In the United States Court of Federal Claims

No. 03-2624C
Filed: October 11, 2007
TO BE PUBLISHED

SYSTEM FUELS, INC., on its own behalf and as an agent for SYSTEM ENERGY RESOURCES, INC. and SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION, Plaintiffs, v. THE UNITED STATES, Defendant.	*	Causation; Certainty; Cost of Borrowed Funds; Foreseeability; Nuclear Waste Policy Act, 42 U.S.C. §§ 10101, *et. seq.*; Tucker Act, 28 U.S.C. § 1491(a)(1) (Jurisdiction), 28 U.S.C. § 2516(a) (The "No Interest" Rule); FED. R. EVID. 702 (Expert Witness); FED. R. EVID. 801(d)(1) (Prior Statements); 18 C.F.R. § 101 (Allowance For Funds Used During Construction); RCFC 15(a) Amended Complaint; RCFC 32(a)(3)(F) (Use of Depositions In Court Proceedings); RESTATEMENT (SECOND) OF CONTRACTS §§ 73, 347, 350, 350(2), 351(1),(2) (1981).

Alex D. Tomaszczuk, Jay E. Silberg, Daniel S. Herzfeld, and Jack Y. Chu, Pillsbury Winthrop Shaw Pittman, L.L.P., Washington, D.C.; and **L. Jager Smith, Jr.**, Wise Carter Child & Caraway, P.A., counsel for plaintiff.

Sharon A. Snyder, **Harold D. Lester, Jr., Alan J. Lo Re, Scott R. Damelin, Joshua E. Gardner, and Stephen P. Finn,** United States Department of Justice, Civil Division, Commercial Litigation Branch, counsel for defendant.

MEMORANDUM OPINION AND ORDER

BRADEN, *Judge*.

On July 29, 2005, the United States Court of Federal Claims held that on January 31, 1998, the Department of Energy ("the Government") was liable for a partial breach of a June 30, 1983 Standard Contract ("Standard Contract") with System Fuels, Inc. ("SFI"). *See System Fuels, Inc.* v. *United States*, 66 Fed. Cl. 722, 735 (Fed. Cl. 2005) ("*System Fuels I*"). On September 9, 2005, the United States Court of Appeals for the Federal Circuit ruled, in a similar case involving

the Government's partial breach of the Standard Contract, that when "[the utility's] claim is premised upon the government's partial breach, its damages [are] limited to those costs incurred prior to the date of its suit." *Ind. Mich. Power Co.* v. *United States*, 422 F.3d 1369, 1376-77 (Fed. Cir. 2005) ("*Indiana Michigan II*") ("If the breach is partial only, the injured party may recover damages for nonperformance only to the time of trial and may not recover damages for anticipated future nonperformance." (emphasis, quotations, and citations omitted)). In this case, Plaintiffs have asserted that the January 31, 1998 partial breach of the Standard Contract caused Plaintiffs to incur $12,178,000 of costs during the period January 15, 1998 through August 31, 2005, to plan, design, and construct a dry fuel storage project at the Grand Gulf Nuclear Station, located near Vicksburg, Mississippi ("Grand Gulf").[1]

After weighing the evidence, the court has determined that Plaintiffs have established that a substantial portion of the costs Plaintiff incurred should be included in an award of damages.

To facilitate a review of this Memorandum Opinion and Order, the court provides the following outline:

I. RELEVANT FACTS.

A. Congress Required The Department Of Energy To Provide For The Permanent Disposal Of Spent Nuclear Fuel And High Level Radioactive Waste.

B. The Department Of Energy Established Procedures To Dispose and Store Spent Nuclear Fuel and High Level Radioactive Waste.

C. On June 30, 1983, Three Corporate Entities Entered Into A Standard Contract With The Department Of Energy To Dispose And Store Spent Nuclear Fuel And/Or High-Level Radioactive Waste Generated At The Grand Gulf Nuclear Station.

1. Three Corporate Entities That Own The Grand Gulf Nuclear Station.

a. System Fuels, Inc.

b. Middle South Energy, Inc.

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[1] In light of the *Indiana Michigan* decision, Plaintiffs filed an Unopposed Motion for Leave to File an Amended and Supplemental Complaint to specify that damages sought in this case were through August 31, 2005. *See* Unopposed Motion for Leave, *System Fuels, Inc.* v. *United States*, No. 03-2624C, Dkt. No. 65 (Fed. Cl. Mar. 27, 2006). Plaintiffs may claim other costs incurred after this case was filed in a subsequent suit. *See Indiana Michigan II*, 422 F.3d at 1377 ("When a party sues for partial breach, it retains its right to sue for damages for its remaining rights to performance.").

c. South Mississippi Electric Power Association.

2. The Utility Parties To The Standard Contract.

E. On June 30, 1985, The Department Of Energy Published A Plan To Implement The Civilian Radioactive Waste Management Program.

F. On January 31, 1998, The Department of Energy Partially Breached The Standard Contract.

G. Plaintiffs' Decision To Construct A Dry Fuel Storage Project At The Grand Gulf Nuclear Station To Mitigate The Government's Partial Breach Of The Standard Contract.

1. The Refueling Process At The Grand Gulf Nuclear Station.

2. Planning Initiated By Entergy Corporation That Led To Approval Of The Design and Construction Of A Dry Fuel Storage Project At The Grand Gulf Nuclear Station.

3. In 2005, Grand Gulf Expanded Spent Nuclear Fuel Storage By Cell Recovery.

H. The Construction Of The Dry Fuel Storage Project At Grand Gulf.

1. Capital Work Orders Were Established To Account For The Costs Of The Grand Gulf Dry Fuel Storage Project.

2. Description Of Plaintiffs' Capital Work Orders.

a. Capital Work Order N31937: Spent Fuel Studies And Reports.

b. Capital Work Order N32172: ISFSI Design And Construction.

c. Capital Work Order N32271: Cask Fabrication Facility.

d. Capital Work Order N32302: Dry Fuel Equipment Storage Building.

e. Capital Work Order N32350: ISFSI Electrical And Security Systems.

I. RELEVANT FACTS.[2]

[2] The facts discussed herein primarily were derived from: Plaintiffs' Exhibits ("PX" 1-601); the Government's Exhibits ("DX" 1-700B); and testimony adduced at evidentiary hearings on damages held on September 18-22, 2006 and January 16-18, 2007 ("TR").

At the evidentiary hearings, the Plaintiffs' witnesses were: Mr. John R. McGaha, President, Entergy Operations, Inc. (TR 79-199); Mr. Charles Benjamin Franklin, Project Manager for Dry Fuel Storage, Entergy Services, Inc. (TR 199-380, 405-515); Mr. Bryan Eugene Warren, Project Manager for the Dry Fuel Storage Project at the Grand Gulf Nuclear Station, Entergy Operations, Inc. (TR 515-737); Ms. Lee Canova, CPA and Manager of Intra-system Billings, Entergy Services, Inc. (TR 738-47); Mr. William Eaton, Vice President-Engineering, Entergy Operations, Inc. (TR 766-899); Mr. Edwin E. Rogers, Superintendent of Maintenance Support at the Grand Gulf Nuclear Station, Entergy Operations, Inc. (TR 902-984); Ms. Diane Bryars, Manager of Source Systems Accounting, Entergy Services, Inc. (TR 986-1020); Ms. Lisa Dabello Saragusa, Manager of Property Accounting, Entergy Services, Inc. (TR 1021-38); and Mr. Frank Burks Rives, Director of Nuclear Fuels, Entergy Services, Inc. (TR 1067-1108, 1133-38). In addition, on November 6, 2006, the Supplemental Testimony of Frank B. Rives on Agency Rate Issues ("Rives Supp. Test.") was filed in response to the court's request.

Plaintiffs' expert witnesses were: Ms. Eileen Supko, with a BS in Nuclear Engineering from Pennsylvania State University and a Senior Consultant and owner of Energy Resources International, Inc., a consulting firm with expertise in the nuclear power station industry (PX 411) (TR 1338-43, 1444-1528); and Mr. Kenneth P. Metcalfe, a Certified Public Accountant and Certified Valuation Analyst, with a BS Degree in Business Administration from Georgetown University's School of Business, and President of the Kenrich Group, LLC ("Kenrich"), a national consulting firm with expertise in accounting, finance, and engineering, including the preparation and evaluation of economic damage claims arising in the public utility industry, nuclear power stations and government contracting (PX 410) (TR 1528-1713).

The Government's witnesses were: Mr. Christopher A. Kouts, Director, Office of Civilian Radioactive Waste Management, Department of Energy (TR 1788-1927); Mr. David K. Zabransky, Office of Civilian Radioactive Management, Department of Energy (TR 1929-2056); and Michael P. Withrow, Manager of Nuclear Engineering, Grand Gulf Nuclear Station (TR 2682-2718).

The Government's expert witnesses were: Mr. Warren K. Brewer, Principal, ABZ, Inc., an engineering consulting firm for the commercial nuclear industry (DX 602) (TR 2070-2324); Mr. Robert Andrew Peterson, LitCon Consulting, LLC (DX 601) (TR 2324-2466); and Dr. Raymond S. Hartman, a MBA and PhD graduate in Economics from the Massachusetts Institute of Technology and President and Director of Greylock McKinnon, a consulting and litigation support company (DX 600) (TR 2500-2649).

On August 18, 2006, Plaintiffs filed a Notice of Deposition and trial testimony designations, pursuant to Federal Rule of Evidence 801(d)(1). The prior testimony or deposition excerpts were all from former or current DOE employees: Lake Barrett, Branch Chief in Division of Waste Management; Alan Brownstein, Senior Advisor to the Director of DOE's Office of Civilian Radioactive Waste Management; Billy Cole, Specialist in the DOE Department of Radioactive Waste Management; Susan Klein, Senior Policy Advisor to the Director and Deputy Director of the

A. Congress Required The Department Of Energy To Provide For The Permanent Disposal Of Spent Nuclear Fuel And High Level Radioactive Waste.

In 1982, Congress enacted the Nuclear Waste Policy Act, 42 U.S.C. § 10101 *et seq.* ("NWPA"), pursuant to which the federal government assumed the legal duty to "provide for the permanent disposal" of spent nuclear fuel[3] and/or high-level radioactive waste[4] from domestic utilities. *See* 42 U.S.C. § 10131(a)(4) ("Congress finds that . . . the Federal Government has the responsibility to provide for the permanent disposal of high-level radioactive waste and such spent nuclear fuel as may be disposed of in order to protect the public health and safety and the environment[.]"); *see also* 42 U.S.C. § 10131(b)(2) ("to establish the Federal responsibility, and a definite Federal policy, for the disposal of such waste and spent fuel"). Congress, however, imposed the cost of such acceptance and disposal of Spent Nuclear Fuel ("SNF") and high-level radioactive nuclear waste ("HLW") on the "generators" and "owners." *See* 42 U.S.C. § 10131(a)(4) ("Congress finds that . . . while the Federal Government has the responsibility to provide for the permanent disposal of high-level radioactive waste and such spent nuclear fuel as may be disposed of in order

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Office of Civilian Radioactive Waste Management; Christopher Kouts, Principal Deputy Director at the Office of Civilian Radioactive Waste Management; Michael Lawrence, DOE site manager; Ronald Milner, Chief Operating Officer, Radioactive Waste Management; Robert Morgan, Project Director, Nuclear Waste Policy Act Project Office; Thomas Pollog, US DOE; Nancy Slater (Thompson), Acting Division Director of the Regulatory Coordinating Division in DOE's Office of Civilian Radioactive Waste Management; Victor Trebules, Director of the Office of Project Control at the DOE's Yucca Mountain Site Characterization Office in Nevada; and David Zabransky, Contracting Officer, DOE. On September 8, 2006, the Government filed a Motion to Strike Plaintiffs' August 18, 2006 Notice. The court has admitted these depositions as evidence, pursuant to RCFC 32(a)(3)(F). *See* TR 1730-34. On January 16, 2007, the Government filed a motion for the admission of counter designations of certain of the depositions designated by Plaintiffs. *See* TR 1732. The court also granted the Government's motion and has admitted these counter designations as evidence, pursuant to RCFC 32(a)(3)(F).

[3] Congress defined Spent Nuclear Fuel ("SNF") as fuel that "has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing." 42 U.S.C. § 10101(23). SNF contains toxic uranium and toxic byproducts, such as plutonium, and "remains radioactive after it is removed from a nuclear reactor and must be isolated in safe disposal facilities for thousands of years." *Sacramento Mun. Util. Dist.* v. *United States*, 63 Fed. Cl. 495, 496 (2005) ("*Sacramento Mun.*").

[4] Congress defined high-level radioactive waste ("HLW") as "highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing . . . and other highly radioactive material that the [Nuclear Regulatory] Commission, consistent with existing law, determines by rule requires permanent isolation." 42 U.S.C. § 10101(12).

to protect the public health and safety and the environment, the *costs of such disposal should be the responsibility of the generators and owners of such waste and spent fuel*[.]" (emphasis added)).

Congress also required the Department of Energy ("DOE") to enter into Standard Contracts[5] with the generators and owners of SNF and HLW by June 30, 1983, committing the DOE to accept, transport, and dispose of such SNF and HLW. *See* 42 U.S.C. § 10222(b)(2) ("No [SNF or HLW] may be disposed of by the Secretary . . . unless the generator or owner of such [SNF or HLW] has entered into a contract with the Secretary under this section by not later than . . . June 30, 1983[.]"); *see also* 10 C.F.R. § 961.11 (setting forth "[t]he text of the standard contract for disposal of spent nuclear fuel and/or high-level radioactive waste[.]").

In addition, Congress authorized DOE to establish a Nuclear Waste Fund and set the fee amounts to be paid by utilities[6] into the fund to provide for the Department's acceptance and disposal of SNF and HLW. *See* 42 U.S.C. § 10222(a)(1) ("[T]he Secretary is authorized to enter into contracts with any person[7] who generates or holds title to high-level radioactive waste, or spent nuclear fuel, of domestic origin for the acceptance of title, subsequent transportation, and disposal of such waste or spent fuel. Such contracts shall provide for payment to the Secretary of fees pursuant to paragraphs (2) and (3) sufficient to offset expenditures described in subsection (d) of this section." (footnote added)). To ensure that all utilities that use nuclear power participated in the system, Congress required the utilities to either enter into a Standard Contract or face nonrenewal of their nuclear license to operate. *See* 42 U.S.C. § 10222(b)(1)(A) (prohibiting the Nuclear Regulatory Commission from renewing or issuing an operator's license unless such operator "has entered into a contract with the Secretary" or "is actively and in good faith negotiating with the Secretary for a contract[.]").

The Standard Contract provided that, in return for the payment of fees from a utility, DOE would start disposing the SNF and HLW covered by the contracts no later than January 31, 1998, and continue such services until disposal of all SNF and HLW was completed. *See* 42 U.S.C. § 10222(5)(B) ("[I]n return for payment of fees established by this section, the Secretary, beginning not later than January 31, 1998, will dispose of the high-level radioactive waste or spent nuclear fuel

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[5] The text of the June 30, 1983 Standard Contract between SFI and DOE is identical in all material respects to the text published at 10 C.F.R. § 961.11. *Compare* PX 188 *with* 10 C.F.R. § 961.11.

[6] "Utility" or "utilities" refers to an entity or entities that have generated or hold title to high-level radioactive waste, or spent nuclear fuel, of domestic origin, and have entered into a Standard Contract. *See* 10 C.F.R. § 961.11.

[7] When a "person [or entity] who generates or holds title to high-level radioactive waste, or spent nuclear fuel, of domestic origin" enters into the Standard Contract, the Standard Contract provides that the person or entity will be referred to in the Contract as the "Purchaser." 10 C.F.R § 961.11.

involved as provided in this subchapter."); *see also* 10 C.F.R. § 961.11 at Art. II ("The services to be provided by DOE under this contract shall begin, after commencement of facility operations, not later than January 31, 1998 and shall continue until such time as all SNF and/or HLW from the civilian nuclear power reactors . . . has been disposed of.").

B. The Department Of Energy Established Procedures To Dispose and Store Spent Nuclear Fuel and High Level Radioactive Waste.

The Standard Contract did not specify a date that DOE would accept a particular utility's SNF and HLW. *See* 10 C.F.R. § 961.11, Arts. II & VI(B)(1). Instead, the Standard Contract provided that priority of SNF and HLW acceptance was to be determined by the material's age, at the date of discharge from a nuclear power reactor. *See* 10 C.F.R. § 961.11, Art. VI(B)(1) ("[A]cceptance priority shall be based upon the age of the SNF and/or HLW as calculated from the date of discharge of such material from the civilian nuclear power reactor."). This priority-ranking of fuel discharged from a utility's reactor at an earlier date, ahead of fuel that was discharged at a later date, has been referred to as "oldest fuel first" or "OFF." *See Pac. Gas & Elec. Co.* v. *United States*, 73 Fed. Cl. 333, 349-50 (2006) ("The acceptance plan whereby DOE gives priority acceptance to SNF and/or HLW that has been discharged from a utility's nuclear power reactor at an earlier date over such materials discharged at a later date, and whereby DOE accepts first the oldest of such materials from any given utility, is often referred to as the 'oldest fuel first,' or 'OFF' scheme.").

The Standard Contract required that DOE issue, no later than July 1, 1987, an Annual Capacity Report ("ACR") that "set[s] forth the projected annual receiving capacity for the DOE facility(ies) and the annual acceptance ranking relating to DOE contracts for the disposal of SNF and/or HLW including, to the extent available, capacity information for ten (10) years following the projected commencement of operation of the initial DOE facility." 10 C.F.R. § 961.11, Art. IV.B.5(b). By April 1, 1991, DOE was required to issue an annual acceptance priority ranking ("APR") based on the age of the SNF and/or HLW, with the oldest fuel having the highest priority. *See* 10 C.F.R. § 961.11 at Art. IV(B)(5)(a) ("Beginning on April 1, 1991, DOE shall issue an annual acceptance priority ranking for receipt of SNF and/or HLW at the DOE repository . . . . The oldest fuel will have the highest priority for acceptance, except as provided in paragraphs B and D of Article V and paragraph B.3 of Article VI hereof.").

The Standard Contract also provided that, after DOE issued a proposed APR, the utilities were required to submit to DOE a delivery commitment schedule ("DCS") on January 1, 1992. 10 C.F.R. § 961.11, Art. V.B.1. The DCS was intended to "identify all SNF and/or HLW the Purchaser wishes to deliver to DOE beginning sixty-three (63) months thereafter." *Id*. After a utility submitted a DCS, DOE must approve or disapprove such DCS within three months of receipt. *See* 10 C.F.R. § 961.11, Art. V.B.1. In the event of disapproval, DOE is required to "advise the Purchaser in writing of the reasons for such disapproval and request a revised schedule from the Purchaser, to be submitted to DOE within thirty (30) days after receipt of DOE's notice of disapproval." *Id.* Then, DOE must "approve or disapprove of such revised schedule(s) within sixty (60) days after receipt." *Id.*, Art. V.B.2. If DOE again disapproves of a utility's DCS, "DOE shall advise the Purchaser in

writing of the reasons for such disapproval and shall submit its proposed schedule(s). If these are not acceptable to the Purchaser, the parties shall promptly seek to negotiate mutually acceptable schedule(s)." *Id*.

The submission, review, and approval of DCSs included an additional step that involved final delivery schedules. *See* 10 C.F.R. § 961.11, Art. V(C) ("Final delivery schedule(s) . . . for delivery of SNF and/or HLW covered by an approved delivery commitment schedule shall be furnished to DOE by Purchaser."). There is no evidence that the process set out in Article V of the Standard Contract was ever completed, since final delivery schedules were never issued. *See Maine Yankee Atomic Power Co.* v. *United States*, 225 F.3d 1336, 1342 (Fed. Cir. 2000) ("*Maine Yankee*") ("At present there are no schedules containing specific dates for disposing of the waste of particular companies. It is uncertain when they will be adopted and to what extent, if any, they will, or could effectively reflect the Department's breach of the contract."). A utility also had the right to exchange approved DCSs with other utilities that may hold a priority ranking for pickup of SNF and HLW, subject to DOE's approval. *See* 10 C.F.R. § 961.11, Art. V(E) ("Purchaser shall have the right to exchange approved delivery commitment schedules with parties to other contracts with DOE for disposal of SNF and/or HLW; provided, however, that DOE shall, in advance, have the right to approve or disapprove, in its sole discretion, any such exchanges.").

C. On June 30, 1983, Three Corporate Entities Entered Into A Standard Contract With The Department Of Energy To Dispose And Store Spent Nuclear Fuel And/Or High-Level Radioactive Waste Generated At The Grand Gulf Nuclear Station.

1. The Three Corporate Entities That Own The Grand Gulf Nuclear Station.

Entergy Corporation ("Entergy") is an integrated utility holding company. *See* PX 14-A-1 (Entergy Corporate History); *see also* PX 11-A-7 (2004 10-K); TR 84-86 (McGaha).

a. System Fuels, Inc.

Four of Entergy's utility subsidiaries own System Fuels, Inc. ("SFI"), a subsidiary primarily created for the purpose of: "purchasing, selling, contracting for the storage, transportation and processing of, and otherwise dealing with [fuels for electric generating stations] . . . and their by-product materials." Rives Supp. Test. at 3 (citing PX 500 ¶ 4 (SFI's Articles of Incorporation) and PX 501); *see also* TR 1078-79; Rives Supp. Test. at 3 (Entergy Arkansas, Inc. owns 35%; Entergy Louisiana Holdings, Inc. owns 33%; Entergy New Orleans owns 13%; and Entergy Mississippi, Inc. owns 19%). On June 15, 1978, SFI entered into an agreement to provide nuclear fuel and fuel services for another Entergy subsidiary, System Energy Resources, Inc. *See* PX 501 (Nuclear Fuel and Fuel Services Purchase Agreement).

b. Middle South Energy, Inc.

On June 10, 1982, the Federal Energy Regulatory Commission ("FERC") approved a Power Sales Agreement whereby another Entergy subsidiary, Middle South Energy, Inc. ("Middle South"), acquired a 90% undivided share of the electrical power output of the Grand Gulf. *See* Rives Supp. Test. at 3-4 (citing PX 502). In 1984, Grand Gulf, a single unit boiling water reactor, was licensed by the Nuclear Regulatory Commission ("NRC"). *See* TR 125 (McGaha). Grand Gulf became operational in 1985. *See* TR 125 (McGaha).

c. South Mississippi Electric Power Association.

The South Mississippi Electric Power Association ("SMEPA") is a rural electric cooperative that generates, transmits, and sells wholesale electric power to eleven member distribution cooperatives, located in southern and western Mississippi. *See* Rives Supp. Test. at 3. In exchange for agreeing to pay a 10% share of Grand Gulf's construction costs, SMEPA acquired a 10% undivided share of Grand Gulf. *See* Rives Supp. Test. at 4-5 (citing PX 504 §§ 2.02, 2.03). Pursuant to a May 1, 1980 agreement, SMEPA appointed Middle South as the agent for the management and operation of Grand Gulf, including acquiring, managing, and disposing of nuclear fuel. *See* Rives Supp. Test. at 6 (citing PX 505 at 6, 9, 12). Middle South was responsible for making payments to third parties for costs incurred to operate Grand Gulf. *See* Rives Supp. Test. at 3 (citing PX 505 at 14).

2. The Utility Parties To The Standard Contract.

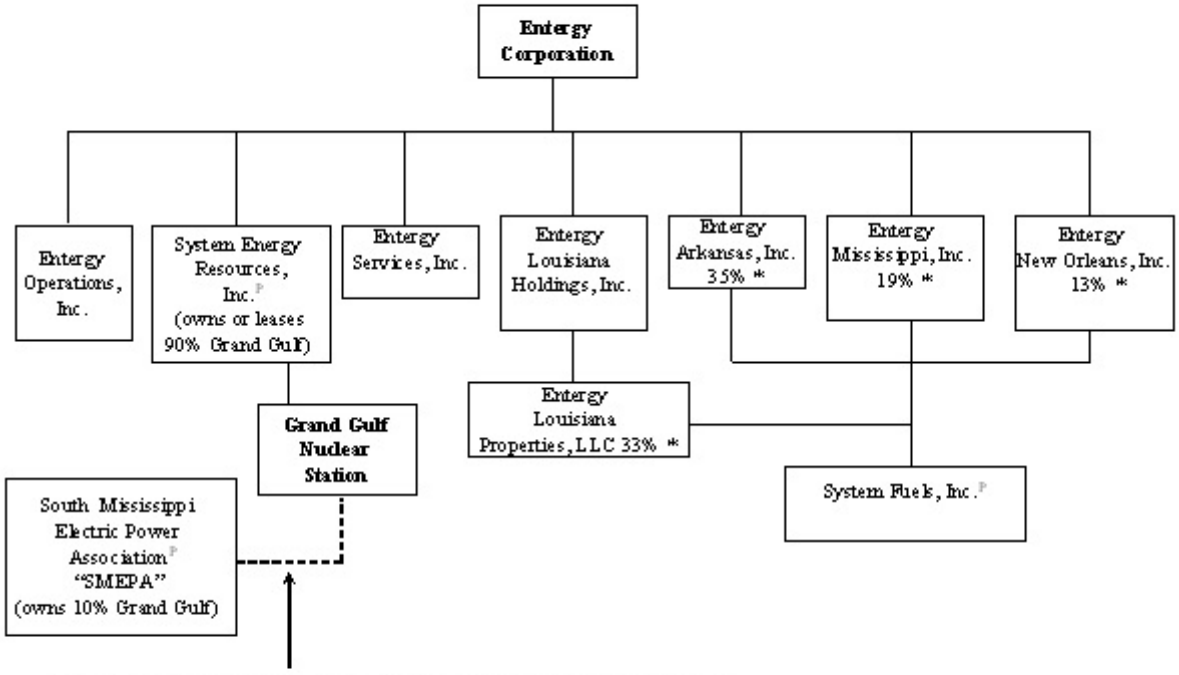
On June 30, 1983, SFI entered into a Standard Contract "on behalf of [SFI]; Middle South Energy, Inc., . . . and [the South Mississippi Electric Power Association]" that obligated DOE to dispose of and permanently store SNF and HLW generated at Grand Gulf. *See* PX 188 at 1. On July 22, 1986, System Energy Resources, Inc. ("SERI"), another Entergy subsidiary, became the successor in interest to Middle South. *See* Rives Supp. Test. at 4 (citing PX 503).

In fact, two other Entergy subsidiaries, Entergy Operations, Inc. ("EOI") and Entergy Services, Inc. ("ESI"), are the corporate entities that actually incurred the direct costs for the planning, design, and construction of the dry fuel storage project at Grand Gulf. *See* Rives Supp. Test. at 4-5. EOI and ESI paid for all the goods and services provided, and then billed SERI for those services, at cost. *Id*. In turn, SERI billed SMEPA for 10% of the costs. *Id*. Most of the personnel working at Grand Gulf are employed by EOI, although some are employed by ESI. *Id*. Employees of both organizations worked on the Grand Gulf dry fuel storage project. *Id*.

On June 6, 1990, SERI entered into an agreement with EOI to operate Grand Gulf. *See* Rives Supp. Test. at 6 (citing PX 506 at 7 (June 6, 1990 Operating Agreement)). The June 6, 1990 Operating Agreement also gave EOI authority, as an agent for SERI and SMEPA, to enter into contracts with third parties to perform those duties. *Id*. (citing PX 506 § 2.3). In addition, EOI also contracted directly with ESI to provide services to support Grand Gulf's operations. *Id*. at 7.

Pursuant to the Standard Contract, DOE has received approximately $10 million annually from SERI, *i.e.*, approximately $176 million from July 1983 through September 2006. *See* TR 138-39 (McGaha), 1090 (Rives) ("[SERI] has paid 176 million dollars.").

The following chart depicts the corporate and related entities discussed above and referenced herein:



Dotted line indicates that SMEPA is not part of Entergy Corporation.
*Indicates percentage ownership of System Fuels, Inc.
PIndicates party is a plaintiff in the instant litigation. System Energy Resources, Inc. was formerly Middle South Energy, Inc. (as named in the Standard Contract for Grand Gulf).

E. On June 30, 1985, The Department Of Energy Published A Plan To Implement The Civilian Radioactive Waste Management Program.

Congress also instructed the Secretary of Energy to study the possibility of storing SNF or HLW in a monitored retrievable storage facility ("MRS"). *See* 42 U.S.C. § 10161(b) ("On or before June 1, 1985, the Secretary shall complete a detailed study of the need for and feasibility of, and shall submit to the Congress a proposal for, the construction of one or more monitored retrievable storage facilities for high-level radioactive waste and spent nuclear fuel."); TR 1795 (Kouts). A MRS is an interim storage facility to receive and prepare spent fuel for permanent emplacement at a permanent repository. *See* DX 64 at 2. In response, in June 1985, DOE published the "Mission Plan for the Civilian Radioactive Waste Management Program." *See* PX 277; *see also* TR 1796-97 (Kouts). The

June 1985 Mission Plan set forth how DOE planned to implement the civilian radioactive waste program. *See* PX 277 at HQ0005266 (cover letter signed by Ben Rusche, Director, Office of Civilian Radioactive Waste Management, noting the June 1985 mission plan is required under the NWPA and describing the purpose and contents of the document); *see also* TR 1797 (Kouts). Two plans were described therein: the first, the "Authorized Plan," assumed that DOE only would open a geologic repository; the second, the "Improved-Performance Plan," assumed that DOE would open a MRS facility, as well as a permanent geologic repository. *See* PX 277 at HQ 0005296-98; *see also* TR 1798-1801 (Kouts).

In 1986 and 1987, DOE became concerned that there would be a significant delay in opening a permanent geologic repository. *See* TR 1807-09 (Kouts) ("[T]he [civilian radioactive waste] program was encountering challenges in terms of implementation of the repository program. . . . [DOE] no longer believed that we could have a repository available in 1998, but that it would be delayed until 2003[.]"). Therefore, in March 1987, DOE submitted to Congress a proposal to construct a MRS that would allow DOE to collect SNF and HLW by January 31, 1998. *See* DX 64 at 23 ("The MRS facility would allow the DOE to begin receiving waste for disposal in 1998. Without the MRS facility, waste acceptance would not begin for another 5 years under current schedules.").

In response, Congress amended the NWPA to authorize construction of a MRS. *See* Nuclear Waste Policy Amendments Act of 1987, Pub. L. No. 100-203, §§ 5001-5065, 101 Stat. 1330, 1330-227 to 1330-255 (1987) (codified in scattered sections of Title 42 of the U.S. Code, including 42 U.S.C. § 10168). DOE, however, was prohibited from developing a MRS until after the NRC authorized construction of a permanent repository. *See* 42 U.S.C. § 10168(d)(1). In addition, Congress limited the MRS' capacity to 10,000 MTU until the permanent repository was operational. *See* 42 U.S.C. § 10168(d)(3).

DOE struggled to find a site for the proposed MRS. *See* PX 288 at 3, 16 (Sept. 1991 General Accounting Office Report stating that "DOE plans to develop an MRS facility to begin accepting utilities' [SNF and HLW] by January 31, 1998. DOE is pursuing this effort, in part, because a repository that the Congress expected to be completed in 1998 will not be available until 2010 at the earliest. However, DOE bases its planned schedule for an MRS facility on several events that are not likely to occur."); *see also* TR 1834-35 (Kouts). In the 1991 Annual Capacity Report ("ACR"), DOE advised the public that it would not begin accepting SNF and HLW at a permanent repository until 2007, unless Congress removed the requirement linking the MRS facility to authorization to construct a final repository. *See* DX 140 at 4 ("If the current linkages between MRS facility construction and repository construction authorization are maintained, it is estimated that the commencement of facility operations and initial acceptance of SNF and HLW by DOE could not start until at least 2007."); *see also* TR 1897 (Kouts) (same). By 1995, DOE concluded that it would be unable to construct a MRS facility. *See* DX 184 at 3-4; *see also* TR 1837-38 (Kouts) (testifying that shortly after the March 1995 Annual Capacity Report was issued, DOE decided that "we were going to be pursuing essentially a repository only system, which would have a repository operational in 2010").

F. On January 31, 1998, The Department of Energy Partially Breached The Standard Contract.

As the time for performance approached, DOE announced that it would be unable to start accepting SNF and HLW from any nuclear utilities until 2010 at the earliest. *See* Office of Civilian Radioactive Waste Management: Waste Acceptance Issues, 60 FED. REG. 21, 793-02 (May 3, 1995) ("DOE currently projects that the earliest possible date for acceptance of waste for disposal at a repository is 2010."); *see also* Report to the Congress by the Secretary of Energy on Reassessment of the Civilian Radioactive Waste Management Program (Nov. 29, 1989) at vii ("This schedule shows a significant slip for the expected start of repository operations – from the year 2003 to approximately 2010.").

On May 25, 1994, DOE took the position that it did not have the obligation under the Standard Contract to begin accepting SNF and HLW in 1998. *See* Notice of Inquiry, 59 FED. REG. 27, 007-08 (May 25, 1994) (DOE "has no statutory obligation to accept spent nuclear fuel beginning in 1998 in the absence of an operational repository or other facility constructed under the [NWPA], although the Department in implementing the Standard Contract may have created an expectation that it would begin accepting such spent nuclear fuel in 1998."); *see also* Final Interpretation of Nuclear Waste Acceptance Issues, 60 FED. REG. 21, 793, 21,794-95 (May 3, 1995) (reiterating DOE's interpretation that it had no obligation under NWPA to begin accepting SNF and HLW in 1998 absent an operating facility and that DOE's performance would not commence until 2010 [Pl. PT Br. at 14]). The United States Court of Appeals for the District of Columbia Circuit, however, rejected this interpretation of DOE's obligations. *See Ind. Mich. Power Co.* v. *Dep't of Energy*, 88 F.3d 1272, 1277 (D.C. Cir. 1996) ("*Indiana Michigan I*") ("Thus, we hold that [42 U.S.C. § 10222](a)(5)(B) creates an obligation in DOE, reciprocal to the utilities' obligation to pay, to start disposing of the SNF [and HLW] no later than January 31, 1998."); *see also N. States Power Co.* v. *Dep't of Energy*, 128 F.3d 754, 755 (D.C. Cir. 1997) ("*Northern States I*") (reaffirming the determination in *Indiana Michigan I* that the NWPA directs DOE to undertake the duty to begin collecting SNF and HLW by January 31, 1998, and issuing a writ of mandamus precluding DOE from excusing any delay on the grounds that DOE did not have an operational permanent repository or interim storage facility).

On January 31, 1998, DOE failed to perform under the Standard Contract and, to date, has not yet commenced performance. *See Indiana Michigan II*, 422 F.3d at 1376-77(recognized DOE's failure to perform as a partial breach); *see also* TR 2048-49 (Zabransky).

G. Plaintiffs' Decision To Construct A Dry Fuel Storage Project At The Grand Gulf Nuclear Station To Mitigate The Government's Partial Breach Of The Standard Contract.

1. The Refueling Process At The Grand Gulf Nuclear Station.

The Grand Gulf reactor has an 18-month fuel cycle, *i.e.*, every 18 months, the reactor is shut down and all of the 800 fuel assemblies are removed from the reactor core. *See* TR 127-28 (McGaha), 226-29 (Franklin), 821 (Eaton). The refueling process takes approximately 20-25 days.

See TR 228 (Franklin). During this period, routine maintenance is performed on the reactor. *Id*. Prior to bringing the reactor back on-line, approximately one-third of the fuel assemblies must be replaced with new fuel assemblies. *See* TR 228-29 (Franklin). These fuel assemblies are removed from the core and placed in two onsite storage facilities: an Upper Containment Pool; and a Spent Fuel Pool. *See* PX 410 ¶ 40; *see also* TR 130 (McGaha), 227-31 (Franklin), 821 (Eaton). The Upper Containment Pool was designed to hold 710 fuel assemblies. *See* PX 226 at SSM0093290. The Spent Fuel Pool was designed only to accommodate approximately 1,700 fuel assemblies; however, prior to Grand Gulf's first refueling outage, the Spent Fuel Pool was "reracked"[8] with high density storage racks to increase the capacity to hold 4,348 fuel assemblies. *See* PX 226 at SSM0093290; *see also* TR 130-36 (McGaha), 222-23, 260-62 (Franklin). The Upper Containment Pool had a capacity of 560 cells, or a total of 4,331 usable cells, and the Spent Fuel Pool had a usable capacity of 3,771 cells. *See* PX 226 at SSM0093290. These facilities originally were built temporarily to store SNF and HLW until it was shipped to a reprocessing facility. *See* TR 135-36 (McGaha) ("[W]hen Grand Gulf was being designed, the direction the country was going was to provide reprocessing capabilities where the fuel, once it's spent, would only stay in [the] spent fuel pool for some period of time . . . then it would be removed, moved to a reprocessing facility[.]"). In both facilities, certain cells were not usable because their location was blocked, rendering the actual usable capacity less than the design capacity. *See* PX 410 ¶ 41; *see also* TR 257-60 (Franklin).

2. Planning Initiated By Entergy Corporation That Led To Approval Of The Design and Construction Of A Dry Fuel Storage Project At The Grand Gulf Nuclear Station.

In the mid-to-late 1990s, all nuclear facilities owned and operated by Entergy[9] began to explore how dry fuel storage could address the need to dispose and store SNF and HLW until DOE could do so.[10] *See* TR 154-156 (McGaha). On August 6, 1999, Enercon Services, Inc., an

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[8] "Reracking" consists of "removing the existing fuel racks from the reactor wet storage pool and replacing them in a tighter formation so the same pool can accommodate more rods." *Indiana Michigan II*, 422 F.3d at 1372; *see also* TR 258 (Frankin).

[9] In addition to Grand Gulf, Entergy Corporation also owns and operates 10 nuclear reactors, including the Arkansas Nuclear I Station, River Bend Nuclear Station, and Waterford III Nuclear Station. *See* TR 83-84; *see also* Entergy Operations Information, *available at* http://www.entergy.com/operations_information (last visited October 1, 2007).

[10] Spent nuclear fuel that has been cooled in a pool for at least one year may be placed in dry storage. *See* Dry Cask Storage, U.S. NUCLEAR REGULATORY COMMISSION, *available at* http://www.nrc.gov/waste/spent-fuel-storage/dry-cask-storage.html (last visited Sept. 25, 2007) ("Dry Cask Storage Website"). In dry storage, spent fuel assemblies are placed in a heavily shielded, sealed cask system, comprised of two components: an inner canister; and an outer cask. *See* PX 54 at 15. Spent fuel is loaded into the steel canister and then the canister is welded shut and sealed with an inert gas. *Id.* Sealed canisters are then loaded into casks inside the reactor facility, transported outside and placed on a concrete pad. *Id*. The outer cask contains small openings through which

engineering services firm specializing in the commercial nuclear industry, submitted a report to EOI about fuel storage options for Grand Gulf ("1999 Enercon Report").[11] *See* PX-14-C-1. The 1999 Enercon Report analyzed four options: recovery of inaccessible storage space in the spent fuel pool; transshipment of fuel to an offsite storage location; consolidation of spent fuel in the spent fuel pool; and dry fuel storage onsite. *See* PX-14-C-1 at KRG-GG004736. The 1999 Enercon Report concluded that the best short-term option for increasing spent fuel storage capacity at Grand Gulf was to recover cells currently inaccessible in the existing spent fuel and upper containment pools. *Id*. at KRG-GG004745. This option was not a long-term solution, however, because it could not recover enough space. *Id*. at KRG-GG004739, KRG-GG004745.

In 2000, Entergy executed a contract with Holtec International, Inc. ("Holtec") to supply any dry cask storage systems, including canisters and ancillary equipment for all of Entergy's nuclear stations, if and when authorized. *See* PX 54 at 16; *see also* PX 10-O; TR 202-04 (Franklin). Mr. Franklin, ESI's Project Manager for Dry Fuel Storage, described the components of the dry cask storage system, known as the Holtec HI-STORM as:

> [T]he first component is . . . a multi-purpose canister . . . and that's the actual vessel that holds the spent fuel . . . . [T]hat's a welded stainless steel vessel. It's welded closed once the fuel is placed in it. Then that [multi-purpose] canister is . . . put into a transfer cask, which is mainly used for shielding, to transfer [the multi-purpose canister] from the spent fuel pool into what's known as a HI-STORM, which is a steel and concrete overpack, which is then transported to the pad[.]

TR 204.

In 2000, Entergy's Board of Directors was requested to authorize $93 million to fund dry cask storage at three of Entergy's nuclear reactors, including Grand Gulf ("2000 Entergy Board Report").[12] *See* PX 96 at SSM0030071; *see also* TR 159 (McGaha). In the summer of 2002, Mr. Valerio Dunn, Grand Gulf's Project Manager, was assigned to examine the feasibility of a dry fuel storage facility at Grand Gulf. *See* TR 307-08 (Franklin). In addition to dry storage, Mr. Dunn also considered the following alternatives: "1) Reracking or increasing the density of the fuel storage

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air circulates to cool the canister. *Id.* The steel canister provides a leak-tight containment of the spent fuel, and each cylinder is surrounded by additional steel, concrete, or other material to provide radiation shielding to workers and members of the public. *See* Dry Cask Storage Website. There are several types of dry storage system designs and many factors influence which system is used. *Id.*

[11] On January 1, 1993, Entergy Operations, Inc., entered a contract with Enercon for Companywide General Services Agreement for General Design Engineering Services. *See* PX 10-I-1 at KRG-GG002700.

[12] After this initial investment proposal, there were several iterations presented and the final version was approved in 2004. *See* TR 159 (McGaha).

rack in the spent fuel pool[,] 2) Fuel consolidation[, and] 3) Transshipment of spent fuel to a sister site. PX 96 at SSM0030071.

Mr. Dunn prepared a Preliminary Project Report ("2002 Dunn Report") requesting management to further "[e]valuate risks and design modifications necessary for dry fuel storage." PX 96 (Nov. 12, 2002 Entergy Capital Project Summary); *see also* TR 796-98 (Eaton).

Subsequently, Mr. Bryan E. Warren replaced Mr. Dunn as Project Manager at Grand Gulf. *See* TR 515-16 (Warren). On October 15, 2003, Mr. Charles B. Franklin, ESI's Project Manager for Dry Fuel Storage, and Mr. Frank Rives, ESI's Director of Nuclear Fuels, issued "Entergy['s] Nuclear Spent Fuel Management Plan," discussing the merits of spent fuel storage at all of Entergy's nuclear facilities (the "2003 Franklin-Rives Plan"). *See* PX 226; *see also* TR 232-34 (Franklin). The purpose of the 2003 Frankin-Rives Plan was to present Entergy management with an assessment of how spent fuel storage would meet the storage requirements *of all of Entergy's nuclear facilities* and to recommend how the company should proceed. *See* PX 226 at SSM0093239 ("The purpose of this document is to provide a general overview of spent fuel management *at Entergy's nuclear plants* to support planning.") (emphasis added); *see also* TR 234 (Franklin).

The 2003 Franklin-Rives Plan estimated that Grand Gulf would lose full core reserve capacity in 2007[13] and "become fully reliant upon dry storage capability to meet all of its future fuel storage requirements." PX 226 at SSM0093257. The 2003 Franklin-Rives Plan also assumed that DOE would not begin accepting nuclear waste until 2015 and that it would not take any such waste from the Grand Gulf facility until 2022. *See* PX 226 at SSM0093240; *see also* TR 243 (Franklin). When the 2003 Franklin-Rives Plan was issued, Entergy had not approved dry fuel storage for Grand Gulf; however, that option was becoming the preferred choice in light of the perceived technical benefits of dry fuel storage over other options. *See, e.g.*, PX-14-C-1 (August 1999 Enercon Report); PX 226 (2003 Franklin-Rives Plan); DX 224 at KRG-GG004613-4614 (discussing alternatives to dry fuel storage); *see also* TR 305 (Franklin) ("The [dry storage] project had not been formally approved, but the [Grand Gulf] site itself was on the path to do dry storage.").

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[13] The 2003 Franklin-Rives Plan was prepared prior to cell recovery efforts. *See* PX 410 ¶¶ 42, 68 ("Entergy Grand Gulf performed the necessary analyses and other work required to recover 180 previously unusable storage cells in the upper containment and spent fuel pools in 2005. The activities related to recovering these storage cells included the necessary analyses to effect changes to operating procedures allowing for use of the recovered cells, as well as other modifications to remove interferences which restricted physical access to certain storage cells."); *see also* TR 257-260 (Franklin), 604-05, 607-09 (Warren). Without the cell recovery, Grand Gulf likely would have lost full core reserve capacity in 2005. *See* TR 260 (Franklin). The 2003 Franklin-Rives Plan, however, assumed that 212 cells would be recovered in the spent fuel pool and an additional 29 cells would be recovered in the upper containment pool. *See* PX 226 at SSM0093253. Contrary to the estimate, only 160 cells in the spent fuel pool and 20 cells in the upper containment pool ultimately were recovered. *See* TR 259-60 (Franklin). Nevertheless, additional spent fuel storage would still not be required until 2007. *See* PX 226 at SSM0093253; *see also* TR 259-60 (Franklin).

Subsequently, in 2004, Mr. Franklin and Mr. Warren developed an Investment Proposal for "implementing on-site spent fuel dry cask storage prior to loss of full core storage capacity" at Grand Gulf ("2004 Investment Proposal"). *See* PX 54 (Proposal for Dry Cask Storage for Grand Gulf Nuclear Station); *see also* TR 313-14 (Franklin). The 2004 Investment Proposal requested Entergy's CEO to authorize $32 million for a dry fuel storage "capital project,"[14] estimating that the cost would be $35.5 million, but Entergy, as part owner, would only pay 90%, *i.e.*, $32 million, and SMEPA would pay the additional 10%. *See* PX 54 at 5; *see also* TR 316 (Franklin). The 2004 Investment Proposal also evaluated the viability of alternatives to dry fuel storage as a long-term solution. *See* PX 54 at 36-38 (capital investment proposal reviewing six alternatives); *see also* PX 226; TR 326-33 (Franklin). The options considered and rejected included: 1) taking no action (rejected since Grand Gulf would have to shut down in 2008, when the spent fuel pool could no longer accommodate additional fuel); 2) reracking the existing spent fuel pool (rejected since the Grand Gulf pool already was reracked in 1985 and high density fuel storage racks were installed at that time); 3) construction of another onsite spent fuel pool (rejected as too expensive and unlikely to open by 2007); 4) shipment of the SNF and HLW to a foreign country for reprocessing (rejected as prohibited by federal law); 5) consolidating fuel rods (rejected due to the expense and the risk of first-time licensing); and 6) private fuel storage (rejected due to considerable expense and untimely shipment). *See* PX 54 at 36-38; *see also* TR 326-33. The 2004 Investment Proposal recommended that dry fuel storage was the most practical long-term solution to the fuel storage problem, as it "reflected a predictable and licensable process." TR 331-32 (Franklin); *see also* PX 54 at 37-38.

On August 3, 2004, Entergy's Corporate Risk Committee approved the 2004 Investment Proposal. *See* PX 54 at 1; *see also* TR 317-18, 332-34 (Franklin). On August 4, 2004, Entergy's Chief Executive Officer also approved the 2004 Investment Proposal. *See* PX 54 at 1; *see also* TR 317-18, 332-34 (Franklin).

3. In 2005, Grand Gulf Expanded Spent Nuclear Fuel Storage By Cell Recovery.

Full core reserve is the amount of spent fuel pool capacity required in the event that the 800 fuel assemblies at the Grand Gulf reactor must be discharged from the reactor core. *See* TR 781 (Eaton); *see also* TR 224-26 (Franklin). Although maintaining full core reserve is not a federal regulatory requirement, Entergy management attempts to maintain full core reserve as an operational best practice and for risk management. *See* PX 226 at SSM0093243 ("Normally a unit prefers to maintain full core reserve capability . . . in its spent fuel pool in order to accommodate in-vessel inspections, surveillance or maintenance activities that require removal of all fuel from the reactor vessel."); *see also* TR 226 (Franklin) ("[Full core reserve is] not a policy, I would describe it as a philosophy, an operational philosophy."); TR 225 (same), 781-82 (Eaton).

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[14] A "capital project" is one that adds a physical asset to the company meeting certain criteria. *See* PX 15-A-2 at KRG-GG005437-39 (defining the scope of Entergy's Capital Project Approval Policy); *see also* TR 915 (Rogers). Based on the amount of a particular capital project, approval is required from different levels of Entergy management, *e.g.*, from supervisors up to the Board of Directors. *Id*. In this case, CEO approval was necessary. *Id.*

In 1999, Entergy estimated that Grand Gulf only could accommodate SNF and HLW discharges in the spent fuel pool through 2005. *See* PX 14-C-1 ¶ 2.0. In 2003, however, that estimate was revised, because through cell recovery[15] efforts, Grand Gulf would be able to accommodate SNF and HLW discharges through 2007, without the loss of full core reserve capability. *See* PX 226 at SSM0093253-3255-6 ("In 2004, Grand Gulf will 'recover' 212 [actually only 160] storage locations in the spent fuel pool and 29 [actually only 20] locations in the upper containment pool. These recoveries will delay the need for [additional SNF storage] one additional [18-month refueling] cycle."). In 2005, Entergy authorized the "work required to recover 180 previously unusable storage cells in the upper containment and spent fuel pools in 2005. The activities related to recovering these storage cells included the necessary analyses to effect changes to operating procedures allowing for use of the recovered cells, as well as other modifications to remove interferences which restricted physical access to certain storage cells." PX 410 ¶¶ 42, 68; *see also* TR 257-60 (Franklin), TR 604-05, 607-09 (Warren). This process enlarged Grand Gulf's capacity to 3,951 usable cells. *See* TR 264-66 (Franklin).

H. The Construction Of The Dry Fuel Storage Project At Grand Gulf.

The construction of the dry fuel storage system consisted of several related operations. After the design studies were concluded, the first step in constructing the dry fuel storage system was the design and construction of an independent spent fuel storage installation ("ISFSI"). *See* PX 410 at 26 (Metcalfe). Plaintiffs also had to: construct a dry fuel storage pad for the final fabrication of the Holtec casks; construct a storage building for tools and equipment used in dry cask loading; install electrical systems and monitoring devices associated with the ISFSI; and modify an auxiliary building to accommodate the physical requirements of the Holtec HI-STORM casks. *See* PX 410 at 26-28 (Metcalfe).

1. Capital Work Orders Were Established To Account For The Costs Of The Grand Gulf Dry Fuel Storage Project.

Capital work orders are "an accounting tool used to collect costs for a [capital] project." *See* TR 922 (Rogers). Entergy Operations' Business Services Office created six categories of capital work orders to record and track costs for the Grand Gulf Dry Fuel Storage Project:

(1) N31937 (Spent Fuel Studies);
(2) N32172 (ISFSI Design and Construction);
(3) N32350 (Cask Fabrication Facility);
(4) N32302 (Dry Fuel Equipment Storage Building);

[15] "Cell recovery" is the process by which a utility modifies the conditions in the spent fuel pool in order to access unaccessible storage cells. *See* TR 258 (Franklin) ("I interpret cell recovery to mean, there are certain cells in the [spent fuel] pool . . . that for whatever reason, you can't get access to or they may be restricted . . . . [Cell] recovery means we gain access to those for storage.").

(5) N32350 (ISFSI Electrical and Security Systems); and
(6) N32136 (Auxiliary Building Door Modification).

See PX 410 ¶ 49, 60; *see also* TR 923 (Rogers).

These capital work orders recorded $10,591,000 for costs that Plaintiffs incurred to plan, design, and construct the Grand Gulf Dry Fuel Storage Project. *See* PX 410 ¶¶ 49, 60; *see also* TR 549 (Warren). The significant components of the Grand Gulf Dry Fuel Storage Project ("dry fuel storage project") were: the storage pad; the cask storage pad; the haul path; the cask construction pad; modifications to the Grand Gulf facility's auxiliary building; and contract labor and equipment rental costs. *See* PX 410 ¶¶ 49, 60. The Capital Work Orders recorded and tracked both internal and outside contractor labor costs to design and construct Grand Gulf Dry Fuel Storage and certain "loader costs" incurred for the project. *See* PX 410 ¶ 56. In addition to these costs, Plaintiffs seek reimbursement for the economic cost of capital incurred to finance the design and construction of Grand Gulf Dry Fuel Storage Project. *See* PX 410 ¶ 59 (discussing the economic cost of capital); *see also* TR 1660-64 (Rives).

2. Description Of Plaintiffs' Capital Work Orders.

a. Capital Work Order N31937: Spent Fuel Studies And Reports.

After the partial breach of the Standard Contract on January 31, 1998, Plaintiffs began to explore options to meet Grand Gulf's long-term SNF and HLW storage needs.[16] *See* PX 410 ¶¶ 61-63. As previously discussed, this included the: 1999 Enercon Report; 2000 Entergy Board Report; 2002 Dunn Report; 2003 Franklin-Rives Report; and 2004 Investment Proposal. *See* PX 54, 226; *see also* TR 313-14, 326-33 (Franklin). Capital Work Order N31937 was established to record and itemize the costs incurred for this work in the amount of $341,000 from DOE's breach in 1998 through August 31, 2005. *See* PX 410 ¶¶ 49, 60, 63; *see also* TR 1662 (Metcalfe).

[16] Plaintiffs began mitigating the Government's partial breach before January 31, 1998. On January 15, 1998, Entergy signed a contract with Enercon for engineering and professional services that included the report evaluating long-term SNF and HLW storage options at Grand Gulf. *See* PX 10-I-7 at KRG-GG002956. Plaintiffs may recover damages for mitigation efforts after they had reason to know that DOE would not perform. *See Indiana Michigan*, 422 F.3d at 1375 (determining the "government unequivocally announced in 1994 that it would not meet its contractual obligations"); *see also Northern States*, 2007 WL 2812727, 2007 U.S. Claims LEXIS 307, *28-32 (Fed. Cl. 2007) (allowing recover from 1988). Therefore, Plaintiffs may recover damages before the Government's breach on January 31, 1998.

b. Capital Work Order N32172: ISFSI Design And Construction.

Capital Work Order N32172 was established to record and itemize the costs incurred to design and construct an ISFSI at Grand Gulf, including: site preparation activity;[17] the expansion of Grand Gulf's secure protected area; construction of the haul path for the transport of the casks from the auxiliary building to the storage pad; and assessment of the operational sequence for loading casks. *See* PX 410 ¶¶ 64-69; *see also* TR 959 (Rogers). As of August 31, 2005, Work Order 32172 recorded $8,367,000 in costs incurred for this work. *See* PX 410 ¶¶ 49, 60, 69. This Capital Work Order also included costs associated with the cell recovery effort undertaken in 2005. *See* PX 410 ¶ 68. Construction was scheduled to be complete for all this work by October 2006. *See* PX 410 ¶ 66.

c. Capital Work Order N32271: Cask Fabrication Facility.

Capital Work Order N32771 was established to record and itemize the costs incurred for the cask fabrication facility, where construction of the concrete storage pads took place. *See* PX 410 ¶ 70. Construction of these pads started in 2004. *Id.* As of August 31, 2005, the costs incurred under this Capital Work Order were $465,000. *Id*. ¶ 72.

d. Capital Work Order N32302: Dry Fuel Equipment Storage Building.

Capital Work Order N32302 was established to record and itemize the cost of replacing the Turbine-Generator Storage Building, that will "store tools and handl[e] equipment used during dry cask loading operations." *See* PX 410 ¶ 73. As of August 31, 2005, the costs incurred under this Capital Work Order were $798,000. *Id*. ¶ 74.

e. Capital Work Order N32350: ISFSI Electrical And Security Systems.

Capital Work Order N32350 was established to record and itemize costs to: extend the Grand Gulf Protected Area to encompass the ISFSI; install all associated electrical wiring; and install a temperature monitoring system for the storage casks. *See* PX 410 ¶ 75. As of August 31, 2005, the costs incurred under this Capital Work Order were $31,000. *Id*. at ¶ 76.

f. Capital Work Order N32136: Auxiliary Building Door Modification.

Capital Work Order N32136 was established to record and itemize costs to accommodate the physical space requirements for loading the dry storage casks, *i.e.*, modifications of the bay door to

[17] Plaintiffs' decision to use the HI-STORM 100 dry fuel storage system influenced the design and construction. *See* TR 309-10 (Franklin) (discussing that a preliminary site location was "not suitable for the Holtec cask system" because of soil conditions and an earthquake analysis).

the Auxiliary Building so it could function as part of the Grand Gulf station's "secondary containment" boundary. *See* PX 410 ¶ 77; *see also* TR 1596-1603 (Metcalfe). As of August 31, 2005, the costs incurred under this Capital Work Order were $589,000. *See* PX 410 ¶ 60.

3. Cost Of Borrowed Funds.

Because of the need to borrow funds to pay for the Grand Gulf Dry Fuel Storage Project, Plaintiffs also seek those costs incurred. *See* Pl. 2d. Am. Compl.; *see also* TR 1658-64, 1671 (Metcalfe).

Plaintiffs' Capital Work Order costs, adjusted to reflect the $1,587,000 cost of borrowed funds incurred from January 31, 1998 through August 31, 2005, are summarized below.

Capital Work Orders	**Costs Incurred**	**(Including The Cost of Borrowed Funds)**
N31937: Spent Fuel Studies	$ 341,000	$ 506,000
N32172: ISFSI Design and Construction	$ 8,367,000	$ 9,458,000
N32350: Cask Fabrication Facility	$ 465,000	$ 527,000
N32302: Dry Fuel Equipment Storage Building	$ 798,000	$ 877,000
N32350: ISFSI Electrical and Security Systems	$ 31,000	$ 34,000
N32136: Auxiliary Building Door Modification	$ 589,000	$ 776,000
Total	**$10,591,000**	**$12,178,000**

See PX 410 ¶ 49; *see also* TR 1661 (Metcalfe).

II. PROCEDURAL HISTORY.

On November 5, 2003, Plaintiffs filed a Complaint in the United States Court of Federal Claims alleging: a partial breach of the June 30, 1983 Standard Contract (Count I); and breach of the implied covenant of good faith and fair dealing (Count II). On that date, the case was assigned to the undersigned judge. On March 15, 2004, the Government filed an Answer.

On October 29, 2004, Plaintiffs filed a Motion for Summary Judgment on Liability and Proposed Findings of Uncontroverted Fact in support thereof. On December 6, 2004, the Government filed a Response and Cross-Motion for Summary Judgment. On January 5, 2005, Plaintiffs filed a Reply in Support of the Motion for Summary Judgment on Liability and Response

to Defendant's Cross-Motion for Summary Judgment. On February 10, 2005, the Government filed a Reply. On February 25, 2005, the court held an argument.

On July 29, 2005, the court issued a Memorandum Opinion and Order holding that: (1) the Government is liable for a partial breach of SFI's June 30, 1983 Standard Contract; (2) however, Plaintiffs did not establish that the Government violated the Covenant of Good Faith and Fair Dealing. *See System Fuels I*, 66 Fed. Cl. at 734-35.

On November 7, 2005, the court entered a Scheduling Order for the submission of Plaintiffs' expert reports on damages. On December 20, 2005, Plaintiffs filed those reports. On February 27, 2006, the court entered a Scheduling Order to set the date for an evidentiary hearing on damages. On March 27, 2006, Plaintiffs filed a Motion for Leave to file an Amended Complaint to specify damages that were incurred since November 5, 2003, the date the original Complaint was filed. On August 16, 2006, the court entered a revised Scheduling Order. On July 20, 2006, Plaintiffs notified the Government that they wanted to "update" the depositions of four individuals, including Mr. Morgan, the Director of the Nuclear Waste Policy Act Office (the precursor to the Office of Civilian Radioactive Waste Management) from January 1983 to January 1984. On August 18, 2006, Plaintiffs filed: a Memorandum of Contentions of Fact and Law; an Exhibit List; a Witness List; and a Notice of Deposition and Trial Testimony Designations.

On September 1, 2006, the Government filed an Exhibit List and Witness List. On September 5, 2006, the Government filed a Memorandum of Contentions of Fact and Law. On September 6, 2006, the Government filed: an Objection To Plaintiff's Exhibit List; a Motion *In Limine* in Opposition To Plaintiff's Expert Witness, Eileen Supko; a Motion *In Limine* In Opposition To Testimony By Plaintiff's Witness Charles B. Franklin; and a Motion *In Limine* To Exclude Trial Documents Prepared By Government Contractors. On that same date, Plaintiffs filed: a Motion For Leave to File Direct Expert Testimony; and a Motion *in Limine* to Exclude Testimony From Defendant's Expert Witnesses Asserting That Certain Elements Of Plaintiff's Damages Claim Are Not "Incremental" To The Government's Breach.

On September 8, 2006, a pretrial telephone conference was held. On that date, the Government filed a Motion to Strike Plaintiffs' August 18, 2006 Notice of Deposition & Trial Testimony Designations, And Defendant's Motion In The Alternative, *In Limine* To Preclude Reliance Upon Those Designations As Substantive Evidence, Pursuant To RCFC 32(a) and Federal Rule Of Evidence ("Fed. R. Ev.") 801(d)(2). On September 11, 2006, Plaintiffs filed a Response to the Government's Memorandum of Contention of Fact and Law and an Objection to the September 1, 2006 Exhibit List filed by the Government. On September 25, 2006, Plaintiffs filed a Response To The Government's Motion To Strike Notice Of Deposition And Trial Testimony Designation, and in the alternative, *In Limine* To Preclude Reliance Upon Those Designations As Substantive Evidence, Pursuant To RCFC 32(a) and Fed. R. Ev. 801(d)(2).

Plaintiffs presented evidence on alleged damages from September 18, 2006 until September 22, 2006. On October 3, 2006, the Government filed a Motion for a Protective Order To Preclude the Re-Opening of the Deposition of Mr. Robert Morgan. The Government argued that Mr. Morgan

was retired, had no information regarding the case, and it would be a hardship for him to travel to be deposed. On October 17, 2006, Plaintiffs filed a Response. On October 17, 2006, the court convened another telephone conference. On October 18, 2006, the Government filed a Reply. On January 8, 2007, the court granted the Government's Unopposed Motion to Designate Prior Trial Testimony of Mr. Robert L. Morgan and admitted Mr. Morgan's trial testimony in *Northern States Power Co.* v. *United States* ("NSP TR").

On November 4, 2006, the court convened a telephone status conference. On November 6, Plaintiffs filed a Notice of Supplemental Testimony of Frank B. Rives on Agency and Rate Issues. On December 20, 2006, the Government filed a Motion to Apply the Proper Burden of Proof and a Motion for Judgment on Partial Findings. On that same day, Plaintiffs filed a Supplemental Brief On Causation. On January 5, 2007, the Government filed a Motion to consolidate *System Fuels, Inc.* v. *United States*, Case No. 03-2623C, pending before the Honorable Charles F. Lettow, with this case and conduct Joint Trial Proceedings with respect to three government witnesses. In addition, the Government filed a Motion To Designate Prior Trial Testimony of Mr. Robert L. Morgan. After discussing this matter with Judge Lettow, on January 8, 2007, the court denied the Government's Motion to Consolidate and Conduct Joint Trial Proceedings.

On January 9, 2007, Plaintiffs filed a Motion for Leave to File Second Amended Complaint And Supplemental Complaint to allow "joinder of SERI and SMEPA as plaintiffs to this case." Pl. Mot. Leave Am. Compl. at 1. On January 10, 2007, the Government filed a Motion for Leave to File Motion for the Admission of Deposition Testimony Under Seal of: Charles Ben Franklin; Joe Simpson; Michael Withrow; and J. David Wright. On January 11, 2007, the court granted Plaintiffs' Motion For Leave To File Second Amended Complaint And Supplemental Complaint, pursuant to RCFC 15(a), and a Motion for Leave To File Motion For The Admission of Deposition Testimony Under Seal. On that day, the Government also filed under seal a Motion For The Admission Of Deposition Testimony Of: Charles Ben Franklin; Joe Simpson; Michael Withrow; and J. David Wright, As Substantive Evidence, Pursuant to Fed. R. Ev. 801(d)(1).

On January 16, 2007, Plaintiffs filed an unopposed Second Amended and Supplemental Complaint. On the same day, the Government filed a Motion For The Admission Into Evidence Of Counter-Designations Of Depositions And Trial Testimony.

From January 16 to January 18, 2007, the Defendant's Case-in-Chief and the Plaintiffs' Rebuttal were conducted. On January 30, 2007, the Government filed an Answer to the Amended Complaint and Supplemental Complaint.

On March 23, 2007, Plaintiffs filed a Post Trial Brief ("Pl. PT Br.") and Notice of Supplemental Trial Testimony Designations. On May 1, 2007, the Government filed a Post Trial Brief ("Gov't PT Br.") and a Motion to Strike Notice of Supplemental Trial Testimony Designations And, In The Alternative, Motion *In Limine*. On May 18, 2007, Plaintiffs filed a Response thereto. On May 22, 2007, Plaintiffs filed the Reply to the Post Trial Brief ("Pl. PT Reply"). On June 4, 2007, the Government filed a Reply.

III. DISCUSSION.

A. Jurisdiction.

The United States Court of Federal Claims has "jurisdiction to render judgment upon any claim against the United States founded either upon the Constitution, or any Act of Congress or any regulation of an executive department, or upon any express or implied contract with the United States, or for liquidated or unliquidated damages in cases not sounding in tort." 28 U.S.C. § 1491(a)(1). The Tucker Act, however, is only a "jurisdictional statute; it does not create any substantive right enforceable against the United States for money damages." *United States* v. *Testan*, 424 U.S. 392, 398 (1976). Therefore, in order to pursue a substantive right, a plaintiff must identify and plead an independent contractual relationship, constitutional provision, federal statute, and/or executive agency regulation that provides a substantive right to money damages for the court to have jurisdiction. *See Todd* v. *United States*, 386 F.3d 1091, 1094 (Fed. Cir. 2004) ("[J]urisdiction under the Tucker Act requires the litigant to identify a substantive right for money damages against the United States separate from the Tucker Act."); *see also Roth* v. *United States*, 378 F.3d 1371, 1384 (Fed. Cir. 2004) ("Because the Tucker Act itself does not provide a substantive cause of action, . . . a plaintiff must find elsewhere a money-mandating source upon which to base a suit."); *Kahn* v. *United States,* 201 F.3d 1375, 1377 (Fed. Cir. 2000) (quoting *James* v. *Caldera*, 159 F.3d 573, 580 (Fed. Cir. 1998) ("The plaintiff 'must assert a claim under a separate money-mandating constitutional provision, statute, or regulation, the violation of which supports a claim for damages against the United States.'")).

To establish jurisdiction in the United States Court of Federal Claims, Plaintiffs must show that either an express or implied-in-fact contract underlies the claim at issue. *See Trauma Serv. Group* v. *United States*, 104 F.3d 1321, 1325 (Fed. Cir. 1997). A well-pleaded allegation in the complaint is sufficient to overcome challenges to jurisdiction. *See Spruill* v. *Merit Sys. Protection Bd.*, 978 F.2d 679, 686 (Fed. Cir. 1992). In this case, the court previously has determined that SFI properly pled a contractual relationship with the Government and that the court has jurisdiction to adjudicate SFI's claims in this case. *See System Fuels I*, 66 Fed. Cl. at 727. Plaintiffs' Second Amended Complaint, which the court admitted pursuant to RCFC 15(a), also alleges that an express contract is the basis for their claim. *See* Pl. 2d. Am. Compl. ¶ 5. Accordingly, the Second Amended Complaint also properly has plead a contractual relationship with the Government. *See Trauma Serv. Group*, 104 F.3d at 1325.

B. Standing.

Federal trial courts should "decide standing questions at the outset of a case. That order of decision (first jurisdiction, then the merits) helps better to restrict the use of the federal courts to those adversarial disputes that Article III defines as the federal judiciary's business." *Steel Co.* v. *Citizens for a Better Env't*, 523 U.S. 83, 111 (1998) (Breyer, J., concurring). The party invoking federal jurisdiction, however, has the burden of proof and persuasion to satisfy the constitutional requirements of Article III standing. *See FEW/PBS, Inc.* v. *Dallas*, 493 U.S. 215, 231

(1990) (holding that the burden is on the party seeking to exercise jurisdiction clearly to allege facts sufficient to establish jurisdiction).

To establish standing on a contract claim, plaintiff is required to be in privity of contract with the United States. *See, e.g., Anderson* v. *United States*, 344 F.3d 1343, 1351 (Fed. Cir. 2003) ("To have standing to sue the sovereign on a contract claim, a plaintiff must be in privity of contract with the United States."); *Castle* v. *United States*, 301 F.3d 1328, 1339 (Fed. Cir. 2002) (holding that only direct parties to the contract have standing to allege breach of contract claims based upon the contract); *Cienega Gardens* v. *United States*, 194 F.3d 1231, 1239 (Fed. Cir. 1998) ("The effect of finding privity of contract between a party and the United States is to find a waiver of sovereign immunity."); *Erickson Air Crane Co.* v. *United States*, 731 F.2d 810, 813 (Fed. Cir. 1987) ("The government consents to be sued only by those with whom it has privity of contract[.]").

In this case, the court previously determined that Plaintiff SFI was in privity of contract with the United States and satisfied standing requirements with respect to the breach of contract claims alleged. *See System Fuels I*, 66 Fed. Cl. at 727 ("Since there is no evidence in the record that SFI sold or assigned rights under the June 30, 1983 Standard Contract, the court has determined that SFI has standing to bring this action.").

Since the Standard Contract signed by SFI states that SFI was acting on behalf of itself, System Energy and SMEPA, SFI had authority to bind System Energy and SMEPA to the Standard Contract. *See* PX 188 at 1. Additionally, the testimony of Frank Rives established the corporate relationship between the Plaintiffs. *See* Rives Supp. Test.; *see also* TR 1021-38 (Rives). Accordingly, Plaintiffs' standing is established and is not contested by the Government. *See* TR 1732-34; *see also* Gov't PT Br. (not argued).

C. Standard of Review.

As the United States Court of Appeals for the Federal Circuit recently recognized, there is some ambiguity regarding the proper standard of causation that should be employed by the trial court. *See Citizens Fed. Savs. Bank* v. *United States*, 474 F.3d 1314, 1318 (Fed. Cir. 2007) ("*Citizens Federal*") ("Our cases dealing with the proper standard of causation may appear superficially somewhat inconsistent[.]"). *Citizens Federal* recognized, however, that "the selection of an appropriate causation standard depends on the facts of the particular case and lies largely within the trial court's discretion." *Id*.

1. The Parties' Arguments.

In this case, Plaintiffs argue that the proper standard for determining causation is whether "DOE's breach of the Standard Contract was a 'substantial causal factor' in the damages" sought. *See* Pl. PT Br. at 2, 29 (citing *Indiana Michigan II*, 422 F.3d at 1373). Plaintiffs further assert that under the substantial causal factor test, "[d]amages . . . are recoverable where: (1) the damages were reasonably foreseeable by the breaching party at the time of contracting; (2) the breach is a substantial causal factor in the damages; and (3) the damages are shown with reasonable certainty."

Pl. PT Brief at 2, 29 (citing *Indiana Michigan II*, 422 F.3d at 1373). Once a Plaintiff has established these criteria, "the Government bears the burden of showing the unreasonableness of Plaintiff's actions[.]" Pl. PT Reply at 3 (citing *Tennessee Valley Auth.* v. *United States*, 69 Fed. Cl. 515, 523 (2005)) ("*TVA*").[18]

Plaintiffs contend that "*Indiana Michigan* altered the landscape considerably by parsing utility claims into actual expenditures and framing the inquiry as one of mitigation." Pl. PT Br. at 29 (citing *Yankee Atomic Elec. Co.* v. *United States*, 73 Fed. Cl. 249, 260 (2006)). Mitigation requires that "'[o]nce a party has reason to know that performance by the other party will not be forthcoming, . . . he is expected to take such affirmative steps as are appropriate in the circumstances to avoid loss by making substitute arrangements or otherwise.'" *Indiana Michigan II*, 422 F.3d at 1375 (quoting RESTATEMENT (SECOND) OF CONTRACTS § 350 cmt.b (1981) ("RESTATEMENT")). Mitigation also requires that a plaintiff act with "reasonable commercial judgment" to reduce the effects of the breach of contract. *See* Pl. PT Br. at 30 (quoting *Northern Helex Co.* v. *United States*, 524 F.2d 707, 718 (Ct. Cl. 1975)).

The Government responds that Plaintiffs "must prove . . . that the costs which it incurred were 'caused' by the partial breach, and, specifically, that it would not have incurred these so-called mitigation costs even without any delay." Gov't PT Br. at 5-6. Just because Plaintiffs labeled "costs as 'mitigation costs' does not mean that they were caused by the partial breach (and would have been incurred in the 'but for' world)." *Id*. (citing *Indiana Michigan II*, 422 F.3d at 1376).

The Government concedes that *Indiana Michigan* controls the standard of review, but reads that decision to allow an award of damages only if they would not have been incurred "but for" the fact that DOE did not commence performance by January 31, 1998, as required by the Standard Contract. *See* Gov't PT Br. at 6-7. In other words, a plaintiff "in a spent fuel case must establish the 'but for' world so that the Court can identify whether its claimed damages are, in fact, incremental to DOE's partial breach." *See* Gov't PT Br. at 7.

Moreover, the Government contends that a "but for" causation standard is appropriate, because breach of contract damages only are meant to place "the injured party in as good a position as it would have been had the breaching party fully performed under the contract[.]" Gov't PT Br. at 7 (quoting *Pac. Gas & Elec. Co.* v. *United States*, 73 Fed. Cl. 333, 378 (2006) (citing *Bluebonnet Savs. Bank, FSB* v. *United States*, 339 F.3d 1341, 1344-46 (Fed. Cir. 2003))); *see also* Gov't PT Br.

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[18] In *TVA* the trial court examined each aspect of the damages claim as a mitigation issue, but allowed the Government the opportunity to rebut any mitigated cost that was not reasonable. *See TVA*, 69 Fed. Cl. at 523. In that case, however, the court determined that the Government was unable to show that TVA acted unreasonably in mitigating damages from DOE's breach. *Id.* at 533. Accordingly, the court held that TVA would not have built a dry fuel storage facility but for DOE's breach, and therefore the nature and amount of the damages were foreseeable, and could be calculated with reasonable certainty. *Id.* at 529, 533. The court awarded TVA $34,893,207. *Id.* at 543.

at 9 ("A plaintiff cannot recover as damages from the Government any costs that it would have incurred in the absence of a breach.").

Therefore, in this case, the Government complains that "SFI seeks to shift the burden of proof here to the Government by trying to characterize its expectation damages as 'mitigation costs' and argues that, as the breaching party, the Government 'bears the burden of showing that SFI's mitigation efforts as the non-breaching party were unreasonable.'" Government Causation Brief at 6 ("Gov't Caus. Br."). The Government insists that Plaintiffs must bear the burden of establishing the damages claimed were incurred *and* caused by the breach at issue *and* in a plausible 'but for' world that such damages would have been incurred. *Id*. The "evidentiary burden" is only shifted from Plaintiffs to the Government if Plaintiffs are successful in "showing that [the damages] would not have been incurred in the 'but for' world." *Id*. at 8.

2. The Court's Resolution.

This case is one of many pending before the United States Court of Federal Claims arising from DOE's failure to commence performance under the Standard Contract on January 31, 1998, as required. The United States Court of Appeals for the Federal Circuit's ruling in *Indiana Michigan II*, a similar breach of the Standard Contract case, held that "[d]amages for a breach of contract are recoverable where: (1) the damages were reasonably foreseeable by the breaching party at the time of contracting; (2) the breach is a substantial causal factor in the damages; and (3) the damages are shown with reasonable certainty." *Indiana Michigan II*, 422 F.3d at 1373 (citing *Energy Capital Corp.* v. *United States*, 302 F.3d 1314, 1320 (Fed. Cir. 2002)); *see also* RESTATEMENT § 350 cmt.b (stating the basic rule is that "a party cannot recover damages for loss that he [she] could have avoided by reasonable efforts. Once a party has reason to know that performance by the other party will not be forthcoming, . . . he [she] is expected to take such affirmative steps as are appropriate in the circumstances to avoid loss by making substitute arrangements or otherwise[.]").

In addition, other corollary principles emerge from *Indiana Michigan*. First, in a claim for partial breach of contract, pre-breach costs are not *per se* unrecoverable. *See Indiana Michigan II*, 422 F.3d at 1376 (cautioning that "[t]he presence of a duty to mitigate does not perforce make the pre-breach costs . . . to store [SNF and HLW] recompensable[.]"). Second, forcing a party to wait for the date of performance before deciding what steps it should take in mitigation is improvident, and such a concern is particularly relevant in cases involving SNF and HLW because the utilities have "been placed in a position where . . . [they] must *de facto* accept responsibility to guard against the environmental impact of improperly-disposed and maintained SNF [and HLW], a situation which the NWPA was enacted to avoid." *See Indiana Michigan II*, 422 F.3d at 1375.

Neither of these principles, however, change the fact that "the selection of an appropriate causation standard depends on the facts of the particular case and lies largely within the trial court's discretion." *Citizens Federal*, 474 F.3d at 1318. In applying this guidance, the court necessarily is directed by whether the parties met their respective evidentiary burdens.

D. The Court's Determination Of Causation In This Case.

As an initial matter, it should be clear that Plaintiffs, in this case, have not requested costs incurred in 2004-2005 to re-rack and expand the spent nuclear fuel pool at Grand Gulf. Plaintiffs also are not requesting costs that were and are being incurred to purchase Holtec HI-STORM casks that will be installed later this year. Plaintiffs appropriately have not requested costs incurred as to the former, and the latter costs will be the subject of a different lawsuit. *See Indiana Michigan II*, 422 F.3d at 1373.

1. Plaintiffs Established That Dry Fuel Storage Was "Reasonably Foreseeable" To The Department Of Energy On June 30, 1983.

In an action for partial breach of contract, any damages claimed must be reasonably foreseeable by the defendant at the time the contract was executed. *See Citizens Federal*, 474 F.3d at 1321; *see also Indiana Michigan II*, 422 F.3d at 1373; RESTATEMENT § 351(1) ("Damages are not recoverable for loss that the party in breach did not have reason to foresee as a probable result of the breach *when the contract was made*." (emphasis added)). As the RESTATEMENT explains, a "[l]oss may be foreseeable as a probable result of a breach[,] because it follows from the breach (a) in the ordinary course of events, or (b) as a result of special circumstances, beyond the ordinary course of events, that the party in breach had reason to know." *See* RESTATEMENT § 351(1).

On June 30, 1983, when DOE executed the Standard Contract with SFI, it was a matter of public record that nuclear utilities in the United States had growing SNF and HLW inventory.[19] In addition, by that time, dry storage was considered a viable alternative to wet storage.[20]

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[19] *See* CONG. BUDGET OFFICE, 97TH CONG., FINANCING RADIOACTIVE WASTE DISPOSAL 1 (Sept. 1982) ("[N]uclear electric utilities have been accumulating spent fuel which is stored in on-site interim facilities. . . . Many of these nuclear-powered utilities are now running out of interim storage space[.]"); H. COMM. ON ENERGY AND COMMERCE, NUCLEAR WASTE POLICY ACT OF 1982, H.R. REP. NO. 97-785, pt. 1, at 47 (1982) ("The pools to store the fuel at those reactors were designed with sufficient capacity to accommodate only several years of spent fuel discharge . . . . [T]he spent fuel is accumulating in the storage pools at the site of reactors. The storage pools at many reactors are approaching the limits of their original design. Without a place in which a utility can store spent fuel bundles, which must be done an average of once a year during refueling, operation of the reactor must terminate."); OFFICE OF TECH. ASSESSMENT, 97TH CONGRESS, MANAGING COMMERCIAL HIGH-LEVEL RADIOACTIVE WASTE, at 9, 25 (Apr. 1982) ("[E]xisting reactors are running out of spent fuel storage space, and by 1986 some may face a risk of shutting down for some period if there are delays in efforts to provide additional storage capacity."); 128 CONG. REC. 32,947 (1982) (Rep. Udall: discussing the accumulation of spent fuel rods and the need for a national disposal solution); SEN. HART, NATIONAL NUCLEAR WASTE REGULATION AND CONTROL ACT OF 1980, S. REP. NO. 96-871, at 1 (1980) ("[C]ivilian nuclear powerplants have generated nearly 8000 metric tons of spent fuel, stored primarily in pools at the powerplant site . . . . This bill recognizes that the development of a safe and timely solution to the problem of nuclear waste disposal is essential."); SEN. JOHNSON, THE NUCLEAR WASTE POLICY ACT, S. REP. NO. 96-548, at 10-11 (1980) (noting the buildup of spent nuclear fuel at commercial reactor sites and the absence of a coordinated solution to deal with this growing problem).

[20] *See* OFFICE OF TECH. ASSESSMENT, 97TH CONGRESS, MANAGING COMMERCIAL HIGH-LEVEL RADIOACTIVE WASTE 22 (Apr. 1982) (explaining that dry storage technologies are "potentially much more flexible, quicker to implement, and less expensive for at-reactor use than water basins, and may even be less expensive than large-scale centralized storage[.]"); REP. STAGGERS, NUCLEAR WASTE RESEARCH, DEVELOPMENT, AND DEMONSTRATION ACT OF 1980, H.R. REP. NO. 96-1156, pt. 3, at 27 (1980) ("Although wet storage is a proven and accepted technology, there is growing evidence that dry storage may have significant cost advantages."); 128 CONG. REC. 28,040 (1982) (Rep. Kemp: "Fuel rod consolidation, and even more dry storage techniques, now offer onsite storage alternatives that are much cheaper than constructing an interim storage facility[.]"); 128 CONG. REC. 27,780 (1982) (Rep. Ottinger: "The NRC testified before our committee that dry storage technologies could be approved within 1 year[.]"); SEN. HART, NATIONAL NUCLEAR WASTE REGULATION AND CONTROL ACT OF 1980, S. REP. NO. 96-871, at 11 (1980) (noting that the Office of Technology Assessment advised Senator Hart that dry storage technologies "possess 'significant potential advantages . . . in terms of low front-end costs, relatively short lead times for implementation, and ability to expand incrementally as needed.'"); SEN. UDALL, NUCLEAR WASTE POLICY ACT OF 1982, H.R. REP. NO. 97-491, pt. 1, at 38-40 (1982) (Letter to Rep. Butler Derrick, from Mr. Franklin E. Coffman, Deputy Assistant Secretary for Nuclear Waste Manager and

For these reasons, the court has determined that the record contains clear and convincing evidence that on June 30, 1983, it was "foreseeable" to DOE that, if performance could not be commenced by January 31, 1998, Plaintiffs would have to make interim arrangements to store SNF and HLW and DOE could have foreseen that such interim arrangements could entail the need to plan, design, and construct dry fuel storage and the incur costs to borrow funds to finance those mitigation efforts. Moreover, DOE was aware that Plaintiffs were required to account to FERC for all costs incurred.

2. Plaintiffs Established That The Department of Energy's Partial Breach Of The Standard Contract Was A Direct And "Substantial Cause" Of The Costs Incurred.

Turning first to the parties' arguments, Plaintiffs assert that DOE's failure to perform under the Standard Contract was the "principal and driving factor" in the decision to build the dry fuel storage project at Grand Gulf. *See* Pl. PT Br. at 34 (citing *S. Cal. Sav. & Loan Ass'n* v. *United States*, 422 F.3d 1319, 1337 (Fed. Cir. 2005) (affirming trial court's determination that defendant's breach was a substantial factor)); *see also* Pl. PT Reply at 7 ("[T]he evidence in this case shows that Plaintiffs' decision to build a dry fuel storage facility at Grand Gulf was primarily, directly, and substantially caused by the Government's breach.").

The Government responds that even under the substantial causal factor test, "when claimed damages could have resulted from multiple factors, [Plaintiffs] 'must establish that the *breach alone* would have been sufficient' to cause the claimed damage *and* it would not have occurred 'but for' the breach." Gov't PT Br. at 11-12 (quoting *Point Prods. A.G.* v. *Sony Music Entm't, Inc.*, 215 F. Supp. 2d 336, 344 (S.D.N.Y. 2002)) (emphasis added). First, under the terms of the Standard Contract, DOE issued an ACR in December 1991 that provided a projected ten-year acceptance rate, as well as spent fuel pickup allocations for each utility. *See* PX 199 at HQR-001-2366 (Table in December 1991 ACR showing projected annual acceptance rates of 900 MTU, after a two year ramp-up); *see also* PX 199 at HQR-001-2370 (Table listing each producer's annual spent fuel allocation under the 900 MTU acceptance rate for the first ten years of the program, but no allocation was assigned to Mississippi Power & Light, predecessor to Entergy Mississippi, current owner of Grand

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Fuel Cycle Programs, Office of Nuclear Energy: "The Department of Energy's (DOE) spent fuel storage program activities concentrate on the support of utility license applications for rod consolidation and dry storage in casks, drywells, and silos. We believe these alternative storage technologies have the potential to safely and efficiently meet the interim spent fuel storage needs of commercial domestic reactors."); *see also* PX 277 at HQ-003-1123 (June 1985 Mission Plan for the Civilian Radioactive Waste Management Program recognizing that the Nuclear Waste Policy Act of 1982 contemplated the use of dry storage) ("If the MRS facility is not authorized, or if it is significantly delayed, increasing quantities of [SNF and HLW] will have to be stored at reactor sites. In that event, the pools for storing the fuel will continue to be filled, *and additional onsite storage capacity through the use of dry storage in casks or similar technologies will have to be employed*.") (emphasis added).

Gulf). Moreover, under the acceptance rate set forth in the December 1991 ACR, DOE would not have started picking up spent fuel until Grand Gulf ran out of room in the spent fuel pool and constructed additional "at-reactor" storage. *See* Gov't PT Br. at 40-42 (Plaintiffs "completely failed its burden of proof and . . . under the 900 MTU per year acceptance rate . . . damages are zero, because DOE['s] delay in accepting SNF [and HLW] from Grand Gulf did not cause its damages.").

Nevertheless, the Government insists that the Standard Contract imposed a lower acceptance rate on DOE, *i.e.*, an annual 900 MTU rate, and, from the Standard Contract's inception, the parties understood that the [ACR/]DCS process "would serve as the basis for a binding commitment between DOE and the Standard Contract holders regarding the specific amount of spent fuel that DOE would begin taking from particular utilities at particular plants." Gov't PT Br. at 33-34. Based on this understanding, Plaintiffs willingly participated in the ACR/DCS process, even though the December 1991 ACR provided there would be no spent fuel allocations for the Grand Gulf facility in the first ten years of the program.[21] *See* Gov't PT Br. at 34-35. Therefore, the Government concludes that Plaintiffs' participation evidenced "acceptance" of an annual 900 MTU acceptance rate set forth in the December 1991 ACR. *Id.* at 35.

Moreover, the Government argues that the 1991 ACR assumed that DOE would start accepting spent fuel in 1998. *See* DX 140 at HRQ-002-0801. Therefore, even if DOE performed under the terms of the 1991 ACR, no spent fuel would be picked up from Grand Gulf before 2008. *See* PX 199 at HRQ-001-2365 ("These acceptance rates assume commencement of facility operations in 1998."). Because Grand Gulf's spent fuel pool was projected to run out of space in 2007, the Government argues that Plaintiffs would have had to construct dry fuel storage at Grand Gulf regardless of the DOE's breach. *See* Gov't PT Br. at 32-38, 40-42.

Plaintiffs respond that the ACR/DCS process was intended exclusively for planning purposes and did not institute binding commitments upon the parties. *See* Pl. Reply at 27-29. Plaintiffs assert that the overwhelming weight of evidence adduced at trial demonstrates that at no point did the parties ever agree that the DCSs "constituted a contractually binding document." *Id*. Furthermore, Plaintiffs contend that any failure to object to the allocations set forth in the 1991 ACR did not mean that Plaintiffs believed that the DCSs were contractually binding. *Id*. There is also no evidence that the ACR/DCS process established any contractual commitment. In fact, the overwhelming weight of evidence points to the opposite. The Standard Contract states that the ACR was to be issued "for planning purposes." PX 188 at COF0281616 ("Beginning not later than July 1, 1987, DOE shall issue an annual capacity report *for planning purposes*." (emphasis added)). In addition, each ACR published by DOE stated that it was only for planning purposes. *See, e.g.*, PX 254 at HQR-001-2713 (1987 ACR stating that "[a]s specified in the contract, the ACR is for planning purposes only and, thus is not contractually binding on either DOE or the purchasers"); DX 140 at HQR-002-0803-0804

[21] Plaintiffs never submitted a DCS for the Grand Gulf facility, because it did not have an allocation under the December 1991 ACR/APR. *See* DX 140 at HQR-002-0811. Plaintiffs did submit at least one DCS for another station in their nuclear fleet that did have such allocations. *See* TR 1277-81, 1290 (Rives).

(1991 ACR stating that "[a]s specified in the contract, the ACR is for planning purposes only and, thus is not contractually binding on either DOE or the purchasers"); DX 184 at HQR-029-0678 (1994 ACR restating same); PX 13-K (2004 ACR restating same); *see also* TR 1319 (Rives) (Entergy's contract manager for the Standard Contract testifying that the ACRs were to be used for planning purposes); TR 1895-96 (Kouts[22]) (testifying that the DCSs were necessary for DOE to "*plan* for shipment from individual reactor sites . . . without that information, [DOE] would have no way of knowing how a purchaser would allocate . . . their allocation between facilities" and that even after submitting a DCS, a utility would still have to go through the final delivery schedule process (emphasis added)); Thompson Dep. at 98 ("In my personal opinion, [DCSs] *were for planning purposes only* and in fact were completed in such a way that not much more but planning could be done based on the information contained in them." (emphasis added)); Brownstein Dep. at 377-78 (testifying that he believed that the ACRs, APRs, and DCSs all comprised a necessary planning process in order to facilitate the efficient pickup of spent fuel by DOE from the utilities).

Plaintiffs further contend DOE's unilateral decision to stop and re-start the ACR/DCS process is contrary to the Government's contention that this process created a contractual obligation. *See* Pl. PT Br. at 14-17. For example, DOE suspended the DCS process in or around March 1997. *See* TR 2004 (Zabransky) ("After discussions with [DOE], it was decided . . . to suspend the [DCS] process."); *see also System Fuels, Inc.* v. *United States*, 66 Fed. Cl . 722, 731 (2005) ("In fact, DOE unilaterally refused in 1996 to approve or disapprove any new DCSs and voided the DCSs from utilities that previously have been approved."). DOE then re-started the DCS process in the summer of 2004. *See* TR 1992-93, 2022 (Zabransky) ("And then in 2004, . . . we began the DCS process again for 2010 operations."); PX 334 at 2 (2004 DOE instructions for completing DCS stating "DOE recognizes that many Purchasers have submitted and DOE has approved DCSs based on the January 31, 1998 operations date included in the Standard Contract. Purchasers should submit new DCSs based upon the currently planned operation date of 2010."). Later in 2004, however, DOE again suspended the DCS process after concluding that "recent developments . . . have led [DOE] to conclude that the resumption of the DCS process was premature." PX 333 (Dec. 1, 2004 letter from Zabransky, Frank Rives, Director of Nuclear Fuels for EOI). Significantly, to date, DOE has taken no steps to reinstate the DCS process. *See* TR 2047 (Zabransky).

The United States Court of Appeals for the Federal Circuit has held that the Standard Contract is enforceable and therefore implicitly has decided that no specific acceptance rate is required, and the Standard Contract, as written, is sufficiently definite, contrary to the Government's contention.[23] *See Indiana Michigan II*, 422 F.3d at 1372, 1375; *Maine Yankee*, 225 F.3d at 1342.

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[22] Mr. Kouts is currently the director of the Waste Management Office at the Office of Civilian Radioactive Waste Management at the U.S. Department of Energy. *See* TR 1788.

[23] For these same reasons, Plaintiffs' argument that the parties to the Standard Contract clearly envisioned a specific rate also has no support. Specifically, statements by DOE officials, as a matter of law, are only expressions of intention and not binding contractual agreements. *See* PX 286 at SNO69599 ("[d]uring the first year of operation of the repository in 1998, we *should* be

Therefore, in the court's judgment the acceptance rate and contract formation[24] issues argued by the parties are now settled. The Standard Contract does not specify any specific acceptance rate, but only includes a mechanism for establishing a rate. *See* PX 188 at Art. IV.B.5, Art. V, Art. VI.B. Nor did the Standard Contract require that DOE accept spent fuel at a rate that would eliminate the need for producers to provide additional onsite storage or work off any backlog of fuel. *Id.* Other opinions of the United States Court of Federal Claims have reached similar conclusions.[25]

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receiving fuel at a rate so that no utility would have to add any further storage facilities either on site or at another location."); *see also* NSP TR 3828 (the acceptance at a rate of 3,000 MTU was a "strategy or a plan, that was what we'd like to accomplish, but because of the uncertainties of the program, we didn't know whether we'd be able to or not."); PX 277 at HRQ-003-1133 ("It should be emphasized that this schedule is only *an approximation* of how the system *may operate and is subject to considerable variation*. The DOE will further define and specify the system acceptance parameters as the program progresses." (emphasis added)); TR 2029 (Zabransky) ("As an industry, it was pretty much universal that *we all would have liked to have seen* a rate that kept pace with the discharges and worked off the [spent fuel] inventory." (emphasis added)); *see also id*. at 392 ("At times early on in the waste disposal program, it appears that both PG & E and DOE *hoped* that DOE would accept spent fuel at a rate consistent with the two-part obligation and at 3,000 MTU/year starting in 1998. However, the preponderance of the credible evidence, even early on, indicates that the parties contemplated that DOE's rate of acceptance of utilities' spent fuel, especially beginning in 1998, would be far lower than 3,000 MTU/year." (emphasis added)).

[24] *See Ace-Fed. Reporters, Inc.* v. *Barram*, 226 F.3d 1329, 1332 (Fed. Cir. 2000) ("[t]o be valid and enforceable, a contract must have . . . sufficient definiteness so as to 'provide a basis for determining the existence of a breach and for giving an appropriate remedy.'" (quoting RESTATEMENT § 73)); *see also Aviation Contractor Employees, Inc.* v. *United States*, 945 F.2d 1568, 1572 (Fed. Cir. 1991) ("an agreement which specifies that certain terms will be agreed upon by future negotiations is sufficiently definite, because it places an obligation on the parties to negotiate in good faith.'").

[25] *See*, *e.g.*, *Northern States Power Co.* v. *United* States, 2007 WL 2812727, 2007 U.S. Claims LEXIS 307, *41-42 n.13 (Fed. Cl. Sept. 26, 2007) ("*Northern States*") (noting that the "Standard Contract did not specify a rate for the acceptance of spent fuel by DOE . . . although defendant urges us to resolve this acceptance rate issue now, we do not need to do so[.]"); *S. Nuclear Operating Co.* v. *United States*, 77 Fed. Cl. at 436 ("The court does not accept either defendant's proffered 1991 ACR rate [900 MTU/annually] or the 3000 MTU rate advocated by plaintiffs."); *PG & E*, 73 Fed. Cl. at 387 ("[T]he Standard Contract does not contain specific acceptance rate obligation, but rather, a specific – albeit complicated, vaguely defined, and gradually implemented – mechanism by which the parties to the Standard Contract eventually would determine final delivery rates and schedules for the shipment of SNF and/or HLW from the utilities to DOE" (citations omitted)); *Sacramento Mun. Util. Dist.*, 70 Fed. Cl. at 375 n.40 (2006) ("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."); *Yankee Atomic Elec. Co.* v. *United States*, 73 Fed. Cl. 249, 268 (2006) ("Regardless

As for the evidence presented at trial to establish substantial causation, as previously discussed in detail, Plaintiffs engaged in a five year effort to research, analyze, and weigh all viable options to address SNF and HLW disposal and storage challenges presented by Grand Gulf. *See* PX 14-C-1 (1999 Enercon Report); *see also id*. at KRG-GG004739 ("Current plans are that the DOE will not be in a position to accept fuel into a permanent storage repository until 2010 at the earliest, assuming the Yucca Mountain site is approved. Therefore, even if there are no more delays in the permanent repository schedule, it appears that [Grand Gulf] will have to provide on-site spent fuel storage until at least 2010."). This assumption was based on information provided by DOE to the public and the affected utilities. *See, e.g.*, PX 264 at HQR-025-5089-90 (Sept. 1995 DOE "Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program" announcing that DOE would start picking up spent fuel in 2010); *see also* PX 13-I at KRG-GG000645-46 (Dec. 1998 DOE "Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program"). The 1999 Enercon Report concluded that spent fuel consolidation, increasing the number of storage locations in the wet pool, and the trans-shipment of fuel were not long term storage options, particularly because those options would increase the number of storage locations in the spent fuel pool and would "only extend operation of the plant for approximately two fuel cycles[.]" *See* PX 14-C-1 at KRG-GG004745. Two years passed without any changes in DOE's estimated date of performance. *See* PX 13-J at KRG-GG000738-39 (May 2001 DOE "Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program," stating that DOE would begin to remove spent fuel in 2010).

By October 2003, Entergy requested a "Spent Fuel Management Plan" that "provide[d] a snapshot to senior management of [] the spent fuel management program at Entergy, where it was at the current time and where it was headed for the future." TR 234 (Franklin). The 2003 Franklin-Rives Plan concluded that, given Grand Gulf's spent fuel discharge projections and the assumption that DOE would not commence performance until 2015 and would not accept fuel from Grand Gulf until 2022, Entergy needed to construct a dry storage facility to maintain full core reserve in the spent fuel pool. *See* PX 226 at SSM0093249; *see also* TR 252-54 (Franklin). Therefore, the necessity to proceed with dry fuel storage at Grand Gulf substantially was caused by both the partial breach and DOE's inability to guarantee the commencement of performance by 2005, when the spent fuel pool would reach capacity. *See* PX 226 at SSM0093253; *see also* TR 255-60, 474 (Franklin).

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of [the acceptance] rate, these plaintiffs are faced with at least a twelve-year delay in commencement of performance. With due regard to the long lead time required for these mitigation decisions, the evidence establishes that the mitigating decisions and resulting expenditures were commercially reasonable, and substantially caused by DOE's impending partial breach(es) and delay(s)." (citation omitted)); *but compare TVA*, 69 Fed. Cl. at 531 (accepting the parties' *stipulation* that the 1991 ACR rates should apply for the first ten years of projected contract performance and that it was reasonable to assume an annual rate of 3,000 MTU after that period) *with PG&E*, 73 Fed. Cl. at 399-400 (holding that had DOE timely commenced performance under the Standard Contract, it would have done so at the rates established in the 1991 ACR, *i.e.*, 900 MTU/year after a two-year ramp-up period).

In addition, contrary to the Government's contention, under the "substantial factor" test, Plaintiffs do not need to show that DOE's partial breach of the Standard Contract was the sole cause of damages. *See Franconia Assocs.* v. *United States*, 61 Fed. Cl. 718, 750 (2004) ("In order to prove that losses were 'proximately caused' by defendant's breach, plaintiffs need not show that they might have avoided or minimized such losses or that defendant's conduct was the 'sole' cause of their damages." (citing *Long Island Savs. Bank* v. *United States,* 60 Fed. Cl. 80, 90 (2004)); *see also Westfed Holdings, Inc.* v. *United States,* 55 Fed. Cl. 544, 553 (2003), *aff'd in part, rev'd in part*, 407 F.3d 1352 (Fed. Cir. 2005)). If a breach is a "substantial factor," *i.e.*, if the damage flowed "inevitably and naturally" from the breaching party's conduct, imposing direct costs may be considered. *See Franconia Assocs.*, 61 Fed. Cl. at 750 (citing *Bluebonnet Sav. Bank, FSB* v. *United States*, 266 F.3d 1348, 1356 (Fed. Cir. 2001)).

Of course, as the Government argues, the Standard Contract provided that the utilities could exchange delivery commitments among themselves. *See* PX 188 at COF0281618-19 (reflecting that the utilities had the right to adjust the quantities of spent fuel up or down by up to twenty percent); *see also* PX 411 ¶ 40. In addition, the Government suggests that it is reasonable to assume that, in a non-breach world, utilities early in the spent fuel acceptance queue may have sold or traded those rights with utilities that would not have their fuel picked up until a later date. *See* PX 188 at COF0281618-19; *see also* TR 1419 (Supko). Therefore, the Government reasons that utilities owning several nuclear power stations like Entergy, could have eliminated or at the least minimized the number of stations that had to build dry fuel storage facilities. *See* PX 226 at SSM0093240; *see also* TR 1418-29 (Supko). How Entergy may have managed spent fuel storage in a non-breach world, however, is speculative, and the court declines to hold that Plaintiffs are not entitled to damages simply, because they did not engage in negotiating with other utilities when that exercise may have been unproductive in the non-breach world. *See* PX 411 ¶ 43; *see also* TR 1418-29, 1444-48 (Supko); *Sacramento Mun.*, 70 Fed. Cl. at 343 (in fact other utilities were competing to advance the queue).

For these reasons, the court has determined that the record contains clear and convincing evidence that certain costs incurred by Plaintiffs to plan, design, license, and construct the dry storage project at Grand Gulf were "substantially caused" by DOE's partial breach of the Standard Contract.

3. Certain Of The Costs Plaintiffs Incurred Were Ascertained With Reasonable Certainty.

Plaintiffs also must establish entitlement of any damages with reasonable certainty. *See Indiana Michigan II*, 422 F.3d at 1373 (citing *Energy Capital*, 302 F.3d at 1320). Contract damages, however, "need not be 'ascertainable with absolute exactness or mathematical precision.'" *Indiana Michigan II*, 422 F.3d at 1373 (quoting *San Carlos Irrigation & Drainage Dist.* v. *United States*, 111 F.3d at 1557, 1563 (Fed. Cir. 1997)); *see also* RESTATEMENT § 352 cmt. a ("Damages need not be calculable with mathematical accuracy and are often at best approximate.").

In this case, Plaintiffs retained Kenrich to verify these costs and utilized a six step methodology to accomplish this assignment. *See* PX 410 at 1, 19 (Metcalfe). First, all of the events and activities related to the planning and construction were identified. *Id.* Second, Kenrich determined whether an event or activity was related to DOE's failure to perform under the Standard Contract. *Id.*[26] Next, Kenrich compiled and reviewed Plaintiffs' reported costs. *Id.* Then, Kenrich determined any offsets that the Government was entitled to receive. *Id*. Damages were calculated based on the costs and offsets. *Id.* Finally, damages of $10,591,000 were calculated from January 15, 1998 through August 31, 2005 based on the costs and offsets. *Id*. Damages were also adjusted to include the cost of capital as of 2006. *Id.* at 19-20. Therefore, Plaintiffs established that from January 15, 1998 through August 31, 2005, $10,591,000 was incurred to plan and construct a dry fuel storage project at Grand Gulf. *See* PX 410 at 20 (Metcalfe); *see also* TR 922-23 (Rogers).

For the reasons discussed below, the court has determined that only certain of Plaintiffs' $10,591,000 costs incurred from January 15, 1998 through August 31, 2005 for the dry storage project at Grand Gulf were established by clear and convincing evidence as to reasonable certainty.

F. The Court's Determination Regarding The Reasonableness Of The Government's Requested Offsets.

The United States Court of Appeals for the Federal Circuit also has instructed trial courts that, in cases involving partial breach of the Standard Contract, the non-breaching party must take only "reasonable" steps to mitigate damages and avoid loss. *See Indiana Michigan II*, 422 F.3d at 1375 (citing RESTATEMENT § 350(2)); *see also* RESTATEMENT § 305, cmt. b ("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.").

As previously discussed, from 1999 through 2004 Entergy management authorized external and internal studies to weigh options to mitigate the impact of DOE's partial breach at Grand Gulf. Accordingly, the court has determined that the record contains clear and convincing evidence that Plaintiffs' five year process of analyzing all feasible options before management authorized funding to construct a dry fuel storage project to mitigate DOE's partial breach was "reasonable." *See N. Helex Co.* v. *United States*, 455 F.2d 546, 553 (Ct. Cl. 1972) (the guiding principle in an effort to mitigate damages is "whether in individual circumstances, the [party seeking damages] exercised 'reasonable commercial judgment.'"). Likewise, the record evidences that the costs reflected on the capital work orders were reasonable.

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[26] These costs were allocated to six capital work orders relating to the dry fuel storage project: (1) N31937 (Spent Fuel Storage Studies); (2) N32172 (ISFSI Design and Construction); (3) N32271 (Cask Fabrication Facility); (4) N32302 (Dry Fuel Equipment Storage Building); (5) N32350 (ISFI Electrical and Security Systems); and (6) N32136 (Auxiliary Building Door Modification). *See* PX 410 at 20 (Metcalfe); *see also* TR 922-23 (Rogers).

The Government did not challenge the reasonableness of these costs, but re-argued that certain costs were unrecoverable, because they were: not foreseeable; substantially caused by the DOE's breach; not ascertainable with "reasonable certainty;" or a variation thereof. *See* Gov't PT Br. at 45-48, 64. In support, the Government proffered testimony of two experts, Mr. Warren Keith Brewer (DX 602 (Brewer)) (TR 2070-2324) and Mr. Robert Peterson (DX 601 (Peterson)) (TR 2324-2466).[27] *See* Gov't PT Br. at 44-47, 65. Mr. Brewer conducted an analysis of the technical and engineering aspects of Plaintiffs' damages claim and concluded that certain portions are not "incremental" to DOE's partial breach of the Standard Contract. *See* DX 602 at 7-23. Next, Mr. Brewer concluded that Plaintiffs' damages claim does not account properly for costs that would have occurred even if DOE had performed, and therefore were unnecessary. *See* DX 602 at 24-29. Then, Mr. Peterson quantified: (1) the costs of the activities that Mr. Brewer identified as non-incremental; and (2) the costs that Plaintiffs avoided, because of the delay in DOE's performance. *See* DX 601.

Since the court has determined the foreseeability and substantial causation as to all aspects of the dry storage system, there is no need to revisit these rulings item by item. The court, however, has determined that several costs have not been established with "reasonable certainty."

Nevertheless, the following discussion analyzes each of the offsets proposed by the Government.

1. Cask Loading Costs.

Under the terms of the Standard Contract, Plaintiffs were responsible for the costs of cask loading. *See* DX 600 ¶ 31; *see also* PX 188 at IV.A.2.a ("The Purchaser shall arrange for, and provide, all preparation, packaging, required inspections, and loading activities necessary for the transportation SNF and/or HLW to the DOE facility."). The Government argues that in order to load the casks, Plaintiffs would have incurred fixed start-up costs and per-cask variable loading costs. *See* Gov't PT Br. at 81-83 (citing DX 600 ¶ 31). Therefore, these are costs that Plaintiffs "saved" when DOE did not perform under the terms of the Standard Contract and should be offset from any damage award. *Id*.

[27] As previously mentioned, Mr. Brewer is a co-owner of ABZ, Inc., an engineering consulting firm for the commercial nuclear industry. *See* DX 602 at 1; TR 2070-2324. Mr. Brewer has over 30 years of experience in the nuclear industry, including the design, construction, and testing of operational nuclear reactors. The court has admitted Mr. Brewer's testimony as an expert, pursuant to Fed. R. Ev. 702.

Mr. Peterson is the Managing Director of LitCon Group, LLC. *See* DX 601 at 1; TR 2324-2466. Mr. Peterson's qualifications include an Undergraduate Degree in Mechanical Engineering, a Masters Degree in Business Administration, experience in nuclear station maintenance, and providing financial analysis. The court also has admitted Mr. Peterson's testimony as an expert, pursuant to Fed. R. Ev. 702.

Plaintiffs contend that the $2.81 million loading costs should not be offset as speculative. *See* Pl. PT Br. at 36-38. Moreover, given that DOE has represented that it will commence performance of the Standard Contract at some future date, any benefit attributed to Plaintiff today would be premature, since those costs still will need to be incurred in the future. *Id.*

The United States Court of Appeals for the Federal Circuit has held in a similar spent nuclear fuel case that "recovery for speculative damages is precluded." *Indiana Michigan II*, 422 F.3d at 1373 (citation omitted). Following that guidance, the United States Court of Federal Claims has held in other spent nuclear fuel cases that it would be equally speculative to provide an offset for cask loading costs. *See, e.g.*, *PG&E*, 73 Fed. Cl. at 416 ("It would be entirely speculative to offset plaintiff's damages because of a purported benefit it will receive from loading large rail casks in the future rather than 25-ton truck casks in the non-breach world. Plaintiff's loading costs have been deferred rather than avoided, and the court declines to engage in a guessing game as to whether such deferred costs will have increased or decreased by the time (if ever) defendant performs the parties' Standard Contract."); *Sacramento Mun. Util. Dist.*, 70 Fed. Cl. at 372 ("Since DOE and [Plaintiff] both contemplate that DOE will still perform under the Standard Contract at some future date, any benefit to [Plaintiff], because of the delayed loading costs, would be entirely speculative."); *TVA*, 69 Fed. Cl. at 542 ("The alleged [cask loading] benefit stems purely from timing; both DOE and TVA contemplate that DOE will still perform under the contract at some future date. As matters now stand, any benefit inhering in TVA because of delayed loading *costs* would be entirely speculative.").

The court has reached the same conclusion in this case, but for a different reason, *i.e.*, cask loading costs are more accurately characterized as deferred costs rather than avoided costs. Therefore, if and when DOE performs, these costs will be incurred, and may be offset later with "reasonable certainty."

2. Internal Labor Costs.

Using EOI and ESI internal payroll codes, Plaintiffs reported that approximately $860,000 was incurred for the cost of internal labor. *See* PX 403; *see also* TR 743-44 (Canova); TR 1586-88, 1696-98 (Metcalfe). The Government asserts, however, that $41,819 claimed by Plaintiffs as "fixed managerial and administrative" internal labor costs charged to the dry fuel storage project were not incremental to DOE's partial breach and not recoverable. *See* Gov't PT Br. at 70-73. The internal labor costs at issue involve employees who worked less than 10 percent of their monthly hours on the dry fuel storage project. *Id*. at 70-72. Because Entergy has a policy that up to 10 percent of a professional employee's overtime must be taken as uncompensated overtime, the Government argues these internal labor costs should be treated in the course of the employee's regular day-to-day duties. *Id* at 70-71.

Plaintiffs counter that these costs are direct labor charges by Entergy personnel working on the dry fuel storage project and are recoverable, because the "use of the internal resources by [the utility] deprived it of the ability to employ those resources on other projects." *See* Pl. PT Br. at 41-42 (quoting *TVA*, 69 Fed. Cl. at 539); *see also S. Nuclear Operating Co.* v. *United States*, 77 Fed.

Cl. 396, 442 (2007) ("Accordingly, plaintiffs made an appropriate showing of the amount of time spent by internal personnel on breach-related projects – efforts for which those employees were not hired.").

The United States Court of Federal Claims in similar cases consistently has held that internal labor costs are recoverable as mitigation damages for the Government's partial breach of the Standard Contract:

> [T]he fact that [an injured utility] used its own internal resources to support its mitigation is not fatal to its claim for damages in mitigating a breach of contract. Rather, the test for recovery is a targeted one: whether use of the internal resources by [the injured utility] deprived it of the ability to employ those resources on other projects. That [the injured utility] would have paid its employees in all events is not material to this inquiry.

TVA, 69 Fed. Cl. at 539; *see also PG & E*, 73 Fed. Cl. at 408 ("To the extent that the costs of [the utility's] internal labor were in fact performed on a "breach-related project," . . . the court finds that such labor costs should properly be awarded to plaintiff."); *Sacramento Mun. Util. Dist*., 70 Fed. Cl. at 376 ("The fact that an injured party has used internal resources to mitigate a breach does not foreclose the injured party from recovering such costs.").

To establish the internal labor costs incurred to construct the dry fuel storage project at Grand Gulf, Entergy created a Capital Work Order for this purpose. *See* PX 410 (Metcalfe) at 22; *see also* PX 403 (summary of damages by resource code); TR 1586-89, 1695-1700 (Metcalfe). All internal labor expenses, including payroll expenses, were assigned to this account. *Id.* To verify that these costs were incurred, Kenrich had discussions with Entergy personnel and reviewed and analyzed contracts, employee time sheets, and accounting system information. *See* PX 410; *see also* TR 1595 (Metcalfe). Plaintiffs, however, did not have records to detail the hours and expenses per employee. *See* PX 5-D (examples of Entergy's payroll and payroll timekeeping). Plaintiffs also did not have records to show how much time each employee dedicated to the dry storage project or the specific services that they provided. *See* PX 410.

Although the court rejects the Government's argument that internal labor costs were not incremental, Plaintiffs failed to establish by clear and convincing evidence that all of these costs properly were accounted for. *See TVA*, 69 Fed. Cl. at 540 (also denying internal labor expense where the proof left "much to be desired."). Therefore, the court has determined that $41,819 will be deducted from the damage award.

3. Loader Costs.

In addition, Plaintiffs reported three types of loader costs:[28] payroll; materials; and capital expense. *See* TR 740-46 (Canova), 1698-1700 (Metcalfe). The Government appropriately concedes that Plaintiffs properly calculated fully loaded costs, pursuant to Generally Accepted Accounting Principles.[29] *See* Gov't PT Br. at 74 ("We are not challenging the loaders on the basis of any accounting error."); *see also* TR 2354-56, 2364, 2381 (Peterson). Instead, the Government argues that the loader costs would have been incurred by the Plaintiffs, even if they did not construct the dry fuel storage project. *Id*. The court previously has determined that loader costs may be included in a claim for mitigation damages, therefore, the burden shifts to the Government to establish that specific loader costs should be offset as unreasonable. *See TVA*, 69 Fed. Cl. at 530.

a. Payroll Loader.

The payroll loader is "an addition to an employee's gross pay" at issue, and "enables Entergy to determine the 'fully loaded' costs of an employee's wages, including such items as payroll taxes, employee benefits, and employee benefits allocations, such as medical, dental, vision, and disability costs." *See* TR 741-44 (Canova)). Plaintiffs request $314,000 for payroll loader costs for employees who worked on the dry fuel storage project. *See* PX 403.

The Government argues that $71,959 of this amount should be excluded, because it captures retired employees and employee costs for individuals who did not work on the dry fuel storage project. *See* Gov't PT Br. at 77-78. On cross examination, Ms. Canova, Entergy's Manager of Intra-system Billings, admitted that a portion of Resource Code 19 includes costs associated with retired

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[28] Fully loaded, or overhead, costs are "[b]usiness expenses (such as rent, utilities, or support-staff salaries) that cannot be allocated to a particular product or service; fixed or ordinary operating costs[.]" BLACK'S LAW DICTIONARY (8th ed. 2004); *see also Conditioned Air Corp.* v. *Rock Island Motor Transit Co.,* 114 N.W.2d 304 (Iowa 1962) (defined as "charges generally of a nonproductive or indirect nature such as administrative costs incident to the management, supervision or conduct of the capital outlay of the business"). If the plaintiff has incurred overhead expenses as a result of the defendant's breach of contract, it has generally been held that the plaintiff's overhead expenses, to the extent they are reasonably foreseeable and properly allocated, are recoverable. *See* S. R. Shapiro, *Comment Note: Overhead Expense as Recoverable Element of Damages*, 3 A.L.R.3d 689 (1965); *see also M. H. McCloskey, Jr., Inc.* v. *United States*, 66 Ct. Cl. 105, 130 (1928) (allowing Plaintiff to recover "overhead, including payments for superintendents, timekeepers, office and telephone, car fares, and incidental expenses[.]").

[29] Generally Accepted Accounting Principles ("GAAP") are principles and rules that Certified Public Accountants follow when preparing financial statements. *See* RICHARD W. NICHOLSON, BASIC ACCOUNTING FOR LAWYERS § 2.01 at 9 (1999). GAAP provides which assets and liabilities should be recorded, when changes in assets and liabilities should be recorded, and what additional information, if any, needs to be disclosed. *Id.*

personnel. *See* TR 752 (Canova). Moreover, Plaintiffs did not present any evidence as to what portion of the $71,959 relates to the costs associated with retired employees. *See* TR 752-55 (Canova); *see also* TR 1589 (Metcalfe); DX 601 at 17 (Peterson).

Therefore, the court has determined that $71,959 of the payroll loader costs incurred will be deducted from the damage award.

b. Materials Loader.

Plaintiff defines a "materials loader" as "a method of assigning the cost of supervision, labor, and expenses incurred in the operations of a storeroom, including the procurement, handling of materials, receiving, issuing materials, and those costs are assigned to the materials issued." TR 989 (Bryars). The purpose of a materials loader is to "collect the cost incurred in the operations of a storeroom and the supply chain function and to assign those costs to the materials issued out of the storeroom." TR 990 (Bryars); *see also* TR 995 (Bryars). The materials loader in this case include: "storeroom personnel fully loaded payroll costs and expenses, supply chain fully loaded payroll costs and expenses, a portion of the franchise tax and property tax related to the inventory, support provided by corporate service functions, such as . . . accounting [and] IT support for support of the inventory system that is used." TR 991 (Bryars). Plaintiffs captured these costs under a specific resource code, and the costs were calculated at a rate specifically designed to reflect Grand Gulf's procurement needs, pursuant to FERC regulation. *See* TR 992-98 (Bryars).

Plaintiffs seek $362,000 for materials loader costs for the dry fuel storage at Grand Gulf. *See* Pl. PT Br. at 27; *see also* PX 403; TR 996-97 (Bryars). The Government, however, argues that the materials loader costs are not incremental to the partial breach. *See* Gov't PT Br. at 75-77. Moreover, employee charges are fixed costs, so Grand Gulf would have had the same number of employees and incurred the same costs with or without the partial breach. *See* TR 1001-09 (Bryars); *see also* TR 2358-60 (Peterson).

The fact that Grand Gulf did not have to hire additional employees, however, is not dispositive, because but for the dry fuel storage project, Plaintiffs may have been able to reduce the number of employees, or the employees may have been able to spend their time on other projects. Likewise, although it is true that Plaintiffs' ad valorem taxes and a certain amount of items stored in the warehouse (*e.g.*, gloves, conduit, and reinforcing steel) would have to be kept at Grand Gulf for other projects, this does not foreclose Plaintiffs from recovering those costs if they were reasonable. The Government did not challenge the materials loader on that basis.

Therefore, the court has determined that $362,000 Plaintiffs incurred to the materials loader may be included in the damage award.

c. Capital Suspense Loader.

The "capital suspense" loader included costs incurred by internal administrative and engineering personnel that cannot be charged to any project, because the work occurs in increments

of less than 30 minutes. *See* TR 1024-25 (Saragusa). The "capital suspense" loader is accounted for in an Administrative and General ("A&G") pool and a nuclear specific pool, the rates of which are determined on a quarterly basis based on the applicable FERC regulations. *See* TR 1028-30 (Saragusa). The total "capital suspense" loader claimed is $408,000 from February 1998 through August 31, 2007. *See* PX 403.

The capital expense loader at issue is "a charge that is in fact capital, but it cannot be identified to a specific capital account. It includes typically engineering costs and administrative type costs . . . we have a capital policy, capital suspense policy, and in that policy, we mandate that any charges related to capital that cannot be determined to be longer than 30 minutes go to capital suspense." TR 1024 (Saragusa).

Plaintiffs, however, were unable to verify exactly what portion of the capital suspense loader was incurred for work exclusively on the dry fuel storage project at Grand Gulf. *See* TR 1038-52 (Saragusa). For example, Plaintiffs did not subtract the time billed to the Grand Gulf dry fuel storage project from the amount of time billed to other projects. *See* TR 1049-50 (Saragusa). As the methodical and very skillful cross examination of Government's counsel, Mr. Joshua E. Gardner, revealed, in fact Plaintiffs did not know whether the dry fuel storage project at Grand Gulf had any effect on the capital suspense pool. *Id*.

Because Plaintiffs did not establish entitlement to the "capital suspense loader" with reasonable certainty, the court has determined that $408,000 will be deducted from the damage award.

4. Auxiliary Building Modifications.

Plaintiffs also claim that several modifications to the Grand Gulf auxiliary building were necessary to load dry casks and the costs incurred should be included in the damage award. *See* Pl. PT Br. at 23. The Government counters that all costs associated with the auxiliary building are not recoverable, because they are not incremental to the Government's partial breach. *See* Gov't PT Br. at 64; s*ee also* DX 601 (Peterson); DX 602 (Brewer). Instead, Plaintiffs' damages should be limited to the difference between the costs of adapting the auxiliary building in the real world versus the costs of the modifications in the non-breach world. *See* Gov't PT Br. at 50.

Specifically, the Government requests an offset for the following costs: (a) the design of the auxiliary building's railroad bay floor to accommodate the Holtec cask system; (b) a structural evaluation of the fuel handling area of the auxiliary building at a 208-foot elevation; (c) the installation of electrical systems to utilize cask handling equipment at the 133-foot and 166-foot elevations of the auxiliary building; (d) relocation of horizontal fuel transfer system ("HFTS") insert racks to accommodate the movement of fuel transfer casks in the cask loading pool area; (e) design and construction of the auxiliary building bay door; and (f) modifications to the piping. *See* Gov't PT Br. at 50-67.

a. Railroad Bay Floor.

In order to transport the Holtec equipment safely, Plaintiffs incurred costs to evaluate, design and install a new auxiliary building railroad bay floor. *See* PX 3-G at KRGGG005103-KRGGG005110 (Items 8 and 28); *see also* TR 589-92 (Warren). Plaintiffs established that these costs were incurred to mitigate the Government's partial breach:

> PLAINTIFFS' COUNSEL: Let's look at number eight, auxiliary building railroad bay floor design. Can you describe that please?
>
> MR. WARREN: This would be the evaluation and analyses for the structural capabilities of the rail bay floor and to handle a stack [up] configuration of the . . . Holtec system.
>
> PLAINTIFFS' COUNSEL: And if Grand Gulf had not built the dry storage facility, would the [bay floor] have been necessary?
>
> MR. WARREN: No.

TR. 589-91 (Warren).

The Government counters that Plaintiffs would have had to undertake this design and installation even if there was no breach and, therefore, these costs are not incremental to the delay. *See* Gov't PT Br. at 59; *see also* DX 602 at 18-19 (Brewer).[30] The Government also suggests that since the weight of a loaded Holtec HI-STORM Cask is a proxy for the weight of a large DOE cask, Plaintiffs had to design and construct accommodations for the cask that DOE selected. *Id.*

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[30] Mr. Brewer took issue with Mr. Warren's statement that the design and construction of the railroad bay floor was caused by the Government's partial breach.

> First, Mr. Warren was asked whether the task would have been needed if Grand Gulf had not built a dry storage facility. He responded no. He was then asked if the work would be needed if DOE had begun accepting fuel as required by the contract. To this second question he effectively answered 'I don't know.' Giving different answers to these two questions is logically inconsistent.

DX 602 at 20.

The premise of Mr. Brewer's testimony here is that "[i]f Grand Gulf had not built the dry storage facility," this work would not have been necessary. The court reads Mr. Warren's answer to mean that Plaintiffs did not have any other plans to build a bay floor, but for the physical requirements of the Holtec cask required to mitigate the Government's partial breach.

Plaintiffs reply that what would have been required if DOE commenced performance as required by the Standard Contract is speculative and, in fact, the bay door may require other structural modifications when the Government does select its own cask. *See* Pl. PT Reply Br. at 10-11. Accordingly, Plaintiffs argue it would be improper for the court to offset the costs incurred for the railroad bay floor. *Id*. As Mr. Warren testified at trial:

> PLAINTIFFS' COUNSEL: And if DOE had come to take spent fuel from Grand Gulf as required by the standard contract, would this work have been necessary?
>
> MR. WARREN: It would be speculative on my part because I do not know what type of equipment that the Department of Energy [will] bring.
>
> PLAINTIFFS' COUNSEL: And that's because you don't know what the weight of the equipment would be?
>
> MR. WARREN: Don't know the orientation, weight, size, any of the specifics.

TR 591 (Warren); *see also* TR 1602-03 (Metcalfe).

The Government's expert conceded that he could not specify what type of cask that DOE will require when performance is commenced. *See* DX 602 at 19 (Brewer) ("*Assuming* DOE brings a large transportation cask in the but-for-world, *essentially* the same analyses would be required." (emphasis added)). Accordingly, without knowing the physical requirements of this cask, the Government cannot establish that the costs Plaintiff incurred for the railroad bay door to accommodate the Holtec cask were not reasonable.

Therefore, the court has determined that $851,526 in costs Plaintiffs incurred to design and construct the railroad bay floor may be included in the damage award.

b. 208-Foot Elevation Civil Design and Implementation.

In addition, to accommodate the physical requirements of the Holtec HI-STORM casks, Plaintiffs had to design, evaluate, and modify: the spent fuel loading area; the cask loading pit; and the cask wash down pit. *See* PX-3G at KRGGG005103-KRGGG005110 (Items 9 and 29); *see also* TR 707-8 (Warren). Plaintiffs presented evidence that the Government's partial breach was the direct cause of these costs incurred. *See* TR 592-93 (Warren) (testifying that if the Government performed under the Standard Contract the dry fuel storage project at Grand Gulf would not have been necessary, including these modifications).

The Government responds that if DOE provided a large cask, similar to a Holtec HI-STORM, essentially the same evaluation, design, and modifications would be required. *See* Gov't PT Br. at

60; *see also* DX 602 at 20 (Brewer). Plaintiffs reply that what the Government would have done in a non-breach world would entail speculation and that other structural modifications to these facilities still may be required when the Government commences performance. Therefore, any offset at this time would be speculative. *See* Pl. PT Br. at 8-11. As Mr. Warren testified:

> PLAINTIFFS' COUNSEL: And if DOE had come to take spent fuel from Grand Gulf as required by the standard contract, would this work have been necessary?
>
> MR. WARREN: It would be speculative on my part, not knowing what type of equipment the DOE would bring, as to whether analysis would be required for the floors.

TR 593-94.

> GOVERNMENT COUNSEL: If you were to use a different cask that weighed 125 tons or more, you would need to perform the evaluations and analysis in tasks 9 and 29, isn't that right?
>
> MR. WARREN: A comparison could be made to the specific details associated with that cask and determined if it was or was not bounded by existing analysis, and then we would decide whether we would or would not use existing analysis.

TR 709; *see also id*. at 593-94.

Again, the Government did not proffer any evidence of what type of cask DOE will require. *See* DX 602 at 19 (Brewer). Accordingly, the Government cannot establish that the costs Plaintiffs incurred to design, evaluate, and modify the spent fuel loading area, the cask loading pit, and cask wash down pit were unreasonable.

Therefore, the court has determined that the $533,323 in costs Plaintiffs incurred, as described above, may be included in the damage award.

c. Electrical Service.

In order to process the Holtec HI-STORM casks, Plaintiffs also had to evaluate and implement electrical service at the three different locations in the auxiliary building. *See* PX-3G at KRGGG005103-KRGGG005110 (Items 11 and 31); *see also* TR 595-97 (Warren). This electrical

service provided power for welding equipment, forced helium dehydrators, torque wrenches, and radiation monitors. *See* TR 596, 713 (Warren). Plaintiffs presented evidence that the Government's partial breach was the direct cause of the costs incurred for electric service at the auxiliary building. *See* TR 597 (Warren) (testifying that if the Government had performed, Grand Gulf would not have undertaken the dry fuel storage project, and the attendant electrical service would not have been necessary).

Nevertheless, the Government contends that this project also would have been necessary absent a breach and, therefore, these costs are not incremental to the Government's delay. *See* Gov't PT Br. at 63. The Government also explains that these electrical services are necessary to provide power to equipment used for any cask loading activity. *Id.* Accordingly, welding equipment, torque wrenches, and radiation monitors are not unique requirements of the Holtec HI-STORM cask and the same costs would have been incurred no matter what type of casks DOE would have used or will use in the future. *See* DX 602 at 23-24 (Brewer). Again, without being able to state the requirements of the DOE required cask, the Government cannot demonstrate that these costs were unreasonable.

Therefore, the court has determined that the $381,401 in costs Plaintiffs incurred to evaluate and implement the electrical services described herein may be included in the damage award.

d. Relocating The Horizontal Fuel Transfer System Insert Storage Rack.

Plaintiffs also had to relocate the horizontal fuel transfer system ("HFTS") to free up enough area in the cask loading pool for the Holtec HI-STORM casks. *See* PX-3G at KRGGG005103-KRGGG005110 (Items 13 and 33); *see also* TR 601-2 (Warren). Plaintiffs presented evidence that the Government's breach was the cause of relocating the HFTS. *See* TR 602 (Warren) (testifying that if Grand Gulf had not built the dry storage facility, relocating the horizontal fuel transfer system insert storage rack would not have been necessary).

Continuing a familiar refrain, the Government asserts that this project would have been necessary even if no breach occurred and, therefore, the associated costs are not incremental to the Government's delay. *See* Gov't PT Br. at 57. The Government also contends that a DOE cask would require the same physical and logistical challenges as the Holtec HI-STORM cask. *See* DX 602 at 16-17 (Brewer).

Plaintiffs respond that what the Government would have done in a non-breach world is speculative and that additional evaluation costs still may need to be incurred when the Government does perform. *See* Pl. PT Br. at 8-11. As Mr. Warren testified:

> PLAINTIFFS' COUNSEL: And if DOE had come to take spen[t] fuel from the plant as required by the standard contract, would that work have been necessary?

MR. WARREN:	Again, it would be speculative, depending upon the shape of the equipment for the shipment, for storing fuel, or for transferring fuel.
PLAINTIFFS' COUNSEL:	Is it possible to get a transportation cask or a transfer cask into the pool without relocating insert racks?
MR. WARREN:	I don't know. Without knowing the specifics of the transfer casks, I could not say.

TR 602-3 (Warren); *see also* TR 699-701.

Here again, the Government's expert could not advise the court on what cask DOE would have required, or what cask will be required in the future. *See* DX 602 at 16-17 (Brewer). Moreover, the fact that there may be casks on the market that are smaller than the Holtec HI-STORM cask, or others now in the process of being licensed, as Mr. Brewer testified, is irrelevant. *See* DX 602 at 16 n.37 (Brewer). The Government has not established that the relocation costs at issue were unreasonable.

Therefore, the court has determined that the $353,396 in costs Plaintiffs incurred to relocate the horizontal fuel transfer system insert storage rack may be included in the damage award.

e. Bay Door.

To accommodate the Holtec HI-STORM casks, Plaintiffs also had to design and install a new bay door for the auxiliary building. *See* PX 3-G at KRGGG005103-KRGGG005110 (Items 12 and 32); *see also* TR 597-600 (Warren); TR 1601-2 (Metcalfe). The Government argues that the partial breach of the Standard Contract did not require Plaintiffs to design and install a new bay door for the auxiliary building. *See* Gov't PT Br. at 50-55. In fact, the door was used to transport other materials. *See* PX 137 at SSM0062596 ("Auxiliary building door completed in 2/2004 to support [refueling outage] 13[.]"); *see also* TR 876-79 (Eaton). The bay door also allowed Grand Gulf to transport cut control blades that normally would have to be moved during outage periods. *See* TR 890-92 (Eaton).

Plaintiffs admit that the bay door will be used to transport and store a variety of materials. *See* TR 875 (Eaton). The decision to design and install the bay door selected, however, was only made when "it was determined that it was going to be required for spent fuel offload." TR 875-76 (Eaton); *see also* 597-600, 643 (Warren). Moreover, as the Government's expert admitted, if the Government had not breached, "a decision to not add the door could have been made[.]" DX 602 at 12 (Brewer).

Plaintiffs do not have the burden of demonstrating that the Government's partial breach of the Standard Contract was the sole cause of damages. *See Franconia Assocs.*, 61 Fed. Cl. at 750. Instead, Plaintiffs must establish that the damage "inevitably and naturally" resulted from the

breaching party's conduct. *Id*. Plaintiffs have met that burden. Plaintiffs' decision to build the door after the Government's partial breach was necessary to accommodate the Holtec HI-STORM cask, and therefore was a substantial factor as to why these costs were incurred. The fact that the door may be used to transport materials other than SNF and HLW, and that Plaintiffs previously considered the utility of a new bay door for other reasons, is irrelevant. Moreover, the Government has not demonstrated that the costs to design and install the bay door were unreasonable.

Therefore, the court has determined that the $310,688 in costs Plaintiffs incurred to design and install the bay door may be included in the damages award.

f. Piping Modifications.

Plaintiffs' original plan for the auxiliary building included piping modifications to route gasses from lower to higher elevations in the facility. *See* PX 3-G at KRGGG005103-KRGGG005110 (Items 10 and 30); *see also* TR 594 (Warren). Later, Plaintiffs decided that the piping modifications were not necessary. *See* TR 594 (Warren). Because Plaintiffs did not pursue this project, those costs were not included in the work orders. See TR 594-95 (Warren) (testifying that no costs from Tasks 10 and 30 were included in the work orders because they were not pursued). Therefore, these costs are not included in the Plaintiffs' damage request.

5. Equipment Operational Sequence Design And Dose Assessment.

Plaintiffs also had to develop procedures and programs to use the Holtec HI-STORM casks at Grand Gulf. *See* PX-3G at KRGGG005103-KRGGG005110 (Item 20); *see also* TR 611-12 (Warren). As part of the general license requirement, Plaintiffs had to conduct a "dose[31] assessment" including an "evaluation of the HI-STORM storage cask at the storage pad, off-site doses, operational doses" and "movement of the cask along a haul path from the auxiliary building to the ISFSI storage pad." TR 610 (Warren); *see also* PX-3G at KRGGG005103-KRGGG005110 (Item 18). Plaintiffs explain that the costs associated with these activities are not part of the claim, because they were completed after August 31, 2005. *See* TR 610-12 (Warren).

The Government, however, argues that $16,108 of the operational sequence design costs and $39,000 of the dose assessment costs were included in work orders claimed by Plaintiffs. *See* Gov't PT Br. at 68; *see also* DX 601 at 26; TR 2419-20, 2437-40 (Peterson). Plaintiffs have not contested the Government's assertions. *See* Pl. PT. Reply at 15.

Therefore, the court has determined to offset Plaintiffs' damage award by $55,108, since these costs were incurred in connection with work completed after August 31, 2005. Plaintiffs, however, are not foreclosed from attempting to recover this cost in a future suit for damages. *See Indiana Michigan II*, 422 F.3d at 1376-77.

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[31] A "dose" describes the amount of ionizing radiation that may affect the public near a nuclear facility. *See* DOE website, *available at* http://homer.ornl.gov/nuclearsafety/nsea/oepa/bdac/.

6. Cask Transfer Path And Haul Path Implementation.

In addition, Plaintiffs assert they had to construct a hardened pathway from the auxiliary building to the ISFSI and from the ISFSI to the cask construction pad. *See* PX-3G at KRGGG005103-KRGGG005110 (Items 6 and 26); *see also* PX 401; TR 586-87 (Warren).

The Government asserts that $90,357 of the costs incurred for the cask transfer path and haul path implementation is not recoverable, because only a portion of the path was required to mitigate the partial breach. *See* Gov't PT Br. at 55; *see also* DX 601 at 25 (Peterson).

Plaintiffs counter that it is impossible to know if this construction would have been necessary if DOE performed, or if other changes to the path still may be required when DOE does perform. *See* Pl. PT Br. at 8-11. As Mr. Warren testified:

> PLAINTIFFS' COUNSEL: And if DOE had come to take spent fuel from Grand Gulf as required under the contract, would this work have been needed?
>
> MR. WARREN: It would be speculative on my part to say whether this work would be needed or not based on the equipment supplied by [DOE].
>
> PLAINTIFFS' COUNSEL: And how does the type of equipment that DOE supplied affect your answer?
>
> MR. WARREN: I do not know what type of equipment would be used to bring the shipment cask into the facility, whether it's vertical or whether it's horizontal, quite a number of parameters. It would be speculative to state what they are.

TR 587-88 (Warren).

The Government bears the burden of proof that Plaintiffs' costs to construct the cask transfer path and widen the haul path were unreasonable. *See TVA*, 69 Fed. Cl. at 530. In this case, the Government did not meet that burden. *See* DX 602 (Brewer) ("In the but-for-world, it appears *likely* . . . that DOE would provide a transport cask[.]" (emphasis added)).

For these reasons, the court has determined that $2,670,203 in costs that Plaintiffs incurred to construct the cask transfer path and widen the haul path may be included in the damage award.

7. Scaffolding.

Plaintiffs purchased the scaffolding for $196,000 and then allocated a portion of that amount, $24,500, to the dry fuel storage project. *See* DX 601 at LIT001 0057. As Mr. Edwin Rogers, Superintendent of Maintenance Support at Grand Gulf, testified, he took several factors into account in deciding whether to rent or purchase scaffolding:

> For the scaffold material, we specifically looked at how long we were going to have to rent it. We looked at the cost of the rental itself, and then a significant cost factor for use is the material that's going to be in the radiological controlled area, the cost of getting it back out. Typically once it's inside that area we have to take that material and ship it to an off-site vendor to have it surveyed or cleaned and then returned to us to deliver back to the rental vendor . . . . And then . . . the time involved is typically . . . four to six months for that vendor to turn the material around, and we incur rental costs for that entire period. So we looked at the material that we had, how long we would have to use it, was it going inside . . . the radiologically controlled area, and factored that up and determined . . . it would be cheaper [to purchase the scaffolding] than . . . to rent it[.]

TR 961-62 (Rogers).

The Government argues that $24,500 of the scaffolding costs are not recoverable, because this purchase was not incremental as a result of DOE's partial breach and the scaffolding can be used for other projects. *See* Gov't PT Br. at 80. Plaintiffs disagree. *See* Pl. PT Br. at 44 n.19; Pl. PT Reply at 17-18.

The Government's damages expert, however, conceded that it would be appropriate to include a portion of the purchase price of the scaffolding since the cost of the purchase was less expensive than renting. *See* TR 2416-17 (Peterson). This is precisely what Plaintiffs did. *See* DX 601 at LIT001 0057; *see also* TR 960-62 (Rogers).

Accordingly, the court has determined the $24,500 in costs that Plaintiffs incurred for scaffolding may be included in the damage award.

G. The Cost Of Borrowed Funds.[32]

1. The Parties' Arguments.

Finally, Plaintiffs seek to recover $1.58 million for the cost of the borrowed funds to plan, design, and construct the dry fuel storage project at Grand Gulf. *See* Pl. PT Br. at 28-29, 44-46; *see also* TR 1670-72 (Metcalfe). Plaintiffs argue that this amount is the "actual financing of costs that [SERI] and [SMEPA] have borne from the time such costs were actually incurred to mitigate the effects of DOE's continuing nonperformance." Pl. PT Br. at 28 (citing PX 410 ¶ 59 (Metcalfe Direct)). Plaintiffs do not contest that 28 U.S.C. § 2516(a) is a general bar on the award of prejudgment interest, but rely on the United States Court of Appeals for the Federal Circuit decision in *Wickham Constr.* v. *Fisher*, 12 F.3d 1574 (Fed. Cir. 1994) wherein Plaintiffs argue that the appellate court allowed "the recovery of AFUDC-like financing costs[.]" Pl. PT Br. at 45. Therefore, Plaintiffs conclude that the cost of borrowed funds is "appropriate and reasonable damages and do[es] not constitute forbidden 'pre-judgment' interest." Pl. PT Br. at 44.

The Government responds that since neither the Nuclear Waste Policy Act of 1982 nor the Standard Contract provide for such recovery, Plaintiffs are prohibited from recovering the cost of borrowed funds by 28 U.S.C. § 2516(a). *See* Gov't PT Br. at 83 (citing *England* v. *Contel Advanced Sys., Inc.*, 384 F.3d 1372, 1379 (Fed. Cir. 2004) ("The no-interest rule is an aspect of the basic rule of sovereign immunity . . . . It has been construed to apply broadly to claims for interest." (citations omitted)); *Jetco, Inc*. v. *United States*, 11 Cl. Ct. 837, 850 (1987) ("Interest is not recoverable in a suit against the government unless it has expressly provided for its recovery"). Moreover, the Government contends that even "Plaintiffs' expert agrees that, from an economic perspective, the purpose of applying the [economic cost of capital] to plaintiffs' claimed damages is the same as applying an interest rate - to compensate plaintiffs for DOE's *delay in payment* of damages." *Id*. at 89 (citing TR 1676, 1681 (Metcalfe)) (emphasis in original).

The court's analysis begins with the Tucker Act, which states, in relevant part, "[*i*]*nterest on a claim* against the United States shall be allowed in a judgment of the United States Court of

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[32] In the court's judgment, both parties have mischaracterized the costs at issue. Plaintiffs refer to "the cost of capital." In accounting terms, the cost of capital can be:

1. "[t]he rate of return that an enterprise would be expected to pay for extra capital raised to finance its activities," Christopher Nobes, THE PENGUIN DICTIONARY OF ACCOUNTING 85 (2002), or
2. the "rate of return that is necessary to maintain market value (or stock price) of a firm, also called *hurdle rate, cutoff rate,* or *minimum required rate of return*." Joel G. Siegel & Jae K. Shim, DICTIONARY OF ACCOUNTING TERMS 108 (3d ed. 2000) (emphasis in original).

The Government characterizes the same costs as "interest." Neither characterizations are correct. The correct characterization in accounting and law is "the cost of borrowed funds." Accordingly, the court uses the proper term in discussing the arguments of both parties.

Federal Claims *only under a contract or Act of Congress expressly providing for payment thereof*." 28 U.S.C. § 2516(a) (emphasis added).[33] Historically, the Government's immunity from the payment of such interest has been construed broadly. *See Library of Cong.* v. *Shaw*, 478 U.S. 310, 321 (1986) ("[The] character or nature of 'interest' cannot be changed by calling it 'damages,' 'loss,' 'earned increment,' 'just compensation,' 'discount,' 'offset,' or 'penalty,' or any other term, because it is still interest and the no-interest rule applies to it." (quoting *United States* v. *Mescalero Apache Tribe*, 207 Ct. Cl. 369, 389 (1975) (alteration in original))); *see also Sandstrom* v. *Principi*, 358 F.3d at 1380 (Fed. Cir. 2004) ("Under the long-standing 'no-interest rule,' sovereign immunity shields the U.S. government from interest charges for which it would otherwise be liable, unless it explicitly waives that immunity[.]").

2. The Court's Resolution.

Congress did not define the term "interest" when 28 U.S.C. § 2516(a) was enacted and the legislative history provides the court with no specific guidance. *See, e.g.,* Cong. Globe, 37th Cong., 2nd Sess. 2-1677 (1861); Sen. Rpt. 1-8, 3rd Sess. (March 11, 1911). The accounting profession, however, recognizes that the term "interest" has two distinct meanings:

> **INTEREST**
>
> **1.** *amount charged by a lender* to a borrower for the use of funds. The interest rate is typically expressed on an annual basis. Interest equals principal × interest rate × period of time[.]
> **2.** equity ownership of an individual or other entity in business or property expressed in percentage terms or in dollars.

Joel G. Siegel & Jae K. Shim, DICTIONARY OF ACCOUNTING TERMS 232 (3d ed. 2000) (emphasis added).

As to the first definition, an "amount charged by a lender" is treated by accountants as an unrecovered cost, accrued as a liability. *See* James E. Gaertner & S. Kerry Cooper, FINANCIAL ACCOUNTING 50 (1987) ("FINANCIAL ACCOUNTING"). In short, "to a borrower, interest is an expense." Lermit D. Larson & Paul B.W. Miller, FUNDAMENTAL ACCOUNTING PRINCIPLES 444 (13th ed. 1993). For this reason, when an "amount charged by a lender" is a component of a damage claim, the United States Court of Appeals for the Federal Circuit has allowed such costs. *See Bluebonnet Sav. Bank, FSB* v. *United States*, 266 F.3d 1348, 1355 (Fed. Cir. 2001) (allowing the recovery of the "increase of financing costs," caused by a breach of contract); *see also Wickham Constr.*, 12 F.3d at 1582 ("It has been held that section 2516(a) does not bar an interest award as part of an equitable adjustment under a fixed-price contract if the contractor has *actually paid interest because of the government's delay* in payment." (emphasis added) (citing *Gevyn Constr.*

[33] 28 U.S.C. § 2516 originates with 12 Stat. Pg. 766 Ch. 92 § 7 (codified and amended at 61st Cong., 3d Sess., Ch. 1911, ch 231, 8177, 36 Stat. 1141 (1911)).

Corp. v. *United States*, 827 F.2d 752, 754 (Fed. Cir. 1987) (*distinguishing* claims where "interest on equity capital is not recoverable [*from* claims where] a contractor . . . actually *paid on* funds borrowed because of the government's delay in payments." (emphasis added))); *TVA*, 69 Fed. Cl. at 542 (allowing the recovery of the cost of borrowed funds recognizing that "capital is not costless").

In contrast, the second definition of interest describes equity ownership that is earned *on an asset*, including capital, and for this reason is treated by accountants as a receivable. *See* FINANCIAL ACCOUNTING at 52; *see also id.* at 50; *see also Phillips* v. *Wash. Legal Found.*, 524 U.S. 159, 159 (1998) ("*interest earned on* . . . funds . . . *is* '*private property*.'" (emphasis added)).

Therefore, the court has determined that, if causation is established, a private party to a government contract may recover an amount charged by a lender for borrowed funds that were loaned to mitigate a breach of contract. *See Bluebonnet Sav. Bank,* 266 F.3d at 1355; *see also Wickham*, 12 F.3d at 1583 ("the borrowing *resulted from* [the government's breach of contract]." (emphasis added)); *TVA*, 69 Fed. Cl. at 542.

In this case, the use of a dry fuel storage system was foreseeable to the Government when the Standard Contract was executed, and it was a matter of public record that utilities would need to borrow funds, pursuant to FERC requirements, to plan, design, and construct dry fuel storage in the event of DOE's breach. The Government does not suggest otherwise. Instead, the Government insists that Plaintiffs cannot meet their burden of proof under the "substantial factor" test, because Plaintiffs "conceded that [they] did not borrow *any* money to fund the cost of construct[ing the dry fuel storage project]." Gov't PT Br. at 90 (emphasis added). Plaintiffs respond that utilities "do not ordinarily go to a bank to acquire funds for specific projects[,] but rely on their existing capital base [for such funding.]" Pl. PT Reply at 18-19 (citing TR 1670-71 (Metcalfe)).

The best evidence of how Plaintiffs' construction projects were funded is found in System Energy Resources, Inc.'s FERC Form No. 1: Annual Report[s] Major Electric Utilities, Licensees and Others. *See* N171, 181, 191, 201, 212, 222. FERC Form No. 1, line 36 provides an entry for the "Allowance for Other Funds Used During Construction (Account 419.1).[34] *See, e.g.*, N171 at 175 (FRG 6003246). The amount entered here is determined by applying the "weighted average rate for borrowed funds," a rate determined for each utility on an annual basis pursuant to a formula established by FERC. *See, e.g.*, N178 (stating that the weighted average rate for borrowed funds for

[34] FERC allows utilities to recover the cost of funds used for construction purposes. *See* Uniform System of Accounts Prescribed for Public Utilities and Licensees Subject to the Provisions of the Federal Power Act, Electric Plant Instructions, 18 C.F.R. Part 101 ¶ 3.A(17) (the Allowance for Funds Used During Construction ("AFUDC"), "[including] the net cost for the period of construction of borrowed funds used for construction purposes and a reasonable rate on other funds when so used," and listing "average short-term debt," "long-term debt," "preferred stock," and "common equity" as elements that may be included in the AFUDC calculation, *i.e.*, the utility's weighted average cost of capital applied under specific FERC rules); *see also* TR 1675 (Metcalfe).

SERI in calendar year 1998 was 4.72%); *see also* N188 (5.02% in calendar year 1999); N198 (3.31% in calendar year 2000); N209 (3.0% in calendar year 2001). Therefore, although Plaintiffs, like other FERC-regulated utilities, do not borrow specific amounts for specific capital projects, they borrow funds for all construction costs on an annualized basis. *See* TR 1670-72 (Metcalfe) (same). The Government's position that such costs cannot be recovered, because there is no "one-to-one" relationship, between costs incurred to mitigate the Government's partial breach and specific debt instruments is misplaced, since the terms of such borrowing are regulated and supervised by FERC.[35] *Id*.; *see also TVA*, 69 Fed. Cl. at 541-42 (allowing TVA to include the FERC authorized "weighted average rate for borrowed funds" in the damage award.).[36]

Since DOE's partial breach was a substantial factor in Plaintiffs' need to borrow funds to plan, design, and construct the dry fuel storage project at Grand Gulf, the court has determined that Plaintiffs are entitled to recover those costs, if they can be determined with reasonable certainty.[37] *See Indiana Michigan II*, 422 F.3d at 1373 ("The general principle is that all losses, however described are recoverable." (quoting RESTATEMENT § 347 cmt.e.)); *see also TVA*, 69 Fed. Cl. at 542.

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[35] *See* Ollie S. Powers, *Regulatory Accounting and GAAP: The Move Towards Reconciliation*, THE CPA JOURNAL ONLINE (Dec. 1989), http://www.nysscpa.org/cpajournal/old/08033870.htm (last visited Oct. 1, 2007) ("The concept of an allowance for funds used during construction (AFUDC) results from a regulatory belief that today's utility customers should not pay for the costs of financing construction that will benefit only future users; that is, current customers should pay a return only on assets currently performing a useful service. As a result, regulators withhold major plant construction costs from the rate until the plant is placed in service. To provide a return on their investment during a period of construction, utilities are allowed to recover the cost of construction funds from future users by capitalizing an allowance for funds used during construction. AFUDC is subsequently recovered through depreciation and is allowed a return through its inclusion in the rate base.").

[36] In light of the symbiotic relationship between TVA and "the Government" in that case, it is not surprising that "the Government" did not appeal the inclusion of Allowance for Other Funds Used During Construction, included in that damage award.

[37] Other decisions of the United States Court of Federal Claims have declined to award the cost of borrowed funds, apparently because of a deficiency in proof. *See Northern States*, 2007 WL 2812727, 2007 U.S. Claims LEXIS 307, *71-78 (Fed. Cl. 2007) ("we do not find it necessary to address the parties' differing interpretations of the *Wickham* decision[, because] Plaintiff has not demonstrated, apart from the existence of debt to augment its capital structure, any borrowings specifically undertaken to address the capital required to fund its mitigation efforts."); *see also S. Nuclear Operating Co.*, 77 Fed. Cl. at 447-49 (denying cost of capital, because "plaintiff do not point to . . . either a specific or general debt for which any allocation to plaintiff was made. It's not clear that any money was borrowed. Similarly, while cost of funds may be *de rigueur* in regulatory or other proceedings, *something more* is required to present interest as a claim versus interest on a claim.").

In this case, Plaintiffs have calculated the cost of borrowed funds for each capital work order. *See* PX 410 ¶ 59 (Metcalfe) ("*Appropriate applicable annual rates were applied* to the total nominal damages incurred each year from the middle of that year through September 11, 2006." (emphasis added)). Although the record contains charts depicting what the "applicable annual rate" was (*see* Pl. Ex. #1C KRG-GG004211-12) the court cannot readily ascertain how that rate was derived. Notably, Mr. Metcalfe's direct testimony did not explain how the "applicable annual rates" were determined. For strategic reasons, the Government did not pursue this on cross-examination. It appears that underlying data was prepared by James David Wright, Director of Regulatory Accounting at Entergy Operations, Inc, however, Mr. Wright, was not proffered as a witness at trial. Without the ability to ascertain precisely how Mr. Metcalfe arrived at the cost of borrowed funds claimed by Plaintiffs in this case, the court cannot determine the amount of the cost of borrowed funds with reasonable certainty. It may be the answer lies in the record, but the court requires specific instruction and guidance through the exhibits attached to Mr. Metcalfe's testimony. In addition, the damages cut-off date in this case is August 31, 2005, but the cost of borrowed funds is calculated through 2006.

H. Plaintiffs' Takings Claims Are Dismissed Without Prejudice.

Count II of the January 16, 2007 Second Amended Complaint And Supplemental Complaint alleges that "[t]he Government's failure and refusal to comply with the requirements of the Standard Contract for acceptance and disposal of SNF and HLW generated at the Grand Gulf nuclear station constitutes a taking of the vested real property rights of [Plaintiffs]." *See* 2d. Am. Compl. at 9.

The United States Court of Appeals for the Federal Circuit has held that when the Government acts as a contractual partner in a commercial venture, the rights and responsibilities of the parties must be analyzed with reference to the contract: "The concept of a taking as a compensable claim theory has limited application to the relative rights of party litigants when those rights have been voluntarily created by contract. In such instances, interference with such contractual rights generally gives rise to a breach claim not a taking claim." *Hughes Commc'ns Galaxy, Inc.* v. *United States*, 271 F.3d 1060, 1070 (Fed. Cir. 2001) (quoting *Sun Oil Co.* v. *United States*, 572 F.2d 786, 818 (1978)). Therefore, takings claims "rarely arise under government contracts because the Government acts in its commercial or proprietary capacity in entering contracts, rather than in its sovereign capacity. Accordingly, remedies arise from the contracts themselves, rather than from the constitutional protection of private property rights." *Id.* at 1070; cf. *Feltner* v. *Columbia Pictures Television, Inc*., 523 U.S. 340, 345 (1998) ("Before inquiring into the applicability of [a constitutional claim], we must first ascertain whether a construction of the statute is fairly possible by which the [constitutional] question may be avoided." (citations omitted)).

In this case, Plaintiffs contracted to pay the Government to dispose of spent nuclear fuel. Accordingly, the allocation of costs associated with the failure of this commercial agreement must be adjudicated under contract law and Plaintiffs' taking claims are dismissed, without prejudice.

IV. CONCLUSION.

For the aforementioned reasons, the court has determined that the Government's January 31, 1998 partial breach of the June 14, 1983 Standard Contract entitles Plaintiffs to receive certain costs incurred by a damage award. Plaintiffs' claim is for $10,591,000 in damages. For the reasons discussed herein, the court has determined that this award should be reduced by $576,886. Therefore, the total award, excluding the cost of borrowed funds, is $10,014,114.

In addition, the court has determined that the Plaintiffs are entitled to recover the cost of borrowed funds. Because the court requires clarification about the existing record, the court has entered a separate Order Requesting Supplemental Expert Testimony to be issued, together with this Memorandum Opinion and Order. After receiving the information requested and any objections thereto, the court will issue a Final Order awarding mitigation damages to Plaintiffs for certain costs incurred from January 15, 1998 to August 31, 2005.

IT IS SO ORDERED.

s/Susan G. Braden
SUSAN G. BRADEN
Judge