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Decision

Matter of: Sierra Nevada Corporation

File: B-415233

Date: December 5, 2017

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DIGEST

Agency reasonably rejected proposal and cancelled solicitation for fixed-wing utility aircraft where proposed aircraft could not meet solicitation's payload requirements because it would have a center of gravity that exceeded the limit established by the manufacturer.

DECISION

Sierra Nevada Corporation, of Sparks, Nevada, protests the rejection of the proposal it submitted in response to, and the cancellation of, request for proposals (RFP) No. W58RGZ-16-R-0004, issued by the Department of the Army for a fixed-wing utility aircraft. Sierra Nevada asserts that the agency unreasonably evaluated its proposal as unacceptable.

We deny the protest.

BACKGROUND

The solicitation requested proposals to provide a commercially available fixed-wing aircraft certified by the Federal Aviation Administration, and modified to include Army-specified mission equipment, including communications, navigation, surveillance and aircraft survivability equipment. Contracting Officer's Statement/Memorandum of Law (COS/MOL) at 2. The fixed-wing utility aircraft will be used to perform time-sensitive movements of key personnel and equipment. Id. The solicitation included a product description document (PDD) which set out in detail 86 minimum performance standards

(MPS) that the aircraft was required to meet, including, as relevant to this protest, air movement mission-range and payload. Agency Report (AR), Tab 4, PDD, at 7-22; see also PDD ¶ 6.3.2, Air Movement Mission-Range and Payload, MPS FUAPDD0006.¹ The solicitation provided for the evaluation of three factors: cost/price; small business participation plan; and technical, which was comprised of the MPS, air vehicle, and logistics subfactors. AR, Tab 6, RFP Basis for Award § M-3 at 1 and 6. For the MPS subfactor, the agency would rate the proposal as acceptable or unacceptable for each MPS; a proposal was required to be rated acceptable for each MPS to receive consideration for award.² Id. at 6-7.

The PDD described two critical missions that the aircraft would be utilized to perform: self-deployment and air movement. AR, Tab 4, PDD ¶¶ 4.6 and 4.7. The PDD also advised offerors of conditions that applied to all missions, including the requirement that for mass property calculations the aircrew (pilot and co-pilot) weigh 200 pounds each, and each has a minimum of 75 pounds of equipment. Id. at ¶ 5.3.

Sierra Nevada was the only offeror to submit a proposal. Following the evaluation of that proposal, a request for clarifications, discussions, and the submission and evaluation of a revised proposal, the Army found that there were weight and balance issues that caused the aircraft proposed by Sierra Nevada to fall outside the range for the center of gravity established by the manufacturer of the aircraft. COS/MOL at 11; AR, Tab 11, Revised MPS Evaluation Workbook, at 1; Tab 17, Final Source Selection Evaluation Board (SSEB) Report, at 7. As a result, the aircraft failed to meet four minimum performance standards: air movement mission-range and payload, cruise airspeed, heavy aircraft high-hot takeoff³, and operational energy.⁴ Id.; AR, Tab 11,

¹ MPSs are mandatory capabilities that are embodied in the aircraft to satisfy the user's requirements for effectiveness, suitability, and survivability of the aircraft. AR, Tab 4, PDD, at 3.

² The air vehicle and logistics subfactors were rated adjectively. AR, Tab 6, RFP Basis for Award § M-3 at 2.

³ Heavy aircraft refers to the aircraft being loaded near its maximum structural capability while remaining within the maximum structural and takeoff weight limitations, and fore and aft center of gravity limitations. Agency Response to GAO Question 20, Dec. 1, 2017. High hot refers to the conditions the aircraft is required to operate in such as high altitude and hot outside air temperatures. Id. Pilots must ensure that an aircraft will meet all the "heavy aircraft – high hot" requirements it will encounter during a flight. Id. That is, an aircraft at maximum weight must be capable of flight regardless of the altitude or air temperature. Id.

⁴ The agency also determined that Sierra Nevada's proposed aircraft failed to meet the MPS related to aircraft survivability equipment, and assessed the proposal with two additional significant weaknesses resulting in a deficiency. COS/MOL at 11; AR, Tab 11, Revised MPS Evaluation Workbook, at 4; Tab 17, Final SSEB Report, at 7. Sierra Nevada challenges each of these findings. Sierra Nevada also complains that the agency failed to engage in meaningful discussions with respect to the significant

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Revised MPS Evaluation Workbook, at 1-3; Tab 17, Final SSEB Report, at 7. The agency rejected Sierra Nevada's proposal and, because it did not receive any acceptable offers, cancelled the solicitation. Id. at 13.

DISCUSSION

Sierra Nevada protests that the agency unreasonably determined that its proposal was unacceptable. Specifically, the protester contends that the aircraft it proposed met the weight and balance requirements and therefore the agency's evaluation was unreasonable and not in accordance with the solicitation's requirements and evaluation criteria.

The evaluation of an offeror's proposal is a matter within the agency's discretion. The Boeing Co., B-409941, B-409941.2, Sept. 18, 2014, 2014 CPD ¶ 290 at 6. In reviewing a protester's challenge to the agency's evaluation of proposals, our role is to determine whether the evaluation was reasonable and in accordance with applicable statutes and regulations and the solicitation. Id. A protester's disagreement with the evaluation does not make that evaluation unreasonable. VT Griffin Servs., Inc., B-299869.2, Nov. 10, 2008, 2008 CPD ¶ 219 at 4. Our Office affords particular deference to the technical expertise of agency personnel where, as here, the judgments concern matters of human life and safety. Inter-Con Security Systems, Inc., B-403538.8, B-403538.9, Jan 10, 2012, 2012 CPD ¶ 245 at 6.

With respect to the center of gravity in an aircraft (the point at which the aircraft would balance if it were suspended at that point) the measurements are stated in inches from a set point (the datum) established by the manufacturer, and are referred to as fuselage stations (FS). COS/MOL at 17-18 (citing Pilot's Handbook of Aeronautical Knowledge, FAA-H-8083-25B at 10-2 (2016), available at https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/pilot_handbook.pdf). The manufacturer also determines aft and forward limits which provide the acceptable range within which the center of gravity can be located.⁵ Id. at 18. Staying within these limits is critical to flight safety. Id. at 17. The location of the center of gravity (its FS) is determined by the weight of the base aircraft and the weight and location of items that are placed in the

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weaknesses related to performance penalty factors. Since, as discussed below, we find that the agency reasonably determined that the proposed aircraft fails to meet several MPSs because the center of gravity was located beyond the aft limit, and since the failure to meet one MPS made the proposal unacceptable, we do not address these issues.

⁵ If the center of gravity is placed too far forward a nose heavy condition will result, and if it is placed too far aft a tail heavy condition results. COS/MOL at 17-18 (citing Pilot's Handbook of Aeronautical Knowledge, FAA-H-8083-25B at 10-2). If the center of gravity is off, it could result in an unstable condition and make it impossible to control the aircraft. Id.

aircraft. Agency Response to GAO Question 13, Nov. 7, 2017.⁶ To calculate the position of the overall center of gravity for an aircraft at a particular weight and configuration, the weight of each object (base aircraft, seats, passengers, fuel etc.) is multiplied by the position of that object in the aircraft. Agency Response to GAO Questions 13 and 14, Nov. 7, 2017. The products (known as moments) for each object in the aircraft are added together and then divided by the total weight of those objects to yield the position of the center of gravity. Response to GAO Question 15, Nov. 7, 2017. In this case, the manufacturer of the aircraft that Sierra Nevada proposed established an aft limit for the center of gravity of FS 208. COS/MOL at 18; Protest at 9. That is, the center of gravity cannot be located beyond FS 208. Id.

As noted above, the PDD provided that the mass property calculations shall include aircrew (pilot and co-pilot) weighing 200 pounds each, and that each will have 75 pounds of equipment (150 pounds total for the pilot and co-pilot). AR, Tab 4, PDD ¶ 5.3. In its initial proposal, Sierra Nevada did not include 150 pounds of crew equipment for its calculations, including the air movement mission-range and payload MPS. COS/MOL at 19. During discussions, the agency informed the protester that it had omitted this required weight, which resulted in an unacceptable rating for the MPSs for the air movement mission-range and payload, and heavy aircraft-high hot take-off. AR, Tab 15, Discussion Questions, at 1-2.

In response, Sierra Nevada stated that it “acknowledge[s] the shortfall in mass property assumptions in our original proposal submission” and added 150 pounds of crew equipment to the calculations. AR, Tab 16, Sierra Nevada Response, at 1-2. Sierra Nevada explained that it had not included the 150 pounds in the calculation because the air movement mission-range and payload provided for a 2,100 pound payload, and Sierra Nevada believed the crew equipment was included in the 2,100 pound payload established for the mission. Id. at 1-2.

In addition to adding the 150 pounds for the crew equipment in its calculation, Sierra Nevada **[DELETED]**⁷ **[DELETED]**. Id. at 1-2, attach. 2, Mass Properties Report; COS/MOL at 20-21. The agency computed the aircraft’s center of gravity with these positions and weights as FS **[DELETED]**, which was beyond the aft center of gravity limit of FS 208, and resulted in the aircraft being unacceptable for the air movement

⁶ The center of gravity is not a static position, but changes based on the distribution of weight within the aircraft. COS/MOL at 17 (citing Pilot’s Handbook of Aeronautical Knowledge, FAA-H-8083-25B at 10-2).

⁷ The weight margin is a theoretical weight included in a calculation to account for potential weight changes or additions during the integration process. COS/MOL at 22. According to the agency, since it is generally not an actual weight that is placed in the aircraft, it should be placed at a center of gravity neutral position **[DELETED]**. Id. in its response to the discussion questions, **[DELETED]**. (citing AR, Tab 16, Sierra Nevada Response, at 14).

mission-range and payload MPS, as well as the heavy aircraft-high hot take-off, cruise airspeed and operations energy MPSs. COS/MOL at 20; AR, Tab 12, Technical Evaluation Notes, at 2; Tab 17, Final SSEB Report, at 7; Response to GAO Question 9, Nov. 3, 2017.⁸

The protester does not disagree that if its aircraft exceeded the aft center of gravity limit established by the aircraft manufacturer, its proposed aircraft would not meet the MPSs for air movement mission-range and payload, cruise airspeed, heavy aircraft-high hot takeoff, and operational energy. The protester disagrees, however, that its aircraft exceeds the limit for the aft center of gravity. According to the protester, the agency improperly computed the center of gravity by including the 150 pounds of air crew equipment, since the PDD did not require the addition of weight for this equipment for the air movement mission.

In this regard, the protester notes that for the self-deployment mission, the PDD and MPS provide that the aircraft will include the two crewmembers, and personal crew equipment weighing 150 pounds total. AR, Tab 4, PDD ¶ 6.3.1, MPS FUAPDD0004. In contrast, the PDD and MPS for the air movement mission-range and payload provided the following:

A fully mission capable (Air Movement) aircraft, with a minimum of seven (7) passengers and two (2) crewmembers, shall fly without refueling, 1,200 NM [nautical miles] while transporting passengers with equipment, for a payload of a least 2,100 [pounds] and land with a 45 minute fuel reserve.

Id., PDD ¶ 6.3.2. According to the protester, since the self-deployment mission clearly includes 150 pounds of equipment for the crew members, if the agency intended for offerors to include 150 pounds for crew equipment in their proposals for the air movement-range and payload MPS, it would have specified that in the description. The protester concludes that since the air movement-range and payload MPS did not specify 150 pounds for crew equipment it reasonably included the equipment as part of the 2100 pound payload in its initial proposal.

We disagree. The PDD established conditions that applied to all missions for mass property calculations, including that the pilot and co-pilot would each have a minimum of 75 pounds of equipment. Thus, it was clear from the solicitation that offerors were required to include 150 pounds for crew equipment in addressing the air movement-range and payload MPS. Moreover, if it was not clear to the protester from the

⁸ The protester computes this as 208. AR, Tab 16, Sierra Nevada Response, attach. 2, Mass Properties, at 6; Response to Agency's Answers, Nov. 6, 2017, at 4. However, based on the information provided by Sierra Nevada in its response to the agency's discussion questions, the correct computation is **[DELETED]**. See AR, Tab 16, Sierra Nevada Response, attach. 2, Mass Properties, at 6.

solicitation, during discussions the agency specifically informed Sierra Nevada that it was required to include 150 pounds of equipment for the crew in the aircraft for the air movement-range and payload MPS. Sierra Nevada apparently understood this since, in response to the discussion questions, the protester included the weight and indicated that initially it did not include it because it believed the weight of the crew's personal equipment was included as part of the payload.

As the above record demonstrates, the protester had notice prior to the July 16, submission deadline for its final proposal revision of the discrepancy between its position and the agency's position regarding whether the weight of the crew's equipment was to be included in addressing the air movement mission-range and payload MPS. This express notice created, at best, a patent ambiguity that was apparent from the face of the solicitation. See Delaware Res. Grp. of Oklahoma, LLC, B-412617, B-412617.2, Apr. 14, 2016, 2016 CPD ¶ 118 at 9 n.4. Such a patent ambiguity was required to be protested prior to the deadline for the receipt of final proposal revisions. See id.; AAR Airlift Grp., Inc., B-414690 et al., Aug. 22, 2017, 2017 CPD ¶ 273 at 7. Since Sierra Nevada did not timely protest the agency's interpretation, and Sierra Nevada itself added the 150 pounds of crew equipment in its final proposal submission, Sierra Nevada cannot now complain that the Army should not have added the 150 pounds of crew equipment when it calculated the center of gravity for the protester's proposed aircraft.

Sierra Nevada also asserts that the agency improperly calculated the center of gravity for its aircraft because FS [DELETED] is the center of gravity limit before fuel is placed in the aircraft. The protester asserts that once fuel is added to the aircraft, the center of gravity [DELETED]. Response to Agency's Answers, Nov. 6, 2017, at 4. According to the protester, since the center of gravity is forward of FS [DELETED] when the aircraft is ready for take-off with fuel, this is the center of gravity that the agency was required to use to determine whether the aircraft proposed by Sierra Nevada was within the manufacturer established limits for the center of gravity.

The agency disputes that the proper calculation of the center of gravity should include fuel. In this regard, the agency explains that the aircraft must operate within the correct center of gravity for the entire mission, which for the air movement mission, requires flying 1200 nautical miles, and landing with a 45-minute fuel reserve. Army Response to GAO Question No. 19, Nov. 8, 2017. The Army further explains that as the aircraft consumes fuel, the center of gravity will move [DELETED]. Id. Since the aircraft would not be capable of completing the mission in a compliant state, it would not be permitted to take off. Id.; see also COS/MOL at 26. The agency further notes that if the aircraft decreased its speed and therefore its fuel consumption, the center of gravity would stay in front of FS [DELETED]. Id. However, in that case, the aircraft would not land with the required 45-minute fuel reserve, and thus would still be unacceptable for the MPS for air flight mission-range and payload. Id. Based on this explanation, we agree that in computing the center of gravity, the agency reasonably did not consider the weight of the fuel that will be added to the aircraft.

Since the aircraft proposed by Sierra Nevada had a center of gravity that was beyond the aft limit of FS **[DELETED]**, the proposed aircraft failed to meet several MPSs and was properly rejected by the agency. Further, since the agency did not receive an acceptable proposal, it reasonably cancelled the solicitation.⁹ Harper & Harper, B-253167.2, Oct. 12, 1993, 93-2 CPD ¶ 216 at 5 (the absence of any technically acceptable offer constitutes a reasonable basis for canceling a solicitation).

The protest is denied.

Thomas H. Armstrong
General Counsel

⁹ The agency explains that cancellation of the solicitation will foster competition, since the contracting officer intends to further engage industry to determine how the requirement might be revised to garner additional offers. COS/MOL at 14.