

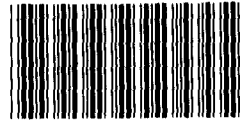


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B-208919

The Honorable Jack Brooks
Chairman, Committee on
Government Operations
House of Representatives
Dear Mr. Chairman:



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RELEASED

Subject: NASA-Ames Research Center Should Not Have Awarded its Computational Services Contract to SBA and Technology Development of California (GAO/AFMD-83-40)

As you requested on April 2, 1982, we reviewed a \$21-million contract awarded by the Ames Research Center (Ames), National Aeronautics and Space Administration (NASA), for computational services that the contractor provides through the lease of a computer. The contract was noncompetitively awarded to the Small Business Administration (SBA) which then subcontracted with Technology Development of California (TDC) under the Minority Business Program as authorized by Section 8(a) of the Small Business Act, 15 U.S.C. 637(a).

Under the terms of the contract, Ames obtains computational services from TDC, which in turn leases computer equipment from a third party that is buying the equipment from the manufacturer. Our review showed that the contract is not in the best interest of the Government because the Government will pay more than it would have had it leased the equipment directly and supplied it to TDC. Furthermore, our analysis shows that, when taxes are considered, whether the equipment can be used for 2, 4, or more additional years, separate purchase of the computer equipment would also have been a lower cost alternative than the contract approach Ames followed. Therefore, regardless of the length of time the equipment continues to be used, the cost to the Government would have been significantly reduced by either separate lease or purchase of the equipment.

We believe this contract should not be extended for the second option period, beginning July 1984, until Ames (1) revalidates its long term, large-scale computing needs, (2) evaluates available alternatives, and (3) documents why its approach is in its own and the Government's best interest. Moreover, SBA did not follow its standard operating procedures when awarding the subcontract to TDC because TDC's efforts are not the major portion of the contract's value and because its business sales volumes, with other 8(a) contract sales, had already exceeded SBA's approved business support levels for TDC.

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On July 28, 1982, and January 11, 1983, we briefed your office on our review and, as requested, we are providing this written report. We are providing additional information, of a proprietary nature, under separate cover (GAO/AFMD-83-40A).

OBJECTIVES, SCOPE, AND METHODOLOGY

We reviewed the contracts signed between Ames Research Center, SBA, and TDC in August 1981 to determine whether Federal policies and regulations had been followed, and to analyze the Government tax consequences to the contractor. We also reviewed the disposition of the computer equipment replaced by this contract.

This review was performed in accordance with generally accepted government auditing standards. We did not obtain official comments from NASA, SBA, or TDC on our report. However, we did apprise Ames, SBA, and TDC officials on our findings. We performed our review at NASA's Ames Research Center in Mountain View, California; SBA district and regional offices in San Francisco, California; General Services Administration (GSA) offices in Washington, D.C., and San Francisco, California; and TDC in Santa Clara, California.

We reviewed the equipment-related portions of the contract and 8(a) program files and interviewed officials to identify the process and procedures that NASA, GSA, and SBA followed in approving this award to TDC. We also analyzed cost data to determine if this procurement was in the Government's best interest.

BACKGROUND

Ames Research Center is engaged in research and development in the fields of aeronautics, space science, life sciences, and space technology. Ames also provides major support for military programs.

Since 1973 Ames has contracted for various services with TDC through SBA. These contracts have been awarded noncompetitively under section 8(a) of the Small Business Act. This section authorizes SBA to supply goods and services to other Federal agencies by fully subcontracting this work to a socially and economically disadvantaged small business to help that firm achieve a competitive position in the marketplace. SBA provides this assistance to the small business either until the firm graduates from the program or until SBA terminates its participation.

In September 1980, a report by a team of Ames computer users supported the need for replacing Ames' Illiac IV computer. TDC contributed to this report under its September 1979 contract to operate the ILLIAC IV. In October 1980, Ames issued an acquisition plan report for replacing the ILLIAC IV. The acquisition plan, which should justify the procurement approach being followed, stated the need for an advanced computer, the estimated costs of competitively acquiring the computer under various financial

options, the economic preference of purchasing the computer, and the time period Ames estimated this capability would be needed.

In September 1981, Ames, SBA, and TDC signed a tripartite contract and subcontract for TDC to provide computational capability services to Ames. This contract covers 2 years (August 1981 to July 1983) with options for two, 1-year extensions. Ames exercised the first option on March 28, 1983. The contract's total estimated value, excluding its cost of anticipated equipment upgrades, is about \$21 million. Of this, about \$10 million is to reimburse TDC for a portion of the cost of the Cray 1S computer, the advanced computer selected and installed in the Ames facility. TDC leases the computer equipment being used from a third party who is purchasing the equipment from the manufacturer.

Ames contracted to pay 90 percent of TDC's lease cost of the computer for about 50 percent of the available time (80 hours per week). Ames knew from the outset that additional time would soon be needed. In fact, in August 1982, Ames began negotiating with TDC over terms and costs for additional computer time. On March 17, 1983, Ames completed its negotiations for this time.

SEPARATE ACQUISITION OF THE COMPUTER
WOULD HAVE BEEN LESS COSTLY

In contracting for computational capabilities, Ames did not choose the less costly alternative of separately acquiring the computer and supplying it to the contractor as Government-furnished equipment. Our analysis showed that separate acquisition of the computer equipment from its services requirement, whether by lease or purchase, would have been more economical. But, to justify the deviation from its acquisition plan report, Ames used cost information TDC provided in an unsolicited proposal. This information favored the contract approach followed rather than any of the alternatives evaluated and recommended in the acquisition report.

Government costs are higher with
Ames' procurement approach

We estimate that, using existing contract terms, Ames could pay \$630,000 more in 4 years than necessary because it did not directly lease the computer equipment from the manufacturer and furnish it to TDC. In August 1981, Ames agreed to pay 90 percent of TDC's Cray 1S equipment costs. TDC equipment costs were \$214,275 a month. Ames agreed to pay \$192,848 (90 percent of TDC's equipment costs) a month, plus a monthly profit of \$27,116 for the equipment lease (totaling \$1,301,579 over 4 years). This makes Ames' payment almost \$220,000 a month, including the required State sales tax of over \$11,000. Ames could have leased the needed computer equipment directly from the manufacturer. In 1981, 1- and 3-year leases were available from the manufacturer at published monthly lease prices of \$221,350 and \$202,580, respectively.

As shown on the next page, the present value of Ames' monthly computer equipment costs would be lowest when Ames contracts

directly with the manufacturer for 3-year contract prices or for the cost arrangements provided the third party. In this comparison, the manufacturer's published 1981 leasing prices and the third party's costs are compared with Ames' contract terms (in 1981 dollars). We assume that only rental payments will change with the selection of the source of the equipment. We further assume that a direct lease from the manufacturer would also be structured as a service contract such that the tax consequences available under the current Ames contract and a direct manufacturer's lease are identical.

Estimated Total Costs
(thousands of dollars)

Years	Ames contract	Manufacturer's lease prices		Third party costs
		1-Year contracts	3-Year contracts	
1	\$2,428	\$2,443	\$2,236	\$2,166
2	\$4,548	\$4,577	\$4,189	\$4,059
3	\$6,293	\$6,333	\$5,796	\$5,616
4	\$7,973	\$8,023	\$7,343	\$7,115

Although the 1-year contract costs for direct lease would be nominally higher than Ames' contract costs, a direct lease would provide Ames 100 percent of the computer's time rather than the agreed upon 50 percent. In addition, our analysis showed that separate purchase of the computer equipment would be less costly whether the equipment is used for 2, 4, 6, or 8 years.¹ (See encl. I for more detail on our analysis, assumptions, and estimating methodology for comparing the lease and purchase alternatives.) When comparing a purchase to a lease, the tax consequences of each alternative become an important consideration in calculating the total costs to the Government.

Tax consequences of this procurement
influence and increase Government costs

When compared to a purchase alternative, the Government's total costs attributable to this Ames contract are substantially

¹The 3-year period reflects Ames' current contractual obligation to TDC. The basic contract period of two years was extended for an additional year when Ames exercised its option to extend on March 28, 1983. The 2- and 4- year periods are the minimum and maximum contract periods; the 6- and 8- year periods cover Ames' acquisition plan's maximum projected computer use.

higher than Ames' contract to pay 90 percent of TDC's equipment costs. When taxes are considered, the Government's 2-year total costs under Ames' approach are \$500,000 more than a purchase. For 4 years, the excess costs are \$1.3 million. The details of these estimates are contained in enclosure I.

Tax incentives are to reduce
a business' cost of acquiring assets

Tax incentives are intended to encourage modernization and expansion of domestic production facilities by providing a tax benefit to businesses when capital assets are purchased. The investment tax credit, like other capital asset tax incentives such as the "Accelerated Cost Recovery System" (ACRS), reduces the private cost of acquiring and using the asset. The effect of these incentives is to reduce the costs of the capital investment. Usually, the investment tax credit is 10 percent of the asset's investment cost which is applied as a Federal tax obligation offset.

Investment credits apply to
Government service contracts

Property that is bought by or leased to a governmental unit is not eligible for the investment tax credit. However, when governmental units contract for services which require the use of property, investment tax credits may be available. According to the Department of the Treasury's deputy assistant secretary (tax analysis), "Proper accounting for the costs of a Government lease arrangement must include the revenue cost from allowing the Investment Tax Credit and the deferral advantage of ACRS."

Ames, NASA headquarters, and GSA, expected TDC to be eligible for an investment tax credit through the contracting arrangement that was followed. TDC officials said that the expected value to their company of this credit, ascribed to its lease of computer equipment for this contract, is about \$1.6 million.

Acquisition plan not followed

Ames' October 1980 acquisition plan for replacing the old computer identified, among other things, estimated costs, method of acquisition, and the long range plan for using the new system. The plan stated that the proposed high-speed processor would be procured competitively using established procurement procedures. It said an analysis of comparative lease and purchase costs for processors on the market showed that purchasing the equipment was advantageous when the computer system's use exceeds 43 months. It also said that this system would be used a minimum of 4 years and may extend as long as 6 to 8 years. The plan further stated that the proposed method of acquisition recognized the rapid changes in computer technology and that this approach preserved flexibility in both the short and long term and offered potential for future upgrading. Also stated was the fact that enough money was not available for a one-time purchase in fiscal 1982 and, therefore, the lease alternative would have to be pursued.

However, about 2 weeks after the report was published, Ames switched to the 8(a) sole source approach. Ames officials said they switched approaches because they decided to keep the equipment for not more than 4 years and because technology was changing so rapidly that the equipment could become obsolete. They also said that once the decision was made, they moved quickly and did not take the time to document reasons for the change. However, the computer equipment TDC is using and which was accepted as meeting Ames' needs is different than that contemplated in the acquisition plan.

We believe that Ames should have documented its sudden and significant deviation from its acquisition plan. The plan had accounted for rapid technological changes and stated that the competitive procurement approach allowed for future system upgrades and use. Further, we do not believe that Ames followed good business practices which dictate that a cost/benefit analysis should have been performed so that Ames managers could ensure that the lowest cost procurement approach, which satisfies their requirements, was selected and followed. In our opinion, Ames should not have relied solely on the cost information TDC provided in an unsolicited proposal, particularly when the information favored Ames leasing the computer through the contractor. (See encl. II for more details on why Ames did not perform a cost-benefit analysis.)

AMES' CONTRACT GREATLY LOWERS
THE CONTRACTOR'S COMPETITIVE OPERATING COSTS

This Ames contract has greatly lowered TDC competitive operating costs in at least two ways. First, Ames agreed to pay 90 percent of the equipment lease cost but had access to only about 50 percent of the computer's time (80 prime-shift hours per week²). Consequently, TDC's need to recover equipment costs from the sale of the remaining time was greatly reduced. Second, NASA regulations prohibit Ames from charging TDC more than \$43.75 per hour to use its facilities when the machine is used by other firms. Together, these cost savings greatly lowered TDC's operating costs and allowed it to market valuable computer time at a very low cost.

SBA DID NOT FOLLOW ITS
STANDARD OPERATING PROCEDURES

SBA did not follow two of its own procedures in awarding this contract to TDC. It accepted the contract for the 8(a) program even though TDC does not perform 55 percent of the contract value with its own labor force, and it awarded the contract to TDC even though the company already exceeded its 8(a) program contract support limitations. Moreover, we believe TDC's continued

²Six a.m. to 12 p.m. Monday through Friday. Ames could get additional time on occasion. In March 1983 TDC agreed to provide Ames 30 additional hours a week.

participation in the 8(a) program should be reexamined because its status as economically disadvantaged has been repeatedly questioned.

Contractor's efforts are not the major portion of the contract's value

SBA procedures state that the 8(a) firm must achieve 55 percent of the contract's value with its own labor force when professional services are provided. SBA waived the 55-percent criterion and agreed that 51 percent would be sufficient in this case. However, TDC's contribution, including TDC's total profits, is only about 39 percent of the contract's value. The remaining costs are for the equipment being used. (See encl. III for more detail.)

We believe that contracts requiring software and other services, along with computer equipment, are more desirable 8(a) program awards when contract profits are based on the 8(a) firm's efforts and contributions. But, under this contract, only 32 percent of TDC's total profit is for their professional service efforts and contributions.

TDC-approved business plan goals have been consistently exceeded

This contract increased TDC's 8(a) annual sales level to about 500 percent of its 1981 SBA-approved business plan for 8(a) sales. SBA procedures limit awards to an 8(a) firm to 125 percent of such plans. Over the past 10 years, SBA has provided TDC with subcontracts worth over \$64 million. Since 1976, SBA's 8(a) awards to TDC have resulted in annual sales volumes that greatly exceeded the levels allowed by SBA procedures, with 1981 sales levels being the largest and exceeding TDC's approved support by almost 500 percent.

TDC's economically disadvantaged status has been questioned

As early as March 1977, the SBA Business Plan Evaluation and Review Committee recommended that TDC be removed from the 8(a) program. Also, in 1980 the SBA official responsible for overseeing the 8(a) program in region IX stated that TDC was not economically disadvantaged and recommended that TDC be graduated from the program. But, on June 2, 1981, the acting regional administrator said that TDC was on a "temporary term of participation" until new program participation criteria were developed and implemented for all 8(a) firms. Thus, the 1980 recommendation was never implemented, and TDC is still in SBA's 8(a) program.

AMES CANNOT ACCOUNT FOR ILLIAC IV DISPOSITION

Ames staff responsible for disposing of the old ILLIAC IV computer were unable to account for seven ILLIAC IV processors, costing about \$2.4 million. The ILLIAC IV system originally cost \$27 million and consisted of 70 processing units, 15 disk drives, and 1 central processing unit. At the time of our review, Ames

officials were able to account for all of the equipment except seven processing units. Those units originally cost \$342,857 each. In January 1983, Ames officials said that efforts to locate or document the disposition of these processors were continuing but so far without success.

RECOMMENDATIONS

We believe this contract was not in the Government's best interest and should not have been awarded. We, therefore, recommend that the Administrator of the National Aeronautics and Space Administration direct that this contract not be further extended without careful consideration of needs and alternatives. The Administrator should require the Director of the Ames Research Center, before the next contract extension, to

- revalidate long term, large-scale computing needs,
- evaluate available alternatives, and
- document why Ames' procurement approach is in its and the Government's best interests.

Further, because Technology Development of California's eligibility as economically disadvantaged has been repeatedly questioned, we recommend that the Administrator of the Small Business Administration reexamine the firm's continued participation in the Small Business Act, Section 8(a) program.

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As arranged with your office, unless you publicly announce its contents earlier, we will not distribute this report further until 30 days from its date. At that time, we will send copies to the Director of the Office of Management and Budget, the Administrators of the National Aeronautics and Space Administration and the Small Business Administration, the Administrator of General Services, and the President of Technology Development of California. We will also make copies available to other interested parties.

Sincerely yours,



Comptroller General
of the United States

Enclosures - 3

TOTAL COST TO GOVERNMENT COMPUTATION

Our cost analyses demonstrate that the Government's costs will be greater under Ames' contract arrangement than under a separate lease or purchase arrangement. This enclosure discusses the factors we used in computing those costs.

In our analyses, we considered certain tax consequences. For example, a lessor can take advantage of depreciation deductions. A lessor may also have investment tax credits, which would not be available if the Government were the purchaser. For our analyses, we considered the lessor as either TDC or the third party firm since, combined, they receive the rental payments and have the tax deductions available. Further, we did not consider the manufacturer in our estimation because the equipment is sold under either a lease or a purchase scheme. Finally, we only estimated the cost of leasing the equipment exclusive of operation and maintenance payments. Those payments are considered costs but are separately priced and charged to Ames.

We assumed a commercial purchase price to the Government of \$9,788,000. Under the current contract, the Government pays a monthly rent of \$219,964 for the basic initial equipment. That contract is for 4 years. After that time we assume the Government will pay \$219,964 the first month, then \$192,484 (monthly rent less structured profit) for one month and \$181,078 (monthly rent less structured profit and sales tax) each month thereafter. To compare Ames' approach to a purchase, we assumed that Ames purchased the computer at the end of each period of analysis for its fair market value.¹ Alternatively, to determine a net cost comparison of using the asset, we could have assumed the Government sold the equipment after the comparable time period. Both methods yield identical results.

From Ames' payments, the revenue that the Treasury collects from the lessor is deducted from the Government's cost. In the early years of a contract, the lessor's taxes resulting from the leverage lease are negative, implying an outflow of revenues from the Treasury. The lessor uses the deductions available to reduce taxable income from other sources in these years. However, in most years the lessor pays taxes on taxable income (income less expenses). Income is the monthly rent payments received and the sale proceeds (the excess over the undepreciated base value of the computer equipment) when the equipment is sold at the end of the

¹Fair market value, at a future point in time, is calculated as the cost of the equipment minus an estimate of the economic depreciation. The net value is inflated by an estimate of future inflation. (In this case, the estimated economic depreciation is 27.29 percent of the remaining value of the asset. The implied inflation rate is the discount rate less 4 percent--the historical real average rate of return on capital equipment.)

period of analysis. Expenses, for tax purposes, are the interest expenses the third party paid on the debt used for financing the equipment and the Accelerated Cost Recovery System (ACRS) depreciation deductions.

The lessor's tax rate (assumed to be 46 percent--the marginal rate for corporations) is multiplied by taxable income to yield the tax liability before tax credits. The lessor then can reduce its tax liability with any tax credit that may be available, in this case a 10-percent investment tax credit in the first year.

To determine the Government's total cost for a particular period of time, we calculated the tax liability for each time period and subtracted it from Ames' cost. To compare Ames' contract costs to purchase price, we placed the future Government costs in constant dollar terms. The discount rate we used equals the average yield on outstanding Government securities maturing over the period of the analysis.

In each case we analyzed, the Government's costs at the end of the time period were complicated by our assumption that Ames bought the equipment. The purchase represents a Government cost. However, some Treasury inflows offset the final purchase price. The lessor must pay taxes on the recapture of tax depreciation deductions.² Further, if the lessor has held the asset less than 5 years, the lessor must remit 20 percent of the investment tax credit taken for each year less than 5. These costs to the lessor are offsets to the Government's costs and, in our analysis, were deducted from total Government costs.

As shown in the table on the next page, we estimate that the Government's 8-year costs, using existing contract terms, could be about \$8.5 million more (\$2.4 million in present value terms) than if Ames had purchased the initial computer equipment. The estimated Government costs, including Ames payments, are in current year dollars, not 1981 dollars as shown on page 4.

²For equipment placed in service in 1981, the amount on which the lessor must pay taxes equals the sales price less the part of the historical cost not yet depreciated. If the sales price is greater than the historical cost, the difference between the two is treated as a capital gain and taxed accordingly.

GAO Estimated Government Costs of Ames Contract Approach (thousands of dollars)						Purchase price in constant Aug. 1981 dollars
Years	Ames payments	Tax revenues	Residual value	Total costs		
				Current dollars	Constant Aug. 1981 dollars	
2	5,279	(513)	6,464	12,256	10,208	9,788
4	10,558	2	4,233	14,789	11,090	9,788
6	14,916	1,236	2,767	16,447	11,802	9,788
8	19,262	2,791	1,803	<u>a/18,274</u>	12,238	9,788

a/The difference between the 8-year total cost (\$18,274,000) and the published purchase price (\$9,788,000) is about \$8.5 million.

Our 8-year cost estimate:

- Assumes that the initial computer equipment would be leased and used for 8 years, the maximum computer use period stated in the acquisition plan, for a total in equipment cost payments of about \$7.6 million more than the purchase price, plus \$1.8 in residual value purchase costs.
- Attributes TDC's equipment profit to providing the computer equipment lease (\$1.3 million³).
- Includes the expected Federal tax revenues from the Ames contract arrangement (-\$2.8 million).
- Includes total State sales tax required with this contract (\$564,970).

The present value (in 1981 dollars) of the 6- and 8-year projected costs are \$2.0 and \$2.4 million more than the 1981 purchase price.

³Ames' structured profit for the TDC contract is expected to be \$1,920,192, of which we attribute \$1,301,579 to the equipment. (The structured profit factors are equipment lease (\$102,273), maintenance subcontract (\$51,255), cost risk (\$574,025), investment (\$95,671), and special situation profit for equipment cost contract provisions (\$478,355). Ames' contracting official stated that the \$1.9-million profit followed NASA regulations.

WHY AMES DID NOT PERFORM A COST ANALYSIS

Even though this procurement was valued at about \$21 million, Ames management did not independently develop and compare the costs and benefits of the procurement approach they followed. Instead, Ames relied on cost information TDC provided in an unsolicited proposal. That information favored Ames leasing the computer through the contractor. Later, in justifying the lease, Ames cited these cost figures in documents prepared for NASA headquarters and GSA. Ames officials said that no independent analysis had been prepared but that some of the contractor-developed data had been verified. In our opinion, Ames should have prepared its own independent cost analysis to ensure that such data was not biased and that the lowest overall cost alternative for meeting its needs was being followed.

Why Ames did not perform a cost analysis

We believe that Ames did not adequately consider and analyze available alternatives, in part, because of its prior ILLIAC IV services contract with TDC. Under that contract (NAS2-10300), Ames requested that TDC develop various types of information concerning the advanced computer. These requests (task orders) started in January 1980--over 10 months before Ames completed its ADP acquisition plan. The tasks that TDC performed at Ames' direction are shown below.

<u>Task order number</u>	<u>Date</u>	<u>Estimated amount</u>	<u>Work description</u>
2	Jan. 18, 1980	\$100,000	Study class VI machines.
13	Oct. 2, 1980	8,999	Determine performance levels of two candidate class VI processors.
14	Oct. 2, 1980	5,113	Perform software conversion study for class VI acquisition.
15	Oct. 24, 1980	6,640	Study class VI facility.
17	Dec. 17, 1980	11,826	Evaluate high-speed processor specifications.
19	June 16, 1981	30,526	Study facility modifications for Cray 1S.
20	June 16, 1981	650,217	Modify facility to permit installation of Cray 1S.
23	Aug. 27, 1981	17,699	Investigate implementation plans for class VI computer capability at Lewis Research Center.

Working this closely with the contractor in developing a replacement for the ILLIAC IV may have inhibited Ames from objectively analyzing available alternatives.

CONTRACTOR'S EFFORTS ARE NOT THE MAJOR
PORTION OF THE CONTRACT'S VALUE

SBA procedures state that the 8(a) firm must achieve 55 percent of the contract's value with its own labor force when professional services are provided. SBA waived the 55-percent criterion and agreed that 51 percent would be sufficient in this case. However, as shown below, TDC's contribution, including profits, is only about 39 percent of the contract's value.

	<u>Cost</u>	<u>Percent</u>
	(millions)	
Items not performed with TDC labor:		
Equipment	\$10.23	48.6
Maintenance subcontract	<u>2.56</u>	<u>12.2</u>
	<u>\$12.79</u>	<u>60.8</u>
Items performed by TDC:		
Services and other	\$ 6.34	30.1
Profit	<u>1.92</u>	<u>9.1</u>
	<u>\$ 8.26</u>	<u>39.2</u>
Total	<u>\$21.05</u>	<u>100.0</u>

If the \$1.92-million profit, representing TDC's profit, is excluded from the contract cost, the portion of the contract's value performed by TDC's labor force would be only 33 percent (\$6.34 million of the \$19.13 million). However, if the equipment costs and all profits are also excluded from the contract cost, TDC's portion of contract value would be 71 percent (\$6.34 million of the remaining \$8.9 million).

We believe contracts requiring software and other services, along with computer equipment, are more desirable 8(a) program awards when contract profits are based on the 8(a) firm's efforts and contributions and when they do not include profits based on the value of subcontracted items and services, including equipment and other properties.