



Department of Defense

Annual Report
on
Cooperative Agreements
and
Other Transactions
Entered into During FY2004
Under 10 USC 2371

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

INTRODUCTION

This report is provided in accordance with 10 U.S.C. 2371(h) which requires the Secretary of Defense to submit a report annually to the Senate Committee on Armed Services and the House of Representatives Committee on Armed Services on all those transactions entered into under 10 U.S.C. 2371(a) which are not categorized as contracts, cooperative agreements or grants (hereafter referred to as "other transactions") and all cooperative agreements entered into under 10 U.S.C. 2358 which include a section 2371 authorized clause requiring "Recovery of Funds."

The Secretary of Defense and the Secretary of each military department are authorized by section 2371 to enter into other transactions to carry out basic, applied, and advanced research projects. That same authority also permits certain transactions to include a clause requiring a person or other entity to make repayments of funds to the Department of Defense or any other department or agency of the Federal Government as a condition for receiving support under the agreement or other transaction. The authority of 10 U.S.C. 2371 was extended by Section 845 of Public Law 103-160, as amended, to permit the Director, Defense Advanced Research Projects Agency (DARPA), the Secretary of a military department, and any other official designated by the Secretary of Defense, to enter into other transactions to carry out prototype projects that are directly relevant to weapons or weapon systems proposed to be acquired or developed by the Department of Defense.

The amounts reported for non-government dollars for research and prototype projects include research and development investments made by for-profit firms. It is standard business practice for all for-profit firms to recover research and development investments through prices charged to their commercial and Government customers. Thus, firms that do business with the Federal Government may recover a portion of their investments through commercial prices of items sold to the Government or through allocations of Independent Research and Development costs to cost-type Government contracts.

This report addresses cooperative agreements that included a "recoupment clause" and two types of other transactions: other transactions for research and other transactions for prototypes. The total amount of funds recovered in FY 2004 due to the use of recoupment clauses was \$2,356,818.00-- for details, see Table in Part II on page 75. Collectively the Army, Navy, Air Force, DARPA, the National Security Agency, the Missile Defense Agency, and the National Imagery Geospatial Agency (NGA) submitted 11 reportable research actions and 50 reportable other transactions for prototypes in FY 2004.

This report provides the specific information required by subsection 2371(h)(2):

- (A) The Technology Areas in which research projects were conducted under such agreements or other transactions.
- (B) The extent of the cost sharing among Federal and non-Federal sources.
- (C) The extent to which the use of the cooperative agreements or other transactions
 - (i) has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs; and
 - (ii) has fostered within the technology and industrial base new relationships and practices that support the national security of the United States.

The final page of the report provides a summary table for new prototype "Other Transaction" (OT) agreements. This table identifies: the number of new agreements, the breakdown among the three reasons authorized by statute for the use of prototype OT authority and information regarding the extent of participation of non-traditional contractors.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: FA8650-04-3-2411

Type of Agreement: Research TIA that is not a cooperative agreement

Title: Fuel Cell Power Portable Generators Based On Primary Chemical Hydride Fuels

Awarding Office: FA8650 DET 1 AFRL PK

Awardee: Protonex Technology, Inc.

Effective Date: 17 Mar 2004

Estimated Completion or Expiration Date: 18 May 2006

U.S. Government Dollars: \$ 1,276,433

Non-Government Dollars: \$ 1,276,433

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The need for advanced energy storage technologies is becoming increasingly more important as both the military and commercial sectors continue to rely more and more on portable/wireless electronics and isolated electrical systems. The objective of the research is to develop a primary Polymer Electrolyte Membrane (PEM) fuel cell power generation system capable of operation on chemical hydride hydrogen storage systems, which is geared for the dismounted soldier.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This research effort was awarded to the recipient based on a proposal submitted in response to the FY04 DoD Dual Use Science and Technology (DUS&T) program. The solicitation specified a 50% cost share and awards using Technology Investment Agreements (TIAs).

Protonex, a fuel cell stack developer, has teamed with Millennium Cell, a developer of hydrogen storage technologies, to produce a portable power generator for use in commercial and military applications. If successful, the technology will enable forward deployed warfighters to manage battlefield assets (radios, target designators, landing runway lights, and targeting computers) with much less weight and approximately 3 times the power of current power generators. The technology also has application for palm power and field battery chargers and mobile field equipment including battlefield medical assistance. Commercial applications include critical life sustaining medical equipment, emergency care equipment (respirators and cardiac monitors), clandestine monitoring operations for national security, and remote monitoring for chemical and biological agents in public environments.

As both Protonex and Millenium Cell hold significant intellectual property in their existing technologies, the companies sought a TIA because of its flexibility in resolving intellectual property issues.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: H98230-04-3-0001

Type of Agreement: Research TIA that is not a cooperative agreement

Title: Distillery Phase II Program

Awarding Office: NATIONAL SECURITY AGENCY H98240

Awardee: International Business Machines Corp.

Effective Date: 14 Nov 2003

Estimated Completion or Expiration Date: 13 May 2005

U.S. Government Dollars: \$ 18,998,476

Non-Government Dollars: \$ 37,996,952

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The Distillery Project is a large-scale, collaborative research venture jointly staffed by the Recipient and Government personnel. Distillery is characterized as a grand challenge research initiative designed to provide breakthrough technologies to enable aggressive production and management of information and knowledge from relevant data. Distillery is an example of transformational research and development.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The other transaction for research has permitted the involvement of IBM's commercial division, as well as other divisions of IBM, that would not otherwise participate in the project at the level that is required for success.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This other transaction has allowed IBM, a commercial business that traditionally accepts Government awards for commercial products, to use new business practices in the execution of research that will help the Government get state of the art technology more quickly and less expensively, while also facilitating partnering with IBM's commercial division.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HM1573-04-3-0001

Type of Agreement: Research TIA that is not a cooperative agreement

Title: Next View Imagery

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Orbital Imaging Corporation

Effective Date: 30 Sep 2004

Estimated Completion or Expiration Date: 31 Mar 2007

U.S. Government Dollars: \$ 237,372,572

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

This effort will provide the Government access to next-generation imagery on schedule from a responsible vendor. Phase I, Pre-Final Operational Capability (FOC) of this requirement constitutes a cost sharing/no fee Other Transaction (OT) under the authority of 10 U.S.C. 2371. The Contractor shall perform the required Pre-FOC effort, including research and pre-competitive technology development. The principal purpose of this Agreement is for the Government to support and stimulate the Contractor to provide its best efforts to accomplish the Pre-FOC effort and not for the acquisition of property or services for the direct benefit or use of the Government.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

NGA needs U.S. commercial satellite imaging capability and capacity beyond what is on orbit to ensure continuity of source and to fulfill guidance to use commercial imagery for the majority of geospatial requirements. With this Other Transaction, NGA provides the Contractor a portion of the pre-FOC costs for the research and technology development of a next generation satellite. NGA is aggressively integrating commercial imagery into its business plans, processes and architecture. NGA plans to use U.S. commercial remote sensing space capabilities for filling its imagery and geospatial needs, and to facilitate the acquisition of commercial imagery for other federal agencies in its role as the Functional Manager for commercial imagery.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-3-0001

Type of Agreement: Research TIA that is not a cooperative agreement

Title: Research and Development of the Rocket Pod Model and Gold Box System

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Ecliptic Enterprises Corporation

Effective Date: 21 Nov 2003

Estimated Completion or Expiration Date: 21 Aug 2004

U.S. Government Dollars: \$ 495,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objectives of this effort are 1) the development of a version of a “nanosat” (<10kg) launch capability called “Rocket Pod” which will enable a very low-cost launch capability for small payloads; 2) the development of a low-cost suborbital digital video/telemetry system (called “Gold Box”) for use on rockets, spacecraft and other remote platforms such as aircraft, aerospace vehicles, balloons, etc.; and 3) facilitation of the transfer of the Gold Box from Ecliptic to the X-Prize Foundation.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an other transaction agreement enables Ecliptic to jointly participate with the DoD in critical technology development to allow the DoD the opportunity to test fly military significant space technologies (micro and nanosat technologies) in a rapid cost effective manner utilizing regular expendable launch vehicle opportunities, rapidly test certain concepts on a low cost of flight opportunity, and address DoD requirements for integrated on-board video and telemetry collection systems for use on rockets and spacecraft. Integrated onboard video and telemetry collection systems are critical for enabling future miniaturized government space assets and related situational awareness capabilities.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction agreement for this effort addresses a shared problem of the U.S Government, DoD, commercial, and academic communities, namely the lack of a current existing regular (i.e. about once per quarter) low cost nanosat/nanotech test bed launch program and the unavailability of a Commercial Off-the-Shelf (COTS)-based onboard video system with more than 2-channel video output and auxiliary telemetry. Engagement with Defense Advanced Research Projects Agency (DARPA) through this agreement will enable Ecliptic to develop these technologies more rapidly than would otherwise be possible. Ecliptic Enterprises, a commercial firm, has not in the past worked with DoD under any Federal Acquisition Regulation (FAR) based contract vehicles larger than \$400,000. They have already heavily invested their own Independent Research & Development (IR&D) funds in these technologies and have agreed to share the results of their efforts with the U.S. Government for only a minimal Government investment. In addition, the Gold Box capability developed in this agreement will be transferred to the X-PRIZE Foundation, as the first commercial user of the technology, in their quest to jumpstart the space tourism industry through competition between the most talented entrepreneurs and rocket experts in the world. The Gold Box will collect the primary content from the X-PRIZE vehicles once they start launching.

Other benefits to the DOD through use of this agreement:

In addition to that already described, DARPA will obtain the on-board video and telemetry data collected from X-PRIZE vehicles when launched. This data will benefit DoD’s future space research activities.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-3-0002

Type of Agreement: Research TIA that is not a cooperative agreement

Title: Joint Department of Defense/Industry Research Collaboration in the Focus Center Research Program for Semiconductor Technology

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Microelectronics Advanced Research Corp.

Effective Date: 23 Oct 2003

Estimated Completion or Expiration Date: 22 Apr 2004

U.S. Government Dollars: \$ 3,200,000

Non-Government Dollars: \$ 3,200,000

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The goal of this agreement is to create/continue a nationwide network of multi-university research centers (Focus Centers) that will keep the U.S. Department of Defense and U.S. semiconductor firms at the forefront of the global microelectronics revolution. These centers will be focused on discovering solutions to the intractable problems that are forecast to lie in the future of integrated circuit progress. As such, each center will be focused in specific technical areas where these problems are expected to arise. For the term of this agreement, the areas of highest technical opportunity and need are: Hetero-System Design, Hyper-Integration Technology, and Nano-Scaling Technology. One or two Focus Centers in each of these technical areas will be awarded contracts for the next six months.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The recipient of this award is a non-traditional performer. As a non-profit, whose management of the program involves the coordination of multiple university focus centers and financial contributions made by private industry, Microelectronics Advanced Research Corp (MARCO) stated that it will not agree to the terms of the Federal Acquisition Regulation.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This program brings together a non-traditional, non-profit company into defense contracting to foster innovative research in the area of semiconductor technology. Results of particular importance to defense are: a) Top-end digital information processing--Radar, electronic warfare, precision navigation and communications are essential elements of military technology that are avid consumers of commercial digital information processing. The DoD also remains keenly interested in access to custom-designed military signal and data processing equipment with which to enhance its military operations; b) Mid-level digital capabilities integrated with analog, Requisition Frequency (RF), microwave, optical, acoustic and mechanical Sensors & Actuators--economically equipping the soldier in the field; c) Deployable autonomous Nano-miniaturized units that operate in the potential enemy's territory to surveil, assess and interfere with his ability to create mischief.

Certain rights pertaining to intellectual property rights (Bayh-Dole) were important to MARCO. These issues required additional negotiation and flexibility in the provisions ultimately agreed upon between the parties. This flexibility and tailoring was possible only with the use of an other transaction.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-3-0003

Type of Agreement: Research TIA that is not a cooperative agreement

Title: Technology Maturation Study: Scramjet Propulsion and Control in Hypersonic Flight

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Defense Science & Technology The Commonwealth of Australia

Effective Date: 31 Oct 2003

Estimated Completion or Expiration Date: 12 Mar 2004

U.S. Government Dollars: \$ 249,999

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objective of this effort is to conduct a study leading to a potential larger program into the use of Australia's niche scramjet and guidance technologies to support larger hypersonic DoD research programs. Australia has already achieved success because it has adopted new approaches to scramjet flight testing. The objective of this study is to define the roles and responsibilities of both the U.S. and Australian research teams, including decision-making and interaction processes.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an other transaction enables DSTO to jointly participate with the U.S. Government in critical technology development for improvements in scramjet and guidance technologies. As an Australian Government organization, DSTO would not comply with regulations imposed by the Federal Acquisition Regulation and would not accept a procurement contract. This joint effort was made possible through the use of an other transaction.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This program leverages DSTO and the Commonwealth of Australia's expertise in hypersonic research and brings together two Governments to incorporate scramjet and guidance technologies into DoD research programs. If successful, DSTO and DARPA will both benefit from the interaction with major U.S. entities, possibly contributing to a planned demonstration of a Hypersonic Cruise Vehicle in 2009 under the Force Application and Launch from CONUS (FALCON) program. Engagement with DARPA will enable the work to progress more rapidly than would otherwise be possible.

Other benefits to the DOD through use of this agreement:

The use of an other transaction--other agreement under the authority of 10 U.S.C. Section 2371 allows DSTO to use existing Australian accounting practices and avoids the cost of setting up U.S. Government accounting systems.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-3-0036

Type of Agreement: Research TIA that is not a cooperative agreement

Title: Titanium Initiative in Fluid-Bed Reactor.

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: SRI International

Effective Date: 14 Jun 2004

Estimated Completion or Expiration Date: 13 Apr 2005

U.S. Government Dollars: \$ 1,125,000

Non-Government Dollars: \$ 2,681,800

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objectives of this effort are to demonstrate proof-of-concept for a novel process to produce titanium and titanium alloy pellets and powders at extremely low cost. These materials can be both formed into billets and other shapes using standard powder processing techniques without the need for melt processing and by conventional melting. The main objective and plan consists of designing, building, and operating a prototype reactor system capable of producing 5 to 50 lbs of Ti or Ti alloy pellets per day, as requested by DARPA. This effort is under the DARPA Titanium Initiative (DTi) and is in the materials technology area.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an other transaction will enable the rapid development of the technology. If successful, this agreement will result in the establishment of knowledge, a process and industrial facilities that can produce materials of interest to the Department of Defense. The proposed process does not currently represent an industrial production capability. This agreement will establish the feasibility of the process as an alternate to the currently used Kroll process for the production of titanium and will provide an inexpensive domestic source of titanium alloys for the Department of Defense. Currently, the U.S. imports approximately 2/3 of its needs in titanium sponge and the majority of titanium metal is used in aerospace applications. However, thick-section tonnage applications are envisioned in advanced Army and Navy systems. The inhibitor is the high acquisition. This other transaction will demonstrate methods to reduce the initial ore processing costs. The goal is 50% lower cost of both pure and alloyed particulate refined from various raw materials (oxides or chlorides).

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction has enabled working relationship between SRI International, Millennium Inorganic Chemicals, Inc., DARPA, the Air Force Research Laboratory and the DoD advisory team established by DARPA to facilitate insertion of the technology into DoD systems.

Successful demonstration of the technologies will enable applications in Army and Navy systems. By replacing heavier alloys, such as steel, with titanium, the overall weight will be reduced, the center of gravity of capital ships will be improved, and the transportability of mechanized vehicles will be enhanced. In addition, the excellent corrosion resistance of titanium will reduce the life-cycle cost of fielded systems through reduced maintenance. The business relationships fostered by this agreement will broaden the demand for titanium and will reduce the cyclic nature of the current supply/demand curves produced by aerospace-centric uses. This will benefit the Air Force in that it will provide a healthy domestic production infrastructure thereby ensuring supply for advanced vehicles.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-3-0037

Type of Agreement: Other non-acquisition transaction (not grants/cooperative agreements)

Title: HYCAUSE-A Collaborative Australian/United States Experiment into Controlled Scramjet Atmospheric Flight at Mach 10-Phase I

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Defense Science & Technology The Commonwealth of Australia

Effective Date: 21 Apr 2004

Estimated Completion or Expiration Date: 20 Oct 2005

U.S. Government Dollars: \$ 3,350,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objective of this effort is to demonstrate a scramjet technology that is suitable for practical application in Force Application and Launch from CONUS (FALCON). For the purpose of this Agreement, research will concentrate on establishing solid collaboration between Australian and U.S. teams as well as further developing the basis for a flight test program and sufficient ground test data from both the U.S. and Australian teams to choose a suitably efficient scramjet configuration for flight testing at Mach 10.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an other transaction enables DSTO to jointly participate with the U.S. Government in critical technology development for improvements in scramjet and guidance technologies. As an Australian Government organization, DSTO would not comply with regulations imposed by the Federal Acquisition Regulation and would not accept a procurement contract. This joint effort was made possible through the use of an other transaction.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This program leverages DSTO and the Commonwealth of Australia's expertise in hypersonic research and brings together two Governments to incorporate scramjet and guidance technologies into DoD research programs. If successful, DSTO and DARPA will both benefit from the interaction with major U.S. entities, possibly contributing to a planned demonstration of a Hypersonic Cruise Vehicle in 2009 under the Force Application and Launch from CONUS (FALCON) program. Engagement with DARPA will enable the work to progress more rapidly than would otherwise be possible

Other benefits to the DOD through use of this agreement:

The use of an other transaction under the authority of 10 U.S.C. Section 2371 allows DSTO to use existing Australian accounting practices and avoids the cost of setting up U.S. Government accounting systems.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-3-0039

Type of Agreement: Other non-acquisition transaction (not grants/cooperative agreements)

Title: Compact Multifunctional Avionics Suite for Autonomous Micro Air Vehicles

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Defense Science & Technology The Commonwealth of Australia

Effective Date: 21 Apr 2004

Estimated Completion or Expiration Date: 20 Apr 2005

U.S. Government Dollars: \$ 236,845

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objective of this effort is to develop technologies for increasing the autonomy of micro and Mini Aerial Vehicles (MAVs). The technology developed by DSTO will focus primarily on machine vision techniques generically described as "optical flow". Optical flow is useful for extracting information about the distance to obstacles and movement by the observing platform. Other sensors that will be developed under the agreement include the ocelli that are reverse engineered horizon sensing organs of dragonflies, and a sky polarization compass similar to that used by bees and ants for navigation. The technologies developed during the program shall be delivered in a form suitable for implementation on MAVs.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an other transaction enables DSTO to jointly participate with the U.S. Government in critical technology development for improvements in sensor technologies for MAVs. As an Australian Government organization, DSTO would not comply with regulations imposed by the Federal Acquisition Regulation and would not accept a procurement contract. This joint effort was made possible through the use of an other transaction.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This program leverages DSTO and the Commonwealth of Australia's expertise in sensor technologies for MAVs and brings together two Governments to incorporate these technologies into DoD research programs. If successful, DSTO and DARPA will both benefit from sensor suites that overcome the limitations of MAVs in strategically important environments. For example, current sensor suites and controllers for small aerial vehicles are not capable of collision avoidance and do not harness the agility of small airframes. Engagement with DARPA will enable the development of these sensor technologies to progress more rapidly than would otherwise be possible.

Other benefits to the DOD through use of this agreement:

The use of an other transaction under the authority of 10 U.S.C. Section 2371 allows DSTO to use existing Australian accounting practices and avoids the cost of setting up U.S. Government accounting systems.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-3-0040

Type of Agreement: Research TIA that is not a cooperative agreement

Title: Bootstrapping a Quantum Information Technology Industry

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Hewlett-Packard Company

Effective Date: 30 Aug 2004

Estimated Completion or Expiration Date: 29 Aug 2005

U.S. Government Dollars: \$ 499,059

Non-Government Dollars: \$ 216,000

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The objective of this effort is to research fundamental technologies and applications for quantum information processing with photonic qubits. In particular, the goals will be to understand the physics of Electromagnetically Induced Transparency (EIT) at low light levels explore endohedral fullerenes as vehicles for nanoscale implementations of EIT and theoretically explore distributed quantum algorithms for commercial and military applications.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an other transaction allows Hewlett Packard's commercial business units to participate in critical technology development for advances in quantum information science. As a commercial company, their internal systems are not compliant with regulations imposed by the Federal Acquisition Regulations. If not for an other transaction, they would not have participated under a procurement contract.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This program brings together industry and universities to develop a new direction in Quantum Information Science. The technologies to be explored will benefit Hewlett Packard, their subcontractors (University of Oxford and Northwestern University), and ultimately the United States. The development of new techniques EIT and algorithms for Quantum Information Processing will give the U.S. a strong lead in these technologies which will be very important for the future of our National Security. The ability to tailor this agreement to the goals of both DARPA and the performers is crucial to achieving the goals of this effort. This flexibility and tailoring was possible only with the use of an other transaction.

Other benefits to the DOD through use of this agreement:

The use of an other transaction for research agreement allows commercial companies to use existing commercial accounting practices, alleviating the requirement and avoiding the cost of setting up Government accounting systems. The members also will provide cost share in this program to develop new methods for storing and using quantum information. The Government obtains the benefit of these practices by leveraging commercial investment to support military systems.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: N61339-04-2-0004

Type of Agreement: Cooperative Agreement – Cancelled April 13, 2005

Title: Future Combat Systems Training Common Components

Awarding Office: NAVAIR Orlando TSD *on behalf of* U.S. Army Program Executive Office for Simulation, Training, and Instrumentation (PEO-STRI)

Awardee: The Boeing Company Integrated Defense Systems

Effective Date: 09 Sep 2004

Estimated Completion or Expiration Date: 30 Sep 2009

U. S. Government Dollars: \$0 obligated under this agreement, NTE \$49,100,000 was to be received under the recoupment clause from the recipient (which the recipient had received under another Federal award).

Non-Government Dollars: \$0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objectives of this effort were to acquire Future Combat Systems (FCS) Training Common Components (TCC), which would provide the first instance of a fully organic embedded Live, Virtual and Constructive training environment for individual, crew and combined arms training (Key Performance Parameter #6). FCS will use the TCC as the basis for developing applications to support the embedded training solution of the FCS program. The TCCs identified during the FCS Concept and Technology Demonstration Phase consisted of eight functional capabilities necessary to support embedded training. These functional capabilities are Semi Automated Forces-Computer Generated Forces; After Action Review; Data Logger; Scenario Generation; Training Management; Exercise Management; and the Environmental Representation. The TCC will support the planning, execution, and After Action Review (AAR) requirements of the training cycle. An FCS program decision was made in December 2002 to leverage the ongoing PEO STRI programs to meet the requirements of the TCC. The current contributing programs identified to provide, develop and integrate the TCCs in PEO STRI are: (1) One Tactical Engagement Simulation System (OneTESS); (2) Army Training Information Architecture (ATIA) or successor program; (3) Objective OneSAF (Semi-Automated Force) (OOS); (4) Common Training Instrumentation Architecture (CTIA); (5) Army Constructive Training Federation (ACTF). These programs will provide an integrated set of TCC to the Lead System Integrator (LSI). These TCCs will work with the System of Systems Common Operating Environment (SOSCOE) that FCS suppliers will utilize to develop the FCS embedded training system.

The Navy awarded this cooperative agreement under the authority of 10 U.S.C. 2358 and 2371. The Navy cancelled the cooperative agreement in 2005 when it was determined that it was not a proper use of this statutory authority. While the Navy ultimately decided that this document was not a proper cooperative agreement, it is being included in this report. Prior to cancellation and in accordance with the terms of the cooperative agreement, the nonfederal recipient of the agreement transferred \$2.35 million that it had received under another Federal Government contract. The Government expended \$1.00 million. The remainder has been returned to the non-federal recipient of this agreement.

The Army will have the FCS LSI subcontract directly with the prime contractors on the PEO STRI programs referred to above.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Not applicable as the Cooperative Agreement has been cancelled.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Not applicable as the Cooperative Agreement has been cancelled

Other benefits to the DOD through use of this agreement:

Not applicable as the Cooperative Agreement has been cancelled.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** N/A **Task Number:** 0022

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Development of Energetics/Reactives

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: ATK Thiokol Inc.

Effective Date: 30 Jun 2003

Estimated Completion or Expiration Date: 30 Jun 2005

U.S. Government Dollars: \$ 2,226,350

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Acquire the necessary technical data that allows .50 caliber Reactive Material Enhanced Bullets (RMEB) "SMK" ammunition to be safely and reliably deployed in a limited capacity, per government discretion. Enhancement to the RMEB baseline configuration is desired in order to enhance sensitivity and reactivity when impacting the targets of interest. Upon accomplishing these objectives, the contractor will deliver prototype rounds to the government.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This Task Order Sub-Agreement (TOSA) broadens the U.S. technology and industrial base by developing a new prototype material that is available from domestic materials and does not rely on foreign technology. Although this material is being developed for the Special Operating Forces, the material design will be applicable to other Armed Forces Service requirements.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This other transaction is the contractual vehicle that was recommended in the Defense Ordnance Technology Consortium (DOTC) charter to facilitate collaboration on research among DoD Services and Agencies and their Industrial/Academia Consortium. Through the award of this TOSA, the Special Operating Forces, and the Naval Surface Weapons System will collaborate with ATK Thiokol to develop new energetics/reactive materials.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** 0000 **Task Number:** 0027

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Novel Material for High Blast applications

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: Geo-Centers, Inc.

Effective Date: 06 Jul 2004

Estimated Completion or Expiration Date: 05 Jul 2005

U.S. Government Dollars: \$ 199,930

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The objective is to synthesize novel energetic material with improved performance and reduced sensitivity. These prototype formulations will have metal accelerations and enhanced blast applications that provide up to 50% or higher energy and reduced sensitivity than current explosives. Part of the objective is for the prototype formulations to be environmentally friendly, easy to demilitarize and producible at a reduced cost.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This project will synthesize new solid explosive ingredients that will be much safer than the liquid ingredients used in foreign weapons currently in use. The new ingredients will broaden the U.S. technology base by allowing manufacture of new energetic materials by both traditional and non-traditional explosive ingredient manufacturers. This project provides unlimited data rights to the U.S. Government and which provides for the possibility of dual use manufacturing.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This project fosters new relationships between the developer and the manufacturing contractors because this is new material and will require a new manufacturing base that can be dual use capable depending on the characteristics and commercial potential of the new materials. Under this other transaction, the information sharing mission of the Government/Consortium partners will facilitate a member who is interested in manufacturing the item to obtain the development technology.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** 00000 **Task Number:** 0028

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Barrel Heating Characteristics 155mm Howitzer

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: Veritay Technology, Inc.

Effective Date: 19 May 2004

Estimated Completion or Expiration Date: 19 Feb 2005

U.S. Government Dollars: \$ 174,990

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The primary objective of the proposed program will support the Army's goal of reduce gun tube wear. Veritay will accomplish this objective by characterizing gun tube heating for 155mm howitzers in terms of propelling charge and projectile design parameters, which include propellant formulation, wear liner, projectile type, and projectile obturator, and will provide prototype wear liner and obturator configurations for testing with six propellant formulations.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This project broadens the technology base by developing a standard design for sensing the temperature profile for both the M776 and M199 cannons. This standard system will allow data to be collected by different organizations and companies to be reconciled into a single data base. Since the correlation of the temperature profile is critical to identifying propellants that will prolong gun tube life, this standard system will facilitate the comparison of gun tube wear data which will lower the cost and reduce the time for the development of new propellants.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This project will allow traditional and non-traditional Government contractors and Government facilities to test new propellants in M776 and M199 gun tubes at different companies and locations and compare their results to other tests of other propellants through the standard system developed under this prototype project. The Organizational Operating Structures provisions in this other transaction will facilitate the accessibility of this gun tube wear data in the standard system to the Government and Consortium partners.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Task Number:** 0029

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: HYBRID PROPELLANT

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: St. Marks Powder, Inc.

Effective Date: 30 Apr 2004

Estimated Completion or Expiration Date: 30 Apr 2005

U.S. Government Dollars: \$ 1,171,945

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Under this effort, the contractor will conduct research and development efforts to demonstrate the performance and improved barrel wear potential of HYBRID propellant as a replacement for M30A2 in the 155MM MACS M232 Propelling Charge.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This sub-agreement broadens the technology and industrial base in that by successfully producing HYBRID Propellant all raw materials used could be from a U.S. source. HYBRID propellant does not require the use of Nitroguanidine, which is currently used in conventional propellants, and is obtained from overseas sources. HYBRID propellant is also environmentally friendly with improved insensitive munitions and a lower loading cost.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This sub-agreement establishes new relationships in the technology and industrial base by using a commercially owned facility currently producing for the private sector to produce large caliber artillery propellant. The plant will have a dual use capability that will use private sector business to share the overhead of producing military propellant. The result of this sub-agreement will be better propellant at a reduced cost to the government through new relationships with the private sector.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** 00000 **Task Number:** 0030

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Explosive Cladding Technology

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: TPL, Incorporated

Effective Date: 31 Mar 2004

Estimated Completion or Expiration Date: 01 Jun 2006

U.S. Government Dollars: \$ 1,993,586

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Awardee will explosively clad refractory metal to medium caliber gun barrels and demonstrate that this process will fabricate high-performance gun barrels and enhance lethality and operational effectiveness. The success of this effort will support the Operational Requirements Document (ORD) requirement 2685 of the Unit of Action for Future Combat System (FCS) medium caliber.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

By successfully demonstrating the explosive cladding process, the FCS medium caliber systems will have a quantum improvement in high-barrel performance and the capability to defeat the more prolific light armored vehicles and maintain the momentum of the designated mission. This new process for lining the inside of a gun barrel with a protective material can be manufactured in any large building with an explosive chamber. This process replaces the requirement to chrome the inside of gun barrels. It avoids the costly environmental controls associated with chrome plating and is less dangerous to workers health. The resulting gun barrel is more effective in that it can fire hotter propellant than chrome-lined barrel and will last longer in service. The life cycle costs are less for this new barrel. In summary, the new process is more effective, less expensive, environmentally friendly, and less dangerous in the workplace.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Current technology requires the plating of the gun tubes with Hexavalent Chrome, which is a known carcinagin. The plating process inherently involves a threat to the environment and is closely regulated by state and federal environmental agencies. This regulatory oversight greatly influences the facilities where you can safely produce gun tubes. The new explosive bonding technology that will be demonstrated under this prototype project is environmentally friendly and can be performed in many facilities in the U.S. This will allow new manufactures to compete for gun tube production and creates new relationships within the industrial base.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** N/A **Task Number:** 0032

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Carbon Nanotubes for Propellant Formulations

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: New Jersey Institute of Technology & the Foundation at Njit

Effective Date: 14 May 2004

Estimated Completion or Expiration Date: 13 May 2007

U.S. Government Dollars: \$ 175,854

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The purpose of this prototype project is to produce pure and chemically functionalized multi-walled carbon nanotubes and ultimately single-wall carbon nanotubes for evaluation with propellant formulations by the U.S. Army. Seven batches of either multi-walled or single wall carbon nanotubes will be delivered.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This project will broaden the technology and industrial base by introducing new prototype binders for propellants using carbon nano tubes. The new propellants can be designed for enhanced mechanical strength, thermal conductivity, energy densities and incorporation of previously unusable materials. The new binders will allow charge designers to use shapes and loading densities not previously possible. The new design parameters will allow other than traditional solutions and allow other non traditional companies to compete.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This project will foster new relationships by allowing new solutions for charge designs. New non-traditional companies will be able to compete by offering new energetic materials that previously lacked the strength to be good propellants. The new prototype binders will allow charge designers to offer new and innovative designs and will allow new non-traditional companies to compete. Using the more cost-effective multi-wall carbon nanotubes in propellant formulations will enable the Government to purchase more efficient propellants at a lower cost from a greater number of suppliers.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** 0000 **Task Number:** 0033

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Reactive Material Warhead Design Battle Axe Munition

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: D E Technologies, Inc.

Effective Date: 14 May 2004

Estimated Completion or Expiration Date: 14 May 2007

U.S. Government Dollars: \$ 472,492

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The objective of this prototype project is to increase energy output at the warhead target and thereby maintain lethality in a smaller warhead size. This will be accomplished through the design and demonstration of a Reactive Material Battle Axe Warhead via modeling and design, warhead fabrication, test planning and support and analysis.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Through the Organizational Structure and the Program, Planning and Budgeting provisions of this other transaction a collaborative environment is enabled and technologies and requirements are discussed by all the Defense Ordnance Laboratory Center (DOLC) government members and the National Warheads & Energetics Consortium (NVEC) industry and academia members. Under these provisions, both the DOLC and NVEC members participate on research committees that provide recommendations to the overarching Defense Ordnance Technology Consortium (DOTC) Executive Committee for planning the short- and long- term goals of the DOLC and focusing the NVEC resources to accomplish these goals.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Use of this other transaction, with its collaborative provisions, enabled the Air Force to offset the cost of this Prototype project funded project by leveraging research work completed by the Navy at their Naval Surface Warfare Centers. The collaborative provisions encourage the sharing of prototype technologies among the DOLC and NVEC members and provide a less expensive cost avenue for the Government to obtain needed technology in an accelerated time frame.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** N/A **Task Number:** 0034

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Development of CE Warheads

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: General Dynamics Ots (Oti), Inc.

Effective Date: 21 Sep 2004

Estimated Completion or Expiration Date: 21 Sep 2005

U.S. Government Dollars: \$ 3,604,111

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Evaluation of reactive materials, hydrocode computational capability and other modeling tools; development of unique application of designs to defeat Hard and Deeply Buried Targets (HDBT), Tunnel, and/or Military Operations in Urban Terrain (MOUT) targets; selection and evaluation of insensitive explosives; investigation of high-energy explosive fills for survivability in penetrators, cost effective measurement techniques for impact/penetration survivability of explosive fills at Mach 1 to Mach 4; warhead design, fabrication and testing to include, but not limited to reactive materials.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Future Armed Forces will require warheads suites with effectiveness comparable to, or greater than current systems, but of much reduced size in order to achieve transportability goals. Warhead package length must also be reduced to accommodate sensor/seeker and guidance units to increase probability of hit and thereby reduce the number of rounds required. These restraints require a quantum improvement in warhead performance over that currently available. This Task Order Sub-Agreement (TOSA) warhead effort addresses all the Future Armed Forces issues. In addition under the team information sharing provisions of the other transaction, the resulting data will be presented to both the Government and Industry Consortium members for use in related research efforts resulting in lower life-cycle costs for the developed warheads.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Through the information sharing provisions and the organizational structure provisions of the Other Transaction, the Army Research Laboratory and the Air Force Research Laboratory created a multi-functioning team of government, industry and academia that are sharing their state-of-the-art technology and expertise to develop a smaller, more lethal warhead at a lower life-cycle cost.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** N/A **Task Number:** 0036

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Explosive Development

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: ATK Thiokol, Inc.

Effective Date: 31 Aug 2004

Estimated Completion or Expiration Date: 31 Aug 2009

U.S. Government Dollars: \$ 4,844,505

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Under this prototype effort, new and novel energetic formulations will be developed. Small-scale explosive development and characterization will be conducted. Small-scale mixes will be manufactured will be delivered to the Government with methodology to manufacture larger samples for loading and testing in various applications.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The advanced energetic materials under this Task Order Sub-Agreement (TOSA) will be developed that will be more powerful and less sensitive than current explosives. It will make the Soldiers, Sailors, Airmen and Marines that use and carry this ammunition safer and more effective on the battlefield. These advanced energetic materials will result in a reduction in life-cycle costs for all bombs and ammunitions that use the developed material.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Through the information sharing provisions of this Other Transaction, the Army Research Development and Engineering Center (ARDEC), Air Force Research Laboratory (AFRL), the Naval Surface Warfare Center (NSWC) will integrate Government, industry, and academia into a single enterprise executing partnered initiatives, developing goals and objectives, and sharing resources and assets. Under these provisions the technical and test data gathered during the development of this new energetic material will be presented to the members of the consortium through the research committee and general membership meetings.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** NA **Task Number:** 0038

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Explosive Development

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: General Dynamics Ots (Oti), Inc.

Effective Date: 27 Sep 2004

Estimated Completion or Expiration Date: 27 Sep 2005

U.S. Government Dollars: \$ 745,969

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The objective of this effort is to provide the U.S. Army an understanding of the explosive level and system response to vulnerabilities caused by unplanned stimuli. To accomplish this objective, prototype Insensitive Munition explosives will be subjected to testing and characterization.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The hydrocode modeling of data, collected from the proposed testing of insensitive munition explosives, will have applications in warheads for all branches of the Department of Defense. To reduce develop time and cost for other insensitive munitions, the data collected under this Task Order Sub-Agreement (TOSA) will be shared with the other sixty-two industrial members and fourteen government munition laboratories that belong to the Defense Ordnance Technology Consortium that operates under the organizational structure provisions of this Other Transaction.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This TOSA will develop prototype methods that allow new sources of explosives to be quickly tested to determine the degree of sensitivity. This prototype method will provide a common baseline testing protocol that quickly assesses the performance characteristics of foreign or commercially available explosives and thereby broaden the purchasing options, customer relationships and sources of supply available to the Department of Defense.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** NA **Task Number:** 0039

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Fuze Enabling Technologies

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: University of Florida

Effective Date: 23 Sep 2004

Estimated Completion or Expiration Date: 23 Sep 2008

U.S. Government Dollars: \$ 1,207,606

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The awardee will perform two tasks under this Task Order Sub-Agreement (TOSA). Task 1 will focus on the design and implementation of a low-cost, multifunction fuze sensor tactical prototype that will be realized through advances in digital signal processors and processing. Other key aspects of this task will be the use of advanced waveforms and multi-level simulation, analysis and testing to realize the tactical prototype. Task 2 will be aimed at the design and fabrication of an improved version of the signal processor for the mortar fuze and will draw on the expertise of Mixed Signal Integration (MSI) in mixed-signal processors.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The proposed research is based on a close teaming liaison between the awardee and the U.S. Army/ARDEC Fuze Division and from Mixed Signal Integration that will function under the information sharing provisions of the other transaction. Under this project this team will result in both near- and long-term benefits to the Government through the application of new and advanced signal processor and processing techniques for fuzing. First, the project will result in a new, low-cost, multifunction tactical fuze sensor design, implemented with digital signal processing that will allow application and operational flexibility in a variety of future tactical scenarios. In addition, this new tactical fuze sensor design will have performance and reliability exceeding current fuze sensor designs and be suitable for application far into the future. A significant second technical benefit will be a new and improved Application Specific Integrated Circuit (ASIC)-design, mixed-signal processor for the mortar fuze.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The fuze enabling technologies that results from this research in fuze signal processors and processing, waveform generation, simulation, analysis, and testing techniques will provide technical benefits to other future fuzing systems needed to meet new and demanding requirements beyond those currently envisioned. This information will be available to the government, industry and academia members of the Defense Ordnance Technology Consortium for their use in related fuze research and will result in lower development costs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: DAAE30-01-9-0800 **Modification Number:** NA **Task Number:** 0040

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Fuzing Transceiver

Awarding Office: XR W4GG TACOM PICATINNY

Awardee: M/A-Com, Inc.

Effective Date: 27 Sep 2004

Estimated Completion or Expiration Date: 26 Apr 2005

U.S. Government Dollars: \$ 337,511

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

To design, fabricate and test prototype Transceiver Monolithic Microwave Integrated Circuits (MMICs) to target specification parameters.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The designed and fabricated Requisition Frequency (RF) monolithic transceiver could replace the current transceiver used in proximity fuzes for mortars and artillery, as well as for future sensors. The results of this effort could provide an alternative transceiver for multiple munition systems and increase the sources of supply. Through increased competition the cost of the transceiver and ultimately the proximity fuze could be reduced

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Use of this other transaction created the opportunity to acquire more affordable technology through the development of an alternative transceiver source. This awardee is a new member to the government, industry and academia consortium that is structured under the other transaction and will be able to benefit from the organizational provisions and the research committees that allow sharing of information and current research data among the consortium members.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: FA8651-04-9-0001

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Cold Cathode Traveling Wave Tube (TWT)

Awarding Office: FA8651 AIR FORCE RESEARCH LABORATORY AFRL-MNK

Awardee: L-3 Communications Corporation

Effective Date: 09 Jun 2004

Estimated Completion or Expiration Date: 08 Jun 2007

U.S. Government Dollars: \$ 299,260

Non-Government Dollars: \$ 409,925

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Technical objectives are: a) to demonstrate operation of a C-band cold-cathode TWT at powers greater than 100 Watts, 100mA, 30% circuit efficiency and over 50% total efficiency, b) develop, implement, and test new cold-cathode field emitter arrays employing low-voltage turn-on high aspect ratio geometry and current-buffered arc protection and, c) evaluate cold-cathode technology requirements for TWTs operating at frequencies up to and including millimeter-wave frequencies and power in excess of 250 Watts.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has allowed the government to participate, with a small investment, in the development of a high-risk, revolutionary technology that, if proven successful, will benefit all high-power military and commercial Requisition Frequency (RF) systems. This technology has the potential of providing the government a product that would extend life, minimize logistics, and increase performance of current and future systems. The technologies used in this project could also be used in other vacuum electron devices contributing to the broadening of the technology. Although the industry partner is considered a traditional defense contractor, the particular division (Electron Devices) working the project has traditionally engaged in very few contracts with this unit of the government (AFRL/MN). The use of the OT has allowed the government to accelerate the development of this technology, significantly improving the state of the art which the contractor otherwise would have developed at a slower pace.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction has allowed the government to invest only 43% of the funds required for this project. The non-federal party will provide the remaining 57% of the funds and is the main reason for selecting this contracting option. This agreement has also helped establish a relationship with this division (Electron Devices) of the company that had been nonexistent for several years. It also helped the contractor to establish a new relationship with a non-profit organization that will be participating in the effort. SRI International, the non-profit organization, and L-3 Communications, Electron Devices, are the leaders in the technologies to be used and will merge this expertise for this project. This OT should open the door to future business to both contractors, particularly L-3 Communications, Electron Devices, which has historically executed few government Research & Development contracts.

Other benefits to the DOD through use of this agreement:

The use of an other transaction has resulted in a more flexible procurement option that will allow the partners to steer the development of the project on an instantaneous basis depending on the tests performed. Also, it is unlikely that any of the partners would have budgeted for the development alone. Absent the "sharing" element allowed in the OT, development of this important technology would have been delayed for years.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0002

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Falcon, Phase I, Task 2

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Lockheed Martin Corporation

Effective Date: 17 Nov 2003

Estimated Completion or Expiration Date: 16 May 2004

U.S. Government Dollars: \$ 1,497,128

Non-Government Dollars: \$ 450,000

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

For the Hypersonic Cruise Vehicle (HCV) part of the Force Application and Launch from CONUS (FALCON) program, the ultimate goal is to develop a hypersonic vehicle that has intercontinental range and can cruise or skip at speeds of Mach 8 to 10. The HCV vehicle could be employed in a manned or unmanned mission mode as the situation demands. It could be used to deliver weapons over long ranges, or adapted to launch a second stage that accelerates its payload to a ballistic or orbital trajectory.

The technical objective of this Phase I effort is to lay the foundation for developing and validating in-flight technologies that will enable both near-term and far-term capability to execute time critical, prompt global reach missions. The technology area is hypersonic vehicles.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Although the lead performer on this task, Lockheed Martin, is a traditional defense contractor, a significant participant in the effort is SySense, Inc., a non-traditional defense contractor. The use of an other transaction gave DoD access to this firm by providing relief from standard accounting, pricing and cost reporting requirements, thereby broadening the technology base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The other transaction process has encouraged traditional defense contractors such as Lockheed Martin, to seek out teaming partners from the small business and non-traditional defense business sectors. The commercial firm, SySense, will use its normal operating practices, without being forced into standardized government systems and procedures, for accounting, reporting, and making changes. This flexibility will contribute to innovative pursuit of technical accomplishment.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0003

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Falcon, Phase I, Task 2

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: The Boeing Company

Effective Date: 24 Nov 2003

Estimated Completion or Expiration Date: 23 May 2004

U.S. Government Dollars: \$ 1,259,695

Non-Government Dollars: \$ 709,710

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

For the Hypersonic Cruise Vehicle (HCV) part of the Force Application and Launch from CONUS (FALCON) program, the ultimate goal is to develop a hypersonic vehicle that has intercontinental range and can cruise or skip at speeds of Mach 8 to 10. The HCV vehicle could be employed in a manned or unmanned mission mode as the situation demands. It could be used to deliver weapons over long ranges, or adapted to launch a second stage that accelerates its payload to a ballistic or orbital trajectory.

The technical objective of this Phase I effort is to lay the foundation for developing and validating in-flight technologies that will enable both near-term and far-term capability to execute time critical, prompt global reach missions. The technology area is hypersonic vehicles.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Boeing is a traditional defense supplier. As a result, the technology and industrial base was not broadened in this effort. Other benefits did accrue, however, from the use of an other transaction, as described below.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction has fostered the maximum application of commercial practice and program management streamlining to achieve schedule reduction on this development program. The other transaction allows a tailored approach which avoids traditional hurdles that slow the process.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0004

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Falcon, Phase I, Task 2

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Andrews Space, Inc.

Effective Date: 19 Nov 2003

Estimated Completion or Expiration Date: 18 May 2004

U.S. Government Dollars: \$ 1,499,955

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

For the Hypersonic Cruise Vehicle (HCV) part of the Force Application and Launch from CONUS (FALCON) program, the ultimate goal is to develop a hypersonic vehicle that has intercontinental range and can cruise or skip at speeds of Mach 8 to 10. The HCV vehicle could be employed in a manned or unmanned mission mode as the situation demands. It could be used to deliver weapons over long ranges, or adapted to launch a second stage that accelerates its payload to a ballistic or orbital trajectory. The technical objective of this Phase I effort is to lay the foundation for developing and validating in-flight technologies that will enable both near-term and far-term capability to execute time critical, prompt global reach missions. The technology area is hypersonic vehicles.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The performing organization, Andrews Space, Inc., is a non-traditional defense supplier. The use of an other transaction provided DoD with access to this commercial firm on a military prototype project, thereby broadening the technology and industrial base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction allowed this commercial firm to use its existing commercial accounting practices, alleviating the requirement and avoiding the cost of setting up a government-approved system. Further, the use of an other transaction provided freedom from the standard intellectual property regime and mandatory flow-down clauses that are obstacles to commercial participation and practice.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0005

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Falcon, Phase I, Task 2

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Northrop Grumman Corporation, Integrated System & Aerospace
Northrop Grumman

Effective Date: 18 Nov 2003

Estimated Completion or Expiration Date: 17 May 2004

U.S. Government Dollars: \$ 1,487,595

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

For the Hypersonic Cruise Vehicle (HCV) part of the Force Application and Launch from CONUS (FALCON) program, the ultimate goal is to develop a hypersonic vehicle that has intercontinental range and can cruise or skip at speeds of Mach 8 to 10. The HCV vehicle could be employed in a manned or unmanned mission mode as the situation demands. It could be used to deliver weapons over long ranges, or adapted to launch a second stage that accelerates its payload to a ballistic or orbital trajectory.

The technical objective of this Phase I effort is to lay the foundation for developing and validating in-flight technologies that will enable both near-term and far-term capability to execute time critical, prompt global reach missions. The technology area is hypersonic vehicles.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Although the lead performer on this task, Northrop Grumman, is a traditional defense contractor, a significant participant in the effort is SpaceWorks Engineering, Inc., a non-traditional defense contractor. The use of an other transaction gave DoD access to this firm by providing relief from standard accounting, pricing and cost reporting requirements, thereby broadening the technology base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Although the lead performer on this task, Northrop Grumman, is a traditional defense contractor, a significant participant in the effort is SpaceWorks Engineering, Inc., a non-traditional defense contractor. The use of an other transaction gave DoD access to this firm by providing relief from standard accounting, pricing and cost reporting requirements, thereby broadening the technology base.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0006

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Next Generation Audio Masking Technology

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Intelligent Devices, Inc.

Effective Date: 24 Feb 2004

Estimated Completion or Expiration Date: 23 Dec 2004

U.S. Government Dollars: \$ 1,434,800

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objective of this effort is to develop, test, and advance Audio Masking Technology (AMT) that utilizes a novel method for generating a “babble” of human voice-like sounds derived from the speakers own voices. This will be a significant advancement over the currently available noise-based approaches, as it will be much more difficult to defeat. The requirement to improve technology in the area of audio masking is driven by the result of a test done by the Pentagon Force Protection Agency (PFPA) that identified shortcomings in the current equipment. This project will allow the PFPA to reliably mask voice conversion in poorly controlled environments with much higher confidence than with any currently available system.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The recipient of this award is a non-traditional performer. As a small business and a purely commercial company, unable to meet the requirements of a federal procurement contract, Intelligent Devices, Inc. has requested the use of a commercially flexible award instrument.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This other transaction attracts a non-traditional, commercial company into defense contracting to foster innovative research in the area of next generation audio masking technology. The outcome of the effort program will be that Intelligent Devices, Inc., will deliver to the government a “One Talker Prototype System” capable of masking the voice of one speaker in a room from unauthorized acoustic interception. Because of the possibility of this technology providing revolutionary results in the protection of information from unauthorized interception, the government required a provision in the agreement for the potential acquisition of all “background invention” technology from Intelligent Devices, Inc., if the subject prototype talker system was demonstrated to be successful. Certain rights pertaining to intellectual property rights were very important to both the government and Intelligent Devices, Inc. These issues required additional negotiation and flexibility in the provisions ultimately agreed upon between the parties. This flexibility and tailoring was possible only with the use of an other transaction.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0007

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Super High Efficiency Diodes (SHEDS) - Radically Asymmetric Wavelength Stabilized Bars (RAWS BARS)

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: JDS Uniphase Corp.

Effective Date: 12 Dec 2003

Estimated Completion or Expiration Date: 11 Jun 2005

U.S. Government Dollars: \$ 1,155,458

Non-Government Dollars: \$ 1,155,458

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

In general, the goal of this research is to greatly improve upon the most inefficient part of a diode bar-pumped solid-state laser system, the conversion of electric power to optical power. Doing so will ultimately lead to more efficient, smaller/light weight laser systems that would be more practical components of future defense systems. It is a goal of the DoD to ultimately develop a solid state laser system that is 100 times as powerful as the current state-of-the-art, with a smaller overall footprint and power requirements that could contribute to the protection of high-value platforms. The technology area is high power lasers.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The performing organization, JDS Uniphase Corporation, is a non-traditional defense supplier. The use of an other transaction provided DoD with access to this commercial firm on a military prototype project, thereby broadening the technology and industrial base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction allowed this commercial firm to use its existing commercial accounting practices, alleviating the requirement and avoiding the cost of setting up a government-approved system. Further, the use of an other transaction provided freedom from the standard intellectual property regime and mandatory flow-down clauses that are obstacles to commercial participation and practice.

Certain rights pertaining to intellectual property rights (Bayh-Dole) were very important to JDS and, in large part, the reason they have been unwilling to do business with the DoD in the recent past. These issues required additional negotiation and flexibility in the provisions ultimately agreed upon between the parties. This flexibility and tailoring was possible only with the use of an other transaction.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0008

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Development of a Novel Method of Making Low Oxygen Titanium and Titanium Alloy Powder

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: International Titanium Powder, L.L.C.

Effective Date: 07 Apr 2004

Estimated Completion or Expiration Date: 06 Apr 2005

U.S. Government Dollars: \$ 1,179,456

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objectives of this effort are to demonstrate the applicability of the Armstrong Process as practiced by International Titanium Powder, L.L.C. (ITP) to produce high-quality, high-volume titanium and titanium-based alloys suitable for DoD applications. Specifically, it is aimed at producing materials for large sheet and plate that can be welded and that exhibit the required blast resistance characteristics for Naval vessels. The goal is to produce materials at a cost of less than \$4.00/pound at the billet level. This effort is under the DARPA Titanium Initiative and is in the materials technology area.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Currently the United States imports approximately two-thirds of its needs in titanium sponge. If successful, this agreement will result in the establishment of not only knowledge, but a process and industrial facilities that can produce materials of interest to the DoD. The Armstrong process is not currently an industrial production capability; therefore, this agreement will establish the feasibility of the process as an alternate to the currently used Kroll process for the production of titanium. The performing organization, ITP, is a non-traditional defense supplier. The use of an other transaction provided DoD with access to this commercial firm, thereby broadening the technology and industrial base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction agreement facilitated the extensive collaboration between ITP, the Air Force Research Laboratory (AFRL), and the DARPA-established DoD advisory team required to enable the insertion of this technology into DoD systems.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0009

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Joint Unmanned Combat Air Systems(J-UCAS) Re-Plan

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Northrop Grumman Systems Corporation

Effective Date: 17 Aug 2004

Estimated Completion or Expiration Date: 30 Sep 2009

U.S. Government Dollars: \$ 1,037,274,437

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The goals of the replanned joint DARPA-Navy-Air Force J-UCAS program are to: (a) Demonstrate the technical feasibility of J-UCAS to effectively and affordably perform land and sea based Electronic Attack (EA), Suppression of Enemy Air Defenses (SEAD), strike, and penetrating surveillance missions (b) Conduct a robust operational assessment in the FY07-12 time frame, with initial assessment activities focused on the SEAD/Strike/EA mission, and completing the assessment with a deployable, limited operational capability (c) Provide as many mission capable air vehicles as possible considering the overall program objectives (d) Incorporate the Common Operating System (COS) for demonstration of mission functionality. The technology area is unmanned combat vehicles.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Although the leader of the performing team, Northrop Grumman, is a traditional defense supplier, four of the team members are non-traditionals. They are: Dynamic Research, which is implementing ground control handling algorithm characteristics into simulation models and human interface characteristics logic; AriaGroup and Grove Aircraft, which are designing air vehicle composite parts for doors, covers and panels; and General Pattern, which is doing rapid prototyping, tooling and manufacturing of tube-joints and fuel system parts. The use of an other transaction gave DoD access to these commercial firms by providing relief from standard accounting, cost reporting, changes, and flow down requirements, thereby broadening the technology base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The other transaction process has encouraged traditional defense contractors such as Northrop Grumman, to seek out teaming partners from the small business and non-traditional defense business sectors. The four commercial firms will use their normal operating practices, without being forced into standardized government systems and procedures, for accounting, reporting, and making changes. This flexibility will contribute to innovative and rapid pursuit of technical accomplishment.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0010

Type of Agreement: Acquisition transactions for prototype (using Section 845)

Title: Falcon Phase II, Design and Development.

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Lockheed Martin Corporation

Effective Date: 06 Aug 2004

Estimated Completion or Expiration Date: 06 Feb 2005

U.S. Government Dollars: \$ 8,360,384

Non-Government Dollars: \$ 1,925,000

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The ultimate objective of the Force Application and Launch from CONUS (FALCON) program is to develop an autonomous aircraft capable of taking off from a conventional military runway, carrying a 12,000-pound payload, and reaching distances of 9,000 nautical miles in less than two hours. This hypersonic cruise vehicle will provide the country with a significant capability to conduct responsive missions with quick turn-around sortie rates, while providing aircraft-like operability and mission-recall capability.

Phase II includes the development, design, fabrication and flight test of a low risk Hypersonic Technology Vehicle-1 (HTV-1) employing existing technologies and launched by a government furnished launch vehicle. The technology area is hypersonic vehicle technology.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Although the leader of the performing team, Lockheed Martin, is a traditional defense supplier, two team members are non-traditional and participating substantially in this phase: Pryodyne, providing the key enabling Inward Turning Propulsion System technology for the Hypersonic Cruise Vehicle (HCV); and Paragon, providing aero-thermodynamic analysis and thermal protection system design expertise for flight demonstration planning and implementation.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The other transaction process has encouraged traditional defense contractors such as Lockheed Martin, to seek out teaming partners from the small business and non-traditional defense business sectors. The commercial firms, Pryodyne and Paragon, will use their normal operating practices, without being forced into standardized government systems and procedures, for accounting, reporting, and making changes. This flexibility will contribute to innovative pursuit of technical accomplishment.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0014

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: FALCON II, Design and Development.

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Lockheed Martin Corporation

Effective Date: 14 Sep 2004

Estimated Completion or Expiration Date: 31 Aug 2007

U.S. Government Dollars: \$ 11,691,215

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

DARPA and the Air Force share a vision of a new transformational capability that would launch small satellites, experimental packages and other payloads into low-earth orbit in a responsive, low-cost manner. The DARPA/Air Force team also intends to use the new launch vehicle resulting from this effort as a low-cost means of performing endo-atmospheric flight-testing of experimental hypersonic vehicles and associated technologies under the Task 2 – Hypersonic Technology Vehicle portion of the FALCON program. The small satellite and endo-atmospheric flight-test missions, taken together, provide a significant spiral in the development of an Operationally Responsive Spacelift (ORS) capability for the Air Force. The technology area is low cost space launch capability.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Although the lead performer on this task, Lockheed Martin, is a traditional defense contractor, a significant participant in the effort is Automated Controls Environment, Inc., (ACEi), a non-traditional defense contractor. This commercial contractor is developing avionics, an integrated vehicle health management system, and electric power systems. The use of an other transaction gave DoD access to this firm by providing relief from standard accounting, pricing and cost reporting requirements, thereby broadening the technology base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The other transaction process has encouraged traditional defense contractors such as Lockheed Martin, to seek out teaming partners from the small business and non-traditional defense business sectors. The commercial firm, ACEi, will use its normal operating practices, without being forced into standardized government systems and procedures, for accounting, reporting, and making changes. This flexibility will contribute to innovative pursuit of technical accomplishment.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0015

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: FALCON Phase II, Design and Development.

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Microcosm, Inc.

Effective Date: 14 Sep 2004

Estimated Completion or Expiration Date: 13 Aug 2007

U.S. Government Dollars: \$ 10,498,353

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

DARPA and the Air Force share a vision of a new transformational capability that would launch small satellites, experimental packages and other payloads into low-earth orbit in a responsive, low-cost manner. The DARPA/Air Force team also intends to use the new launch vehicle resulting from this effort as a low-cost means of performing endo-atmospheric flight-testing of experimental hypersonic vehicles and associated technologies under the Task 2 – Hypersonic Technology Vehicle portion of the Force Application and Launch from CONUS (FALCON) program. The small satellite and endo-atmospheric flight-test missions, taken together, provide a significant spiral in the development of an Operationally Responsive Spacelift (ORS) capability for the Air Force. The technology area is low cost space launch capability.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Although the lead performer on this task is a traditional defense contractor, a significant participant in the effort is Scorpius Space Launch Company, a non-traditional defense contractor. This commercial contractor is providing concept development and operations execution, transition planning, and development of long-term production plans, launch system operations, and system commercialization. The use of an other transaction gave DoD access to this firm by providing relief from standard accounting, pricing and cost reporting requirements, thereby broadening the technology base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The other transaction process has encouraged traditional defense contractors to seek out teaming partners from the small business and non-traditional defense business sectors. The commercial firm, Scorpius, will use its normal operating practices, without being forced into standardized government systems and procedures, for accounting, reporting, and making changes. This flexibility will contribute to innovative pursuit of technical accomplishment.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0016

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: FALCON Phase II, Design and Development.

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Airlaunch L.L.C.

Effective Date: 14 Sep 2004

Estimated Completion or Expiration Date: 13 Jul 2007

U.S. Government Dollars: \$ 11,372,342

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

DARPA and the Air Force share a vision of a new transformational capability that would launch small satellites, experimental packages and other payloads into low-earth orbit in a responsive, low-cost manner. The DARPA/Air Force team also intends to use the new launch vehicle resulting from this effort as a low-cost means of performing endo-atmospheric flight-testing of experimental hypersonic vehicles and associated technologies under the Task 2 – Hypersonic Technology Vehicle portion of the Force Application and Launch from CONUS (FALCON) program. The small satellite and endo-atmospheric flight-test missions, taken together, provide a significant spiral in the development of an Operationally Responsive Spacelift (ORS) capability for the Air Force. The technology area is low cost space launch capability.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Although the lead performer on this task is a traditional defense contractor, a significant participant in the effort is Orion Propulsion, a non-traditional defense contractor. This commercial contractor is providing test and integration support for the propulsion system and operation of ground support equipment for the newly developed pressurization approach. The use of an other transaction gave DoD access to this firm by providing relief from standard accounting, pricing and cost reporting requirements, thereby broadening the technology base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The other transaction process has encouraged traditional defense contractors to seek out teaming partners from the small business and non-traditional defense business sectors. The commercial firm, Orion Propulsion, will use its normal operating practices, without being forced into standardized government systems and procedures, for accounting, reporting, and making changes. This flexibility will contribute to innovative pursuit of technical accomplishment.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0017

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Falcon Phase II, Design and Development.

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Space Exploration Technologies Corp.

Effective Date: 14 Sep 2004

Estimated Completion or Expiration Date: 15 Jul 2005

U.S. Government Dollars: \$ 8,000,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

DARPA and the Air Force share a vision of a new transformational capability that would launch small satellites, experimental packages and other payloads into low-earth orbit in a responsive, low cost manner. The DARPA/Air Force team also intends to use the new launch vehicle resulting from this effort as a low-cost means of performing endo-atmospheric flight-testing of experimental hypersonic vehicles and associated technologies under the Task 2 – Hypersonic Technology Vehicle portion of the Force Application and Launch from CONUS (FALCON) program. The small satellite and endo-atmospheric flight-test missions, taken together, provide a significant spiral in the development of an Operationally Responsive Spacelift (ORS) capability for the Air Force. The technology area is low cost space launch capability.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The performing organization, Space Exploration Technologies, is a non-traditional defense supplier. This firm has invested over \$100 million of its corporate funds in this technology. It continues to invest in the design and fabrication of its own launch vehicle, while allowing the government input and insight into its design. The use of an other transaction provided DoD with access to this commercial firm on a military prototype project, thereby broadening the technology and industrial base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction allowed this commercial firm to use its existing commercial accounting practices, alleviating the requirement and avoiding the cost of setting up a government-approved system. Further, the use of an other transaction provided freedom from the standard intellectual property regime and mandatory flow-down clauses that are obstacles to commercial participation and practice.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: HR0011-04-9-0018

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Joint Unmanned Combat Air Systems(J-UCAS)

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Johns Hopkins University

Effective Date: 28 Sep 2004

Estimated Completion or Expiration Date: 30 Sep 2009

U.S. Government Dollars: \$ 26,941,808

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The J-UCAS program combines previous efforts conducted under the DARPA Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA Navy UCAV (UCAV-N) program. Although originally separate service specific projects, the Defense Department recognized the potential for significant synergy by combining the programs. The J-UCAS program has recognized the critical role to be played by the *Common Operating System (COS)* which will enable interoperability among multiple air vehicles and control stations, facilitating the integration of other subsystems such as sensors, weapons, and communications. The *COS* encompasses the software architecture, algorithms, applications and services that provide command and control, communications management, mission planning, much of the interactive autonomy, the human systems interface and the many other qualities associated with the J-UCAS system. The J-UCAS program has further recognized the relatively immature state of *COS* applications and other supporting technologies, particularly in the areas of autonomy and autonomous inter-platform collaboration needed for successful mission execution. In order to maximize prospects for success in this regard, the Program has chosen a development approach which it believes will: (1) assure intra-operability among all J-UCAS system elements; (2) foster interoperability with other relevant defense systems; (3) maximize participation by the most innovative elements of the supporting development community; (4) remove barriers to entry of the latest, most robust technologies available; and (5) provide the greatest range of solution options for resolving the most difficult development challenges and reducing concomitant risk.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

In order to qualify for the receipt of an other transaction award in the absence of cost sharing, JHU/APL elected to utilize the services of a non-traditional subcontractor, TechGuard Security, L.L.C. TechGuard will have significant involvement in this effort by virtue of its providing the installation, configuration, and initial operation of a secure, web-enabled, collaborative environment.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

On this effort the government is making fixed payments based upon the accomplishment of milestones. Milestones may be adjusted as technical needs dictate. The use of milestones allows the Government a greater degree of insight into the progress of the effort as is typically the case with standard Cost-Plus-Fixed-Fee contracts. Signing up JHU/APL to a milestone-based other transaction increases the contractor's familiarity with this type of contractual vehicle and increases their receptiveness to it in the future.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: MDA972-98-9-0009 **Modification Number:** P00017

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Dragonfly

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: McDonnell Douglas Helicopter Company

Effective Date: 16 Jun 2004

Estimated Completion or Expiration Date: 30 Dec 2005

U.S. Government Dollars: \$ 2,735,384

Non-Government Dollars: \$ 3,235,461

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The purpose of P00017 to the subject other transaction for prototype agreement is to reallocate funding from Contract Line Item Number (CLIN) 0003 to CLIN 0001, extend the period of performance of the agreement, incorporate the accident investigation report associated with the failure of aircraft #1, and incorporate the added requirement for the build up of aircraft #2 to flight worthy status. The overall objective of the Dragonfly Advanced Technology Demonstration (ATD) Canard Rotor/Wing (CRW) program is to develop a hybrid high-speed rotorcraft to fill the needs of tomorrow's fighting forces and civil air community.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The performing organization, MDHS, is a wholly-owned subsidiary of the Boeing Company. It is a traditional defense supplier. As a result, the technology base was not broadened on this effort.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The flexibility inherent with the use of this award instrument allows industry partners to enter into this agreement more easily and focus on the important technological research goals of this effort which are of critical importance. The ability to negotiate intellectual property terms and conditions and tailor other articles of the agreement that are of mutual benefit to both parties leads to a cooperative and collaborative relationship that contributes to the success of this research effort in responding to vital DoD mission needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: MDA972-01-9-0019 **Modification Number:** P00015

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Wolfpack

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: BAE Systems Information and Electronic Systems Integration Inc.

Effective Date: 18 May 2004

Estimated Completion or Expiration Date: 31 May 2005

U.S. Government Dollars: \$ 2,494,678

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The purpose of P00015 is to incorporate the requirement for the "Air Wolf Design and Demonstration" effort. BAE Systems shall manage modifications to, and integration of, the Vertical Take-Off and Landing (VTOL) and Wolf Pack designs. The overall objective of Wolf Pack is to increase the survivability of friendly forces by providing non-lethal means of denying the enemy use of the RF spectrum without disrupting Blue force operations.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an other transaction allows BAE Systems and participating entities such as APTI Wireless, Inc. and Herrick Technology Laboratories, Inc., to conduct a research project under the auspices of an award instrument that is the appropriate mechanism for the conduct of this effort, and that is directly applicable in supporting the mission needs of the Department of Defense (DoD).

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Participating organizations such as APTI Wireless, Inc. and Herrick Technology Laboratories, Inc. have been attracted to participate in the subject effort because of the flexible and collaborative nature inherent with the use of this award instrument. The ability of the DoD to attract the participation of the most highly technologically qualified and capable organizations to fill a mission void ensures the strength of the DoD and is of vital interest to the national security interests of the United States.

Other benefits to the DOD through use of this agreement:

The flexibility inherent with the use of this award instrument enables participants to focus on the important technological research goals of this effort. The ability to negotiate intellectual property terms and conditions and tailor other articles of the agreement that are of mutual benefit to both parties leads to a cooperative and collaborative relationship that contributes to the success of this research effort in responding to vital DoD mission needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: MDA972-02-9-0013 **Modification Number:** P00005

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Unmanned Combat Armed Rotorcraft (UCAR)

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Northrop Grumman Systems Corporation

Effective Date: 31 Oct 2003

Estimated Completion or Expiration Date: 30 Sep 2004

U.S. Government Dollars: \$ 1,690,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

As the Phase II UCAR technology moves closer to reality, the Survivability Demonstration was added to this effort. Although the applicable statement of work is classified, the associated technical accomplishment was to: (1) Complete and deliver a final report describing the design, materials, material performance, test plan and execution, and test results of the Survivability Demonstration.

The primary objectives of Phase II are to maintain the use of a complete systems engineering process to continue refinement of the UCAR Objective System (UOS), evolve the UCAR Demonstration System (UDS) requirements into a UDS Preliminary Design, and complete development of the Risk Management and Mitigation Plan (RMMP) initiated during Phase I. The results from a successful Phase II program will convince the Government that: (1) UCAR weapon systems continue to be an effective and affordable option for conducting post 2010 armed reconnaissance and attack missions; (2) the RMMP presents a feasible and affordable approach to reduce system risk within the program funding and schedule; (3) the UDS is credible and satisfies the RMMP intent; and (4) continuation into Phase III is warranted.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Although the leader of the performing team, Northrop Grumman Systems Corporation, is a traditional defense supplier, four subcontracts were awarded in earlier phases to non-traditional firms: MD Helicopter; Carter Copters, LLC; The Saber Group; and Natural Selection, Inc. The use of an other transaction helped to provide access to these commercial firms, thereby broadening the technology base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction will result in a more flexible, tailored allocation of intellectual property rights than is possible under a procurement contract. It will also allow the members of this team to utilize their normal operating practices, whether commercial or government oriented, without being forced into standardized government systems and procedures, especially for accounting, reporting, and making changes. This flexibility contributes to innovative pursuit of technical accomplishment, free of rigid requirements which are not appropriate for this collaboration.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: MDA972-03-9-0001 **Modification Number:** P00008/9

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Closed-Loop, End-to End Prototype System for Early Warning and Decision Making

Awarding Office: DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Awardee: Science Applications International Corporation

Effective Date: 31 Dec 2003

Estimated Completion or Expiration Date: 31 Dec 2004

U.S. Government Dollars: \$ 19,300,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objective is to continue the development of a Research and Development Experimental Collaboration (RDEC) system for the purpose of countering asymmetric threats, specifically to provide early warning of terrorist activity including the development of operational concepts, experimentation of technology, and development of system architecture.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The performing organization, Science Applications International Corporation (SAIC), is traditional defense contractor; however, several subcontractors including Acxion Corporation, Groove Corp., Brilliant Media, Center for Strategic and International Studies, SSS Corp., and Fund for Peace and Qualtech Systems, Inc., are non-traditional defense contractors. The use of an other transaction provided access to these commercial firms by allowing relief from the normal intellectual property regime, accounting requirements and flow-down requirements of standard government contracts. Access to these firms broadened the technology base.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction has allowed SAIC to tap into the technical resources of many different companies referred to as Tailgaters in a timely and efficient manner. Rather than being required to follow the stringent subcontractor approval requirements under the Federal Acquisition Regulation (FAR), an other transaction permits SAIC the flexibility to pursue additional Tailgaters that will provide significant benefits to the program without having to delay the program for time consuming approvals. The extreme complexity and time pressure of this program make the flexibility and streamlining available under an other transaction essential to technical success.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: N00014-03-9-0002 **Modification Number:** P00003

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: The Design, Construction and Demonstration of SeaCoaster Advanced Hull Form Technology

Awarding Office: OFFICE OF NAVAL RESEARCH

Awardee: American Marine Holdings, Inc.

Effective Date: 22-Sep-04

Estimated Completion or Expiration Date: 22-Apr-05

U.S. Government Dollars: \$ 4,155,000

Non-Government Dollars: \$ 832,883

Dollars Returned to Government Account: \$ 0

Technical objective of this effort including the technology area in which the project was conducted:

The purpose of this modification to other transaction number N00014-03-9-0002 is to expand the research effort within the existing scope of the agreement by adding a statement of work and funding for the execution of the Phase III (Demonstration). The technical objective of this effort is to demonstrate the effectiveness of a proprietary surface effect craft hull form. The demonstration will be accomplished through the detailed design and construction of an approximately 100-foot test craft (Prototype) which will be made available to the Navy for testing and evaluation. The potential applications of this technology include high-performance special operations craft, high-speed littoral warfare vessels, fast intra-theater transports and rapid deployment logistics ships.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This other transaction will broaden the Navy's options in advanced hull forms. The recipient (American Marine Holdings) and one of the subrecipients (Air Ride Craft) have entered into a patent and technology agreement which effectively assigns certain exclusive rights and certain non-exclusive licenses in the Air Ride SEACOASTER SECAT (Surface Effect CATamaran) Advanced Marine Vehicle invention to American Marine Holdings. An other transaction agreement allows greater flexibility in negotiating patent and intellectual property rights. The unique SeaCoaster hull configuration, which combines the features of a catamaran hull form with those of a surface effect ship, has already been employed in commercial applications (65-foot hull, which was subsequently converted to a passenger ferry). The lessons learned from the 65-foot hull will be incorporated into the 100-foot test craft prototype design (scale-up) model, since the objective of the project is to demonstrate the degree to which the SeaCoaster hull form can be expanded to larger, higher speed seagoing boats and ships.

Extent to which the cooperative agreement of other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The recipient and subrecipients have never entered into or performed on any procurement contract subject to full coverage under the cost accounting standards prescribed in the Federal Acquisition Regulation, or any other procurement contract in excess of \$500,000 to carry out prototype projects or to perform basic, applied, or advanced research for a federal agency. The recipient and subrecipients are providing access to technology and committing private funds to foster a relationship with the Government. An other transaction made access to the technology possible by allowing for a special licensing agreement (Patent and Technology Agreement) between the recipient and the subrecipient. Successful results could provide a vessel design applicable for both military and commercial markets.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: N00019-01-9-0246 **Modification Number:** P00005

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: Electronic Propeller Control System (EPCS) Upgrade

Awarding Office: NAVAL AIR SYSTEMS COMMAND

Awardee: Hamilton Sundstrand Corporation

Effective Date: 20-Apr-04

Estimated Completion or Expiration Date: 19-Apr-05

U.S. Government Dollars: \$ 5,859,295

Non-Government Dollars: \$ 2,815,983

Dollars Returned to Government Account: \$ 0

Technical objective of this effort including the technology area in which the project was conducted:

The technical objective of this effort is to produce a commercially developed Electronic Propeller Control System (EPCS) that replaces the current 54H60 valve housing and synchrophaser on the Rolls Royce T56-A-15 and -16 engine which is currently used on the Navy C-130 aircraft. The EPCS will use the commercial technology and hardware established for the commercial ATR 42/72 and C-295 aircraft. The Stage 1 requirements consist of all the elements required to produce a fully qualified EPCS unit which will be ready for insertion into fielded C-130 aircraft. Incorporation of the EPCS on the C-130 aircraft would support program goals to increase readiness and reduce operation and support costs while maintaining or increasing aircraft system performance. The insertion of commercial items is expected to reduce the need for specialized equipment and significantly improve reliability and supportability of the propeller system. In addition, the EPCS will improve governing and synchrophasing accuracy, and provide Built-In Test (BIT) capability while minimizing impacts on the existing engine/airframe system. Modification P00005 increased the scope of the OT to design, develop, and qualify the NP2000 propeller system on the EPCS up to the point of running it on a Rolls Royce T56-A-16 engine test cell. The Hamilton Sundstrand NP2000 propeller is an eight-bladed propeller that produces many operational, reliability, and maintainability benefits to the aircraft. This scope was added as a result of the added participation of the Air National Guard which also uses the C-130 aircraft to execute its mission.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This project was competitively selected as an FY-2001 Commercial Operations and Support Savings Initiative (COSSI) project. The use of an other transaction has allowed the contractor to employ innovative solutions to reducing Department of Defense (DoD) Operations and Support costs through the use of commercial items in a fielded military system allowing improvements to the warfighter to be delivered less expensively and more rapidly.

Extent to which the cooperative agreement of other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

An other transaction was used to take advantage of the contractor's one-third investment in applying this commercial technology to military applications. The use of an other transaction has provided the Government with the opportunity to leverage improvements made in the commercial sector to the EPCS, thus reducing both cost and time required to field the improvement.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: N00039-04-9-0001

Type of Agreement: Acquisition transactions for prototype (using Section 845)

Title: The Advanced Deployable System

Awarding Office: SPACE AND NAVAL WARFARE SYSTEMS

Awardee: Lockheed Martin Corporation

Effective Date: 31 Oct 2003

Estimated Completion or Expiration Date: 30 Jun 2005

U.S. Government Dollars: \$ 1,697,085

Non-Government Dollars: \$ 848,542

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objective is to produce for the Advanced Deployable System a Wave Energy Conversion buoy that incorporates an In-Buoy Data Compression Processor.

The awardee will provide systems engineering to support development of rapid two-step array deployment, will design an array installation module, and will provide test support.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The rapid two-step array deployment is a more complex solution that will enable deployment from new platforms. The cost sharing aspect of the other transaction agreement furthered research in this new technology by combining the resources of the Government and the private sector.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction provided flexibility to structure a cost sharing arrangement within an overall fixed price agreement that met the needs of both the Government and the for-profit awardee. Under this agreement, the awardee is providing one third of the funds.

Other benefits to the DOD through use of this agreement:

The Department of the Navy benefits from the contractor's contribution and research.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Modification Number:** 09 **Task Number:** 0001

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettec Technology & Ventures Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 23 Jun 2004

Estimated Completion or Expiration Date: 18 Feb 2007

U.S. Government Dollars: \$ 33,133,783

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objective of this effort including the technology area in which the project was conducted:

This effort will provide for the overarching management in support of weapons systems related prototypes in the following technology development areas: Imagery, GIS and Cartography (IGC); Digital Processing, Analysis, and Management (PAM); and Digital Technology Infrastructure (DTI). Overarching Management includes Program Management and Independent Assessment & Evaluation (IA&E) support to assess both commercial technology trends and developments and evaluate Government users' technology needs, in order to provide recommendations for technology developments and technology transfer roadmaps.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

This effort will provide for the overarching infrastructure necessary to manage and lead a teaming arrangement that includes 25 leading edge commercial companies that would not engage in a traditional Federal Acquisition Regulation (FAR) covered contract due to the patent requirements and Cost Account Standards (CAS) typically imposed on FAR contracts. The U.S. Government greatly benefits from this other transaction by being able to directly access the commercial side of IGC, PAM, and DTI companies and the critical technologies that drive the marketplace. Through this access, the DoD benefits through the creation of solutions that are marketable technology and products, allowing acceleration of product development items, design for manufacturer and the ability to manufacturer in a cost-effective manner.

Extent to which the cooperative agreement of other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction allows for an environment that fosters teaming among the member companies and organizations. Teaming benefits the U.S. Government by bringing together commercial partners with complementary, world-class technology strengths, ensuring that U.S. Government gets the best possible product. This other transaction supports the national security of the USA by assessing technology trends and accelerating development of products that meet critical DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Modification Number:** 03 **Task Number:** 0018

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Venture Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 16 Aug 2004

Estimated Completion or Expiration Date: 31 Dec 2004

U.S. Government Dollars: \$ 853,617

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Increasing requirements for certain Measurement and Signatures Intelligence (MASINT) intelligence products places an increasing demand on traditional data sources that supply this MASINT data. These demands often have conflicting acquisition requirements, as well as impacts on the collection of other intelligence products. The result is that the current MASINT capabilities are only brought to bear on known high-priority areas. This approach makes it impossible using traditional sources to conduct any sort of large-scale surveillance of areas for detection of activities of interest. This program will demonstrate the ability to use civilian Search and Rescue (SAR) sources to perform large scale monitoring for detection of human activity (traffic, used air strips, excavations, new building). This data may be used to queue other national capabilities. The objective of this project will be to demonstrate and develop a program for routine, coherent monitoring of regions of interest. The technical goals and objectives of this program are: (1) Process archival data already available at NGA for determination of Civilian SAR sensitivity; (2) Demonstrate applications of a civil SAR source to detect events of interest over long time periods; (3) Demonstrate the capability to separate charge coupled device (CCD) signals of anthropomorphic source from those of natural origin; (4) Provide licensed software inside DIAC for processing commercial SAR data; and (5) Assess transition potential technology studied and developed. This project is in the Geospatial Intelligence technology area.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an other transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was recently formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Modification Number:** 01 **Task Number:** 0019

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance, Rosettex

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 06 Apr 2004

Estimated Completion or Expiration Date: 30 Jun 2004

U.S. Government Dollars: \$ 199,869

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:
De-Obligation.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:
De-Obligation.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:
De-Obligation.

Other benefits to the DOD through use of this agreement:
De-Obligation.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Modification Number:** 02 **Task Number:** 0022

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Ventures Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 09 Jun 2004

Estimated Completion or Expiration Date: 08 Jun 2005

U.S. Government Dollars: \$ 2,017,925

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The objectives of this effort are to prototype an end-to-end real-time dissemination system for use in urban environments. Results of the prototype are intended to provide an example of a nationally relevant dissemination architecture for urban environments, test operational interconnectivity and related policy issues, and validate various technical approaches for distributed networks of sensors, metropolitan-area information dissemination, and mobile end user receipt and use of timely information. Intended users are first responders and Homeland Security/Homeland Defense responders; military users will likely be interested in portions of the dual use technology and architecture.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. In addition to Rosettex, there are two (2) other non-traditional defense contractors supplying technical expertise and system engineering, and integration support for the overall Smart Dissemination Networks effort: (1) Kentia Management Group, Inc.; Round Hill, VA, (2) Thirteen/WNET (PBS affiliate television broadcaster). Additional non-traditional defense contractors are anticipated as new technologies are identified for incorporation into the program test bed environment. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of unique and innovative dissemination and command and control capabilities.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Modification Number:** 02 **Task Number:** 0033

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance, Rosettex

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 01 Jul 2004

Estimated Completion or Expiration Date: 26 Sep 2004

U.S. Government Dollars: \$ 819,452

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:
De-Obligation.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:
De-Obligation.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:
De-Obligation.

Other benefits to the DOD through use of this agreement:
De-Obligation.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0034

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 29 Dec 2003

Estimated Completion or Expiration Date: 31 Mar 2005

U.S. Government Dollars: \$ 1,487,180

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

This project will provide a broad framework of advanced motion imagery capabilities. Representative efforts include evaluating the emerging commercial motion imagery compression standard, Joint Video Standard (JVT) for application in transmitting and storing Unmanned Aerial Vehicle (UAV) motion imagery; the JVT standard is expected to be approximately twice as effective in compressing motion imagery than the current MPEG-2 compression standard that is now widely used. A host platform will be built to accommodate the compression capabilities and related motion imagery technologies for DoD implementation. And data sufficiency standards will be studied so standards and supporting systems can be built for motion imagery such as the National Imagery Interpretability Rating Scales (NIIRS) capabilities for still imagery. These related motion imagery capabilities were selected for their focus on benefits to DoD and the Intelligence Community.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0035

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance - Rosettex

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 20 Jan 2004

Estimated Completion or Expiration Date: 19 Jan 2005

U.S. Government Dollars: \$ 1,000,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

This effort is designed around the application of information technology to channel analyst transactions in the course of performing their work through transaction counting and data reading qualifiers, upon which collection a gaming scenario can manipulate the process in a controlled environment to add to analyst discovery and improve analyst performance through process adjustments.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The resulting capability is initially focused on the Signals Intelligence (SIGINT) community and has direct relevance to improving the analytic processes for other intelligence communities, for example Human Intelligence (HUMINT), Measurement and Signatures Intelligence (MASINT), and Geospatial Intelligence (GEOINT). This is being provided directly to the SIGINT community to enhance their support to warfare communities who base their decisions on weapons and weapons-related systems on their intelligence.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The national security improvement through gaming for analysts is a Research and Development (R&D) concept, though well proven as an accelerator of performance improvement for other professions. Interest was expressed by Rosettex Business Associates to perform this limited amount of work in terms of their understanding of the expansive capabilities being developed. This project will result in solutions of wide-ranging applicability beyond the SIGINT community. Providing a relevant solution to the numerous analyst organizations across DoD and the Intelligence Community will in itself have commercial viability. Those organizations represent only a subset of global commercial organizations with analytic responsibilities to which such solution could be marketed.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0036

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Ventures Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 01 Mar 2004

Estimated Completion or Expiration Date: 28 Feb 2005

U.S. Government Dollars: \$ 119,372

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objective of this effort including the technology area in which the project was conducted:

This work will produce a conceptual schema for spatiotemporal object types and their spatiotemporal relationships. NGA will submit the schema to ISO TC211 for comment. Conceptual schemata describe models of data structures and provide the basis for further standards development. ISO 15046-7 provides a standard conceptual schema for spatial objects of up to three spatial dimensions. It does not provide for tracking of spatial objects that move during the lifetime of the application.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of two non-traditional defense contractors, Rosettex Technology and Ventures Group and Swiftsure Spatial Systems Inc. Institute. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort, Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. Technical efforts will be conducted by Swiftsure. Swiftsure's specialty is in working with businesses that have strong spatial or temporal information requirements. These types of information can require special treatment in data and process models. They are experienced in a wide array of such business needs and exhibit a strong understanding of the techniques that are most effective for a particular purpose. Swiftsure has been involved in the design, harmonization, and demonstration of spatial standards within the United States, Canada, and internationally.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0037

Type of Agreement: Acquisition Transactions for prototype (using Section 845)

Title: National Technology Alliance - Rosettex

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 08 Apr 2004

Estimated Completion or Expiration Date: 08 Apr 2005

U.S. Government Dollars: \$ 364,877

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Many Commercial Off-the-Shelf (COTS) and Government Off-The-shelf (GOTS) image exploitation and feature extraction software algorithms identify features of interest in an image to produce lines and polygons using standard raster-to-vector conversion. These vector objects often require extensive manual cleanup and editing to be of use. The objective of the effort is to provide NGA intelligent raster-to-vector conversion and/or corrections to existing vector objects to reduce these manual-editing requirements. This project is in the Geospatial Intelligence technology area.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was recently formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0038

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Venture Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 12 Jul 2004

Estimated Completion or Expiration Date: 06 Jul 2005

U.S. Government Dollars: \$ 465,184

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

It is imperative that NGA and its clients have a capability to display and rapidly comprehend ever-increasing volumes of data for analysis and near-real-time decision-making. The objective of this project is to demonstrate the feasibility of creating a near-eye display prototype system that will utilize tiled near-to-eye micro displays to meet the large gap between current high-end displays and the human visual system.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of non-traditional defense contractors, Impact Science & Technology, Inc. (IST) and Rosettex Technology and Ventures Group. IST is a small business incorporated in February 1995. IST has offices in Hollis, New Hampshire; Annapolis Junction, Maryland; and Aurora, Colorado, as well as personnel assigned to work at various customer facilities. IST employs 70 individuals and provides innovative hardware, software and system engineering solutions. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0039

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Ventures Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 15 Jun 2004

Estimated Completion or Expiration Date: 14 Oct 2004

U.S. Government Dollars: \$ 399,872

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

This project will deliver two satellite communication remote antenna terminal units, suitable for small vehicle mounting (1M class antennas). The target performance is that remote satellite connectivity at 384 Kbps or greater can be achieved within a few minutes of a vehicle stopping.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. In addition to Rosettex, AVL Technologies, Asheville, NC, is also a non-traditional defense contractor, supplying satellite antenna systems in support of the effort. Also, iDirect Technologies, again a non-traditional defense contractor, will be supplying satellite modems and services. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative communications capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0040

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Venture Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 01 Jun 2004

Estimated Completion or Expiration Date: 30 Oct 2005

U.S. Government Dollars: \$ 274,996

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The objectives of this project are not available for public release. Details are available from the National Technology Alliance (NTA) Agreements Officer.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0041

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Venture Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 22 Jul 2004

Estimated Completion or Expiration Date: 21 Oct 2005

U.S. Government Dollars: \$ 1,199,656

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

This project continues the prototype developments started under the prior Enhanced Biometrics and Iris-On-The-Move programs, and carry them to the next level of maturity. The new Integrated Recognition task will integrate existing technologies into the least constrained prototype possible. This prototype will demonstrate the abilities of current technologies to perform iris recognition in unconstrained environments. A successful demonstration will enable future applications such as identifying persons in crowds at airports or other public spaces, at a distance and while they are moving.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. In addition to Rosettex, Iridian Technologies, Inc. of Moorestown, NJ, is also a non-traditional defense contractor, and will supply software resources and expertise in support of the effort. Iridian leads the world in research, development and marketing of authentication technologies based on iris recognition - the most accurate biometric identifier. Iridian is a holder of U.S. and international patents on the core concepts and technologies behind iris recognition. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. These partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Other benefits to the DOD through use of this agreement:

Iris recognition is known as one of the most reliable means to identify an individual based on biometric information. However, existing iris recognition systems require that the subject is stationary, requiring the subject to self-position themselves in front of the iris recognition device. These constraints have limited the deployment of iris recognition. Capabilities developed as part of this effort will migrate quickly to the commercial product environment.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0043

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance, Rosettex

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 01 Aug 2004

Estimated Completion or Expiration Date: 01 Aug 2005

U.S. Government Dollars: \$ 544,740

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The Deployable Joint Command and Control (DJC2) program is an acquisition program to field modular, expandable, deployable Joint C2 Headquarters for use by geographic CINCs/Combatant Commanders and Joint Task Force (JTF) Commanders. This effort will provide support to the DJC2 Technology Manager to ensure technical superiority and relevance of the applications and systems that are part of the DJC2 baseline. This goal will be achieved by continuously evaluating and inserting best-in-class technologies into the baseline. A Technology Management Working Group (TMWG) will be established to scan, evaluate and transition new technologies.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. Additional non-traditional defense contractors are anticipated as new technologies are identified for incorporation into the program baseline. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of unique and innovative processing and command and control capabilities.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations, resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs. Additionally, via this mechanism, commercial technologies and products that would normally not be transitioned into DoD use will be considered for direct implementation into an evolving DoD capability baseline.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0044

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Venture Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 22 Jul 2004

Estimated Completion or Expiration Date: 21 Jul 2005

U.S. Government Dollars: \$ 149,491

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The goal of this project is to explore the role hair can play in recognizing people. In particular, we propose to characterize the 2-D and 3-D properties of hair, such as texture, color, and shape, under varying illumination, orientation, and scale, and then demonstrate their value in an operational system. This is being performed in the technology area of Information Processing, Analysis, and Management.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Other benefits to the DOD through use of this agreement:

Requirements are emerging in the community to support robust face recognition. Based on the volume and rate at which these requirements are emerging, its clear the capabilities developed as part of this effort will migrate quickly to the commercial product environment as suppliers seek to support DoD, IC, HLD, and state & local government needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0045

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance, Rosettex

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 01 Aug 2004

Estimated Completion or Expiration Date: 01 Aug 2005

U.S. Government Dollars: \$ 1,449,610

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The objective of this project is to develop and deploy a sentient environment to provide total situation awareness of and monitoring of a site using a blanket of stereo and monocular video cameras and other sensors. The system will be a high-visibility demonstration system that can visually monitor people, vehicles, and their activities for extended periods of time by "handing off" tracked objects from one sensor node to another and recognizing key events, such as a person entering a restricted area. The Phase 1 effort developed an infrastructure for a sentient environment, install it at a Government sponsored biometrics evaluation center, and demonstrate tracking persons in controlled facilities, visualization, and initial re-acquisition techniques. Phase 2 will prototype significant enhancements to the Phase 1 capabilities and provide for system and data feeds from other sources.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0046

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Venture Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 27 Aug 2004

Estimated Completion or Expiration Date: 26 Mar 2005

U.S. Government Dollars: \$ 518,500

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

Provide the evaluation systems (hardware & software) and engineering support needed to improve the stability and usability of MarineLink, an Extensible Markup Language (XML)-based semantic discovery, search and routing capability. This effort will facilitate the transition of MarineLink to Operational Forces via the United States Marine Corps (USMC) Program Office, PM-Intel.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs, and without the OTA would likely not have been formed to bring these solutions to DoD. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place.

Semandex Corporation is a non-traditional defense contractor who would have been unable to pursue Government business without the OT, due to its small size and limited marketing and proposal generation resources for traditional procurements. The use of an OT for this project has broadened the DoD technology and industrial base by bringing a new supplier with important technology capabilities into the intelligence arena. Evaluations by the user community have established that the Semandex technology is measurably better in reducing search time and improving information currency than other mechanisms currently in use.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations, resulting in the rapid development of new technologies such as semantic routing. The OT placed Rosettex industry team member Semandex and the Government in a more commercial-like relationship than would a customary Government contract, to the benefit of both. Semandex has been more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, the partnering relationships established are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs. Additionally, via this mechanism, the Semandex technology that would normally not have been considered for DoD use is being transitioned for direct implementation into an evolving DoD capability baseline.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2001 **Task Number:** 0047

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance-Rosettex Technology & Venture Group

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: Sarnoff Corporation

Effective Date: 18 Aug 2004

Estimated Completion or Expiration Date: 18 Oct 2005

U.S. Government Dollars: \$ 199,923

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The objectives of this project are not available for public release. Details are available from the National Technology Alliance (NTA) Agreements Officer.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, Rosettex Technology and Ventures Group. Rosettex was formed to provide innovative solutions to government intelligence community user needs. In addition to providing program management for this effort Rosettex, with its diverse team, is able to provide research and development services, prototype development and demonstration, seamless system integration, and transition of technology into the commercial market place. The use of an OT for this project will broaden the DoD technology and industrial base by encouraging the development of a unique and innovative processing capability.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

This OT fosters research and development practices that are more like those in commercial organizations resulting in the rapid development of new technologies. The OT places industry team members and the Government in a more commercial-like relationship than would a customary Government contract. Industry team members are more willing to commit their personnel and resources to projects in support of this relationship than it would otherwise. Furthermore, these partnering relationships are anticipated to continue beyond the life of the agreement, thereby broadening the industrial technologies available to meet DoD needs.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2002 **Task Number:** 0010

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance – CBRTA

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: 3m, for CBRTA

Effective Date: 03 Mar 2004

Estimated Completion or Expiration Date: 03 Mar 2006

U.S. Government Dollars: \$ 399,977

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objectives of this Phase 2 effort are to 1) generate all information required for a real-time polymerase chain reaction (DNA) analysis of pollen grains for the plants in the Physical Geolocation System (PGS) database, and evaluate this approach in a proof-of-concept demonstration; 2) generate a similar approach for analysis of bio-warfare or related pathogens to demonstrate the unique bio-warfare agent detection capabilities of the PGS; and 3) evaluate the capabilities of an operational prototype PGS to identify plants representative of world regions of concern.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Use of an Other Transaction (OT) enabled Syracuse Research Corporation to function as lead on the entire PGS project. The use of an other transaction also enabled completion of the first phase of development of the PGS within the framework of the Chemical, Biological and Radiological Technology Alliance (CBRTA) prototype development program. Cargill, Inc., a non-traditional contractor, served as an integral team member for executing and completing a specific risk assessment component for Phase 1. In latter tiers of Phase 2 and all of Phase 3, other CBRTA members will be involved in the continued development of the PGS prototype. Therefore, the other transaction agreement is necessary for maintaining this avenue for other non-traditional contractor participation.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an OT has placed trusted and knowledgeable individuals from divergent as well as competing companies into an environment designed for collaboration and cooperation. Access to the technologies and knowledge base present in the corporate laboratories and offices can only be accomplished through the OT. The technologies hidden in the laboratories of companies that normally do not do business with the government are extensive and directly applicable to defense against weapons of mass destruction including the development of the PGS. As these technologies are shared for our mutual freedom and individual business growth, the companies benefit by expanding the industrial base of new products available for purchase.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2002 **Task Number:** 0011

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National technology Alliance – CBRTA

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: 3m, On Behalf of CBRTA

Effective Date: 21 Jun 2004

Estimated Completion or Expiration Date: 21 Sep 2005

U.S. Government Dollars: \$ 920,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The Remote Unattended Sensing System (RUSS) program seeks to meet U.S. Government user needs through the design, prototype, and demonstration of a modular device for sensing weapons-related chemical and biological activity over long periods of time in a variety of sites, including remote or hostile/denied locations. The RUSS program will address chemical/biological force and area protection requirements for combatant commanders and civil authorities. RUSS will be designed to accept a wide variety of present and future sensors and communication devices.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of the Other Transaction (OT) has brought together the capabilities of companies that would have not come together otherwise in the only program in which they can collaborate effectively, the other transactions agreement. The non-traditional contractors participating in the early portion of the effort are 3M and Calspan – University of Buffalo Research Center (CUBRC). Depending on the successful outcome of the early tasks, additional non-traditional partners are expected to participate.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of the OT has placed trusted and knowledgeable individuals from divergent as well as competing companies into an environment designed for collaboration and cooperation. Access to the technologies and the knowledge base present in the corporate laboratories and offices can only be accomplished through the other transactions authority. The technologies hidden in the laboratories of companies that normally do not do business with the government are extensive and directly applicable to defense against weapons of mass destruction. Instruments developed for other applications such as medical diagnosis, pharmaceutical development and industrial chemical production are expected to be useful as biological and chemical weapons detectors. As technologies such as these are shared for our mutual freedom and individual business growth, the companies benefit by expanding the industrial base of new products available for purchase.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2002 **Task Number:** 0012

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance - CBRTA

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: 3m, On Behalf of CBRTA

Effective Date: 30 Mar 2004

Estimated Completion or Expiration Date: 30 Jun 2005

U.S. Government Dollars: \$ 1,000,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The Remote Unattended Sensing System (RUSS) program seeks to meet U.S. Government user needs through the design, prototype, and demonstration of a modular device for sensing weapons-related chemical and biological activity over long periods of time in a variety of sites, including remote or hostile/denied locations. The RUSS program will address chemical/biological force and area protection requirements for Combatant Commanders and civil authorities. RUSS will be designed to accept a wide variety of present and future sensors and communication devices.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of the other transaction has brought together the capabilities of companies that would have not come together otherwise in the only program in which they can collaborate effectively, the other transactions agreement. The non-traditional contractors participating in the early portion of the effort are 3M and Calspan – University of Buffalo Research Center (CUBRC). Depending on the successful outcome of the early tasks, additional non-traditional partners are expected to participate.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of the other transaction has placed trusted and knowledgeable individuals from divergent as well as competing companies into an environment designed for collaboration and cooperation. Access to the technologies and the knowledge base present in the corporate laboratories and offices can only be accomplished through the other transactions authority. The technologies hidden in the laboratories of companies that normally do not do business with the government are extensive and directly applicable to defense against weapons of mass destruction. Instruments developed for other applications such as medical diagnosis, pharmaceutical development and industrial chemical production are expected to be useful as biological and chemical weapons detectors. As technologies such as these are shared for our mutual freedom and individual business growth, the companies benefit by expanding the industrial base of new products available for purchase.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2002 **Task Number:** 0013

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance - CBERTA

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: 3m, On Behalf of CBRTA

Effective Date: 11 Mar 2004

Estimated Completion or Expiration Date: 21 Jun 2004

U.S. Government Dollars: \$ 85,163

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

This prototype project will evaluate an element detection sensor device with the potential to uniquely detect a variety of elements at useful standoff ranges. The detection of weapons materials, including mines, unexploded ordnance, weapons caches and materials used in weapons of mass destruction are critical elements of modern military operations. The technology under consideration in this project has the potential to provide a highly effective, man-mobile detection and localization capability for military field use. If initial results are correct and the device can be used tactically, it may have significant value in a variety of areas including detection of weapons and explosives, arms control monitoring and illegal drug interdiction. This first phase of the project will determine the validity of the preliminary results determine the underlying physical principles of the detections in order to optimize the performance of devices built to exploit the detections, and produce fieldable prototype units that can be used in operational situations.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has resulted in the participation of a non-traditional defense contractor, 3M. Depending on the outcome of the first phase, additional non-traditional partners are expected to participate. The use of an other transaction agreement will bring together capabilities of companies that would not otherwise collaborate.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use an OT has placed trusted and knowledgeable individuals from divergent as well as competing companies into an environment designed for collaboration and cooperation. Access to the technologies and knowledge base present in these corporate laboratories can only be accomplished through the OT. The technologies hidden in the laboratories of companies that normally do not do business with the government are extensive and directly applicable to defense against weapons of mass destruction including the development of sensors used for element detection.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2002 **Task Number:** 0014

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: 3m, On Behalf of CBRTA

Effective Date: 25 Jun 2004

Estimated Completion or Expiration Date: 25 Jul 2005

U.S. Government Dollars: \$ 933,000

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objectives of this program are to build, test, optimize and validate a pre-production prototype of a portable detection system for rapid, on-site assessment of biological and chemical threats. The system will be based on time-of-flight mass spectrometry and will exploit the considerable expertise of Johns Hopkins University Applied Physics Laboratory (JHU/APL) in the application of mass spectrometry for chemical and biological detection and in the design of innovative miniaturized mass spectrometers with proprietary features that enable a unique broadband detection capability for viruses, bacterial spores, toxins, vegetative bacteria, and chemical agents.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) has allowed JHU/APL, an organization renowned for its service and support of the DoD, to strengthen its interactions with industrial partners, particularly those with expertise in transitioning prototype systems to commercial use. This interaction will clearly increase the probability of successful commercialization of the prototype system to be developed under this contract. The sharing of member research and development thrusts within the Chemical, Biological & Radiological National Technology Alliance (CBRTA) has helped JHU/APL to identify potential future efforts that can be supported within this research program and that can broaden the domain of applicability of the envisioned detector system for DoD. One such project has been explicitly identified as an optional task in the Statement of Work (SOW) and involves the use of aerosol collector systems with adhesive materials (an area of expertise of one alliance partner) to collect biological particulate in hazardous areas using small standalone units or via unmanned aerial vehicles for offline analysis at safer, nearby locations. In a separate aspect, we anticipate that the consumables for our detector system will ideally be manufactured by another alliance partner with significant expertise in the manufacture of consumables for applications requiring forensic integrity.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an OT in the context of this Research and Development (R&D) program has potentially created an efficient mechanism for collaborative R&D between two government agencies. In this specific case, the detector system to be developed under this OT will have both DoD and Department of Homeland Security (DHS) applications, and the program has attracted specific future funding interests from both parties. The OT in place with the CBRTA has provided a streamlined mechanism for facilitating this potential inter-agency collaboration with the CBRTA member organizations. Relationships within the CBRTA will allow JHU/APL (the program technical lead) to respond more expeditiously to sponsor directions within this program through utilization of the broadened technology base provided by the on-going, commercially-driven R&D at the CBRTA member organizations. We believe that the ability to rapidly draw upon member expertise and to rapidly fund the development and prototyping of the JHU/APL team's solutions via the streamlined other transaction contracting mechanism will help to support the chem-bio defense of the USA at home (DHS) and abroad (DoD).

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2002 **Task Number:** 0015

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: 3m, On Behalf of CBRTA

Effective Date: 01 Jul 2004

Estimated Completion or Expiration Date: 01 Feb 2005

U.S. Government Dollars: \$ 199,628

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The purpose of this project is to evaluate commercially available materials from the 3M Company in order to develop a prototype tent closure system that will overcome the deficiencies of the currently fielded system. This project is a feasibility analysis designed to demonstrate that the 3M-designed closure system has the potential to achieve the performance goals needed by the customer. The overall technical approach to the program is to perform a thorough assessment of the current tent closure system, review the desired performance goals of a new closure system, and design a closure system around the 3M product Dual Lock that can meet the key performance parameters required by the customer. Material selection and design criteria will be established and prototype closures will be fabricated for mechanical testing.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

In discussions with the technical personnel within Natick, new tent closure systems were identified as a critical need. The Chemical, Biological and Radiological Technology Alliance (CBRTA) has the necessary skill sets and infrastructure required to perform activities such as those identified in the Statement of Work. The use of an other transaction (OT) will bring together the planning, experimental design, fabrication, and test execution skill sets with from within the CBRTA to tackle the hard challenge of generating demonstrating the feasibility of a new concept design.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The use of an other transaction has placed trusted and knowledgeable individuals from divergent as well as competing companies into an environment designed for collaboration and cooperation. Access to the technologies, knowledge base, and unique infrastructure required for this program can best be accomplished through the OT. The expertise, data, and insights hidden in the work history and relationships of companies that normally do not do business with the government are extensive and directly applicable to defense against weapons of mass destruction, in this case, specifically chemical warfare and biological warfare agents.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: NMA401-02-9-2002 **Task Number:** 0016

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: National Technology Alliance, CBRTA

Awarding Office: NATL GEOSPATIAL-INTELLIGENCE AGENCY

Awardee: 3m, On Behalf of CBRTA

Effective Date: 30 Sep 2004

Estimated Completion or Expiration Date: 01 Mar 2005

U.S. Government Dollars: \$ 469,123

Non-Government Dollars: \$ 0

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The technical objectives of Low-Cost Automated Front Ends for Environmental Bio-Surveillance (LAFEBES) are 1) Design, optimize and test an aerosol sampling system for application in the Bio-Watch Program. 2) Fabricate and deliver 4 prototype aerosol sampling systems that are rugged and operate through a wireless communication module.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

The use of an Other Transaction (OT) placed trusted and knowledgeable individuals from divergent companies into an environment designed for collaboration and cooperation so that the access to the technologies and the knowledge base present in these divergent corporations could only be accomplished through the OT. The use of an OT provides a rapid opportunity to leverage commercial off the shelf technologies development under internal research and development investment.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

General Dynamic's innovative approach to air sampling has two distinct advantages over other commercial aerosol collection technologies including: 1) Greater number of total particles collected due to lower pressure drop of cartridge, and 2) Easier sample extraction protocols amenable to automation and matrix recycling. These advantages will increase the sensitivity of the dry filtration unit (DFU) and decrease the logistical burden of operating the system resulting in a lower life cycle cost. The Packed Bead Bed sampling technology can be immediately adapted for insertion into filter-based devices, such as the DFU. The prototype system will combine the logistically-burdened steps of biological aerosol sample collection and sample analysis. A system that provides a safe and highly efficient high volume aerosol sampling system with delivery of the material in a closed liquid sample will reduce the potential exposure risks of personnel and facilitate laboratory analysis of samples. This technology will be applicable in multiple aerosol sampling scenarios critical to military and civilian applications. The system therefore has commercial viability by direct applicability to U.S. Government agency missions (Environmental Protection Agency, Department of Homeland Security), as well as state and local governments, and the healthcare industry.

Other benefits to the DOD through use of this agreement:

General Dynamics-Advanced Information Systems (GD-AIS) has been selected to participate in the current SOW because of their long-standing and exemplary performance in smart aerosol sampling device development, and methodology development. The utility of a particular aerosol sampling system for in-field use by the military or Homeland Security must be evaluated during the selection and optimization of the sampling system. Specific requirements for this application may include reduced logistical burden and reduced consumable cost.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: W15P7T-04-9-K434

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: MIDBAND-HIGHBAND POWER AMPLIFIER PROGRAM

Awarding Office: XR W4GV USA HQ COMM ELECT CMD

Awardee: Northrop Grumman Space & Mission Systems Corp.

Effective Date: 26 May 2004

Estimated Completion or Expiration Date: 29 Apr 2005

U.S. Government Dollars: \$ 1,500,000

Non-Government Dollars: \$ 2,190,000

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The intent of this program is to develop a Power Amplifier (PA) capable of operating between 400 to 970 MHz and 1200 to 2000 MHz. The linear PA must support 30 MHz channel bandwidths and be linear to support OFDM and spread spectrum. The major goal of this program is to develop a technology solution for the Army for a highly efficient wideband Power Amplifier of sufficient power to meet the needs for wideband networking.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

When the proposed project is incorporated into the Joint Tactical Radio System (JTRS) Cluster 1, it will enable the radio to transmit the Wideband Network Waveform (WNW) at high RF power up to 100 watts. This will enable link closure up to 10 km between two JTRS Cluster 1 radios.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

Technology from Northrop Grumman's commercial wireless products can be applied to this development to address the key issues of output power and efficiency. These are the same issues that the commercial world is addressing for applications like wideband Code Division Multiple Access (CDMA) and Enhanced Data Rates for GSM Evolution (EDGE) for mobile phone base stations. Techniques from those commercial product developments such as pre-distortion and envelope modulation can be directly applied to government WNW type applications.

Other benefits to the DOD through use of this agreement:

Based on the successful conclusion of this year's proof of concept prototypes, form, fit, function, power amplifiers can then be developed in follow on phases for possible inclusion into Cluster 1.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

Agreement Number: W15P7T-04-9-K446

Type of Agreement: Acquisition transaction for prototype (using Section 845)

Title: EHF SOLID STATE POWER AMPLIFIER FOR HC3

Awarding Office: XR W4GV USA HQ COMM ELECT CMD

Awardee: Northrop Grumman Space & Mission Systems Corp.

Effective Date: 20 Aug 2004

Estimated Completion or Expiration Date: 30 Sep 2005

U.S. Government Dollars: \$ 1,000,000

Non-Government Dollars: \$ 500,000

Dollars Returned to Government Account: \$ 0

Technical objectives of this effort including the technology areas in which the project was conducted:

The primary focus of this effort is the development and demonstration of an SSPA Solid State Power Amplifier (SSPA) with a goal of >10W at 44GHz and a form factor of less than 25 in 3. This effort specifically solicits novel designs capable of being scaled to higher power outputs with minimal decrease in efficiency and increase in overall size and weight. A small form factor, high efficiency, high power, low cost SSPA is essential to fielding a reliable, affordable, full duplex, on-the-move Satellite Communications (SATCOM) system in support of the Army's Objective Force.

Extent to which the cooperative agreement or other transaction has contributed to a broadening of the technology and industrial base available for meeting Department of Defense needs:

Current Q-band power amplifiers are only marginally efficient and occupy significant volume. As the Army moves to a faster, lighter, more survivable and lethal Future Force, improvements in size, weight, power, efficiency and performance are essential. This SSPA will provide a 10+W solution that is easily scalable to 30+W with no change in size or form factor (<25in3). This capability will both allow for retrofitting existing Q-band systems and equipping current and future terminals with high-efficiency, high power solid state amplifiers. This end product will save valuable real estate in space-limited Future Combat Systems (FCS) vehicles, permitting more critical equipment to be carried by the warfighter. Additionally, the SSPA will improve communications capacity and connectivity, enabling better performance from existing terminals and permitting further size reductions and performance improvements for future systems. All of these factors contribute to an increase in survivability, lethality and maneuverability for the warfighter.

Extent to which the cooperative agreement or other transaction has fostered within the technology and industrial base new relationships and practices that support the national security of the USA:

The major goal of this program is to develop a technology solution for the Army for a highly efficient, high power Extremely High Frequency (EHF) SSPA meeting the requirements for Enhanced Surveillance (EHS) SATCOM communications in a highly mobile environment. Current designs do not meet requirements for output power, efficiency, size and cost. These are the same issues that the commercial world is addressing for applications like wideband Code Division Multiple Access (CDMA) and Enhanced data Rates for GSM Evolution (EDGE) for mobile phone base stations. Techniques from these commercial product developments, such as low cost millimeter wave packaging and power combining, can be directly applied to Government EHF type application.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

PART II

Dollars recouped by DoD under 10 USC Sec. 2371(d)

Agreement number:	Fiscal Year of Agreement:	Dollar amount returned in FY2004:
MDA972-95-3-0051	1995	\$6,818
N61339-04-2-0004	2004	\$2,350,000 ¹
	Total:	\$2,356,818

¹ This amount was associated with a Navy cooperative agreement, described more fully on page 12 of this report, that the Navy subsequently determined was not a proper cooperative agreement and cancelled. Prior to cancellation and in accordance with the terms of the cooperative agreement, the nonfederal recipient of the agreement transferred \$2.35 million that it had received under another Federal Government contract. The Government expended \$1.00 million of the funds. The remainder will be returned to the non-federal recipient of this agreement.

Cooperative Agreements and Other Transactions Entered for Fiscal Year 2004

The following charts provide a summary of DoD's use of the three statutory reasons an agency can use to award new Prototype OTs and the level of participation of non-traditional contractors in new OTs.

Prototype OT Award Reason Code	Number of Awards	% of Total Awards	# Distinct Non-Traditional Firms Participating
"A" = Non-traditional significant participation	45	90	35
"B" = Cost Sharing	5	10	0
"C" = SPE Determination of Exceptional Circumstances	0	0	0

# Non-traditional companies participating	35
# Non-traditional companies as Prime Contractors	16

- New agreements consist of only those agreements coded as Initial Award in the Type of Action reporting block of the DD Form 2759, REPORT OF OTHER TRANSACTIONS FOR PROTOTYPE PROJECTS.
- Major modifications (increased scope of work) and master agreements are not considered to be new agreements.