In the United States Court of Federal Claims

No. 03-2832C
Filed: June 18, 2010

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ARIZONA PUBLIC SERVICE COMPANY,	*	Spent Nuclear Fuel; Partial-Breach Damages; Standard Contract; But-For World; Casks; ISFSI; Dry Storage; Full-Core Reserve; Poison Insert Project; Nuclear Waste Policy Act of 1982; Allowance for Funds Used During Construction; relationship of damages to breach; DOE offsets; Overhead costs.
Plaintiff,	*	
v.	*	
UNITED STATES OF AMERICA,	*	
Defendant.	*	
* * * * * * * *		

OPINION

HODGES, Judge

Arizona Public Service Company operates the Palo Verde Nuclear Generating Station near Phoenix. It entered a "Standard Contract" with the United States in 1984, to secure the byproducts of its nuclear operations and store them permanently in Yucca Mountain, Nevada. Plaintiff has paid more than $500 million in consideration of DOE's obligation to collect nuclear waste from Palo Verde. Defendant has not performed according to the Standard Contract. This is a Spent Nuclear Fuels case.

Defendant announced in 1989 that it would not collect spent nuclear fuel from utilities beginning in 1998 as promised. It has not offered a date by which it intends to comply with the contract.

The Standard Contract required that DOE collect spent nuclear fuels from the first utility in the priority queue in 1998, then move down a list determined by reference to the Contract's Annual Collection Rate. Later, the Government advised plaintiff and other nuclear-powered utilities that it would not begin performance before 2010. The parties view this as a partial breach of contract case, even though DOE has not expressed an intention to abide by any terms of the Standard Contract

since 1994**,** when it estimated performance beginning in 2010.

Utilities that signed the Standard Contract with DOE are attempting to extend their on-site storage facilities to account for the waste that DOE was to have collected. Most utilities store nuclear waste underwater in pools designed to contain and shield radioactivity. Some have reconfigured the fuel assemblies stored in these pools to make more space available in the same areas, or used other means of expanding available storage space. Others have transferred their nuclear waste to permanent dry storage facilities on their grounds. Arizona Public Service built a large dry storage facility that is capable of handling all the nuclear waste that it will produce during the fifteen years remaining on its current licenses.

Dry storage facilities are known as Independent Spent Fuel Storage Installations, or ISFSI's.[1] They are highly-regulated, secure facilities containing concrete casks to which utilities move spent fuel when their inside pools can no longer contain radioactive materials safely. Some utilities would not have needed dry storage facilities had the Government performed the contracts as written; they have or had enough space left in their storage pools to store the nuclear waste safely while awaiting DOE's arrival to collect their spent nuclear fuel, or SNF.

Plaintiff Arizona Public had to move fuel out of its storage pools irrespective of the breach, to maintain full-core reserve.[2] That is, plaintiff would have needed a small dry storage facility to hold enough fuel to fill twelve casks or containers in the ISFSI. Thus, unlike some plaintiffs in SNF cases, Arizona did not build an ISFSI solely because of DOE's breach.[3] The issue for trial was how much *more* dry storage plaintiff needed because of defendant's breach.

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[1] Independent Spent Fuel Storage Installations are usually referred to in SNF cases as ISFSI [pronounced ISS´Fə Si].

[2] Full-core reserve is the marginal space that a utility needs in its pools to remove the contents of an entire reactor in case of an emergency, or for routine maintenance.

[3] Plaintiff had to construct a twelve-cask ISFSI in "both worlds," so it credits the Government $12 million of its costs of casks. It would have placed twelve casks in dry storage in the "but-for world".

Plaintiff had filled forty-seven casks with nuclear waste by the end of its 2006 claim period.[4] It needed twelve of those casks in the "but-for world" as well, so plaintiff claimed thirty-five casks as damages of the breach.[5] Plaintiff presented a but-for world in which defendant complied with the Standard Contract, then compared it with the real world in which it did not.

Plaintiff's claim for damages is the cost of purchasing and installing thirty-five casks for placement in dry storage. We reduced the claim by the equivalent of fifteen casks because plaintiff did not make a sufficient showing that defendant's breach of contract caused it to cancel a poison insert program on which that amount of spent fuel depends. That is, plaintiff did not establish that it would have carried out a plan to install poison inserts but for defendant's breach.

The other element of plaintiff's damages is its cost of constructing and maintaining a large dry-storage facility in the real world. The difference between plaintiff's cost of building a limited, twelve-cask, but-for world ISFSI to sustain plaintiff's full-core reserve, and its cost of building a real-world ISFSI large enough to hold plaintiff's spent nuclear fuel in dry storage, is $9.5 million.

The $30,222,146 judgment directed by this Order and Opinion will reimburse plaintiff for its costs of mitigating the damages of defendant's breach of contract through 2006, according to the standards and burdens explained below.

I. BACKGROUND

Congress authorized the Department of Energy to contract with utilities and other producers of nuclear waste to collect their spent nuclear fuel. *See generally* 42 U.S.C. §§ 10101-10270 (Nuclear Waste Policy Act). The Act addressed the "national problem [that] has been created by the accumulation of . . . spent nuclear fuel from nuclear reactors . . . ." 42 U.S.C. § 10131(a)(2)-(A). Disposal of nuclear waste became a "Federal responsibility, and a definite Federal policy" according

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[4] "Claim period" refers to the time between the breach and plaintiff's filing of a Complaint for damages in a partial-breach contract. For example, plaintiff filed suit in 2006; it may collect damages for partial breach to then, and bring subsequent lawsuits for later claim periods.

[5] Plaintiff did not include twelve casks in the claim because it had to free that much space in its spent fuel pools during 2003 and 2004 to maintain full-core reserve.

to the Act's terms. 42 U.S.C. § 10131(b)(2). Congress' purpose was to insure that "the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste . . . ." 42 U.S.C. § 10131(b)(1). The Department of Energy responded by drafting a proposed contract for the Government to use in negotiating with utilities. The contract would provide for the orderly transfer of radioactive waste that utilities had accumulated by operation of their nuclear-powered generating stations, to a permanent government repository.

The Department of Energy issued the Standard Contract as a rulemaking procedure, though appellate courts have ruled that it is enforceable as any other government contract would be. *See e.g.*, *Indiana Michigan Power Co. v. United States*, 422 F.3d 1369, 1376-77 (Fed. Cir. 2005); *Maine Yankee Atomic Power Co. v. United States*, 225 F.3d 1336, 1342 (Fed. Cir. 2000); *Northern States Power Co. v. United States*, 224 F.3d 1361, 1367 (Fed. Cir. 2000). All normal consequences of breach and partial breach of contract apply. *See id.*

DOE submitted its draft Standard Contract for public comment, then presented it to the utilities in 1983. Utilities had no choice but to sign the contract as presented; it was not a negotiated agreement. They make quarterly payments to a government fund as consideration for defendant's obligations under the Standard Contract. Defendant was to complete its first transfer of spent nuclear fuel from a utility no later than January 31, 1998.

In 1994, DOE revealed that it would not begin SNF collection before 2010 because its planned storage repository would not be ready until then. *See* Notice of Inquiry, Office of Civilian Radioactive Waste Management: Waste Acceptance Issues, 59 Fed. Reg. 27,007-27,008 (May 25, 1994). One year later, DOE asserted that it had neither statutory nor contractual obligations to accept the utilities' nuclear waste so long as the storage repository or a temporary storage facility were unavailable. *Maine Yankee*, 225 F.3d at 1338 (citing Final Interpretation of Nuclear Waste Acceptance Issues, 60 Fed. Reg. 21,793 (1995)).

When DOE announced in 1989 that it would not meet the 1998 deadline, then contended that it had no obligation to do so, utilities made plans to handle unexpected quantities of nuclear waste on their own. They did not terminate the Standard Contracts to which they were parties, nor could they have. The utilities' only avenue for relief was to sue the Government for partial breach of contract. The Court of Appeals for the Federal Circuit has noted that Congress "effectively made

entry into such [Standard Contracts] mandatory for the utilities[.]" *Maine Yankee*, 225 F.3d at 1337. Congress effectively made exit from such contracts impossible for the utilities.[6]

A. Palo Verde

Arizona Public Service Company signed the Department of Energy's Standard Contract on July 21, 1984, as operating agent for seven co-owners of the Palo Verde Nuclear Generating Station. The Standard Contract required performance beginning in 1998 for all utilities; DOE was to begin collecting plaintiff's nuclear waste in 2006, which is also the closing date of plaintiff's claim period for this partial breach lawsuit.

Palo Verde Nuclear Generating Station is the largest facility of its kind in the United States. It consists of three pressurized water reactors that began operations in 1986 and one in 1988. Each unit holds 241 assemblies, and has a spent fuel pool capable of holding 1329 assemblies. Two of the units are licensed by the Nuclear Regulatory Commission to operate through 2025. The third unit operates through 2027. Plaintiff has filed applications with the NRC to extend all three of its licenses.

DOE announced in 1994 that it would not begin collecting nuclear waste at Yucca Mountain before 2010 at the earliest. A few months later, plaintiff decided to build a dry storage facility large enough to contain all its spent nuclear fuel for the foreseeable future. Plaintiff installed the first twelve casks in 2003 and 2004 to maintain its full-core reserve in the spent fuel pools. Those casks were not related to the breach.

Arizona Public's contract with the Department of Energy established procedures that would have led to removal of spent nuclear fuel from PaloVerde for the first time in 2006. DOE intended to collect oldest fuel first on a country-wide basis, so plaintiff was well down the list of utilities to be serviced. Arizona's place at the end of DOE's priority queue meant that defendant would not reach PaloVerde for at least eight years after it began performance of the contract.

Plaintiff decided to build a twelve-pad ISFSI capable of storing all the fuel that it would produce through 2027 because it had no rational expectation of government performance before

[6] Congress prohibited the Nuclear Regulatory Commission from licensing utilities that do not participate in the Program. *See* 42 U.S.C. § 10222(b)(1)(A).

2020 at the earliest. It showed at trial that the decision was reasonable in the circumstances. DOE's actions during the 1990's caused plaintiff to believe that any announced delays would turn out to be conservative.[7] Defendant could not arrive at Palo Verde for at least eight to ten years after DOE began performance.[8] Plaintiff's licenses expire in 2025 and 2027.

B. Plaintiff's Efforts to Expand

The Nuclear Regulatory Commission licensed each of plaintiff's fuel pools for 665 storage spaces when PaloVerde began operations in 1986. NRC authorized plaintiff to use an additional 664 spaces in each pool provided that it installed poison inserts. Plaintiff could not justify the expense of a poison insert program then, but DOE's announcement that it would not collect the spent fuel in 1998 caused plaintiff to consider various options for increasing its on-site storage capacity.

Plaintiff's 1989 Spent Fuel Management Study set out the options available to it: (1) install poison inserts, (2) use burn-up credits, (3) implement a rod-consolidation project, and (4) construct an Independent Spent Fuel Storage Installation. The Nuclear Regulatory Commission permits various technical methods of expanding the space available for storage in a fuel pool. Burn-up credit involves reevaluating remaining energy content in storage pools and taking advantage of its diminished potency to move assemblies closer together. Re-racking allows the utility to place existing storage spaces closer together by reconfiguring the racks that hold fuel assemblies. Poison inserts are neutron-absorbing materials that allow the fuel to be stored more tightly; they increase the pools' capacity at substantially more expense of purchase and installation compared to the other methods described. Soluble boron, a chemical which allows fuel rods to be stored closer together

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[7] For example, DOE denied responsibility for its inability to perform. It announced successive delays and offered utilities no assurances of compliance or reasonable alternatives. The Government's cavalier attitude toward contract performance contributed to plaintiff's decision to construct an ISFSI capable of holding PaloVerde's entire production of nuclear waste through the end of its current license periods.

[8] *See Energy Northwest v. United States*, 91 Fed. Cl. 531 (2010), where the trial court discusses reasons to add years to the queue beyond that outlined in the 1987 Annual Priority Report issued by the Department of Energy. The court preferred DOE's 1995 priority listing because it applied experience rather than projections. That issue did not arise directly in this case, but we have not assumed that after numerous delays, plaintiff would have remained eight years down the list of DOE's priorities.

merely by its dissolution in the water, was not available until 1994, when it was approved by NRC for increasing storage capacity.

As a result of the Spent Fuel Management Study, plaintiff decided to implement burn-up credit by 1992, install poison inserts by 1998, and implement rod consolidation by 2002. It predicted that these adjustments would meet the utility's capacity requirements until 2010. Then, in 1991, the Department of Energy announced another delay.

The Standard Contract requires DOE to issue Annual Capacity Reports to show utilities when they could expect the Government to arrive and how much nuclear waste it would collect. The 1991 Annual Capacity Report established a priority schedule that obligated DOE to a much slower rate of contract performance than the 1987 ACR had contemplated. The new date for opening Yucca Mountain was 2010.

The new schedule for collecting SNF and the additional delay in opening Yucca Mountain caused plaintiff to make new evaluations of its capacity needs. It concluded in 1993 that DOE's repository was not likely to be in service before 2020, if then. This meant that DOE would not remove plaintiff's spent fuel until a date approaching the expiration of its licenses, given its place at the end of the priority queue. Plaintiff revisited its 1989 Spent Fuel Management Plan[9] in 1994 to consider a recently-approved storage option: soluble boron.

Soluble boron allowed plaintiff to increase its storage capacity without the major equipment and installation costs required by poison inserts. Plaintiff canceled its plans for implementing the more expensive poison insert program in November 1994. This was a key decision because it ended plaintiff's longtime consideration of poison inserts. Evidence of record from near the time of that decision did not connect it to defendant's breach of contract; plaintiff did not show at trial that defendant's breach was the but-for reason for its decision to cancel poison inserts.

In 1995, plaintiff had no better indication of when DOE would perform pursuant to the Standard Contract, so it considered a longer-term solution to the uncertainty: dry storage.

Plaintiff commissioned a Dry Storage Feasibility Study in 1995, that led to the conclusion that

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[9] Plaintiff's original 1989 Spent Fuel Management Study called for using its burn-up credits in each unit by September 1994, thereby increasing its storage capacity from 665 to 1054 assemblies per unit. This would allow Arizona to maintain full-core reserve until 2000.

a twelve-pad Independent Spent Fuel Storage Installation would provide extended storage options for the life of its current licenses. The study recommended implementing the soluble boron credit essentially to buy time. Plaintiff wanted sufficient time to build an expanded ISFSI, while maintaining its full-core reserve and insuring that its operations otherwise would remain secure.[10]

II. DISCUSSION

Plaintiff seeks mitigation damages caused by the Department of Energy's failure to collect its spent fuel through the applicable claim period ending in 2006. Plaintiff claims the following costs of mitigation:

$ 36,035,407 – costs of purchasing and loading thirty-five SNF casks

$ 9,870,279 – net costs of building a twelve-pad ISFSI

$ 1,286,814 – net costs of operating a twelve-pad ISFSI through 2006

Arizona's $36 million claim would reimburse it for the costs of purchasing and loading thirty-five of the forty-seven casks that it acquired through 2006. All numbers are net of the twelve casks that plaintiff has acknowledged having needed to maintain full-core reserve irrespective of the breach. For example, the cost differences between the "scaled-down" ISFSI that plaintiff intended in the but-for world as well as the real world, and the full-service ISFSI that became practical in the real world, accounts for the $9.87 million construction claim. The $1.28 million claim is for the difference between plaintiff's cost of operating the smaller ISFSI that it would have needed in a world of DOE performance, and the larger ISFSI that it created in the wake of defendant's breach. The total amount of plaintiff's claim is $47,192,500.

A non-breaching party must minimize damages once it knows of a breach. The Court of Appeals for the Federal Circuit has explained that a contractor may incur such costs in anticipation of a breach and after the breach, but only through the date it files suit. *See e.g.*, *Indiana Michigan*, 422 F.3d at 1376-77. In a partial breach case, plaintiff must return to court to collect additional

[10] The Nuclear Regulatory Commission's approval of Arizona's application for soluble boron credit in 2000 allowed plaintiff to reach its maximum-licensed spent fuel pool capacity of 1205 assemblies. With this configuration, plaintiff thought that it could store 964 assemblies in each pool through 2003 without losing full-core reserve.

damages as they occur. *Id.*

The Federal Circuit explained that the court calculates damages by first determining the appropriate contract schedule, then comparing plaintiff's costs of mitigation in the but-for world with its costs in the real world. The difference, minus adjustments if applicable, is the amount of plaintiff's allowable damages. *See e.g.*, *Yankee Atomic Elec. Co. v. United States*, 536 F.3d 1268, 1273 (Fed. Cir. 2008).

Plaintiff's burden at trial was to show that its damages (1) were reasonably foreseeable by the breaching party at the time of contracting, (2) would not have been incurred but for the breach, and (3) are shown with reasonable certainty. *See e.g.*, *Carolina Power & Light Co. v. United States*, 82 Fed. Cl. 23, 41 (2008); *Indiana Michigan*, 422 F.3d at 1373. Thereafter, defendant's burden was to show that plaintiff's efforts to mitigate its damages were unreasonable, or that it declined to conduct more reasonable mitigation efforts. *See e.g.*, *Indiana Michigan*, 422 F.3d at 1375; *System Fuels, Inc. v. United States*, 79 Fed. Cl. 37, 52 (2007); *Southern Nuclear Operating Co. v. United States*, 77 Fed. Cl. 396, 403-04 (2007).

Plaintiff showed that it purchased and loaded twenty casks at a cost of $20 million[11] because of the Department of Energy's breach of contract. It proved these costs of purchasing and moving the casks to dry storage with a reasonable degree of certainty. Defendant did not show that plaintiff's efforts to mitigate damages were unreasonable, or that it omitted mitigation efforts that would have been more effective or more successful.[12] Plaintiff's decision to mitigate damages by purchasing and loading the twenty casks to an expanded ISFSI was foreseeable by the parties at the time of contracting.

Plaintiff alleges overhead of $577,934 in connection with its efforts to mitigate damages, and

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[11] Twenty million dollars rather than thirty-five million because we disallowed the equivalent of fifteen casks that depended on plaintiff's proposed poison insert program, discussed below beginning at page 10.

[12] Plaintiff's mitigation efforts are not reimbursed based entirely on their relative success or effectiveness, however. *See e.g.*, Citizens Fed. Bank v. United States, 66 Fed. Cl. 179, 185 (2005), aff'd, 474 F.3d 1314 (Fed. Cir. 2007) ("Monday-morning quarterbacking is irrelevant to an award of mitigation costs").

$357,013 for its cost of funds used to purchase and load the casks and to build parts of the expanded ISFSI. These costs of funds and overhead are real, and we have no doubt that plaintiff spent the amounts claimed for the purposes stated. However, such costs must be established according to the standards and burdens described in this Opinion. Plaintiff did not show to a degree of reasonable certainty that those costs could be tied directly to its mitigation efforts.

III. PLAINTIFF'S CASE

Plaintiff gave the Government "extensive" information to support its money claims as a part of a damages audit, and defendant has not opposed the numbers' accuracy. According to Arizona, this means that the "reasonable certainty" prong of its damage claim is established – "the measure of damages sought was uncontested."[13] Defendant did not question Arizona's expenses of mitigation except in a general way. It did not dwell on the accuracy of plaintiff's numbers or the shape of its but-for world.

A. The Poison Insert Program

Poison inserts allow a utility to place spent fuel closer together in the storage pools, thereby creating more usable space in an area of the same size. Plaintiff's original licenses granted it authority for 664 additional spaces in the spent fuel pools, provided plaintiff installed poison inserts. Plaintiff could not justify the expense of poison inserts then, but it had achieved the licensed use of most of those additional spaces through other, less expensive means of expanding space in the pools. When it considered adding poison inserts in 1994, the spent fuel pools would have gained 124 usable spaces, compared to the 664 that inserts would have produced at the beginning.

Plaintiff alleges that it had planned to implement a poison insert program prior to 1994, then canceled its plans because of defendant's breach. Cancellation of the poison insert program

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[13] Plaintiff's Exhibit 133 contains a quote attributed to the Government: "[Defendant] do[es] not dispute that the charges included in the claim have been properly recorded and/or accounted for within [plaintiff's] general ledger systems." Px133. We have no concern for the validity of plaintiff's numbers either, other than a lack of precision. Plaintiff did not provide invoices, but defendant did not express concern. We treated the numbers as stipulated.

caused plaintiff added costs of mitigation because poison inserts would have permitted plaintiff to store the equivalent of fifteen casks of nuclear waste in the storage pools. Instead, it had to move that amount of nuclear waste to the ISFSI at a cost of $15 million. Plaintiff was unable to establish that defendant's breach was the but-for reason that it canceled the poison insert program, however. Evidence shows that plaintiff canceled the poison insert program because of the availability of soluble boron to accomplish much the same task at a lower cost.

The claim for the poison insert program is the largest single element of plaintiff's damages case – $15 million. It commanded the greatest amount of time and attention before, during, and after trial. Plaintiff alleges that it had to build space in its ISFSI for fifteen casks that would have remained in its storage pools had defendant not breached the Standard Contract. Put the other way, given government compliance with the Standard Contract, a poison insert program would have saved plaintiff the equivalent of fifteen casks that it had to place in its ISFSI.[14]

Defendant did not challenge the feasibility of plaintiff's proposed poison insert program, but emphasized the fact that plaintiff did not employ such a program in the real world. Defendant reasoned that DOE's breach could not have been the causal factor in plaintiff's decision to forego the poison insert project in the but-for world because it made the same decision in the real world. In the but-for world, however, defendant would have performed its duty to collect spent fuel from plaintiff's facility. Given government compliance, plaintiff would not have needed a large ISFSI. Given DOE's regular collection of plaintiff's SNF, it could have maintained a maximum twelve-cask ISFSI indefinitely. In the real world, plaintiff had to use the ISFSI for all its storage needs.

Plaintiff proposed the poison insert program in the theoretical but-for world, but canceled it in the real world of government breach. Therefore, its burden at trial took on an added complication – explaining why it intended to invest in poison inserts in 1994, then decided to 'forego' that decision. Defendant seemed to suspect that plaintiff wanted the benefits of having intended to implement a poison insert program for damage purposes, yet without the expenses of

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[14] Each cask of the type used by Arizona stores twenty-four assemblies of fuel. Pools accompanying the three reactors in plaintiff's units hold 241 assemblies each. Plaintiff contends that it would have been able to keep 360 fuel assemblies in its pools with poison inserts, in the non-breach world.

such a program in the real world.

Plaintiff's witnesses testified that Arizona abandoned the poison insert program in 1994 because of the breach, and moved fifteen casks that would have been stored in pools inside in the but-for world, to a dry-storage ISFSI in the real world. Thus, plaintiff's claimed damages related to the poison insert program are measured by the fifteen casks that such a program would have allowed plaintiff to store inside in pools. The cost of purchasing fifteen casks to hold that waste was $15 million, according to both parties.

Plaintiff's evidence of a relationship between its decision to cancel the poison insert program and defendant's breach of contract was mostly retrospective. Witnesses' descriptions of events occurring around the time of plaintiff's decision benefitted from the vantage and the perspective of hindsight.[15] Available evidence dated near the time of plaintiff's decision did not show that it decided to cancel the poison insert program as a direct result of defendant's breach.

Evidence from the time the decision to cancel poison inserts was made included Px-34, an internal document captioned Dry Fuel Storage Preliminary Study. That Study noted that a poison insert program would allow the spent fuel pools to be fully utilized and "gain 2 to 3 years." A handwritten addendum dated June 27, 1995, stated, "I do not see this as option since we convinced the owners to cancel the 5 million [authorization] written for the purchase of poison inserts . . . . The most economical approach is to pursue soluble boron credit for . . . ." [*Sic*]. Plaintiff points out that the Preliminary Study's recommendation that prompted the handwritten addendum was part of a draft study and not the final document, which we acknowledge. However, plaintiff did not offer evidence clarifying or suggesting an alternative to the addendum's apparent meaning. The author of the addendum is not identified, but referred to by the Government as "a reviewer."

Another plaintiff's exhibit explains Arizona's original justification for the poison insert

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[15] Mr. Crawley testified for plaintiff that Arizona cancelled the poison insert program because the schedule for Yucca Mountain was "sliding even further" in 1994, causing plaintiff to begin looking at 2020 as the earliest date that DOE would begin collecting fuel from Arizona Public Service. According to Mr. Crawley, plaintiff's management was "losing confidence" that DOE would pick up any fuel before Arizona's operating licenses expired.

program, along with its reasons for canceling the program in 1995. Px 30 states:

> Cancellation approval for poison insert program. Original Justification: Expand spent fuel pool . . . storage capacity due to current requirements causing us to run out of space to store spent fuel. . . . [I]t was not expected that DOE would start accepting spent nuclear fuel from [plaintiff] until 2010 . . . .
>
> Reason for Cancellation: NRC Approved . . . changes will allow us to take credit for fuel burn-up, soluble boron and pool regioning in order to store spent fuel as desired in a high density configuration.
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> Justification for Expensing $ Spent: Approved [poison insert program] for the original scope was for $5,111,000 (total project). The redesign under O&M has an estimated cost for completion of $167,000.

PX-30, November 3, 1994.

Record evidence did not show that management's decision to cancel the poison insert program was related to defendant's breach of the Standard Contract. The immediate reason for plaintiff's decision was the opportunity to take advantage of soluble boron, which was a cheaper alternative to poison inserts.

B. Plaintiff's Expanded ISFSI

Plaintiff may obtain reimbursement for costs of mitigation if the steps it takes are reasonable in the circumstances and they meet the causation and foreseeability requirements of breach damages. *See e.g.*, *Carolina Power & Light*, 82 Fed. Cl. at 44. Arizona built a facility capable of storing all the nuclear waste produced during the remaining license life of its reactors. It based this decision on the assumption that defendant would not begin performing under the contract much earlier than 2020, if at all. Plaintiff believed that the likelihood of additional DOE delays over time would cause a continuing problem with insufficient storage; it would need a dry-storage facility large enough to handle the spent fuel generated during the remainder of plaintiff's licenses. The cost of constructing such an ISFSI compared to the cost of constructing a twelve-cask ISFSI is $9.8 million.

This court ordered reimbursement of a utility's cost of building an ISFSI in a situation similar to ours. *See Dominion Resources, Inc. v. United States*, 84 Fed. Cl. 259 (2008). The utility built an ISFSI to store large amounts of spent nuclear fuel for an uncertain and unknowable length of time. *Id.* The *Dominion* court allowed damages for the cost of creating a long-term storage facility because

the breach created indefinite uncertainty. *Id.* Damages sufficient to cover most of the cost of Arizona's ISFSI are also reasonable. The Government had neither performed nor made an offer of performance by the end of plaintiff's claim period.

This court has addressed the question of how early a non-breaching party could act to mitigate its damages from an anticipated breach. *See Energy Northwest,* 91 Fed. Cl. at 544-46. Addressing facts similar to ours, the court held that the utility's causation argument was valid as early as 1987 for mitigation purposes because plaintiff had a good indication then that DOE would not begin collecting its nuclear waste before 2010. *Id.* The court credited expert testimony that acceptance of nuclear fuel would not occur until the eighth year after DOE began complying with the Standard Contract. *See id.*

Neither Dominion Resources nor Energy Northwest would have built dry storage facilities had it not been for DOE's breach; each would have had sufficient space in its storage pools had defendant collected its nuclear waste on schedule. Arizona is different from those utilities in that it would have built a small, "scaled down" ISFSI to preserve its full-core reserve irrespective of the breach. The issue in this case is how much larger did plaintiff construct its ISFSI and how many more casks did it move to the ISFSI, because of defendant's breach.

Plaintiff has shown that defendant's breach caused it to decide to build a twelve-pad ISFSI. Trial of this case showed that plaintiff's decision to build an ISFSI sufficient for its needs through 2027 was a reasonable one in the circumstances, for the reasons discussed in this Opinion. Plaintiff's assumptions regarding the timing of defendant's ultimate contract compliance was an important consideration among those reasons.

Foreseeability has not been a controversial prong of the utilities' burden of proof in these cases; for the most part, defendant has not challenged plaintiffs' assertions of foreseeability at the time of contracting. The Government did not question foreseeability here either, as building a dry storage facility is an obvious means of dealing with the dangerous dilemma that DOE's breach has presented.

C. Plaintiff's Overhead

Plaintiff's costs of overhead are allocated from a pool to various projects throughout the facility. This category includes payroll taxes, employee benefit costs, and worker's compensation,

in addition to administrative and general overhead. Plaintiff seeks overhead reimbursement of $577,934 from the breach. It contends that these costs, along with overhead for construction and contract services, are "true" costs incurred as a result of the breach.

The Government rejects these claims because plaintiff's overhead as presented is a list of fixed costs in each category. Plaintiff did not show that the amounts changed because of the breach. Defendant believes that money spent for overhead was not a loss to plaintiff if such costs did not vary with the breach.[16] Mr. Johnson testified for the Government that fixed overheads are not proper measures of economic damages, but only costs that change as a result of breach-related activity. "One needs to be able to say more than just it was allocated to the breach activity," he added. "One needs to be able to understand whether . . . it was caused by the breach activity [and] whether it would have been different, but for the breach activity . . . ." Mr. Johnson explained that such variability "goes to the heart of whether something's incremental or not." He calculated that $461,463 allocated to Administrative & General overhead and $116,471 allocated to Capital Programs did not vary with the breach.

Defendant also asserted that plaintiff must show how its claimed costs of overhead related directly to DOE's breach. Plaintiff is not required to show that its overhead costs varied as a function of the breach. *See Dominion Resources,* 84 Fed. Cl. at 281 (rejecting the Government's argument that Dominion's overhead had to be "incremental to the breach"). However, it must provide evidence of a relationship between its overhead and its efforts to mitigate damages caused by the breach. Plaintiff listed its overhead in two categories as Capital Programs and Administrative & General, but it did not prove these costs to a reasonable certainty.

Plaintiff points to cases holding that an overhead claim need not rise and fall in response to mitigation projects. *See e.g.*, *Carolina Power & Light,* 82 Fed. Cl. at 48. Instead, the issue is whether plaintiff could show how much of its overhead was allocated to mitigation activities. According to the *Dominion* court, "overhead costs are recoverable as long as a utility can demonstrate that 'overhead costs were incurred and are properly attributable to mitigation projects and activities.'"

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[16] Fixed costs do not change with a corresponding change in the volume of an activity, while variable costs do. For example, the salary of a clerical assistant normally is a fixed cost, because salaries do not change according to increased or decreased activities in the plant.

Dominion Resources, 84 Fed. Cl at 281 (citing *Carolina Power & Light*, 82 Fed. Cl. at 48). We agree with plaintiff's characterization of the law as provided by *Dominion*. However, plaintiff did not provide sufficient details for the court to make the necessary findings; it did not make a sufficient showing of the relationship between its claimed costs and mitigation activities.

Plaintiff Arizona was not required to show an increase in its overhead pool in relation to mitigation activity. It had to show only how such costs relate to mitigation activity, to a reasonable certainty. Plaintiff provided over two-thousand pages of accounting ledgers showing a total of $577,934 for overhead. However, it did not show how it arrived at the totals, or provide a means of verifying that costs listed were related to mitigation efforts that qualified them for reimbursement in a partial breach case. The *System Fuels* court had a similar problem in stating that, "some of the charges . . . appear to [qualify] . . . but the court has no way of differentiating among the various charges . . . ." *System Fuels*, 79 Fed. Cl. at 66. In the case of Arizona's claim for overhead as a part of its costs of mitigation, defendant met the burden of proof transferred to it by plaintiff's initial showing; it established that plaintiff's costs of overhead were unreasonable because available evidence did not show their relationship to the breach to a reasonable certainty. Plaintiff did not provide a correlation between its total cost of overhead and its overhead related to mitigation projects. We do not have a basis to conclude that plaintiff has met its burden of proving the costs of overhead for mitigation projects to a degree of reasonable certainty.

D. Plaintiff's Cost of Capital

Allowance for Funds Used During Construction, or AFUDC, is an accounting method promulgated by the Federal Energy Regulatory Commission for use by public utilities in accounting for costs related to funding construction projects. *See* 18 C.F.R. pt. 101. Plaintiff seeks $357,013 for its costs of capital related to construction of the ISFSI.

Defendant contends that AFUDC is tantamount to prejudgment interest, which may not be charged to the Government absent an authorizing statute. *See* 28 U.S.C. § 2516 (a) ("Interest on a claim against the United States shall be allowed in a judgment of the United States Court of Federal Claims only under a contract or Act of Congress expressly providing for payment thereof."); *see also Library of Congress v. Shaw*, 478 U.S. 310, 317 (1986). Neither the Nuclear Waste Policy Act nor the Standard Contract expressly provides for such interest.

Plaintiff asserts that while interest on a claim is not recoverable, interest *as* a claim should be. *See e.g.*, *Wickham Contracting Co. v. Fischer*, 12 F.3d 1574, 1582 (Fed. Cir. 1994) (plaintiff "may recover interest actually paid on funds borrowed because of the government's delay in payments and used on the delayed contract"). We agree. Several SNF plaintiffs have attempted to make this distinction without success, however, because the courts held that unspecified evidence of debt is insufficient to make interest recoverable. *See e.g.*, *Carolina Power & Light*, 82 Fed. Cl. at 54 (denying recovery of interest because plaintiff did not show that borrowed funds were used for specific projects); *System Fuels,* 79 Fed. Cl. at 70 (holding plaintiff could not recover where it provided no evidence that borrowed money was used specifically for dry storage project); *Northern States,* 78 Fed. Cl. at 471 (disallowing recovery of AFUDC because plaintiff had not "demonstrated, apart from the existence of debt to augment its capital structure, any borrowing specifically undertaken to address the capital required to fund its mitigation efforts").

A case recently issued by this court affirms the rule stated in those cases, despite its having allowed recovery of AFUDC. *See Energy Northwest*, 91 Fed. Cl. at 559. The court ruled that plaintiff's AFUDC costs were recoverable where such costs were "directly traceable" to the Government's breach. *Id.* While a contractor cannot normally recover for "costs incurred to carry on [its] contract," it may be awarded AFUDC in proper circumstances. *Id.* Such an award is not one of interest, but a direct consequence of the breach. *Id.* at 86. Proper circumstances for award in that case was debt that is "directly traceable [and] clearly in connection with" the Government's breach. *Id.*

Arizona's claim for AFUDC would have been acceptable here if plaintiff could have shown that it borrowed money as a direct result of DOE's breach. Plaintiff's Financial Service Group Leader testified that Arizona did not incur debt specific to the ISFSI project, however. Ms. Blankenship stated during trial that "it wouldn't be practical for a company the size of plaintiff to take out specific debt for specific projects, such as the ISFSI."[17]

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[17] Plaintiff's AFUDC claim included its loss of a return that it could have earned on the money that it generated internally on mitigation. It was clear from Ms. Blankenship's testimony, however, that the equity component of plaintiff's claim could not be traced directly to the Government's breach. Defendant's damages expert testified that return on equity is profit, not a

Plaintiff showed the amount of its debt in a general way, and as in the case of its overhead costs, the total is certain to include its cost of funds to finance mitigation efforts. However, it did not connect the debt directly to such mitigation activities as required by the standards applicable to a partial breach case. Plaintiff did not prove its costs of funds to a reasonable certainty.

IV. DEFENDANT'S CASE

The Government has not disputed the accuracy of numbers that Arizona offered as its expenses of mitigation. Plaintiff made an "extensive" disclosure of charges to defendant as support for its claims as part of a damages audit. Defendant acknowledged that it "do[es] not dispute that the charges included in the claim have been properly recorded and/or accounted for within [plaintiff's] general ledger systems."[18] *See* Px133. The bulk of plaintiff's damages result from its construction costs related to the larger ISFSI and its costs of purchasing and loading casks of SNF.

The Government disputed plaintiff's poison insert program, the number of casks that plaintiff would have moved in the but-for world, and the consistency of plaintiff's management philosophy. Defendant's other concerns were the effect of the Standard Contract's Greater than Class C Acceptance requirement, its view that DOE's 1987 Annual Capacity Report is inaccurate, and its right to an offset for loading costs that plaintiff is obligated to pay but has not incurred because of the breach. Defendant also argued that contingencies such as natural and non-natural disasters would have caused plaintiff's prudent management team to seek wider margins of safety in the non-breach world. For example, its inclination to exceed full-core reserve to account for such contingencies would have brought the breach and but-for worlds closer together in total casks deployed.

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cost.

[18] "[Arizona] provided voluminous documentation in support of its claimed costs that was thoroughly reviewed and audited by the Government and its consultants over a two-year period. That documentation, among other things, included tens of thousands of pages of contemporaneous accounting cost reports, purchase orders, contracts, invoices, and proof of payment." We recognize that such assertions are not stipulations. Yet the Government had an obligation to challenge numbers that plaintiff has presented to the court as being acceptable to the parties. Plaintiff seems to express surprise in its post-trial brief that defendant has offered no such limitations.

A. Defendant's Burdens of Proof

Once the court makes findings of causation, foreseeability, and reasonable certainty with respect to plaintiff's decisions resulting from the breach, the burden shifts to defendant. Defendant did not show that plaintiff's decision to build a twelve-pad ISFSI was unreasonable, or that plaintiff's expenses or methods of mitigation were not foreseeable when the parties entered the contract. It did not diminish plaintiff's showing that the Government's breach was the but-for reason for its decision to build a twelve-pad ISFSI. Instead, the Government attempted to reduce plaintiff's damages by narrowing the difference between the number of casks in the real world and in the but-for world. For example, it argued that plaintiff would have moved more than twelve casks in the but-for world, which would have created a need for more than the half-pad that plaintiff has submitted as part of its but-for model. The Government's interest is in showing that plaintiff would have needed a larger number of casks, perhaps requiring an entire twenty-eight cask-pad that may have also required an earthern berm and more guards and security towers.

Defendant criticizes plaintiff's lack of a formula showing how many guards and towers would have been necessary to protect the scaled-down ISFSI, and whether earthen berms would be needed according to a given number of casks or pads. It appears to seek a formula that one could apply to a given number of casks or a given-sized ISFSI, to obtain an exact number of guards, towers, and berms. Plaintiff contends that its twelve casks would have fit comfortably in a scaled-down ISFSI that required fewer guards and perhaps no earthen berm at all. That a formula such as defendant seeks does not exist or was not presented at trial did not detract from plaintiff's case.[19]

Defendant criticized plaintiff's real-world planning for being different from its but-for world, as though planning in both worlds should be consistent in all respects. We knew of no reason to expect such planning to correlate, given 100% government compliance with its contractual duties in one world and 100% government non-compliance in the other. The facts of this case call for markedly different real and but-for worlds, depending on whether DOE performed according to contract requirements.

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[19] Defendant seems to find that such a lack is fatal to plaintiff's claim. Far beyond being an inconvenience or a need for further briefing, defendant sees this as a factor that prohibits the court from awarding damages – a failure of proof.

Plaintiff presented a reasonable but-for world that included the construction of a scaled-down ISFSI and the transfer of twelve casks of SNF from its storage pools to the ISFSI to preserve full-core reserve. The portrayal of plaintiff's activities as it would have pursued them given full DOE performance was reasonable, responsible, and valid. We credited plaintiff with reimbursement for the cost of moving twenty casks to its ISFSI because of DOE's breach.[20]

B. Greater Than Class C Waste

Defendant argues that its obligation to collect Greater than Class C Waste would have delayed its performance of the Standard Contract in the but-for world. This would have pushed plaintiff farther down the queue and resulted in additional delays in the but-for world, according to the Government. Defendant's argument apparently is that plaintiff might have allowed greater margins for error as a result, thereby bringing the cask totals in the but-for and the real worlds closer together.

Various exigencies might have caused defendant to delay performance of the Standard Contract for this utility and for the other Standard Contract signatories. That likelihood is one of the bases for our comfort with plaintiff's estimate of its place in the queue, leading to no government compliance with plaintiff's contract during its current license periods. However, the Standard Contract requires DOE to collect GTCC along with spent nuclear fuel; defendant's argument requires the court to assume that DOE will offer less than full, good-faith compliance with the Contract.

The Government also seems to suggest that assuming smooth performance of a complex and technically difficult contract is unrealistic. If so, basing damages on factors such as where defendant would have fallen short, then reducing damages accordingly, calls for techniques of guesswork that are beyond the authority of trial courts in their fact-finding responsibilities. Plaintiff observed in response that any difficulties or hardships experienced by the Government in meeting the Contract's terms are irrelevant to its claim, and we agree. *See e.g.*, *Yankee Atomic,* 536 F.3d at 1273 (Fed. Cir. 2008) (noting that the but-for world must be based on "full government performance" of the Standard Contract).

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[20] Twenty casks as a measure of damages results from starting with the forty-seven that plaintiff placed in the ISFSI during the claim period, subtracting twelve casks that plaintiff placed in both worlds – thirty-five – and disregarding fifteen casks that plaintiff would show occurring only in the but-for world: twenty casks.

C. 1987 Annual Capacity Report

Plaintiff's but-for world scenario is premised on the 1987 ACR Rate. The Court of Appeals for the Federal Circuit has ruled that utilities – and trial courts – must use the 1987 ACR rate to determine the rate at which the Department of Energy was responsible for collecting SNF pursuant to the Standard Contract. *See Pacific Gas & Elec. Co. v. United States*, 536 F.3d 1282, 1292 (Fed. Cir. 2008) (noting that the 1987 ACR is less likely to be "tainted" by pending breach litigation). The Government believes that the 1991 ACR is the more accurate. We presume defendant's argument is an effort to preserve its rights on appeal.

D. The Poison Insert Program

Defendant contends that DOE's breach was not the causal factor in plaintiff's decision to forego the poison insert project in the but-for world because it made the same decision in the real world. We reached the same conclusion for different reasons, as explained beginning at page 10. Plaintiff considered poison inserts seriously from time to time, practically from the beginning of its existence as a utility. However, it did not show that defendant's breach of contract was the but-for reason that it considered implementing a poison insert program the final time, in 1994.

E. Contingencies

Defendant urges the court to consider contingencies that could have delayed DOE's performance in the but-for world. Natural or unnatural disasters could have caused substantial delays in performance, for example, even if the Government were doing its best to comply with the Standard Contract. Defendant's contingency argument is similar to its GTCC delay claims in that it requires the court to speculate upon plaintiff's response to events that are speculative themselves.

The Government's point is that plaintiff as a prudent utility should not have expected DOE to comply in every respect with the Standard Contract because of complications that might have caused delays. Therefore, plaintiff would have accounted for the likelihood of such delays by increasing its margins of safety by maintaining reserves greater than full core. Thus, the Government does not argue that it would have failed to perform according to contract requirements in the but-for world, but that plaintiff as a prudent utility operator would have provided for such delays

nonetheless.[21]

This case demands fact-finding that is unusually speculative without the added imponderables that defendant would place upon the court. The need to compare real and but-for worlds requires such speculation. Defendant's suggestion that we attempt to consider effects that natural disasters, acts of terrorism, or the parties' excessive prudence might have had in the no-breach world create unnecessary confusion and uncertainty. Defendant's contingency argument, like its GTCC claim, would allow the Government to insulate itself from the burdens and liabilities assigned to the breaching party by law, and to transfer responsibilities for uncertainty and imprecision to the non-breaching party. *See e.g.*, *Energy Capital Corp. v. United States*, 302 F.3d 1314, 1327 (Fed. Cir. 2002) (inability to make precise determinations of liability or damages because of the breach is the responsibility of the breaching party).

F. Defendant's Offset Argument

The Standard Contract reads, "[t]he Purchaser shall arrange for, and provide, all preparation, packaging, required inspections, and loading activities necessary for the transportation of SNF and/or HLW to the DOE facility." (Art IV (A) (2) (a)). Plaintiff's but-for world scenario shows that it would have loaded seventy-three assemblies in four casks for pickup by DOE during the claim period.

The Government contends that it is entitled to an offset for loading costs, fuel inspection, and other expenses that plaintiff has avoided because of DOE's breach. Defendant's expert adjusted plaintiff's claim by $556,425 for fuel assembly selection costs and $823,548 for moving three casks at $274,516 per cask. This may sound like a logically unsupportable presumption on the part of a breaching party, but such offsets apply in appropriate circumstances. This is not such a circumstance, however.

The appeals court has denied defendant's offset claims in similar cases because the utility has not avoided such costs, but only delayed them. *See e.g.*, *Yankee Atomic*, 536 F.3d at 1281 (stating, "[i]n this partial breach case where the performance obligations survive, the non-breaching party is not at this time responsible for obligations that must be performed later, when they mature"). Giving

[21] Defendant has emphasized throughout these proceedings that it has no quarrel with plaintiff's operations, and has taken pains to highlight its dedication to safety in and around the plant.

DOE credit for plaintiff's "savings" occasioned by its own breach would result in a double recovery for the Government. *Id*.

G. Other Arguments

Defendant argued on occasion that plaintiff's real-world actions were dependent on its representations in the but-for world. It argued for example that plaintiff could not be awarded damages based on the canceled poison insert program in the but-for world because it did not propose such a program in the real world. The Government also questioned some of Arizona's decisions in 2006 as being in conflict with its "management philosophy." Arizona has been a signatory to the Standard Contract for its entire history. Many of its corporate decisions have been made in light of that Contract's requirements. Plaintiff's management team has operated in the shadow of DOE's breach of the Standard Contract. The company has no history of decision-making that is entirely unaffected by the Government's impending breach. Arizona's history is one of compliance with the Standard Contract and preparations for defendant's inability to abide by its terms. Its philosophy has been geared to a practical goal: expanding storage capacity to accommodate substantial amounts of nuclear material caused by defendant's breach.

Defendant offered an expert witness who criticized plaintiff's intention to preserve full-core reserve with additional margins in the real world, totaling seventeen casks according to the witness. We had no reason to expect plaintiff's planning in both worlds to correlate, however, given 100% government compliance with its contractual duties in one world and 100% government non-compliance in the other. The facts of this case result in real and but-for worlds that are markedly different, depending on whether DOE performed according to contract requirements.

Plaintiff decided in 1995 to rely entirely on dry storage for the remainder of its licensed periods of performance. In that circumstance, it saw no reason to make special efforts to keep storage inside at a minimum or to maintain maximum space available in the pools for emergencies. All spent fuel would be moved outside in any event, once the twelve-pad ISFSI became a reality.

Differences between the real world and a world of DOE performance led to different cask-storage scenarios that do not appear to be inconsistent when viewed in the proper light. For example, plaintiff would have purchased and loaded only enough canisters to meet its immediate storage needs in a world of DOE performance, where defendant would periodically collect its SNF and store it

permanently in Yucca Mountain. In the real world, plaintiff moved extra casks when the occasion to move any casks arose, because all SNF would be loaded to the ISFSI anyway.

Mr. Graham described the real world this way: "[W]ith DOE performance starting in 2006 and continuing through the model, the goal of maintaining full-core reserve is met." Maintaining levels above full-core reserve in a world of DOE performance would have been unnecessary; such levels in the real world merely reflect reality – that extra margins resulting from use of the ISFSI, where all SNF is collected eventually, are not only prudent, but also they save plaintiff and defendant costs in the long run.

CONCLUSION

The most important issues in this case were plaintiff's decision to build a comprehensive, twelve-pad ISFSI during the first claim period ending in 2006; and plaintiff's claim that it canceled a poison insert program because of defendant's breach of contract. If DOE had performed according to the Standard Contract, plaintiff would have loaded twelve casks on a one-half pad ISFSI to insure full-core reserve in its pools. It would not have needed a twelve-pad ISFSI, a twenty-cask ISFSI, or a thirty-five-cask ISFSI. DOE's delays in meeting its obligations under the Standard Contract are the sole cause of the problems discussed in this Opinion.

Plaintiff has compelling reasons in the real world to assume that defendant will not perform in time to reach Palo Verde before its licenses expire. The parties make assumptions and inferences in such circumstances because they cannot know what will happen in the real world, just as the court cannot know what would have happened in the but-for world. Testimony and other evidence taken at trial support the assumptions that led to plaintiff's building a twelve-pad ISFSI.

Building a twelve-pad ISFSI in one process was a safer and more reasonable option than updating and upgrading an existing facility. The parties did not offer much testimony on the issue, but it seems likely that such an approach will save the Government substantial mobilization costs and create other economies of scale. Defendant contended briefly that plaintiff is claiming future costs or damages in a partial breach case. Plaintiff's ISFSI construction costs are not in the future, however. It incurred all costs of building the twelve-pad ISFSI during the first claim period ending in 2006. Defendant implied vaguely that plaintiff had improper reasons for building the larger ISFSI,

but it did not offer substantial support for such implications; none was apparent to the court during trial.

Defendant argued that it was illogical for plaintiff to propose a poison insert program in the but-for world while not pursuing it in the real world, if it would construct an ISFSI in both worlds. However, we understood plaintiff's actions in light of the Government's assumed performance in one world and its utter failure to perform in the other. The reason for rejecting plaintiff's poison insert claim was its inability to show that defendant's breach was the but-for reason for canceling the program.

Plaintiff had shown a pattern of considering poison insert programs, then reconsidering them in favor of less expensive alternatives. Its policy appeared to be one of buying time for the likelihood that another means of expanding its pools would become available. If so, the policy worked in dramatic fashion – poison inserts would have expanded the pools by more than 600 spaces if implemented at the initial licensing, yet only 124 spaces remained for expansion the last time poison inserts were considered, in 1994. The availability of soluble boron coincided with plaintiff's 1994 expansion requirements.

Plaintiff's pattern of reconsidering poison inserts in favor of cheaper alternatives as they became available made cancellation of the poison insert program all but predictable when soluble boron came along in 1994. We rejected plaintiff's claim that the breach was the but-for cause of its decision to cancel poison inserts because plaintiff's pattern and documentary evidence did not support it.

The Clerk of Court will enter judgment for plaintiff Arizona Public Service in the amount of $30,222,146. Costs to plaintiff.

s/ Robert H. Hodges, Jr.
Robert H. Hodges, Jr.
Judge