with its investment in PFS, then in turn, due to its potential value, Dairyland's ownership interest in PFS should be transferred to the Government to avoid Dairyland's unjust enrichment. Each of the Government's arguments will be addressed in detail below.

a. The Federal Circuit's Holding in *Indiana Michigan*

The Government argues that Dairyland's contributions to PFS, through GFT, are not recoverable due to precedent binding on this Court. According to the Government, the Federal Circuit's holding in *Indiana Michigan* that investment in PFS was a speculative, business-related cost not caused by the Government's delay forecloses Dairyland's claim for PFS-related expenses. *See Id.* at 1376. Defendant's argument, however, is unavailing because the Federal Circuit expressly limited its findings in *Indiana Michigan* to that case's factual record. The Federal Circuit specifically stated, "*[O]n these facts*, the trial court's finding that *Indiana Michigan* is not entitled to damages is supportable." *Id.* at 1375 (emphasis added). Additionally, "*[t]he credited evidence* also showed that the utility's investment in the private storage facility

(Stubbendick). Additionally, invoices and back-up documentation from June 2006 to December 2006 are included in PX 763. The Government has not contested the specific amounts claimed as costs by Dairyland for GFT.

was speculative and that the high cost of the venture was unforeseeable." *Id*. at 1376 (emphasis added).

This Court is not alone in concluding that *Indiana Michigan*'s preclusion of PFS-related costs was limited to the factual record. In *Southern Nuclear Operating Co.*, the trial court held, "The Federal Circuit limited its findings in *Indiana Michigan* to that factual record . . . noting that based 'on these facts' and the 'credited evidence' of utility witnesses that the PFS was 'too speculative,' neither causation nor foreseeability were established." *Southern Nuclear Operating Co.*, 77 Fed. Cl. at 445 (declining to award PFS-related damages and holding "that on this record, foreseeability and substantial causation were not established"). On the same point, in *Northern States Power Co. v. United States*, regarding PFS-related expenses, the trial court concluded that:

> Defendant maintains that the Federal Circuit's ruling in *Indiana Michigan* governs the outcome in the instant case . . . . We do not accept defendant's argument. Northern States was not a party to the *Indiana Michigan* litigation, nor were its interests represented by the plaintiff in that suit. Northern States, in other words, has not had its day in court . . . . [P]laintiff is entitled to have this court decide on the basis of the utility's own evidence whether the efforts directed toward the development of a private fuel storage facility were foreseeable or, as defendant maintains, "speculative."

Northern States Power Co. v. United States, 78 Fed. Cl. 449, 465 (2007), *appeal docketed*, Nos. 08-5037, -5042 (Fed. Cir. 2008). The Federal Circuit recently noted — regarding pre-breach mitigation, the issue applicable here — that "[t]he confluence of some evidence in the records of *Indiana Michigan* and this case [*Yankee Atomic Electric Co.*], however, does not mean that both cases spring from the same fountain . . . . This case has a different record." *Yankee Atomic Elec. Co.*, 536 F.3d at 1275. Therefore, this Court finds that Dairyland is entitled to a determination regarding its PFS investment based on its own presentation of evidence at trial. Dairyland is not bound by the factual record in *Indiana Michigan* and this Court shall decide, based on the record, whether Dairyland's PFS-related expenses are recoverable.

b. "But For" the Government's Breach, Dairyland Would Not Have Invested in PFS

The Government argues that Dairyland's investment in PFS, through GFT, was a collateral and independent undertaking that was not a direct result of DOE's delay, that is to say, that Defendant's partial breach was not the "but for" cause for Dairyland's investment in PFS through the mechanism of GFT. The Government's argument is well-trodden territory. On July 2, 2008, this Court denied the Government's motion for summary judgment regarding Dairyland's claim for damages for PFS-related investments, finding that GFT was a mere pass-through entity; it was Dairyland that made the decision to mitigate its damages by investing in PFS and it was Dairyland's funds that were ultimately invested by GFT in PFS.

Further, based on the record at trial, the Court finds that "but for" the Government's breach Dairyland would not have created GFT to invest in PFS. It is important to note that

Dairyland is not claiming any expenses related to the cost incurred in creating GFT. Tr. 77:1-25; 78:1-15 (colloquy between the Court and counsel for Dairyland). Additionally, the Court credits testimony that GFT had no employees, all of its administrative tasks were performed by Dairyland employees, and all of its officers employed by Dairyland. All costs incurred by GFT were paid by Dairyland, and these costs would have been the same had they been incurred by Dairyland directly rather than through GFT. Tr. 1758:22-25; 1759:1-6; 1760:4-12; 1762:6-25; 1763:1-25; 1764:1-8 (Stubbendick).

The Court finds that in the "but for" world DOE would have begun to accept SNF by January 31, 1998, and Dairyland would not have needed to look for off-site storage. According to Mr. Parkyn, Dairyland saw participation in PFS as its only means to mitigate the impending partial breach of the Standard Contract. Mr. Parkyn testified that in 1994 there were no viable containers that Dairyland could use to store SNF on-site. Additionally, investment in PFS allowed Dairyland to share the very high interim storage costs with a number of other utilities, and away-from-reactor storage would have permitted Dairyland to follow through with its decommissioning plans. Tr. 1303:10-25; 1304:1 (Parkyn). Additionally, the business plan for PFS specifically states:

> The need for this facility at this time is due to the failure of the United States Department of Energy to establish a federal monitored retrievable storage facility and the delay of the federal permanent spent fuel repository at Yucca Mountain. These two events make it unlikely that the January 31, 1998 date required under the original Nuclear Waste Policy Act of 1982 will be met.

DX 193; *see also* Tr. 1382:10-23 (Parkyn). It is clear from both the testimony and evidence that "but for" DOE's impending, and then actual, partial breach Dairyland would not have invested in PFS through GFT.

c. Dairyland's Investment in PFS was Foreseeable

First, the Government contends that the creation of GFT was not "reasonably foreseeable by the breaching party at the time of contracting." *See Indiana Mich. Power Co.*, 422 F.3d at 1373. In part, this Court agrees. The creation of a subsidiary to avoid potential tax consequences and to shield itself from liability was not foreseeable by DOE at the time of contracting. Any costs associated with the creation of GFT would not be recoverable. However, Dairyland is not claiming any costs related to the creation of GFT; rather Dairyland claims its investment in PFS, which was made through GFT.

Whether this investment in PFS, through GFT, was foreseeable remained at issue at the time of trial. Foreseeability, a prerequisite to establishing proximate cause for damages stemming from mitigation efforts, is a question of fact. *Home Sav. of America v. United States*, 399 F.3d 1341, 1347 (Fed. Cir. 2005); *Landmark Land Co. v. FDIC*, 256 F.3d 1365, 1379 (Fed. Cir. 2001). Generally, foreseeability is determined at the time of contracting, although there may exist situations in which foreseeability may be more properly measured at the time of the breach. *Indiana Mich. Power Co.*, 422 F.3d at 1373; *Gardner Displays Co. v. United States*, 171 Ct. Cl. 497, 505, 346 F.2d 585, 589 (1965).

In this case, it is appropriate to judge foreseeability as of the time of contracting. Dairyland, as did most other utility companies, signed the Standard Contract in 1983. When the contract was signed, the goal of DOE was that no utility would have to provide greater on-site storage after 1998. Tr. 2375:10-16; 2377:1-5; 2382:10-15 (Morgan). DOE was obligated to begin acceptance of SNF in 1998, whether or not a repository was operational. Tr. 2383:2-6 (Morgan). If the goal of DOE was that no utility would have to provide additional storage after 1998, then the logically foreseeable consequence of a breach would be that additional storage would be required because SNF had not been accepted.

By 1983, Dairyland already had completed two re-racks. LACBWR was constructed as part of a demonstration program in conjunction with the government, through AEC, and it was designed to have its fuel removed and reprocessed on a yearly basis. Tr. 1260:13-24 (Parkyn). Once reprocessing was banned, Dairyland became one of the first plants to face the possibility that it could run out of storage. Tr. 1263:17-25; 1264:1 (Parkyn). Dairyland's wet pool is small, only 11-feet square in width and length and 40 feet deep. Tr. 1265:2-22 (Parkyn). If it wanted to continue operating, Dairyland was left with no choice but to re-rack. The first re-rack was completed in 1976 and the second in 1980. It is one of only two plants that have used double-tiered racks to increase storage. *Id*.

In addition to re-racking to maximum capacity, at the time that Dairyland signed the Standard Contract, it was assumed that the plant would shut down in approximately 2000. Tr. 1347:9-19 (Parkyn). Once the plant shut down, it would be ready to decommission. To completely decommission, all SNF would need to have been removed. In this respect, then, the geography of the LACBWR site was a critical consideration. [31]

LACBWR is located in Vernon County, Wisconsin, within the village of Genoa, Wisconsin. Stip. ¶ 12. Dairyland is immediately off Highway 35, Great River Road, and LACBWR is clearly visible from the highway. Tr. 1416:15-23 (Christians). On the other side of the highway immediately east is a steep bluff that rises 500 feet over the highway and overlooks LACBWR. Stip. ¶ 13; Tr. 1416:15-23 (Christians). Contained within Dairyland's property to the south is Genoa Unit 3, a 375-megawatt, coal-fired power plant, which is directly next to LACBWR. Stip. ¶ 11; Tr. 1415:22-25; 1416:1-3 (Christians). Beyond the coal plant is the coal pile, and immediately next to the coal pile is an old capped ash pond, which now looks like a prairie grass field. Tr. 1416:4-14 (Christians). To the west is the Mississippi River. Stip. ¶ 11; Tr. 1416:15-23 (Christians). To the east, between Highway 35 and Dairyland's property, is the Burlington Santa Fe railroad line. Tr. 1416:15-23 (Christians). To the north is the rail spur that comes onto Dairyland's property from the main rail line. Tr. 1417:1-5 (Christians). LACBWR has very little open space surrounding it and is closely bordered on two sides by fixed obstacles: the railroad and the river. Additionally, compared to other nuclear facilities, Dairyland's property is small. The LACBWR, on only 10 acres, is, for example, a fraction of the size of Wisconsin Electric Power Company's Point Beach facility, which is situated on roughly 1000 acres of land. Tr. 1257:16-20 (Parkyn).

[31] The Court conducted a site visit at LACBWR on June 2, 2008.

Because of the size of Dairyland's wet pool, its shut-down date, and the fact that it already had re-racked twice, this Court finds that it was foreseeable at the time the Standard Contract was signed that in the event of DOE non-performance, Dairyland would have needed to find storage for its SNF outside of its wet pool. Further, because of the particular geographic constraints of its LACBWR site, of which the Government had knowledge because of the AEC's direct involvement in its construction, it was foreseeable by the Government that such additional storage would have to have been located off-site.[32]

This Court is not required to find that Dairyland's specific investment in PFS was foreseeable; it is sufficient that off-site storage was foreseeable in the event of the Government's breach. *See Citizen Fed. Bank v. United States*, 474 F.3d 1314, 1321 (Fed. Cir. 2007) (holding that when making a determination regarding foreseeability, the court is required to determine that "the injury actually suffered must be one of a kind that the defendant had reason to foresee and of an amount that is not beyond the bounds of reasonable prediction." (quoting Joseph M. Perillo, 11 *Corbin on Contracts* § 56.7 at 108 (2005 rev. ed.))).

d. Dairyland's Ownership Interest in PFS Need Not be Transferred to the Government to Avoid Unjust Enrichment

According to the Government, if this Court awards damages to Dairyland for its investment in PFS, then its ownership interest in PFS should be transferred to the Government. If not, the Government contends that Dairyland will be unjustly enriched through its investment in "profit-seeking" PFS. However, the credited evidence belies this claim. Dairyland never had an interest in obtaining profits from its investment in PFS. Tr. 1319:16-20 (Parkyn). Additionally, to date PFS has not made a profit. Tr. 1319:21-22 (Parkyn). PFS is currently embroiled in litigation attempting to overturn the U.S. Department of the Interior's refusal to approve the final lease. Tr. 1318:19-25; 1319:1-15 (Parkyn). When, if ever, construction will begin is unknown. When, if ever, PFS will be profitable is also unknown. That PFS is not yet successful does not affect Dairyland's claim for damages related to PFS. *See Yankee Atomic Elec. Co.*, 536 F.3d at 1276 (holding that because Yankee Atomic Electric Co.'s re-rack efforts were reasonable, foreseeable and caused by the Government's partial breach, their successful implementation was irrelevant). However, it certainly makes the Government's claim of unjust enrichment, based on the profitability of PFS, premature in this partial breach case.

3. The Court's Conclusion regarding PFS

Based on the record presented by Dairyland, the Court concludes that investment in PFS was foreseeable, that "but for" the Government's breach Dairyland would have had no reason to invest in PFS, and that the costs associated with PFS can be determined with reasonable certainty (which the government does not contest). PX 762, 763, 730; *see also Indiana Mich. Power Co.*, 422 F.3d at 1372. Accordingly, Dairyland is entitled to recover $11,999,125 (inclusive of overhead and G&A)[33] for its investment in PFS.

[32] Because Plaintiff's efforts in obtaining off-site storage via PFS are stymied in litigation, Plaintiff has also investigated *on-site* storage through an ISFSI. It is not evident that such on-site storage is practical, given the LACBWR geography. Nevertheless, Dairyland's exploration of an ISFSI is not only prudent but required in attempting to mitigate the costs of the Government's breach. *Indiana Mich. Power Co.*, 422 F.3d at 1375.

[33] See Def.'s Second Post-Trial Br. 11

IV. The Government's Motion for Reconsideration

Outstanding is the Government's motion for reconsideration regarding a certain discovery ruling made by this Court. Specifically, this Court's ruling regarding Dairyland's Relief for Government Discovery Violations Regarding Rule 30(b)(6) Testimony and Motion to Compel Defendant United States' Compliance with the Court's February 5, 2007 Order Compelling Discovery Responses issued on November 29, 2007. RCFC 59 states in pertinent part:

> Rule 59. New Trial; Reconsideration; Altering or Amending a Judgment
> (a) In General. (1) Grounds for New Trial or Reconsideration. The court may, on motion, grant a new trial or a motion for reconsideration on all or some of the issues—and to any party—as follows: (A) for any reason for which a new trial has heretofore been granted in an action at law in federal court; (B) for any reason for which a rehearing has heretofore been granted in a suit in equity in federal court; or (C) upon the showing of satisfactory evidence, cumulative or otherwise, that any fraud, wrong, or injustice has been done to the United States.

RCFC 59(a)(1). "The decision whether to grant reconsideration lies largely within the discretion of the [trial] court." *Yuba Natural Res., Inc. v. United States*, 904 F.2d 1577, 1583 (Fed. Cir. 1990) (citations omitted). However, a successful motion under RCFC 59 is "based upon manifest error of law, or mistake of fact, and is not intended to give an unhappy litigant an additional chance to sway the court." *Circle K Corp. v. United States*, 23 Cl. Ct. 659, 664-65 (1991) (quoting *Weaver-Bailey Contractors, Inc. v. United States*, 20 Cl. Ct. 158 (1990)). The Government has provided the Court with no argument that would allow the Court to grant its request for reconsideration pursuant to RCFC 59, nor has it demonstrated an error of law or a mistake of fact in this Court's Opinion of November 29, 2007. *See* RCFC 59(a)(1); *see also Circle K Corp.*, 23 Cl. Ct. at 664-65. Therefore, the motion for reconsideration is denied.

V. Conclusion

For the reasons set forth above, the Court awards damages to Dairyland in the amount of $37,658,902, for its recovery of costs related to SAFSTOR (based on SNF acceptance in 1998 pursuant to the exchanges provision), dry cask storage, RPV removal, and PFS.[34] The Clerk of

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[34] Summary of Damages Award

SAFSTOR	$16,641,024
Dry Cask Storage	$1,072,467
Private Fuel Storage	$11,999,125
RPV Removal Costs	$7,946,286
TOTAL	$37,658,902

the Court is directed to enter judgment for the Plaintiff in this amount. Pursuant to RCFC 54(d), costs are awarded to Plaintiff.

s/ Edward J. Damich
EDWARD J. DAMICH
Judge