In the United States Court of Federal Claims

No. 04-1366C

(Filed Under Seal: January 20, 2011)

Reissued: February 14, 2011[1]

SPECTRUM SCIENCES AND SOFTWARE, INCORPORATED, Plaintiff, v. THE UNITED STATES, Defendant.	* Government contract; Trial; Breach of Cooperative Research and Development Agreement (CRADA); Damages; Foreseeability; Causation; Reasonable certainty; Consequential damages; Loss of income-producing asset – distinguished from lost profits; *First Federal Lincoln Bank*; Determination of value of Spectrum's proprietary information lost as the result of breach; Consideration of procurement contract in setting value; Number of units sold; Sales price; Delivery schedule; Profit margin; Discount factor; Value of lost asset determined; Damages awarded.

OPINION

Craig A. Holman, Arnold & Porter, LLP, Washington, D.C., for plaintiff.

Lauren S. Moore, Civil Division, United States Department of Justice, Washington, D.C., with whom was Assistant Attorney General *Tony West*, for respondent.

ALLEGRA, Judge:

This government contract case is before the court following a trial in Washington, D.C. Spectrum Sciences and Software, Inc. (Spectrum), a munitions assembly systems manufacturer, entered into a Cooperative Research and Development Agreement (CRADA) with the United

[1] An unredacted version of this opinion was issued under seal on January 20, 2011. The parties were given an opportunity to propose redactions, but no such proposals were made. Nevertheless, the court has corrected minor typographical and drafting errors in the original opinion.

States. That agreement was designed to facilitate the sharing of information between the parties concerning improvements to a conveyor system used by the United States Air Force (the Air Force) to assemble aerial bombs. Previously, this court held that the Air Force repeatedly breached the CRADA by releasing plaintiff's proprietary information to unauthorized recipients, including its competitors. *Spectrum Sciences & Software, Inc. v. United States*, 84 Fed. Cl. 716 (2008). The court now determines the amount of damages owed by defendant to plaintiff.

I.

Based upon the record, including the parties' stipulation of facts, the court finds as follows:[2]

In the early 1970s, the Air Force developed what eventually became known as the munitions assembly conveyor (MAC), a bomb assembly line that could produce one 500-pound bomb per minute. The Air Force's increased reliance on guided "smart" bombs in the 1990s strained the MAC operating system because the assembled bombs weigh at least 2,800 pounds each. As the MAC had a 4,000-pound capacity, it sometimes could assemble only a single bomb at a time, significantly slowing production. For reasons unexplained, the Air Force did not immediately solve this problem.

Seeing an opportunity, in early 2000, Spectrum undertook a significant, self-funded effort to upgrade the MAC, hoping to become the principal supplier of a new version of the system. Spectrum made considerable progress, but needed the cooperation of the Air Force Materiel Command to refine and test the improvements it was developing. In the Spring of 2000, it began to negotiate a CRADA with the Munitions Materiel Handling Equipment (MMHE) Focal Point of the Air Armament Center, at Eglin Air Force Base (Eglin), Florida. These negotiations led to the CRADA in question, which the parties signed in October 2000.

In negotiating the CRADA, Spectrum stressed the need for the agreement to protect the designs and technologies it had developed and to ensure the proper use of its proprietary information. This concern was manifested in various provisions in the CRADA. Principal among these was Article 7.1, which stated that proprietary information "shall not be disclosed by the receiving party except under a written agreement of confidentiality to employees and contractors of the receiving party who have a need for the information in connection with their duties under this agreement." In addition, Article 7.3 of the CRADA stated –

> The parties agree to confer and consult with each other prior to publication or other public disclosure of the results of work UNDER this AGREEMENT to ensure that no PROPRIETARY INFORMATION or military critical technology or other controlled information is released. Prior to submitting a manuscript for publication or before any other public disclosure, each party will offer the other

[2] For a more extensive discussion of the facts underlying the breach of the CRADA, *see Spectrum*, 84 Fed. Cl. at 717-32.

> party ample opportunity to review such proposed publication or disclosure, to submit objections, and to file applications for letters patent in a timely manner.

An appendix to the CRADA included provisions that identified particular modifications to the MAC that had been developed by Spectrum and reassured Spectrum that its proprietary rights in these modifications would receive protection under the CRADA.

Performance under the CRADA began no later than the Spring of 2001. Once performance started, Spectrum shared its proprietary information with the Air Force, both that developed prior to the CRADA, as well as that refined during the course of performance. Air Force officials had access to numerous design drawings, all but a few of which were marked with legends plainly identifying them as Spectrum's proprietary information. These same officials also were given prototypes illustrating critical advances, all of which bore a stencil in bright orange paint identifying them as "Spectrum-created test items" (or the equivalent). Air Force officials were present when the prototypes were tested at Spectrum's laboratory and at the Air Force Combat Ammunition Center located at Beale Air Force Base. Spectrum documented its progress in detailed quarterly reports to the head of the MMHE. Spectrum's final report, dated August 15, 2002, summarized its progress over the entire project, including the results of its extensive testing of the gantry, and stated its desire to provide the Air Force with four redesigned MACs per month.

But, the Air Force had different ideas. Sometime in the latter part of 2002, it decided to compete a procurement to build a MAC successor, the MAC II. The Air Force team for the MAC II procurement was staffed with several individuals deeply involved with the CRADA, including the CRADA project manager and the head of the MMHE. These individuals were relied upon even though comparably-skilled Air Force personnel who had not worked on the CRADA were available. During the MAC II procurement process, several Air Force employees requested and received information from Spectrum, but did not disclose the existence of the MAC II procurement. In an e-mail, one official asked Spectrum for comments on a statement of objectives that was later incorporated into the MAC II procurement. Another Air Force official requested a series of pictures from Spectrum for an Air Force briefing without revealing that the briefing was about the MAC II procurement.

On February 19, 2003, Spectrum submitted an unsolicited proposal to the Air Force. The cover page of this document warned, *inter alia*, that "[t]he data in this proposal will not be disclosed outside the Government and will not be duplicated, used, or disclosed in whole or in part for any purpose other than to evaluate the proposal." In the proposal, Spectrum offered to build a new version of the MAC, incorporating know-how developed under the CRADA. It catalogued the deficiencies in the current MAC and provided design details, including diagrams and test results, for new components to remedy these issues. The proposal noted that a prototype incorporating the revised design requirements had been built and tested under the CRADA. Although an Air Force official directed the MAC II contracting officer not to open the proposal, it was opened and circulated among various Air Force officials, including members of the MAC II procurement team. On March 25, 2003, the Air Force rejected Spectrum's unsolicited proposal, formally advising Spectrum, for the first time, of the existence of the MAC II competitive procurement and encouraging the company to compete.[3] The Air Force did not return Spectrum's proposal.

The Air Force proceeded with the MAC II procurement, continuing to use Spectrum's information from the CRADA and employing a procurement team staffed by individuals involved with the CRADA. Some of the Air Force officials on this team admitted that they used Spectrum's CRADA information in connection with the procurement. That information proved particularly critical to the engineer assigned to draft the performance specifications, who had no prior experience with the MAC or any other similar munitions system. Although that engineer was instructed by his superior "not to look at anything Spectrum had produced," he repeatedly violated that order. He participated in several meetings in which CRADA team members briefed him and other MAC II team members; one of these meetings was a presentation of Spectrum's improvements to the MAC made with slides and pictures supplied by Spectrum. In drafting the solicitation documents, the same engineer repeatedly sought out and communicated with Air Force officials who were very familiar with Spectrum's work product under the CRADA. Based upon Spectrum's research, this engineer concluded, *inter alia*, that a radical redesign of the MAC was unnecessary – a critical conclusion he reached without conducting any tests or calculations to verify that the new specifications would function properly.

On April 11, 2003, the Air Force published a draft request for proposals (RFP) for the MAC II and distributed it to outside vendors, including Spectrum's competitors. The Air Force did not allow Spectrum to review the draft RFP before its release. The draft stated that a radical redesign of the MAC was not favored, and went on to discuss, without attribution, a number of specific improvements that Spectrum had focused on, and deemed achievable, during the course of the CRADA. On April 16, 2003, the Air Force held a "MAC II Industry Day" at Eglin to provide an opportunity for Air Force personnel and industry participants to discuss the draft RFP and the MAC II procurement. Later that day and on the following day, April 17, 2003, Air Force officials, including several officials who were intimately familiar with Spectrum's proprietary information, met with each vendor individually and answered questions.

At some point after the draft RFP was released, Spectrum complained to the Air Force that the document revealed its proprietary information. Eventually, the Air Force agreed to modify the RFP to remove certain details, as well as the notation that an updated system was favored over a new design. On May 1, 2003, the Air Force electronically published the final version of the RFP, again disseminating the document to third parties, including Spectrum's competitors. The Air Force did not allow Spectrum to review this document before its release.

[3] In its earlier opinion, the court found that Spectrum was unaware of the MAC II procurement until the Air Force rejected its unsolicited proposal. *Spectrum*, 84 Fed. Cl. at 727-28. Defendant, however, now points to a memorandum in November 2002, which indicates that at least one Spectrum official somehow knew the Air Force's intentions. The fact that plaintiff may have known about the Air Force's intentions earlier than previously thought, however, does not impact any of the court's central findings regarding the multiple breaches of the CRADA committed by Air Force personnel. Nor does it impact, at least in defendant's favor, the damages calculation here.

While the final RFP omitted specific references to requested improvements, it retained the requirements listed in the draft version. Spectrum and D&D Machinery (D&D) were among the six companies that submitted proposals in response to the RFP – D&D was awarded the contract.

On August 23, 2004, Spectrum filed its complaint in this court, raising various breach of contract claims predicated upon the Air Force's improper release of its proprietary information. After a trial, on December 8, 2008, this court held that "the Air Force repeatedly breached the CRADA in failing to protect adequately Spectrum's proprietary information." *Spectrum*, 84 Fed. Cl. at 744. By way of further detail, this court found that –

> Viewing this case as a whole, one can readily surmise why defendant approaches defining "protected information" under the CRADA with the zeal of a pedantic schoolmaster – it is because once the items here are properly identified as "protected information," the conclusion becomes inescapable that the Air Force repeatedly breached its confidentiality obligations under the agreement. Reminiscent of the old South Side Levee political slogan, those breaches occurred early and often. They ran the gamut – some were isolated, others systematic; some occurred internally within the Air Force, others took the form of ill-advised public disclosures; and some might have occurred innocently enough, while others were in derogation of explicit orders and fully calculated to take advantage of Spectrum.

Id. at 740. The court noted that the Air Force had breached the CRADA "by releasing Spectrum's proprietary information to Air Force officials who did not need the information in connection with the performance of the CRADA," thereby permitting the "information supplied by Spectrum under the CRADA [to be] used internally in the development of the specifications for the new MAC II." *Id*. at 742. And the court found that "[t]he Air Force then breached the agreement, yet again, in providing Spectrum's proprietary information to outside contractors." *Id*.

Following additional discovery, a second trial – this one focusing solely on damages – was held on January 14 and 15, 2010, in Washington, D.C. There, Dwight D. Howard, the chief operating officer of the manufacturing division of Spectrum through 2008, testified regarding Spectrum's investments and costs associated with developing the MAC II. Karen Turner, a contracting officer and branch chief of the Enterprise Division with the U.S. Air Force at Eglin, testified regarding the MAC II procurement process. In addition, both parties called intellectual property valuation experts to testify on their respective behalfs regarding the amount of damages due Spectrum – Robert N. Yerman for Spectrum and Kathleen M. Kedrowski for defendant. Both experts attempted to estimate, for damages purposes, the value of Spectrum's MAC upgrade intellectual property. For reasons that will be discussed below, their estimates diverged greatly – Mr. Yerman determined the damages owed to be at least $1,721,373, while Ms. Kedrowski set those damages at only $477,008. Post-trial briefs were filed and closing arguments were held on July 8, 2010.

II.

The parties' estimates of damages do differ greatly. To refine and evaluate their differences and, ultimately, determine the correct amount of damages owed, we start with some basic propositions.

A.

"Damages 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 Mich. Power Co. v. United States*, 422 F.3d 1369, 1373 (Fed. Cir. 2005); *see also Citizens Fed. Bank v. United States*, 474 F.3d 1314, 1318 (Fed. Cir. 2007); *Energy Capital Corp. v. United States*, 302 F.3d 1314, 1320 (Fed. Cir. 2002). Regarding foreseeability, the Federal Circuit has instructed – "[w]hat is required is merely that the injury actually suffered must be one of a kind that the defendant had reason to foresee and of an amount that is not beyond the bounds of reasonable prediction." *Citizens Fed. Bank*, 474 F.2d at 1321 (quoting Joseph M. Perillo, 11 Corbin on Contracts § 56.7 at 108 (2005 rev. ed.) ("Corbin")); *see also Landmark Land Co., Inc. v. FDIC*, 256 F.3d 1365, 1378 (Fed. Cir. 2001). As for causation, plaintiff must show that defendant's breach produced damage "inevitably and naturally, not possibly or probably." *Ramsey v. United States*, 101 F. Supp. 353, 357 (1951) (citing *Myerle v. United States*, 33 Ct. Cl. 1, 27 (1897)). In other words, it must show that "the damages would not have occurred but for the breach." *Fifth Third Bank v. United States*, 518 F.3d 1368, 1374 (Fed. Cir. 2008); *see also Cal. Fed. Bank v. United States*, 395 F.3d 1263, 1267 (Fed. Cir. 2005).

Finally, as to reasonable certainty, "[c]are must be taken lest the calculation of damages become a quixotic quest for delusive precision or worse, an insurmountable barrier to any recovery." *Franconia Assocs. v. United States*, 61 Fed. Cl. 718, 746 (2004). "The ascertainment of damages is not an exact science," the Federal Circuit has stated, and "where responsibility for damage is clear, it is not essential that the amount thereof be ascertainable with absolute exactness or mathematical precision." *Bluebonnet Sav. Bank, FSB v. United States*, 266 F.3d 1348, 1355 (Fed. Cir. 2001); *see also* Restatement (Second) Contracts § 352, cmt. a (1981) (hereinafter "Restatement (Second) Contracts") ("[d]amages need not be calculable with mathematical accuracy and are often at best approximate"). "'It is enough if the evidence adduced is sufficient to enable a court or jury to make a fair and reasonable approximation.'" *Elec. & Missile Facilities, Inc. v. United States*, 416 F.2d 1345, 1358 (Ct. Cl. 1969) (quoting *Specialty Assembling & Packing Co. v. United States*, 355 F.2d 554, 572 (Ct. Cl. 1966)); *see also Bluebonnet*, 266 F.3d at 1355. Thus, "[i]f a reasonable probability of damage can be clearly established, uncertainty as to the amount will not preclude recovery . . . ." *Ace-Fed. Reporters, Inc. v. Barram*, 226 F.3d 1329, 1333 (Fed. Cir. 2000) (quoting *Locke v. United States*, 283 F.2d 521, 524 (Ct. Cl. 1960)); *see also Glendale Fed. Bank, FSB v. United States*, 378 F.3d 1308, 1313 (Fed. Cir. 2004); *Stovall v. United States*, 94 Fed. Cl. 336, 346 (2010).

In an action for breach of contract, a plaintiff may seek: (i) "general" or "market" damages," and (ii) "special" or "consequential" damages. 3 Dan B. Dobbs, Dobbs Law of

Remedies § 12.2(3) (1993) (hereinafter "Dobbs"); *see also Anchor Sav. Bank, FSB v. United States*, 597 F.3d 1356, 1369 (Fed. Cir. 2010). In receiving general damages, a plaintiff recovers "the value of the very performance promised." *Schonfeld v. Hilliard*, 218 F.3d 164, 175-76 (2d Cir. 2000) (quoting Dobbs, *supra*, § 12.2(3)). "Special" or "consequential" damages, on the other hand, serve to compensate a plaintiff for additional losses (other than the value of the promised performance) that are incurred as a result of the defendant's breach. *See id.* at 176; *Prudential Ins. Co. v. United States*, 801 F.2d 1295 (Fed. Cir. 1986); 24 Richard A. Lord, Williston on Contracts, § 64:4 (4th ed. 2002). Lost profits are one form of consequential damages, *Anchor Sav. Bank*, 597 F.3d at 1369; *see also Hadley v. Baxendale*, 156 Eng. Rep. 145 (1854) – but not the only form, as such damages also may account for an income-producing asset lost as the result of a breach. *See Anchor Sav. Bank*, 597 F.3d at 1369; *Schonfeld*, 218 F.3d at 176. Although both forms of damages – lost profits and the value of a lost asset – are often pursued alternatively in the same case, they are different, particularly in terms of their respective proof demands.

So held the Federal Circuit in *First Federal Lincoln Bank v. United States*, 518 F.3d 1308 (Fed. Cir. 2008). In that case, the plaintiff received regulatory approval to acquire financially-troubled thrifts. When a later-enacted statute altered the bank's regulatory capital requirements, First Federal's capital position worsened, prompting it to shrink its deposit base and close several branches. Claiming that this contraction caused it economic harm, First Federal brought suit in this court for breach of contract. After a trial on liability, this court held that the statute's passage breached one of the agreements used to effectuate the acquisition of one of the troubled thrifts. *First Fed. Lincoln Bank v. United States*, 58 Fed. Cl. 363 (2003). In a subsequent trial, First Federal sought the value for lost profits and lost franchise value resulting from the loss of actual deposits and growth opportunities. This court awarded damages for the value of the deposits lost, but rejected First Federal's claims for lost profits and lost deposit growth as speculative. *First Fed. Lincoln Bank v. United States*, 73 Fed. Cl. 633, 635-36 (2006), *aff'd, in part*, *rev'd*, *in part*, *First Fed.*, 518 F.3d 1308. In calculating the award, this court approximated the value of the lost deposits as of the year of the trial, rather than the date of the breach. *Id.* at 648-49. On appeal, the Federal Circuit affirmed this court's liability finding but held that the damages should not have been determined as of the time of trial. The Federal Circuit held that a claim to recover the value of lost deposits was one for "lost income-generating property," which is "properly determined as of the time the property is lost (usually the time of the breach) . . . ." *First Fed.*, 518 F.3d at 1317. "When the defendant's conduct results in the loss of an income producing asset with an ascertainable market value," the Federal Circuit further observed, "the most accurate and immediate measure of damages is the market value of the asset at the time of the breach." *Id*. (quoting *Schonfeld*, 218 F.3d at 176).

First Federal makes three important points for our purposes: First, it holds that consequential damages for the breach of a contract can relate to the loss of income-generating property, provided that loss is foreseeable. 518 F.3d at 1317; *see also Anchor Sav. Bank*, 597 F.3d at 1368-69; *Fluorine On Call, Ltd. v. Fluorogas Ltd.*, 380 F.3d 849, 860 (5th Cir. 2004). Second, it distinguishes between recovering, on the one hand, the value of such a property loss, and, on the other, expectation damages in the form of lost profits. *First Fed.*, 518 F.3d at 1317; *see Anchor Sav. Bank*, 597 F.3d at 1369 ("Both *Lincoln* and *Schonfeld* discuss the award of lost asset damages as an alternative to lost profits damages."); *Holland v. United States*, 83 Fed. Cl. 507, 514 (2008).[4] It notes, in this regard, that while the same kind of market-value proof may be used in establishing lost profits and the value of a lost asset, the two damage theories are analytically distinct and involve different proof requirements. *First Fed.*, 518 F.3d at 1317; *see also Fluorine On Call*, 380 F.3d at 860; *Schonfeld*, 218 F.3d at 176 ("Although lost profits and 'hybrid' lost asset damages are both consequential, rather than general, in nature, courts have universally recognized that they are separate and distinct categories of damages."). Finally, *First Federal* holds that where a breach results in the loss of an income-producing asset, the measure of damages is the market value of that asset as of the time of the breach. *First Fed.*, 518 F.3d at 1317-18; *see also Anchor Sav. Bank*, 597 F.3d at 1369; *Energy Capital Corp. v. United States*, 302 F.3d 1314, 1330 (Fed. Cir. 2002); 11 Corbin, *supra*, § 55.13, at 50 (the value of a lost asset is "the amount of money that the plaintiff could have obtained [for it] from other people at the time and place"); 24 *Williston on Contracts*, § 64:4, at 51.[5] Such market value damages are "based on future profits as estimated by potential buyers who form the 'market'" and "reflect the buyer's discount for the fact that the profits would be postponed and . . . uncertain." Dobbs, *supra*, § 3.3(7) at 313 & n.2; *see also First Fed.*, 518 F.3d at 1317; *Fluorine On Call*, 380 F.3d at 860; *Schonfeld*, 218 F.3d at 176.

B.

Relying upon these legal principles, plaintiff seeks damages equal to the value of a lost income-producing asset – its proprietary information regarding the MAC II – as of the time of the breach. Toward this end, plaintiff's expert relies, *inter alia*, upon data relating to the MAC II contract – not as a measure of lost profits, but rather as primary evidence of what a willing buyer would have paid a willing seller for Spectrum's proprietary information at or about the time of the Air Force's breaches of the CRADA. Defendant largely fails to address this theory on its own terms and instead erects a straw man – *to wit*, that plaintiff is pursuing a well-disguised lost-profits theory. Whether a case of mistaken identity or willful blindness, this mischaracterization

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[4] The Restatement (Third) on Unfair Competition § 45, cmt. d, recognizes a similar distinction in discussing the monetary relief appropriate for the appropriation of a trade secret, stating that such monetary relief "measures the loss to the plaintiff caused by the appropriation." This comment goes on to explain that this loss "usually consists of profits lost on sales diverted from the plaintiff by the appropriation, loss of royalties or other income that would have been earned by the plaintiff but for the appropriation, or the value of the trade secret if it has been destroyed through a public disclosure by the defendant." *Id.*

[5] Likewise in *Schonfeld*, the Second Circuit held that "[w]hen the defendant's conduct results in the loss of an income-producing asset with an ascertainable market value, the most accurate and immediate measure of damages is the market value of the asset at the time of breach – not the lost profits that the asset could have produced in the future." 218 F.3d at 176. It observed that "[t]he market value of an income-producing asset is inherently less speculative than lost profits because it is determined at a single point in time. It represents what a buyer is willing to pay for ***the chance*** to earn the speculative profits." *Id.* at 177 (emphasis in original); *see also Fluorine On Call*, 380 F.3d at 860; *Mann v. United States*, 86 Fed. Cl. 649, 664 (2009).

of plaintiff's position is a prelude for defendant and its expert to invoke various lost profits cases, which they claim limit the recovery here. But, this is not a well-disguised lost profits case, nor even a lost profits case at all – it is, as advertised, a lost ***asset*** case. And *First Federal* teaches that this difference makes a difference – that in a lost asset case, many lost profits limitations simply do not apply so far as the determination of damages is concerned, even though the value of an income-producing asset often hinges on its potential to produce future profits. *See First Fed.*, 518 F.3d at 1316-17. Indeed, in both *First Federal* and *Schonfeld*, lost profit damages were disallowed as too speculative, yet, the courts concluded that the plaintiff might still theoretically recover damages occasioned by the loss of an income-producing asset. *See First Fed.*, 518 F.3d at 1316-17, *aff'g, in part, rev'g, in part*, 73 Fed. Cl. 633, 646 (2006); *Schonfeld*, 218 F.3d at 176; *see also* E. Allan Farnsworth, Farnsworth on Contracts § 64.4, at 50 (3d ed. 2004) ("Farnsworth"). And they reached this conclusion by recognizing that the rationales underlying many lost profits decisions are not readily transferable into lost asset cases. *See, e.g.*, *First Federal*, 518 F.3d at 1316-17 (rejecting the notion that, like lost profits, the value of a lost asset should be determined as of the date of trial); *Schonfeld*, 218 F.3d at 177; *see also Fluorine on Call*, 380 F.3d at 860.

Take, for example, *Energy Capital*, which defendant invokes for the proposition that a plaintiff cannot recover lost profits on a contract awarded to a third party. The first problem with this claim is that *Energy Capital* does not establish any such *per se* bar – the Federal Circuit therein affirmed the award of lost profits potentially deriving from third-party contracts. 302 F.3d at 1328-29 (affirming the recovery of profits lost as to loans that the plaintiff would have made to third parties but for the breach involved). As this court recently pointed out in *Stovall*, *Energy Capital* "is one of several cases on the books holding that a party injured by a breach may recover profits on separate contracts with third parties, provided the latter were not 'collateral or independent' undertakings." *Stovall*, 94 Fed. Cl. at 347 (citing *Energy Capital*, 302 F.3d at 1328). A host of cases, indeed, have rejected similar attempts by defendant to dissemble the holding of this case.[6]

To be sure, *Energy Capital* and other cases emphasize that it is difficult to prove the loss of profits from third-party contracts. *See* 302 F.3d at 1325-26; *Glendale Fed. Bank*, 378 F.3d at 1313. But, these cases do not erect any absolute barriers to recovery. Nor do they make sweeping, bright-line distinctions, particularly ones that apply in the different context of this case. Rather, they talk in factual and evidentiary terms, focusing upon what was shown in a particular case *vel non* to prove causation and foreseeability. Here, foreseeability demands proof that the parties could reasonably be viewed as foreseeing that the value of Spectrum's proprietary information would be severely impacted if the CRADA was breached. It does not require that the parties reasonably should have foreseen what method would be employed to value that information or, correspondingly, what transactions would be considered by the market in making

[6] *Stovall* lamented defendant's frequent practice of misstating the holding in *Energy Capital*, noting more than a dozen cases (including three in the Federal Circuit) have rejected defendant's claim that lost profits may not be obtained on third-party contracts. *Stovall*, 94 Fed. Cl. at 347-348 & n.10 (cataloguing these cases).

that valuation.[7] And since foreseeability does not encompass the latter observation, it can hardly preclude reliance on a particular type of transaction – to *wit*, a transaction involving a contract other than the one breached – in establishing the value of what was lost.

Were the law otherwise, damages rarely, if ever, would be awarded for the breach of free-standing confidentiality agreements, like the CRADA here, because the value of the information lost in the breach of such agreements cannot be determined insularly by reference only to the performance of the agreement breached, but must necessarily account for the profit-making use of such information in other ventures. Defendant, of course, knows full well that limiting plaintiff's recovery to the profits that might have been realized directly under the CRADA would leave plaintiff empty-handed – even though defendant appropriated significant benefits for itself and inflicted significant harm on plaintiff by breaching the CRADA.[8] If nothing else, such a result would frustrate Congress' efforts to bolster the use of CRADAs by providing private participants in such agreements better protections for the intellectual property shared and created under those agreements. *See D'Andrea Bros, LLC v. United States*, 2010 WL 4721301, at *8 (Fed. Cl. Nov. 18, 2010) (reviewing these statutes and indicating that monetary damages are

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[7] The Federal Circuit has repeatedly held that the particular details of a loss, including its magnitude, need not be foreseeable. *See Anchor Sav. Bank*, 597 F.3d at 1362 ("the particular details of a loss need not be foreseeable"); *Fifth Third Bank*, 518 F.3d at 1376-77; *Citizens Fed.*, 474 F.3d at 1321; *see also* Restatement Contracts § 351 cmt. a; Farnsworth, *supra*, § 12.14, at 262. In this regard, one commentator explains –

> If a defendant knew that failure to perform would cause the shutdown of a mill, the defendant had reason to know that the breach would prevent the sale of the mill's product at market prices. It is not required that the defendant should be able to foresee just how many articles would be sold, or to what specific persons or at what exact prices they would be sold. What is required is merely that the injury actually suffered must be one of a kind that the defendant had reason to foresee and of an amount that is not beyond the bounds of reasonable prediction.

Corbin, *supra*, at § 56.7. If the particular details of the loss need not be foreseeable, it follows, *a fortiori*, that the way in which that loss is valued for damages purposes also need not be foreseeable.

[8] At least in the private sector, a party threatened by the breach of a confidentiality agreement can sometimes obtain an injunction preventing the disclosure. *See, e.g., ITT Educ. Servs., Inc. v. Arce*, 533 F.3d 342, 347 (5th Cir. 2008); *PepsiCo, Inc. v. Redmond*, 54 F.3d 1262, 1271-72 (7th Cir. 1995); *see also* Restatement (Third) of the Law of Unfair Competition § 44 (1993) (discussing the use of injunctions in cases involving the misappropriation of trade secrets). Such, however, presumably is not the case with a contract with the government, as specific performance of such an agreement is not an available remedy. *Massie v. United States*, 226 F.3d 1318, 1321 (Fed. Cir. 2000); *see also Tucson Airport Auth. v. Gen. Dynamics Corp.*, 136 F.3d 641, 646 (9th Cir. 1998).

available for Army's breach of CRADA that allowed plaintiff's competitors to sell energy/ nutritional bars).[9] Fortunately, defendant's view does not accord with the law.

Similar problems underlie defendant's repeated citation of *Hi-Shear Tech. Corp. v. United States*, 356 F.3d 1372 (Fed. Cir. 2004), for the proposition that a non-breaching party can recover damages only for contract options that have been exercised. Relying upon this case, defendant argues that plaintiff may not recover profits for MAC II units that the Air Force had not ordered as of the end of 2008. But, this claim is a *non sequitur*.

Hi-Shear involved a contractor which claimed that an agency had breached two requirements contracts by underestimating its needs. *Id*. at 1375. The Federal Circuit noted that "where a contract is renewable 'at the option of the Government,' the government is under no obligation to exercise the option." *Id*. at 1380 (citing *Gov't Sys. Advisors, Inc. v. United States*, 847 F.2d 811, 813 (Fed. Cir. 1988)). It held that "where the breach is solely in the form of inadequately or negligently prepared estimates, anticipatory lost profits are not available for the overestimated, unordered quantities." 356 F.3d at 1379. But, this case is neither one involving a breach "solely" for a poorly prepared estimate, nor even one in which a plaintiff seeks profits associated with a contract option that an agency had the right not to invoke. Indeed, the main reason why the market would value Spectrum's lost proprietary information in terms of future sales of the MAC II to the Air Force is because the product involved was military hardware. Had the Air Force breached a CRADA with respect to a product with significant non-military applications, any income analysis undoubtedly would have looked to the profits anticipated from transactions in which government agencies were not involved. Defendant would have been hard-pressed to invoke *Hi-Shear* in the latter instance – and it should have no easier time doing so here simply because the intellectual property involved happens to relate to a munitions loader. As with its reliance on *Energy Capital*, defendant's attempt to invoke *Hi-Shear* thus proves a bridge too far.

Although defendant claims otherwise, the facts here plainly demonstrate that the parties should have reasonably foreseen – and, indeed, foresaw – that a breach of the CRADA would result in the loss of Spectrum's proprietary information and any value associated therewith. Indeed, as this court has previously found, *see Spectrum*, 84 Fed. Cl. at 722-26, a host of provisions in the CRADA were directed at preventing that sort of loss from occurring – the same

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[9] As discussed in the first opinion in this case, Congress, in 1989 and 1995, amended the statutes authorizing agencies to enter into CRADAs to provide better assurances to private sector organizations that their commercial information would be kept confidential. *Spectrum*, 84 Fed. Cl. at 733-34 (discussing various amendments to 15 U.S.C. § 3710a). These protections, of course, ring hollow if an agency may violate such agreements at will, without fear of liability. Commenting on this court's first opinion in this case, a well-known commentator concluded that "[t]he major lesson from this decision is that the promises the Government makes in a CRADA to protect proprietary rights are real, subjecting the Government to liability for damages if it breaches those promises." Ralph C. Nash, "Cooperative Research and Development Contracts: An Egregious Breach," 23 No. 5 Nash & Cibinic Rep. ¶ 23 (2009).

ones that the Air Force repeatedly breached. Accordingly, there is little doubt that the loss in question followed from the breach "'in the ordinary course of events.'" *Franconia*, 61 Fed. Cl. at 751 (quoting Restatement (Second) Contracts § 351(2)). Nor can it be seriously contested that these numerous breaches, most importantly, the repeated release of Spectrum's proprietary information to its competitors, cumulatively stripped plaintiff's proprietary information of its value. But for defendant's malfeasance in using that information to develop the specifications for the MAC II RFP and then sharing it with Spectrum's competitors, plaintiff would not have been so injured. Therefore, based upon the record, the court firmly believes that plaintiff has met the first two prongs for recovering damages here by showing that the damages it seeks were foreseeable and caused by the Air Force's breach of the CRADA. It remains to determine the amount of those damages with reasonable certainty, a task to which the court now turns.

C.

As the testimony in this case reveals, there are several ways to value Spectrum's proprietary information as of the time of the breach. *See also* Kenneth M. Kolaski & Mark Kuga, "Measuring Commercial Damages Via Lost Profits or Loss of Business Value: Are These Measures Redundant or Distinguishable," 18 J.L. & Com. 1, 5 (1998) (citing Shannon P. Pratt, *et al*. "Valuing Small Business & Professional Practices," ch. 14-16, 18 (3d ed. 1998)). One way to value that information is in terms of its development cost. While plaintiff produced evidence indicating that it expended over $1 million in this regard, neither expert ultimately used this approach, albeit for different reasons.[10] Likewise, neither party used comparable sales to value this asset, owing to the absence of any recent sales transactions that could be viewed as comparable. This left both parties to value the proprietary information using an income approach – determining the value of the lost asset in terms of the discounted value, as of January 1, 2003, of the profit stream that the asset could be projected to have yielded but for defendant's breach.

In performing this task, both parties relied upon data taken from various MAC II procurement documents and even used some of the same figures in their calculations – both experts used a sixteen percent discount figure, for example. These surface similarities, however, mask more fundamental differences in what each party believes its respective numbers represent – plaintiff seeks to prove the value of its lost asset, while defendant continues to treat plaintiff's case as one seeking lost profits. This dissemblance has at least two important ramifications. First, it means that the parties sometimes relied on the same data, but for different purposes. Plaintiff's expert, for example, relied upon data involving projected sales under the MAC II contract in attempting to estimate the value of the intangible asset that was lost – that is, what a willing buyer would have paid a willing seller for Spectrum's proprietary information on the date

[10] Plaintiff's expert did not adopt this approach because he felt it would underestimate the value of Spectrum's proprietary information. In this regard, he explained that it would "not include any profit component for the developer that may be appropriately added to the base cost, nor does it contemplate the head start advantage obtained by Spectrum." Defendant's expert did not employ this approach because she felt that there was insufficient evidence to support such a calculation.

the CRADA was breached. Defendant's expert reviewed the same MAC II information, but did so from the myopic perspective of her lost profits analysis, disregarding any information that she felt did not fit into that analysis. Second, because she viewed damages differently than plaintiff, many of the adjustments made by defendant's expert to plaintiff's calculations are not designed to improve the accuracy of the market value of Spectrum's proprietary information, but rather to transform plaintiff's lost-asset theory into a lost-profits analysis (which can then be easily knocked asunder).

Each of the expert reports contains a summary chart (copies of which may be found in Appendix A to this opinion) that reflects the various income flows from the sale of MAC II units, which flows are then discounted to reach a value for Spectrum's proprietary information as of January 1, 2003. The following chart compares the salient features of the two calculations:

	Plaintiff	Defendant
Sales (units)	162	71[11]
Sales price	$128,206	$85,499 - $104,548
Sales period	2004-2012	2004-2008
Total revenue	$20,769,372	$6,663,268
Profit factor	20%	15%
Total profit	$4,153,874	$999,490
Capital charges	$491,396	$157,651
Profit attributable to proprietary information	$3,662,478	$841,840
Discount factor	16%	16%
Value	$1,721,373	$477,008

As can be seen, defendant's valuation of Spectrum's proprietary information is approximately one-fourth that of plaintiff's ($477,008 versus $1,721,373). As the chart illustrates further, the differences between the calculations hinge largely on four quantities: (i) the number of MAC II units sold; (ii) the sale price of the MAC II units; (iii) the period over which sales were to occur; and (iv) the profit margin. For reasons that will be explained below, the court will also examine the proper discount rate to be employed here. The court will consider each of these quantities *seriatim*.

1. Number of units

The parties stipulated that "[o]n February 20, 2003, in the midst of the Air Force's internal use of Spectrum's proprietary information and just prior to the Air Force's external releases of Spectrum's proprietary information, the Air Force procurement team estimated that the Air Force would purchase 162 MAC IIs over the course of eight years." As plaintiff's expert recognized, this same figure – 162 units – is reflected in a variety of internal Air Force strategic planning documents, as well as in the draft and final MAC II RFPs, where this figure is referenced as the best estimated quantity (BEQ).[12] Indeed, on July 30, 2003, as the end of the

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[11] Defendant included in its total the sale of a prototype; plaintiff did not do this in its calculations.

[12] In its early 2003 "MAC Murder Board" and "MAC Acquisition Strategy" power points, the Air Force anticipated "20 MAC's per year for a total of 162" over the course of eight

MAC II competition was approaching, the Air Force continued to estimate that it would order 162 MAC II units over eight years. Plaintiff's expert viewed these documents as indication that a prospective buyer of the MAC II proprietary information would have anticipated the sale of at least 162 MAC II units. Indeed, he believed that this figure was conservative given the potential for further sales of MAC IIs to other U.S. service branches and foreign countries, not to mention the potential for the sale of spare parts.[13]

Defendant does not contest that, at or around the time of the breach, the Air Force anticipated buying 162 MAC IIs. It contends, however, that, to value Spectrum's proprietary information, the court should use the actual number of units ordered by the Air Force through 2008 – that is, seventy-one (71) units. But, it makes little sense to value Spectrum's proprietary information as of 2003 based upon decisions that were not made until years later. This is especially so given that the reduced number of orders (71 versus 162) appears to relate not to any diminished need for MAC II units, but to problems that the Air Force was experiencing with D&D's performance under the MAC II contract. Defendant has provided no credible evidence to the contrary. The record, indeed, is replete with evidence of D&D's inability to meet various performance targets under the contract; in fact, by the end of 2008, D&D had delivered to the Air Force only six MAC II units.[14]

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years, based on a "BEQ 20 Units Per Year." Its March 2003 Acquisition Plan for Munitions Assembly Conveyor (MAC) II similarly stated that "the best estimated quantity (BEQ) is 20 systems per year based upon purchase data . . . ." The Air Force maintained the 162-unit estimate throughout the procurement process, indicating in July and August 2003, source selection authority briefings that it "estimated 162 MAC II systems" under the options segment of the contract. The RFP set forth a similar figure by way of repeating "Best Estimated Quantity (BEQ) 20 per year" under each of the eight option year CLINs for MAC IIs. It, indeed, indicated that the awardee of the MAC II contract should be prepared to "meet the Government's requirement to manufacture 20 MAC II systems with surge capacity up to 60 to meet delivery requirements."

[13] There was reason to anticipate such additional sales. Between November 14, 2002, and March 31, 2003, Spectrum sold the United Kingdom three modified MAC units, as well as kits for moving those units, for a total price of $417,591. Spectrum was required to deliver these materials on an expedited basis and, indeed, provided the units to the British ahead of schedule.

[14] A series of Air Force deficiency reports issued in Spring 2005, chronicle D&D's technical failures during the development phase of the MAC II contract. The thirty-one deficiencies documented in these reports ranged from fundamental issues such as faulty electric wiring and various mechanical failures in cold-weather conditions to somewhat more peripheral issues such as shipping malfunctions and machine inefficiencies. According to one of these reports, these deficiencies "prevented the program from entering [the production phase] until 4th quarter FY06." Shortly thereafter, D&D further delayed production because it had to "prioritize [its other] contracts and deliveries" and therefore "extend delivery on the [ordered MAC IIs] for [the Air Force's] contract." The Air Force continued to report delays throughout 2006, stating in one report that production "has been delayed due to the contractor's inadequate data submittals"

Defendant, of course, does not explain why reasonable parties assessing value as of 2003 would take into account events that could neither have been known or even anticipated until four or five years later. Generally speaking, the market approach for valuing a lost asset ignores later events not anticipatable at the time of the breach. *See* Dobbs, *supra*, § 3.8(2), at 379 ("[o]ne effect of a market damages measurement . . . is to ignore later events, whether they are favorable to the plaintiff or unfavorable"); *see also id.* § 3.3(3) at 299-301; *LaSalle Talman Bank, FSB v. United States*, 317 F.3d 1363, 1373 (Fed. Cir. 2003) (a "'claim accrue[s] at once in the theory of the law and it does not inquire into later events'") (quoting *S. Pac. Co. v. Darnell-Taenzer Lumber Co.*, 245 U.S. 531, 533-34 (1918))).[15] Under this approach, it would be illogical to limit plaintiff's recovery based upon Air Force decisions made in reaction to a third party's ineffective performance under the MAC II procurement. *See LaSalle*, 317 F.3d at 1373 ("[t]he general rule is . . . that unrelated events and remote consequences do not reduce the liability of the wrongdoer for the losses caused by the wrong"); *Franconia*, 61 Fed. Cl. at 757 n.67; *see also S. Pac.*, 245 U.S. at 533-34. Indeed, there is no more reason to lower plaintiff's damages to account for this phenomenon than there would have been to increase such damages if, based on unrelated events, the Air Force ordered more MAC IIs than it had originally anticipated.[16] Remote circumstances,

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and that "[t]he . . . contract has been breached due to numerous schedule delays." Although production was "expected 4th Qtr FY06," the Air Force noted that full production would not begin until "3rd Qtr FY07 . . . dependent upon how long it takes the contractor to produce the production units and resolve any potential deficiencies." By March 2007, D&D had fixed thirty deficiencies, one remained, and eleven other issues were designated as "watch items." Although, under a revised schedule, D&D committed to delivering thirty-one units by November 2007, schedule, after its first delivery, the Air Force postponed further delivery because of "quality control issues." As of January 2010, the Air Force had one MAC II in the field and pending orders for seventy-seven more (including six more ordered since January 2010, which are not factored into defendant's expert report).

[15] This is not to say that *ex ante* observations are unhelpful in validating assumptions employed in projecting income. As the Supreme Court indicated in *Sinclair Refining Co. v. Jenkins Petroleum Process Co.*, 289 U.S. 689, 698 (1933), "[e]xperience is . . . available to correct uncertain prophecy," and is thus a "book of wisdom that courts may not neglect." Defendant, however, would have this court significantly modify the results here based on decisions that the Air Force made after the breach (*e.g.*, the timing of its ordering MAC II units), which were driven by events unrelated to the wrong causing the injury. In the court's view, such evidence is virtually irrelevant to the proper determination of damages herein.

[16] Would defendant have made the same *ex ante* argument if the Air Force, for whatever reasons, had amended the contract and ordered three or four hundred MAC IIs in the years following its breach? Who knows. Nevertheless, it is worth noting that in answering one of plaintiff's interrogatories, defendant indicated that the Air Force still anticipates ordering 102 MAC II units through its contract with D&D. Defendant has not explained why it did not use at least this estimate in its calculations. For her part, Ms. Kendrowski indicated at trial that she did not follow up with the Air Force to determine whether it had ordered additional units since the time she originally issued her report in 2008. Again she gave no explanation – legal, factual or

such as these, are regularly disregarded in calculating lost profits. *See LaSalle*, 317 F.3d at 1374; *Long Island Sav. Bank. FSB v. United States*, 60 Fed. Cl. 80, 91 n.19 (2004). And there is no reason why they ought to hold any more evidentiary sway here.

Accordingly, based upon the record, the court concludes that, in 2003, a willing buyer of Spectrum's proprietary information would have anticipated using that information to produce sales of at least 162 MAC II units.

2. Sales price

In calculating his value, Spectrum's expert set the projected sales figure of the MAC II unit at $128,206 and carried that figure throughout his calculations. Mr. Yerman derived this figure from the unsolicited proposal that plaintiff made to the Air Force on February 19, 2003. As defendant points out, however, this offer was not accepted. It is, of course, well-recognized that unaccepted offers to sell property, like other unconsummated transactions, generally represent poor barometers of value.[17] But, the circumstances here make the offer in question more probative.

Spectrum made that offer not only cognizant of the costs it had incurred in developing its proprietary information, but also, as it turns out, with suspicions that the Air Force was considering a competitive procurement of the MAC II. It obviously wanted to avoid such a procurement – which, for it, spelled disaster – and undoubtedly priced its version of the MAC II accordingly. The price derived from this unsolicited proposal thus appears to be more indicative of value than the figures that commonly have been rejected in other cases as deriving from unaccepted offers for which the basis and circumstances of the offer are unknown. *See Sharp*, 191 U.S. 341 (affirming the rejection of an unaccepted offer based upon the inability to cross-examine the offeror to determine the basis upon which the offer was made); *see also* Gulbis, *supra*, at 575.[18] More importantly, the price reflected in that unsolicited offer – $128,206 – is

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otherwise – for failing to update her numbers. The court must conclude that her cutoff was arbitrary.

[17] *See Sharp v. United States*, 191 U.S. 341, 348-49 (1903); *United States v. 10,031.98 Acres of Land*, 850 F.2d 634, 637 (10th Cir. 1988); *Liflans Corp. v. United States*, 390 F.2d 965, 969-70 (Ct. Cl. 1968); *see generally*, Vitauts M. Gulbis, Annotation, "Unaccepted Offer for Purchase of Real Property as Evidence of its Value," 25 A.L.R. 4th 571 § 2 (1983) (hereinafter "Gulbis"); Vitauts M. Gulbis, Annotation, "Unaccepted Offer to Sell or Listing of Real Property as Evidence of its Value," 25 A.L.R. 4th 983 (1983).

[18] Various cases hold that where the circumstances surrounding an unaccepted offer can be corroborated by other evidence, the offer can be probative of value. *See Houx v. Houx*, 140 P.3d 648, 652-53 (Wyo. 2006) (describing cases); *Evans v. Sawtooth Partners*, 723 P.2d 925, 928-29 (Id. Ct. App. 1986); *see also Univ. Computing Co. v. Lykes-Youngstown Corp.*, 504 F.2d 518, 546 (5th Cir. 1974) (noting that "while the rule is well entrenched in the case law, it is

corroborated by other evidence. Several of the Air Force's internal MAC II procurement documents that estimate that the price of the redesigned unit would be approximately $145,000 – which these documents indicate was roughly the same price at which the MAC units were sold. There are, as well, the actual sales of the modified MACs by Spectrum to the United Kingdom in late 2002 and early 2003, at a price of approximately $139,000. All this evidence supports the value that plaintiff's expert set.

Yet, Ms. Kedrowski virtually ignored this evidence.[19] She set her prices to correspond to those quoted in the proposal Spectrum made in response to the MAC II solicitation, seemingly ignoring that the latter proposal was made ***after*** the Air Force had released Spectrum's proprietary information to its competitors, that is, ***after the breach***. As testimony from one Spectrum official revealed, this post-breach price represented a last ditch effort by Spectrum to realize something from its efforts. In making this offer, Spectrum knew it had to compete with firms that were being handed its intellectual property *gratis* – firms that did not need to verify that a modified version of the MAC would be able to support much heavier precision munitions; that did not have to research and develop the many improvements to the MAC that Spectrum created and that the Air Force relied upon in drafting the specifications of the RFP. Ms. Kendrowski knew this too. Notwithstanding, she seized upon the breach-impacted numbers and used the lowest price quoted in Spectrum's proposal – $85,400.43 – for all the orders made from the latter part of 2006 through 2008. She did this even though she knew (or should have known) that: (i) the price she used was more than forty percent below the Air Force's estimate of the price of the MAC II units and the price the Air Force had been paying for the obsolete and less-sophisticated MAC; (ii) the MAC II RFP contained an economic price adjustment (EPA) clause allowing the awardee to increase its bid price over time to account for various changed circumstances; and (iii) in 2007, D&D was selling MAC IIs to the Air Force for between $100,000 and $113,000. Ms. Kedrowski's disregard of the last fact is particularly disturbing: while she used actual order figures, rather than projected sales, as the basis for her unit calculation, she used the projected prices rather than the actual prices in calculating revenue. It is hard to attribute this bald inconsistency to anything other than a Procrustean desire to stretch

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designed to serve specific purposes and we do not believe is meant to be enforced mechanically or without regard to the reasons for its existence").

[19] When questioned by plaintiff's counsel on this subject, Ms. Kendrowski answered as follows:

Q: [D]idn't you use the government's estimates prior to the breaches, did you?

A: No, I did not.

Q: Did you consider at all what the price of the existing MACs were? What the government was paying for the MAC Is?

A: No, I didn't.

and chop the evidence to yield the lowest conceivable value for Spectrum's proprietary information.[20]

By dint of a preponderance of the evidence in the record, the court finds that the price adopted by plaintiff's expert – $128,206 per unit – represents a reasonable basis upon which to determine the profit stream associated with Spectrum's lost income-producing asset. Adopting a lesser amount – particularly, one based upon a price cut triggered by the Air Force's improper release of Spectrum's proprietary information – would effectively reward defendant for the misconduct of its officers in a way that the law simply does not countenance.[21] That this court will not do.[22]

3. Delivery schedule

As noted, the experts also significantly differed in the delivery schedules for MAC II units they employed in their calculations, as the following chart illustrates:

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[20] In Greek mythology, Procrustes was a son of Poseidon whose stronghold laid along the path between Athens and Eleusis. There, he had an iron bed in which he invited travelers to spend the night. If the guest was too short for the bed, Procrustes would use his smith's hammer, to stretch them to fit; if the guest proved too tall, Procrustes would amputate the excess length. Procrustes continued his reign of terror until he was captured by Theseus who "compelled [Procrustes] to make his own body fit his bed, as he had been wont to do with those of strangers." Plutarch, Vita Theasei §11a.

[21] Indeed, in a case involving the improper use of a trade secret, the Seventh Circuit affirmed, as proper damages for the use of a trade secret, an award reflecting the amount by which the injured party had to reduce its offering price for an article based on trade secret manufacturing methods in order to compete with a competitor making unauthorized use of the secret. *Sunds Defibrator AB v. Beloit Corp.*, 930 F.2d 564, 567 (7th Cir. 1991) (Posner, J.); *see also Mangren Research & Dev. Corp. v. Nat'l Chem. Co., Inc.*, 87 F.3d 937, 941-45 (6th Cir. 1996) (recognizing that a trade secret plaintiff's damages included reduced margins on sales made at a lower price, which was necessitated in order to compete with the misappropriating defendants); 4-15 Milgrim on Trade Secrets § 15.02 (2010). While the analogy of this case to those involving the appropriation of trade secrets is imperfect, owing, if nothing else, to the limitations associated with contract actions involving the sovereign, such cases, nonetheless, illustrate the law's hesitancy to reward those who profit from the misappropriation of intellectual property, which effectively is what would happen were the court to adopt defendant's arguments here.

[22] *See generally*, *Story Parchment Co. v. Paterson Parchment Paper Co.*, 282 U.S. 555, 563 (1931) (where harm committed "is of such a nature as to preclude the ascertainment of the amount of damages with certainty, it would be a perversion of fundamental principles of justice to deny all relief to the injured person, and thereby relieve the wrongdoer from making any amend for his acts").

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Plaintiff	11	20	20	20	20	20	20	20	11
Defendant	1	0	32	35	3	0	0	0	0

While some of the scheduling differences reflected here obviously relate to the number of units to be factored into the calculation – an issue resolved above – how the sales are spread over time is still important because of the impact of the discount factor.

Consistent with its reasons for finding what a reasonable buyer of Spectrum's proprietary information would have anticipated in terms of the total number of MAC II systems that would be ordered, the court believes that plaintiff's schedule, which tracks the Air Force's internal and external estimates at the time of the breach, represents a more sound basis upon which to estimate the value of Spectrum's lost proprietary information. This is so even though, owing to the discount factor, the elongated nature of this delivery schedule serves to diminish the value produced.

4. Profit margin

In his calculations, plaintiff's expert used a profit margin of twenty percent, while for her report, defendant's expert used a figure of fifteen percent. On this count, the court believes that defendant has the better case.

Plaintiff admits it has no contemporaneous evidence to support its profit figure and, indeed, its expert specifically testified that he saw no "backup" documentation for this figure among Spectrum's papers. Plaintiff, in particular, lacks any evidence as to the profit rate it used in making its unsolicited offer, claiming that the relevant documentation has been lost or destroyed. And, contrary to a citation in plaintiff's expert report, a review of the unsolicited offer, which was made on a fixed-price basis, reveals no profit figure. Nor is there any other contemporaneous evidence indicating the profit margin that might have been specifically considered by a willing buyer and a willing seller of Spectrum's proprietary information in assessing the value of that asset. Rather, every indication is that plaintiff's expert derived the twenty percent figure used in his calculations based solely on the expectations expressed by Spectrum's officers.

Plaintiff's expert attempted to corroborate this figure by quoting data collected by the Risk Management Association indicating that, during the period in question, the average gross profit margin for companies manufacturing aircraft parts and auxiliary equipment was 31.5 percent. Risk Mgmt. Ass'n, Annual Statement Studies 2003-2004 655 (2003) ("RMA Studies").[23] The book from which this data is drawn, however, recommends that its data "be regarded only as general guidelines and not as absolute norms for a given industry," noting, *inter*

[23] The RMA studies aggregate financial data for businesses in certain industries to be used in comparisons with companies that are similarly situated to evaluate the strength of balance sheets or profit/loss statements. RMA Studies, *supra*, at 9-10. RMA obtains its information from financial statements submitted in support of bank loans. *Id*.

alia, that: (i) the financial statements used were not selected by any "random or statistically reliable method;" (ii) "some of our industry samples are rather small in relation to the total number of firms in a given industry;" (iii) the statistics made no distinctions based upon the "varied product lines" represented within an industry; and (iv) some of the averages could be disproportionately impacted by "an extreme statement in a sample." *Id*. at 10. For these reasons – and more[24] – the court finds Mr. Yerman's reliance upon this data unpersuasive.

In terms of the record, a fifteen percent profit figure makes more sense. Both parties refer to FAR (48 C.F.R.) § 15.404-4, which "prescribes policies for establishing the profit . . . portion of the Government prenegotiation objective in price negotiations based on cost analysis." They note that a profit margin of fifteen percent is generally in accord with the guidelines provided by this section, among them, FAR 15.404-4(c)(4)(i)(A), which states that "[f]or experimental, developmental, or research work performed under a cost-plus-fixed-fee contract, the fee shall not exceed 15 percent of the contract's estimated cost, excluding the fee." *See also* 41 U.S.C. § 254(b); DFAR (48 C.F.R.) § 215.404-4. Various cases have looked to this and other factors listed in FAR § 15.404-4 in determining profit on equitable adjustments. *See, e.g., NVT Techs., Inc.* 05-1 B.C.A. ¶ 32,969 (2005); *Grumman Aerospace Corp.*, 01-1 B.C.A. ¶ 31,316 (2001); *see generally*, John Cibinic, Jr., Ralph C. Nash, Jr., & James F. Nagle, Administration of Government Contracts 739 (2006) (discussing the use of the profit guidelines in FAR § 15.404-4).

To be sure, the court is concerned about relying upon this regulation for several reasons. First of all, the provision cited applies to cost-plus contracts, rather than firm, fixed-price contracts. And one must assume that in valuing Spectrum's proprietary information as of the date of the breach, the parties to a sale would have looked to the nature of the impending MAC II procurement, which was to result in a fixed-price contract. *See Info. Sys. & Networks Corp. v. United States*, 64 Fed. Cl. 599, 607 (2005) (discussing this regulation, but noting that "[f]ixed-price type contracts . . . are a whole different ball game."). That said, it is difficult to assess how this distinction cuts, as the risks inherent in a fixed-price contract might actually lead a contractor to calculate its price with a greater profit factor than would be employed in the less risky cost-reimbursable type contract. *See* FAR 15.404-4(d)(1)(ii)(B) (noting the significantly lower degree of cost risk assumed by a contractor under cost-reimbursable type contracts as compared to the risks inherent in fixed-price contracts). Second, it is noteworthy that in focusing, *inter alia*, on the "shall not exceed" language in this FAR provision, various cases have held that these regulations do not guarantee a contractor any particular rate of profit, let alone one of fifteen percent profit. These cases thus suggest that the regulation talks in maximum, not minimum, profit terms. *See Imaging Science Tech. X-Ray Imaging Div., Inc.*, 00-2 B.C.A. ¶ 30,294 (2000) ("These provisions do not mandate the payment of profit."); *see also Design & Prod., Inc. v.*

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[24] Among the other features of this data that give the court pause are: (i) it is unclear to what extent the data is derived from government contracts or even from contractors that do a majority of their business with the Federal government; (ii) Mr. Yerman used the "gross profit" figure for the industry selected, but the data reflects a much lower "operating profit" of only 4.8 percent, *see* RMA Studies, *supra*, at 655; and (iii) lingering concerns as to whether Mr. Yerman selected the correct industry.

United States, 18 Cl. Ct. 168, 175 n.2, 210 (1989) (deciding that ten percent profit is "reasonable and just" while acknowledging that "the government's profit guidelines for fixed price contracts range from approximately ten to fifteen percent"); *Turbegen & Assocs., Inc.*, 90-3 B.C.A. ¶ 23,058 (1990) (not citing the regulation, but noting that the contractor's "profit margin on other Air Force contracts typically was between eight and 15 percent").

Nevertheless, the court finds that the fifteen percent figure cited in the FAR represents a reasonable expectation of profit here. In making this finding, the court is reminded that "the plaintiff need only provide some reasonable basis upon which to estimate damages." *Franconia*, 61 Fed. Cl. at 753; *see also Energy Capital*, 302 F.3d at 1329 (noting that a trial court may rely on "reasonable inference."). Moreover, it is important to remember that in assessing the value of Spectrum's proprietary information, the question, strictly speaking, is not what profit would have been realized by Spectrum on the MAC II contract, but rather what a hypothetical buyer and seller would have considered a reasonable projection of the profit that might be realized on that contract through the use of the proprietary information. In the latter instance, it is not unreasonable to conclude that such parties would consider FAR § 15.404-4(d)(1)(ii)(B) in estimating that profitability. This particularly makes sense given that a review of the decisional law reveals a host of cases in which the profit figure awarded was fifteen percent.[25]

Based on the foregoing, the court concludes that an appropriate profit factor here is not the twenty percent that plaintiff used, but rather the fifteen percent selected by defendant's expert.

5. Discount factor

Although the differences here are more subtle, it appears that the parties had different views as to the appropriate discount factor to be used here. To be sure, in their reports, both experts used a sixteen percent discount rate in their calculations, reflecting the risk that a potential buyer of Spectrum's proprietary information would associate with realizing the profit stream deriving from the use of that asset.[26] But, as noted, the parties' experts did so while

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[25] *See, e.g.*, *Miller Elevator Co., Inc. v. United States*, 30 Fed. Cl. 662, 704-05 (1994) (applying fifteen percent profit figure for equitable adjustment); *Big Chief Drilling Co. v. United States*, 26 Cl. Ct. 1276, 1321 (1992) (applying fifteen percent profit figure to calculate breach of contract damages); *Shank-Artukovich v. United States*, 13 Cl. Ct. 346, 360 (1987), *aff'd mem.*, 848 F.2d 1245 (Fed. Cir. 1988) (applying fifteen percent profit in equitable adjustment of contract); *Bata Shoe Co., Inc. v. United States*, 595 F.2d 9, 25 (Ct. Cl. 1979) (14.5 percent); *Graniteville Co. v. United States*, 602 F.2d 282, 302 (Ct. Cl. 1979) (15.8 percent); *A.C. Ball Co. v. United States*, 209 Ct. Cl. 223, 264 (1976) (14.58 percent); *Spruill Realty/Construction Co.*, 85-3 B.C.A. ¶ 18,395 (1985) (fifteen percent).

[26] *See Franconia*, 61 Fed. Cl. at 764 ("the appropriate discount rate . . . must reflect risk, in order to take into account the return the market would demand were an investor called upon to invest capital in the same venture"); *E. Minerals Int'l, Inc. v. United States*, 39 Fed. Cl. 621, 626 (1997) ("The discount rate represents the rate of return an investor would require in order to risk

valuing two dramatically different scenarios with different types of income flows – the former focusing on the value of a lost income-producing asset, the latter upon lost profits. The latter analysis used actual orders as the basis for calculating the income flows, thereby minimizing the risks associated with those flows. Ms. Kedrowski's testimony leaves little doubt that had she taken Mr. Yerman's approach, she would have used a higher rate to discount the income expected from a projection of the sales of the MAC II as of the date of the breach. And the court finds that a modification of the discount factor is, indeed, in order.

Plaintiff's expert derived his sixteen percent rate by combining five components, as follows:

Risk-free rate	4.8%
Equity risk premium	7.0%
Industry risk premium	-2.4%
Size premium	1.3%
Key customer dependence factor	5.0%
Discount rate (rounded)	16.0%

Testimony at trial focused on whether Mr. Yerman used the right industry in selecting his industry risk premium – an important distinction given that the purpose of this premium is to reflect the risks in realizing a return in a given company's industry as compared to the market as a whole.[27]

As can be seen above, in calculating his sixteen percent figure, Mr. Yerman factored in an industry risk premium of -2.4 percent, corresponding to the risk associated with standard industrial classification (SIC) code 37, for firms involved in the manufacturing of transportation

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capital on the project."); *see also In re Lambert*, 194 F.3d 679, 681 (5th Cir. 1999) ("The appropriate discount rate must be determined on the basis of the rate of interest which is reasonable in light of the risks involved."); *Douglass v. Hustler Magazine, Inc.*, 769 F.2d 1128, 1145 (7th Cir. 1985) (same).

[27] The risk-free rate "is the rate of return an investor can obtain without taking market risk," often set at the rate of return on long-term Treasury securities. Ibbotson Assocs., Stocks Bonds, Bills, & Inflation: Valuation Edition 2003 Yearbook, at 253 (2003) (hereinafter "Ibbotson"). The equity risk premium is "the additional return an investor expects to compensate for the additional risk associated with investing in equities as opposed to investing in a riskless asset." *Id*. at 251. The industry risk premium reflects the risks in a given company's industry as compared to the market as a whole. *Id*. at 39. The size premium is the additional return an investor expects when investing in a particularly-sized firm. *Id*. at 38. According to the testimony of the experts in this case, the key customer dependence factor reflects the additional return an investor expects if a set of income flows is heavily dependent upon the continued loyalty of a small group of customers.

equipment. *See* Ibbotson, *supra*, Table 3-5 at 45. The use of a negative figure suggests that the industry in question is viewed as less risky than the market as a whole. Yet, as plaintiff's expert intimated at trial, it is questionable whether a manufacturing code should be used in establishing the value associated with the sale of proprietary information, rather than manufactured goods. A review of the SIC codes suggests that the code for research and development firms (SIC 873) is more appropriately used here. *Id*. at 49. That premium is -1.22 percent, *id*., which, when combined with the other premiums listed above, has the effect of increasing the discount rate (rounded) to seventeen percent.[28] While the Supreme Court has cautioned against a search for "delusive exactness" in setting discount rates, *Jones & Laughlin Steel Corp. v. Pfeifer*, 462 U.S. 523, 546 (1983), this seventeen percent figure is, in the court's view, more appropriately used in calculating the damages owed here.

D.

A final word is necessary before setting the amount of damages owed plaintiff. Near the end of its case, defendant sought to introduce evidence to support an argument that the Air Force's breaches of the CRADA caused no damages. Specifically, it attempted to show that, even if the Air Force had honored the CRADA, plaintiff would not have received the MAC II contract. Of course, this claim further misapprehends plaintiff's case, which, again, is not based upon the assumption that it would have been awarded the MAC II contract. Nevertheless, plaintiff strenuously objected to this evidence, noting that defendant had failed to raise this causation defense in response to contention interrogatories or in Ms. Kedrowski's main expert report. And the court sustained that objection.

The court still believes it was right in doing so, mainly because a response to a contention interrogatory is a judicial admission.[29] While defendant claims that plaintiff was aware that it

[28] The figure actually comes out to 16.88 percent, but, when rounded becomes seventeen percent. The change to the research and development SIC code has ramifications on the capital charges for fixed assets as well. Both parties deducted this charge from their calculations to account for profits that were not attributable to the proprietary information. The capital charge for fixed assets is calculated based on the "fixed assets/sales ratio." The ratio corresponding to engineering research and development, SIC 8731, is 0.09, as compared to 0.12, corresponding to the manufacturing code used by plaintiff's expert. RMA Studies, *supra*, at 1173 (SIC 8731 – Research and Development in the Physical, Engineering, and Life Sciences). The decrease in this ratio increases the overall value of the proprietary information by $26,832.

[29] *See Am. Auto. Ass'n v. AAA Legal Clinic*, 930 F.2d 1117, 1120 (5th Cir. 1991); *Airco Indus. Gases, Inc. v. Teamsters Health & Welfare Pension Fund of Phila.*, 850 F.2d 1028, 1036 (3d Cir. 1988); *Tritek Techs., Inc. v. United States*, 63 Fed. Cl. 740, 752 (2005); *see also O2 Micro Int'l, Ltd. v. Monolithic Power Sys., Inc.*, 467 F.3d 1355, 1365 (Fed. Cir. 2006) ("discovery is designed to allow . . . the plaintiff to pin down the defendant's theories of defense, thus confining discovery and trial preparation to information that is pertinent to the theories of the case").

might make this argument,[30] the court believes that defendant's failure to supplement its interrogatory responses or expert report to make clear its intent hindered plaintiff's ability to mount a full response to this defense. *See Dairyland Power Coop. v. United States*, 2008 WL 5122339, at *6 (Fed. Cl. June 20, 2008) (preventing defendant from introducing evidence based on theories not revealed in its response to contention interrogatories). At the least, had the court allowed defendant to proceed with this defense, it would have, by all rights, been required to extend trial to allow plaintiff, which had already completed its case in chief, an opportunity to prepare and make a response. Given the advanced stage of the proceedings and defendant's failure to offer any justification for its failure to comply with the rules, the court was not prepared to start down this path.[31]

Moreover, in the court's view, defendant experienced no legal harm in failing to present this evidence. As defendant's proffer reveals, the evidence excluded related primarily to the Air Force's evaluation of the proposals made in response to the MAC II RFP. This evidence falls far short of proving that D&D would have won the competition even absent the Air Force's breach of the CRADA. Indeed, defendant seems to gloss over the obvious fact that the entire MAC II competition – from the specification in the RFP to the baselines used by the evaluation team – would have been entirely different had Air Force officials not breached the CRADA. Far more compelling evidence, indeed, suggests that D&D would not have been able to offer a viable design of the MAC II had the Air Force not provided it (and the rest of the competitors) with Spectrum's proprietary information. In fact, D&D's subsequent performance under the contract reveals that, even with the advantages it was afforded as the result of the Air Force's breach of the CRADA, it has largely been unable to produce a MAC II that meets the specifications developed by Spectrum.

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[30] Defendant argues that it revealed this theory when, in its pretrial brief, it stated, "Spectrum cannot demonstrate that it would have been awarded the MAC II contract absent the CRADA breaches." But, this sentence stood alone in the brief and was not amplified upon to make clear how it applied to plaintiff's lost-asset theory, let alone to indicate that it involved a causation defense. Nor did defendant cite any cases in support of this lone sentence so as potentially to give further clues as to its intent. In the court's view, this single sentence thus does not excuse or negate defendant's failure to comply with this court's discovery rules when it was confronted with specific interrogatories regarding the nature of its defenses.

[31] It is noteworthy that this is not the first time that defendant has attempted to invoke a defense in this case belatedly. During the liability stage of this case, the court found that defendant had attempted to raise affirmative defenses in its post-trial briefs that had not been properly pled under RCFC 8(c). *Spectrum*, 84 Fed. Cl. at 743-44. Defendant, of course, is not exempt from complying with this court's rules and must bear the consequences when one of its attorneys fails to raise issues on a timely basis. *See Mattingly v. United States*, 939 F.2d 816, 818 (9th Cir. 1991) ("when the United States comes into court as a party in a civil suit, it is subject to the Federal Rules of Civil Procedure as any other litigant"); *see also United Med. Supply Co., Inc. v. United States*, 77 Fed. Cl. 257, 264 n.7 (2007).

III.

This court cannot subscribe to the overweening level of proof demanded by defendant. One looking for a reason why need go no further than the report accompanying the 1860 legislation that greatly expanded the jurisdiction of this court's predecessor. In that report, Congress observed that the government's "obligations to pay its debts and perform its contracts is quite as imperative as those which rest upon other parties amenable to the laws." H.R. Rep. 513 at 2 (1860). The same report continued that "when the government enters into a contract" –

> its rights, duties, and obligations are to be adjudged and considered in all respects and in all places precisely as if it were a private party; and when it approaches the altar of justice, and submits its rights to the jurisdiction of civil judges, it comes, in all respects, as an ordinary suitor. There is no law for the citizen, in respect to obligations of a pecuniary character, which the government is not bound to observe . . . .

Id. at 4-5. Hewing to these precepts, the proper role of the court here is to weigh the evidence and determine the value of what plaintiff has lost as the result of defendant's repeated breach of the CRADA – nothing more and nothing less suffices.

Plaintiff has established all the traditional elements for recovery of the damages it seeks. Appendix B contains a spreadsheet summarizing the court's findings and reflecting a final value for Spectrum's lost asset – its MAC II proprietary information – using a fifteen percent profit rate and a seventeen percent discount figure.[32] As reflected on this chart, and based on the foregoing, the court finds that plaintiff is entitled to damages in the amount of $1,211,754.[33] The Clerk shall enter an appropriate judgment. Costs to plaintiff.

It is the court's intention to unseal and publish this opinion after February 10, 2011. On or before February 10, 2011, each party shall file proposed redactions to this opinion, with specific reasons therefore.

IT IS SO ORDERED.

s/ Francis M. Allegra
Francis M. Allegra
Judge

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[32] The chart also reflects the modification to the capital charge discussed above.

[33] At the close of trial, the court ordered both parties to provide an electronic version of the spreadsheets that their respective experts used to calculate damages. The figure listed represents the result yielded by both spreadsheets when the adjustments made by this opinion are entered.

Appendix A
Plaintiff Expert's Summary Value of Proprietary Information
As of January 1, 2003

	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Sales (units)[1]	11	20	20	20	20	20	20	20	11	162
Sales price[2]	$128,206	$128,206	$128,206	$128,206	$128,206	$128,206	$128,206	$128,206	$128,206	
Revenues	1,410,266	2,564,120	2,564,120	2,564,120	2,564,120	2,564,120	2,564,120	2,564,120	1,410,266	20,769,372
Profit[3]	282,053	512,824	512,824	512,824	512,824	512,824	512,824	512,824	282,053	4,153,874
Less:										
Capital charge - working capital[4]	15,614	28,388	28,388	28,388	28,388	28,388	28,388	28,388	15,614	229,947
Capital charge - fixed assets[4]	17,753	32,278	32,278	32,278	32,278	32,278	32,278	32,278	17,753	261,450
Total capital charges	33,366	60,666	60,666	60,666	60,666	60,666	60,666	60,666	33,366	491,396
Profit attributable to proprietary information	248,687	452,158	452,158	452,158	452,158	452,158	452,158	452,158	248,687	3,662,478
Discount factor (to 2003)[5]	0.8004	0.6900	0.5948	0.5128	0.4421	0.3811	0.3285	0.2832	0.2441	
Value (as of 2003)	$199,052	$311,993	$268,960	$231,862	$199,881	$172,311	$148,544	$128,055	$60,716	$1,721,373

Notes
1. Based on total units of 162 (e.g., "MAC Acquisition Strategy," Pl. Ex. 59, p. 7)
2. Based on 8-year production schedule price per the Unsolicited Proposal.
3. Based on profit margin of 20%. Does not consider CRADA costs.
4. See Exhibit 2.
5. Discounted to 1/1/03 at 16% using the mid-year convention. See Exhibit 3.

Appendix A
Defendant Expert's Summary Value of Proprietary Information
As of January 1, 2003

	MAC II Prototype	MAC II Production Units										
		D.O. 0004				D.O. 0005	D.O. 0006	D.O. 0007	D.O. 0008	D.O. 0009		Grand
	2004	2006	2006	2006	2006	2006	2007	2007	2008	2008	Total	Total
Sales (units)[1]	1	7	8	8	7	2	9	26	1	2	70	71
Sales price[2]	$470,590	$104,548	$94,603	$85,693	$85,499	$85,499	$85,499	$85,499	$85,499	$85,499		
Revenues	$470,590	$731,837	$756,823	$685,544	$598,496	$170,999	$769,495	$2,222,985	$85,499	$170,999	$6,192,677	$6,663,267
Profit[3]	$70,589	$109,776	$113,523	$102,832	$89,774	$25,650	$115,424	$333,448	$12,825	$25,650	$928,902	$999,490
Less:												
Capital charge - working capital[4]	$5,210	$8,102	$8,379	$7,590	$6,626	$1,893	$8,519	$24,612	$947	$1,893	$68,562	$73,772
Capital charge - fixed assets[4]	$5,924	$9,213	$9,527	$8,630	$7,534	$2,153	$9,687	$27,983	$1,076	$2,153	$77,955	$83,879
Total capital charges	$11,134	$17,315	$17,906	$16,220	$14,160	$4,046	$18,206	$52,595	$2,023	$4,046	$146,517	$157,651
Profit Attributable to proprietary information	$59,455	$92,461	$95,617	$86,612	$75,614	$21,604	$97,218	$280,853	$10,802	$21,604	$782,385	$841,839
Discount Factor (to 2003)[5]	0.8004	0.5948	0.5948	0.5948	0.5948	0.5948	0.5128	0.5128	0.4421	0.4421		
Value (as of 2003)	$47,588	$54,999	$56,877	$51,520	$44,978	$12,851	$49,852	$144,018	$4,775	$9,550	$429,420	$477,008

Notes:
1. Based on one MAC II prototype, data exhibits and one "first article test" MAC II received by the Air Force and 69 production units ordered by the Air Force under the Contract. Order amount and timing based upon Defendant's Response to Plaintiff's First Set of Quantum Interrogatories, page 8.
2. Based on Pricing Table in Section B of Spectrum's Final Proposal.
3. Based on profit margin of 15% - Although I understand the regulations cited by Mr. Yerman do not apply to firm fixed priced contracts, for settlement purposes I have cacluated Spectrum's expectation damages using the 15% profit margin opined by Mr. Yerman in this analysis.
4. See Exhibit C-1.
5. Discounted to 1/1/03 at 16% using the mid-year convention per Report of Robert N. Yerman, Exhibit 3.

Appendix B
Modified Proprietary Information Value
As of January 1, 2003

	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Sales (units)	11	20	20	20	20	20	20	20	11	162
Sales price	$128,206	$128,206	$128,206	$128,206	$128,206	$128,206	$128,206	$128,206	$128,206	
Revenues	1,410,266	2,564,120	2,564,120	2,564,120	2,564,120	2,564,120	2,564,120	2,564,120	1,410,266	20,769,372
Profit	211,540	384,618	384,618	384,618	384,618	384,618	384,618	384,618	211,540	3,115,406
Less:										
Capital charge - working capital	15,614	28,388	28,388	28,388	28,388	28,388	28,388	28,388	15,614	229,947
Capital charge - fixed assets	13,718	24,942	24,942	24,942	24,942	24,942	24,942	24,942	13,718	202,029
Total capital charges	29,332	53,330	53,330	53,330	53,330	53,330	53,330	53,330	29,332	431,976
Profit attributable to proprietary information	182,208	331,288	331,288	331,288	331,288	331,288	331,288	331,288	182,208	2,683,430
YEAR	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	
Discount factor (to 2003)	0.7902	0.6754	0.5772	0.4934	0.4217	0.3604	0.3080	0.2633	0.2250	
Value (as of 2003)	$143,976	$223,738	$191,229	$163,444	$139,696	$119,398	$102,050	$87,222	$41,002	$1,211,754