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April 29, 1982

The Honorable Joseph P. Addabbo
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives



Dear Mr. Chairman:

DOD

Subject: [GAO Analysis of Projects Proposed by the Department
of Defense for Multiyear Contracting in its Fiscal
Year 1983 Budget Request (PLRD-82-72)

In response to your March 2, 1982, request, we have examined nine major systems and three other projects proposed by the Department of Defense to be acquired using multiyear contracts in fiscal year 1983.

Defense estimates that the 12 multiyear contract projects (see enc. I) will require about \$8.2 billion for contract completion and a total of \$13.3 billion of contract and associated program costs to field viable systems. Defense data show these projects will require about \$364 million more in total obligational authority and \$240.3 million more in outlays during fiscal year 1983 than would be required on an annual contract basis. However, Defense estimates that using the multiyear contracts will cost about \$879 million less when compared with using successive annual contracts. The savings represent about 9.7 percent of contract costs and 6.2 percent of total program costs.

OBJECTIVES, SCOPE AND METHODOLOGY

We primarily directed our review to assessing

- the accuracy and validity of the cost savings estimates,
- the appropriateness of the projects proposed for multi-year contracting,
- the adequacy of the standards of approval for successful projects,
- the effect of multiyear contracting on flexibility in service budgets and the overall Defense budget,
- the effectiveness of multiyear contracting as a management device to improve the industrial base, and

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--the appropriateness of spare parts procurement through multiyear contracts.

We performed our work at the cognizant project offices that generated the multiyear contract justification materials. We interviewed officials and analyzed documents related to the proposed projects. We examined the proposed projects for compliance with section 909 of Public Law 97-86, the Department of Defense Authorization Act, 1982, with specific emphasis on projected cost savings. We also considered additional justification requirements set forth in the House Report No. 97-333 of the Committee on Appropriations, Department of Defense Appropriation Bill, 1982.

As requested by your Office, we did not request official Defense comments on this report. We did, however, discuss the issues raised with both service project officials and key officials in the Office of the Secretary of Defense who coordinate multiyear contract efforts.

We briefed your Office on the progress of our review on April 2, 1982. The data presented at that briefing and subsequently obtained are summarized below.

VALIDITY OF COST
SAVINGS ESTIMATES

The multiyear contract savings estimates for all 12 projects reviewed were primarily based on budgetary data, judgmental estimates, and preliminary quotes or other undocumented data from the potential prime contractor or subcontractors. Firm proposals have been requested on four proposed projects, but proposals have not been submitted by the contractors.

This situation contrasts dramatically with the level of supporting data we found for the savings estimate for one of the four fiscal year 1982 multiyear contracts, the Black Hawk helicopter. Estimated savings were based on an analysis and negotiation of proposals received from the contractor on both an annual and multiyear basis. A 38-member Defense "should cost" team spent more than 2 months analyzing the proposals and developing negotiation objectives. Their efforts identified some uneconomical and inefficient practices in the contractor's activities and some specific areas where greater savings could be achieved using multiyear contracting.

It is our view that the budgetary nature of the justification data provided in support of projected savings for the proposed fiscal year 1983 multiyear contract projects are insufficient to establish the reasonableness of the claimed savings. We believe that, as a minimum, firm contractor proposals on

both an annual and multiyear basis are needed for such a determination. The cumulative impact of the assumptions, assertions, and judgments inherent in budgetary data makes a meaningful comparison of the relative costs of the two alternative contracting methods impossible at this time.

Other considerations

The Office of Management and Budget (OMB) Circular A-94 directs all executive agencies to use present value discounting ^{1/} in the evaluation of Government decisions concerning the initiation, renewal, or expansion of any program or project, with certain exceptions, not applicable here, which is expected to commit the Government to a series of measurable costs extending over 3 or more years. This Circular also directs that all estimates of the costs and benefits for each year of the planning period be made in constant dollars; that is, the value of the dollar at the time of the decision. This, in effect, eliminates escalation avoidance as a savings factor. Defense applied neither of these techniques in its final computation of multiyear contract savings.

Although discounting is a generally accepted practice, selecting an appropriate discount rate has been the subject of much controversy. OMB Circular A-94 currently prescribes the use of a 10-percent rate. This rate, however, has been in effect since 1972. We believe that where the choice is essentially one of selecting the less costly alternative, the average yield on outstanding marketable treasury obligations with remaining maturities comparable to the period of the analysis, is the appropriate basis for establishing the discount rate used in estimating the cost of alternatives. Currently, that rate is 13.9 percent. This rate, however, can be expected to change with market conditions over the life of a multiyear contract. The change of a few points will significantly alter the effect of discounting.

The effect of present value discounting on the fiscal year 1983 projects are shown in enclosure II.

^{1/}Investment alternatives will normally involve incurring different costs at different points in time. In order for two or more alternatives to be compared on an equal economic basis, it is necessary to consider the costs of each alternative at the same point in time or at their present value. To find the present value of a stream of expected future costs, an analyst uses the technique of discounting. Discounting is, simply put, the reverse of computing compound interest.

We also noted that multiyear contracts with contractors using the completed contract method for Federal income tax purposes may result in an extended tax payment deferral period as compared with annual contracts. U.S. Treasury regulations allow firms with contracts which require two or more years to complete to defer the cost and income associated with these contracts to the completion year. Data obtained from Defense show that several of the 12 contractors follow this method. The cost of money associated with this added deferral period could also affect net savings to the Government. We plan to explore this issue further during future reviews of multiyear contracting.

APPROPRIATENESS OF PROPOSED PROJECTS
FOR MULTIYEAR CONTRACTING

Public Law 97-86, dated December 1, 1981, requires an agency head to determine that five conditions (criteria) are met prior to awarding a multiyear contract for major weapons systems. Our view of the proposed projects meeting the prescribed criteria follows.

1. Benefit to the Government

The Secretary of Defense must find that the use of a multi-year contract will promote national security and result in reduced total costs under the contract.

National security--Defense considers all 12 proposed projects to be critical for meeting national security needs. We found no reason to question this determination.

Reduced contract costs--For reasons previously discussed, we believe that the contract savings projected by Defense are unreliable. Moreover, as shown in enclosure II, in some cases the use of present value techniques either substantially reduces projected savings or makes the multiyear contract more expensive than annual contracts.

2. Stability of funding

This criterion requires that there be a reasonable expectation that funding will be requested at a level needed to avoid contract cancellation.

We found no reason to question Defense's commitment to the proposed projects, assuming the Congress funds the budget at the level requested for fiscal year 1983 and the ensuing years of the multiyear contracts.

We note, however, that the 12 systems require total program obligational authority of about \$13.3 billion of which \$8.2 billion is for the proposed projects for multiyear contracts. There is no indication that either the services or the Office of the Secretary of Defense has subjected the proposed candidates to any form of sensitivity analysis to determine what the relative priority of the selected programs is in relationship to all other Defense programs in the event that total budget requests are not granted.

3. Stability of requirement

This criterion requires that the need for the product remain substantially unchanged during the contract period in regard to the production rate, the procurement rate, and total quantities.

We believe this criterion has been met for 11 of the 12 projects. We noted that the requirement for the MK46 torpedo has fluctuated significantly in the past 3 years and that the planned 3-year multiyear procurement of 3,140 units represents a significant increase over the fiscal year 1981 buy of 288 units. Similar to funding stability, we believe requirement stability is a function of priorities within available funding. Once a multiyear contract is awarded, there should be a greater constraint on changing requirements or funding; however, there does not appear to be any greater inherent program stability for the proposed projects as compared with other ongoing stable projects conducted under annual contracts.

4. Stability of design

This criterion requires the existence of a stable design and minimal technical risks for the property to be acquired. We believe this requirement has been met for 11 of the 12 candidates reviewed as they have already been produced and met, or will have met, design criteria before the start of the proposed multiyear contracts.

We have some reservations, however, about the design stability of the proposed NAVSTAR Global Positioning System (GPS). The spacecraft to be procured is an evolution from the research and development (R&D) spacecraft--11 have been procured. Program officials stated these early spacecraft had excellent test results--seven have been launched and four are to be delivered between 1982 and 1984.

Program office information indicates that:

--Design changes from R&D spacecraft are well understood based on 3 years of studies and analysis.

--The test program and parts control used in procuring the R&D spacecraft will be used on the block buy.

--The production specifications for the block buy spacecraft will be the same as those used on the qualification test vehicle, which is being procured under the R&D contract.

It was noted, however, that the qualification test vehicle has not yet been fully assembled and tested--although a critical design review was held during the week of March 22, 1982. Program officials told us the results of the review would not be known for about 30 days. To their knowledge, however, the review did not identify design deficiencies or areas of concern.

5. Degree of cost confidence

The final criterion requires that two conditions be met to award a multiyear contract--both the contract cost and the anticipated cost avoidance are to be realistic.

As previously discussed, we do not believe this criterion has been met. Savings estimates are based primarily on budgetary data and judgmental assumptions, as opposed to firm contractor proposals or negotiated prices. Also, the savings estimates were not discounted or adjusted for the possible effect of a longer deferral of the payment of Federal income tax on potential profits. Thus, there is insufficient evidence at this time to conclude that the savings estimated by Defense can be achieved.

ADEQUACY OF STANDARDS FOR APPROVAL OF SUCCESSFUL PROJECTS

Our assessment suggests the statutory criteria for proposing multiyear candidates may need tightening and/or clarification.

Present value analysis

Essentially all of the claimed cost avoidance for the proposed multiyear contracts results from economic order quantity procurement at the subcontractor level. To achieve these economies, earlier production and delivery of material is required. Delivery of the end items, however, will not be materially advanced. This avoids the effect of inflation but requires the earlier expenditure of funds. As discussed on page 3, the cost of the earlier expenditure of funds should be considered when comparing alternatives. Defense, however, has not followed present value discounting techniques in estimating multiyear contract savings, for its fiscal year 1983 proposed projects.

Quality of data

Using budgetary data and judgmental estimates or assumptions as a basis for comparing two alternative contracting methods has serious limitations. We believe Defense should be required to obtain firm offers from prospective contractors on both an annual and a multiyear contract basis before determining that multiyear contracting will be cost effective.

Competition and dual sourcing

One of the often cited features of multiyear contracting is that it should enhance competition. Further, dual sourcing ^{1/} has been identified as a technique that can be used to accomplish this end.

We believe that the planned procurement strategies for at least three of the proposed multiyear projects are not consistent with this objective. On the Multi-Launch Rocket System (MLRS) and the MK-46 Torpedo, the services plan sole-source procurements even though the quantities being considered suggest that competition might be feasible at the prime contract level. These systems could be candidates for dual sourcing as a means of enhancing the potential for competition.

For the TA-O oilers, the Navy plans to solicit competition. It is, however, planning to solicit bids for a 2-ship contract with options for 3 additional ships rather than on a 5-ship multiyear contract basis. We believe that there may be an opportunity to enhance the competition and obtain lower prices if bids were solicited on both bases.

We believe that competition is a major factor that can stimulate efficiency and produce real savings. Accordingly, we believe there is a need for criteria which require consideration of extraordinary efforts to introduce competition at the prime contractor and major subcontractor level for all multiyear contract candidates. Such efforts should include consideration of dual sourcing, facility contracts, and special financing arrangements. Costs of such efforts should be included when estimating the savings expected from the introduction of effective competition.

^{1/}Dual sourcing is a procurement technique whereby two sources are made capable of producing a desired end product and the production quantities are competed between the two sources with the lower priced producer generally awarded a larger portion of the buy.

EFFECT OF MULTIYEAR CONTRACTING ON
SERVICE AND OVERALL DEFENSE BUDGETS

As shown in enclosure I, the 12 candidate projects are estimated to have a contract value of \$8.2 billion and a program value of \$13.3 billion. These numbers can be expected to grow as more multiyear contracts are awarded. While the use of multiyear contracts can be expected to add to program stability in that Defense will be reluctant to disturb the contract, it will also limit Defense's flexibility to alter priorities. Cancellation of a multiyear contract could easily eliminate any perceived benefit from multiyear contracting.

We believe that total obligations and projected outlays incurred through multiyear contracting should be closely monitored. In this regard, we strongly support the House Committee on Appropriations' requirement, as set forth in Committee Report No. 97-333, for Defense to provide a once-a-year snapshot of the total levels of future years' commitments under multiyear contracting. This snapshot will include at least budget authority and outlays estimated by year for each contract, and the same information for whatever other procurements are necessary to make the item in question mission capable. Such data was not available for the fiscal year 1983 candidates at the time of our review.

EFFECT ON INDUSTRIAL
BASE

House Report No. 97-333 implies that multiyear contracting should offer opportunities to expand the defense industrial base by attracting subcontractors, vendors, and small suppliers who, under current procurement practices, are leaving the defense field. The report was critical of the Defense justification materials submitted in support of the fiscal year 1982 multiyear candidates because they made no reference to the defense industrial base and stated, in part, that:

"A full presentation of the benefits that will accrue to the Government be fully addressed, especially as they affect vendors, small suppliers, and subcontractors, by all account the weakest link in the industrial base."

Defense had no convincing evidence to indicate that the proposed multiyear contracts will significantly enhance the industrial base at either the prospective prime contractor or major first tier subcontractor level. Further, as discussed above, firm proposals have not been received from the prime contractors, and Defense plans to solicit competition for only one candidate.

Defense has little or no visibility at the second tier and lower subcontractor, vendor and supplier level at this time.

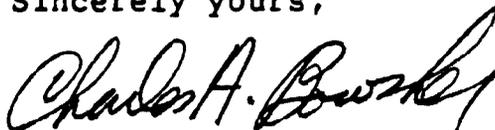
SPARE PARTS

We also considered the appropriateness of spare parts procurement through multiyear contracts. Preliminary indications are that low value spares are procured through Federal stock funds and that when procurements are made by these funds, economic order quantity sized lots is a consideration in the reorder formula. In regard to high dollar value replenishment spares procured with "other procurement" monies, we have been informally advised by procurement officials that there are opportunities to realize increased savings through multiyear contracting. We plan to consider this issue further during future reviews of multiyear procurement.

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In accordance with your request, we will continue to monitor Defense's multiyear contracting efforts. We are sending a similar report to the Chairman, Senate Committee on Armed Services. Copies are being sent to the Secretary of Defense and other interested parties.

Sincerely yours,



Comptroller General
of the United States

Enclosures - 2

MULTIYEAR CONTRACT CANDIDATESPROPOSED FOR FISCAL YEAR 1983

| <u>Major systems</u> (note d) | <u>Estimated cost</u> | | | <u>Multyear contract savings</u> | | |
|------------------------------------------------|-----------------------|--------------------------------|-----------------------------------------|----------------------------------|----------------|-----------------|
| | <u>Contract</u> | <u>Future program (note a)</u> | <u>Cancel- lation exposure (note b)</u> | <u>Amount (note c)</u> | <u>Percent</u> | |
| | | | | | <u>Program</u> | <u>Contract</u> |
| | (millions) | | | | | |
| 1. Multi-Launch Rocket System | \$1,683.7 | \$3,033.9 | \$ 53.2 | e/\$192.9 | 6.0 | 10.3 |
| 2. CH-53E Helicopters | 1,154.5 | 1,696.8 | 129.5 | 62.6 | 3.6 | 5.1 |
| 3. NAVSTAR GPS | 1,343.3 | 2,258.0 | 162.3 | 276.7 | 10.9 | 17.1 |
| 4. TA-O Fleet Oilers | 1,051.2 | 1,107.5 | 109.8 | 75.0 | 6.3 | 6.7 |
| 5. Standard SM-1 Missiles | 666.0 | 1,205.8 | 60.3 | 62.7 | 4.9 | 8.6 |
| 6. A-6E Aircraft | 631.7 | 1,381.1 | 33.4 | 20.3 | 1.4 | 3.1 |
| 7. EA-6B Aircraft | 473.9 | 1,236.3 | 69.2 | 21.1 | 1.7 | 4.3 |
| 8. MK-46 Torpedoes | 648.4 | 728.8 | 35.5 | 38.1 | 5.0 | 5.5 |
| 9. DMSP Satellites | <u>245.6</u> | <u>414.5</u> | <u>30.7</u> | <u>49.3</u> | 10.6 | 16.7 |
| Total | <u>7,898.3</u> | <u>13,062.7</u> | <u>683.9</u> | <u>798.7</u> | 5.8 | 9.2 |
| <u>Other projects</u> | | | | | | |
| 10. AN/ALQ-136 Radio Jammer | 83.6 | 83.6 | 13.0 | 38.2 | 31.4 | 31.4 |
| 11. NATO Seasparrow Missiles (Conv. Kits) | 88.0 | 88.0 | 22.0 | 37.0 | 29.6 | 29.6 |
| 12. MULE (Laser Designator-MC) | 87.8 | 87.8 | 12.6 | 5.5 | 5.9 | 5.9 |
| 13. F-111 Weapons Navigation computer (note f) | - | - | - | - | - | - |
| Total | <u>259.4</u> | <u>259.4</u> | <u>47.6</u> | <u>80.7</u> | 23.7 | 23.7 |
| Total | <u>\$8,157.7</u> | <u>\$13,322.1</u> | <u>\$731.5</u> | <u>\$879.4</u> | 6.2 | 9.7 |

a/Total costs required to field viable systems. Includes such additional items as engines, vehicles, support equipment, and other items not included in the contracts.

b/Total maximum cost incurred beyond first program year if second and subsequent program years of the multiyear contract are not bought.

c/Defense savings estimates.

d/We applied section 809 criteria of P. L. 96-107 for our classification of projects as major weapon systems, i.e., systems which are projected to have production costs in excess of \$300 million.

e/This amount is based on a Defense projected 7-year program.

f/Defense cited this project on its list of FY 1983 multiyear projects, but the basic contract was awarded in FY 1981 and the FY 1983 budget request concerns funds for exercise of option quantities. Thus, we did not consider this project a multi-year candidate. We believe the exercise of the first option, however, is in the best interest of the Government.

EXAMPLES OF THE
IMPACT OF PRESENT VALUE
ANALYSIS AND INFLATION EXCLUSION
ON DEFENSE'S PROJECTED MULTIYEAR

CONTRACT SAVINGS

| | <u>Defense savings estimates</u> | | <u>GAO savings estimates (note a)</u> | |
|-------------------------------------------|----------------------------------|-------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|
| | <u>Unadjusted</u> | <u>10 percent discount factor constant dollars (note b)</u> | <u>13.9 percent discount factor constant dollars</u> | <u>13.9 percent discount factor current dollars</u> |
| <u>Major systems</u> (millions) | | | | |
| 1. Multi Launch Rocket System | c/\$192.9 | \$ 11.5 | \$ -4.7 | \$ 27.7 |
| 2. CH-53E Helicopters | 62.6 | 8.2 | 3.3 | 14.4 |
| 3. NAVSTAR GPS | 276.7 | 83.4 | .9 | 58.1 |
| 4. TA-O Fleet Oilers | 75.0 | -4.8 | -8.7 | 18.5 |
| 5. Standard SM-1 Missiles | 62.7 | 8.4 | 2.7 | 16.2 |
| 6. A-6E Aircraft | 20.3 | -18.0 | -20.2 | -15.6 |
| 7. EA-6B Aircraft | 21.1 | - | -1.9 | 2.3 |
| 8. MK-46 Torpedoes | 38.1 | 6.8 | 3.0 | 32.7 |
| 9. DMSP Satellites | <u>49.3</u> | <u>4.7</u> | <u>.3</u> | <u>11.1</u> |
| Total | <u>798.7</u> | <u>100.2</u> | <u>-25.3</u> | <u>165.4</u> |
| <u>Other projects</u> | | | | |
| 10. AN/ALQ-136 Radio Jammer | 38.2 | 20.7 | 17.4 | 23.9 |
| 11. NATO Seasparrow Missiles (conv. kits) | 37.0 | 14.8 | 11.0 | 16.0 |
| 12. MULE (Laser designator-MC) | <u>5.5</u> | <u>1.5</u> | <u>1.4</u> | <u>2.5</u> |
| Total | <u>80.7</u> | <u>37.0</u> | <u>29.8</u> | <u>42.4</u> |
| Total | <u>\$879.4</u> | <u>137.2</u> | <u>\$ 4.5</u> | <u>\$207.8</u> |

a/GAO computations made on the basis of unverified expenditure profiles and other data provided by Defense.

b/Data provided by Defense at GAO request.

c/Savings are based on a 7-year program.