

December 1994

# NASA PROCUREMENT

## Contract and Management Improvements at the Jet Propulsion Laboratory





**National Security and  
International Affairs Division**

B-259019

December 30, 1994

The Honorable John Glenn  
Chairman, Committee on Governmental Affairs  
United States Senate

The Honorable Carl Levin  
Chairman, Subcommittee on Oversight of  
Government Management  
Committee on Governmental Affairs  
United States Senate

This is our third and final report on selected contract provisions and internal controls at the Jet Propulsion Laboratory (JPL). As you requested, we reviewed the current contract between the National Aeronautics and Space Administration (NASA) and the California Institute of Technology (Caltech) for the operation of the JPL and analyzed whether modifications made to it and other management changes adequately address the concerns raised in our previous reports.

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**Background**

JPL is NASA's only Federally Funded Research and Development Center (FFRDC) and is operated under contract by Caltech. JPL is NASA's field installation for solar system exploration and is a major operating division of Caltech. Together, these overlapping roles contribute to unique JPL management and oversight challenges.

FFRDCs are operated under agreements funded by sponsoring federal agencies to provide for research or development needs that cannot readily be met by the agencies or contractors. JPL work is primarily funded by NASA; however, other sponsors can fund JPL efforts under reimbursable arrangements with NASA. JPL's total 1994 business base was just over \$1 billion.

JPL receives work projects directly from NASA program offices. It can also submit proposals to, or respond to non-competitive requests from, other work sponsors using up to 25 percent of the JPL direct workforce. Both the NASA-directed work and the non-NASA work must be determined to be appropriate for JPL to perform based on the scope of the sponsoring contract. Caltech has operated JPL for NASA since NASA became an agency in 1958 and conducted work at the same site for other federal entities as early as the 1930s. The current contract is in effect from

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September 20, 1993, to September 30, 1998. It provides a framework of procedures, regulations, and other guidance for funding specific tasks. Rather than signing separate contracts for individual work projects, funding for JPL is provided under “task orders” for specific work. Cost allowability is governed by the contract and by the Office of Management and Budget’s (OMB) Circular A-21, “Cost Principles for Educational Institutions.”

In our first report to the Committee, we discussed JPL’s fixed fee, selected cost controls, scope of work, food and beverage charges, and tuition payments for dependents.<sup>1</sup> Our second report discussed the management of NASA equipment by JPL, particularly loaning it to employees and controlling it at Caltech’s campus.<sup>2</sup>

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## Results in Brief

The current contract for operating JPL contains improvements in several areas—award fee, selected cost controls, scope of work, and number of contract deviations. In addition, actions have been taken to deal with internal control concerns. For example, policy changes have drastically curtailed the lending of computer equipment to employees and greatly reduced meal and beverage costs.

NASA has not yet reviewed the reasonableness of paying the college tuition of JPL employees’ dependents. However, in September 1994, NASA requested that the Defense Contract Audit Agency (DCAA) perform a comprehensive review of JPL’s compensation package and identified the dependent tuition assistance benefit for special scrutiny.

The ultimate success of both the contractual and oversight changes at JPL will depend on effective implementation. NASA’s Management Office at JPL will be challenged by the demands of its oversight responsibilities. Better coordination of audit resources could help in that challenging task.

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## Contract Concerns Addressed

Changes have been made to address the concerns raised in our July 1993 report. First, the fixed fee under NASA’s previous contract with Caltech was replaced with a fee structure that bases two-thirds of the fee award on NASA’s assessment of JPL’s performance. Also, new reporting and review

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<sup>1</sup>NASA Procurement: Proposed Changes to the Jet Propulsion Laboratory Contract (GAO/NSIAD-93-178, July 15, 1993).

<sup>2</sup>NASA Property: Poor Lending Practices and Controls at the Jet Propulsion Laboratory (GAO/NSIAD-94-116, Apr. 18, 1994).

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procedures could provide control over selected costs comparable to that at commercial contractors. Similarly, although the scope of work was not substantively modified for NASA tasks, it was narrowed and oversight was increased for non-NASA work performed by JPL. Finally, the total number of deviations from the Federal Acquisition Regulation (FAR) in the contract was reduced.

In addition, our concern regarding the tuition assistance benefit will be addressed as part of NASA's recent request to DCAA for a review of JPL's compensation package.

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## Award Fee Linked to Performance

The previous contract provided Caltech with a fee range of between \$11.4 million and \$15.4 million, based solely on the volume of work conducted at JPL. This arrangement was contrary to NASA's goal of considering performance in awarding fee to contractors and counter to the agency's policy of not paying fee or profit on contracts with universities. We recommended that NASA authorize a deviation from its policy against paying fee to educational institutions only if its purpose and amount was adequately justified and, if a fee was authorized, to base the amount on performance.

For the new contract, NASA approved a policy deviation allowing fee payment to a university and created a new fee structure. Under the contract's "Management Performance Incentive Plan," Caltech is paid \$6 million plus an additional performance-based amount of up to \$12 million. The incentive criteria for the performance-based fee is specified in the contract, with assigned weights of 65 for technical performance, 25 for institutional management, and 10 for outreach programs. Two evaluation boards and an award official will determine the fee amount, based on ratings by individuals familiar with JPL's work for NASA and non-NASA sponsors. NASA's award decision is not subject to the contract's dispute clause and no incentive fee is paid if performance is less than satisfactory. NASA awarded a total fee of \$16.5 million for 1994.

NASA may also indicate emphasis areas prior to each rating period. For 1994, no areas were emphasized due to extended contract negotiations. Eight areas have been identified for 1995—including cost containment, improved compliance with JPL policies, increased cultural and gender diversity in senior management, and effective social and educational outreach programs consistent with overall NASA and federal government

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initiatives in these areas. According to NASA officials, efforts pursued under any emphasis area must still fall within the contract's scope of work.

We noted in our July 1993 report that Caltech received a higher fee than any of the other large FFRDCs administered by educational institutions that receive fees. Based on past ratings, Caltech is unlikely to receive less fee under the new fee structure. For example, Caltech could be scored one point above a poor/unsatisfactory rating—61 out of 100—and still receive an incentive payment of \$7.3 million on top of the \$6 million fixed fee. This is more than the \$13.1 million fee paid for the last year of the previous contract.

Justifying and paying fee is an issue for all FFRDCs, not just JPL.<sup>3</sup> NASA officials believe that JPL is the only FFRDC receiving a fee linked to performance and intend the \$12 million performance-based fee as a strong incentive. If the incentive award fee concept is successful at JPL, performance-based fees could be considered for other FFRDCs that receive fees. Its success will depend largely on NASA applying a rigorous scoring system to help ensure a fair evaluation clearly reflecting performance.

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### Greater Cost Visibility

In our July 1993 report we noted that selected costs, called “burden” costs at JPL, were not being thoroughly reviewed by NASA. The current contract identifies DCAA as the responsible organization for reviewing JPL's annual submission of such costs and includes new reporting requirements for them as proposed by Caltech. According to NASA, these new reporting requirements improve the visibility of such costs. DCAA also believes the current contract language and the new reporting requirements could improve NASA's control of these costs. The key is the “auditability” of JPL's cost submission and the supporting documentation. DCAA has asked for specific cost data similar to that it requests from commercial contractors. JPL officials intend to provide the requested data.

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### Broad Scope Remains, but Monitoring Improved for Non-NASA Work

The prior contract's “description of work” was broadly written and was characterized as “enabling language” by a NASA official. The broad scope provided limited guidance for differentiating between work that JPL should conduct because of its expertise and work that should be conducted by others. For example, one area of activity was

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<sup>3</sup>Inadequate Federal Oversight of Federally Funded Research and Development Centers, Subcommittee on Oversight of Government Management of the Committee on Governmental Affairs, U.S. Senate, July 8, 1992.

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“Conducting (i) a program of supporting research and (ii) a program of advanced technical development, designed to make contributions to space science, space transportation, practical applications, technology and exploration.”

The basic broad content and lack of specificity in the prior contract remains in the current contract for NASA work. However, there was a change in the scope of non-NASA work. The contract previously specified that tasks undertaken for non-NASA agencies at JPL would “focus on” efforts applying JPL developed technologies. The new contract replaces the words “focus on” with “be confined to.”

However, the contract guidelines for non-NASA work remain broad. Therefore, the NASA Management Office at JPL—which reviews and approves non-NASA task orders—becomes the key control for ensuring the unique contribution of JPL to the work. Beginning last year, that office increased its oversight of the appropriateness of non-NASA task orders, particularly for those involving computer purchases. The Management Office has delayed approving tasks until further justifications have been provided and has asked JPL to notify potential non-NASA task sponsors early in the process of the need to document why JPL should do the work.

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## Fewer Deviations From Standard Contract Requirements

NASA has reduced the number of contract deviations from standard clauses established in the FAR and NASA’s FAR supplements. The number of FAR and NASA FAR deviations that were in the old research and development contract<sup>4</sup> were decreased from 22 to 15, and the total number of standard clauses incorporated in the contract have increased from 74 to 98. For example, the standard “Payment of Overtime Premiums” clause was restored. As a result, a request for overtime premiums must document factors associated with the request, the effects of denial, and why other options would not be appropriate.

NASA’s current contract with Caltech contains two new deviations from prescribed cost allowability provisions. The FAR defers to OMB’s Circular A-21, “Cost Principles for Educational Institutions,” to prescribe which costs incurred by educational institutions may be recovered under government contracts and which may not. Under the Circular, costs incurred under an employee lawsuit under Section 2 of the Major Fraud Act of 1988, including amounts paid to the employee, are unallowable. The

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<sup>4</sup>Previously, two contracts governed the Caltech-NASA relationship—one for the research and development effort, the other for management of the facilities. The two are combined in the new contract. Most deviations were related to the research and development effort and we limited our review of deviations to this component of the old and new contracts.

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Circular also provides that, in general, fines and penalties resulting from violations of the law are unallowable costs. NASA's contract with Caltech, however, provides that if Caltech litigates a third party suit and is found to have violated federal law, Caltech's legal and judgment costs will be allowed if Caltech can demonstrate that it had a reasonable expectation of prevailing on the merits.

A-21 also limits payment for advertising and public relations costs. The contract provides that this A-21 restriction does not apply to JPL disseminating public information on NASA programs or activities. For example, costs associated with JPL public events marking NASA accomplishments or the printing of program-related materials are expressly allowable. Similarly, the contract specifically allows costs for promoting technology transfer to the private sector—a NASA mandate—stating these costs are not a “cost of selling and marketing,” which A-21 does not allow.

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## Dependent Tuition Benefit to Be Reviewed

Dependents of JPL employees accepted at Caltech attend the university tuition free, with the annual per student tuition—\$15,900 in fiscal year 1994—charged to NASA. In addition, approximately 150 senior JPL employees are eligible for tuition assistance of up to half Caltech's tuition when their dependents attend other universities.<sup>5</sup> JPL considers this Caltech employee benefit a key element for recruiting exceptional employees. In 1994, 39 dependents of 30 senior employees received assistance for attending other schools.

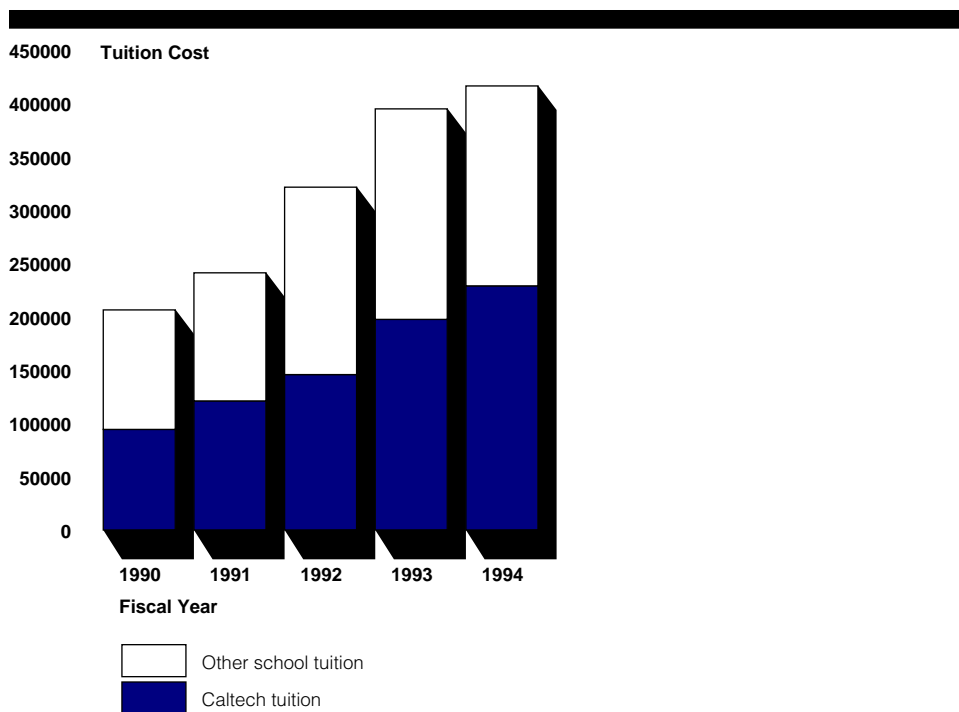
As our July 1993 report stated, dependent tuition is an allowable cost under Circular A-21, if the benefit is granted according to university policy. NASA's 1980 approval of tuition reimbursement for JPL dependents attending other than Caltech was conditioned on Caltech limiting cost increases. However, as figure 1 shows, JPL's employee dependent tuition costs have continued to increase significantly in recent years.

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<sup>5</sup>Senior JPL employees include upper-level management in the \$72,800-\$202,000 salary range, JPL Executive Council members, and heads of divisions.



**Figure 1: JPL Employee Dependent Tuition Costs**



We recommended that NASA decide whether and to what extent it should continue paying dependent tuition support. The NASA Administrator responded that the tuition benefit is part of Caltech’s general compensation and benefit plan and that it would be reviewed as part of a comprehensive JPL compensation review that NASA would conduct during fiscal year 1994. No review was conducted that year but, in September 1994, NASA requested DCAA perform a comprehensive review of JPL’s compensation system. The request noted that various parts of the system had been reviewed by DCAA over the last 2 years and asked that those results be incorporated into the comprehensive review, together with additional areas of compensation that had not been audited. JPL’s dependent tuition assistance program was specifically targeted for review.

## Some Internal Controls Strengthened

NASA and JPL responded quickly to our concerns and recommendations to rectify internal control weaknesses in the management of NASA equipment. Policies and procedures for employee equipment loans and the tracking of equipment at Caltech have been improved. Also, changes in JPL’s policies

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on charging NASA for food and beverages have substantially reduced those costs.

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## Rapid Action to Control Property

In our April 1994 report we recognized that employee home use of equipment can be valuable, but noted that the frequency, duration and growth of equipment on loan called for review. We recommended that NASA look at its employee loan policy to limit the type of equipment and conditions for borrowing and that JPL's policy be made consistent with NASA's policy.

Both NASA and JPL have revised their policies. JPL issued new guidance on June 9, 1994, that severely restricts off-site use of property. They also initiated a recall of equipment not meeting the new conditions. Under the new criteria, equipment loans, including overnight use of a portable computer, is not allowed without meeting a critical need test and obtaining the approval of a division manager. The number of equipment items on loan dropped 88 percent from 4035 (valued at \$7.6 million) in September 1993 to 451 items (valued at \$760,000) by October 1994. NASA's property manager at JPL believes there will be a reduction in the future procurement of new computer equipment, in part as a result of the returned equipment being available for use at JPL.

NASA's loan policy, issued July 18, 1994, allows for mission-essential home loans of 30 days, or up to 180 days after signing a loan agreement in which the employee assumes responsibility for the equipment. Both loans can be renewed once and require approval by the property custodian, immediate supervisor, and the division director/chief. Loan renewal requests beyond 360 days need approval by the Center Director or Director of Operations for NASA headquarters.

We also recommended that NASA require JPL to review and improve its property control system, and evaluate and revise its procedures for keeping track of inventory, including equipment located at Caltech. In response, JPL formed advisory groups to study and address property control issues, and established a deadline of December 31, 1994, for the groups' recommendations to be implemented.

NASA requested JPL conduct a wall-to-wall property inventory, which is now underway. All equipment has been scanned, both at JPL and Caltech, and NASA identification tags have been placed on all JPL equipment at Caltech. NASA's Property Manager noted losses are much lower at this point in the

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inventory than they were when property was last inventoried in 1992. Then, 12,000 items were not located after initial scanning, compared to 3,593 this time. The reasons for the differences will not be known until the 1994 inventory is complete.

Our final recommendation—that JPL identify and dispose of obsolete or excess equipment—will be addressed by one of the JPL advisory groups in coordination with the NASA Management Office. As part of NASA’s review of the JPL property system, NASA asked JPL to change its procedures to speed disposal of equipment purchased for reimbursable sponsors.

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## Meal Charges to NASA Curtailed

We reported in July 1993 that food and beverages charged to the NASA contract had been growing rapidly and internal controls were weak. We specifically questioned the allowability of “working meals” and recommended that they be identified in the new contract as unallowable costs. NASA agreed that the costs were unallowable but decided against specific contract language due to new JPL policies severely limiting food and beverage costs.

According to the new JPL policies, working meals are not allowable contract charges. Restrictions were also placed on charges for cafeteria services, which totaled almost \$145,000 for fiscal years 1991 and 1992. The new policy limits cafeteria charges to beverages, and only for meetings over 3 hours that include non-JPL employees. The new policies strictly limit chargeable meals and refreshments at JPL functions, and prohibit these charges for government employees. Food and beverage costs for the first 6 months under the new policies were \$35,000. Almost three times that amount was charged to NASA for the 6 months prior to the policy change.

NASA requested a DCAA audit of all JPL food and beverage costs for fiscal years 1991 and 1992. The resulting report questioned almost \$329,000 of the \$406,650 in estimated costs for that period. In response, Caltech withdrew the questioned amount from NASA contract charges, stating that it did this so that the government would not be at a disadvantage while JPL evaluates the questioned costs. As of September 1994, none of the costs have been resubmitted to NASA. Subsequently, NASA requested an audit of food and beverage costs for fiscal years 1989, 1990, and 1993. This report is expected to be completed by January 1995.

## NASA Oversight Resources

The flexibility in the JPL contract places increased importance on oversight by the NASA Management Office. Improved coordination of audit resources could complement that oversight.

JPL’s multiple roles—NASA center, a division of a university, a contractor, and an FFRDC—subject it to oversight by a variety of audit organizations. Two of these maintain offices at JPL—the NASA Office of the Inspector General and DCAA. Under authority of the Inspector General Act, NASA’s Inspector General is responsible for providing an effective audit program to review NASA activities. DCAA conducts contract audits of JPL and other NASA contractors, as requested by NASA. As shown in table 1, operational audit oversight is provided by these two audit entities, as well as Caltech’s internal audit organization, on an ongoing basis.

**Table 1: JPL Audit Oversight Profile**

	Inspector General <sup>a</sup>	DCAA	Caltech internal audit	Total
Number of auditors	6	7	5	18
Fiscal year 1993 budget	\$549,700	\$568,000	\$537,200	\$1,654,900
Fiscal year 1993 reports	5	30	4	39

<sup>a</sup>The Office of the Inspector General responsibility also includes NASA activities in southern California, Hawaii, and Arizona, although most of its effort are at JPL.

Other audit groups are also engaged at JPL periodically or are peripherally involved with JPL through their Caltech affiliation. We perform periodic audits, usually in response to requests from congressional committees. Other organizations, such as the Small Business Administration and the Army Corp of Engineers, conduct special reviews. Further, a public accounting firm annually audits Caltech’s financial statement and DCAA is the cognizant audit agency for Caltech’s campus activities.

Recently, NASA has taken a more active role in coordinating audit efforts. Coordination between the Inspector General staff and DCAA had previously been limited.<sup>6</sup> Over the last year, the NASA Management Office has increased its role in coordinating audit efforts by sponsoring meetings between the Inspector General and DCAA staffs to reduce duplication and request that its needs be incorporated into their audit plans. That office also arranged for Caltech’s internal audit staff to participate in audit

<sup>6</sup>However, DCAA officials told us that, consistent with their agency’s policy, they have provided their audit plan to other organizations.

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coordination meetings with the Inspector General and DCAA in October 1994.

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## Scope and Methodology

The scope of this review was limited to following up on those issues addressed in our July 1993 and April 1994 reports.

To analyze how NASA handled contractual and oversight concerns, we compared its current contract with Caltech to the previous one and to NASA's Request for Proposal for the current contract. We also reviewed the contract's negotiation files, applicable FAR and NASA FAR supplement provisions, award fee training materials, and JPL's policies on meals and equipment.

We collected and summarized cost information on dependent tuition from JPL's financial accounting division and the JPL Director's office. We also reviewed selected compensation reports from 1993 and 1994.

We interviewed NASA Management Office officials and staff, NASA General Counsel personnel, and JPL officials responsible for meal accounting and equipment policies. We also held discussions with DCAA representatives at JPL and Caltech, Inspector General officials at JPL and NASA headquarters, and the Caltech Internal Audit Director.

We conducted our work from April 1994 to October 1994, in accordance with generally accepted government auditing standards. As requested, we did not obtain agency comments on a draft of this report. However, we discussed the information in the report with both NASA and JPL officials and considered their comments in preparing it.


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Unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after its issue date. At that time, we will send copies of this report to other appropriate congressional committees, the NASA Administrator, and Director of OMB. We will also provide copies to others upon request.

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Please contact me on (202) 512-8412 if you or your staff have any questions concerning this report. The major contributors to this report were Allan Roberts, Assistant Director; Frank Degnan, Assistant Director; and Monica Kelly, Evaluator-in-Charge.

Sincerely yours,

A handwritten signature in black ink that reads "David L. Warner" followed by a stylized flourish that looks like "for".

Donna M. Heivilin, Director  
Defense Management and NASA Issues

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