Comptroller General
of the United States

Washington, D.C. 20548

Decision

Matter of: Plasma-Therm, Inc.

File: B-280664.2

Date: December 28, 1998

Timothy Saviano, Esq., Foley & Lardner, for the protester.
Vincent A. Salgado, Esq., National Aeronautics & Space Administration, for the agency.
Scott H. Riback, Esq., and John M. Melody, Esq., Office of the General Counsel, GAO, participated in the preparation of the decision.

DIGEST

1. Agency properly rejected protester's proposal as technically unacceptable where it did not meet material solicitation requirement; fact that solicitation did not expressly state that agency would find proposal unacceptable for failing to meet only one specification requirement did not preclude rejection, since award may not be based on a technically noncompliant proposal.

2. Protest that awardee's proposal failed to meet solicitation requirement is denied where there is nothing in the firm's proposal to show noncompliance with specifications; protester's challenge to awardee's offer amounts to unsupported speculation regarding actual performance of awardee's offered product.

DECISION

Plasma-Therm, Inc. protests the award of a contract to Surface Technology Systems (STS) under request for offers (RFO) No. 3-100573, issued by the National Aeronautics and Space Administration (NASA) for a plasma and gas-phase plasmaless micromachining tool for the fabrication of silicon carbide micro-electro-mechanical systems. Plasma-Therm maintains that the agency improperly rejected its proposal, and that the agency is biased against it.

We deny the protest.

The solicitation sought fixed-price offers to provide a micromachining tool capable of performing various etching processes used in connection with the fabrication of micro-electro-mechanical devices. Essentially, the device is used to "cut out" micromechanical parts. Among other requirements, the RFO specified that the device "shall support" high-rate isotropic gas-phase plasmaless etching of silicon using a xenon diflouride etching process or equivalent dry isotropic silicon etch process. RFO § C.3, as amended by Amendment No. 1. The RFO also specified

that the device "shall meet" the specification for a selectivity ratio of at least 500:1 for silicon dioxide, silicon nitride, silicon carbide, aluminum, nickel and chrome. RFO § C.3(f), as amended by Amendment No. 1.[1]

In addition to their written proposals, offerors were required to submit etch specimens to allow the agency to evaluate their offered device. RFO, Amendment No. 1 at 2. The solicitation advised that the agency would make award to the firm submitting the proposal deemed to offer the best overall value to the government considering price, technical merit and past performance (all weighted equally). The RFO further advised that the agency would consider various "value characteristics" in making its award decision. Among the characteristics identified were early delivery, and features which enhanced the device's performance, flexibility, ease of use and reliability.

NASA received offers from STS and Plasma-Therm. The offers were evaluated and Plasma-Therm was found technically unacceptable because its written technical proposal offered a selectivity ratio of only "greater than" 150:1 for silicon dioxide and was silent with respect to the selectivity ratio for silicon nitride. The record further shows that the firm's etch specimens exhibited a selectivity ratio of 150:1 for silicon nitride and 470:1 for silicon dioxide. In contrast, the STS device met or exceeded all the specified selectivity ratios. On the basis of these results, NASA made award to STS at a price higher than that offered by the protester.

Plasma-Therm protested the agency's award decision to our Office (B-280664), maintaining, among other things, that the agency had not afforded firms enough time to process the etch specimens. In response, NASA offered to allow firms an opportunity to submit new etch specimens. We therefore dismissed Plasma-Therm's protest as academic.

Plasma-Therm submitted a new batch of etch specimens. NASA evaluated the etch specimens and found that Plasma-Therm's device still had failed to achieve the selectivity ratio specified for silicon nitride; the firm's etch specimen exhibited a selectivity ratio for silicon nitride of only 40:1. This, coupled with the fact that the STS device was considered to offer numerous "value characteristics" (for example, it had produced specimens that exhibited selectivity ratios well in excess of the specifications--2,000:1 for silicon dioxide and 3,000:1 for silicon nitride), led the agency to affirm its original award to STS.

Plasma-Therm contends that the agency improperly rejected its offer as technically unacceptable, since the silicon nitride selectivity ratio specified in the solicitation is not a critical or material measurement for the device, and the RFO did not state

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[1]"Selectivity" refers to the ratio between etch rates that a particular etch process exhibits between two different materials such as silicon and silicon nitride.

that offers would be rejected for failure to meet only one of the selectivity ratios. Plasma-Therm Letter of Protest at 7.

A proposal that fails to meet one or more of a solicitation's material requirements is technically unacceptable and cannot form the basis for the award of a contract. Severn Cos., Inc., B-275717.2, Apr. 28, 1997, 97-1 CPD ¶ 181 at 3-4. Here, there is no dispute that Plasma-Therm's proposal failed to show that its micromachining device met the RFO's requirement for a selectivity ratio of 500:1 for silicon nitride. Further, there is no merit to Plasma-Therm's position that NASA unreasonably rejected its proposal for failing to meet "only one" of the selectivity ratios. The RFO stated that the proposed device "shall" meet the various tolerances and selectivity ratios specified, and NASA explains that the selectivity ratio for silicon nitride is in fact material to the agency's requirements. Specifically, NASA states:

> Based on the anticipated uses of the micromachining tool, a selectivity of 500:1 with respect to silicon nitride was specified. The amount of silicon that must be etched is approximately 500 micrometers. This is a typical dimension for a micromachined part, such as a gear, that would need to be released. Sputter deposited silicon nitride is presently used as a passivating layer[2] for our silicon carbide electronics. The deposition rate of this material is about 1 micrometer per hour. Deposition of more than 2 micrometers is impractical due to the excessive time required as well as buildup of stresses in the film. Given a 500:1 selectivity, half of a 2-micrometer thick silicon nitride film would be consumed in etching 500 micrometers of silicon. Since a final passivating layer thickness of about 1 micrometer is desired, 500:1 was determined to be the minimum acceptable selectivity.

Contracting Officer's Statement at 2. In other words, NASA's anticipated use of the device requires that it be capable of etching silicon to the desired depth (500 micrometers) without etching through the passivating layer of silicon nitride. Nothing in the record brings into question the agency's explanation. Moreover, to the extent that Plasma-Therm believes that the RFO's selectivity ratio requirement for silicon nitride was unnecessary to meet the agency's needs, it was required to protest on this basis prior to the deadline for submitting offers. See 4 C.F.R. § 21.2(a)(1) (1998); Envirodyne Sys., Inc., B-279551, B-279551.2, June 29, 1998, 98-1 CPD ¶ 174 at 3.

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[2]A passivating layer is a coating of an insulating substance (such as silicon nitride) that serves to protect the completed micromachined part.

Plasma-Therm maintains that the device offered by STS also is unacceptable, because it will not comply with the requirement that there be no interaction between etch processes. Interaction, or "cross-contamination," occurs where a particular gas has been used for one etch process and another gas for a second process; if the gas used for the first process leaves a residue in the processing chamber, the second etch process may be contaminated by the residue.[3] Plasma-Therm asserts that, because STS's device uses xenon diflouride in certain etch processes, there is a risk that this gas may contaminate the chamber for subsequent etch processes that do not use xenon diflouride. In contrast, Plasma-Therm states that its device uses the same gas for all relevant etch processes, thereby eliminating the risk of cross-contamination.

Although Plasma-Therm has couched its argument in terms of an alleged technical deficiency in STS's offer, its assertion actually amounts to an alleged solicitation impropriety, and therefore is untimely. 4 C.F.R. § 21.2(a)(1). In this respect, the RFO specifically stated that the agency was interested in purchasing a micromachining tool that was capable of "high-rate isotropic gas-phase plasmaless etching of silicon using xenon diflouride, or equivalent dry isotropic silicon etch process." RFO § C.3, as amended by Amendment No. 1. The RFO further specifically stated "the same process chamber shall be used for anisotropic plasma etching and isotropic dry etching, with no interaction between etch processes." RFO § C.3(a) as amended by Amendment No. 1. The RFO therefore expressly called for offers of micromachining tools that use xenon diflouride while at the same time imposing a requirement that there be no cross-contamination between etch processes. If Plasma-Therm believed these two requirements were inconsistent, it was required to raise the allegation prior to the deadline set for the submission of proposals.[4]

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[3]The device must be capable of performing both isotropic and anisotropic etching in the same processing chamber, RFO § C.3; isotropic etching is performed by introducing a gas into the processing chamber, whereas anisotropic etching is performed by introducing a gas, along with a radio frequency, into the chamber to create a plasma. STS's device uses xenon diflouride for certain etch processes but not others.

[4]The record shows that Plasma-Therm in fact was aware of all information necessary to advance this contention no later than the date it submitted its revised proposal. In the proposal revision in which Plasma-Therm submitted its second etch specimens, it stated:

> [A]s there are no known studies of the long term effects . . . of mixing alternative chemistries, such as [xenon diflouride], with the Bosch

(continued...)

In any case, we note that Plasma-Therm's argument amounts to no more than speculation regarding what it views as a possible performance problem with the STS device. Plasma-Therm has submitted no evidence beyond its self-serving statements to support its position regarding this aspect of the STS device, and there is nothing in the STS offer taking exception to the requirement that there be no cross-contamination between etch processes.

Plasma-Therm also argues that the agency's actions reflect bias against it, and in favor of STS, in the conduct of the acquisition. In this connection, Plasma-Therm asserts that the RFO originally was written to acquire the STS device; that subsequently, although the RFO was amended, it included new requirements that tended to favor award to STS; that NASA delayed providing the firm the blank specimens that had to be etched and submitted with the firm's offer; that NASA's corrective action in response to Plasma-Therm's earlier protest was calculated to ensure that STS would receive the award; and that NASA had originally considered this acquisition for a small business set-aside, but subsequently issued the acquisition on an unrestricted basis when it learned that STS was a large business.

Virtually all of Plasma-Therm's assertions in connection with its bias argument are untimely, and therefore not for consideration. Its contentions relating to the terms of the original RFO, as well as the amended solicitation that implemented the agency's corrective action (including its argument regarding the agency's decision to issue the acquisition on an unrestricted basis, and its assertion that NASA failed to provide adequate time for it to process its etch specimens), amount to alleged solicitation improprieties that had to be protested no later than the deadline for submitting the revised etch specimens. 4 C.F.R. § 21.2(a)(1).

In any case, in order to successfully demonstrate bias, a protester must show, not only that agency officials acted improperly, but that the bias translated into improper agency action. ECC Int'l Corp., B-277422, B-277422.2, Oct. 14, 1997, 98-1 CPD ¶ 45 at 5 n.4. Where an agency's evaluation of proposals is shown to be otherwise proper, there is no basis to infer bias. Id. Although Plasma-Therm argues that the agency was biased against its micromachining tool, the record shows that Plasma-Therm competed on the basis of the RFO as written (that is, the

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[4](...continued)

> process, it would be irresponsible for a vendor to guarantee that there will be no interaction between such processes.

Plasma Therm Proposal Revision of Aug. 31, 1998 at 2-3.

firm did not complain about the terms of the solicitation until after it lost the competition), and was properly eliminated from further consideration because its device failed to meet one of the solicitation's material requirements.[5]

The protest is denied.

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[5]Plasma-Therm also maintains that the agency improperly waived the delivery date for STS in making its award. Since Plasma-Therm's offer properly was found technically unacceptable, however, the firm is not an interested party to maintain this assertion; even if we sustained this aspect of its protest and Plasma-Therm were permitted to submit an offer based on a relaxed delivery schedule, it still would be ineligible for award because its proposal was technically unacceptable for reasons unrelated to the delivery schedule. See System Resources Corp., B-270241 et al., Feb. 12, 1996, 96-1 CPD ¶ 69 at 5-6.