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***NATIONAL INSTITUTE FOR
STANDARDS AND TECHNOLOGY***

*Advanced Technology Program Can Benefit
From Financial and Management Improvements*

Audit Report No. ENT-8984-7-0001 / July 1997

Office of Audits, Technology Audits Division



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EXECUTIVE SUMMARY

The Advanced Technology Program is one of four major programs managed by the National Institute of Standards and Technology. ATP was established by the Omnibus Trade and Competitiveness Act of 1988, and amended by the American Technology Preeminence Act of 1991, to promote the economic growth and competitiveness of U.S. business, especially small business, by accelerating the development and commercialization of promising high-risk technologies. ATP is a cost-sharing program that provides funds to joint ventures and single companies for research and development on pre-competitive generic technologies.

We performed our audit to assess (1) management controls over NIST's FY 1995 ATP final award process, and (2) the method used for funding ATP projects. Our audit found that NIST used incremental funding for non-severable research awards that are expected to last more than one year, and must rely on future appropriations to complete those ongoing projects. However, NIST did not comply with Departmental requirements for incremental funding because the grants officer did not certify that project activities for FY 1995 awards were severable into annual increments which represented solid accomplishments (see page 6).

We also found that NIST accumulated about \$155.3 million of unfunded balances for ATP projects which should be disclosed in the overview and notes to its annual financial statements to provide management and policy-makers with more complete information for use in making financial management decisions (see page 12), and did not adequately control the FY 1995 ATP final award process (see page 14).

To correct the deficiencies associated with incremental funding and to ensure compliance with appropriate laws and regulations, we recommend that the Acting Director, NIST, require that all prior year ATP awards not funded for the entire project period be thoroughly reviewed and take the following actions:

- o Ensure the preparation of required grants officer certifications of severability for all awards which are severable and have defined work products each year.
- o Fully fund the remaining awards which are not severable and do not have defined work products each year before obligating funds for new ATP awards (see page 9) .

Additionally, for all new ATP awards, we recommend that the Acting Director, NIST:

- o Ensure the preparation of required grants officer certifications of severability for all awards which are severable and have defined work products each year.
- o Fully fund up-front those awards which are not severable and do not have defined work products each year (see page 9).

To ensure proper disclosure of the ATP unfunded balance, we recommend that the Acting Director, NIST:

- o Ensure that auditable records are maintained to accurately track the ATP unfunded balance amount of \$155,294,241 at September 30, 1996.
- o Fully disclose the ATP unfunded balance amount in the overview and notes to NIST's annual financial statements (see page 13).

To strengthen management control over future ATP awards, we recommend that the Acting Director, NIST:

- o Ensure that ATP awards are announced and notification letters are sent to successful applicants only after grants specialists have completed their financial reviews and final award process work.
- o Direct the appointment of grants specialists to ATP Source Evaluation Boards to demonstrate the importance of their work, and to involve them earlier and more substantially in the ATP proposal review and selection process.
- o Ensure the development and implementation of a system to identify and track ATP award agreements with contingency clauses to prevent the disbursement of funds to recipients before all contingencies are resolved (see page 15).

NIST, in its response to the draft report, generally agreed with the report recommendations. We have made appropriate revisions to the draft report based upon subsequent discussions with NIST officials and NIST's comments to the draft report. A summary of NIST's response to the draft report, along with our comments, is included in each section. NIST's complete response is attached (see Appendix D).

We appreciate the cooperation and courtesies extended us by NIST officials during our audit.

INTRODUCTION

The Advanced Technology Program is one of four major programs managed by the National Institute of Standards and Technology. ATP was established by the Omnibus Trade and Competitiveness Act of 1988, and amended by the American Technology Preeminence Act of 1991, to promote the economic growth and competitiveness of U.S. business, especially small business, by accelerating the development and commercialization of promising high-risk technologies. The FY 1997 ATP appropriation is \$225 million, representing about one-third of NIST's total budget. In addition, NIST has available no-year carryover funds of \$41.7 million.

ATP is a cost-sharing program that provides funds to joint ventures and single companies for research and development on pre-competitive generic technologies. Joint ventures may be funded for up to five years, with no statutory funding limit. Joint ventures must provide more than 50 percent of the total funding (direct and indirect costs) for each quarter that ATP funds the project. Single companies are eligible to receive up to \$2 million of ATP funds over a period not to exceed three years. They are not required to provide matching funds, but they are reimbursed for direct costs only. All indirect costs must be paid by the company. ATP awards are made through competitions in which research proposals from single companies and joint ventures compete for available funds. Criteria for evaluating and selecting proposals are derived from the 1988 Act and the 1991 amendment, and are published at 15 CFR 295. They include the rigorous evaluation of each project's technical and business merits.

The ATP is a competitive cost-sharing program designed to assist U.S. industry to pursue high-risk, enabling technologies with significant commercial and economic potential. The program has enjoyed a measure of success in its early years, but NIST maintains that the program's true worth cannot be gauged for many years because of the long-term nature of most funded research projects. ATP's budget grew from \$10 million in FY 1990 to \$341 million in FY 1995 (see Appendix A). During that time, ATP evaluated 2,210 proposals and made 280 awards--102 joint venture and 178 single-company awards--for nearly \$2 billion of research. Private industry provided \$1.01 billion and ATP provided \$970 million. Since inception of the program in 1990, 36 percent of ATP awards and 68 percent of ATP funds have gone to joint ventures.

With few exceptions, ATP awards expected to last more than one year have been funded one year at a time. NIST used FY 1996 ATP appropriations of \$221 million to fully finance the unfunded balance of all earlier ATP awards, except for one award resulting from the FY 1993 competition, three awards from the FY 1994 competitions, and 81 of 102 awards from the FY 1995 competitions. At the end of FY 1996, ATP's unfunded balance was about \$155.3 million. Separating this amount into annual funding requirements to complete existing projects that were

not fully funded up-front results in a need for \$111.4 million in FY 1997, \$32.2 million in FY 1998, and \$11.7 million in FY 1999. ATP plans to finance these requirements through appropriations in the corresponding fiscal years.

Added to the annual funding requirements for ATP awards of prior years are those for eight new awards totaling \$19.4 million that were announced on March 6, 1997, and the additional new awards that ATP expects to result from seven announced FY 1997 competitions. While funds had not been obligated for the new and expected awards as of March 15, 1997, ATP assumes the awards will be funded incrementally, one year at a time, and has estimated annual funding requirements for planning purposes. Table 1 depicts ATP-estimated annual funding requirements for the new and expected awards, along with those for the previously discussed prior year awards that have not been fully funded.

Table 1: Estimated Annual Funding Requirements for Actual and Expected ATP Awards Resulting from FY 1993 through FY 1997 Competitions (dollars in millions)

Fiscal Year of ATP Competition	Estimated Annual Funding Requirements					
	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
1993-1995	\$111.4	\$32.2	\$11.7	\$0.0	\$0.0	\$155.3
1996	\$6.3	\$6.9	\$4.6	\$1.6	\$0.0	\$19.4
1997	\$112.0	\$112.0	\$84.3	\$56.0	\$27.7	\$392.0
Total	\$229.7	\$151.1	\$100.6	\$57.6	\$27.7	\$566.7

Of the amounts shown in Table 1, about \$3.3 million in FY 1997 funding requirements for awards

resulting from the FY 1993-FY 1995 competitions had been obligated as of March 15, 1997, and NIST expects to obligate the remaining FY 1997 requirement of \$108.1 million before the end of this fiscal year. After allowing for \$111.4 million for the awards resulting from the FY 1993-FY 1995 competitions plus \$6.3 million for the awards resulting from the FY 1996 competition, the unfunded balance for those prior year awards will total \$57.0 million. The remaining FY 1997 and carryover ATP funds available for obligation will be about \$149 million. In addition, for FY 1998, the President's budget submission to Congress includes \$275.6 million for ATP.

Various aspects of the Advanced Technology Program have been studied by a number of public and private organizations, including our office, the U. S. General Accounting Office, the National Academy of Sciences, and the Council on Competitiveness, and the results have been generally positive. Our previous work focused on ATP's processes and procedures for selecting, monitoring, and evaluating project proposals.¹ Overall, that work found significant improvement over the program's earlier years. This audit concentrated on the management of ATP in terms of program funding and the final award process.

ATP's future is uncertain. In 1994, the President set a goal for ATP's funding to reach \$750 million by FY 1997, and for the first five years of the program, ATP's budget increased dramatically each year. However, in the latter half of FY 1995, the Congress rescinded \$90 million of ATP funds from that year's appropriation. Also, the Congress initially proposed a number of restrictions on the use of FY 1997 ATP funds and even considered terminating the program, but the limitations were eventually removed from the final budget and ATP survived with funding of \$225 million.

Purpose and Scope of Audit

The purpose of our audit was to assess (1) the management controls over NIST's FY 1995 ATP final award process, and (2) the method for funding ATP projects. To accomplish our work, we selected two separate, stratified samples of ATP awards, one for each part of our purpose; reviewed, extracted and analyzed information from ATP competition, program, and grant files; and interviewed NIST grant and program officials. Regarding our assessment of management controls over the FY 1995 competitions, we selected a stratified sample of 26 of 102 (25 percent) ATP awards. The sample was comprised of high and low dollar value awards from each of the 12

¹ *The Advanced Technology Program Must Improve Documentation of Selection Decisions*, TTD-7074-5-0001 / July 1995; and *ATP Has Improved Procedures for Selecting, Monitoring, and Evaluating Projects*, TTD-8089-6-0001 / February 1996.

competitions. We also analyzed information regarding the number and amount of awards made from July through September 1995 and in January 1996, and reviewed competition files for all 12 FY 1995 ATP competitions.

In reviewing the method for funding ATP projects, we selected a second stratified sample of 24 of 188 (13 percent) of ATP awards resulting from the FY 1994 and FY 1995 competitions. Similar to the first sample, we selected a range of high and low dollar value awards from each of the six FY 1994 competitions and 12 FY 1995 competitions. We reviewed the grant files for the 24 awards, and extracted and analyzed information from these files. We also interviewed Departmental budget, financial assistance, and legal officials, as well as NIST grants, program, budget, and accounting officials. Further, we discussed incremental funding with the GAO. We obtained and analyzed program, budget, procurement, and accounting information related to all 280 ATP award agreements and modifications, and compared negotiated ATP awards to related obligations to determine the ATP unfunded balance at September 30, 1996.

We reviewed laws, regulations, policies, and procedures concerning ATP and financial assistance, management, and control. These included the Advanced Technology Program statute (15 U.S.C. 278n); the ATP Rule (15 CFR Part 295); OMB Circular No. A-110, revised November 19, 1993, *Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations*; OMB Bulletin No. 94-01, *Form and Content of Agency Financial Statements*; Department of Commerce Financial Assistance Notice (FAN) Number 10 regarding multi-year program designation and awards; General and Special Award Conditions for Advanced Technology Program participants; the ATP Proposal Preparation Kit and Supplement; the Antideficiency Act (31 U.S.C. 1341); the Federal Managers' Financial Integrity Act; the Chief Financial Officers Act; Comptroller General Decision B-240264, *Incremental Funding of U.S. Fish and Wildlife Service Research Work Orders* (February 7, 1994); and 43 Comp. Gen. 657 (1964) regarding incremental funding of multi-year awards using no-year funds. NIST was in compliance with these laws, regulations, policies, and procedures, except for FAN Number 10, the Chief Financial Officers Act, and the Federal Managers' Financial Integrity Act, which are discussed on pages 6 through 15 of this report.

We evaluated NIST's management controls over the FY 1995 ATP final award process. Our findings are contained on pages 12 through 15 of this report. During our audit, we relied upon computer-processed data products generated from the procurement data base. While we did not assess the relevant general and application controls, we conducted other substantive tests of the data to ensure that it was sufficiently reliable. We conducted our audit from July 1996 through January 1997 at NIST, Gaithersburg, Maryland, and the Department of Commerce headquarters, Washington, D.C.

The audit was conducted in accordance with generally accepted government auditing standards and was performed under the authority of the Inspector General Act of 1978, as amended, and Department of Commerce Organization Order 10-13, dated May 22, 1980, as amended.

FINDINGS AND RECOMMENDATIONS

NIST needs to (1) reevaluate its use of incremental funding for multi-year ATP research grants to minimize the risk of non-severable projects not being completed due to reductions in, or the elimination of, future funding; (2) fully disclose the ATP unfunded balance in its annual financial statements to ensure that its year-end financial condition is fairly presented and policy-makers have complete information to use in making financial management decisions; and (3) strengthen management controls over the ATP final award process.

NIST Needs to Reevaluate Use of Incremental Funding for Multi-year, Non-severable ATP Awards

NIST uses incremental funding² as the principal method for financing its ATP research grants. By funding such grants one year at a time, NIST has to rely on future appropriations to fund the remaining years of awards and, accordingly, runs the risk that funding may not be available to complete the projects. Also, for FY 1995 projects that were incrementally funded, NIST did not comply with the Departmental regulation which requires the grants officer to certify that project activities are severable into annual components which represent solid accomplishments.

In August 1994, NIST received Departmental approval to designate ATP as a multi-year financial assistance program. Multi-year program designation enables Departmental financial assistance programs to make awards for periods of more than one year even though the program does not have enough money to fund the entire award period. With this designation, funding agencies are permitted to obligate funds for a one year budget period and anticipate options to renew for up to two additional years. ATP received an exception to the general rule and was given approval to renew award agreements for up to four additional years.

Designation of the ATP as a multi-year program makes it subject to Department Financial Assistance Notice Number 10, issued September 24, 1992. FAN Number 10 sets forth guidelines and procedures for all multi-year assistance awards and requires that each year's activities be severable and represent solid accomplishments if prospective funding is not made available to the

² Incremental funding is the annual financing of projects that are intended to last more than one year. The use of incremental funding is not proper for projects which require more than one year to complete and are not severable into annual segments with defined work products to be developed each year. The full amount required to complete such projects should be obligated at the time of initial award.

recipient.³ By requiring that each funded segment of an ATP multi-year award produce something of value, FAN Number 10 attempts to ensure that the government will not be harmed if future funding is not received.

We selected a stratified sample of 24 of 188 (13 percent) ATP awards resulting from the FY 1994 and FY 1995 competitions, as shown in Appendix B, and found that the required grants officer certifications of severability were not prepared for all ATP projects. As shown in Table 2, 4 of the 24 awards were not required to have certifications of severability because they were fully funded up-front or closed in the first year; 5 awards contained the severability certifications; and 15 awards (63 percent) were missing the required certifications of severability.

Table 2: Certifications of Severability (dollars in millions)

Certification	Number	Amount
Not Required	4	\$40.1
Yes	5	44.2
No	15	105.9
Total	24	\$190.2

The 15 awards without severability certifications included 2 of 11 sampled FY 1994 awards and all 13 sampled FY 1995 awards. The grants officer told us that certifications of severability were not prepared for any awards after the FY 1994 competitions based on guidance from the Department's Office of General Counsel (OGC). Therefore, none of the 102 FY 1995 awards were certified as severable. The OGC attorney-advisor to the grants office did not recall providing such guidance and acknowledged that such certifications were still required by FAN

³ The severability requirement of FAN Number 10 was more explicitly defined in Comptroller General Decision B-240264, *Incremental Funding of U.S. Fish and Wildlife Service Research Work Orders*, issued February 7, 1994. The decision stated that the practice of funding multi-year projects only one year at a time was prohibited unless a project could be separated into annual components with **defined work products completed at year's end**. We used this definition to guide our judgements in deciding whether projects in our sample were severable (see Table 3).

Number 10 (page 3, paragraph .03.c.5). Since ATP was designated a multi-year program in 1994, it was bound by FAN Number 10 requirements, including the need for the grants officer to certify that each project's activities were severable into annual components and represented solid accomplishments. By not certifying that project activities were severable, NIST had no assurance that recipients of the \$411.2 million in FY 1995 ATP awards (see Appendix C) would engage in work that annually yielded solid accomplishments. Thus, NIST had no way of knowing whether the government's investment in such ATP research would yield productive results if these projects were not funded to completion.

We reviewed the project proposals for the 20 awards in our sample that required a grants officer's certification of severability, and we made an independent assessment of severability. For the five awards in our sample that had certifications of severability, we determined that only one award was expected to produce defined work products by the end of each year; four awards did not show, or it was questionable, whether defined work products were to be completed each year. For the 15 awards without a certification of severability, we found that 8 awards clearly showed defined work products to be delivered by the end of each year; 7 awards did not show, or it was questionable, whether defined work products were to be completed each year. In sum, as depicted in Table 3, we concluded that only 9 of the 20 awards (45 percent) were clearly severable. However, those awards did constitute \$93.3 million (62 percent) of the total \$150.1 million in awards.

Table 3: 20 Awards Requiring Certifications of Severability (dollars in millions)

Defined Work Product Each Year	Sampled Awards With Severability Certification		Sampled Awards Without Severability Certification		TOTALS	
	Number	Amount	Number	Amount	Number	Amount
Yes	1	\$31.5	8	\$61.8	9	\$93.3
No	2	8.7	4	36.5	6	45.2
Questionable	2	4.0	3	7.6	5	11.6
Total	5	\$44.2	15	\$105.9	20	\$150.1

The use of incremental funding is not the most prudent financing choice for projects that require more than one year to complete and are not severable. Funding such grants one year at a time is risky because future funding may not be available to complete the projects. In our view, several factors contributed to NIST's questionable use of incremental funding for ATP projects. First, ATP's priority was focused on maximizing the number of grants awarded. By funding projects one year at a time, management could make many more awards than if they fully funded all projects up-front. Because award amounts ranged from \$482,000 to \$31.5 million, it would not take many projects on the high end of the range to quickly exhaust the ATP budget. Second, NIST believed that future funding for ATP was certain. Third, the grants officer was unaware of the requirements associated with incremental funding of multi-year awards. Fourth, legal reviews were not sufficiently thorough to identify the problem.

Recommendations

To correct the deficiencies associated with incremental funding and to ensure compliance with Departmental requirements, we recommend that the Acting Director, NIST, ensure that all prior year ATP awards not funded for the entire project period are thoroughly reviewed and take the following actions:

1. Ensure the preparation of required grants officer certifications of severability for all awards which are severable and have defined work products each year.
2. Fully fund the remaining awards which are not severable and do not have defined work products each year before obligating funds for new ATP awards.

Additionally, for all new ATP awards, we recommend that the Acting Director, NIST:

3. Ensure the preparation of required grants officer certifications of severability for all awards which are severable and have defined work products each year.
4. Fully fund up-front those awards which are not severable and do not have defined work products each year.

Agency Response and OIG Comment

Recommendation No. 1: NIST generally agreed with the recommendation. NIST stated that all FY 1994 and prior competition awards have been fully funded and the Congress has been informed that all FY 1995 competition awards will be fully obligated. Therefore, no certifications

will be required for these awards. NIST stated that ATP will review projects funded under the FY 1996 General Competition to ensure compliance with the severability requirements and take appropriate action, if necessary, to work with the recipients to define technical milestones. NIST said that upon completion of this review, the NIST Grants Officer will document the required certification in the official award file.

NIST's response to these recommendations may reflect a misunderstanding of the criteria for deciding whether projects are eligible for incremental funding. For projects to be eligible for incremental funding, the scopes of work must be severable into annual increments of meaningful work which represent solid accomplishments. Technical milestones merely enable the agency to gauge whether project recipients are making satisfactory progress towards the achievement of the purposes for which the awards were made. Milestones do not necessarily represent the achievement of solid accomplishments, particularly defined work products. We caution NIST to ensure that the milestones it selects to justify incremental funding reflect *annual increments of meaningful work which represent solid accomplishments*. However, the proposed action, if properly implemented, will meet the intent of the recommendation.

Recommendation No. 2: NIST generally agreed with the recommendation, stating that implementation will not be necessary because ATP will have fully funded all projects awarded through the FY 1995 competitions. NIST further stated that ATP will review projects funded under the FY 1996 General Competition to ensure compliance with the severability. The proposed action, if properly implemented, will meet the intent of the recommendation.

Recommendation No. 3: NIST generally agreed with the recommendation, stating that the ATP technical project manager must ensure that projects selected for funding contain clearly defined quantitative technical milestones and assess severability. If not clearly defined, NIST will make every effort to obtain the required information from the applicant prior to the award. If additional time is necessary, a contingency clause could be included in the award stipulating that this issue must be addressed within a prescribed time frame and that no funds may be disbursed until such time as the contingency has been satisfied. ATP will provide a statement on the CD-435, *Procurement Request*, regarding severability. The Grants Officer will also review the proposed project to determine the severability of the project and will place a certification into the official award file or include the required contingency clause in the award, if necessary. The proposed action, if properly implemented, will meet the intent of the recommendation.

Recommendation No. 4: NIST stated that implementation of this recommendation will not be necessary, as ATP plans to take action as described in Recommendation No. 3. That is, NIST apparently plans to evaluate all its projects in such a manner so as to ensure that all projects are

severable, and therefore can be incrementally funded. The proposed action, if properly implemented, will meet the intent of the recommendation.

NIST Should Maintain Records to Accurately Track ATP's Unfunded Balance and Fully Disclose the Amount in Its Annual Financial Statements

When an entity invests funds incrementally, one year at a time, in projects that are intended to last more than one year, it has unfunded portions of the projects at year's end. By incrementally funding many of its ATP projects in this manner, NIST has accumulated substantial unfunded balances, which it has not obligated from available appropriations, but which it may have to pay from future appropriations. However, based on discussions with NIST personnel and our review of the special award conditions for ATP grants, we understand that NIST would not have to pay the unfunded balance for any project that is terminated prior to completion for inadequate performance or lack of funds.

The Chief Financial Officers Act of 1990 requires federal agencies to prepare annual financial statements that provide complete, reliable, timely, and consistent financial information for use by the executive and legislative branches of government in the financing, management, and evaluation of federal programs. OMB Bulletin No. 94-01, *Form and Content of Agency Financial Statements*, dated November 16, 1993, provides current guidance to federal agencies for preparation of annual financial statements. Although OMB Bulletin No. 94-01 does not address disclosure of unfunded balances specifically, we believe that full disclosure of this amount in the overview and notes to NIST's annual financial statements will provide policy-makers with more complete information for use in making sound financial and management decisions.

Since the ATP unfunded balance was not previously disclosed in NIST's annual financial statements, it had not been audited. The NIST official who manually tracked the unfunded balance initially estimated the amount at September 30, 1996, to be about \$155.8 million. However, that official told us that no one had ever verified the accuracy of the ATP unfunded balance. We conducted our own analysis to determine independently the unfunded balance. We compared ATP-provided information on negotiated award amounts to NIST procurement system data on obligations for each of the 280 ATP awards, and held discussions with ATP and grants officials. We found 85 ATP projects with unfunded balances which ranged from a high of \$11.7 million to a low of \$65.00. Through discussions with ATP and grants officials and reviews of supporting documentation, we were able to determine the exact amount. ATP and OIG now agree that the ATP unfunded balance at September 30, 1996, was \$155,294,241, and that amount will serve as the baseline for reporting in future years.

Recommendations

We recommend that the Acting Director, NIST:

1. Ensure that auditable records are maintained to accurately track the ATP unfunded balance amount of \$155,294,241 at September 30, 1996.
2. Fully disclose the ATP unfunded balance amount in the overview and notes to NIST's annual financial statements.

Agency Response and OIG Comment

Recommendation No. 1: NIST generally agreed with the recommendation. The OIG and NIST agreed on a September 30, 1996 baseline amount and NIST stated that it will continue to maintain auditable records to accurately track the ATP unfunded balance. In addition, we have revised report language to reflect subsequent discussions with NIST officials to better characterize the ATP unfunded balance and NIST's responsibility to disclose the amount in its annual financial statements. The proposed action complies with the recommendation.

Recommendation No. 2: NIST agreed to fully disclose the ATP unfunded balance amount in the overview and notes to its annual financial statements. The proposed action complies with the recommendation.

ATP Award Process Needs Better Management Controls

ATP and grants officials did not adequately plan and coordinate the 12 FY 1995 competitions, totaling over \$411 million (see Appendix C), and did not employ appropriate management controls over final award processing. NIST issued many ATP awards with contingency clauses, instead of resolving all outstanding issues before finalizing awards. As a result, NIST ran the risk of disbursing funds for projects before ensuring that they met all program financial requirements. In our opinion, this occurred because NIST was concerned about the \$90 million rescission of FY 1995 ATP funds and uncertainties regarding the FY 1996 federal budget impasse; the premature public announcement of projects selected for funding; and the lack of a system for identifying and tracking ATP awards with outstanding contingencies.

The Federal Managers' Financial Integrity Act and sound management practices dictate that an award process involving hundreds of millions of dollars be properly planned, coordinated, and controlled. However, 98 of 102 (96 percent) of the awards, valued at nearly \$381 million, were expedited through NIST's award process between July and September 1995. The Congress had greatly increased the ATP budget for FY 1995 (see Appendix A), which resulted in many more projects being selected for funding than in previous years.

After ATP-established Source Evaluation Boards spent up to four months rigorously reviewing and selecting FY 1995 ATP project proposals, the selections were provided to the grants office for financial review and final award processing. Because the end of the fiscal year was approaching, grants office personnel did not have sufficient time to complete their financial reviews. In addition, NIST employed a two-step award process whereby ATP officials publicly announced projects selected for funding and sent letters to successful applicants notifying them of their selection before grants specialists scrutinized project costs. This announcement and notification method implied that budgets were already approved, thus creating difficulties for grants specialists if questions arose later. Because grants specialists were not members of Source Evaluation Boards, they had little opportunity to provide early and substantive input in the project proposal review and selection process.

Of a sample of 26 of the 102 of ATP awards resulting from the FY 1995 competitions, we found that 21 award agreements were issued with contingency clauses. Of the 21 awards, 16 contained contingencies because they lacked a signed joint venture agreement, an approved final budget, or an OMB-approved accounting system. Our sample also identified about \$58,000 for one project disbursed prior to resolution of the contingency even though the award specifically stated that no federal funds were to be disbursed until the contingency was satisfied.

NIST believed it was obligated to quickly finalize ATP awards once they had been publicly announced. Specifically, NIST had already publicly announced projects selected for funding and sent notification letters to successful applicants. NIST also believed that being selected for ATP funding could have a major impact on small companies and, therefore, they should be informed as soon as possible.

In addition, NIST did not have a system to identify and track outstanding contingencies and to ensure resolution before funds disbursement. For example, NIST officials could not tell us how many FY 1995 awards were issued with contingencies or how many were outstanding without reviewing all ATP grant files. According to a grants office supervisor, there was no requirement to track the status of outstanding contingencies. Rather, the supervisor randomly reviewed grant files and determined whether grants specialists adequately tracked contingencies for purposes of preparing their annual performance evaluations. ATP officials also told us that finalizing joint venture agreements often took a long time because of the large number of participants and concerns about intellectual property and patent rights, and this extended the time needed to finalize ATP awards. Therefore, many award agreements were issued with contingency clauses pending NIST receipt of signed joint venture agreements.

As a result of inadequate planning and coordination of the FY 1995 ATP competitions and insufficient management controls over final award processing, grants office reviews of proposed budgets were rushed and inadequate, compliance with the Federal Managers' Financial Integrity Act was not assured, and government assets were not properly protected when about \$58,000 was disbursed before resolving an outstanding award contingency.

Recommendations

To strengthen management control over future ATP awards, we recommend that the Acting Director, NIST:

1. Ensure that ATP awards are announced and notification letters are sent to successful applicants only after grants specialists have completed their financial reviews and final award process work.
2. Direct the appointment of grants specialists to ATP Source Evaluation Boards to demonstrate the importance of their work, and to involve them earlier and more substantially in the ATP proposal review and selection process.

3. Ensure the development and implementation of a system to identify and track ATP award agreements with contingency clauses to prevent the disbursement of funds to recipients before all contingencies are resolved.

Agency Response and OIG Comment

Recommendation No. 1: NIST conceded that ATP awards were publicly announced before the final negotiations were completed by the Grants Office. However, NIST stated that it disagreed that the announcement and notification method implied that budgets were already approved. All Department of Commerce press releases contained a statement that awards were contingent on the signing of formal agreements between NIST and the recipients. This involved the final negotiation of the budget by the Grants Office.

In agreeing to implement the recommendation, NIST stated that it will make every effort to coincide award announcements with the completion of the Grants Office's award process work. The Grants Office will continue to work with ATP to coordinate the award announcements, notification letters, and the timing of the actual award. The Grants Specialists will also take a more active role after the semi-finalists are identified to complete their budget analyses of the semi-finalists' proposals and raise question prior to the semi-finalists' oral reviews. Previously, the Grants Officer or Grants Specialist attended the SEB briefings for the selecting official to provide comments/concerns of all semi-finalist proposals. As discussed above, the Grants Office staff will continue to review all semi-finalists proposals, conduct budget analyses, and contact the semi-finalists earlier in the process for any additional budget details/breakdown needed for negotiation purposes to expedite the award process. The Grant Specialists will also continue to conduct the following for all semi-finalists proposals in an effort to expedite the award clearance process: 1) Review the Dun & Bradstreet reports, and debarment and suspension and Departmental accounts receivable listings; 2) Obtain OIG and Bureau of Export Administration clearances; 3) Obtain pertinent information from semi-finalists related to budgetary issues or joint venture agreements; and 4) Prepare the Federal Assistance Information Sheets (FAIS) for FARB clearance (including legal clearance).

The actions cited by NIST in response to the recommendation meet the intent of the recommendation. However, we continue to take exception to NIST's contention that premature announcement does not imply that budgets are already approved. The Grants Officer review and evaluation of proposed budgets and business plans, along with the technical evaluations, are important components to deciding not only how much to award, but whether the project's goals, objectives, and methodologies are feasible as proposed, and even whether the grant should be awarded. The ATP program is a competitive process and the business review is an integral part of deciding which applicants will be successful.

Recommendation No. 2: NIST disagreed with the statement that the Grants Specialists were not members of the Source Evaluation Boards (SEB) and that they had little opportunity to provide early and substantive input in the project proposal review and selection process. Each SEB appointment memorandum signed by the ATP selecting official stipulates: "The Grants Officer, Sharon Green (Acquisition and Assistance Division), and/or designated members of her staff, will be an ex-officio member of the SEB and will provide support to the SEB on Federal assistance and financial issues." Additionally, the Grants Specialists have served as Executive Secretaries to the SEB and provided critical financial assistance guidance. During the semi-finalist stage of the review process, Grants Specialists review proposals, conduct costs analyses, and provide questions to the SEB for the semi-finalists prior to oral reviews to address any budgetary concerns or to provide additional supporting documentation. To expedite the award process, the NIST Grants Office recently instituted a new procedure for Grants Specialists to contact semi-finalists prior to the oral reviews to obtain any necessary additional or supporting budgetary information.

NIST further stated that the Grants Officer (or designee) has served on the SEB as a non-voting member from ATP's inception. During the years, the Grants Office has been taking a more active role and will continue to provide significant contributions to the ATP SEB review process.

We do not disagree with anything that NIST has stated in its response to the draft report finding. The premise behind this recommendation is that we found the Grants Office and business review clearly played a subordinate role in the process of evaluation and selection of grant recipients. The intent of the recommendation is that NIST recognize the important and sometimes pivotal role of the business review in making selection decisions. It was in response to our discussions with NIST officials during the course of our audit that NIST instituted new procedures for the Grants Office to be more substantively involved, and involved much earlier in the evaluation process. For that NIST is to be commended. The actions taken by NIST, if continued as proposed, meet the intent of the recommendation.

Recommendation No. 3: NIST agreed that its Grants Office did not have a formal system in place to identify and track outstanding contingencies. However, NIST disagreed with the draft audit report's statement that NIST disbursed \$3 million under eight awards before ensuring that the recipients met all program financial requirements and that NIST did not properly safeguard \$3 million of government funds. Based on the review of the award files identified by the OIG, only \$57,897 was actually disbursed under one award prior to resolution of all contingencies.

NIST further stated that the Grants Office is in the process of developing a database to identify awards with contingency clauses. Future award files containing contingencies will be flagged with

notations over the internal financial status reports to alert Grants Specialists not to process payment requests until all contingencies have been satisfied. Also, by instituting new procedures in the Grants Office for consulting with semi-finalists early in the review process to resolve outstanding budgetary and grants-related issues, the need for contingency clauses will be minimized or even obsolete.

Based upon NIST's response, we gathered additional current information which supported NIST's contention that only \$58,000 was disbursed under one award prior to resolution of all contingencies--not \$3 million as stated in our draft report. We have revised the report accordingly. At the same time, we note that we only sampled about one-fourth of the ATP awards resulting from the FY 1995 competitions. Thus, considering the weaknesses which existed in the internal controls, it is possible that there are other instances where funds could have been disbursed prior to the resolution of all contingencies. Nevertheless, NIST generally concurred with the recommendation. The actions proposed by NIST, if properly implemented, will meet the intent of the recommendation.

APPENDIX A

**ATP Budget History
(dollars in millions)**

Fiscal Year	Amount
1990	\$ 10.0
1991	37.0 ^a
1992	49.4 ^a
1993	67.9
1994	199.1
1995	340.5 ^b
1996	221.0
1997	225.0
1998	275.6 ^c
Total	\$1,425.5

^a Includes funding for administrative oversight that was provided in a separate budget item in these years.

^b Originally funded at \$430.7 million; \$90 million was rescinded on April 10, 1995; additional funds were rescinded as part of a government-wide administrative and travel rescission.

^c Amount represents the President's FY 1998 budget submission to the Congress.

Sources: NIST-ATP-96-2, *The Advanced Technology Program: A Progress Report on the Impacts of an Industry-Government Partnership*, April 1996; and NIST Budget Office data.

APPENDIX B

**New ATP Awards Resulting from FY 1994 and FY 1995 Competitions
(dollars in millions)**

Year of ATP Competition	Total Announced Awards		Total OIG Reviewed	
	Number	Amount	Number	Amount
FY 1994	86	\$298.7	11	\$101.5
FY 1995	102	411.2	13	88.7
Total	188	\$709.9	24	\$190.2

APPENDIX C

**New ATP Awards by Specific FY 1995 Competition
 (dollars in millions)**

ATP Competition	Total Announced Awards		Total OIG Reviewed	
	Number	Amount	Number	Amount
95-01	16	\$35.8	2	\$7.0
95-02	15	54.2	3	15.7
95-03	6	38.1	2	12.3
95-04	6	55.0	2	15.8
95-05	9	50.7	2	18.9
95-06	7	12.7	2	4.8
95-07	8	19.9	2	3.8
95-08	7	22.6	2	9.0
95-09	7	13.9	2	3.9
95-10	10	62.9	3	50.4
95-11	7	14.7	2	4.2
95-12	4	30.7	2	13.0
Total	102	\$411.2	26	\$158.8

APPENDIX D



NIST

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899
OFFICE OF THE DIRECTOR

MAY 15 1997

MEMORANDUM FOR Frank DeGeorge
Inspector General

Through: Mary L. Good *Jean Boehle for*
Under Secretary for Technology

From: Robert E. Hebner *Robert Hebner*
Acting Director

Subject: National Institute of Standards and Technology Response to Office of Inspector
General Draft Audit Report No. ENT-8984-7-000X

Thank you for the opportunity to review the subject draft audit report of management controls over NIST's fiscal year 1995 Advanced Technology Program (ATP) final award process and the method for funding ATP projects. The following comments in the order of the draft report are provided:

INTRODUCTION

Page 1, second paragraph states "*Joint ventures may be funded for up to five years, with no funding limit.*" This may be misleading as there is a funding limitation on availability of funding. It would be more appropriate to say "*Joint ventures may be funded for up to five years, with no statutory funding limit.*"

Page 3, third paragraph states "*ATP is a high-profile, high-risk program . . .*" This may be misleading in that the ATP is not a "high-risk" program; the ATP is a competitive cost-sharing program designed to assist United States industry pursue "high-risk," enabling technologies with significant commercial/economic potential.

FINDINGS AND RECOMMENDATIONS

- **NIST Needs to Reevaluate Use of Incremental Funding for Multi-Year, Non-Severable ATP Awards**

ATP proposals submitted under the ATP should contain very specific quantitative technical milestones such that progress can be measured and assessed prior to beginning work on the

next milestone. NIST evaluates applicants, in part, on whether annual milestones are proposed and the likelihood that they will be achieved. Applicants must provide a detailed research and development plan setting forth annual technical milestones that support project goals. If technical milestones need to be further defined, this normally occurs during the project kick-off meetings between NIST and the recipients. By the end of the first quarter of each project year, annual project milestones are finalized between the ATP technical project manager and the joint venture in order to assess technical progress of the project and recommend whether or not funding should be continued into the next year. Typically draft milestones for the upcoming year are presented and discussed at the annual review near the end of a current project year, along with a summary of progress against the current year milestones. This enables the ATP technical project manager to work cooperatively with the company to adjust milestones for the upcoming year based on research results to date. Since ATP funds high risk research, it is inappropriate to expect that all milestones presented in a proposal would remain static during the life of a project.

The section of the ATP Proposal Preparation Kit which discusses the "Coherency of Technical Plan and Clarity of Vision" selection criterion clearly requests that *"The first year's work should be described in more detail than work in subsequent years. Explain how the results of the first year's progress will affect decisions regarding subsequent tasks. Key decision points and alternatives should be noted. Include a milestone chart with quantitative measurements (go, no-go points). Identify 1) the individual tasks and responsible performers and 2) timing and estimated completion dates of individual project tasks. Discuss the impact if any particular task slips or cannot be accomplished."*

Due to the emphasis by ATP for more details for the first year's technical plan, and the page limitations set in the ATP kit, it is not reasonable to expect that all milestones for all years of a 3-5 year project can be set in the proposal without revision through the life of the project. It is also not reasonable to update the milestones more frequently than on an annual reporting basis due to the high risk nature of the research and the time required to accomplish and evaluate results. As this is a cooperative agreement, some flexibility in defining annual severability criteria is needed based upon the research results of the prior year and assessing progress toward the final project targets proposed. However, this annual flexibility does not make this project management method inconsistent with multi-year awards.

Since technical milestones are required under ATP projects, multi-year awards are still appropriate if all interim milestones are defined on an annual basis that address the issues related to reaching those specific technical targets. It should be understood that setting rational milestones to address specific targets does not diminish the high risk nature of the research, and setting milestones does not guarantee research success. It does guarantee that the company and the ATP technical project manager can document a rational "best effort" appropriate for a high risk technical research plan supported through a cooperative agreement. This is not contract research and some degree of flexibility concerning severability is needed.

The "Potential Broad Impact on U.S. Technology and Knowledge Base" selection sub-criterion discussed in the ATP kit requests that proposers *"Describe the technical leverage that the program plan will have if it is carried out successfully. Technical leverage means that a small advance in one area of technology will have a large impact on other areas of technology or on a broad spectrum of applications of those technologies. Will the project contribute to the U.S. technology base even if it is not completely successful either technically or commercially? In what ways? How will you facilitate impacts in other technology areas?"* Applicants must address the technological impact if a project is not successfully completed for any reason. The proposer must clearly identify the value of any research performed regardless of whether it is completed.

The purpose of the ATP is not to assist in producing a product but to develop a new broadly enabling technology. While ATP projects are selected because of their probable success, an important criterion is that they advance the state of the technology even if they are not completely successful. Meaningful work would still be accomplished even if no further funding were provided.

Recommendations:

1. **For Prior Awards:** Ensure the preparation of required Grants Officer's certifications of severability for all awards which are severable and have defined work products each year.

Proposed Resolution Action: All FY 94 and prior competition awards have already been fully funded and NIST has informed the Congress that all FY 95 competition awards will be fully obligated, therefore, no certifications are required for these awards. ATP will review projects funded under the FY 96 General Competition to ensure compliance with the severability requirements and take appropriate action, if necessary, to work with the recipients to define technical milestones as discussed above. Upon completion of this review, the NIST Grants Officer will document the required certification in the official award file.

2. **For Prior Awards:** Fully fund the remaining awards which are not severable and do not have defined work products each year before obligating funds for new ATP awards.

Proposed Resolution Action: Implementation of this recommendation will not be necessary, as ATP plans to take action as described in recommendation 1. above.

3. **For All New Awards:** Ensure the preparation of required Grant Officer's certifications of severability for all awards which are severable and have defined work products each year.

Proposed Resolution Action: The ATP technical project manager must ensure that projects selected for funding contain clearly defined quantitative technical milestones and

assess severability. If not clearly defined, NIST will make every effort to obtain the required information from the applicant prior to the award. If additional time is necessary, a contingency clause could be included in the award stipulating that this issue must be addressed within a prescribed time frame and that no funds may be disbursed until such time as the contingency has been satisfied. ATP will provide a statement on the CD-435 "Procurement Request" regarding severability. The Grants Officer will also review the proposed project to determine the severability of the project and will place a certification into the official award file or include the required contingency clause in the award, if necessary.

4. **For All New Awards:** Fully fund up-front those awards which are not severable and do not have defined work products each year.

Proposed Resolution Action: Implementation of this recommendation will not be necessary, as ATP plans to take action as described in recommendation 3. above.

- **NIST Should Maintain Records to Accurately Track ATP's Unfunded Balance and Fully Disclose the Amount in Its Annual Financial Statements**

NIST is uncomfortable with the OIG's references to "*unfunded balance*" and "*contingent liabilities*" in this section of the draft audit report as they could be misinterpreted. We acknowledge that awards are issued on a multi-year basis with a commitment to fully fund projects contingent on availability of funding from Congress and satisfactory performance by recipients. NIST and OIG staff have discussed possible wording changes to this section to clarify its intent and would appreciate the OIG's consideration of language changes. NIST questions whether the Chief Financial Officers Act of 1990 requires that financial assistance multi-year funding commitments be included in annual financial statements. We are unaware of any agency within the Department which includes such information. However, to ensure full disclosure of future ATP commitments, NIST will comply with the OIG's recommendation and include this information in annual financial statements.

Recommendations:

1. Ensure that auditable records are maintained to accurately track the ATP unfunded balance amount of \$155,294,241 at September 30, 1996.

Proposed Resolution Action: As stated in the draft audit report, the OIG and NIST agreed on the September 30, 1996 baseline amount and auditable records are available. NIST will continue to maintain auditable records to accurately track the ATP unfunded balance.

2. Fully disclose the ATP unfunded balance amount in the overview and notes to NIST's annual financial statements.

Proposed Resolution Action: NIST agrees to fully disclose the ATP unfunded balance amount in the overview and notes to its annual financial statements.

- **ATP Award Process Needs Better Management Controls**

While NIST agrees that the ATP award recipients were publicly announced before the final negotiations were completed by the Grants Office, we disagree that the announcement and notification method implied that budgets were already approved. All Department of Commerce press releases contained a statement that awards were contingent on the signing of formal agreements between NIST and the recipients. This involved the final negotiation of the budget by the Grants Office.

NIST disagrees with the statement that Grants Specialists were not members of the Source Evaluation Boards (SEB) and that they had little opportunity to provide early and substantive input in the project proposal review and selection process. Each SEB appointment memorandum signed by the ATP selecting official stipulates "*The Grants Officer, Sharon Green (Acquisition and Assistance Division), and/or designated members of her staff, will be an ex-officio member of the SEB and will provide support to the SEB on Federal assistance and financial issues.*" Additionally, the Grants Specialists have served as Executive Secretaries to the SEB and provided critical financial assistance guidance. During the semi-finalist stage of the review process, Grants Specialists review proposals, conduct costs analyses, and provide questions to the SEB for the semi-finalists oral reviews. Grants Specialists do not normally contact semi-finalists prior to oral reviews to address any budgetary concerns or to provide additional supporting documentation. To expedite the award process, the NIST Grants Office recently instituted a new procedure for Grants Specialists to contact semi-finalists prior to the oral reviews to obtain any necessary additional or supporting budgetary information.

Recommendations:

1. Ensure that ATP awards are announced and notification letters are sent to successful applicants only after Grants Specialists have completed their financial reviews and final award process work.

Proposed Resolution Action: NIST will make every effort to coincide award announcements with the completion of the Grants Office's award process work. The Grants Office will continue to work with ATP to coordinate the award announcements, notification letters, and the timing of the actual award. The Grants Specialists will also take a more active role after the semi-finalists are identified to complete their budget analyses of the semi-finalists' proposals and raise questions prior to the semi-finalists' oral reviews. Previously, the Grants Officer or Grants Specialist attended the SEB briefings for the selecting official to provide comments/concerns of all semi-finalist proposals. As discussed above, the Grants Office staff will continue to review all

semi-finalists proposals, conduct budget analyses, and contact the semi-finalists earlier in the process for any additional budget details/breakdown needed for negotiation purposes to expedite the award process. The Grant Specialists will also continue to conduct the following for all semi-finalists proposals in an effort to expedite the award clearance process: 1) Review the Dun & Bradstreet reports, and debarment and suspension and Departmental accounts receivable listings; 2) Obtain OIG and Bureau of Export Administration clearances; 3) Obtain pertinent information from semi-finalists related to budgetary issues or joint venture agreements; and 4) Prepare the Federal Assistance Information Sheets (FAIS) for FARB clearance (including legal clearance).

2. Direct the appointment of Grants Specialists to ATP Source Evaluation Boards to demonstrate the importance of their work, and to involve them earlier and more substantially in the ATP proposal review and selection process.

Proposed Resolution Action: As discussed above, the Grants Officer (or designee) has served on the SEB as a non-voting member from ATP's inception. During the years, the Grants Office has been taking a more active role and will continue to provide significant contributions to the ATP SEB review process.

3. Ensure the development and implementation of a system to identify and track ATP award agreements with contingency clauses to prevent the disbursement of funds to recipients before all contingencies are resolved.

Proposed Resolution Action: While NIST agrees that its Grants Office did not have a formal system in place to identify and track outstanding contingencies, we disagree with the statement that NIST disbursed \$3 million under eight awards before ensuring that the recipients met all program financial requirements and that NIST did not properly safeguard \$3 million of government funds. Based on the review of the award files identified by the OIG, only \$57,897 was actually disbursed under one award prior to resolution of all contingencies.

The Grants Office is in the process of developing a database to identify awards with contingency clauses. Future award files containing contingencies will be flagged with notations over the internal financial status reports to alert Grants Specialists not to process payment requests until all contingencies have been satisfied. Also by instituting new procedures in the Grants Office for consulting with semi-finalists early on in the review process to resolve outstanding budgetary and grants-related issues, the need for contingency clauses will be minimized or even obsolete.

Any questions concerning these comments should be directed to Barbara Lambis at 301-975-4447.

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