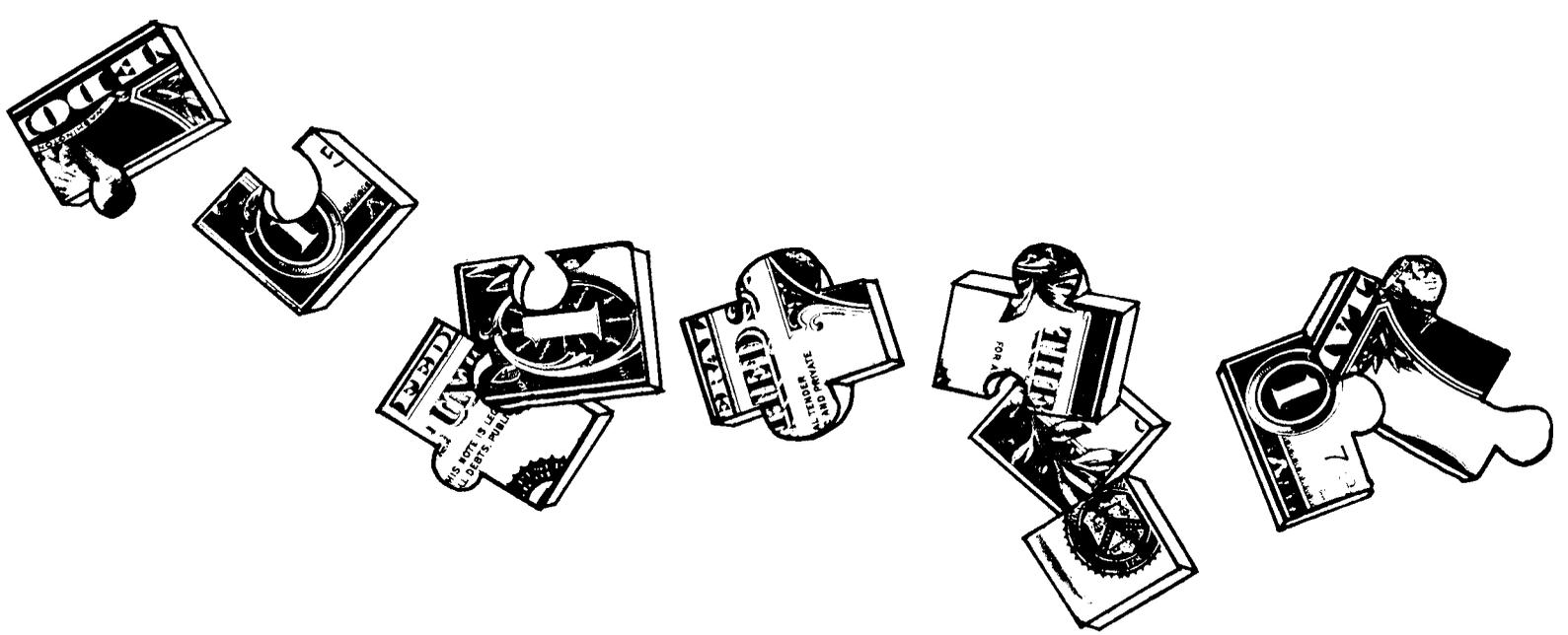


FEDERALLY SPONSORED RESEARCH:

*How Indirect
Costs Are
Charged
by Educational
and Other
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A Message From the Inspector General

This report was prepared in response to recent concerns about indirect cost rates at federally sponsored research institutions. The report has three purposes. To help develop a clear understanding of indirect cost issues, we provide a brief history of the development of federal indirect cost policies and payments since World War II, define the terms and concepts most commonly used when discussing overhead charges, and describe in simple terms the calculations most commonly used to develop indirect cost rates.

Second, we explain what was wrong with Stanford University's billings to the federal government for indirect costs, how the problems may have developed, and the steps the university and the government are taking to correct these problems. Last, the report analyzes why NSF's audit community faces different problems than those discussed in connection with the Stanford case, or that of other major research institutions. We also attach a glossary of terms and a list of reports as well as other sources of information for further study.

In FY 1991, the federal government will spend about \$69 billion for research and development. But additional demands are being placed on the government for research support, the cost of running major research institutions is steadily increasing and the scope and intensity of federal audit and investigative oversight is growing. These are all compelling reasons why people in both government and the private sector who have not known a great deal about indirect costs should learn about them now.

Effective and efficient funding of research by government through private institutions is predicated on a partnership in which both sides make concerted efforts to formulate and abide by rules that are fair and explicit. The first steps to establishing such a partnership are an understanding of the rules that govern indirect cost reimbursement; the history that shaped the development of those rules; and the respective responsibilities of government and private institutions for negotiating, auditing, and seeking reimbursement for these costs. We hope this report helps by providing information and framing discussions that may lead to solutions for many of the problems identified.



Linda G. Sundro
Inspector General

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Introduction

Since World War II, the federal government has emerged as the single most important source of funds to support research at the nation's educational and research institutions. The government's involvement with these institutions has benefited the research community and has made possible many of the nation's scientific achievements. Over the years, federal funding to educational and research institutions has steadily increased. Recently, questions have been raised about the appropriateness of some indirect cost expenditures by the nation's leading research institutions. Alleged abuses and improper use of indirect costs have been the subject of widespread media attention.

The federal government spends billions of dollars on research and development every year. The primary sources of federal funding for research are the Department of Defense (DOD), the Department of Health and Human Services (HHS), the Department of Energy (DOE), and NSF. Since 1984, the total amount of federal funding for research and development to colleges and universities increased from \$5.6 billion to \$9.2 billion (64 percent), while indirect costs increased from \$1.5 billion to \$2.5 billion (67 percent). In FY 1991, the government will spend about \$69 billion in grants for research and development. Recipients will include: colleges and universities; state and local governments; hospitals; nonprofit institutions, such as museums and professional organizations; for-profit organizations; and federally funded research and development centers.

Historical Development of Indirect Costs

The federal government began developing policies defining allowable costs (known as *cost principles*) for indirect costs over 40 years ago. The Department of Navy issued the first formal document on cost principles for federally supported research in 1947. That document, *Explanation of Principles for Determination of Costs under Government Research and Development Contracts with Educational Institutions*, supported a single average indirect cost rate for both instructional and research activities at colleges and universities.

At first, the federal government did not have a single uniform set of cost principles. Each agency had its own set of standards and its own limitations concerning acceptable indirect cost rates. In 1958, the predecessor organization to the Office of Management and Budget (OMB) issued Circular A-21, a uniform government-wide set of cost principles for educational institutions to use in computing separate indirect cost rates for instruction and research. Cost principles are policies and procedures established by the federal government in accordance with generally

accepted accounting principles. For the most part, they govern the methods of allocating costs as well as the costs applicable to grants, contracts, and other agreements between the grantee and the federal government. In addition, cost principles define the kinds of costs allowable under federal grant programs and the types of organizations that can be reimbursed under federal grants.

For many years, the limitations on rates payable for indirect costs varied among agencies. For example, the National Institutes of Health (NIH) limited its rates to 8 percent before 1955, 15 percent from 1955 to 1963, and 20 percent starting in 1964. NSF limited its rate to 15 percent before 1960, 20 percent from 1960 to 1963, and 25 percent from 1963 to 1964. In 1964, Congress established a maximum limit on indirect cost recovery on sponsored research of 20 percent for all federal agencies. Two years later, Congress abolished the statutory limitation on indirect cost recovery by colleges and universities and implemented cost sharing requirements. Cost sharing is not required on all research grants, although its use has increased both formally as a stated requirement and informally due to less than full funding of proposals.

Since 1966 indirect cost rates charged to federally sponsored research have steadily increased. In 1976 OMB issued Circular A-110, which covered the uniform administrative requirements of grants and agreements with institutions of higher education, hospitals, and other nonprofit organizations. After attempts in the early 1980s to limit indirect cost reimbursements, in 1986 OMB imposed a fixed allowance for faculty admini-

strative effort that could be charged to research; this action established a precedent for departure from an actual cost-based system. In response to congressional concern in 1979, OMB revised Circular A-21 to clarify and strengthen its policies and procedures. The Director of OMB in his preamble to Circular A-21 states that "the principles are designed to provide that the Federal Government bear its fair share of total costs, determined in accordance with generally accepted accounting principles, except where restricted or prohibited by law." Between 1961 and 1983, OMB Circular A-21 was revised eight times. On June 27, 1980, OMB issued Circular A-122, which establishes cost principles for most nonprofit organizations. However, some nonprofits are governed by the Federal Acquisition Regulation, subpart 31.2.

Most recently, in May 1991, OMB proposed a 26-percent limit on reimbursement of costs for university administrative costs, including general administration and general expenses, departmental administration, and sponsored research administration. This proposed revision of A-21 also changes the existing rules to ensure that reimbursements of indirect costs for buildings and equipment are actually used for replacing and upgrading buildings and equipment directly associated with federally sponsored research.

In addition, OMB proposed to revise some subsections of OMB Circular A-21 and to add subsections on identifying costs that are now unallowable, but not specifically mentioned. The follow-

ing costs are explicitly designated as unallowable under the OMB proposal:

- money used to pay for alcoholic beverages;
- salaries exceeding \$120,000;
- personal use of an organization's automobile, including transportation to and from work;
- severance pay in excess of the institution's usual practices;
- travel expenditures by the institution's trustees;
- donations and contributions made by the institution;

- legal fees associated with criminal or civil proceedings, including patent infringement;

- many costs associated with public relations expenditures;

- sales and marketing costs of the institution's products or services.

The proposed revision of A-21 also provides for immediate recovery, with interest, of unallowable costs charged by funded organizations and requires recipient institutions to certify the correctness and applicability of its indirect cost rate proposal. Legislation that contains similar provisions is now pending in NSF's House Appropriations Bill.

OMB has issued the following circulars, which provide guidelines to all federal agencies that negotiate and calculate indirect cost rates:

A-110	Uniform Administrative Requirements for Grants and Other Agreements With Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations — provides guidance to grantees and contractors for financial management of federal funds received.
A-21	Cost Principles for Educational Institutions — establishes principles for determining the costs applicable to grants, contracts, and other agreements with educational institutions.
A-122	Cost Principles for Nonprofit Organizations — establishes principles for determining costs of grants, contracts, and other agreements with non-profit organizations not otherwise covered by A-21 and A-87.
A-133	Audits of Institutions of Higher Education and Other Nonprofit Institutions — creates a vehicle to monitor compliance with cost principles and management regulations.

In summary, many attempts have been made to devise formulas and procedures to ensure that research institutions are fairly reimbursed for overhead charges associated with research, while limiting the types of costs the federal government will reimburse. Since 1976 Congress has periodically requested the General Accounting Office (GAO) to review increases in indirect cost rates. GAO has issued several reports on computing

indirect costs in medical research and rising indirect costs in research grants at NIH. (Some of these are listed in the bibliography.) GAO as well as other government agencies are conducting ongoing studies of indirect cost rates at colleges and universities that receive the most federally sponsored research and development awards.

Indirect Costs: Understanding the Terms

The purpose, application, and recovery mechanisms for indirect costs are often misunderstood by federally funded research institutions. While the formulas calculating cost recovery can be complicated, the concepts are relatively simple. The total costs of any research project can be grouped into two categories: direct and indirect costs. Direct costs are those which are readily identifiable with the performance of a particular research project or activity. They can be easily and accurately assigned to the projector activity for cost recovery under federal grant and contract awards. Direct costs ordinarily include:

- salaries and wages,
- laboratory supplies and materials,
- employee benefits,
- travel expenses, and
- any other costs that are easily identified directly with a specific research project.

Indirect costs are those that cannot easily be identified with specific research projects. They are costs that are incurred for goods and services that benefit more than one project or activity. For example, indirect costs at educational research institutions usually include expenses for:

- building and equipment depreciation/use allowance,
- * general administration,
- * operation and maintenance,
- departmental administration,
- library costs,
- student service, and
- research administration.

Depending on the circumstances, one institution could charge certain expenses directly to research projects, while another may choose to classify the same type item as overhead or indirect cost. For example, costs for computer use, telephone charges, postage, stationery, a project's secretarial personnel, and fringe benefits can be charged as either indirect or direct costs.

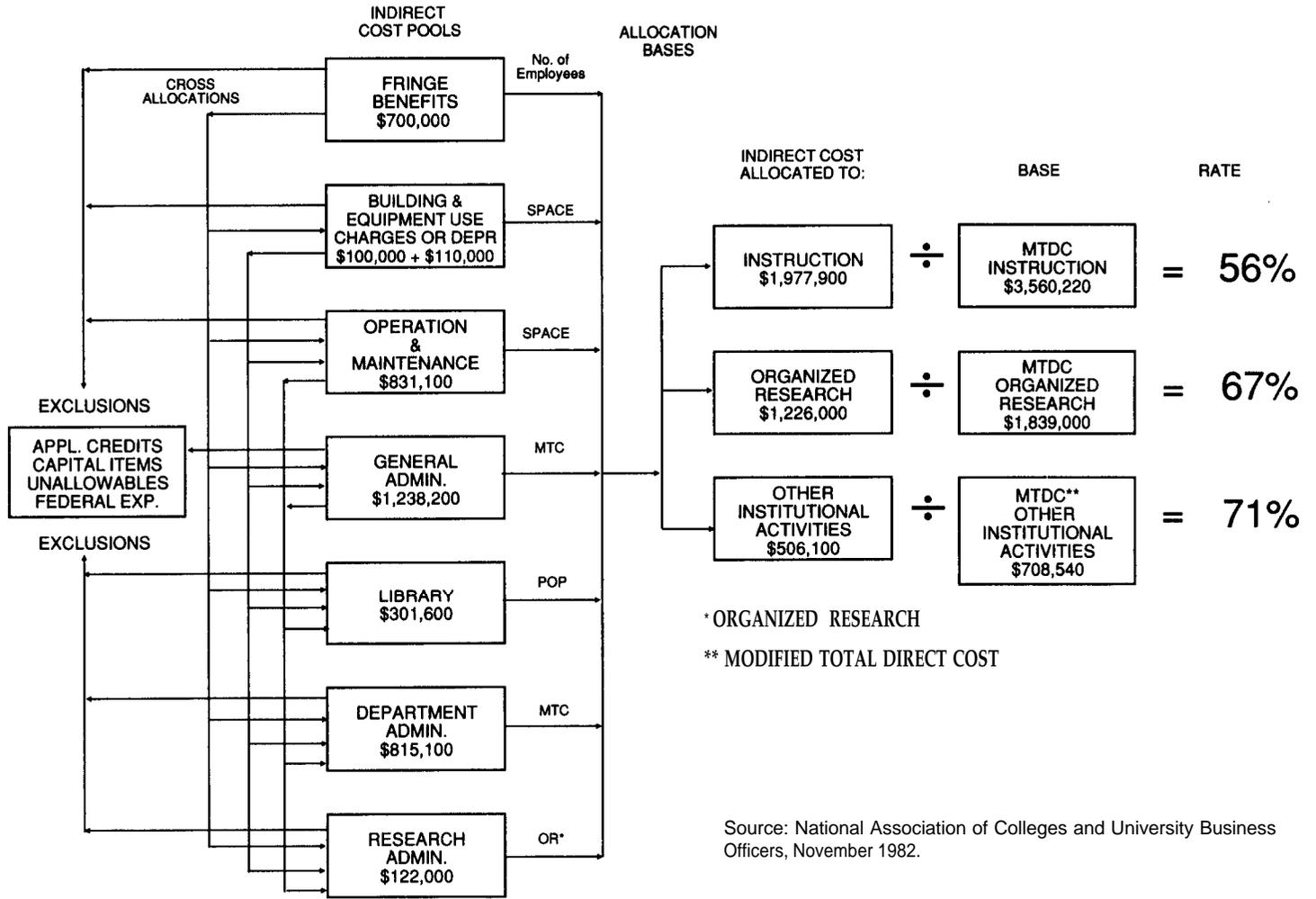
Because indirect costs cannot be readily assigned to individual projects, accountants use estimates to collect these charges in *cost pools*, which are then assessed against the research institution's individual federal awards. A *cost pool* is comprised of expenses that are of like character in terms of functions they benefit and in terms of the allocation base which best measures the relative benefits provided to each function. Assessments against the research institution's individual projects are based on formulas that are consistent with the benefits received.

Indirect costs are real expenditures. They are recovered by applying a percentage to direct research costs. This percentage is a negotiated rate, calculated as a ratio of a research institution's indirect costs to a specified base of direct costs. The illustrations on the next two pages show how indirect costs at a hypothetical educational research institution could be distributed to its final direct cost objectives.

Colleges and Universities
Allocation of Indirect Cost to Direct Cost Objectives
For Year Ended June 30, 19__

	Total Costs to be Allocated	Fringe Benefits	Building Use Charges	Equipment Use Charges	Operation and Maintenance	General and Administrative	Library	Departmental Administration	Research Administration	Total Costs After Allocation
Type of Indirect Cost										
Fringe Benefits	\$700,000	(\$700,000)								
Building Use Charges	100,000		(\$100,000)							
Equipment Use Charges	110,000			(\$110,000)						
Operation and Maintenance	800,000	30,000	300	800	(\$831,100)					
General and Administrative	1,000,000	110,000	14,000	14,200	100,000	(\$1,238,200)				
Library	200,000	10,000	1,800	4,800	55,000	30,000	(\$301,600)			
Departmental Administration	700,000	30,000	2,000	2,100	16,000	65,000		(\$815,100)		
Research Administration	100,000	5,000	200	400	400	16,000			(\$122,000)	
Direct Cost Objectives										
Organized Research		200,000	16,000	17,000	210,000	300,000	11,000	350,000	122,000	\$1,226,000
Instruction		250,000	61,500	70,700	380,000	480,000	290,600	485,100		1,977,900
Other Activities		65,000	4,200		69,700	367,200				506,100
Total Indirect Costs	\$3,710,000	0	0	0	0	0	0	0	0	\$3,710,000
Primary Source: Peat, Marwick, Mitchell & Co. Report on Indirect Cost Rates of Organizations Conducting Federally Sponsored Research, November 1977.										

INDIRECT COST CALCULATIONS



Source: National Association of Colleges and University Business Officers, November 1982.

Reasons Why Indirect Costs Have Increased

Research institutions' indirect costs have increased substantially over the past four decades. Since 1984 indirect cost reimbursements for educational research institutions have increased by 67 percent. Of continuing concern is what can or should be done about limiting payment of indirect costs. Many reviews, evaluations, and audits undertaken by both government and private sector entities have found that a major contributing factor is inflation, which has made the cost of all goods and services, including research, increase substantially over the last 40 years. Other factors, such as the increasing size and complexity of many institutions' organizational structures and federally mandated social programs, have also contributed to rapid increases in indirect costs.

Personnel costs (salaries, wages, and fringe benefits) have increased over the years, but not in direct proportion (or as rapidly) as nonpersonnel costs (utilities, equipment, and supplies). Generally, nonpersonnel costs comprise a much larger portion of indirect costs than direct costs.

Educational and research institutions attribute the cost of compliance with federally mandated programs as an important factor contributing to increases in overhead. Examples of programs that add to administrative expenses include: fair labor standards, unemployment compensation, social security, health benefits, pensions, wage and salary

controls, drug free workplace certifications, occupational health and safety, and environmental protection. The costs associated with these programs involve increased administrative and legal expenses, additional taxes, increased wages and benefits to employees, and physical plant investments.

In addition, some contract and grant provisions applicable only to research awards add costs. These provisions often relate to care of laboratory animals or human subjects. Finally, some educational institutions have become more aggressive in attempting to better identify and document the indirect costs associated with sponsored research.

Meaningful Comparisons Cannot Be Made About Institutions' Indirect Cost Rates

Indirect cost rates vary significantly among the nation's research institutions. Many factors, including accounting system differences, geographical location, climate, age, type of facilities used, and kind of research performed, affect indirect cost rates. Some of these factors, such as the accounting systems used to compute rates, can be controlled. But other factors, such as geographic location or climate, cannot be changed. For these reasons, a high indirect cost rate does not necessarily mean that an institution is inefficient or that costs are excessive or improper. In

summary, geographical locations, age, and differences in facilities make it very difficult to make meaningful comparisons about the appropriateness of indirect cost rates among institutions.

Accounting System

Differences: As discussed above, the indirect cost rate is the ratio of indirect costs to a direct cost base. Because there is an inverse relationship between the base and the rate, an accounting change that affects either the numerator or denominator of the ratio will change the rate. Comparability of indirect cost rates among research institutions can be dramatically affected by accounting decisions, such as the base selected to

distribute indirect costs and the methods used to classify director indirect costs.

Generally, large educational and research institutions use one of two possible bases for their ratio; direct salaries and wages or modified total direct costs. Some institutions use variations or combinations of these bases, such as direct salaries and wages with or without fringe benefits or total direct costs less capital expenditures. Our review of institutions demonstrated that, without changing any cost elements, the base selected can result in significantly different rates. The indirect cost rate varies as the base is changed—the smaller the base used, the higher the rate.

Indirect Cost Rate Calculation

Direct Salaries and Wages	\$10,000,000
Fringe Benefits	1,500,000
Other Direct Costs	5,000,000
Capital Expenditures	4,000,000
Total Direct Costs	\$20,500,000
Total Indirect Costs	5,500,000
Total Costs	\$26,000,000

Research Distribution Base	Base Amount*	Research Indirect Cost Pool	Indirect Cost Rate
Direct Salaries and Wages	\$10,000,000	\$5,500,000	55%
Direct Salaries and Wages and Fringe Benefits	\$11,500,000	\$5,500,000	48%
Total Direct Research Costs (excluding capital expenditures)	\$16,500,000	\$5,500,000	33%

*A different indirect cost rate can be calculated by changing the direct cost base.

Source: GAO Report to the Congress, "Study of Indirect Cost of Federally Sponsored Research Primarily by Educational Institutions," B-117219, June 12, 1969.

The method used to classify costs as either direct or indirect will also significantly affect the indirect cost rate. As a general rule, if more items are classified as indirect costs, the indirect cost pools get larger, the base decreases, and the rate increases. The decision to classify costs as indirect or direct is based on a variety of considerations, which can result in similar costs at different institutions being treated differently. For example, an institution that conducts a research project off-site may account for the utility cost separately and charge for it as a direct cost. Conversely, if the research was conducted on-site and combined with other functions and activities, the utility costs could be pooled and considered as an indirect cost.

Geographic Differences:

Another factor affecting indirect costs is the geographical location of the institution's research facility. The cost of utilities, services, and labor varies according to the location of the research institution in high or low cost areas. Differences in climate also result in varying consumption rates of utilities for heating and air-conditioning.

Facilities' Age and Condition:

Indirect costs are directly affected by the age and maintenance demands of research facilities. Sources of construction financing for research facilities affect building depreciation and use charges. The depreciation or use charge is greater for a new building than for an older structure. The quality and degree of required maintenance further affect indirect costs. Generally, older structures require greater maintenance and utility consumption to accommodate more

sophisticated equipment and meet current safety regulations.

Differences in Rate Negotiation Approaches: The goal of any indirect cost rate formula is to ensure that the amount funded and reimbursed for overhead is as close as possible to the actual cost incurred. To the extent that it may not be an exact rendering of the total cost, the difference is most likely due to deficiencies in the formulas used to compute the rate, or poor performance by either side during negotiations between the grantee and cognizant federal agency over the total rate. These negotiations may surface disagreements about what portion of a specific overhead cost can be attributable to research.

Different Types of Indirect Cost Rates

Another factor that makes it difficult to compare rates among institutions is that the type of indirect cost rates negotiated for reimbursement varies. The rate may be a temporary rate that is subject to adjustment at a later date or it can be a final rate. Because years may pass between the adoption of a provisional rate and the determination of the final rate, it is often difficult to determine the final total costs of a particular project.

These are four types of indirect cost rates that can be negotiated:

- A predetermined rate is an indirect cost rate that applies to a specific time period, usually the institution's fiscal year. It is not subject to adjustment. A predetermined rate may be negotiated for an award where reasonable assurance exists,

based on past experience and reliable projections of the institution's costs, that the rate is not likely to exceed a rate based on the institution's actual costs.

- A provisional rate is a temporary billing and funding rate used for a specified time. This rate is used for funding interim reimbursements and reporting indirect costs on awards pending the establishment of a final rate for the period. A provisional rate is retroactively adjusted to a final rate when the actual indirect costs for the fiscal period have been audited and negotiated.
- A fixed rate is an indirect cost rate that has the same characteristics as a predetermined rate, except that the difference between the estimated costs and the actual costs of the period covered by the rate is carried forward as an adjustment to the rate computation of a

subsequent period. Fixed rates may be negotiated when it is inappropriate to use a predetermined rate. A fixed rate will not be negotiated if (1) all or a substantial portion of the organization's award is expected to expire before the carry-forward adjustments can be made, (2) both government and nongovernment work at the organization is too erratic to permit an equitable carry-forward adjustment, or (3) the organization's operations have significant yearly fluctuations.

- A final rate is an indirect cost rate that applies to a specific period that is based on the actual costs of the period. A final rate is not subject to adjustments, and it is used to close out grants and contracts when a provisional rate was previously established for the institution.

Negotiation Practices

Federal agencies use different methods to negotiate indirect cost rates. Some agencies negotiate with educational and other research institutions regionally, while others negotiate at centralized locations, such as agency headquarters. Negotiators can review an institution's proposal off-site, perform on-site audits, or rely on federal audit agency reviews. One federal agency may negotiate the indirect cost rate while another may be responsible for auditing it. Wherever possible, the same agency will do all the auditing of indirect and direct costs for a single institution.

Although federal guidelines for identifying, allocating, and recovering the costs of sponsored research are intended to be flexible, they are often a source of frustration because they are complex. The actual costs allowed are often a result of a negotiation process in which funded organizations and their cognizant agencies set the indirect cost rate. During the negotiation process, the parties review documentation and differences of opinion may emerge regarding the full level of costs that should be assigned to federally sponsored research. The government may believe that the institution has

charged too many costs to sponsored research or that the institution's documentation of claimed costs is inadequate. Some institutions believe federal agencies assign too many costs to non-research activities. As a result, the final negotiated rate reflects the collective judgments of the negotiators who submitted and reviewed the cost proposals. The ability and willingness of federally sponsored research institutions to respond to negotiators' questions by modifying their accounting systems or developing support for claimed costs contributes significantly to the institution's ability to recoup overhead costs to which it feels entitled.

Audits of Indirect costs

Federal agencies are responsible for establishing audit and review programs for their grantees and contractors as part of their financial management plans. Generally, the federal agency having the greatest monetary interest in the organization is designated as *cognizant*. The cognizant agency is responsible for negotiating indirect cost rate proposals and auditing requests for reimbursement. Federal audits of indirect cost proposals are usually initiated by negotiators. However, cognizant audit agencies often cannot satisfy all negotiators' requests for audits because of higher priority audits, special assignments, and staffing constraints.

Federally sponsored institutions seeking reimbursement for indirect costs that have previously

established an indirect cost rate with a federal agency must submit an indirect cost rate proposal to the cognizant agency no later than 6 months after the close of each fiscal year for review and negotiation. If an organization has not previously established a rate with a federal agency, an indirect cost rate proposal must be submitted to the cognizant agency no later than 3 months after the effective date of the award.

A Case Study: Stanford University

Much recent concern about indirect costs has been precipitated by questions raised about indirect cost reimbursements at Stanford University. The disclosure earlier this year that Stanford sought reimbursement for some unallowable costs ultimately revealed serious deficiencies in Stanford's cost allocation and charging practices, as well as inadequate oversight by the Office of Naval Research (ONR), Stanford's cognizant negotiating agency. These kinds of problems are not confined to Stanford. Other institutions have similar problems stemming from inappropriate use of indirect cost pools and methods used to allocate the cost pools to research.

One of the reasons the Stanford case is important is that its indirect cost rate is among the highest in the nation. Between FY 1980 and FY 1990 the rate grew from 58 to 74 percent. During the same period, Stanford received about \$1.8 billion in federal research grants and contracts, including about \$605 million to cover indirect costs. Two possible reasons for the rapid

increase in Stanford's indirect cost rate are the allocation of unallowable costs and the method used to allocate costs to federally sponsored research.

Stanford's allocation process is determined by about 90 memoranda of understanding (MOU) between the university and ONR. Some of these MOUs allowed for significant increases in the allocation of indirect costs to federal research (when compared to the methodology prescribed in Circular A-21) without adequate support or review. It is important to note that the allocation process is the area in which the greatest potential lies for significant overcharges to federally sponsored research because it affects all indirect costs.

On September 7, 1990, the Subcommittee on Oversight and Investigation of the House Committee on Energy and Commerce requested GAO to conduct a review of Stanford University. To determine how costs were accumulated and allocated by Stanford, GAO reviewed the kinds of expenditures included in various indirect cost pools and how indirect cost pools were allocated to federal grants and contracts through application of an indirect cost rate. GAO also reviewed costs charged to government-sponsored research using Stanford's method of allocation. GAO's review focused on selected accounts and transaction details for FY 1986. As a result of the review, GAO identified over \$3.6 million in expenses that are inappropriately charged to accounts that went into federal overhead; about \$1 million was improperly charged to the government.

The following are examples of the kinds of costs GAO identified as unallowable or questioned the allocation method used.

- \$184,000 in depreciation costs for various items of athletic equipment;
- \$185,000 for salaries and related expenses associated with a shopping center owned and operated by the university;
- \$520,000 for general expenses of the president's house; the provost's residence; and the vice-president for public affairs' residence;
- \$2.3 million in depreciation in 1986 because Stanford used the accelerated method of depreciation rather than the straight-line method specified by OMB Circular A-21;
- \$4.1 million in utility costs in FY 1988 because Stanford did not use the default method specified by OMB Circular A-21; and
- \$7 million in library costs because Stanford did not use the default method specified by OMB Circular A-21.

These overcharges resulted because Stanford's system was not adequate to ensure that only proper costs were passed on to the government. Ultimately, everyone involved, including Stanford, concluded that the university's accounting controls over indirect cost charges were deficient.

In addition, ONR's Inspector General cited significant shortcomings in ONR's administrative oversight practices at the university. ONR had not (1) obtained a formal auditor legal review of any of the MOUs or special studies agreed to by the agency between 1980 and 1989; (2) properly reviewed the MOUs or special studies every 2 years as

required by OMB Circular A-21; or (3) involved HHS in past negotiations as required by OMB Circular A-88. These shortcomings contributed to the significant overcharges to the government.

Both ONR and Stanford have taken steps to identify deficiencies and to bring them under control. ONR established a special university team, composed of senior headquarters and field staff, to work closely with representatives of agencies that fund research at Stanford to audit incurred costs from 1981 through 1989. This team is also reviewing MOUs affecting the allocation of costs to the government. Stanford's indirect cost rate for the current fiscal year was reduced from its proposal of 78 to 55.5 percent.

In addition, Stanford officials agreed to withdraw all general and administrative costs involving the residences of the president, the provost, and the vice-president of public affairs. Stanford has hired a new chief financial officer and a public accounting firm to

assess its systems and procedures and to make recommended changes. It has also appointed a special advisory panel to review and advise university officials on how to improve the university's accounting system and other matters related to accountability for federally sponsored research.

In light of the problems uncovered at Stanford, other government agencies have taken initiatives to make universities more accountable. For example, after visiting 13 colleges and universities, HHS' Office of Inspector General found that 12 had begun self-initiated reviews of indirect cost charges and volunteered to remove certain charges from cost centers that would have been allocated to federal research. The work of HHS' Office of Inspector General is still in process and results are incomplete, but it appears certain that their review will identify more research institutions with indirect cost accounting deficiencies.

NSF's Responsibilities Differ From Other Agencies

Although about 90 percent of NSF's funds go to the kinds of major research institutions discussed on the preceding pages, the agency does not have primary audit or indirect cost negotiation responsibility for them. NSF is dependent on the cognizant agency (assigned by OMB for auditing and leading negotiations with these educational institutions. HHS, DOD, and ONR negotiate and audit indirect cost rates for the majority of colleges and universities

receiving NSF funds. For these institutions, NSF is responsible for (1) assuring that it does not accept rates higher than those of the cognizant agency, (2) notifying the cognizant agency of any deviations that may affect future rates, and (3) conducting cost and compliance and/or program audits of NSF awards when special circumstances warrant them. Cost and compliance audits usually include a review of indirect cost charges.

Because the majority of NSF's research funds are awarded to large colleges and universities, we are concerned about the controversy that surrounds increasing indirect cost rates. Problems that result in inappropriately large indirect cost charges to the federal government exist at many universities and research institutions. To help monitor the appropriateness of rates and indirect cost charges, NSF may decide to work more closely with cognizant agencies by reviewing and participating in the negotiation of proposed overhead agreements.

NSF is the cognizant audit agency for about 500 independent, nonprofit organizations and small businesses it funds. These organizations account for about 10 percent of the agency's funding. In FY 1990, about 1,800 of NSF's approximately 16,000 awards were to institutions other than colleges and universities. These 1,800 awards were valued at about \$300 million compared to \$1.2 billion awarded to colleges and universities. The \$300 million includes about 56 percent for indirect costs.

The problems associated with reviewing associations, nonprofit organizations, and for-profit entities' awards differ from the problems discussed above. Some of the significant differences between NSF cognizant entities and large research institutions are discussed below.

One of the most basic differences is that universities have multiple missions, while the missions of nonprofit organizations and small

businesses are more focused. Large universities and research organizations incur costs for instruction, laboratories, medical and health care expenses, athletics, student activities, and libraries. Universities' multiple missions and functions may benefit from indirect costs in a variety of ways. As discussed above, indirect costs are accumulated into cost pools and each pool is allocated individually to different functions by using a base that best measures the relative benefits. This procedure is called a multiple allocation base method. Under this method, cost pools obfuscate the details of what costs are actually included in the cost pools and so unallowable or inappropriate costs may not be detected until there is an audit.

Small businesses and nonprofit organizations are usually supported by one or two major functional statements. Their functions and missions usually benefit more equally from indirect costs. For these businesses and organizations, the allocation of indirect costs maybe accomplished by separating the entity's total costs as either direct and indirect and dividing the total allowable indirect cost by an equitable distribution base to arrive at an indirect cost rate. By reviewing a schedule of the costs included in the direct and indirect areas it is usually possible to identify the major unallowable or inappropriate costs. A detailed audit of the items that makeup these cost pools is simpler and can be completed more quickly than an audit of the multiple cost allocation method.

Indirect Cost Rate Proposal - Simplified Method

Summary Classification of Direct and Indirect Costs

	Total costs	Less Exclusions		Direct costs	Indirect costs
		Capital Expenditures	Other		
Executive Director's Office	110,000		35,000		75,000
Operation and Maintenance	150,000	10,000			140,000
Administrative Services	82,000				82,000
Personnel	95,000				95,000
Finance	68,000				68,000
Public Relations and Fund Raising	120,000			120,000	
Project A	620,000	10,000	25,000	585,000	
Project B	685,000	25,000	20,000	640,000	
Project C	490,000	20,000	15,000	455,000	
Total	\$2,420,000	\$65,000	\$95,000*	\$1,800,000 (B)	\$460,000 (A)
Rate Computation	(A)/(B) = \$460,000/\$1,800,000= 26%				
*Includes major subcontracts over \$25,000 and other unallowable costs.					
Primary Source:	Peat, Marwick, Mitchell & Co. Report on Indirect Cost Rates of Organizations Conducting Federally Sponsored Research, November 1977.				

Another way NSF cognizant entities differ from large research institutions is in the level of skill and experience of their financial management. Universities generally have professional administrators to devise and manage accounting functions and to negotiate indirect cost rates. The primary area of expertise for many of the chief financial officers of NSF's cognizant audit entities is in science or education rather than in administration or accounting.

In general, NSF's cognizant organizations have different budgetary and financial perspectives and approaches than those of major research institutions. At many large colleges and universities, principal investigators do

not perceive the direct effects or benefits from indirect costs associated with their individual awards. Often the university's scientists view indirect costs as a drain on their research effort. Because most of NSF's cognizant grantees are small organizations, the principal investigator (usually a scientist) is often also the manager or owner. When the principal investigator is also the chief administrative officer of the sponsoring institution, he or she tends not to see indirect costs as a drain on the primary research effort, but rather as overall support for the organization's focused mission. The principal investigator may not understand the details of indirect cost allocation, but is aware that these funds directly benefit his or her work.

Problems Associated With Smaller Organizations

NSF encounters different indirect cost problems with its cognizant organizations because it (1) reviews different types of organizations that have fewer, smaller awards and (2) uses a different method to calculate the indirect cost rates and apply the rates to research awards. An overwhelming majority of NSF cognizant institutions have only two or three active NSF grants at any time. Generally, the larger the size of an individual grant, the fewer active awards. At NSF the indirect cost rate is often awarded as a maximum provisional rate for the life of the grant. This means that the indirect cost rates are usually not reviewed more frequently than every 2 to 3 years, unless the grantee continues to receive new grants.

Under 41 U.S.C. section 254a, NSF authorizes payment of reimbursable indirect costs on the basis of a predetermined fixed percentage. These payments are made under grants and contracts to educational institutions and some nonprofit organizations where cost experience and other pertinent facts are adequate to support an informal estimate of indirect costs during a specific period. Other nonprofit organizations and small businesses are awarded maximum provisional indirect cost rates that are subject to downward adjustment only. In some situations, NSF uses fixed dollar amounts instead of a maximum provisional rate. NSF will neither amend a grant solely to provide additional funds

for subsequent indirect cost rate changes, nor settle indirect costs on a post-audit basis. The only exception is for grants with maximum provisional rates. Then adjustments are made only if the audited rate is lower than the maximum provisional rate. In this case, the grantee must report and credit the difference to NSF.

Calculation and Application of Indirect Costs

As a result of our reviews and audits, training conferences, and discussions with NSF grantees, we know there is a general lack of understanding about indirect costs. Because NSF grantees usually have simpler accounting systems to allocate indirect costs, we have a high level of confidence that the problems that exist among our cognizant institutions are not as great as the problems recently identified at major educational and research institutions.

We found significant indirect cost deficiencies for our cognizant organizations concentrated in two areas: calculation and application. In the area of calculation, we found that NSF cognizant grantees:

- routinely underestimate indirect costs to make their research grants more competitive;
- assign responsibility for preparing or reviewing indirect cost rate proposals to staff who lack sufficient experience or training to do the job effectively;
- request reimbursement of grant expenditures using the latest available rate based on actual past cost experience,

rather than the rate stipulated in the approved award budget; and

- build their overhead cost into direct cost categories of a proposal grant budget and also accept a fixed dollar amount for indirect costs; this results in double recovery of overhead costs.

With respect to application of indirect cost rates we found that NSF cognizant grantees:

- do not fully understand the distinctions between the types of rates negotiated;
- lack an understanding of how indirect cost rates are defined, distributed, and displayed in a proposal budget;
- may incorrectly use the rate of a former employer or the rate of a similar organization instead of calculating an accurate rate for the new entity;
- request a lower rate than the rate calculated in the indirect cost rate proposal to avoid an audit; and

- do not understand that the purchase of capital items cannot be charged to research grants as a direct or indirect cost, but must be recovered through the depreciation account.

We are still concerned that elements of risk exist that may result in significant overcharges in the indirect cost area. NSF management will continue to address these potential problems by effectively negotiating and enforcing indirect cost rates for its community of nonprofit and small for-profit organizations, foundations, and associations. To minimize the risks associated with the abuse of indirect cost reimbursement, NSF must keep the research community informed of concerns, practices, and policies regarding the development of indirect cost rates. In addition, NSF must provide guidelines for presenting and reviewing indirect costs on proposal budgets.

Conclusions

Major research institutions in this country are heavily dependent on federal funds to cover both direct and indirect costs. The factors that have contributed to the significant increases in overhead costs for large institutions are not likely to disappear, or even abate. Recipient institutions must come to terms with their dependency on federal funds and make the formulas that govern indirect costs work for them in order to obtain full recovery of indirect costs. Negotiations to establish indirect cost rates must be viewed as opportunities to

demonstrate to federal representatives, through well-documented financial records, the true costs associated with sponsored research; not as inconvenient, irrelevant financial exercises.

Increased scrutiny by federal audit authorities of indirect cost recovery is also unlikely to abate. This places increased pressure on recipient institutions to develop systems, hire well-trained personnel, and keep accounts that will withstand comprehensive audits. Resistance to devoting time, attention, and resources to these

administrative functions will only result in poor audit assessments, unfavorable publicity and, ultimately, loss of funds to which the institution may otherwise have been entitled. However, skillfully and clearly the rules are written, there will always be expenditures that fall in a gray area. Thus, periodic audits are an essential part of the system; they are needed to ensure that the necessary discussions about gray items take place and a common understanding of the rules is developed.

Although some abuses may have been brought to light as a result of recent well-publicized cases, we believe that poor accounting practices, not willful attempts to suborn federal funds, were at the root of most deficiencies that resulted in inappropriate indirect costs charges to the government. This realiza-

tion is of little comfort, if any, both to the federal agencies whose funds were improperly used and to funded institutions that will lose money associated with previous years' grants and prospective rate negotiations.

NSF's cognizant audit universe of grantees is limited, but its interest in and commitment to fair, accurate, and well-documented recovery of indirect costs is not. The agency will be working with OMB and its grantees' cognizant audit agencies to develop revisions of the circulars that guide indirect cost recovery, provide better guidance to its cognizant grantee community, and work more closely with cognizant agencies for large research institutions to develop solutions for problems as they are identified.

Glossary

Allocable Cost is allocable to a research agreement if it (1) is incurred solely to advance the work under the research agreement, (2) benefits both the research agreement and other work of the institution in proportion that can be approximated through the use of a reasonable method, or (3) is necessary to the overall operation of the institution.

Allocation Cost Plan refers to a document that identifies, accumulates, and distributes allowable costs to grants and contracts and identifies the procedures used in making such distribution.

Basis of Allocation is the distribution base that is best suited for assigning each pool of costs to cost objectives in accordance with the relative benefits derived and is equitable to both the institution and to the federal government.

Cognizant Agency is the federal agency responsible for negotiating and approving indirect cost rates for an organization on behalf of all federal agencies.

Cost Pool is a group of expenses that are of like character in terms of functions that they benefit and in terms of the allocation base which best measures the relative benefits provided to each function.

Cost Principles are policies and procedures established by the federal government in accordance with generally accepted accounting principles, except where restricted or prohibited by laws for determining cost applicable to grants, contracts, and other agreements between

the grantee and the federal government. Cost principles also define what costs are allowable under federal grant programs and the type of organization that can be reimbursed under federal grants.

Departmental Administration are costs incurred at an organization's departmental levels, such as salaries, expenses, and fringe benefits of departmental chairpersons, deans, faculty, secretarial, and other staff support, and supplies that jointly benefit more than one primary program within the department.

Depreciation/Use Allowance is compensation for the use of buildings, capital improvements, and equipment.

Direct Costs are costs that can be specifically or readily identified with a particular grant, contract, or other cost objective.

Direct Cost Base is the measurement by which indirect costs are allocated to direct cost objectives, e.g., modified total direct costs, salaries and wages, or salaries and wages plus fringe benefits.

Final Rate is an indirect cost rate applicable to a specific period that is based on the actual costs of the period. A final rate is not subject to adjustments and is used to close out grants and contracts where a provisional rate was awarded.

Fixed Rate is an indirect cost rate that has the same characteristics as a predetermined rate, except that the difference between the estimated costs and the actual costs of the period covered by

the rate is carried forward as an adjustment to the rate computation of a subsequent period.

Fixed rates may be negotiated where predetermined rates are not considered appropriate. A fixed rate, however, shall not be negotiated if (1) all or a substantial portion of the organization's awards are expected to expire before the carry-forward adjustments can be made, (2) the mix of government and non-government work at the organization is too erratic to permit an equitable carry-forward adjustment, or (3) the organization's operations fluctuate significantly from year to year.

General and Administration Costs are for salaries, expenses, and fringe benefits of an organization's officials and officers in such disciplines as accounting, personnel, purchasing, and payroll.

Grant is an agreement between the federal government and a research institution whereby the federal government provides funds or aid in kind (such as facilities) to carry out specified programs, services, or activities.

Grant Program are grantees' activities and operations that are necessary to carry out the purposes of a grant, including any portion of the program financed by the grantee.

Grantee is the research institution responsible for the administration of the grant.

Indirect Costs are costs incurred for a common or joint purpose, which benefit more than one cost

objective and cannot be directly assigned to any specific cost objective.

Indirect Cost Rate is the net result of an indirect cost proposal; it is the ratio of an institution's indirect costs to some element of its direct costs, e.g., modified total direct costs.

Indirect Cost Rate Proposal is the documentation prepared by an organization to substantiate its claim for the reimbursement of indirect costs. This proposal provides the basis for the review and negotiation leading to the establishment of an organization's indirect cost rate.

Maximum Provisional Rate is a rate that NSF awards to some nonprofit and commercial organizations. This indirect cost rate is subject to downward adjustment only. If the actual rate is higher than the maximum provisional rate, the grantee must absorb the under-recovery of indirect costs. However, if the actual rate is lower than the maximum provisional rate awarded, the difference must be reported by the grantee and credited to NSF.

Multiple Allocation Method is where an organization's indirect cost benefits its major functions in varying degrees.

Negotiated Rate is the result of a process that involves (1) the grantee submitting the indirect cost rate proposal, (2) the grantor reviewing the proposal, and (3) both parties negotiating the rate. Then the results of the negotiation process are issued in a formalized written agreement.

Operation and Maintenance are all costs associated with the maintenance, preservation, and operation of an organization's physical plant. Included are such expenses as janitorial services, utilities, lawn services, and maintenance of buildings.

Predetermined Rate is an indirect cost rate applicable to a specific current or future period, usually the institution's fiscal year. A predetermined rate is not subject to adjustment.

It maybe negotiated for use on an award where there is reasonable assurance, based on past experience and reliable projection of the institution's costs, that the rate is not likely to exceed a rate based on the institution's actual costs.

Provisional Rate is a temporary billing rate applicable to a specified period that is used for funding, interim reimbursement, and reporting indirect costs on awards pending the establishment of a final rate for the period.

Reasonable Cost is the cost of acquiring goods and services that reflect the action that a prudent person would have taken under the circumstances prevailing at the time the decision to incur the cost was made.

Research Administration are salaries, expenses, and fringe benefits of administrators and staff in offices established specifically to administer an institution's research programs and to perform functions, such as contract administration, security, financial management, and editing and publishing of research reports. (Unlike the other indirect costs pools, research

administrative cost is exclusively attributable to sponsored research).

Simplified Allocation

Method is where an organization's major functions benefit from its indirect costs in approximately the same degree and the base selected for distribution is the same for all major direct functions.

Unallowable Costs are those that by regulation cannot be charged to federal grants and contracts. These costs include:

- Advertising costs---The cost of advertising media and corollary administrative costs except those advertising costs related solely to the recruitment of personnel or specifically allowed by the terms of the award agreement.
- Bad debts—Any loans, whether actual or estimated, arising from uncollectible accounts and other claims, related collection costs, and related legal costs.
- Capital expenditures-The cost of land, buildings, equipment, and repairs or alterations that materially increase the value or useful life of these assets. Capital expenditures are unallowable as indirect costs (recovered through depreciation/use allowance) and as direct costs without the approval of the awarding agency.
- Contingent provisions---Contributions to a contingency reserve or any similar provision made for events the occurrence of which cannot be foretold with certainty as to time, intensity, or with an assurance of their happening.
- Contributions and donations--Gifts, contributions, and donations.
- Depreciation/use charges---Depreciation or use charges on assets provided by the federal government.

- Entertainment cost—Costs incurred for amusement, social activities, entertainment, and any items relating thereto, such as meal lodging, rental, transportation, and gratuities.
- Fines and penalties—Costs resulting from violation of, or failure to comply with federal, state, and local laws.
- Interest and other financial costs—Interest on borrowing, bond discounts, cost of financing operations, and legal and professional fees paid in connection therewith. Educational institutions are allowed interest charges on borrowed money for (1) the construction or reconstruction of buildings and (2) the acquisition or fabrication of equipment that cost more than \$10,000 and was completed or acquired after July 31, 1982.
- Loss on grants and contracts—The underrecovery of cost on a grant or contract cannot be charged to another federal agreement.
- Rearranging and alteration—The cost of rearranging or altering facilities other than those which could be considered normal or ordinary. Capital expenditures are unallowable as indirect costs (recovered through depreciation/use allowance) and as direct costs without the approval of the awarding agency.

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Testimonies

The following individuals testified before Congressman Rick Boucher, Chairman of the Subcommittee on Science, House Committee on Science, Space, and Technology, on the designated dates:

April 23, 1991

Frederick Bernthal, Deputy Director, National Science Foundation.

Rear Admiral William C. Miller, Chief of Naval Research, U.S. Navy.

Kevin E. Moley, Assistant Secretary for Management and Budget, Department of Health and Human Services.

Harry C. Mussman, Deputy Assistant Secretary, Science and Education, Department of Agriculture.

Fred J. Newton, Deputy Director, Defense Contract Audit Agency.

Roland W. Schmitt, President, Rensselaer Polytechnic Institute.

April 25, 1991

John H. Marburger, President, State University of New York at Stonybrook.

David Packard, Chairman of the Board, Hewlett-Packard Company.

Cornelius J. Pings, Provost and Senior Vice President for Academic Affairs, University of Southern California.

Howard K. Schachman, Chairman, Public Affairs Committee of the American Society for Biochemistry and Molecular Biology, University of California at Berkeley.

The following individual testified before the Subcommittee on Oversight and Investigations of the House Committee on Energy and Commerce on May 9, 1991:

Richard P. Kusserow, Inspector General, Department of Health and Human Services.

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