115361

UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

HUMAN RESOURCES
DIVISION

B-203316

MAY 29, 1981

The Honorable Jamie L. Whitten
Chairman, Committee on Appropriations
House of Representatives

Dear Mr. Chairman:

Subject: Construction of Indian Health Service Hospital in Chinle, Arizona (HRD-81-96)

House Report No. 96-1147 dated July 2, 1980, required that we provide your Committee with a report on the reasons for a "cost overrun" on the new Indian Health Service (IHS) hospital project being built in Chinle, Arizona, and the policies and practices followed for designing and constructing IHS health facilities. As arranged with the staff of the Subcommittee on Interior and Related Agencies, we limited our review to an examination of the Chinle project so that information could be provided for the Committee's use during IHS' fiscal year 1982 appropriations hearings. On February 25, 1981, we briefed the Subcommittee staff on the results of our review. This report summarizes the information provided in that briefing.

We believe that several factors have contributed to the confusion surrounding the Chinle cost estimates. The Public Health Service (PHS) and Office of Facilities Engineering (OFE) developed estimates that differed, because no uniform cost estimating system existed at the time the estimates were prepared and the two organizations estimated differently. Although a comparison of PHS' initial $14.6 million cost estimate with estimates prepared by OFE and the construction manager indicates a cost increase, such a comparison reveals little because the estimates were prepared at different times and were based on different cost components and methodologies. Since the Chinle project was first funded, the Department of Health and Human Services (HHS) has taken several steps to improve estimates of IHS health facility construction costs.

(102061)

017074

SCOPE OF REVIEW

Our review was made at IHS Headquarters in Rockville, Maryland; the IHS area office in Window Rock, Arizona; and the Chinle hospital project construction site. We analyzed and compared Chinle cost estimates prepared by the construction manager and the two HHS organizations primarily involved in cost estimating for the project--PHS' division of health facilities planning and OFE. To reconcile differences among the estimates, we reviewed pertinent project files and discussed the estimates with PHS and OFE officials, the construction manager, and the project's architect/engineer. Additionally, we identified HHS actions to improve IHS health facility construction cost estimates. We also reviewed the President's budget justifications; House, Senate, and Conference reports; and related hearings on IHS appropriations for fiscal years 1978 through 1982 to determine the funding history for Chinle and ascertain what information was provided to the Congress on the project.

BACKGROUND

IHS, within PHS, is responsible for providing comprehensive health care to Indians and Alaska Natives through its system of 49 hospitals, 102 health centers, and several hundred field stations. IHS also contracts with private and community hospitals to supplement its direct health care delivery system.

In September 1976, the Congress enacted the Indian Health Care Improvement Act (Public Law 94-437). Among other provisions, title III of the act authorized funds to be appropriated for fiscal years 1978 through 1984 for constructing and renovating IHS hospitals.

The Congress appropriated funds for several IHS projects that were not included in the President's budget requests for fiscal years 1978 through 1981. One of these projects was the new IHS Chinle hospital. For fiscal year 1978, the Congress appropriated $650,000 to plan the Chinle project. The Congress appropriated an additional $3 million 1/ in fiscal year 1979 to begin construction and $9 million in fiscal year 1980 to continue construction of the Chinle hospital. The Chinle project was included in the President's budget request for the first time in fiscal year 1981, when IHS requested funding to complete construction. As of May 1981, the Congress had appropriated a total of $24,008,000 for Chinle.

1/Includes $1,750,000 that was reprogramed for staff quarters and added back to IHS' fiscal year 1981 appropriations.

Because the project was not included in the President's prior budget requests, IHS did not include detailed information about Chinle for its fiscal years 1978 through 1980 budget submissions to the Congress. Despite the absence of such information, the Congress limited the size of the project to 60 beds and 107,000 gross square feet. At that time, the Congress did not impose a ceiling on the construction cost of Chinle.

Before approving HHS' fiscal year 1980 budget, the Congress tried to ascertain the total estimated construction cost of the Chinle project. However, by that time, several different cost estimates had been developed within HHS ranging from $14.6 to $19.3 million. House Report No. 96-374 and Senate Report No. 96-363 dated July 23, 1979, and October 10, 1979, respectively, which accompanied HHS' fiscal year 1980 appropriations bill, recognized $15.7 million as the total estimated design and construction costs for Chinle. On November 8, 1979, the Appropriations Committees' conferees agreed on the fiscal year 1980 appropriations. On December 26, 1979, HHS requested congressional approval to proceed with the Chinle project at a cost greater than the $15.7 million estimate.

During the fiscal year 1981 budget deliberations, HHS, in response to a question raised by the House Appropriations Committee regarding HHS' efforts to stay within the $15.7 million cost limit, stated that departmental analysis had determined that a facility built within the $15.7 million figure would be substantially smaller than that envisioned by the Congress. According to HHS, the $15.7 million figure was not established by the Congress as the cost limit for Chinle until November 1979--1 year after the construction funds for the facility had been appropriated, and 7 months after the design of the facility was underway.

CHINLE COST ESTIMATES VARIED GREATLY

Several cost estimates were made for Chinle by two HHS organizational components and the construction manager for the project. These estimates varied significantly because they were developed by different people at different times using different estimating methodologies and cost components. Because of these differences, a great deal of confusion has been associated with the cost of the Chinle hospital project.

Reasons for differences

The differences between estimates developed by HHS and the construction manager are shown in the following table.

	PHS estimate (note a)		OFE estimate	Construction manager estimate (note b)
	9/11/78	2/16/79	3/09/79	5/04/79
Basic construction costs plus inflation	$11,214,840	$11,770,000	$15,000,000	$16,529,000
Remoteness	2,242,970	2,354,000	(c)	2,071,000
Architect/ engineer fees	(c)	(c)	1,205,100	(c)
Construction manager fees	672,890	706,200	415,650	415,650
Contingencies	(c)	(c)	879,800	786,000
Construction inspection and miscellaneous fees	403,730	423,700	73,350	(c)
Solar energy equipment	(c)	(c)	1,775,000	(c)
Housing for construction workers	(c)	(c)	(c)	1,500,000
Total	$14,534,430	$15,253,900	$19,348,900	$21,301,650

a/The initial PHS estimate was revised in February 1979 to reflect increased costs because construction did not begin on time.

b/The initial estimate made by the construction manager on May 2, 1979, was $21,375,373. It was revised on May 4, 1979, to delete the construction manager's fees during the design phase.

c/Not specified.

As shown, each estimate contained cost components which were not specifically identified in the other estimates. For example, the OFE estimate contained costs of architect/engineer fees and solar equipment, which were not included in the PHS or the construction manager's estimates. Remoteness was identified as a specific line item by PHS and the construction manager, but not OFE. Also, the construction manager's estimate included $1.5 million for construction workers' housing, which was not identified by PHS or OFE.

The other major differences between the estimates result from differences in their derivation. The PHS and OFE estimates were derived using average construction cost-per-square-foot figures. However, they were substantially different because the sources of the average costs were different and different escalation/inflation factors were used to project them to the midpoint of the construction phase for Chinle. The construction manager's basic construction cost estimate was derived based on the company's actual hospital construction experience and schematic design documents prepared by the architect/engineer.

Chronology of cost estimates

The following chronology of the Chinle cost estimates and their derivation illustrates the confusion surrounding the Chinle project.

In September 1978, PHS developed the cost estimate of $14.6 million for the Chinle hospital project using the parameters established by the Congress--60 beds and 107,000 gross square feet. 1/ PHS' estimate assumed that construction would start in April 1979 and was based on a 106,808-gross-square-feet facility that provided 1,100 gross square feet for each of the planned 60 inpatient beds, 31,707 gross square feet for outpatient service space, and 9,101 gross square feet for field health 2/ and expansion flexibility. PHS believed the size was adequate because the space allowed for inpatient beds was larger than the average 800 to 900 gross square feet allowed in other federally supported community hospitals. According to PHS, more space was allowed for the IHS facility to (1) cover demands of a large outpatient program and (2) provide a better-than-average facility.

The PHS estimate used a nationwide average construction figure of $105 per gross square foot, based on April 1980 as the midpoint of an assumed 2-year construction period. The $105 figure

---

1/There were earlier estimates for the Chinle project, but they were not based on these parameters. For example, an estimate of $15,972,000 was provided to the House Committee on Appropriations in conjunction with the fiscal year 1977 appropriations hearings, but it was associated with a 125-bed hospital. One-year later, an estimate of $28 million was given to that Committee with no indication of hospital size.

2/Included space for staff concerned with community health nursing, public health education, nutrition, sanitation, social services, and mental health.

was based on construction cost experience under the Hill-Burton hospital program 1/ for projects begun in 1974, and assumed an inflation rate of 10 percent a year up to April 1980--the projected midpoint of the Chinle construction period. As shown on page 4, the estimated costs associated with basic construction, including site work, fixed equipment, and contingencies, were $11,214,840. That amount was increased to $14,534,430 to reflect construction manager, inspection, and miscellaneous fees and costs added due to the remote location of the construction site. In February 1979, PHS increased its estimate to $15,253,900 to reflect a new starting construction date of October 1979.

Soon after PHS revised its estimate, OFE developed a $19,348,900 cost estimate for Chinle. According to the Director of OFE's office of architecture, OFE prepared the estimate for Chinle because the architect/engineer expressed concern that the proposed hospital could not be built for $15 million.

Using preliminary schematic design plans prepared by the architect/engineer, the construction manager prepared a project cost estimate of $21,375,373 on May 2, 1979. This estimate was decreased to $21,301,650 on May 4, 1979, to delete the construction manager's fee during the design phase. According to the construction manager's senior project manager, the estimate was derived by multiplying the gross square feet of each functional component of the proposed hospital by a cost-per-square-foot factor developed by the construction manager's estimating department. Based upon past hospital construction experience, the construction manager estimated the project's basic construction cost and then added costs for sitework, remoteness, inflation, equipment, and construction workers' housing.

According to the construction manager, the initial estimate was used as a budget figure for cost monitoring, not as a guaranteed maximum price. As more information became available, the construction manager's estimate was updated. For example, HHS' December 26, 1979, request for congressional approval to proceed with construction of Chinle at a cost greater than $15.7 million was based on the construction manager's November 12, 1979, estimate of $18,804,000. On May 6, 1980, the construction manager developed the current construction cost estimate--$18,775,900--which was also used as the construction manager's guaranteed maximum price on June 12, 1980. For fiscal year 1981, the Congress appropriated $2.5 million for movable equipment and $678,000 for solar equipment.

1/The Hill-Burton program was a major Federal program through which funds for health facility construction were provided between 1947 and 1976.

Adding these funds, plus the cost of architect/engineer and construction manager fees during design to the construction manager's current estimate, brings the total cost estimate for the Chinle project to $23,238,447, or $769,553 less than the total amount of funds appropriated by the Congress for the project. During hearings on its fiscal year 1982 appropriations, HHS testified that the project was about 42 percent complete. HHS officials also stated that the project was on schedule and should be completed within the funds congressionally appropriated.

HHS ACTION TO IMPROVE IHS COST ESTIMATES

Since the Chinle project was first funded, HHS has taken steps to improve cost estimates for IHS health facilities. The most notable action was the development of a new budget cost estimating methodology for IHS health facilities. The new system was developed under a contract awarded in September 1979 to an Atlanta-based consulting firm. As part of the contract, the consultant developed a construction cost manual providing detailed forms, instructions, and other data necessary for preparing estimates. The new system was first used to develop IHS' project cost estimates that were included in the fiscal year 1982 President's budget request. According to PHS, OFE, and IHS officials, use of the new system should improve HHS' project cost estimates and provide a better mechanism through which estimated project costs can be agreed upon by each organization.

In addition to the cost estimating manual, a new IHS health facility planning manual was developed in October 1980. The manual is intended for use by IHS, OFE, and tribal health planners to assess facility space needs, and develop program information documents to serve as a basis of design and acquaint interested parties, including the Congress, with individual IHS projects.

The manual, in conjunction with new technical guidelines for classification of building areas issued by OFE in May 1980, gives more specific criteria for calculating gross square feet than existed when the Chinle project was designed. For example, the manual sets criteria for converting net to gross square feet by functional component instead of the single conversion factor of 1.6, which was used for Chinle.

Other steps that have been taken or are being developed to improve IHS' facilities management capability include (1) a new methodology for predicting inpatient health care bed needs, (2) a generic list of fixed and major movable equipment needs to use as a guide in determining equipment needs for major modernization,

new, and replacement health facility projects, and (3) a priority system for IHS health facility construction.

- - - -

We discussed the matters covered in this report with HHS officials and have incorporated their comments where appropriate.

We are sending a copy of this report to the Secretary, HHS, and will make copies available to others upon request.

Sincerely yours,

Gregory J. Ahart
Director