

In the United States Court of Federal Claims

No. 03-2625C

(Filed: November 18, 2016)

**ENTERGY GULF STATES, INC., and
ENTERGY GULF STATES
LOUISIANA, L.L.C.,**

Plaintiffs,

v.

THE UNITED STATES,

Defendant.

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**Spent Nuclear Fuel; Partial
Breach of Contract; Damages;
Causation; Fuel Characterization
Costs; High-Burn-Up Fuel.**

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OPINION AND ORDER

WILLIAMS, Judge.

This opinion is a continuation of the Court's prior decision in Entergy Gulf States, Inc. v. United States, 125 Fed. Cl. 678 (2016). On April 14, 2016, this Court awarded Plaintiffs a partial judgment of \$42,341,604 for site modifications, payroll and materials loaders, and additional security. Id. at 718. The Court deferred Plaintiffs' claim for cask loading costs, pending the decision of the United States Court of Appeals for the Federal Circuit in System Fuels, Inc. v. United States, 818 F.3d 1302 (Fed. Cir. 2016).

Following the issuance of the Federal Circuit's decision in System Fuels awarding storage cask loading costs, this Court entered partial judgment granting Plaintiffs their uncontested costs for the preparation, packaging, and loading of spent nuclear fuel, and permitted further briefing on whether fuel characterization costs were encompassed within the System Fuels ruling. Entergy Gulf States, Inc. v. United States, No. 03-2625C, 2016 WL 5234692, at *1 (Fed. Cl. Sept. 21, 2016).

In System Fuels, the Federal Circuit affirmed the trial court's award of cask loading costs including fuel characterization costs, but the trial court had only awarded costs for characterizing high-burn-up fuel. System Fuels, Inc. v. United States, 120 Fed. Cl. 737, 748-50 (2015) ("ANO II"), rev'd and remanded, 818 F.3d at 1307. The ANO II trial court was precise in segregating the processes of loading high-burn-up fuel as opposed to non-high-burn-up fuel and found that damages for characterizing non-high-burn-up fuel were not warranted because the process of loading non-high-burn-up fuel into Holtec storage casks was similar to the process of loading that type of fuel into DOE transportation casks. Because Plaintiffs did not store high-burn-up fuel during the damages period, Plaintiffs have not established entitlement to damages for fuel characterization. See ANO II, 120 Fed. Cl. at 748-50.

Findings of Fact¹

Pursuant to the Nuclear Waste Policy Act, on August 28, 1985, Plaintiffs entered into a contract with the Department of Energy ("DOE") to collect and dispose of spent nuclear fuel at the River Bend Nuclear Generating Station beginning in 2006. Entergy Gulf States, 125 Fed. Cl. at 684. Under this contract, DOE was obligated to take title to Plaintiffs' spent nuclear fuel and transport the spent nuclear fuel to a DOE facility. Plaintiffs in turn were responsible for preparing and loading the spent nuclear fuel for transportation. Id. at 683.

Upon realizing that DOE would not begin collecting fuel in 2006, Plaintiffs evaluated several options for increasing their spent fuel storage capacity and ultimately decided on dry fuel storage. Id. at 686. Plaintiffs designed and constructed a 10 C.F.R. Part 72 storage facility,

¹ These findings of fact are derived from the record developed at the original trial held from May 11-22, 2015. Additional findings of fact are in the Discussion.

known as an Independent Spent Fuel Storage Installation (“ISFSI”), which became operational in 2005. Id.

Plaintiffs’ River Bend reactor produces both high-burn-up and non-high-burn-up fuel assemblies. Trial Tr. 1603. Because River Bend changed from operating on an 18-month cycle to a 24-month cycle, the fuel will remain in the reactor for a longer period of time, resulting in more high-burn-up fuel bundles, depending upon where they are located in the reactor core. Id. at 1603-04. When discharged at the end of their lifetime, high-burn-up fuel assemblies have a cumulative exposure of 45 gigawatt days per metric ton of uranium - - meaning that high-burn-up fuel has operated in the reactor core for more than 45 gigawatt days (or 45,000 megawatt days) per metric ton of uranium. Id. at 1602-03. Problematic hydriding of the cladding is likely to occur with high-burn-up fuel stored over time, causing increased brittleness of the cladding and impeding the ability of the assembly to contain the fuel. Id. at 1613-14. The buildup of zirconium hydrides would be an issue for storage of high-burn-up fuel at River Bend. Id. at 1616. Although Plaintiffs are permitted to store high-burn-up fuel in their Holtec MPC-68 casks, they had not yet loaded any high-burn-up fuel into these canisters as of May 20, 2015. Id. at 1616-18. As such, Plaintiffs have not loaded any high-burn-up fuel into storage during the damages period in this case. Id. River Bend’s supervisor of reactor engineering anticipates that the plant will ultimately have to load many high-burn-up fuel assemblies into the Holtec canisters at River Bend if DOE does not pick up the spent fuel. Id. at 1618.

As part of the process of cask loading, Plaintiffs loaded 15 Holtec HI-STORM 100 MPC-68 dry fuel storage casks onto the ISFSI, with casks being loaded in 2005, 2006, 2007, 2008, and 2010. Entergy Gulf States, 125 Fed. Cl. at 686. Prior to loading these casks, Plaintiffs performed fuel characterization - - “documenting the physical and nuclear characteristics of spent fuel assemblies.” Id. at 702; Dairyland Power Coop. v. United States, No. 12-902C, 2016 WL 5404168, at *2 n.2 (Fed. Cl. Sept. 28, 2016) (internal citation and quotation marks omitted). Fuel characterization tests individual fuel assemblies to determine whether the fuel assembly is damaged or is leaking radioactive materials. Plaintiffs performed fuel characterization because the Holtec cask system’s Certificate of Compliance, an NRC license governing the parameters, design, and configurations for that cask loading system, required Plaintiffs to load only fuel assemblies that were intact and did not pose a risk of leaking. Trial Tr. 108, 150-52.²

Fuel sipping is one form of fuel characterization, which is used to test whether a fuel assembly has a defect or breach. Trial Tr. 1623. According to Jerrell Campbell, the senior project manager for dry fuel storage at River Bend, to perform fuel sipping, Plaintiffs installed Westinghouse Electric Corporation’s vacuum sipping equipment in the spent fuel pool, placed a spent fuel assembly into a device they call a “can,” and ran water through the fuel assembly in the “can.” Id. at 151. If there was a crack in the fuel assembly’s cladding, and gas was emitted, there would be a failure in the fuel assembly. Id. at 1623-24. According to John Vukovics, the supervisor of reactor engineering at the River Bend plant, in performing this test, Plaintiffs were “looking for radioactive energy signatures of gaseous fission fragments.” Id. at 1557, 1624. Plaintiffs performed this fuel characterization process underwater in the spent fuel pool during

² The NRC issues a unique Certificate of Compliance for each individual cask loading storage system. Trial Tr. 152. In order to use a particular cask storage system, a utility must implement the criteria and requirements in the Certificate of Compliance. Id.

the claim period to determine the integrity of fuel assemblies in the spent fuel pool and to ensure that these assemblies were intact, met Holtec's Certificate of Compliance, and were suitable for loading into a Holtec Multi-Purpose Canister. Id. at 151-52, 1611, 1624-25.

The Federal Circuit issued its opinion in System Fuels on April 4, 2016, finding that because storage casks may not be used for transportation, "System Fuels was entitled under the law to all of the costs of loading these storage casks." Sys. Fuels, 818 F.3d at 1306. The Court stated that the expenses incurred for loading the storage casks "are expenses incurred entirely for storage due to the government's breach," and that because the storage casks cannot be used for transportation, "System Fuels will be required, if and when the government begins to comply, . . . to unload the spent nuclear fuel from these storage casks and reload it into suitable transportation casks provided by the government." Id. at 1307. Although the Federal Circuit was not called upon to separately address whether fuel characterization costs were recoverable as part of the utilities' process of cask loading, the underlying trial court opinion did address that issue. ANO II, 120 Fed. Cl. at 748-50.

In System Fuels, the Federal Circuit affirmed the trial court's award of cask loading costs including fuel characterization costs, but the trial court only awarded costs for characterizing high-burn-up fuel. ANO II, 120 Fed. Cl. at 748-50. The ANO II trial court segregated the processes of loading high-burn-up fuel as opposed to non-high-burn-up fuel. The ANO II trial court denied damages for characterizing non-high-burn-up fuel because the process of loading non-high-burn-up fuel into Holtec storage casks was similar to the process of loading that type of fuel into DOE transportation casks. Id. at 750-51.

Discussion

Plaintiffs seek \$564,651 in fuel characterization costs and associated payroll loaders. The parties dispute whether the Federal Circuit's award of cask loading costs in System Fuels included costs for re-characterizing the fuel. Defendant urges the Court to deny recovery claiming that System Fuels did not address fuel characterization costs, that Plaintiffs would have incurred these same costs in the non-breach world, and that Plaintiffs have not shown that they will incur these costs again when DOE performs.

Defendant argues that fuel characterization costs were not encompassed in the System Fuels decision, as none of the plaintiffs made a separate claim for fuel characterization costs on appeal to the Federal Circuit and there is no evidence in the record in ANO II that fuel characterization activities were included in the work order encompassing cask loading costs. Def.'s Second Suppl. Br. 5-13. Contrary to Defendant's argument, the ANO II plaintiffs did seek fuel characterization costs, and the trial court found that because ANO was loading high-burn-up fuel, which cannot be transported in a Holtec storage cask, that type of fuel would have to be re-characterized prior to being reloaded into DOE transportation casks. ANO II, 120 Fed. Cl. at 749-50. The ANO II Court explained that the high-burn-up fuel can affect the fuel assemblies by causing the cladding walls to become brittle and subject to breakage during transportation, and expressly found that "[p]rior to transportation, the condition of [the spent nuclear fuel] will have to be re-characterized before it can be safely delivered to DOE." Id. at 750 (emphasis added).

The ANO II Court found that the plaintiffs were entitled to fuel characterization costs for the high-burn-up fuel, but not for other types of fuel. Id. at 751-52. The trial court concluded that plaintiffs' costs for characterization and loading of the high-burn-up fuel were allowable, because high-burn-up fuel would have to be re-characterized, but that costs for the non-high-burn-up fuel were not recoverable due to the similarities in loading non-high-burn-up fuel into Holtec casks and DOE transportation casks. Id. at 750-51. Specifically, the ANO II Court stated that for non-high-burn-up spent fuel:

similar steps would have had to be performed to load DOE transportation casks in the but-for world. These steps are somewhat akin to those undertaken to load the Holtec multi-purpose canisters at ANO, depending on the fuel type.

Id. at 750 (emphasis in original). The ANO II Court went on to state that disallowing the plaintiffs' costs for loading non-high-burn-up fuel would "reflect the fact that loading Holtec canisters at ANO would be similar to, and have a counterpart in, loading DOE-supplied casks for transport." Id. at 751. The ANO II Court continued:

evidence at trial regarding high-burn-up spent fuel showed that . . . such fuel at ANO could not be loaded for DOE transportation under the regulatory arrangements currently in place. For that spent fuel, there are no "incurred" costs in the but-for world that must be eliminated from System Fuels' damages.

Id. at 750 (emphasis added).

Because in affirming ANO II the Federal Circuit in System Fuels only granted costs for characterization of high-burn-up fuel as part of cask loading costs, that precedent does not warrant awarding fuel characterization costs here, as only non-high-burn-up fuel was loaded during the damages period.

Defendant further argues that an earlier Federal Circuit decision, Vermont Yankee Nuclear Power Corp. v. Entergy Nuclear Vermont Yankee, LLC, 683 F.3d 1330 (Fed. Cir. 2012), mandates denying fuel characterization costs. Def.'s Suppl. Br. 2.³ In Vermont Yankee, the Federal Circuit denied fuel characterization costs, reasoning:

In preparing SNF for on-site dry storage, ENVY incurred \$156,000 in costs to characterize the SNF. Such a characterization is required for storage in any NRC-approved cask. ENVY's theory is that the fuel characterization may well be required a second time for DOE-supplied casks, when and if DOE performs. Thus, ENVY argues that it may have to pay for two characterizations, whereas in a non-breach world, it would have had to pay for only a single characterization for the DOE-supplied casks. However, ENVY has not established the likelihood that DOE will require ENVY to incur further characterization costs upon performance. In fact, the Claims Court noted that ENVY [itself] believes that DOE will accept the previously performed characterization before finding that it is possible that another review of the spent fuel condition will be required.

³ Defendant argued Vermont Yankee broadly requires denying fuel characterization costs without regard to whether high-burn-up or non-high-burn-up fuel was characterized.

Vermont Yankee, 683 F.3d at 1350 (alteration in original) (emphasis added) (internal citations and quotation marks omitted).

The Federal Circuit’s denial of fuel characterization costs in Vermont Yankee was predicated on the plaintiffs’ failure to meet their burden of proving that fuel characterization would be required again upon DOE’s performance. The Vermont Yankee decision does not reflect what type of fuel was being characterized, and did not reference high-burn-up fuel. The Vermont Yankee Court relied upon the plaintiffs’ own belief that DOE would accept the earlier characterized fuel without re-characterization. Id. Based on that record, the Vermont Yankee Court concluded that it was “possible that another review of the spent fuel condition [would] be required” if DOE performs. Id. (internal citation and quotation marks omitted). As such, Vermont Yankee’s denial of fuel characterization costs, based upon the plaintiffs’ arguments and the record in that case, does not mandate a blanket denial of such costs here.

Conclusion

The Court **DENIES** Plaintiffs’ claimed damages for costs incurred in performing fuel characterization.

This is the final decision in this matter. In total, the Court has awarded Plaintiffs \$47,539,368 in damages for Defendant’s partial breach of the Standard Contract through December 31, 2010. See Entergy Gulf States, 2016 WL 5234692, at *1; Entergy Gulf States, 125 Fed. Cl. at 718.

s/Mary Ellen Coster Williams _____
MARY ELLEN COSTER WILLIAMS
Judge