DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Washington, D.C. 20201

FEB 17 2004

TO: William C. Stamper
Deputy Assistant Secretary for Facilities

FROM: Dennis J. Duquette
Deputy Inspector General
for Audit Services

SUBJECT: Review of Construction Cost Increases Related to the National Institutes of Health's Clinical Research Center (A-03-02-00371)

The attached final report provides the results of our review of construction cost increases related to the Mark O. Hatfield Clinical Research Center, now being built on the Bethesda, MD, campus of the National Institutes of Health (NIH). The clinical center project, managed by a team consisting of representatives from the National Institutes of Health (NIH), the General Services Administration (GSA), and three key contractors, is expected to be completed in the spring of 2004. Congressional funding for the project totaled $360 million, but costs increased significantly over 6 years to a total estimated cost of $504.5 million. This significant increase raised departmental and congressional concerns and eventually led to our review.

The objective of our review was to address questions that were raised during discussions with departmental officials. These questions, as well as a summary of our responses, follow:

1. What caused the need for an additional request of $144.5 million?

The additional request of $144.5 million can be attributed to three primary factors:

- Much of the increase in the project cost—$82.7 million—was for certain aspects of architectural, mechanical, electrical, and plumbing work, whose costs had not been included in estimates used to calculate the guaranteed maximum price. Such work included revisions to the fire sprinkler system, laboratories, and the exterior of the clinical center.

- From its early stages, the project was underfunded by $20 million because Congress provided $360 million, rather than the $380 million original cost estimate.

- Using the fast-track method of construction, NIH proceeded to build the clinical center without a completed design. When cost increases became evident, much construction had already taken place, making it infeasible for NIH to cut costs and remain within the scope of the original plan. Further, because of a 15-month

delay in the length of the design process, increased funding was needed to cover the subcontractors' extended schedule and additional expenses for the construction manager, who was responsible for acquiring the project's labor and materials and providing services such as cost estimating, scheduling, and subcontracting.

2. Is the additional request of $144.5 million sufficient to complete the project?

NIH's February 2002 request for an additional $144.5 million appears to be sufficient to complete the project because (a) subcontracts have been awarded for most of the work to complete the project, and the subcontracts and those to be awarded reconcile to the totals for the guaranteed maximum price; (b) $38 million is included for unexpected costs and events; and (c) the development manager—responsible for coordinating the development, design, construction, and occupancy of the project—has accepted the guaranteed maximum price, transferring the risk of future cost increases to the construction manager. The Government, which is represented by the development manager, is responsible for construction cost increases until the guaranteed maximum price is accepted.

3. Have other recent NIH construction projects experienced cost increases?

In contrast to the clinical center project, other recent NIH construction projects have not experienced significant budget increases. NIH has undertaken nine major construction projects on the Bethesda campus since 1997. We reviewed the cost management of the two largest completed projects and two largest ongoing projects. For the two recently completed projects, costs exceeded initial estimates by 13.4 percent and 1 percent, respectively, because of scope changes. While one ongoing project's costs have increased 18.2 percent to pay for scope and market price changes, costs for another ongoing project have remained level.

4. What lessons were learned from the project that might help strengthen controls and improve accountability on future construction projects?

The project has yielded several lessons to help strengthen controls and improve accountability on future construction projects. Such lessons include the need to use an independent cost estimator, limit the use of the fast-track construction delivery method, and prepare routine status reports for key decisionmakers.

In commenting on a draft of this report, NIH offered minor editorial comments, which we have incorporated in our report where appropriate.

If you have any questions or comments concerning this report, please do not hesitate to call me or one of your staff may contact Donald L. Dille, Assistant Inspector General for Grants and Internal Activities Audits, at (202) 619-1175 or through e-mail at ddille@oig.hhs.gov.

To facilitate identification, please refer to report number A-03-02-00371 in all correspondence.

Attachment

cc:
Charles E. Leasure, Jr.
Deputy Director for Management
National Institutes of Health

Department of Health and Human Services

OFFICE OF INSPECTOR GENERAL

REVIEW OF CONSTRUCTION COST INCREASES RELATED TO THE NATIONAL INSTITUTES OF HEALTH'S CLINICAL RESEARCH CENTER

FEBRUARY 2004
A-03-02-00371

EXECUTIVE SUMMARY

BACKGROUND

In 1995, the National Institutes of Health (NIH) began planning the Mark O. Hatfield Clinical Research Center to replace its current clinical center, which was becoming functionally obsolete, potentially unsafe, and expensive to maintain. The clinical center, located on the Bethesda, MD, campus, is expected to be completed in the spring of 2004. To speed up project completion, NIH opted to use a construction delivery approach referred to as the "fast-track method." This method is intended to save time by overlapping design and construction activities. The clinical center project is being managed by a team consisting of representatives from NIH, General Services Administration (GSA), and three key contractors.

Congressional funding for the project totaled $360 million, but costs increased significantly over 6 years to a total estimated cost of $504.5 million. This significant increase raised departmental and congressional concerns and eventually led to our review.

OBJECTIVE

The objective of our review was to address the following questions that were raised during discussions with departmental officials about the clinical center's significant cost increases:

1. What caused the need for an additional request of $144.5 million?

2. Is the additional request of $144.5 million sufficient to complete the project?

3. Have other recent NIH construction projects experienced cost increases?

4. What lessons were learned from the project that might help strengthen controls and improve accountability on future construction projects?

SUMMARY OF RESULTS

Briefly, our responses to the above questions are as follows:

What Caused the Need for an Additional Request of $144.5 Million?

The additional request of $144.5 million can be attributed to numerous factors, the most prominent being:

- Certain costs were not included in estimates: Much of the increase in the project cost—$82.7 million—was for certain aspects of architectural, mechanical, electrical, and plumbing work, whose costs had not been included in estimates used to calculate the guaranteed maximum price, which establishes a firm ceiling on the cost of the project. Such work included revisions to the fire sprinkler system, laboratories and the exterior of the clinical center.

- Funding was insufficient: From its early stages, the project was underfunded by $20 million because the Congress provided $360 million rather than the original $380 million cost estimate.

- Construction began without a completed design, and delays occurred in the design process: Using the fast-track method of construction, NIH proceeded to build the clinical center without a completed design. When cost increases became evident, much construction had already taken place, making it infeasible for NIH to cut costs and remain within the scope of the original plan. Further, because of a 15-month delay in the length of design process, increased funding was needed to cover the subcontractors' extended schedule and additional expenses for the construction manager, who was responsible for acquiring the project's labor and materials and providing services such as cost estimating, scheduling, and subcontracting.

Is the Additional Request of $144.5 Million Sufficient to Complete the Project?

NIH's February 2002 request for an additional $144.5 million appears to be sufficient to complete the project because (a) subcontracts have been awarded for most of the work to complete the project, and these subcontracts and those to be awarded reconcile to the totals for the guaranteed maximum price; (b) $38 million is included for unexpected costs and events; and (c) the development manager—responsible for coordinating for the development, design, construction, and occupancy of the project—has accepted the guaranteed maximum price, thus transferring the risk of future cost increases to the construction manager. The Government, which is represented by the development manager, is responsible for construction cost increases until the guaranteed maximum price is accepted.

Have Other Recent NIH Construction Projects Experienced Cost Increases?

In contrast to the clinical center project, other recent NIH construction projects have not experienced significant budget increases. For two recently completed projects, costs exceeded initial estimates by 13.4 percent and 1 percent, respectively, because of scope changes. While one ongoing project's costs have increased 18.2 percent to pay for scope and market price changes, costs for another ongoing project have remained level.

What Lessons Were Learned From the Project That Might Help Strengthen Controls and Improve Accountability on Future Construction Projects?

The project has yielded several lessons to help strengthen controls and improve accountability on future construction projects. Such lessons include the need to use an independent cost estimator, limit the use of the fast-track construction delivery method, and prepare routine status reports for key decisionmakers.

NIH Comments

In commenting on a draft of this report, NIH offered minor editorial comments, which we have incorporated in this report where appropriate.

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INTRODUCTION

BACKGROUND

NIH and Its Mission

NIH is one of the world's foremost medical research centers and the Federal focal point for medical research in the United States. Comprising 27 separate institutes and centers, NIH is an agency of the Department of Health and Human Services.

The Warren G. Magnuson Clinical Center Complex, located on the NIH campus in Bethesda, MD, opened in 1952 and is considered the centerpiece of the NIH intramural research program. This complex encompasses a research hospital with over 500 inpatient beds, extensive clinical areas, and over 2,000 biomedical research laboratories and related offices. By the early 1990s, NIH recognized that the complex was becoming functionally obsolete, potentially unsafe, and expensive to maintain and thus believed it had to take steps to correct these problems.

NIH's Planned Clinical Center

In 1995, to resolve the obsolescence issues, NIH began plans to build the Mark O. Hatfield Clinical Research Center adjacent to the current complex. NIH intends for the new facility to be a research and treatment center devoted to addressing critical medical issues. When completed, the clinical center will cover 850,000 square feet, including 600,000 square feet for a 250-bed inpatient hospital and 250,000 square feet of research laboratory space.

NIH originally estimated the project cost to be $380 million, based on historical cost data for hospitals and research facilities of similar size constructed around the country. The total project funding approved by the Congress between fiscal years (FY) 1996 and 1999 was $360 million.

Organizations Involved and Key Contractors

In June 1995, NIH's Office of Research Services entered into an interagency agreement with GSA to obtain, for a fee, contract administration support, other support services, consultants, and contractors for the project. NIH opted to have a development manager oversee the project and act as prime contractor because it believed that a private real estate developer could apply the best commercial practices and procure the project in the most efficient and expeditious manner. In August 1995, GSA entered into a contract with Boston Properties, Inc., to be the development manager, responsible for coordinating the development, design, construction, and occupancy of the project. Boston Properties, in turn, entered into contracts with other key contractors to form the project team, as follows:

- Zimmer Gunsul Frasca Partnership (Zimmer) as the architect in July 1996,

- McCarthy Brothers Construction Company (McCarthy) in August 1996 (terminated in May 2001) as the construction manager, responsible for acquiring the project's labor and

materials and providing services such as cost estimating, scheduling, and subcontracting, and

- Centex Construction Company (Centex) as the construction manager in May 2001.

The project team consisted of representatives from NIH, GSA, and three key contractors: Boston Properties, McCarthy and later Centex, and Zimmer.

Construction Approach

NIH estimated that the project would take nearly 9 years—from 1997 to 2005—to complete using the conventional design-bid-build approach: 3 years to design, 6 months to bid, and 5 years to construct. According to the Office of Research Services, NIH could not wait 9 years because the current clinical complex was quickly approaching the end of its useful life. Therefore, to shorten the delivery time to about 6 years, NIH, GSA, and the development manager decided to follow a staged development approach, referred to as the "fast-track method." The purpose of the fast-track method is to save time by overlapping design and construction activities. Under this method:

- construction begins without an established firm price for the project,

- construction cost estimating is performed and reported at significant milestones as the design progresses, and

- the overall project costs are not firmly quantified until the construction manager's guaranteed maximum price for the project's construction cost is accepted.

Guaranteed Maximum Price Submission

McCarthy, the construction manager, submitted its draft guaranteed maximum price for the project to Boston Properties in December 2000. The guaranteed maximum price establishes a firm ceiling on the cost of the project and shifts the responsibility for future cost increases to the construction manager. According to NIH, in the case of the clinical center, however, McCarthy's $449 million draft guaranteed maximum price submission contained so many qualifications and exclusions that it offered no guarantee on the maximum project cost. As a result, Boston Properties did not accept it.

Replacement of Construction Manager

In May 2001, after 4 months of continued negotiations with McCarthy and with the approval of NIH and GSA, Boston Properties replaced McCarthy with Centex as the construction manager. NIH and Boston Properties believed that McCarthy could not provide an acceptable guaranteed maximum price.

Acceptance of Guaranteed Maximum Price

Between May and November 2001, as one of its first responsibilities as construction manager, Centex developed a revised guaranteed maximum price totaling $495.2 million. The guaranteed maximum price contract included $414.2 million for construction of the clinical center and $81 million in construction costs for related projects.[1] The total cost of the clinical center included $414.2 million for construction costs and $90.3 million for nonconstruction costs. This represented an increase from $360 million to $504.5 million, or $144.5 million above the approved budget.

To review the guaranteed maximum price, GSA hired a consultant who concluded that the project could be expected to cost no more than the amount offered by Centex. In May 2002, NIH accepted Centex's guaranteed maximum price. The project is expected to be completed in the spring of 2004.

OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

This review stemmed from discussions with Department officials who were concerned about the clinical center's escalating construction costs. Our objective was to address the following questions, which were raised during discussions with these officials:

1. What caused the need for an additional request of $144.5 million?

2. Is the additional request of $144.5 million sufficient to complete the project?

3. Have other recent NIH construction projects experienced cost increases?

4. What lessons were learned from the project that might help strengthen controls and improve accountability on future construction projects?

Scope

We concentrated our review on the period between FY 1994, when NIH decided to build the clinical center, and FY 2002, when NIH accepted Centex's guaranteed maximum price. We did not review internal controls because our audit objectives did not require an understanding or assessment of the internal control structure. We also did not review the appropriateness of costs charged to the clinical center project or determine whether the costs were incurred in accordance with any Federal regulations.

[1] The related projects were not part of the clinical center's budget or within the scope of our review.

Methodology

To accomplish our objective, we:

- met with officials of the Department's Office of the Assistant Secretary for Administration and Management and NIH to discuss concerns about the project's escalating costs;

- reviewed background information pertaining to the project;

- reviewed congressional funding documentation;

- reviewed written correspondence between NIH and the entities involved with the planning and construction of the project from August 2000 through February 2002;

- reviewed a project status report prepared by NIH in 1998 and reports prepared by external groups between FYs 1999 and 2002 (see Appendix A for a description of the reports);

- reviewed documentation supporting the $144.5 million identified by NIH as needed to complete the project and verified the costs to Centex's guaranteed maximum price;

- met with project team representatives from NIH, Boston Properties, GSA, Centex, McCarthy, and Zimmer;

- reviewed agreements and contracts identifying the responsibilities of the project team members and the structure under which the team operated;

- reviewed four other recent NIH construction projects to determine if they were executed within budgetary constraints; and

- identified lessons learned from the clinical center project that we believe would help prevent the problems that hampered the clinical center.

We performed our review at NIH in Bethesda, MD, and visited Centex's office in Fairfax, VA; McCarthy's office in St. Louis, MO; and Zimmer's and GSA's offices in Washington, DC, from April 2002 through July 2003. We met with NIH officials on August 8, 2003, to discuss a draft of this report. We conducted our review in accordance with generally accepted government auditing standards.

RESULTS OF REVIEW

In 1995, NIH estimated that the Mark O. Hatfield Clinical Research Center would cost $380 million. This estimate increased significantly—about 33 percent—over the next 6 years to a total estimated cost of $504.5 million. Under the construction delivery method used, NIH was vulnerable to cost increases because the final cost was not known as construction progressed

during the 5-year design development period. NIH's February 2002 request for an additional $144.5 million appears to be sufficient to complete the project. In contrast to the clinical center, other recent large NIH construction projects have not experienced significant budget increases. To prevent such increases on future projects, NIH should consider some lessons learned from the clinical center project: use an independent cost estimator, limit the use of the fast-track construction delivery method, and prepare routine status reports on large construction projects for key decisionmakers.

Following are questions raised during discussions with Department officials and our answers:

WHAT CAUSED THE NEED FOR AN ADDITIONAL REQUEST OF $144.5 MILLION?

The additional request of $144.5 million can be attributed to three primary factors: the exclusion of certain costs from interim estimates, insufficient funding, and the start of construction before design completion and delays in the design process.

Certain Costs Were Not Included in Estimates

Much of the increase in the project cost resulted from the need to cover costs that had not been included in interim estimates used to calculate the guaranteed maximum price. These costs—totaling $82.7 million—were primarily for certain aspects of architectural, mechanical, electrical, and plumbing work. For example, revisions to the fire sprinkler system, laboratories, and the exterior of the clinical center were not included in McCarthy's guaranteed maximum price proposal. Such costs had been excluded because the first construction manager, McCarthy, believed that the design was not sufficiently complete to include them in its December 2000 guaranteed maximum price. According to NIH, however, McCarthy was responsible for incorporating a sufficient allowance to cover the cost of any work that McCarthy believed was not completely designed. When assuming the construction manager role from McCarthy in May 2001, Centex reviewed the design and concluded that the design had progressed sufficiently to include these costs in its guaranteed maximum price submitted in November 2001.

Funding Was Insufficient

From the early stages, the project was underfunded by $20 million because it did not receive the total funding based on the original estimate. Following are key milestones related to the funding shortfall:

- 1995 — NIH estimated that its original plan would cost $380 million.

- 1996 — The Congress authorized $333 million for the project, $47 million less than the original estimate.

- 1997 — NIH began implementing the original plan at the lower funding level of $333 million. According to internal NIH correspondence at that time, NIH officials were not aware of how the funding shortfall would affect project completion and believed that they could complete the project with the available funding.

- 1999 — NIH recognized that it needed additional funds to complete the project, and the Congress authorized $27 million more, bringing the funding level to $360 million—still $20 million under the original estimate of $380 million.

- 2001 — Centex submitted its guaranteed maximum price of $495.2 million for construction of the clinical center and related projects, and NIH estimated the total cost to complete the clinical center, including nonconstruction costs, at $504.5 million—$144.5 million more than the funding level of $360 million.

Construction Began Without a Completed Design, and Delays Occurred in the Design Process

Using the fast-track method—building before the design was complete—was a significant factor contributing to the project's cost increases. Under this method, NIH encountered the following difficulties that restricted its options to reduce the cost of construction:

- ***Construction proceeded before design completion.*** Between 1997 and 2000, construction progressed as the design was being developed. (See Appendix B for photographs.) As construction proceeded, including modification of roads, installation of utilities, and excavation of the building site, cost estimates were increasing. With so much construction already in place, however, it became difficult to cut costs and remain within the scope of the original plan. Nonetheless, NIH was able to cut $137 million through a process called value engineering, whereby the project team reduces cost by simplifying, redesigning, or deleting portions of the project without materially impairing project performance. Examples of NIH's value engineering included redesigning the building exterior walls and deleting the atrium stairs. Further cost reductions, however, could not occur without significantly reducing the design on which construction had already started.

- ***Design process was delayed.*** The length of the design process, which was extended from February 1999 to May 2000, caused certain costs to increase. For example:

    - Subcontractors' cost. Design delays meant that an additional $16.9 million was needed to cover the subcontractors' extended schedule. Furthermore, the construction manager had to split the construction work into multiple bid packages, resulting in some schedule inefficiencies and cost increases.

    - Construction manager's general conditions. Design delays contributed to cost increases totaling $9.5 million in the construction manager's general conditions. General conditions are those costs associated with funding the construction manager's expenses, such as personnel, equipment, and computers. The design delays caused the completion of the construction to be extended from June 2003 to March 2004, thereby extending the need for the construction manager's general conditions at an additional cost of about $9.5 million.

IS THE ADDITIONAL REQUEST OF $144.5 MILLION SUFFICIENT TO COMPLETE THE PROJECT?

The additional request for $144.5 million, included in a February 2002 document prepared by NIH for the Department's Assistant Secretary for Administration and Management, appears sufficient to complete the project. We make this conclusion based on the following:

- The construction manager has already awarded subcontracts for most of the work to complete the project, and the subcontracts and those to be awarded reconcile to the totals for the guaranteed maximum price.

- Contingency funds are included for unexpected costs and events. The project budget contains about $38 million for contingencies, which, if not used, could actually reduce the total cost below $504.5 million.

- The development manager has accepted the guaranteed maximum price, thus transferring the risk of future cost increases to the construction manager.

The components of the cost increase are shown in Appendix C.

HAVE OTHER RECENT NIH CONSTRUCTION PROJECTS EXPERIENCED COST INCREASES?

NIH has undertaken nine major construction projects on the Bethesda campus since 1997. We reviewed the cost management of the two largest completed projects and two largest ongoing projects to determine whether they had experienced significant cost increases and, if so, how NIH had addressed these increases. The projects' budgets have been executed close to initial cost estimates, rising in three cases to accommodate scope changes known and approved in advance.

Two Completed Projects

The budgets for the two completed projects appeared to have been properly managed, with no unanticipated or unexplained cost increases. According to NIH officials, the projects stayed close to initial cost estimates by applying two cost containment tools—value engineering and independent cost estimating.

- ***The Dale & Betty Bumpers Vaccine Research Center***, building 40, begun in FY 1998, was originally estimated at $26.1 million and was completed in FY 2000 for $29.6 million. This 13.4-percent cost increase resulted from the addition of a $3.5 million conference center early in the project programming. The original scope of the project was completed within the original budget of $26.1 million. This project, with an agreed-upon scope change, is in contrast to the clinical center, which has had no scope change but escalating costs.

- ***The Louis Stokes Laboratories***, building 50, begun in 1997, was originally estimated at $93.7 million and was completed in FY 2001 for $94.7 million. This 1-percent cost increase was for construction of an additional floor—again, a change that NIH approved during the project programming. The original scope of the project was completed within the original budget of $93.7 million.

Two Ongoing Projects

As of July 2002, one of the ongoing construction projects reviewed had experienced a cost increase and the other had not.

- ***The National Cancer Institute***, building 37, modernization project began in 1997 and was originally estimated at $82 million. This project experienced a $14.9 million, or 18.2 percent, increase over the initial budget as a result of scope changes initiated by the Institute ($8.7 million) and market changes in concrete and steel prices ($6.2 million). The Institute identified and monitored the $6.2 million increase and approved a budget increase. Construction is slated to be completed in 2005 for $96.9 million. In contrast to the clinical center, which has had no scope increase, most of this project's increase was anticipated and approved by the Institute. NIH officials explained that this project's costs were kept under control by using value engineering and a design-to-budget building approach whereby the project scope is established by the available funding.

- ***The Porter Neuroscience Research Center***, building 35, begun in 2001, was originally estimated at $261 million and is slated to be completed in 2007 for the same amount. Although this project is using the same fast-track delivery approach that has been problematic for the clinical center, NIH has been able to control costs by using an independent cost estimator with a construction management background to provide cost estimates at the major design phases. The project team routinely meets as cost estimates are developed for the major phases in order to reconcile the two sets of estimates—one prepared by the construction manager and the other prepared by the independent cost estimator. This type of meeting results in an updated project cost estimate and serves to keep costs within available funding or identify cost increases that may require management attention.

WHAT LESSONS WERE LEARNED FROM THE PROJECT THAT MIGHT HELP STRENGTHEN CONTROLS AND IMPROVE ACCOUNTABILITY ON FUTURE CONSTRUCTION PROJECTS?

The clinical center project has yielded several lessons to help strengthen controls and improve accountability on future construction projects: use independent cost estimating, limit the use of the fast-track construction method, and provide routine status reports to decisionmakers.

Use Independent Cost Estimating

NIH should consider using an independent cost estimator for future fast-track construction projects. If cost estimates prove faulty and result in unexpected cost increases, alternatives

available to bring the project back in line may become limited. The earlier that faulty cost estimates are identified and corrected, the more likely that adjustments can be made to keep the project within budget. To ensure that cost estimates are reasonable, an independent cost estimator provides valuable corroboration to the estimating process.

The clinical center had only one cost estimator, the construction manager; had NIH used an independent cost estimator, it might have known earlier that the cost would exceed the approved budget. Although the construction manager competitively bid the construction work by seeking multiple bids from subcontractors, the construction manager alone prepared and adjusted the project cost estimates. A better practice would be to enlist an independent cost estimator to determine the project cost in parallel with the construction manager. As mentioned above, NIH is benefiting from the use of an independent cost estimator on other campus construction projects.

Limit the Use of the Fast-Track Construction Method

Because of the risks involved, as illustrated by the clinical center project, NIH should limit the use of the fast track method of construction. In each case, when considering this method, decisionmakers should assess the benefits of cutting completion time with the risks involved in expending construction funds before the design and cost of the project are known. Risks that NIH should consider include the effect that changes in the economy could have on the ability to complete the project, the current status of the Department's budget, and changes in the construction industry market conditions.

Prepare Routine Status Reports

Once a construction project begins, NIH should prepare routine status reports aimed at key decisionmakers, including departmental and congressional officials. Such reports should include the status of the project's finances, design and construction schedules, and any other information deemed important.

Both the House and Senate Appropriation Committee reports for 1997 called for periodic reporting during the initial funding phase of the clinical center, but the requirement for such reports was not included in the law that provided the project funding. Department officials nevertheless instructed NIH in April 1998 to prepare a status report for the Congress. Following this initial report, NIH did not prepare other status reports, nor did Congress make further requests for them. NIH, however, followed an idea advanced in a Senate report to establish an outside working group that would document the clinical center's status. Although the outside group prepared two reports, one in September 1999 and the other in February 2002, the gap in reporting dates did not cover the critical period from August to December 2000, when the project's estimated cost significantly exceeded the budget. Had reports been made available to decisionmakers during this vulnerable period, there would have been an earlier recognition of, and possible solutions to, problems needing to be addressed by the Department and the Congress.

NIH RESPONSE

In commenting on a draft of this report, NIH offered minor editorial comments, which we have incorporated in this report where appropriate. NIH's comments are included as Appendix D.

APPENDICES

REPORTS PERTAINING TO THE CLINICAL CENTER PROJECT

1. Project Status Report - April 1998

NIH delivered a status report on the clinical center project to Congress in April 1998. Prepared by a study team comprised of clinical center directors, the report concluded that the clinical center could be completed within budget while maintaining the integrity of the original plans. The report also disclosed that NIH had, as requested by Congress, established an oversight committee known as the outside working group. The members of the working group, who had been approved by NIH, had experience in projects of similar magnitude and complexity.

The report, signed by the NIH director, also discussed the status of design completions, contract negotiations, awards, construction completions, costs incurred, and value engineering recommendations made by the clinical center project team.

2. Report of the Project Review by the Outside Working Group – September 1999

The outside working group issued its first report in September 1999, concluding that (1) the clinical center project was balanced, (2) the design quality was appropriate for a government research facility, (3) the engineering design was rational, and (4) the construction cost estimate was reasonable, but would require frequent reviews.

3. Centex Project Status Review - March 2001

Before Centex replaced McCarthy as the construction manager, Boston Properties, Inc. had hired Centex to assess the status of the clinical center project and to evaluate the draft guaranteed maximum price submission by McCarthy. In its March 2001 report, Centex identified ambiguous and unclear terms in the qualifications and exclusions, and it asserted that risks had been inappropriately transferred to NIH. Although Centex did not conclude about the completeness of the clinical center's design, it did acknowledge a lack of agreement about what constituted design completion. As part of its analysis, Centex identified original and revised estimates of completion, and it recommended improved timetables for consideration. Centex also concluded that McCarthy should have committed to a project finish date in its guaranteed maximum price.

4. Heery International, Inc. Review of Centex Construction Company's Guaranteed Maximum Price and Construction Schedule for the Clinical Center Project - February 2002

GSA, part of the clinical center project, hired Heery International, Inc. (Heery) to review the reasonableness of Centex's November 2001 guaranteed maximum price and construction schedule. Heery's report concluded that NIH faced no exceptional exposures or risk from the project, and that NIH had a reasonable expectation that the

clinical center would be completed within Centex's guaranteed maximum price and construction schedule.

5. Outside Working Group - February 2002

The working group submitted this report in response to a request by the NIH Office of Research Services, which wanted recommended courses of action in case additional funds were not provided to complete the clinical center. The report concluded that without additional funds, the substantial investment to date should be protected by 'mothballing' the center until funding for completion became available. An interim solution, such as using available funds to create usable space while ensuring the safety and viability of the project, did not appear feasible. The report proposed two options: (1) finish the project as planned, which would require obtaining additional funds to complete the project or, (2) mothball the center using existing funds.

APPENDIX B

CONSTRUCTION PROGRESS

Photograph 1 – Construction as of December 2000

Photograph 2 – Construction as of September 2002

APPENDIX C

COMPONENTS OF COST INCREASE AS OF NOVEMBER 2001

Component	***Cost***
Additional construction cost	*$82,700,000*
Schedule extension increase	*26,380,000*
Construction contingency	*8,070,000*
Change order contingency	*5,600,000*
Construction manager's fee	*6,400,000*
Subcontractor claims	*11,345,000*
Design, inspection, insurance, and legal	*4,000,000*
Total additional budget request	***$144,495,000***

We analyzed the support for these components; formed conclusions on their validity; and, where applicable, verified the costs to the Centex guaranteed maximum price. With two exceptions, NIH adequately supported the need for additional funds. NIH overestimated its requirements for the change order contingency by $1.6 million. However, NIH underestimated its need for the construction manager's fee increase by $1.58 million, resulting in no significant difference in the NIH request for additional funds.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

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Bethesda, Maryland 20892

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AUG 27 2003

To: Dennis Duquette
Deputy Inspector General for Audit Services, HHS

From: Deputy Director for Management

Subject: Office of Inspector General (OIG) Review of Construction Cost Increases at the National Institutes of Health's (NIH) Clinical Research Center (CRC), A-03-02-00371

We appreciated the opportunity to review this draft report and to meet with your staff to discuss the findings and conclusions. The report addresses your review objectives and provides Departmental and NIH officials with a level of assurance that we are receiving value for this investment.

In our comments we offer several editorial changes for your consideration. We believe that incorporation of these suggested edits will enhance the clarity of the final report.

Charles E. Leasure, Jr.

Attachment

ACKNOWLEDGMENTS

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