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Comptroller General
of the United States

Washington, D.C. 20548

# Decision

**Matter of:** Titan Dynamics Simulations, Inc.

**File:** B-257559

**Date:** October 13, 1994

William R. Stoughton, Esq., McKenna & Cuneo, for the protester.
Andrea E. Brotherton, Esq., Department of the Navy, for the agency.
Linda S. Lebowitz, Esq., and Michael R. Golden, Esq., Office of the General Counsel, GAO, participated in the preparation of the decision.

## DIGEST

Agency reasonably bundled its requirements for pyrotechnic weapon effects signature simulators, which represent 2 of 25 subsystems of a developmental laser-based weapon simulation system to be used for military training exercises, where the agency reasonably concluded that total system integration; reliability; and operational safety necessitated one contractor to be responsible for all phases of design, development, and testing of the system components--including the simulators--and for any failures in these areas.

## DECISION

Titan Dynamics Simulations, Inc. protests the terms of request for proposals (RFP) No. N61339-94-R-0008, issued by the Naval Air Warfare Center, Training Systems Division, Department of the Navy for the Multiple Integrated Laser Engagement System (MILES) 2000. This system consists of laser-based training devices (a collection of laser-based weapons simulation systems used to portray weapon firing and target effects) and related pyrotechnic weapon effects signature simulators. Titan argues that the agency has improperly "bundled" its requirements for pyrotechnic simulators with the balance of its requirements for laser-based training devices. Titan maintains that the pyrotechnic simulators should be set aside and procured exclusively from small businesses.

We deny the protest.

The MILES 2000 procurement, for which the RFP was issued on an unrestricted basis on April 8, 1994, basically is a development effort requiring the contractor to design, using state-of-the-art technologies, a replacement system for the currently fielded MILES devices (known as the "Basic MILES") which are, after approximately 20 years, approaching the end of their useful lives to the military. The contractor will be responsible for the performance of all engineering and manufacturing tasks related to the development, management, production, integration, testing, documentation, delivery, and support of the 25 separate subsystems comprising the MILES 2000.

The RFP requires all MILES 2000 devices developed and procured under the contract to meet, and, if applicable, exceed the performance baseline of the Basic MILES. The RFP requires each of the 25 subsystems of the MILES 2000 to be successfully integrated in order to replicate the ranges, vulnerabilities, weapon characteristics, and ammunition of the weapons being simulated to the extent required for laser-based tactical engagement training.

The RFP requires the pyrotechnic simulators, two of the MILES 2000 subsystems, to be developed concurrently with the initial production of the other MILES 2000 devices. The pyrotechnic simulators, which will ignite in response to signals from the MILES 2000 combat vehicle console, will replicate the smoke, flash, and noise associated with weapon firing or round impact. For this reason, the pyrotechnic simulators are considered an integral part of laser-based tactical engagement training. A research and development phase is required for the pyrotechnic simulators in order to test and verify, through demonstrations, the quality of the simulators' signature and the safety of the simulators' design. Prototype pyrotechnic simulators must be qualified and available for MILES 2000 integration testing.

The RFP contemplates the award of the contract for a base period and four option periods to the offeror whose proposal offers the "best value" to the government, technical (including system design, supportability, and integrated management), cost/price, and past performance considered. A limited number of the complete range of MILES 2000 devices will be procured during the base period for production qualification testing and for equipping a representative field unit for final system integration testing. Full-scale production of the MILES 2000 will occur during the option periods after all subsystems, including the pyrotechnic subsystems, have been successfully developed and integrated.

The agency prepared a justification for incorporating the pyrotechnic simulators in the MILES 2000 unrestricted procurement, rather than setting aside and procuring the

simulators exclusively from small businesses.[1] The agency explained that because the smoke, flash, and noise from the simulators, when ignited after receiving a signal from the MILES 2000 console, can be harmful to military personnel participating in training exercises, it is critical that the simulators fire only when they are supposed to fire; that adequate warning be given to nearby personnel; and that adequate safety interlocks be incorporated into the overall MILES 2000 design. The agency stated that since the MILES 2000 represents a developmental effort, the only way to ensure the safe performance of the system--which is comprised of 25 subsystems, including 2 pyrotechnic subsystems--is to use a total system approach for its design; development; and testing. The agency stressed that an integrated MILES 2000 design will allow the contractor to offer features at various locations, for example, in the MILES 2000 console itself; in the pyrotechnic simulators; and in the circuitry for the simulators, which will provide maximum system safety and performance. According to the agency, an integrated design process will reduce the risk of a design flaw at the MILES 2000 console level initiating an unintentional firing of a pyrotechnic simulator.

To best achieve a fully integrated system, the agency explained that under this RFP, a single prime contractor which it characterizes as the system integrator, will be totally responsible for the design; development; and testing of the 25 separate subsystems comprising the MILES 2000. The agency noted that while each of the subsystems reflect separate functional requirements, as evidenced by performance specifications included in the RFP, these subsystems must provide required integrated performance. The agency stressed that the design of each subsystem, the interfaces between subsystems, the impact of the subsystems on each other, and any design trade-offs must be the responsibility of a single prime contractor in order to eliminate the risk of incompatible interfaces; conflicting choices for mounting locations; testing redundancies; and government determinations of which portion of the MILES 2000 is at fault when total system testing requirements--such as performance verification, reliability, maintainability, electromagnetic compatibility, and safety--are not satisfied.

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[1]The justification was prepared by the contracting officer in response to a recommendation from the Small Business Administration (SBA) that the pyrotechnic simulators be set aside for small businesses. Upon receipt of this justification, the SBA did not appeal the contracting officer's rejection of its recommendation. See Federal Acquisition Regulation (FAR) § 19.505.

Accordingly, in light of the hazardous nature of pyrotechnics; the need to successfully integrate the 25 subsystems comprising the MILES 2000; and the need to ensure total system reliability and operational safety, the agency determined that a single prime contractor--the system integrator--would be responsible for all phases of design; development; and testing of the MILES 2000, including the pyrotechnic simulators, and for any failures in these areas.

The protester, a small business which designs, develops, and manufactures pyrotechnic simulators, argues that the agency has improperly bundled its requirements for the simulators with the balance of its requirements for laser-based training devices. The protester contends that the agency's justification for the bundling of requirements for the MILES 2000--the necessity for a single prime contractor to be responsible for total system integration, reliability, and operational safety--fails to reasonably support the agency's decision not to set aside and procure the pyrotechnic simulators from small businesses, since small businesses previously have furnished other similar types of simulators. The protester states that since the RFP contains performance specifications for the pyrotechnic simulators, including requirements for safety and integration features, the simulators basically constitute independent, "stand alone" devices with limited and simple interfaces (for example, interfaces for firing signals, power supplies, and mounting locations). As a result, the protester maintains that the pyrotechnic simulators simply can be "plugged in" to the MILES 2000 console.

The protester also alleges that the agency has determined, for purposes of administrative convenience, to bundle all requirements. The protester states that unless the pyrotechnic simulator requirements are unbundled from the balance of the requirements for the laser-based training devices and set aside for small businesses, it will be precluded from competing under this RFP.

The Competition in Contracting Act of 1984 (CICA), 10 U.S.C. § 2305(a)(1) (1988), generally requires that solicitations permit full and open competition, and contain restrictive provisions and conditions only to the extent necessary to satisfy the needs of the agency. Since bundled or consolidated procurements combine separate, multiple requirements into one contract, they have the potential for restricting competition by excluding firms that can only furnish a portion of the requirement. We review such solicitations to determine whether the approach is reasonably required to satisfy the agency's minimum needs. Resource Consultants, Inc., B-255053, Feb. 1, 1994, 94-1 CPD ¶ 59. Because procurements involve unique situations, contracting officers must base their decisions whether to

consolidate or "bundle" certain requirements on the individual facts. Our review recognizes the uniqueness of each case. Id. We have upheld the consolidation of requirements where agencies have provided a reasonable basis for using such an approach. See, e.g., LaQue Ctr. for Corrosion Technology, Inc., B-245296, Dec. 23, 1991, 91-2 CPD ¶ 577; Electro-Methods, Inc., 70 Comp. Gen. 53 (1990), 90-2 CPD ¶ 363.

Here, we believe the agency reasonably bundled its requirements for the pyrotechnic simulators which represent 2 of 25 subsystems of the MILES 2000. The record shows that with respect to the MILES 2000, a next-generation laser-based training system to be designed; developed; and tested under this procurement, the agency has concerns that all 25 subsystems be successfully integrated for purposes of ensuring total system reliability and operational safety. In view of these concerns, the agency has determined that the best approach for achieving a completely integrated system is for a single prime contractor to be responsible for all phases of design; development; and testing of all system components, including the pyrotechnic simulators and to be responsible for any failures in these areas. Since the MILES 2000 will require extensive design and integration efforts, we think the agency has legitimate concerns that unbundling the two pyrotechnic subsystems from the rest of the system design effort ultimately could affect the integrity of the total system.[2]

In this regard, the agency reports that very few safety or performance problems occurred with pyrotechnic simulators integrated into the design of the Basic MILES--the predecessor laser-based training system which is effectively approaching obsolescence. On the other hand, the agency states that serious safety and performance incidents have been reported concerning pyrotechnic simulators procured as

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[2]It is clear from the RFP that the contractor, not the agency, is responsible for the design effort for the MILES 2000. In this regard, the RFP refers to and includes "performance," not "design," specifications for the MILES 2000. Concerning the pyrotechnic simulators, the RFP requires an offeror to describe how the development of the simulators will be conducted, with emphasis on the development approach for the pyrotechnic and its chemical composition. In addition, for the technical evaluation factor involving system design, the RFP states that the agency will evaluate this area on the basis of an offeror's overall proposed design for the MILES 2000 and the ability of that design to meet all functional, i.e., performance requirements. The RFP further states that the contractor's technical proposal will be considered a specification.

"add-on," off-the-shelf items. For example, in 1994, on two occasions, a pyrotechnic simulator inadvertently fired at Fort Polk due to what appeared to be improper installation and operation of the simulator, and shock or vibration in the simulator's internal control unit. A soldier sustained second degree burns to his face and neck. The Department of the Army subsequently ordered a total inspection of the pyrotechnic simulator in order to verify the proper functioning of all safety features and to ensure that the simulator was mounted, operated, and maintained in accordance with the appropriate technical requirements. The Navy, based on the inspection results, reports that these incidents resulted from deficient and insufficiently tested interfaces between the Basic MILES console and the pyrotechnic simulator.[3] We think that this experience with pyrotechnic simulators not integrated as part of a total system design approach supports the Navy's position that the bundling of requirements in this procurement is necessary to ensure total system reliability and safety.

Finally, we recognize that having a single prime contractor responsible for this entire effort will ease the agency's administration of the contract. However, the record shows that the agency's determination to bundle its requirements was not made purely for purposes of administrative convenience, but rather for the purpose of ensuring the design integrity of the entire MILES 2000. In this regard, given the magnitude of the MILES 2000 (the fact that it is a developmental system comprised of 25 subsystems, 2 of which involve hazardous pyrotechnic simulators), the requirement that all subsystems achieve integrated performance and the prior experience with nonintegrated simulators, we think the agency has reasonably determined that its minimum needs require it to procure the MILES 2000, including the

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[3]The protester questions the Navy's position concerning the causes of these incidents. In this regard, the protester points to an Army document from 1993 which discusses the premature detonation on several occasions of a pyrotechnic simulator due to "static electricity." The Army determined that a retrofit device was necessary to correct the problem. In our view, these incidents do not detract from the Navy's position that pyrotechnic simulators not integrated as part of an overall system design are more likely to have design flaws and cause inadvertent firings which will, for example, necessitate retrofitting to remedy.

pyrotechnic simulators, from a single prime contractor which will be solely responsible for total system integration and solely accountable for all design, development, and testing failures.[1]

The protest is denied.

Robert P. Murphy
Acting General Counsel

[1]Because we conclude that the agency has reasonably bundled its requirements, we need not address the protester's argument that the agency failed to comply with the requirements of FAR part 19 concerning set-asides for small businesses.