

DECISION**THE COMPTROLLER GENERAL
OF THE UNITED STATES**
WASHINGTON, D. C. 20548CGM
2442**FILE:** B-209790**DATE:** March 3, 1983**MATTER OF:** NASA--Interpretation of Public Laws 97-219
and 97-272**DIGEST:**

In calculating its 1983 set-aside for small business innovation research program, NASA should apply definition of "research and development" that appears in Small Business Innovation Development Act, Pub. L. No. 97-219, 96 Stat. 217, July 22, 1982, to its budget for Fiscal Year 1983 without regard to appropriation heading "Research and Development." Since Congress clearly appropriated funds for certain operational activities under that heading, it would be contrary to congressional intent for set-aside to be based on amounts not available for research and development.

The Administrator of the National Aeronautics and Space Administration (NASA) has requested an advance decision concerning the application of the Small Business Innovation Development Act of 1982 (Act), Pub. L. No. 97-219, 96 Stat. 217, July 22, 1982, to NASA's operations.

That Act requires that agencies with "extramural budgets" for research and development (R&D) in excess of \$100,000,000 per year set aside specified percentages of such budgets for award of contracts, grants or cooperative agreements to small business concerns participating in Small Business Administration approved small business innovation research (SBIR) programs.

The question presented by NASA is whether the SBIR set-aside in its case must be calculated as a percentage of the total funds appropriated under the account entitled "Research and Development" or whether it may be calculated instead by distinguishing between research and development activities and operational activities, both of which are included in the R&D appropriation, and applying the set-aside only to the funds identified in its budget submission for research and development. Depending on the figure selected, the amount of funds for the SBIR set-aside will be either \$11.1 million or \$3.3 million.

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For the reasons discussed below, we conclude that the set-aside should be calculated by applying the required set-aside percentage only to programs within NASA's R&D appropriation which fit within the statutory definition of research and development in the Act.

Section 4(f)(1) of the Small Business Innovation Development Act of 1982 provides as follows:

"Each Federal agency which has an extramural budget for research or research and development in excess of \$100,000,000 for fiscal year 1982, or any fiscal year thereafter, shall expend not less than 0.2 per centum of its extramural budget in fiscal year 1983 or in such subsequent fiscal year as the agency has such budget not less than .6 per centum of such budget in the second fiscal year thereafter, not less than 1 per centum of such budget in the third fiscal year thereafter, and not less than 1.25 per centum of such budget in all subsequent fiscal years with small business concerns in connection with a small business innovation research program which meets the requirements of the Small Business Innovation Act of 1982 and regulations issued thereunder * * * Provided further, that a Federal agency shall not make available for purposes of meeting the requirements of this subsection an amount of its extramural budget for basic research or research and development which exceeds the percentages specified herein. * * * (Emphasis supplied.)

"Research and development" and "extramural budget" are defined by section 4(e)(1) of section 4(e)(5) as follows:

"The term 'extramural budget' means the sum of the total obligations minus amounts obligated for such activities by employees of the agency in or through Government-owned, Government-operated facilities * * *;"

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"The term 'research' or 'research and development' means any activity which is (A) a systematic intensive study directed toward greater knowledge or understanding of the

subject studies; (B) a systematic study directed toward applying new knowledge to meet a recognized need; or (C) a systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design development, and improvement of prototypes and new processes to meet specific requirements."

NASA's fiscal year 1983 appropriation for research and development, and for other purposes, is set out below:

"Research and Development

"For necessary expenses, not otherwise provided for, including research, development, operations, services, minor construction, maintenance, repair, rehabilitation and modification of real and personal property; tracking and data relay satellite services as authorized by law; purchase, hire, maintenance, and operation of other than administrative aircraft, necessary for the conduct and support of aeronautical and space research and development activities of the National Aeronautics and Space Administration; and including not to exceed (1) \$1,769,000,000 for Space Shuttle, (2) \$1,796,000,000: Provided That the amount available for obligation or expenditure shall be reduced to the extent subsequent authorizations provide for transfers for Space Flight Operations, (3) \$115,000,000 for Space Transportation Systems--Upper Stages, (4) \$88,000,000 for Space Transportation Systems Operations--Upper Stages, (5) \$137,500,000 for the Space Telescope, (6) \$34,500,000 for the Gamma Ray Observatory, (7) \$92,600,000 for Project Galileo, (8) \$4,000,000 for a Space Station, (9) \$55,000,000 for Performance Augmentation, without the approval of the Committees on Appropriations, \$5,542,800,000, to remain available until September 30, 1984; Provided, That \$280,000,000 shall be made available for aeronautical research and technology, that \$192,000,000 shall be made available for design, development, procurement, and other related requirements of liquid hydrogen-liquid oxygen upper stages (Centaur): Provided

further, That none of the funds in this or any other Act shall be used for the development of a fifth space shuttle orbiter without the approval of the Committees on Appropriations." Pub. L. No. 97-272, 96 Stat. 1169.

NASA historically has been essentially a research and development-oriented agency. The titles of its three appropriation accounts reflect this orientation. Its appropriations other than for "Research and Development," quoted above, in fiscal year 1983, are for "Construction of Facilities" and "Research and Program Management." The latter appropriation is for the operation of Government owned and operated facilities.

Concerning the R&D Appropriation, NASA itself, prior to fiscal year 1983, has consistently treated the entire amount of the appropriation, as well as all of the programs and activities specified therein, as research and development. For example, in response to our inquiry, the National Science Foundation informed us that NASA has always reported its "entire budget" in responding to an annual National Science Foundation survey entitled "Federal Funds for Research and Development." Similarly, the Office of Management and Budget informed us that "in the past, NASA has reported all of its activities as R&D for inclusion in the R&D Special Analysis [Special Analysis K] prepared each year by OMB as part of the President's budget." In making their estimates of the gross amounts, Government-wide, that would be available for the SBIR program, the cognizant Small Business Congressional Committees used the amounts identified as R&D in prior year appropriations. See, e.g., page 180 the Report of the Senate Small Business Committee, S. Rep. 97-194, September 25, 1982. Finally, in a report from the Small Business Administration on this question, the Acting Assistant Administrator for the Office of Innovation Research and Technology says that NASA should be bound by the fact that it submitted all the activities in the appropriation as R&D in its report to OMB on R&D activities in the budget.

In fiscal year 1983 budget submissions and related documents, and in the legislative history of NASA's fiscal year 1983 appropriation, however, there is a recognition that a number of programs, most notably the Space Shuttle program, had concluded their research and development phase and were now operational. For example, the Senate Appropriations Committee Report, S. Rep. 97-537, September 9, 1982, states at page 59:

**** * * The operational era of the Space Shuttle will be initiated in fiscal year 1983. Operational activities in fiscal year 1983 will support five flights and procurement assembly and checkout of the solid rocket boosters, external tanks, and other hardware for flights in subsequent years. Production activities in fiscal year 1983 will feature the final preparations for the delivery of the third flight Orbiter and the operational modifications to the first orbiter vehicle. The development of a lighter-weight solid rocket booster will be pursued to provide additional performance for west coast launches of the Space Shuttle. The appropriation will also provide expendable launch vehicles and services to augment the Space Shuttle.**" (Emphasis supplied.)

The House Committee on Science and Technology also assumes the operational phase of the Space Shuttle program in its report, H. Rep. 97-502 (May 5, 1982), as follows:

"Shuttle Operations

"The major goals for the operational success of the Space Shuttle are establishing an adequate orbiter fleet, increasing the number of flights, decreasing turn-around time, and decreasing the cost per flight. NASA faces a major challenge in shifting the organizational and institutional bias from a research and development character to an operational character. NASA's success in meeting this challenge will depend largely on achieving self discipline within the agency in avoiding unnecessary engineering changes, in reducing duplication between government and contractor responsibilities and capabilities, and in evolving an acquisition strategy which makes maximum use of competitive procurements."

In its Special Analysis K, "Research and Development," OMB explains NASA's Space Shuttle activities as follows:

"The Shuttle is expected to operate on a routine basis in 1983 to meet the needs of domestic and foreign users, who have already made significant investments in anticipation of its availability in the early 1980s . Also,

regular Shuttle operations are important to meet civilian and national security commitments in a timely manner at the lowest total cost to the Nation. While the Shuttle is expected to replace the most expendable launch vehicles, the budget continues efforts to assure adequate expendable vehicle capacity until the Shuttle becomes fully operational.

"With the second successful launch of the Space Shuttle orbiter, Columbia, the U.S. clearly demonstrated that a manned reusable space vehicle is feasible. The 1983 budget provides the funds needed to make possible a timely and effective operational Shuttle system."

The statements in the House and Senate reports, and in OMB's Special Analysis K, quoted above, were based on a detailed budget submission prepared by NASA, entitled "F.Y. 1983 Budget Plan." It listed separately extramural research and development, intramural research and development, and a variety of production and operation activities, described with considerable specificity. It appears that all activities which could reasonably fit the definition of extramural research and development set forth in the Act were listed under that heading in the Budget Plan. It was on the basis of the dollar figures associated with these activities that NASA calculated the total funds subject to the SBIR set-aside. (We note from NASA's submission to us that it has established an SBIR program at a higher level, based on the entire R&D appropriation account, while waiting for our decision.)

The anomaly of an appropriation account, headed "Research and Development", covering activities the majority of which are for "operations, services, minor construction, maintenance, repair, rehabilitation of real and personal property, * * *" etc., was recognized by Chairman Jake Garn of the Senate Appropriations Subcommittee on HUD and Independent Agencies. The Chairman made the following statement on the Senate floor during consideration of the fiscal year 1983 HUD and Independent Agencies Appropriations bill (H.R. 6956):

"Mr. President, in reference to this small business R&D issue. I intend, at a later point, to accept an amendment to strike the Senate proviso. In agreeing to this action, I would like to note that NASA is in a somewhat unique position for two reasons. First, much

of the NASA appropriation is committed to programs begun in earlier years, including the Space Shuttle, which is operated as a national system for various users. Further, a considerable portion of the appropriations account labeled 'research and development' for NASA is actually for work that is not of a research and development nature. For this reason, the bill language under the heading 'research and development' refers to 'operations, services, minor construction, maintenance, repair, rehabilitation and modification of real and personal property; tracking and data relay satellite services as authorized by law; purchase, hire, maintenance and operation of other than administrative aircraft, necessary for the conduct and support of aeronautical and space * * * activities.' Although I realize that final implementation of rules and regulations are presently being developed by SBA, OMB and the effected agencies, including NASA, it is my view that the provisions of Public Law 97-219 were intended to apply only the true research and development activities funded under this heading." (See Congressional Record, September 24, 1982, S-1215.) Emphasis added.

The Senate proviso, later stricken, referred to in the quoted statement would have limited NASA's participation in the SBIR program to \$1,570,000. Colloquy between Chairman Garn and the Senate sponsor of the Small Business Innovation Development Act, Senator Rudman, makes it clear that the \$1,570,000 limitation was dropped because it was agreed that the Small Business Innovation Development Act itself provided the flexibility NASA needed to accommodate its operational needs while at the same time maintaining its commitment to the small business community. Thus, Senator Rudman made the following statements in support of deletion of the limitation:

"Mr. RUDMAN. In studying the bill and the accompanying report, I see that the committee paid special attention to the application of Public Law 97-219, the Small Business Innovation Development Act, to the NASA program. I am pleased to see that the committee gave this program consideration and realize that NASA has voiced reservations concerning the possible effect of the program on its present R&D activities. However, as the original sponsor of the Small Business Innovation Development

Act in the Senate, I believe that the concerns that are motivating the committee can be met without the necessity of providing a specific limitation to the Appropriations Act and propose an amendment to that effect.

* * * * *

"However, to the extent that NASA has a problem unique unto itself for this upcoming fiscal year, I stand ready to work with the Senator from Utah and NASA to insure that there is no deleterious affect on the Agency's R&D activities caused by this first year of implementation of Public Law 97-219."

Senator Garn responded as follows:

"Mr. GARN. I thank the gentleman. With that understanding, the concern of the Appropriations Committee is satisfied. Although the exact amount to be applied to Public Law 97-219 in fiscal year 1983 will depend on final appropriation figures, the explanation provided by the sponsor of Public Law 97-219 renders the committee amendment unnecessary, and I gladly accept the amendment."

As indicated, NASA's estimate of the amount of set-aside funds calculated on the basis of actual extramural R&D is \$3.3 million, more than double the \$1,570,000 which would have been allowed under the proposed appropriation act limitation.

In our view, an interpretation of the Small Business Innovation Development Act which would require application of the statutory set-aside percentage to the entire NASA R&D appropriation, without considering the actual nature of the items being funded by that appropriation, would be unduly strained. In the first place, NASA's appropriation, although captioned "Research and Development," by its terms clearly provides funds for functions in addition to R&D and, in fact, specifies the availability of funds for "operations."

Secondly, the Small Business Innovation Development Act does not speak in terms of "bottom line" amounts in agency R&D appropriations. The operative reference is each participating agency's R&D extramural budget. Moreover, Small Business Innovation Research programs are described in the Act as programs "under which a portion of a Federal Agency's extramural research or research and development effort" is set aside for small business. Thus, to determine an agency's R&D

"effort," the Congress must look at its "extramural budget" for R&D, which in turn requires an analysis of the agency's budget submission. The nature of the work to be performed must conform to the Act's definition of R&D. It defines research and development in essentially the same way that term is defined by the National Science Foundation and the Office of Management and Budget--by reference to the nature of the activities performed and the goals sought to be achieved through such activities. An automatic application of a statutorily set percentage to a lump sum appropriation which, despite its label, includes amounts for non-R&D activities does not carry out the intent of the Act.

Finally, since funds set aside for an SBIR program may only be used for research and development, as defined by the Act, none of the funds set aside could be used for NASA's Space Shuttle program since the research and development phase of that program has been completed. However, the Shuttle program will account for roughly 60 percent of the funds to be spent by NASA from its appropriation under the R&D heading for fiscal year 1983. The statutory set-aside, however calculated, would therefore have to be applied to the extramural portion of the remaining 40 percent of NASA's total R&D appropriation. Calculation of the set-aside on the basis of the entire NASA R&D appropriation would thus result in a proportionately higher percentage than is permitted by the last proviso of section 4(f)(1) of the Act, quoted earlier. This anomalous result would clearly not seem to have been intended by the colloquy, mentioned above, between Senators Garn and Rudman, supporting deletion of a specific dollar limitation on NASA's participation in the SBIR program.

We therefore conclude that NASA's SBIR set-aside program should only be applied to those NASA programs funded through the NASA R&D appropriation and presented to the Congress as part of its detailed budget breakdown as constituting research and development as defined by the Small Business Innovation Development Act.

By regularly including its entire R&D appropriation as research and development in its annual response to the National Science Foundation's questionnaire and in information provided to OMB for inclusion in Special Analysis K, Research and Development, NASA has created a misleading impression of the total amount of funds actually available for true research and development and thus available for application to SBIR programs. We note that the portion of Special Analysis K of the President's Budget for fiscal year 1984 which deals with NASA specifically excludes totals for operational activities.

Moreover, the Office of Management and Budget, in its response to our request for comments on this case, suggests that in addition to the changed Special Analysis K treatment, NASA should change the title of its Research and Development appropriation to reflect its operational activities. We strongly endorse OMB's suggestion.

A handwritten signature in cursive script, reading "Milton J. Acosta".

for Comptroller General
of the United States