COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-163058 RELEASED SEPTEMBER 25, 1979

The Honorable Edmund S. Muskie
Chairman, Committee on the Budget
United States Senate

Dear Mr. Chairman:

Subject: Review of the Department of Defense's Implementation of Procurement Reforms (PSAD-79-106)

Your June 27, 1979, letter requested our help in determining the extent to which reforms in procurement practices have been implemented by the Department of Defense (DOD), and any improvement which has occurred as a result. Your letter indicated that your request was prompted by a letter on this subject sent by the Office of Management and Budget's (OMB's) Director McIntyre to Senator Howard M. Metzenbaum and five other Senators in April of this year.

You later provided a series of questions about the extent of benefits achieved thus far by DOD. Answers to these questions are presented in the enclosure. Some are based upon our experiences reviewing DOD procurement practices. Others are examples of cases and savings provided to us by OMB and DOD in response to our request.

Some of the corrective procurement reforms cited in Director McIntyre's letter may represent expected rather than experienced improvements. In response to our inquiry, DOD and OMB provided us with examples and savings credited to some of the policies and practices. They were unable to do so for others because they do not routinely collect data and information in a manner that would permit attributions of this type. We also believe that the procurement reforms cited may in some instances represent good intentions not yet fully applied and whose potential has not been fully measured.

You also asked for our advice as to further steps which should be taken by the administration or the Congress to correct remaining deficiencies in the implementation of procurement reforms. Our suggestions for improving procurement practices for major weapon systems are discussed below.

(951526)

THE CONGRESS AND OMB SHOULD ENCOURAGE AND REVIEW DOD'S USE OF A-109 PROCEDURES

OMB Circular A-109 advocates a mission-directed approach to weapon system acquisition which we believe the Congress should encourage. The debate over A-109 that has ensued since its publication and the lack of any strong affirmation of support strengthens the resistance of critics of this policy within DOD. Through mission analysis, mission element need statements, mission area budgeting, and setting priorities for programs within each mission area, the Congress is given the opportunity to examine and debate key programs and bring stronger influence to bear in the administration's weapon system programs.

The Congress should question DOD and its military services about new weapon programs during its annual deliberations on defense appropriations so as to assure itself that the need for each new program is clearly established and solutions are sought competitively in compliance with A-109. The Congress should consider rejecting programs where A-109 requirements were not followed unless a satisfactory explanation for not doing so is given.

Improving implementation and use of A-109 within DOD will require that the Secretaries of Defense and the services, and particularly the services' Chiefs of Staff, continue to emphasize that A-109 policy and procedures will be employed in managing the major acquisition process.

The basic directives on acquisition management, DOD Directives 5000.1 and 5000.2, have been under review for well over a year. Whatever revisions are made should insure that all aspects of A-109 are implemented. DOD directives are paramount to service personnel who rely almost exclusively on them for guidance. Directives from outside the agency are not normally consulted.

The periodic reviews of DOD's compliance with A-109 being made jointly by the Office of Federal Procurement Policy (OFPP) and the Office of the Secretary of Defense (OSD) should be continued. These reviews focus attention on the amount of effort being made to comply and independently bring this information to the attention of the Secretary of Defense and the Director, OMB.

THE CONGRESS AND THE ADMINISTRATION SHOULD DEVELOP AN ACQUISITION STRATEGY FOR EACH WEAPON SYSTEM PROGRAM

Compliance with A-109 alone will not solve the problem of cost growth in weapon system programs. Other powerful influences on costs exist; foremost are (1) the desire for systems that employ and push high technology and (2) the budget constraints and the desire to prolong production capacity that contribute to uneconomical procurement and production practices. Perhaps little can be done about the desire for high-performance weapon systems barring a change in military considerations. However, some steps that could be considered helpful with budget problems are discussed below.

The Congress and the administration should consider establishing a mutually agreed upon acquisition strategy for accomplishing the development and ultimately the production of each new major weapon system. Strategy should be prepared by the executive branch for each major milestone of a weapon system's progress through the acquisition process and be reviewed and refined at each major milestone. It would not need to be detailed but should reflect agreement on goals for cost, schedule, and performance for the particular phase of the acquisition process. The Congress could then use this agreed upon strategy to perform its oversight role.

Each individual service is now charged with developing an acquisition strategy for each of its programs, but a strategy which encompasses only what the service proposes to do is not enough. The program manager's best laid plans can go awry in a year or two as a result of matters beyond his control, such as changes in the President's budget request or congressional appropriations.

There would be obstacles to developing a congressional/administration acquisition strategy for each major weapon system program. They should not be unsolvable, however. An agreed upon strategy, if it could be achieved for each program, would bring greater stability to the weapon system acquisition programs and their costs, by permitting more stable, long-range planning and execution of the acquisition program, and also provide the Congress with a valuable oversight tool.

MAKE GREATER USE OF MULTIYEAR FUNDING

Commensurate with developing an agreed upon strategy for acquisition programs, we believe the time has come for the Congress to consider greater use of multiyear funding. In peacetime, weapon system programs generally take a number of years to reach fruition. An element of uncertainty develops in weapon system programs as a result of annual funding. For example, contractors find it difficult to make substantial capital investments that could help to keep costs down.

Where appropriate, we believe there is potential to apply multiyear funding to provide greater stability, to relieve some of the funding problems that stretch programs and increase costs, and to take advantage of opportunities such as encouraging greater contractor investment to improve production costs. Multiyear funding would provide opportunity for economic purchases of materials which can account for over half the contract's direct costs. It would also assist in negotiating more favorable production costs particularly where competition is employed.

LONG-RANGE INVESTMENT PLANNING SHOULD BE EXPLORED BY ADMINISTRATION

The Under Secretary of Defense for Research and Engineering, Dr. Perry, recently presented to the House of Representatives' Subcommittee on Defense, a long-term investment planning concept now being explored by DOD. This investment strategy is oriented to military missions. It involves projecting the costs of various alternative weapon programs over a 10- to 15-year period and relating these projections to long-range policy and strategy goals.

As Dr. Perry indicated, implementing such planning may prove difficult. Present DOD budget planning is constructed for a much shorter time period and the budget is directed towards programs spread among the three military departments rather than missions.

We encourage explorations of this type. Such planning might help to prevent future occurrence of the so-called "Bow Wave Effect," that is, the piling up of a large number of costly major weapon systems that must be procured over a short period of time. It may work well with the aforementioned mission type planning, acquisition strategy, and multiyear funding.

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We share your concern about the growth in weapon systems costs. As of March 31, 1979, there were 58 major acquisitions in development and production being reported to the Congress in the Selected Acquisition Reports. These systems had a then-current estimated cost of $235 billion, $127 billion of which the Congress will be asked to fund in the future. Of the $235 billion, $95 billion represents cost growth over the baseline (development) estimates.

If you require further assistance in this matter, please contact us. Although DOD did not review a draft of this report, much of the information was furnished by, or discussed with, DOD and OMB officials.

We have not made distribution of this report to other persons or organizations. We will be contacting you shortly to arrange for further distribution of this report

Sincerely yours,

Comptroller General
of the United States

Enclosure

ANSWERS TO THE CHAIRMAN'S QUESTIONS

WHAT IS THE STATUS OF IMPLEMENTATION OF OMB CIRCULAR A-109?

We reviewed DOD's implementation of A-109 in 1978. 1/ We subsequently made a second indirect review by examining DOD's inclusion of the Commission on Government Procurement (COGP) report recommendations into defense policy. 2/

In our first report, we said that the Secretary of Defense had not been aggressive enough defining DOD missions and clearly delineating service roles. Not all DOD policy and procedural directives had been brought in line with A-109, particularly certain DOD directives and Navy directives. OSD was taking a long time, as much as 5 months, to approve mission element need statements. The circular's policy had not been extended to military construction and acquisition of automatic data processing equipment. There was need for Secretary of Defense guidance to the services on joint mission analysis and devising acquisition strategy.

Our second report was concerned with the COGP recommendations and indirectly with A-109 which was derived from these recommendations. It reported that DOD had not included a number of the recommendations into the DOD directive on acquisition management.

In November 1978, OFPP reviewed 32 new weapon acquisition programs. OFPP found that 16 were not in compliance with A-109. Fourteen of the 16 were found not in compliance because DOD had not competitvely explored alternative weapon system design concepts. This was reported to the Secretary of Defense. In April 1979, the Deputy Secretary of Defense reported back that 10 of the 16 would comply with A-109. The remaining six were excused for such reasons as being a study and not a program, being a subsystem, not being a major system, or retroactive application of A-109 was too late because of the program's progress.

1/"Observations on Office of Management and Budget Circular A-109--Major System Acquisitions by the Department of Defense," PSAD-79-9, February 20, 1979.

2/"Recommendations of the Commission on Government Procurement: A Final Assessment," PSAD-79-80, May 31, 1979.

ENCLOSURE I

According to documents we have examined, the Deputy Secretary of Defense and the Under Secretary of Defense for Research and Engineering are currently pressing for greater compliance with A-109. Problems still exist; for example, a list of defense mission areas has not been agreed upon although there is a working list for the fiscal year 1981 budget preparation. In addition, the basic management directives (DOD Directives 5000.1 and 5000.2) have been under review for well over a year, the Navy is still redrafting its basic directive, and OSD is still taking months in some instances to review and decide upon approval of the Mission Element Need Statements (MENS). Some persons are still concerned that the milestone zero review, establishing and confirming the need, required by A-109 only increases the time required to develop and field a new weapon system.

The greatest noncompliance with A-109 appears to be the services' reluctance to seek solutions to their weapon system needs through competition. Preconceived solutions are still being proposed as needs rather than seeking solution through competitive proposals.

The success that has been achieved in complying with A-109 within DOD has perhaps been due primarily to the efforts by the Deputy and Under Secretary of Defense and the OFPP. The findings of last November's review by OFPP demonstrates the importance of the reviews being conducted by that Office. It will probably be sometime, however, before the new features of A-109 permeate through all layers of DOD and become an accepted working practice of all persons involved in managing major systems acquisitions.

TO WHAT EXTENT HAS IT (A-109) PREVENTED PROBLEMS ASSOCIATED WITH COST OVERRUNS CITED IN THE METZENBAUM LETTER (12/21/78) TO THE PRESIDENT?

This is an extremely difficult question to answer and provide supporting evidence. It requires speculation on what might have happened had something not been done or if a different course of activity had taken place.

OMB's reply to Senator Metzenbaum's letter cited confidence that A-109 policies would effectively address the root causes of cost overruns. We queried OMB and DOD for examples of when problems were avoided. DOD replied that it is impossible to specifically identify quantifiable cost savings or cost avoidance attributable to management improvements resulting from the implementation of A-109.

We tend to agree with this statement. We could expend a considerable amount of staff time and we would only be able to tell how a program appears to be going. Anything else would be speculative. Not enough programs have progressed enough to provide even a gross indication at this time.

Attempting to compare what happened in a program that proceeded in accordance with A-109 with the results of a program prior to A-109 would also be fruitless. No two weapon system programs are ever sufficiently alike to allow precise comparison. Furthermore, no major program, since A-109 was issued, has progressed to the production phase. Although A-109 has been in existence a little over 3 years, acquisition programs for major weapon systems may span 8 to 12 years.

TO WHAT EXTENT HAS IT ENHANCED CONTRACTOR PRODUCTIVITY AND OTHER MANAGEMENT PRACTICES CITED IN THE SAME LETTER?

We asked OMB and DOD for evidence of improved contractor productivity and other management practices as a result of adopting A-109. DOD's reply was:

> "First, no major programs initiated since issuance of A-109 have progressed to the production phase. Second, while we believe A-109 principles are good management, there is no direct link by which the impact of application or non-application of these principles can be quantified in terms of productivity change, or the degree to which they affect management practices. Nevertheless, to the extent A-109 can contribute to reaching consensus on mission needs and obtaining commitment at all responsible levels to fulfilling these needs, the greater program stability will assist in achieving higher productivity since program disruptions that result in 'stops and starts' invariably have an adverse impact on productivity. Also, we expect that permitting more freedom to our contractors to come up with their solutions, designs, and specifications instead of imposing rigid Government requirements will, indirectly, have a favorable impact on productivity. Finally, our stress on readiness for production at Milestone III should result in higher productivity simply because we insist planning be done carefully and systematically before actual commencement of production.

"In summary, we expect the greater program stability A-109 may generate, along with our other initiatives such as stress on manufacturing technology, to pay dividends in terms of lower production costs. Unfortunately, we may only be able in rare specific cases to quantify the results. Also, improved program stability may well have favorable influence on revisions of other contractor management practices that will improve efficiency and thus reduce costs."

If, as OMB and DOD state, A-109 is to provide the guidelines, then there must be insistence that all defense programs be managed in consideration of its principles. For example, the DOD statement refers to permitting more freedom for contractors to come up with their solutions, designs, and specifications instead of imposing rigid Government requirements. However, we noted a conflict with this policy in our report on DOD's implementation of A-109 1/ in that the Marine Corps was looking for an amphibious vehicle to replace an existing amphibious vehicle and resisted OSD attempts to encourage consideration of other concepts. This issue apparently was resolved in accordance with the Marine Corps wishes because OSD subsequently approved a mission element need statement for an assault landing vehicle in October 1978.

TO WHAT EXTENT HAS IT (A-109) PROVIDED FOR MORE EXTENSIVE USE OF COMPETITIVE BIDDING AND THE DISCOURAGEMENT OF SOLE SOURCE CONTRACTING?

We asked OMB and DOD for a response to this question. DOD replied that A-109 has had a positive influence and has led to wider industry participation during the competitive system concept development phase for new weapon system programs.

1/"Observations on Office of Management and Budget Circular A-109--Major System Acquisitions by the Department of Defense," PSAD-79-9, February 20, 1979.

DOD's reply identified six programs 1/ as following the competitive approach for system concepts. One of the six, the Advanced Lightweight Torpedo, however, was judged to be noncompliant by OFPP in November 1978. The reason for declaring it noncompliant was because parallel contracts for competitive exploration of alternatives were not planned. Four of the remaining five programs are ongoing programs that have been around for some time.

Further review would be necessary to verify the six programs as valid examples as claimed and to identify and validate other new programs. Additional review would also be needed to identify the extent to which competition has been employed in awarding production contracts for weapon systems in development before A-109 was published, but have since moved into production.

CITE CASES AND SAVINGS ASSOCIATED WITH DR. PERRY'S NEW PLANNING REQUIREMENTS RELATING TO AFFORDABILITY AND THE USE OF COMPETITION IN THE PRODUCTION STAGE.

OMB and DOD were unable to provide us with examples of cases and savings as a result of the stated planning requirements relating to affordability. An official informed us that Dr. Perry has decreed "affordability" to be a primary consideration in the deliberations of the Defense Systems Acquisition Review Council (DSARC), a deliberative body that examines and recommends on weapon system acquisition programs at each major milestone. There is also direction to reconcile the DSARC and Planning, Programing, Budgeting System (PPBS) processes to prevent conflict between programing and budgeting decisions. In April 1979, the Secretary of Defense established a Defense Resources Board to resolve such conflicts.

According to DOD, it intends to make the necessary additional investment at the program beginning in order to continue competition into the production phase.

One method DOD says it is using to achieve this objective is the "leader/follower" concept, where the winning development contractor is given sufficient incentives to

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1/Advanced Lightweight Torpedo, Advanced Self-Protection Jammer, Wide Area Antiarmor Munitions, Advanced Medium Air-to-Air Missile, General Support Rocket System, and Single Channel Ground and Airborne Radio Subsystems.

develop a second source who then competes for a share of the production. This technique has been applied to the engine, guidance components, and airframe for the Cruise Missile. A variation of the same approach is planned for production of the Airborne Self-Protection Jammer (ASPJ) currently entering full-scale development. In this program, two teams, each composed of two companies with the capability of individually producing the complete system, are competing in the system development. This competition will culminate in the selection of a single team to complete the development phase after a Critical Design Review (CDR) and critical item demonstration. This single team will then be split for the competitive dual source production. These and other techniques, including multiyear contracting, are being utilized in tailoring a specific acquisition strategy for each major system that will maximize competition. According to DOD, although it intuitively recognizes the advantages of such competition, they are difficult to quantify, because DOD does not have a noncompetitive basis for comparison.

CITE CASE(S) AND SAVINGS WITH RESPECT TO COMPETITIVE BIDDING IN PURCHASING SPARE PARTS FOR WEAPON SYSTEMS.

The following information was provided to us by OMB and DOD. We have not verified its accuracy.

> "DOD policy provides for component breakout. It addition, DOD has an active program to breakout from the systems manufacturer high dollar value replenishment spare parts for competitive acquisition or direct acquisition from the actual manufacturer. The program has been in existence for some years. It is prescribed by DOD Instruction 4105.60 and is implemented by a Joint Regulation. We (DOD) are currently revising and updating the implementation to re-vitalize the program. The Joint Regulation has been converted to a DOD Manual/Supplement and will be published as a part of the Defense Acquisition Regulation. Summary type reporting requirements to OSD previously deleted have been reimposed for management overview."

Examples of component and spare parts breakout DOD furnished us are as follows:

Air Force

Oklahoma Air Logistics Center

Examples of breakout to competition under the Spare Parts Breakout Program:

1. Turbine shroud (NSN 2840-00-9463796)
   - Sole-source (General Electric) 724 $86.23
   - Competitive (1978 Small Bus) 981 $63.99
   - Savings 981 x $22.24 = $21,817
2. Nut assembly (NSN 1560-00-6527511FL)
   - Sole-source (Boeing) 35 $246.29
   - Competitive (1978) 85 $ 36.75
   - Savings 85 x $209.54 = $17,811
3. External thread bolt (NSN 5306-00-8542673CN)
   - Sole-source (Std. Press Steel Co.) 4,150 $1.45
   - Competitive (1978) 3,600 $ .94
   - Savings 3,600 x $.51 = $1,836
4. Tube assembly (NSN 2840-00-4325735TQ)
   - Sole-source (Pratt & Whitney) 30 $153.67
   - Competitive (1978) 99 $ 63.20
   - Savings 99 x $90.47 = $8,957
5. Seal assembly (NSN 1560-00-6373490FG)
   - Sole-source (L & S Machine Co.) 110 $116.40
   - Competitive (1979) 45 $ 65.44
   - Savings 45 x $50.96 = $2,293
6. Panel assembly (NSN 1560-00-9810688)
   - Sole-source (Boeing) 30 $1,454.00
   - Competitive (1978) 250 $ 245.00
   - Savings 250 x $1,209.00 = $302,250

Navy

Naval Air Systems Command

Attack aircraft A-6 component breakout

1. From 1966 to 1978 the A-6 has had 26 component breakout actions. The one-time savings totaled $41.4 million.

2. Following are A-6 breakouts where savings exceeded $1 million.

FY	Nomenclature	Qty	Sole-source unit price	Breakout unit price	Indicated savings
66	Indicator set eng. performance	117	$ 16,757	$ 8,084	$ 1,014,741
74	AN/APQ 148 Radar	64	597,520	421,935	11,237,440
74	AN/ASQ 133 Computer	64	252,530	124,703	8,180,928
77	AN/AAS-33A Ranging Set	26	2,594,508	1,952,105	16,702,478
78	Analog display ind.	110	66,567	47,821	2,062,060

CITE CASE(S) AND SAVINGS WITH RESPECT TO DOD'S PURCHASE OF COMMERCIALLY AVAILABLE ITEMS BY DISCARDING DETAILED SPECIFICATIONS IN FAVOR OF SIMPLIFIED FUNCTIONAL STANDARDS.

We are presently completing a review of DOD's purchase of commercial products and DOD's use of simplified functional standards. We have concluded that DOD has made some progress implementing the commercial products policy established by the Office of Federal Procurement Policy in 1976, but it still has a long way to go.

In 1975 DOD established a program to consider procurement of commercial commodities, and in 1977 a pilot effort to test procurement of commercial products was established. Sixty-four products were approved for test procurement during 1978 and 1979 of which 48 were awarded contracts by May 1979.

In November 1977, DOD established a program to use commercial distribution channels and set about reviewing some 1.9 million items to find those eligible for some form of commercial distribution. As of August 1979, this program had not affected the Defense Logistics Agency's supply management procedures and methods, which favor central stockage and are the major factor in limiting the use of commercial distribution systems.

DOD was also tasked to develop a system which, among other things, was to favor functional specifications for commercial off-the-shelf products. Some 40,000 specifications were to be reviewed and 13,000 were to be completed by August 1979. As of April 1, 1979, only 1,442 had been reviewed. The delay in this task was charged to personnel and funding shortages and personnel who do not believe the commercial products policy will work.

We concluded that DOD's implementation of commercial products usage has been fragmented between various projects and its objectivity in screening items to be purchased using commercial distribution channels is questionable. Many of DOD's actions appear to be biased toward maintaining central management control and stocking of low demand items in lieu of local purchase.

CITE CASES AND SAVINGS FROM CONVERTING PLANNED FLEXIBLY PRICED CONTRACTS TO FIXED-PRICE TYPE EFFORTS.

We obtained the following response to this question from OMB and OSD. We have not audited these examples to confirm their accuracy.

Air Force

A number of planned flexibly priced contracts have been converted by the Air Force Systems Command (AFSC) to fixed-price type efforts. Action has been taken primarily on production programs where costs are reasonably predictable:

F-15 aircraft
F-5E aircraft
GAU-8 gun and 30mm ammo for A-10 aircraft
AN/ALR-56 radar receiver for the F-15 aircraft
Electronic countermeasures for F-15 (AN/ALQ-135(V))
Power management system for B-52 aircraft (AN/ALQ-155)
GBU-15 glide bomb (foreign military sales)
LGB III low-level, laser-guided bomb
WASP tactical air-to-ground minimissile

The following cases are cited reflecting projected impact from converting planned flexibly priced contracts to fixed-price type contracts.

The Aeronautical Systems Division (ASD) contracted with Northrop Corporation for 96 AN/ALQ 135(V) Counter Measure Sets--a subsystem in the F-15 aircraft. Previous acquisitions were on a Cost Plus Incentive Firm (CPIF) or Fixed-Price

Incentive (FPI) contract basis. ASD issued a Request for Proposal for a Firm Fixed-Price (FFP) contract; however, Northrop proposed only on a Fixed-Price Incentive Firm (FPIF) basis. An FFP contract was eventually negotiated. Northrop's proposed amounts on FPIF basis were: target cost $35,985,368; target profit $4,790,887; target price $40,776,255; and ceiling price $44,359,990. The negotiated FFP amount was $36,000,000. This amount is $4,776,255 below the target price proposed by the contractor.

ASD contracted with McDonnell-Douglas for 78 F-15 aircraft. The contractor proposed an FPIF contract. Proposed amounts on FPIF basis were: target cost $716 million, target profit $107 million, target price $823 million, and ceiling amount $931 million. The negotiated FFP amount was $803.5 million. This amount is $19.5 million below the target price proposed by the contractor.

Navy

The Assistant Secretary of the Navy (Manpower, Reserve Affairs, and Logistics) directed that the fiscal year 1979 quantities of the MK-75 Gun Mount be contracted on a fixed price rather than a cost reimbursable basis. No specific savings can be identified since comparable cost reimbursable and fixed-price proposals are not yet available and contract price negotiations, therefore, have not taken place.

The following chart is a summary of several Navy aircraft programs that were proposed on a fixed-price-incentive basis, but were contracted as firm-fixed priced which permitted the calculation of possible "savings."

Program	Ceiling proposed	Target proposed	FFP	Savings (target less FFP)
FY 1974 E-2C	$125,308,710	$112,777,837	$96,150,000	$16,627,837
FY 1977 A-4M	71,615,891	63,352,512	48,199,992	15,152,520
FY 1978 A-7	61,587,154	56,968,120	53,486,000	3,482,120
FY 1978 TA-7C	29,674,987	27,449,364	25,800,000	1,649,364
FY 1978-79 MAP TA-7H	26,663,470	24,664,794	23,445,000	1,219,794

Army

The Army contends that throughout its review procedures consideration is given to ensuring that the proper type of contract is used. However, the Army has been unable to identify any cases where proposed contract types have been converted from flexibly priced to firm-fixed priced.

CITE CASES AND SAVINGS FROM MONITORING POLICIES, PROCEDURES, AND PRACTICES OF CONTRACTORS RELATED TO INDIRECT COSTS CHARGED TO GOVERNMENT BUSINESS.

DOD claimed it has been a long-standing practice to use management evaluation to reduce contractor overhead. Further, that new regulations have strengthened leverage over contractors by improving DOD's ability to identify inefficiencies in contracts and to apply the information in reaching overhead rate settlements. They found it difficult to quantify the results because of the newness of the regulations. They did provide the following examples which we have not verified.

During fiscal year 1978, the Defense Contract Administration Services (DCAS) performed 24 overhead monitoring projects resulting in estimated cost avoidances of some $40.3 million. As another example, a single team of Air Force specialists performed 26 evaluations of computer operations at various contractors during fiscal year 1978 which resulted in estimated savings of $18 million. At a Navy contract administration office studies of contractor material management, communication services, indirect materials, and the corporate procurement organization helped avoid over $7 million in unnecessary costs.

CITE CASES AND SAVINGS WITH RESPECT TO IMPROVING CONTRACTOR PRODUCTIVITY.

We are currently completing a review which includes an evaluation of the various steps DOD has taken over the years to improve the productivity of its contractors. They have had varying degrees of success.

Investment protection against contract termination

DOD has agreed in a few instances to purchase at depreciated value, contractor fixed capital assets acquired for specific programs if that program is later canceled. Although we believe this procedure could contribute to improving productivity, we have no actual examples of savings.

Design-to-cost

DOD introduced the design-to-cost concept in 1971. We reviewed its application to five major weapon system acquisition programs and generally found the design-to-cost concept was not closely followed. Four of the five programs, however, were initated before the current design-to-cost directives were developed. Nevertheless, DOD recently reported that 21 of 62 major programs were in the validation phase and 5 were in full-scale development phase without established goals. We have not developed any examples of savings attributable to design-to-cost in our work to date.

Value engineering

Value engineering involves a systematic analysis of each function to be performed by an item with the objective of achieving the function at the lowest overall cost consistent with performance, reliability, quality, and maintainability requirements.

Almost all of the value engineering applications we have examined show a good return on investment. Through fiscal year 1978, DOD has reported total savings to the Government of about $6.4 billion since the start of its value engineering program in the early 1960s. Over $5.5 billion came from in-house value engineering changes originated by DOD personnel and nearly $850 million from changes proposed by defense contractors. Savings in fiscal year 1978 amounted to $427 million for the in-house program and $65 million for the contractor program. The 1978 figures represent returns on investment of about 17 to 1 and 9 to 1 for the respective programs.

Work measurement systems

Work measurement systems are used to design job activities so they require a minimum amount of resources and to establish labor standards. The Air Force took the lead and in 1975 began requiring contractors to install integrated work measurement systems covering manufacturing direct labor operations. The Army and Navy are now only considering adoption of the Air Force system.

One contractor who implemented the Air Force system estimated that productivity improved by 13.4 percent for a savings of over $6 million. Another contractor told us labor hours savings of 10 to 20 percent are possible. Other contractors do not like the system because of its excessive interference and unnecessary costs.

Should-cost reviews

Should-cost reviews have been performed by Government teams of experts to determine correctable inefficiencies in contractor operations. The Navy claimed a review of the TF30 engine program cost about $300,000 and saved about $100 million.

The reviews are time consuming and require Government experts who are in short supply. Also, some contractors may resent the Government intrusion and the resulting interference in their operation. We see the reviews as worthwhile, but we do not see them as becoming a strong force in productivity improvements.

Contractor independent research and development

Independent research and development (IR&D) is a Government supported, noncontractual, self-initiated portion of certain companies' research and development program. DOD's total costs for IR&D were in the $500 million to $600 million range in 1976 and 1977. We have attempted in the past to determine if the benefits are worth the cost, but were unable to do so because we could find no way to verify and measure benefits on a dollar basis. We have supported IR&D expenditures as being in the Nation's best interest to promote competition, advance technology, and foster economic growth.

Manufacturing technology program

This program is intended to develop or improve manufacturing techniques, processes, materials, and equipment. OMB and DOD provided the following examples of improving contractor productivity through the manufacturing technology program. We have not verified the accuracy of these claims.

--Ships' Framebender. Naval Sea Systems Command MT Project S492 covered the scaling up of a demonstration device to a full-size computer controlled ships framebender. This framebender is now being assembled at the National Steel and Shipbuilding Company, San Diego, California. It will be capable of cold forming 25-inch ship frame beams at a cost of $12 to $25 per bend instead of the current hot forming process costing $220 to $230 per bend. The total MT cost of this project is estimated to be approximately $850,000.

--Crossed Field Amplifier (CFA). Naval Electronic Command MT project E005 was undertaken to review 31 steps in the manufacturing process of a CFA power tube used in the AEGIS radar system. Varian Associates of Beverly, Massachusetts, has reduced the cost of these tubes from $21,515 to $12,205 each. At 38 tubes per radar, two radars per AEGIS ship, plus spares and pipeline, this cost reduction projects savings greater than $900,000 per AEGIS ship. Contract N00123-77-C-1019 covered the production process modification effort at a cost of $290,000.

--PHALANX Radomes. The Naval Sea Systems Command MT project S480 was for the development of a production floor process to produce foam filled fiberglass sandwich radomes for the search and track radars used in the PHALANX Close-In Weapons System. The radomes were originally priced at $6,000 each, $12,000 per system. The MT developed process produces radomes for $1,050 per set. Thirty-seven systems are on order now (contract N3000024-77-C-7010); planned procurements through fiscal year 1984 total more than 400 systems, projecting a cost avoidance greater than $4 million.

--High-Resistivity Silicon. The Navy established a domestic source as well as a process to reduce cost from $28/gram to $10/gram. The investment was $920,000. Validated savings were $129 million for current and planned silicon buys.

--Zinc Sulfide Forward Looking Infrared (FLIR) window. It affects the Pave Tack program, costs $300,000 to develop, and reduces the cost of windows by $5,000 per unit. The Navy is now buying 125 units and a second lot of 100 units is ready for procurement.

--Water management aspects of pollution abatement in ammunition plants is one of the areas which has received funding from the MT program. Efforts have been concentrated at Radford, Virginia, and Holston, and Kingsport, Tennessee. With an investment of $1.3 million, it was possible to recover nitric, sulfuric, and acetic acid with an attendant savings in capital equipment of $6.5 million and operating costs

of $3.5 million per year. The projects at Radford provided capability to recycle the mixed acids, remove nitro-cellulose fine particles, and to recycle the waste water effluents. The work at Holston added recovery capability in the manufacture of acetic anhydride, acetic acid, and ammonia, and added the capability for concentrating cyclohexamine and nitric acid.

--Under an MT project, Goldsworthy Engineering, Inc., designed and fabricated a computer-controlled, machine Automated Tape Layout System (ATLAS) for the Army. As a direct result of the ATLAS project, another contractor developed two production machines, one for CH-46 helicopter rotor blades and one for CH-47 helicopter rotor blades. Use of these machines resulted in a cost reduction of $19,000 per blade when compared to the methods previously used. Additionally, the useful life of the new blade is approximately 10 times that of the blades being replaced. The cost of the ATLAS project is calculated at $2,278,300 and the potential savings for new blades at $385,000,000. To date there have been 275 blades produced by these machines which translates into a cost savings of $3,712,500 in manufacture. This dollar savings does not take into account the 10 to 1 ratio in improved blade life.

CITE CASES AND SAVINGS ACCRUED BY THE USE OF "A FORMAL PROGRAM" TO JUDGE PAST PERFORMANCE IN CONSIDERING FUTURE AWARDS.

This relates to the sentence in the OMB letter of April 3, 1979, that states, in part,

> "The Air Force has now begun a formal program to judge past performance of defense contractors as an element in considering future awards, another specific issue which you raised."

The Air Force advises there are not specifically quantifiable cases where savings have accrued through the use of a formal program of past performance evaluation. The Air Force believes that past performance, over time, should result in substantial savings by assisting it in selecting the most qualified offeror and by motivating industry toward self-improvement.

The Air Force is conducting a test to determine if past performance is more useful to the Source Selection Authority when used as a major ranked area of evaluation or when used as a general management consideration (not rated or scored). After the test, past performance policy, in terms of its usefulness to the Source Selection Authority in selecting a competent and qualified source, will be implemented.

TO WHAT EXTENT WOULD S. 5, THE FEDERAL ACQUISITION REFORM ACT, BE EFFECTIVE IN ADDRESSING A NUMBER OF CONCERNS RAISED ABOVE?

The concerns are basically: (1) cost overruns, contractor productivity, and other management practices, (2) more extensive use of competitive bidding and discouragement of sole-source contracting, (3) use of simplified functional standards in lieu of detailed specifications, (4) converting planned flexibly priced contracts to fixed-price type contracts, (5) savings from monitoring policies, procedures, and practices of contractors related to indirect costs charged to the Government, and (6) savings by using a formal program to judge past performance in considering future awards. The extent to which S. 5 addresses each of these concerns is discussed below.

(1) S. 5 does not specifically address cost overruns or contractor productivity. The bill's stated policy is to promote effective competition, which should indirectly stimulate improved productivity. Promoting effective competition will not necessarily reduce cost overruns. Although section 201 states that the competitive, sealed bids method shall be used in acquiring property and services, seven conditions are listed which must be present before this procurement method is to be used.

(2) Section 301 lists two criteria for competitive negotiation. The use of competitive negotiation is to be placed on a par with advertised procurement. This changes the philosophy embodied in existing legislation which states that the preferred method is advertising, with negotiated procurements as exceptions to be specifically identified and explained.

Section 304 requires that contracts must be awarded on a competitive basis, except where the agency head

determines it is in the best interest of the Government to enter into a noncompetitive contract or the award stems from the acceptance of an unsolicited proposal. It states further that for all contracts, except those stemming from the acceptance of an unsolicited proposal, notice of intent to award such a contract shall be published at least 30 days in advance of solicitation of a proposal from the prospective contractor. If other sources demonstrate an ability to meet the requirements, a solicitation or an invitation for sealed bids shall be issued to all such prospective offerors. However, we believe that notice of intent to award a contract pursuant to an unsolicited proposal should be similarly publicized. This should increase competition which may result in more novel, superior, economical approaches.

(3) Section 302 states to the maximum extent practicable and consistent with agency needs, solicitations shall encourage effective competition by using functional terms rather than detailed product specifications. Functional standards can help increase competition with resulting lower costs to the Government.

(4) S. 5 does not address converting planned flexibly priced contracts to fixed-price type. Section 501 states that although the preferred contract type shall be fixed price, contracts can be of other types, consistent with the degree of technical and financial risk of the contractor which will promote the best interests of the Government. No explanation or clarification regarding financial risk or best interests of the Government is given.

(5) The bill attempts to reduce the Government's monitoring of contractors' indirect costs charged to the Government. Section 509 waives the determination of reasonableness of indirect overhead costs where a contractor's most recent fiscal year shows that more than 75 percent of the activities' business consist of commercial and competitive Government contracts. Competitive Government contracts must be firm fixed-price or fixed price with escalation and must have price as the deciding factor in the award.

If the above 75-percent conditions are met, section 509 also waives Government reviews of contractors' management and procurement systems. However, S. 5 states that the waivers shall not be granted if a contractor has incurred costs of over $10 million under Government contracts where the contract prices were based on estimated or actual

costs. The impact of the $10 million threshold is to limit the number of contractors who can operate under the reduced monitoring.

In addition, where applicable, the waiver would apply to cost accounting standards and advance agreements for independent research and development, and bid proposal activities. We believe that a waiver of cost accounting standards under section 509 would not be in the Government's best interest in reducing contract costs.

(6) S. 5 does not include a formal program to judge past performance in considering future awards. However, past performance is normally considered in determining whether a contractor is responsible as required under section 203b and 303d.

To summarize our conclusions, we do not believe that S. 5 will effectively deal with most of the concerns expressed in the letter and its attachment.