

In The United States Court of Federal Claims

No. 04-1366C

(Filed Under Seal: November 13, 2008)

(Reissued: December 8, 2008)¹

SPECTRUM SCIENCES and
SOFTWARE, INC.,

Plaintiff,

v.

THE UNITED STATES,

Defendant.

-
- * Government contract case; Trial;
 - * Cooperative Research and Development
 - * Agreement (CRADA); Munitions assembly
 - * conveyor; Stevenson-Wydler Technology
 - * Innovation Act and Federal Technology
 - * Transfer Act; Construction of contract –
 - * scope of protected “proprietary information;”
 - * Inappropriate reliance upon website in
 - * attempting to demonstrate that information
 - * was generally available; CRADA repeatedly
 - * breached when proprietary information was
 - * released to unauthorized recipients; CRADA
 - * limitation on damages; Reverse-engineering
 - * – failure to plead affirmative defense under
 - * RCFC 8(c).

OPINION

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

Lauren Springer Moore, United States Department of Justice, Washington, D.C., with whom was *Jeffrey S. Bucholtz*, Acting Assistant Attorney General, for defendant.

ALLEGRA, Judge:

This government contract case arises from a dispute over a Cooperative Research and Development Agreement (CRADA) entered into between Spectrum Sciences and Software, Inc. (Spectrum) and the United 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. Plaintiff, however, contends that the Air Force repeatedly violated the CRADA by releasing its proprietary information to unauthorized recipients, including its competitors. The latter releases, plaintiff asserts, led a competitor to obtain a contract for building a new conveyor system that should have been awarded to plaintiff.

¹ An unredacted version of this opinion was issued under seal on November 13, 2008. The parties were given an opportunity to propose redactions, but proposed none.

I. FINDINGS OF FACT

Based on the record at trial, including the parties' joint stipulations, the court finds as follows:

Spectrum is a Florida-based corporation that has supplied the United States with munition assembly systems. The United States acted primarily in this matter by and through the Air Force Materiel Command, and within that command, the Munitions Materiel Handling Equipment (MMHE) Focal Point of the Air Armament Center, Eglin Air Force Base, Florida (Eglin). The MMHE Focal Point researches and develops munitions support equipment for the Air Force and served as the primary point of contact for Spectrum under the CRADA in question.

A. The MAC

Over the course of the Vietnam War, the United States Air Force dropped a staggering number of bombs. At times, a single B-52 Stratofortress carried as many as 108 bombs per sortie, each weighing 500 pounds. A Vietnam-era airfield might accommodate 30 such aircraft. Thus, for any given sortie, the Air Force loaded as many as 3,240 bombs, totaling 1,620,000 pounds onto these B-52s. To complicate matters further, the bombs did not arrive at the airfield fully-assembled. The largest component was the bomb body, the elongated, football-like housing that encased the primary explosive core. To that body, Air Force technicians had to attach several components, among them a fuse, a booster and the fins.²

To facilitate this assembly process, in the early 1970s, the Air Force began to develop the Rapid Assembly Munitions Systems (RAMS), later named the Munitions Assembly Conveyor (MAC). As the accompanying picture illustrates, the MAC, in essence, was an assembly



² Dwight Howard, Spectrum's Chief Operating Officer, who spent 28 years in the Air Force and had extensive experience with munitions, testified that the combination of the fuse, booster and bomb is known as the "explosive power train" – "[t]he fuse ignites the booster, and the booster ignites the bomb." Mr. Howard further adumbrated that the fins act like "fletchings on an arrow," keeping the bomb from tumbling as it falls.

line for building bombs. The MAC was placed in a secure location adjacent to the flight line – close enough to facilitate the rapid delivery of munitions; far enough, so that an accidental explosion would not damage the airplanes. As originally developed, the MAC had two gantries – tall metal frames that each supported a hoist, one to lift bomb bodies onto the MAC (the on-load gantry), the other to remove them after assembly (the off-load gantry). These two gantries were connected by a forty-foot conveyor, along which the bombs moved as they were assembled.

The MAC was designed primarily to handle 500-pound bombs, which arrived on-site on pallets – three to a pallet, usually stacked and fastened two pallets high. At workstations near the MAC, technicians assembled smaller components into the several larger components that were added to the bomb bodies. These larger components were gradually attached to the bomb body, as it moved along the assembly conveyor. Before being off-loaded, an “arming wire,” which kept the fuse from activating until after a pilot released the bomb while in flight, was attached. Once this final step was completed, a hoist attached to the off-load gantry removed the fully-formed bomb from the assembly conveyor where it was loaded onto a transport vehicle, to be taken out to the flight line and attached to an awaiting plane. Used at peak efficiency, the MAC could churn out one 500-pound bomb per minute.

By the late-1990s, the Air Force’s increasing dependence upon guided bomb units (GBUs), or “smart” bombs, created significant problems for the MAC. These bombs still arrived at the airfield disassembled. But, owing to their sophisticated guidance systems and larger explosive packages, once assembled, they weighed upwards of 2,800 pounds each. This meant that the MAC, with its 4,000 pound weight capacity, could sometimes handle only a single munition at a time, significantly slowing the assembly process. In fact, these heavier smart bombs adversely affected the MAC’s performance in several ways. First, the hoist on the MAC was operated manually by technicians. While the heavier bombs could be accommodated by the hoist, the weight caused fatigue among the technicians, slowing the process and increasing the likelihood of accidents. Second, it was difficult for workers to hold these heavier munitions in place on the MAC while they attached and tightened the laser guidance package and others components to the bomb frame. Third, due to their increased weight, the GBUs tended to jam up along the conveyor or roll off the end, creating obvious hazards for the technicians. These problems were exacerbated when the MAC was deployed in areas that lacked suitable lighting or were subject to extreme temperatures. Despite a need to upgrade or redesign the MAC to deal with the larger munitions, the Air Force, for reasons unexplained, did not allocate funds or other resources to the MMHE Focal Point for this purpose.³

³ One possibility is that the Air Force was unsure how to proceed. In the late 1990s, there were significant questions as to whether the existing design of the MAC could be modified to accommodate the new and larger munitions. M. Sgt. Scott Ahlborn, who was the MMHE project manager at Eglin during most of the period in question, testified:

Q.: The problem with respect to the gantry . . . is that with 2,000 pound bombs as guidance systems were added while the bombs were

B. Plaintiff's Pre-CRADA Activity

Where the Air Force saw problems, Spectrum saw opportunity. It recognized the need for upgrading the MAC and knew that the MMHE Focal Point lacked the resources to accomplish this. Beginning in early 2000, it began a significant, self-funded effort to improve the MAC. Spectrum pursued this project in hopes of becoming the Air Force's principal supplier of a retooled MAC. It set up a MAC in one of its laboratories and committed personnel, other equipment and resources to address the problems that had been encountered in using the MAC to assemble new smart munitions.⁴ It focused, in particular, on: (i) increasing the gantry load limit so that more bombs could be assembled simultaneously; (ii) improving the hoists used to lift bombs on and off the gantry; (iii) modifying the conveyor and braking systems, again to accommodate heavier munitions; (iv) modifying the interface control board (ICB) to make it both electrical and pneumatic; (v) developing work tables by using the lids from the aluminum containers in which the MACs were transported; and (vi) improving the lighting systems associated with the MAC.⁵ The following findings relate to these improvements.

literally on the MAC assembly line the bomb became too heavy to move more than one at a time on the back end of the gantry. Is that correct?

A.: Yes.

Q. And at the time you joined the MMHE Focal Point there was a significant question as to whether the existing design of the MAC could even handle the kind of weight necessary to take two of these bombs off with their guidance packages associated. Is that correct?

A.: Yes.

In September of 1999, attendees at a MMHE Focal Point meeting discussed whether the existing MAC could support 6,000 pounds. The minutes of that meeting reflect that the Air Force proposed to "perform a detailed engineering analysis to determine if the RAMS gantry weight capacity can be increased from the current 4,000 lbs to 6,000 lbs without modification." "If that proves unfeasible [sic]," the minutes continued, "the Air Force should outline additional support mechanisms (struts, support beams, and bars) or other modifications that would be needed to increase the weight capacity."

⁴ This laboratory was located at Spectrum's facility in Fort Walton Beach, Florida – a secure installation, access to which required secret clearance. Those wishing to access the manufacturing and laboratory areas had to go through further security controls.

⁵ Mr. Howard testified that he had identified some of these problems while working with the MAC while in the Air Force. Spectrum also identified and prioritized these problems based upon information drawn from various conferences and other interactions with field personnel.

1. The Gantry Load Limit

To improve the gantry, Spectrum hired Wally Brown, the engineer who originally developed the MAC, to determine if the original design of the gantry could support 6,000 pounds. As confirmed by contemporaneous e-mails, by early April of 2000, Mr. Brown, using the engineering analyses funded by Spectrum, determined that the existing gantry could be upgraded to bear 6,000 pounds by modifying the spreader beam (a crosspiece on the gantry). On April 8, 12, and 20, 2000, Mr. Brown provided Spectrum with successively more detailed drawings illustrating his recommended improvement, together with the supporting calculations.⁶ Using these drawings, Spectrum built a steel prototype of the upgraded gantry.

2. The Hoist

The MAC originally incorporated a pneumatic hoist that sometimes froze in cold weather. Spectrum conceived of using a more advanced hoist to avoid this problem and to increase the MAC's lifting capacity. Initially, it tested and employed a commercial, off-the-shelf 4,000 pound pneumatic hoist supplied by Ingersoll Rand Corporation (Ingersoll Rand), modifying it to hook onto the MAC system. Spectrum also wanted to add an electric hoist to the MAC, but found that those that it considered at first functioned poorly in hot weather. To solve this problem, Spectrum again teamed with Ingersoll Rand, with the latter contracting a Swedish company to build a motor that could lift 5,500 pounds and reliably run in hot and cold weather. The hoist that incorporated that motor had the additional benefit of using ordinary vegetable oil as a lubricant. Spectrum also powered the lateral movements of the hoist (which previously had been dragged manually along the line), allowing the hoist not only to be moved along the conveyor at the push of a button, but also to remain relatively stable even when fully loaded with bombs. The resulting configuration proved easier to use and safer.

3. The Conveyor and Braking Systems

Spectrum also improved the rail conveyor system employed to move the bombs along the assembly line. To keep the heavier smart bombs from canting on the rails and jamming the

⁶ Emphasizing the importance of this analysis, Mr. Howard testified that –

Without doing the stress analysis that Spectrum did, that Wally Brown did, I don't think there's any way that you would know if the current gantry system could be used or not. Without this stress analysis, and without the research and development that we did to figure out if this current system was even usable, could not have been done without this.

We didn't know. I didn't know, the Air Force didn't know, nobody knew if we could take the current one and make it work as a 6,000-pound gantry until we did the analysis of it, the engineering analysis.

system, Spectrum modified the dolly rollers to incorporate larger bearings, thereby keeping the larger bombs from actually touching the rails. This allowed the bombs to move freely down the rails. That ease of movement, however, made it necessary to improve the braking system for the MAC, to ensure that bombs could be stopped, where needed, along the rails. The original dolly stop employed on the MAC could not always halt a 2,000 pound bomb loaded with all its components, sometimes causing bombs to jump the track and land on the floor. To prevent this, Spectrum developed a new brake that incorporated a plastic shock-absorbing device that would remain attached to the MAC, to be used as needed. In addition, Spectrum began work on modifying the rail conveyor to add a torque bar to hold the bomb in place while the technicians tightened (torqued) the screws holding the heavy guidance systems to the bombs. This torque bar ran through the lugs of the bomb and then was pinned to a webbing underneath the assembly table, holding the bombs still while the technicians applied the 625 foot-pounds of torque necessary to tighten these connections properly.

4. Interface Control Board

The ICB interfaced with an external generator and air compressor and, in turn, regulated and relayed: (i) electricity to the electrical components of the MAC, such as the lighting system; and (ii) compressed air to the pneumatic hoists located on either side of the gantry. Teaming again with Ingersoll Rand, Spectrum worked on a redesign of the ICB, particularly focusing on reducing the moisture in the air lines and pneumatic hoist that tended to freeze in severely cold temperatures.⁷ To prevent this, Spectrum introduced two filters into the ICB – the first removed 99.6 percent of the impurities from any moisture being pumped into the system, while the second removed the moisture itself before it reached the air lines and the pneumatic hoist. In addition, Spectrum modified the ICB to include a number of new electrical connectors to support not only the electric hoist, but also general lighting and power tools.

5. Work Tables

Spectrum noted that the technicians using the old MAC were often forced to assemble smaller components on whatever surface was handy, including empty component boxes or even

⁷ As described by Mr. Howard in his testimony:

We realized that the ICB had had a problem for a long time, particularly in cold-weather environments. Having spent eight years of my career in Alaska, I experienced some of those problems first-hand.

When the MC-7 air compressor is running, it generates a huge amount of moisture. That moisture goes through the lines into the air lines, and freezes up. At 50-below, you're not quite dead in the water, but you're dead; you can't do anything with that, with that system at that point, other than let it thaw or replace the line.

the ground. Adding work tables to the MAC configuration, however, threatened to increase the weight of the redesigned unit, an undesirable result. To solve this problem, Spectrum developed a way to convert the lids from the aluminum containers that were used to transport the MACs into work tables. Spectrum designed and then fabricated aluminum legs that could be attached, without any special tools, to the container tops using pins. These legs were light-weight and could be transported in the existing MAC containers.⁸

6. Lighting

There were several problems with the high sodium lights on the existing MACs. They were inadequate to support night operations fully, did not supply enough light below the gantry to facilitate assembly steps occurring underneath the bombs, and projected an unnatural orange light that strained the eyes of the technicians. To solve these problems, Spectrum worked with Duraguard Products, Inc., to identify lights that would have the attributes of daylight, yet supply the requisite candlepower. Beginning, in earnest, in May of 2000, Spectrum used its laboratory to fine-tune this lighting option. Ultimately, Spectrum's new lighting system involved six halite lights with mounting brackets. Two of these lights had junction boxes that contained three 120-vac receptacles, eliminating the need for running separate extension cords to the ICB. These lights also provided light below the gantry. On July 24, 2000, Spectrum tested the lighting system on its prototype gantry, measuring the candle power at various places along, and away from, the conveyor line, and confirming that the new system could power on quickly and provide welder-quality light throughout the assembly area.

* * * * *

At this juncture, Spectrum had made significant progress in solving the problems that had haunted the MAC, but needed the Air Force's cooperation if it was to further refine and test the improvements, ultimately, of course, with an eye to marketing them to the Air Force. To meet these goals, some time in the Spring of 2000, Spectrum began to negotiate with the Air Force the terms of a CRADA.⁹

⁸ Prior to conceiving this idea, Spectrum had become the Air Force's primary vendor for the aluminum containers, which were originally manufactured by a third party. After acquiring the rights to this product, Spectrum improved the containers by adding braces to the corners.

⁹ At trial, Mr. Howard described Spectrum's incentive to enter into the CRADA thusly –

Well, we had done a considerable amount of research and development, spent a lot of money in our lab to try to solve the problems that the Air Force had on the MAC. And we wanted to know what we could do, or how we could sell our product to the Air Force. Is there a contract vehicle that we could use to verify the combat capability, get the Air Force involved with what we were doing, and build a MAC for them.

C. The CRADA

At the conclusion of these negotiations, in October 2000, the parties entered into the CRADA in question, which the Air Force drafted. Article 3 of the CRADA indicated that the nature and scope of the work to be performed under the agreement was set forth in two appendices, enumerated A and B. As described in Appendix A, the purpose of the CRADA was to “provide a vehicle for the research, development, design, and fielding of improved munitions handling and loading support equipment and therefore improve the combat capability of the United States Air Force.” Noting that Spectrum already had a MAC laboratory within its facility, Appendix A indicated that the “CRADA will allow the Air Force and Spectrum to share in the exchange of ideas and demonstrate the form, fit and function of newly designed and improved munitions related handling items.” It emphasized that both parties brought strengths in terms of personnel, experience and know-how to the project and that “recognition of the potential mutual benefits provides the basis for this CRADA.”¹⁰

Various provisions in the CRADA defined the parties’ respective rights and obligations. Section 3.1 of Appendix A defined the “goals” of the CRADA as follows:

GOALS. The parties agree UNDER this AGREEMENT to provide professional and technical resources to conduct the research, development, and testing of munitions support equipment to mature the technology for commercial/military applications. In general the goals of this cooperative effort are to:

- (a) Analyze and evaluate munition handling equipment system and subsystem components to determine their potential for improvement.
- (b) Analyze, design, and fabricate various munition handling equipment system and subsystem components for testing.
- (c) Conduct static and operational load tests to determine the ability of improved components to withstand the rigors of military operations.
- (d) Document the results of the analysis, design, fabrication, and testing UNDER this AGREEMENT.
- (e) Integrate the following specific improvements to the RAMS:

¹⁰ The CRADA stated that plaintiff and the United States, as represented by the Air Force’s Air Armament Center, would be referred to as “COLLABORATOR” and “UNIT,” respectively. References therein to the “WMOM” appear to be to the MMHE Focal Point.

GANTRY

- Increasing weight capacity of gantry to 6,000 pounds.
- Method of marking gantry poles to facilitate assembly.

HOIST

- Increasing hoist capacity to 3-tons.
- Application of Commercial Off The Shelf (COTS) hoists which are more reliable and at least maintain the same speed as current hoist; improved speed would greatly benefit the user.
- Providing an electric hoist option in non-mobility (permanent) RAMS installations while keeping the pneumatic hoist capability for mobility.
- Providing motorized hoist trolleys for horizontal hoist I-Beam movement on the gantry.
- Providing sturdier air hose/electric line keeper trolleys.

INTERFACE CONTROL BOARD (ICB)

- Improving the ICB by increasing airflow through the unit and providing better commercial moisture separators, filters, regulators, and oilers.
- Incorporating more outlets in the electrical component of the ICB.

TOOLS

- Use of electric impact wrenches for feasibility in non-mobility operations.
- Providing an easy method of securing munitions to dollies/rail conveyor for high torquing of Guided Bomb Units (GBUs).

LIGHTING

- Improving lighting for night operations. Lights should cycle on/off without a lengthy warm up/cool down cycle, be commercially available, and run on commonly available power.

RAIL CONVEYOR/DOLLY

- Improving the bomb dollies/rail conveyor for easier munitions movement. Eliminate binding of the dollies during movement.

CONTAINERS

- Investigating container retrofitting to insure adequate protection for the new RAMS configuration.

ADD-ONS

- Providing a protective cover for the user. Cover should protect user from sun and light rain, but be easily removable in the event heavy wind occurs.
- Integrating a portable table for fuze/miscellaneous parts assembly.
- Alternative protective coatings for the RAMS that last longer and are more environmentally friendly than the paint in use today.

Section 3.2 of Appendix A further defined Spectrum's responsibilities as including the following:

- (a) Assist in the analysis and design of improved munitions handling system and subsystem components of mutual interest. Several different candidate designs may be processed using design data supplied by WMOM and taking into account the physical parameters of improved designs and materials.
- (b) Provide all necessary raw materials and fabrication of the various system and subsystem improvements selected for test.
- (c) Conduct testing on various system and subsystem improvements using the munition handling system laboratory located at Spectrum.
- (d) Participate in the analysis and documentation of test results from testing of the various improved designs.

Section 3.3 of Appendix A defined the WMOM's responsibilities to include:

- (a) Use operational and maintenance experience and expertise to suggest improvements to munition handling equipment.

- (b) Consult and contribute to system design and analysis of improvements to munition handling and support equipment developed UNDER this AGREEMENT.
- (c) Provide certified inert munition items for use in form, fit, and function testing of improved munition handling equipment as well as the ground support equipment listed in Appendix B.

Article 4.1 of the CRADA made clear that the Air Force would not contribute funds to the CRADA effort, stating that “[i]t is not anticipated that any cash payments will be made by either party to the other for services under this AGREEMENT.” This provision added that Spectrum assumed “all responsibility for costs it incurs before or after the effective date, even if the UNIT fails to obtain approval of, breaches, or abandons, this AGREEMENT.”

Section 4 of Appendix A described the benefits that were to accrue to the collaborating parties. Section 4.1 indicated that Spectrum would benefit by:

- (a) Further development and refinement of munition handling equipment improvements to meet specific requirements of operational systems.
- (b) Knowledge gained about munition handling equipment applications and the system design parameters for operational application.
- (c) The addition to Spectrum’s intellectual property portfolio of any inventions, either joint with WMOM, or singular by Spectrum, according to the terms of this AGREEMENT.
- (d) The possible commercial application of the munition handling equipment improvements to various support equipment where the properties of the new designs enhance operational performance. It should be noted that performance UNDER this AGREEMENT does not constitute endorsement of any product or process and is not the basis for any contract that may incorporate the results of the effort.

Section 4.2 indicated that the Air Force would benefit from the CRADA by obtaining:

- (a) Access to design and performance parameters of improved munition handling equipment, particularly in their operational application.

- (b) Possible additions to the government patent portfolio.
- (c) Access to test results which will allow the government to optimize the future research and development of handling and support equipment for munitions.
- (d) Access to Spectrum's munitions handling laboratory for the joint test and evaluation of handling and support equipment design improvements.

In negotiating the CRADA, Spectrum repeatedly stressed the need for the agreement to protect the designs, technologies and integration technologies it had developed and to ensure the proper use of its proprietary information.¹¹ To accommodate these concerns, the CRADA contained various provisions. Article 2 of the CRADA defined “proprietary information,” as follows:

2.9 “PROPRIETARY INFORMATION” means information which embodies trade secrets or which is confidential technical, business or financial information provided that such information:

- i) is not generally known, or is not available from other sources without obligations concerning its confidentiality;
- ii) has not been made available by the owners to others without obligation concerning its confidentiality;
- iii) is not described in an issued patent or a published copyrighted work or is not otherwise available to the public without obligation concerning its confidentiality; or
- iv) can be withheld from disclosure under 15 U.S.C. § 3710a(c)(7)(A) & (B) and the Freedom of Information Act, 5 U.S.C. § 552 *et seq.*; and

¹¹ In communications with various Air Force personnel, Mr. Howard stressed the importance of protecting Spectrum’s pre-CRADA proprietary data. As he indicated during his testimony: “I discussed [Spectrum’s proprietary rights] with Chief [James P.] Shelingoski, the Chief of MMHE Focal Point. I discussed that issue with Jerry Jones, who was drafting the CRADA at the time. [I told them] [t]hat we had done this development under our, in our lab, at our expense; and we considered this as intellectual property or trade secrets of Spectrum. And we would like to ensure that it’s protected.” During his testimony, Chief Shelingoski confirmed the essential details of this account.

- v) is identified as such by labels or markings designating the information as proprietary.

Article 7 of the CRADA then provided, as follows:

- 7.1 Neither party to this AGREEMENT shall deliver to the other party any PROPRIETARY INFORMATION not developed UNDER this AGREEMENT, except with the written consent of the receiving party. Unless otherwise expressly provided in a separate document, such 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.
- 7.2 PROPRIETARY INFORMATION developed UNDER this AGREEMENT shall be owned by the developing party, and any jointly developed PROPRIETARY INFORMATION shall be jointly owned. GOVERNMENT shall have a GPL to use, duplicate and disclose, in confidence, and to authorize others to use, duplicate and disclose, in confidence, for government purposes, any such PROPRIETARY INFORMATION developed solely by COLLABORATOR UNDER this AGREEMENT. COLLABORATOR may use, duplicate and disclose, in confidence, and authorize others on its behalf to use, duplicate and disclose, in confidence, any such PROPRIETARY INFORMATION developed solely by UNIT. PROPRIETARY INFORMATION developed UNDER this AGREEMENT shall be exempt from the Freedom of Information Act, 5 U.S.C. § 552 *et seq.*, as provided at 15 U.S.C. § 3710a(c)(7)(A) & (B). The exemption for PROPRIETARY INFORMATION developed jointly by the parties or solely by UNIT shall expire not later than five years from the date of development of such PROPRIETARY INFORMATION.
- 7.3 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 party ample opportunity to review such proposed

publication or disclosure, to submit objections, and to file applications for letters patent in a timely manner.

- 7.4 UNIT agrees that any designs, technologies, or the integration of technologies developed under COLLABORATOR funds are proprietary to COLLABORATOR.

These, however, were not the only provisions in the CRADA designed to protect proprietary information. Importantly, Appendix A also recognized that the Air Force and Spectrum had “independently supported research and development in munitions handling and support equipment for various operational applications.” Finding it “prudent to set out the intellectual property that is pertinent to this AGREEMENT,” Appendix A set forth the treatment of proprietary information brought by each party to the agreement, as well as the treatment of intellectual property generated under the CRADA. As to the former, section 5.1.1 of Appendix A stated, as to Spectrum, that –

Spectrum has supported the development of a product line of munitions handling equipment prior to this AGREEMENT and specifically claims intellectual property rights particularly as related to their existing product line, and design work completed on the laboratory RAMS which includes modification of the gantry to 6000 lbs load limit, the braking system on the rail conveyor, the interface control board to make it electrical/pneumatic, modification to the rail conveyor for torque of GBU's, the development of a 5500 lb electric hoist with powered trolley, new lighting system and development of a working table with modification of container lid. WMOM will protect Spectrum's proprietary rights in accordance with Article 7 of this AGREEMENT.

As to the Air Force, section 5.1.2 of Appendix A stated:

WMOM has supported the development of munitions handling equipment both in-house and through contracted efforts. The results of any contracted developments may only be used in performance UNDER this AGREEMENT for government purposes (not commercial). WMOM cannot provide proprietary position or license to Spectrum for any intellectual property not owned by WMOM. Test components or designs not specifically owned by the government, but which the government is entitled to use for government purposes, may be provided under this AGREEMENT to further advance the technology. Spectrum may be required to enter into company-to-company agreements for the protection of such information as a condition of gaining access to it.

Section 5.1.3 of Appendix A indicated that the results of cooperative efforts would be handled under the CRADA itself, presumably referring not only to the articles dealing with proprietary information, but also that dealing with patents. This section indicated that “possible intellectual

property” jointly developed under the CRADA might include: “(A) Particular material designs which can withstand the rigors of the operational environment. (B) Possible component designs which would enhance both the commercial and military application of the technology. (C) Design parameters for advanced munitions handling and support equipment.”¹²

D. The Performance of the Parties under the CRADA

It is unclear from the record when performance under the CRADA began, although there are indications of activity occurring as early as the spring of 2001. As anticipated, 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. All but a few of the drawings that Spectrum shared with the Air Force contained proprietary labels, with a typical legend providing –

PROPRIETARY INFORMATION:

This drawing is the property of SPECTRUM SCIENCES of Ft. Walton Bch., Florida and it contains proprietary and trade information belonging to same. The drawing and its contents are not to be disclosed, used, or duplicated for procurement, manufacturing, or any other purposes except as authorized in writing by SPECTRUM SCIENCES.

Throughout this period, Air Force officials were provided access to, or simply given, various prototypes incorporating Spectrum’s improvements to the MAC. These prototypes had the words “Spectrum-created test items” (or the equivalent) stenciled on them in bright orange paint. Air Force officials were present when these and other items were tested at Spectrum’s laboratory and at the Air Force Combat Ammunition Center (AFCOMAC), located at Beale Air Force Base (Beale). M. Sgt. Ahlborn functioned as the main liaison between Spectrum and the Air Force, frequently reviewing drawings incorporating the improvements, visiting Spectrum’s facilities to observe the testing of improvements, and receiving prototypes for testing by the Air Force.

Progress was documented in a series of quarterly reports sent by Spectrum to Chief Shelingoski. The first of these, dated August 15, 2001, indicates that Spectrum continued to perfect the 4,000 pound pneumatic and manual hoist, which the report reflects not only offered operational advantages, but also was more readily and cheaply available than the existing hoist. The report also notes that “[t]he steel gantry has been modified and tested to meet 6,000 Pounds,” reflecting developments that actually appear to have occurred prior to the CRADA. It

¹² Consistent with these provisions, an internal Air Force e-mail, dated on or about September 27, 2000, recognized – “Any preexisting proprietary data was specifically excluded under the CRADA as outlined in the work plan. Therefore, the CRADA has nothing to do with Spectrum data rights on data not generated under the CRADA. The government is under obligation to protect from release any pre-existing proprietary data.”

indicates that Spectrum is “exploring the cost and engineering requirements to build the gantry from aluminum,” promising that once that concept is complete, “testing will be completed on the final design of the Gantry.” In addition, the report notes that Spectrum had identified and tested electric and pneumatic hoists with capacities of 5,500 and 6,000 pounds, respectively. Spectrum also reported that: (i) engineering for the improvement for the ICB was 50 percent complete; (ii) exploration of a new method to torque the munitions was 80 percent complete; (iii) a new design for the dolly was 30 percent complete; and (iv) new metal halite lights had been identified and tested. The report asserts that Spectrum was approximately six months ahead of schedule.

Succeeding reports reflected progress on the items described above – with that progress advancing in spurts for different items. Overall, though, these reports document steady progress toward incorporating the improvements listed in the CRADA. Thus, for example, while an October 1, 2001, report reveals no further progress as to the hoist, the associated trolleys and the ICB, it indicates significant progress as to the gantry, the rail conveyor/dolly and its new braking system.

Spectrum’s final report to Chief Shelingoski is dated August 15, 2002, and summarizes Spectrum’s activities over the entire project. This report highlights the results of Spectrum’s extensive testing of the gantry,¹³ as follows:

The steel gantry has been modified with a new spreader bar and reinforcements and a new leg brace to accommodate the powered trolleys. It also requires new legs due to the type of metal that the [MAC] was originally built from. This system has been tested to 12,000 lbs to meet the 6,000 lbs requirement.

As to the hoists, Spectrum reported that it had identified and tested both an electric chain hoist (to replace the previous manual hoist), as well as a pneumatic chain hoist. The latter had a

¹³ During his testimony, Mr. Howard described a picture taken of a test in which the redesigned gantry was loaded with bombs and concrete and then hoisted into the air –

We had, as you can see, there’s two hoists here, two 6,000-pound hoists. They have an overload capacity. You can see there’s numerous bombs here, 2,000 pound bombs there. There’s a 3,000 pound piece of concrete there, 500-pound bombs there. And you can see the bags of Sakrete [a type of concrete] that was put on there to get the 13,200-pound test.

We picked this up off the floor, and held it for a certain amount of time, to make sure that the gantry was going to not only be able to operate with 6,000 pounds; that it would safely operate with 6,000 pounds.

This test was important because Air Force regulations require that any piece of weight-bearing equipment must be three times stronger than the minimum requirement.

capacity of 6,600 pounds and contained a manual brake release to allow bombs to be lowered to the ground in the event the hoist jammed. The report further documents that Spectrum had finished a “complete redesign” of the ICB that included new electrical and pneumatic lines. In addition, it indicates that Spectrum had completed the design of a new method to secure ordinance using a torque bar and had redesigned, and incorporated into the MAC, various power tools used in the bomb-assembly process. As to lighting, this final report states that “[n]ew Metal Halite Lights have been identified and tested,” and come with an “aluminum shipping container that meets standards of the MAC shipping and storage set.” The report also indicates that the rail conveyor had been redesigned “utilizing a new lower guide system on dolly with larger heavy duty thrust bearings eliminating diagonal binding and bearing contact during use.” The new system would last “4 times longer than the present model” and incorporated a “dolly stop” that had been field tested for stopping bombs as they rolled along the conveyor. Lastly, this report indicates that improvements to the containers were complete and had been tested, including the fabrication of new, adjustable legs that could be installed into the container lids without special tools to create work tables. In the conclusion of this report, Spectrum expressed its desire to begin providing the Air Force with four of the redesigned MACs per month, stating that it stood “ready to delivery our product to the War Fighter.”¹⁴

Near the time that this final report was drafted, Chief Shelingoski explored with Spectrum officials the possibility of having the Air Force purchase Spectrum’s production drawings for the MAC improvements. His intent was to have the Air Force use those drawing to procure an upgraded MAC. Spectrum, however, demurred, preferring to pursue a contract with the Air Force to manufacture the upgraded MAC. At or around this time, at least one Air Force official suggested that Spectrum submit an unsolicited proposal to sell the Air Force the improved MAC.

E. Post-CRADA Activity, Including the MAC-II Procurement

Unbeknownst to Spectrum, sometime in the latter part of 2002, the Air Force had decided to compete a procurement to build the MAC II, a successor to the MAC. The Air Force team for this MAC II procurement included Lt. Col. Gretchen Rauch, who was the MAC II source selection authority; Jonathan Markle, an engineer; and, notably, several individuals who had been involved actively with the Spectrum CRADA, including M. Sgt. Ahlborn, who had been the

¹⁴ In this regard, the report states –

We believe the most appropriate avenue to complete the upgrade and get the product to the user is to do a modification of the present Munitions Assembly Conveyor at Spectrums facility. We propose to do 4 Munitions Conveyor Assemblies per month; building four new assemblies or choosing four assemblies from the field to seed the line could accomplish this. We believe that the cost and time to upgrade the items in the field would be much less that [sic] buying a new assembly.

CRADA project manager, and Chief Shelingoski, who had been the head of the MMHE Focal Point that participated in the CRADA. The latter officials were assigned to the MAC II procurement even though other comparably-skilled Air Force personnel were available who had not worked on the CRADA. Without revealing the existence of the MAC II procurement, several Air Force employees requested information from Spectrum for use in the MAC II effort. For example, in an e-mail dated September 24, 2002, Chief Shelingoski asked Mr. Howard to comment on a statement of objectives that would ultimately be incorporated into the MAC II procurement documents. Later, on December 31, 2002, M. Sgt. Ahlborn requested a series of pictures from Spectrum for a briefing of Air Force officials, without revealing that the briefing involved the MAC II procurement.¹⁵

Still unaware of the MAC II procurement, Spectrum, on February 19, 2003, submitted an unsolicited proposal to the Air Force. The cover page of this proposal pointedly warned:

¹⁵ In the e-mail, M. Sgt. Ahlborn indicated that he was “building a briefing for the IPT and want to present the successes of the MAC upgrade to the MAJCOMS/Robins,” adding “[i]f you could assist me it would be most appreciated.” At trial, M. Sgt. Ahlborn candidly testified regarding this e-mail, as follows:

Q.: On December 31, 2002, you emailed Dwight Howard at Spectrum. Isn't that correct?

A.: Yes.

Q.: And you asked him to send you pictures –

A.: Yes.

Q.: – from the CRADA process?

A.: Yes.

Q.: And that's where those pictures in that briefing came from?

A.: I'm not sure what percentage because I have other pictures. I'm not sure the percentage from this email that ended up in there, but I do assume some of them were a result of this email.

Q.: When you sent this email you didn't tell Dwight Howard that those pictures were going to be used in a briefing related to the competitive acquisition, did you?

A.: No.

The 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; provided, that if a contract is awarded to this offeror as a result of or in connection with the submission of these data, the Government will have the right to duplicate, use, or disclose the data to the extent provided in the contract. This restriction does not limit the Government's right to use information contained in the data if obtainable from another source without restriction.

In the proposal, Spectrum offered to build a so-called Combat Munitions Assembly Conveyor (CMAC), using the information developed under the CRADA. Section 3 of the proposal presented Spectrum's solutions to the new system requirements identified through the CRADA process. It noted that a prototype incorporating the revised design requirements had been built and tested under the CRADA. Section 4.0 of the unsolicited proposal specifically identified the problems/deficiencies that were nagging the current MAC and provided design details, including diagrams and test results, for the following components: MAC Gantry (section 4.1); Hoists (section 4.2); Hoist Trolley (section 4.3); Triple Bomb Bar (section 4.4); Hose/Line Trolley (section 4.5); Interface Control Board (section 4.6); Lighting (section 4.7); Conveyor Bearing Rails (section 4.8); Dolly Stops (section 4.9); Conveyor Dollies (section 4.10); Containers (section 4.11); Work Space (section 4.12); Torque Device (section 4.13); Tools (section 4.14); Munitions Assembly Conveyors System Set-Up (section 4.15) and Protective Coatings (section 4.16).

On February 27, 2003, the Air Force acknowledged to Spectrum that it had received the unsolicited proposal. In an internal e-mail, Lt. Col. Rauch directed the contracting officer "to set the unsolicited proposal aside and unopened." But, as revealed by another internal e-mail, the unsolicited proposal was instead circulated among various Air Force officials, including members of the MAC II procurement team.¹⁶ On March 25, 2003, the Air Force sent Spectrum a letter rejecting the unsolicited proposal, revealing therein, for the first time, the existence of the MAC II competitive procurement and encouraging Spectrum to compete in that procurement. The Air Force, however, did not return the proposal to Spectrum. Spectrum complained about how it had been treated to several Air Force officials, including the small business representative at Eglin, Patty Uhrig.

The Air Force proceeded with the MAC II acquisition, continuing to use a team populated with individuals involved with the CRADA. At least two of these individuals – Lt. Col. Rauch and M. Sgt. Ahlborn – specifically admitted that they used Spectrum's CRADA information in connection with this procurement. That information, in fact, proved critical as Mr. Markle, the engineer assigned to draft the performance specifications, had no prior experience with the MAC

¹⁶ An undated e-mail from the contracting officer, Karen S. Turner, to the small business coordinator at Eglin indicated that the unsolicited proposal was seen by "contracting, program management, the head of MMHE, Chief Shelingoski and reviewed by AAC/JAN, Mr. Alan Luthy."

or any other munitions loading system. His superior, Mr. Mark Hillman was aware of the CRADA and the Air Force's access to Spectrum's proprietary materials. Concerned about the unauthorized use of Spectrum's materials, Mr. Hillman instructed Mr. Markle "not to look at anything Spectrum had produced."¹⁷ Mr. Markle, however, repeatedly violated that instruction. He participated in several meetings in which CRADA team members briefed the MAC II acquisition team on the results of the CRADA.¹⁸ A power point presentation from a briefing that occurred sometime between January 7 and 9, 2003, reveals that Mr. Markle received extensive information regarding Spectrum's pre-CRADA improvements to the hoist, trolleys, and ICB. A number of the slides from this briefing included pictures supplied by Spectrum, with banner headings that refer to Spectrum and the CRADA, leaving no doubt as to the source of the information. The MAC II requirements and Spectrum's solutions thereto that were listed on these slides appear to be drawn directly from Spectrum's final status report under the CRADA – indeed, a few slides quote the language from that report verbatim. On February 20, 2003, the MAC II acquisition team received a second briefing that also covered developments during the CRADA. A key findings shared at both briefings – particularly, the first – was that Spectrum had confirmed that a modified version of the existing MAC could support the 6,000-pound weight limit needed to handle multiple GBUs.

In drafting the solicitation documents, Mr. Markle spoke repeatedly with M. Sgt. Ahlborn and Chief Shelingoski, both of whom, again, were very familiar with Spectrum's work product under the CRADA. He also relied upon a requirements document prepared by M. Sgt. Ahlborn, which contained several requirements that appear to have been drawn from Spectrum's work product. This document indicated, for example, that the MAC II had to support 6,000 pounds, include a redesigned ICB with "four weatherproof 110V outlets and commercial water separators," and yet fit into the existing aluminum containers. Overall, M. Sgt. Ahlborn and Chief Shelingoski repeatedly provided Mr. Markle with proprietary information they had

¹⁷ Explaining why he had given this instruction, Mr. Hillman testified that it was "because there was a CRADA, and I didn't want him to be biased by what they had done. We wanted a fresh start, and we wanted new ideas, and I know that the government had had this CRADA, and I wanted to start from a clean slate." He also emphasized – "I'm very knowledgeable in what's proprietary and what's not" and "constantly lecture my employees on this."

¹⁸ At trial, Mr. Hillman was asked –

Q.: . . . If Mr. Markle had attended briefings at which he was briefed essentially on Spectrum's proprietary information, that would have been a direct violation of the orders that you gave him?

A.: Yes.

Later, when asked whether Mr. Markle had ever been briefed with respect to Spectrum's CRADA, he answered, "[t]o my knowledge, no."

obtained from Spectrum. Based upon these communications, as well as the information he gleaned from the briefings, Mr. Markle drafted the solicitation documents with the expectation that the new MAC II would not be a radical design departure from the existing MAC.¹⁹ Proceeding from that key assumption, Mr. Markle developed the new performance specifications by redlining the 1985 requirements for the MAC to add the requirements listed in the document prepared by M. Sgt. Ahlborn. Conspicuously, even though he was responsible for ensuring that the new specifications would function properly, Mr. Markle did not perform any engineering tests or even calculations to verify this.²⁰ Rather, it appears that he simply relied upon

¹⁹ At trial, Mr. Markle admitted that did not know whether the information set forth in the requirements document prepared by M. Sgt. Ahlborn or the information he received through his conversations with M. Sgt. Ahlborn or Chief Shelingoski was information developed by Spectrum prior to the CRADA or pursuant thereto. Indeed, he seemed to proceed from the blithe notion that he could use Spectrum's know-how unless he was specifically looking at a document that contained Spectrum's proprietary markings.

²⁰ At trial, Mr. Markle was somewhat evasive in describing how he evaluated the specifications, particularly the weight-bearing capacity of the gantry. Initially, he suggested that the Air Force had performed a "structural analysis" to make sure that the "material properties" were adequate to support the added weight. When pressed, however, he could not cite any actual analyses that had been conducted to prove that a radical design departure was unnecessary. During one set of questions posed by the court, Mr. Markle responded as follows:

Q.: You also mentioned that one of the other areas that you would bring your engineering knowledge to bear upon was materials, correct?

A.: Correct.

Q.: Explain I guess how you used that engineering knowledge in developing these specifications?

A.: Basically, you have your yield strength and your shear strength of each type of material, you know, your aluminum, your steel, hopefully nothing exotic for your metals, and each one of them has a different type of yield strength, and, you know, if you got a point load of 6,000 pounds on one side of a beam that's, you know, 15 feet long, you could find the analysis of what deformation of the beam would be across that area there.

Q.: So you actually performed those calculations?

A.: Not in particular myself, no.

Spectrum's research to conclude that a radical redesign of the MAC was unnecessary. In addition, Mr. Markle reverse engineered the draft specifications for the MAC II container by simply measuring and weighing the existing containers that the Air Force had purchased from Spectrum.

On April 11, 2003, the Air Force published Draft Request for Proposal No. F08635-03-R-0077 (the Draft 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 prior to its release. The Draft RFP began by stating that a radical redesign of the MAC was disfavored –

1.1 **Background**

The original Munition Assembly Conveyor (MAC) is reaching the end of its service life. The introduction of new and improved munitions has resulted in new requirements, which this aging system does not meet. Air Combat Command and Munitions Materiel Handling Equipment (MMHE) focal point personnel validated these requirements. The original MAC has served the war-fighter well and has many excellent features. Consequently, a radical design departure that invalidates the familiarity and training AMMO personnel have with the current MAC will not be considered unless cost and performance improvements outweigh the negative training impact.

It further indicated that “[t]he MAC II loading and unloading systems shall have a working strength of 6,000 lbs” and “a working strength of 12,000 lbs per 10-foot section,” capable of accommodating “up to thirty, 500-pound class munitions at one time.” Despite these strength increases, the Draft RFP specified that the MAC II “shall be capable of being shipped using the existing aluminum containers.” Regarding the loading and unloading systems, it stated that:

Q.: Did anybody perform those calculations at least that fed into your process?

A.: Not that I know.

At another point in his testimony, Mr. Markle seemed to suggest that he knew, by conducting “market research” (*e.g.*, reviewing catalogs and the internet) that the existing design and materials could be modified to deal with the greater weight. Yet, this testimony makes no sense – in 1999, Air Force officials far more familiar with the MAC than Mr. Markle had concluded that the Air Force needed to analyze and test the gantry to determine whether it could be modified to bear the additional weight. Of course, the Air Force never conducted that analysis and testing – Spectrum did. In light of this history and the rigorous requirements imposed on munition loading, it is highly unlikely that Mr. Markle could confirm the same facts by looking at parts catalogs.

(i) “[t]he MAC II shall have capabilities to lift up to three bomb bodies or 2 fully assembled munitions simultaneously [including GBUs];” (ii) “[a]ll movements of munitions during lifting shall be powered;” and (iii) “safety features shall be included to preclude accidental dropping of the munitions,” including “a manual brake release for lowering munitions in the event of a power failure. In describing the requirements for the ICB, the Draft RFP very specifically indicated that “[t]he control source shall have four 110V, 15 AMP receptacles to power miscellaneous electrical devices not list[ed] in this document.” As to lighting, the Draft RFP specified that “[a] lighting level of at least 75 foot candles shall be maintained over the entire munition assembly/disassembly area at 3 feet above the ground,” adding that “the light furnished shall be as near to the natural light as possible.”

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. Air Force officials and twenty-two individuals from private industry participated in this program. Among the attendees was Mr. Tom Turner, who subsequently was retained by D&D Machinery (D&D) to assist with its MAC II proposal.²¹ At the Industry Day, the Air Force showed the participants a fully-assembled MAC, various munitions in varying stages of assembly, and a MAC compressor. The Air Force also displayed shipping containers that had been purchased from Spectrum. Mr. Hillman and others briefed the group, going through the draft performance specifications, page-by-page, and fielding questions. Later in the day and on the following day, April 17, 2003, Air Force officials, including M. Sgt. Ahlborn, Chief Shelingoski and Mr. Markle, met with each vendor individually, during which time the vendors were allowed to ask additional questions.

As confirmed by contemporaneous documentation, at some point after the Draft RFP was released, Spectrum complained to the Air Force that the document revealed its proprietary information. Mr. Markle, after discussing the matter with at least one of his superiors, agreed to modify the final RFP to remove certain details. On May 1, 2003, the Air Force electronically published the final version of RFP No. F08635-03-R-0077 (Final RFP), again disseminating the document to third parties, including Spectrum’s competitors. The Air Force did not allow Spectrum to review the Final RFP before it was issued. Significantly, the Final RFP deleted paragraph 1.1 quoted above and did not otherwise suggest that the new MAC II requirements could be met without a radical redesign of the MAC. The document also dropped references to certain specific improvements on the ICB (*e.g.*, the location of the electrical receptacles) and the triple bomb bar. Otherwise, the Air Force retained the requirements listed in the Draft RFP, albeit in a somewhat rearranged form.

On May 13, 2003, Mr. Turner, by then representing D&D, visited Beale and was allowed to see a partially-assembled MAC. At this time, several Spectrum prototypes were at Beale for testing. S.M. Sgt. Richard Potratz – the noncommissioned officer in charge, who was aware of

²¹ D&D had produced roughly 150 RAMs for the Air Force, U.S. Navy, the U.S. Marines and foreign military sources.

the MAC II competition and that Spectrum's prototypes were at the base – contacted M. Sgt. Ahlborn requesting direction on how to handle this visit. M. Sgt. Ahlborn directed the Beale team to make sure that Spectrum's prototypes were hidden and not discussed. S.M. Sgt. Potratz also contacted Mr. Howard to inform him of Mr. Turner's presence. Mr. Turner prepared a report memorializing this visit. He began that report by indicating that, at first, the Air Force officials had expressed concerns about his presence at the base, but “then proceeded to provide me with anything I needed to get my information.” His report continues: “I was escorted to the Munitions Storage Area and two M Sgts, Bob Clark and Rob Morris, were assigned to provide any and all information on the MAC they could.” Mr. Turner added that a “MAC was set up in one of their maintenance building and we went over it top to bottom.” He went on to list “areas if concern and improvement,” stating, *inter alia*: (i) “[r]oller guide bearings on dolly are too small and do not contact the rails when the bomb is pushed from nose or tail;” (ii) “[i]t was suggested to add pneumatic hose reel along the MAC rails for the air tools;” (iii) “the design [of the spreader beam on the gantry] needs beefed up;”²² (iv) “[a] big need . . . is the need for at least a three-ton hoist,” with “an improved manual operation gear ratio” for situations in which the hoist's power and air went out; and (v) “new design containers work well;” “[s]tiffeners are being added to the interior walls of the container to increase strength.” The report concluded that “[f]rom the conversation I had with Major Meserve I deduced that no other contractors have been out to see him or his people and so far we are the only company doing this type of research for a proposal.”

Spectrum and D&D were among the several companies that submitted proposals in response to the Final RFP. There were several key similarities between their proposals. Most prominently, each party proposed to meet the requirements of the Final RFP with an updated MAC, rather than an entirely new assembly system. In addition, like Spectrum's proposal, D&D's proposed to use larger dollies to improve the strike clearance on the conveyors and water separators to prevent the air hoses from freezing up. Also like Spectrum's proposal, D&D proposed to use a “[t]orque restraint strap” to meet the torquing requirement of the contract and to convert the container tops into “work stations.” During proposal evaluation, Spectrum and D&D both received a mission capability rating of green (acceptable) and a proposal risk rating of low (the highest possible rating available). Spectrum, however, received a lower rating than D&D on past performance and Spectrum's total evaluated price was approximately six percent higher than D&D's. On August 15, 2003, the Air Force awarded the MAC II contract to D&D.

F. Proceedings to Date

On August 23, 2004, plaintiff filed its complaint in this court. On March 14, 2005, it amended that complaint, reasserting three counts: two relating to alleged breaches of express and implied-in-fact contracts, respectively, and a third averring the misappropriation of trade secrets. In general, plaintiff averred that defendant had failed to safeguard its proprietary information in

²² In his notes, but not his report, Mr. Turner listed the possibility of “go[ing] to aluminum gantrys [sic].” Spectrum, of course, had given consideration to the same idea.

accordance with the CRADA, improperly releasing that information in various ways, including as part of the MAC II procurement. Plaintiff sought damages of \$3.5 million for the resultant financial damage.

Defendant filed its answer on March 31, 2005. On May 31, 2005, it filed a motion for “partial dismissal and partial summary judgment.” On December 19, 2005, the court granted, in part, and denied, in part, defendant’s motion. The court dismissed plaintiff’s allegations to the extent they alleged that defendant was liable on non-contractual grounds, but otherwise denied defendant’s motion. *See Spectrum Sciences & Software, Inc. v. United States*, No. 04-1336, slip op. at 6 (Fed. Cl. Dec. 19, 2005). On February 23, 2007, plaintiff filed its second amended complaint, in which it removed the non-contractual claims, and recast its claim for the misappropriation of its trade secrets into the two contract claims.

Trial in this case was held in Washington, D.C., from November 13 to November 15, 2007. Among those testifying were Dwight Howard, Spectrum’s Chief Operating Officer, as well as several current and former Air Force officials associated with the CRADA and/or the MAC II procurement process. After post-trial briefing was completed on March 7, 2008, closing arguments were held on May 15, 2008.

II. DISCUSSION

Before turning to the arguments here, it is appropriate to say a few words about the statutory regime out of which the CRADA in question arose.

As described by two commentators, “[p]rior to 1980, there were no governmentwide policies to transfer the ownership of inventions made through government-funded research to private parties that could use such technology in a manner that would be productive for society.” Jack E. Kerrigan & Christopher J. Brasco, “The Technology Transfer Revolution: Legislative History and Future Proposals,” 31 *Pub. Cont. L. J.* 277, 279 (2002) (hereinafter “Kerrigan & Brasco”). The Stevenson-Wydler Technology Innovation Act of 1980 (the Stevenson-Wydler Act), Pub. L. No. 96-480, 94 Stat. 2311 (codified, as amended, at 15 U.S.C. § 3701 *et seq.* (1988)), made transfer of technology from federal laboratories to private industry a national priority. *See Chem Serv., Inc. v. Environmental Monitoring Sys.*, 12 F.3d 1256, 1264 (3d Cir. 1993). But, this statute did not have its intended effect as many federal laboratories felt they lacked clear legal authority to enter into cooperative research projects. *See S. Rep. No. 99-283*, at 3-4 (1986) (Federal laboratories “often perceive themselves as unable to enter into cooperative development arrangements because of organizational and legal constraints”). To further pry open the door to such projects, Congress, in 1986, enacted the Federal Technology Transfer Act (FTTA), Pub. L. No. 99-502, 100 Stat. 1785, which authorizes federal agencies to permit the director of government-operated laboratory to enter into CRADAs with private entities. 15 U.S.C. § 3710a(a)(1). The statute defines CRADAs thusly –

As used in this section the term “cooperative research and development agreement” means any agreement between one or more Federal laboratories and one or more non-Federal parties under which the Government, through its laboratories, provides personnel, services, facilities, equipment, intellectual property or other resources with or without reimbursement (but not funds to non-Federal parties) and the non-Federal parties provide funds, personnel, services, facilities, equipment, intellectual property and other resources toward the conduct of specified research or development efforts which are consistent with the missions of the laboratory, except that such term does not include a procurement contract or cooperative agreement as those terms are used in sections 6303, 6304, and 6305 of title 31.

15 U.S.C. § 3710a(d)(1). Commenting on the potential uses of such agreements, the legislative history indicated that the Act “authorizes a broad range of cooperative research and development arrangements where there is a mutual interest between the laboratory mission and . . . private sector organizations.” S. Rep. No. 99-283, at 10; *see also Edmonds Inst. v. Babbitt*, 93 F. Supp. 2d 63, 67 (D.D.C. 2000) (construing the FTTA broadly).²³ Nonetheless, as the statutory language makes clear, “Congress did not intend that CRADAs be used to circumvent the nation’s procurement laws.” *Chem Serv., Inc.*, 12 F.3d at 1265.

In 1989, Congress amended the FTTA to prohibit an agency from disclosing “commercial . . . information that is privileged or confidential” if it “is obtained in the conduct of research or as a result of activities under this chapter [Title 15, Ch. 63, Technology Innovation] from a non-Federal party participating in a [CRADA].” 15 U.S.C. § 3710a(c)(7)(A). These same amendments require an agency to withhold information under the Freedom of Information Act for up to five years if that information “results from research and development activities conducted under this chapter and that would be . . . commercial . . . information that is privileged or confidential if the information had been obtained from a non-Federal party participating in a

²³ As was true of the reports accompanying the passage of Stevenson-Wydler Act, the legislative history of the FTTA made clear that Congress intended to “improve the transfer of commercially useful technologies from . . . Federal laboratories and into the private sector.” S. Rep. No. 99-283, at 1. *See also id.* at 11 (“Although these cooperative research and development arrangements must be consistent with the missions of the laboratories, the primary purpose of the agreements is to take technologies that originate in the laboratories and to stimulate or support their development and commercialization.”); *Pub. Citizen Health Research Group v. Nat. Inst. of Health*, 209 F. Supp. 2d 37, 40 (D.D.C.) (discussing this history); Mark Stevenson, “Technology Transfer and March-In at the National Institute of Health: Introducing Uncertainty into an Era of Private-Public Partnership,” 50 Admin. L. Rev. 515, 522-23 (1998) (same).

[CRADA].” 15 U.S.C. § 3710a(c)(7)(B).²⁴ “In other words,” as one district court put it, “if qualifying information is obtained from the CRADA’s private partner . . . it cannot be disclosed.” *DeLorme Pub. Co., Inc. v. Nat. Oceanic and Atmospheric Admin.*, 917 F. Supp. 867, 872 (D. Me. 1996); *see also Pub. Citizen Health Research Group*, 209 F. Supp. 2d at 43. Congress concluded that this protection was necessary because “the threat of disclosure under [FOIA] of commercial information, developed under the CRADA or otherwise, has been the biggest reason to date for companies declining to enter CRADAs.” H.R. Conf. Rep. No. 101-331, at 761 (1989).²⁵

Against this backdrop, the CRADA at issue is somewhat atypical. While Congress took pains to keep CRADAs from becoming stealth procurement vehicles, plaintiff viewed the CRADA here as a precursor to future sales of redesigned munitions assembly conveyors. It assumed – perhaps reasonably – that if it worked with the Air Force to develop further and test innovative solutions to the problems the MAC had experienced, particularly in dealing with heavier guided munitions, it would garner the inside track either in obtaining a sole-source contract from the Air Force to provide a new MAC or in competing on a similar procurement. The Air Force, though, had other ideas. Unlike the typical CRADA, in which technological

²⁴ Section 3710a(c)(7) reads as follows:

(A) No trade secrets or commercial or financial information that is privileged or confidential, under the meaning of section 552(b)(4) of Title 5 [FOIA Exemption 4], which is obtained in the conduct of research or as a result of activities under this chapter from a non-Federal party participating in a cooperative research and development agreement shall be disclosed.

(B) The director, or in the case of a contractor-operated laboratory, the agency, for a period of up to 5 years after development of information that results from research and development activities conducted under this chapter and that would be a trade secret or commercial or financial information that is privileged or confidential if the information had been obtained from a non-Federal party participating in a cooperative research and development agreement, may provide appropriate protections against the dissemination of such information, including exemption from subchapter II of chapter 5 of Title 5 [FOIA].

²⁵ In 1995, Congress again sought to bolster the rights of private parties entering into CRADAs by enacting the National Technology Transfer and Advancement Act of 1995, Pub. L. No. 104-113, 110 Stat. 775 (codified at 15 U.S.C. § 3710a(b)). Responding to criticisms that CRADAs were inadequately protecting intellectual property rights, *see* S. Rep. No. 104-194, at 5-6 (1995), Congress first guaranteed a CRADA collaborator the right to an exclusive license to any invention made partially or totally by a Government employee within the collaborator’s field of business. 15 U.S.C. § 3710a(b). And it guaranteed title to a collaborator of any invention made by the collaborator’s own staff during a CRADA. *Id.*; *see also* Kerrigan and Brasco, *supra*, at 284-85.

information flows primarily from the Federal government to the private sector, the Air Force wanted a CRADA that would facilitate the flow of information from Spectrum to its program officials. And, at some point, it expected to use this information in procuring the MAC II, albeit not necessarily from Spectrum. It should not be surprising that with these wildly differing expectations, the parties eventually came to loggerheads over whether particular information possessed by the Air Force was protected proprietary information. The focus here, however, is not so much on the parties' differing peripheral expectations, but rather on the contractual terms on which they had a meeting of the minds, *to wit*, the provisions of the CRADA, with specific emphasis on those involving protected proprietary information. And the question, of course, is whether the Air Force breached those provisions.

As in any claim for breach of contract, in order to recover here, plaintiff must establish that: (i) a valid contract existed between it and the government (essentially uncontested here);²⁶ (ii) the contract gave rise to duties or obligations; (iii) the government breached those duties or obligations; and (iv) the breaches resulted in damages. *See San Carlos Irr. and Drainage Dist. v. United States*, 877 F.2d 957, 959 (Fed. Cir. 1989); *Health Ins. Plan of Greater New York v. United States*, 62 Fed. Cl. 33, 43 (2004); *Cornejo-Ortega v. United States*, 61 Fed. Cl. 371, 373 (2004). Plaintiff bears the burden of establishing these elements by a preponderance of the evidence. *See Gibson v. Dept. of Veterans Affairs*, 160 F.3d 722, 728 (Fed. Cir. 1998); *Tech. Assistance Int'l, Inc. v. United States*, 150 F.3d 1369, 1373 (Fed. Cir. 1998); *Die Casters Int'l, Inc. v. United States*, 73 Fed. Cl. 174, 195 (2006).

A. Construing the CRADA – Is the Information in Question “Proprietary Information”?

To determine whether plaintiff's contractual rights were breached, the court first must determine what those rights were. *See San Carlos Irr.*, 877 F.2d at 959; *Cuyahoga Metro. Hous. Auth. v. United States*, 57 Fed. Cl. 751, 759 (2003). Several interpretational guides mark this decisional path. First, as an overarching matter, the court, in interpreting a contract, seeks to “effectuate its spirit and purpose.” *Gould, Inc. v. United States*, 935 F.2d 1271, 1274 (Fed. Cir. 1991) (quoting *Arizona v. United States*, 575 F.2d 855, 863 (Ct. Cl. 1978)); *see also Franconia Assocs. v. United States*, 61 Fed. Cl. 718, 729-30 (2004). Toward that end, contract

²⁶ Recent jurisprudence confirms that a CRADA is a contract for purposes of the Tucker Act, 28 U.S.C. § 1491. The Federal Circuit taught, in *Trauma Service Group v. United States*, 104 F.3d 1321, 1326 (Fed. Cir. 1997), that “any agreement can be a contract within the meaning of the Tucker Act, provided that it meets the requirements for a contract with the Government, specifically: mutual intent to contract including an offer and acceptance, consideration, and a Government representative who had actual authority to bind the Government.” *See also Bay View, Inc. v. United States*, 278 F.3d 1259, 1265-66 (Fed. Cir. 2001); *Stovall v. United States*, 71 Fed. Cl. 696, 698 (2006). And several cases have treated CRADAs as contracts under the Tucker Act. *See PDR, Inc. v. United States*, 78 Fed. Cl. 201, 204-05 (2007); *Parker Beach Restoration, Inc. v. United States*, 58 Fed. Cl. 126 (2003).

interpretation “begins with the plain meaning of the agreement.” *Gould*, 935 F.2d at 1274; *see also Northrop Grumman Corp. v. Goldin*, 136 F.3d 1479, 1483 (Fed. Cir. 1998); *Barseback Kraft AB v. United States*, 121 F.3d 1475, 1479 (Fed. Cir. 1997). “[A]n interpretation which gives a reasonable meaning to all parts,” the law provides, “will be preferred to one which leaves a portion of it useless, inexplicable, inoperative, void, insignificant, meaningless, superfluous, or achieves a weird and whimsical result.” *Arizona*, 575 F.2d at 863; *see also Fortec Constr. v. United States*, 760 F.2d 1288, 1292 (Fed. Cir. 1985); *Franconia Assocs.*, 61 Fed. Cl. at 730; *Northrop Grumman Corp. v. United States*, 50 Fed. Cl. 443, 459 (2001). Second, unlike private contractual undertakings, the contract here was specifically authorized by legislation passed by Congress, requiring the court to consider that legislation in construing it. *See, e.g., Bennett v. Kentucky Dept. of Educ.*, 470 U.S. 656, 669 (1985); *Barseback Kraft AB v. United States*, 121 F.3d 1475, 1480-81 (Fed. Cir. 1997); *Franconia Assocs.*, 61 Fed. Cl. at 731; *Cuyahoga Metro. Hous. Auth.*, 57 Fed. Cl. at 761.

Several parts of the CRADA require little in the way of exegesis. The CRADA protected proprietary information in a variety of ways. First, it required that “such 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.” Further, it required that the parties “confer and consult with each other prior to publication or other public disclosure of the results [under the CRADA] to ensure that no PROPRIETARY INFORMATION or military critical technology or other controlled information is released.” But, these provisions beg two preliminary questions – on which the parties vigorously disagree – that is, what is “proprietary information” under these provisions and whether the items of information in question so qualify? Defendant claims that none of the information which Spectrum supplied the Air Force regarding the MAC qualified as “proprietary information,” as defined in what it believes was the controlling provision in the CRADA, article 2.9. It asserts that the information in question did not meet the requirements of article 2.9.i – that it not be “generally known” or “available from other sources without obligations concerning its confidentiality” – or article 2.9.v – that it be identified “by labels or markings designating the information as proprietary.” Defendant asseverates that at least some of the information in question was broadly available on Spectrum’s website and that many of Spectrum’s drawings did not contain the requisite proprietary markings. In addition, it seeks succor from the requirement in article 7.1 of the CRADA that proprietary information not be delivered “except with the written consent of the receiving party,” which consent, it claims, the Air Force never provided. But, as plaintiff points out, these claims all fall wide of the mark.

For one thing, like old Dobbins, defendant all but dons blinders to section 5.1.1 of the Appendix, which specifically defined certain information as being *per se* proprietary and, as such, to be protected “in accordance with Article 7 of [the CRADA].” Section 5.1.1. noted that Spectrum had “supported the development of a product line of munitions handling equipment prior to the” CRADA and claimed “intellectual property rights particularly as related to their existing product line . . . and design work completed on the laboratory RAMs.” It then specifically indicated that the aforementioned protected information included:

modification of the gantry to 60000 lbs load limit, the braking system on the rail conveyor, the interface control board to make it electrical/pneumatic, modification to the rail conveyor for torque of GBU's, the development of a 5500 lb electric hoist with powered trolley, new lighting system and development of a working table with modification of container lid.

One can scarcely imagine a clearer indication that the listed items were to be protected proprietary information, whether *vel non* they happened to comply with article 2.9 of the CRADA.

Having been specifically identified by section 5.1.1. as protected information for purposes of article 7 of the CRADA, the listed information did not need to qualify yet a second time as “protected information” under article 2.9. To require otherwise would be to render most of section 5.1.1 superfluous, thereby violating one of the cardinal rules of construction stated above. *Arizona*, 575 F.2d at 863; *see also Fortec Constr.*, 760 F.2d at 1292; *Alli v. United States*, 83 Fed. Cl. 250, 269 (2008); *Franconia Assocs.*, 61 Fed. Cl. at 730; *Northrop Grumman Corp. v. United States*, 50 Fed. Cl. at 459. Such a construction of the CRADA, moreover, would clearly frustrate the parties’ intent. Nowhere is that intent more evident than in the aforementioned section 5.1.1 of Appendix A. But that intent is also palpable in other segments of the CRADA, such as section 3.1 of Appendix A, that identify the goals of the CRADA and list therein various technical tasks to be performed in integrating Spectrum’s improvements into the MAC. It also is readily detectable in article 7.4 of the CRADA, in which the Air Force agreed that “any designs, technologies, or the integration of technologies developed under [Spectrum] funds are proprietary to [Spectrum].” This paragraph again suggests that information need not qualify under the definition in article 2.9 in order to be considered proprietary information protected under the other provisions in article 7 of the CRADA.²⁷

To suggest, as defendant does, that the parties agreed that only information qualifying under article 2.9 was protected from disclosure is to leave much unprotected – perhaps, that is defendant’s intent. For one thing, this reading would leave unprotected any information supplied by Spectrum in unwritten form – communications that, quite obviously, could not include the supposedly requisite warning label. That would render fair game for disclosure, for example, several of Spectrum’s major achievements under the CRADA, among them its proof that the MAC could be modified to support 6,000 lbs. safely – proof that came in the form of a test of the

²⁷ Even if the contract was ambiguous on this count – which it is not – the doctrine of *contra preferentem* would dictate that any ambiguity in the agreement be interpreted against the drafter, here, the Air Force, ultimately leading the court to the same interpretation. *See, e.g., United States v. Seckinger*, 397 U.S. 203, 210 (1970) (“[A] contract should be construed most strongly against the drafter, which in this case was the United States.”); *S.W. Aircraft Inc. v. United States*, 551 F.2d 1208, 1212 (Ct. Cl. 1977); *Cuyahoga Metro. Hous. Auth.*, 57 Fed. Cl. at 760 n.14.

gantry witnessed by Air Force officials. Seemingly also unprotected under this interpretation would be any information orally communicated by Spectrum employees to Air Force representatives. Yet, to think that Spectrum acted at its peril any time it allowed one of its employees to talk with an Air Force counterpart is to espouse an utterly irrational *modus operandi* for the conduct of this *cooperative* agreement – and one that the court has utterly no reason to believe was intended. A comprehensive review of the CRADA, in fact, suggests that article 2.9 was designed only to deal with communications embodied in writings or technical drawings – documents that could be marked with appropriate caveats. Extending the requirements of that article further and, particularly, to information already protected as being proprietary under section 5.1.1, would not only frustrate the parties’ intent, but run counter to Congress’ intent in passing the Stevenson-Wydler Act and the FTTA. As discussed above, the latter legislation flatly prohibited agencies from disclosing private commercial information “obtained in the conduct of research . . . from a non-Federal party participating in a [CRADA],” 15 U.S.C. § 3710a(c) (7)(A), so as to encourage the formation of CRADAs. Defendant’s wooden interpretation of the CRADA would turn this legislation on its head, licensing defendant to do precisely that which the statute forbids and, in the process, discouraging the future use of CRADAs – yet another factor that severely undermines its interpretation.

And it should not be overlooked that most of the information items at issue that were communicated in writing meet the definition of “protected information” under article 2.9, at any rate. This finding is particularly important as to information not specifically referenced in section 5.1.1 of Appendix A, such as the work that Spectrum performed in adding stiffeners to the aluminum containers, enlarging the bearings on the rail conveyor, designing a manual brake release on the hoist, and developing tool trays that could be attached to the gantry.²⁸ In contending that these and other items do not meet the requirements of article 2.9, defendant first contends that much of that information was available on Spectrum’s public website, thereby disqualifying it under the portion of article 2.9 that required “proprietary information” to be neither “generally known” nor “available from other sources without obligations concerning its

²⁸ Both the container stiffeners and the manual brake release were developed pre-CRADA and then sold to the Air Force in 2001, during the CRADA performance period. Proprietary-marked, Level-2 drawings of the container stiffeners are included in the Spectrum drawing package and were sent to field units that utilized the MAC, along with instructions on how to insert the stiffeners into existing containers. The larger bearings were conceived by Spectrum prior to the CRADA, developed during the CRADA and ultimately reflected in proprietary-marked Level-2 drawings shown to Air Force officials at Spectrum’s lab and in a marked prototype that Spectrum provided to the Air Force. The manual brake release was a component of the Spectrum 4,000-pound hoist, Level-2 drawings, which were marked proprietary and shown to Air Force personnel prior to the Air Force’s purchase of the hoist itself. The tool trays, by contrast, were developed *during* the CRADA and were never sold to the Air Force, nor did they appear in any CRADA progress reports; apparently, the only time the concept was communicated to the Air Force was via Spectrum’s Unsolicited Proposal of February 19, 2003.

confidentiality.” In an attempt to prove this, defendant introduced several screen shots into the record. The information in these screen shots, however, is sketchy and does not include many of the details that Spectrum complains were improperly released by Air Force officials. Even if that were not true, the evidentiary value of these screen shots is severely diminished by defendant’s failure to confirm essential facts regarding how they were obtained, when the information reflected thereon was first available, whom could access Spectrum’s website, and under what circumstances that access could occur.

Markings on one set of these screen shots reveal that they were taken from an archived version of Spectrum’s website obtained from the website, www.archive.org – more popularly known as the “Wayback Machine.”²⁹ Instructions on the latter website allow the markings to be deciphered, suggesting that the screen shots produced by defendant might reflect content available Spectrum’s website as of March 4, 2003.³⁰ That date, of course, post-dates most of the information releases that plaintiff claims were improper, suggesting that, contrary to defendant’s claim, that information was not publicly available before it was improperly released. But that is far from the only problem with the information downloaded from the “Wayback Machine.” That site, in fact, warns that “it was not designed for legal use,” adding that “[i]t remains your burden to convince the finder of fact what pages were up when.”³¹ To complicate that burden, the website lists several scenarios in which the results reported thereon might not be as they appear – situations in which the date assigned to a screen shot by the system might be earlier than when the information reflected on that shot was actually available on a given website. For example, the “Wayback Machine warns – “[i]f a website is designed with ‘frames,’ the date assigned by the Internet Archive applies to the frameset as a whole, and not the individual pages within each frame.” www.archive.org/legal/faq.php (as viewed on October 29, 2008, at 5:31 p.m.). In other words, if a frame was loaded onto a website on January 5, 2001, but the content was loaded into

²⁹ See www.archive.org (as viewed on October 29, 2008, at 5:26 p.m.). The “Wayback Machine” takes its name from Mr. Peabody’s “WABAC” machine from the Rocky and Bullwinkle cartoon show. See www.archive.org/about/faqs.php (as viewed on October 29, 2008, at 5:29 p.m.). According to the website – “The Internet Archive Wayback Machine is a service that allows people to visit archived versions of Web sites. Visitors to the Wayback Machine can type in a URL, select a date range, and then begin surfing on an archived version of the Web.” *Id.* The site further explains that “[t]he Internet Archive Wayback Machine contains almost 2 petabytes of data and is currently growing at a rate of 20 terabytes per month.” *Id.*

³⁰ In this regard, the website reports that it “assigns a URL to each archived page on its site in the format [http://web.archive.org/web/\[Year in yyyy\]\[Month in mm\]\[Day in dd\]\[Time code in hh:mm:ss\]/\[Archived URL\]](http://web.archive.org/web/[Year in yyyy][Month in mm][Day in dd][Time code in hh:mm:ss]/[Archived URL]).” See www.archive.org/legal/faq.php (as viewed on October 29, 2008, at 5:31 p.m.). Thus, the URL found on several of the screen shots – “<http://web.archive.org/web/20030304151622/www.specsci.com/mac/new.asp>” – translates to a record archived on March 4, 2003, at 3:16 p.m. and 22 seconds.

³¹ *Id.*; www.archive.org/legal/faq.php (as viewed on October 29, 2008, at 5:31 p.m.).

that frame on January 5, 2004, the Wayback Machine might indicate (erroneously) that the content was actually loaded on January 5, 2001.³²

Given all this, it is intriguing that one of the Spectrum screen shots offered by defendant, albeit one that lacks the distinctive “Wayback Machine” markings, states “[w]e would like all the war fighters out there to know that we are still here to support the current MAC, which will remain in the field over the next eight years until replaced with the new MAC II.” The reference to the MAC II is telling as Spectrum did not know about the “MAC II” procurement until some time after March 25, 2003, when it received the letter rejecting its unsolicited proposal. It follows, *a fortiori*, that this screen shot could not have been available on March 4, 2003, let alone during the pendency of the CRADA in 2001 and 2002. Indeed, references on the slide – “we are still here” – suggest that the information in question more likely was not posted until after the MAC II contract was awarded. Accordingly, every indication is that this screen shot further post-dates the releases of information of which plaintiff complains. It and the other screen shots thus avail defendant naught. While the foregoing illustrates the perils of snatching information from the Internet,³³ more importantly, the court is left utterly unpersuaded that any of the information in question was either generally known or publicly available at the time of the alleged breaches here.³⁴

³² Warning users of another possibility for error, the www.archive.org website states –

Some users get confused about the temporal browsing that the Wayback Machine allows. If a user enter a URL into the Wayback Machine and clicks on a date, that date is only for that page. If a user then clicks on a link on an archived page to continue browsing, the Wayback Machine will grab the closest date to the one originally requested [and] display it.

www.archive.org/legal/faq.php (as viewed on October 29, 2008, at 5:31 p.m.). An example accompanying this description indicates that a page that was loaded onto a website on July 6, 2000, might actually be portrayed by the Wayback Machine as having been first displayed on June 19, 2000. *Id.* Of course, all of this begs questions regarding the reliability of the Wayback Machine itself – questions that linger, but need not be answered under the circumstances.

³³ See also *Campbell ex rel. Campbell v. Sec’y of HHS*, 69 Fed. Cl. 775, 781 (2006) (expressing concerns about the improper use of information from the website Wikipedia).

³⁴ To be sure, when confronted with these screen shots in cross-examination, Mr. Howard acquiesced in the notion that the information thereon was on the Spectrum website “during the CRADA.” However, an examination of the documents themselves proves that he could not have based that observation upon the exhibits themselves, at least if he was fully aware of what they contained. Indeed, it is conspicuous that defendant did not produce screen shots from the versions of Spectrum’s website available in 2001 and 2002, which, if publicly available, would also have been available through the “Wayback Machine” (the coverage of which dates

Nor can the court subscribe to defendant's claim that the information in question does not qualify as "proprietary" under article 2.9 because, in a few cases, drawings were not marked as "proprietary." As noted, the court sincerely doubts that this "marking" requirement applies to unwritten communications or information. But, even if that is true, virtually all of the documents and prototypes at issue here were marked "proprietary." For example, of the 100 or so pages comprising Spectrum's drawing package for the updated MAC, only seven are not marked "proprietary" – and four of these are stapled to another drawing that is so marked. These drawings, most of which were supplied or made available to the Air Force under the CRADA, contained the details on a variety of improvements engineered and tested by Spectrum.³⁵ Moreover, the record reveals that the prototypes provided by Spectrum to the Air Force – the halite light kit, the 4,000 pound hoist, the improved dolly and dolly stop, the container legs and the torque bar – all featuring a stenciled Spectrum proprietary mark. Accordingly, defendant can hardly claim that the Air Force officials here were shocked to find out that the information that they communicated to the MAC II procurement team and outside vendors was, in Spectrum's view, proprietary information. If they were surprised, it was only by virtue of their ignorance of the terms of the CRADA itself – ignorance that, in some instances, appears to be the result of a bad case of willful blindness.

Finally, the court rejects defendant's assertion that the information which Spectrum brought to the joint project with the Air Force was not protected by the CRADA because Spectrum did not comply with paragraph 7.1, which stated that "[n]either party to this Agreement shall deliver to the other party any PROPRIETARY INFORMATION not developed UNDER this AGREEMENT, except with the written consent of the receiving party." This provision did not provide the Air Force officials *carte-blanche* to share Spectrum's information for several

back to 1999). One possibility is that the information did not exist on the Spectrum website at those earlier times. Another is that the information was not publicly available during that time – the "Wayback Machine" only surveys publicly-available websites and does not, for example, capture pass-word protected websites. See www.archive.org/about/faqs.php (as viewed on October 29, 2008, at 5:29 p.m.). At any rate, it is far from clear from the record whether Mr. Howard had any personal knowledge that the information in question was actually posted on Spectrum's website during the CRADA. Absent some indication in that regard, his testimony does not support defendant's contentions.

³⁵ The package contains "Level 2" drawings – detailed drawings that are used to build a prototype, but which are not meant for public release. The drawings are subdivided into packets, each corresponding to one Spectrum product, with ten in all – the shipping and storage containers, the torque bar, the dolly assembly, the lighting system, the dolly stop, the container table leg assembly, the 4,000 pound hoist, the ICB, the improved spreader beam, and the triple bomb bar. All but the ICB drawings, which are undated, have, in the lower right corner, the dates on which they were drafted and reviewed internally: the torque bar, dolly assembly, light system, and container table legs were all drafted and reviewed in 2002; the containers, in 2000; and the 4,000 pound hoist, in 2001.

reasons. First, in section 5.1.1. of Appendix A, the Air Force agreed to protect Spectrum's proprietary rights in the items listed irrespective of any limitations contained in the rest of the CRADA, including article 7. Again, to construe this section otherwise would be to defenestrate it. Second, lest we lose sight of the forest for the trees, it must be observed that even if the requirement of paragraph 7.1 could be construed to apply to the information listed in section 5.1.1, Appendix A itself must be viewed as supplying the requisite consent to receive that information. The parties' course of performance under the CRADA confirms this, as there is no indication that, despite the extensive sharing of proprietary information that occurred, any Air Force representative ever signed any other written consent. Lastly, assuming *arguendo*, that paragraph 7.1 actually had the effect defendant claims, it would appear that the parties' course of conduct waived this clause, preventing defendant from now invoking it.³⁶ Clearly, the Air Force officials who administered the CRADA received – and, at times, solicited – information from Spectrum that they knew was proprietary, without ever insisting that their receipt of that information be preceded by a written consent. Some of those same officials tried to protect the information received from Spectrum, albeit ineffectively, clearly operating on the belief that the information was protected by the CRADA, again despite the alleged absence of any prior written consent. Having abandoned this requirement during the performance of the CRADA, defendant should not be heard to argue now that its own employees' malfeasance in failing to comply with paragraph 7.1 somehow absolves it of its obligations to plaintiff.

In sum, the court concludes that plaintiff's interpretation of the CRADA is correct and that the items listed in section 5.1.1. of Appendix A, as well as other items discussed above, were "protected information," covered by the duties listed in article 7 of the CRADA.

³⁶ "A party may waive any provision, either of a contract or of a statute, intended for his benefit." *Shutte v. Thompson*, 82 U.S. (15 Wall.) 151, 159 (1872). Under the Restatement, "an obligor's acceptance . . . of the obligee's performance, with knowledge of or reason to know of the non-occurrence of a condition of the obligor's duty, operates as a promise to perform in spite of that non-occurrence." Restatement (Second) Contracts § 246 (1981); *see also id.* at § 247. As explained by the Court of Claims, the doctrine of waiver applies when defendant –

has administered an initially unambiguous contract in such a way as to give a reasonably intelligent and alert opposite party the impression that a contract requirement has been suspended or waived [T]he requirement cannot be suddenly revived to the prejudice of a party who has changed his position in reliance on the supposed suspension.

Gresham & Co., Inc. v. United States, 470 F.2d 542, 555 (Ct. Cl. 1972). In short, "a contract requirement for the benefit of a party becomes dead if that party knowingly fails to exact its performance, over such an extended period, that the other side reasonably believes the requirement to be dead." *Id.* at 554; *see also L.P. Consulting Group, Inc. v. United States*, 66 Fed. Cl. 238, 241 (2005); *Int'l Resource Recovery, Inc. v. United States*, 60 Fed. Cl. 428, 431-32 (2004).

B. Was the CRADA Breached?

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. Obviously, a few words on these points are warranted.

At the outset, it appears that the Air Force utterly failed to comply with article 7.1 of the CRADA which required the Air Force to obtain “written agreements of confidentiality” from its employees and contractors and then supply proprietary information only to the employees and contractors having “a need for the information in connection with their duties UNDER this AGREEMENT.” The Air Force’s failure to obtain confidentiality agreements, in fact, proved critical as many of its employees released Spectrum’s proprietary information while apparently unaware of the requirements of the CRADA. Moreover, the Air Force plainly provided Spectrum protected information to individuals who did not need to have it, in particular, sharing that information repeatedly with the contracting officials involved with the MAC II procurement. The Air Force likewise repeatedly breached article 7.3 of the CRADA, which required the parties 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 . . . is released.” This provision required that Spectrum be given an opportunity to review any documents prior to their release, so that it could determine whether its proprietary information was involved, and, if so, submit objections and file applications for letters patent, if necessary. This procedure, however, was repeatedly not followed by the Air Force – indeed, certain Air Force officials requested proprietary information from Spectrum under false pretenses, knowing full well that the material requested was to be incorporated into briefing materials for the team that was drafting these RFPs and even into the RFPs themselves.

On numerous occasions, the Air Force breached the CRADA by releasing Spectrum’s proprietary information to Air Force officials who did not need the information in connection with performance of the CRADA. Indeed, many of the individuals who were given this information had nothing to do with the CRADA. These breaches were most pervasive and problematic in the Air Force’s preparation for, and conduct of, the MAC II procurement. For one thing, the Air Force assigned personnel who had worked on the CRADA to the MAC II procurement even though it did not need to do so. These individuals, which included M. Sgt. Ahlborn and Chief Shelingoski, not only themselves made effective use of Spectrum’s proprietary information, but also made sure that the other members of the procurement team were briefed on Spectrum’s advances, going so far as to request, on at least two occasions, further

information from Spectrum to share with the MAC II procurement team.³⁷ The content of several of those briefings is pristinely preserved in the form of power point presentations that clearly reveal Spectrum's proprietary information.³⁸ One of the participants in those briefings was Mr. Markle, who chiefly was responsible for drafting the specifications of the new MAC II. He not only participated in those briefings, but also discussed Spectrum's proprietary information with M. Sgt. Ahlborn and Chief Shelingoski, even though he had been specifically instructed by his supervisor, Mr. Hillman, "not to look at anything Spectrum had produced." Mr. Markle also interacted with various Air Force officials who reviewed Spectrum's unsolicited proposal, even though Lt. Col. Rauch, the MAC II procurement authority, had instructed the contracting officer to set aside the proposal "unopened." One key fact that Mr. Markle learned permeated the draft RFP – that a modified version of the existing MAC could support the 6,000 pound weight limit needed to assemble multiple GBUs. While Mr. Markle claimed at trial – unpersuasively – that

³⁷ Because M. Sgt. Ahlborn and Chief Shelingoski provided extensive information to their colleagues on the MAC II procurement team, and because Spectrum's propriety information was disclosed to the MAC II procurement team in other ways, the court need not consider whether the mere presence of individuals who were active on the CRADA on the MAC II procurement team itself represented a violation of the CRADA. Certainly, at a minimum, before using such cross-staffing, the Air Force should have made clear what information from the CRADA could be brought to bear in the procurement. That, of course, did not happen here.

³⁸ For example, a MAC II acquisition strategy briefing provided at an IPT meeting in early January 2003, featured slides that: (i) detailed changes to the gantry, juxtaposing the results of Spectrum's tests with the MMHE Focal Point's materials analysis; (ii) used language nearly identical to that in Spectrum's CRADA progress reports to discuss the 6,000 pound hoist proposed by Spectrum (including its modification to include an electric backup hoist and a powered trolley); (iii) discussed Spectrums proprietary improvements to the ICB, including the addition of the new filters and electric outlets; (iv) described Spectrum's proprietary torque bar; (v) described Spectrum lighting arrangement, lifting the description directly from a Spectrum progress report and thereby reflecting candlepower readings that were the result of Spectrum-conducted testing; (vi) detailed the larger-sized bearings that Spectrum added to the rail conveyor and noted that Spectrum had concluded that the original MAC rail conveyor would work for the MAC II with only the modification of the bearings; and (vii) provided pictures from Spectrum showing how legs could be added to convert the containers into working tables, another Spectrum proprietary innovation.

The slides for this presentation also mention the use of a 3/4-inch hose coupling to connect the various air hoses to the ICB – a point that Spectrum also claims is proprietary. However, the 1985 specifications for the original MAC state that, "the interface between the [MAC] and the air source shall be a 3/4 inch pneumatic hose coupling," suggesting that Spectrum did not possess proprietary rights in this particular concept. It is worth noting, however, that, so far as the court has found, this is the only instance in which concepts Spectrum claimed to be proprietary are reflected in the 1985 specifications.

he had come to this conclusion independently, he acknowledged that he did not conduct any tests or calculations to confirm it. Of course, he did not need to do so, as he already knew that Spectrum had confirmed that a redesigned MAC II would work.

At best, the Air Force made a cavalier, and, ultimately, ineffective, attempt to prevent information supplied by Spectrum under the CRADA from being used internally in the development of the specifications for the new MAC II. By placing officials who had worked closely with Spectrum under the CRADA onto the MAC II procurement team, the Air Force paved the way for proprietary information from the former effort to leak (and eventually gush) into the latter. Use of this staffing, which, at the least, risked creating an organizational conflict of interest, gave the warnings made by several Air Force officials that Mr. Markle and others should not rely on anything that Spectrum had produced a decidedly hollow ring. Indeed, while Mr. Markle and other key officials on the MAC II procurement team were briefed on the results of the CRADA, they were briefed neither on the protections required by that document nor on what information was subject to those protections. At trial, in fact, Mr. Markle amazingly professed total ignorance as to what the CRADA required, at least in terms of protecting Spectrum's proprietary information. The situation created was ripe for a contractual train wreck, and such a crash, not surprisingly, occurred in the form of repeated breaches of the confidentiality provisions of the CRADA.

The Air Force then breached the agreement, yet again, in providing Spectrum's proprietary information to outside contractors. While the extent of these improper releases was somewhat less than what occurred internally, the harm, of course, was potentially greater. For example, the draft RFP for the MAC II confirmed for Spectrum's competitors that the MAC could be redesigned to handle the heavier GBUs, yet still fit in the preexisting containers. Indeed, it went so far as to state that "a radical design departure that invalidates the familiarity and training AMMO personnel have with the current MAC will not be considered unless cost and performance improvement outweigh the negative training impact." The draft RFP listed a variety of other details taken from Spectrum, including the ability of the MAC II to lift multiple bomb bodies, various features of the hoist, and the specific location of electrical receptacles. Now, many of these features were deleted from the final RFP – but the harm was already done, particularly since Air Force officials took great pains at the MAC II Industry Day to review the draft RFP with Spectrum's competitors on what Mr. Hillman described as a "page-by-page" basis. And, again, the Air Force did not comply with the provision in the CRADA allowing Spectrum to review the specifications before releasing the draft or final RFPs, thereby depriving

plaintiff of its last opportunity to protect its proprietary information.³⁹ This too, of course, constituted a breach of the agreement.

In sum, while not all plaintiff's breach claims are borne out by the record,⁴⁰ in large share, the evidence supports the assertion that the Air Force repeatedly breached the CRADA in failing to protect adequately Spectrum's proprietary information.

C. Defenses

Defendant asserts that even if it did improperly release Spectrum's information, article 4.1 of the CRADA precludes Spectrum from recovering any costs associated with those breaches. The cited provision states –

4.1 Services. It is not anticipated that any cash payments will be made by either party to the other for services under this AGREEMENT. It is expressly understood that COLLABORATOR assumes all responsibility for costs it incurs before or after the effective date, even if the Unit fails to obtain approval of, breaches, or abandons, this AGREEMENT.

The plain language of this clause limits plaintiff's ability to recover the costs that it incurred in developing the improvements to the MAC II, both before and during the CRADA. And, by its

³⁹ The agency could have allowed Spectrum to view the draft and final RFPs consistent with the requirement that it treat every offeror equally. *See* 48 C.F.R. § 1.602-2; *Serco, Inc. v. United States*, 81 Fed. Cl. 463, 482 (2008); *PGBA, LLC v. United States*, 60 Fed. Cl. 196, 207 (Fed. Cl. 2004), *aff'd*, 389 F.3d 1219 (Fed. Cir. 2004). Thus, 48 C.F.R. § 15.201(f) states:

General information about agency mission needs and future requirements may be disclosed at any time. . . . When specific information about a proposed acquisition that would be necessary for the preparation of proposals is disclosed to one or more potential offerors, that information must be made available to the public as soon as practicable, but no later than the next general release of information, in order to avoid creating an unfair competitive advantage.

See also 48 C.F.R. § 15.201(c)(4). Accordingly, the Air Force could have complied with the CRADA without violating the competition requirements in the FAR.

⁴⁰ Plaintiff, for example, complained that further improper disclosures occurred when Mr. Turner visited Beale. The facts concerning the disclosures that occurred during this visit are fuzzy. This is not to say that improper releases did not occur on this occasion. Rather, owing to the fact that this visit post-dated the release of the draft RFP and the MAC II Industry Day, it is simply harder to determine whether the critical requirements listed in Mr. Turner's internal memorandum that mirror proprietary information from Spectrum came from the draft RFP, the MAC II Industry Day or his visit to Beale.

terms, this clause is operative even where there are, as here, “breaches” of the agreement. This language, however, cannot be stretched to preclude plaintiff from recovering various costs that it may have occurred after the conclusion of the CRADA.⁴¹ Nor does it preclude plaintiff from recovering other forms of damages, expectation or otherwise, associated with the Air Force’s repeated breaches of the CRADA. Any claim to the contrary runs afoul not only of the contract language itself, but also the well-accepted principle that clauses limiting damages are construed against the party invoking their protection. *See New Valley Corp. v. United States*, 119 F.3d 1576, 1584 (Fed. Cir. 1997); *Freedman v. United States*, 320 F.2d 359, 366-67 (Ct. Cl. 1963); *Nahra v. Honeywell, Inc.*, 892 F. Supp. 962, 969 (N.D. Ohio 1995); *see also Stepan Co. v. Winter Panel Corp.*, 948 F. Supp. 802, 809 (N.D. Ill. 1996).

As to a few items of Spectrum’s proprietary information, defendant also appears to claim that there was no breach because it obtained similar information through reverse engineering. For example, it claims that Mr. Markle did not violate the CRADA when he measured the MAC containers to produce the specifications for the containers that he used in the RFPs. However, the decisional law suggests that, in a case such as this, such arguments constitute the making of an affirmative defense under RCFC 8(c).⁴² Because defendant did not plead such a defense in its answer, it thus must be viewed as having waived this assertion. *See Crocker v. United States*, 127 F. Supp. 568, 573 (Ct. Cl. 1955); *Todd v. United States*, 292 F.2d 841, 845 (Ct. Cl. 1961); 5 Wright & Miller, *supra*, at § 1278. And the court sees absolutely no reason to overlook defendant’s violation of the rules, as plaintiff plainly was prejudiced by defendant’s failure to

⁴¹ It would appear that this language was inserted into the CRADA not to insulate the Air Force from any liability, but merely to effectuate that portion of the Stevenson-Wydler Act that essentially bars Federal parties to such agreements from providing any funds to the non-Federal parties. *See* 15 U.S.C. § 3710a(d)(1); *see also* Danielle Conway-Jones, “Research and Development Deliverables under Government Contracts, Grants, Cooperative Agreements and CRADAs: University Roles, Government Responsibilities and Contractor Rights,” 9 Computer L. Rev. & Tech. J. 181, 191 (2004).

⁴² Like its Federal counterpart, RCFC 8(c) requires that “a party must affirmatively state any avoidance or affirmative defense.” The list of nineteen affirmative defenses in this rule is not intended to be exhaustive. 5 Wright & Miller, Federal Prac. & Proc. § 1271; *see also Asset 42302 LLC v. United States*, 77 Fed. Cl. 552, 560 (2007). Generally speaking, the reference to “avoidance or affirmative defenses” encompasses “those that admit the allegations of the complaint but suggest some other reason why there is no right to recovery, and those that concern allegations outside of the plaintiff’s *prima facie* case that the defendant therefore cannot raise by a simple denial in the answer.” 5 Wright & Miller, *supra*, at § 1271; *see also Asset 42302 LLC*, 77 Fed. Cl. at 560; *Bull v. United States*, 68 Fed. Cl. 212, 272 n.66 (2005). The claim that Mr. Markle was authorized to reverse engineer the container requirements would meet these criteria, suggesting that defense should be viewed as an affirmative defense subject to the RCFC 8(c) pleading requirements.

raise this defense prior to trial.⁴³ Cf. *Ultra-Precision Mfg., Ltd. v. Ford Motor Corp.*, 411 F.3d 1369, 1376 (Fed. Cir. 2005); *Caldera v. Northrop Worldwide Aircraft Servs.*, 192 F.3d 962, 970 (Fed. Cir. 1999) see also *Blonder-Tongue Lab., Inc v. Univ. of Ill. Found.*, 402 U.S. 313, 350 (1971). Provided the opportunity, plaintiff might have shown, for example, that the right to reverse engineer the containers was limited by the sales contracts for those containers (which were not placed in evidence). Or it might have shown that the defense was tainted because Mr. Markle not only had access to the containers, but also to other sources of Spectrum's proprietary information, including the individuals who had been intimately involved in the CRADA. See *Faively Transp. Malmö AB v. Wabtec Corp.*, 572 F. Supp. 2d 400, 406-07 (S.D.N.Y. 2008) (reverse engineering process fatally tainted where participant in process had access to drawings). Accordingly, for a variety of reasons, the court rejects any defenses based upon the notion that defendant had a right to reverse engineer specifications using the items or prototypes it received from Spectrum.

III. CONCLUSION

The court need go no further. Based on the foregoing, it finds that the Air Force repeatedly breached the CRADA and that defendant should be held liable therefor.⁴⁴ As this case was bifurcated, it remains for the court to determine the damages to which plaintiff is entitled.⁴⁵ Toward that end, on or before December 12, 2008, the parties shall file a joint status report

⁴³ The court has searched, in vain, through defendant's filings prior to trial, looking for even a hint of this defense. Indeed, while defendant, in its post-trial briefs, maintains that Mr. Markle had the right to reverse engineer the containers, it steadfastly avoids referring to this as being a "license"-type defense, no doubt mindful that the use of that term would remove any doubts as to the applicability here of RCFC 8(c). Defendant, however, cannot avoid the bite of RCFC 8(c) by simply "devising a new name for an old institution." *Library of Congress v. Shaw*, 478 U.S. 310, 321 (1986).

⁴⁴ Plaintiff also contends that there was a separate implied-in-fact contract that protected its proprietary information. The Federal Circuit, however, has repeatedly instructed that "[t]he existence of an express contract precludes the existence of an implied contract dealing with the same subject, unless the implied contract is entirely unrelated to the express contract." *Atlas Corp. v. United States*, 895 F.2d 745, 754-55 (Fed. Cir. 1990), cert. denied, 498 U.S. 811 (1990); see also *Klebe v. United States*, 263 U.S. 188, 191-92 (1923); *Trauma Serv. Group v. United States*, 104 F.3d at 1326 ("an implied-in-fact contract cannot exist if an express contract already covers the same subject matter"); *ITT Fed. Support Servs., Inc. v. United States*, 209 Ct. Cl. 157, 531 F.2d 522, 528 (Ct. Cl. 1976); *L.P. Consulting Group, Inc. v. United States*, 66 Fed. Cl. at 242. In light of the findings above, the court does not believe that an implied-in-fact contract arose here as such a contract would not have been "entirely unrelated" to the provisions of the CRADA.

⁴⁵ The court has little doubt that the breaches here resulted in recoverable damages – at least sufficient enough to move this case into its next phase.

indicating how this case should proceed. Prior to that date, the parties shall conduct at least one serious discussion regarding settlement.⁴⁶

IT IS SO ORDERED.

s/ Francis M. Allegra
Francis M. Allegra
Judge

⁴⁶ This opinion shall be unsealed, as issued, after December 5, 2008, unless the parties identify protected and/or privileged materials subject to redaction prior to said date. Said materials shall be identified with specificity, both in terms of the language to be redacted and the reasons for that redaction.