Comptroller General
of the United States

Washington, D.C. 20548

Decision

Matter of: Ingalls Shipbuilding, Inc.

File: B-275830, B-275830.2, B-275830.3

Date: April 7, 1997

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DIGEST

1. Protest against agency evaluation of proposed information system--offered to meet requirement for capability to concurrently develop, capture, update and re-use data in electronic form in a fashion that leads to data integrity, efficiency, and configuration control throughout the life cycle of amphibious ships being procured--is denied where agency reasonably determined that (1) offeror would encounter significant difficulty in integrating, and maintaining data consistency [DELETED] in its proposed information system, and (2) if [DELETED], the design and construction process would lose efficiency, leading to additional costs and delays.

2. Protest that agency improperly failed to quantify probable life cycle cost (LCC) savings for each offer is denied where the solicitation nowhere expressly stated that the agency would conduct a traditional probable cost analysis, but instead provided that agency would adjectivally rate proposed approaches to LCC reduction, and record supports agency determination that awardee's proposed LCC reduction approach provided the greatest probability of achieving the greatest LCC savings.

DECISION

Ingalls Shipbuilding, Inc., the prime contractor of the Ingalls Full Service Contractor team (Ingalls), protests the award of a contract to Avondale Industries, Inc., the prime contractor of the Avondale Alliance team, under request for proposals

No. N00024-96-R-2101, issued by the Department of the Navy, Naval Sea Systems Command (NAVSEA), for the detail design, total ship systems integration, construction, testing, logistics and life cycle support planning of the lead ship (LPD 17) in the new San Antonio-class Amphibious Transport Dock ships. Ingalls protests the evaluation of technical and price proposals.

We deny the protest.

BACKGROUND

The LPD 17 will be the first of a new class of twelve 684-foot, 25,000-ton amphibious transport dock ships designed to transport and land up to 720 Marines, their equipment and supplies by means of embarked landing craft or amphibious vehicles augmented by helicopters. The solicitation contemplated the award of a cost-plus-award-fee contract for the LPD 17, with options for two follow-on ships.

Award was to be made to the responsible offeror whose offer was most advantageous to the government under four evaluation categories: (1) detail design, total ship systems integration, testing, logistics and life cycle support planning, (2) Integrated Product Data Environment (IPDE), (3) ownership cost--that is, life cycle cost (LCC)--reduction approach, and (4) price (cost). The nonprice categories were "significantly more important" than the price category. In addition, the solicitation provided that except in the event that the two highest ranking technical proposals were found to be technically equal after evaluating categories 2 and 3, category 1 would be rated for acceptability/unacceptability only.[1] Of the remaining nonprice categories, category 3 was more important than category 2. The solicitation provided that categories 2 and 3 would be "evaluated and assigned one of the following adjective ratings: (1) unacceptable, (2) marginal, (3) acceptable, (4) outstanding." The solicitation went on to state that "[t]his should result in award to the Offeror whose proposal offers the highest likelihood of reducing life cycle ownership costs, excluding propulsion drive train considerations, without sacrificing ship performance and operational readiness. Life cycle cost includes both acquisition and operation and support costs." The solicitation added that "[t]he Government may be willing to pay a premium, within budget constraints, and accept reasonable risk for the technical approach that demonstrates the potential

[1]In the event the Source Selection Authority (SSA) determined the two highest ranking technical proposals to be technically equal after evaluating categories 2 and 3, the government "reserved the right to consider the strengths, weaknesses and risks assigned in Category 1 of those two respective proposals in making its best value determination.

for greater life cycle cost reductions."[2] Ingalls's protest primarily focuses on the agency's evaluation of offerors' LCC and IPDE approaches.

Consistent with the stated evaluation criteria, the solicitation generally mandated that "[r]educed ownership cost shall be emphasized throughout the performance of this Contract," and specifically provided that "[c]ommencing with detail design, the Contractor shall incorporate supportability design criteria and characteristics, to reduce ships' life cycle costs while achieving the goals of reliability, maintainability, and availability." In support of this goal, the statement of work (SOW) required the use of "[a]n Integrated Product and Process Development (IPPD) team approach," defined as "co-located Government/Contractor personnel . . . possessing the appropriate disciplines, specialties and functions . . . [and] delegated the responsibility, authority, and accountability for decision-making and management actions necessary for successful performance of the Contract." The contractor was required to "provide the members of the IPPD team with visibility into the detail design, ship systems integration, construction, testing, logistics and life cycle support planning effort." In this regard, and more generally, the SOW required the contractor to establish an IPDE, that is,

> "an information system capability which implements, through phases, the integration of a central product model database, associated support data products such as drawings, technical manuals, [government furnished information], training materials, and program execution information such as plans, schedules, and procedures in order to satisfy the data and usage requirements of both the Government and Contractor. The IPDE includes the capability to concurrently develop, capture, update and re-use data in electronic form in a fashion that leads to data integrity, efficiency, and configuration control throughout the life cycle of the ship."

Addressing the question of the integrity or consistency of the data in the IPDE, the solicitation specifically required that "any duplicate data elements are addressable by the system as the same data element. As a result, any changes to any data element shall change all duplicate elements throughout. Duplicate data elements shall always contain identical data."

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[2]Pursuant to its Source Selection Plan for the LPD 17 program, NAVSEA established a source selection organization consisting of the Source Selection Evaluation Board (SSEB) and Price Analysis Team, which evaluated proposals and reported the results of the evaluation to the Source Selection Advisory Council (SSAC), which then made a source selection recommendation to the Source Selection Authority (SSA), who was responsible for selecting the offeror whose offer was most advantageous to the government.

The SOW further defined the required IPDE as consisting of three levels: Level I, comprised of product model data--"[t]he integrated set of data and data relationships, including three-dimensional geometry and associated product attribute information (i.e., material, weight, specification, [expanded ship work breakdown structure], cost data, [Mean Time Between Failures], Vendor Drawing Number, [Total Ship Information Management Specifications/Program Integrated Design Environment] necessary to support the design, manufacture and life cycle support of a product"; Level II, comprised of support data--information that supports or expands upon the core data element description of a ship, including technical documentation such as drawings, technical manuals, engineering analysis, purchase orders, and certifications; and Level III, comprised of program execution data, which includes plans, schedules, procedures, reports, and minutes.

The SOW required the contractor to develop a configuration management program using the IPDE which has "the capability to manage and control the physical, functional, and data requirements of each ship throughout its life cycle." The product model was to "serve as the configuration source for each ship throughout its life cycle," with the ship's configuration baseline (in the product model) including "any drawings or documents, set forth or referenced in the ship's specifications and the Statement of Work." As noted in the solicitation, "[t]he principle objective of the LPD 17 IPDE is to reduce life cycle costs through the integration of data and data products."

Two proposals--from Ingalls and Avondale--were received by the closing time on June 28, 1996. Both were included in the competitive range. Following written and oral discussions with both, the Navy requested best and final offers (BAFO).

NAVSEA determined that Avondale had submitted the most advantageous BAFO. Both proposals were found acceptable under category 1 (detail design, total ship systems integration, testing, logistics and life cycle support planning). The SSAC noted that Ingalls's proposal was evaluated as containing "numerous serious weaknesses" in this area such that the SSAC had come "very close to determining that Ingalls was unacceptable." The SSAC expected that the weaknesses "would impact the effectiveness of the Offeror's performance and its success in achieving certain goals integral to this solicitation, including an integrated approach to management, a concurrent engineering approach to ship detail design, total ship systems integration, construction, testing, logistics, and life cycle support planning, and an integrated data approach designed to produce increased life cycle savings." However, "because of the 'Go/No Go' nature of the category, and given Ingalls's and its team members' proven ability to design and build ships of comparable size and complexity," the SSAC nevertheless recommended an acceptable rating for Ingalls under category 1.

Under category 2, NAVSEA evaluated Avondale's IPDE approach as outstanding, but rated Ingalls's approach as only marginal. The SSEB noted that Avondale proposed to [DELETED]. The SSAC determined that

> "[Avondale's] proposed IPDE approach convincingly demonstrated that the ship configuration data will be available to all IPPD members on a real time basis and easily updated to reflect current status of key design and programmatic data. [DELETED] Streamlined configuration management of data is one of the keys to reduced life cycle costs. The Avondale approach is expected to result in substantial benefit to the Government in terms of efficient program management and reduced design and engineering change processing time. Avondale's IPDE approach will also facilitate an improved ship detail design, necessitating fewer expensive changes during the construction and life cycle support process. In practical terms this means that the correct type and number of spares are ordered, changes in ship equipment are more timely reflected in technical manuals, and the fleet can make maintenance decisions based on virtually instantaneous access to ship configuration and equipment maintenance information."

In contrast, the SSEB interpreted Ingalls's IPDE approach as using

> "the [DELETED] to form the IPDE. The [DELETED] will provide the various [integrated product teams] an overall program view . . . and provide the linkage between [DELETED]."

Noting that Ingalls's proposal stated that [DELETED] into its proposed IPDE, the SSEB concluded that Ingalls's "proposed IPDE implementation, based on [DELETED], raises significant doubt regarding the Offeror's ability to provide timely access to an integrated data set. The [DELETED] can be expected to degrade overall system performance and reliability and increase IPDE life cycle costs." Further, the SSEB determined that Ingalls's

> "IPDE system architecture, based on [DELETED], to achieve its configuration management, control, and status accounting objectives . . . conflicts with RFP requirements for an [DELETED]. . . . The Ingalls's . . . IPDE solution will not result in a [DELETED]. This proposed approach will result in [DELETED], which will require additional resources to manage and maintain and will likely not support many of the Ingalls . . . Team's proposed life cycle cost savings initiatives.
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> "Throughout the Offeror's proposal, many of the proposed cost savings initiatives are predicated on a fully functional IPDE capability. The

> IPDE is the principle tool that is proposed to achieve production and future operational and support cost savings. If the IPDE is a fully functional tool, opportunities for achieving cost savings are increased. If information within the IPDE is not manageable and up to date, then the proposed savings associated with its implementation will not be completely realized."

According to the SSEB, Ingalls's "approach relies too heavily on [DELETED] to achieve an integrated environment. This approach requires significant effort to implement and maintain and will inhibit overall system reliability."

The SSAC agreed with the SSEB's concern in this regard, finding that a "major weakness" existed in Ingalls's IPDE approach "in that Ingalls still proposes [DELETED] to implement its IPDE approach." According to the SSAC,

> "Ingalls's proposal to use [DELETED] raises issues regarding data integrity, interoperability, and efficiency. When [DELETED] there is no guarantee that they will all be viewing the same information. There is risk associated with achieving effective communication [DELETED]. Moreover, the SSAC finds that the Ingalls IPDE approach increases the likelihood of [DELETED], erroneous data as well as increases system maintenance, management, and integration costs."

Further, the SSAC found that

> "Ingalls's proposal to [DELETED], conflicts with the RFP requirement to [DELETED] and will not result in [DELETED] capability [DELETED], as required by the RFP. It raises significant doubt regarding Ingalls's ability to provide timely access to an integrated data set."

The SSAC concluded that the deficiencies in Ingalls's proposed approach "raised significant concerns regarding the attainability of the expected benefits of a fully integrated information environment."

Both proposals were found acceptable under category 3, ownership or LCC cost reduction. The SSAC found "offsetting strengths and weaknesses" in the proposals, noting that

> "[t]he two biggest contributors to the cost of ship ownership are manning and maintenance, in that order. Avondale was stronger in its approach to reducing manning and Ingalls was stronger in its approach to reducing maintenance related life cycle costs. Although in some areas Ingalls's Category 3 proposal was judged to be more innovative technically than Avondale's, it was also considered to contain more

> significant weaknesses, and from a risk perspective, there is a higher risk that Ingalls will have difficulty in achieving its proposed life cycle cost savings. Further, the SSAC believes that the outstanding IPDE approach detailed by Avondale in its Category 2 proposal greatly increases the probability that it will successfully implement related Category 3 life cycle cost reductions. Ingalls's ability to realize the proposed life cycle cost reductions will be significantly impacted by its marginal IPDE approach."

Although Avondale's cost ($1,531,187,843 evaluated; [DELETED] proposed) under category 4 was somewhat higher than Ingalls's ($1,507,093,151 evaluated; [DELETED] proposed), the SSAC did not view the approximately $24 million (or 1.6 percent difference) in evaluated cost as significant.[3] The SSAC found that

> "the wide disparity in Category 2 [IPDE] adjective ratings represents a meaningful difference between the two technical proposals and more than offsets the evaluated difference in price. Because the creation of an "Outstanding" Integrated Product Data Environment directly impacts the likelihood of successful contract performance and achievement of the solicitation's highest goal of life cycle cost reduction, the SSAC believes it justifies payment of a premium in Total Evaluated Price for award to Avondale."

(Moreover, the SSAC considered the $24 million difference in evaluated cost to be overstated since it (1) was based on only a [DELETED] percent decrease in manhours for Avondale realized as a result of potential efficiencies from the required IPPD/IPDE approaches, which the SSAC considered to be conservative given the strength of Avondale's IPPD/IPDE approach (Ingalls was credited with a decrease in excess of [DELETED] percent for potential efficiencies from IPPD/IPDE), and (2) did not reflect the cost impact of several weaknesses in Ingalls's proposal that defied quantification.) The SSAC concluded that Avondale's proposal "represents the best value to the Government and the SSAC has greater confidence that it will deliver a technically superior solution during contract performance. Therefore, the SSAC considers Avondale's proposal to be the one that offers the highest likelihood of reducing life cycle ownership costs."

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[3]In the course of responding to Ingalls's protest, NAVSEA has discovered several discrepancies in its calculations which it believes reduces the evaluated cost of Ingalls's proposal by approximately $1.1 million. The SSA has reconsidered his source selection decision in light of the increase in Ingalls's evaluated cost advantage to approximately $25.1 million, and has determined that the change does not alter his determination that Avondale's proposal represented the best value to the government.

The SSA accepted the SSAC's recommendation and determined that Avondale's proposal offered the best value to the government. Upon learning of the resulting award to Avondale, Ingalls filed this protest with our Office.

Where an evaluation is challenged, we will examine the agency's evaluation to ensure that it was reasonable and consistent with the stated evaluation factors and applicable statutes and regulations. Professional Software Engineering, Inc., B-272820, October 30, 1996, 96-2 CPD ¶ 193 at 4; Orion Research, Inc., B-253786, Oct. 21, 1993, 93-2 CPD ¶ 242 at 3. Based on the record here, we conclude that the evaluation was reasonable and otherwise unobjectionable. We discuss Ingalls's primary arguments below.

IPDE

Ingalls challenges the evaluation of offerors' approaches to meeting the IPDE requirement. As developed through the submissions of the parties and a hearing conducted by our Office, the primary dispute in this area concerns whether there existed a significant difference between the proposed IPDE approaches; Ingalls claims it proposed an architecture substantially similar to that proposed by Avondale. Ingalls concludes that its IPDE should not have been rated inferior to Avondale's.

NAVSEA disagrees, maintaining that "the key difference between the two proposals consists in the composition of the Level I product model within the IPDE and the use and functionality of the databases in Ingalls's Level I." NAVSEA reports that Avondale proposed "[DELETED]." In contrast to Avondale's [DELETED], Ingalls proposed "a product model database created through the use of [DELETED]"; according to the agency, Ingalls's proposed [DELETED] would be constructed by [DELETED]. NAVSEA reports that the result would be the [DELETED], stating that "[o]ne important characteristic of this sort of product model . . . was the presence of [DELETED]."

NAVSEA maintains that the differences in IPDE approach would have significant consequences for the performance of the contract:

> "The differences in the product models result in real and significant differences in their ability to [DELETED]. [DELETED] is a complex, expensive and time-consuming task, with significant associated risk that it may not be fully accomplished . . . . If the product model cannot [DELETED]. The design and construction process loses efficiency, and costs and delays result. The whole purpose of having an integrated ship configuration within the Level I product model database is defeated."

NAVSEA concludes that Ingalls's use of [DELETED] "greatly increases the difficulties and risks associated with keeping different data items consistent." In addition, the agency maintains that it reasonably read Ingalls's proposal as providing that Ingalls's [DELETED], and thus noncompliant with the solicitation requirement that "[t]he product model . . . serve as the configuration source for each ship throughout its life cycle."

In disputing NAVSEA's position that there was a significant difference between the proposals, Ingalls notes that the agency stated in its report that "[b]oth offerors included existing databases as the source of some Level I data to be used in creating their proposed IPDEs." Further, Ingalls argues that NAVSEA erroneously concluded that [DELETED]. Ingalls denies that [DELETED]. Ingalls maintains that its proposed IPDE approach complied with the solicitation requirement that [DELETED], asserting that it proposed that [DELETED]. These assertions are, however, inconsistent with the proposal submitted to NAVSEA.

We find that NAVSEA reasonably determined that there were fundamental differences in the proposed IPDE architectures, which rendered Ingalls's proposed IPDE significantly less advantageous. In large measure, these appear to have resulted from Ingalls's decision, as stated in its proposal, to propose [DELETED]. According to Ingalls's proposal, "[DELETED]."

The record supports the agency's position that Avondale essentially proposed [DELETED]. In contrast, although "quite" ambiguous in parts, as conceded by Ingalls's own consultant, Hearing Transcript (Tr.) at 782, 785-786, 794, 799, Ingalls's proposal provided that its IPDE would include [DELETED].[4] In response to NAVSEA's request that it furnish "more detailed information on the proposed approach to integrating design, construction and service life support data including descriptions of how [DELETED]," Ingalls advised the agency [DELETED]. An Ingalls witness involved in preparing its IPDE approach testified that the proposed databases [DELETED], Tr. at 72-73, and Ingalls only states in its post-hearing brief that [DELETED]. While Avondale's IPDE [DELETED], NAVSEA reasonably read the [DELETED] in its proposed IPDE to be significantly less.

Whatever Ingalls may now contend, its proposal supports NAVSEA's determinations that [DELETED]. For example, Ingalls advised the agency that "[DELETED]." (Emphasis added.) Given the [DELETED], the only reasonable conclusion from this statement is that [DELETED].

In addition, Ingalls stated in a number of places in its proposal an intention to [DELETED]. In several charts in its proposal, Ingalls's proposed [DELETED] were

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[4]We note that [DELETED].

depicted as [DELETED]. Likewise, Ingalls's proposal provided that its IPDE included [DELETED]. Specifically, the proposal stated that

"[DELETED]." (Emphasis added.)

The proposal further stated that

"[DELETED]." (Emphasis added.)

These quotes from Ingalls's proposal are consistent with written statements made by the Ingalls witness involved in preparing its IPDE approach in which he referred to Ingalls's [DELETED]. According to the Ingalls witness, "[DELETED]." (Emphasis added.) Taken together, these references support the agency's position that [DELETED]. Although Ingalls's proposal elsewhere stated that [DELETED], we agree with NAVSEA that Ingalls's proposal, read as a whole, clearly provided for an IPDE in which [DELETED].

Further, we find reasonable NAVSEA's overall determination that given the difficulty Ingalls would face in integrating, and maintaining data consistency among, the [DELETED], in its proposed IPDE, Ingalls's IPDE approach was significantly less advantageous than Avondale's.[5] Although Ingalls's own consultant challenged NAVSEA's interpretation of Ingalls's proposed IPDE, he conceded that, having arrived at that interpretation, agency evaluators "then, in a logically correct manner, based on the flawed assumption deduced all kinds of things that I certainly as a Navy evaluator would not have wanted in an IPDE." Tr. at 752-753, 768-769, 790-791. Since Ingalls's proposal was reasonably interpreted by the agency evaluators, there is no basis to question the reasonableness of the agency's resulting concerns. We thus find that the agency's evaluation of offerors' approaches to the IPDE requirement was reasonable.[6]

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[5]Data consistency is likely to be difficult to implement where there are [DELETED], as in the Ingalls IPDE, where the [DELETED].

[6]Our conclusion that NAVSEA reasonably evaluated offerors' proposed IPDE approaches is not altered by the fact that, as noted by Ingalls, one of nine past performance references for Avondale's proposed supplier of a CAD system reported significant problems in using the system. As noted by the agency, the past performance evaluation concerned an earlier version of the CAD system, and the record indicates that a subsequent version has been "very extensively" used by the Navy in the design of ships without any reported significant problems. Moreover, there is no convincing evidence that Ingalls's proposed CAD system would be likely to perform significantly better. Tr. at 626, 647-666, 677-678.

LCC REDUCTION

Ingalls challenges NAVSEA's evaluation of offerors' approaches to ownership cost or LCC reduction. As noted above, both proposals were found acceptable under category 3, with "offsetting strengths and weaknesses." In particular, with respect to manning and maintenance, the two primary (non-acquisition) contributors to the cost of ship ownership, Avondale's proposal was evaluated as stronger in its approach to reducing manning while Ingalls's was evaluated as stronger in its approach to reducing maintenance-related LCC. Ingalls's category 3 proposal was evaluated as containing more significant weaknesses and posing a higher risk that it would be unable to achieve its proposed LCC savings. In this regard, again, NAVSEA determined that while Avondale's evaluated outstanding IPDE approach would greatly increase the probability that it would successfully implement LCC reductions, Ingalls' ability to realize proposed LCC reductions would be "significantly impacted by its marginal IPDE approach."

Quantification of LCC Savings

Ingalls argues that NAVSEA improperly failed to quantify probable LCC savings for each offer. Noting that the solicitation advised that the agency might be willing to pay a premium for the "approach that demonstrates the potential for greater life cycle cost reductions," Ingalls argues that NAVSEA "could not determine whether (or how much) to pay as a premium for a potentially greater life cycle cost saving, unless it had first determined how much potential saving was present in each offeror's proposed approach." NAVSEA explains that it was not possible to quantify the most likely LCC savings and the resulting most probable LCC for each proposal, given the early stage of the LPD 17 program and the information available to the agency.

Ingalls's argument is without merit. Ingalls's position fails to account for provisions of the solicitation providing that the agency would evaluate offerors' approaches to LCC cost reduction without actually quantifying LCC savings and the resulting most probable LCC for each proposal. In this regard, under the solicitation's statement of evaluation criteria, category 3 is entitled "Ownership Cost Reduction Approach," and category 3 proposals were to be "evaluated and assigned one of the following adjective ratings: (1) unacceptable, (2) marginal, (3) acceptable, (4) outstanding." At the same time, the RFP nowhere expressly stated that the agency would conduct a traditional most probable cost analysis with respect to LCC. Further, the solicitation's instructions for the preparation of proposals provided that:

> "Cost analyses required to support the Ship Propulsion Drive Train and Diesel Engines portion of the Offeror's proposal shall be the only portion of the Non-Price Proposal where dollars must be used.

> "The Offeror shall fully explain how it derives and establishes the baseline against which all savings are measured. All savings shall be shown with percentages only and not with dollars."

The direction not to address LCC in dollars, which is apparent from the above provisions of the solicitation's instructions to offerors, and to instead focus on adjectivally-rated approaches to LCC reduction, was reemphasized during discussions in NAVSEA's response to Ingalls's request that the agency "confirm that for purposes of the nonprice category 3 evaluation, total life cycle cost includes, as part of your evaluation, acquisition costs for all 12 ships in the LPD 17 Class." The agency responded that

> "[w]hile total life cycle cost for the LPD 17 Class does include acquisition costs for all 12 ships, the assumption upon which the question is based is incorrect; the Navy is not making a projection of the acquisition costs from each competitor for ships 4-12. The focus of the Navy's evaluation in Non-Price Category 3 is not dollars, it is the likelihood of success of an offeror's proposed approach to life cycle cost reduction. In fact, offerors are instructed in Section L that: 'All savings shall be shown with percentages only and not with dollars.' The offeror projecting the largest savings in Non-Price Category 3 will not necessarily receive a high score in that category, if it is deemed that the proposed approach to achieving those savings is unlikely to succeed or poses risk in some aspect." (Emphasis added.)

In our view, the solicitation supports NAVSEA's position that it was not required to quantify the most probable LCC reductions for each proposal and resulting most probable cost. Indeed, we believe that it was clear from the very use in the solicitation of such abstract language as "the highest likelihood" of reducing LCC and "the potential for" greater LCC reduction that the agency was not going to quantify the most probable LCC reductions and resulting most probable cost for each proposal.[7]

We conclude that the agency could comply with the evaluation provisions of the RFP by evaluating the reasonableness of offerors' approaches to LCC reduction. In this regard, again, the SSA accepted the SSAC's finding that Avondale's proposal "offers the highest likelihood of reducing life cycle ownership costs." The SSA (as

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[7]The solicitation also states that LCC "shall also reflect the time value of money through net present value analyses." Given the solicitation requirement to express savings as percentages, we do not view this as requiring a quantification of probable cost. Rather, as maintained by NAVSEA, the reference to a net present value analysis can be read as referring to the cost of the engines, which the solicitation stated was "the only portion of the Non-Price Proposal where dollars must be used."

well as the lead evaluator for category 3) testified at the hearing that although the agency did not quantify the LCC savings expected under each proposal, he concluded based on offerors' approaches to LCC reduction (including the likelihood of success associated with their respective IPDE approaches), and taking into account both the extent of the savings predicted by offerors and the probability of achieving those savings, that "Avondale's approach provides us a greater probability of achieving the greatest life cycle savings." Tr. at 399-401, 412-416, 564-571. As discussed below, Ingalls has not shown that this determination was unreasonable.

Manning

Ingalls argues that the agency improperly failed to afford it evaluation credit for a more detailed approach to reducing LCC generally and, specifically, for a detailed proposed billet-by-billet reduction in manning the ships.

Avondale proposed a [DELETED]-percent reduction in manning as calculated from the 450-person manning baseline established by the solicitation, for a resulting ship's complement of [DELETED] personnel, and a [DELETED]. Although Avondale did not identify specific billets for elimination or reduction, it explained its approach to achieving a manning reduction, and the agency found it to be a reasonable approach warranting assignment of a strength. According to the SSAC, Avondale's proposal

> "demonstrated a proficient understanding of Navy manpower requirements, the Navy manpower determination process, manpower analysis methods, and shipboard operations in the Manning sub-category. The Offeror acknowledged that reductions in manning must be accomplished using a two-fold approach: first, by targeting and influencing Navy policy and doctrinal changes to support more streamlined and efficient shipboard operations; and second, by leveraging new technology to perform necessary shipboard functions, thereby reducing workload across all departmental organizations . . . Although some of the proposed manning initiatives required policy changes, the SSAC deems the required policy changes to be achievable. . . ."

In contrast, the SSEB determined that Ingalls's more detailed, proposed billet-by-billet reduction, which specified a [DELETED]-percent reduction in manning from a baseline of 507 persons (rather than the required 450-person manning baseline) to a crew of [DELETED], was

> ". . . weak in some very significant respects. Many of the Offeror's assumptions regarding the total number of manpower reductions are not possible without sweeping changes in Navy policy and operational doctrine. Additionally, many of the proposed manning reductions

> move crew members off the ship but do not take them off the Navy payroll. While the Offeror proposes acceptable plans to incorporate new technologies to support manpower reduction initiatives, and the Offeror demonstrates exceptional analytical capability, responses to discussion questions did not convince the evaluators that the ship's manpower cost reduction plans and goals were realistic."

Likewise, the SSAC assigned a major weakness to Ingalls's manning approach on the basis of Ingalls's "inability to establish reasonable baselines from which to measure ownership cost savings, and the resultant inflated cost savings claims" and its unrealistic proposed reduction in crew size to [DELETED] persons. Specifically, the SSAC concluded that: "[l]ike [Avondale], Ingalls's proposed manning initiatives require policy changes. However, unlike those proposed by Avondale, many of the Ingalls required policy changes are considered to be implausible."

We find no basis to question this aspect of the evaluation. The fact that Ingalls submitted a more detailed, billet-by-billet manning reduction proposal did not warrant additional evaluation credit given the agency's determination, based on a review of each proposed billet reduction, that the proposed reduction to a crew of [DELETED] persons was not realistic. Tr. at 587, 608-609. With the exception of its proposed reduction in the number of gunners mates from seven to [DELETED], Ingalls has not specifically addressed the discussion in the contemporaneous evaluation record of specific examples of Ingalls's flawed manning analysis. As for the proposed reduction in gunners mates, which was to be primarily based on [DELETED], NAVSEA concluded that more than [DELETED] gunners mates were necessary in order to perform required specialized maintenance on the gunnery systems. Tr. at 596-598. Ingalls has not shown that this conclusion was incorrect or unreasonable.

Ingalls asserts that there is no meaningful difference in the proposals with respect to the role of Navy policy in determining manning.[8] However, based on our review of the proposals in this area, we believe that the agency reasonably discerned a fine, but potentially significant distinction in the offerors' approaches to achieving manning reductions. As noted by the agency, Ingalls's proposal focused on achieving manning reductions through technology insertion (attributing [DELETED] percent of its proposed reductions to technology insertion alone), and addressed

[8]Ingalls also challenges the quantification of Avondale's proposed [DELETED]. However, NAVSEA offered testimony that this approach was a reasonable one which is consistent with ongoing Navy efforts. Tr. at 825-828. Although it is unclear from the record whether a [DELETED] percent reduction is achievable, given that Avondale's approach is consistent with current Navy efforts, there is no basis to question the reasonableness of the agency's position that significant cost savings are possible.

policy considerations by simply providing that "additional manning reduction opportunities through changes in procedures and doctrine can be considered" once the Integrated Product Teams are formed. In contrast, Avondale's proposal reflected a more sophisticated understanding of the necessity of, and a willingness to take responsibility for, proposing and "sell[ing]" required doctrinal changes (as well as the need for insertion of manpower-reducing technology), as shown by the following statements in its proposal:

"[DELETED]."

We conclude that NAVSEA reasonably found Avondale's approach to achieving manning reductions superior to Ingalls's.

Effect of IPDE on LCC

Ingalls argues that the agency overestimated the influence of Ingalls's IPDE on the achievability of its proposed LCC reduction, claiming that "less than [DELETED] percent of the cost reductions estimated in the Category 3 proposal depend in any way on the success of IPDE." This argument is not credible, since it is inconsistent with both the fundamental role the solicitation stated IPDE would play in LCC reduction--e.g., "[t]he principle objective of the LPD 17 IPDE is to reduce life cycle costs through the integration of data and data products."--and with the emphasis in Ingalls's own proposal on using the IPDE to reduce LCC--e.g., "[o]ur integrated, simulation-based Product Model and [DELETED] drives our ownership cost reduction approach," and "[o]ur Integrated Product Data Environment (IPDE) allows for successful implementation of our operations cost savings approach." Given the emphasis in both the solicitation and Ingalls's own proposal on using the IPDE to reduce LCC, we believe that it was reasonable for the agency to consider the likely effectiveness of an offeror's proposed IPDE to be a significant factor in assessing the achievability of its proposed LCC reduction.

We conclude that Ingalls has failed to demonstrate that the evaluation of proposed approaches to LCC reduction in general, and reducing manning costs in particular, was unreasonable such that award to Ingalls offered "the highest likelihood of reducing life cycle ownership costs."

ACQUISITION COST

Ingalls challenges NAVSEA's evaluation under category 4, i.e., the cost of acquiring the first three ships.

Ingalls's initial proposed cost ($[DELETED]) was substantially below the agency's evaluated cost ($[DELETED]) for its proposal. NAVSEA advised Ingalls during discussions that its proposed cost was considered unrealistically low and its proposed manpower and material resources inadequate effectively to implement its

proposed technical approach; the agency also furnished Ingalls with a copy of the evaluation of its proposal. NAVSEA warned Ingalls that "continued underestimation of the material and manpower resources required to perform this contract may result in a rating of unacceptability under Category 1 . . . and the removal of the Ingalls proposal from further consideration." As shown below, Ingalls responded during discussions by accepting the agency's position on several cost factors and significantly increasing its proposed cost (by 59.2 percent) as well as its proposed man-hours (by [DELETED] percent). In its BAFO, however, Ingalls essentially reiterated its initial position on a number of the issues raised by the agency and reduced its proposed cost by 9.3 percent and its man-hours by [DELETED] percent, leading the agency to make upward evaluation adjustments of $[DELETED] and [DELETED] percent in man-hours.

	Initial (Man-hours /Cost)	October 1996 (Man-hours /Cost)	BAFO (Man-hours /Cost)	Evaluated (Man-hours /Cost)
Ingalls	[DELETED]	[DELETED]	[DELETED]	[DELETED] /$1,507 million
Avondale	[DELETED]	[DELETED]	[DELETED]	[DELETED] /$1,531 million

Ingalls challenges a number of aspects of the cost evaluation, concluding that the evaluated cost of its proposal should have been $104 million lower than Avondale's, not $24 million, as estimated at the time of award (nor $25.1 million, as currently estimated). Based on our review of the record, we find Ingalls has failed to demonstrate any deficiency in the cost evaluation sufficient to offset Avondale's marked superiority under the IPDE evaluation factor which, together with the other nonprice factors, was significantly more important than price under the stated evaluation criteria.

For example, Ingalls challenges NAVSEA's determination to use a [DELETED]-percent learning curve, rather than the [DELETED]-percent learning curve in Ingalls's BAFO, to calculate the result of the increase in efficiency to be expected when constructing subsequent ships.[9] Ingalls derived its estimate of the base

[9]Learning curve theory states that a fixed percentage reduction in manhours will be experienced every time the number of units produced doubles. For example, using a [DELETED]-percent learning curve, the second ship constructed is expected to

production manhours for the LPD 17 primarily from its construction of the [DELETED]. NAVSEA accepted Ingalls's use of the [DELETED] as the baseline for the LPD 17, thereby crediting Ingalls with the efficiencies inherent in the use of a ship based on a stable, mature design, and also credited Ingalls with a further [DELETED]-percent reduction in production man-hours to account for cost saving initiatives, including IPPD and IPDE. However, NAVSEA concluded that a [DELETED]-percent learning curve was more realistic than the [DELETED]-percent curve Ingalls proposed. During discussions, Ingalls acknowledged that NAVSEA had "proposed a very conservative [DELETED]-percent Learning Curve for the follow ships reasoning that the efficiencies included in the first ship (IPPD/IPDE) should minimize the ship to ship reductions normally associated with learning," and advised the agency that it "takes no exception to the Government position on learning and has utilized the [DELETED]-percent Learning Curve." As noted above, however, Ingalls (which claimed historical learning curves of [DELETED] percent for the LHD program, [DELETED] percent for the DDG (destroyer) program and [DELETED] percent for the CG (cruiser) program) nevertheless proposed in its BAFO a [DELETED]-percent learning curve.

Ingalls argues that the agency's assumption of a [DELETED]-percent learning curve results in more man-hours being required than would have been expected under Ingalls's historical learning curves without the benefit of the man-hour savings expected from IPPD or IPDE. As shown in the following chart prepared by NAVSEA, Ingalls's claim is demonstrably false.

[DELETED]

The top curve in the above chart depicts an [DELETED]-percent learning curve as applied to the first and succeeding ships of a 12-ship class and reflects a traditional approach in which construction commences before design is complete; the second curve shows the man-hours for the first ship in the series as based on the hours for the [DELETED] ship under Ingalls's traditional approach (with a [DELETED]-percent learning curve), reflecting the LPD 17 approach of finalizing the design before commencing construction; the third curve reflects the agency's additional [DELETED]-percent reduction in man-hours to account for a variety of cost saving initiatives, including IPPD and IPDE (in contrast, Avondale only proposed, and received, a [DELETED] percent reduction in man-hours from its baseline to account for IPPD- and IPDE-based initiatives); and the bottom curve depicts the learning curve Ingalls proposed in its BAFO.

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require [DELETED] percent of the production manhours required for the first, the fourth ship is expected to require [DELETED] percent of the manhours required for the second ship, and so on.

In sum, Ingalls essentially was given credit for an approximately [DELETED] percent efficiency relative to its historical record of constructing the first ship in a series, that is, for being able to construct the LPD 17 with only [DELETED] percent of the effort that would be required by Ingalls under its historical shipbuilding approach. Having received credit for such efficiency with respect to the first ship, we think it was reasonable for the agency to conclude that the follow-on ships would include substantially less learning, and that the resulting learning curve therefore would be substantially shallower. Ingalls does not dispute the agency's position that implementation of IPPD/IPDE should minimize the inefficiencies traditionally associated with lead ships, but it does dispute the extent of the consequent reduction in the slope of the learning curve with respect to the subsequent ships. However, Ingalls did not cite in its proposal any example where it performed better on the first ship in a series than given credit for by the agency, and its mere disagreement does not demonstrate that the agency's exercise of its judgment in this regard was unreasonable. Certainly, the [DELETED] percent historical learning curves cited in its proposal did not establish the reasonableness of the proposed [DELETED]-percent learning curve, since those were based on lead ships in a series, and thus included significant future learning potential.[10] In these circumstances, there is no basis to question the agency's learning curve assessment.

As a further example, Ingalls challenges NAVSEA's evaluation of the man-hours required for Bath Iron Works (BIW), a member of the Avondale team, to construct the third ship (LPD 19) of the three ships here. (The first two are to be constructed by Avondale.) BIW explained in its proposal that it had developed its estimate for LPD 19 from its detailed [DELETED] actual cost returns for constructing the [DELETED]. The resulting baseline was then reduced to take into account the differences in [DELETED], and further reduced to account for expected improvements from technology transfer between Avondale and BIW, IPDE, IPPD, and other efficiency-enhancing programs. [DELETED] Given the differences between the ships and the expected improvements from technology transfer, IPDE, IPPD and other measures, the agency determined that BIW's overall expectation of improvement, and its resulting manhour estimate, was reasonable. NAVSEA considered this conclusion strengthened by the fact that BIW was proposing [DELETED].

We find nothing unreasonable in NAVSEA's evaluation approach--NAVSEA used the same fundamental approach in evaluating portions of Ingalls's initial cost proposal which were based on other than weight-based CERs. Further, although Ingalls challenges the validity some of the improvements expected by BIW and some of the

[10]NAVSEA reports that when the learning curve is computed from a ship of a class that reflects a mature, stable design, such as DDG 59 and CG 50, Ingalls's historical learning curve flattens to [DELETED] percent.

assumptions made by the agency, Ingalls has not demonstrated that BIW's overall manhour estimate was significantly understated.

In summary, Ingalls has failed to demonstrate that its proposal offered “the highest likelihood of reducing life cycle ownership costs.” Further, Ingalls has failed to demonstrate any deficiency with respect to acquisition cost sufficient to offset Avondale's marked superiority under the IPDE evaluation factor which, together with the other nonprice factors, was significantly more important than price under the stated evaluation criteria. We conclude that NAVSEA reasonably determined Avondale's proposal to be most advantageous.

The protest is denied.

Comptroller General
of the United States