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STATEMENT OF
ELMER B. STAATS, COMPTROLLER GENERAL OF THE UNITED STATES
BEFORE THE
SUBCOMMITTEE ON RESEARCH AND DEVELOPMENT
COMMITTEE ON ARMED SERVICES, UNITED STATES SENATE

S. 508

Mr. Chairman and Members of the Subcommittee:

At your request, we appear before you today to present the information that the General Accounting Office has developed in the course of its study of allowances for independent research and development (IR&D) costs in negotiated contracts. As you know, we issued a report on the results of this study to the Congress on February 16, 1970.

The extent to which Government agencies should participate in contractors' IR&D costs has been a matter of serious concern within the executive branch for many years but no satisfactory solution has been reached to the many problems involved. Consequently, I believe that these hearings and the hearings in the House of Representatives should prove very helpful. Our report includes three recommendations for consideration by the Congress and also presents several issues and alternatives concerning basic governmental policy on which we do not make a specific recommendation.

What is IR&D?

The term IR&D refers to that part of a contractor's total research and development (R&D) program which is not under a direct contract or

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grant. It is essentially a company's self-initiated R&D program performed in areas selected at its discretion, and is undertaken to help it to be in a position to produce new or improved products. Generally IR&D is more relevant to the future business of the company than to its current production and may or may not be directly related to the Government as a potential customer.

Other technical and engineering activities of a company, such as those involved in developing contract bids and proposals, are often quite similar to the technical and engineering activities performed under IR&D programs. While activities such as these are identified in contractors' records by a variety of titles, they are so closely related to IR&D that they must necessarily be considered in any discussions or deliberations concerning that subject.

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How are IR&D and related costs paid for?

In establishing prices and profit margins for commercial products, a company attempts to include a provision for recovery of IR&D costs in its profit margin to the extent competitively feasible. Thus, the amount of IR&D cost recovered in commercial sales depends in large part upon the extent of price competition. In the absence of effective price competition, as in sales to the Government priced on the basis of cost data, IR&D is handled as an overhead cost. *amount*

How is the Government's share determined?

Government agencies have generally recognized that IR&D costs, and to some extent bid and proposal costs, require special attention in determining the amount of overhead expense that should be allowed under negotiated contracts, especially for firms whose products are not easy to duplicate.

The amount of IR&D that a company decides to spend in a given year can vary significantly at the option of the company management. Other types of overhead costs frequently are fixed in nature or vary in proportion to the volume of the contractor's business. Special procedures have, therefore, been developed by the Government agencies over the amount of IR&D that will be accepted as a charge to the Government contracts.

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Department of Defense (DOD) and National Aeronautics and Space Administration (NASA) procedures

✓ DOD and NASA, which follow the same procedures, bear the bulk of the Government's share of IR&D costs.

Section 15-205.35 of the Armed Services Procurement Regulation (ASPR) and Section 15-205.35 of the NASA Procurement Regulation provide that the costs of contractors' independent research efforts are allowable if allocated to all work of the contractor, both Government and commercial. On the other hand, the costs of the contractors' independent development efforts are allowable to the extent that the development is related to the product lines for which the Government has contracts, provided the costs are not unreasonable and are allocated to all work of the contractor on such product lines.

For larger contractors, it has been customary in most cases to negotiate an agreement applicable to all of the contractor's negotiated contracts. This agreement establishes the maximum amount of otherwise allowable IR&D costs that may be accepted for allocation in the pricing of Government work.

For example, a contractor, whose sales are 75 percent to the Government, proposes an IR&D program involving \$2 million. The agreement provides for a dollar ceiling of \$1.8 million on the amount of IR&D that will be recognized by DOD and NASA for allocation to all of the contractor's work in the organizational unit covered by the advance agreement. If the contractor actually incurs IR&D costs of \$1.8 million, the amount allocated to Government work would be \$1.35 million, because the contractor's sales are 75 percent to the Government. However, the actual cost to the Government may be less than \$1.35 million, depending on the extent of Government contracts which may not permit full recovery of the allocated share of IR&D costs, such as AEC contracts.

If the contractor actually incurs IR&D costs greater than the agreed ceiling of \$1.8 million, the excess costs will be borne by the contractor since they may not be allocated to the Government work.

Generally the agreement also provides for cost-sharing arrangements in addition to the dollar ceiling. For example, in the same hypothetical case, the agreement provides for an 80-20 cost-sharing arrangement in addition to the \$1.8 million ceiling. If the contractor spent \$1.8 million for IR&D costs, 80 percent of such costs (\$1.44 million) would be allocable to all of the contractor's customers, and the amount allocated to Government work would be 75 percent of that amount, or \$1.08 million.

The effect of a cost-sharing agreement combined with a dollar ceiling is to require the contractor to spend a greater amount on his IR&D program than the agreed ceiling if he wishes to recover the maximum

Government share. Thus, using the same example, the contractor would have to incur \$2.25 million in IR&D costs to reach the \$1.8 million ceiling on the 80-20 cost-sharing basis, and the amount then allocable to the Government work would be 75 percent of the ceiling, or \$1.35 million.

The DOD and NASA regulations suggest that the cost-sharing approach be used "in some cases" to provide motivation to the contractor for more efficient accomplishment of his IR&D program. We found that the agreements usually include cost-sharing arrangements in additions to the dollar ceiling on IR&D. Contractors have objected to the extensive use of cost sharing. Proposed revisions to the regulations on IR&D do not include any provision for cost sharing.

Prior to the negotiation of the agreements, the contractors generally furnish a brochure describing their planned IR&D programs. Government technical personnel normally evaluate the nature, purpose, and proposed staffing of such planned programs. The technical evaluation reports are then submitted to Government negotiators for consideration, along with other information, in negotiating the agreement as to the amount of IR&D which will be recognized as includable in overhead costs. However, as will be indicated later, many problems have arisen in the administration of these procedures.

Atomic Energy Commission (AEC) procedures

The AEC policy on allowability of IR&D costs differs substantially from the DOD and NASA policies. Instead of accepting a general allocation of IR&D costs, AEC considers such costs to be unallowable except

to the extent they provide a direct or indirect benefit to the work under the contract. AEC does not accept IR&D charges which are primarily of a sales promotion nature, are actually undertaken for other customers, or duplicate R&D work that AEC has sponsored. Amount

It should be noted that about 80 percent of AEC's contract work is with contractors which operate AEC-owned plants and laboratories on a cost-plus-a-fixed-fee basis. All R&D efforts performed under these contracts are financed by AEC. Thus, AEC's policy on IR&D applies basically to the 20 percent of its contract effort conducted by contractors in their own facilities, or to subcontractors to the contractors operating AEC-owned plants. ✓

How much Government money is involved?

Complete information as to the amount of Government funds spent for contractors' IR&D, bid and proposal, and other technical efforts is not readily available. However, according to special studies made by the Defense Contract Audit Agency, expenditures by DOD and NASA for participating in the cost of such efforts of their major contractors have risen substantially in recent years. The DOD/NASA share of such costs for major contractors increased from \$516 million in 1963 to \$816 million in 1968, with DOD bearing about 85 percent of such costs. AEC costs for IR&D and bid and proposal effort are substantially lower--approximately \$3 million per year.

Source of Government funds

As I stated previously, IR&D is charged to the Government contracts as an overhead cost and is absorbed by the appropriations which financed the respective contracts. In the case of AEC and NASA, the bulk of funds used for contract operations comes from a single annual appropriation for

the agency. Thus, the same source of funds is used in these agencies to finance R&D work performed under direct contract and the agencies' share of the cost of contractors' IR&D work.

DOD, however, finances its contract operations from several appropriations. The procurement appropriations generally bear most of the DOD share of the IR&D costs, whereas the cost of direct R&D contracts is charged to the appropriations for research, development, test and evaluation.

How much about procurement?

What are benefits to Government from IR&D?

As previously indicated, AEC's policy is to consider a charge for an IR&D project unallowable unless it provides a direct or indirect benefit to the work under the contract. DOD and NASA, however, do not have such a policy.

Question as to the Government benefits arising from IR&D programs was raised during congressional hearings on DOD appropriations in 1966. DOD asked the Defense Science Board to obtain such information. A task group comprised mainly of corporate officials of major Defense contractors summarized the benefits, as follows:

"(1) IR&D is used to develop and demonstrate complete prototypes of technologically advanced hardware before a formally recognized military requirement exists.

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"(2) IR&D is used to develop the requisite technology for a known forthcoming military requirement.

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"(3) IR&D is used to upgrade the capabilities of important weapon systems.

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"(4) Technology often precedes military requirements; but, as a result of broad advances in technology stemming from IR&D, new capabilities become possible and often give birth to military requirements."

Case histories of selected IR&D projects that had resulted in significant benefits to DOD were cited by the task group to illustrate these points.

What is relationship between IR&D and R&D?

Our study was not of sufficient depth to determine whether the funds provided to defray the costs of contractors' IR&D programs yield benefits to the Government commensurate with those obtained under contracted research.

Our study indicated that a close relationship may exist between contractors' IR&D projects and their R&D work performed under direct contracts. The work begun under an IR&D project may lead to a direct R&D contract, or conversely, as a result of work done under a direct R&D contract, the contractor may decide to conduct IR&D work in related fields.

While the IR&D work and the contracted R&D work may be closely related, the difference in sponsorship has a significant impact on the Government. For example, the contractor's IR&D brochure presented to DOD and NASA may show that work is planned to cover certain areas which are of considerable interest to these agencies. However, the contractor has the right to change his program and, in fact, such changes often are made. Consequently, the work planned in areas of particular interest to the Government may not actually be performed.

The difference in sponsorship also affects the Government's rights arising from the R&D work. Also, there is a greater possibility that R&D

efforts are being unnecessarily duplicated by IR&D efforts. I will discuss these two aspects separately.

Rights developed under IR&D programs

The Government is entitled to receive certain rights to inventions and technical data arising from work under R&D contracts. However, the Government generally does not obtain such rights for work performed under IR&D.

The Government patent policy stated by the President in his memorandum of October 10, 1963, provides that, subject to statutory restrictions, in any case where an invention or discovery is made in the course of or under any contract for R&D, the Government should receive a nonexclusive royalty-free license throughout the world for governmental purposes or obtain title to the invention. This patent policy statement does not make specific reference to inventions developed by contractors under IR&D and, according to information provided by the office that drafted the policy statement, the policy was not intended to cover such inventions.

The Government also acquires certain rights to technical and other data and copyrights resulting from R&D contracts. Unlimited rights are acquired under certain circumstances to use, duplicate, or disclose technical data, in whole or in part, in any manner and for any purpose, and to have or permit others to do so. Limited rights are acquired under other circumstances.

One reason advanced for the Government policy of not obtaining rights under IR&D programs is that IR&D costs are properly allocable to all customers as a cost of operating an independent business and that, like any

other customer, the Government should not seek or expect patent or data rights when the price it pays for products includes costs of IR&D.

Summary

Several of the contractors included in our study provided, at our request, information as to the number of patents resulting from their IR&D programs. The information provided us showed that although the expenditures of these companies for contracted R&D work were substantially greater than the expenditures for IR&D, a significant portion of their patents resulted from inventions arising from their IR&D programs. One company, for example, informed us that during a 6-year period it had been issued 22 patents for inventions resulting from IR&D, and 17 patents on inventions resulting from DOD contract work. The Government received royalty-free licenses to the 17 patents. However, under present policy it did not receive any rights to the 22 inventions developed under IR&D. If the Government later procured items on which patents to these inventions had been granted, it could be subject to charges for royalties.

Is there unnecessary duplication in IR&D?

AEC procedures preclude payment for IR&D projects which duplicate work done under any AEC contract. Similar procedures are not followed by DOD or NASA. Consequently, there is no assurance that unnecessary duplication of effort does not occur. Please note that I have intentionally used the term "unnecessary duplication," as we recognize that there are times when duplication in R&D may be desirable.

Our report shows that there is a substantial amount of information passed from the Government to contractors concerning contracted and in-house R&D activities and objectives. There are, for example, DOD briefings

and documents that describe the areas of need for R&D, contractors' visits to DOD laboratories, and technology reviews by DOD personnel at contractors' plants.

Conversely, DOD obtains considerable information as to the IR&D programs of major contractors but such information is considered proprietary and not available to other companies.

While this somewhat limited exchange of information may be helpful in avoiding unnecessary duplication of technical effort, we felt that a more systematic method of disseminating the content of contractors' IR&D programs to Government personnel was warranted in order to assist the Government in planning its own in-house, as well as contracted, research work. An extensive system has been established for the interchange among Government personnel of information on Government R&D work, both in-house and under contract, and it seemed to us that the information contained in contractors' IR&D programs could be included in this system with appropriate safeguards to protect contractors' proprietary information. The need for such a method has been acknowledged by DOD.

Problems in determining DOD/NASA share of IR&D

As I mentioned earlier, many problems have arisen in the implementation of the DOD and NASA procedures for determining the Government's share of a contractor's IR&D. Many of these problems have existed for years. These problems are discussed in detail in our report. I will summarize the more significant problems.

1. Relationship between IR&D and bid and proposal efforts

For the larger contractors, the cost of technical effort included in their IR&D programs generally is subject to limited acceptance in

accordance with the IR&D agreements. The cost of technical effort involved in preparing bids and proposals generally is not subject to such limitations. The types of costs involved in these two categories of effort are quite similar and there could be an incentive for a contractor to classify IR&D efforts as bid and proposal work and thereby increase the likelihood of obtaining full allowance of the costs. This would be particularly advantageous to a contractor where his IR&D costs are in excess of the agreed ceiling.

This problem has been of concern to DOD officials since 1962. Our report to the Congress in March 1967 pointed out the continuing existence of this problem.

AEC does not have the problem of distinguishing IR&D from bid and proposal expense. As in the case of IR&D, AEC's policies on acceptability of bid and proposal effort differ from those of DOD and NASA. The costs of preparing bids and proposals are generally allowable by AEC if their subject is applicable to the AEC program.

2. Delays in negotiating IR&D agreements

The special agreements negotiated with major Defense and NASA contractors on IR&D costs are referred to as "advance" agreements as they are intended to be negotiated prior to cost incurrence. These advance agreements are intended to provide some assurance to the contractor that its IR&D costs will be recovered and that disputes with Government contracting personnel concerning the reasonableness or allocability of the costs will be minimized or avoided. At the same time, advance agreements place a limit on the Government's liability for IR&D costs.

Our study showed, as did other studies made during 1962 and subsequently, that many agreements were not being negotiated in advance of cost incurrence but instead were being negotiated long after the IR&D programs had been in effect. Thus, the agreements may tend to ratify costs already incurred.

For example, our report shows that only 38 percent of the agreements negotiated by DOD for 1966 had been established in advance of the period of cost incurrence and 36 percent of the agreements were not negotiated until more than 6 months after the period covered in the agreement started. A recent analysis shows that this situation has deteriorated. Thus, the benefits contemplated by the advance agreement procedure are not being fully obtained.

Some contractors have been unwilling to negotiate agreements on IR&D. Where such agreements are not negotiated, the full amount of the contractor's IR&D is allowable, under a ruling of the Armed Services' Board of Contract Appeals, unless the Government specifically questions the reasonableness or allocability of the IR&D expenditures. As pointed out in the ASPR, the reasonableness and allocability of expenditures for IR&D may be difficult to determine. Consequently, it would be particularly important to the Government that advance agreements be negotiated promptly to avoid allowance of disputable costs.

3. Relevancy of IR&D to Government interests

DOD regulations provide that the reasonable cost of contractor's independent research efforts is allowable if allocated to all work of the contractor.

While such research does not have to be relevant to Government interests, the contractor's independent development effort is required to be related to the product line for which the Government has contracts in order for the development efforts to be allowable. However, under the DOD interpretation of this regulation, it seems that a contractor could diversify into new product lines and services and the Government would participate in his cost of entering such new fields unless they clearly had no correlation to the lines of effort within the business unit in which the Government has contracts.

While our limited study did not disclose any significant indication that the contractors visited were using their independent development programs as a means of entering new fields of endeavor at Government expense, we noted that one of these contractors was placing increasing emphasis on diversification beyond existing product lines and into non-defense fields. This contractor, engaged substantially in DOD and NASA work, after exploration into the field of water purification, now has contracts with the Department of Interior and others amounting to \$1.7 million annually for developmental services and demonstration equipment in this field, and has expanded into related fields.

Certainly the performance of technical effort in these fields is of interest to the Government. However, they would appear to have greater relevance to the missions of agencies other than DOD and NASA and, therefore, question arises as to whether the financing of such development efforts out of DOD or NASA funds is appropriate.

The proposed ASPR revision on IR&D, which I referred to previously, does not contain the current stipulation that independent development

expenses should bear a relationship to the contractor's product lines for which the Government has contracts. Thus, if this revision were to be adopted, it is possible that the Government would bear a share of independent development costs which are not only unrelated to the agency's mission but, in addition, are not relevant to the Government's interests.

Actions considered by DOD to resolve problems

The problems which I have summarized and others discussed in our report have been known to DOD officials for many years and various approaches have been considered for resolving these problems. These approaches have included such diverse methods as use of industry-wide averages as a basis for determining reasonableness of proposed IR&D expenditures, providing direct contract support for specific projects, and treating IR&D as a profit factor instead of an allowable cost.

These approaches are described in some detail in our report and I will not take the time to discuss them unless you so desire.

As I mentioned earlier, revisions to the ASPR covering IR&D have been proposed by DOD. The proposal in January 1968 was superseded by a different proposal in February 1969. We were asked by DOD to comment on the proposed revisions. In our opinion, they would alleviate some of the problems that have existed for years. However, it appeared to us that the February 1969 proposed revision would have resulted in increased Government costs and decreased Government awareness of the value of the programs that it was substantially funding. We, therefore, suggested that the proposed revision not be issued.

Dr. John S. Foster, Jr., Director of Defense Research and Engineering, stated in his testimony last Monday morning before the House Armed Services Investigating Subcommittee that the Deputy Secretary of Defense has approved a new plan for controlling IR&D and bid and proposal. The plan apparently incorporates portions of both the January 1968 and the February 1969 proposed revisions, includes strengthening of DOD's procedures in reviewing and evaluating contractors' proposed programs, and provides for the establishment of a centralized data bank on IR&D project costs and technical information. Dr. Foster said that DOD will move toward early implementation of the plan provided the Congress does not pass legislation which would require different action.

Suggestions for consideration by the Congress

The cost to the Government for DOD and NASA participation in IR&D programs has been rising continuously. These hearings and the recent hearings in the House are therefore very timely, particularly in view of the fact that the appropriations for R&D in DOD and NASA are being reduced.

We believe that it is important that industry maintain its capability to develop new systems for national security. But considering the fact that \$16 billion is being spent by the Government for direct R&D (half by DOD), the question inevitably arises as to whether the additional cost to the Government of \$685 million per year for sharing IR&D and related expense is of comparable value to the Government. If so, the question naturally arises as to whether these programs should not be handled under contracts or at least be required to be relevant to the contract or the agency's direct interest.

We recognize that some differences between agencies in participation in IR&D and related costs may be necessary. Nevertheless, it seems clear that some consistent policy calling for a greater relationship between the extent of participation and the benefits to be realized would be of advantage to the Government as a whole.

Accordingly, we have included in our report certain recommendations to the Congress, summarized in the digest of the report, as follows:

1. No clear distinction can be made between IR&D and other independent technical efforts, such as bid and proposal efforts; and consequently, any agreed ceilings on IR&D negotiated by DOD or NASA can be avoided through description of an IR&D project under different terminology. We recommend that all contractors' independent technical efforts, including IR&D, bid and proposal, and other technical efforts be considered as a single entity.
2. Unlike AEC and NASA, DOD has separate appropriations for procurement and for R&D activities, and DOD's share of contractors' IR&D costs generally is borne by the procurement appropriation without identification as IR&D. We recommend that, if the Congress authorizes continuation of the present practice of allowing the inclusion of IR&D as an acceptable cost element in negotiated contracts, DOD be directed to break out and identify separately in its appropriation requests the amount estimated as required for this purpose.
3. The policies followed by DOD and NASA on acceptability of IR&D cost differ from those of AEC which allows IR&D costs as an

element of overhead only to the extent that they provide a direct or indirect benefit to the contract work. We recommend that a policy be established by the Congress stating the extent to which, and under what circumstances, Government agencies should participate in the cost of contractors' independent technical efforts.

Our report also presents several issues and alternatives for consideration in determining the Government-wide policy on IR&D, as follows:

--whether or not the present practice of allowing IR&D as an acceptable overhead cost in negotiated contracts should be replaced by a system of:

- (a) extending the use of direct R&D contracts to include those IR&D projects which the agency wishes to support fully or on a cost-sharing basis, thereby providing greater assurance that the desired work will be performed and that the Government will be entitled to information and royalty-free rights to any inventions arising therefrom, and
- (b) authorizing an allowance for a stipulated percentage of the remainder of the contractor's total IR&D effort, irrespective of the source of funding, either as a profit factor or through acceptance as a recognized overhead cost, as an incentive to contractors to continue technical efforts beyond those directly contracted with the Government.

--whether or not allowances to contractors for IR&D should be confined to projects that have a direct and apparent relationship to a specific function of the agency, and

--whether or not, if IR&D allowances by DOD and NASA are continued on the present basis and are not related directly to current or prospective Government procurement, financial support should be provided to companies with similar capabilities which do not hold Government contracts as a means of supporting and strengthening industrial technology.

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Mr. Chairman, this completes my prepared statement. I will be happy to provide additional information as desired.