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PUBLIC AFFAIRS

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
1400 DEFENSE PENTAGON
WASHINGTON, DC 20301-1400



19 MAR 1997

Ref: 97-F-0441

Mr. John Greenewald Jr.
[REDACTED]

Dear Mr. Greenewald:

This letter responds to your December 23, 1996, Freedom of Information Act (FOIA) request to the Air Force Flight Test Center FOIA Office. Your request was referred to the Defense Advanced Research Project Agency (DARPA). As this Directorate is the central point of contact for processing FOIA requests for the Office of the Secretary of Defense and Joint Staff, which includes DARPA, your request was referred here for administrative processing. Your request was received in this Directorate on March 5, 1997.

The enclosed documents are provided by DARPA as a partial response to your request. Additional information on Tier III Minus can be found on DARPA's World Wide Web site at <http://www.darpa.mil>. Your request, extremely broad in nature as currently worded, essentially seeks everything in DARPA's data base on the Tier III Minus Darkstar. This effectively constitutes approximately 35,000 pages of information, and to process your request as worded would result in a significant accumulation of FOIA fees. A preliminary estimate of the costs in reproduction fees alone is \$5,250.00. This estimate does not include potential search costs.

With the Freedom of Information Reform Act of 1986, Congress amended the FOIA to provide that some processing costs be passed on to requesters. In addition, Department of Defense (DoD) Regulation 5400.7-R, as published at 32 CFR 286, states that regardless of the requester's fee category, all requesters must agree to pay the likely chargeable fees associated with processing their requests. As an "other" requester pursuant to this Regulation, you would be charged search and reproduction fees in excess of two hours and 100 pages.

Established DoD fees are: clerical search, \$12 per hour; professional search, \$25 per hour; executive search, \$45 per hour; computer search, varies according to the system used, billed per minute; microfiche, \$0.25 per page; office copy reproduction, \$0.15 per page; and printed publications or reports, \$0.02 per page.

Since your request is so broad that it could result in significant fees, and since DARPA has already put considerable information about Tier III Minus Darkstar on the Web for public



consumption, we are unable to authorize additional processing unless you agree to pay for the search and reproduction fees. After reviewing the information on DARPA's Web site, if you still desire an OSD/JS FOIA search, please send your written agreement to pay search and reproduction charges. You may also wish to narrow the scope of your request, which should result in a smaller fee assessment. There are no chargeable costs for processing your FOIA request in this instance.

Sincerely,

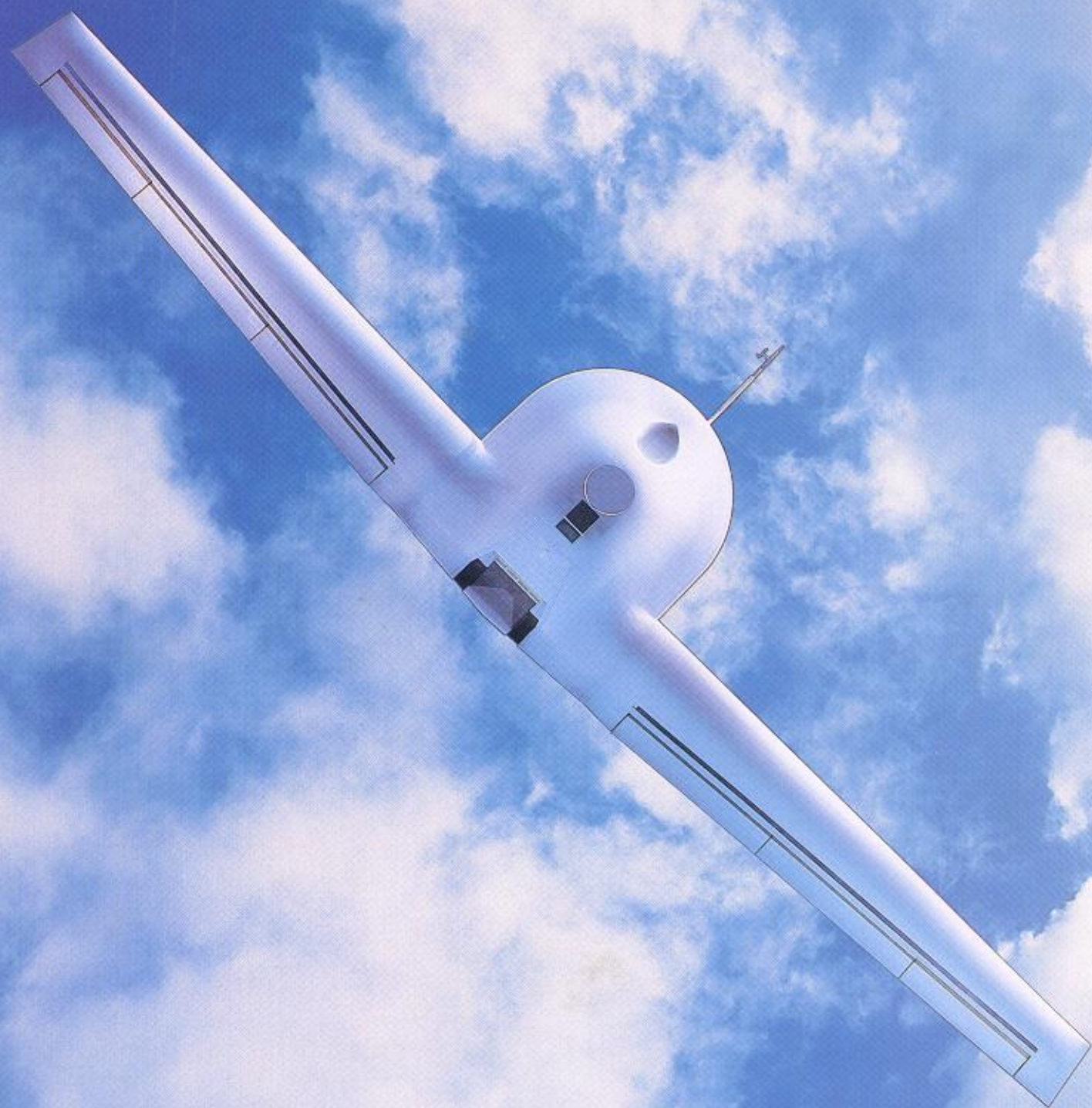
A handwritten signature in black ink, appearing to read "A. H. Passarella", with a large, stylized flourish at the end.

A. H. Passarella
Director
Freedom of Information
and Security Review

Enclosures:
As stated







**Tier III Minus
High Altitude Endurance
Unmanned Aerial Vehicle**



Tier III Minus *DarkStar* High Altitude Endurance Unmanned Aerial Vehicle

Concept of Operations

The Tier III Minus UAV will operate within the current military force structure and with existing Command, Control, Communications, Computer and Intelligence (C4I) equipment. The Tier III Minus is optimized for low observables and sensor payload and will be able to penetrate high threat environments. It will operate at ranges up to 500 nautical miles from the launch site and will be able to loiter over the target area for greater than 8 hours at an altitude of more than 45,000 feet. The vehicle will be capable of carrying either Electro-Optical or Synthetic Aperture Radar

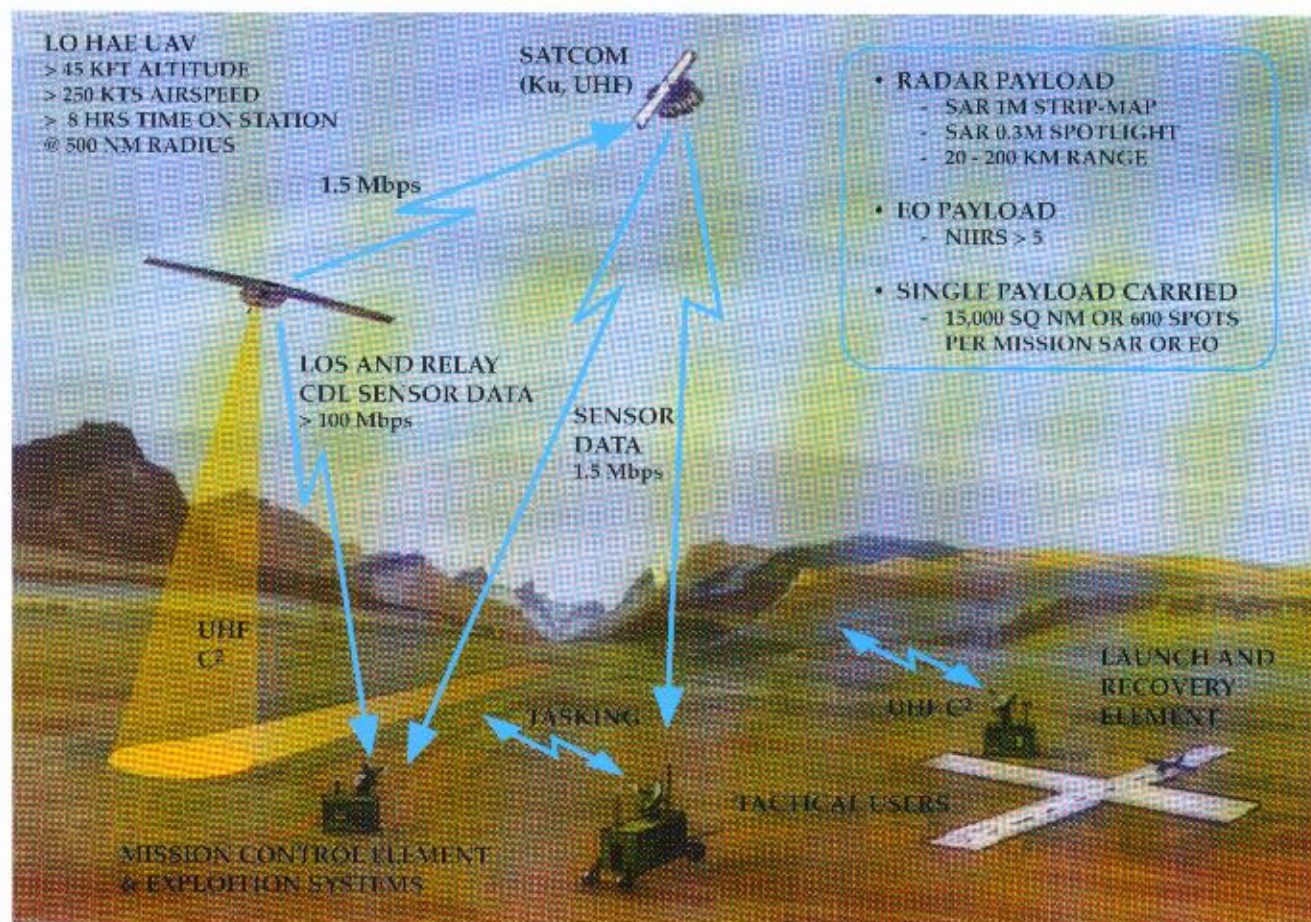
mission payloads which will be interchangeable in the field.

Wide area surveillance will be accomplished by Westinghouse's Synthetic Aperture Radar (SAR), a legacy from the Navy's A-12 program, or ReconOptical's Electro-Optical (EO) sensor, an integrated system being developed using only off-the-shelf components to provide an affordable solution. Data will be captured at a rate of 1600 square nautical miles per hour at three foot resolution with the capability to perform 1 foot spot imaging. 600 spots will be captured in a single mission.

Program Objectives

Characteristic	Tier III Minus
Mission duration	> 8 hours on station
True air speed	> 250 knots
Loiter altitude	> 45,000 ft
Operating radius	> 500 nautical miles
Survivability	Very low observable
Command & control	UHF Milsat (Fleetsatcom)
Sensors	SAR: 1M Search; 0.3M Spot EO: NIIRS > 5 Single carriage 20M CEP Geo-location
Coverage per mission	14,000 sq-nm search imagery, or 600 spot image frames (2kmX2km)
Sensor data transmission	Narrow band COMSAT: 1.5 Mbps Line-of-Sight: 137 Mbps
Ground control Data exploitation	Common with Tier II Plus Existing and programmed: CIGS/S (JSIPS, CARS, MIES, ETRAC, etc)

Tier III Minus *DarkStar* High Altitude Endurance Unmanned Aerial Vehicle



Low Observable HAE UAV (Tier III Minus)

Complementing the Tier III Minus, the Tier II Plus will be optimized for long range and endurance in a low-to-moderate threat environment. It will operate at ranges up to 3,000 nautical miles from the launch site and will be able to loiter over the target area for up to 24 hours at an altitude of 65,000 feet. The vehicle will be capable of simultaneously carrying Electro-Optical, Synthetic Aperture Radar, and Infra-Red mission payloads.

The HAE system has been designed to be easy to launch, operate, recover, and maintain with a minimum of training, logistics, and personnel. In addition to the UAV component,

the system consists of a ground-based mission control element, communications element, and launch and recovery element. The sensor data obtained from the UAV will be transmitted to the mission control element via wide band line-of-sight or satellite link. Data will be disseminated into existing command and control systems or directly to properly equipped tactical field users for immediate use. DarkStar will be capable of fully autonomous take-off, flight, and recovery; will be able to be dynamically retasked while in flight; and is designed to operate in the existing force structure.

Tier III Minus
DarkStar
High Altitude Endurance Unmanned Aerial Vehicle

Program Strategy

The Tier III Minus development program represents a new way of doing business -- a true government-industry partnership that is based on team work, and fostered by open dialogue on all issues. The program is breaking new ground in DoD acquisition streamlining endeavors. It has been designated an Advanced Concept Technology Demonstration (ACTD) program. Using ARPA's Other Agreements Authority, the program is being developed outside the traditional DoD acquisition system, and is imposing minimum system requirements. The result has been a government-industry team that has been empowered to successfully accomplish an innovative solution for a low observables, high altitude endurance vehicle.

As an ACTD, the Tier III Minus program has brought together military users and technologists in the early stages of system development. This is allowing the Service users to evaluate and test operational approaches for exploiting the Tier III Minus before a formal acquisition decision is made. Ideally, the Tier III Minus UAV will be rapidly inserted into the military force structure to provide a critically needed, cost-effective reconnaissance system for the theater commander without dropping back into the traditional procurement system. A series of CinC-sponsored demonstrations to assess military utility and refine the concept of operations will begin in 1996.

The Tier III Minus program is the first project to be executed under the "Section 845 Authority" granted to ARPA for prototype weapons development projects. This authority has paved the way for unprecedented government-industry collaboration by removing the burden of specialized Defense procurement regulations and statutes.

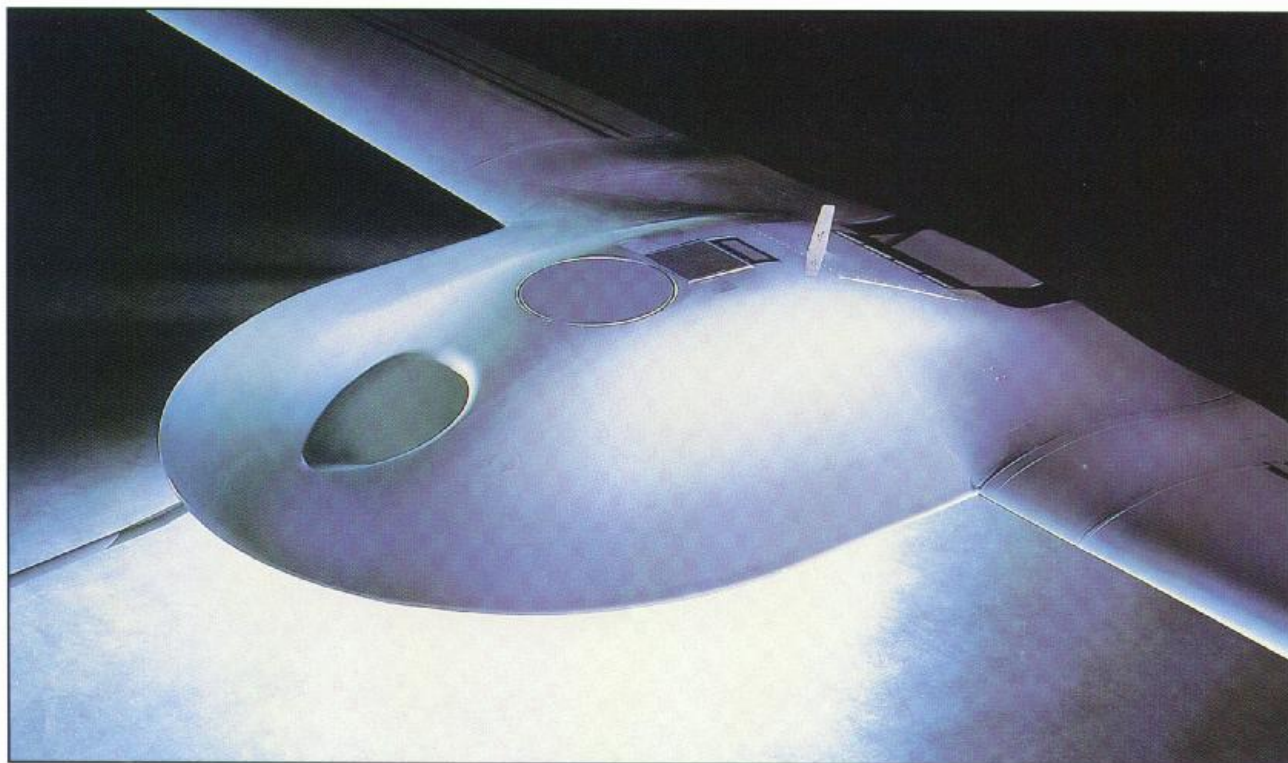
The Lockheed Martin / Boeing team is under a highly incentivised cost-plus-fixed-fee contract that places only one firm requirement on the system -- a unit flyaway cost of \$10 Million (FY94 dollars) based on the average production cost of units 11 - 20. Integrated product and process teams and extensive use of commercial items and methods are contributing to meeting this flyaway cost goal. The Tier III Minus team has worked to find the most effective and innovative solution that will meet the tactical commanders need.

DarkStar will provide the theater commander a greatly improved capability for rapid, accurate battlefield information. DarkStar is an innovative cost-effective system that will continue to provide US troops the technological edge to engage, fight and win future conflicts.

Additional information on the HAE UAV program can be found through the Internet on World Wide Web at:

<http://www.arpa.mil/tto/tier3.html>

Tier III Minus
DarkStar
High Altitude Endurance Unmanned Aerial Vehicle



The Tier III Minus high altitude endurance (HAE) unmanned aerial vehicle (UAV), nicknamed "DarkStar" is being developed for the Defense Airborne Reconnaissance Office (DARO) by the Advanced Research Projects Agency (ARPA) Joint Program Office. ARPA is the executing agent for the development program.

DarkStar is being developed by a Lockheed Martin / Boeing Team that has proven to be a very effective partnership. Each company is responsible for approximately 50 percent of the vehicle development. Boeing is responsible for the wing and wing subsystem development and testing, and Lockheed Martin is responsible for the design and development of the body, its subsystems, and final assembly, integration and test. A

single turbofan engine, supplied by Williams International, will provide power for the vehicle. This engine is the same engine used in the Cessna Citation business-class jet.

The Tier III Minus vehicle is one of two UAVs under development in the DARO HAE UAV program. Together, the Tier III Minus and the Tier II Plus UAV will provide affordable, continuous, all weather surveillance capability to the theater commander. The result will be timely information that a tactical commander can exploit immediately for accurate situational awareness, to perform precision strikes, and to perform other high priority intelligence and reconnaissance tasks. Both UAVs will be operational by 1999 at a unit flyaway cost of \$10 million (FY94 dollars).

Tier III Minus
DarkStar
High Altitude Endurance Unmanned Aerial Vehicle



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For Additional Information:

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HAE UAV Joint Program Office
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(703) 524-5199

John N. Entzminger, Program Director
Harry A. Berman, Program Manager

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