No. 96-399 C

(Filed September 16, 1998)

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RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY,
Plaintiff,

v.

THE UNITED STATES,
Defendant.

Motion for Summary Judgment; FAR Patent Rights Clause, 48 C.F.R. § 52.227-11

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Thomas L. McGovern III, Washington, D.C., for plaintiff. *Robert J. Kenney, Jr.* and *Joy E. Sturm*, Washington, D.C., of counsel.

William C. Bergmann, Washington, D.C., with whom were *Assistant Attorney General Frank W. Hunger*, and *Director Vito J. DiPietro*, for defendant. *Thomas J. Byrnes*, Department of Justice, of counsel.

Order

TIDWELL, *Senior Judge:*

On July 3, 1996, Rutgers, The State University of New Jersey (plaintiff or Rutgers) filed a Complaint against defendant, the United States of America (United States or government), praying for a declaration that defendant had no contractual rights in the invention of an electrostrictive driving device and process for sonic wave projection (invention '979[(1)]) governed by United States Patent No. 5,229,979 (patent '979). On January 23, 1998, the United States of America filed Defendant's Motion for Summary Judgment or in the Alternative Partial Summary Judgment (motion for summary judgment or Mot. for Summ. J.). For the reasons which follow, the court denies the government's motion.

BACKGROUND

Dr. Jerry I. Scheinbeim has been a faculty member at Rutgers since 1977. App. to Def.'s Mot. for Summ. J. or in the Alternative Partial Summ. J. (Def.'s App.) at 107. Dr. Brian A. Newman has been a member of Rutgers' faculty since 1974. *Id.* at 128. Between 1979 and 1990, Drs. Scheinbeim and Newman had submitted at least fourteen research proposals which were funded by the Office of Naval Research (ONR) or the Defense Advanced Research Projects Agency (DARPA). Defendant's Proposed Findings of Uncontroverted Fact (Def.'s Proposed Findings) at ¶ 16 (January 23, 1998) (uncontested by Pl.'s Statement of Genuine Issues (April 1, 1998)). In 1980, Rutgers and the government entered into contract N00014-80-C-0795 (contract '795) with ONR. Def.'s App. at 166. Contract '795 was entitled "Piezoelectricity, Pyroelectricity and Related Electrical Properties in Polyamide and Other Electret Films." *Id.* The government has asserted that contract '795 involved "the general technological area [of] 'piezoelectricity[(2)] and related properties such as pyroelectricity, electrostriction[(3)] and ferroelectricity. . . .'" *Id.* Plaintiff denied the government's characterization of the work performed. *Id.*

In August 1987, Drs. Scheinbeim and Newman submitted to ONR a proposal to extend contract '795 (August 1987 proposal). *Id.* at 200. The proposal described newly developed processes for making polarized polymer films using "a radically different electro-processing approach: the solidification of polar polymers from solution in the presence of a high electric field" which made the films more stable and made it conceivable that "greatly increased bulk polarization exists" which could affect piezoelectric and pyroelectric responses. *Id.* at 202-11. Rutgers revised the proposal's budget in December 1987. *Id.* at 234-37.

In February 1988, ONR agreed to the terms of the August 1987 proposal, as modified in December 1987 and January 1988, and incorporated by reference the terms of those proposals into short form contract N00014-88-K-0122 (contract '122). *Id.* at 238-39. Also in February 1988, Drs. Scheinbeim and Newman presented another proposal to ONR and DARPA, requesting a grant to fund further study of crystallization and vitrification of piezoelectric materials from solution in the presence of high electric fields. *Id.* at 242-54. No mention of electrostriction or "apparent piezoelectricity" appears in either the

August 1987, December 1987, or February 1988 proposals.

On May 16, 1989, Rutgers was awarded United States Patent No. 4,830,795 (patent '795) for an invention designed by Drs. Scheinbeim and Newman to make polarized polymer material substantially free of mechanically induced orientation. *Id.* at 168. Patent '795 documents acknowledge that the "invention was made with government support under the Office of Naval Research" and that "the Government has certain rights in the invention" under contract '795. *Id.* at 173. On September 5, 1989, Patent No. 4,863,648 (patent '648) was awarded to Rutgers for a process related to patent '795 for poling piezoelectric materials molded into desired shapes (invention '648). *Id.* at 168, 182 (application for patent '648 a continuation-in-part of application for patent '795). Patent '648 also noted that invention '648 was made with ONR support and that the government had certain rights in the patented technology. *Id*. at 182.

In October 1989, Mr. Alan Ellinthorpe (Ellinthorpe), from DARPA, approached Dr. Scheinbeim seeking a pliable material with enhanced piezoelectric properties, such as a softened form of polyvinylidene fluoride (PVFD or PVF_2), capable of driving a sonic transducer. *Id.* at 100; App. Pl.'s Opp'n to Def.'s Mot. for Summ. J. or in the Alternative Partial Summ. J. (Pl.'s App.) at Tab 9; *see also* Def.'s Proposed Findings at ¶ 36. In response to Ellinthorpe's inquiry, in October 1989 Dr. Scheinbeim "determined that no existing piezoelectric polymer could exhibit this set of properties," Def's. App. at 265, but "conceived of the idea to apply a large DC [direct current] electrical bias field to the PVFD while at the same time pulsing it with an AC [alternating current] electrical field" to exploit PVFD's electrostrictive properties. *Id.* at 100 (Pl.'s Resps. to Def.'s First Set of Interrogs.); *see also* Def.'s Proposed Findings at ¶ 36 ("In October of 1989, in response to an inquiry from a DARPA employee, Professors Scheinbeim and Newman conceived the invention which eventually resulted in the independent claims[(4)] of the '979 patent.") (uncontested by Pl.'s Statement of Genuine Issues). Actual reduction to practice of the independent claims occurred during a series of tests conducted at BBN Laboratories in Cambridge, Massachusetts, from February to April 1990. Def.'s App. at 103; *see also* Pl.'s Statement of Genuine Issues (incorporating Pl.'s Opp'n to Mot. for Summ. J. at 34-35 agreeing with Def.'s Proposed Findings at ¶ 38 to extent that independent claims were reduced to practice during BBN tests). In April 1990, Drs. Scheinbeim and Newman submitted an invention disclosure report to Rutgers stating that they had invented a "[p]rocess to produce materials and impart to them high electrostrictive or apparent piezoelectric response." Def.'s App. at 261. The disclosure report states that the invention was "funded by DARPA/ONR." *Id.* at 262.

In August 1990, Drs. Scheinbeim and Newman submitted a proposal to modify contract '122. *Id.* at 264. It stated that in response to Ellinthorpe's request, Drs. Scheinbeim and Newman proposed to research the "radically new approach" of applying a high DC bias field to electrostrictive materials such as PVFD which had been heavily plasticized by solvents such as tricresylphosphate (TCP), then superimposing an alternating current on the bias field to create an "apparent" piezoelectric response. *Id.* at 265. In September 1990, Drs. Scheinbeim and Newman submitted to ONR an end-of-the-year report which mentioned that a patent was pending for the "Process to Produce Materials and Impart to them High Electrostrictive or Apparent Piezoelectric Response." *Id.* at 290.

On December 14, 1990, Drs. Scheinbeim and Newman filed a patent application for a "Novel Electrostrictive Driving Device, Process for Sonic Wave Projection and Polymer Materials for Use Therein" as a continuation-in-part of several earlier applications. *Id.* at 29. Five days later, on December

19, 1990, ONR accepted the August 1990 proposal as a modification of contract '122 (modification P00005), retroactively effective November 15, 1990, and agreed to provide an additional $95,000 in funding. *Id.* at 271. Plaintiff admits that the $95,000 was used to purchase testing equipment under contract '122. *Id.* at 106; Pl.'s Statement of Genuine Issues at ¶ 54 ("Rutgers did use the $95,000 in funding provided under modification P00005 to purchase components for building test equipment ultimately used to test polyurethane").

In June 1991, Rutgers' Office of Corporate Liaison and Technology Transfer sent ONR a copy of the patent application with a letter declaring Rutgers' intent to comply with the invention disclosure requirements of ONR contracts. Def.'s App. at 322. After abandoning the December 14, 1990 patent application, Drs. Scheinbeim and Newman filed a second patent application on December 13, 1991, for the electrostrictive driving device. *Id.* at 18.

On April 20, 1993, Rutgers was awarded Patent No. 5,204,013 (patent '013), which was a continuation-in-part of patents '648 and '795. *Id.* at 192. Patent '013 described a process invented by Drs. Scheinbeim and Newman for making polarized materials from various polymers, copolymers, soluble ceramic materials, and combinations thereof (invention '013). *Id.* at 196. Patent '013 also acknowledged that the government had rights in invention '013. *Id.* at 192.

On July 20, 1993, Rutgers was awarded patent '979 for the invention at issue in this case (invention '979). *Id.* at 18. Invention '979 was described as an electrostrictive driving device, a process for sonic wave projection, and polymer materials used in the device and the process. The electrostrictive driving device has a sonic wave projector made from alternating layers of plasticized polymer films (such as a PVFD/TCP blend) and electrodes. *Id.* at 18-23. The electrodes are attached to a DC bias supply which provides a high, constant voltage. *See id.* An AC signal is superimposed on the DC voltage to create fluctuations in the voltage applied to the electrostrictive polymer. *See id.* Because the electrostrictive polymer contracts and expands according to the voltage applied, the AC signal causes the polymer to generate sonic waves. *See id.*

Patent '979 describes 30 claims, including three independent claims: Claim 1 describes an electrostrictive driving device, claim 10 describes a sonic wave projection element, and claim 18 describes a process for sonic wave projection. *Id.* at 23-24. Each of the 27 dependent claims incorporates one independent claim by reference and modifies it in one or more ways, such as substituting a different polymer/plasticizer blend for the PVFD/TCP solution, specifying different polymer film thicknesses and sensitivities, or specifying a range of DC bias voltage. *See id.* Claim 5 incorporates claim 1 and describes an electrostrictive driving device using polyurethane as the electrostrictive polymeric material. *Id.* at 23. Claim 23 incorporates claim 18 by reference and describes a process for sonic wave projection using polyurethane as the electrostrictive polymeric material. *Id.* at 24.

On August 12, 1993, an ONR contracting officer issued a final decision finding that the government was entitled to a nonexclusive, nontransferable, irrevocable, paid-up license in the '979 invention. Pl.'s App. at Tab 19, p.6. Plaintiff filed suit in this court in July 1996.

DISCUSSION

Summary judgment is appropriate when there are no genuine issues of material fact and the moving party is entitled to judgment as a matter of law. *See* RCFC 56(c); *Anderson v. Liberty Lobby Inc.*, 477 U.S. 242, 247 (1986). A fact is material if it might significantly affect the outcome of the suit under the governing law. *See Anderson*, 477 U.S. at 248. In deciding a motion for summary judgment, the role of the court is not "to weigh the evidence and determine the truth of the matter but to determine whether there is a genuine issue for trial." *Anderson*, 477 U.S. at 249.

Generally, the party moving for summary judgment bears the initial burden of demonstrating the absence of evidence to support the nonmoving party's case. *See Celotex Corp. v. Catrett*, 477 U.S. 317, 325 (1986). If the moving party demonstrates an absence of supporting evidence, then the burden shifts to the non-moving party to show that a genuine factual dispute exists. *See id.; Sweats Fashions, Inc. v. Pannill Knitting Co.*, 833 F.2d 1560, 1563 (Fed. Cir.1987) (quoting *Celotex*, 477 U.S. at 325). However, when a defendant raises an affirmative defense as the grounds for summary judgment, the defendant bears the burdens of showing (1) that all of the elements of its affirmative defense are substantiated by evidence, *see Gregory Lumber Co. v. United States*, 11 Cl. Ct. 489, 499 (1986), *aff'd*, 831 F.2d 305 (Fed. Cir. 1987), *and cert. denied*, 484 U.S. 1061 (1988); and (2) that no issue of material fact exists as to any of those elements. *See* RCFC 56(c). These burdens may not be discharged by cryptic, conclusory, or generalized responses. *See Willetts v. Ford Motor Co.*, 583 F.2d 852, 856 (6th Cir. 1978).

The court must resolve any doubts over factual issues in favor of the party opposing summary judgment. *See Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir.1985). The non-movant is also entitled to the benefit of all presumptions and inferences. *See H.F. Allen Orchards v. United States*, 749 F.2d 1571, 1574 (Fed. Cir. 1984), *cert. denied*, 474 U.S. 818 (1985).

In this case the government moves for summary judgment arguing that contract '122 grants it a license to use patent '979 technology. License to use patented technology is an affirmative defense which imposes the burden of proving the existence of a license on the defendant. *See Technical Development Corp. v. United States*, 597 F.2d 733 at 746 (Ct. Cl. 1979) ("defendant bears the burden of proof on the license defense"). The question of whether the government has a license is resolved by determining whether invention '979 was either conceived or first reduced to practice in performance of an existing government contract. *See id.*

"It is well settled that the interpretation of a contract is a question of law." *Ceccanti, Inc. v. United States*, 6 Cl. Ct. 526, 528 (1984); *see also Hughes Communications Galaxy, Inc. v. United States*, 998 F.2d 953, 957 (Fed. Cir. 1993); *Omni Corp. v. United States*, No. 96-86C, 1998 WL 525445, at *12 (Fed. Cl. Aug. 20, 1998). Because questions of contract interpretation are issues of law, they may generally be decided on summary judgment. *See Omni*, 1998 WL 525445, at *12. However, under some circumstances, contract interpretation may be inextricably intertwined with underlying questions of material fact, *see Conoco Inc. v. United States*, 35 Fed. Cl. 309, 321 (1996), and "[t]o the extent that the contract terms are ambiguous, requiring weighing of external evidence, the matter is not amenable to summary resolution." *Beta Sys., Inc. v. United States*, 838 F.2d 1179, 1183 (Fed. Cir. 1988).

Similarly, "[w]here . . . no underlying fact issue must be resolved, claim interpretation is a question of law." *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1579 (Fed. Cir. 1989). "[A] mere dispute over the meaning of a term does not itself create an issue of fact. This is true even where the meaning cannot be determined without resort to . . . extrinsic evidence[,] provided . . . that there is no genuine underlying issue of material fact." *Id.* at 1579. Pertinent, probative evidence may create a genuine conflict, but "without such evidentiary conflict, claim interpretation may be resolved as an issue of law by the court on summary judgment taking into account the specification, prosecution history or other evidence." *Id.* at 1579-80.

Whether the government has a license in patent '979 depends upon the terms of contract '122. Plaintiff and defendant do not dispute that contract '122 incorporated the April 1984 version of the Federal Acquisition Regulations' Patent Rights Clause (patent rights clause), *see* Complaint at ¶¶ 11-13; Answer at ¶¶ 11-13, which states that "[w]ith respect to any subject invention in which the Contractor retains title, the Federal Government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world." 48 C.F.R. § 52.227-11(b) (1987). A "subject invention" is defined by the patent rights clause as "any invention of the Contractor conceived or first actually reduced to practice in the performance of work under this contract." 48 C.F.R. § 52.227-11(a). Thus, if undisputed facts demonstrate that invention '979 was either conceived or first reduced to practice in the performance of contract '122, then the government is entitled to a license. *See Technical Development Corp.*, 597 F.2d at 735, at 746-47, 749-50 (government entitled to license after showing by preponderating evidence that patented inventions were conceived or first reduced to practice during performance of government contracts). If the government has a license to use invention '979, the court must grant summary judgment. *See Kersavage v. United States*, 36 Fed. Cl. 441 at 448, 453-54 (1996) (government entitled to summary judgment after showing patented invention was first reduced to practice under contract).

The phrase "in the performance of" has long been construed liberally by the courts. In *Mine Safety Appliances Co. v. United States*, 364 F.2d 385 (Ct. Cl. 1966), the Court of Claims quoted the following with approval:

Inventions made under a Government contract are the product of expenditures from the public treasury in the course of a governmental function; the public, having in a sense ordered and paid for the invention through its representatives, should not again be taxed for its use, nor excluded from its use nor permitted to use it upon restrictive conditions advantageous to no one but the patent owner.

Id. at 392 (quoting Investigation of Government Patent Practices and Policies, Report and Recommendations of the Attorney General to the President, Vol. I, pp. 88-89 (1947)). The court expounded upon that language, stating:

Under such a liberal construction . . .[t]he Government has the right to use, royalty-free, those inventions which have a "close and umbilical relationship" to the work and research funded by the United States and were crystallized during performance of the federal contract. If the invention is so tied to the work to be done under the contract as to contribute significantly to the results anticipated by that agreement, the Government is entitled to a license.

Technical Development Corp., 597 F.2d at 745-46 (citations omitted).

In this case, the government's motion for summary judgment must be granted only if undisputed facts show that (1) invention '979 fell within the scope of contract '122, and (2) invention '979 was conceived or first reduced to practice during the effective period of contract '122.

I. Scope of Contract '122

Contract '122 is a short form contract comprised of the two-page contract form, a two-page continuation sheet appended to the form, the general regulatory provisions incorporated by reference, and the August 1987 proposal incorporated by reference. *See* Def.'s App. at 238-39. The scope of the research to be performed under the contract is defined by the August 1987 proposal. As part of the contract, the meaning of the proposal's terms is a question of law which may be decided on summary judgment. *See Ceccanti,* 6 Cl. Ct. at 528; *Omni*, 1998 WL 525445, at *12.

The introduction to the proposal stated:

The object of the proposed research is to:

(a) study the effect of high electric fields on the crystallization and solidification of PVF_2, odd nylons and other polar polymers from solution and to determine the electroprocessing conditions which give polymer electret films the highest bulk polarization, combined with thermal stability.

(b) to study the relation between plasticizer, plasticizer content, crystal structure and morphology, and dipole orientation on electret properties.

(c) to investigate the effect of rapid solidification on crystallization and morphology of several odd nylons including Nylon 11, 7, 5 and 3 and to determine the piezoelectric and pyroelectric response of these films following poling and possibly other processing steps. If successful, these processes will be extended to continue a similar investigation for PVF_2.

Def.'s App. at 202-03. The "Proposed Research" section used a somewhat different organization to describe the research:

Part I - To study the crystallization of PVF_2 from solution in the presence of high electric poling fields, and to study the relationship between polng [sic] conditions and the resulting crystal structure, morphology, solvent retention and the piezoelectric, pyroelectric, dielectric and mechanical properties of the films produced.

. . . .

Part II - To study the relationship between plasticizer, plasticizer content, crystal structure, morphology, and dipole orientation on electret properties.

. . . .

Part III - . . . [T]o explore the option of extending the quenching rate over that possible using conventional thermal quenches by using the pressure-quenching technique, to see what limitations on maximum piezoelectric and pyroelectric response exist.

Def.'s App. at 207-10.

The court finds that the research proposed, accepted, and incorporated by reference into contract '122 focused on the development of processing techniques designed to make plasticized polymer films with greater polarization and increased stability which might enhance their piezoelectric response. No part of contract '122 mentions electrostriction. Furthermore, according to plaintiff's definitions of electrostriction and piezoelectricity which the court is using for the purpose of deciding the motion for summary judgment, *see* Mot. for Summ. J. at 3, the court finds as a matter of law that there is insufficient connection between the two phenomena to bring the electrostrictive driving device described by patent '979 within the scope of original contract '122.[(5)] *See Johnston*, 885 F.2d at 1579-80 (patent claim interpretation is issue of law).

However, the inquiry into the scope of contract '122 does not end there. Modification P00005 incorporated into contract '122 the terms of Rutgers' August 1990 proposal. That significantly expanded the scope of the research and, consequently, the breadth of the patent rights clause. When Rutgers signed modification P00005, it agreed to "furnish and deliver all items or perform all services set forth in the proposal identified in block 19" of the short form. Def.'s App. at 271-72. Block 19 states:

19. BASIS FOR AWARD OR MODIFICATION *(X and complete as applicable)*

a. PROPOSAL INCORPORATED BY REFERENCE

(1) DATE (YYMMDD) **August 1990**

(2) TITLE

X High d33 "Apparent" Piezoelectric Polymers

. . . .

c. OTHER *(specify)*

The purpose of this modification is to expand the research effort under X Contract Number N00014-88-K-0122. Accordingly, there are hereby provided a revision in the description of work; an increase in the total estimated cost, and an extension in the period of performance of subject contract.

Def.'s App. at 272 (italics in original, bold indicates text typed onto otherwise printed form). Therefore, the August 1990 research proposal became part of contract '122 and redefined its scope.

The expanded scope of the contract was significant. Modification P00005 stated in its introductory abstract:

In response to a request from Dr. Alan Ellinthorpe of DARPA for a new type of piezoelectric material . . . [w]e proposed a radically new approach: the use of heavily plasticized, low crystallinity polymeric material (a [PVFD-TCP] blend) to be driven under a high electric "bias" field in order to take advantage of the electrostrictive behavior of these materials and the fact that the electrostrictive response is proportional to the square of the applied electric field.

Id. at 265. "Two tracks should be followed" to develop "these newly discovered 'soggy' piezoelectric materials requiring high D.C. bias," said the modification. *Id.* at 266. First, efforts would be made to "determine the major mechanisms responsible for the large 'apparent' d_{33} coefficient" using PVFD plasticized with TCP, butyl phthalate, and other phosphate and pthalate blends. *Id.* at 266. Once the mechanisms were identified, research would be extended beyond PVFD to include phosphazenes, and siloxanes. *Id.* Depending upon whether crystallinity was found to be important, either semicrystalline (such as, but not limited to, polyvinyl chloride (PVC)) or plasticized polymers (including, PVC, polyacrylonitrile, and vinylidene cyanide-vinyl acetate) would be investigated. *Id.* at 266-67.

A liberal reading of these contractual terms shows that patent '979 falls within the scope of contract '122. The patent's introductory sections describe invention '979 in the same terms used to describe the proposed research in the modified contract:

This invention relates to an electrostrictive driving device utilizing an element comprising a film layer or layers of a polymeric material. The film of the element in operation has a high bias voltage to which is applied an alternating voltage whereby is generated a highly effective sonic wave projection.

. . . .

Provided by this invention are sonic wave generation elements of an electrostrictive driving device using polymeric material. The material is required to have a low modulus of about 10^7 to about 10^8 N/m^2, an