Al Basrah Children's Hospital Historical Record
August 1, 2006

Bechtel National Inc. (BNI) was selected from a field of six competitors by USAID on April 17, 2003, to support infrastructure reconstruction in Iraq, including work related to power, water, transportation, communications, and buildings. The initial contract (Phase I) had a value of $680 million, which evolved into a final value of $1.03 billion at completion on December 31, 2005. Subsequently, a second contract (Phase II) was awarded January 5, 2004, with a value that evolved from an initial $1.8 billion to a currently estimated $1.28 billion. Both contracts were competitively bid as standard cost-plus fixed fee contracts.

The Al Basrah Children's Hospital (BCH) was not included in either contract initially but became part of the Phase II effort. It was envisioned as a state-of-the-art pediatric and teaching hospital, with a focus on acute care and oncology services.

Defining Scope

The BCH first surfaced as a potential project on February 12, 2004, when USAID requested a "fast cost estimate" for a new 200-bed pediatric hospital. Initially designated "The Iraq National Children's Hospital" (and sometimes also described as the "Laura Bush Children's Hospital"), BCH was to be a joint initiative of USAID and Project HOPE, a non-governmental organization that assumed responsibility for supplying medical equipment and training the hospital staff.

Planning and design of a hospital can take years as the needs and suggestions of many interested groups are addressed. To accelerate the process, BNI began outlining the basic steps for launching the project as soon as USAID expressed interest:

- Negotiate a firm scope for the project (size, number of beds, specialization, and budget)
- Prepare the site as quickly as possible using Iraqi subcontractors
- In parallel, advertise, bid, award and mobilize an international contractor for the design and construction of the hospital building(s).

Over the course of several months the project repeatedly underwent fundamental changes based on discussions between USAID and Iraq's Ministry of Health (MOH):

- Originally estimated at $250 million to support a 200 bed, 45,000 square meter pediatric hospital[1]
- Reduced to a 15,000 square meter, $50 million, 35-50 bed pediatric and teaching hospital
- Enlarged to a 27,000 square meter, 100+ bed facility focusing on oncology
- Reduced to a 16,200 square meter, 94-bed facility supporting oncology and pediatrics

USAID settled on the last alternative after BNI presented an in-depth cost analysis in February 2005. The requirement for design of a hospital that could be expanded to the original vision of 200 beds was included in the job order. After final negotiations with the winning design-build contractor, BNI requested a Job Order Amendment (JOA) to incorporate the changes in scope, cost and schedule. USAID approved the request on July 7, 2005. This marked the official scope definition of the project.

Site Selection and Preparation

Iraq's Ministry of Health provided a 13-acre parcel of land located in the southern perimeter of Al Basrah to USAID for the future hospital. As the property was prone to flooding during the rainy season, significant excavation, backfill, grade elevation and compaction were required to properly prepare the site.

[1] The $250 million included medical equipment, certification, and other costs. Estimate for design and construction was $93.8 million for comparison purposes.

The MOH characterized the site as capable of supporting a three-story hospital building without the need for a pile-supported foundation. When bore samples raised questions about the load-bearing capacity of the site, however, BNI passed the soils analysis to an independent laboratory in Saudi Arabia. On November 3, 2004, the Saudi lab confirmed that the soil would not support the weight of the BCH building. BNI decided to use a pile foundation and immediately advised USAID. This requirement added approximately 90 days to the schedule and $2.5 million to the cost.

Design-Build Contracting

In August 2004, BNI contracted with Summa Engineering, Inc. headquartered in Farmington Hills Michigan, for consulting services in hospital planning, scope development and refinement. As Summa was a registered minority firm, BNI was able to fast-track the subcontract by mid-August, 2004. Summa's principal was a native Iraqi. Other contributing factors to Summa's selection included:

- Substantial hospital planning and development experience
- Experience with pediatric hospitals in the Middle East
- Arabic language fluency, required to interface with Iraq Ministries.
- Ability to develop lists of architectural and engineering firms suitable for the design/build competition, assist in the tender preparation, and help evaluate the submittals.

To select the design-build contractor, an international competition was held in Amman, Jordan, in order to facilitate communications with the international participants. 33 firms expressed interest and BNI solicited detailed information submittals from each candidate firm. Ten teams responded on September 14, 2004. After presentations and interviews, a consortium of Mid Contracting, Universal Hospital Services, and Hospital Design and Planning was selected as the winning team in October. The team members had excellent credentials:

- Mid Contracting, Inc.(MidCon) is one the largest construction company in Jordan. Headquartered in Amman, MidCon specializes in fast track construction throughout the Middle East and has built some of the largest luxury hotels in Jordan as well as a number of hospitals. MidCon had approximately $50 million in projects underway in Iraq when selected for the BCH project.
- Universal Hospital Services (UHS), also headquartered in Amman, is a large hospital planning and consulting company performing services throughout the Middle East. UHS has expertise in planning, interior design, medical and administrative staff recruiting and training, medical and administrative operations analysis, medical equipment planning, and program management.
- Hospital Design and Planning (Overseas) Ltd. (HDP) is a hospital planning and design firm. Headquartered in the United Kingdom (Jersey), HDP focuses on the Middle East, with major offices in Amman and Abu Dhabi. HDP has a long record of successful hospital projects.

The project timeline required an engineering, procurement, and construction approach outside of the standard design-build or design-bid-build process. An immediate Limited Notice to Proceed agreement using hourly rates was awarded to the MidCon team for development of a conceptual design. Design review was conducted by a steering committee including BNI, USAID, Project HOPE, and the MOH. The conceptual design package was then used by BNI for negotiation of a Lump Sum Turn Key agreement with the MidCon team for detailed design and construction. Detailed design began in October 2004. Schedule demand required construction to start six months later, before the detailed design was complete.

As construction activities began on April 14, 2005, it soon became evident that MidCon was not able to staff the job with the management and supervision necessary for successful project execution. MidCon was unable to place a sufficient number of qualified construction supervisors willing to work on the jobsite due to the security situation. They also struggled to source an adequate number of experienced construction management personnel capable of functioning in the chaotic Iraqi environment caused by security, procurement, and cultural

issues. BNI adjusted the staffing plan to provide additional Iraqi and expatriate staff to the construction organization across all disciplines.

Security Issues

The BCH project presented extraordinary security challenges. It was located immediately adjacent to a very poor, densely populated, politically turbulent residential area. The project would involve a significant number of expatriates over a relatively long construction period. It would also involve a large number of local sub-contractors, craft workers, and laborers who could be subject to intimidation and violence for association with a foreign-sponsored project.

As the BCH project took shape, the security situation throughout Iraq grew progressively more difficult. Kidnappings and beheadings of Iraqis and foreign expatriates became frequent occurrences. Highly sophisticated roadside bombs appeared throughout the area, including on all routes approaching BCH. Local police became unreliable and sectarian militias effectively ruled the streets. The Iraqi central government's progressive loss of authority in Basrah made it impossible for the Ministry of Health to support the hospital project normally.

By August 2005, Bechtel expatriate personnel were permitted to travel to the work site only for "project critical" purposes, even under protection of armed guards. BNI's Iraqi engineering staff continued to drive construction, supported by digital photos, email, daily telephone calls and web cameras, but the increasing levels of intimidation, kidnappings and murders had a pronounced impact on MidCon's staff and subcontractors. Productivity suffered from public disturbances that caused late starts or early finishes, as well as from prolonged absences or resignations of targeted individuals. This exceptional security environment was a major factor in deteriorating relations between MidCon and their subcontractors.

Cost Escalation

A basic challenge facing the BNI team was to develop realistic cost estimates and a project budget without metrics based on recent construction experience in Iraq. Labor and local materials in Iraq had been very inexpensive in mid-2003, but began escalating rapidly as reconstruction activity increased. Indeed, construction costs across the entire Middle East grew 30 percent in 2004.

In January 2005, when the design was 20 percent complete, BNI asked a specialist subcontractor, Omrania, to perform a full cost estimate based upon the drawings. The first estimate came in at $1436/square meter, versus $1000/square meter in the original estimate. A primary factor was the nationwide escalation in construction costs of 30 percent to 40 percent per year, with Iraqi sub-contractors demanding increased profits due to commercial and security risks. This trend was particularly severe in Al Basrah, where U.S. agencies had funded many new construction projects. Several other key drivers of rising costs included:

- Increased site and personnel security ($4.5 million).
- Additional security escorting trucks ($300 – $500 per truck trip).
- Requirement for piles in the foundation ($2.5 million).
- Requirement for 100 percent backup electrical power ($1 million).
- Requirement to purchase primary electric power transformers normally provided by the municipality ($400,000).
- Foreign exchange rate fluctuations (USD to Iraqi Dinar).

BNI informed USAID of the rising cost projections on February 16, 2005 and proposed that USAID either reduce hospital's footprint to 10,000 square meters or increase the available funding. USAID declined the option of a smaller hospital and asked BNI to scrutinize the design for possible savings. Later that month, BNI presented a range of options for reducing costs as much as $3.7 million. Over the next four weeks, USAID evaluated the options and directed scope modifications that decreased costs by $2.3 million. These

modifications were reflected in Job Order Amendment 1 approved on July 7, 2005. At this point, the forecast was $41.1 million in direct costs (costs directly attributable to building the hospital such as subcontracts and materials).

Costs continued to rise due to the impact of worsening violence on worker productivity (lost hours and days) and transportation (armed escorts required for materiel and personnel). The project also suffered a general loss of productivity due to MidCon's ongoing disputes (exacerbated by security issues) with their sub-tier contractors, which resulted in numerous work slowdowns and shutdowns. By early May of 2006, the forecast had risen to $48.9 million in direct costs.

Cost Allocation
The budget for the project was $50 million per the direction of Congress. Early on BNI informed USAID that the total cost for the hospital, including both direct costs (construction) and indirect costs (camp operations, security, etc.) would exceed the $50 million cap. USAID consistently interpreted the $50 million as including only direct costs.[2]

Also in the May 2006 timeframe, the Iraq Reconstruction Management Office (IRMO) instructed USAID to account for costs according to sub-sectors rather than just for major sectors (power, water, etc.). This changed the basis for calculating overall costs of individual projects. USAID asked BNI to develop methodologies that they could use for this type of accounting. Using these methodologies, projected indirect costs ranged from $27 million to $49 million, and when added to the direct costs of $48 million, brought the total projected project costs to between $75 million and $97 million. IRMO informed USAID that all costs (not just direct costs) be within the $50 million cap.

As a result, USAID instructed BNI to issue a Partial Notice of Suspension to MidCon on June 10, pending consultation with Congress about the funding cap. USAID also commissioned an independent consultant to evaluate the current status of the hospital and estimate the cost to complete the project. MidCon and their subcontractors are continuing to work on authorized activities and have begun preparing to halt all construction on August 31.

Schedule Interpretation
BNI performed an assessment of schedule and cost in early 2006 that yielded a completion date of July 2007 if security conditions did not worsen. The Army Corps of Engineers (ACE) performed a schedule assessment around the same time and reached similar conclusions. These assessments took into consideration progress to-date, historical trends in procurement, delivery and construction, security, and other related factors.

Quality Assurance
Technical issues raised by a USACE employee concerning the potential significance of cracking in concrete slabs were investigated by the Al Basrah University under direction by MidCon as well as by technical experts in the BNI Frederick office. Superficial cracking is common in such slabs and approved techniques were employed as needed. Although investigations to date have turned up no definitive evidence of poor quality, BNI is recommending the implementation of a surveillance program to monitor the situation.

USAID Disclosure and Concurrence
Throughout the project, BNI has maintained complete transparency vis-à-vis USAID. Since the inception of the reconstruction program, BNI has met with USAID three times each week to review schedule and cost on the various projects throughout Iraq, including the Al Basrah Children's Hospital. Additionally, BNI provided

[2] USAID formally confirmed this interpretation in a letter (CO-BNI II-05-048) to BNI on November 16, 2005.

schedule and cost information concerning the hospital to the Iraq Reconstruction Management Organization in March of 2006 and has cooperated fully with the Assessment Team commissioned by USAID.

Where do we go from here?
As of July 9, 2006, limited work continues at the site under the Partial Notice of Suspension while USAID reviews its options and consults with Congress. Structural concrete placement has reached approximately 80 per cent of the total required. Block work on the ground floor of the Main Hospital building is 44 per cent complete. Additionally, significant amounts of finishing material (electrical cable, applicances, fixtures, etc) are in storage awaiting installation.

Several alternatives to move the project forward have been proposed, including BNI completing the work or transferring the remaining scope to the Army Corps of Engineers. Currently, a "consolidation" concept is being developed whereby the few remaining projects now being separately managed would be transferred to the Army Corps of Engineers. Regardless of the path forward that USAID chooses, Bechtel will ensure a smooth transition and fulfill all obligations to USAID.