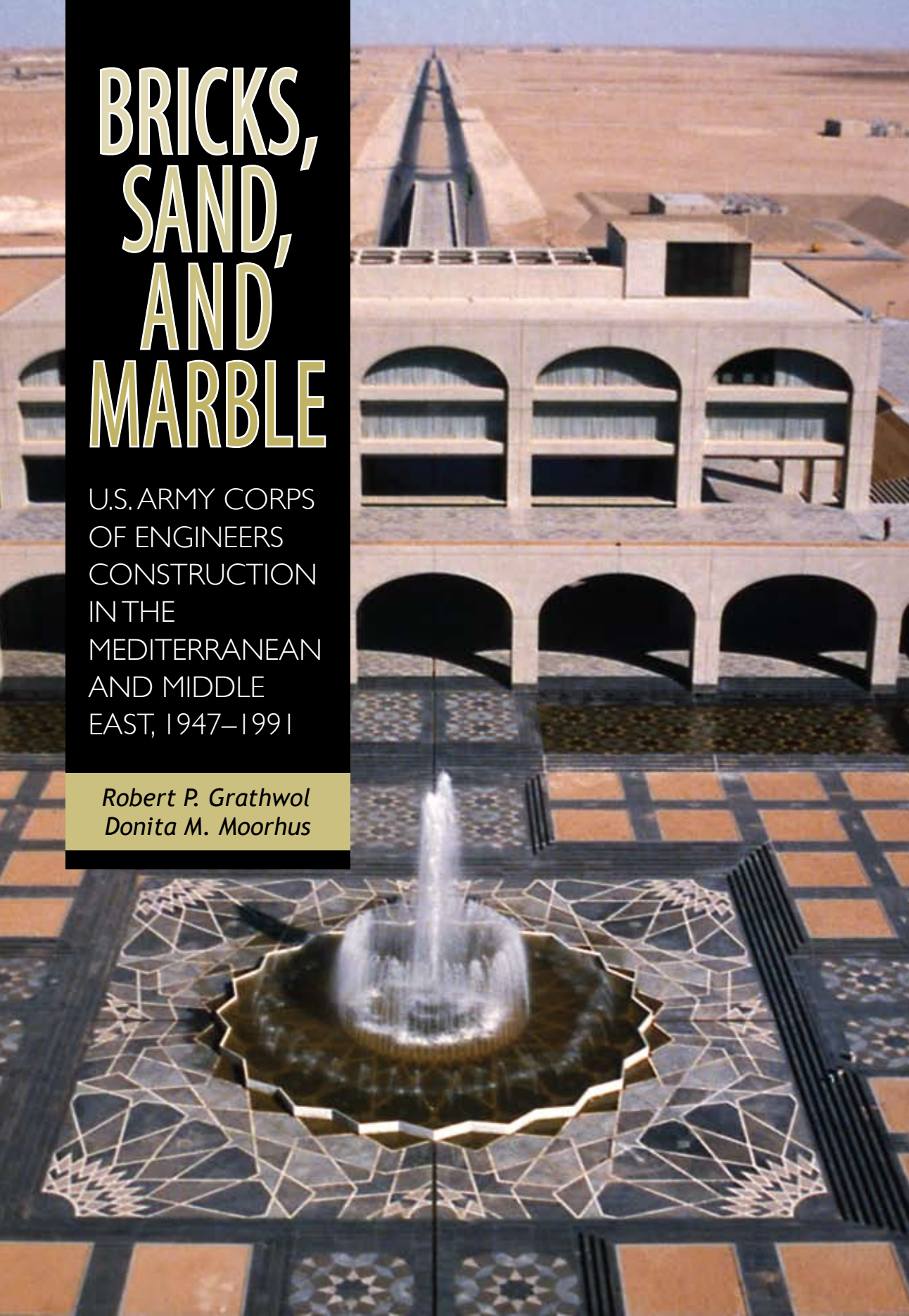


BRICKS, SAND, AND MARBLE

U.S. ARMY CORPS
OF ENGINEERS
CONSTRUCTION
IN THE
MEDITERRANEAN
AND MIDDLE
EAST, 1947–1991

*Robert P. Grathwol
Donita M. Moorhus*



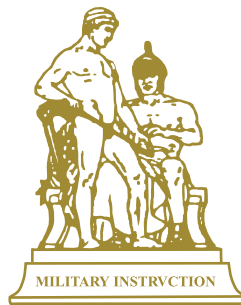
U.S. Army in the Cold War

Bricks, Sand, and Marble

U.S. Army Corps of Engineers Construction in the
Mediterranean and Middle East, 1947–1991

by

Robert P. Grathwol
Donita M. Moorhus



*Center of Military History
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FOREWORD

For more than four decades after the end of World War II in 1945, the security interests of the United States focused on tensions with the Soviet Union. The contest, which became known in 1948 as the Cold War, pitted two fundamentally opposed ideologies and political systems against one another across the so-called Iron Curtain in Europe.

As tensions between the United States and the Soviet Union mounted, the United States increased its overseas military presence. The North Atlantic Treaty Organization (NATO), established in 1949, created an alliance led by the United States for the mutual defense of Western Europe. NATO embodied the two foreign policy cornerstones of the United States—deterrence and containment of Soviet expansion of influence and control.

The attack in June 1950 by North Korea on its neighbor, South Korea, prompted the United States to extend its policy of geographic containment of Soviet ambitions. Through negotiations with several Mediterranean countries, the United States established air bases that placed U.S. military aircraft in position to strike the Soviet Union should any conflict of arms threaten world stability.

This history examines the work of the U.S. Army Corps of Engineers in military construction in the Mediterranean Basin (including northern and northeastern Africa) and the Middle East, which created the infrastructure that made the policies of deterrence and containment possible. This work included not only construction in support of the U.S. Army and U.S. Air Force in these areas but also work executed on behalf of our Middle East allies paid for with funds they provided. A remarkable story in its own right, the history becomes even more important, given events in the region since 1990, by providing a background understanding of the present role and position of the United States in that vital region.

This is the second volume in the U.S. Army Center of Military History's series U.S. Army in the Cold War. It is a companion study to the first volume in the series, *Building for Peace: U.S. Army Engineers in Europe, 1945–1991*, also written by Robert P. Grathwol and Donita M. Moorhus.

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Chief of Engineers

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THE AUTHORS

In 1988, Robert P. Grathwol, Ph.D., and Donita M. Moorhus formed a partnership to conduct historical research and provide services in organizational development. They are coauthors of *Building for Peace: U.S. Army Engineers in Europe, 1945–1991* (2005); *Berlin and the American Military, A Cold War Chronicle* (1999); *American Forces in Berlin, Outpost of the Cold War, 1945–1994* (1995); and *Oral History and Postwar German-American Relations: Resources in the United States* (1997, with Douglas J. Wilson).

Grathwol has more than four decades of experience as a professional historian and publishing scholar. He has worked extensively with archival documents in Europe, as well as in the National Archives, federal records centers, and the Library of Congress. He taught twentieth century European history at Washington State University, Johns Hopkins School of Advanced International Studies, Virginia Polytechnic Institute and State University, and the University of Arkansas. Academic publications include *Stresemann and the DNVP* and numerous scholarly articles and book reviews in both English and German. Grathwol studied in France on a Fulbright Scholarship and spent two years as an Alexander von Humboldt Foundation Research Fellow in Germany. He holds a Diplôme Supérieur from the Centre des Hautes Études Européennes, Université de Strasbourg, and a Ph.D. from the University of Chicago.

Donita Moorhus is an oral historian, researcher, and writer. In addition to managing historical research projects, she has written historical reports on the activities in Headquarters, U.S. Army Corps of Engineers, 1988–1992 and 1992–1996. For the U.S. Army Criminal Investigation Command, she was coauthor of “Annual Historical Review, Fiscal Years 1990–1991,” principal author of “Annual Historical Review, Fiscal Years 1992 through 1995,” and sole author of a “Historical Report of the Investigations of Sexual Misconduct in the Army, September 1996 through July 1997,” “Annual Historical Review, Fiscal Years 2000 through 2005,” “Annual Historical Review, Fiscal Year 2006,” and “Annual Historical Review Fiscal Year 2007.” Ms. Moorhus has conducted oral history interviews with officers of the U.S. military, civilians in government service, members of Congress, business leaders, foreign nationals, journalists, senior scientists, artists, and museum administrators. She has an M.S. from Fordham University.

PREFACE

This book traces the activities of American military engineers in the Mediterranean and Middle East from the reconstruction that began in Greece after the end of the war in 1945, through the construction of air bases in North Africa, the massive building program in Saudi Arabia, and support for the liberation of Kuwait in 1991. Numerous civilian and military engineers who participated in the programs described here suggested a written history.

Two historians at the U.S. Army Corps of Engineers Office of History, Dr. William C. Baldwin and Dr. Paul Walker, initiated the project that led to this book. Col. Leon Yourtee, commander of the Transatlantic Division, successor to the Mediterranean Division, the Middle East Division, and the Middle East/Africa Projects Office, approved funds for the project in 1993. Yourtee died unexpectedly before the division awarded the contract. During the preparation of the draft manuscript, which we submitted in 1998, the division had three commanders, Col. Charles S. “Stoney” Cox, Col. Anthony V. Nida, and Col. Donald T. “Tim” Wynn.

Dr. Baldwin administered the contract and provided critical assistance and support. He helped locate documents and photographs, suggested interviewees, monitored our progress, read all drafts of each chapter, chided us about using passive voice, and caught inconsistencies in the text. He advised us about graphic material and arranged a much-needed extension of the time period specified by the original contract. In addition to attending every meeting of the History Committee, he met with us frequently at the Humphreys Engineer Center near Fort Belvoir—guiding, encouraging, and prodding. When the Corps of Engineers was unable to print the manuscript, he continued to champion the project and ultimately persuaded the U.S. Army Center of Military History to publish it. Dr. Baldwin died in August 2009 after a short illness. We deeply regret that he will not see the finished book.

We were fortunate to have support from many people in the Transatlantic Division headquarters in Winchester, Virginia. Paul Rosensteel, the executive assistant, and Ruby Pierce and Judy DeCristofaro, secretaries in the executive office, provided good advice as well as access to the command leaders. The information management specialist, Elizabeth “Libby” Stearn, guided us through the thousands of boxes in the Records Holding Area. Joan Kibler and her staff in the Public Affairs Office provided both materials and visibility for the project. Others in the headquarters set up interviews, configured the computers, taught us the quirks of the copy machines, and negotiated a succession of security systems to ensure that

we had access to the records. Ms. Kibler in particular continued to advocate for publication of the history in the decade after we completed the manuscript.

The History Committee of the Transatlantic Division participated actively in the project. Committee members suggested people for oral history interviews, tracked down additional documents, caught typographical errors, and offered encouraging words. The deputy commander, Lt. Col. Nicholas “Nick” Kolar, enthusiastically read the draft chapters and presided over meetings of the History Committee. Committee members, including Bruce Anderson, Ron Friestad, Larry Graham, Wayne Henry, Mike Keller, Joan Kibler, Ollie Werner, and Dick Wiles, reviewed each chapter. The manuscript benefited enormously from their attention to detail.

We are particularly grateful to the dozens of current and former employees of the Corps of Engineers and its contractors for their willingness to share their experiences with us through oral history interviews. Without exception, they were proud to have been a part of the overseas mission of the Corps of Engineers. Their words enabled us to understand unusual situations and working conditions as well as the work they did. Several people provided photographs, slides, documents, and artifacts. The bibliography lists all of the people interviewed.

Dr. Paul Walker, chief of the Office of History during the research and writing, and Dr. John Lonnquest, chief of the Office of History at the time of publication, were unfailingly supportive. Dr. Martin Gordon, archivist in the Office of History, facilitated our search for documents both in the Research Collections at the Humphreys Engineer Center and at Washington National Records Center (WNRC) in Suitland, Maryland. Jean Diaz and the late Marilyn Hunter offered editorial advice and suggestions.

Four individuals—Douglas J. Wilson, Ruth Heller, Chadwick Fleming, and Eileen O’Pray—provided help during the research and writing phase of almost five years. Doug worked with us for the duration of the project. He sorted and copied hundreds of documents from the Records Holding Area in Winchester, Virginia; set up the bibliographies; abstracted pertinent information; transcribed all of the oral history interviews; and drafted sections of chapters 11, 14, and 15. Ruth and Chad sorted and copied documents in dusty boxes at the WNRC in Suitland and at the Corps of Engineers Research Collections in Alexandria, Virginia. Chad also prepared a draft section of chapter 11. Eileen assembled a basic bibliography of secondary sources on the Middle East, culled relevant information and colorful descriptions from dozens of oral history interviews, and recommended photographs and maps from among scores we assembled. Ten years after completion of the manuscript, Doug helped prepare the manuscript for publication. Joan Kibler at the Transatlantic Programs Center, successor to the Transatlantic Division, provided slides taken in the 1980s and early 1990s of the division’s work in Saudi Arabia, Yemen, Oman, and Egypt.

Staff at the U.S. Army Center of Military History under the leadership of Keith R. Tidman, Beth MacKenzie, and Diane Sedore Arms guided the manuscript to publication. Diane M. Donovan carefully reviewed the text, clarified ambiguous language, and made certain that we explained all terms. S. L. Dowdy prepared the maps; and Gene Snyder designed the layout of the text, maps, and illustrations.

Conventions for transliterating geographical names change. The Center of Military History uses as its authority for publications the designations provided by the U.S. Board on Geographic Names. The documents we consulted and the interviewees who spoke with us during our research used slightly different place names than those referenced in this book. In all but a few cases, the similarities are clear enough that no confusion should arise for anyone consulting our original sources.

This project has expanded our understanding of the people, the geography, and the history of more than a dozen countries in the Mediterranean, Africa, and the Middle East. We hope this book conveys through words, maps, and photographs our fascination with the projects we describe and our appreciation of the people who built them.

30 September 2009

ROBERT P. GRATHWOL
DONITA M. MOORHUS

Bricks, Sand, and Marble

U.S. Army Corps of Engineers Construction in the
Mediterranean and Middle East, 1947–1991

PART I

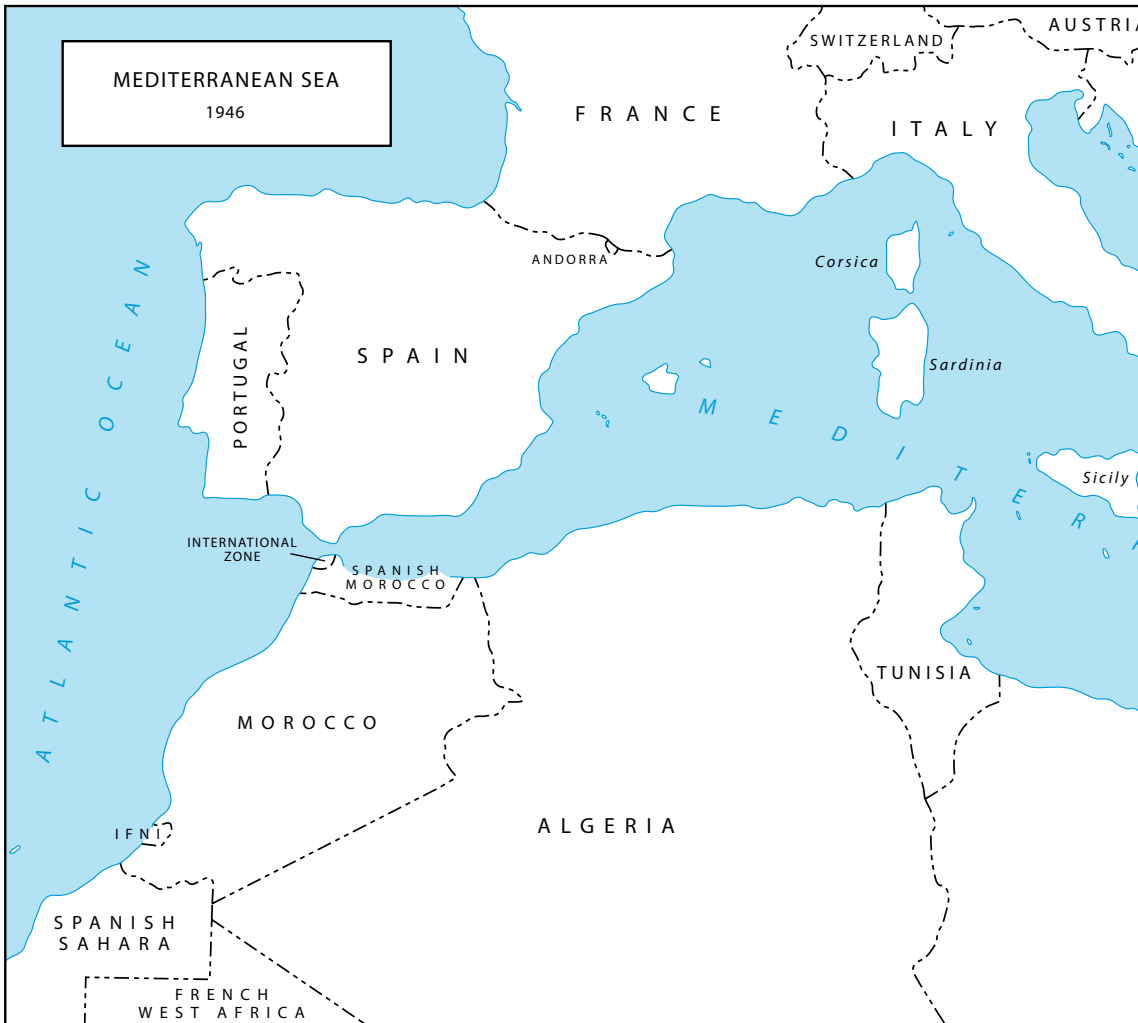
THE MEDITERRANEAN AND THE ORIGINS OF THE COLD WAR

In the late 1940s, the United States adopted the complementary policies of containment and deterrence—containing the Soviet Union and world communism and deterring military attack by positioning nuclear weapons within airstrike distances of virtually any point on the globe. As part of its military strategy, between 1947 and 1958, the United States constructed a necklace of air bases that extended around the world. The chain included bases in the Caribbean, Greenland, Iceland, western and southern Europe, Morocco, Libya, Saudi Arabia, Iraq, Pakistan, Thailand, the Philippines, South Korea, Japan, and back to the North American continent across Canada. The bases provided advantageous positions for U.S. military aircraft armed with atomic weapons.

U.S. Army engineers went to the Mediterranean and the Middle East in the late 1940s and early 1950s to construct one strand of the necklace. There, they created an organization that continues to operate in the region today. They designed and constructed much more than airfields, but the origins of their organization trace to that work and date from the beginnings of the Cold War.

The geography of the Mediterranean Sea determines its historic strategic importance: It links the continents of Europe, Africa, and Asia. At its western end, the Mediterranean connects with the Atlantic Ocean through the Straits of Gibraltar, which the British have fortified and controlled since 1704. The northern waters of the Mediterranean wash the shores of Spain, France, Italy, the Balkan countries, Greece, and Turkey. (*See Map I.*) At Istanbul, the Mediterranean connects with the Black Sea and Russia through the Dardanelles, the Sea of Marmara, and the Bosphorus. To the southeast, the Suez Canal ties the Mediterranean to the Red Sea and the Arabian Peninsula, the Indian Ocean, and the Far East. The Mediterranean's southern shore encompasses the entire north coast of Africa.

The global scope of World War II destroyed the Eurocentric balance of power that had characterized world affairs for nearly two centuries. The rise of Germany as an aspirant to world power in the late nineteenth century had thrown the existing system into disarray. World War II completed the rupture of that system, leaving Germany and Japan defeated and Britain and France exhausted. Only two states emerged from the war with their positions enhanced: the Soviet Union and the United States of America. Both were extra-European powers, and both had interests and ambitions that reached around the globe. The collapse of the old system was not fully evident when the war ended in 1945. Neither was



Map 1

it evident what system would replace the multipolar balance of power that the European states had dominated.

For a short time after 1945, the U.S. government and the American people believed that an ordered world would be achieved in cooperation with their wartime allies: Britain, France, and the Soviet Union. Within months, conflicts arose among these nations as the Soviet Union sought to use its military triumph to influence and control adjacent territories. Prompted by the actions of the Soviet Union, Britain's wartime prime minister, Winston Churchill, speaking in Fulton, Missouri, in March 1946, sounded an alarm. Using the ringing rhetoric that had strengthened the resolve of his compatriots when they stood alone against Hitler, Churchill declaimed:



Nobody knows what Soviet Russia and its Communist international organization intends to do in the immediate future, or what are the limits, if any, to their expansive and proselytizing tendencies. But the facts about the present situation in Europe are clear.

From Stettin on the Baltic to Trieste on the Adriatic an iron curtain has descended across the continent. Behind that line lie all the capitals of the ancient states of central and eastern Europe. Warsaw, Berlin, Prague, Vienna, Budapest, Belgrade, Bucharest and Sofia, all these famous cities, and the populations around them lie in what I must call the Soviet Sphere, and all are subject in one form or another, not only to Soviet influence but to a very high and, in many cases, increasing measure of control from Moscow. . . .

Turkey and Persia [Iran] are both profoundly alarmed and disturbed at the claims which are being made upon them and at the pressure being exerted by the Moscow government.

Churchill extended his analysis to the Mediterranean and Middle Eastern realms by including Turkey and Iran. Although these countries were not cut off in the same way by the soon-famous Iron Curtain, Churchill surely saw their potential incorporation into a Soviet sphere, a development that represented a threat to the West. He concluded his speech by calling for an alliance of strength among English-speaking peoples to remove from the Soviet Union any “temptation to ambition and adventure.”¹

The ambition and adventure that Churchill described seemed borne out by the course of events. As the Red Army advanced near the end of the war and occupied all the states of Eastern Europe, the Soviet Communist Party installed local Communists in positions of power; between 1946 and 1948, they came to control key government offices throughout the region. The Soviet Union also applied its influence to the south. From Turkey, the Soviet Union sought freer passage for its warships from the Black Sea into the Mediterranean. In Iran, the clash involved both political and economic issues. First, near the end of the war, the Soviet Union sponsored a separatist movement in Azerbaijan that threatened to remove that province from the control of the Iranian government. Second, the Soviet government demanded concessions relating to Iran’s rich petroleum resources such as Iran had granted to Britain and the United States during the war.

Traditionally, Britain had balanced Russian interests in the Middle East; but the war had undercut its ability to continue this role. By war’s end, Britain had lost two-thirds of its sales from exports, one-fourth of its merchant marine, one-half of its investments overseas, and one-fourth of its financial reserves. As the crises involving Soviet pressure on Turkey and Iran unfolded, it became apparent that Britain was no longer a match for the Soviet Union in the Middle East. In April 1946, the United States stepped in directly by sending the battleship USS *Missouri* to the waters off Turkey. As the crisis continued into the autumn, President Harry S. Truman ordered the aircraft carrier USS *Franklin D. Roosevelt*, four cruisers, and a flotilla of destroyers to the eastern Mediterranean. In the case of Iran, the United States crafted a diplomatic settlement in the United Nations (UN) that induced the Soviet Union to withdraw support from the separatist movement in Azerbaijan on the prospect (never fulfilled) of receiving Iranian oil concessions. In the absence of any other balancing force in the Middle East, only action by the United States could block Soviet expansion.

A crisis in Greece precipitated a new policy and a formal extension of American power into the Mediterranean. During World War II, two rival factions—a Marxist guerrilla movement and a pro-West group sympathetic to the British—had vied for control of Greece. The two groups clashed openly near the end of the war, but Britain managed to put down the Communist-led insurrection. In February 1945, the Communist faction accepted an amnesty and Greece formed a non-Communist government. In 1946, the Communists rejected the results of a national plebiscite that restored the Greek monarchy. From mountain bases in the north, they reopened the civil war. Communist insurgents received material support and safe haven from

¹ Churchill speech quoted at length in Herbert Feis, *From Trust to Terror: The Onset of the Cold War, 1945–1950* (New York: W. W. Norton & Co. Inc., 1970), pp. 76–78.

the Balkan states Yugoslavia, Bulgaria, and Albania, which were Communist at that time.

Because the governments of the three Balkan states shared the Communist ideology with the Soviet Union, the civil war in Greece appeared to be a provocation and a further extension of Soviet influence. The struggle occurred contemporaneously with—and seemed to parallel—the progressive extension of the Soviet Union's domination over Eastern Europe. Western statesmen saw in the two developments a combination of a Communist commitment to international revolution and the traditional Russian policy of controlling bordering states to ensure its own security.

It appeared by the end of 1946 that only resolute action would prevent the Iron Curtain of Churchill's oratory from extending deep into the Mediterranean and the Middle East. On its own, Britain could no longer counterbalance Soviet expansion in the eastern Mediterranean. The Greek civil war drove home to the political leadership in Britain the full extent of the nation's exhaustion. In February 1947, the British government delivered to the United States a secret communiqué asserting that it could no longer sustain the pro-West faction in Greece. On 3 March, the Greek government formally requested American assistance.²

American policymakers feared that a British withdrawal of support would ensure a victory for the Communist forces in Greece and that the momentum of success would threaten the pro-West governments in Turkey and Iran. Before a joint session of Congress on 12 March 1947, President Truman enunciated a new policy to meet the crisis and to counter Soviet ambitions. He outlined an American commitment to help any free peoples defend against internally or externally sponsored aggression. The president specifically asked Congress to approve emergency foreign aid for both Greece (\$300 million) and Turkey (\$100 million) so they could resist the pressures that threatened their sovereignty. In vivid terms, he described the aid as part of a global struggle "between alternate ways of life." One system functioned by the will of the majority expressed through free institutions, the other was driven by the will of a minority wielding terror and oppression to maintain control. "If we falter in our leadership," Truman added, "we may endanger the peace of the world—and we shall surely endanger the welfare of our own nation."³ Eight months later, the National Security Council, established by the National Security Act of 1947, adopted a policy statement asserting that "the security of the Eastern Mediterranean and of the Middle East is vital to the security of the United States. . . . The security of the whole Eastern Mediterranean and the Middle East would be jeopardized if the Soviet Union should succeed in its efforts to obtain control of any one of the following countries: Italy, Greece, Turkey, or Iran."⁴

This policy, the Truman Doctrine, became the cornerstone of a new American foreign policy to contain the expansion of Soviet influence. It combined diplomacy

² Charles H. Donnelly, *United States Defense Policies Since World War II* (Washington, D.C.: Government Printing Office, 1957), p. 14.

³ Truman speech extensively quoted in Feis, *From Trust to Terror*, pp. 192–95.

⁴ Kenneth W. Condit, *History of the Joint Chiefs of Staff*, vol. 2, *The Joint Chiefs of Staff and National Policy, 1947–1949* (Washington, D.C.: Office of Joint History, 1996), p. 16.

with economic and military aid for American allies to counterpoise the ultimate threat of American military intervention to protect the interests of the United States in the region. The Truman Doctrine expressed what became known as the policy of containment.

Truman's speech presented a fundamental conviction that had developed in U.S. policy-making circles since 1945: The Soviet Union sought expansion beyond its own borders. It made little difference whether this arose to satisfy Soviet needs for security, for reasons of its Marxist ideology of international revolution, for national aggrandizement, or out of motives of power politics. Even if the Soviet Union's tactics shifted from confrontation to infiltration and subversion, the threat to freedom and open world markets remained. The Truman administration concluded that the Soviet Union would use every means short of war to achieve its objectives.⁵ Tensions between the two countries and ideologies became known as the Cold War. The rhetoric of Truman's speech set the tone for American foreign policy over the next five decades.⁶

Events over the following two years reinforced the image of two systems clashing for power and influence. In June 1947, U.S. Secretary of State George C. Marshall sketched his plan to extend American aid to the countries of Europe still recovering from the devastation of the recent war. The West European states accepted the terms of the Marshall Plan. The East European states, under pressure from the Soviet Union, declined to participate.

During 1948, the attempts of the wartime allies to cooperate in Germany, never very successful, broke down completely. In late June, the Soviet army of occupation in eastern Germany blockaded the western sectors of Berlin, isolating the city from the West and threatening it with economic and moral strangulation. The Americans responded by airlifting food, coal, and all the supplies necessary to sustain life in a city of 2 million inhabitants. The airlift preserved West Berlin from absorption into the Communist system. On 4 April 1949, the United States signed the North Atlantic Treaty joining Canada and the countries of western Europe in a formal alliance for mutual defense. On 8 May, the West Germans, with the encouragement of their West European neighbors and the United States, approved a new constitutional document establishing a democratic and pluralistic government. On 12 May, having failed to prevent the establishment of a West German government, the Soviet Union lifted the Berlin Blockade. These events confirmed and reinforced the general American impression that two ideological systems were locked in a monumental struggle.

The end of the Berlin Blockade brought no slackening of the Cold War. Indeed, geopolitical events of 1948 and 1949 convinced U.S. policymakers that the threat from the Soviet Union reached far beyond Europe and the Mediterranean. While

⁵ Howard Jones, *A New Kind of War: America's Global Strategy and the Truman Doctrine in Greece* (New York: Oxford University Press, 1989), preface.

⁶ For a detailed discussion of the relationship between events in the eastern Mediterranean and the formulation of the Truman Doctrine, see Bruce R. Kuniholm, *The Origins of the Cold War in the Near East: Great Power Conflict and Diplomacy in Iran, Turkey, and Greece* (Princeton: Princeton University Press, 1980), esp. ch. 6.

the Soviet blockade of Berlin had heightened tensions in Europe, the armies of the Chinese Communists led by Mao Zedong progressively gained the upper hand in their civil war against the nationalist forces of Chiang Kai-shek. By October, the Chinese Communists had won full control of the mainland areas of China and declared a new People's Republic. As control of China swung to the Communists, American intelligence learned that the Soviet Union had exploded its first atom bomb in July 1949, thus ending the American monopoly of atomic weapons. The airlift to relieve West Berlin enhanced American prestige; the fall of China to the Communists and the Soviet Union's acquisition of atomic weaponry challenged it.

In 1949, the U.S. National Security Council declared deterrence through military readiness to be the nation's military strategy.⁷ In early 1950, President Truman ordered a reexamination of American policy overseas. The National Security Council undertook a comprehensive review of the premises of the administration's foreign policy. The document that emerged from the study, NSC-68, cast the geopolitical situation as a polarization of power between the "slave society [and] the free." In this contest, "the Soviet Union, unlike previous aspirants to hegemony, is animated by a new fanatic faith, antithetical to our own, and seeks to impose its absolute authority" in its own territory and in adjacent states. "To that end," the National Security Council study asserted, "Soviet efforts are now directed toward the domination of the Eurasian land mass." To meet this challenge, the United States had to mount a global strategy to return the initiative in world affairs to the non-Communist nations. The contest demanded that the United States "mobilize its own and its allies' economies for a vast military effort."⁸

President Truman received NSC-68 in its final form in April 1950. The report recommended that American policy include an increased commitment to the North Atlantic Treaty Organization (NATO) in Europe, the stationing of American airpower with atomic capability in Europe and around the periphery of the Soviet Union, increased cooperation between allied and American military forces, and a strong alliance system under the leadership of the United States.⁹ The document proposed not just the reactive policy of containment, but also active military and diplomatic initiatives to put U.S. armed forces in the best possible position and state of readiness to meet Soviet aggressions.

The analysis behind NSC-68 became more credible when on 25 June 1950 North Korea attacked South Korea across the 38th Parallel, the line established after World War II to demarcate the zones of Soviet and American occupation. North Korea had evolved since 1945 into a Communist dictatorship allied with the Soviet Union. When North Korea launched its unprovoked attack, America's allies in Europe

⁷ Karen Lewis et al., "A Systemic Study of Air Combat Command Cold War Material Culture," vol. 1, "Historical Context and Methodology for Assessment," 1995, pp. 23-107, HQ, Air Combat Command, Langley Air Force Base, Va.

⁸ The passages from NSC-68 come from Walter LaFeber, *America, Russia, and the Cold War, 1945-1980* (New York: John Wiley and Sons, 1980), pp. 98-99.

⁹ LaFeber, *America, Russia, and the Cold War*, pp. 98-99; William R. Keylor, *The Twentieth-Century World, An International History* (New York: Oxford University Press, 1984), pp. 287-88.

became anxious. They feared that the aggression in Asia, if successful, would lead to similar attacks in Germany or Austria. The attack on South Korea seemed to confirm the assumptions expressed in NSC-68. But even before the outbreak of hostilities in Korea, the Department of Defense (DoD) took steps to support militarily the more proactive policy outlined in NSC-68. The department ordered the construction of overseas air force bases in three countries where United States Air Force (USAF) units already operated—Turkey, Libya, and Saudi Arabia—and in one country where they had had no presence since the end of World War II—French Morocco.

The following chapters trace the story of the U.S. Army Corps of Engineers' involvement in the military construction that put the weapons in place around the Mediterranean. The engineers' first assignment came in Greece as a direct extension of the Truman Doctrine. There, the Corps operated a district between 1947 and 1949. The formulation of NSC-68 and the outbreak of the Korean War transformed the Corps' role from temporary instrument to permanent presence in the region. In Turkey and in Libya, the Corps established district operations to manage military construction in the two host countries and in Saudi Arabia. Chapter 1 covers these early manifestations of the Corps' activity in the Mediterranean basin. Chapters 2 and 3 trace the development of the largest Corps of Engineers undertaking in the region—the construction of air bases in Morocco—and the elevation of the engineer organization to full-fledged division status.

1

ARMY ENGINEERS IN THE MEDITERRANEAN, 1942–1952

During World War II, the Mediterranean region was a major theater of operations involving nearly all the states that touch that sea. Only Spain remained neutral throughout the war. Early in the war, North Africa became a battlefield between Italy and Britain as Italy sought to expel the British from Egypt. In late 1942, American and British forces launched amphibious landings on the shores of Morocco and Algeria in French North Africa. From there, the Allies fought their way east against Italian forces, aided by their German allies, to link up with British armies from Egypt. By May 1943, the anti-Hitler coalition controlled all of North Africa, which then provided the staging area for the invasions of Sicily in July and the southern Italian peninsula in September. North Africa gave the Allies safe airfields from which to launch air attacks against German and Italian forces in southern Europe and the Balkans. Throughout the provinces of the Middle East where British influence predominated, from Egypt to the Persian Gulf, the Western powers enjoyed similar basing arrangements. The airfields and naval installations in North Africa also made convenient points of transit for goods passing to the Soviet Union, an ally of the United States and Britain after 1941.

At the end of the war, the United States showed little inclination to maintain a strong military presence in the region. Once the war ended, the United States demobilized and withdrew its military forces from around the world. In the Mediterranean and the Middle East, the United States, which had around one hundred military installations in 1945, reduced its presence to seventy-four installations in 1947 and to fewer than thirty by 1949.¹

France and Great Britain, major colonial powers in the Mediterranean and Middle East, both retained significant roles in the region. Free French Forces under General Charles de Gaulle replaced the pro-German Vichy government in France at the end of the war. As one of the four victorious powers, France retained control of Morocco, Tunisia, and Algeria. (*See Map 1.*) Britain retained its influence in the areas from Egypt through the Middle East and acquired the former Italian colony of Libya as a trust territory under the United Nations.

¹ James R. Blaker, *United States Overseas Basing: An Anatomy of the Dilemma* (New York: Praeger, 1990), pp. 31–32.

Army Engineers in Greece, 1947–1949

When President Truman decided to extend help to Greece, the State Department turned to the U.S. Army Corps of Engineers to put its technical expertise at the service of the U.S. Mission for Aid to Greece. Alone among government agencies, the Corps possessed the capabilities of design, contracting, and engineering needed to restore the country's infrastructure.² For most of the early decades of the century, the Army Corps of Engineers had concentrated on civil works projects such as dredging harbors, regulating waterways, building canals, and controlling floods. In 1941, the Army transferred the mission of military construction for the Army and the Army Air Forces from the Quartermaster Corps to the Corps of Engineers. The Corps of Engineers thus became the agency that organized, managed, and executed the construction needed to support U.S. military forces. From its experience using private companies for design and construction in supervising civil works programs, the Corps had developed the capacity to manage the even-larger task of supervising the rapid construction of the base camps, airfields, and other installations, at home and abroad, needed to win World War II.

When called into service in Greece in 1947, the Army engineers faced the task of rebuilding transportation and harbor systems to support that country's economic and military needs. While retreating from Greece in late 1944, the Germans had destroyed roads and bridges, rail lines, and canal and port facilities. The principal ports at Piraeus, Volos, and Thessalonika remained only marginally functional. (*Map 2*) To block the Corinth Canal, German demolition teams had set explosives that had triggered two massive slides and filled the waterway with debris. The system of roads and bridges had suffered during the war and from rebel attacks after 1945. The Greek government had undertaken repairs, but it lacked money, equipment, and experienced engineers to clear the debris and to rebuild.

At the request of the State Department, two joint ventures of American contractors undertook the work in Greece. Atkinson-Drake-Park (ADP) consisted of the Guy F. Atkinson Company of San Francisco, California; Johnson-Drake and Piper of Minneapolis, Minnesota; and Starr-Park and Freeman of New York. This joint venture accepted the contract for the reconstruction of highways and railroads. The second joint venture—Steers-Grove, consisting of the J. Rich Steers Company and Grove, Shepherd, Wilson, and Kruge of New York—accepted a contract to reconstruct the port facilities at Piraeus and to reopen the Corinth Canal. The U.S. State Department awarded the contracts; by agreement between the State Department and the Department of the Army, the Corps of Engineers administered them.³

² Frank N. Schubert, "A Helping Hand: Three Decades of Corps of Engineers Involvement in Foreign Assistance Programs," p. 4, Office of History (OH), HQ, United States Army Corps of Engineers (USACE), Alexandria, Va.

³ D. W. Griffiths, "Reconstruction in Greece," *Military Engineer* (July-August 1949): 252; Typescript Rpt, 22 Oct 48, sub: Reconstruction and Rehabilitation—Grecian Program, p. 1, Research Collections, Mil Files XII-4, OH, HQ USACE.



Map 2

Because the full extent of the work was difficult to define before the work actually began, the Corps and the State Department agreed to make the awards on a cost-plus-fixed-fee (CPFF) basis.⁴ CPFF contracts were widely used during World War II because they offered benefits for both parties. By preselecting qualified contractors and negotiating a contract to pay a fee as well as all direct

⁴ Typescript Rpt, 22 Oct 48, p. 1.



During World War II, the Germans destroyed much of Greece's infrastructure. An American contractor reconstructed an area of the breakwater in Volos Harbor.

costs, the government could begin a project quickly, even before design could be completed. Companies could accept a project in which the costs and the risks were very difficult to calculate. CPFF contracts required close government audits, which made supervision and administration difficult and expensive; and the government had to dispose of equipment and materials at the completion of the project. The biggest disadvantage was that the contractor had little incentive to curb waste or extravagance because the contract guaranteed his costs and a profit. Also, a contractor could overload the job with his own equipment and pad his profits by charging the government a rental fee.⁵

In the atmosphere of the early months of the Cold War, the advantages of CPFF contracts outweighed the disadvantages. From the first application of the Truman Doctrine in Greece in 1947, CPFF contracts became a standard feature of overseas military construction as the U.S. government hastened to contain the Soviet Union.

On 1 August 1947, the Army engineers established the Grecian District under the Corps of Engineers' North Atlantic Division in New York. Ten days later, the district engineer, Col. D. W. Griffiths, set up his headquarters in Athens. Griffiths; his deputy, Lt. Col. Paul D. Troxler; and the skeleton staff of the district worked with the contractors to plan the reconstruction. At the same time, the district

⁵ "Military Construction in Continental United States and Permanent Overseas Bases," Dec 51, p. 40, Engineer School, Fort Belvoir, Va., Gen Files VII-19-10, OH, HQ USACE.

established a rear-echelon office in New York City to expedite procurement and to handle stateside activities. Both ventures also established offices in New York. Eventually, the Grecian District set up area offices in Thessalonika, Larisa, Lamia, Patras, Corinth, and Piraeus to supervise the initial program: work at three ports, rebuilding the highway and railroad systems, and clearing the Corinth Canal. The plan divided the tasks among the contracting companies and the Greek government agencies that had the capability to assist in executing the work.⁶

From the beginning, the American contractors faced difficulties in assembling both equipment and personnel to carry out the construction in Greece. It took six months of sustained effort to put an effective organization at the sites. Nonetheless, 629 American contractor and government personnel and 12,131 Greek nationals worked on the construction projects at the peak of activity.⁷

Steers-Grove did repair work at the ports of Piraeus, Volos, and Thessalonika. Before the war, the port at Piraeus could simultaneously accommodate sixteen transport ships, each with a capacity of ten- to fifteen thousand tons. In 1947, only two ships could dock in the port. The war had left quay walls damaged, parts of walls and the gates to the drydocks demolished, docks clogged with debris, and nearly all port equipment destroyed. Only three hundred fifty yards of quay were usable when reconstruction began. From wreckage on the harbor floor, the contractors salvaged enough material to build two heavy-duty cranes; but they also had to import floating cranes. By December 1948, Steers-Grove had rebuilt over two thousand three hundred yards of quay walls. Crews cleared debris to reconstruct drydocks and to open the waterways. By the end of the operation, Piraeus harbor could accommodate seventeen large vessels at a time. Work also progressed at Volos and Thessalonika where damage to the ports was less severe.⁸

Clearing of the Corinth Canal began in November 1947. The Isthmus of Corinth is a narrow strip of land that links the Peloponnese Peninsula with Attica, the main land mass of Greece. The canal, built between 1882 and 1893 and less than four-and-a-half miles long, reduced the distance for ships traveling between the east and west coasts of Greece by about one hundred twenty-five miles. In addition to slides touched off by demolition teams, the Germans had dumped bridge wreckage, locomotives, and railroad cars into the canal to complicate eventual excavation. After eight months of work, the canal opened on 7 July 1948 for shallow-draft traffic and in September for all traffic.⁹

The Greek railroads had suffered the same disruption as the ports and canal. Retreating Germans had systematically blown up bridges and demolished rolling stock in 1944, virtually paralyzing the system. Thirty-three railroad bridges needed reconstruction before normal rail service could resume. The U.S. aid program assigned

⁶ Typescript Rpt, 22 Oct 48, pp. 1–2; Griffiths, “Reconstruction in Greece,” p. 252.

⁷ Christ Mentzelopoulos, “The Work Performed in Greece Under the Direction of the Corps of Engineers,” address at Polytechnic School, 1 Apr 49, reprinted in *Technika Chronika* (April 1949); Griffiths, “Reconstruction in Greece,” p. 253.

⁸ Typescript Rpt, 22 Oct 48, pp. 2–3.

⁹ Griffiths, “Reconstruction in Greece,” p. 254.



By April 1948, excavation of the Corinth Canal was over half complete.

rehabilitation of the railroads to Atkinson-Drake-Park. The American contractor turned repair of the tracks over to the Greek railroad companies, ordered twelve bridges fabricated in the United States, and undertook the reconstruction from salvaged materials of twenty-one others. The railroad project also included repair of two tunnels.¹⁰

¹⁰ Ibid., pp. 256–57; Typescript Rpt, 22 Oct 48, pp. 4–7.

The Greeks had never modernized their highways for motorized transportation. Of the 6,521 miles of roadways shown on maps of the national highway system, around 75 percent could be used by motor vehicles and only at very low speeds. Since rebuilding the whole system went far beyond the scope of the American aid program, ADP and the Army engineers decided to address only the 1,100 miles of roads essential to the country's immediate needs for economic recovery and military communications. After a guerrilla raid destroyed an asphalt plant and equipment valued at \$90,000, engineers eliminated almost 250 miles of road from the rehabilitation program for reasons of safety. Road construction involved extensive patching of existing base courses and resurfacing with asphalt. It also included repair of about 90 percent of the highway system's bridges and culverts. To support the paving, contractors purchased or acquired nine asphalt plants from surplus equipment and military depots in the United States. Army engineers supervised the laying of 656,015 tons of aggregate and 29,512 tons of asphalt, as well as the surfacing of more than 750 miles of highway before they turned the job over to the Greek Ministry of Public Works in 1949.¹¹

After work on the road and rail systems began, the Greek Air Ministry asked the Corps of Engineers' Grecian District office to engage Atkinson-Drake-Park to work on eight airfields where runways already existed and to build two completely new airfields. The airfield work included construction of parking aprons and control towers and installation or rehabilitation of lighting and drainage systems. ADP laid almost ten thousand square yards of runway, nearly 60 percent of which was pierced-steel plank. Almost four thousand square yards of runway had an asphalt surface. The contractor began work in April 1948 on the longest runway, the 1,500-foot strip at King Paul Airfield near Tripolis, and completed it on 30 July. Construction also began in April at a new field, Bisdouni, in northwest Greece near the Albanian border; the 1,200-foot runway began operating on 4 October.¹²

Frequent delays characterized the early months of work in Greece. Motor vehicles to transport goods and personnel and other construction equipment arrived late; in December 1947, bad weather limited operations. Guerrilla activity and shortages of certain critical materials forced the extension of the program beyond the planned completion date of 30 September 1948. Despite the civil war, the engineer and contractor personnel worked unarmed. Guerrillas did not attack Americans directly; but they carried out acts of sabotage against construction equipment, motor vehicles, existing facilities, and facilities under reconstruction. Rebels or bandits kidnapped some Americans and held them for ransom, but no Americans were reported killed. The Greek workers fared badly: 28 died, 102 were wounded, and 474 were reported missing. Rebel attacks also damaged or destroyed eighty-one pieces of equipment valued at about \$350,000.¹³

¹¹ Typescript Rpt, 22 Oct 48, pp. 4-5; Griffiths, "Reconstruction in Greece," p. 254.

¹² Typescript Rpt, 22 Oct 48, p. 7; Griffiths, "Reconstruction in Greece," pp. 255-56; Mentzelopoulos, "Work Performed in Greece."

¹³ Mentzelopoulos, "Work Performed in Greece." Griffiths, "Reconstruction in Greece," pp. 252-53, gives a slightly lower dollar figure for the loss of equipment.



The Gorgopotamos Bridge in Greece, shown here in October 1947, was damaged during World War II.

During the entire Greek construction program of 1947–1949, the two American firms spent about \$56 million, well below the \$70 million budgeted for the program. In April 1949, a closeout team arrived at district headquarters in Athens; by summer, the Grecian District had closed its offices.¹⁴ The close of the Grecian District removed the only organization in the Mediterranean directly under the command of the Corps of Engineers, but Army engineer officers remained in the region to assist U.S. military aid programs to other nations.

In June 1950, the American ambassador to Greece, Henry F. Grady, assessed the aid program on behalf of the U.S. Senate Committee on Foreign Relations. He reminded the senators that many in Congress had doubted the advisability of appropriating funds for aid to Greece in 1947; some had even labeled the undertaking Operation Rathole. By 1949, he asserted, one could see a relatively stable economy in Greece and a trained and partially equipped Greek armed services. A year later, the Greek Army had been “completely victorious” over the Communist guerrillas. When speaking of the aid program to Greece, Grady concluded, “We can honestly use the word ‘success.’”¹⁵

¹⁴ Memo, D. W. Griffiths, 9 Apr 49, sub: Status of Overseas Construction for the Month of March 1949, Mil Files XII-4, OH, HQ USACE; Mentzelopoulos, “Work Performed in Greece.”

¹⁵ U.S. Senate, Committee on Foreign Relations and Committee on Armed Services, *Mutual Defense Assistance Program*, 81st Cong., 2d sess., 1950, p. 77.

Army Engineers in Turkey

Turkey had figured almost as prominently as Greece in President Truman's speech of March 1947 enunciating the new policy of containment of the Soviet Union. The same appropriations process that furnished aid to Greece also provided for financial and technical support to Turkey. In both countries, the aid supported an immediate need to shore up political and military structures as a deterrent to Soviet expansion into the Mediterranean.¹⁶

The challenges of 1948 and 1949 changed the relative importance of the U.S. military presence in Turkey. The policy of commitment to active defense initiatives enhanced the importance of Turkey to American strategic interests. Turkey had common borders in the east with the Soviet Union and in the west with the Soviet satellite state of Bulgaria. Turkish control of the strategic water route from the Black Sea to the Mediterranean Sea positioned the country on the flank of possible Soviet passage to the oil-rich regions of Iran and Saudi Arabia.

With the original program of aid for Turkey, the U.S. government had established an umbrella organization named the Joint American Military Mission for Aid to Turkey (JAMMAT). Subordinate elements—The United States Army Group (TUSAG), The United States Air Force Group (TUSAFG), and The United States Navy Group (TUSNG)—worked under the mission to administer the aid program.¹⁷ When aid began in 1947, no Army engineer element served in Turkey.

Initially, most of the U.S. aid went to the Turkish Army, which numbered five hundred thousand in 1947. By 1950, American advice and assistance had helped Turkey increase the combat capabilities of its armed forces and cut its numbers by half. But Turkey needed additional help to create a truly modern and mobile army and to reduce its expenditures on defense from 35 percent of its national budget to more manageable proportions.¹⁸

As part of the aid package, USAF personnel sought to train Turks to operate and maintain the construction equipment to modernize the country's military airfields. They also initiated and supervised a maintenance and supply program for the Turkish Air Force. In 1948, TUSAFG began construction at two sites, providing supervision, training, and guidance to the labor force of Turkish troops. The construction equipment came from surplus Army engineer supplies, but the Corps of Engineers had no direct role in the aid program.¹⁹

¹⁶ Kenneth W. Condit, *History of the Joint Chiefs of Staff*, vol. 2, *The Joint Chiefs of Staff and National Policy, 1947–1949* (Washington, D.C.: Office of Joint History, 1996), p. 36.

¹⁷ Lewis McBride, "A Brief History of The U.S. Engineer Group (TUSEG), U.S. Army Corps of Engineers, Ankara, Turkey, 1950–1954," p. 1, Construction Div, Office of the Chief of Engineers (OCE), M-2-2/16, Europe Division—Record Holding Area (EUD-RHA).

¹⁸ U.S. Senate, *Mutual Defense Assistance Program*, pp. 78–79, statement submitted 9 Jun 50 by George Wadsworth, U.S. ambassador to Turkey.

¹⁹ "History of the United States Engineer Group, Ankara, Turkey," p. 1 (hereafter cited as TUSEG Hist), Encl no. 7 in OCE, "Historical Summary, 1950–1951," Gen Files 2-1, OH, HQ USACE (hereafter cited as OCE, Hist Sum, 1950–1951); McBride, "Brief History," p. 1.

In 1949, Congress appropriated more funds for military construction in Turkey; but by that year, it had become apparent that TUSAFG had achieved disappointing results. Continuing deterioration of the airfields threatened to jeopardize the Air Force's prospects to use the facilities jointly with the Turks. JAMMAT needed more rapid and efficient construction. An Army engineer assigned to JAMMAT, Col. Thomas H. Lipscomb, recommended activating an engineer district like the one in Greece. The U.S. ambassador worked with Turkish authorities to shape an agreement whereby the U.S. military mission furnished management personnel (construction engineers, technical staff, and American contractors with their employees) to support an expanded construction program. The government of Turkey agreed to assume responsibility for real estate; for the cost of all rail transportation; for the shipment of materials and equipment within Turkey; for all construction equipment, spare parts, and materials from stocks previously furnished; and for the services of a Turkish aviation engineer unit.²⁰

U.S. Engineer Group in 1950

With the agreement in place, the chief of engineers, Maj. Gen. Lewis A. Pick, established The United States Engineer Group (TUSEG) on 10 May 1950. Although the U.S. Engineer Group operated as an engineer district, its name conformed to the nomenclature used by other groups operating under the joint U.S. military mission to Turkey. From headquarters in Ankara, TUSEG supervised and executed all military construction in Turkey assigned by the chief of engineers under the Mutual Defense Assistance Program approved by Congress in 1949.²¹

Lt. Col. Arthur H. Frye Jr. commanded TUSEG, working first with a small staff in the Office of the Chief of Engineers (OCE) in Washington. Frye sought to recruit people who could adapt to a 24-month tour in a country where the living conditions, customs, religion, language, and political environment demanded flexibility. Using a unique procedure approved by General Pick, the chief of the TUSEG Engineering-Construction Division, Lewis W. McBride, personally selected candidates who combined experience in both design and construction.²²

Because of the Air Force's urgency, the Corps of Engineers awarded a cost-plus-fixed-fee contract similar to the contracts used in Greece in the late 1940s. Three firms participated in the joint venture called Metcalf-Hamilton-Grove: Metcalf Construction Company; Gordon Hamilton Contracting Company Inc.; and Grove, Shepherd, Wilson, and Kruge Inc. The initial CPFF contract, signed on 25 May 1950, anticipated a construction program lasting two years and estimated at \$10,766,864

²⁰ TUSEG Hist, p. 2; McBride, "Brief History," p. 2; Condit, *Joint Chiefs of Staff and National Policy, 1947-1949*, pp. 231-32; Interv, Herbert M. Hart with Maj Gen (Ret) Thomas H. Lipscomb, 12 Nov 83, pp. 136-53.

²¹ McBride, "Brief History," p. 2; Condit, *Joint Chiefs of Staff and National Policy, 1947-1949*, pp. 231-32.

²² McBride, "Brief History," pp. 2-3.

with a fee of \$460,000. TUSAFG determined the needs and established the types of construction that TUSEG and Metcalf-Hamilton-Grove were to execute.²³

At a series of meetings in Washington, representatives of OCE, Metcalf-Hamilton-Grove, and TUSEG defined the levels of support and responsibility. The contractor procured equipment and materials and recruited personnel with only minor help from the Corps of Engineers' North Atlantic Division and New York District. The Corps suggested that contract personnel working in Iceland and Newfoundland would be attractive recruits for the Turkish program when work slackened in those North Atlantic locations.²⁴

The chief of engineers, General Pick, defined Colonel Frye's authority as comparable to that "usually vested in district and division engineers." TUSEG would operate under JAMMAT for administrative purposes but would report directly to the chief of engineers in Washington. TUSEG received authority to suspend the "administrative regulations of the Department of the Army applicable to military procurement and construction" and to proceed under civil regulations. Frye was encouraged to shift "functions normally considered government activities" to the contractor if he thought it would produce savings. TUSEG also received explicit instructions that "criteria and standards of construction will be in accordance with the desire of the U.S. Air Force Group and may be less than OCE standards if sound engineering principles and practices are not thereby violated."²⁵ The special status, the special exemptions, and the suggestion that standards could be lowered all emphasize the unusual character of the military construction program for Turkey and the urgency that leaders in Washington assigned to it.

On 28 May 1950, TUSEG established a rear-echelon office in New York City to facilitate procurement of construction materials and recruitment of personnel. This office, under a deputy contracting officer, worked with the New York District of the North Atlantic Division to monitor and coordinate work with the New York office of the joint venture, Metcalf-Hamilton-Grove.²⁶

By early June, the contractor had received an outline of the construction program calling for work at eight sites, six of which had existing facilities: Bandirma on the Sea of Marmara; Erzincan, east of Ankara; Balikesir, about fifty miles south of Bandirma; Afyonkarahisar, southwest of Ankara; Kayseri in central Turkey; and Merzifon, southwest of the Black Sea city of Samsun. (*See Map 3.*) In those locations, Metcalf-Hamilton-Grove would rehabilitate existing runways, install distribution systems for aviation fuel, and add support facilities including hangars,

²³ "Synopsis of TUSEG Construction Program Under Joint American Military Mission for Aid to Turkey as of 1 Aug 52," p. 1, Mil Files XII-33-8 (hereafter cited as TUSEG Construction Synopsis as of 1 Aug 52); Memo, Brig Gen G. J. Nold to Ch, U.S. Engineer Group, Ankara, Turkey [TUSEG], 9 Jun 50, sub: The U.S. Engineer Group, Joint American Military Mission for Aid to Turkey, Mil Files XII-4-1; Memo, Robert F. Jacobs to Policy, Regulations and Procedures Br, 26 May 50, sub: Request for Exception to CPR P19.6 and Item 9, CPPL 3-50, Mil Files XII-4-1; all in OH, HQ USACE.

²⁴ Memos, Col Robert E. Cron to Div Engr, 22 May 50, sub: Support for the Engineer Group in Turkey, and Nold, 25 May 50, both in Mil Files XII-4-1, OH, HQ USACE.

²⁵ Memo, Nold to Ch, TUSEG, 9 Jun 50.

²⁶ TUSEG Hist, pp. 2–3.

airmen's housing, and additional fuel storage. At two other locations—Diyarbakir (in eastern Turkey on the Tigris) and Eskisehir (in western Turkey)—the program called for new air bases with concrete runways capable of accommodating modern jet aircraft and the appropriate support facilities.²⁷

Beginning Work

Personnel from TUSEG and Metcalf-Hamilton-Grove arrived in Ankara on 25 and 26 June 1950, just as the North Korean attack on South Korea began. The mission of the Army engineers in Turkey suddenly became more compelling. TUSEG's advance party opened offices in an apartment building in a residential section of Ankara. The building provided office space insufficient to accommodate both the Army engineer staff and the contractor personnel, so the contractor rented additional space in the Cehan Palace Hotel. TUSEG arranged to have the U.S. Army Group handle all shipments of materials through Turkish ports. The Turkish government furnished rail shipments from the ports to job sites. The TUSEG staff had assumed they would receive office equipment and furniture from the joint U.S. military mission, but JAMMAT had very little to offer. Frye tried to get the items he needed from the New York District, but the supplies he received were in such poor condition that the entire lot "could not be sold for junk or otherwise for enough money to even pay for the packing charges, much less the freight costs." Without the proper office equipment, the administrative management of the construction program suffered.²⁸

Disregarding the obstacles, the Americans set to work. To ascertain what engineering equipment and supplies were available in Turkey, Metcalf-Hamilton-Grove sent a small party to the JAMMAT supply depot at Cumaovasi, near Izmir. They discovered that only about 25 percent of the spare parts and materials that had arrived under the aid program had ever been unpacked. The inventory of approximately seven thousand items presented a problem of property control and a potential commitment of time that diverted the effort from starting construction. Confounding matters for the team, all the property documents were written in Turkish.²⁹

In addition to inventorying spare parts and other materials, TUSEG and the contractor sought to locate and gather the construction equipment available in Turkey. They found that the U.S. ambassador had lent equipment to the Turkish Ministry of Public Works, which was using it on civilian airfields at Istanbul and Ankara. The Turkish Air Force used some other equipment on projects that had a much lower priority for TUSEG than the bases for the U.S. Air Force. It took persistence on the part of Colonel Frye to recover this equipment, and then it was not always in usable condition. None of the thirty American trucks that the Turks

²⁷ Memo, Nold to Ch, TUSEG, 9 Jun 50.

²⁸ TUSEG Hist, pp. 2–4; McBride, "Brief History," p. 11; TUSEG Construction Synopsis as of 1 Aug 52, p. 5. Quotation from Memo, A. J. Evans, Ch, Audit Div, Ofc of the Engr Comptroller, to Div Engr, North Atlantic Div, 5 Dec 50; "Inspection of U.S. Engineer Group, Ankara, Turkey," 3 Nov 50, p. 4; both in Mil Files XII-4-1, OH, HQ USACE.

²⁹ TUSEG Hist, p. 3.

had used, for example, came back with functioning brakes; the Turks had filled the brake systems with motor oil rather than with brake fluid, thereby dissolving all the rubber seals.³⁰

TUSEG personnel succeeded in moving the program forward by cooperating with a Turkish liaison group at Ankara, Coordinating Bureau no. 2, commanded by a Turkish Air Force colonel with a Turkish Army engineer colonel as deputy. The Turkish officers helped to solve customs problems and to transport equipment, supplies, and personnel. The liaison group assigned Turkish troops to provide labor for construction projects, acquired the necessary real estate, helped reconnoiter sites, and provided other services to TUSEG and the contractor.³¹

TUSEG, having made the administrative and logistical arrangements that it could, organized a reconnaissance visit to the proposed construction sites. Concurrently, personnel from TUSEG and the contractor's staff drew up a preliminary schedule to accomplish the work within the 24-month deadline set by TUSAFC. Metcalf-Hamilton-Grove had trouble recruiting and mobilizing qualified design engineers, especially engineers with knowledge and experience with Corps of Engineers practices and procedures. To accelerate the progress of the project, TUSEG assigned several of its personnel to work with the contractor's staff.³²

Design of the runways and facilities proceeded simultaneously with the tasks of assembling construction equipment and crews and launching construction. The large open space of the Cehan Palace Hotel's ballroom became the engineering-drafting room. Personnel from TUSEG's Engineering-Construction Division supervised the design work of the contractor, interpreting the Air Force's criteria, suggesting preliminary layout, and checking all drawings and specifications. Incorporating the facilities that the reconnaissance party identified, the contractor drafted plans for the rehabilitation or conversion of runways, taxiways, and facilities to be used by the U.S. Air Force.³³

The TUSEG staff soon learned that TUSAFC had already made changes to reflect additional requirements or revisions by JAMMAT. Diyarbakir in the east and Balikesir in the west received the highest priority. Runway surveys began at Diyarbakir in July and August 1950. Initial specifications called for a 9,000-foot runway with supporting taxiways, twenty-six hardstands for parking vehicles, and 14,000 square yards of parking apron. The plan left housing, utilities, and hangars for later development. Construction included a distribution system for aviation fuel, but the Air Force had provided no criteria for the system. At Balikesir, the Air Force wanted resurfacing to begin on the 4,900-foot runway as soon as possible. The survey revealed that many of the failures of the existing runway had occurred

³⁰ McBride, "Brief History," pp. 14–15.

³¹ *Ibid.*, p. 19.

³² TUSEG Hist, pp. 3–5; TUSEG Construction Synopsis as of 1 Aug 52, p. 5.

³³ McBride, "Brief History," pp. 2–3, 6–7, 11; TUSEG Construction Synopsis as of 1 Aug 52, p. 5; TUSEG Hist, pp. 2–4.

because of poor drainage, so designers incorporated a new drainage system and adequate surface drainage.³⁴

In the first week of September 1950, TUSEG established area offices at Diyarbakir and Balikesir.³⁵ Metcalf-Hamilton-Grove began initial grading operations at Diyarbakir on 11 September and runway rehabilitation at Balikesir on 1 October. At the outset, work progressed slowly because the contractor lacked sufficient crushing and screening equipment. Just below the surface at Diyarbakir, construction crews encountered large boulders that required more blasting than anticipated, thus delaying progress on the drainage system. While the construction proceeded, work continued on design until the draft plans for this phase were completed in December.³⁶

The Air Force's tight schedule forced the Army engineers to take risks. TUSEG's command group decided to have the contractor continue construction through the winter even though Balikesir's winters were typically wet and Diyarbakir usually received heavy snow and freezing cold. The American audacity impressed the Turks, especially when the moderate 1950–1951 winter allowed the construction to progress. Many Turks saw this as a sign that Allah had blessed the endeavor. To the Americans, it appeared a lucky outcome to a calculated risk. The following winter was very severe, but by then work could progress on facilities less sensitive to the weather than runway construction.³⁷

Even though Metcalf-Hamilton-Grove had begun work, neither the contractor nor TUSEG had received a proposed overall program of construction for Turkey by November 1950. Lack of a plan made any coherent projection of operations, staffing, and distribution of materials or equipment

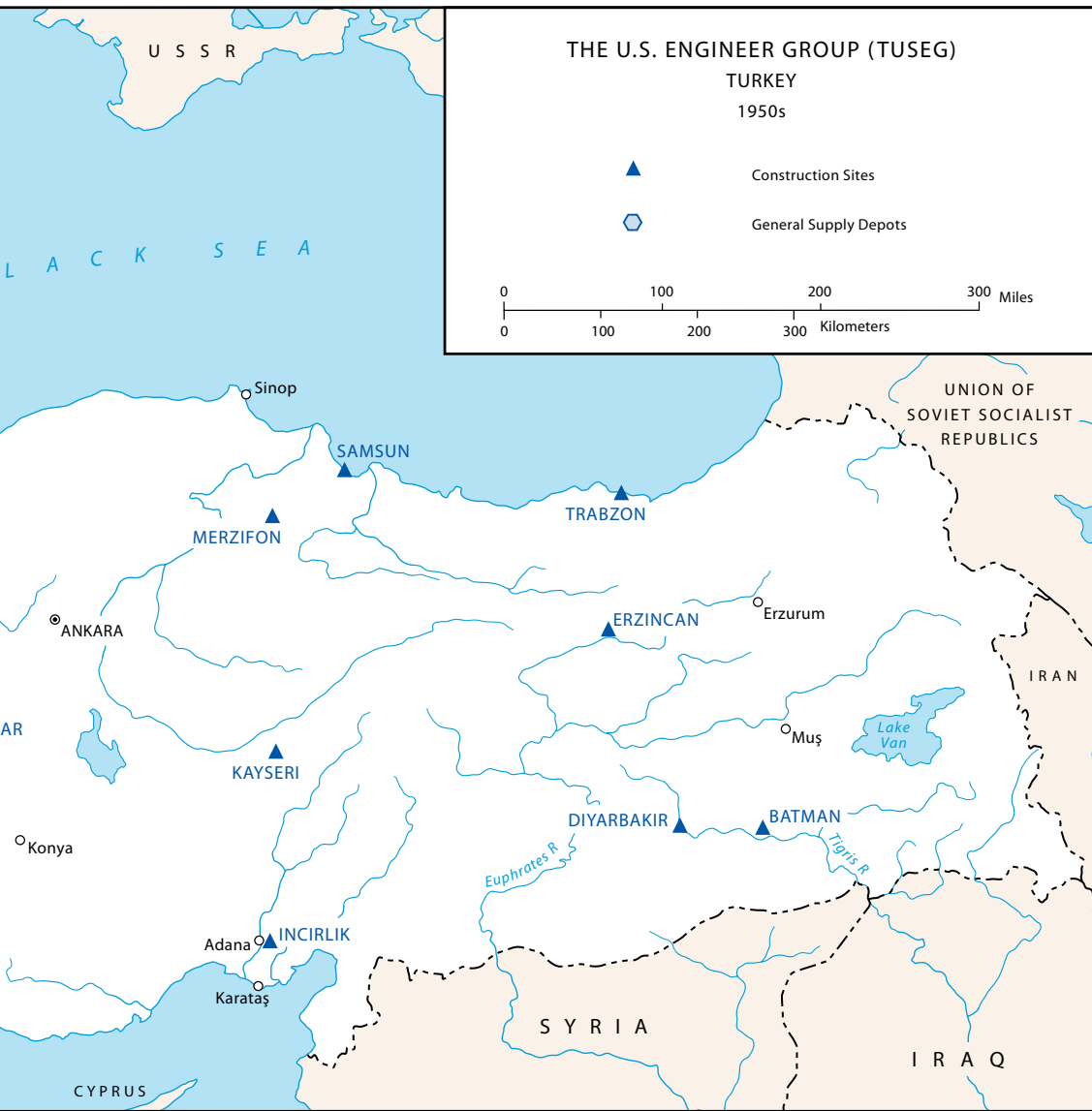


³⁴ TUSEG Construction Synopsis as of 1 Aug 52, pp. 6–7.

³⁵ TUSEG Hist, p. 5.

³⁶ TUSEG Construction Synopsis as of 1 Aug 52, p. 6; McBride, "Brief History," p. 6.

³⁷ McBride, "Brief History," p. 6.



Map 3

impossible. TUSEG had drawn up a budgetary sketch, but it covered only the administrative costs for the organization itself. Because of lack of data, the budget could not reflect payments to the contractor or other payments necessary for an accurate cost estimate. To no avail, Colonel Frye had called on TUSAFG to provide a comprehensive plan for the construction program. The problems of administrative control were compounded because the contractor had started work hurriedly and had

focused on recruiting construction personnel. As a result, the staff lacked sufficient competent personnel to manage property accounting and time checking. Contractor personnel also had bought and issued materials without adequate control. Colonel Frye was aware of the contractor's problems with staff, and he recognized the difficulties in recruiting qualified personnel for work in Turkey.³⁸

In early December 1950, Frye discussed the problems at a conference of division engineers. The chief of engineers, General Pick, could do little more than call for prompt action to get additional contract personnel to Turkey. He placed the problem of aiding Frye and Metcalf-Hamilton-Grove in the hands of Col. Frederick F. Frech, commander of the North Atlantic Division, which had taken over supervision of TUSEG on 1 December.³⁹

Despite the problems, the contractor completed work on the first phases of runway and taxiway rehabilitation at Balikesir in January 1951. Between April and June 1951, crews stripped, graded, and placed a base course on the existing asphalt section of the runway at Diyarbakir and added a drainage system. Over the winter and into the spring of 1951, contractor and TUSEG personnel worked on modifications ordered by TUSAFG. Drawings for modifications at Balikesir began in February 1951 and were completed by September. In March, the Air Force ordered modifications to the specifications for Diyarbakir. The contractor received directives to add ten hardstands, twenty-five housing units, utilities, and additional facilities for 164 officers and 1,237 men. Modifications delayed design completion from mid-March to July, when TUSAFG asked for still more changes. Final approval of the modified design came in August 1951.⁴⁰

In November 1950, comparable work had begun at the air base at Eskisehir with a preliminary survey. Construction began the following summer, but additional changes in TUSAFG priorities and a modification of the proposed location of the runway delayed grading for the runway until April 1952. Construction of Quonset huts and erection of prefabricated hangars advanced simultaneously.⁴¹

Broadening Military Construction Under the U.S. Engineer Group

Late in 1950, it became clear that Congress would approve the Air Force's expanded construction program for Turkey. With this new appropriation, the Air Force planned an entirely new airfield, later known as Incirlik Air Base, near Adana. Specific information about the Adana project had reached TUSEG early in 1951,

³⁸ Memo to Ch of Engrs, 3 Nov 50, sub: Inspection of [TUSEG], and Memo [in Reply], Lt Col Arthur H. Frye Jr., 20 Nov 50, both in Mil Files XII-4-1, OH, HQ USACE.

³⁹ Memo, Col F. F. Frech, 7 Dec 50; MFR, Brig Gen G. J. Nold, 11 Dec 50, sub: Turkey Project (Telephone Call to Colonel Frech); GO no. 17, 29 Nov 50, sub: Change in Jurisdiction of U.S. Engineer Group in Ankara, Turkey; all in Mil Files XII-4-1, OH, HQ USACE.

⁴⁰ Memo, Lt Col William G. Steffey, 20 Jun 51, sub: Narrative Report on Status of Construction, Report Control ENGKM-21 (16 May–15 June 1951), Mil Files XII-33-9, OH, HQ USACE; TUSEG Construction Synopsis as of 1 Aug 52, pp. 2, 6–7; "History of the Mediterranean Division," [Apr 57], box 19, access. no. 77-92-0002, Washington National Records Center (WNRC), Suitland, Md.

⁴¹ Memo, Steffey, 20 Jun 51, p. 5; TUSEG Construction Synopsis as of 1 Aug 52, p. 10.

allowing staff to initiate planning and reconnaissance surveys. On 28 February 1951, the directive for the facilities arrived; TUSEG established an area office at Adana the following week. Based on the information gathered through the advance work, design began for a runway, taxiways, aprons, hardstands, and a drainage system. TUSEG negotiated with Metcalf-Hamilton-Grove for the additional construction and by 1953 had added \$15 million in construction to the original 1950 contract.⁴²

Construction crews set up Quonset huts as a campsite and for temporary use as operations buildings. By June 1951, they had completed twenty-six huts; five more were under construction for use as a hospital, a recreation hall, and living quarters. The contractor continued to build housing, shops, roads, a railroad spur, utilities, and other facilities to support a future contingent of 1,365 airmen. Because of the high priority assigned to work at Adana, Metcalf-Hamilton-Grove diverted a major portion of its personnel, equipment, and effort to rapid construction of the facilities there. Over the summer of 1951, much of the equipment needed for the construction arrived at a port seventy-five miles southeast on the Mediterranean. The contractor completed construction of the concrete runways in May 1952.⁴³

In June 1952, the U.S. Air Force Group added a second new airfield to the construction program. TUSAFG selected a site at Batman after a reconnaissance trip that included representatives of TUSAFG, TUSEG, and the Turkish Air Force. The contractor conducted surveys for runways there in late June. In mid-August, TUSAFG issued a directive for design and construction to include a paved runway, taxiways, parking aprons, and a hydrant system for aviation fuel.⁴⁴

The Army engineers initiated design work in February 1951 for two other sites named in the original directive: Bandirma and Kayseri. At Bandirma, on the southern coast of the Sea of Marmara, the contractor completed laying asphalt on existing runways on 9 June. With paving work at Bandirma completed, the construction crews dismantled the asphalt plant and moved it to Balikesir.⁴⁵

At the Kayseri field, the Air Force suspended work in May 1951 because of poor approach angles for landing and takeoff.⁴⁶ The contractor had built one hangar and paved a small area of apron; but in March 1952, the Air Force canceled the Kayseri project completely. Similarly, at Afyonkarahisar, where design had begun on housing for the Turkish Air Force in January 1951, the Air Force suspended work in May 1951 and then canceled the project in March 1952. One other project, at Erzincan, also dropped out of the construction program. At Merzifon, another of the original sites, design work began in July 1951.⁴⁷

⁴² McBride, "Brief History," p. 10; TUSEG Construction Synopsis as of 1 Aug 52, pp. 9–10; Memo, Steffey, 20 Jun 51, p. 2.

⁴³ *Ibid.*

⁴⁴ TUSEG Construction Synopsis as of 1 Aug 52, p. 12.

⁴⁵ McBride, "Brief History," p. 10; TUSEG Construction Synopsis as of 1 Aug 52, pp. 2–3, 11–12.

⁴⁶ Memo, Steffey, 20 Jun 51, p. 1.

⁴⁷ McBride, "Brief History," p. 10; TUSEG Construction Synopsis as of 1 Aug 52, pp. 2–3, 11–12, 14–15.

Administrative and Procedural Issues in Turkey

The expanding and changing scope of the construction program introduced for Turkey in 1951 exacerbated problems and created complications for TUSEG and Metcalf-Hamilton-Grove. The contractor had to revise personnel and recruitment plans. Turkish suppliers could not meet the new requirements for cement, and Metcalf-Hamilton-Grove had to seek new suppliers and sign new contracts in Europe. The Air Force's added construction demanded more equipment, which the contractor had to procure from sources in the United States. The Turkish government had to purchase additional land, arrange rights of way, and find new sources of aggregate. All these issues complicated the administration of a program that had originated before the outbreak of the Korean War as a peacetime undertaking. By 1951, pressure increased on the staffs of TUSEG and the contractor to speed up progress on the work and to advance the completion dates.⁴⁸

The Korean conflict stimulated construction in the United States and in strategic locations abroad. This made labor, equipment, and materials more expensive and harder to acquire. Competent engineers and managers who might have been available for work in Turkey received attractive opportunities elsewhere. The fate of construction equipment located in Newfoundland illustrates the problem that the pressure of combat in Korea created for procurement. The engineers in Turkey had assurances that they would receive the equipment as work in Newfoundland diminished; but with the outbreak of the Korean conflict, the scope of work in Newfoundland expanded and the equipment stayed there. The contractor in Turkey had to rush orders for similar equipment to manufacturers in the United States. The manufacturers, of course, had a flood of comparable orders from other jobs.⁴⁹

Additionally, communications between personnel in the field and the administrative offices maintained by TUSEG or the contractor in Ankara were virtually impossible. Local mail service was unreliable; telegraph service proved equally unsatisfactory. Placing a telephone call from Ankara to the field could take from one to three days. Telephone calls to the United States were rare because the chances of making a connection were small. Radio equipment might have alleviated the isolation within Turkey, but the Turkish government resisted assigning radio channels to foreign military units. The communications problems increased the general sense of frustration among the staff and put a greater burden of responsibility on the field personnel.⁵⁰

Living conditions in Ankara were stark. The Americans lived on the local economy because no government quarters existed. In general, housing in Turkey offered shelter but little comfort. At construction sites, employees sometimes lived in mud huts that were hot in the summer and cold in the winter. Hotel accommodations in smaller cities were marginal. One contract employee wrote that the first sentence he

⁴⁸ TUSEG Hist, p. 7.

⁴⁹ *Ibid.*, pp. 7–8.

⁵⁰ McBride, "Brief History," pp. 17–18; Memo, Steffey, 20 Jun 51, p. 10.

had spoken completely in Turkish had been “There is a rat in my room!”⁵¹ Americans purchased day-to-day provisions from the local economy, but they depended on the Sears, Roebuck catalog for clothing. The U.S. military provided only a small canteen in Ankara, and other locations had no military support facilities. Water shortages and fuel rationing were common. Whether in spite of these hardships or because of them, the Americans maintained remarkably high morale and developed close relationships among one another.⁵²

The workforce for design and construction in Turkey was small, and the numbers remained relatively constant. (See *Table I.*) To supplement the labor force, Turkish troops occasionally worked on TUSEG projects.⁵³

By the end of the summer of 1952, construction scheduled under the initial program was virtually complete at Balikesir, Bandirma, and Diyarbakir. Construction for the field near Adana was at 75 percent completion, and Eskisehir was over half complete. The Air Force, however, had canceled projects at Kayseri, Erzinca, and Afyonkarahisar; no construction had begun at either Merzifon or Batman.⁵⁴

U.S. aid to Turkey in the early 1950s sought to provide the country with the means to resist a Soviet attack and to manage a holding action against the Red Army should an attack occur. The work managed by U.S. Army engineers through TUSEG supported these strategic objectives. The air bases on which TUSEG worked remained under the authority of the Turkish Air Force; American personnel used them with the permission of the Turkish military and government.⁵⁵ In 1951, to attach Turkey more firmly to the Western security system, NATO members invited Turkey to join the alliance. Turkey accepted; in early 1952, NATO expanded its membership and security perimeter by simultaneously incorporating Turkey and Greece as new members.

In June 1952, Col. Bruno L. Jakaitis succeeded Colonel Frye as TUSEG commander. Work under the 1950–1951 programs neared completion, but Jakaitis received hints that additional work might come from NATO. This created a dilemma for TUSEG and for the contractor: The existing volume of work no longer justified the levels of personnel and equipment on hand. Although there was no commitment for additional work, the Air Force urged that the construction crews and the equipment be retained at TUSEG’s disposal. The issue remained open during 1953. In May 1954, TUSEG became part of the Joint Construction Agency (JCA), headquartered in France, which supervised and managed construction in

⁵¹ John D. Tumpene, *Scotch and Holy Water* (Lafayette, Calif.: St. Giles Press, 1987), p. 3.

⁵² McBride, “Brief History,” pp. 16–17; Interv, Stuart Rochester with Maj Gen (Ret) Daniel A. Raymond and Barbara L. Raymond, 9, 11 Jan 80, p. 29.

⁵³ USTAP [United States Technical Assistance and Productivity Program] Rpt no. 64, 31 Mar 52, sub: The U.S. Engineer Group, Progress Report for March 1952, an. 4; Col Bruno L. Jakaitis, an. 4 to USTAP Rpt no. 67, [Jun 52], sub: TUSEG, Progress Rpt for June 1952, p. 3; both in Mil Files XII-34, OH, HQ USACE. Memo, Steffey, 20 Jun 51, p. 2.

⁵⁴ TUSEG Construction Synopsis as of 1 Aug 52, pp. 14–15; Memo, Steffey, 20 Jun 51, p. 6.

⁵⁵ McBride, “Brief History,” p. 19; Melvyn P. Leffler, “Strategy, Diplomacy, and the Cold War: The United States, Turkey, and NATO, 1945–1952,” *Journal of American History* (March 1985): 807–25.

Table 1—PERSONNEL ENGAGED IN TURKISH AIR-BASE CONSTRUCTION PROGRAM

	15 June 1951	1 March 1952	30 June 1952
The U.S. Engineer Group			
Officers	4	6	5
U.S. nationals	57	57	52
Other	19	25	23
TUSEG Subtotal	80	88	80
Contractor			
U.S. nationals	277	246	176
Other	3	—	—
Indigenous	2,170	2,641	2,242
Contractor Subtotal	2,450	2,887	2,418
Total Employed	2,530	2,975	2,498

Source: Adapted from Memo, Lt Col William G. Steffey, 20 Jun 51, sub: Narrative Report on Status of Construction, Report Control ENGKM-21 (16 May–15 June 1951), p. 2, Mil Files XII-33-9; USTAP [United States Technical Assistance and Productivity Program] Rpt no. 64, 31 Mar 52, sub: The U.S. Engineer Group, Progress Report for March 1952, an. 4, Mil Files XII-34; Col Bruno L. Jakaitis, an. 4 to USTAP Rpt no. 67, [Jun 52], sub: TUSEG, Progress Rpt for June 1952, p. 3, Mil Files XII-34; all in Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Va.

NATO host countries.⁵⁶ Work in Turkey continued as a JCA responsibility under the European Command.

The Middle East District in Libya and Saudi Arabia, 1950–1951

Even before the Korean War, the U.S. defense establishment had formulated plans and taken steps to accelerate the rehabilitation and expansion of existing airfields in Turkey. The outbreak of the Korean conflict created additional imperatives to expand the American military presence overseas. By 1950, the American policy of national security relied heavily on the U.S. Air Force's capacity to discharge atomic bombs on the Soviet Union. Deterrence thus made positioning

⁵⁶ McBride, "Brief History," pp. 1, 5. Memos, Col Bruno L. Jakaitis, 12 Feb 52, sub: Disposal of USAF-MDAP Construction Equipment in Turkey; Col Frank X. Krebs, 15 Aug 52, sub: Disposal of USAF-MDAP Construction Equipment in Turkey; Brig Gen John R. Hardin, 27 Aug 52, sub: Funds for Construction in Turkey; Col William E. Leonhard, 4 Sep 52, sub: Funds for Construction in Turkey; all in Mil Files XII-34, OH, HQ USACE.

U.S. airpower within flight distance of that country critically important. Libya and Saudi Arabia, which offered strategic locations on either side of Egypt and the Suez Canal, became part of the plan to expand the U.S. Air Force overseas. The Corps of Engineers organized the Middle East District to manage U.S. military construction in the region.

In 1950, the U.S. Air Force already had operating bases in both Libya and Saudi Arabia. The base near Tripoli, Libya, built in 1923, had been Italian but was captured by U.S. forces in 1943. (See *Map 4*.) Used by the Army Air Corps until the end of the war, the base was renamed in 1945 after Lt. Richard Wheelus, who had been killed on a training flight earlier that year. When the U.S. military withdrew from the base in June 1947, the British, who held Libya as a UN protectorate, remained. In February 1948, the U.S. Air Force returned, reactivated the base, and rededicated it as Wheelus Air Base.⁵⁷

The American presence at the airfield in Dhahran, Saudi Arabia, also dated back to World War II. (See *Map 5*.) In 1942, the Japanese cut air routes from Hawaii across the Pacific to the China-Burma-India Theater. The United States therefore shifted its supply efforts to a South Atlantic trans-African route through Cairo, Iraq, and Iran to Karachi to distribute materiel throughout the China-Burma-India Theater. Looking to shorten the route, the Army Air Forces recognized the advantages of the kingdom of Saudi Arabia. The United States had few diplomatic or commercial relations with the Saudis; but during 1943, the two nations developed diplomatic contacts and concluded a treaty of friendship. The United States received permission to survey a route across the country. King Abdulaziz ibn Saud, who had unified the tribes of the Arabian Peninsula into Saudi Arabia in the 1920s and 1930s, granted permission to the United States to locate an airfield in the kingdom. The survey showed that the small airfield built by the Arabian-American Oil Company (ARAMCO) near its administrative offices in Dhahran was the best site. A military installation there would save about two hundred air miles over the customary route from Cairo to Karachi. The war ended before the airfield was completed, but the U.S. Army Air Corps retained a presence there. In January 1946, construction to expand the facilities at Dhahran began; a month later, the Air Corps activated a military installation at the site. By May, air traffic between Cairo, Dhahran, and other sites in the Middle East had begun. In June 1946, the U.S. Air Force's Air Transport Command (ATC) flew forty-four flights out of Dhahran and Trans World Airlines another twenty flights.⁵⁸

⁵⁷ R. L. Swetzer, *Wheelus Field: The Story of the U.S. Air Force in Libya, The Early Days, 1944–1952* (Ramstein, Germany: Historical Division, Office of Information, U.S. Air Forces in Europe, 1965), pp. 1–12; George M. Haddad, *Revolutions and Military Rule in the Middle East: The Arab States, Part II: Egypt, The Sudan, Yemen and Libya* (New York: Robert Speller & Sons Publishers Inc., 1973), p. 311.

⁵⁸ Ofc of History, U.S. Air Force, "Historical Data Pertaining to Dhahran Air Base, Saudi Arabia," n.d., R&D File no. 2477; HQ, Strategic Air Command, Intel Brief no. 28, 1 Dec 47, sub: Dhahran, Saudi Arabia; both at Office of Air Force History Library, Bolling Air Force Base, Washington, D.C.

Between 1946 and 1950, ATC and United States Air Forces in Europe (USAFE) alternately commanded units stationed at the Dhahran airfield. Relations between the United States and Saudi Arabia cooled during these years because the Truman administration supported the creation of the state of Israel in Palestinian territory. Nonetheless, in June 1949, the governments of the United States and Saudi Arabia concluded an agreement that defined limited use of the Dhahran airfield by the U.S. Air Force. The field remained under Saudi military command although American aircraft booked 4,992 takeoffs and landings there in 1949, over half of which were by C-47s and C-54s.⁵⁹

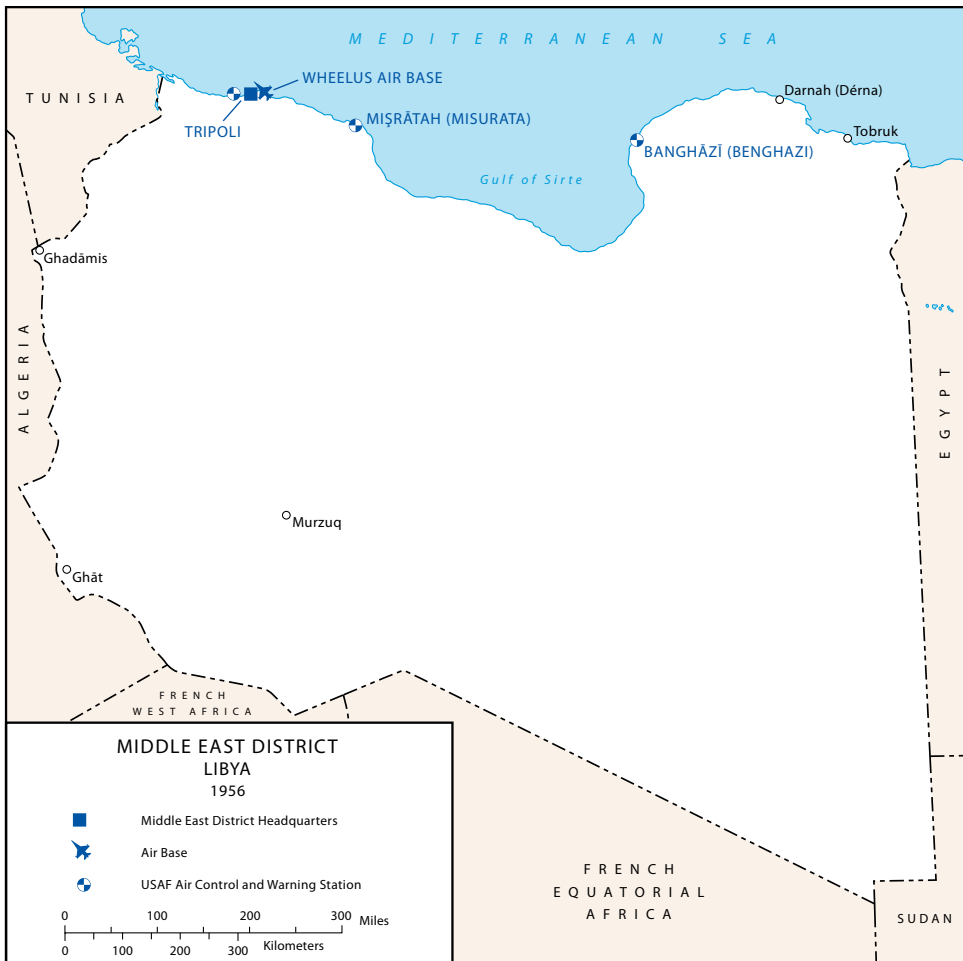
When the Air Force apprised the chief of engineers, General Pick, of its plans for Libya and Saudi Arabia, Pick designated Col. Paul D. Troxler to establish the Middle East District. Troxler had directed construction during the war at the field that became Wheelus Air Base and between 1947 and 1949 had served as deputy district engineer in Greece. On 12 September 1950, Pick ordered Troxler to report to the assistant chief of military construction to receive a briefing on the proposed mission in Libya and Saudi Arabia. The British Foreign Office quickly approved the American request for six hundred acres of land adjacent to Wheelus field, giving the U.S. Air Force a base in Libya.⁶⁰

Preliminary Planning and Mobilization

Between September and November 1950, Colonel Troxler identified design and construction contractors to execute the overseas construction program. For preliminary design work, he chose Knappen-Tippetts-Abbott Engineering Company (KTA) of New York. On 27 November, he led a party on a three-week trip to Wheelus and Dhahran to prepare an engineer reconnaissance report. The advance party included Tippetts and another engineer from KTA; the prospective area engineer for Dhahran, Col. T. F. Airis; the proposed supply officer for the Middle East District; and Troxler. The initial outline of projects estimated \$12.22 million of work at Wheelus for the Military Air Transport Service (MATS, the Air Force's successor to the Air Transport Command) in fiscal year (FY) 1951 and another \$48.86 million for FY 1952. The estimate for Dhahran for the MATS and the Strategic Air Command was \$10.5 million for FY 1951 and \$30.1 million for FY

⁵⁹ Thomas S. Snyder and Shelia A. Shaw, *United States Air Forces in Europe, Historical Highlights, 1942–1992* (Ramstein, Germany: Headquarters, U.S. Air Forces in Europe, 1993), pp. 34, 37; Ofc of Info Svcs, HQ, 2d Air Div, United States Air Forces in Europe (USAFE), "Saudi Arabia: Information Pamphlet," 1 Aug 59, p. 6, box 15, access. no. 77-92-0001, WNRC (hereafter cited as Saudi Arabia Info Pam). On the frequency of use by American aircraft in 1949, see Col Paul D. Troxler, Rpt on Test Result Data for Airfield Pavement Eval, Dhahran Airfield, Dhahran, Saudi Arabia, Jan 52, no. 77-84-2400, box 61, Transatlantic Division–Records Holding Area (TAD-RHA), Winchester, Va.

⁶⁰ "Historical Summary, Middle East District, Corps of Engineers, U.S. Army (Period 25 June 1950–8 September 1951)," p. 1 (hereafter cited as Middle East Dist Hist Sum, Jun 50–Sep 51), in OCE, Hist Sum, 1950–1951; Swetzer, *Wheelus Field*, p. 5; Memo, Col Fred O. Easley Jr., 10 Mar 51, sub: Conference on Land Requirements, Wheelus Field, Mil Files XII-30-3, OH, HQ USACE. The Middle East District was officially activated on 1 January 1951.



Map 4

1952. The program also anticipated work at several other sites, mainly in Libya; but those projects had a lower priority.⁶¹

The day after Christmas 1950, Colonel Troxler received authorization from the chief of engineers to issue a letter contract to KTA for a more complete design at Wheelus Air Base. Similarly, on 3 January 1951, he received approval to issue a contract to Fluor Corporation Ltd. of Los Angeles, California, for construction of facilities at Dhahran. Fluor held contracts with the Arab American Oil Company

⁶¹ Middle East Dist Hist Sum, Jun 50–Sep 51, pp. 1–2.



Map 5

for planning and construction, so it already had a presence in Saudi Arabia; the Dhahran airfield was adjacent to the ARAMCO oilfields.⁶²

The Military Air Transport Service had signed a contract earlier with KTA to prepare a master plan for Wheelus and Dhahran, but the master plan proved impossible to formulate. Air Force instructions were to build facilities with a ten-year life expectancy, but the Air Force had no fixed set of requirements in January 1951. Over the next year, it changed requirements for the two fields frequently and radically. The changes made it extremely difficult, slow, and costly for KTA—or anyone—to follow through on many of the specific line item tasks.⁶³

⁶² *Ibid.*, pp. 4–5; “History of the Mediterranean Division,” [ca. 1957], pp. 29–30, box 19, access. no. 77-92-0002, WNRC.

⁶³ Middle East Dist Hist Sum, Jun 50–Sep 51, pp. 2, 4–5, 14–15.

On 4 January 1951, Troxler and KTA personnel traveled to Andrews Air Force Base near Washington, D.C., to meet with representatives from USAF headquarters, from MATS, and from the Office of the Chief of Engineers to review the available information and the program in general. The preliminary data from the reconnaissance trip and the early stipulations of the program provided a general framework for construction at Wheelus Air Base. KTA's architect-engineers had begun design on six projects: a warehouse, the water supply, family housing, a power system, night lighting, and a global communications installation. They had not yet received the directive for the project to which the Air Force assigned its top priority—widening, strengthening, lengthening the runway to measure 11,000 by 200 feet, and laying the supporting taxiways.⁶⁴

After the January meeting, KTA's architect-engineers continued to prepare sketches, layout plans, and cost estimates for these seven projects. Eventually, a 150-bed hospital also became a part of the facilities at Wheelus. With distressing frequency the Air Force changed designs, rejected KTA's proposed designs, or introduced new criteria that the contractor had to incorporate. Between 18 January and August 1951, Troxler recorded thirty-seven changes for Wheelus. In roughly the same period, plans for facilities at Dhahran underwent thirty-one changes.⁶⁵

Mindful of the Air Force's insistence on expediency, Troxler planned the initial work around certain assumptions. First, the construction contractors would have to ship all equipment to the job sites; they could not count on finding equipment available in the area. Second, the contractors would be able to find unskilled labor in the country but skilled labor had to come from the United States. From the preliminary survey trip, Troxler assumed that good building materials would be available locally or from European markets. Finally, using data from the designers and the initial survey, Troxler projected three months to assemble the equipment and personnel and nine months to complete the initial phase of construction.⁶⁶

Throughout the winter and early spring, Troxler worked with the Corps of Engineers' North Atlantic Division and with the contractors to prepare for the construction programs in Libya and Saudi Arabia. On 2 February 1951, he issued a letter contract for construction in Libya to the joint venture of Crow-Steers-Shepherd (CSS), comprised of William L. Crow Construction Company and J. Rich Steers Inc., both of New York, and Shepherd Construction Company Inc. of Atlanta, Georgia.

⁶⁴ For this and the following paragraph, see Knappen-Tippetts-Abbott Engineering Co. (KTA), Prelim Rpt, 15 Jan 51, sub: Improvement of Wheelus Air Force Base, Tripoli, Warehouse, box 56, 77-84-2400, TAD-RHA; "Chronological History, Middle East District (Through 30 April 1953)," p. 3, box 51-83-8379, Richard T. Farrell Papers, OH, HQ USACE; "Air Force Directive to the Chief of Engineers Concerning the Work on the Runway at Wheelus," 8 Jan 51, box 51-83-8379, OH, HQ USACE.

⁶⁵ Middle East Dist Hist Sum, Jun 50–Sep 51, pp. 5–5e; Memo, Lt Col Robert M. Tarbox, 6 Mar 51, sub: Wheelus Field—Additional Work, Mil Files XII-30, OH, HQ USACE.

⁶⁶ KTA, Prelim Rpt, 15 Jan 51; "Chronological History, Middle East District (Through 30 April 1953)."

The letter contract, to be converted to a definitive cost-plus-fixed-fee contract within ninety days, designated \$1.25 million in construction work.⁶⁷

Construction in Libya

In mid-February 1951, four months after preparatory work had begun, the Air Force sent to the chief of engineers preliminary specifications for the work on the runway at Wheelus Air Base. The Air Force instructed the designers that “any siting data and/or functional and operational characteristics needed to base design which are not furnished in these instructions will be obtained from the Installation Commander.” So great was the premium on speed that the architect-engineer firm had barely two weeks to work on the design phase before construction began. On 1 March, Crow-Steers-Shepherd started work to extend the runway by 2,000 feet using construction equipment borrowed from the Air Force.⁶⁸ The first construction equipment for CSS, 770 tons, arrived from the United States at the port of Tripoli on 29 March with government-owned camp equipment and construction materials. A ship arrived on 4 April from Yugoslavia laden with 50,000 bags (2,300 metric tons) of cement. Another ship reached Tripoli on 11 May with 2,000 tons of heavy equipment and general cargo.⁶⁹

As construction began in Libya, Troxler and his district staff in New York City operated out of temporary offices borrowed from the North Atlantic Division. Troxler had to coax the Air Force into providing the money needed to keep construction on schedule. In early April, after his requests for an immediate transfer of \$182,000 had produced only \$100,000 for the acquisition of land, Troxler asked for help from the chief of engineers. Unless the Air Force took immediate action, Troxler pointed out, a lack of funds would delay construction seriously. The money continued to come, but haltingly; the Air Force never managed to provide a steady flow of funds for the program.⁷⁰

The district headquarters opened in Libya on 4 May 1951 at Porta Benito, where British military forces provided space. On 15 May, General Pick issued the order making Troxler’s appointment as district engineer permanent.⁷¹

By late June, the Libyan project faced another complication. Cargo ships, whose arrival had been infrequent during the early months of construction, began

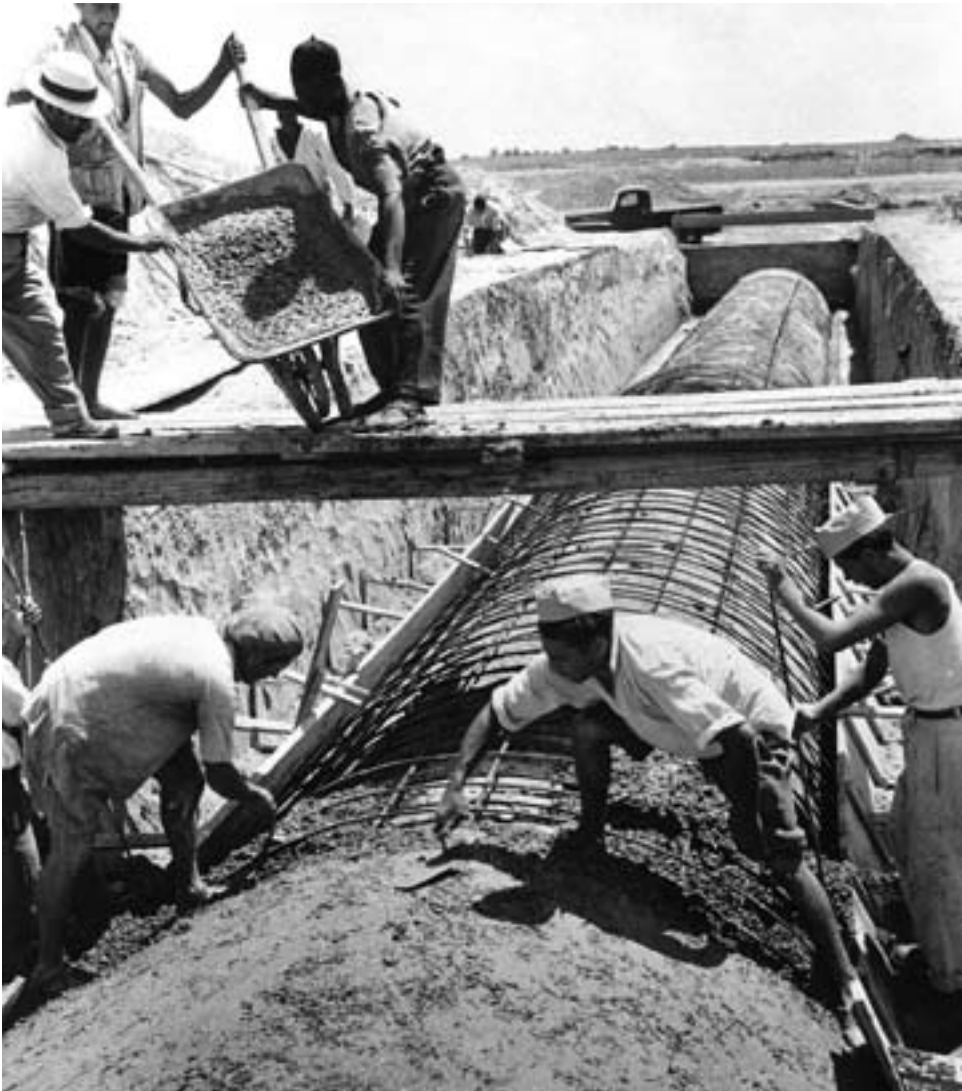
⁶⁷ Memo, Col William C. Ready, 12 Feb 52, sub: Authority to Issue a Letter Contract, Mil Files XII-30, OH, HQ USACE; “Chronological History, Middle East District (Through 30 April 1953).”

⁶⁸ Quotation from Memo, 13 Feb 51, sub: Authorization—Design and Construction of Airfield Pavement and Parking Apron, Wheelus Field, Tripoli, Libya, unmarked box, Karl C. Dod Papers, OH, HQ USACE; Middle East Dist Hist Sum, Jun 50–Sep 51, p. 9.

⁶⁹ “Chronological History, Middle East District (Through 30 April 1953),” pp. 47–48b-2.

⁷⁰ Memo, Col Paul D. Troxler, 11 Apr 51, sub: Procurement of Real Estate, Wheelus Field, Tripoli, Libya, Mil Files XII-30-3, OH, HQ USACE. For the recurrent delays, see “Chronological History, Middle East District (Through 30 April 1953),” pp. 3a, 3d, 48a–48b-1a; Memo, OCE to Chief of Staff (CS), United States Air Force (USAF), 7 Jan 52, sub: 1952 Funds for Construction at Wheelus Air Force Base, Mil Files XII-30, OH, HQ USACE.

⁷¹ Middle East Dist Hist Sum, Jun 50–Sep 51, p. 9; “Chronological History, Middle East District (Through 30 April 1953),” p. 1.



Concrete was poured over steel reinforcement to construct the arch for a drainage culvert at Wheelus Air Base.

arriving with a frequency that overtaxed the limited harbor facilities at Tripoli. The shipments included asphalt, dynamite, equipment, general cargo, and much-needed vehicles. At Troxler's request, the U.S. Army Transportation Corps sent an officer to survey the port and its operations. Based on the officer's report, a detachment of Transportation Corps specialists arrived in Tripoli to aid operations.⁷²

⁷² Ibid.



For the communications center, under construction at Wheelus Air Base in August 1951, native limestone blocks were placed to the first bond beam level and reinforced steel was used for a section of the bond beam.

As Troxler had predicted, assembling the labor force presented a problem. Although local workers cost very little in wages—the equivalent of \$0.55 to \$1.40 a day—they lacked the skills needed to execute the construction. As a result, the project imported skilled laborers and craftsmen from other countries, principally from Italy and Malta. The British administration, acting under United Nations authority as a caretaker government while the Libyans organized self-rule, raised no objections to non-Libyan labor. As of 1 September 1951, with 41 percent of the construction programmed for 1951 at Wheelus field completed, the project employed 2,162 people.⁷³ (See Table 2.)

Construction in Saudi Arabia

The Middle East District encountered numerous problems in organizing the military construction at Dhahran. First, the diplomatic situation inhibited the commencement of work. Because the construction represented an expansion of American privileges beyond the 1949 agreement with Saudi Arabia, the parties needed a new agreement. The U.S. ambassador to Saudi Arabia conducted the negotiations, assisted by the commanding general of the U.S. forces assigned to the Dhahran Air Transport Station. The ambassador and the State Department

⁷³ Middle East Dist Hist Sum, Jun 50–Sep 51, p. 10.

feared that any influx of American military personnel, construction personnel, or equipment while the negotiations proceeded would offend the Saudis and complicate the bargaining, so they urged that the advance party remain small.⁷⁴

Another factor dictated a small advance party: Dhahran had very few facilities and could offer little support to an incoming construction force. With these factors in mind, Colonel Troxler selected only three people to gather data in the field. On 30 May, Saudi Arabia and the United States reached a level of agreement sufficient to allow the ambassador to approve a more visible operation. With clearance from the U.S. commanding general at Dhahran, Troxler authorized construction of additional billets for district and contractor personnel and sent people to Saudi Arabia as the billets became available. On 18 June 1951, the two governments signed an agreement renewing and extending usage rights of the Air Force at the Dhahran airfield.⁷⁵

To speed construction of facilities, the district shipped to Dhahran about 320 tons of Quonset huts, knockdown warehouses, and other materials for a construction camp, labeling the shipments as Air Force supplies. The district personnel also spent considerable time securing air-conditioning equipment, a necessity in almost all structures because temperatures of 130°F were common at Dhahran. As a result of the early shipment and procurement of equipment and supplies, construction crews had the camp about 75 percent complete by September 1951. As late as October, however, the lack of air-conditioning units for quarters made recruitment of construction personnel more difficult.⁷⁶ (See Table 3.) Despite the austere conditions, recruitment succeeded in staffing the project.

Construction on the main facilities for Dhahran had barely gotten underway by September 1951. Fluor had begun two permanent barracks for the Air Force and had initiated work on a parking apron adjacent to the runway. Even this modest progress depended on Fluor's established relationship with ARAMCO; the contractor rented a good portion of its equipment from the oil company.⁷⁷

A number of problems complicated development and retention of an effective labor force in Saudi Arabia. Local workers could do rough masonry and carpentry, but practically no skilled native craftsmen worked in the area of Dhahran. ARAMCO had trained a small number of Saudis as mechanics and equipment operators but needed all of them for its own program. The Muslim workers' productivity dropped significantly during Ramadan, the month of religious fasting, and during the period of recovery after the fasting. The severe summer temperatures made prolonged physical exertion outdoors a serious health risk, thus affecting productivity for another six months of the year. The civilians working with the Corps of Engineers

⁷⁴ *Ibid.*, p. 11.

⁷⁵ *Ibid.*, pp. 11–12; Saudi Arabia Info Pam, 1 Aug 59, foreword, pp. 6–7.

⁷⁶ Middle East Dist Hist Sum, Jun 50–Sep 51, p. 12. See also “Engineer Division Mediterranean: Information Booklet,” 15 Aug 59, p. 7, unmarked box, OH, HQ USACE (hereafter cited as Engr Div Mediterranean Info Booklet: 1959); Karl F. Bobzien, Rpt of Inspection (OCE) Dhahran Area, Middle East District, 15 Oct 51, p. 2, unmarked box, OH, HQ USACE.

⁷⁷ Middle East Dist Hist Sum, Jun 50–Sep 51, pp. 12–13.



Contractors used native limestone in the construction of family housing at Wheelus Air Base, September 1951.

and the contractor came under the Islamic Sharie Court and local tribal law, the severity of which inhibited recruitment of American civilians.⁷⁸

As with the program for Wheelus, construction at Dhahran suffered from frequent changes requested by the Air Force. The Air Force redefined the mission of the Dhahran base three times in 1951. The changes in the projected population of the base and in the facilities required to execute the changing missions forced substantial redesigns, and the estimated costs jumped from \$9.4 million to \$19.1 million.⁷⁹

Administrative Issues at Wheelus and at Dhahran

Certain practices and procedures characterized the Middle East District's supervision of construction at both Wheelus and Dhahran. The prime contractor on both jobs used local subcontractors, supervised all construction activities, and provided a substantial portion of the equipment and all imported materials such as plumbing, lighting fixtures, and mill work. Throughout the district, contractors used

⁷⁸ Ibid., pp. 13–14.

⁷⁹ Ibid.

Table 2—PERSONNEL EMPLOYED IN WHEELUS AIR BASE CONSTRUCTION PROGRAM, 1 SEPTEMBER 1951

Middle East District Office U.S. personnel	44
Knappen-Tippetts-Abbott Engineering Company	23
Crow-Steers-Shepherd	204
Native/local nationals	1,875
Other foreign nationals	16
Total	2,162

Source: Adapted from Office of the Chief of Engineers, "Historical Summary, 1950–1951," p. 10, Gen Files 2-1, Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Va.

asphaltic concrete, often laid on macadam, for paving. The prime contractor's own labor force had to install the imported materials and lay all the paving.⁸⁰

In Libya, acquiring land for U.S. military facilities represented a delicate problem. Arab attitudes toward land and tenacity in holding onto it made long-term leases more palatable than outright purchases. The need to resettle tenants required land acquisition away from the bases and provision of huts and water wells for the resettled people. Complicating matters further, many Muslims viewed Americans and Englishmen with skepticism and even distrust, especially because the U.S. and U.K. governments supported the new state of Israel. By contrast, relations between American and the local British elements of the caretaker government established as a result of the UN trusteeship were far better. The British cooperated with Air Force personnel to acquire the land. In Saudi Arabia, although the same Muslim mistrust of Westerners existed, treaty provisions covering the acquisition of desert land eased the difficulties.⁸¹

Changes in the requirements defined by the Air Force, the using service, hindered construction programs in both Libya and Saudi Arabia. A part of the difficulty derived from internal conflicts within the Air Force. Five separate—at times competing—Air Force agencies had direct interests in the construction supervised by the Middle East District: the Military Air Transport Service, the Strategic Air Command, the Airways and Air Communications Service (AACS), U.S. Air Forces in Europe, and USAF headquarters in Washington. The multiple interests among the various echelons of command delayed and confused the coordination of requirements for construction. The attempt to develop master plans simultaneously with the progress of construction added to the confusion. Only in late December 1951, nearly a year after work on

⁸⁰ Ibid.

⁸¹ Ibid., p. 16.

Table 3—PERSONNEL EMPLOYED IN CONSTRUCTION
PROGRAM AT DHAHRAN, SEPTEMBER 1951

Middle East District (1 military, 11 civilians)	12
Fluor Corporation (Americans)	66
Local contractor personnel	533
Third-country nationals	21
Total	632

Source: Adapted from Office of the Chief of Engineers, "Historical Summary, 1950–1951," p. 12, Gen Files 2-1, Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Va.

Wheelus had begun, did the design contractor, Knappen-Tippetts-Abbett, receive a copy of an approved, revised master plan.⁸²

Change orders disrupted the coherent execution of the construction program. When the Air Force revised the layout of a taxiway at Wheelus, running it through storage sheds and shops used by the contractor, the Middle East District staff had to arrange additional space to accommodate the displaced contractor. Fortunately, the British could provide a barracks that they were vacating; but the taxiway construction had to wait until the British completed their new quarters. Such situations wasted effort, added to costs, and created a sense of frustration among the people trying to respond to the Air Force's pressure for quick results.⁸³

Similarly, the Air Force's inability to provide a continuous and dependable flow of funding led to additional costs, confusion, and demoralization. At one point, Colonel Troxler asked Crow-Steers-Shepherd to prepare new working estimates for all projects in the 1951 construction program in Libya. Troxler planned to use the new estimates to revise the monthly reports on construction progress and cost summary that tracked the work. CSS calculated their estimates on two sets of assumptions. First, they applied all overhead and indirect costs exclusively to the 1951 program in Libya in the event that they did not receive 1952 funds. Alternatively, they divided the overhead and indirect costs between the 1951 and 1952 programs. Given the sporadic flow of funds from the Air Force, the two calculations seemed prudent; but preparing two estimates compounded administrative costs. On the basis of the revised cost estimates, Troxler sent a request on 6 September 1951 to the chief of engineers appealing once again for help to secure outstanding funds from the Air Force. To cover existing deficiencies of funds, Troxler asked for \$3.5 million. He requested a minimum of at least \$1.3 million so that procurement could proceed

⁸² *Ibid.*, pp. 15–16.

⁸³ "Chronological History, Middle East District (Through 30 April 1953)," pp. 3f, 11c; Middle East Dist Hist Sum, Jun 50–Sep 51, pp. 15–16.

without further delay. In November, Troxler had to advance \$45,000 from the district's own budget to the Wheelus project to avoid halting the procurement of land and idling men and equipment.⁸⁴

Procuring construction materials proved very difficult. All steel items, particularly if they had to be fabricated, required lead times of nine to twelve months. Specialized building materials and electrical materials such as generators and cables required the same lead time. All items had to be processed through an American port, and then the ocean voyage took three to six weeks. Delays increased when plans changed, the mission underwent revision, or modifications occurred. The frequency of such changes made ordering all the more difficult in a market for construction goods made tight by the economic boom induced by the Korean War.⁸⁵

Recruiting qualified civilian personnel proved challenging in the face of the increased tempo of military construction and civilian production in the early 1950s. The Middle East District faced an acute shortage of qualified personnel for project design, for construction work, and for administrative tasks, especially those associated with CPFF contracts. The shortages of personnel increased the burden and the range of the responsibilities of personnel from Corps of Engineers districts.⁸⁶

CPFF contracts characterized the military construction throughout the Mediterranean region in the early 1950s. The lack of specific plans from which to derive firm estimates, coupled with the imperative to begin construction quickly and deliver projects early, made CPFF contracts almost mandatory. For supervisory personnel, these contracts imposed a more burdensome system of checks and controls to govern expenditures and monitor property than did lump-sum or unit-price contracts. The costs of managing CPFF contracts overseas were far higher than comparable costs in the United States.⁸⁷

The necessity of simultaneously conducting the normally sequential phases of mobilization, planning, and initiation of construction also brought administrative complications. To permit the district engineer and his staff to supervise a CPFF contract properly, the contractor ought to have his staff assembled on site before the arrival of materials or the start of construction. That staff ought to include accountants, timekeepers, auditors, cost-management and clerical personnel, and warehouse personnel to receive, register, and store government-furnished equipment. District staffs that discharge parallel functions should be in place in the field at the same time. Such timely staffing did not happen in the Mediterranean basin in the early 1950s—not in the Middle East District, not in Turkey, not in any other Corps element supervising military construction in the area. The district engineer and the prime contractor both operated with the overriding concern to begin construction as quickly as possible. As a result, construction began as soon as partial plans became available. Administrative staff came later. Government inspectors who later identified administrative deficiencies and leveled criticisms against contractors and

⁸⁴ "Chronological History, Middle East District (Through 30 April 1953)," pp. 3a, 3d, 3f.

⁸⁵ Middle East Dist Hist Sum, Jun 50–Sep 51, pp. 16–17.

⁸⁶ *Ibid.*, p. 17.

⁸⁷ *Ibid.*, pp. 17–18.

the personnel of the Corps of Engineers often ignored the exigencies of the situation in which work had begun.⁸⁸

Colonel Troxler recognized the difficulties of mounting an appropriate administrative structure in an emergency situation, and he offered OCE several suggestions to improve the Corps' ability to respond effectively. He urged the formation of a permanent group of experienced American civil service personnel under the jurisdiction of the chief of engineers. The group would include engineers; construction specialists; auditors; and supply, administrative, and legal personnel. These civilian specialists would have the talent and experience to put a project or program in operation in an emergency or until recruitment of a more permanent staff, and all would be subject to tours of duty overseas. From this group the Corps could draw the nucleus of trained personnel necessary to establish an overseas engineer district.⁸⁹

Troxler also urged that the government try to encourage additional American construction and engineering firms to take on overseas construction. He pointed out that since only a few American firms bid on overseas construction in normal times, these companies were likely to become overextended in an emergency. Troxler contended that because the United States' role in world politics had expanded, the country required an ever larger segment of its construction industry to have experience in overseas work, as well as the capability to handle the special problems such work imposed.⁹⁰

Colonel Troxler also proposed that district engineers be given greater authority to shift funds between line items in the construction program so funds that became available through savings on one element of the work could be applied immediately to some other element where deficiencies had arisen. Finally, he proposed simplification of "the present cumbersome and expensive procedures governing accountability of government property for overseas districts."⁹¹

Troxler raised these suggestions just before the North Atlantic Division sent an inspection team to Tripoli and Dhahran in October 1951 to review the state of construction and administration in the Middle East District. The inspection highlighted many of the problems that Troxler had catalogued in his own reports to OCE.⁹² It contained no surprises, but it did pinpoint certain areas for improvement. District and contractor personnel worked quickly to correct problems. In mid-December, the U.S. Army Audit Agency conducted its own audit of the district's operations and came away satisfied. The district and the contractor prepared new cost estimates based on six months' experience. They anticipated rising costs because of predicted higher wages, increasing material costs, and local inflation due to the pressure of the construction program for 1952. They also anticipated the need to

⁸⁸ *Ibid.*, p. 18; "Chronological History, Middle East District (Through 30 April 1953)," p. 48b-1.

⁸⁹ Middle East Dist Hist Sum, Jun 50–Sep 51, p. 19.

⁹⁰ *Ibid.*, p. 19.

⁹¹ *Ibid.*, pp. 19–20.

⁹² See Rpt of Inspection (OCE) Dhahran Area, Middle East District, 15 Oct 51. The responses from the area engineer and the district engineer are attached to the inspection report.

import skilled and semiskilled labor from Europe at higher costs as the local labor pool neared depletion. December brought the welcome assurance that the district would receive the \$3 million that Troxler had requested in September.⁹³

The Middle East District's situation could hardly be described as normal, but at least the construction effort at Wheelus and, to a lesser extent at Dhahran, were beginning to settle down. Quite the opposite atmosphere characterized the work in Morocco, the other area where U.S. Army engineers launched a program of military construction in the Mediterranean basin during 1950–1951.

⁹³ "Chronological History, Middle East District (Through 30 April 1953)," pp. 48b-2, 48b-4, 3g, 3h.

2

THE MOROCCAN AIR-BASE PROGRAM 1950–1954

By 1950, the Cold War dominated the formulation of American foreign policy. U.S. policymakers interpreted the actions of Soviet leaders as threats to the very existence of the open, liberal, democratic, and capitalistic system of values on which Western freedoms rested. The expansion of air bases in Turkey, Libya, and Saudi Arabia translated this conviction into military strategy. French Morocco hosted the most ambitious effort to position the U.S. Air Force Strategic Air Command (SAC) within striking distance of the Soviet Union.

About the size of Virginia, the Carolinas, and Georgia combined, Morocco lies in northwest Africa with coasts on both the Atlantic Ocean and the Mediterranean Sea. From Morocco, the Strategic Air Command could send its bombers directly to targets in European Russia, including Moscow, the Ukraine, the Caucasus oilfields, and the Donetz-Dnieper industrial region. Farther from the Soviet Union than Turkey, bases in Morocco put American aircraft out of reach of Soviet armed forces given America's air superiority and the Soviet Air Force's limits.¹

Port Lyautey (now Kenitra) and Casablanca, sixty-five miles farther south on Morocco's Atlantic coast, both had well-developed harbor facilities capable of handling the influx of men and materiel that a buildup of American bases would entail. Between the two cities lies Rabat, important as an administrative center since 1912 when the French formally established their protectorate over the country.

In addition to the benefits of geography, Morocco offered political advantages. By the late 1940s, the United States and France were deeply engaged in diplomatic and military discussions. The talks aimed to strengthen the North Atlantic Alliance and to create a credible military defense for Western Europe through NATO. The North Atlantic Treaty had come into effect in August 1949, and President Truman had signed the Mutual Defense Assistance Act in October. Throughout the winter of 1949 and into 1950, the United States and France held diplomatic negotiations to create a line of communications and supply from France's Atlantic seaports to Germany's western border. The moment the two governments signed a Line of Communications Agreement on 6 November 1950, U.S. forces started to pour into

¹ On Morocco's strategic position, see James P. O'Donnell, "What's Behind the Air-Base Scandals?" *Saturday Evening Post*, 28 June 1952, pp. 18–19, and "Morocco: American Invasion," *Time* (31 March 1952): 32. Gerald M. Adams, *A History of U.S. Strategic Air Bases in Morocco, 1951–1963* (Omaha, Nebr.: Moroccan Reunion Association, 1992), pp. xiii–xviii.

France to begin constructing the necessary installations. Within two years, U.S. troop strength in France and Germany would nearly triple to over two hundred fifty thousand.² The establishment of air bases in Morocco and the augmentation of U.S. forces in Europe constituted complementary elements in the American policy to contain the Soviet Union.

Planning for Moroccan Bases

In 1948, when Western Europe faced the challenge of the Soviet blockade of Berlin, the U.S. Air Force began to think of returning to Morocco to position itself closer to the Soviet Union.³ USAF headquarters in Washington even sent a preliminary survey team to French Morocco in January 1950 to reconnoiter possible air bases. When North Korea attacked South Korea, five months later, the Air Force pushed the idea of bases in Morocco more vigorously. Air Force headquarters estimated that it would need five large airfields and a depot to support SAC operations in Morocco as a deterrent to the Soviet Union.⁴

In August 1950, USAF headquarters informed the chief of engineers, General Pick, that it anticipated a large and urgent construction program in Morocco. This was the first mention to the Army engineers of the major construction plans for North Africa. Pick selected Col. George T. Derby to assist the Air Force with its planning for the construction program.⁵ A West Point graduate, Derby had spent World War II as an engineer officer in the Pacific. Since 1946, he had commanded the Norfolk District for the Corps of Engineers.⁶

In September 1950, USAF headquarters selected a reconnaissance team to assess the situation in Morocco. Before the team arrived in North Africa, Congress appropriated \$22.8 million for a Moroccan construction program. Air Force Col. Stanley T. Wray led the reconnaissance party, which traveled first to United States Air Forces in Europe (USAFE) headquarters in Wiesbaden and then, with French

² This development is covered in Robert P. Grathwol and Donita M. Moorhus, *Building for Peace: U.S. Army Engineers in Europe, 1945–1991* (Washington, D.C.: U.S. Army Center of Military History, U.S. Army Corps of Engineers, 2005), pp. 86–93, 110–14, 121. See also Brig Gen David H. Tulley, “The Military Construction Program,” *Military Engineer* (1954): 403–08, esp. p. 405.

³ U.S. Congress, House, Subcommittee on Military Public Works of the Committee on Appropriations (John J. Riley, Chairman), *Moroccan Air Base Construction*, 82d Cong., 2d sess., 1952, p. 3 (hereafter cited as Riley Comm Rpt, Moroccan Air Bases). The committee also published testimony given during its hearings: U.S. Congress, House, *Investigation of Military Public Works, Part 4, Moroccan Air Base Construction, Hearings Before a Subcommittee of the Committee on Appropriations*, 82d Cong., 2d sess., 1952 (hereafter cited as Riley Comm Hearings). See also O’Donnell, “What’s Behind the Air-Base Scandals,” pp. 18–19.

⁴ Riley Comm Rpt, Moroccan Air Bases, p. 3.

⁵ “The Moroccan Story” [mid-1953], p. 1, Mil Files XII-29-7, Office of History (OH), HQ, United States Army Corps of Engineers (USACE), Alexandria, Va.; Riley Comm Rpt, Moroccan Air Bases, p. 3; Interv, Herbert M. Hart with Col (Ret) George T. Derby, 19, 20 Dec 84, pp. 1–2, 81–82.

⁶ Interv, Hart with Derby, 19, 20 Dec 84, pp. 1–2, 81–82; George T. Derby, “Memo on Growing Pains of East Atlantic District,” 9 May 51, in Mil Histories (vol. 1 of 2, Jan–May 51), box 51-83-8377, Richard T. Farrell Papers, OH, HQ USACE.

diplomatic clearance, to Morocco. Colonel Derby accompanied the group to familiarize himself with the scope of the program. In mid-October, the group returned to Washington and advised that a construction program in Morocco was feasible.⁷ The French air bases at Salé, Meknès, Marrakech, and Khouribga had facilities left from World War II that the Air Force could expand and strengthen for SAC use. (See *Map 6*.) The team proposed new construction only at Nouasser, where the Air Force anticipated building an airfield and supply depot. The Air Force construction program would support an offensive force of three medium bomber wings, a strategic reconnaissance wing, two tanker squadrons, and an escort fighter wing.⁸

Talks began in November 1950 between France and the United States concerning air bases in Morocco. On 9 November, the assistant secretary of the Air Force and high-level representatives from the Strategic Air Command, the U.S. Air Force Materiel Command, and the U.S. Air Force in Europe met with General Pick and his senior staff from the Corps of Engineers. Everyone at the meeting wanted the Moroccan program to begin without delay: The Corps of Engineers should start negotiations for an architect-engineer contract and for a construction contract even before American and French diplomats had concluded their talks. The Air Force and the Corps of Engineers also agreed to use a cost-plus-fixed-fee contract such as was being used for construction in Turkey, Saudi Arabia, and Libya.⁹

The deepening crisis in Korea spurred the urgency to make air bases available in Morocco. The UN forces led by General Douglas MacArthur had driven the North Korean armies to north of the 38th Parallel. As they approached the border between China and North Korea, the government of the People's Republic of China massed three hundred thousand soldiers along the frontier. On 26 November, thirty-three divisions of Chinese troops launched a massive attack across the Yalu River into North Korea, driving the UN troops back toward the South. It appeared that the troops defending South Korea might be overwhelmed.

Before the November meeting on the Moroccan air bases, in September the Air Force had diverted all the funds Congress appropriated for Morocco to other projects, leaving the Army engineers with no money for contracts. After the meeting, Derby worked with the secretary of the Air Force, Thomas K. Finletter, and the Air Force staff to salvage enough money to begin the Moroccan work. Finletter drafted a letter, and Derby carried it to USAF offices in the Pentagon to beg them to transfer funds from other projects. This effort proved successful: On 29 November, the Air Force transferred to the chief

⁷ George T. Derby, "History of the Corps of Engineers Activities in French Morocco" [Sep 51], pp. 1–2, unmarked box, OH, HQ USACE; "Utilization of Selected Airfields," attached to Letter of Instruction (LOI), Lt Gen Lauris Norstad to Lt Gen John K. Cannon, 5 Sep 50, Mil Files XII-27, OH, HQ USACE.

⁸ Col Stanley T. Wray, Rpt of Survey Gp to French Morocco, 19 Oct 50, Mil Files XII-27, OH, HQ USACE; LOI, Norstad to Cannon, 5 Sep 50.

⁹ Derby, "History of Corps of Engineer Activities," pp. 1–2, and "Memo on Growing Pains"; "Important Dates in French Morocco," 1 May 52, in Mil Histories (vol. 3 of 4, 1952), box 51-84-6364, Farrell Papers.



Map 6

of engineers \$11.4 million, half of the funds originally appropriated by Congress for the construction.¹⁰

On the same day, the Air Force issued a directive to the Corps of Engineers emphasizing urgency and its “immediate need” for the airfields. The directive conveyed the Air Force’s conviction that the survival of the Western alliance depended on the rapid completion of the bases as a deterrent to Soviet aggression:

It is definitely recognized that the work is to be prosecuted at a faster than normal rate requiring the mobilization of more than the usual amount of equipment for a job of this magnitude. It is desired that sufficient equipment be mobilized to insure the completion

¹⁰ “Construction for USAF, French Morocco,” 13 Mar 51, Mil Files XII-27, OH, HQ USACE.

of the 6-month phase of the program within 6 months of the date when clearance to enter the country . . . is obtained. The work should be prosecuted in such a manner as to produce the maximum of operational facilities in a minimum of time.¹¹

The directive specified a first six-month phase to provide facilities sufficient to support limited operations: landing, takeoff, and refueling. Later construction would enhance the level of operations at the bases. The directive specifically designated the project as an “emergency construction” program.¹²

Colonel Derby took seriously the mandate “to produce the maximum of operational facilities in a minimum of time.” As soon as the Air Force transferred money, Derby began to assemble a team of civilian employees and contractors to execute the construction. He turned to people in the Norfolk district office whom he knew and trusted professionally; in asking for civilian volunteers, he indicated that the program involved construction of air bases in Morocco and that the initial phase of construction had a deadline of 1 June 1951. Several people from Norfolk formed the nucleus of what would become a new Corps of Engineers district.¹³

Derby simultaneously pursued the normally sequential stages of finding companies to execute design and construction. Throughout December, he held discussions to preselect firms qualified by experience to do the work and developed the terms of the CPFF contract. Derby settled on the architect-engineer firm of Porter-Urquhart Associates and on 22 December 1950 awarded them a CPFF letter contract to design the air bases and the supply depot. One of the principals in the firm, O. James Porter, had developed the California bearing ratio test to evaluate the capacity of soils, base course aggregates, and pavements to support the weight of various vehicles. Porter had initially applied the test method to highway construction in California. During World War II, he had applied his formula to airfields and gained extensive experience in runway design, construction, and testing.¹⁴ His experience in developing and installing weight-bearing pavement added a particularly relevant dimension to his firm’s qualifications for the contract.

On 27 December, Derby learned that five days earlier French and American negotiators had signed an agreement for the construction of air bases in French

¹¹ The directive is quoted extensively in U.S. Congress, Senate, Preparedness Investigating Subcommittee of the Committee on Armed Services (Lyndon B. Johnson, Chairman), *Investigation of the Preparedness Program: Interim Report on Moroccan Air Base Construction*, 82d Cong., 2d sess., 1952, p. 3 (hereafter cited as Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52).

¹² “Moroccan Story,” pp. 1–2, gives the full text of the directive of 29 November and an amendment from mid-December. Riley Comm Rpt, Moroccan Air Bases, p. 4; “Important Dates in French Morocco.”

¹³ Memo for Files, Jack E. O’Connor, 25 Feb 51, sub: Narrative History of the Establishment of East Atlantic District, Nov. 1950–Feb 1951, box 51-83-8377, Farrell Papers. O’Connor, the district supply officer, was recruited from the Norfolk District.

¹⁴ “Atlas Contract History,” p. 2, Mil Files XII-29-5, OH, HQ USACE; “Moroccan Story,” pp. 1–2; Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, pp. 2–3; Anthony Turhollow, “Airfields for Heavy Bombers,” in *Builders and Fighters: U.S. Army Engineers in World War II*, ed. Barry W. Fowle (Fort Belvoir, Va.: Office of History, U.S. Army Corps of Engineers, 1992), pp. 210–12.

Morocco. The United States would bear all costs for building the bases and turn the facilities over to the French when they were no longer needed for the common defense. The French agreed to allow an American contractor to undertake the construction in Morocco; in the Franco-American construction agreements regarding metropolitan France, only French firms could be awarded contracts for construction for the U.S. military. To balance their concession, French negotiators insisted that subsidiary technical agreements be negotiated with the French governor general in Morocco, giving him complete control over the specific terms that would regulate when construction started and how it proceeded. The complicated negotiations on the technical terms continued over several months and delayed the start of construction.¹⁵

On 3 January 1951, Derby awarded a letter contract for construction to Atlas Constructors, a joint venture consisting of Morrison-Knudsen Company Inc. of Boise, Idaho; Nello L. Teer Company of Durham, North Carolina; Ralph E. Mills Company Inc. of Salem, Virginia; Blythe Bros. Company of Charlotte, North Carolina; and Bates & Rogers Construction Corporation of Chicago, Illinois. Derby also arranged a letter subcontract between Porter-Urquhart and Fay, Spofford & Thorndike of Boston, Massachusetts, for work on facilities to handle petroleum, oil, and lubricants (POL) to support the air bases. None of the contracts contained final terms; negotiations on the specific cost figures and fees continued throughout 1951 as the work progressed.¹⁶

Propelled by the urgency of the project, Derby worked through the Christmas holidays to recruit a team of Corps of Engineers civilians, design and construction engineers, and construction management personnel to launch the Moroccan air-base program. The Air Force provided only general directions rather than master plans and specifications. Neither designers nor construction engineers had seen the proposed sites for the air bases, but they absorbed Derby's intensity and commitment.¹⁷

Mobilizing the East Atlantic District

With the contracts in place, Derby concentrated on two tasks. First, he had to move rapidly to establish the headquarters of the new East Atlantic District. Second, he had to represent the interests of the Corps of Engineers during the negotiations for the technical agreements that would govern construction of the air bases in Morocco on a day-to-day basis.

¹⁵ "Moroccan Story," pp. 1–2; Grathwol and Moorhus, *Building for Peace*, pp. 86–88; Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, pp. 3–4.

¹⁶ The provisional character of the contracts is evident from memos regarding later negotiations in Mil Files XII-27, OH, HQ USACE. See, for example, Memos, Maj Gen Lewis Pick, 9 Jul 51, sub: Request for Authority to Award a Definitive Contract to Atlas Constructors; Col George T. Derby, 11 Jul 51, sub: Request Approval of Award of CPFF Contract no. DA-30-082-eng-5; Col George T. Derby, 12 May 51, sub: Request for Approval of Award of CPFF Contract for Construction.

¹⁷ "Moroccan Story," p. 3.

Building an air base involves a series of steps that are usually taken in sequence: exploration of the site, negotiations to acquire it, award of a design contract, master planning, preliminary design, preparation of drawings and specifications, award of a construction contract, acquisition of materials and equipment, and, finally, construction. The process includes site visits, testing of soils and available materials, and research to determine the best supplies and the cheapest means of delivery. For the Moroccan program, the Army engineers and their contractors had to take these steps as simultaneous processes because time was the team's scarcest commodity. Even without master plans from the Air Force, the engineers had to make decisions.

After receiving the letter contract, Atlas Constructors' management team mapped a plan for completing the first six-month phase of construction. Atlas would reinforce and extend the existing runways at four sites and build new runways and depot facilities at Nouasser. Atlas alerted Derby that, in the limited time allotted, they could not acquire the equipment needed to produce the highest quality base courses of carefully graduated rock. Using rock crushers, they could reduce local rock to four inches or less; but the base laid would have to be thicker than one laid with more carefully sized particles. The crushers would also yield an aggregate satisfactory for asphaltic concrete, the surface layer that Atlas recommended for the runways; but the level of control of particle size would not be as precise as that achieved by feeding carefully graded aggregate into the asphalt plant.¹⁸

Mindful of the six-month deadline, Derby accepted the Atlas proposal and chose asphalt. Layers could be added to strengthen the initial asphalt base during those times of day and night when the runways were not in use; the Army engineers had done this in Berlin during the airlift in 1948 and 1949. To strengthen concrete, however, the runway would have to be taken out of service. Another advantage of asphalt was its availability in Morocco; cement would have to be shipped to North Africa. Emphasizing speed over cost, Derby instructed Atlas to suspend conventional procurement and advertising procedures and to assemble the personnel and equipment it needed, including the rock crushers called for in their plan.¹⁹ Derby's focus on the priority of completing the air bases quickly led him to make decisions that fixed the nature of the foundation course for the runways in Morocco and "irretrievably limited the project specifications" that the Air Force formulated only months later. The Air Force issued a second directive on 10 January 1951 and set the following 1 July as the date for completing facilities capable of supporting landing, refueling, and takeoff.²⁰

The chief of engineers activated the East Atlantic District and appointed Derby as district engineer effective 15 January. Like the Middle East District managing construction in Libya and Saudi Arabia, the East Atlantic District operated under the

¹⁸ Ibid.

¹⁹ Riley Comm Rpt, Moroccan Air Bases, p. 5; Derby, "History of Corps of Engineer Activities," p. 4.

²⁰ "Moroccan Story," p. 3; "Important Dates in French Morocco." Quotation from Riley Comm Rpt, Moroccan Air Bases, p. 5.



Water reservoir under construction at the Nouasser airfield, 16 December 1953

North Atlantic Division. Derby left Washington immediately to work on the technical agreements with the French and arrived in Rabat, Morocco, on 17 January.²¹

While Derby assisted at the diplomatic negotiations with the French, the staff of the East Atlantic District began to acquire the equipment and supplies necessary to run an overseas office. In early January, Atlas Contractors opened operations in Norfolk in temporary quarters. To limit potential loss of time later in the project, Atlas purchased equipment before the specific construction tasks were defined. Throughout the spring, the company bought what it could find, competing for scarce equipment with construction companies working elsewhere overseas and in the United States. Atlas asked dealers and manufacturers of construction equipment to come to Norfolk to negotiate sales of equipment. The first scheduled shipping date was 26 January 1951.²²

²¹ General Orders (GO) no. 1, 9 Jan 51, sub: Establishment of the East Atlantic District; Derby, "History of Corps of Engineer Activities," p. 4; Riley Comm Rpt, Moroccan Air Bases, p. 5.

²² Memo for Files, O'Connor, 25 Feb 51, pp. 1–3; Derby, "History of Corps of Engineer Activities," p. 4; Memo, William L. Cary to Secretary of the Army, 25 Apr 52, sub: Moroccan Air Bases, pp. 1–2, Mil Files XII-28, OH, HQ USACE; Riley Comm Rpt, Moroccan Air Bases, pp. 4–5; Memo, Col John E. Ray for Inspector General (IG), 5 May 52, sub: Interim Report, Investigation of Army



Six-plane hangar at the Nouasser airfield

In mid-January, at the insistence of the North Atlantic Division, the East Atlantic District moved its temporary offices to New York City to facilitate coordination with division personnel. Atlas moved its shipping operations to Newark, New Jersey, which forced the postponement of the initial shipping date by three weeks. By mid-February, Atlas had purchased \$25 million worth of equipment—its best guess of what it would need—and put it on ships bound for Morocco. The equipment included 150 heavy trucks and other vehicles, 500 generator plants, 200 earthmovers and compactors, 200 welding machines, 175 compressors and pumps, 125 tractors, 60 concrete mixers, 50 cranes and steam shovels, and 35 rock crushers and asphalt plants.²³

Concurrently with preparations in the United States, the Army engineers opened operations in Morocco. On 23 January, the East Atlantic District's deputy district engineer, Lt. Col. Leonard L. Haseman, arrived with a party of seventeen to establish the district office in Rabat. A graduate of the University of Missouri in 1936 and U.S. Military Academy in 1940, Haseman had served in the Southwest Pacific during World War II. After completing a master's degree in engineering at Cornell University, he had served in MacArthur's postwar administration of Japan, first as chief of the Aerodrome Section and later as chief of military construction.²⁴

Participation in the Construction of the United States Air Bases in French Morocco, Mil Files XII-28, OH, HQ USACE.

²³ Memo, O'Connor, 25 Feb 51, p. 3; O'Donnell, "What's Behind the Air-Base Scandals," p. 90; "Construction Overseas in Mediterranean Division," [1957], box 51-83-8377, Farrell Papers.

²⁴ Memo, Ray for IG, 5 May 52; Riley Comm Hearings, p. 151; "Important Dates in French Morocco."

The advance party in Morocco, including people from Porter-Urquhart and from Atlas Constructors, began inspecting the sites designated for airfields. By late February, Haseman had about one hundred twenty-five Americans (Corps and contractor personnel) and thirty Moroccans working in and out of the district office securing transportation and conducting surveys of local resources and facilities. The rear-echelon office in New York, staffed with two engineer officers and a Transportation Corps officer, coordinated activities with the North Atlantic Division and assisted with stateside procurement.²⁵

Derby worked to resolve the technical agreements still pending with the authorities in France and with French colonial authorities in Morocco. These agreements governed issues of great concern to the local French population: How many Americans would come to Morocco, and would they be military or civilian contract personnel? Where would the Americans locate construction camps and other facilities to support the thousands of construction workers?

The negotiations proved tedious and difficult. When the French government approved an accord in December 1950, it had anticipated modest contingents of Air Force personnel at the five air bases. After the negotiations, the Air Force raised its estimates and spoke of fifteen- to twenty thousand airmen, more than four times the number initially proposed. The French governor general in Morocco feared that a strong American influence would disrupt the local economy by increasing the demand for labor and would disturb the delicate cultural balance. Metropolitan French authorities showed similar sensitivities in their negotiations concerning the expansion of NATO and U.S. forces and insisted on many of the same restrictions in continental France that the French governor general sought in Morocco.²⁶

Negotiating New Sites

In mid-February, the negotiating parties abandoned four of the five sites originally programmed for airfield construction. These sites had been located near cities, and French Moroccan officials objected that proximity to urban centers would increase the impact of the American presence on the local population. From the list of sites proposed in September 1950 and approved by the French in December, the negotiators retained only the airfield and depot at Nouasser. The French wanted to keep Nouasser on the list because they anticipated that the facilities would eventually serve as the commercial air terminal for Casablanca.²⁷

²⁵ MFR, 21 Feb 51, sub: Need for Automobiles, Mil Histories (vol. 1 of 2, Jan–May 1951), box 51-83-8377, Farrell Papers; Memo, Ray for IG, 5 May 52; Memo, O'Connor, 25 Feb 51, p. 5. On the rear-echelon office, see Rpt, Brig Gen G. J. Nold, 17 Nov 51, sub: Morocco Visit, p. 3, Mil Files XII-41, OH, HQ USACE.

²⁶ Riley Comm Rpt, Moroccan Air Bases, p. 5; Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, p. 4; O'Donnell, "What's Behind the Air-Base Scandals," p. 19. On French sensitivities, see Grathwol and Moorhus, *Building for Peace*, pp. 86–93, 111.

²⁷ "History of the Mediterranean Division," [ca. 1957], pp. 13–14, box 19, access. no. 77-92-0002, Washington National Records Center, Suitland, Md. See also handwritten comments by Leonard L.

The decision to abandon the original sites marked a dramatic departure from the original plan to *expand* airfields and had far-reaching implications. French Moroccan authorities restricted the numbers of Americans and the quantities of equipment allowed into Morocco until the parties agreed on alternate sites. Initially, the authorities had agreed to admit construction equipment, about one hundred employees of Porter-Urquhart, and unlimited numbers of Corps employees to staff the East Atlantic District. On 18 February, the governor general imposed a total freeze on the admission of contract construction employees. Derby instructed Atlas to discontinue recruiting personnel but to continue to acquire equipment.²⁸

The restriction on personnel sharply affected the hiring of workers and the flow of goods needed for construction. Atlas had to delay recruiting American workers until the spring labor market; by the time hiring could take place, the best-qualified workers had already taken jobs. Atlas had to devote more time to recruiting and ultimately had to pay higher wages. In late February, the equipment purchased in the United States began to arrive in Morocco; but Atlas did not have enough supervisors to inventory the incoming property, transfer it to the scattered storage sites, and guard it.²⁹

Abandoning the original sites also meant that the Army engineers and the design and construction personnel had to find new locations for the airfields. In the weeks after the mid-February decision, they surveyed eighty-one sites to identify six tentative locations that satisfied the Strategic Air Command. With the concurrence of the French Air Force, the Americans proposed Sidi Slimane, Benguéir, Mechra bel Ksiri, and El Djema Sahim.³⁰

The relocation of the bases also changed the fundamental nature of the construction program. Rather than expanding existing facilities, the architect-engineers and contractors had to plan entirely new facilities. Atlas had bought its equipment expecting to expand and upgrade existing airstrips, and the equipment was inadequate in quantity and unsuited in capacity for constructing new bases. Plans had to be drawn and cost figures recalculated. Atlas had construction crews ready to start work in March; they could not be kept idle while the U.S. Air Force worked out the detailed master plans or list of specifications that would guide the work of design and construction.³¹

The Air Force had chosen Brig. Gen. Pierpoint M. Hamilton, recipient of the Medal of Honor for his participation in the 1942 invasion of Morocco, as its negotiator with the French governor general in Morocco. During the first three

Haseman on Karl C. Dod, "Airfield Construction in North Africa: Morocco," n.d., p. 14, Mil Files XI-4-3, OH, HQ USACE.

²⁸ Derby, "History of Corps of Engineer Activities," pp. 4–5; Riley Comm Rpt, Moroccan Air Bases, p. 5.

²⁹ Derby, "History of Corps of Engineer Activities," p. 5; Derby, "Memo on Growing Pains."

³⁰ "History of the Mediterranean Division," [ca. 1957], pp. 13–14, 20.

³¹ "Air Force Directive Relative to Moroccan Air Base Crash Program," n.d., file 306, box 48, Lt Gen Samuel D. Sturgis Jr. Papers, OH, HQ USACE; Haseman comments on Dod, "Airfield Construction in North Africa," p. 14; Riley Comm Rpt, Moroccan Air Bases, pp. 2, 12, 18.

weeks of March 1951, Hamilton and his French counterparts agreed to prepare for construction at Nouasser and at three substitute sites: Sidi Slimane, 25 miles east of Port Lyautey; Benguéir, 50 miles north of Marrakech; and Mechra bel Ksiri, 200 miles east of Rabat. The negotiators agreed to select a fifth site after further study.³²

Through all these modifications of the original construction program, the Air Force maintained the deadline for having operational bases. Other Air Force commands issued directives detailing levels of completion to be achieved in later months, but none of the memorandums superseded the fixed date of 1 July 1951 for *minimum* combat readiness that USAF headquarters had issued in the directives of 29 November and 10 January.³³

Derby decided that Porter-Urquhart lacked the manpower and experience needed to handle the business management and accounting for the enlarged construction program. To meet the demands of the changed program, he brought Skidmore, Owings, and Merrill of New York into the design team; the new joint architect-engineer venture became known as PUSOM.³⁴

The technical negotiations continued for another five weeks after negotiators reached agreement on the location of the four bases. Colonel Haseman continued to deal with local French authorities in Rabat whose concerns were parochial, not global.³⁵ They worried about which parcels of land the Air Force wanted, how to avoid inflating wages in the Moroccan labor and contracting markets, and whether the Americans would compensate land owners for the loss of crops. Voicing concern about the number of American cigarettes appearing in Morocco, French officials proposed that the French tobacco monopoly take control of all American tobacco allowances to prevent an influx into the local black market, a suggestion that Haseman rejected.³⁶

³² Memo, O'Connor, 25 Feb 51, p. 5; "Important Dates in French Morocco"; "History of the Mediterranean Division," [ca. 1957], p. 20; Derby, "History of Corps of Engineer Activities," p. 5; Riley Comm Rpt, Moroccan Air Bases, p. 6.

³³ "Air Force Directive Relative to Moroccan Air Base Crash Program," n.d.; MFR, Lt Col Leonard L. Haseman, 19 Apr 51, sub: Construction Authorization, Mil Histories (vol. 1 of 2, January–May 1951), box 51-83-8377, Farrell Papers; Memo, L. S. Coy to Lt Col Leonard L. Haseman, 8 May 51, sub: Main Events in French Morocco with Relation to the Construction of USAF Air Bases, Mil Histories (vol. 3 of 4, 1952), box 51-84-6364, Farrell Papers; Riley Comm Rpt, Moroccan Air Bases, pp. 2, 12, 18.

³⁴ Memo, Cary to Secretary of the Army, 25 Apr 52, p. 6; Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, p. 5.

³⁵ Adams, *History of U.S. Strategic Air Bases in Morocco*, p. 2; "Important Dates in French Morocco"; MFR, Lt Col Leonard L. Haseman, 2 Feb 51, sub: Security Classification, box 51-84-6364, Farrell Papers.

³⁶ MFR, Lt Col Leonard L. Haseman, 2 Mar 51, sub: Tobacco Rationing, box 51-83-8377, Farrell Papers; MFR, Col Leonard L. Haseman to Col George T. Derby, 5 Mar 51, sub: Site Selection and Wage Rates, box 51-83-8377, Farrell Papers. This and other folders in this box and in box 51-84-6364, Farrell Papers, have numerous memos that detail the difficulties the local French officials placed in Haseman's way.

Emergency Construction Underway

During much of the spring of 1951, Colonel Derby shuttled between Rabat and Paris, the site of negotiations for the final phase of the technical agreements. On 11 April, he left Paris to return to the United States knowing that the parties were close to an accord. Two days later, he requested that USAF headquarters issue revised directives commensurate with the expanded scope of construction and release additional funds to the Corps of Engineers. On 17 April, Derby met with Air Force leaders at the Pentagon. General Pick had instructed him to be sure that the Air Force understood the new cost estimates of \$390 million for the revised scope of work that now included four new sites. Pick also wanted Derby to obtain from the Air Force a commitment concerning the specific facilities it wanted and by what date. During the 17 April meeting, the Air Force deputy chief of staff for operations, Lt. Gen. Idwal H. Edwards, reemphasized the 1 July ready date but was less clear on specific facilities. Derby insisted that he needed a steady flow of funds to continue the program. The minutes of the meeting note that “at that time a lot of AF officers began to talk, each one trying to convince every other one that there was plenty of money and nobody needed to worry.”³⁷

On 14 April, Derby had received word that negotiators in Paris had reached an accord that allowed construction to start. As Derby and General Hamilton had agreed, Derby immediately wired Haseman in Morocco. Haseman received Derby’s cable on 16 April and contacted the senior Air Force officer in Morocco, Col. Wilfrid H. Hardy of the Air Force Materiel Command. The bases were intended for the 5th Air Division of the Strategic Air Command, activated in mid-January 1951 and commanded by Brig. Gen. Archie J. Old Jr., who was in England pending the mobilization and transfer of his division to Morocco. Colonel Hardy did not consider Derby’s cable to Haseman authoritative because it bypassed his chain of command; and he refused to permit construction to begin. When Haseman protested the delay, Hardy threatened that, if work began, he “would initiate immediate action to have me [Haseman] court-martialed and replaced” for disobeying the orders of a senior officer. Haseman instructed Atlas Constructors at Nouasser and at Benguérir to refrain from any construction activities pending further notification. At Sidi Slimane and Mechra bel Ksiri, the French had not yet procured the necessary land, so Atlas could not begin construction at those locations either.³⁸

Hardy had never endorsed General Hamilton’s choice of Benguérir as one of the air-base sites. While awaiting instructions through channels that he could accept as authoritative, Hardy made his case against Benguérir to two visiting special assistants

³⁷ Quotation from MFR, 18 Apr 51, sub: Extract of Minutes of Meeting 17 Apr. 1951, USAF, Held at Request of Col. George Derby, p. 3, Mil Files XII-27, OH, HQ USACE. See also “Important Dates in French Morocco”; Derby, “Memo on Growing Pains”; “Important Dates in French Morocco.”

³⁸ Derby, “Memo on Growing Pains”; Adams, *History of U.S. Strategic Air Bases in Morocco*, p. 2; “Important Dates in French Morocco.” Quotation from MFR, Lt Col Leonard Haseman, 17 Apr 51, Mil Histories (vol. 1 of 2, Jan–May 51), box 51-83-8377, Farrell Papers. The incident is mentioned in both congressional reports and in other sources.

to the secretary of the Air Force. He argued that local conditions—temperatures to 140°F, an elevation of over one thousand five hundred feet, and lack of water in the area—made Benguéir a poor site. On 17 April, the assistants cabled the argument to Lt. Gen. Lauris Norstad, USAFE commander in Wiesbaden since January 1951 and the Air Force vice chief of staff in Washington when the Moroccan plan had taken shape in September 1950. Two days after Hardy voiced his reservations, Norstad cabled his reply. He accepted Hardy's objections and ordered that no construction start at Benguéir pending further investigation.³⁹

The interventions of Hardy and Norstad reflect an internal struggle within the Air Force. The Moroccan bases were purportedly to serve the Strategic Air Command and its long-range bombers. But the Air Materiel Command and USAFE both had reservations about the perception and scope of the SAC mission in French Morocco. This competition among Air Force commands lasted well into the 1950s.⁴⁰ The struggle played out largely behind the scenes of the Moroccan construction program, but it complicated the engineers' task.

On 19 April, Hardy received orders that he found sufficient to authorize construction at Nouasser, Sidi Slimane, and Mechra bel Ksiri. Still, no construction began that day. Atlas Contractors actually began moving earth at Nouasser on 22 April, after the French authorities had cleared the local population from the area.⁴¹ Crews who had been at the site since early March to construct their workers camp now started around-the-clock operations. By 28 April, they had stripped the runways of all vegetation, the first stage of construction. The plan for Nouasser projected a major air transport terminal, an air depot to stockpile reserve materiel in case of war, and general support facilities for a wartime bomber unit. The most urgent need was for an airstrip to support strategic bombers.⁴²

At Sidi Slimane, where Atlas had established its construction camp in early April, the French had not yet acquired the needed property, in part because local landowners wanted the Army engineers to shift the runway's position. In addition, the Air Force had run into technical difficulties in operating communications equipment at Port Lyautey, Sidi Slimane, and Mechra bel Ksiri, raising the possibility of having to reorient runways. Construction finally started at Sidi Slimane on 9 May 1951; but as construction crews began work, half a dozen storks returned from southern Africa to find their nests destroyed. To remove the birds as an obstacle to construction, the contractors had to weave six artificial nests.⁴³

³⁹ Riley Comm Rpt, Moroccan Air Bases, p. 7; O'Donnell, "What's Behind the Air-Base Scandals," p. 97.

⁴⁰ Quoted passages from Adams, *History of U.S. Strategic Air Bases in Morocco*, p. 3; see also pp. 5, 26.

⁴¹ MFR, Haseman, 19 Apr 51.

⁴² Memo to Haseman, 8 May 51; "Important Dates in French Morocco"; O'Donnell, "What's Behind the Air-Base Scandals," p. 90.

⁴³ Memo, Haseman, 19 Apr 51; MFR, Haseman, 19 Apr 51; MFR, Lt Col L. L. Haseman, 17 Apr 51, sub: Technical Questions Concerning Airbase Construction, Mil Histories (vol. 1 of 2, Jan–May 1951), box 51-83-8377, Farrell Papers; "History of the Mediterranean Division," [ca. 1957], p. 5. The story of the storks comes from O'Donnell, "What's Behind the Air-Base Scandals," p. 90.

Through all of the delays, the Air Force did not deviate from its directive to complete at least minimum facilities by 1 July; but progress was slow. During May, the Air Force revised its master plans for the construction program to catch up with the changes in the agreements with France and to incorporate the new sites. Master plans for Nouasser arrived on 4 May, two weeks after initial groundbreaking. Master plans arrived later in the month for Sidi Slimane, for Benguéir, and for Mechra bel Ksiri.⁴⁴ On 14 May, the Air Force told Atlas to abandon the Benguéir site. At Mechra bel Ksiri, the French had problems acquiring the land; other than construction of a workers camp, no work began there until very late May. The Air Force was still unable to agree with the French on an acceptable site for the fifth base.⁴⁵

The construction program in Morocco continued to suffer because of the terms of the technical agreements. Near the end of the diplomatic negotiations, the French had introduced a stipulation reserving all off-base contracting for French or Moroccan contractors. Although Atlas had assembled four hundred skilled workers, the company could not build the pipeline from Morocco's Atlantic ports to the airfields and POL facilities except for the fueling stations on the bases themselves. Local French authorities argued with the Americans about purchasing local bitumen—at above-market prices—and insisted that Atlas equipment entering the country be subjected to French taxes. From Casablanca, where the East Atlantic District moved in mid-April, Haseman conducted a seemingly unending series of meetings with local French officials and businessmen to keep construction moving and costs contained.⁴⁶

On 25 May, General Old arrived in Morocco with the staff of the SAC 5th Air Division. The same day, Atlas Constructors gained access to the land at Mechra bel Ksiri. On 1 June, with the Air Force deadline less than a month away, Atlas laid the first rock in the base course for the airstrips at Nouasser. On 3 June, Atlas began operating an asphalt plant at Nouasser and laid base-course rock at Sidi Slimane. Colonel Derby realized that the contractors could not meet the 1 July deadline, but he thought they could have landing strips ready at Nouasser and Sidi Slimane two weeks later.⁴⁷

As the ready date approached, Derby, the district staff, and the contractors faced a dilemma. The Air Force's imperative to provide operational airfields in the shortest time possible conflicted with customary construction standards. Any construction project involving Corps personnel represents three considerations—timeliness, quality, and cost—as three apexes of an equilateral triangle. When the three are equally emphasized, with costs reasonable, quality high, and completion on schedule,

⁴⁴ MFR, 18 Apr 51; Memo to Haseman, 8 May 51.

⁴⁵ "Important Dates in French Morocco"; Derby, "Memo on Growing Pains"; Adams, *History of U.S. Strategic Air Bases in Morocco*, p. 3.

⁴⁶ Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, pp. 4–5; O'Donnell, "What's Behind the Air-Base Scandals," p. 97; Memos from 27 Apr, 3 May, 8 May, 10 May, 19 May, and 21 May 51, box 51-83-8377, Farrell Papers; "Important Dates in French Morocco."

⁴⁷ "Important Dates in French Morocco"; "Air Force Directive Relative to Moroccan Air Base Crash Program," n.d.

it is as though the three considerations meet at the center of the triangle. A marked emphasis on one particular factor distorts the balance and compromises the other two factors. In the case of the Moroccan air bases, Derby had received instructions to subordinate all other considerations to timeliness.

On 9 June, Harold M. Simmons, a supervisor from the architecture-engineer firm Porter-Urquhart, ordered Atlas construction crews at Sidi Slimane to halt work on the runways. Simmons objected that the aggregate going into the base course contained too much clay mixed with the gravel to remain stable over time. He notified Atlas in writing, and Atlas appealed his order to Derby. Derby knew that no more-satisfactory aggregate existed close enough to the construction site to allow completion of the runway by the deadline. In a conference on 11 June, Derby acknowledged that individual loads of gravel had too much clay. He agreed that Simmons and his inspectors could maintain quality by rejecting such loads as they arrived. Nonetheless, he overruled the order to stop work and instructed Atlas to proceed. Derby reasoned that the contractor could upgrade the base course at a later date but that any delay at that moment would compromise timely completion of his mission.⁴⁸ Less than a week after Derby overruled Simmons' order to stop work, the East Atlantic District contacted Porter-Urquhart about Simmons, whose wife worked in the accounting office that he supervised. The district felt that Simmons had tried to obstruct an audit team's review of his wife's work. After reviewing the report of this incident, the company fired Simmons.⁴⁹

On 19 June, General Old ordered all work stopped at Mechra bel Ksiri. He found the terrain at Mechra bel Ksiri unfavorable because a hill obstructed the approach and takeoff patterns and a portion of the area designated for the runway flooded during annual rains.⁵⁰

On 21 June, USAF headquarters in Washington transferred command responsibility for the Moroccan bases to the U.S. Air Forces in Europe and instructed General Norstad to deal directly with Derby. In late October, the Air Force transferred command of the bases back to the Strategic Air Command and restored the appropriate relationship with the Corps of Engineers.⁵¹

On 25 June, a few days after the first transfer of command, Derby met with General Old and USAFE commander General Norstad in Casablanca and reported that Atlas Constructors was laying asphalt at record speeds at both Nouasser and Sidi Slimane. Derby proposed that the Air Force fly the first combat aircraft to the Moroccan bases on Bastille Day, 14 July. The generals seemed delighted with the idea. The Army engineers would miss the deadline of 1 July, but not by much; and

⁴⁸ See Derby's testimony, Riley Comm Hearings, p. 181; "Important Dates in French Morocco."

⁴⁹ Ltr, Lt Col Leonard L. Haseman to Porter-Urquhart Assoc., 14 Jun 51, Mil Files XII-27, OH, HQ USACE.

⁵⁰ "Important Dates in French Morocco"; Riley Comm Rpt, Moroccan Air Bases, p. 8.

⁵¹ Memos, to Brig Gen Colby M. Myers, 21 Jun 51, sub: USAF Construction, French Morocco, and to CinC USAFE [Commander in Chief, United States Air Forces in Europe], 21 Jun 51, both in Mil Files XII-27, OH, HQ USACE; Maj Gen Lewis A. Pick, "U.S. Air Forces Construction, French Morocco," 7 Jul 51, Mil Files XII-28, OH, HQ USACE; Rpt, Nold, 17 Nov 51.

the selection of Bastille Day would have symbolic importance for the French. The Air Force had delayed construction at Benguéir, had suspended construction at Mechra bel Ksiri, and had not even selected a fifth site. Nonetheless, two key bases would soon be ready for the demonstration of U.S. military power.⁵²

On 13 July 1951, six F84E jet fighters of the 36th Fighter Bomber Wing from Fürstenfeldbrück, West Germany, landed at Sidi Slimane. The next day, as part of the Bastille Day festivities, this USAFE aerial demonstration team known as the Skyblazers performed precision aerobatics over Casablanca and then Nouasser. Five B–50 bombers and four KB–29 tankers from the 2d Bomb Wing in England also participated in the show. The heavier planes landed and stayed overnight at Nouasser. These were the first combat aircraft to use the Moroccan air bases, and their presence signaled the combat readiness of the fields.⁵³

The first and most critical phase of the construction had ended. Construction crews had excavated 5 million cubic yards of dirt—as much as had been estimated for all five bases under the Air Force’s original plans. The Strategic Air Command had two airfields that it could use to reach the Soviet Union in the event of war. Each base had one 9,000-foot runway for takeoff and landing and a parallel taxiway of equal length with connecting taxiways between them. Each field had one bulk storage tank for 55,000 barrels of fuel and a second for 10,000 barrels. Camp facilities were rudimentary; the first flight crews that visited stayed overnight in tents. Within a week, however, construction crews had put up the first Dallas hut at Nouasser, the beginning of more permanent facilities. Another 320 Dallas huts were already in use at other locations in Morocco.⁵⁴

The overall program in Morocco represented the largest single construction program undertaken by the Corps of Engineers to that date. The entire workforce included over 4,000 American workers, 4,000 skilled European artisans, and about 18,000 Moroccans. They had worked long hours to bring the two new bases to minimal operational standards in record time—eighty-four days for Nouasser and sixty-seven days for Sidi Slimane. During World War II, Army engineers received praise for moving 4.4 million cubic yards of earth in seven months to build the air base on Saipan from which superfortresses raided Japan.⁵⁵ To build the two air bases in Morocco, crews displaced more earth in less than half as much time.

With construction underway at two bases and the other sites still undetermined, the Air Force decided to renegotiate the remaining locations with French Moroccan officials. Derby instructed the East Atlantic District’s architect-engineer personnel to furnish technical advice as the Air Force reexamined seventy-one potential sites.

⁵² “Important Dates in French Morocco.”

⁵³ Adams, *History of U.S. Strategic Air Bases in Morocco*, p. 4.

⁵⁴ O’Donnell, “What’s Behind the Air-Base Scandals,” p. 90; “Important Dates in French Morocco.”

⁵⁵ O’Donnell, “What’s Behind the Air-Base Scandals,” p. 90; Derby, “History of the Corps of Engineers Activities.” On Saipan, see Lenox R. Lohr, “Engineer Shortage and National Security,” *Military Engineer* (September–October 1954): 343–46. Riley Comm Rpt, Moroccan Air Bases, p. 8, estimates displacement of earth at 5 million cubic yards. The calculations here of the days to completion begin with actual construction at the sites.

In September, the Air Force, the staff of the East Atlantic District, and the French finally settled on the sites for three additional bases: Benguéir (returned to the list); Boulhaut, thirty-five miles northeast of Casablanca; and El Djema Sahim, just east of Safi. On 11 September, supporting General Old's decision, the Air Force insisted that Atlas abandon Mechra bel Ksiri and move its crew two hundred miles southwest to Benguéir. As a part of their study of possible airfield sites, the contractors had located both water and stone for base courses at Benguéir after Hardy had ordered it abandoned in April. Mechra bel Ksiri was now dropped from the list even though the contractors had completed some preparatory work there in May and June at Hardy's insistence. The move from Benguéir to Mechra bel Ksiri and back cost \$361,800 and contributed to a loss of morale that eroded the construction crews' enthusiasm for the work.⁵⁶

Despite the changes from one site to another, work continued. Construction crews and the staff of the East Atlantic District still felt the imperative of the emergency directives from the Air Force even though the first six-month deadline had passed. Runways, taxiways, and temporary housing were all usable. Warehouse space remained incomplete, and supplies arriving from the port at Casablanca remained at times stacked in the open. The first airmen's dining hall, a temporary structure that accommodated nine hundred, opened at Nouasser on 8 August 1951. Airmen lived in tents with wooden floors; but by October, construction crews completed fifty-five Dallas huts for lodging, permitting some of the tent accommodations to be dismantled. A USAF-sponsored grade school opened at Nouasser on 1 October with fifty-nine students enrolled. Clubs and a commissary opened in November.⁵⁷

At Sidi Slimane, airmen found two hundred eighty double Dallas huts ready for them in September 1951. They had thirteen Quonset huts for maintenance and for administrative offices and six Quonset-hut latrines. Late in September, a base hospital replaced the temporary medical dispensary. Although the hospital was in a tent facility, an Air Force medical group moved in to serve the growing community. The hospital unit relocated to a new Quonset hut in October, just as cooler and wetter weather arrived. In mid-October, construction crews also completed the first warehouse space at Sidi Slimane; by November, about 50 percent of the facilities for a rotating bomber wing were complete there and the number of Dallas huts had increased to 433.⁵⁸

Airfield construction advanced further when the East Atlantic District opened an area office at Benguéir in September 1951. Atlas began building its construction camp there on 22 September; but construction crews undertook little work on facilities until the French transferred land to the Air Force in late November. On 3

⁵⁶ Memo, Cary to Secretary of the Army, 25 Apr 52, p. 2; Riley Comm Rpt, Moroccan Air Bases, pp. 8, 11; Adams, *History of U.S. Strategic Air Bases in Morocco*, p. 6; "History of the Mediterranean Division," [ca. 1957], p. 6; Derby, "History of Corps of Engineer Activities," pp. 6–8; Engr Hist Div, OCE, "Summary of Major Events and Problems, Fiscal Year 1954," Sep 54, Gen Files, files 3ff, box 3, OH, HQ USACE (hereafter cited as Major Events, FY 1954).

⁵⁷ Adams, *History of U.S. Strategic Air Bases in Morocco*, pp. 6–8.

⁵⁸ *Ibid.*, pp. 7–9; "Important Dates in French Morocco."



Armaments and electronics shop at the Benguérir air base, as seen from the parachute tower

December, Atlas put the first asphalt plant in place at the construction site; a week later, runway construction began. From the spring of 1951, when work had begun, to the end of the year, Atlas had completed about \$48 million in construction at all sites.⁵⁹

As the construction program progressed, the Air Force continued to shift plans. At Nouasser, for instance, the Air Force relocated facilities a half a dozen times over the summer of 1951. These actions prevented the contractor from laying proper drainage pipes and fields, which led to severe drainage problems when the autumn rains began. The saturation of the area also contributed to later problems. None of the runways failed, but tests indicated that the moisture compromised the runways' capacity to support the stresses of repeated use by heavy aircraft.⁶⁰

Other problems arose from decisions Derby made to force the pace of construction. At times he approved suspension of the standard practice of spraying a coating of liquid asphalt, which was not always readily available, over the base course of runways. This decision lowered the quality of the surface layer, a tradeoff the costs of which became more apparent in later months. In another instance, Derby accepted an educated guess that the rainy season would start no earlier than late November. Taking a calculated risk, Atlas laid the asphalt binder course at Nouasser over a very large area before it changed equipment to put on a sealing coat for waterproofing. The more conventional method laid the binder course over a smaller segment and then sealed it before laying more. Derby approved the riskier method to speed up paving, much as the Army engineers in Turkey had gambled on mild weather when they continued construction at Diyarbakir and Balikesir through the 1950–1951 winter.

⁵⁹ "Important Dates in French Morocco"; "Atlas Contract History," p. 6.

⁶⁰ Riley Comm Rpt, Moroccan Air Bases, p. 11.



Elevated water tower at the Benguérir air base

Derby anticipated having time to complete the sealing process before the rains, but the weather failed to cooperate in Morocco. The rains started in early November, and water penetration weakened small areas of the pavement at Nouasser by saturating and softening the base course and subsoil. Suspecting the problem, the engineers tested the paving with a 200-ton roller that subjected the pavement to pressures four times greater than the wheel weight of any of the Air Force's heavy bombers. The roller produced five small breakthroughs. Derby recognized that repairs would be necessary later, but the approach had yielded more landing surface in a short time. In the worst case, repairs could be undertaken while the fields were in use.⁶¹

Clay in the gravel laid for the base course at Sidi Slimane meant that runways were serviceable but not as durable as a sounder base course would provide. As indicated earlier, Derby had decided to expedite completion and deal with any compromises in quality with later repairs. Similarly, procurement of screens to allow proper sizing of the gravel would have delayed the project by four or five months. If not corrected, these potential deficiencies might have involved increased maintenance costs; but none of the compromises Derby made left the runways too

⁶¹ On problems with asphalt and paving, see Memos, A. R. Butler (PUSOM) to Dist Engr, 17, 25 Jul 51; F. Holloway (PUSOM) to A. R. Butler, 20 Jul 51; all in Mil Files XII-27, OH, HQ USACE. On the early rains, see Riley Comm Rpt, Moroccan Air Bases, p. 10.



Power plant at the Sidi Slimane air base, Morocco

weak to handle the landing and takeoff of the bombers that they were designed to serve.⁶²

Fully aware of the potential problems in the construction, in July 1951, Colonel Derby had engineers begin testing to determine where the asphalt needed reinforcement. By that autumn, Atlas had instructions to implement a repair program during the summer of 1952 when temperatures would again allow the work to be effective. Derby requested expert help from soil and pavement specialists. The Corps sent a two-person inspection team that worked the latter half of October 1951 and found faults in the pavement at Nouasser and at Sidi Slimane: rough spots, weaknesses, and a need for further compaction and for waterproofing. Although the deficiencies came as no surprise, the inspection report focused attention on them in a way that no one had anticipated.⁶³

By late summer 1951, the urgency that drove the Air Force initially had abated. The course of the Korean War had changed. After months of indecisive fighting around the 38th Parallel, the warring parties had begun armistice negotiations on 10 July; but in late August, the talks broke down. Chinese and UN forces jockeyed for position. Truce negotiations resumed on 25 October. No one felt confident about a rapid settlement, but neither side seemed willing to pay the price necessary to shift the military balance decisively. During these months, a financial crisis overtook the Moroccan project.

⁶² Staff Conference, 2 Feb 52, Mil Files XII-28, OH, HQ USACE; Riley Comm Rpt, Moroccan Air Bases, pp. 10–11.

⁶³ Riley Comm Hearings, pp. 154–56, 194; Riley Comm Rpt, Moroccan Air Bases, pp. 10, 18; Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, pp. 7, 9, 10–11, 16.

Inadequate Funding and Recurring Delays

For months the irregular flow of funds for the Moroccan project had created difficulties for the Corps of Engineers and the construction contractor. On 19 April 1951, just as construction began, the Corps had requested that the Air Force transfer \$51.25 million to support the Moroccan construction through June and an additional \$10 million for the first quarter of the fiscal year beginning 1 July 1951. In July, Derby asked for \$35 million more to cover costs of the oil pipeline. The Air Force inexplicably decided to ask Congress for less than the Corps indicated it needed; Air Force commanders shifted back to the Moroccan program only the \$11.4 million that had been diverted to other activities in November 1950. By the time this allotment of money reached the field, Derby and his staff had committed all available funds.⁶⁴

In late August 1951, the project ran into a serious discrepancy between available and required funds. Derby cabled the Air Force chief of staff, General Hoyt S. Vandenberg, to advise that he had to suspend procurement and the recruitment of critical personnel because of lack of money. Air Force headquarters replied that Congress was holding up the money needed for construction in Morocco, but Vandenberg arranged for an immediate transfer of \$40 million.⁶⁵

In June 1951, the Bureau of the Budget had informed the secretary of defense that it had concerns about the Moroccan program. The Bureau observed that its accompanying request for a more precise accounting “need not further delay the requests for authorization by Congress” that the Air Force planned to submit for future work. Nonetheless, the Bureau wanted a detailed report on how money had been spent to date. The secretary of defense’s comptroller relayed the request to the service secretaries. The Air Force commander in Morocco, General Old, received a cable in the early autumn of 1951: “Request you immediately provide this headquarters with the authorization and appropriation of funds required by base and by line as it appears in the fiscal year 1952 construction budget to permit your construction program to proceed uninterrupted through November 1951.”⁶⁶

Feeling increasing pressure from the Bureau of the Budget and the Department of Defense to curb costs, the Air Force questioned the money being spent to provide family housing for the personnel in Morocco. The contractors and the Army engineers had had trouble attracting qualified civilian supervisory personnel to the Moroccan project, and as an incentive they extended assurances that their wives and families could accompany them. The Corps had expected that the workers and their families

⁶⁴ Mil Files XII-27 and XII-28, OH, HQ USACE, contain documents from 1951 on the crisis in Air Force funding. See esp. Derby to Brig Gen Archie J. Old Jr., 22 Jun 51; Derby to NAD Engr, 23 Jul 51; Lt Col Abromovitz (USAF) to Dir Budget, DCS/Comptroller (USAF), 3 Aug 51; Memo for Gen Timberlake, 3 Aug 51. Riley Comm Rpt, Moroccan Air Bases, p. 9.

⁶⁵ Telgs, Col George T. Derby to Gen Hoyt S. Vandenberg, 5 Sep 51, and HQ USAF to Col George T. Derby, 8 Sep 51, both in Mil Files XII-27, OH, HQ USACE; Riley Comm Rpt, Moroccan Air Bases, p. 11.

⁶⁶ Riley Comm Rpt, Moroccan Air Bases, p. 12. The date of the telegram and its receipt, which the Riley committee report does not give, are surmised.



Construction of the air bases in Morocco attracted political attention, including a visit in the mid-1950s from Vice President and Mrs. Richard M. Nixon, here being greeted by Brig. Gen. Charles Heim (*right*) and a base commander.

could find housing on the local economy; but the French prohibited this, fearing that Americans would drive up local rents. Thus, dependent travel had to be suspended in early 1951. To solve the problem, General Hamilton, the Air Force's negotiator in Morocco, had approved construction of a temporary construction village at Nouasser. The contractor built this housing as a part of the expense of construction. Although the Corps of Engineers frequently provided housing at remote construction sites in the United States, officers at USAF headquarters were unfamiliar with the practice. As a result, with concerns about costs increasing, the construction of one hundred houses at Nouasser attracted the wrong kind of attention. In early September 1951, the assistant secretary of defense, Lyle S. Garlock, asked the chief of engineers to explain the need for the housing.⁶⁷

The Office of the Chief of Engineers marshaled arguments to justify the housing at Nouasser, but it was difficult to provide the detailed cost accounting demanded by the Bureau of the Budget and the Air Force for the Moroccan project. Line

⁶⁷ Memo, Brig Gen John Hardin to Lyle S. Garlock, 23 Oct 51, sub: Construction of Temporary Construction Village at Nouasseur Air Base, French Morocco, Mil Files XII-27, OH, HQ USACE; "Moroccan Story," p. 5; Interv, Hart with Derby, 19, 20 Dec 84, p. 87; Haseman comments on Dod, "Airfield Construction in North Africa: Morocco," p. 30.

justification of costs was not possible because the program had no fixed plans and specifications even in the summer of 1951 after six months of activity. The original program called for five bases; but at the time of the request for line-item information, construction had begun at only two bases. The Air Force still had three sites to select, and estimates of costs for their construction based on hypothetical considerations were perforce imprecise.⁶⁸ Neither the contractors nor the Corps of Engineers staff could account even for money already spent. Ascribing all overhead costs and equipment purchases to the two bases under construction rather than the five bases planned would be inaccurate. The nature of the construction program in Morocco precluded the kind of accounting that the Bureau of the Budget requested. At this date, however, the emphasis on cost accounting began to displace the sense of urgency that characterized the Moroccan program initially.⁶⁹

For a time, personnel in the field continued to hear more encouragement and praise than reflections of the growing pressure for financial accountability in Washington. In early October, Colonel Derby received a personal note from the SAC commander, General Curtis LeMay, about the “very fine verbal report” that General Old had given him on the construction program in North Africa. LeMay spoke of the accomplishment as “a direct contribution to the SAC combat capability” for which he wanted to express his appreciation. In a letter to the Air Force chief of staff in Washington, LeMay praised Derby’s “extraordinary” results on the Moroccan job and suggested that Derby supervise any other projects the Air Force decided to undertake in Africa. He also recommended Derby for promotion to brigadier general.⁷⁰

By the beginning of November, Derby again had to plead for funds. On 8 November, Atlas Constructors gave notice that, after having spent millions of dollars of their own money and with no funds in sight to cover these or future expenses, the company would suspend operations. On 9 and 14 November, the Corps of Engineers outlined its immediate needs—\$33 million to continue work from the middle to the end of November, \$28.25 million for December, and \$22.45 million for January—a total of \$83.7 million.⁷¹

In Washington, perceptions of excessive costs for the Moroccan air-base program began to obscure both the original imperative for emergency construction and the real accomplishments of the Army engineers and the contractors. On 16 November, several Air Force general officers, civilian representatives of the Bureau of the Budget, a colonel from the Office of the Secretary of Defense, and a Corps of Engineers lieutenant colonel met in the Pentagon. Congress had just appropriated

⁶⁸ Riley Comm Rpt, Moroccan Air Bases, p. 13.

⁶⁹ *Ibid.*, pp. 13–14.

⁷⁰ Ltr, Gen Curtis LeMay to Col George Derby, 9 Oct 51, Mil Files XII-27, and Nold’s paraphrase of “letter from Lieutenant General LeMay to the chief of staff, Air Force, praising Colonel Derby” in Rpt, Brig Gen G. J. Nold, 21 Nov 51, sub: Recommendations on East Atlantic District (Morocco), Mil Files XII-41-6, both in OH, HQ USACE.

⁷¹ Riley Comm Rpt, Moroccan Air Bases, pp. 13–14; Brig Gen John R. Hardin, “Critical Overseas Projects,” 14 Nov 51, Mil Files XII-27, OH, HQ USACE.

\$178.67 million for the project. The men at the meeting decided that the Bureau of the Budget would apportion only \$100 million for the Moroccan project—\$45 million less than the Air Force had just requested. The Office of the Secretary of Defense further reduced the money that would reach the engineers in Morocco by requiring that \$44 million of the \$100 million go to re-fund projects from which the Air Force had borrowed to keep the Moroccan program operating.⁷²

The DoD deputy comptroller issued to Air Force planners overseeing the Moroccan program a memorandum summarizing the decisions: “Your request for \$145,762,500 has been reduced to \$100 million. No further funds will be reappropriated until the Air Force reviews this program and presents to this office a program showing the work which has been accomplished with former appropriations and the work proposed with the \$178,760,000 appropriated in Public Law 254.”⁷³ These were impossible conditions. Derby received \$56 million of the \$61 million he requested just to keep construction in Morocco going through December 1951. The \$56 million would surely be exhausted before anyone could supply the figures that the Bureau of Budget requested.⁷⁴ A priority other than rapid completion of construction had taken over in Washington.

Late in 1951, a parade of inspectors arrived in Morocco; negative judgments about the program increased. The U.S. Army Audit Agency reported that Atlas’ management procedures were weak. A special assistant to the Air Force inspector general raised questions about the quality of the paving and the excessive overtime put in by construction workers.⁷⁵ In response, the Corps of Engineers reorganized its management of overseas construction. In mid-November, General Pick created the East Ocean Division with headquarters in Richmond, Virginia, and placed the East Atlantic District, the Middle East District, TUSEG, and other work in the Atlantic region under it. Pick named Brig. Gen. Robert G. Lovett as the new division engineer; in December, Lovett undertook his own inspection of the operation in Morocco. Despite progress in constructing the air bases, Lovett found a crisis in morale and efficiency brought on by the financial squeeze.⁷⁶

In the last months of the year, the predominant concern in USAF headquarters about the Moroccan program shifted from rapid construction to costs and the prevailing assessment changed. In October, General Old praised Colonel Derby’s accomplishments to General LeMay; in November, he voiced satisfaction with the work on the air bases. On 6 December, Old’s tone shifted, when he wrote to Derby that he was “greatly perturbed over the cost of construction of the American bases in French Morocco.” Old demanded an immediate report “showing by line item use

⁷² Riley Comm Rpt, Moroccan Air Bases, p. 15.

⁷³ Ibid.

⁷⁴ Ibid. Quotation from Memo, Deputy Chief of Staff (DCS) Materiel (USAF) to DCS Opns (USAF), 19 Nov 51, sub: Air Base Development, French Morocco, Mil Files XII-27, OH, HQ USACE.

⁷⁵ Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, pp. 7, 9, 10–11, 16; Riley Comm Rpt, Moroccan Air Bases, p. 18; Riley Comm Hearings, pp. 154–56.

⁷⁶ Memo, Brig Gen Robert G. Lovett to Maj Gen Lewis A. Pick, 27 Dec 51, Mil Files XII-27, OH, HQ USACE, covers much of the same ground as the report paraphrased and quoted in Riley Comm Rpt, Moroccan Air Bases, p. 14.



The commander of the Mediterranean Division lived in these quarters at the Nouasser air base until the division office moved to Livorno, Italy, in November 1957.

made of funds expended by Atlas Constructors up to and including 30 November 1951” and attached a list of fifteen categories of expenses. He also asserted that “entirely too large a percentage of each dollar is spent for the convenience, comfort, and pleasure of Atlas Constructors’ personnel.”⁷⁷

On 3 January, General Pick met with representatives of PUSOM and with Atlas Constructors. Atlas agreed to send Lyman D. Wilbur, a senior vice president and partner in Morrison-Knudsen, to Morocco to help restore administrative control to the contractor’s work on the project. The PUSOM director, O. J. Porter, took exception to the suggestion that the architect-engineers had spent “extravagantly” on the Moroccan job; he prepared a long refutation for delivery to General Lovett.⁷⁸

On 8 January, General Pick met with General Old, Maj. Gen. Patrick W. Timberlake, and Brig. Gen. Colby M. Myers from the Air Force to discuss the letters from Old to Derby demanding the detailed accounting of the costs. Pick objected that Old’s requests intruded upon the appropriate role of management of the construction reserved to the Corps of Engineers. General Timberlake requested a thoroughgoing audit of the expenditures related to Morocco. Old voiced his concern that Derby, for whom he expressed the “highest personal regard,” had lost control of the project, that the contractors were wasteful and inefficient, and that the construction was substandard. Old further criticized the 100-unit housing village at Nouasser as extravagant and unnecessary. General Myers asserted that an audit was necessary to satisfy the Bureau of the Budget and to gain the release of the

⁷⁷ Ltr, Brig Gen Archie J. Old Jr. to Col George T. Derby, 6 Dec 51, Mil Files XII-27, OH, HQ USACE.

⁷⁸ MFR, 3 Jan 52, sub: Meeting with Atlas Constructors and PUSOM; Ltr, O. J. Porter to Brig Gen Robert G. Lovett, 4 Jan 52; both in Mil Files XII-28, OH, HQ USACE.

funds appropriated for the project. At this, Pick exploded. If the gentlemen wanted an “investigation”—for that is what the Air Force seemed to be demanding—they should be prepared. An investigation would ask why funds had been so slow in reaching the Army and why the planning for the Moroccan bases had been so “dilatatory” from the beginning. The meeting became heated and personal. Timberlake demanded “no whitewash, but an investigation as to the extravagances on the job.” Pick retorted that the Air Force had rushed the job, planned it poorly, and still had not selected two of the sites.⁷⁹

Congressional Investigations

The changing attitude in the Pentagon toward the Moroccan construction coincided with the increasing scrutiny by congressional committee staffs. Official reports on the project’s shortcomings accumulated. Investigators for congressional committees heard from former project participants. Harold Simmons, the engineer overruled by Colonel Derby in June 1951 at Sidi Slimane and later dismissed over a conflict of interest concerning his wife’s employment with one of the contractors, complained to the staff of a Senate subcommittee chaired by a freshman senator from Texas, Lyndon B. Johnson. The committee received other complaints about the project from “current and former contractor employees” and others.⁸⁰

Senator Johnson opened public hearings on the Moroccan air-base program in January 1952. On 15 January, the Air Force rescinded its “emergency” order and directed that work in the Moroccan bases continue at a more normal pace.⁸¹ The accusations aired before the Johnson committee touched off a flurry of newspaper headlines about corruption and waste in Morocco, one of which quoted Senator Johnson’s characterization of the program as “one sordid mess.” Air Force officers unhappy with the project blamed the Corps of Engineers for substandard work. Air Force civilian engineers had inspected the airfields in late 1951, and the Johnson committee publicized their charge that the project suffered from “1. flagrant disregard of specifications; 2. mismanagement, waste and loafing; 3. bad materials used in some cases, such as inferior gravel.” Complaints increased to a “veritable flood,” according to the committee’s public report.⁸² Allegations fell into several categories:

⁷⁹ For two parallel accounts of the meeting, see MFRs, Brig Gen John Hardin, 10 Jan 52, sub: East Atlantic District Work, and Col Craig Smyser, 11 Jan 52, sub: Conference on Proposed Independent Audit by Air Force of Casablanca Project, both in Mil Files XII-28, OH, HQ USACE. Both men participated as part of Pick’s staff.

⁸⁰ Quotation from Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, p. 2. For negative reports on Morocco, see Ltr, Col Louis B. Grossmith Jr. to Brig Gen Archie J. Old Jr., 28 Dec 51, Mil Files XII-27, OH, HQ USACE; Memo for Gen Craig, 2 Jan 52, sub: Inspection of Airfield Construction Program, East Atlantic District, French Morocco, Mil Files XII-28, OH, HQ USACE; and reports mentioned in the Riley Comm Rpt, Moroccan Air Bases, p. 14, passim.

⁸¹ Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, p. 11.

⁸² For a summary, see Adams, *History of U.S. Strategic Air Bases in Morocco*, p. 17; Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, passim; enumerated list of complaints from p. 17 of the committee’s report; second quotation from p. 15.

failure to comply with specifications in constructing runways, taxiways, and aprons at Nouasser and Sidi Slimane that created unsatisfactory surfaces; failure to maintain adequate property accounts, controls, and procedures; inadequate cost control; laxity; improper procurement procedures resulting in excessive payment for equipment and local services; and possible kickbacks, bribes, and collusion.⁸³

Senator Johnson called the secretary of the Army, Frank Pace Jr., and the chief of engineers, General Pick, before his committee to respond to the charges. The senator called representatives of Atlas Constructors and PUSOM, the architect-engineer contractors. He did not call either Derby or Haseman.

The Johnson committee's very negative treatment of the project and the media interest provoked General Pick to action. He visited Morocco twice in January 1952 to gain firsthand information. It was Pick who handed Derby a copy of the Air Force notice rescinding emergency status for the Moroccan construction. Derby, who had not received a copy from the Air Force, then instructed Atlas to adjust its construction schedule.⁸⁴ To provide closer supervision of the overseas construction, Pick decided to establish a division with headquarters in Casablanca. He officially activated this new Mediterranean Division on 14 February and gave it responsibility for all construction in the Mediterranean region, including the East Atlantic District, which had just moved its offices to Nouasser, and the Middle East District in Tripoli. The East Ocean Division, established the previous November, continued to supervise overseas construction in Greenland, Iceland, Bermuda, and the Azores.⁸⁵

On the same day that he established the Mediterranean Division, General Pick met with the under secretary of the Army and with Army and Air Force leaders to discuss the changes. The Air Force made clear that it had "lost faith in Colonel Derby, believing that the job has got away from him and is being run by the contractor." Pick defended Derby as a "brilliant officer" and insisted that the commander of the Mediterranean Division would make any personnel changes necessary for effective execution of the construction program.⁸⁶

On 21 February, General Pick testified before Senator Johnson's committee and stated that he intended to send Brig. Gen. Orville E. Walsh to Morocco as division engineer of the new Mediterranean Division. Pick defended the Moroccan program and attributed its problems and mistakes to the accelerated pace of construction necessitated by the Air Force's insistence on speed. He contended that the deviations from normal standards and procedures had been minor and within allowable limits. Army Secretary Pace responded in a similar tone; in a letter to Senator Johnson on 20

⁸³ "Moroccan Story," p. 6.

⁸⁴ Riley Comm Hearings, p. 308.

⁸⁵ GO no. 4, 14 Feb 52, sub: Establishment of the Mediterranean Division; Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, p. 11; "Important Dates in French Morocco"; John W. Chambers II, *The North Atlantic Engineers* (New York: North Atlantic Division, U.S. Army Corps of Engineers, 1980), pp. 86, 91.

⁸⁶ MFR, 19 Feb 52, sub: Construction of Air Bases in Morocco, Feb. 19 Report on a Meeting of Feb. 14, 1952, Mil Files XII-28, OH, HQ USACE.

March, he said, “I feel that there have been exaggerations in some of the testimony and a tendency to forget the speed element which was uppermost at the time.”⁸⁷

The testimony from Pick and Pace did not mollify Senator Johnson, who saw flagrant departures from specifications, the use of substandard construction materials, mismanagement, waste, even corruption. Johnson attributed these failures directly to the district engineer, Colonel Derby, and his deputy, Haseman. The staunch defense of the program by Pick in his public testimony and by Pace in his letter of 20 March provoked Johnson. Within hours of receiving Pace’s letter, Johnson made clear his intention to shut down the Moroccan operation completely “until irregularities and wasteful practices had been corrected.”⁸⁸

Johnson’s threat brought results. Pace wrote a letter dated 21 March that was delivered to Johnson by hand that afternoon. Pace informed the senator of the “remedial steps” that he had implemented or would soon implement to address the committee’s concerns, including ordering Derby and Haseman relieved of their command responsibilities in Morocco. Pace urged delaying “any further action” against the two officers until after they had aided their successors, General Walsh and Col. Jack P. Campbell, in taking over the project. Derby and Haseman were formally relieved of duty on 5 April and returned to the United States. Walsh took command at the headquarters of the Mediterranean Division in Casablanca, and Campbell took command at the East Atlantic District offices at Nouasser.⁸⁹

On 9 April 1952, a subcommittee of the House Committee on Appropriations, chaired by Congressman John J. Riley (D–South Carolina), opened hearings concerning the Moroccan air bases. The hearings continued through the summer; the committee issued a summary report on 26 September, a month after the Senate Committee issued its “Interim Report on the Moroccan Air Base Construction.” The conclusions reached in the two reports could hardly have been more different.

In contrast to Senator Johnson’s committee, the House committee called Derby and Haseman to testify. It also called Pick and other Corps officials. Congressman Riley let them give detailed explanations of the difficulties they had encountered with the Moroccan project and the compromises that they had made to complete the mission according to the Air Force’s emergency schedule. The deputy for installations from the Office of the Secretary of the Air Force testified: “You have some deficiencies . . . but what are they against the whole show, and what are they going to be against the whole show when it is done 2 years from now? They are minor. All the charges of venality and false bookkeeping and some of the silly things that have been said about some of these office[r]s are just pin pricks. They mean nothing.”⁹⁰

⁸⁷ Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, pp. 12, 39. Quotation from Ltr, Frank Pace Jr. to Lyndon B. Johnson, 20 Mar 52, p. 18, Mil Files XII-28, OH, HQ USACE.

⁸⁸ Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, pp. 38–39.

⁸⁹ *Ibid.*, p. 19; “Important Dates in French Morocco.” A copy of Pace’s letter to Johnson bears the notation “4:25 P.M. 3-21-52 Hand-carried to Sen. Johnson by Carey.”

⁹⁰ Riley Comm Rpt, Moroccan Air Bases, p. 18.

The Riley committee paid particular attention to the pressures placed on the Army engineers and the contractors by the Air Force's insistence on speed. The committee noted that the Air Force had rescinded its order for emergency programming of the construction only after Senator Johnson's committee hearings began to focus public protests on the endeavor.

The Riley committee reconvened hearings in September after receiving an outside evaluation of the construction ordered by the secretary of the Army early in the summer. A consortium of construction contractors led by Glen W. Maxon and Fred I. Rowe conducted the evaluation. Both Maxon and Rowe were presidents of highly respected companies with experience comparable to the Moroccan program. The consortium examined between six- and seven thousand tests on the pavement already laid at Nouasser and Sidi Slimane and concluded that the faults in base course affected a very small portion of the pavement.

Referring to the consortium's report, the Riley committee observed that "all phases of the nature of the tests and the availability of current information were discussed by the many engineers present, and those who have the responsibility for the work agreed that the costs of corrective action will not exceed \$2 million. . . . This testimony came as a surprise to members of the committee but stands uncontroverted." The committee "pressed" O. J. Porter, a recognized expert on paving, "to state his opinion of the construction performance of the job, the type of opinion that is normally expected from an architect-engineer." The committee report included Porter's reply without comment: "I think that with all the difficulties the job as a whole sets a record [of accomplishment] that has never previously been reached or approached, even in my experience during wartime."⁹¹

The Riley committee concluded that the unprecedented amount of criticism directed against the Moroccan air-base program remained largely unjustified. The committee acknowledged that some of the negative reports were accurate but argued that they had negligible significance and had received disproportionate attention when weighed against the work that had been accomplished. The committee went on to detail the scope of what the construction crews had achieved in just one year: 9.9 million cubic yards of earth excavated or filled, over 1 million cubic yards of base rock laid, and 1.99 million square yards of asphalt binder course and over 1 million square yards of asphalt surface course put in place. Crews had erected 32 warehouses providing 1.125 million square feet of floor space as well as 1,147 other buildings; another 512 buildings were under construction by April 1952. Further, at two airfields, Atlas Constructors had completed POL systems with storage tanks, pipelines, and refueling hydrants. The company had installed 10.5 miles of sewer line, 17.5 miles of water line, 40 miles of power line, and over 45 miles of roads. The 200-mile POL pipeline, on which the French did not allow American firms to bid, was also "well under way." The Riley committee concluded:

⁹¹ For this and the preceding two paragraphs, see Riley Comm Rpt, Moroccan Air Bases, pp. 18–21, quotations from p. 21.

In short, where one year before there had been nothing, there existed at two locations in Morocco at the time these hearings began in April 1952, usable air bases, and there was in the process of establishment an important link in the defense of the West. . . . So far as Morocco is concerned, the committee feels that a substantial injustice has been done by making the Corps of Engineer [*sic*] officers the whipping boys of this operation.⁹²

This seeming exoneration left Secretary of the Army Pace undeterred. In late November 1952, he officially “admonished” General Pick, Colonel Derby, and the commander of the North Atlantic Division, Colonel Frech, for failure to supervise the Moroccan program properly.⁹³

Assessing the Moroccan Program

Although construction on the air bases in Morocco continued until the mid-1950s, congressional and public interest in the bases waned after the committees issued their reports. In late July 1953, the warring parties in Korea signed an armistice, thereby relaxing international tensions and reducing the threat of war. Near the end of 1953, the United States negotiated an agreement with the government of Spain to build American bases there. Congress approved a scaled-down construction program for Morocco as the need for additional bases in North Africa lessened markedly.

By mid-January 1954, the cost of the Moroccan projects amounted to \$340.2 million. The cost of the entire program eventually reached about \$412 million. Neither figure diverges drastically from the \$390 million projection that Derby presented to the Air Force in mid-April 1951 for the construction of new bases rather than the rehabilitation of existing bases.⁹⁴

The charges of waste and substandard construction were greatly exaggerated. Senator Johnson’s subcommittee seemed to acknowledge this when it issued its second report on Morocco. The first report of August 1952, echoing testimony gathered early in the year, began by leveling charges of “flagrant disregard for specifications and sound engineering practices” and of “the indifference of

⁹² Riley Comm Rpt, Moroccan Air Bases, pp. 21–22, 24, quotation from p. 24. For reports that support the Riley committee’s judgment, see MFR, 31 Jan 52, sub: Inspection of Mssrs. Kalette and Perry; Min, Conference Held 2 Feb 52 to Discuss Construction Progress; Memo, Col Charles F. Ivins for the Inspector General, 15 Apr 52, sub: Interim Report, Investigation of Army Participation in the Construction of the United States Air Bases in French Morocco, and an amplification of that report, with the same title and undated [30 Apr 52?]; all in Mil Files XII-28, OH, HQ USACE. Memo, Cary to Secretary of the Army, 25 Apr 52.

⁹³ Riley Comm Rpt, Moroccan Air Bases, pp. 21–22, 24; Adams, *History of U.S. Strategic Air Bases in Morocco*, p. 25; Ltr, Pace to Johnson, 20 Mar 52, in U.S. Congress, Senate, *Second Report on Moroccan Air Base Construction [19 Feb 1953]*, 44th Report of the Preparedness Investigating Subcommittee [Lyndon B. Johnson, Chairman] of the Committee on Armed Services, 83d Cong., 1st sess., 1953, p. 33 (hereafter cited as Johnson Comm Second Rpt, Feb 53).

⁹⁴ MFR, 18 Apr 51.



Progress versus the primitive: fighter planes fly over camels in Morocco.

officialdom to the squandering of public funds.”⁹⁵ The report of February 1953 used more temperate language: “Much stress has been laid by the services on the critical world conditions at the time of the initiation of the construction project in Morocco. . . . Whether all that occurred in Morocco was justified by that sense of urgency is highly questionable.”⁹⁶ The committee also observed: “It is our view that no useful purpose will now be served by additional investigation of the errors of the past in Morocco.”⁹⁷ This is far removed from Senator Johnson’s early public charges of “waste, inefficiency, and outright graft.”⁹⁸ Despite the more moderate tone and the disclaimer that additional investigations were unwarranted, the Johnson Committee’s early charges had received broad public attention.

At the instigation of the Johnson committee, Secretary of the Army Pace did have a lawyer from his office investigate the Moroccan program. The lawyer

⁹⁵ Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, p. 1.

⁹⁶ Johnson Comm Second Rpt, Feb 53, pp. 26–27.

⁹⁷ *Ibid.*, p. 4.

⁹⁸ Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52. Johnson’s public charges are quoted in John G. Norris, “Pace Removes Engineers on African Bases,” *Washington Post*, 22 March 1952.

examined the conduct of the program, the charges of graft and corruption, the charges against the Corps of Engineers, and the personal charges leveled against Derby and Haseman. He concluded that, far from having acted in dereliction of duty, “the small group of Engineering personnel demonstrated a real drive in getting construction going and two runways operational by 14 July [1951].” In examining “the collusion and kickback cases which were brought before the committee,” he found that “the evidence of bribes and fraud are not an outstanding defect of the Morocco project.”⁹⁹

What extant evidence of illegal activity exists reflected only petty violations that were minuscule when compared with the overall costs of the program; none involved the Corps of Engineers. Local French courts convicted two French nationals of soliciting bribes; one worked for the local French government, the other for Atlas, which promptly fired the offender. Two American employees of Atlas were convicted in Consular Court in Morocco, one of soliciting a \$300 “approval” fee from a local contractor, the other of demanding gifts from local contractors. The Consular Court dismissed cases against two other American employees of Atlas for lack of evidence; one case had alleged “misappropriation of a table lamp.” In light of the magnitude of the program, the lawyer from the Office of the Secretary of the Army concluded that none of the cases seemed “to be of shocking proportions.”¹⁰⁰

The lawyer dismissed the personal charges raised against Derby and Haseman in a strongly worded statement:

There is no evidence of any personal wrongdoing on the part of either Col. Derby or Col. Haseman. . . . [I] believe that a number of the allegations represent the views of disgruntled persons and do not have an adequate foundation. I further believe that the Committee has not been fully informed of the urgency, and the *bona fide* psychology of urgency, which prevailed at the time. My own conclusion and recommendations would be that the engineers should present these points to Senator Johnson’s subcommittee.¹⁰¹

Senator Johnson never called either Derby or Haseman to testify.

The cost of remedial work to correct deficiencies on the hastily built runways showed that the flaws in construction were minor. Strengthening the runways cost less than \$3 million in a \$400 million program. The cost of repairs represents only 7.5 percent of the \$40 million spent on the construction completed at the first two air bases in 1951. For the Army engineers who worked on the Moroccan air bases, and for many personnel in the Air Force as well, that additional cost could be seen

⁹⁹ Memo, Cary to Secretary of the Army, 25 Apr 52.

¹⁰⁰Ibid. For the cases themselves, see Memo, Brig Gen G. J. Nold to William L. Cary, 21 May 52, sub: Court Cases in French Morocco Regarding the Airbase Construction, Mil Files XII-41-6, OH, HQ USACE.

¹⁰¹Memo, Cary to Secretary of the Army, 25 Apr 52.



In September 1956, Chief of Engineers Maj. Gen. Emerson C. Itschner (*right*) visited Mediterranean Division headquarters at Nouasser, where he observed concrete paving of the taxiway with Lt. Col. John W. Chesley Jr., area engineer, and Paul Erskine of Atlas Constructors.

as the price of “war risk insurance.”¹⁰² The bases were ready when most needed, in the summer of 1951.

Both Derby and Haseman continued their Army careers after being recalled from Morocco. In 1953, Colonel Derby became district engineer in Huntington, West Virginia. He retired in 1956, feeling that the House committee investigation had largely vindicated him.¹⁰³ Nonetheless, the initial sensational charges damaged reputations and shortened military careers. The promotion to brigadier general that Air Force General Curtis LeMay had favored for Derby in the summer of 1951 never came. As for Haseman, he returned from Morocco, served in and around Washington for the rest of his career, and retired as a colonel in 1966.

Time verified that the Moroccan air-base program was neither excessively expensive nor wracked by corruption or profiteering. The Army engineers accomplished the mission they were assigned. The Air Force acquired strategic bases at what it judged to be a crucial moment in the Cold War, and no runway ever failed in use as a result of the compromises made during the crash phase of the construction. It is ironic that the program to build American air bases in Morocco is remembered more for investigations and false accusations than for its accomplishments.

¹⁰²Quotation and percentage figures from Waldo G. Bowman, “Aftermath in Morocco—Good Bases,” *Engineering News Record*, 27 August 1953, pp. 30–36, 39–41.

¹⁰³Interv. Hart with Derby, 19, 20 Dec 84, p. 83.

3

SHIFTING THE LOCUS OF WORK 1952–1957

The Mediterranean Division, activated in February 1952 by the chief of engineers, General Pick, became the first postwar division of the Corps of Engineers to have its headquarters in the overseas area for which it had responsibility. The general officer commanding the division had an advantage that Colonel Derby never enjoyed: rank comparable to the senior Air Force officer in the area. The Mediterranean Division assumed responsibility for the East Atlantic District in Morocco, the Middle East District in Libya, and The U.S. Engineer Group in Turkey. Over the following six years, the Office of the Chief of Engineers expanded the division's area of responsibility farther east to include Iran and Pakistan.

Organizing the Mediterranean Division

General Walsh arrived in Morocco to assume command of the division in February 1952, just weeks after the Air Force had ended the emergency designation for the Moroccan construction program. Between February and May, until the new commander could assemble his staff, the three districts continued to report to the East Ocean Division. In that interim, Walsh developed plans to improve the administrative operations of the division, the East Atlantic District, and contractor organization. The addition of the administrative layer of a division-level staff freed the East Atlantic District engineer to concentrate on managing and supervising the construction. Walsh worked with Lyman Wilbur of Morrison-Knudsen, who assumed management of Atlas Constructors, to improve the level of cooperation between the contractor and the Corps of Engineers' field organization.

After May 1952, Walsh assumed full responsibility for the division's programs. Now that speed of construction was no longer the dominant factor, he could focus his attention on establishing control, especially in Morocco. He implemented competitive bidding for local supplies, a standard practice that Colonel Derby had suspended in 1951 to save precious time. Walsh also ordered fencing for areas used to store supplies and equipment and tightened security in general. Walsh was not sure that the property records kept by Atlas Constructors could ever accurately reflect the equipment on hand, but he knew that congressional investigators, and therefore the secretary of the Army, gave the highest priority to inventory control. Walsh instructed Atlas Constructors to end excessive overtime of construction workers, to

eliminate extra personnel, and to establish more effective supervision. Walsh fully expected these measures to reduce costs over the duration of the project.¹

When Lt. Col. Curtis W. Chapman Jr. arrived in August 1952 at headquarters in Casablanca, Walsh put him in charge of the division's operations. Chapman became convinced that the problems in Morocco were operational and that proper inspections could correct them. Was the work in accordance with the plans and specifications? Was it on schedule? If not, what help could the division provide to the district staff to improve the situation? Chapman was able to deploy half a dozen civilian engineers to increase the frequency of inspections. He sent them to the Middle East District in Libya and to TUSEG in Turkey as well as throughout the East Atlantic District in Morocco.²

Gradually, the division's staff increased. By the winter of 1952–1953, the staff of about eighty had taken over the inspection and control of construction, duties that PUSOM had handled since early 1951. PUSOM, the joint architect-engineer venture with a multinational staff of 568, retained its planning and design functions.³ In January 1953, after less than a year in command of the Mediterranean Division, General Walsh was reassigned to the Joint Construction Agency in France, established that month to consolidate construction activities in Europe. Colonel Campbell, commander of the East Atlantic District, took over as interim commander of the division.

The Middle East District in Libya and Saudi Arabia, 1951–1952

During Walsh's short tenure as division engineer, he worked to improve cooperation between the district engineers' staffs and the contract personnel managing design and construction. To become acquainted with the staff and to monitor construction, he made inspection tours to the U.S. Engineer Group in Turkey and to the construction sites at Wheelus and Dhahran.⁴

¹ "Chronological History, Middle East District (Through 30 April 1953)," p. 3, box 51-83-8379, Richard T. Farrell Papers, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.; U.S. Congress, Senate, Preparedness Investigating Subcommittee of the Committee on Armed Services (Lyndon B. Johnson, Chairman), *Investigation of the Preparedness Program: Interim Report on Moroccan Air Base Construction*, 82d Cong., 2d sess., 1952, pp. 24, 41 (hereafter cited as Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52).

² Interv, Paul K. Walker with Maj Gen (Ret) Curtis W. Chapman Jr., 28–30 Sep 81, pp. 100–104.

³ "History of the East Atlantic District," p. 4; "Who Is Doing the Work," p. 8; "The Mediterranean Division," p. 10; all in *Moroccan Courier*, 3 July 1953. The second article gives figures for PUSOM for 15 January 1953. The third article gives a total staff strength for the division as of July 1953 of 8 officers, 53 American civilians, and 24 local or third-country nationals, that is, citizens of a country other than the United States or the host country.

⁴ Johnson Comm Rpt on Moroccan Air Base Construction, Aug 52, pp. 21, 24, 27; Memo, Col William E. Leonhard, 4 Sep 52, sub: Funds for Construction in Turkey, Mil Files XII-34, OH, HQ USACE; Col Bruno L. Jakaitis, an. 4 to USTAP Rpt no. 67, [Jun 52], sub: TUSEG, Progress Rpt for June 1952, p. 3, Mil Files XII-34, OH, HQ USACE.



Aerial view of Wheelus Air Base looking west, with the Mediterranean Sea to the north

The construction program outlined in 1950 and 1951 was just beginning to produce visible results. As of mid-August 1952, the construction contractor at Wheelus Air Base, Crow-Steers-Shepherd, had completed almost 60 percent of the building program scheduled for 1951 and about 25 percent of the 1952 program. The slow delivery of construction materials to the worksites compounded delays in funding by the Air Force and delays in procurement. At Dhahran, the contractor had assembled 75 percent of the materials for the 1951 program but only 40 percent for the 1952 program. Although the fiscal year had already ended, construction crews at Wheelus had on hand only 15 percent of the materials necessary to complete the construction of barracks and bachelor officers quarters.⁵

Construction moved slowly at Wheelus in part because of the changing political situation in Libya. In late December 1951, this former Italian colony, since war's end under British administration on behalf of the United Nations, became the first such country to receive full independence. The implementation of Libyan sovereignty compelled the Middle East District to begin in May 1952 to negotiate with the new Libyan government, as well as with the holdover British functionaries, more than

⁵ Memo, Col Paul D. Troxler to Div Engr, Mediterranean Div, 4 Sep 52, sub: Narrative Report on Overseas Construction, August 1952, Mil Files XII-34, OH, HQ USACE; "Chronological History, Middle East District (Through 30 April 1953)."



Aerial view of the Dhahran airfield looking south, September 1954.
Note the absence of vegetation.

one hundred fifty new leases needed to increase the area of the air base from 1,264 to 3,400 acres. Unfortunately, the new Libyan administration was irritatingly slow in processing the requests. The district enlisted help from the U.S. diplomatic legation, but delays continued to hinder construction.⁶

The work at Dhahran made little better progress. The extreme temperatures caused the concrete mix used in the construction to set so rapidly that the crews could not transport it by truck the five or six miles from the batch plant to the job site. Even adding excess water did not offset the evaporation due to the heat, so the crews poured concrete at night. One participant tells of a night pour starting about 8:00 p.m. after a daytime temperature of 130°F. Around midnight, the wind direction changed and the temperature began to drop. Suddenly “freezing to death,” he donned a jacket, which he wore until his shift ended at 2:00 a.m. The next day, he learned that the low temperature overnight had been 105°F.⁷

⁶ R. L. Swetzer, *Wheeler Field: The Story of the U.S. Air Force in Libya, The Early Days, 1944–1952* (Ramstein, Germany: Historical Division, Office of Information, U.S. Air Forces in Europe, 1965), pp. 28, 34; Charles B. Faulkner Jr., Rental Re-Eval Rpt: Agreed Areas, Libya, 4 Jun 55, pp. 2–3, unmarked box, OH, HQ USACE; Memo, Troxler to Div Engr, Mediterranean Div, 4 Sep 52.

⁷ Interv, Richard T. Farrell with Wilbur Sheehan, Aug 75, p. 2.

By early September 1952, the Fluor Corporation had completed approximately three-quarters of the construction program scheduled at Dhahran for FY 1951 and almost half the work scheduled for FY 1952. The U.S. Air Force had redefined specifications for strengthening and widening the runway; but as of September 1952, the area office at Dhahran had not received the new specifications.⁸

Converting the Cost-Plus-Fixed-Fee Contract in Morocco

From the beginning of the construction program in Morocco, East Atlantic District personnel had intended to convert the CPFF arrangement to a fixed-price contract; but they knew that the conversion had to wait until the Air Force had lifted the emergency directive and the pace of work had slowed. After the first two years, the government managers and the contractors were able to price the work equitably and to plan for conversion to a lump-sum, fixed-price contract.⁹

By early 1953, the idea of conversion had won general approval. On 22 January, the Air Force requested that the Corps of Engineers end all overseas CPFF contracts. A week later, Atlas Constructors expressed their willingness to submit a fixed-price, lump-sum proposal if they could get a clear definition of the scope of the remaining work and a settlement of invoices that they had submitted under the cost-plus contract.¹⁰

Maj. Gen. Samuel D. Sturgis Jr., who succeeded General Pick as chief of engineers in March 1953, strongly advocated converting the Atlas contract. Sturgis appointed Brig. Gen. Walter K. Wilson Jr. as the new commander of the Mediterranean Division, in part because of his extensive experience with CPFF contracts, and instructed him to develop a plan for the conversion. In meetings with the secretary of the Army, the new chief of engineers emphasized the need for a clear plan from the Air Force for the remaining construction and asked the secretary to order the steps necessary for conversion. On 9 April, Sturgis asked Atlas Constructors to submit a report discussing the issues involved in converting the contract.¹¹

A few days after General Wilson arrived at Mediterranean Division headquarters in Casablanca, in mid-April 1953, he asked his staff to prepare a study exploring the positives and negatives of converting the Atlas Constructors' contract. Colonel Chapman headed the team, which strongly recommended *against* conversion; team members remained convinced that the vagaries of the construction program still made calculating a fixed price very difficult. Wilson praised the thoroughness of the

⁸ Memo, Troxler to Div Engr, Mediterranean Div, 4 Sep 52.

⁹ Memo, Lt Col Leonard L. Haseman to Col George T. Derby, 4 Dec 51, sub: Renegotiation of Atlas Contract, box 51-84-6364, Farrell Papers; "The Moroccan Story" [mid-1953], p. 8, Mil Files XII-29-7, OH, HQ USACE.

¹⁰ "Moroccan Story," p. 8; "Atlas Contract History," p. 8, Mil Files XII-29-5, OH, HQ USACE.

¹¹ Paul K. Walker, *Interviews with Lieutenant General Walter K. Wilson, Jr.* (Washington, D.C.: U.S. Army Corps of Engineers, 1984), p. 135 (hereafter cited as Walker, *Interviews with Wilson*); "Atlas Contract History," p. 9; "Important Dates in French Morocco," 1 May 52, in *Mil Histories* (vol. 3 of 4, 1952), box 51-84-6364, Farrell Papers.

report, thanked his staff, and called Chapman into his office. “Damn it!” he said, “You don’t understand. We’re *going* to do this! . . . The chief wants this done.”¹²

Wilson announced that he would be taking a three-week tour of the division’s operations in Libya, Saudi Arabia, and Turkey. In his absence, he expected Chapman and the staff to prepare an equally thorough and conscientious examination that emphasized the *positive* elements of conversion. General Wilson returned from his tour to find the study that he wanted but a skeptical staff. Over the following weeks, Wilson convinced at least senior members of the division staff, including Chapman, that the proposed conversion could be advantageous for the government and fair to the contractor.¹³

The study prepared under Chapman’s direction analyzed more than fifty potential issues, including pricing, property, supply, legal affairs, security, and the various services that the contractor had performed under the terms of the CFFF contract. For each problem, the plan offered several possible solutions and listed the advantages and disadvantages of each. In June, Wilson and Chapman presented their plan to General Sturgis and to officials at the Pentagon. They returned to Morocco with a letter approving the conversion in principle but authorizing the step only if the actual negotiations with Atlas Constructors confirmed that the conversion would bring economic advantages to the government. The assistant chief of engineers for military construction and a representative from the OCE legal office accompanied Wilson and Chapman to Morocco to assist in negotiations leading to approval of a final contract.¹⁴

The parties had to resolve the difficult issue of assessing the equipment and supplies on hand in Morocco or on order. In theory, anything Atlas had purchased constituted a part of its “costs.” The government paid for it, and the materials became government property. Because equipment and supplies had reached the country with very little inventory control, it was difficult to tell what was in country, what was in transit, and what had never arrived. To inventory all the supplies on hand would have taken too much time, involved too many people, and still not determined what the government had paid for and thus owned and what still belonged to Atlas. Under Chapman’s direction, division and Atlas employees inventoried about 10 percent of the supplies on hand and projected an estimate based on the sample.¹⁵

Division staff finally calculated the total cost of the remaining construction and compensation for the inventoried materials at about \$21 million, less than half

¹² Ltr, Brig Gen W. K. Wilson Jr. to Lt Gen Samuel D. Sturgis, 6 May 53, file 328, box 51, Lt Gen Samuel D. Sturgis Jr. Papers, OH, HQ USACE; Walker, *Interviews with Wilson*, pp. 137, 298–99; Interv, Walker with Chapman, 28–30 Sep 81, pp. 105–06. Chapman’s recollections provide the more vivid language, but the accounts agree in detail.

¹³ Walker, *Interviews with Wilson*, pp. 137, 298–99.

¹⁴ “Atlas Contract History,” pp. 9–10; Walker, *Interviews with Wilson*, pp. 301–02; Memo, Maj Gen B. L. Robinson, 16 Jun 53, sub: Conversion of CFFF Contract with Atlas Constructors for Construction of Bases in Morocco, and similar memos from Tulley, 23, 30 Jun 53, and Robinson, 29, 30 Jun 53, in Mil Files XII-41-6, OH, HQ USACE; “Summary of Major Events and Problems, Fiscal Year 1954,” Sep 54, files 3ff, box 3, Gen Files, OH, HQ USACE (hereafter cited as Major Events, FY 1954).

¹⁵ Interv, Walker with Chapman, 28–30 Sep 81, pp. 106–07.

the figure Atlas proposed. Throughout late June and July, the staff worked with the contractor's management team to determine fair unit prices for equipment. The teams assessed the requirements of each construction project to determine the number of people, the amount of materials, the associated costs, and the potential savings that would accrue under a new contract. They took into account the need for remedial work at some sites. At one point, Atlas indicated that it had made all the concessions it could; the figures on the table represented the contractor's final offer. Wilson, saying that he could not accept a settlement at that level, proposed a competitive bidding process for the remainder of the construction in Morocco. This was an unattractive option because the technical agreements with the French named Atlas Constructors as the authorized contractor. Wilson's firm stand prompted Atlas negotiators to reconsider. Wilson and Jack Bonny of Atlas negotiated further cuts, prompting Wilson to say, "I'm scared we've cut too much." He put a little back into the contract amount because he did not want Atlas strapped for cash.¹⁶

Wilson agreed to a figure of \$32.4 million. To protect the government, he insisted on a "redetermination" clause that allowed the government to renegotiate if the amount agreed upon produced excessive profits. The contract provided that Atlas would accept all work for which plans and funds were available prior to 1 January 1954; the contractor retained the right to decline work not specifically contracted before that date. Practically, this meant that the new contract applied only to Nouasser, Sidi Slimane, and Benguéir, all of which were already under construction. The government agreed to purchase the surplus at the end of the construction program; to furnish camps, plants, and equipment to Atlas without charge; and to assume any added costs due to the actions of the Moroccan government. The new arrangement came into effect on 1 August 1953 by means of a supplemental agreement to the original contract.¹⁷

Renegotiating the contract for a lump sum brought immediate savings to Atlas; through the redetermination clause, the government saved money also. After the conversion, Atlas cut its workforce by nearly four thousand, eliminating personnel who had monitored the cost-plus contract, including security guards, timekeepers, supervisors, and inventory checkers. Overtime work fell sharply. Atlas also saved by finding items at prices lower than those used in calculating the conversion. In mid-October 1953, Atlas and the Mediterranean Division applied the redetermination clause, reduced the prices set in the contract, and saved the government \$4.9 million. Over the first year, the government saved a total of \$6 million. Although a firm dollar figure for total savings was not possible because of the changing dimensions of the project, other savings accrued over the next several years. General Sturgis and General Wilson (who became chief of engineers in 1961) each judged the conversion of the Atlas CPFF contract to be a major career accomplishment.¹⁸

¹⁶ Ibid.; Walker, *Interviews with Wilson*, pp. 301–03.

¹⁷ Walker, *Interviews with Wilson*, pp. 301–03; "Moroccan Story," p. 9; "Atlas Contract History," pp. 11–16; Major Events, FY 1954.

¹⁸ "Atlas Contract History," pp. 17–22, 23–30; "Who Is Doing the Work," p. 8; Walker, *Interviews with Wilson*, pp. 144, 302, 306, 314; "Moroccan Story," pp. 9–12; "Major Accomplishments

Transferring Operations in Turkey

The Mediterranean Division's area of responsibility also extended to Turkey, where the U.S. Engineer Group in Turkey had received the assignment in 1950 to build two bases, to rehabilitate five bases, and to build a fuel storage and distribution system at one other site. By 1952, only five of the original eight sites remained in the program and the total number of sites had dropped from eight to seven.¹⁹

The government had awarded a CPFF contract for the work in Turkey. This contract never attracted the notoriety that the Moroccan CPFF contract gained, partly because the program in Turkey was much smaller. Also, TUSEG's financial officer learned from the Corps' experience in Morocco. In 1950, TUSEG had hired Stuart Wagman as chief of its Audit Branch; by 1952, he had become principal financial officer. Wagman recognized that he faced many of the same problems administering the CPFF contract in Turkey as those that had drawn criticism in Morocco. With the help of Orhan Cankardes, a Turkish engineer from TUSEG's Engineering Division, Wagman worked with the project managers to refine cost estimates of various construction activities. Using a self-designed reporting form, Wagman matched expenditures with construction progress and compared costs as a percentage of the estimate with the percentage of project completed. The cost-versus-progress reports allowed TUSEG to identify potential cost overruns. Wagman's analytical initiative and the form that he developed for reporting won him a letter of commendation from General Walsh.²⁰

In December 1953, General Wilson and Lewis McBride, chief of the Engineering-Construction Division in TUSEG, met in Frankfurt with the commander in chief of United States Army, Europe (USAREUR), who wanted command authority over all military construction assigned to his area of responsibility. With Turkey and Greece in NATO, the transfer of TUSEG's operations to the Joint Construction Agency seemed logical. General Sturgis expressed his concern that this action and the Department of Defense's recent decision to give the Navy responsibility for construction of bases in Spain left the Corps of Engineers with "the more remote, costly, and difficult places where arrangements and controls are particularly harsh." The Mediterranean Division's support for TUSEG continued through the early months of 1954. On 1 May 1954, the JCA absorbed TUSEG, and the work in Turkey continued under an area office supervised from a JCA district headquarters in Athens.²¹

of the Chief of Engineers for the Six Months Period 26 July 1953–25 January 1954," file 391, box 61, Sturgis Papers.

¹⁹ Major Events, FY 1954, p. 189.

²⁰ Interv, authors with Stuart Wagman, 11 Jan 94, pp. 18–19.

²¹ Memo, Lt Gen Samuel D. Sturgis for DCE—Construction, 9 Dec 53, sub: Letter from Gen. Wilson, Med Div, 2 Dec 53, file 378, box 59, Sturgis Papers; Major Events, FY 1954, p. 189; Lewis McBride, "A Brief History of The U.S. Engineer Group (TUSEG), U.S. Army Corps of Engineers, Ankara, Turkey, 1950–1954," p. 1, Construction Div, Office of the Chief of Engineers (OCE), M-2-2/16, Europe Division—Record Holding Area (EUD-RHA); Ltr, Wilson to Tulley, 8 Apr 54, unmarked box, Karl C. Dod Papers, OH, HQ USACE.

The Mediterranean Division at Mid-Decade

At the end of 1953, Wilson and Sturgis had given some thought to closing out the entire Mediterranean Division. The major portion of the Moroccan program was securely on track, and no work in the region remained to be done. Sturgis therefore instructed Wilson to advise his personnel that the chief of engineers was “counting strongly on them” to supervise the initiation and rapid construction at Boulhaut, the completion of work under the Middle East District in Tripoli, the transfer of TUSEG, and the initiation of new projects. Wilson responded that his personnel were “gearing ourselves to being in existence for at least another year.”²²

In January 1954, General Wilson moved the division offices from Casablanca to Nouasser to consolidate operations with the East Atlantic District and to reduce staff. He appointed a deputy, Col. Gunnard W. Carlson, to succeed Colonel Campbell as district engineer and to prepare to draw down the district’s staff and operations. In November 1954, after Wilson’s division staff had reassumed direct responsibility for the work in Morocco, the East Atlantic District closed.²³ In January 1955, the Corps of Engineers deactivated the East Ocean Division based in Richmond, Virginia; the Mediterranean Division remained active.²⁴

Middle East District

As the only district under the Mediterranean Division, the Middle East District pressed construction forward at Wheelus Air Base in Libya and at Dhahran in Saudi Arabia. The period of most intense employment on the Wheelus project had come between December 1952 and August 1953, when the workforce ranged between three thousand seven hundred and four thousand five hundred. In January 1954, district personnel took over design, inspection services, and preparation of plans and specifications from the architect-engineer firm of Knappen-Tippetts-Abbett. In April, district personnel also took over design work for the projects at Dhahran.²⁵

At Wheelus Air Base, Crow-Steers-Shepherd installed utilities; paved the runways; added lighting; and built POL facilities, troop and family housing, a dependent school, and a swimming pool. The use of locally acquired building materials—limestone, concrete blocks, and rubble masonry—expedited construction and saved money by obviating the purchase of lumber, which was scarce and expensive. Using local materials, contractors could build a three-story dormitory

²² Sturgis quotation from Memo, Sturgis to DCE—Construction, 9 Dec 53; Memo, Brig Gen W. K. Wilson Jr. to Maj Gen Samuel D. Sturgis, 5 Jan 54, unmarked box, Dod Papers; Major Events, FY 1954, p. 71.

²³ Engr Hist Div, OCE, “Summary of Major Events and Problems, Fiscal Year 1955” [Oct 55], pp. 59–60, file 4, box 3, Gen Files, OH, HQ USACE.

²⁴ Major Events, FY 1954, p. 71.

²⁵ “History of the Mediterranean Division,” [ca. 1957], p. 24, box 19, access. no. 77-92-0002, WNRC; Crow-Steers-Shepherd, Final Closing Rpt, Contract no. DA-30-082-Eng-8 [Libya], pp. 125–26, box 51-83-8378, OH, HQ USACE; “Middle East District: Tripoli, Libya,” p. A2, box 51-83-8379, Farrell Papers.

for \$338,000; typical American wood construction would have cost \$435,000. The structures at Wheelus built of masonry were plastered inside and covered with stucco outside. Local subcontractors supplied aggregate, placed base course for roads and parking areas, and constructed building shells. Crow-Steers-Shepherd performed the more skilled work of plumbing, electrical installation, sheet-metal work, and airfield grading and paving. American companies subcontracting under CSS erected elevated water tanks, drilled and developed water wells, and constructed a 550,000-barrel prestressed concrete underground storage facility for fuel.²⁶

Additional construction for Libya included three Air Force aircraft control and warning (AC&W) stations and facilities for global communications (Globecom). In addition to AC&W stations placed in the vicinity of Tripoli, the Air Force located other such facilities in Misratah, one hundred miles southeast of Tripoli, and in Benghazi, three hundred fifty miles east of Tripoli across the Bay of Sidra. Each site required operational facilities, utilities, troop housing, and administrative buildings. As of October 1954, Crow-Steers-Shepherd had awarded 148 subcontracts for work around Wheelus Air Base and 14 subcontracts for work on the AC&W projects. Total allocations for Wheelus Air Base by the autumn of 1954 amounted to \$60,330,041 for construction and \$934,270 for design. Another \$4.7 million supported the three Libyan AC&W stations.²⁷

At Dhahran, the Fluor Corporation handled construction for runway paving and lighting, troop housing, POL facilities, base utilities, Globecom facilities, a refueling system, and administrative buildings. By late 1954, the company had awarded twelve labor subcontracts valued at \$3.6 million and two small construction subcontracts that together totaled \$12,210. Fluor completed the work at Dhahran in September 1955.²⁸

New Construction at Asmara

During General Wilson's tenure as commander of the Mediterranean Division, construction began on one new program: an Army communications installation at Asmara, the capital of Eritrea. The project at Asmara was part of the original construction program set for the Middle East District in 1951, but it received a lower priority than the airfields at Wheelus and Dhahran.²⁹ The political situation in the region caused additional delays, and the construction at Asmara did not begin for several years.

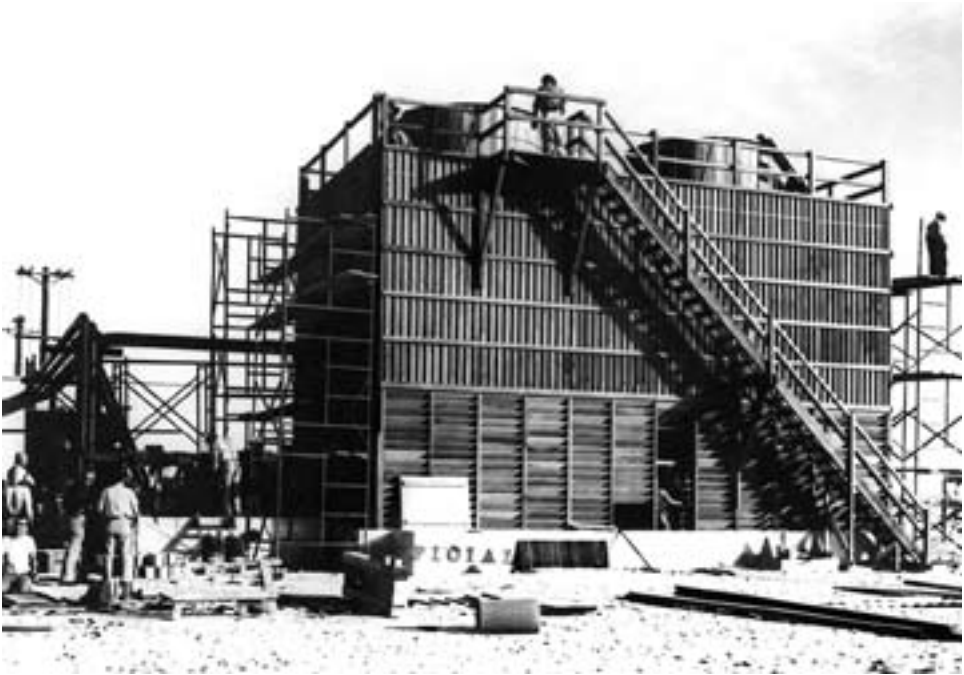
An Italian colony since the late nineteenth century, Eritrea had passed to British administration after Italy's defeat in World War II. In December 1950, the UN General Assembly voted to federate Eritrea with Ethiopia; in September 1952, with a constitution drawn up by a UN commission, Eritrea became a federal province

²⁶ "Middle East District: Tripoli, Libya," pp. 28, F1-F3.

²⁷ *Ibid.*, pp. 28, A1, F1, F3.

²⁸ *Ibid.*

²⁹ "Historical Summary, Mid. East Dist., 1950-51," Gen Files 2-1, OH, HQ USACE; "History of the Mediterranean Division," [ca. 1957], p. 25.



Cooling towers for an air-conditioning plant under construction at the Dhahran airfield

under the Ethiopian government headed by Emperor Haile Selassie. In 1953, the U.S. and Ethiopian governments signed a base rights agreement that covered the proposed construction at Asmara; in February 1955, the two countries signed a lease agreement for the land needed for construction.³⁰

Eritrea stretches along the southern third of the Red Sea's African coast, across from southern Saudi Arabia and Yemen. To the north and west lies Sudan; to the southeast lie Djibouti and the Gulf of Aden. (See *Map 7*.) The province's eastern coastal plains and western lowlands rise rapidly to a central mountain ridge. Asmara is situated on this ridge seven thousand six hundred feet above sea level; the elevation and unique atmospheric characteristics made the area an ideal communications center and listening point for monitoring electronic traffic worldwide.³¹ With one hundred thirty thousand inhabitants in 1955, Asmara lay two thousand miles by air from the Middle East District headquarters in Tripoli and one thousand miles from Dhahran, the nearest Mediterranean Division construction site.

³⁰ Lt Col Edward J. Bielecki, "Project History: 1954–1958 [Asmara Residency]," n.d., p. 8, box 24, access. no. 77-92-0002, WNRC.

³¹ Walker, *Interviews with Wilson*, p. 142; Interv, Alfred Beck with Maj Gen (Ret) Robert F. Seedlock, 25–26 Oct 79, pp. 279–80.



Map 7

In September 1954, representatives of the Mediterranean Division, the Army Signal Corps, and the Army Security Agency discussed the construction program with the designated Asmara project engineer at the Middle East District headquarters in Tripoli. Because no one had given the district a complete set of specifications, it had developed preliminary plans from standard designs. The district had then sent these plans to the division headquarters, to the post commander at Kagnev Station (the existing U.S. Army facility in Asmara), and to the project liaison officer for the Signal Corps. The district incorporated their comments and established a year-long timetable, to begin in October 1954, for

completing the drawings as additional data on the site and specifications for the project became available.³²

The decisions reached at the September 1954 meeting made many revisions inevitable during the initial stages of the construction. The revisions, the difficulties of communicating between Asmara and Tripoli, and the normal time lag involved in review and approval provoked problems with the timely procurement of critical materials. At the end of the project, the participants would conclude that “an increased engineering authority and capability [at the local level] . . . in the early stages of operations” might have served the project more effectively than leaving design in the hands of the district staff who were far away from the site.³³

The construction at Asmara involved three discrete locations. To create a larger installation at Kagnev Station, the engineers planned to rehabilitate an Italian Fiat automotive assembly center dating from the prewar Italian colonial period. Called the CINTIA site from the abbreviation of the Italian company’s name, the installation consisted of industrial workshops and repair facilities, administrative buildings, and housing facilities targeted for rehabilitation. This center provided support for two outlying installations: a transmitter site and a receiver site. The majority of the CINTIA buildings were single-story masonry structures with either wooden or steel roofing. The plan envisaged a new three-story barracks, a 500-person mess hall, a gymnasium, laundry and drycleaning facilities, new family housing, and all-new utilities. The mainsite and the outlying facilities would each have its own power plant. The program had a preliminary budget of \$8.543 million. On 11 October 1954, the Middle East District awarded a cost-plus-fixed-fee contract to the joint venture of Crow-Steers-Shepherd, which held the construction contract for Wheelus Air Base. The district opened the Asmara Area Office in November 1954, which grew to include two military assistants and fifteen American civilians.³⁴

Advance elements of Crow-Steers-Shepherd traveled from Tripoli in early 1955 to begin operations in Asmara. The Ethiopian government gave immediate clearance to all of the Americans but barred eight Italian CSS employees from entering the country. On 18 February, the Ethiopian government finally issued permits to admit all CSS employees. At that time, Crow-Steers-Shepherd had 22 American civilians and 14 European employees on its staff with plans to add 29 Americans and 15 third-country nationals.³⁵

³² Bielecki, “Project History [Asmara],” pp. 35–36.

³³ *Ibid.*, p. 47.

³⁴ “Middle East District: Tripoli, Libya,” p. A8; “Design Analysis for Water Supply and Distribution System at CINTIA Site, Asmara, Eritrea,” [1950s], box 52, Transatlantic Division–Records Holding Area, Winchester, Va.; “History of the Mediterranean Division,” [ca. 1957], p. 25; Bielecki, “Project History [Asmara],” pp. 14, 38–40; Virgil H. Wintrode, “Report on Survey of Middle East District May 1, 1955,” 1 Jun 55, p. 13, OH, HQ USACE.

³⁵ Bielecki, “Project History [Asmara],” pp. 14–16.



Concrete blocks drying in front of the batch plant at the Dhahran airfield

Construction began at Asmara the first week in March 1955, but approved drawings for various elements of the construction continued to arrive until October. Construction crews used readily available local materials. Surplus materials, supplies, and equipment were shipped from Nouasser, Morocco; Dhahran, Saudi Arabia; and Tripoli, Libya.³⁶ Crow-Steers-Shepherd planned to use local labor for much of the construction work; these workers seldom used modern equipment or power tools, but their low wages and long working hours—nine to ten hours a day, six days a week—compensated for the relative inefficiency of their hand labor.

Beginning with twenty-eight local workers with general construction and driver classifications, CSS increased the number to 1,021 by the end of 1955. In February 1956, the local labor force peaked with 1,220 workers on the payroll. By October 1957, CSS had reduced its local labor force to 201 with 9 professional staff. On 18 April 1958, the last two CSS administrative employees discharged the final 15 local workers and closed the company's Asmara office.³⁷

³⁶ *Ibid.*, pp. 1, 19–21, 24–26; Memo, Brig Gen David H. Tulley to Lt Gen Samuel D. Sturgis, 19 Jul 55, sub: Status of Work, Mediterranean Division, as of 15 July 1955, file 328, box 51, Sturgis Papers.

³⁷ Bielecki, "Project History [Asmara]," pp. 11, 15–16, 33–34.



Local laborers place rocks, creating the base for the transmitter site road at Kagnew Station.

The Mediterranean Division's Center of Gravity Changes

Late in 1954, the Mediterranean Division became both an operating and a supervising division. In addition to supervising the work of the Middle East District, the division executed the remaining work in Morocco. But even the “routine” situations in North Africa challenged the engineers. At Benguéir, a minor paving operation had to be suspended when a huge swarm of locusts descended on the work site; the asphalt could not be laid over the bodies of the locusts without compromising the integrity of the paved surface.³⁸

By mid-1955, the Air Force operated from four bases in Morocco that were virtually complete: Benguéir, Nouasser, Sidi Slimane, and Boulhaut. In April, the SAC commander, General LeMay, visited Boulhaut, the base most recently turned over to the Air Force. He pronounced it “one of the most scenic and livable bases” in the command with the “smoothest pavement and best looking asphalt in Morocco.” In Saudi Arabia, the project at Dhahran was in its final stages; in Libya,

³⁸ Ltr, Jack Baylor to authors, 1 Dec 95, p. 5, Transatlantic Programs Center (TAC), Winchester, Va.

construction for the three air-traffic control and warning stations also approached completion.³⁹

Brig. Gen. Benjamin B. Talley succeeded General Wilson as Mediterranean Division commander on 28 June 1955 and administered the division for ten months. On 1 May 1956, Talley ceded place to Brig. Gen. Lawrence J. Lincoln Jr., who commanded the Mediterranean Division until July 1958. Generals Talley and Lincoln oversaw the shift of attention of the Mediterranean Division from North Africa to the Middle East. By the mid-1950s, North Africa had become less strategically significant and considerably less hospitable for Americans, both civilian and military. The French in Morocco, Algeria, and Tunisia faced the challenge of anticolonialism. Algerian nationalists had launched a guerrilla war against France in 1954. In Morocco, nationalists rioted and agitated for independence. France refused to abandon its position in Algeria but granted independence to Morocco and Tunisia in 1956. The situation for the American forces in Morocco became increasingly tenuous.

Changing Priorities in the Middle East

In the Middle East, the ferment of nationalism—fueled by resentment against American support of the state of Israel—also brought instability and an antagonism toward the Western powers and the United States. American policymakers defined the Middle East as extending from Egypt to Pakistan and from the southern shore of the Black Sea to the Gulf of Aden and Sudan. The United States and Britain looked upon the region as a focus of strategic concern and of economic interest. The Middle East provided existing or potential military bases close to the Soviet Union in the event of a general war, and it contained the world's largest known oil resources. Iran, which bordered the Soviet Union, ranked as the leading regional producer of oil; Britain controlled Iranian oil production through the Anglo-Iranian Oil Company. Since the 1870s, when the government purchased a majority interest in the Suez Canal, Britain had controlled the canal; most of the sixty-four thousand troops Britain garrisoned in the area remained concentrated there. In 1955, forty ships a day carried 108 million tons of cargo, about 11 percent of the world's total international trade, through this critical economic and strategic passageway. To reroute the ships around the horn of Africa would add five thousand miles to each trip.⁴⁰

After World War II, ambitious nationalists challenged the British position both in Iran and in the Suez Canal Zone. Nationalists in Iran found it offensive that the Anglo-Iranian Oil Company avoided paying most taxes. In April 1951, the shah of Iran appointed a strongly nationalist leader, Mohammed Mossadegh, as prime minister. Although Mossadegh had many affinities with the West, he pursued an

³⁹ Major Events, FY 1954, p. 72; Ltr, Brig Gen W. K. Wilson Jr. to Maj Gen Samuel D. Sturgis Jr., 8 Apr 55, file 328, box 51, Sturgis Papers; Ltr, Brig Gen Benjamin B. Talley to Maj Gen Samuel D. Sturgis Jr., 18 Nov 55, file 306, box 48, Sturgis Papers; Memo, Talley to Sturgis, 19 Jul 55.

⁴⁰ Kenneth W. Condit, *History of the Joint Chiefs of Staff*, vol. 6, *The Joint Chiefs of Staff and National Policy, 1955–1956* (Washington, D.C.: Office of Joint History, 1992), p. 151.

increasingly assertive policy toward the Anglo-Iranian Oil Company that quickly led to its nationalization. Initially, American policymakers showed sympathy for Iran's desire to control its own oil production; but they became progressively more concerned about the security of strategic supplies of oil should the Iranian government pursue an anti-West policy.

The upsurge of Iranian nationalism paralleled a similar development in Egypt. In July 1952, a coup by military officers overthrew King Farouk I, who had become a symbol of the corrupting influence of Western domination. Mohammed Naguib, the nominal leader of the coup and a hero of the 1948 war against Israel, became prime minister and president. The real figure of power among the Egyptian Army officers, Gamal Abdel Nasser, remained in the background. The new nationalist government of Egypt set as one of its goals the elimination of what Naguib called the "destructively persistent stationing of British armed forces on Egyptian territory."⁴¹

In Iran, the challenge to British control of oil continued unresolved into 1953, when John Foster Dulles became secretary of state under President Dwight D. Eisenhower. Fearing that the Iranian crisis would invite Soviet meddling in the Middle East, Dulles charted a policy to resolve the situation in a way favorable to American interests. With American encouragement, the shah dismissed Mossadegh in August 1953. Mossadegh's nationalist policy had gained a substantial popular following, and his supporters demonstrated in the streets. Fearing for his life, the shah fled to Italy. Counterdemonstrators, supported by the Iranian Army and with covert American involvement, clashed with crowds sympathetic to Mossadegh; several hundred people were killed in the melee. With the Iranian Army firmly behind him, the shah returned and had Mossadegh arrested. Two weeks later, the United States extended a \$45 million loan to Iran.

In 1954, the parties resolved the issue of control and disposition of Iranian oil. Mossadegh had created the National Iranian Oil Company to manage Iran's oil assets; this company now signed an agreement with a new consortium in which the United States and Britain held 40 percent interests and France and other investors held lesser shares. The National Iranian Oil Company retained half the profits of the production of oil, a substantial gain over the 15 percent that the Anglo-Iranian Oil Company had paid the Iranian government. The consortium gave the United States, which had had no prior holdings, an interest in Iranian oil equal to Britain's.⁴²

The Iranian settlement brought no respite from crisis in the Middle East; from the American point of view, the situation in Egypt deteriorated as the leadership of the new regime turned more radical. In 1954, Nasser displaced Naguib, first as prime minister and then as president. Nasser had an ambitious agenda that included economic and military expansion for Egypt and pan-Arab nationalism led by Egypt.

⁴¹ André Fontaine, *History of the Cold War from Korea to the Present* (New York: Random House, 1969), p. 154, quoting a 1953 letter from Egyptian President Mohammed Naguib to President Dwight D. Eisenhower. Fontaine's source is Dwight D. Eisenhower, *The White House Years 1953–1959*, 2 vols. (New York: Doubleday, 1963), 1: 104.

⁴² For the crisis in Iran, see Fontaine, *History of the Cold War from Korea to the Present*, pp. 144–52.

His ambitions put him at odds with Britain and France, the long-standing colonial powers in the region. In July 1956, Nasser nationalized the Suez Canal.

Secretary of State Dulles saw this situation as he had the battle for oil in Iran—as part of the West’s struggle with the Soviet Union. Beginning in 1953, he instituted policy reviews involving the State and Defense Departments, the National Security Council, and the Joint Chiefs of Staff. The studies proposed political and economic measures to persuade the Arab states that the United States supported their interests and would provide economic and military aid for friendly countries in the region. Militarily, policy planners suggested a system of collective defenses to link Iran, Iraq, Turkey, and Pakistan. The National Security Council also suggested plans for military operations to deter or end any large-scale Arab-Israeli hostilities.⁴³

From these proposals Dulles shaped a policy of active engagement that sought to align the states of the region with the Western powers and to exclude Soviet influence. In 1955, Turkey, Iraq, Iran, Pakistan, and Britain formed the Baghdad Pact, an alliance for mutual defense. This pact became the Middle Eastern link between NATO, which covered Europe, and the Southeast Asia Treaty Organization (SEATO) in the Far East. The United States did not join the Baghdad Pact but held observer status in the organization’s policy-making body. The agreement by members of the pact, to use the indigenous land and air forces of the individual nations to defend the region, put a premium on the modernization and development of these forces.⁴⁴

The Trans-East District in Pakistan

Within weeks of General Talley’s arrival in Morocco as division engineer in late June 1955, Pakistan became a consequential element in U.S. foreign policy. This development presented the Mediterranean Division with a new challenge.

Pakistan achieved independence from India as a result of a bitter civil war in 1947 and 1948 over religious differences between Muslim Pakistanis and non-Muslim Indians. At its creation, Pakistan contained two zones, West and East Pakistan, which were separated by one thousand miles of territory controlled by the Republic of India. West Pakistan covered over three hundred ten thousand square miles, about twice the size of California. East Pakistan had fifty-four thousand five hundred square miles, comparable in size to Florida. East Pakistan, which became independent as Bangladesh in 1972, is a part of Southeast Asia; West Pakistan is a part of the Middle Eastern Islamic world.

After Pakistan’s independence, hostilities continued across the West Pakistan–India border. With India emerging as a powerful force for neutralism in the mid-1950s, Pakistan represented a potential counterweight to the neutralist appeal for a “third way” between the East and West in the Cold War. Pakistan’s strongly

⁴³ Condit, *Joint Chiefs of Staff and National Policy, 1955–1956*, p. 152.

⁴⁴ *Ibid.*, pp. 152–64, 237.

Muslim identity could make it a bulwark against Communist penetration into the Islamic world of the Middle East and thus an avenue for American influence.

All these considerations came to bear when the U.S. Joint Chiefs of Staff included Pakistan among the countries to benefit from Direct Forces Support (DFS), a military aid program designed to overcome the deficiencies of the armed forces of the United States' regional allies. Geographically close to both the Soviet Union and Communist China, Pakistan was strategically positioned; by helping the Pakistanis to develop modern facilities and methods of training, the military aid program would strengthen the Pakistani armed forces. The U.S. government offered \$535 million in direct aid administered through the Military Assistance Advisory Group (MAAG) in Pakistan.

Pakistan signed a military assistance agreement with the United States in May 1954 and in September joined SEATO. On 1 July 1955, the U.S. State Department transferred DFS programs for supporting the military forces of friendly countries from its International Cooperation Administration (ICA) to the Department of Defense. Late in August, the Department of Defense assigned responsibility for supporting military construction under the DFS programs in Iran and Pakistan to the chief of engineers, who ordered the Mediterranean Division to begin planning for construction in West Pakistan.⁴⁵

Because of the United States' competition with the Soviet Union, the State Department urged the Corps of Engineers to implement the program in Pakistan quickly. The Department of Defense designated this a "crash" program and assigned the highest priority to improving an existing airfield at Mauripur. Members of the Military Assistance Advisory Group in Pakistan also pressed for quick action by the Army engineers. They needed action: Although the MAAG had been in Pakistan for a year, it had as yet delivered no visible sign of U.S. aid.⁴⁶

In October 1955, before funds for the construction were approved, General Talley took key members of the division to Karachi to confer with the MAAG and

⁴⁵ Engr Hist Div, OCE, "Summary of Major Events and Problems, Fiscal Year 1956," Mar 57 (hereafter cited as Major Events, FY 1956), Gen Files 4-1, OH, HQ USACE; DF, Maj Gen Chas. G. Holle, 12 Sep 56, sub: Funding DFS Construction Pakistan and Iran, unmarked box, OH, HQ USACE; Memo, Col W. Roper to Deputy Chief of Staff for Logistics (DCSLOG), 12 Oct 55, sub: Direct Forces Support Program for Pakistan, Fiscal Year 1955, unmarked box, OH, HQ USACE; Security Br, Mediterranean Div, "Mediterranean Division Supplemental Intelligence Studies No. 4—Pakistan: An Introductory Survey," 18 Nov 55, pp. 1–2, 5, box 51-84-9377, OH, HQ USACE; Condit, *Joint Chiefs of Staff and National Policy, 1955–1956*, pp. 152–56.

⁴⁶ On the urgency of construction, see Ltr, Brig Gen William R. Shuler, Cdr, Mediterranean Div, to Maj Gen E. C. Itschner, 16 Sep 58, unmarked box, Dod Papers; MFR, Col A. D. Chaffin Jr., Mediterranean Div Cdr, 20 Feb 61, sub: Recollections on Military Assistance Construction in Pakistan, and other testimony in unmarked box, Dod Papers. On Mauripur as a priority, see Msg, MDDVA 2906 to COFENGRS [Chief of Engineers], 29 Oct 55, sub: Pakistan Direct Forces Support Program, and DF, Alfred S. Kurtz to DCSLOG, 5 Dec 55, sub: DFS Construction—Pakistan and Iran, both in unmarked box, Dod Papers. On the MAAG's eagerness for quick action by the Corps, see Memo, Col William A. Davis, 28 Jan 56, sub: Construction RPAF Station, Mauripur, Karachi, and the statement "dictated over long distance telephone by Col. Davis, New Orleans, to Gen. Lampert, this date, concerning the subject of Construction in Pakistan," 20 Feb 61, both in unmarked box, Dod Papers.

with the Pakistanis.⁴⁷ In November, Soviet leaders Nikolai Bulganin and Nikita Khrushchev made a state visit to Afghanistan—Pakistan’s neighbor—leading to a Soviet loan equivalent to \$100 million, \$40 million of which was for arms. The competition between the two superpowers for influence in the region had become very public.

As soon as the initial allotment of DFS money for Pakistan became available, General Talley returned to Karachi with a party of fifteen engineers and three secretaries; on 21 November, he activated the Trans-East District. Talley established a district laboratory for materials testing to support the anticipated construction; with two of his engineers, including Jack Baylor, the chief of the division’s Materials Branch, Talley visited and inspected the airfield at Mauripur. Baylor then prepared preliminary design specifications for the overlay paving of the airstrip. Talley assigned Col. A. D. Chaffin Jr., commander of the Middle East District, to serve temporarily as the Trans-East District engineer. Chaffin and the civilians from division headquarters had as their immediate priority the preparation of contract plans for a rehabilitation and extension of the airfield at Mauripur and development of a scope of work for negotiations with architect-engineer companies.⁴⁸

In early December 1955, the Office of the Chief of Engineers sent a list of potentially qualified contractors to the new district with instructions to solicit bids without public advertising—a strategy formulated to accelerate the contracting process. On 24 December, the Corps signed a contract with an architect-engineer joint venture of Grad, Urbahn, and Seelye; the designers had one hundred twenty days to complete their work. The contract included a provision that the design firm assist in developing specifications rather than depending on standard American criteria. Within a week, contract personnel arrived in Pakistan to examine local construction practices; the availability of materials and equipment; the capabilities of local workers and mechanics; and the availability of power, water, and transportation. Although Grad, Urbahn, and Seelye designed most of the facilities, the Mediterranean Division’s Engineering Division prepared designs to strengthen pavement and extend runways at the airfields.⁴⁹

On 7 January 1956, a new district engineer, Col. William A. Davis, arrived in Karachi. The chief of the MAAG briefed Davis on the projects and said that he wanted

⁴⁷ “Mediterranean Division Builders,” 1 Jan 58, pp. 18–19, box 18, access. no. 77-92-0002, WNRC.

⁴⁸ Memo, Talley to Sturgis, 18 Nov 55; Ltr, Baylor to authors, 1 Dec 55, p. 6. MedDiv Research Docs, TAC; MFR, Chaffin, 18 Jan 61, sub: Conference on Military Construction with Representatives of the House Committee on Foreign Affairs, unmarked box, Dod Papers; Department of the Army (DA), Comments on Draft Rpt, “U.S.-Financed Housing for Pakistan Forces” (House Committee on Foreign Affairs), unmarked box, Dod Papers, CEHO Research Collections, OH, HQ USACE; MFR, Chaffin, 20 Feb 61, sub: Recollections on Military Assistance Construction in Pakistan, unmarked box, Dod Papers.

⁴⁹ MFR, Chaffin, 18 Jan 61; Memo, Lt Gen Samuel D. Sturgis, 6 Jan 56, sub: Urgent Fund Requirements, DFS Construction, Pakistan and Iran, unmarked box, Dod Papers; “Brochure for Inspection Party from OCE and Mediterranean Div,” May 57, box 51-84-5389, Farrell Papers; DA, Comments on Draft Rpt, “U.S.-Financed Housing for Pakistan Forces”; MFR, Chaffin, 20 Feb 61.

the expanded facility at Mauripur ready as soon as possible after 1 July. The district also had plans to rehabilitate airfields at Drigh Road near Karachi, at Sargodha, and at Peshawar in northwest Pakistan near the Kyber Pass to Afghanistan. (*See Map 8.*) Other projects included a tank-rebuilding workshop and a printing plant at Rawalpindi and an ammunition-storage facility at Karachi. Between January and May 1956, the district commissioned additional designs for projects totaling \$40 million.⁵⁰

Colonel Davis favored a cost-plus-fixed-fee contract for the work in Pakistan. Contractors who visited the country noted the uncertainty of the situation and were leery of committing to a fixed price for the work. Davis also felt that the time allowed for design was insufficient to get the best results from a fixed-price contract. The chief of engineers, General Sturgis, opposed CPFF contracts on principle and on the practical grounds that they were susceptible to retrospective criticism and investigation.⁵¹

The district worked with the Office of the Chief of Engineers to identify qualified construction firms for a fixed-price contract. Of the thirty-five companies OCE listed in December 1955 as qualified and likely bidders, sixteen expressed interest in the work in Pakistan; but only four companies submitted sealed bids to the Mediterranean Division's rear-echelon office in New York City. On 27 June, Davis awarded a negotiated, fixed-price contract for \$29,616,958 to Oman-Farnsworth-Wright (OFW), a joint venture of Oman Construction Company of Nashville, Tennessee; R. P. Farnsworth Company of New Orleans, Louisiana; and Wright Contracting Company of Columbus, Georgia.⁵²

The criteria for the urgent project at Mauripur Airfield were modified in late January 1956 so that the airfield could accommodate heavy aircraft. The project modifications and delays in funding the Pakistani program made 1 July 1956, the date first requested for operational readiness of the airfield, impossible. Construction finally began on 1 September.⁵³ Within weeks, a new Middle East crisis overtook events in Pakistan.

In the autumn of 1956, the confluence of Soviet-American competition for influence in the Middle East, Nasser's desire to be rid of the British, and the Arab-Israeli conflict over the existence of the state of Israel exploded in the Suez

⁵⁰ Memo, Davis, 28 Jan 56; "Statement by Col. Davis, New Orleans, dictated over long distance telephone, to Gen. Lampert concerning the subject of Construction in Pakistan," 20 Feb 61; Memo, Sturgis, 6 Jan 56; Major Events, FY 1956.

⁵¹ Ltr, Talley to Sturgis, 30 Mar 56, including Sturgis' marginal notation that "we have constantly discouraged all contracting on CPFF," file 328, box 51, Sturgis Papers; MFR, Brig Gen W. K. Wilson Jr., 27 Feb 61, sub: Construction Standards at Kharian, unmarked box, OH, HQ USACE; Col F. J. Clarke, Discontinuance of Construction Contract Negotiating, 4 Oct 57, Mil Files XII-2-2, OH, HQ USACE.

⁵² Memo, Brig Gen W. K. Wilson Jr., 4 Jun 56, sub: Request for Approval of Award of a Negotiated Fixed Price Construction Contract, Pakistan FY-56, Direct Forces Support Program, unmarked box, OH, HQ USACE.

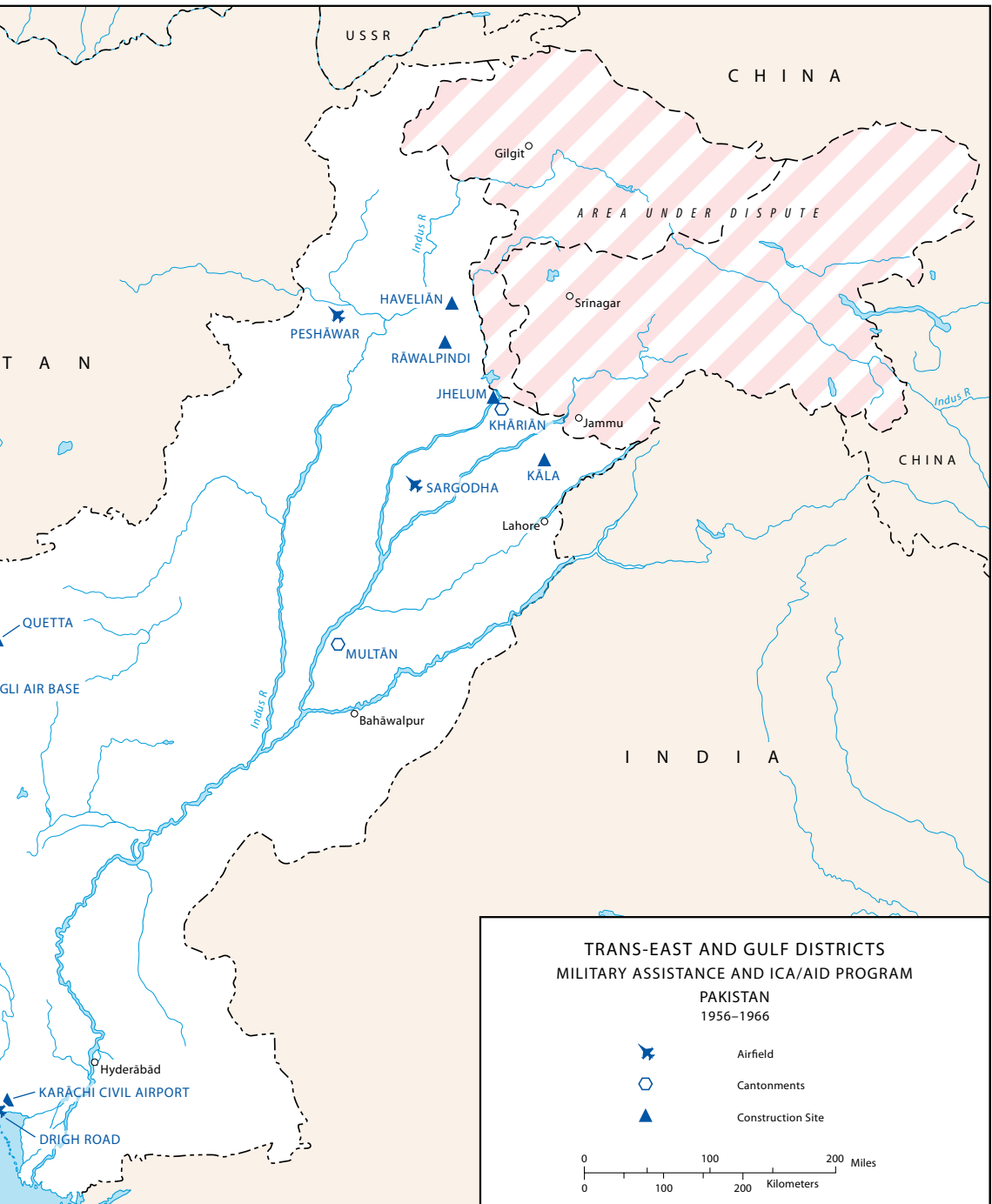
⁵³ Memo, Col William A. Davis, 22 Jun 56, sub: Construction Contract no. DA-92-462-Eng-5, unmarked box, OH, HQ USACE; Trans-East Dist Brochure for OCE Bfg, [Col Frederick J.] Clarke Remarks, 16 Jan 58, tab E, box 51-83-8379, Farrell Papers.

Crisis. On 29 October, Israel, provoked by repeated raids upon its territory from Egypt and with tacit support from the British and French governments, attacked Egypt across the Sinai Peninsula and advanced rapidly toward the Suez Canal. Invoking treaty rights to protect the canal in time of war, the British and the French landed troops a few days later to reinforce the British garrison in the Canal Zone. The United States opposed the military action, thus creating the astonishing alignment between the United States and the Soviet Union, which also opposed the military measures taken by the Israelis, the French, and the British.

The uncharacteristic concordance of U.S. and Soviet policy in opposition to the action in Suez was all the more paradoxical given the simultaneous crisis in Eastern Europe. On 21 October, eight days before the Israeli attack, Hungarians had taken up arms against the Soviet Union. The Soviet Army counterattacked and crushed the Hungarian independence movement. As the Red Army invaded Hungary, new contingents of British and French troops entered the Canal Zone.

Faced with the combined opposition of the United States and the Soviet Union, France, Britain, and Israel ended their military action. A cease-fire took effect in Suez on 6 November 1956, and French and British forces withdrew on 22 December. The Israelis withdrew in early March 1957 but retained control of the Sinai Peninsula. The Suez Crisis eased, but the military intervention in support of Israel by France and Britain and the opposition of the United States seriously damaged Western solidarity at the very moment that the Hungarian uprising in October 1956 made Soviet control of Eastern Europe seem both fragile and vulnerable.





Map 8



Housing the contractor furnished for workers at Kharian, mid-1950s

The Suez Crisis disrupted the flow of supplies to the military construction in Pakistan, but it did not stop the program. U.S. aid to Pakistan had allocated \$32.5 million for construction in FY 1956 and \$26.7 million in FY 1957: 70 percent in dollars and 30 percent in Pakistani rupees. Construction at Mauripur Airfield involved strengthening the existing runway; extending it from 6,100 to 9,000 feet; adding lighting for the field; and installing two tanks for jet fuel, each with a 10,000-barrel capacity. In July, the Army engineers opened the new facilities and turned the completed project over to the Military Assistance Advisory Group, which passed it on to the Pakistani Air Force early in 1958. In 1956–1957, contractors completed about half the work at a naval pier and 95 percent of the construction on a naval facility for ammunition storage, both in the vicinity of Karachi. Near the end of 1957, they began to strengthen and extend the runway at the Drigh Road airfield; during 1956 and 1957, work began on projects for the Pakistani Air Force at Peshawar and at Sargodha.⁵⁴

The Trans-East District's largest single project was a totally new army cantonment for an armored division of fifteen thousand Pakistani soldiers. Work on the facility, to be built at Kharian in the Western Punjab region, began late in 1956 with construction

⁵⁴ Trans-East Dist Brochure, Clarke Remarks, 16 Jan 58, tabs F, H, I; "Construction Overseas in Mediterranean Division" speech with slides, [1957], p. 15, box 51-83-8377, Farrell Papers; Memo, Brig Gen David H. Tulley, 10 Feb 56, sub: DFS Construction, Pakistan, unmarked box, OH, HQ USACE.



Local workers using animals to carry materials to construction sites at the Kharian cantonment

of roads, railroad lines, fuel-storage tanks, a sewage system and treatment plant, and the initial complement of buildings to house the first five thousand troops. By the end of 1957, the contractor had completed over three hundred fifty buildings and had work pending for another two fiscal years to complete the facilities. The most difficult problem at Kharian was finding an adequate supply of water.⁵⁵

The Suez Crisis of October–November 1956 closed the canal and lengthened the supply line for imported construction materials, slowing construction at both Mauripur and Kharian. The Trans-East District also found itself competing for supplies with the Pakistani government, which had requisitioned 70 percent of the country's cement production for its own use. This further delayed progress at both sites.⁵⁶

All the construction contracts that the U.S. Army Corps of Engineers negotiated for work in Pakistan contained clauses referring to the construction agreement and the defense agreement between the United States and Pakistan. The Army engineers argued for a strong supplemental technical agreement that would permit the contractors to award contracts directly to qualified subcontractors “free of import duties and taxes.” The engineers also insisted that the technical agreement clearly give them the right to extend to these firms and to their employees the tax relief

⁵⁵ Trans-East Dist Brochure, Clarke Remarks, 16 Jan 58, tab G.

⁵⁶ *Ibid.*

and immunities that United States agencies, including the Army engineers and their civilian staff, enjoyed.⁵⁷

The construction agreement signed 28 May 1956 had provisions covering taxes that satisfied neither the Corps of Engineers nor the American contractors. Pakistan required the contractor to pay the taxes initially on all imported material or goods. The contractor could then apply through the district engineer to the Pakistani Ministry of Defense for a certificate of exemption. The certificate had no monetary value; it was only a promise to refund the taxes paid. The system was cumbersome and prone to delays in the hands of the Pakistani bureaucracy.⁵⁸

Developing government-to-government construction agreements was a perennial issue for the Corps of Engineers, which frequently felt that other government agencies ignored its interests. The chief of engineers, General Sturgis, contended in private ruminations that the “State Department has never been realistic in connection with any of our international dealings on construction; and the Air Force . . . has always been willing to sacrifice us on the block instead of standing up for logical construction procedures.”⁵⁹

By the end of 1957, the Trans-East District had the equivalent—including rupee-financed work—of \$55,698,114 under contract and another \$34,571,190 programmed for FY 1958. The construction program in Pakistan, well on its way to completion, displayed what one observer called a “unique combination of local subcontractors, American capital, native workers, imported supervisors, foreign materials, on-site fabrication, the latest machinery, and the most ancient hand methods.”⁶⁰

The Gulf District in Iran

The reorganization of the aid programs that followed the State Department’s transfer of Direct Forces Support to the Department of Defense in July 1955 also prompted formation of the Gulf District in Tehran.

Iran, with an area of about six hundred thirty thousand square miles—the equivalent of Texas, New Mexico, Arizona, and most of California—occupies

⁵⁷ Quotation from Memo, Roper to DCSLOG, 12 Oct 55. For repeated expressions of concern by the Army engineers regarding this issue, see Msg, MDDVE 3097, [21?] Nov 55, sub: DFS Program Pakistan, Requesting Comments; Msg no. MDTVE 916003, to COFENGRS, 19 Jan 56; Memo, Seedlock, [23?] Jan 56; Memo, Col G. A. Finley, 23 Jan 56, sub: Inter-Governmental Construction Agreement—DFS Program, Pakistan; all in R&D File 2544, unmarked box, Dod Papers.

⁵⁸ Trans-East Dist Brochure, Clarke Remarks, 16 Jan 58, p. 2. Telg, Brig Gen Lawrence J. Lincoln Jr., 17 Jan 58, sub: Request Authority to Negotiate FY ’58 Construction Program . . . , p. 2, box 23; “History of the [Gulf] District, March 1956–June 1965,” Jun 65, box 21; both in access. no. 77-92-0002, WNRC.

⁵⁹ Memo, Lt Gen Samuel D. Sturgis to ACE-MC [Army Corps of Engineers–Military Construction], n.d., sub: Letter from Division Engineer, Mediterranean Division, 5 Dec 55, file 306, box 48, Sturgis Papers.

⁶⁰ Robert E. Snetzer, “Pakistan: Newest Construction Area,” *Military Engineer* (September–October 1958): 335.

the western portion of a great plateau that stretches between the Indus and Tigris Rivers. The country lies just south of the Caspian Sea and in the 1950s bordered the Soviet Union on either side of that sea. (*See Map 9.*) The climate of the country ranges from extreme heat in the southern plains, where inhabitants took to caves for relief in the summer, to bitter winter cold and heavy snows in the north. The central plateau has an elevation from three- to more than five thousand feet, with a desert extending for eight hundred miles and varying in width from one- to two hundred miles cutting across it from northwest to southeast. The Elburz Mountains just south of the Caspian Sea in northern Iran and the Zagros Mountains in the west have peaks that range from ten- to eighteen thousand feet high.

During the 1950s, Iran had a population of 18–20 million, two-thirds of which consisted of nomadic tribesmen or peasant farmers working land owned by the wealthy. About a third of the population lived in towns of five thousand or more; one-tenth of the total population lived in the capital city, Tehran. Although of Indo-European rather than an Arabic/Semitic ethnicity, 98 percent of Iranians are Muslim.

The reigning emperor, Mohammed Reza Shah Pahlevi, had come to the throne in 1941, when the British deposed his father because of his suspected collaboration with the Nazi regime in Germany. The United States had supported the new shah's regime in its disputes with the Soviet Union after the war and in the troubles surrounding the tenure of the nationalist Premier Mossadegh. The shah saw common bonds between the U.S. foreign policy of containment and the security of his country. In keeping with the policy of containment, Iran joined the Baghdad Pact in 1955. The American Direct Forces Support program of the mid-1950s sought to strengthen and modernize the Iranian armed forces.

Primitive conditions existed for construction in Iran. Transportation depended on unsurfaced roads and a single-track rail line from the Persian Gulf to the Caspian Sea with branches to Mashhad in the northeast and to Tabriz and Turkey in the northwest. The country's supply of electricity was erratic and lacked any standardization. Cement production was unreliable, and there was little wood. All metal building materials had to be imported. The only abundant building material was handmade bricks, either fired or sunbaked and of no standard size.⁶¹

Organizing the Gulf District in Iran proceeded more slowly than establishing the Trans-East District in Pakistan. Discussions concerning the construction program for Iran began in the autumn of 1955, but funding delays meant that work could not start before the end of the fiscal year in June 1956. To staff the new district, the division hoped to recruit personnel from Morocco, Libya, and Saudi Arabia, where work had declined; but delays in initiating the work in Iran created a dilemma. In mid-January 1956, General Talley faced the prospect of imposing a divisionwide reduction in force to cut personnel costs, even though he would soon need the personnel in Iran. In correspondence with Sturgis, Talley described the situation

⁶¹ "History of the [Gulf] District, March 1956–June 1965," pp. 19–20; "Construction Overseas in Mediterranean Division," p. 22.



Map 9



and emphasized the “importance of an early decision on what we shall do in Iran.”⁶²

Preparations to establish an engineer presence in Iran had begun at the Office of the Chief of Engineers. Col. Leigh C. Fairbank Jr., district engineer for the prospective Gulf District, arrived in Tehran on 23 January 1956. Almost simultaneously, the twenty-seven technicians of the 30th Engineer Battalion’s Topographic Section received permission to enter Iran to begin instructing and assisting Iranian Army personnel in surveys. The Gulf District assumed responsibility for supporting this topographic training team.⁶³

Colonel Fairbank coordinated Corps of Engineers activities with the U.S. Army Mission and Military Assistance Advisory Group to Iran (ARMISH-MAAG). On 12 March 1956, the Corps officially activated the Gulf District, initially with a staff of twelve American civilians. In a compound outside Tehran, the Iranian Imperial Army provided space, vehicles, utilities including phone service, and equipment. Military personnel of the Imperial Iranian Army served as drivers, janitors, guards, and other support staff. On 16 March, General Talley took to Tehran a group of twenty-eight support personnel, two of whom remained and joined the district staff. The aircraft that carried Talley’s party also transported 4.3 tons of equipment and supplies for the district.⁶⁴

As a first order of business, Colonel Fairbank sought a qualified design firm. Negotiations lasting

⁶² Ltr, Brig Gen David H. Tulley (OCE) to Brig Gen Benjamin B. Talley, 18 Jan 56, file 306, box 48; quotation from Ltr, Brig Gen Benjamin B. Talley to Lt Gen Samuel D. Sturgis Jr., 20 Jan 56, file 388, box 61; both in Sturgis Papers.

⁶³ “Mediterranean Division Builders,” 1 Jan 58, pp. 15–16; Major Events, FY 1956; Data for the Orientation of Maj Gen E. C. Itschner, 12 Nov 58, box 51-83-8379, Farrell Papers (hereafter cited as Data for Itschner, 12 Nov 58).

⁶⁴ “History of the [Gulf] District, March 1956–June 1965,” pp. 7, 13; “Engineer Division Mediterranean: Information Booklet,” 15 Aug 59, p. 7, unmarked box, OH, HQ USACE (hereafter cited as Engr Div Mediterranean Info Booklet: 1959); Ltr, Talley to Sturgis, 30 Mar 56; Data for Itschner, 12 Nov 58, pp. 1, 12; DF, Holle, 12 Sep 56.

almost three weeks began in Tehran on 1 April with Ammann and Whitney–Husted, a joint venture of two New York firms: Ammann and Whitney and Ellery Husted. The program for Iran involved building installations for three branches of the Imperial Armed Forces of Iran: the Air Force, the Army, and the Gendarmerie (Iran’s national guard).⁶⁵

With the contract for design awarded, the district addressed its deficiencies in staffing. Recruiting American civilians proved difficult because the district had to compete for recruits with other districts and with the division itself. The employment contract for civilian staff was twenty-four months, longer than many wanted to accept in an isolated country without amenities. Housing, household goods, and appliances were difficult and expensive to acquire on the local economy. With the approval of the division engineer, the district began to provide incoming personnel with safe drinking water, refrigerators, space heaters, electric transformers, and cook stoves.⁶⁶

In May 1956, in addition to 13 openings in the Gulf District, the Mediterranean Division had 54 positions open: 6 at headquarters, 9 in the Middle East District, and 39 in the Trans-East District.⁶⁷ General Sturgis recognized the problem that Talley and his district engineers faced in filling crucial positions. On one of Talley’s letters, Sturgis wrote in the margin that “the situation for engineers in the US is bad enough since we can’t compete with civil life—but overseas where the *best* people are needed to meet not only new conditions of terrain & weather but international problems, we have never done an even fair job of recruiting.” He concluded with the discouraging observation, “For 3 years I have reported on this situation to DCSLog & G-1 w/o results.” Processing took at least five weeks; but by July 1956 the Gulf District had a staff of 55 persons, including 6 military and 29 American civilians.⁶⁸

After more than a year of negotiations, the U.S. and Iranian governments concluded formal construction arrangements on 19 September 1956. On 10 October, the district received instruction that cut funds for future planning. By late October, when the Suez and Hungarian crises broke, the imperatives behind the aid to Iran became more compelling. Funds that had been curtailed shortly before these incidents were released in late November.⁶⁹

Once money became available, the division and the district worked out final plans and specifications with the design firm and the district assembled a list of

⁶⁵ “Mediterranean Division Builders,” 1 Jan 58, pp. 15–16.

⁶⁶ “History of the [Gulf] District, March 1956–June 1965,” pp. 7, 12; Ltr, Brig Gen Benjamin B. Talley to Lt Gen Samuel D. Sturgis Jr., 17 Feb 56, file 328, box 51, Sturgis Papers.

⁶⁷ Ltrs, Talley to Sturgis, 30 Mar, 30 Apr 56; Memo, Ploger, Actng Asst Ch of Engrs, for Personnel, 21 May 56, sub: Status of Recruitment—Mediterranean Division; Ltr, Col C. H. Dunn to Lincoln, 23 May 56; all in file 328, box 51, Sturgis Papers.

⁶⁸ Quotation from marginal note on Talley to Sturgis, 30 Mar 56; Engr Div Mediterranean Info Booklet: 1959.

⁶⁹ “History of the [Gulf] District, March 1956–June 1965,” pp. 3–4; Data for Itschner, 12 Nov 58, pp. 4, 8; Data for Cmd Inspection by Mediterranean Engr Div, 4–18 Jan 63, box 22, access. no. 77-92-0002, WNRC.

thirty-one American construction companies as prospective bidders. The Gulf District issued an invitation for bids on 1 February 1957. Two bids were opened on 22 March at the division's rear-echelon office in New York, one proposing \$62.1 million, the second \$44.3 million. After negotiations that lasted several weeks, the district signed a fixed-price construction contract for \$44 million with a joint venture of five firms: Morrison-Knudsen Company Inc. of Boise, Idaho; Henry J. Kaiser Company of Oakland, California; Oman Construction Company Inc. of Nashville, Tennessee; R. P. Farnsworth and Company Inc. of New Orleans, Louisiana; and Wright Contracting Company of Columbus, Georgia. The joint venture, known as Morrison-Kaiser-Oman (MKO), quickly opened an office in Tehran and began work at Mehrabad, the municipal and international airport near Tehran, on 1 May. Over the remaining months of 1957, construction began on army facilities at Khaneh, Naqadeh, and Oshnaviyeh in northwest Iran and on facilities for the Iranian Air Force at Dezful Airfield in southwestern Iran near the border with Iraq. Funding for the construction amounted to 60 percent in dollars and 40 percent in rials.⁷⁰

Simultaneously with these contract negotiations, the commanding general of the Military Assistance Advisory Group and the Mediterranean Division engineer worked out an agreement, signed in late April 1957, to govern the relationship between the ARMISH-MAAG and the Corps of Engineers, represented in Iran by the Gulf District.⁷¹

The district still had a staff shortage; with construction underway, it needed a technical liaison office to help monitor the contractors' work. The terms of the contract for new American civilian employees changed in March 1957, with a reduction in tour from twenty-four to eighteen months. By May, because turnover remained high, the district asked the Mediterranean Division to assign personnel from the division's design, construction, and comptroller sections to temporary duty in the district. The district also requested that its need for personnel be "given highest priority by the Office of the Chief of Engineers." By the end of 1957, the district had a staff of 138 U.S. civilian employees, 27 European nationals, and 300 local nationals; but problems of recruiting continued.⁷²

⁷⁰ MFR, Hillman, 25 Jan 57, sub: DFS Program—Pakistan and Iran, unmarked box; Memo to Div Engr, Mediterranean, 31 Jan 57, sub: Initiation of Construction in Iran (U), unmarked box, Dod Papers; Memos and related docs, 8, 28 Feb, 4, 6, 26 Mar 57, in same box; Ltr, Brig Gen Lawrence J. Lincoln Jr. to Col William A. Davis, 18 Feb 57, Mil Files, XII-2-2; "Construction Overseas in Mediterranean Division," p. 16; Engineer Hist Div, OCE, "Summary of Major Events and Problems, Fiscal Year 1957," May 58, p. 71, file 2, box 4, Gen Files; Data for Itschner, 12 Nov 58, pp. 3–4; L. W. McBride, "U.S. Army, Engineer Division, Mediterranean," [Aug 58], p. 5, box 51-84-6364, Farrell Papers; all in OH, HQ USACE.

⁷¹ "History of the [Gulf] District, March 1956–June 1965."

⁷² Gulf Dist, Corps of Engrs, U.S. Army, Bfg Book, Tehran-Iran [May 57], pp. 3–5, 9–10, box 25, access. no. 77-92-0002, WNRC; "History of the [Gulf] District, March 1956–June 1965," pp. 7–8. The staff numbers are in Gulf Dist Bfg for Gen Lincoln, 19–22 Jan 58, p. 33, box 22, access. no. 77-92-0002, WNRC.



Primitive construction methods in Iran included using young boys to carry material to make bricks at Dezful.



Relocating the Mediterranean Division to Italy

The granting of independence to Morocco in March 1956 and the French withdrawal from that country created an uncomfortable situation for the Mediterranean Division. The agreements that gave the U.S. Army engineers legal status in Morocco had been signed with the French government; the United States had no legal agreement with the new government in Morocco. This political anomaly, coupled with the changing locus of the division's work, led General Talley to suggest moving the division headquarters. He raised the issue with General Sturgis in November 1955, and Sturgis quickly agreed.⁷³

Over the next two years, the division engineer in Morocco and the OCE staff in Washington considered alternate sites. In December 1955, Talley proposed Tripoli, Cairo, and Beirut as possibilities. A month later, he sent his deputy, Col. Robert F. Seedlock, to Pakistan to aid Colonel Davis in establishing the Trans-East District. He asked Seedlock to investigate cities between Nouasser and Karachi as possible locations for the division headquarters.⁷⁴ General Lincoln, Talley's successor, initially favored Beirut, but Athens emerged as a leading contender; in October 1956, Lincoln sent a team there to gather information. The city already supported the Joint United States Military Aid Group Greece (JUSMAGG), the U.S. Air Force 7206th Support Group, and the Joint Construction Agency's Southeastern Division. The team's report recommended Athens, and team members attached an appendix that argued strongly against relocating to Rome.⁷⁵

Early in 1957, it became apparent that the Department of Defense planned to reorganize construction in Europe and to disband the Joint Construction Agency. A logical part of the reorganization included having the Mediterranean Division assume the construction that the JCA had supervised in the Mediterranean countries that were also NATO members: Italy, Greece, and Turkey. The JCA commander, Maj. Gen. Bernard L. Robinson, favored relocating the Mediterranean Division headquarters to Livorno, Italy, where the JCA maintained its Southern District.⁷⁶

General Lincoln concluded that Livorno offered the best location, given the division's prospective work for NATO and the support services available. Lincoln also concluded that the Southern District offered the best organizational structure for supervising the remaining work in North Africa. He proposed that the Southern District remain in Livorno with the districts in Morocco and Tripoli reporting to it.⁷⁷

⁷³ Ltr, Talley to Sturgis, 18 Nov 55, file 306, box 48, Sturgis Papers; Interv, Lawrence Suid with Lt Gen Lawrence J. Lincoln, Dec 79–Jan 80, pp. 193–201, app. H; Interv, Richard T. Farrell with Robbie Wilson, Oct 75, p. 3.

⁷⁴ Ltr, Talley to Sturgis, 15 Dec 55, file 392, box 61, Sturgis Papers; Ltr, Talley to Sturgis, 20 Jan 56.

⁷⁵ Memo, Col Vincent P. Carlson, 2 Nov 56, sub: Report of Visit to Athens, Greece, 21–27 Oct. 1956, box 51-84-6364, Farrell Papers; Interv, Suid with Lincoln, Dec 79–Jan 80, pp. 193–201.

⁷⁶ Ltr, Brig Gen E. A. Brown Jr to Brig Gen Lawrence J. Lincoln Jr., 4 Jan 57, unmarked box, Dod Papers.

⁷⁷ Ltr, Brig Gen Lawrence J. Lincoln Jr. to Maj Gen E. C. Itschner, 15 Feb 57, unmarked box, OH, HQ USACE.



On 21 September 1956, the chief of engineers, Maj. Gen. Emerson C. Itschner, addressed employees of the Middle East District, Mediterranean Division, at Tripoli.

Lincoln planned to move the division to Livorno in two phases. First, an advance task force joined the Southern District in June 1957 to identify office space for the division and to gather information on housing for incoming personnel. Near the end of the month, Lincoln authorized the lease of half of the first floor and the entire fourth and fifth floors in the Palazzo Grande, a six-story building in downtown Livorno. The building was attractive in part because a former tenant, the Southern European Task Force (SETAF), had installed a cable line for international communications. The central location was also ideal. Moreover, the division's chief of real estate could find no other building in the city with sufficient office space.⁷⁸

In June 1957, the secretary of defense approved the reorganization of military construction in Europe that gave the chief of engineers responsibility for the southern European members of NATO. Directives issued in July transferred the JCA's Southern District to the Mediterranean Division; assigned to the Southern District the work in Morocco, Libya, and Eritrea; and confirmed its continuing mission for work in Italy, Greece, and Turkey. About the same time, supervision of the work by the U.S. Army engineers at Dhahran, Saudi Arabia, passed from the Middle East District to the Trans-East District.⁷⁹

⁷⁸ MFR, C. B. Faulkner Jr., 26 Jun 57, sub: Leasing of Palazzo Grande Building; C. B. Faulkner Jr., Summary Appraisal Rpt, 27 Jun 57; both in box 51-83-8376, OH, HQ USACE.

⁷⁹ Memo, Brown, 25 Jul 57, sub: Military Construction in EUCOM Area, unmarked box, OH, HQ USACE; General Orders no. 12, 5 Jun 57, sub: Change in Responsibility for Construction in Saudi Arabia.

Bureaucratic delays within the Italian government held up clearance of the Mediterranean Division's move from Nouasser to Livorno, putting it off weeks longer than anyone had expected. As of 7 August, the division had only three people in Livorno. Finally, in late October, the Italian government approved the move; by 17 November, the division had transferred all personnel and records to Livorno.⁸⁰ The relocation involved 150 persons in 67 families and 2,000 tons of household goods and office equipment. About half the people, 20 tons of high-priority files including classified materials, and essential office equipment made the trip in fifteen separate flights. Some personnel and equipment traveled by ship and some by car. From a logistical point of view, the move proceeded smoothly. In a letter dated 18 November, General Lincoln described the situation as "over the hump," with "about 90 percent of people and things in Livorno beginning to assume some semblance of order."⁸¹

The relocation in late 1957 followed the shift in focus for the Mediterranean Division. In the six years since the U.S. Army engineers had begun work in Morocco, the division and its predecessor districts had supervised construction worth about \$630 million. The bulk of that spending, over \$400 million, had gone into Morocco. The Middle East District in Tripoli had supervised another \$120 million of work in Libya, Eritrea, and Saudi Arabia. Construction in Turkey had cost about \$36 million between 1950 and 1953. In Morocco, Libya, Saudi Arabia, and Turkey, the construction had involved thirty-five major programs for the U.S. Air Force, from air bases to air-traffic control and warning stations, oil pipelines, and fueling facilities. In 1956, the division initiated a \$29 million construction program in Pakistan; the following year, the division launched a \$46 million program in Iran.⁸²

During the North African years, the Mediterranean Division had dealt with severe criticism, particularly concerns about the early work in Morocco. It had also achieved significant successes. Reflecting more than two decades after his service with the division, Lt. Gen. (Ret.) Lawrence J. Lincoln observed: "Few organizations, in construction or other missions, could rightfully claim as much success in performing difficult and unusual tasks; and few could cite as many

⁸⁰ Ltr, Col John T. Poffenberger to Col C. Santone, Genio Militare Italiano, 6 Dec 57; Memo, Brig Gen Lawrence J. Lincoln Jr. to Brig Gen W. K. Wilson Jr., 6 Aug 57; MFR, Col John T. Poffenberger, 7 Aug 57, sub: Telephone Conversation with Commander Bostenero, CCO, and Mr. White, MDAP . . . ; all in box 20, access. no. 77-92-0002, WNRC. A dozen memos in this box sketch the delays encountered in the Italian and American bureaucracies concerning the Mediterranean Division's request to relocate to Livorno. Telex, Col Robert J. Kasper, 29 Oct 57, box 20; Div Engr, Mediterranean Div, Press Release, 29 Oct 57, box 26; both in access. no. 77-92-0002, WNRC.

⁸¹ Interv, authors with Wolfram Wolz, 24, 29 Nov 93, pp. 5–6; Ltr, Baylor to authors, 1 Dec 95, p. 9. Quote from Ltr, Brig Gen Lawrence J. Lincoln Jr. to Col Frederick J. Clarke, 18 Nov 57, Mil Files XII-2-2, OH, HQ USACE; Interv, Farrell with R. Wilson, Oct 75, p. 8; Ltr, Brig Gen Lawrence J. Lincoln Jr. to Brig Gen L. L. Mundell, 20 Dec 57, unmarked box, Farrell Papers. This is one of several thank-you letters from Lincoln to commanders of elements that had assisted the division during the move to Livorno.

⁸² "Construction Overseas in Mediterranean Division," p. 5; "Synopsis of TUSEG Construction Program Under Joint American Military Mission for Aid to Turkey as of 1 Aug 52," p. 1, Mil Files XII-33-8, OH, HQ USACE; Engr Div Mediterranean Info Booklet: 1959.

interesting and unusual, or even unbelievable, situations and episodes.”⁸³ He also remembered “hundreds of unsung people [who] found ways to cope with the varied foreign laws, currencies, environments, materials, customs, and languages.” General Lincoln’s remarks serve as a fitting characterization of the Mediterranean Division’s first six years.

⁸³ Appendix/Annex to Interv, Suid with Lincoln, Dec 79–Jan 80, pp. H2–H3.

PART II

THE MEDITERRANEAN DIVISION IN ITALY, 1957–1972

American foreign policy concerning the Mediterranean and the Middle East coalesced during the 1950s around three guiding concepts. First, strategic airpower gave the United States preponderance in the balance of military forces and that airpower required bases near the Soviet Union. Second, collective security, such as was developing between the United States and the countries of Western Europe, could be extended to the Mediterranean and the Middle East. The Americans, in cooperation with the British, built a military alliance that linked Turkey, Iran, and other Middle Eastern states to the West. The Baghdad Pact of 1955 and its successor the Central Treaty Organization (CENTO) resulted from this effort. Finally, U.S. policymakers believed they could with effort maintain cordial relations with all of the powers of the region. This final assumption became harder to achieve when Egyptian President Gamal Abdel Nasser began aggressively to assert his secular Arab nationalism against Arab regimes based on traditional and religious associations. The Suez Crisis of October 1956, the Eisenhower Doctrine of January 1957, and the pro-Nasser coup in Iraq in July 1958 brought a perceptible shift in the Middle Eastern alignment. Saudi Arabia, Lebanon, and Jordan moved closer to the United States, with Egypt, Syria, and Iraq (after the 1958 revolution) remaining hostile to American influence in the region.¹

In keeping with these circumstances, the United States redirected its foreign aid. In the early 1950s, the United States had built air bases for the United States Air Force (USAF) Strategic Air Command (SAC). In the second half of the decade, the United States programmed aid for Direct Forces Support (DFS), administered by the Department of Defense (DoD), to strengthen the military forces of selected American allies on the periphery of the Soviet Union and the People's Republic of China. To implement this shift in emphasis, the U.S. Army Corps of Engineers continued its work in Turkey and began to build modern army cantonments, airfields, and naval wharves in Iran and Pakistan. As the 1960s began, the U.S. government refocused its aid again by using Development Loan Funds (DLF) administered by the

¹ John C. Campbell, *Defense of the Middle East: Problems of American Policy*, 2d ed. (New York: Harper, 1960), pp. 228–29.

State Department to increase economic assistance to such countries as Afghanistan and Somalia.²

These changes involved the Corps of Engineers in a widening range of projects. In addition to building for the armed forces of Iran and Pakistan, the Corps accepted assignments from the State Department for nonmilitary projects. Through them, the Corps built civilian air terminals in Saudi Arabia, Pakistan, and Iran; developed a modern road system in Afghanistan; studied a similar undertaking for Burma; and planned an expansion of Burmese university facilities. In Somalia, the Corps supervised the creation of modern port facilities to allow increased export trade for the country's banana growers. The Corps also supervised the completion of work begun earlier in the 1950s in Morocco, Libya, and Eritrea.

Beginning in November 1957, the Mediterranean Division of the Corps of Engineers directed this wide range of construction efforts from Livorno, Italy. The relocation from Morocco coincided with new responsibilities for the division in the southern European and NATO states of Italy, Greece, and Turkey. Chapter 4 covers the division's move to Italy and its wrap-up of work in North Africa. Chapter 5 deals with the two new districts that operate in Pakistan and Iran between 1958 and 1960. Chapter 6 extends the coverage of the Gulf District into the 1960s, when its work expands to include Saudi Arabia and Afghanistan. Chapter 7 returns the focus to the division, operating from Livorno but covering projects throughout southern Europe, the Middle East, and East Africa. Finally, Chapter 8 brings the division story into the 1970s as work in Saudi Arabia grows to dominant proportions.

² "Work for Other Nations," in *The History of the U.S. Army Corps of Engineers* (Washington, D.C.: U.S. Army Corps of Engineers, 1986).

4

HEADQUARTERS AND THE SOUTHERN DISTRICT, 1957–1960

With the move to Italy in November 1957, the Mediterranean Division set aside its role as an operating division, a status it had assumed in 1954 when it absorbed the East Atlantic District. As part of the reorganization, the division transferred responsibility for its Moroccan projects to the Southern District, giving the division a more typical Corps of Engineers structure. Between 1957 and 1960, the Mediterranean Division had three principal districts: Southern, Trans-East, and Gulf. In addition, minor districts in Libya and Morocco reported to the Southern District. Through the districts, the Mediterranean Division continued to supervise the engineering, planning, and administration of design and construction programs to serve the objectives of American foreign policy in the region.

Between 1958 and 1960, a succession of three Army officers commanded the Mediterranean Division. Brig. Gen. Lawrence J. Lincoln Jr. left Livorno in the summer of 1958. Brig. Gen. William R. Shuler commanded from August 1958 to the summer of 1960, and Col. Arthur C. Nauman arrived in September 1960. All three men had to contend with the huge span of the territory, with the diversity of cultures, and with a variety of American and allied military personnel. The division engineer dealt with the NATO command in Italy and Northern Europe, the commanders and staffs of the U.S. military joint commands, the chiefs of the Military Assistance Advisory Groups (MAAGs), and U.S. Army, Air Force, and Navy commanders in the countries where Military Assistance Programs (MAPs) extended American aid. In each country, the division engineer maintained close contact with the U.S. ambassador and his diplomatic staff.

Operating from Livorno

From the Palazzo Grande building in the Italian port city of Livorno, the Mediterranean Division commander supervised work from the Atlantic coast of North Africa across Southern Europe to the Pakistani border with India. The territory, stretching four thousand five hundred miles from west to east and one thousand two hundred miles north to south, equaled about one-and-a-half times the size of the United States. In 1958, the Mediterranean Division



Beginning in mid-1957, the Corps of Engineers leased several floors in the Palazzo Grande in Livorno for the headquarters of the Mediterranean Division.

served nine countries: Italy, Greece, Turkey, Morocco, Libya, Ethiopia, Iran, Pakistan, and Saudi Arabia.¹

To manage the work throughout this vast area of responsibility, the division apportioned its territory among its three districts. (*See Map 10.*) The Southern District, the largest geographically, had operated from Livorno under the European Command's Joint Construction Agency (JCA) since 1954. With the closing of the JCA, the Southern District became a part of the Mediterranean Division on 1 August 1957. The district supervised projects for the U.S. Air Force, Army, and Navy; allied forces in NATO; and the armed forces and governments of states allied with the United States. In 1957, these projects totaled \$550 million.²

The Southern District retained supervision of construction in Italy, Greece, and Turkey from its JCA days and took over responsibility for construction in North Africa. When the Mediterranean Division left Nouasser, Morocco, in November 1957, a small cadre of its personnel remained behind to form the Morocco District. The Middle East District staff in Tripoli, Libya, continued to oversee the work in Libya and Eritrea. The Corps offices in Morocco and in Libya reported to the

¹ "Construction Overseas in Mediterranean Division," speech with slides, n.d. [internal evidence indicates 1957], pp. 3–6, box 51-83-8377, Richard T. Farrell Papers, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.

² "Mediterranean Division, Corps of Engineers, U.S. Army, 1957," p. 7, box 51-84-7361, Farrell Papers.

Southern District. The division designated both as districts to maintain continuity in contracting and in relations with the host governments.

The Trans-East District, established late in 1955 with headquarters in Karachi, supervised military construction to implement the U.S. military aid program to Pakistan. The Direct Forces Support (DFS) program provided equipment and facilities to promote modernization of the Pakistani Army, Navy, and Air Force. The Trans-East District also supervised new work for the U.S. State Department's International Cooperation Administration (ICA) in Saudi Arabia that developed toward the end of the decade. In late 1957, the Trans-East District managed programs totaling about \$60 million. The Gulf District's mission was to develop the empire of Iran as a strong American ally on the Soviet border by modernizing and improving facilities for its armed forces. As of August 1957, the Gulf District administered a program of DFS-funded construction with a budget of around \$50 million.³

The Mediterranean Division also maintained a rear-echelon office in New York City. In addition to serving as a liaison with the Office of the Chief of Engineers (OCE) and other stateside headquarters, it purchased materials for the districts, negotiated and supervised architect-engineer contracts with American firms, and performed other contracting functions. When the division moved to Italy, OCE suggested that the rear echelon's functions be reassigned to the East Ocean District of the North Atlantic Division. The reorganization, which took place in June 1958, reduced the rear office from thirty-four persons in March 1958 to three in September. The liaison office remained staffed at about this level to 1975.⁴

To provide additional technical support for construction, the Mediterranean Division opened a materials-testing laboratory in Athens, Greece, in early March 1959. An experienced Greek-American chemist, C. N. Tragakes, headed the laboratory staff of materials engineers and technicians, most of whom were Greek. At the laboratory's opening symposium on problems of airfield design and construction, representatives from the Southern, Trans-East, and Gulf Districts attended discussions led by the division's chief of engineering, Lewis W. McBride, and by Jack Baylor, chief of the division's Geology, Soils, and Materials Branch.⁵

Because of difficulties in transportation and communication across the division's geographic expanse, a typical inspection trip to all the district offices lasted three

³ *Ibid.*, p. 8; "History of the [Gulf] District, March 1956–June 1965," Jun 65, p. 3, box 21, access. no. 77-92-0002, Washington National Records Center (WNRC), Suitland, Md.

⁴ General Orders (GO) no. 3, 6 Dec 54, sub: Transfer Functions Rear Echelon Office; "Chronological Division Organizational History by Country," n.d., box 36; both in access. no. 77-92-0001, WNRC. Brig Gen E. A. Brown Jr. to Shuler, 29 Aug 58, box 51-84-7361; Brown to Lincoln, 15 Nov 57, unmarked box; Lincoln to Lt Col Harry A. Savigny, 18 Dec 57, unmarked box; Lincoln to Brown, 18 Dec 57, unmarked box; all in Farrell Papers. GO no. 2–58, 11 Jun 58, box 36, access. no. 77-92-0001, WNRC.

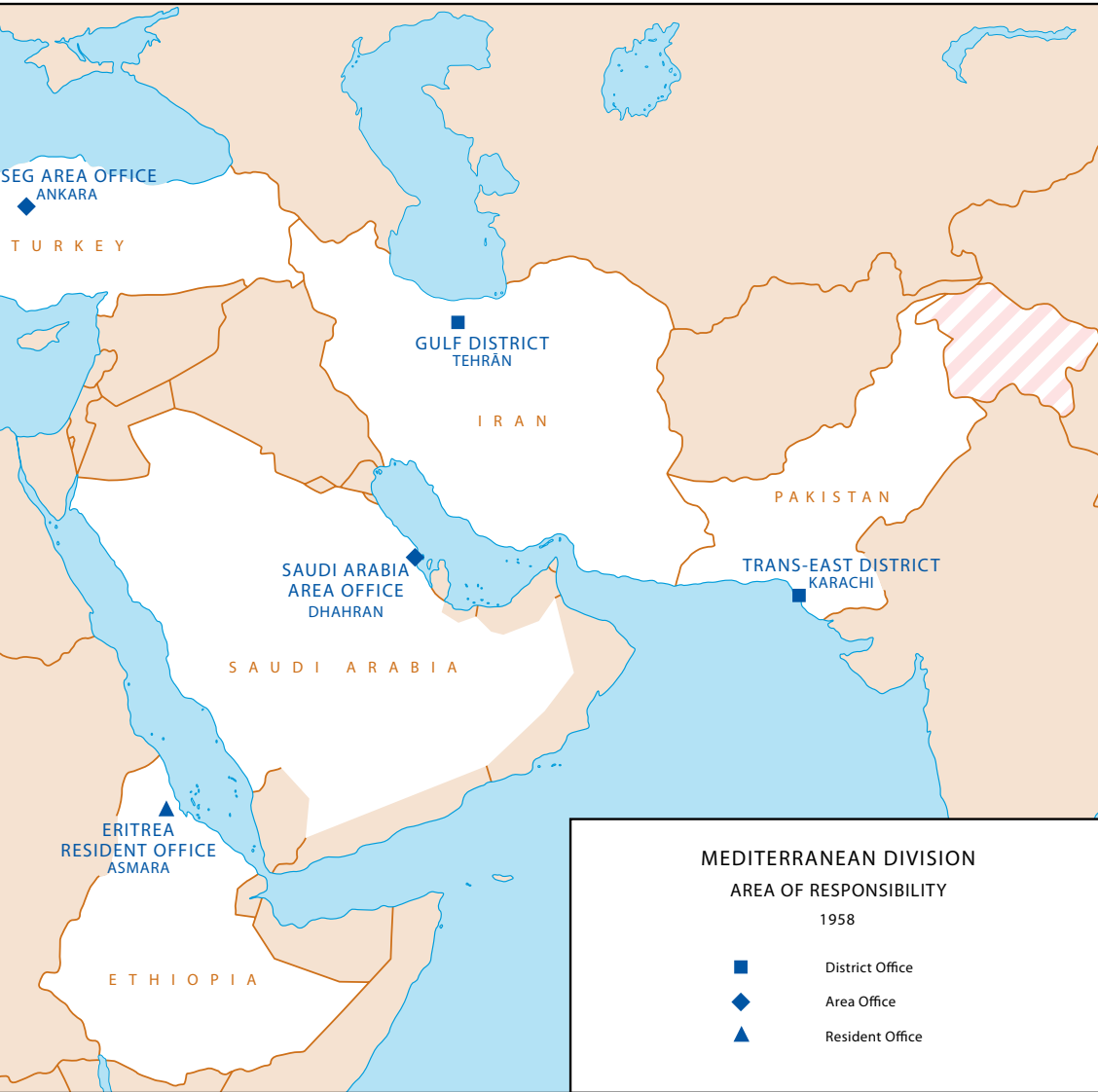
⁵ Technical Liaison Br, Mediterranean Div, Press Release, "Athens, Greece, Engineer Laboratory Draws Paving Engineers from U.S. and Middle East for Symposium," 13 Mar 59, box 20, access. no. 77-92-0002, WNRC; Ltr, Jack Baylor to authors, 1 Dec 95, p. 8, Transatlantic Programs Center (TAC), Winchester, Va.



Map 10

weeks and involved ten visas and six or more currencies.⁶ Arranging the appropriate visas for a trip might take several days, and actual travel time was grueling. In 1959,

⁶ Press Release no. 2/1958, Technical Liaison Br, Mediterranean Div, Livorno, Italy, 28 Jan 58, box 20, access. no. 77-92-0002, WNRC.



a trip from Livorno to Burma required a four-hour train ride to Rome and plane flights of twenty-two hours from Rome to Rangoon.⁷

⁷ “Construction Overseas in Mediterranean Division,” [1957]; Howard J. Schulte, “Construction Experiences in Europe, Asia, and Africa,” pp. 3–7, box 51-83-8377, Farrell Papers. Schulte, chief safety engineer in the Mediterranean Division between 1957 and 1959, delivered this address to the Construction Section, 47th National Safety Congress and Exposition, in Chicago on 21 October 1959. Farrell Papers, box 51-84-7361, OH, HQ USACE.

Electronic communications with the Mediterranean Division's outlying areas proved as difficult a problem as transportation. Telephone and telegraph links were limited; voice transmission was poor in quality; and the time needed to make a connection by phone impeded contacts and cut productivity. Mail service was unreliable. Whether sent by mail, telephone, or telegraph, many messages never reached their destination.⁸

Communications between the division and its districts or other field offices was still easier than communications between the United States and division offices. Because of the distances, noon in Washington, D.C., was 6:00 p.m. in Livorno, an hour later in Iran and Saudi Arabia, and an additional hour later in Karachi. Only a small portion of the workday in Washington overlapped with that of offices in the Mediterranean. Communications were further complicated by the work schedule in Muslim countries, which observed the Sabbath on Friday. Corps personnel in Saudi Arabia, Iran, and Pakistan staffed the offices Monday through Thursday and on Saturday. The discrepancies in time zones and work schedules created frustrations on both sides of the Atlantic.⁹

Through the Mediterranean Division's first several years, its staff made trips from Morocco on a space-available basis aboard U.S. Air Force aircraft.¹⁰ To make travel across the geographic expanse easier and more efficient, Brig. Gen. Benjamin B. Talley asked, without success, that the Office of the Chief of Engineers provide airplanes. His successor, General Lincoln, renewed the request for special aviation support; in May 1957, after a survey of the division's needs, OCE concluded that it could justify an Army Aviation detachment. The following October, the Army's deputy chief of staff for logistics approved the request. The division received nine personnel positions for four aviation teams to fly five L23D aircraft, each capable of carrying six passengers. The Italian Air Force, the Joint United States Military Mission for Aid to Turkey (JUSMMAT), the Iranian Air Force, and the Military Assistance Advisory Group in Pakistan promised maintenance facilities and other support.¹¹

The first L23D aircraft for the division arrived in July 1958; a second aircraft arrived in mid-November. General Shuler, who took command of the division in August, assigned the planes to Turkey and Italy. Three other aircraft arrived in 1959. The projects that would have justified the continued use of a plane in Italy failed to materialize, so Shuler assigned 2 planes to Turkey, 2 to Iran, and 1 to West Pakistan.¹²

⁸ "U.S. Army Engineer District, Southern," 1 Sep 59, p. 15, box 51-84-5389, Farrell Papers.

⁹ Interv, Moorhus with Robert E. Hall, 24 Mar 95, p. 9. Several other interviewees comment on the disruptions and frustrations in communications.

¹⁰ Ltr, Baylor to authors, 1 Dec 95, pp. 4-5.

¹¹ Draft, "Rear Echelon Office, U.S. Army Engineer Division, Mediterranean" [1958], box 51-84-7361, Farrell Papers.

¹² On the aircraft scheduled for Italy, see Shuler to Brig Gen E. A. Brown Jr., 19 Aug 58; Brown to Shuler, 29 Aug 58; and Shuler to Brown, 3 Sep 58; all in box 51-84-7361, Farrell Papers. On other aspects, see Shuler to Itschner, 11 Dec 58, p. 3, box 51-84-7361; Lincoln to Itschner, 19 Feb, 11 Mar

Table 4—MEDITERRANEAN DIVISION PERSONNEL
1 SEPTEMBER 1957

	Military	U.S. Civilians	Non-U.S. Employees	Totals
HQ Office	7	116	73	196
Southern District (southern Europe only)	24	110	65	199
Morocco District	5	25	67	97
Middle East District	5	58	56	119
Trans-East District	21	160	312	493
Gulf District	18	128	196	342
Rear Echelon	2	29	0	31
Totals	82	626	769	1,477

Source: Adapted from “Mediterranean Division, Corps of Engineers, U.S. Army, 1957,” p. 7, box 51-84-7361, Richard T. Farrell Papers, Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Va.

Although critical for efficiency, air transportation affected relatively few of the Mediterranean Division’s staff, which numbered just under 1,500 when the headquarters moved to Italy in November 1957. (*Table 4*) By the following spring, the number increased to about 1,800, with 80 military officers, 800 American civilians, and 900 non-American employees. By the end of the fiscal year, staff strength had reached 1,957.¹³ Most of the time, fewer than 100 Americans, military and civilian, served in any one country, monitoring work directed by contractors who employed another 10,000 to 15,000 workers. Two other categories of employees filled out the division and field office staffs—European continentals (or other non-American nationalities, often referred to as “third-country nationals”) and local nationals. The accountants and payroll keepers maintained four different categories of compensation: military pay, Department of the Army Civilian (DAC) pay, a

58, box 51-84-7361; “U.S. Army Engineer District, Southern, Livorno, Italy,” 1 Nov 58, p. 3, box 51-84-5389; all in Farrell Papers.

¹³ L. J. Lincoln, “Construction in a Cold War Theater of Operations,” *Army Information Digest* (July 1958): 18. A chart of personnel strength between 1956 and 1972, prepared in 1974, is in Susan I. Gray, “Ambassador Division: History of the United States Army Corps of Engineers, Mediterranean Division, in Europe, Africa, the Middle East and Near East,” app. 5, box 19, access. no. 77-92-0001, WNRC.

continental wage schedule for Europeans, and a local wage rate. Different rules, laws, and levels of compensation governed each category.¹⁴

The Mediterranean Division, including staff at headquarters, in the districts, in field offices, and the workforce employed by contractors, logged an impressive amount of work. During each of two consecutive months in 1958, the personnel under division supervision put in 11 million work hours. For the entire calendar year 1958, the division recorded 97.4 million hours of work compared to the average stateside division's 25 million hours. The 97.4 million hours represents the equivalent of 46,800 workers on the job each day, based on a forty-hour work week. The division's total workforce, including workers hired by contractors, numbered closer to 20,000 than 46,000 in 1958, but workers averaged many more than forty hours in the normal six-day week.¹⁵

The supervisory and technical staff of around two hundred at division headquarters included active Engineering and Construction Divisions. General Lincoln encouraged frequent contacts between staff at the division and in the districts. The Engineering Division staff reviewed all designs, furnished guidance in the development of criteria and standards, and provided special assistance for the Gulf and Trans-East Districts in negotiating their large design contracts. The division also loaned geologists to the districts to assist in identifying and developing local water supplies at project sites. During FY 1958, personnel from the Construction Division spent 35 percent of their time in the field, either on inspections or on temporary duty. These visits and Engineering Division field inspections exposed weaknesses and deficiencies in operations that the division could then address.¹⁶

The Mediterranean Division's responsibilities across its sizable region created myriad difficulties of management and supervision. For instance, normal engineering manuals outlined specifications, standard designs, and construction techniques; but the manuals had little applicability at construction sites where the workers thought and labored much as their ancestors had for hundreds of years. Because the manuals were irrelevant to the local circumstances, division and district engineers had to formulate guidelines and standards for construction that took on-site conditions into account. At the same time, the engineers had to use extraordinary ingenuity to preserve quality in construction. An OCE inspection team that visited the division in January 1958 acknowledged that these aspects of engineering and design had no counterpart in the workload of a district in the United States.¹⁷

¹⁴ "The Mediterranean Division," n.d., Gen Files 54-1, OH, HQ USACE.

¹⁵ William R. Shuler, "Safety in the Middle East Construction Program," *Military Engineer* (September-October 1959): 367; "Construction Overseas in Mediterranean Division," [1957], p. 3; Schulte, "Construction Experiences in Europe, Asia, and Africa," 21 Oct 59, p. 2, box 51-84-7361, Farrell Papers. The figures on hours worked come from Schulte, who gives no figures for the division's total or average workforce. That information is extrapolated from Shuler.

¹⁶ Mediterranean Div, "Engineering [Inspection]," [Jan 58], pp. 23-24, box 24, access. no. 77-92-0002, WNRC; Lincoln to Itschner, 19 Feb 58, p. 6, and 9 Jun 58, p. 2, both in box 51-84-7361, Farrell Papers.

¹⁷ Mediterranean Div, "Engineering [Inspection]," pp. 23-24.

Altogether, the complexity of cultures, economies, and laws in the Mediterranean Division's area of responsibility created problems unlike any faced by Corps divisions in the United States. On one project site in West Pakistan, the prime contractor was American, the architect-engineer Swiss, the mechanical subcontractor Lebanese, the electrical subcontractor British, the building subcontractor Pakistani, and the administrative and labor force a mix of at least fifteen different nationalities. Local customs governing work encouraged subcontracting to three, four, or even five subordinate levels. U.S. law held the prime contractor responsible for the entire job, but subcontractors often had little regard for Western guidelines. Expectations of punctuality and consistent attendance at work ran counter to habits and attitudes developed in cultures that saw little virtue in a life regulated by a time clock. Moreover, by local custom, women and children accompanied men to work, further complicating management on site.¹⁸

The technical sophistication required to execute Mediterranean Division projects created odd juxtapositions at job sites, where engine-driven trucks, tractors, and cranes operated side by side with local laborers using hand tools and muscle power. Concrete commonly went from a mechanical mixer into pans that workers carried on their heads.¹⁹ Large, motor-powered construction machinery fascinated local workers in less-developed countries. Many Middle Eastern and African manual laborers wanted to drive a vehicle even though they had no driving experience—trained and experienced vehicle operators learned to take the ignition keys with them. At desert construction sites, workmen often sought shade under large pieces of equipment. After several instances in which workers fell asleep and were crushed when the machines restarted, division safety engineers required drivers to inspect underneath tractors and even rail cars before moving them.²⁰

As the experience with mechanized vehicles shows, the multicultural environment in which construction projects took place created particular challenges related to worker safety. Directives concerning safe work clothes or protective devices such as gloves, hardhats, and goggles made little impression on workers who did not even wear shoes on the job. In many areas, local dress included skirt-like wraps and tied turbans for men; for safety, contractors installed shields and guards over sprockets, gears, and belts. Communicating with workers by employing techniques common in the West, such as posters, had little effect on a workforce with an illiteracy rate estimated at 85 percent. To compensate, the division and the districts conducted regular training for safety inspectors and modified procedures related to the types of activity that accounted for the highest incidence of recurring accidents: using ladders and scaffolds and handling construction materials.²¹

¹⁸ "Construction Overseas in Mediterranean Division," [1957], p. 3; "Engineer Division Mediterranean: Information Booklet," 15 Aug 59, pp. 7–9, unmarked box, Farrell Papers (hereafter cited as Engr Div Mediterranean Info Booklet: 1959); Shuler, "Safety," p. 368.

¹⁹ Schulte, "Construction Experiences," pp. 3–7.

²⁰ Ibid.

²¹ Ibid.; Engr Div Mediterranean Info Booklet: 1959, pp. 7–9; Interv, Lawrence Suid with Lt Gen (Ret) Lawrence J. Lincoln, Dec 79–Jan 80, p. H-3.



In Pakistan in the mid-1950s, the use of local laborers, many wearing turbans and loose clothing but no shoes, increased safety concerns for contractors.



Table 5—MEDITERRANEAN DIVISION, CONTRACTOR SAFETY AND ACCIDENT RECORD, 1952–1960

	Man Hours	No. Injuries	Days Lost	Fatalities
1952	60,476,382	1,116	221,287	30
1953	51,417,121	722	96,754	13
1954	29,484,041	398	38,425	5
1955	22,131,511	211	33,751	5
1956	22,117,969	104	22,195	3
1957	46,540,001	135	not given	15
1958	97,381,482	249	not given	17
1959	102,812,042	187	not given	15
1960	92,535,540	128	not given	13

Source: Mediterranean Div, "Comparative Table, Accident Experience, 1952–1956," n.d., box 51-83-8377, Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Va.; 1957–1960 figures from "Government and Contractor Accident Experience Record, 14 February 1952–30 June 1973," in Susan I. Gray, "Ambassador Division: History of the United States Army Corps of Engineers, Mediterranean Division, in Europe, Africa, the Middle East and Near East," app. 6, box 19, access. no. 77-92-0001, Washington National Records Center, Suitland, Md.

The Mediterranean Division's efforts to reduce time lost and the number of deaths attributed to accidents on the job did bring improvements. (*Table 5*) In 1952, the division experienced an average of one fatal accident for every 2 million work hours. From 1952 to 1957, the rate improved to one death in 5.7 million work hours. By 1958–1959, the rate stood at one death in 6.8 million work hours.²²

One contract on which the Southern District issued a request for bids during 1958 further illustrates some of the complexities of operating overseas. The project involved work at Sinop, a small town on the Black Sea in north-central Turkey. Seven firms submitted bids, and all proposed costs below the government estimate of \$2.47 million for the project. The lowest four bids came from Turkish contractors. Both the division engineer, General Shuler, and the Southern District engineer, Col. Joe A. Clema, were reluctant to award the contract to the low bidder because Turkish contractors had a poor record of completing contracts. At a meeting to review the Turkish contractor's capabilities, they discovered that, contrary to their expectations, the company, Eti Yapi Ltd., did fully understand the scope of the work.

²² Schulte, "Construction Experiences," p. 10.

The discussions with Eti Yapi prompted the division to reexamine the government estimate of the cost of the job. The estimate, it turned out, made certain assumptions that, while reasonable, were inaccurate. It assumed that Turkish lire would be exchanged at the official rate of 2.8 to the dollar; but the Turkish government had approved a policy allowing construction dollars to be exchanged for lire at a 9:1 ratio, much closer to the real market exchange rate. In addition, Eti Yapi had obtained commitments from European suppliers to provide electrical and mechanical equipment meeting required specifications at prices lower than the government estimate. Further, the government estimate had projected a high overhead, reflecting costs of salaries and fringe benefits incurred by U.S. companies; Turkish companies paid less and provided fewer benefits. The reexamination reduced the government estimate to \$1.69 million, not out of line with Eti Yapi's bid of \$1.46 million. The Turkish contractor won the award.²³

Problems in executing the construction program went beyond complications in contracting. Both Generals Lincoln and Shuler emphasized the "extraordinary conditions imposed by geopolitical, physical and military factors" that made fulfilling the division's mission more difficult than similar operations in the United States.²⁴ Shuler admonished his staff that "the varying political climates, ancient customs and religions in the numerous countries where we operate create potential areas of difficulties which we must recognize and accept in our dealings with representatives of foreign governments." As Shuler cautioned, "regardless of the circumstance, display of impatience or irritation in their presence must be avoided."²⁵

Not every officer or civilian employed by the Mediterranean Division had the disposition or interpersonal skills necessary to meet this challenge. In July 1959, the Southern District engineer, Colonel Clema, received a letter from the deputy chief of mission at the U.S. embassy in Tripoli expressing concern over a Corps of Engineers major serving there. The Army officer had "an excellent and quick intellect and unusual professional competence"; but he had become a problem because, "like many quick-witted, forceful men, [he] appears impatient, intolerant of slower mentalities." He lacked what the diplomat described as "the infinite patience [necessary] to deal with his Libyan counterparts on a continuing and intimate basis without handicapping the relationship by a display of his forceful instinct to lead the way."²⁶ Colonel Clema passed on the concern to General Shuler, who recommended to the chief of engineers, Maj. Gen. Emerson C. Itschner, that the Corps reassign the major to the United States to "salvage a young officer with high potential." Shuler used the occasion to underscore for the chief of engineers the difficulties of working in the remote locations far removed from any support by the division or district offices.²⁷

²³ Shuler to Itschner, 8 Jan 59, Mil Files XXI-2-7, OH, HQ USACE; Shuler to Itschner, 11 Dec 58.

²⁴ Lincoln, "Construction in a Cold War Theater," p. 20.

²⁵ Shuler to Col H[artsell] H. Northington, 3 Sep 59, Mil Files XXI-2-4, OH, HQ USACE.

²⁶ J. Paul Barringer to Clema, 31 Jul 59, Mil Files XXI-2-7, OH, HQ USACE.

²⁷ Shuler to Itschner, 7 Aug 59, Mil Files XXI-2-7, OH, HQ USACE.

The division headquarters also provided the districts' legal support, letting the districts concentrate on such recurring problems as taxes on goods imported for the construction projects. Despite the exemptions written into many agreements in the late 1950s, host governments in Pakistan, Iran, Saudi Arabia, and even Italy raised the prospect of imposing customs fees, income taxes, and other charges. Negotiations to resolve these issues were time-consuming, complicated, and at times exceedingly vexing.²⁸

In each country where the Mediterranean Division managed and supervised construction, division and district personnel maintained close contact with the American ambassador and members of the U.S. mission. The Mutual Security Act of 1954 and DoD directives specified the creation of a "country team." In each country, the U.S. ambassador headed the team, which included the commanding officer of the U.S. Military Assistance Advisory Group and other key American representatives in the country. The country team cleared all materials, supplies, and services associated with military construction managed by the division regardless of the source of funds supporting that construction. The country team also cleared all proposed contractors.²⁹

General Shuler was the last general officer to command the Mediterranean Division. By September 1960, when his successor, Col. Arthur C. Nauman, took command, the division's geographic area of responsibility had expanded to include Burma, Afghanistan, Somalia, and East Pakistan, a total of thirteen nations. As the workload shifted, the division redistributed responsibilities among its districts.³⁰ The tempo of the division's projects dictated the adjustments, and that tempo is best seen from the perspective of the districts themselves.

Southern District, 1957–1960

The Southern District, an amalgamation of staff elements that lasted only three years, had responsibility for work in Italy, Greece, Turkey, Morocco, Libya, and Eritrea. The district personnel included people who had served under the Joint Construction Agency in Italy, Turkey, and Greece. Most had never worked for the Corps of Engineers either in the United States or overseas, and they followed the methods and procedures developed by the Joint Construction Agency. The reorganization and relocation of the division brought an influx to the district of people from Morocco and from the offices in Libya and Eritrea as these areas reduced their staffs. The Mediterranean Division wanted the district to adopt the methods and procedures of the Corps of Engineers, so they put people with "Corps experience" into top positions in the district. The changes in procedures created

²⁸ See, for example, Memo, Lt Col Joseph C. Dyer, 10 Apr 58, sub: Import Duty and Sales Tax Refund, Mil Files XXI-2-3, OH, HQ USACE.

²⁹ Hist Rpt, U.S. Army Engr Dist, Southern, 1 Aug 57–30 Jun 60, [1960], p. 20, box 51-83-8379, Farrell Papers (hereafter cited as Hist Rpt–Southern).

³⁰ Shuler to Heil, 11 Feb 60; Nauman to Itschner, 7 Oct 60, both in Mil Files XXI-3-1, OH, HQ USACE.

tension, and the changes in personnel left some branches of the district overstaffed and others with too few people to carry the workload comfortably. District staff who had worked under the JCA judged the accounting procedures brought from Morocco less rigorous than they had used; some in the district found the newcomers “unprofessional.” One person even commented on the shabbiness of the office furnishings transported from Nouasser.³¹

When the Southern District became part of the Mediterranean Division, it had around two hundred people. In late 1957, the district had thirty-eight people in its Construction Division, a level of staffing barely adequate to cover its responsibilities of inspection and supervision in six countries with an estimated annual rate of construction placement of almost \$17 million.³²

Livorno was an attractive location, with good housing and other support facilities. In addition to rich historical and artistic resources, Italy boasted a robust economy in the late 1950s. The district’s offices were at the Corallo Hotel, a former resort hotel adjacent to the railroad station in Livorno. Most district employees looked to the local economy, where they found satisfactory housing comfortably within their allowance for lodging. Some Americans lived in Livorno; and a sizable group chose to live in Tirrenia, a small seashore community about seven miles north of Livorno.³³

In North Africa, living conditions were less gracious. In Morocco, the presence of eighteen thousand United States Air Force (USAF) personnel meant that support facilities were above average for overseas assignments. The housing situation in Libya became tighter between 1957 and 1960; but, as in Morocco, the Air Force maintained local support facilities. Asmara was remote, but the local economy provided adequate housing. The community services supported by the U.S. Army at Kagnev Station were satisfactory. Athens offered access to the world of classical Greek civilization and adequate modern facilities. By contrast, Turkey, while rich in history, presented serious recruitment problems for the district and the division. Few qualified American civilian engineers wanted the isolated posts at Sinop, Samsun, Trabzon, Diyarbakir, and Adana. Only unaccompanied males were assigned to these locations, where living conditions were substandard, recreational opportunities minimal, and support facilities rudimentary or nonexistent. Employees

³¹ Hist Rpt–Southern, p. 23. Intervs, Moorhus with Richard Wiles, 21 Oct 93, 7 Feb, 5 May 94, p. 39; with Paul Wheeler, 31 May 95, p. 25; authors with Stuart Wagman, 11 Jan 94, p. 33; Moorhus with W. Justin Long, 14 Mar 95, p. 12. Interv, Suid with Lincoln, Dec 79–Jan 80, pp. 193–98.

³² Lincoln to Davis, 4 Jun 57, Mil Files XII-2-2, OH, HQ USACE; Mediterranean Div, “Engineering [Inspection]”; Memo, Lt Gen Lawrence J. Lincoln, 6 Jan 58, sub: Reductions Personnel on Former JCA Functions, unmarked box, OH, HQ USACE; “Summary of Major Events and Problems, FY 1957,” May 58, Gen Files 4-2, OH, HQ USACE (hereafter cited as Major Events, FY 1957); “Summary of Major Events and Problems, Fiscal Year 1958,” Dec 58, pp. 1–2, file 3, box 4, Gen Files, OH, HQ USACE (hereafter cited as Major Events, FY 1958).

³³ Intervs, Moorhus with Wiles, 21 Oct 93, 7 Feb, 5 May 94, and with Long, 14 Mar 95; Ltr, Richard Wiles to authors, 3 Feb 96; Hist Rpt–Southern, pp. 23, 41, 46.



The post exchange at Kagnew Station—visited in May 1957 by Brig. Gen. E. A. Brown Jr. (front, right) and Maj. Gen. W. K. Wilson Jr. from the Corps of Engineers in Washington, D.C.—provided support for Corps employees.

who depended on local eating facilities or food supplies often suffered from diarrhea and dysentery.³⁴

Between 1957 and 1960, the Southern District contracted with architect-engineer firms for about 90 percent of its design work but also retained its own design staff. (See *Table 6*.) Both Italy and Greece had sufficient numbers of draftsmen and design engineers to support the demand created by American projects in those countries. Turkey also supplied a number of graduate engineers and draftsmen.³⁵

Waning Activity in North Africa

By the late 1950s, new bases for bombers of the U.S. Air Force's Strategic Air Command had become available in Spain. Faced with public protests from Moroccan nationalists, the United States came to consider its position in Morocco useful but not essential. In December 1959, President Dwight D. Eisenhower reached an

³⁴ Hist Rpt–Southern, pp. 23, 41, 47. One of the best accounts of life for Americans in Turkey during this period is John D. Tumpane, *Scotch and Holy Water* (Lafayette, Calif.: St. Giles Press, 1987).

³⁵ Hist Rpt–Southern, p. 40; “U.S. Army Engineer District, Southern, Livorno, Italy,” 1 Nov 58, p. 7.

Table 6—DESIGN FIRMS CONTRACTING WITH SOUTHERN DISTRICT
1957–1960

	Number of Contracts	Total \$ in Architect- Engineer Fees
Lublin, McGaughey, and Cie	12	483,649
Ammann and Whitney	12	998,473
Frank E. Basil Co.	14	583,775
Litchfield, Whiting, Bowne & Associates	5	263,047
Pedersen and Tilney	4	192,350
Daniel, Mann, Johnson, and Mendenhall	2	382,517
The Ralph M. Parsons Co.	1	329,500
Ebner Associates	1	8,800
A & P Dufau	1	13,481

Source: Hist Rpt, U.S. Army Engr Dist, Southern, 1 Aug 57–30 Jun 60, [1960], p. 29, box 51-83-8379, Richard T. Farrell Papers, Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Va.

agreement with King Mohammed V of Morocco that all U.S. military forces would withdraw from the country over the subsequent four years.³⁶

Construction at the four principal USAF bases—Nouasser, Sidi Slimane, Benguéir, and Boulhaut—was 95 percent complete when the Mediterranean Division moved to Livorno in November 1957. The unfinished construction was minor: utilities; water storage, treatment, and distribution; minor roads and railroads; and some on-base refueling facilities. Construction continued on global communications facilities and on aircraft control and warning (AC&W) sites; and work remained on community facilities such as dependent schools, storage, and officers dining halls. The total budget for this construction was under \$1 million for FY 1958 and just under \$2 million for FY 1959. These projects simply put the finishing touches on the existing installations.³⁷

³⁶ Gerald M. Adams, *A History of U.S. Strategic Air Bases in Morocco, 1951–1963* (Omaha, Nebr.: Moroccan Reunion Association, 1992), pp. 80, 127–30. See also news articles on the Moroccan bases that appeared in July, September, and October in the *Washington Post and Times Herald*, *U.S. News and World Report*, *Newsweek*, and *Time*.

³⁷ “Part II: Morocco District,” [1957], pp. 22–24, box 51-84-7361, Farrell Papers; “Morocco District,” n.d., map, chronology (which extends to Dec 61), figures, p. 1, box 25, access no. 77-92-0001, WNRC.

New construction in Morocco included a complicated and slow undertaking called surplus commodity housing, which operated under the Agricultural Trade Development and Assistance Act, Public Law (PL) 480, passed by the U.S. Congress in 1954.³⁸ The act authorized the sale of \$700 million of surplus farm commodities to friendly nations over a period of three years initially (Congress later extended the authority). The Commodity Credit Corporation, which the U.S. government set up to manage the sales, oversaw purchase of surplus agricultural goods from American farmers and subsequent sale of these commodities to various nations, which paid in their own currency. The currencies that accrued from the sales funded loans to promote economic development in the respective countries. The American military used this program to finance construction of housing for service personnel and their families in the purchasing country. The program provided a mechanism through which the U.S. government could in effect pay for military construction with surplus agricultural products rather than with dollars that might inflate the local economy. American military personnel lived in the facilities rent free; their housing allowance went to cover the cost of utilities and maintenance and to reimburse the Commodity Credit Corporation.³⁹

In the late 1950s, the U.S. European Command had surplus commodity housing programs scheduled throughout its area of responsibility. In both France and Morocco, French firms contracted for the construction of the housing. The surplus commodity housing for the Moroccan bases was prefabricated in Austria. The 2-, 3-, and 4-bedroom houses were constructed of wood frames with gypsum board over plywood on the interior, stucco on the exterior, concrete floors with terrazzo surfacing, and corrugated asbestos-cement roofs. Other features included central forced-air heating, evaporation cooling, and the plumbing and electrical systems expected by Americans at the time. Plans in late 1957 called for 500 housing units in Morocco; but as the likelihood of a long-term American presence in the country diminished, that figure dropped to 140, with 100 units at Benguéir and 40 units at Sidi Slimane. By August 1959, contractors had completed 90 percent of the 140 units in Morocco.⁴⁰

Reductions in personnel accompanied the completion of work in Morocco. The Morocco District reduced its staff from 116 in the summer of 1957 to 53 at the end of 1958. On 1 January 1959, the district closed and the Moroccan Area Office, under the Southern District, took its place. By the end of the calendar year, only 15 people staffed the area office. In the winter-spring of 1960, the office closed out its

³⁸ See *Congress and the Nation, 1954–64: A Review of Government and Politics in the Postwar Years* (Washington, D.C.: Congressional Quarterly Service, 1965), pp. 173, 177, 737, 742–43.

³⁹ James S. Arrigona and W. R. Karsteter, “USEUCOM Joint Construction Agency, Historical Report, 15 January 1953–31 July 1957,” U.S. European Command, 1958, pp. 206, 207 (chart), 213. See also *Congress and the Nation, 1954–64*, pp. 173, 177, 737, 742–43.

⁴⁰ Memo, Col John T. Poffenberger, 20 Oct 57, sub: Surplus Commodity Housing, Morocco, unmarked box, OH, HQ USACE; “U.S. Army Engineer District, Southern,” 1 Sep 59, p. 9; Shuler to Itschner, 11 Feb 59, Mil Files XXI-2-7, OH, HQ USACE; “Morocco Data,” n.d., p. 8, box 51-84-7361, Farrell Papers; Hist Rpt–Southern, p. 29; “Morocco District,” n.d., p. 5.



Construction of a storage igloo for ordnance at the Sidi Slimane air base, shown here in February 1957, was completed later that year.

remaining contracts except for the unfinished work on housing at Sidi Slimane that was completed in December 1961.⁴¹

The Middle East District, also under the Southern District, continued its work in Libya and in Asmara. By the spring of 1957, construction under contract was 93.7 percent complete in Libya and 84 percent complete in Asmara.⁴² The USAF program for FY 1958 consisted of three items with a total value of \$650,000, plus a small operations and maintenance budget. For FY 1959 (beginning in July 1958), current projects represented a contract value of \$1.52 million at Wheelus Air Base and another \$1.2 million for a road from Tripoli to Wheelus. At the air base, the Corps supervised an addition to a school, a theater, a new apron for aircraft on alert, and modifications to hangars and other facilities to support alert status.⁴³

As work wound down at Wheelus Air Base, the Middle East District and the contractor, Crow-Steers-Shepherd (CSS), encountered disruptions from workers

⁴¹ Shuler to Itschner, 11 Dec 58, p. 11; "Part II: Morocco District," [1957], p. 18; GO no. 28, 22 Dec 58, sub: Abolishment of U.S. Army Engineer District, Morocco, OCE Changes in MDD Org., box 24, access no. 77-920-0002, WNRC; part of the chronology, Meddiv, 1950-1973, key dates in Organizational Changes, copy of file in R&D Files 1372 and 1133, TAC; Shuler to Itschner, 11 Aug 59, Mil Files XXI-2-7, OH, HQ USACE.

⁴² "History of the Mediterranean Division," n.d., p. 7, box 19; "Mediterranean Division Builders," 1 Jan 58, p. 2, box 18; both in access. no. 77-92-0002, WNRC.

⁴³ Engr Div Mediterranean Info Booklet: 1959, p. 13; Mediterranean Div, "Engineering [Inspection]," p. 17.



Plans called for forty units of surplus commodity housing with aluminum roofing at Sidi Slimane, shown here in May 1959.

being laid off. To forestall reprisals from workers during their final days on the job, CSS changed its procedures, notifying men as they were leaving for the day that their jobs had ended and that the wage envelope they were handed contained two weeks' severance pay, which fulfilled the local law that a worker receive two weeks' notice of termination.⁴⁴

On 15 May 1958, the Middle East District ordered CSS to halt all construction work, except for limited work on a gunnery range, and to close its books on 30 June, thus ending the cost-plus-fixed-fee (CPFF) contract initiated in 1951. The total value of the construction completed in Libya between 1951 and the end of August 1959 was about \$66 million.⁴⁵

In September 1958, the Mediterranean Division issued an order to convert the Middle East District to an area office reporting to the Southern District effective 1 November. Thereafter, the office at Wheelus supervised small projects including construction of a dependent school and a theater, as well as minor

⁴⁴ Hist Rpt–Southern, p. 19.

⁴⁵ Crow-Steers-Shepherd, Final Closing Rpt, Contract no. DA-30-082-Eng-8, 10 Jul 58, p. 1, and attached Ltr, Lt Col Artha D. Williams, box 51-83-8378, Farrell Papers; "U.S. Army Engineer District, Southern," 1 Sep 59, p. 9.

improvements in the combat facilities. In June 1960, a construction contract was finally awarded for the Al Mellaha Road from Wheelus Air Base to Tripoli.⁴⁶

In 1955, the Middle East District had begun building a signal facility at Kagnew Station in Asmara for the U.S. Army Security Agency. In October 1957, as the work neared completion, the district reduced the area office at Kagnew Station to a resident office. The contractor, Crow-Steers-Shepherd, successfully terminated local employees at the construction-site gate as it had in Libya. CSS closed its Asmara office in April 1958, having fulfilled its contract valued at \$8.1 million.⁴⁷

Southern District Work in Europe

In late 1954, the American military construction program in Italy began; by agreement between the two governments, only Italian firms could bid on the projects. All construction contracts were approved by a joint commission of Americans and Italians with the Southern District engineer serving as the senior American member. Under the Joint Construction Agency, the district supervised projects for the Southern European Task Force (SETAF), created in October 1955 to accommodate U.S. troops moving out of Austria as the four-power postwar occupation of that country ended by diplomatic agreement. SETAF had initially concentrated its activities around the port of Livorno and at nearby Camp Darby; in 1956, it installed its headquarters at Verona. As part of the Mediterranean Division, the Southern District continued to manage construction for SETAF.⁴⁸

Late in 1958, Italy expanded its role in NATO by accepting the stationing on its territory of U.S. Jupiter missiles capable of delivering atomic weapons. Richard "Dick" Wiles, who had joined the JCA Southern District as a mechanical engineer, became project engineer for Project EBONY FOREST, the construction of Jupiter sites in southern Italy.⁴⁹ For Wiles, it was the first of many assignments as project manager for the Corps during a career that continued into the 1990s.

Other projects for SETAF included a small airstrip at Bosco Mantico, near Verona; a hospital and cold-storage facilities for the logistics element at Camp Darby; and facilities at Camp Ederle, near Vicenza. The district managed construction of surplus commodity housing, supervised the construction of an Air Force base and an airfield at Aviano, and oversaw work at Brindisi. The district also worked on a U.S.

⁴⁶ Engr Div Mediterranean Info Booklet: 1959, p. 13; Rpt on Rehabilitation and Additional Construction, Marble Arch Airfield, Libya, 5 Jun 59, box 56, access. no. 77-84-2400, WNRC; "Chronological Construction History by Country: Libya," n.d. [list runs to June 1970], p. 3, box 35, access. no. 77-92-0001, WNRC.

⁴⁷ Lt Col Edward J. Bielecki, "Project History: 1954–1958, Asmara Residency, U.S. Army Engineer District Middle East, Asmara, Eritrea," n.d., pp. 14, 31, 38–40, box 24; Misc Docs pertaining to Asmara/Eritrea from 1959 to 1970, pp. 1–2, box 26; both in access. no. 77-92-0001, WNRC.

⁴⁸ "Mediterranean Division Builders," 1 Jan 58, pp. 7–8; E-mail, Cheril Marcuri, Southern European Task Force Historian, to author, 26 Feb 09.

⁴⁹ D. J. Hickman, *United States Army in Europe, 1953–63* (U.S. Army, Europe, Operations Division, Historical Section, 1964), pp. 74–75; Interv, Moorhus with Wiles, 21 Oct 93, 7 Feb, 5 May 94, pp. 41–42.



Mess hall (*front*) and barracks constructed in Vicenza

Naval Air Station at Sigonella, near Catania on Sicily's east coast, and another at Capodichino near Naples. It designed facilities planned for Montechiari, Tombolo, Foggia, San Vito dei Romanni, and Treviso although several of these projects never went beyond the design stage. The Southern District also supervised construction for an installation of the U.S. Coast Guard near Catanzaro.⁵⁰ (*See Map 11.*)

The program for surplus commodity housing in Italy called for units near Vicenza and near Catania. The development at Vicenza, at the eastern edge of Camp Ederle on an 87-acre wooded tract of land, cost an estimated \$5.4 million and included 371 new units for SETAF personnel and their families. The Southern District scheduled five phases and delivered the first sixty-eight units for occupancy late in 1959. The 2-, 3-, and 4-bedroom houses, similar to those constructed in Morocco, contained American-style kitchens, picture windows, and concrete floors with terrazzo finish. An Italian contractor, Maltauro-Marini of Verona and Vicenza, constructed the units based on designs prepared by the Southern District. The project included all of the community infrastructure and utilities: streets and

⁵⁰ Hist Rpt–Southern, pp. 18, 28; Engr Div Mediterranean Info Booklet: 1959, pp. 14–15; “U.S. Army Engineer District, Southern,” 1 Sep 59, pp. 12–14; Shuler to Itschner, 10 Jun 59, p. 10, Mil Files XXI-2-7, OH, HQ USACE.



Map 11



Form for concrete roof under construction for the U.S. Air Force at San Vito, March 1970

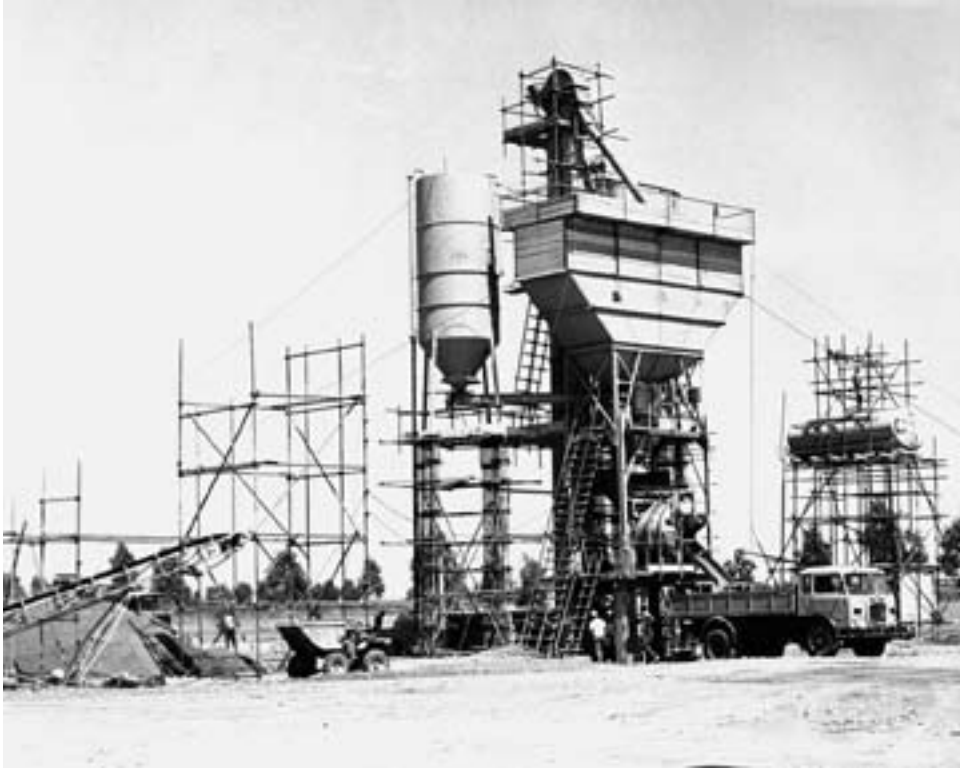
sidewalks, a central heating plant, a community water supply, a sewage system and treatment plant, and swimming pools and other recreational facilities.⁵¹

The Southern District maintained a Northern Area Office to supervise housing construction and other projects around Vicenza. SETAF had contracted for \$1.6 million in facilities for FY 1960, including an addition to the post exchange, a bakery, warehouse space, and a cold-storage unit. Contracts also called for barracks, a mess hall, roads, hangars, aprons, and taxiways at Bosco Mantico, near Verona. All of this supplemented the \$3.27 million in facilities that the district had already completed for the command in the Vicenza-Verona area.⁵²

At Sigonella, the Southern District managed work for the U.S. Naval Air Facility (NAF-1) that paralleled the projects in the Vicenza-Verona area: a bakery, a dining hall, an infirmary, and surplus commodity housing. The first 44 of 122 planned housing units were ready in June 1959 when the district turned over the other

⁵¹ Press Release no. 16/1959, 23 Sep 59, box 20, access. no. 77-92-0002, WNRC. Several versions of this announcement exist in different depositories. See also Itschner to Shuler, 1 Jul 59, p. 4, Mil Files XXI-2-7, OH, HQ USACE.

⁵² Press Release no. 16/1959, 23 Sep 59.



Batch plant and water tank for construction at Sigonella Naval Station, July 1965

facilities; the remaining 78 units were ready by the end of the year. The construction program for NAF-1 cost about \$3.4 million.⁵³

In Greece, U.S. military construction had begun in 1947 as a part of the Truman Doctrine. The Army engineers had closed the Grecian District in 1949, but construction was reinitiated under the Joint Construction Agency in 1954. At Iraklion, on the island of Crete, work for the U.S. Air Force costing \$4.8 million was essentially complete by 1958. The same was true of Athenia Airfield near Athens, which cost \$2.5 million. During FY 1958, the Southern District Athens Area Office supervised placement of \$1.9 million; most of the money went into the expansion of communications facilities and airfields. In August 1959, the engineers completed a \$200,000 hospital. Total placement for the Athens Area Office during FY 1960

⁵³ Various pages on the history of Joint Construction Agency, box 24, access. no. 77-92-0002, WNRC; MDD [Mediterranean Division] Internal Organizational Changes, Chronology with GO numbers, handwritten, Aug 58–Jan 71, n.d., box 24, access. no. 77-92-0002, WNRC; L. W. McBride, “U.S. Army, Engineer Division, Mediterranean,” [Aug 58], p. 13, box 51-84-6364, Farrell Papers; “U.S. Army Engineer District, Southern, Livorno, Italy,” 1 Nov 58, p. 12; Shuler to Itschner, 10 Jun, 11 Aug, 10 Dec 59, Mil Files XXI-2-7, OH, HQ USACE.

amounted to \$650,000; by that year, only communications facilities remained as active construction projects.⁵⁴

The U.S. Engineer Group (TUSEG) had launched the ambitious construction program in Turkey in 1950. Although TUSEG ceased to exist officially when the JCA took over construction in 1954, the label TUSEG survived as the common designation for the Army engineer offices in Turkey. Metcalf-Hamilton-Grove, an American joint venture, had executed the early construction using Turkish labor and subcontractors. In 1955, the Army engineers converted the CPFF awards made to Metcalf to lump-sum contracts.⁵⁵ The negotiations to convert the original contract proved difficult and lengthy, and construction slowed. After the conversion of the contract, the Southern District awarded subsequent construction through competitive bidding.

When bidding for the contracts in Turkey broadened, Turkish construction companies wanted to participate. The division engineer, General Shuler, expressed to the chief of engineers, General Itschner, his reservations about Turkish companies. Turkish companies often lacked the appropriate financial credit outside Turkey, and securing it frequently proved a stumbling block and a source of delay in completing projects. Turkish construction companies had trouble hiring and retaining skilled craftsmen and supervisors; their finished work met only minimum standards. Personnel in Turkish firms commonly had limited knowledge of the English language and of American standards and practices. Difficulty in securing adequate equipment and tools also created delays. General Shuler asserted that all these factors obliged Corps of Engineers personnel to spend disproportionate amounts of time supervising Turkish contractors. Nonetheless, the Mediterranean Division would have found itself, as Itschner observed, “in a difficult position from a diplomatic standpoint” if it excluded Turkish contractors.⁵⁶ The division did find qualified Turkish contractors, as in the case of Eti Yapi Ltd.; but the problems that Shuler had enumerated proved real, even for this seemingly sound contractor.⁵⁷

New activity in Turkey involved about two dozen construction contracts between 1958 and June 1960, and construction placement rose from \$4.5 million in FY 1958 to about \$11 million in FY 1959. The Army engineers had managed the earlier construction for several customers: the Turkish government; components of the Joint United States Military Assistance Advisory Group (JUSMAAG, the

⁵⁴ “U.S. Army Engineer District, Southern,” 1 Sep 59, p. 11; Engr Div Mediterranean Info Booklet: 1959, pp. 11, 16.

⁵⁵ “U.S. Army Engineer District, Southern,” 1 Sep 59, p. 12.

⁵⁶ For the list of problems and Itschner’s reply quoted above, see Shuler to Itschner, 10 May 59, and Itschner to Shuler, 1 May 59, both in Mil Files XXI-2-7, OH, HQ USACE. More generally, Shuler’s periodic reports to Itschner repeatedly mention problems with Turkish contractors and the delays that the problems provoked. See Shuler to Itschner, 18 Apr, 11 Aug, 12 Oct 59, all in Mil Files, XXI-2-7, OH, HQ USACE. Hist Rpt–Southern, p. 43.

⁵⁷ Engr Div Mediterranean Info Booklet: 1959, p. 17; Karamursel Residency, Construction Inspection Bfg, Mar 67, “Main Site and Samsun,” p. 1, box 24, access. no. 77-92-0002, WNRC. On Eti Yapi’s deficiencies, see Nauman to Lambert, 8 Jan 63, Mil Files XXI-3-3, OH, HQ USACE; “Hos Geldiniz [Welcome to] TUSEG,” 17 Oct 62, p. 4, box 24, access. no. 77-92-0002, WNRC.

successor to the Joint American Military Mission for Aid to Turkey, or JAMMAT); and the U.S. Air Force. The new program involved construction for the U.S. Navy as well. Many of the projects in Turkey remained classified, including preparations to install Jupiter missiles.⁵⁸

In the late 1950s, the TUSEG Area Office found one attractive way to enhance the quality of work by Turkish nationals. An internship program set up by the area office brought students from Robert College, an American school established in the mid-nineteenth century in Istanbul, into the construction management program. During the summer months, English-speaking students from the college served as supplementary personnel on site inspections and in other capacities. The Turkish students gained experience; the Corps of Engineers expanded its contacts with the Turks, augmented its staff during the busiest construction season, and built goodwill.⁵⁹

The construction program of the early 1950s had projected a complex of bases in Turkey, with Karamursel, on the southeastern coast of the Sea of Marmara, as a main base with five smaller subsidiary bases. Only two of the subsidiary bases were constructed: Samsun, on the coast of the Black Sea about halfway across northern Turkey, and Trabzon, even farther east along the same coastline. The main site at Karamursel (often referred to simply as Mainsite) served as a joint base for the U.S. Navy and Air Force; the satellite bases farther east were exclusively for Air Force use.⁶⁰

By 1960, much of the basic construction at Karamursel had been completed. Construction at Samsun had gotten off to a slow start under an American contractor, the Vinnell Corporation of Alhambra, California. Vinnell had failed to comply with Turkish customs procedures to clear the materials that it imported, proving that delays were not limited to Turkish contractors. The work at Trabzon, contracted between June 1958 and June 1960 at Cigli, at Incirlik/Adana, and at Diyarbakir, had progressed to varying degrees. Additional contracts, including construction of surplus commodity housing near Karamursel and at Incirlik/Adana, were close to being awarded. Despite difficulty in recruiting, TUSEG maintained nearly one hundred persons on staff in offices around the country.⁶¹

Disposing of Surplus Materials

In many of the areas in which the Southern District managed construction, it inherited the unenviable task of disposing of the surplus property (sometimes called

⁵⁸ "U.S. Army Engineer District, Southern," 1 Sep 59, p. 12; "U.S. Army Engineer District, Southern, Livorno, Italy," 1 Nov 58, p. 15; Engr Div Mediterranean Info Booklet: 1959, p. 17; Interv, Moorhus with Wiles, 21 Oct 93, 7 Feb, 5 May 94, pp. 42–43.

⁵⁹ Southern Dist, Press Release no. 10/1958 [1958], box 15, access. no. 77-92-0001, WNRC; Hist Rpt–Southern, p. 24.

⁶⁰ "U.S. Army Engineer District, Southern," 1 Sep 59, p. 12.

⁶¹ TUSEG Area Ofc, "History of TUSEG, 1958–1965," [Dec 65], R&D File 1134, TAC (hereafter cited as TUSEG Hist, 1958–1965); Shuler to Itschner, 10 Dec 59, Mil Files XXI-2-7, OH, HQ USACE; Nauman to Itschner, 9 Dec 60, Mil Files XXI-3-1, OH, HQ USACE; "Hos Geldiniz TUSEG," p. 4.

idle or excess property) that had accumulated under CPFF contracts. Contractors who undertook the crash construction in Morocco, Libya, and Turkey had bought large quantities of materials and equipment to ensure they had what they needed for the construction. In converting from CPFF to fixed-price contracts, these materials became a point of contention. In negotiations, the contractors insisted that the government pay for and assume custody of all materials ordered: this would protect the contractors from significant financial losses. The government, however, had no clear need for the surplus materials.

To reduce the surplus in Morocco, where more than \$60 million in excess property had accumulated, the Mediterranean Division transferred equipment and materials to the Navy for use in construction of the Spanish bases. The division also used surplus materials on other construction projects in Morocco and shipped some to Pakistan. In August 1957, when the Southern District assumed responsibility, \$9.7 million in surplus materials remained on hand in Morocco, \$2.2 million in Turkey, and \$3.5 million in Libya. The Southern District supervised transfer of the entire surplus in Libya to other U.S. government agencies before closing the Middle East District in July 1958. By the autumn of 1959, the Southern District had reduced the Moroccan surplus to \$180,000 through public sales of the materials and equipment.⁶²

In Turkey, the lack of any agreement to cover the tax status of surplus materials sold at public auction blocked their disposal. In November 1959, the Mediterranean Division reached an agreement with the Turkish government; but political events in Turkey delayed the sale of the surplus. Over the summer of 1960, the Southern District transferred 328 pieces of equipment worth \$2.1 million to the State Department's International Cooperation Administration to use in training. During October and November 1960, another forty pieces of equipment with an acquisition value of \$263,000 were offered in the first such sale of its kind in Turkey. Under the terms of the agreement, only one company, the Turkish Scrap Company, had permission to buy the equipment. Sixteen pieces of equipment with a value of about \$67,000 remained on the division's accounting records at the end of 1960.⁶³

Closing the Southern District

By January 1959, the field offices in both Morocco and Libya had become area offices under the Southern District. Other district offices remained open but with limited prospects of future work: the Northern Area Offices in the Verona-Vicenza region, the Athens Area Office, the TUSEG Area Office in Turkey, and smaller field offices near Catania (the Sigonella Residency) and near Brindisi.⁶⁴ In late 1959, the division engineer, General Shuler, ordered a reorganization of the

⁶² Hist Rpt–Southern, p. 53; “U.S. Army Engineer District, Southern,” 1 Sep 59, p. 5; Shuler to Itschner, 11 Dec 58, pp. 3–4; “Part II: Morocco District,” [1957], pp. 23–24.

⁶³ Nauman to Itschner, 7 Oct 60, p. 5, and 9 Dec 60, p. 5, Mil Files XXI-3-1, OH, HQ USACE; Hist Rpt–Southern, p. 53.

⁶⁴ Hist Rpt–Southern, p. 1; Engr Div Mediterranean Info Booklet: 1959, p. 14; “U.S. Army Engineer District, Southern,” 1 Sep 59, p. 2.



Fire station constructed under the supervision of the Brindisi field office

Southern District, abolished several branches (Technical Liaison, Safety, Design, and Program and Planning) and redistributed their work.⁶⁵ Reduced work in the field offices and the reorganization eliminated 156 civilian employees (30 percent) from the district's staff by the end of the year.⁶⁶

The district began a formal reduction in force on 5 February 1960. About the same time, Shuler received the report from a study he had commissioned on merging the staffs of the Southern District and the Mediterranean Division headquarters. The report indicated that combining the two operations would eliminate another forty-two positions and save several hundred thousand dollars a year, even if the two staffs retained separate office space: the division in the Palazzo Grande and the district in the Corallo Hotel.⁶⁷

⁶⁵ Dist Order no. 14, 31 Dec 59, sub: Reorganization—Southern District, box 682799, Record Group (RG) 77, access. no. 77-004, Federal Records Center, Bayonne, N.J. (hereafter cited as Bayonne FRC).

⁶⁶ "U.S. Army Engineer District, Southern," 1 Sep 59; Shuler to Itschner [mid-Apr 59], Mil Files XXI-2-7, OH, HQ USACE.

⁶⁷ Memo, Clema, 16 Feb 60, sub: Study and Plan for Maintaining Reduced Government Costs, RG 77, box 682799, access. no. 77-004, Bayonne FRC; "Study and Plan for Maintaining Reduced Government Costs," 19 Feb 60; Memo, W. J. Long to E. J. Fuller, 15 Feb 60, sub: Staff Study of Operating Division, pp. 1–3, box 682799, RG 77, access. no. 77-004, Bayonne FRC.

General Shuler reluctantly concluded by early March 1960 that he could not retain the Southern District. The district's prospects for new construction had virtually evaporated. Family housing projects had either dropped out of the USAF construction program entirely or had been curtailed. Projects planned for Asmara, Eritrea, and Cigli, Turkey, had been held up by political and security factors involving the low bidder on both, the Israeli company Solel Boneh. Construction of a road between Wheelus Air Base and Tripoli in Libya had become mired in State Department red tape. A freeze imposed on design for the Air Force program of FY 1961 had eliminated additional work. Shuler decided to merge the Southern District with the Mediterranean Division headquarters, thus re-creating an operating division. He showed little enthusiasm for the decision, nor did General Itschner in endorsing it; but both accepted the need to adjust costs in light of potential income.⁶⁸

The Southern District had begun its life under the Mediterranean Division in August 1957 with eighty-three contracts valued at about \$175 million carried over from the Joint Construction Agency. By early 1958, it supervised construction at forty sites on three different continents. During its existence, the district awarded 143 contracts worth \$51 million. By mid-1960, it had completed 151 contracts with a total value of \$158 million.⁶⁹ From a high of 550 positions, the district had only 316 when the division headquarters incorporated it. After 30 June 1960, only the two engineer officers, Colonel Clema and his deputy, remained in the district. On the third anniversary of its activation, 1 August 1960, the Southern District ceased to exist, leaving the Mediterranean Division as an operating division with two districts: the Trans-East and the Gulf.⁷⁰

⁶⁸ Shuler to Itschner, 3 Mar 60, and Itschner to Shuler, 16 Mar 60, Mil Files XXI-3-1, OH, HQ USACE.

⁶⁹ Hist Rpt–Southern, preface.

⁷⁰ Memo, Shuler, 16 May 60, sub: Merger of the Division Office and the Southern District, box 682799, RG 77, access. no. 77-004, Bayonne FRC; Shuler to Northington, 25 May 60, Mil Files XXI-2-5, OH, HQ USACE; GO no. 12, 3 Jun 60, sub: Abolishment of U.S. Army Engineer District, Southern and Realignment of Responsibilities of the U.S. Army Engineer Division; "Mediterranean Historical Rpt, Southern District, Aug 57–Jun 60," [1960], box 51-83-8379, Farrell Papers; Nauman to Itschner, 7 Oct 60, p. 1, Mil Files XXI-3-1, OH, HQ USACE; Hist Rpt–Southern, preface, pp. 1, 25.

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THE TRANS-EAST AND GULF DISTRICTS, 1958–1960

The Mediterranean Division had established the Trans-East District in Karachi in late 1955 and the Gulf District in Tehran in early 1956 to supervise American-financed construction for the armed services of Pakistan and Iran. While the Southern District supervised the late stages of a waning American construction program in North Africa, the Trans-East and Gulf Districts supervised growing programs in southwest Asia.

Trans-East District Construction Program

Construction in Pakistan for the Pakistani Air Force, Navy, and Army began in the summer of 1956; by the beginning of 1958, it had advanced noticeably. The Trans-East District turned the airfield at Mauripur over to the Pakistani Air Force in July 1957 and all supporting facilities in February 1958. In June 1958, the district turned over an improved airfield at Peshawar; late in the year, the contractor, Oman-Farnsworth-Wright (OFW), completed the facilities at the airfield near Sargodha. That same year, the contractor completed construction of ammunition storage and inspection facilities for the Pakistani Navy in the vicinity of Karachi and an extension of the existing berth for fitting out ships. Construction continued on a naval storage depot, a two-story structure of one hundred sixty thousand square feet.¹

The construction plan for the large army cantonment at Kharian called for a multiyear project to build facilities on a 4,000-acre tract to accommodate the fifteen thousand troops of a Pakistani armored division. At the outset of 1958, new facilities constructed by the Trans-East District provided space for five thousand troops. The work programmed for FY 1959 projected facilities for another five thousand soldiers.²

The military forces of Pakistan had been part of the British colonial army in India before the civil war and were accustomed to the standards maintained by the British. The U.S. Military Assistance Advisory Group, which commissioned

¹ Trans-East Dist Info for Bfg General Lincoln, Jan 58, tabs F, H, I (hereafter cited as Lincoln Bfg–Trans-East); Hist Rpt, U.S. Army Engr Dist, Trans-East, 21 Nov 55–30 Jun 60, Aug 60, pp. 98, 103, 105 (hereafter cited as Hist Rpt–Trans-East); both in box 51-83-8379, Richard T. Farrell Papers, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.

² Lincoln Bfg–Trans-East, tab G; Hist Rpt–Trans-East, p. 62.



Ammunition storage in Karachi, January 1958

the construction, set standards for construction under American Direct Forces Support (DFS) aid that would compare favorably with British colonial standards. The Trans-East District understood the Military Assistance Advisory Group's (MAAG's) instructions to mean that the facilities would be somewhat below the American standards for modified emergency construction with a ten-year life expectancy. The district expected the contractors to use local construction materials and techniques.³

As construction progressed, criticism arose that the Corps of Engineers provided too high a standard at Kharian. In August 1957, the Army colonel newly assigned as chief of the MAAG's Army element began to complain that the Corps was "wasting money by giving the Pak[istani]s more than they required."⁴ The construction was not extravagant; but the facilities looked good, and their quality exceeded what had been imagined when the criteria were established. Col. Frederick J. Clarke, Trans-East District engineer between 1957 and June 1959, observed later that the facilities looked so good in part because the "brick work and the plastering" had a thousand years of Pakistani artisan tradition and quality behind it. In addition, the contractor used teakwood for the door and window frames and in the built-in lockers because teak resisted the termites prevalent in the area. The teak came from East Pakistan and was far less expensive than metal or any other solution to the termites.

³ Lincoln Bfg-Trans-East, Remarks by Col Frederick J. Clarke, 16 Jan 58, p. 4; Shuler to Itschner, 16 Sep 58, unmarked box, OH, HQ USACE.

⁴ Shuler to Itschner, 16 Sep 58.

Without exceeding the criteria, the Corps insisted on “finished” construction, that is, covered wiring and plastered walls.⁵

At the time of the construction, Clarke corresponded with both his division commanders, Brig. Gens. Lawrence J. Lincoln Jr. and William R. Shuler, concerning the criteria and the criticism. General Shuler in turn alerted his commander, the chief of engineers, Maj. Gen. Emerson C. Itschner. The district and division on their own initiative undertook studies to determine how they might reduce costs while maintaining the standards set for the facilities in Pakistan.⁶ The criticism persisted, resulting in a congressional committee report, published in March 1961, charging that the Corps of Engineers had delivered facilities at Kharian that exceeded the “appropriate” standards and therefore had wasted taxpayer money.⁷

As with so much of the construction supervised by the Mediterranean Division, the construction at Kharian combined the elements of very modern techniques and very ancient practices. Before construction could begin, the contractor had to build a two-mile railway spur to get equipment and materials to the job site. At the same time, much of the earth moved during the project was shoveled by hand into bags hanging over the backs of donkeys. Over a two-and-a-half month period, donkeys, carrying about two cubic feet of earth on each trip, moved thirty-five thousand cubic yards of dirt.⁸ That amounts to about one hundred fifty-seven thousand five hundred donkey trips in ten weeks or over two thousand five hundred trips a day during the standard six-day week.

As Clarke noted, Western Punjab, the region where the Kharian cantonment was located, had a long tradition of construction with bricks and manual labor. Laborers mixed mud and filled handmade molds. The bricks baked for six hours and then cooled for fifteen days. Whole families worked on the Kharian project, and the average family group produced about one thousand to one thousand five hundred bricks a day. Brick makers received 5 rupees for one thousand bricks. The “burning coolies” who stoked the kilns that fired the bricks earned 2 to 2.5 rupees a day. A single kiln could average sixty thousand bricks a day, but 20 to 40 percent of the bricks failed the quality standards set by the Americans. Porters carried the

⁵ Clarke to Col R. J. Kasper, 27 Jun 58, p. 2, box 51-84-7361, Farrell Papers.

⁶ In addition to the sources cited in notes 3, 4, and 5, see Lincoln to Clarke, 15 May 58, and Clarke to Kasper, 27 Jun 58, both in box 51-84-7361, Farrell Papers; Kasper to Clarke, 8 Jul 58, and Clarke to Shuler, 9 Jan 59, Mil Files XXI-2-3 and XXI-2-4, respectively, OH, HQ USACE.

⁷ MFR, Col A. D. Chaffin, 18 Jan 61, sub: Conference on Military Construction with Representatives of the House Committee on Foreign Affairs, unmarked box, Karl C. Dod Papers, OH, HQ USACE, R&D File 2543, Transatlantic Programs Center (TAC), Winchester, Va. This box includes commentaries on the standards applied at Kharian drawn from several participants including Cols. William A. Davis and Frederick J. Clarke, General Walter K. Wilson, General Lincoln, General Shuler, Col. Robert J. Kasper, and Colonel Chaffin. In spite of these rebuttals, the committee published its unfavorable assessment. Roy J. Bullock and Cromer, Rpt to the House Foreign Affairs Committee of U.S. Financed Military Construction at Kharian and Multan in West Pakistan, Mar 61, in Hist Rpt—Trans-East, Addendum for Period 1 Jul 60–31 Dec 60, May 61, box 51-83-8370, Farrell Papers, OH, HQ USACE, R&D File 2598, TAC.

⁸ These details of construction come from Robert E. Snetzer, “Pakistan: Newest Construction Area,” *Military Engineer* (September-October 1958): 335–39.



At the Kharian cantonment, workers used donkeys to move sun-dried bricks to the kilns for firing.

bricks on their heads from the kilns to the construction sites. One worker carried twenty to twenty-four bricks at a time, a weight of 120–144 pounds, and earned 1.25 rupees per one thousand bricks delivered. Skilled bricklayers earned 5.5 to 6 rupees a day. A rupee was worth 21 cents, so an hour's work in the United States at the minimum wage of \$1.00 an hour earned about the same as a full day's pay for Pakistani brick makers at the Kharian site.

By April 1960, Pakistani Army units occupied the Kharian cantonment, 85 percent of them in permanent facilities and 15 percent bivouacked on site.⁹ A year later, the contractor completed all remaining facilities.

The Trans-East District supervised the construction of a second cantonment located at Multan, two hundred miles southwest of Lahore. Construction had been scheduled on a cantonment at Jhelum, one hundred five miles north-northwest of Lahore on the Jhelum River; but because of possible flooding by a proposed dam downstream, the United States and Pakistan agreed to cancel the Jhelum cantonment and shift the resources to expand facilities at Multan and at Kharian. Construction on the cantonment at Multan, to accommodate eight thousand five hundred soldiers of the Pakistani Army, began in the summer of 1959. The contractor, OFW, completed the Multan cantonment in June 1961, nine months

⁹ Shuler to Itschner, 7 Apr 60, p. 3, Mil Files XXI-3-1, OH, HQ USACE.



Site plan for the Multan cantonment, late 1950s

ahead of schedule. The army post, situated on 270 acres of land, included 310 structures, with 60 barracks, 27 mess halls, 35 administrative buildings, 25 schools, and all of the supporting utilities.¹⁰

¹⁰ Hist Rpt–Trans-East, pp. 36, 57, 71; MFR, Clarke, 22 Jun 59, sub: Additional Facilities at Multan and Kharian, p. 6, Mil Files XXI-2-4, OH, HQ USACE; Northington to Shuler, 28 Jan, 26 Mar 60, p. 6, Mil Files XXI-2-5, OH, HQ USACE; “Multan Cantonment,” Bfg for Col A. C. Nauman, Jan 61, p. 5, box 35, access. no. 77-92-0001, Washington National Records Center (WNRC), Suitland, Md.; Cameron to Nauman, 4 May 61, box 51-83-8379, Farrell Papers.



Multan Residency Office

The Corps also supervised construction of facilities in Pakistan to support a United States Air Force (USAF) communications facility near Peshawar, the so-called Sandbag Operation for the surveillance of Soviet activity. Beginning in July 1958, OFW and subcontractors built facilities in four phases with contracts awarded in four fiscal years. In all, the project comprised eighty-nine buildings and one hundred family-housing units with a total value of \$5.35 million, including Pakistan's contribution of 3.1 million rupees (the equivalent of \$651,800).¹¹

In May and June 1958, the Pakistani secretary of defense approached members of the American military mission about obtaining "the advice and counsel of the Corps of Engineers on their problems in constructing a new Jet Age air strip" at the civilian airport in Karachi. The Trans-East District engineer, Colonel Clarke, who advised division headquarters about the inquiry, correctly assessed it as "a prelude to their asking the U.S. to finance and construct the field."¹² Although the Pakistani government's defense ministry had jurisdiction over the Karachi airport, the program

¹¹ Hist Rpt-Trans-East, p. 58; Interv, Paul Walker with John Coony, 9 Feb 85, p. 14.

¹² Clarke to Lincoln, 3 Jun 58, Mil Files XXI-2-3; Northington to Amb W. M. Rountree, 30 Apr 60, Mil Files XXI-2-5; both in OH, HQ USACE.

to improve the runways and facilities at the terminal came within the purview of the U.S. Department of State's International Cooperation Administration (ICA).¹³

Negotiations over several months drew together the International Cooperation Administration, the MAAG, the U.S. embassy in Pakistan, and the Corps of Engineers to shape the project with the Pakistani government; on 19 November 1959, the two governments signed an agreement. By December, the United States had extended a credit to Pakistan of \$4.8 million, with 60 percent from the Department of State's Development Loan Fund (DLF) and 40 percent from rupee accounts generated by the Pakistani government's participation in the American program built around the sale of surplus agricultural commodities.¹⁴ The Trans-East District acted as the contracting agent for the government of Pakistan in constructing a new jet runway, corresponding taxiways, and support facilities at the existing Karachi civilian airport. Under the terms of the government-to-government agreement, once the Pakistani government awarded contracts, the district engineer became the contracting officer with complete responsibility and authority to administer the contracts, including supervising, inspecting, and accepting work. He even countersigned payment vouchers.¹⁵

Paralleling these negotiations, the Office of the Chief of Engineers (OCE) developed a new contracting procedure whereby OCE publicly advertised certain high-priority projects but restricted bidding to a list of preselected and prequalified construction firms. For the Karachi airport construction, OCE identified forty American contractors as qualified to bid and informally notified the Pakistan Ministry of Defence of twenty-one that the minister might ask to submit proposals. Four firms submitted bids, including OFW, which held virtually all other contracts for the construction program in Pakistan. At the opening of proposals on 14 January 1960, the Pakistani government identified the Vinnell Corporation as the low bidder.¹⁶ The process had worked, as OCE had hoped it would, to encourage truly competitive bidding. Colonel Clarke's successor as Trans-East District engineer, Col. Hartsell H. Northington, observed, "To say that OFW people were shaken by Vinnell Company's low bid on this contract is putting it mildly."¹⁷

On 1 February 1960, Vinnell signed a contract for \$4,369,256, well below the \$4.8 million loan commitment that the Pakistani government had gotten from the

¹³ Hist Rpt–Trans-East, p. 57.

¹⁴ See correspondence between Clarke and Kasper, Clarke and Shuler, Northington and Shuler, Shuler and Itschner between June 1959 and the extension of the loan by the United States to Pakistan in December 1959 in Mil Files XXI-2-3, XXI-2-4, XXI-2-7, and box 51-84-7361, Farrell Papers; Memo, Col E. E. Wilhoyt, 25 Aug 59, sub: Corps of Engineers Status, Karachi Runway, box 51-83-8378, Farrell Papers; Hist Rpt–Trans-East, p. 13; "Corps of Engineers Military Construction Activities, 1 January 1960–31 March 1960," n.d., p. 1, Mil Files XXI-2-5, OH, HQ USACE.

¹⁵ "Mediterranean Division, Corps of Engineers, United States Army," [1967], unmarked box, Farrell Papers; Northington to Rountree, 30 Apr 60.

¹⁶ Hist Rpt–Trans-East, p. 36; Northington to Shuler, 28 Sep 59, Mil Files XXI-2-4, OH, HQ USACE.

¹⁷ Northington to Shuler, 28 Jan 60, p. 4, Mil Files XXI-2-5, OH, HQ USACE.

U.S. Development Loan Fund. Because Vinnell had no experience in Pakistan, work began slowly; but by late September, construction had reached 35 percent and by the end of 1960 was at 90 percent. On 25 January 1961, the Pakistani government held a ceremony attended by the U.S. ambassador and other dignitaries to inaugurate the new runway, completed ten months ahead of schedule. The first modern jet passenger plane to depart from the runway was a Pakistani International Airlines Boeing 707 bound for London.¹⁸

By June 1960, the Trans-East District had administered a total of \$128.3 million in American construction funds in Pakistan. The district had thirty-six projects completed, under construction, or under contract award, including five major construction contracts totaling more than \$120.1 million and four very small construction contracts together worth slightly more than \$100,000. The balance included 19 design contracts with architect-engineer firms valued at \$3.26 million; 2 inspection contracts; and 6 other contracts for engineering reports, exploratory drilling, dredging, and other tasks. The district also administered on behalf of the Pakistani government the contract worth \$4.37 million to improve the Karachi civil air terminal.¹⁹

Living and Working in Pakistan

The Trans-East District's headquarters staff, which fluctuated generally between one hundred thirty and one hundred sixty positions and reached one hundred eighty at its peak, oversaw and administered programs from its offices in Karachi. The city had had a population of around two hundred thousand before the civil war with India in 1947; but refugees flooded the city, which had become the temporary capital of the new nation of Pakistan. By 1957, the city's population had jumped to 1.5 million with no improvement in its infrastructure.

The Trans-East District was a hardship post, where recruiting and retention of qualified personnel were extremely difficult. In the first two years of existence, from late 1955 to the end of 1957, the district lost two-thirds of its staff each year because people rarely extended beyond the initial eighteen-month employment agreement.²⁰ Because of overcrowding in the city, rental housing was scarce and generally far below American standards. Karachi had an insufficient water system and a minimal and undependable power supply; open sewers flowed from the refugee camps; and amoebic dysentery affected virtually everyone in the organization. Medical facilities were minimal in Karachi and below standard in the field locations.

¹⁸ Hist Rpt–Trans-East, p. 36; Northington to Shuler, 28 Sep 59, Mil Files XXI-2-4, and 25 May 60, Mil Files XXI-2-5; Col H. H. Northington to Col A. C. Nauman, 27 Sep 60, Mil Files XXI-2-5; all in OH, HQ USACE. *Karachi Morning News*, 26 January 1961, in box 17, access. no. 77-92-0002, WNRC; Info for GED [Gulf Engineer District] BiMonthly Ltr to MDD for Jan 61, Mil Files XXI-2-6, OH, HQ USACE (hereafter cited as GED Info Ltr, Jan 61).

¹⁹ Hist Rpt–Trans-East, pp. 36, 57.

²⁰ Mediterranean Div, "Engineering [Inspection]" [Jan 58], p. 9, box 24, access. no. 77-92-0002, WNRC; Clarke to Shuler, 9 Jan 59, p. 2.

Afternoon temperatures in district headquarters frequently rose above 100°F. To relieve incoming personnel of having to deal with the housing situation on their own, in 1956 the Mediterranean Division approved a program under which the district signed housing leases and made accommodations available to staff. The district created the office of headquarters commandant to negotiate leases and maintain government-furnished housing.²¹

Colonel Clarke arrived in Karachi in June 1957 as the district engineer. He resolved to improve the housing arrangements; in January 1958, he authorized the headquarters commandant to identify buildings under construction and to negotiate with the owners or builders. The commandant could guarantee a lease at a certain price per month provided the finished facility included European-style baths; a large, one-room kitchen; large underground water tanks; proper plumbing; and an electrical system of sixty or more amps. The district then provided window screens, water heaters, air conditioners, large kitchen appliances, and basic furniture. At the height of the housing program, the district engaged about one hundred service personnel—plumbers, masons, carpenters, and mechanics—to maintain the facilities. As a result of this program, the district obtained better-quality housing at no more than standard rental rates.²²

The district made government vehicles available for staff and their families because the public transportation system was inadequate. In another effort to reduce turnover and facilitate recruitment, Clarke promoted a sponsor system through which an employee from the district corresponded with a prospect in the United States, provided him with information about Karachi, and then assisted him upon arrival. Clarke personally met many new employees at the airport.²³

Recruitment remained difficult. It took eight months to replace a high-ranking manager (GS-15) for the district's Engineering Division when Clarke "cleaned house" of several people whom he judged incompetent. It took nearly as long to find a chief for the district's Management Branch.²⁴

Overhead Costs

The personnel problems, issues of morale, and the steps that Clarke took to remedy them raised the Trans-East District's overall operating costs. Clarke responded forcefully when anyone suggested comparisons between costs in his district and districts in the United States, asserting that he faced problems unknown in stateside districts. In January 1958, he itemized the costs to support the average employee as follows:

²¹ *Interviews with Lieutenant General Frederick J. Clarke* (Washington, D.C.: Office of the Chief of Engineers, 1980), pp. 126–28; Hist Rpt–Trans-East, pp. 18, 27.

²² Hist Rpt–Trans East, p. 18.

²³ Clarke to Shuler, 9 Jan 59; Lincoln to Itschner, 9 Jun 58, box 51-84-7361, Farrell Papers; Interv, Walker with Coony, 9 Feb 85, p. 12.

²⁴ Lincoln to Clarke, 2 Jun 58, box 51-84-7361, Farrell Papers; Clarke to Shuler, 6 Aug 58, Mil Files XXI-2-3, OH, HQ USACE.

Basic salary, GS-9	\$5,440
20 percent foreign differential	1,088
Cost of living (with one dependent)	210
Housing allowance per year	2,200

The extra costs amounted to \$3,498, an additional 64 percent over salary at the GS-9 level. Clarke also calculated that it cost \$5,333 to mobilize and demobilize an American civilian employee on the normal eighteen-month tour, including roundtrip travel and moving expenses. This increased the overhead cost for a midlevel employee to \$8,831, or 162 percent in addition to the base salary. He pointed out that travel within Pakistan to construction sites or to other countries further increased operating costs for the district. Moreover, to avoid large staff fluctuations, the district held people in positions even as work slackened; letting people go and then having to replace them when the work increased was even more expensive.²⁵

General Itschner raised the issue of high overhead when he visited the Mediterranean Division and the districts in November 1958. The division engineer, General Shuler, passed on Itschner's written comments to Clarke: "We must devote more attention to the engineering and construction aspects of work and be less concerned about providing emoluments for the district personnel."²⁶ In March 1959, Shuler ordered the Gulf and Trans-East Districts to curtail the procurement of furniture and to limit employee use of official vehicles to one trip per family per week to the commissary or other necessary facilities. In April, Shuler gave instructions to end the government-leased housing program.²⁷

Colonel Clarke took strong issue with the new policy concerning housing. He argued that it would mean the loss of key personnel in the Trans-East District, that it would have an "explosive effect on the morale" of the staff, and that it would confront his successor with "serious repercussions." "There is not a vacant unleased house in Karachi today that would be suitable for early occupancy by an American family," Clarke wrote. The cost to American families of installing such utilities as stoves, refrigerators, and water heaters—improvements that Clarke had negotiated with builders—would add to the prohibitive costs of private leasing. Clarke asked that he be allowed to "hold off any actions involving the people already here" until General Shuler had had a chance to review Clarke's facts and arguments. In early June, Shuler authorized Clarke to continue the government-leased housing program. The Trans-East District's best year for retention of staff was FY 1959, the final year of Clarke's tour, when 43 percent of those whose transportation agreements expired renewed their contracts.²⁸

²⁵ Clarke to Lincoln, 31 Jan 58, Mil Files XXI-2-3, OH, HQ USACE.

²⁶ Shuler to Clarke, 12 Dec 58, Mil Files XXI-2-3, OH, HQ USACE.

²⁷ Shuler to Itschner, 15 Mar 59, Mil Files XXI-2-7, and Clarke to Shuler, 8 May 59, Mil Files XXI-2-4, both in OH, HQ USACE.

²⁸ Clarke to Shuler, 8 May 59, and Shuler to Clarke, 4 Jun 59, both in Mil Files XXI-2-4, OH, HQ USACE; Hist Rpt—Trans-East, p. 22.

Maintaining an adequate staff with sufficient technical qualifications to supervise the construction projects remained a problem in Pakistan. The projects were widely dispersed, and the local laborers who followed traditional production procedures required far closer supervision than workers in the United States and Europe. The district compensated for its limited staffing by contracting with private architect-engineer companies to provide supervisory services and to inspect the work at construction sites under what are called Title II contracts. Title II contracts covered inspection services at Kharian, Multan, and Peshawar. To improve liaison with various elements of the Pakistani government, Colonel Clarke added a former Pakistani Army officer to the district's staff in August 1958.²⁹

The district's first L23D airplane, received in February 1959, facilitated operations. In the seventeen months between its arrival and 30 June 1960, the aircraft flew over 200 missions, carried about 650 passengers, and logged over 500,000 passenger miles. Most frequently, the passengers were supervisory personnel and technicians traveling to construction sites. The district had space for parts, maintenance, and an office for the aviation crew at the Pakistani Air Force's Drigh Road Airfield near Karachi.³⁰

Potential Work in Burma

Early in 1959, President Dwight D. Eisenhower approved a grant of economic assistance to Burma. To implement the aid program, the International Cooperation Administration, which funded the Karachi civil air terminal, asked the Corps of Engineers to conduct a feasibility study for the construction of a major highway from Rangoon to Mandalay (*See Map 12.*) and for construction of buildings at the Rangoon University campus. The State Department turned to the Corps because the Army engineers had an office in Pakistan, the Corps could begin the studies quickly, and the costs would be lower than if the ICA sought to contract the studies directly with architect-engineer firms. High-ranking officials within the Burmese government told the American assistant secretary of defense for intelligence that they looked upon the Corps as the only agency they could depend on to remain incorruptible in dealing with the substantial sums of money involved. The ICA anticipated that the project to construct the 430-mile highway would begin with about \$750,000 in FY 1959 for a preliminary study and design. The actual construction of the highway would stretch over five years, with annual expenditures of about \$10 million.³¹

²⁹ Hist Rpt–Trans-East; Col Robert C. Bahr, William H. Koidal, and William J. Long, “Study to Analyze the Past and Possible Future Use of Architectural Engineer Inspection Services (Title II) in the Gulf and Trans-East Districts of the Mediterranean Division, as Opposed to the Customary Use of Corps Personnel,” 16 Dec 59, box 17, access. no. 77-92-0001, WNRC; Shuler to Itschner, 10 Jun 59; Hist Rpt–Trans-East, p. 13.

³⁰ Hist Rpt–Trans-East, p. 11.

³¹ D. A. Fitzgerald to Itschner, Jun 59, Mil Files XXI-2-7; Northington to Shuler, 27 Nov 59, Mil Files XXI-2-4; Itschner to Shuler, 1 Jul 59, Mil Files XXI-2-7; all in OH, HQ USACE.



Map 12

Information on the proposed Burmese projects reached the Mediterranean Division in June 1959; in July, the Trans-East District received the assignment to begin work on the preliminary study and design. General Itschner alerted General Shuler that, although the division already had other ICA work, the undertakings in Burma “are the first major projects in ICA’s normal field of activity on which they wish to make use of the Corps’ services. As a consequence they look upon this Burma work as a pilot program.” Itschner urged Shuler to give the projects in Burma his personal attention “to insure that they will be constructed and completed to the full satisfaction of both ICA and the Government of Burma.” He instructed Shuler to open an area office in Rangoon headed by a lieutenant colonel with good experience and an outstanding record. Itschner wanted Shuler to exercise “great care” in selecting the personnel and in identifying the architect-engineer firm to conduct the studies and to prepare the designs for the projects.³²

In late July, a study team from the Trans-East District traveled to Burma to gather preliminary data. The team concluded that the cost of construction of both the highway and the university project had been seriously underestimated. The director of the ICA mission in Burma had estimated that both projects would cost no more than \$30 million; the district’s team estimated the cost at \$45 million at a minimum. Members of the team worked with the ICA mission to draft an intergovernmental construction agreement, which they left with the U.S. ambassador as a basis for the United States’ position in conversations with the Burmese government.³³

The Burmese projects became more doubtful when Shuler and his staff determined that funds designated in Burma for the project might not be available. On balance, Shuler decided that the Corps ought to make no commitment to the projects without firm estimates and a realistic plan for funding. Shortly after the division reached this decision, the Trans-East District engineer, Colonel Northington, learned that the engineering faculty at Rangoon University had successfully argued to the Burmese government that engineering professors could draft the design more cheaply than an American contractor working with the Corps of Engineers. This development made Corps participation in the university project unlikely. The construction of the Rangoon-to-Mandalay highway still seemed a possibility, but Northington remained skeptical. Despite this skepticism, the Mediterranean Division established a Burma Area Office on 1 October 1959 and OCE assigned a lieutenant colonel as area engineer.³⁴

Burmese officials cooperated with Corps of Engineers representatives who visited the country, but they remained reluctant to make any binding commitments on either project. Based on Northington’s reports on the situation, Shuler concluded

³² Itschner to Shuler, 2 Jul 59, Mil Files XII-2-7, OH, HQ USACE.

³³ Northington to Shuler, 27 Jul 59, Mil Files XXI-2-4, and Shuler to Itschner, 12 Aug 59, Mil Files XXI-2-7, both in OH, HQ USACE.

³⁴ Memo, Col Milton M. Miletich, 10 Sep 59, sub: Problem Statements, Mil Files XXI-2-4, OH, HQ USACE; Northington to Shuler, 28 Sep 59, OH, HQ USACE; Hist Rpt–Trans-East, p. 133, and Addendum, May 61, p. 10.

that Burmese officials “seem to be suspicious of everyone, including each other, but the Corps’ prestige rating is increasing.”³⁵

In January 1960, Dr. Louis Berger, whose architect-engineer company held the contract for the study of the highway, visited Burma. In the same month, the Trans-East District, at Burma’s request, sent three staff members to review designs for the university prepared by the Burmese National Planning Board. The team spent several weeks in Rangoon and returned with the expectation that the ICA mission in Burma would ask the district to perform engineering inspection on the university project, an endeavor General Shuler regarded as “very delicate and troublesome.” Shuler feared that to provide the Burmese with technical assistance under circumstances where the Corps had responsibility without authority constituted a “risky arrangement,” and he urged Northington to exercise extreme caution before making any commitments.³⁶

Berger and Associates completed the study of the Burma highway in February 1960; the district submitted it, with modifications, to the ICA mission in Burma. The Corps received no formal response through the spring and summer. With no directive to begin construction for either the highway or the university and with indecision from the Burmese government concerning any future studies, the district closed the Burma Area Office on 5 August 1960. The Burmese work, for which General Itschner had entertained such high hopes, stalled after only two small projects: about \$750,000 for the feasibility study for the highway, and about \$250,000 for advising the Burmese government on the university construction project.³⁷

Prospects in Saudi Arabia

American military construction had ended in Saudi Arabia in October 1955 with the Fluor Corporation’s completion of work on the Dhahran Airfield. As the end of the project approached, the Saudi government claimed that Fluor and its individual employees owed both current and retroactive income taxes. When the company agreed to pay these, Saudi officials demanded additional payment of retroactive charges for work permits, visa fees, and quarantine fees. When the company refused to accept these additional charges, the Saudis responded by barring the departure of the remaining Fluor employees from the country.

The matter did not involve the Corps of Engineers directly until U.S. Ambassador George Wadsworth intervened. He persuaded the Saudi government that the presence of the Mediterranean Division’s area engineer in Saudi Arabia would provide sufficient assurance of a settlement. The Saudis accepted the arrangement and allowed the Fluor employees to leave. The tax issue seemed no nearer settlement when, in the spring of 1956, the area engineer’s tour neared completion. The division

³⁵ Northington to Shuler, 27 Nov 59; quotation from Shuler to Itschner, 10 Dec 59.

³⁶ Northington to Shuler, 28 Jan, 16 Mar 60, Mil Files XXI-2-5; quotation from Shuler to Itschner, 10 Feb 60, Mil Files XXI-3-1; all in OH, HQ USACE.

³⁷ Hist Rpt–Trans-East, p. 133, and Addendum, May 61, p. 10; Northington to Nauman, 25 Nov 60, Mil Files XXI-2-5, OH, HQ USACE.

engineer, Brig. Gen. Benjamin B. Talley, suggested to the chief of engineers, Maj. Gen. Samuel D. Sturgis Jr., that the engineer officer's tour be extended until a replacement officer could arrive in Saudi Arabia. General Lincoln, who replaced Talley in May 1956, asked Maj. William Bailey, who was assigned to the division and had served under Lincoln previously, to take over the area office in Dhahran.³⁸

With the tax problem still unresolved, Major Bailey arrived in Dhahran and the Saudi police confiscated his visa and passport. Monthly, between June and November 1956, Bailey received a summons to appear before the police chief of the eastern province of Dammam, whose governor, a cousin of the king, was responsible for collecting the tax. Each time, the police demanded that Bailey pay the debt attributed to Fluor. Each time, Bailey explained that he simply represented the U.S. Army Corps of Engineers in the country and that the Corps did not agree that the tax assessment was legitimate but that it had authority to negotiate a settlement.

The Saudis grew impatient; when their tone in one meeting became threatening, Bailey, accompanied by an American consular officer, protested and announced he would not appear at police headquarters again. A few weeks later, he received a notice through the U.S. Consulate in Dhahran summoning him to appear before the Sharie Court of the government of Saudi Arabia. In this court, Bailey, a non-Muslim, would have no rights and no status. "I would not be allowed to speak in my behalf or have any defense. They would just merely call me up before the bench and demand the money and if I couldn't produce it, I would be confined. [The Saudis] don't feed their prisoners or bring them water. That's all done by relatives, and I didn't have any relatives [in Saudi Arabia]."³⁹

Bailey radioed Ambassador Wadsworth in Jiddah and cabled General Lincoln. The ambassador said that he would drive to Riyadh to ask King Saud to intervene with the governor on Bailey's behalf. Lincoln made immediate plans to fly to Dhahran; he contacted the U.S. Navy, which had a fleet stationed near Bahrain and planes that flew in and out of Dhahran daily. A few days later, in a scenario worthy of a spy novel, Navy pilots went to Bailey's quarters, gave him a Navy uniform, and flew him out of Saudi Arabia before sunrise.

Once Major Bailey had been debriefed in Naples and returned to Morocco, Lincoln sent him to Suez to serve as liaison officer for the division with a retired chief of engineers, Lt. Gen. Raymond A. Wheeler. Wheeler had been charged by the UN secretary general with clearing the Suez Canal of the debris from the recent war. Ambassador Wadsworth demanded Bailey's return to Saudi Arabia, but he and the Saudis backed down rather than remove Bailey from the highly visible UN operation. Ultimately, the U.S. government paid the taxes that Saudi Arabia had levied against Fluor. The incident created a legacy that for several years shaped the attitudes of Mediterranean Division officials toward work in Saudi Arabia.⁴⁰

³⁸ Interv, Richard T. Farrell with Col (Ret) William Bailey, Aug 75, p. 3; Talley to Sturgis, 30 Mar 56, file 328, box 51, Lt Gen Samuel D. Sturgis Jr. Papers, OH, HQ USACE.

³⁹ Interv, Farrell with Bailey, Aug 75, p. 3.

⁴⁰ On the Saudis and taxes, see Intervs, Farrell with Bailey, Aug 75, pp. 2–8; Richard T. Farrell with Lt Gen (Ret) Lawrence J. Lincoln, 4 Aug 75, pp. 9ff; Lawrence Suid with Lt Gen (Ret) Lawrence

A few months after Bailey's clandestine departure, President Eisenhower hosted King Saud in Washington, D.C., where the two leaders discussed American military use of the airfield at Dhahran. In return for a renewal of the arrangement, Eisenhower proposed aid to the Saudi kingdom. In a formal agreement dated 2 April 1957, the United States pledged to provide construction support to help the Saudis improve their commercial air facilities at the Dhahran Civil Air Terminal and to assist, advise, and train the Saudi Army, Navy, and Air Force. To accomplish the tasks of assistance and training, the United States redesignated the Military Assistance and Advisory Group, in Saudi Arabia since 1949, as the United States Military Training Mission (USMTM). The USMTM staff, with headquarters at the Dhahran terminal, consisted of three sections representing the American armed services. Each section worked with the corresponding Saudi military service.⁴¹

U.S. Military Assistance Program funds supported the USMTM operations, but the International Cooperation Administration sponsored the work on the Dhahran Civil Air Terminal, just as it did similar work at Mehrabad in Iran and at Karachi in Pakistan.⁴² In early May 1957, representatives of the Office of the Chief of Engineers, the U.S. Air Force, and the Mediterranean Division met with Ambassador Wadsworth in a three-hour conference in Dhahran. Wadsworth repeatedly emphasized the importance to King Saud of President Eisenhower's offer to help build the civil air terminal. Because of the personal aspect of the commitment, Wadsworth asserted that this was the most important item in the agreement. He also clearly favored having the Corps of Engineers involved in the construction rather than leaving management in the hands of the International Cooperation Administration.⁴³

In the spring of 1957, ICA requested that Tudor Engineering Company of Washington, D.C., conduct a field reconnaissance investigation and survey of airport facilities at Dhahran. Tudor concluded its survey and reported on 30 June 1957 that the facilities that existed at Dhahran were "completely inadequate" to meet the requirements of civil aviation but that a new terminal could be built with the \$5 million that ICA had available. On 21 May, five weeks before Tudor Engineering submitted its report, the Mediterranean Division transferred responsibility for

J. Lincoln, Dec 79–Jan 80, pp. 204–08, H2–H3; Alfred Beck with Maj Gen (Ret) Robert F. Seedlock, 25–26 Oct 79. The episode is a delicate one; descriptions conflict, and at least one journalist was denied permission to publish an article on the incident even twenty years later. On resolution of the tax issue, see "Saudi Arabia" [Oct 57], box 51-84-9384, Farrell Papers.

⁴¹ MFR, [Brig Gen Lawrence J. Lincoln], 15 May 57, sub: Meeting with Ambassador Wadsworth at Dhahran Consulate, 2000–2300 hours, 9 May 57, unmarked box, OH, HQ USACE; Ofc of Info Svcs, HQ, 2d Air Div, United States Air Forces in Europe (USAFE), "Saudi Arabia: Information Pamphlet," 1 Aug 59, foreword, pp. 6–7, box 15, access. no. 77-92-0001, WNRC; "U.S. Military Training Mission to Saudi Arabia," n.d., foreword by Brig Gen A. P. Clark, U.S. Air Force, p. 2, box 51-84-5389, Farrell Papers.

⁴² Hist Div, Office of the Chief of Engineers (OCE), "Summary of Major Events and Problems, 1 July 1959–30 June 1960," Apr 61, p. 86, Gen Files 4-5, OH, HQ USACE.

⁴³ MFR, Lincoln, 15 May 57.

all future work in Saudi Arabia from the Middle East District to the Trans-East District.⁴⁴

In subsequent months, the U.S. embassy in Saudi Arabia tried to work out an agreement that would exempt the contractor for the Dhahran civil air terminal from taxes, endeavoring to avoid the situation that the Fluor Corporation had faced. On the issue of taxes, the Saudis balked. By October, Ambassador Wadsworth concluded that the Saudis would remain adamant that the United States build the commercial facilities at Dhahran without a new agreement. Colonel Clarke, the Trans-East District engineer who would administer the project, reached the same conclusion.⁴⁵ In negotiations, the Saudis insisted that a Saudi contracting company participate in the bidding for both the Dhahran terminal and the training school for the Royal Saudi Air Force in Riyadh. The Saudis made clear that they viewed these projects not as grants in aid but rather as the *quid pro quo* for the U.S. Air Force's continued use of the military facilities at Dhahran. They wanted to "get their money's worth" out of the construction contracts.⁴⁶

The two sides formulated a tentative working document in December, but the Saudis repudiated it several months later and negotiations continued. Despite the lack of a satisfactory agreement, design on the terminal began in April 1958 under a contract the Corps awarded to Ralph M. Parsons Company of Pasadena, California. As the Americans and the Saudis pursued their discussions, Colonel Clarke became increasingly convinced that the Saudis were not negotiating in good faith. He even questioned whether the United States could in good conscience ask American or international contractors to submit competitive bids. He predicted "that any knowledgeable contractor will so load his bid with contingencies that the price of construction will be out of reason."⁴⁷ In the autumn of 1958, planning for the Royal Saudi Air Force Training School was suspended; but discussions and planning continued on the Dhahran terminal, which the Saudis insisted be built under the Dhahran Airfield Agreement of 18 June 1951.⁴⁸

Despite the difficulties, the Trans-East District managed to draw up bidding specifications for a construction contract on the basis of the Parsons Company design and to issue a request for proposals. The successful bid for the construction of the terminal came from Oman-Farnsworth-Wright, which signed a contract for just under \$4 million in early May 1959. The contract called for a building of approximately seventy thousand square feet to include space for immigration

⁴⁴ Tudor Engineering Co., Rpt on Port/Airfield Facilities, Dammam & Dhahran, pp. 31, 78, 84; General Orders (GO) no. 12, 5 Jun 57, sub: Change in Responsibility for Construction in Saudi Arabia; both in box 51-83-8379, Farrell Papers.

⁴⁵ Clarke to Lincoln, 3 Oct 57, box 27, access. no. 77-92-0001, WNRC.

⁴⁶ MFR, Brig Gen A. P. Clarke, 21 Dec 57, sub: Conversations with Chief, Mediterranean Division Engineer, General Lincoln, and Staff and with AFIR, Col. Cantor, Leghorn, Italy, 21 Dec 57, box 27, access. no. 77-92-0001, WNRC.

⁴⁷ "Corps of Engineers History in Saudi Arabia," Apr 66, box 51-84-9384, Farrell Papers; quotation from Clarke to Lincoln, 3 Jun 58.

⁴⁸ "Saudi Arabia," [Oct 57]. The Dhahran Airfield Agreement is also referred to in Corps of Engineers documents as the Dhahran Base Rights Agreement and the Dhahran Air Base Agreement.

offices, operational and administrative areas, lunchrooms, other facilities associated with an international air terminal, and supporting utilities. In addition, the building had to have special accommodations for the Saudi royal family such as a throne room for diplomatic receptions. The contract required the successful bidder to give preference in subcontracting to Saudi firms and in employment to Saudi nationals. Any subcontractor that was not a Saudi firm had to be approved in writing by the contracting officer, the Trans-East District engineer.⁴⁹

The difficulties continued. Oman-Farnsworth-Wright's discussions with Saudi subcontractors indicated that costs would run \$3 million more than the face value of the contract. The tax issue remained unsettled. By mid-June, OFW still had not received clearance to land the company plane at Dhahran to begin work. The Saudi Arabia Area Office, activated by the Trans-East District over a year earlier, finally opened in Dhahran on 9 June 1959.⁵⁰

By the end of the summer, the project had bogged down even more. The Saudis were either "unable or unwilling to understand" why a project nominally valued at \$5 million did not translate into \$5 million in contracts. They objected to channeling portions of the money to administrative costs or to profits for American contractors. In addition, the Saudi government continued to insist on payment of customs duties on equipment, goods, and materials imported for the construction. They had further gone on record as intending to impose taxes on the construction itself. In August and September 1959, Saudi government officials at the port of Dammam impounded all construction equipment and materials imported by Oman-Farnsworth-Wright. Other Saudi officials had made known their dissatisfaction with the dollar amounts of the subcontracts with Saudi firms. At this point, the Mediterranean Division felt that it could make no further progress without diplomatic intervention.⁵¹

In talks with the Saudi government, the U.S. State Department made concessions that Army engineers felt compromised the Corps position. The State Department agreed that the contractor would furnish cost statements for construction goods brought into Saudi Arabia, although the Dhahran Airfield Agreement had specifically exempted these goods from such procedures. The diplomatic concessions did allow the project to move forward. Late in 1959, the subcontractor, Saudi Enterprises, imported Egyptian laborers to accelerate the pace of work.⁵² By the spring of 1960, Oman-Farnsworth-Wright had gone on double shifts to try to speed up the work; but the project was still three months behind schedule. The company had also

⁴⁹ Clarke to Fluor Corp Ltd., 22 Jan 59; Construction Contract (Advertised), Standard Form 23, 6 May 59; both in box 51-84-9384, Farrell Papers.

⁵⁰ Clarke to Shuler, 20 and 25 May 59, both in Mil Files XXI-2-4, OH, HQ USACE; "History of the [Gulf] District, March 1956–June 1965," pp. 75–76, box 21, access. no. 77-92-0002, WNRC; Shuler to Itchner, 10 Jun 59.

⁵¹ Lt Col Edward E. Bennett to Oman-Farnsworth-Wright, 17 Aug 59, box 51-83-8378, Farrell Papers; Memo, Miletich, 10 Sep 59, an. dtd 25 Aug 59, Civil Air Terminal, Saudi Arabia, Mil Files XXI-2-4, OH, HQ USACE; Brig Gen James C. McGehee to His Excellency Sheikh Hamad Mubarrak, 22 Sep 59, box 51-83-8378, Farrell Papers.

⁵² Memo, Miletich, 10 Sep 59, an. dtd 25 Aug 59; Northington to Shuler, 28 Jan 60, p. 1, and Shuler to Itchner, 10 Feb 60, p. 7.



South face of the Dhahran Civil Air Terminal under construction, January 1961

virtually taken over the basic responsibilities of their subcontractor, including his payroll. Trans-East District personnel and OFW engineers made frequent visits to the project site to keep work advancing. Clarke's successor, Colonel Northington, commented to the division engineer, "Now I know what Colonel Clarke meant when he told me in New York in April 1959 that he was probably leaving me a 'can of worms' on this job."⁵³ The contract remained behind schedule throughout 1960; but the Saudis accepted the terminal in September 1961, only four months after the original target date.⁵⁴

The story of the civil air terminal at Dhahran carries with it a revealing commentary on style and aesthetic perception within the U.S. Army Corps of Engineers. In April 1959, General Itschner gave a public address to the Newcomen Society in Washington, D.C., in which he described the terminal design as "too imaginative for Disneyland," characterized by "a number of concrete, monolithic mushrooms 35 feet tall." He told his audience that he had lectured the Mediterranean Division

⁵³ Northington to Shuler, 29 Mar 60, p. 10, Mil Files XXI-2-5, OH, HQ USACE.

⁵⁴ "History of the [Gulf] District, March 1956–June 1965," pp. 73–74; Memo, Col Harry F. Cameron Jr., 20 Dec 61, sub: Periodic Letter Report to Chief of Engineers, p. 2, Mil Files XXI-3-2, OH, HQ USACE.



Interior of Dhahran Civil Air Terminal under construction

about “building soundly but without embellishment,” only to be told that King Saud had loved the design and would accept no other. The distinctive design of the terminal’s main building *was* unlike most Corps of Engineers projects. However, an analysis comparing the design with a conventional reinforced concrete structure showed that the elaborate design was cheaper to build. The American Institute of Architects sided with King Saud’s aesthetic judgment when, in 1963, it bestowed its First Honor Award on the Dhahran International Air Terminal and its architect, Japanese-American Minoru Yamasaki.⁵⁵

Royal Saudi Air Force Training School in Riyadh

The discussions concerning American training of the Saudi military suspended in the autumn of 1958 became active again a few months later. The U.S. Military

⁵⁵ Quote from Itschner’s speech from P. S. Bennett [of the Ralph M. Parsons Company that designed the terminal] to James Vanek, 9 Sep 59, box 51-83-8376, Farrell Papers. A copy of the American Institute of Architects’ citation is in the same box. The comparison of designs is mentioned in Hist Rpt–Trans-East, p. 15. See also Interv, Walker with Coony, 9 Feb 85, pp. 14–15.

Training Mission took the lead in this program, which seemed a much more important project than the construction of a civil air terminal.⁵⁶

By the autumn of 1959, talks concerning the Saudi Royal Air Force Training School had progressed and the Army engineers had designs for facilities at Riyadh. The Trans-East District and Mediterranean Division engineers reluctantly agreed to have the project built under the terms of the 1951 agreement only because, as General Shuler put it, “I believe it is about the best agreement we can get with the Saudis.”⁵⁷

Shuler was not comfortable with the situation. In a letter to the chief of engineers, General Itschner, in June 1960, just days before bids on the construction of the Training School were to be opened, Shuler repeated the “apprehensions and misgivings” that he and his staff had been raising for two years with the OCE, USMTM, U.S. embassy, and State Department concerning the terms of the agreement governing construction. Shuler reiterated the catalog of problems and characterized the situation as one of “considerable difficulty.” He acknowledged that the customs issue “was finally resolved in our favor, at least temporarily,” so that materials and equipment now entered the country duty free; but the Saudis were still requiring certificates of origin and price verification, which at least raised the “possibility of future trouble.”

General Shuler objected to the insistence that all work be subcontracted to Saudi firms and predicted that the Corps could expect “claims from the [prime] contractor for time and money.” He also feared that Corps employees “could be subjected to the medieval criminal jurisdiction of the Saudi Arabian Government,” such as had threatened Major Bailey. He lamented that the Dhahran Airfield Agreement “was never designed for our needs” and predicted that working under its terms would “prove difficult, costly and slow.”⁵⁸ General Itschner replied in late June that the State Department was prepared to instruct the U.S. ambassador in Saudi Arabia to bring Shuler’s concerns “to the attention of the highest elements of the Saudi Arabian Government”; he did not otherwise address the division engineer’s anxieties.⁵⁹

On 20 June 1960, Oman-Farnsworth-Wright received the contract to build the Royal Saudi Air Force Training School. The construction of the new installation in Riyadh involved more than a dozen buildings, the supporting utilities, and a perimeter wall. The subcontract went to Saudi Enterprises, the same company that subcontracted for the work at the Dhahran terminal. Construction commenced in September 1960; by December, only 6 percent of the construction was complete.⁶⁰

⁵⁶ See comment in “Mediterranean Division Builders,” 1 Jan 58, p. 19, box 18, access. no. 77-92-0002, WNRC, that “the most important project [in Saudi Arabia] involved . . . a military pilot training mission.”

⁵⁷ Quotation from Shuler to Itschner, 10 Dec 59; Northington to Shuler, 28 Sep 59, p. 5, and 27 Nov 59, p. 5.

⁵⁸ Shuler to Itschner, 10 Jun 60, p. 12, Mil Files XXI-3-1, OH, HQ USACE.

⁵⁹ Itschner to Shuler, 22 Jun 60, p. 2, Mil Files XXI-3-1, OH, HQ USACE.

⁶⁰ Hist Rpt–Trans-East; Nauman to Itschner, 9 Dec 60, p. 9, Mil Files XXI-3-1, OH, HQ USACE.

Deactivating the Trans-East District

The total workload for the Trans-East District faced decline after 1959, as General Shuler had anticipated. Although the proposed work in Burma changed that prospect marginally, Shuler had his staff prepare a study for the deactivation of the district. After Colonel Northington arrived in Karachi in June 1959 as district engineer, Shuler sent him the study with a request that he develop a detailed plan to draw down the district. Northington generally concurred with the division's plans to reduce the district to an area office even though with a staff of 120 people he had only 90 percent of the personnel required for the existing volume of work. Northington restricted the information on the probable drawdown to those directly responsible for planning it; but word leaked to the staff and departures increased.⁶¹

On 3 November 1959, with no more than the possibility of work in Burma, Shuler ordered Northington to submit to the division his plan to deactivate the district by 1 January 1960 (later amended to 1 February). Northington proposed deactivating the district on 31 December 1960, transferring administrative and managerial functions to the Gulf District on the following day, and simultaneously opening an area office in Karachi. The area engineer in Karachi would retain contract authority over active contracts for projects in Pakistan. The Trans-East District's responsibilities for the area office in Burma and the work in Saudi Arabia would pass to the Gulf District.⁶²

While awaiting approval of the deactivation plan, the Trans-East District continued to manage the projects that remained active, including the cantonments for the Pakistani Army at Kharian and Multan, work just beginning for the Pakistani Navy near Karachi, and work for the U.S. Air Force on the Sandbag construction program to construct a communications facility near Peshawar. During the winter and spring of 1960, Northington liquidated lease arrangements as they expired, advised the American ambassador and other U.S. agencies of the district's declining capabilities, and prepared staff for the coming reductions. On 3 May, Northington told his staff officially that they faced a formal reduction in force. Some staff members would have the option to transfer to the Gulf District in Tehran. If the total of qualified people available exceeded the Gulf District's needs, all names from both districts would be pooled and positions would be filled by competitive civil service rating, considering such factors as longevity, veteran's status, and qualifications for the particular job.⁶³

⁶¹ Northington to Shuler, 27 Jul 59, p. 5, and 28 Sep 59; Shuler to Clarke, 28 Apr 59, Mil Files XXI-2-4, OH, HQ USACE.

⁶² Memo, Col H. H. Northington to Div Engr, 4 Feb 60, sub: Deactivation Plan—Trans-East District, p. 11, box 682799, Record Group 77, access. no. 77-004, Federal Records Center, Bayonne, N.J.; Northington to Shuler, 27 Nov 59; Northington to Rountree, 30 Apr 60, p. 5.

⁶³ Memo to Employees, Gulf Dist, 3 May 60, sub: Deactivation of Trans-East District, box 17, access. no. 77-92-0002, WNRC.

As the deadline for closing approached, the Trans-East District felt the pinch of staff attrition. At the end of August 1960, the district still had ten active projects in Pakistan and another four outside Pakistan. (*See Table 7.*)

By the end of September 1960, the Trans-East District had identified fifty-one members of its headquarters staff whose functions would pass to the Gulf District. In mid-October, the Trans-East District headquarters received the official order setting 31 December as the date to convert to the status of an area office and to abolish the district. Over the next ten weeks, the staff at district headquarters declined even though the district continued to supervise over \$119 million in contracts and even took on new responsibilities. (*See Table 8.*) The U.S. International Cooperation Administration and the Pakistani government had begun talks to have the Trans-East District survey transportation facilities in East Pakistan. In anticipation of this work, the district established a project office in Dacca, East Pakistan, in September, and assigned a project manager who arrived in Dacca on 18 October. In late October, the ICA and Pakistan reached an agreement; on 30 November, ICA commissioned the Trans-East District to award a contract for the study. The district thus acquired a new contract, with Transportation Consultants Inc. of Washington, D.C., on 21 December 1960.⁶⁴

The Trans-East District faced a familiar experience as it prepared to deactivate: The host government tried to impose retroactive taxes and duties. In September 1960, Colonel Northington reported to the new division engineer, Colonel Nauman, that Pakistani officials had advised the district that vehicle registration charges and road taxes had to be paid on all vehicles belonging to subcontractors and Title II contractors who had worked in the country. Through similar actions, such as sales tax on the disposal of surplus property and excise taxes on cement, the Pakistanis were searching for more revenue at the district's expense. Northington sought the aid of the American ambassador, who pressed the government of Pakistan for a solution to the tax issue and other administrative differences. On 12 December, the ambassador and the Pakistani secretary of defense exchanged letters that became the basis for staff action: the disposal of surplus property, certification of the use of imports in approved projects, royalties on quarried stone, landing fees and hangar charges, refunds of duty and tax payments, sale of surplus vehicles, payment of sales taxes, motor vehicle licensing and registration fees, and the audit of accounts for the Karachi Civil Air Terminal project. By late January 1961, all nine issues had been "essentially resolved."⁶⁵

On 31 December 1960, the Trans-East District ceased to exist; on 1 January 1961, the Pakistan Area Office, with residency offices in Karachi, Kharian, Multan, and Peshawar, assumed responsibility for all of the Mediterranean Division's work in Pakistan. Colonel Northington stayed on in Karachi as area engineer until May.

⁶⁴ Hist Rpt–Trans-East, Addendum, May 61, pp. 1–10; Interv, William C. Baldwin with Col (Ret) Harry F. Cameron Jr., 27–29 Mar 89, pp. 341–47.

⁶⁵ Northington to Nauman, 27 Sep 60; Nauman to Itschner, 9 Dec 60; GED Info Ltr, Jan 61; Hist Rpt–Trans-East, Addendum, May 61, p. 10.

Table 7—TRANS-EAST DISTRICT PROJECT STATUS
31 AUGUST 1960

FY	Project Under Construction	CWE (\$000)	% Complete	BOD	Remarks
1959	Karachi (PN) Marine railway	1,247	60	6/61	Marine railway
1959	Karachi (PN) Navy wharf	1,336	6	6/61	Navy wharf
1959	Multan (PA) corps cantonment	3,919	60	3/62	Facilities for 6,000 troops, 1 corps
1959	Kharian (PA) augmentation	5,367	85	3/61	Provides facilities for corps HQ and 2,200 troops.
1959	Multan (PA) augmentation	12,668	57	6/61	Provides facilities for 2,300 troops.
1959	Dhahran Civil Air Terminal (U.S. International Cooperation Administration)	5,000	33	5/61	
1960	Karachi Civil Air Terminal (Development Loan Fund)	5,270	19	6/61	BOD applies to runway.
1960	Riyadh (USMTM) RSAF training school	4,801	0	2/62	Notice to proceed 27 June 1960
1960	Sandbag (USAF)	228	8	4/61	Officers quarters 5 percent complete, NCO mess 10 percent
1960	Sandbag (USAF) housing	2,526	0	6/62	Commissary, housing, NCO mess hall 0 percent
1960	Sandbag (USAF) swimming pool	92	15	1/61	
1960	Sandbag (USAF) on-base roads	49	0	2/61	
<i>Total Under Construction \$42,503,000</i>					
1961†	Air Force Technical Applications Center (USAF)	629	0	Uncertain	Lack of criteria & siting
1961†	Sandbag (USAF)	973	70	6/62	Design completion October 1960, 4 items from FY 1960
Total Under Design \$1,602,000					

CWE = Current Working Estimate; BOD = Beneficial Occupancy Date; PN = Pakistani Navy; PA = Pakistani Army; USMTM = U.S. Military Training Mission; RSAF = Royal Saudi Air Force.

†Projects under design for FY 1961 construction program.

Source: Table, n.d., box 35, access. no. 77-92-0001, Washington National Records Center, Suitland, Md.

Table 8—STAFF STRENGTH, TRANS-EAST DISTRICT'S FINAL MONTHS

	27 Nov 60	31 Dec 60*	1 Jan 61	1 Feb 61 (est.)
Military	17	15	12	12
Department of the Army Civilian	68	56	49	33
Continental wage scale	11	8	8	8
Local wage rate	295	244	209	180
Totals	391	323	278	233

*December statistics exclude personnel terminated during the month.

Source: Info for GED [Gulf Engineer District] BiMonthly Ltr to MDD for Jan 61, Mil Files XXI-2-6, Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Va.

Unlike the other residency offices, which were abolished in June 1961, Peshawar became a separate area office in July because of the volume of continuing work.⁶⁶

During its five years, the Trans-East District had placed \$136 million in construction. A fitting commemorative epitaph for its achievements comes from a postscript that Colonel Northington added to his report to the division engineer in late November 1960: "I have just had my attention invited to an interesting fact—this district could have celebrated its 5th birthday on 21 November, but unfortunately everybody was so busy that the day passed without notice."⁶⁷

The Gulf District in Iran

The Mediterranean Division's Gulf District, headquartered in Tehran, Iran, supervised military construction in cooperation with the U.S. Army Mission and Military Assistance Advisory Group to Iran (ARMISH-MAAG). Under the terms of their agreement, the district gave technical assistance to the ARMISH-MAAG, which was responsible for initiating actions to fund the projects by the Iranian government. The Mediterranean Division and the district issued the appropriate design and construction directives once the ARMISH-MAAG had determined the requirements. When projects were completed, the district turned them over to the MAAG, which delivered them to the Iranian using agency. The ARMISH-MAAG handled all incoming supplies; both the district and the advisory group provided representatives at the main points of entry into Iran. The ARMISH-MAAG also

⁶⁶ "History of the [Gulf] District, March 1956–June 1965," p. 67.

⁶⁷ Northington to Nauman, 25 Nov 60, p. 11.

handled all real estate issues. The U.S. ambassador in Iran had a special staff assistant to maintain liaison with the district.⁶⁸

Most of the projects for which the Gulf District provided its management services came under the U.S. Department of Defense (DoD) Direct Forces Support program; the district assisted the Imperial Iranian Army, Air Force, and Gendarmerie (Iran's national guard) in developing construction projects to modernize their forces and to enhance their capabilities and readiness. The district directly supported projects for the government of Iran and the U.S. State Department, such as offering help after earthquakes hit the Kurdistan area in November 1957. The district sent a team into the area to make a detailed survey and to take photographs of the devastation. Team members discussed their findings with the head of the Red Cross and others to help implement relief and to improve structures against future earthquakes.⁶⁹

Like the Trans-East District, the Gulf District had organizational elements that distinguished it from Corps of Engineer districts in the United States. Both districts maintained a transportation branch; a headquarters commandant managed logistics and support to cover housing, local transportation, health, and general welfare for district personnel.⁷⁰ The Gulf District's Transportation Branch helped maintain the supply lines that supported construction in Iran. Most equipment had to be imported, and freight from the United States required four to six months to reach Tehran from New York, a distance of over six thousand miles. Some arrived in Iran by truck from the Mediterranean port of Beirut through Syria and Iraq. Disturbances in Beirut and the Iraqi coup of 14 July 1958 disrupted the supply lines; the need to establish alternate routes through Turkey delayed construction and increased costs for the contractors.⁷¹

The district's Transportation Branch dealt with the Iranian military and bureaucracy to facilitate customs clearance for construction materials entering the country, efficient unloading and movement from seaports to and within Iran, and adequate transportation on the single-track rail system and the limited roads that constituted the country's transportation network. The movement of workers was equally as important and as complex. At moments of major construction activity, projects might involve as many as ten thousand workers who had to be fed and sheltered at work sites.⁷² During active construction periods, the Transportation

⁶⁸ "History of the [Gulf] District, Supplement History Covering Period July 1965 to September 1968," 6 Nov 68, pp. 4–6, Paul Wheeler Papers, R&D File 2475, TAC (hereafter cited as Gulf Dist Supplement Hist, 1965–1968).

⁶⁹ "Gulf District Briefing for Gen. Lincoln, January 19–22 1958," p. 25, box 22, access. no. 77-92-0002, WNRC (hereafter cited as Lincoln Bfg–Gulf Dist).

⁷⁰ Data for the Orientation of Maj Gen E. C. Itschner, 12 Nov 58, box 51-83-8379, Farrell Papers.

⁷¹ *Ibid.*, p. 9; "Engineer Division Mediterranean: Information Booklet," 15 Aug 59, pp. 27–28, unmarked box, Farrell Papers.

⁷² Lawrence J. Lincoln, "Construction in a Cold War Theater of Operations," *Army Information Digest* (July 1958): 21; Dale Bentley, "Gulf District, Corps of Engineers, U.S. Army, Tehran-Iran" [May 57], p. 3, box 25, access. no. 77-92-0002, WNRC; "History of the [Gulf] District, March 1956–June 1965," pp. 12, 20.

Branch handled monthly averages of 100 passengers at Tehran's Mehrabad Airport, 100,000 pounds of cargo, and 120,000 vehicle miles. The branch operated with one commissioned officer and a civilian staff of about one hundred.⁷³

The Gulf District headquarters commandant, like his counterpart in Karachi, Pakistan, worked to make the living conditions as comfortable as possible for district personnel. At the beginning of 1958, the district had 465 civilian employees: 165 were Department of the Army civilians or third-country nationals and the rest were Iranian nationals. The district's total workforce reached 797 in March 1961 after it absorbed personnel from the deactivated Trans-East District. From that high point, the Gulf District's staff declined steadily as projects reached completion.⁷⁴

Living Conditions and Support Facilities

Throughout the 1950s, the amenities of life were limited in Iran. As in Karachi, most available housing was below American standards. The supply of electricity was undependable; water could not be assumed to be potable, and its supply was erratic. Indoor sanitation facilities—if they existed—were minimal. Despite these deficiencies, the cost of leased housing exceeded housing allowances. Household goods took so long to arrive that Gulf District personnel might live in unfurnished accommodations for as long as six months. The first district personnel in Tehran rented housing on their own. In April 1957, the district engineer received authorization from the division to begin leasing residences and to equip them with American appliances for incoming personnel.⁷⁵

The Gulf District's offices lay in a military complex at the edge of Tehran, so staff needed transportation to work from their quarters dispersed throughout the city. The ARMISH-MAAG and the U.S. embassy had overcome the limits of public transportation by assigning each employee a government vehicle; Americans serving in other U.S. agencies could bring a personally owned vehicle to Iran at government expense, a privilege the civilian employees of the Corps of Engineers did not have initially. The district tried to alleviate transportation difficulties by creating a transportation pool for essential activities, supplemented by commercial buses hired to make scheduled trips to and from district headquarters. The district also made government-owned vehicles, especially station wagons, available for carpooling. Ultimately, district civilian employees did receive the right to import privately owned vehicles.⁷⁶

For the benefit of the Gulf District's American and European civilian and military employees, the headquarters commandant secured government-leased housing, provided for housing maintenance and fire prevention and protection services,

⁷³ Harold B. Day, "Data for Command Inspection by Mediterranean Engineer Division," 4–18 Jan 63, p. 5, box 22, access. no. 77-92-0002, WNRC.

⁷⁴ Lincoln Bfg–Gulf Dist; "History of the [Gulf] District, March 1956–June 1965," foreword, pp. 7–8; "The Mediterranean Division," n.d., pp. 4–7, Gen Files 54-1, OH, HQ USACE.

⁷⁵ "History of the [Gulf] District, March 1956–June 1965," p. 12.

⁷⁶ *Ibid.*, p. 13; Interv, Baldwin with Cameron, 27–29 Mar 89, p. 248.

assisted in negotiating private leases for some employees, and even provided reimbursement to the occupants for certain repairs and charges for utilities under these private leases.⁷⁷

Corps employees with American passports willing to deposit 5 percent of their annual salary into a capital fund could use the small commissary at the U.S. embassy. The embassy discontinued the commissary in January 1959 when a cooperative of American government employees, the United States Employees Association (USEA), took over the service. Costs ran 50 percent higher than for the same goods in the United States because of the long supply line, putting a particular burden on continental wage scale (CWS) employees, who had never had access to the embassy commissary. However, the district's major contractors, Morrison-Kaiser-Oman (MKO), and later J. A. Jones Company, maintained their own commissaries and voluntarily made them available to the district's CWS employees. When these companies closed their commissaries in 1961, the USEA extended membership privileges to the CWS personnel. Fruits and vegetables were available in local markets; but Col. Harry F. Cameron Jr., district engineer from 1960 to 1962, remembered: "You had to be very careful. My wife washed everything in chlorine water."⁷⁸

A U.S. Army hospital in Tehran provided medical services to the district's American and CWS personnel and their families, but it did not serve Iranian employees. Until the mid-1960s, the district operated a dispensary at the headquarters compound where all employees could get medical service under contract with an American-trained Iranian doctor. A variety of schools provided educational opportunities for the children of district employees. Families could choose from religiously affiliated schools; French, German, and British schools; an international school; a U.S. embassy school; and several other schools supported by private organizations in Tehran.⁷⁹

The U.S. military had established clubs for officers and noncommissioned officers before the Gulf District opened in Tehran, and Corps of Engineer military personnel had all the rights of their rank in the clubs. In 1956, the U.S. embassy organized an "American Club" open to all persons in the city with American passports. American employees of the district participated in this club, which offered a restaurant, a swimming pool, movies, and social functions. In September 1958, in an effort to foster cohesiveness among the staff and to overcome the division between Americans and non-Americans, personnel organized the Castle Club and invited all district employees to join. The district engineer made space available within the district compound for this private club, which sponsored weekly dances, bingo, movies, amateur theater productions, and similar recreational activities. The

⁷⁷ Day, "Data for Command Inspection," 4–18 Jan 63, p. 5; Col Carl M. Sciple to Brig Gen E. A. Brown, OCE, 2 Jul 58, box 51-84-7361, Farrell Papers.

⁷⁸ Interv, Baldwin with Cameron, 27–29 Mar 89, p. 279; "History of the [Gulf] District, March 1956–June 1965," p. 13.

⁷⁹ *Ibid.*

Castle Club also operated the post restaurant as a concession. The district viewed the Castle Club as a contribution to staff morale and esprit de corps.⁸⁰

Managing the Work

At the beginning of 1958, the Gulf District maintained field offices in Dezful, Shahabad, Sanandaj, Manjil, Hehrabad, and Tehran, as well as a Gendarmerie Area Office. (*See Map 13.*) These seven offices supervised eleven construction projects that had begun in 1957 and another thirteen projects that began in 1958. Initially, the Gendarmerie Area Office supervised construction at twenty-eight border sites; in subsequent years, this grew to a total of seventy-three sites widely scattered around the country. In the spring of 1960, the district closed the Gendarmerie Area Office and assigned personnel from its Construction Division to supervise the work.⁸¹

The Gulf District's three largest projects cost between \$10 million and \$14 million each: division cantonments at Khaneh and Sanandaj and the airfield at Dezful. Ten other projects ran between \$5 million and \$10 million each, and another dozen cost between \$1 million and \$5 million each. These projects included facilities for regimental combat teams at Naqadeh, Oshnaviyeh, Kushi, and Ajab Shir; depots at Dezful and Shahabad (the latter for ammunition); a brigade site at Manjil; a light division/battalion site at Chehel Dokhtar; and airfields at Hamadan and Mashhad. The Gulf District administered another seventy projects with costs varying from as low as \$4,000 to around \$1 million. The total of more than ninety contracts, many of them quite small, placed heavy administrative demands on the district staff.⁸²

Between 1957 and 1958, the number of hours of district-supervised work jumped from 7 million to over 35 million annually. During this period, the district recruited personnel in the United States and sent three teams to Europe to recruit technical staff; the number of American civilians and third-country national employees in the district nearly doubled, bringing to twenty-two the number of nationalities on the district payroll.⁸³

The Gulf District found few contractors in Iran who could handle the construction work programmed for the country. Only local contractors could be awarded contracts for the Gendarmerie border sites, where the vast majority of the projects were valued at under \$1 million each. The Iranian contractors repeatedly failed to maintain construction schedules, thereby adding to overall costs. Both American and local contractors had difficulty finding skilled labor in Iran, especially during the early years of the construction program. The region had many experienced masons, but their methods did not conform to Western standards. Contractors could find some drivers, equipment operators, and mechanics trained by the British oil companies; but they were scarce. Contractors provided on-the-job training but could not always retain

⁸⁰ *Ibid.*, p. 15; Interv. Baldwin with Cameron, 27–29 Mar 89, pp. 262–65.

⁸¹ Lincoln Bfg–Gulf Dist, p. 15; “History of the [Gulf] District, March 1956–June 1965”; Gulf Dist Supplement Hist, 1965–1968, p. 7; Shuler to Itschner, 7 Apr 60, pp. 8–9.

⁸² “History of the [Gulf] District, March 1956–June 1965.”

⁸³ *Ibid.*, pp. 46–48.



Map 13



their trained workers. In early 1958, the Iranian Army descended on the Khaneh project and conscripted into its ranks nearly all of the skilled laborers assembled by MKO and its subcontractors.⁸⁴

The wide dispersion of projects over a land area slightly larger than the state of Alaska made supervision of work difficult for both district and contractor personnel. On projects beyond commuting distance from Tehran, contractors were required to provide messing and lodging for government personnel. Until the district got its own aircraft in May 1959, contractors also furnished air transportation between sites and Tehran.⁸⁵

Gulf District Projects Under Construction

The cantonments at Khaneh, Oshnaviyeh, and Naqadeh concentrated Army facilities in a geographic triangle about twelve miles on each side in a 5,000-foot-high mountain valley in the Kurdish areas of northwestern Iran close to the borders with Iraq and with Turkey. The Khaneh project, to provide facilities for a division headquarters and about five thousand one hundred troops, involved two hundred ninety buildings. Naqadeh and Oshnaviyeh each had about one hundred eighty buildings to accommodate regimental combat teams of three thousand three hundred troops. The workforce attached to contractors in the area peaked at about ten thousand in October 1958, with about sixty Americans supervising and inspecting the work. MKO began construction in the spring of 1957, and the initial contracts valued at \$29.2 million concluded in April 1960.⁸⁶

The Dezful area, where work also began in the spring of 1957, lies about fifty miles east of the Iraqi border and three hundred miles south of Tehran on a sandstone coastal plain just south of the Zagros

⁸⁴ Ibid.; Day, "Data for Command Inspection," 4–18 Jan 63, p. 11; Lincoln to Clarke, 15 May 58.

⁸⁵ "History of the [Gulf] District, March 1956–June 1965," p. 12.

⁸⁶ Ibid., p. 24; "U.S. Army Corps of Engineers, Gulf District, Khaneh Area, Iran," 1 Nov 58, pp. 1, 16, 19, box 23, access. no. 77-92-0002, WNRC.



Corps of Engineers employees, Gulf District, Khaneh Area, Naqadeh Project, July 1959

Mountains. The region is semidesert with summer temperatures up to 130°F. The team from the division that arrived in August 1956 to do preliminary soil and water testing was greeted by a sign above the entrance to the cave-like headquarters that read “Welcome to Hell.” With the indoor temperature at 85°F and the humidity at 85 percent, the team members elected to sleep outdoors where the temperature rarely fell below 100°F but the humidity was less than 5 percent.⁸⁷

Projects under the area office included the Dezful Airfield, an air depot, taxiways and lighting, hangars, parking aprons, shops, living quarters for about two hundred fifty officers and one thousand two hundred enlisted personnel, and a drainage system, all for the Iranian Air Force. For the Iranian Army, in the same location, the district supervised the construction of an ordnance depot with 295 buildings. The installations also included a deep-well water supply with storage and distribution system, sewage collection and disposal, power generators and distribution facilities, and a network of roads. Work continued to the end of 1963. The projects at Dezful had a combined value of \$23.3 million.⁸⁸

The Gulf District also maintained an area office in Sanandaj (also known as Sinneh), the capital of Iran’s Kurdistan province, 325 miles west of Tehran and 65

⁸⁷ Ltr, Baylor to authors, 1 Dec 95, pp. 7–8, TAC. Baylor was chief of the Foundation and Materials Branch, Engineering Division, Mediterranean Division.

⁸⁸ “History of the [Gulf] District, March 1956–June 1965,” p. 22.



Officers quarters under construction at Naqadeh, January 1959

miles east of the Iraqi border, at an elevation of 5,250 feet above sea level. There, the district supervised construction of a divisional cantonment of 213 buildings and support facilities including water, power, and sewage systems and ammunition storage. The project included remodeling some existing buildings. The contractors used native stone for masonry construction. The prime contractor, Morrison-Kaiser-Oman, set up operations at the Sanandaj jobsite in April 1958. The Corps of Engineers area office opened the following June and operated until January 1961 with an average of five men. Continuity of contract administration suffered under the turnover of leadership; five area engineers and three acting area engineers served over the thirty months, with tenures ranging from one to eleven months. Contractors worked ten- to twelve-hour days, seven days a week, with a maximum workforce of about three thousand five hundred. The district contracted with the American joint venture of Ammann and Whitney–Husted for Title II field supervision and inspection. The intensity of construction strained the capacity of government employees, whose nominal work week was forty hours, and Title II personnel, whose work week was forty-eight hours. The discrepancies in the schedules between contract laborers and inspectors made adequate supervision and inspection difficult.⁸⁹

⁸⁹ Peter W. Schinkel, "Completion of Construction Report, Sanandaj Area," 31 Jan 61, pp. 1–2, 4, 6–7, box 23, access. no. 77-92-0002, WNRC; "History of the [Gulf] District, March 1956–June 1965," p. 28.



Bricks drying at the Dezful depot

As facilities were completed, it became apparent that the Iranian military did not have trained personnel to operate and maintain utility systems and mechanical installations. In the summer of 1960, the Gulf District initiated a training program for post engineers. Field personnel in the district organized, planned, and conducted two-week training courses. In addition to training operators for power plants, water and sewage systems, and individual items of equipment, the training emphasized the organization and functions of the office of post engineer. MAAG provided some interpreters; contractor personnel on site provided mechanical skills for the more technical classes and gave on-the-job operational training.⁹⁰

Mehrabad and Hamadan

As with the construction program in the Trans-East District, funds for the Gulf District's activities came from the Department of Defense's Military Assistance Program and from the State Department's International Cooperation Administration. In Iran as in Pakistan, the major ICA program supported the development of civil aviation. The Gulf District had begun to plan for improvements in the facilities at Mehrabad, the municipal airport for Tehran, in 1957. Increased commercial use of the airport and the need to accommodate larger jet passenger planes created additional

⁹⁰ "Post Engineer Training in Iran," 27 Mar 61, box 51-84-7361, Farrell Papers. This article was apparently written to be submitted for publication.



Partitions for buildings at Behshahr, Iran, were put up first while contractors waited for face bricks for the exterior walls.

work. The directives to proceed, issued by the Mediterranean Division in the spring of 1958, instructed the district to improve existing utilities to provide a modern facility. This involved laying a runway extension and new taxiways and widening taxiways and holding aprons. Construction was scheduled in phases to permit continual operation of the airport, but all aspects of the work were incorporated into a single project.⁹¹

During the second half of 1958, the Mediterranean Division prepared the designs for the Mehrabad expansion and improvements and the Gulf District solicited bids. MKO won the award, received its notice to proceed with construction in July 1959, and finished most of the work by the end of 1960 (though various small tasks continued to 1963). The modernization of the Mehrabad airport

⁹¹ “Mediterranean Division Builders,” p. 21; Col Robert J. Kasper, MDD [Mediterranean Division] Directive nos. 1 and 2, 3 Apr, 13 Jun 58, sub: Authorization—GOI—FY 58—Modification to Mehrabad Airfield, box 23, access. no. 77-92-0002, WNRC.

cost about \$5 million.⁹² The ICA also financed a part of the development of an airfield at Hamadan, about one hundred ninety miles west-southwest of Tehran. When the Gulf District opened bids for Hamadan construction on 31 March 1960, MKO had once again submitted the low bid and won the contract at a price of \$5.9 million.⁹³

By the beginning of 1961, many of the Mediterranean Division's construction programs had passed their peak. The division had closed the Southern and Trans-East Districts and needed to reorganize to adjust to the changing imperatives.

⁹² Lt Col John A. Hughes Jr., Bfg, Mehrabad Airport, 15 Dec 60, box 23, access. no. 77-92-0002, WNRC; Memo, Col Harry F. Cameron Jr., 29 Jan 61, sub: Bi-Monthly Letter to the Chief of Engineers, pp. 1–3, Mil Files XXI-2-6, OH, HQ USACE; “History of the [Gulf] District, March 1956–June 1965,” pp. 27–28; “Mediterranean Division, Corps of Engineers, United States Army,” [1967], p. 21; Mediterranean Div, “Engineering [Inspection],” pp. 12–13.

⁹³ Itschner to Shuler, 2 Jul 59, p. 1, and 23 Dec 59, p. 2, Mil Files XXI-2-7, OH, HQ USACE; Shuler to Itschner, 7 Apr 60, p. 7, and 10 Jun 60, p. 9.

6

THE GULF DISTRICT, 1961–1967

After the close of the Southern and Trans-East Districts in 1960 and throughout most of the decade, the Gulf District in Tehran remained the only active district in the Mediterranean Division. In 1961, the district took over responsibility for Pakistan, Burma, and Saudi Arabia and added a major new program in Afghanistan. The district also managed engineering design and construction of projects for the U.S. Agency for International Development (AID) and the United States Air Force (USAF). Still, most of the district's effort went toward the program begun in 1956: construction funded under the Military Assistance Program (MAP) in support of the Iranian armed forces.

Work Centered in Iran

Under the Military Assistance Program, the Gulf District had completed cantonments for an Iranian Army division and two regimental combat teams (RCTs) in and around Khaneh in early 1960. In December, the district also turned over the construction at the Mehrabad airfield. The RCT installations at Ajab Shir and at Kushi begun in 1959 were completed in late 1961. In the early 1960s, the district took on work for the Iranian Navy at Kharg Island, constructed an airfield at Hamadan, oversaw construction of four new RCT installations, continued work for the Gendarmerie, and built housing for the national police. The last large project was an air base and support facilities at Mashhad.

Kharg Island

As 1961 began, the Gulf District anticipated new construction for the Iranian Navy at Kharg Island, in the Persian Gulf about forty miles northwest of the coastal city of Bushire. The project involved both on- and off-shore facilities for a complete naval base. The on-shore facilities included a barracks with laundry, bath, and latrine installations for two hundred men; a fully equipped kitchen and mess hall; an administration building; quarters for five officers and their families; ammunition magazines; and warehouse space. The construction included electrical, water distribution, and sewage disposal systems and the roads necessary to support the installation. A pier and breakwater about one thousand four hundred feet in length to enclose a mooring basin, mooring facilities, and



Breakwater on Kharg Island under construction, January 1962

dredging for the basin and a channel comprised the elements of the off-shore construction.¹

In February 1961, the district issued an advance notice of the project and specified that it would issue invitations to bid only to firms that demonstrated a record of satisfactory completion of comparable projects. The district identified twenty-nine American firms as qualified. The contract, let in May 1961, went to Brown Engineering International of New York City for just over \$2 million. Construction began on 24 June 1961, and the Gulf District opened a resident office for the Kharg Island work in July. At the peak phase of the construction, the office staff numbered seven persons.²

Resident office personnel had to cope with minor difficulties because two firms, Amman & Whitney and Frederic R. Harris, had been selected to design elements

¹ U.S. Army Engr Dist, Gulf, "Advance Notice: Construction of Facilities for Imperial Iranian Navy at Kharg Island, Iran," 9 Feb 61, box 38-Iran, Transatlantic Division-Records Holding Area (TAD-RHA).

² *Ibid.*; Memo, Col Harry F. Cameron Jr., 30 Mar 61, sub: Bi-Monthly Letter to the Chief of Engineers, p. 1, Mil Files XXI-2-6, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.; "History of the [Gulf] District, March 1956-June 1965," Jun 65, pp. 42-43, box 21, access. no. 77-92-0002, Washington National Records Center (WNRC), Suitland, Md.



Rock-screening plant at Kharg Island

for the 200-man barracks. This meant that construction crews had two different types of specifications for the same structure. In addition, the construction contract required the contractor to carry the lines for distribution of water and electricity only as far as a source point to be provided by the Iranian Navy. When the rest of the construction reached completion in March 1963, the Iranian Navy had still not specified the source point, so the contractor turned over the facilities and the resident office closed. Brown Engineering completed all remaining work by the first week of June. Over the next six months, an Iranian firm added another \$12,000 worth of facilities to the Kharg Island installation.³

Construction at Hamadan

Construction on the airfield at Hamadan began in May 1960 under a competitively bid contract awarded to the joint venture of Morrison-Kaiser-Oman. The project encompassed runways, overruns, taxiways, and cross taxiways of asphaltic

³ Maj Marvin W. Rees, "Completion Report, Kharg Island Naval Base, June 1961–March 1963," p. 1, box 25, access. no. 77-92-0002, WNRC; Lt Col E. L. Waddell Jr., Continuing Memo to Col W. G. Trainer, 10 Sep thru 12 Sep 62, p. 4, box 51-83-8376, Richard T. Farrell Papers, OH, HQ USACE; "History of the [Gulf] District, March 1956–June 1965," pp. 42–43.



Steel framing for single-family officer quarters at Kharg Island, April 1962

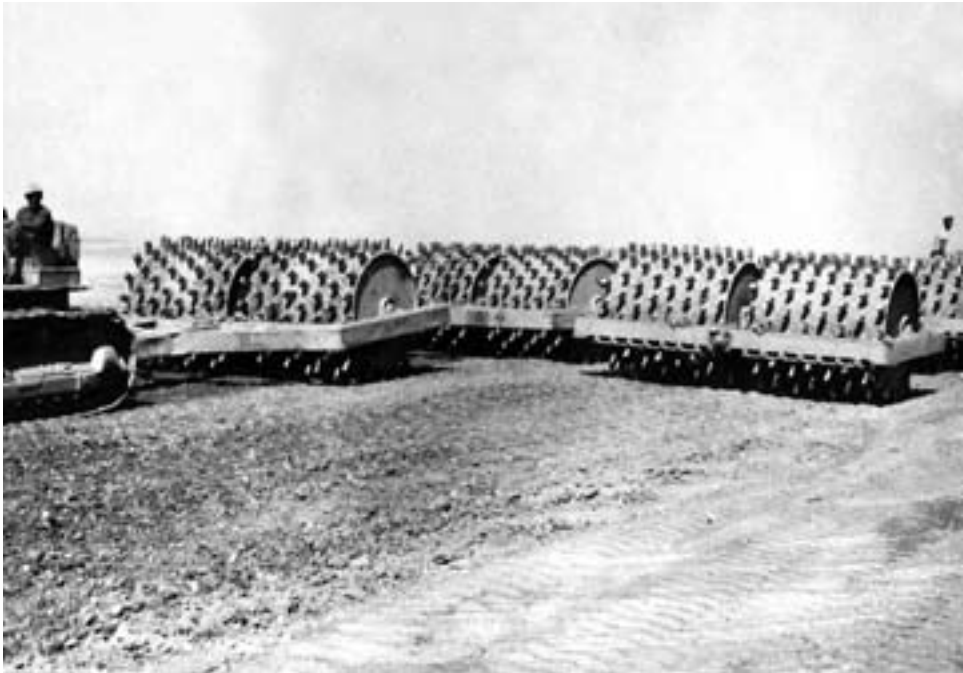
concrete; warmup aprons, end-of-runway segments, and operation aprons of Portland concrete; access and interior roads surfaced with gravel; facilities for jet fuel and aviation gasoline; an operations building with control tower; and airfield lighting. Located at five thousand five hundred feet elevation and subject to extremely cold winter temperatures, the runways at Hamadan were reinforced to provide a minimum of thirty inches of frost-free material below the surface of the pavement.⁴

The elevation, the remoteness of the site, and MKO's poor logistical planning created problems with mobilization and logistical support. Construction lagged because the contractor had difficulty getting heavy earthmoving equipment to the area.⁵ Equipment arrived seemingly in no particular order, often out of phase with the progress of the work. Additionally, a very severe winter in 1960 forced postponement of construction on the runway, taxiways, and roads.

The contractor's choice of aggregate triggered more delays. Gulf District personnel conducted a design analysis in September 1958 that identified aggregate some distance north of the construction site; but the contractor gambled that aggregate from a source closer to the site would be acceptable. The contractor extracted and

⁴ Lt Col E. L. Waddell Jr., "Construction Completion Report on Imperial Iranian Air Force Facility, Hamadan Airfield," 24 Feb 62, pp. 1–2, box 23, access. no. 77-92-0002, WNRC. Unless other sources are cited, all information on this phase of construction at Hamadan comes from this report.

⁵ Nauman to Itchner, 9 Dec 60, Mil Files XXI-3-1, OH, HQ USACE.



Recompaction during construction of Hamadan Airfield

stockpiled a substantial amount of this base material only to discover that when it was compacted it failed to meet the Corps' specifications (it was frost-susceptible material). This became apparent, of course, only after aggregate had been laid and rolled. When district inspectors rejected all of the subbase laid with this material, the contractor had to suspend work to locate and extract acceptable aggregate.

Another major construction problem arose when the contractor left exposed a stretch of excavation for the subgrade. When the inevitable rains came, they soaked the earth; the soil had absorbent qualities that made drying out the subgrade impossible even after months of exposure to the hot, dry air. As a result, the contractor had to excavate a 600-square-yard section to remove and replace the wet layers of earth to a depth of four-and-a-half feet. Other problems involved drainage; the difficulty of working during the cold, windy winter months; and complications in laying the access road. These were all solved with less trouble and expense than the problem of the unstable subgrade.

The most active construction period at Hamadan Airfield came in September–October 1961, when MKO employed eight hundred fifty laborers daily and paid out approximately \$95,000 a month in wages. At its peak, the area office had forty-one employees, half of whom were Iranian technicians. The office also included three Iranian students from the Abadan Institute of Technology employed during school vacations. The most difficult administrative problem involved scheduling the staff to coordinate with the contractor's schedule. At Hamadan Airfield, the workload

was eleven hours a day, seven days a week. The Corps staff had to try to cover these hours while staying within the stringent limitations on supervision and inspection costs—4 percent of the total cost of construction—set for the project. The office used several strategies to maintain adequate supervision and inspection within cost limits, including compensatory time, extra time worked without compensation, and a very judicious use of paid overtime that could not exceed an average of twelve hours per pay period for an employee.

Favorable weather in the winter of 1961–1962 allowed the contractor to recoup some lost time, and MKO completed the construction late in February 1962. Col. Edward L. Waddell Jr., who served as area engineer for the project from August 1961 to February 1962, criticized the MKO management; but he also observed that despite the delays the contractor never compromised the quality of construction to recover lost time.

After the initial work at Hamadan had been completed, the Gulf District administered a \$4.5 million contract for additional operational and support facilities at the base, newly renamed Shahrokhi Air Base. The district began planning and design for this work in the spring of 1962 and submitted its projections to the Mediterranean Division for review in June. A year later, on 18 June 1963, the district awarded a contract to J. A. Jones Construction Company of Charlotte, North Carolina. Construction involved about 1,300 family-housing units, a 200-man dormitory, a squadron operations building, a theater, a post exchange, a commissary, a cold-storage plant, an officers club, a noncommissioned officers club, a hospital, a school, and a base headquarters building.⁶

Gulf District personnel criticized the Jones management of this later work much more severely than they had MKO for the early phase. Jones proceeded with no identifiable management plan, and its superintendents operated with no discernible coordination or cooperation. The organizational structure changed constantly. The contractor failed to conduct adequate inspections of work in progress. When Corps inspectors called the contractor's attention to faults in the masonry, plumbing, plastering, and painting, the supervisors were uncooperative about correcting the deficiencies. The contractor used his compacting equipment improperly; although supervisors asked for advice from the Corps' materials engineer, they refused to accept it. When the materials in place failed, the company's paving superintendent first insisted that his effort had been adequate and then tried to bargain with the resident engineer, suggesting that he correct one deficiency provided that the Corps conduct no further testing. The resident engineer emphatically rejected this proposal.⁷

Jones failed to coordinate deliveries to have materials and equipment in place when they were needed. At one building site, windows and door frames arrived after

⁶ Memo, Col Harry F. Cameron Jr., 19 Jun 62, sub: Periodic Letter Report to Chief of Engineers, p. 5, Mil Files XXI-3-2, OH, HQ USAACE; "Contract Completion Report . . . Hamadan (Shahrokhi) Air Base, Hamadan, Iran," [Jun 65], p. 3, intro by Maj Gilbert L. Burns, box 25, access. no. 77-92-0002, WNRC.

⁷ "Contract Completion Report . . . Hamadan," [Jun 65], pp. 1, 7–8.

the masonry walls had already been erected. Fitting these items into the structure damaged the work in place. For precasting concrete elements, the contractor also reused plywood forms beyond their effective life, resulting in unacceptable sills, lintels, canopies, and columns.⁸

With constant attention from the Corps of Engineers personnel on the jobsite and their repeated insistence on corrective action to replace deficient work, Jones brought the construction at Hamadan/Shahrokhi to acceptable standards. Corps engineers demanded that the contractor institute a more-rigid inspection system. Only when that system took effect and quality could be assured with less frequent inspections did the resident engineer reduce the number of inspectors on his staff.⁹

With constant prodding, construction advanced to the point that the facilities could be turned over to ARMISH-MAAG in early June. In a ceremony held on 16 June 1965, the U.S. ambassador to Iran, Armin H. Meyer, officially presented the Hamadan/Shahrokhi Air Base facilities to the Iranian government. Including modifications, the contract's value at completion of the work amounted to \$4.8 million, an increase of about 11 percent over the award price.¹⁰

Regimental Combat Team Installations

During the early 1960s, the Gulf District supervised construction of four RCT installations in Iran. The Jones Construction Company won the principal contracts for construction of the installations at Hamadan; at Kermanshah, ninety miles west of Hamadan; and at Sarab in northern Iran. Williams Brothers constructed facilities at Quchan, a small farming town on the Atrak River about forty miles south of Russian Turkistan. Other companies, including Iranian contractors, worked on supply points, electrical installations, or other facilities at these sites.¹¹

The four RCT installation designs had seventy to ninety-nine buildings, yielding contracts from \$4.1 million to \$5.2 million. All locations included troop billets and officer and noncommissioned officer quarters. Hamadan had motor-pool facilities and ammunition igloos. Kermanshah had a corral for one hundred fifty animals; a petroleum, oil, and lubricants (POL) facility with storage tanks and the related pumping, loading, and dispensing equipment; and administrative offices to support fuel distribution. An advance supply point consisting of sixteen warehouses, an open storage area, and a road network extended the complex of installations in the Kermanshah region. The facilities for the combat team and a tank battalion at Sarab included fuel storage; sewage, water, electrical, and telephone systems; and an ammunition storage area. An advance supply point, the POL facility near Sarab, and a hangar at Tabriz for the Gendarmerie completed the plan in the area. Construction at Hamadan,

⁸ *Ibid.*, pp. 9–10.

⁹ *Ibid.*, p. 5, *passim*.

¹⁰ Col A. D. Chaffin to Lt Gen William F. Cassidy, 15 Jul 65, p. 4, Mil Files XXI-3-4, OH, HQ USACE; "Contract Completion Report . . . Hamadan," [Jun 65], pp. 5, 2.

¹¹ "History of the [Gulf] District, March 1956–June 1965," pp. 33–41, list of construction contracts in appendixes.



Panoramic view of the Quchan regional combat team site during construction, March 1964

Kermanshah, and Sarab began during the summer of 1961 and was completed before the summer of 1963.¹²

Williams Brothers began construction of the RCT site at Quchan in July 1962, making it the last such project undertaken by the Gulf District for the Iranian Army. In September, the district opened a resident office at Quchan that varied in strength from eight to eleven persons. The office was headed by a sequence of four lieutenant colonels who averaged about seven months' tenure each.¹³

As with most projects in Iran, the contract for Quchan provided that the contractor furnish dependable air connections to the site. Building a gravel-surface airstrip at Quchan, four thousand five hundred feet long and one hundred feet wide, therefore, constituted one element of the contractor's responsibilities. Heavy rains and a flood in April 1963 damaged construction underway at Quchan, and the landing strip had to be partially relocated and shortened. Because of poor planning, inadequate organization, and improper management, Williams Brothers was "seriously behind schedule" before the floods. With all its problems, the contractor still produced good

¹² *Ibid.*, pp. 33–41.

¹³ *Ibid.*, pp. 41–42. Unless otherwise noted, information on Quchan comes from this source.



Noncommissioned officers quarters under construction at Quchan, October 1963

construction, especially in the concrete, brick masonry, and electrical elements. Williams Brothers completed the project in April 1964.¹⁴

Gendarmerie and National Police Projects

The Gulf District also extended the construction for the Gendarmerie through the 1960s. Iranian firms continued to hold exclusive rights to all projects except construction of airfield facilities. The mandate to use Iranian construction firms created management problems for the Gulf District, because the Iranian companies consistently failed to meet schedules and Corps standards in the quality of work. In addition, the principal contractor at twenty-two sites, Sherkat Tazamoni Neamatollah Jahan-Bin and Company, had serious financial difficulties in 1962 and completed construction at only three sites.¹⁵

¹⁴ Memo, Col W. G. Trainer, 18 Mar 63, sub: Periodic Letter Report to Chief of Engineers, p. 3, Mil Files XXI-3-3, OH, HQ USACE.

¹⁵ Interv, Moorhus with Col (Ret) Peter Grosz Jr., 19 Mar 96, pp. 19–21; Cameron to Cassidy, 7 Jun 67, p. 2, Mil Files XXI-3-6, OH, HQ USACE; “History of the [Gulf] District, March 1956–June 1965,” pp. 46–48; Memo, Cameron, 19 Jun 62, p. 4; Memo, Col W. G. Trainer, 19 Sep 62, sub: Periodic Letter Report to Chief of Engineers, pp. 2, 4, Mil Files XXI-3-2, OH, HQ USACE; Harold

Because the Gendarmerie handled border security and customs, most construction sites were remote and widely scattered. (*Map 14*) The Corps assigned junior engineer officers to keep in touch with the construction in progress at these sites. Claude D. Boyd, serving in Iran as a first lieutenant for nine months in 1962 and 1963, was assigned with two Iranians and a Pakistani to Zahedan near the Pakistan border. To inspect construction at the five sites he oversaw, once a month Boyd and one or two Iranian inspectors loaded a vehicle with as many gas cans as it could carry and a dozen or so live chickens. At each site, they inspected the work and made in-progress payments. They ate or traded the chickens as they traveled, and they carried cigarettes and whiskey as gifts for the village leaders in the areas where they camped. A village leader would “kill a goat or cook a bunch of chickens, and rice, and feed us. We’d sit there and talk at night. Of course, I was speaking English, and he was speaking Baluchistan or Farsi, and I didn’t have any idea what he was saying and he didn’t know what I was saying, but it was friendly.”¹⁶ After completing each inspection tour, Boyd headed for Tehran to report to the district personnel and stock up on provisions.

In April 1963, the district agreed to supervise construction of family housing for officers and noncommissioned officers serving in the Gendarmerie, the Iranian Army, and the Iranian National Police. Funding for the projects came in part from the sale of surplus American agricultural commodities under the Agricultural Trade Development and Assistance Act (Public Law [PL] 480) and from an American loan. The district estimated the total cost of the housing program at \$6.3 million. The construction produced 604 housing units and several bachelor officers quarters at more than a dozen widely scattered sites, some

B. Day, “Data for Command Inspection by Mediterranean Engineer Division,” 4–18 Jan 63, p. 6, box 22, access. no. 77-92-0002, WNRC.

¹⁶ Interv, Moorhus with Col (Ret) Claude D. Boyd III, 9 Nov 95, p. 9.





Map 14



Map 15



located in the army cantonments that the Gulf District had constructed. (*Map 15*) Each location required electrical, water, and sewage systems to support the new housing.¹⁷

Two features of the police housing project at Naziabad in south Tehran were unique. The six four-story apartment buildings were the tallest constructed to date for the Iranian Military Assistance Program. The central heating plant and district heating system were also firsts for Iran. Although the construction was “beautiful,” the Iranian contractor encountered difficulty procuring the U.S. materials specified by the designer. Finally, the division agreed to purchase the materials and ship them to Iran. Unfortunately, that did not solve the contractor’s problems. More than a year later, in September 1967, the contractor still had not obtained all the parts he needed; for the second winter, the buildings remained without a functional heating system. Frustrated by the delays, the division engineer, Col. Harry F. Cameron Jr., faulted the architect-engineer for specifying an “exotic heating system, the only one of its type in Iran.”¹⁸

Construction at Mashhad

The Gulf District’s last large project in Iran funded by the Military Assistance Program was an air base and supporting facilities at Mashhad, a center of Shiite Muslim devotion and worship since the ninth century. The city, which counted about two hundred sixty-four thousand inhabitants in 1960, lies 462 miles northeast of Tehran. Because of its location on several important caravan routes and near the Soviet border, Mashhad became a point of strategic interest during the Cold War.

¹⁷ “History of the [Gulf] District, March 1956–June 1965,” pp. 53–54.

¹⁸ “Brief History of Police Housing Project, Naziabad, Tehran,” 29 Oct 66, p. 1, box 51-83-8376, Farrell Papers; “History of the [Gulf] District, March 1956–June 1965,” pp. 53–54; Mediterranean Div Staff Mtg Min, 20 Oct 65, 27 Jun 66, Som-29, TAD-RHA; Mediterranean Div Staff Mtg Min, 18 Jan, 19 Sep 67, box 51-83-8379, Farrell Papers.



New apartment construction at Naziabad, ca. 1965

Between 1961 and 1964, the Gulf District supervised construction for the Gendarmerie in the Mashhad region. Initially, the district supervised this construction out of a project office in its Construction Division. After September 1962, the resident engineer at Quchan assumed responsibility for the work at Mashhad. In the summer of 1964, the district let a new contract to strengthen and expand the Mashhad Airfield. In the 1950s, Army engineers had reinforced a landing strip built in 1929. The construction proposed in 1964 involved laying a runway twelve thousand five hundred feet long, an operational apron for parking aircraft, warmup aprons, and taxiways. The design called for fifteen buildings, including a pull-through maintenance hangar; ten thousand square feet of warehouse space; rocket-storage facilities; two airmen's dormitories; post engineer facilities; headquarters and operations buildings; sewage, water, and power systems; and a road network. The principal military runway, for use by F-5s and C-130 transport planes, had eight-inch concrete paving.¹⁹ Jones Construction won the \$6 million contract, and the Gulf District issued the notice to proceed on 16 July 1964. By timely coincidence, Jones completed the work at Hamadan as the work at Mashhad began.

¹⁹ "History of the [Gulf] District, March 1956–June 1965," p. 45; Area Engr's Completion Rpt [Mashhad Air Base], 4 May 66, pp. 1–4, Mixed Files, TAD-RHA. Unless otherwise noted, information on the construction at Mashhad comes from this source.

The military facilities were built adjacent to the older, commercial air terminal and apron, so planners divided the airfield construction into two phases to allow continuous operation of the commercial facilities. Between July and September, Jones built its construction camp on site and started earthwork. Late in September, construction began, with work on buildings and utilities done simultaneously. During Phase I, the old commercial section of the airfield remained in operation while the southern 6,000-foot segment of new runway was laid. In early November 1965, the contractor completed Phase I paving and the access road from the highway between Tehran and Mashhad, providing a route to and from the new runway. On 2 December, the authorities closed the old runway and opened the new, thus officially ending Phase I.

Phase II began immediately and consisted of placing the base course over the old runway, which could be used as a base because it showed no signs of failure. In compacting the final lift, the contractor encountered problems with the underlying subgrade and finally chose to cut out the unsatisfactory sections and replace them with entirely new fill. Paving on the reconstructed old runway, the aprons, the hangar, hangar access aprons, connecting taxiways, and the apron and civil aviation taxiways began in early March 1966 and was completed in late April.

Constructing a bridge culvert system to accommodate runoff of water descending from the mountains to the west constituted a major element of the work at Mashhad. The culvert system crossed the 12,500-foot runway at about midpoint. The system involved reinforced concrete footings, stone masonry piers, and a reinforced concrete deck that formed the final runway section connecting the old and new portions.²⁰ The contractor began work on the bridge and culvert before finishing Phase I construction. With the outer sections of the bridging in place by mid-November, the contractor began the inner one hundred yards. When the new runway opened on 2 December, the old runway closed and work proceeded vigorously to upgrade the old runway and to complete the connecting bridge over the drainage culverts. The contractor placed concrete for the last deck section of the bridge in early May 1966. At one point between December and May, two hundred fifty stone masons and laborers laid an estimated one hundred sixty thousand stones to line the walls of the culvert under the bridge.

In support of the construction, the Mashhad Area Office's Materials Branch laboratory performed thirty-six tests a day, putting a heavy burden on lab personnel. The contractor had problems maintaining a supply of acceptable cement from the local production plant. When the Mediterranean Division's lab in Athens tested cement for strength, testing errors indicating substandard material led to the unnecessary rejection of some batches of cement. The rejections created a minor crisis that was resolved when the contractor called in a consultant to run further tests. Once the adjustments were made, the cement produced excellent structural and paving concrete.

²⁰ Interv, Moorhus with Grosz, 19 Mar 96, pp. 39–40.

When construction mobilization began in July 1964, the Gulf District opened an area office at Mashhad. The organizational plan called for twenty-three civilian spaces and one military position, but civilian strength in the office never exceeded sixteen. In August 1965, as part of a general reorganization, contracting authority passed from the district engineer in Tehran to the Mediterranean Division in Livorno. The reductions in Gulf District personnel drastically limited the technical and administrative support the district could offer the Mashhad Area Office.

In addition to monitoring staff and the progress of construction, the area engineer in Mashhad maintained liaison with the local Iranian and American officials interested in the project. He coordinated on a regular basis with the director of the Mashhad Civil Airfield, the commander of the Iranian Air Force base at Mashhad, the commanding general of the Iranian Army's 6th Division, the U.S. consul in Mashhad, the commander of the U.S. Army Signal Training Team in the area, and the commanding general of the regional Iranian Gendarmerie.

Beyond supervising construction, the area office also trained Iranian engineers and army officers. During the summer of 1965, the office hosted four student engineers from the University of Abadan who served in the Materials, Operations, and Engineering Branches. Six Iranian Army engineers also served with the area office, two at a time, to learn about large-project construction.

Standards of Design and Construction in Iran

In managing construction in Iran and Pakistan, the Gulf District applied several sets of standards. For projects to serve the U.S. Air Force and for all airfields, the district used the same standards of design and construction that would apply in the United States. For facilities serving the Iranian military forces, the district, taking its guidelines from ARMISH-MAAG, applied austerity criteria that adapted local construction practice and the use of local materials to provide simple, usable facilities.²¹

Experience with the MAP projects in Iran in the late 1950s led the district staff to conclude that, without compromising structural adequacy, it could modify designs to reduce standards but still improve the living and working conditions for the Iranian military. The standard in the United States for enlisted troop barracks, for instance, called for 125 square feet per man. In the 1960s, the Gulf District built enlisted barracks in Iran to a standard of 47 square feet per man. Similarly, in designing the water supply, the district used a standard of 500 gallons per minute (GPM) per single fire rather than the 1,000 GPM applied in the United States and a total of 50 rather than 100 gallons per person per day. All these standards, while remaining below the quality used in the United States, represented a marked improvement over

²¹ Data for Lt Gen W. K. Wilson Jr., Ch of Engrs, 8–12 Sep 64, pp. 3–4, unmarked box, TAD-RHA (hereafter cited as Data for Wilson).

existing Iranian conditions. The design also minimized the number of fire hydrants, valves, and fittings.²²

At many of the construction sites, finding an adequate supply of water presented a problem and an added cost. The entire region was arid or semiarid. When the Corps began drilling for wells, it had little information on the geology, hydrology, or soil conditions, so it assigned personnel to conduct a systematic program of field investigations. As information accumulated, the Gulf District awarded contracts and eventually completed over forty wells in Iran of depths from 50 to 502 feet.²³

Traditional water systems continued to serve and even to be adapted by the Army engineers during their construction in Iran. The traditional ghanat technique, also used in Saudi Arabia, Libya, and Morocco, involved digging one or several wells on a hillside and then drawing water from these wells by means of underground tunnels running downhill at an angle sufficient to provide a gravity flow to the area to be served. The hand-dug tunnels had a diameter of about three feet, just enough to allow the tunnel digger minimal movement. Vertical shafts from the tunnel to ground level at intervals provided ventilation and permitted removal of earth as the digging progressed. Both shafts and tunnels remained unlined, so they were subject to frequent cave-ins. Ghanats in Iran varied in length from one hundred yards to fifty miles.²⁴

As part of the \$11 million project to build a division cantonment at Sanandaj, near the border with Iraq, the contractor, MKO, incorporated a ghanat system. The contractor ran several ghanat tunnels to a single point and constructed a large reservoir there. Construction crews installed electrical pumps at the reservoir to lift the water to a holding tower from which it flowed throughout the system of pipes that supplied the entire 200-building installation. The finished system thus integrated ancient and modern systems.²⁵

The district's austerity criteria also appeared in the sewage disposal and treatment systems installed at Iranian facilities. When the construction program began in Iran in the late 1950s, the Gulf District commissioned the architect-engineer joint venture of Ammann & Whitney–Husted to prepare standard design packages for utilities, including sewage-treatment systems. Anticipating that the Corps would build a number of installations at which populations would vary, the firm designed at least two standard plans for each installation component. The standard plans were then modified for specific sites. The battalion camp at Rheneh, for example, had an

²² Ibid., pp. 3–6; Edward L. Waddell Jr., "Military Construction Aid in Iran," *Military Engineer* (January-February 1963): 43; "Hamadan, Iran, Site Adapt Design," Sep 62, p. 3, box 74, access. no. 77-84-0004, TAD-RHA.

²³ In general, see James A. Roy, "Water Supplies in the Mid East," *Military Engineer* (March-April 1961): 126–28, and Victor E. Muse, "From Ancient 'Ghanats' to Modern Water Wells for Iran, U.S. Army Engineers are Providing Arid Old Persia with Up-to-Date Water Supplies for Military Bases," *Water Works Engineering* (November 1961): 962–63. See also "History of the [Gulf] District, March 1956–June 1965," p. 18; Waddell, "Military Construction Aid in Iran," pp. 43–45.

²⁴ Roy, "Water Supplies in the Mid East," pp. 126–28; Muse, "From Ancient 'Ghanats' to Modern Water Wells," pp. 962–63; "History of the [Gulf] District, March 1956–June 1965," p. 18.

²⁵ "History of the [Gulf] District, March 1956–June 1965," pp. 28–29.

anticipated population of 830 men and used an adaptation of the standard design for a 630-man sewage treatment plant. At Sahneh, the construction contractor installed a 4,400-man treatment plant. A third site, with an expected population of only 210, used a septic-tank system rather than a sewage-treatment plant.²⁶

In all cases, the district calculated flow on a basis of thirty-five gallons per capita, considerably less than assumed in the United States. The systems depended on conveying sewage by gravity flow rather than by electric pumps. Designs located the sewer mains a minimum distance from the buildings and limited crossings under roads and the number of manholes. The design completely segregated storm water from sewage, in some instances using open ditches for storm drainage. The larger sewage-treatment systems used Imhoff tanks for simple settling, sedimentation, and anaerobic digestion to process the raw sewage, combined with open lagoons and sludge-drying beds. Throughout the sewage systems that the Gulf District put in place, the district strove for economy of installation and simplicity of operations and maintenance.²⁷

On roads and walkways, district designs specified gravel, which was less expensive than asphalt or concrete. Plans incorporated no landscaping, sodding, or planting. Contractors generally installed kerosene-fired water heaters and space heaters rather than electrical equipment or central heating. The resulting construction was Spartan but functional, and the district completed installations at a cost of only about \$100 for each soldier in the unit.²⁸

The Gulf District Outside Iran

While the Gulf District managed the construction projects in Iran, it also administered projects in Pakistan, Burma, and Saudi Arabia left incomplete when the Trans-East District closed at the end of 1960.

Work in Pakistan

When the Trans-East District closed, the Gulf District assumed responsibility for five projects in Pakistan with a value of over \$1 million each. The largest contract was for the cantonment at Multan, where \$15 million in construction had begun in June 1959. All projects were well advanced when the Gulf District took them over, and all were completed by early 1962. Between 1962 and 1965, the Gulf District awarded a dozen new contracts in Pakistan, several of them involving additional

²⁶ Design analysis documents for sewage-treatment plants and other utility systems and facilities, including dispensaries, dated 1957–1961, may be found in boxes 76 and 78, access. no. 77-84-2400, TAD-RHA.

²⁷ Ibid.; Memo, Lt Col Edward L. Waddell Jr., 12 May 62, sub: Post Completion Report on MAP Sites—Pakistan, box 51-83-8376, Farrell Papers; Data for Wilson, pp. 3–6.

²⁸ Data for Wilson, pp. 3–6; Waddell, “Military Construction Aid in Iran,” p. 43; “Hamadan, Iran, Site Adapt Design,” Sep 62, p. 3; USACE, “Gulf District, Khaneh Area, Iran,” foreword by Lt Col Ellis E. Pickering, 1 Nov 58, p. 2, box 23, access. no. 77-92-0002, WNRC.

work at the U.S. Air Force's communications facility near Peshawar. These contracts were relatively small: Two exceeded \$1 million; two fell between \$200,000 and \$900,000; and one was less than \$10,000.²⁹

However large or small, administering construction contracts in Pakistan from Tehran challenged the Corps. The Gulf District had to wrestle with the cumbersome Pakistani system of tax-exemption certificates and contractor claims to recover taxes paid on construction materials that by government-to-government agreement qualified as tax free. District records speak of files "bulging with correspondence on contractor's claims for tax refunds on contracts which were completed several years ago."³⁰ Travel between Tehran and construction sites in Pakistan was nearly as cumbersome as the tax situation. The air distance from Tehran to Karachi is one thousand two hundred miles; but the sites of most of the projects after 1961, Peshawar and Lahore, were seven hundred miles from Karachi. Navigating the customs and other entry procedures added hours to the trip. District personnel could make only one leg of the trip to Peshawar in a single day; they always had to stay the first night in Karachi. Thus, every trip between Peshawar and Tehran involved at least four days of travel.³¹

Tax laws and lengthy travel schedules were routine problems, but the outbreak of armed conflict was not routine. When war broke out between Pakistan and India in September 1965, Peshawar came under attack by Indian aircraft. The Gulf District evacuated dependents of Corps employees to Karamursel, Turkey, where the U.S. Air Force provided lodging and support. The Mediterranean Division sent an employee to Karamursel to provide assistance. As the fighting continued, making the return to Pakistan unsafe, dependents were given the option of returning to the States. In June 1966, the Air Force withdrew \$2.3 million in construction projects at Peshawar, effectively ending Mediterranean Division work in Pakistan.³²

Burma

The Gulf District also inherited the activities involving Burma where, in 1959–1960, the State Department had sought help from the Mediterranean Division. Encouraged by the chief of engineers to give potential work in Burma the highest degree of attention, the Mediterranean Division had opened an area office in Rangoon in 1959. When progress toward a construction project for a highway between Rangoon and Mandalay languished, the division closed the area office in August 1960.

Still, the State Department continued to promote the idea of work by the Corps of Engineers in Burma. The Burmese government rejected the initial report on a possible

²⁹ Memo, Cameron, 29 Jan 61, pp. 5–7, Mil Files XXI-2-6, OH, HQ USACE; "History of the [Gulf] District, March 1956–June 1965," pp. 56–67.

³⁰ *Ibid.*, pp. 63–64.

³¹ Ltr, Col (Ret) Peter Grosz Jr. to authors, 18 Aug 64, attachment "USAF Communication Unit, Peshawar, West Pakistan," to "Comments, Peshawar Area," unmarked box, TAD-RHA.

³² Mediterranean Div Staff Mtg Min, 27 Sep 65, 8 Nov 65, 27 Jun 66, Som-29, TAD-RHA.

highway from Rangoon to Mandalay as too expensive. The U.S. International Cooperation Administration then requested that the design company, Louis Berger & Associates, study more economical alternatives; Berger conducted this phase of the study between February and May 1961. On 10 April 1961, the Corps of Engineers signed an agreement with the International Cooperation Administration to continue to provide technical support for cooperative programs in Burma. Late in 1961, the ICA reorganized to become the U.S. Agency for International Development. The organization of the new agency slowed work, but the Office of the Chief of Engineers alerted the division engineer in Livorno to the possibility of assignments in Burma for 1962.³³

The Gulf District already provided limited technical and managerial assistance to the Burmese government on construction at an intermediate college and for work at Rangoon Hospital. Throughout the spring of 1962, district personnel worked with Berger on a more economical highway plan. A coup d'état in March and the formation of a revolutionary council composed of military leaders who ruled Burma by decree delayed the program; but by December, Berger had delivered its revised engineering and feasibility studies for a highway.³⁴

In March 1963, the Burmese government signed agreements authorizing design of a stretch of highway between Rangoon and Pegu that could be seen as an initial segment of the complete road to Mandalay. In April, the Mediterranean Division awarded a \$337,000 contract to Berger and Associates for the detailed design of the 42-mile segment of highway. Berger completed this design, and AID prepared a project agreement in late December 1963 for the Burmese to authorize construction of the road from Rangoon to Pegu.³⁵

All of the conditions seemed to be in place for the issuance of a final contract; the Mediterranean Division issued a request for proposals and received bids. Then, on 26 May 1964, the division notified all contractors that “the Rangoon-Mandalay

³³ Maj Gen Keith R. Barney to Nauman, 23 Jan 62, Mil Files XXI-3-2, OH, HQ USACE. “Historical Report, U.S. Army Engineer District, Trans-East, 21 November 1955–30 June 1960,” Aug 60, p. 133, box 51-83-8379 (hereafter cited as Hist Rpt–Trans-East), and Addendum for Period 1 Jul 60–31 Dec 60, May 61, p. 10, box 51-83-8370; Project Implementation Order, Technical Services, Agency for International Development (AID), “Burma: Technical Support,” 16 Nov 62, box 51-83-8376; all in Farrell Papers.

³⁴ Memo, Col Harry F. Cameron Jr., 21 Mar 62, sub: Periodic Letter Report to Chief of Engineers, Mil Files XXI-3-2; Memo, Col W. G. Trainer, 19 Dec 62, Mil Files XXI-3-2; Final Rpt, Rangoon-Pegu Highway Project, Union of Burma, [1964], pp. 1–2, Mil Files XII-49-7; all in OH, HQ USACE.

³⁵ Col W. G. Trainer to Nauman, 9 Mar 63, box 51-83-8378, Farrell Papers; Louis Berger Inc., “Engineering Report—Phase IA to Agency for International Development: Rangoon-Mandalay Highway Project, Union of Burma,” vol. 1, Dec 62, pp. 5–6, box 51-83-8376, Farrell Papers; Office of the Chief of Engineers (OCE), “Annual Historical Summary, 1 July 1962–30 June 1963,” n.d., pp. 5, 35, Gen Files 5-1; Mediterranean Div, “Rangoon-Pegu Highway Project, Union of Burma, Final Rpt,” [1964], pp. 3–6, Mil Files XII-49-7; “Project Agreement Between the Agency for International Development (AID) . . . and the Ministry of National Planning . . . Burma: Rangoon-Mandalay Highway (Design—Rangoon-Pegu),” 31 Dec 63, [to be] signed by U. Ohn Khin, Sec, Ministry of National Planning, and Donald P. Barces, Administrator, AID, box 51-83-8378, Farrell Papers; all in OH, HQ USACE.

Highway Project has been terminated.” The bids were never opened.³⁶ The road construction had fallen victim to a deteriorating domestic situation in Burma and worsening relations between the U.S. and Burmese governments. Although the Mediterranean Division headquarters continued to provide technical assistance to the Burmese government concerning design and construction at Rangoon University, the canceled highway project was the Gulf District’s last effort in Burma.³⁷

The Gulf District and Saudi Arabia, 1961–1963

The Gulf District had no role in Saudi Arabia until the Trans-East District closed. Beginning in January 1961, the Gulf District assumed responsibility for those projects begun after King Saud and President Eisenhower signed an agreement in April 1957. Construction of the most dramatic of those projects, the civil air terminal at Dhahran, was behind schedule but still well advanced when the Gulf District inherited it. The ceremony for the transfer of the terminal to the Saudi government took place on 20 September 1961 with all but a small amount of work completed. By contrast, a good deal of work remained on the less-visible projects to support the U.S. Military Training Mission in its development of the Royal Saudi Air Force (RSAF).

Training for the Royal Saudi Air Force

The \$9 million program of construction for the U.S. Military Training Mission involved a training school complex at Riyadh and support facilities at Jiddah and Taif. (See *Map 16*.) Oman-Farnsworth-Wright won the contract in June 1960 for the training school in Riyadh and began developing the new installation. In addition to an access road and utilities, the school had sixteen buildings, including a headquarters for operations, airmen’s dormitories, maintenance and shop facilities, a mess hall, an academic building, bachelor officers quarters, and warehouse space. Although construction began in September 1960, very little work had been completed when the Gulf District took over the Riyadh resident office that supervised the project.³⁸

³⁶ Memo, L. W. McBride, 19 Feb 64, sub: Request for Technical Advice and Assistance, Burma, Mil Files XII-49-7; Memo, F. Heywood Marsh, Louis Berger, Inc., to H. P. Winn, OCE, 4 Mar 64, sub: Rangoon-Mandalay Highway Project, Burma, Pegu-Pyu Study, unmarked box; unlabeled doc dtd 24 Mar 64, unmarked box; Memo, Col John W. Burfening, 26 May 64, unmarked box; all in OH, HQ USACE.

³⁷ *Interviews with Lieutenant General Frederick J. Clarke* (Washington, D.C.: Office of the Chief of Engineers, 1980), p. 129. Memo, Louis A. Cohen, AID, Ofc of the Rep to Burma, 3 Jun 64, Mil Files XII-49-7; OCE, “Annual Historical Summary, 1 July 1963–30 June 1964,” n.d., p. 32, and similar Rpt for FY 1966, p. 40, both in Gen Files 5-4; all in OH, HQ USACE. The division awarded a design contract for Rangoon University on 15 December 1964 in the amount of \$195,800. Mediterranean Div Staff Mtg Min, 4 Jan 65, Som-29, TAD-RHA.

³⁸ Ralph M. Parsons Co., “Design Analysis for Royal Saudi Air Force Training School,” 11 Jul 58, p. I-1, box 40, access. no. 77-84-2400, TAD-RHA; Hist Rpt–Trans-East; Nauman to Itchner, 9 Dec 60, p. 9; “History of the [Gulf] District, March 1956–June 1965,” pp. 73–75.



Map 16

By September 1961, the contractor was nearly back on schedule and had completed two-thirds of the project in Riyadh. On 1 September, similar construction began at Jiddah for RSAF support facilities consisting of a headquarters building; an operations building; a hangar with supporting shops; concrete extensions of existing parking aprons; a paved, open storage area; ammunition-storage facilities; and other improvements.³⁹ On 1 October, construction for the RSAF began at a third location—Taif. With construction progressing satisfactorily and nearing completion in Riyadh, the Gulf District closed its Riyadh resident office and moved its personnel

³⁹ “Summary of Construction Contracts in Saudi Arabia,” 15 Nov 61, p. 15, box 24, access. no. 77-92-0001, WNRC; Architect Engineer Consultants Inc., “Design Analysis, Operations Building & Headquarters Building (Jiddah),” Jun 61, p. 2, and “Design Analysis, Link Trainer Building, Jiddah Airfield,” Jul 61, pp. 1-3, both in box 40, access. no. 77-84-2400, TAD-RHA.

to Jiddah, where they could also supervise the work in Taif. In September 1962, the Army engineers delivered the completed facilities in Riyadh to the U.S. Military Training Mission for turnover to the Saudi government. With work complete at Jiddah and Taif as well, the Corps of Engineers closed all offices in Saudi Arabia on 14 December 1962; headquarters staff in the Gulf District in Tehran assumed responsibility for supervising work on the remaining project in Saudi Arabia: repair of the Dhahran Air Terminal.⁴⁰

Repairing the Dhahran Air Terminal

Although the Saudi Arabian government took possession of the civil air terminal in Dhahran in September 1961, a major structural problem kept the Gulf District involved at the terminal for several more years. Even before completion, leaks appeared in the roof of the terminal's main building. In November 1961, Corps personnel raised the problem with the design firm, Ralph M. Parsons Company. Parsons responded that engineers had observed deviations from the specifications in the construction contractor's installation of the roof, had brought these to the attention of the area engineer, and had sent a copy of the correspondence to the division. Parsons suggested dismantling the roof and reinstalling it according to the original design. The company also suggested what it described as "a more expeditious and probably less satisfactory 'fix'": repair and modification of the existing installation. In the early spring of 1962, it became apparent that the roof was inadequate to handle the rapid runoff of water from heavy downpours. Both the construction contractor, OFW, and the area engineer in Saudi Arabia identified the problem as a fault of the original design, which had not taken into account the intensity of the seasonal rains. In late April, an inspection team from the Gulf District confirmed the judgment of the area engineer. The Gulf District's construction and engineering personnel therefore sought to devise a flexible and efficient method to drain the flat areas of the roof where water accumulated and created the leaks.⁴¹

While the Gulf District sought a solution, the Corps again brought the matter to the Parsons Company. In mid-June 1962, Parsons reasserted that its design was correct and that any fault must derive from improper installation. With the prospect of a lengthy battle to establish legal responsibility, the U.S. embassy in Saudi Arabia stepped in, deciding that the political importance of rapid satisfaction for

⁴⁰ DF, Patrick E. Tulley, 3 Dec 62, sub: Change of Headquarters, Saudi Arabia Area, box 51-84-5389, Farrell Papers; Memo, Col W. G. Trainer, 19 Dec 62, sub: Periodic Letter Report to Chief of Engineers, Mil Files XXI-3-2, OH, HQ USACE; "Summary of Construction Contracts in Saudi Arabia," 15 Nov 61, pp. 4–6; Waddell, Continuing Memo to Trainer, 10–12 Sep 62.

⁴¹ Memo, C. W. Brandt, Ralph M. Parsons Co., to Cameron, 18 Dec 61, sub: Roof Deficiencies, Dhahran Civil Air Terminal, box 24, access. no. 77-92-0001, WNRC; "Final Construction Narrative Report, Roof Modification–Dhahran Civil Air Terminal, Saudi Arabia," n.d., p. 1, box 51-83-8376, Farrell Papers.

the Saudi Arabians was more significant than recovering money from either of the contractors.⁴²

Accordingly, the Office of the Chief of Engineers arranged with the Agency for International Development to make money available for a contract to design a modification of the roof. The firm selected, Commonwealth Service International Inc., submitted designs in January 1963 to promote more effective runoff of heavy rains. The Gulf District reviewed the new design in March and suggested only minor changes. In June 1963, the district negotiated a construction contract with the same company for a lump sum of \$32,000 (the redesign had cost \$3,000). By June 1964, all of the work was done. As Parsons had predicted, the repair did not entirely solve the problem of leaks. Expansion and contraction of the structural system caused deterioration of flashing and seals. There was no way to identify where that deterioration would cause leaks until after a rain, so the roof remained a problem.⁴³

On 1 May 1964, as completion of the repair to the civil air terminal approached, the Gulf District transferred its responsibilities for all construction in Saudi Arabia to the Mediterranean Division headquarters.⁴⁴

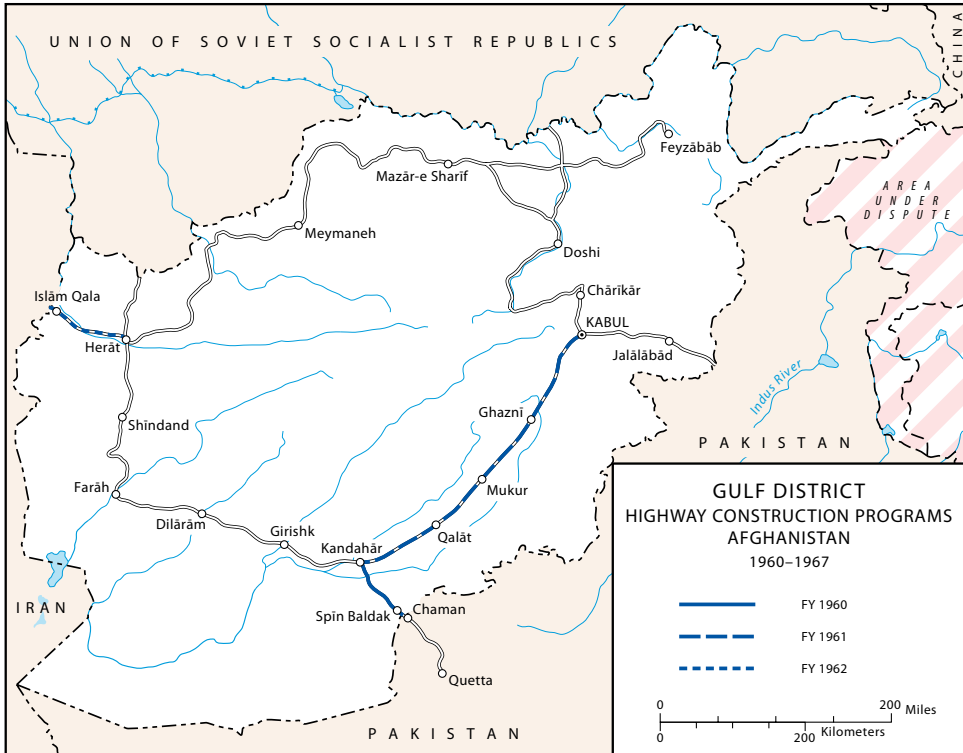
Highways in Afghanistan

The largest new program that the Gulf District undertook in the 1960s was highway construction in Afghanistan. A kingdom in the 1950s, Afghanistan shared borders with the Soviet Union in the north and Iran in the west. In the east, a narrow corridor of Afghanistan's territory situated between the Soviet Union and Pakistan touched the People's Republic of China. (*Map 17*) To the south and west of that eastern corridor, Afghanistan shared a long border with Pakistan, with whom relations were strained during the 1950s and 1960s and where fighting broke out periodically. The Himalayan Mountains, with peaks rising to twenty-one thousand feet, covered much of Afghanistan. The average elevation throughout the country was four thousand feet. The population in 1950, around 12 million, was divided about equally between inhabitants of villages scattered around the country and nomadic, pastoral tribes who lived in tents and traveled annually between the mountains and the plains. Ninety percent of the nation's income came from agriculture, with grapes, raisins, and mulberries as the principal products. The land was arid, and irrigation

⁴² "Final Construction Narrative Report, Roof Modification–Dhahran Civil Air Terminal," n.d., pp. 2–3.

⁴³ "Final Construction Narrative Report, Roof Modification–Dhahran Civil Air Terminal," n.d.; "History of the [Gulf] District, March 1956–June 1965," pp. 73–74; Emil L. Blondell and Col John E. Walker, Trip Rpt of MDD Part to Saudi Arabia, 21 Aug–1 Sep 65, 7 Sep 65, p. 9, box 51-84-5389, Farrell Papers; Interv, Moorhus with Grosz, 19 Mar 96, p. 43. Grosz reports that the roof leaked in 1978 when he went through the terminal.

⁴⁴ OCE, "Annual Historical Summary, 1 July 1963–30 June 1964," p. 92.



Map 17

was maintained through an ancient system of underground tunnels and ditches. The strongest unifying element for the country's population is the Islamic religion.⁴⁵

Given Afghanistan's strategic location, the U.S. State Department began a program in the late 1950s to promote stronger and more positive relations between the two countries, in part to counter Soviet influence. American policymakers focused on improving the country's poor system of roads to encourage internal trade and political cohesion. Afghanistan's rudimentary highway system consisted of a 1,700-mile circular road with dirt and rock roadbeds linking principal towns and cities. From Kandahar in the south, the roads ran northeast to Kabul and northwest to Herat. The main road then looped across the northern tier of the country to connect Herat and Kabul. Spurs from this great elliptical route extended toward Iran to the west and Pakistan to the southeast.⁴⁶

⁴⁵ H. A. Swanson, "High Roads of Afghanistan," *Military Engineer* (November-December 1959): 462–63.

⁴⁶ An excellent discussion of the Kabul-Kandahar highway program may be found in Frank N. Schubert, "U.S. Army Corps of Engineers and Afghanistan's Highways, 1960–1967," *Journal of Construction Engineering and Management* (September 1991): 445–59; Swanson, "High Roads of Afghanistan," p. 463.



Construction of the Afghan highway, ca. 1966

In 1957, the International Cooperation Administration sponsored a study of Afghanistan's transportation system; the next year, the ICA assisted the Afghan government in organizing a program of road maintenance. In February 1959, the ICA selected the firm of Kenneth R. White Consulting Engineers Inc. of Denver, Colorado, to draft a design to convert the road from Kabul to Kandahar into a modern, two-lane, bituminous-surface highway.⁴⁷

Although the U.S. Army Corps of Engineers had expressed interest in the ICA's highway construction project in Afghanistan during the winter of 1958–1959, the Corps' ultimate involvement resulted from a fortuitous coincidence. The U.S. ambassador to Afghanistan, Henry A. Byroade, was a former Army engineer officer. A 1937 graduate of West Point, Byroade had served in World War II. In 1949, he resigned as a colonel and joined the State Department as a Foreign Service officer. As ambassador to Afghanistan in 1959, Byroade became impatient with the lack of progress under the ICA, especially since the Soviet Union had an active aid

⁴⁷ Swanson, "High Roads of Afghanistan," p. 463; "Technical Assistance Project History and Analysis Report of the Construction of the Kabul-Kandahar Highway, Afghanistan Regional Transit Project, Afghanistan, for AID, Washington, D.C.," Nov 67, pp. 3, 8, box 51-83-8378, Farrell Papers (hereafter cited as Technical Assistance Hist: Kabul-Kandahar Hwy, Nov 67); Intervs, Lynn Alperin and Niels Nilson with Brig Gen (Ret) Philip T. Boerger, 19–20 Jul 82, 9–10 May 83, p. 126.

program in the country yielding results visible to the Afghans. In a January 1960 cable, Byroade urged the ICA to engage a team from OCE to study the construction components of the program in Afghanistan and to make recommendations. At a 2 February meeting involving representatives from the State Department, the Office of the Secretary of Defense, ICA, and OCE, the Corps agreed to evaluate the projects.⁴⁸

A team of three men from the Corps of Engineers traveled to Afghanistan in early March and reported their findings on 30 March 1960. In forwarding the report, the chief of engineers, General Itschner, expressed his willingness to assist the State Department, provided that the Corps was given an effective degree of control over the design and construction. Ambassador Byroade continued to press for Corps involvement, believing that “the ICA cannot do construction projects overseas as now constituted and cannot get themselves constituted.”⁴⁹ In July 1960, the Corps and the ICA reached a tentative agreement; in August, a second Corps team visited Afghanistan to review the White engineering firm’s design for the road between Kabul and Kandahar. The Corps team decided that Byroade’s negative assessment of the ICA was right: The ICA had based its plans on faulty assumptions and had as a consequence written bad contracts.⁵⁰

Over the summer, the Corps began to put in place the organizational structure that would allow the Mediterranean Division to supervise road building in Afghanistan. The division engineer, Brig. Gen. William R. Shuler, urged his Trans-East District engineer to “exert your persuasive influence” on one of the district employees, Thurston B. Wheeler, to accept the assignment of overseeing the Afghanistan project. Shuler described Wheeler, who had been assistant area engineer in the short-lived Burma field office, as eminently qualified for the job because of his initiative, personality, and field experience. Shuler called the assignment “the ‘hottest’ project we have in the Division at the present time, and it must go!”⁵¹

On 10 October 1960, Wheeler officially became the area engineer for the newly established Afghanistan Area Office at Kabul. On 1 November, the Corps of Engineers signed an agreement with the ICA that confirmed the Corps’ responsibility over the operational, technical, and administrative aspects of the design and construction of the highway from Kabul to Kandahar. On 23 December, the ICA also turned over authority to the Corps to supervise the remaining design under the agreement with the White company.⁵² With the Trans-East District on the eve of its deactivation, the Gulf District took over administration of the construction in Afghanistan.

⁴⁸ Technical Assistance Hist: Kabul-Kandahar Hwy, Nov 67, pp. 3–4; Schubert, “U.S. Army Corps of Engineers and Afghanistan’s Highways,” p. 448.

⁴⁹ Itschner to Shuler, 25 Apr 60, Mil Files XXI-3-1, OH, HQ USACE.

⁵⁰ “History of the [Gulf] District, March 1956–June 1965,” p. 68; Schubert, “U.S. Army Corps of Engineers and Afghanistan’s Highways,” p. 450.

⁵¹ Shuler to Northington, 12 Jul 60, unmarked box, OH, HQ USACE.

⁵² “History of the [Gulf] District, March 1956–June 1965,” p. 71.

Initially, General Itschner wanted to minimize the visible participation of the military in Afghanistan. He instructed the Mediterranean Division engineer to limit the involvement of uniformed officers and to avoid sending any military personnel into the country “except in case a serious problem develops” or upon the request of the ambassador.⁵³ This restriction complicated staffing the Corps offices in Afghanistan, as did the host government’s restrictions on privileges extended to third-country nationals.⁵⁴ The concern about a visible American military presence passed, and four of Wheeler’s five successors as area engineer were Corps of Engineer officers.⁵⁵

To supervise the construction, the division officially activated the Kandahar Resident Office on 1 January 1961. The Americans in the office included Charlie Hyman as resident engineer, a secretary, and a contract equipment specialist. To fill out his staff, Hyman handpicked several third-country nationals, including two Englishmen, one of whom, Art Chapman, became Hyman’s deputy. Two Germans, Wilhelm Voelker and Manfred Mertin, remained in Afghanistan for the duration of the initial highway construction project. A third German worked as a surveyor on the project for a brief time with a Greek surveyor, John Vrettos. Another Greek and several Filipinos completed the staff.⁵⁶ Hyman, Chapman, Voelker, Mertin, and several other area office staff came from positions in the Gulf District. The Afghan government initially denied visas to many of the third-country nationals, thereby delaying the opening of the office in Kandahar until February 1961. Even after the initial contingent received visas, the government of Afghanistan held up approval of later arrivals.⁵⁷

Kandahar–Spin Baldak Highway

Once the Kandahar Resident Office’s staff arrived, they immediately began to oversee the construction of one part of the highway system, a 96-mile spur from Kandahar southeast to the border with Pakistan at Spin Baldak. (*See Map 17.*) The ICA had awarded a \$3 million construction contract on this project to A. L.

⁵³ Memo, Brig Gen Clarence Renshaw, 29 Aug 60, sub: Afghanistan Project, Mil Files XXI-3-1, OH, HQ USACE.

⁵⁴ Nauman to Itschner, 9 Dec 60, p. 7.

⁵⁵ Technical Assistance Hist: Kabul-Kandahar Hwy, Nov 67, pp. 4–5; “History of the [Gulf] District, March 1956–June 1965,” pp. 73–74; Schubert, “U.S. Army Corps of Engineers and Afghanistan’s Highways,” p. 456.

⁵⁶ Interv, Frank N. Schubert with Wilhelm Voelker, 25–26 May 88, pp. 6–7, 11.

⁵⁷ “Final Construction Narrative Report, Kandahar–Spin Baldak Highway,” n.d., p. 2, box 35–Afghan, TAD-RHA; Memos, Cameron, 29 Jan 61, p. 3, and 30 Mar 61, p. 5, sub: Bi-Monthly Letter to the Chief of Engineers, both in Mil Files XXI-2-6, OH, HQ USACE; Technical Assistance Hist: Kabul-Kandahar Hwy, Nov 67, pp. 4–5; “History of the [Gulf] District, March 1956–June 1965,” pp. 73–74; Memo, Waddell to Cameron, sub: Continuing Memorandum, 9 Apr thru 14 Apr 62, p. 6, box 51-83-8376, Farrell Papers.

Dougherty Overseas Inc.; on 31 December 1960, the Gulf District engineer issued the notice to proceed.⁵⁸

The existing gravel road along the route had been constructed in 1948–1949 by Morrison-Knudsen. In general, the Dougherty crew followed the same track. Paving began in early August 1961. In mid-November, light rains that fell in the Kandahar area caused the rise of gypsum salts through the asphalt on about a twelve-mile stretch of the highway that over several days weakened the surface. The project supervisors began testing the pavement; on 16 December, the district issued a stop order on construction for the entire road because of the weakening of the road on that twelve-mile segment. Later heavy rains did not increase the length of the segment affected by the gypsum salts, and investigations completed by early March 1962 revealed that no similar problem existed with the remaining fifty-one miles of road. On 10 March, the district lifted the stop order for all but the affected twelve miles. In the area that had showed the salts, Dougherty solved the problem by adding a crushed aggregate base and improving drainage.⁵⁹

The stop order and the repairs delayed completion of this highway beyond the original date of July 1962; but the contractor finished the work and the Corps turned the road over to the ICA on 25 October. By the end of October, the local workforce of almost two hundred fifty had disbanded and the Dougherty personnel had all left Afghanistan. On 1 December, Ambassador Byroade formally transferred the road to the government of Afghanistan. The project cost \$3.86 million.⁶⁰

Kabul-Kandahar Highway

Whereas the Kandahar–Spin Baldak highway had been ready for construction when the Gulf District took on management of the project late in 1960, the major portion of the Afghanistan highway, the 300-mile road from Kabul to Kandahar, was still in the design stage. On 20 February 1961, the district advertised its intentions to solicit proposals for construction on the road. A few days later, Mediterranean Division and district personnel decided to divide construction into six segments because lack of money made it impossible to fund the entire road in one contract. The solicitation asked for bids on all six segments but reserved the right to award contracts for segments at different times.⁶¹

⁵⁸ “History of the [Gulf] District, March 1956–June 1965,” pp. 69–70.

⁵⁹ “Final Construction Narrative Report, Kandahar–Spin Baldak Highway,” p. 3; Memo, Cameron, 21 Mar 62, p. 4; “Kandahar–Spin Baldak Highway, Afghanistan: Special Investigation,” Feb–Mar 62, p. 2, box 35–Afghan, TAD-RHA; “History of the [Gulf] District, March 1956–June 1965,” pp. 69–70.

⁶⁰ Memo, Trainer, 19 Dec 62; “Final Construction Narrative Report, Kandahar–Spin Baldak Highway,” pp. 1, 4–5; “Afghan Regional Transit Project,” 31 Oct 63, p. 1, box 27, access. no. 77-92-0001, WNRC; “History of the [Gulf] District, March 1956–June 1965,” pp. 69–70.

⁶¹ Technical Assistance Hist: Kabul-Kandahar Hwy, Nov 67, pp. 8, 12; Schubert, “U.S. Army Corps of Engineers and Afghanistan’s Highways,” p. 452. Technical Assistance Hist: Kabul-Kandahar Hwy, “Afghan Regional Transit Project” and “History of the [Gulf] District, March 1956–June 1965,” pp. 69–74, provide the basic facts concerning the Afghanistan highway project. The information in this entire section draws on these sources, supplemented by the other documents cited individually.

Three bidders submitted proposals, the low bid coming from a joint venture operating under the name Afghanistan Highway Constructors (AHC). Six firms comprised the joint venture: Oman Construction Company, R. P. Farnsworth and Company, Wright Contracting Company, J. A. Jones Construction Company, Morrison-Knudsen Overseas Inc., and Peter Kiewit Sons Company. After negotiations, the Corps awarded a \$17.7 million construction contract to AHC for the first two segments; the contract allowed the government to award the remaining segments within a year. AHC signed the formal contract at a ceremony held 21 June 1961 in the office of the Royal Government of Afghanistan's Ministry of Public Works in Kabul. Ambassador Byroade participated in the ceremony and the reception, which the deputy minister of public works, the director of the ICA mission, and the Gulf District and Afghanistan Area Office engineers attended.

The contractor planned to transport construction equipment and materials from the Pakistani port of Karachi to the Pakistan-Afghanistan border and over the new road from Spin Baldak to Kandahar. AHC set up a base camp, storage and repair facilities at Kandahar, and a second construction camp at Kabul. A groundbreaking ceremony on 17 August 1961 launched work on the first segment, a high-visibility section from the capital Kabul to the southwest. This segment of forty-one miles was the high end of the road, climbing from six thousand feet at Kabul to eight thousand three hundred feet near Ghazni; it was the portion most susceptible to seasonal suspension of construction because of bad weather. Work also began on the second segment, a portion rising gently from Kandahar (at three thousand four hundred feet) to the higher elevations in the northeast.⁶²

Before the contractor had fully mobilized, a new episode in the periodic clash of arms between Afghanistan and Pakistan broke out, provoking the Afghan government to close the border between the two countries on 6 September 1961. This cut off the transportation route from Karachi to Kandahar over which supplies for the construction would normally travel. With the exception of a brief opening in the winter of 1962, the border remained closed until July 1963, when the two countries restored diplomatic relations and reopened their common border. Even then, local conditions prevented any shipment of asphalt until September 1963. By curtailing the shipment of goods from Pakistan, the border closing restricted construction operations for two years.

By late September 1961, AHC had run out of fuel, supplies, and spare parts and could not proceed. With the support of the U.S. government, the contractor sought to procure materials within Afghanistan and over alternate routes. On 20 November, with no prospect for a quick resolution to the conflict, the Corps ordered the contractor to suspend all shipments bound for the Pakistani port of Karachi. Materials already en route at the moment of suspension were stored in Karachi upon arrival. On 24 December, the district learned that the Afghan government would

⁶² Memo, Cameron, 20 Dec 61, p. 3; Interv, William C. Baldwin with Col (Ret) Harry F. Cameron Jr., 27–29 Mar 89, p. 301; C. M. Messall, "Modern Highways for Afghanistan," *Military Engineer* (November–December 1963): 424; Schubert, "U.S. Army Corps of Engineers and Afghanistan's Highways," p. 452.

open the border for a limited period in late January 1962. The contractor moved the supplies that had arrived in Karachi to the Pakistani border town of Chaman. On 29 January, the border opened for eight weeks and AHC moved many needed supplies into Afghanistan. The contractor still had to develop alternate routes for transporting equipment and supplies, principally through Iran to Mashhad, across a primitive road to Herat, Afghanistan, and on to Kandahar.⁶³

By May 1962, AHC had completed grading on ten miles of roadway south of Kabul although lack of materials and spare parts had sharply reduced their ability to continue. At the south end of the road, the contractor had graded about fifteen miles, established a construction camp, and was poised to continue with “great dispatch” as soon as the stop orders on procurement were lifted.⁶⁴

With progress stalled on the two segments of the highway already under contract, the Corps of Engineers decided to exercise its option to award contracts for the remaining segments. Corps administrators reasoned that finding new bidders would be difficult given the closure of the easiest supply route from Pakistan. Delaying award until the border opened would probably involve much higher prices. In addition, the Mediterranean Division personnel judged the AHC quote of \$22.8 million for the remaining sections to be fair. The State Department also wanted to reassure the government of Afghanistan that the United States would honor its commitment to build the entire highway from Kabul to Kandahar. On 6 June 1962, the Agency for International Development, which had succeeded the International Cooperative Administration, announced award of the remaining work to Afghanistan Highway Constructors.

Within days of closing the contract for the middle sections of the road, the Gulf District directed Afghanistan Highway Constructors to suspend work on the first segment out of Kabul. Because of the lack of supplies, AHC could not sustain effective work at two locations; thus, the district chose to concentrate all work on the second segment from Kandahar. The slowdown of construction meant that Thurston Wheeler had to notify his staff in the Afghanistan Area Office of possible reductions in force. Wheeler protested the reductions, arguing that “the mission accepted by the Corps of Engineers in Afghanistan can[not] be accomplished with the proposed staff.”⁶⁵

Although the limit on supplies obtainable through Iran delayed progress, AID asked the Gulf District to issue to AHC a limited notice to proceed on another segment at the southwest end of the road. The same directive, dated 24 October 1962, authorized AHC to purchase equipment and supplies for all remaining segments of the construction and to store them in Karachi until the border opened.

⁶³ Interv, Moorhus with Grosz, 19 Mar 96, pp. 28–30.

⁶⁴ Memo, J. F. Chandler, 28 May 62, sub: Post-Completion Inspection Mil. Construction, Pakistan and General Inspection of Construction Underway in Afghanistan, Iran, Saudi Arabia and Ethiopia, p. 4, box 51-83-8378, Farrell Papers.

⁶⁵ Memo, T. B. Wheeler, 23 Jul 62, sub: Reduction in Force Afghanistan Area, box 51-83-8376, Farrell Papers.



Laying asphalt during construction of the Afghan highway

The contractor also received instructions to obtain six thousand tons of asphalt and to store it at the Pakistani border.⁶⁶

AID decided in early February 1963 to modify specifications from asphalt to gravel surface for the remaining segments. Without the change, funds would not have covered the costs of completing the full length of the highway. By the spring, the quantity of supplies arriving through Iran had increased to the point that the division engineer, Colonel Nauman, could report that AHC's work was progressing "extremely well."⁶⁷ The segment beginning at Kandahar was turned over to the Afghan government on 29 October 1963. The contractor completed its neighboring segments ten months later. In November 1964, AHC completed the first segment in the north, which it had begun over three years earlier.

As the work progressed, the contractor and the Gulf District personnel were able to make more accurate evaluations of site conditions. Based on new information, they agreed to strengthen beyond the original design specification the foundation of road sections at the highest elevations in the middle segments. These negotiations were part of settling the contractor's claim for the increased costs imposed by the border closing. The negotiators reduced the \$5 million claim to \$3 million and conceded AHC a 355-day extension of the deadline for completing the first two segments.

⁶⁶ Wilson to Nauman, 25 Oct 62, Mil Files XXI-3-2, OH, HQ USACE; Technical Assistance Hist: Kabul-Kandahar Hwy, p. 19.

⁶⁷ Nauman to Maj Gen J. B. Lampert, 14 May 63, p. 2, Mil Files XXI-3-3, OH, HQ USACE.

Lt. Col. Peter Grosz Jr., the deputy district engineer, served as chief negotiator to resolve the AHC claim for “delays in transportation.” This unusual provision in the contract entitled the contractor to compensation for the “ripple effect” of delays in work incurred because the closing of the Afghanistan-Pakistan border hindered the transport of equipment and materials. In the negotiations, AHC determined that, although AID had modified specifications from asphalt to gravel, they had funds available to spray the gravel road with a double bituminous surface treatment.⁶⁸

Because the middle stretch of the highway was farthest from the contractor’s base camps and at the highest elevations, these segments were the last completed. Before the work was finished, the port of Karachi closed again in September 1965, this time because of the outbreak of fighting between Pakistan and India. Fortunately, AHC already had the supplies needed to finish the project. On 16 July 1966, the contractor turned over the final portion of the highway.

In addition to the roadbed, paving, and bituminous treatment, AHC constructed forty-eight bridges and widened one existing bridge. The construction involved another thirty-two concrete sections where seasonal waters could overflow the road without washing it out. The construction contractor also had to respect ancient irrigation practices observed by the local population. To facilitate the customary distribution of water carried in troughs that cut across the line of the highway, the contractor installed about one hundred miles of corrugated sheet-metal drainage culverts and irrigation ditches and another fifty miles of furrow ditches.⁶⁹

Over the duration of the highway’s construction, AHC had averaged forty-nine American and thirty third-country national supervisors to manage a local labor force that reached three thousand at its maximum and averaged about one thousand six hundred. The Afghan workers proved diligent and quick to learn, and many took advantage of the training programs AHC offered.⁷⁰ They also maintained an exemplary record for safety, which the U.S. National Safety Council recognized by giving Afghanistan Highway Constructors honor awards in 1962, 1963, and 1964. In the two succeeding years, the National Safety Council presented AHC with awards for “The Best Record in the Highway Construction Industry” when laborers on the highway worked over 2.1 million man-hours between October 1964 and March 1965 and 2.57 million man-hours between August 1965 and February 1966 without a lost-time accident.

The Afghanistan Area Office supervised the highway projects for the Gulf District through resident offices at Kabul and Kandahar. In November 1961, the Kandahar office became the Southern Resident Office and the office at Kabul became the Northern Resident Office, each supervising a portion of the Kabul-

⁶⁸ Interv, Moorhus with Grosz, 19 Mar 96, pp. 30–31.

⁶⁹ Statistics from Technical Assistance Hist: Kabul-Kandahar Hwy, p. 23. The explanation of why these ditches were necessary comes from Interv, Schubert with Voelker, 25–26 May 88, pp. 52–53, 96–98.

⁷⁰ Memo, Cameron, 7 Feb 67, sub: Certificate of Appreciation for Patriotic Civilian Service Under Contract DA-92-144-ENG-73 for Construction of the Kabul to Kandahar Highway, box 27, access. no. 77-92-0001, WNRC; Intervs, Alperin and Nilson with Boerger, 19–20 Jul 82, 9–10 May 83, p. 122.



Multiplex of culverts constructed for the Afghan highway, July 1967

Kandahar highway. When the Kandahar–Spin Baldak construction project ended in December 1962, many of the staff who had worked on that project continued on the Kandahar–Kabul highway. During 1963, the Afghanistan Area Office reached its maximum strength of fifty-seven.

In August 1965, division headquarters in Livorno took over contracting officer authority for the work in Afghanistan; in September, the Afghanistan Area Office moved from Kabul south to Ghazni. By the spring of 1966, with only one segment left to turn over to the Agency for International Development, the area office staff had dwindled to six Americans (including two military officers) and six third-country nationals.⁷¹

On 13 July 1966, U.S. Secretary of Agriculture Orville L. Freeman represented President Lyndon B. Johnson at the ceremony near Ghazni marking the turnover of the Kabul–Kandahar highway to the Afghan government. Col. Harry F. Cameron, who had been the Gulf District engineer between 1960 and 1962 at the outset of the project, represented the Corps of Engineers at the turnover ceremony. He had returned to the Mediterranean Division in March 1966 as division engineer. The highway cost a total of \$42.9 million, of which \$39.3 million came from the U.S. government. The Afghan government paid the balance in Afghani currency, a portion

⁷¹ Chaffin to Cassidy, 28 Sep 65, p. 3, Mil Files XXI-3-4, OH, HQ USACE; Technical Assistance Hist: Kabul–Kandahar Hwy, pp. 22–23, 30, for this and the following two paragraphs. See also Memo, Chaffin, 19 Jan 66, sub: Organization to Accomplish Construction in Afghanistan, Iran and Pakistan, p. 2, box 682798, Record Group (RG) 77, access. no. 77-004, Federal Records Center, Bayonne, N.J. (hereafter cited as Bayonne FRC).

of which came from the sale of surplus American wheat under the provisions of PL 480. The Corps of Engineers collected \$4.45 million in fees for engineering, design, supervision, and administration. The compensation paid to the Corps for its supervisory work amounted to less than the Mediterranean Division had saved on the project by negotiating the construction contract for \$6 million less than the original bid.

Very early in the construction, in March 1962, a Corps engineer made a trip by land rover from Kandahar to Kabul. With over 90 percent of the bridges on the existing road washed out by floodwaters, the trip took twenty-two punishing hours at an average of fifteen miles per hour, a speed that was “definitely abusive to the vehicle over most of the road.” After completion of the road, the *Kabul Times* reported that the trip between the two cities took six hours. The same newspaper, using statistical data provided by the United Nations, calculated that the Kabul-Kandahar highway would save shippers \$60 every time ten tons of goods passed between the two cities.

Herat–Islam Qala Highway

The Mediterranean Division oversaw construction of a third highway in Afghanistan—the road running seventy-five miles west from Herat to the city of Islam Qala on the Iranian frontier. (*See Map 17.*) When the clash between Afghanistan and Pakistan closed their common border in September 1961 and made trade along established routes to the east impossible, Afghanistan became acutely aware that the camel track from Herat to Iran, the only road that led to the west from Herat, was totally inadequate. With advice from AID, the Afghan government included improvement of this road in its five-year plan of 1962. The Mediterranean Division began discussing a feasibility study concerning this segment of highway during the summer of 1962 and formally initiated the study in April 1963. Division personnel, supported by the Gulf District staff, delivered a preliminary design of the proposed road from Herat to Islam Qala to AID in December.⁷²

In late September 1964, Louis Berger Inc. won the contract for the final design and preparation of specifications for construction of the new highway; but another year elapsed before the AID office in Afghanistan received the plans and specifications. In an agreement signed in April 1966, the Afghan government designated the Corps of Engineers as its agent in the process of selecting a construction contractor. Later that month, the Gulf District issued a request for proposals with a due date in June. Only one company bid on the contract: the joint venture of Afghanistan Highway Constructors that had built the highway from Kabul to Kandahar. It took nearly two months to negotiate a satisfactory contract with AHC for the 75-mile

⁷² Waddell, Continuing Memo to Trainer, 10–12 Sep 62, p. 3; Schubert, “U.S. Army Corps of Engineers and Afghanistan’s Highways,” p. 456; Waddell to Cameron, Continuing Memo, 9–14 Apr 62, p. 3; Nauman to Wilson, 8 Jul 63, Mil Files XXI-3-3, OH, HQ USACE; OCE, “Annual Historical Summary, 1 July 1963–30 June 1964,” n.d.

segment of highway from Herat west to the Iranian border. The agreed price came to \$8 million, paid with funds from AID loans.⁷³

Work on the Herat–Islam Qala highway began on 27 August 1966. By the end of November, the contractor had completed construction of a base camp near the Iranian border. AHC had also completed drainage structures and earthwork emplacement for about twenty-eight miles of the road and poured footings for a bridge about sixty miles west of Herat over the Hari River, which the road parallels for much of its length. When inclement winter weather halted work on the road in mid-December, the contractor continued to crush and stockpile rock.⁷⁴

Construction resumed in March 1967 and progressed rapidly and ahead of schedule. All but the final surfacing was in place on the first thirty miles of the road west of Herat when, on 17 April, a series of violent thunderstorms occurred. Over a span of ten days, the road suffered extensive damage from four separate flash floods. Work stopped; designers went to work to modify the drainage system; and negotiators for the contractor, the Corps of Engineers, the Afghan government, and the Agency for International Development worked on a new price for the contract to take into account the additional work.⁷⁵

In early May 1967, redesign and repair work began; but AHC soon received a stop order on the repairs until an agreement could be reached on the renegotiated costs. Construction continued on the new parts of the road until, on 24 July, AHC received an order to stop work. Available funds were nearly exhausted, and no agreement on the costs of repair had been reached. Designers adjusted the requirements for paving, drainage, and other elements of the specifications to cut costs. Paul Wheeler, a civilian engineer with the Mediterranean Division, recalls that negotiations with AHC took place in the field. It “was like what they do in the States when there’s hurricane damage to be repaired. . . . It was a real fast negotiation.”⁷⁶

With costs trimmed as drastically as possible, the division issued a notice to resume work on 11 August 1967. To avoid the costs of delays due to late shipment of materials, the Afghan government arranged to have the Afghan Air Authority loan asphalt and other materials to AHC. The contractor put his crews on eleven-hour days and seven-day weeks to finish the job as rapidly as possible and to reduce overhead.

On 9 October 1967, AHC crews laid the final crushed-stone layer to the Iranian border; by 12 October, all major construction was completed—ten months ahead of schedule. The Royal Government of Afghanistan accepted the Herat–Islam Qala highway in a formal ceremony on March 1968. Over the period of the contract,

⁷³ Maj Gen R. G. MacDonnell to Chaffin, 27 Dec 65, p. 2, Mil Files XXI-3-4; Cameron to Cassidy, 8 Jun, 6 Sep 66, both in Mil Files XXI-3-5; Chaffin to Cassidy, 9 Mar 66, p. 2, Mil Files XXI-3-5; OCE, “Annual Historical Summary, 1 July 1965–30 June 1966,” n.d., p. 43, Gen Files 5-4; all in OH, HQ USACE.

⁷⁴ “Final Narrative Report of Herat–Islam Qala Highway,” 16 Dec 67, box 51-83-8378, Farrell Papers. Unless otherwise indicated, information on the Herat–Islam Qala highway construction comes from this document.

⁷⁵ Cameron to Cassidy, 7 Jun 67.

⁷⁶ Interv, Moorhus with Paul S. Wheeler, 31 May 95, p. 4.

the contractor's payroll averaged 16 Americans, 20 third-country nationals, and about 930 local nationals. The Afghanistan Area Office employed a maximum of 5 Americans, 6 third-country nationals, and 24 Afghans. The total cost of constructing the road had risen to \$9.5 million with the repair and additional design necessitated by the floods.⁷⁷

At its eastern end, the highway between Herat and Islam Qala intersected with the Russian-built highway across northern Afghanistan. The Herat–Islam Qala, Kabul–Kandahar, and Kandahar–Spin Baldak highways, linked with the Russian-built highways, gave Afghanistan a modern highway system. The American contribution to this highway system cost over \$55 million for construction and another \$25 million in related costs.⁷⁸

Declining Workload

The year 1961 marked the apogee of the construction program in Iran. For a very short time, the Gulf District and the Mediterranean Division hoped that work outside of Iran might sustain the district; but at the same time, they began to plan for its probable closing. In November 1962, an organizational study cited the decrease in both actual and projected construction to support suggestions for restructuring the district's operational elements.⁷⁹ A month later, Colonel Nauman reported to the chief of engineers, Brig. Gen. Walter K. Wilson Jr., that the district had "phased the organization down in consonance with our new 18-month forecast of work placement." Indeed, the cuts had been dramatic. The number of staff fell from 797 at its high point in 1961 to 421 by the time of Nauman's letter, a reduction of 47 percent.⁸⁰

Some of the decline in staff occurred by attrition, but some involved formal reductions in force that the district implemented as a part of its long-term plan to trim its overhead costs. In late 1961, the Mediterranean Division's headquarters took over the major engineering and design responsibilities and the Gulf District abolished its Engineering Division. An Engineering Branch in the Construction Division performed change-order design, provided as-built drawings, and executed other tasks. In July 1963, the district transferred these remaining functions to the Supervision and Inspection Branch of the Construction Division and abolished the Engineering Branch.⁸¹

⁷⁷ OCE, "Annual Historical Summary, 1 July 1967–30 June 1968," n.d., p. 42, Gen Files 5-8, OH, HQ USACE; Schubert, "U.S. Army Corps of Engineers and Afghanistan's Highways," p. 457.

⁷⁸ Schubert, "U.S. Army Corps of Engineers and Afghanistan's Highways," p. 457.

⁷⁹ L. A. Webber, "GED Organization Study," 10 Nov 62, p. 2, access. no. 77-92-0002, box 25, WNRC.

⁸⁰ Quotation from Nauman to Wilson, 31 Dec 62, p. 2, Mil Files XXI-3-2, OH, HQ USACE. The figure for 1961 comes from "History of the [Gulf] District, March 1956–June 1965," p. 7. Figure for December 1962 from Data for Wilson, p. 1.

⁸¹ "Feasibility Study: Deactivation of Gulf District," 19 Apr 63, p. 1, box 25, access. no. 77-92-0002, WNRC; Data for Wilson, p. 16.

Other measures to reduce costs eliminated some of the amenities that the district had extended to staff as inducements to serve in Iran. In the early years of the district, adequate housing in Tehran had been scarce and expensive. Studies showed that having the district lease houses would be less expensive than providing housing allowances and would relieve new employees of the demands of finding lodging on their own. By July 1962, the district's Office of the Headquarters Commandant, the office responsible for handling housing, managed thirty-four leases that secured sixty-five housing units for district personnel.⁸²

Cost consciousness at the district and division levels, coupled with the arrival of Robert E. Hall, a new civilian executive officer with a background in management, led to a reexamination of the leasing arrangement.⁸³ Hall urged the district engineer, Col. Wyatt G. "Gristy" Trainer, to eliminate district-leased housing and to provide employees with a housing allowance. By the summer of 1964, the district had terminated all but two leases and the Office of the Headquarters Commandant, renamed the Headquarters Service Office, fell from forty-seven to fifteen positions. The Headquarters Service Office continued to help employees locate appropriate housing and to administer leases for other military elements in Tehran, including fifteen for personnel attached to ARMISH-MAAG.⁸⁴

The district also provided very modest—some said "shabby"—wrought-iron furniture and household appliances for employees and set a relatively low weight limit for household goods shipped from the United States at government expense. The district did, however, pay the costs of storing the household goods left behind. Early in 1962, Colonel Nauman discontinued the practice of paying storage fees on behalf of new appointees. The change struck some as unfair, in part because American civilians employed by other American governmental agencies in Iran had even more privileges than the civilians working for the Corps of Engineers.⁸⁵

Despite the declining workload, reductions in staff, and cutbacks in benefits, many Americans enjoyed living in Tehran and working in the Gulf District. In 1962 and 1963, the Castle Club built a large swimming pool, a children's wading pool, two tennis courts, and a baseball park. The district welcomed all Corps personnel in Tehran to their social activities, including, for example, Lt. Col. Roy Kackley, the Army engineer assigned to GENMISH (Iranian Gendarmerie), and members of the Topographical Battalion. (Later in his career, Kackley would serve as division engineer for the Mediterranean Division.) Even the Iranian contractors could participate as associate members of the Castle Club, giving them the chance

⁸² Ibid.

⁸³ Interv, Moorhus with Robert E. Hall, 24 Mar 95, pp. 3, 9–10, 12. Hall arrived in Tehran in the summer of 1962.

⁸⁴ Data for Wilson, p. 18; Intervs, Moorhus with Hall, 24 Mar 95, pp. 9–10, 12, and with Grosz, 19 Mar 96, pp. 8–10.

⁸⁵ MFR, Lt Col John A. Hughes Jr., 3 Mar 62, sub: Discussions with Division Engineer, p. 1, Household Goods, box 51-83-8376, Farrell Papers; Interv, Moorhus with Hall, 24 Mar 95, p. 11; "History of the [Gulf] District, March 1956–June 1965," pp. 14–15.

to enjoy potluck suppers, bingo games, community theater productions, and theme parties.⁸⁶

The district continued to implement cost-cutting measures, but a study of the Gulf District that Colonel Nauman commissioned in the spring of 1963 concluded that the division could supervise all construction in the district's area of operations from Livorno at a considerable savings. On 30 June 1964, the Mediterranean Division took over most of the Gulf District's accounting functions. By 31 July, the district's workforce dropped to 278, less than 35 percent of what it had been in 1961. In keeping with "directives from higher authority" to use American personnel "to the widest extent possible," most of the reductions were in the ranks of the Iranians and the third-country nationals. Some personnel transferred to the division, including the executive assistant, Robert Hall, who moved to Livorno in October 1964.⁸⁷

The value of construction placement in the district continued to drop, from \$47.5 million in 1961, to \$25 million in 1963, to \$18.98 million in 1964. For 1965, the Gulf District anticipated a second year of construction placement below \$20 million. When the Army Audit Agency examined the district's operations in June 1965 and identified \$2 million in operating costs for the coming year, it renewed an earlier recommendation to deactivate the district.⁸⁸

In August 1965, the division assumed contracting authority from the Gulf District engineer, Col. John M. Frassrand, who then moved to Livorno as assistant division engineer. A new district engineer, Lt. Col. Philip T. Boerger, arrived that month in Tehran. In November, the Mediterranean Division took over the remaining finance and accounting operations, leaving the Gulf District to operate more as an area office. Still, as the division had done in Morocco and in Libya in earlier years, it maintained the district title for its office in Tehran to preserve continuity in relations with the host government and with other U.S. government agencies there. As of 1 April 1966, the division redesignated its offices in Pakistan and in Afghanistan as area offices reporting directly to the division.⁸⁹

In its final years, the office in Tehran continued to supervise a modest amount of work in Iran. Most of the work involved small projects or continuation of contracts awarded in earlier years. Project SPELLOUT, a classified project for the U.S. Air Force

⁸⁶ "History of the [Gulf] District, March 1956–June 1965," pp. 14–15; Intervs, Moorhus with Grosz, 19 Mar 96, pp. 12–16, and Alperin and Nilson with Boerger, 19–20 Jul 82, 9–10 May 83, p. 119; "History of the [Gulf] District, March 1956–June 1965," p. 14.

⁸⁷ "Feasibility Study: Deactivation of Gulf District," 19 Apr 63, passim; Memo, Stuart E. Wagman, 5 Jun 64, sub: Consolidation of Comptroller and Related Functions, unmarked box, OH, HQ USACE; Data for Wilson, pp. 18–19; Mediterranean Div Staff Mtg Min, 20 Oct 64, Som-29, TAD-RHA.

⁸⁸ Mediterranean Div, Army Audit Rpt, EU-65-43, 30 Jun 65, box 23, access. no. 77-92-0002, WNRC.

⁸⁹ Mediterranean Div Staff Mtg Min, 1, 18 Jun 65, Som-29, TAD-RHA; Chaffin to Wilson, 12 Jan 65, Mil Files XXI-3-4, OH, HQ USACE; Chaffin to Lt Col Peter T. Boerger, 28 Jan 66, box 682798, RG 77, access. no. 77-004, Bayonne FRC; Memo, Chaffin, 19 Jan 66, sub: Organization to Accomplish Construction in Afghanistan, Iran and Pakistan, pp. 1–3, box 682798, RG 77, access. no. 77-004, Bayonne FRC; Chaffin to Cassidy, 28 Sep 65; Mediterranean Div Staff Mtg Min, 3 Nov, 20 Dec 65, Som-29, TAD-RHA.

at several sites in Iran, called for the Corps of Engineers to furnish field inspection of construction activity in 1966; the work was completed in the spring of 1967. Between February 1966 and August 1967, the district oversaw construction of twenty-seven so-called “civic action schools” for the Iranian armed forces. Located at or near military garrisons and close to villages with inadequate school facilities, these schools used the same design in all but one case. The total project, with a value of \$1.5 million, was funded with Iranian rials.⁹⁰

The district saw an unusual new project to completion between July 1966 and May 1967: the drilling of a 10,000-foot-deep “well” for the U.S. Air Force in the shah of Iran’s private game preserve, a location that ensured extremely limited access to the site. The contractor, Southeastern Drilling Company of Texas, had trouble keeping the bore hole within the strict specifications of the contract. The contract value was \$1.2 million, and veterans of the Gulf District remember the project as distinctive. When completed, the well contained seismic equipment for the detection of nuclear testing in the Soviet Union.⁹¹

Neither the drilling project nor the remaining construction work altered the reduction of the Gulf District’s role. The district staff had 246 employees on 30 June 1965; by the following June, it had just 71; by June 1967, only 27 persons remained on staff. On 30 September 1968, the district closed officially, but it had played only a minor role in the division’s operations for many months before that.⁹²

During the Gulf District’s years of service, it placed approximately \$170 million of construction in Iran, including four large airfield projects, at scores of sites. Most of the work came under the Military Assistance Program. In addition, the district had taken over work in Pakistan, Burma, and Saudi Arabia and had initiated the construction in Afghanistan.⁹³ The Gulf District had remained active for over thirteen years, longer than any other district in the history of the Mediterranean Division.

⁹⁰ Mediterranean Div Staff Mtg Min, 1 Jun, 20 Oct 65, unmarked box, and 7 Mar 67, 10 Jul 67, box 51-83-8379, Farrell Papers, all in OH, HQ USACE; “History of the [Gulf] District, Supplement History Covering Period July 1965 to September 1968,” 6 Nov 68, p. 4, Paul Wheeler Papers, R&D File 2475, Transatlantic Programs Center, Winchester, Va. (hereafter cited as Gulf Dist Supplement Hist, 1965–1968); Mediterranean Div Staff Mtg Min, 8 Feb, 1 Mar 66, Som-29, TAD-RHA; Chaffin to Cassidy, 9 Mar 66.

⁹¹ Gulf Dist Supplement Hist, 1965–1968, p. 4. Intervs, Moorhus with Wheeler, 31 May 95, pp. 14–15; Baldwin with Cameron, 27–29 Mar 89, pp. 455–56; Grathwol with Jack Baylor, 22 Jun 95, pp. 30–31; Alperin and Nilson with Boerger, 19–20 Jul 82, 9–10 May 83, p. 118.

⁹² Gulf Dist Supplement Hist, 1965–1968, p. 1; “Visit of Chief of Engineers to Gulf District,” Apr 67, p. 3, box 22, access. no. 77-92-0002, WNRC.

⁹³ Gulf Dist Supplement Hist, 1965–1968, p. 7.

7

THE MEDITERRANEAN DIVISION 1961–1966

Reorganization of the Mediterranean Division headquarters in Livorno accompanied the closing of the two districts in 1960: the Southern District in August and the Trans-East District at the end of December. The Mediterranean Division became once again an operating division that simultaneously managed projects directly in the Southern District's area of responsibility as well as the activities of the Gulf District. From headquarters, the division continued projects in the NATO countries of southern Europe and northeastern Africa. In addition, as the decade progressed, the division became increasingly involved in Saudi Arabia.

Initially, the district closings meant retrenchment for the division. The consolidation of staffs of the Southern District and division headquarters eliminated forty-three positions held by Department of the Army civilians and twelve filled by local national employees. The division retained office space in the Palazzo Grande and the Corallo Hotel in downtown Livorno, although division leaders released one floor of the hotel to reduce rent. The consolidation involved the expected tensions of merging staffs. For the most part, division personnel outranked their district counterparts and retained the best positions. The perception persisted that those from the Southern District, especially the holdovers from the years of the Joint Construction Agency, did not fully understand Corps of Engineers procedures and had to "learn our ways." The decision to maintain staff in two locations hampered the development of a harmonious, cohesive staff.¹

Three commanders served the Mediterranean Division between 1961 and 1966. Colonel Nauman, who replaced General Shuler in September 1960, served until the summer of 1963, when Col. Andrew D. "Dave" Chaffin arrived in Livorno. Chaffin had commanded the Middle East District in Tripoli between 1953 and 1955 and at the end of that tour had become district engineer for the newly formed Trans-East District. Col. Harry F. Cameron Jr., who arrived in March 1966 to succeed Chaffin, had commanded the Gulf District from August 1960 to June 1962.

To cover work taken over from the Southern District, the division created a new element, the Mediterranean Division Operating Area, as a subdivision of its technical staff. A colonel with the new title of assistant division engineer headed Mediterranean Operations, as this quasi-district became known. The creation of the Office of the

¹ Brig Gen William R. Shuler to Lt Gen Emerson C. Itschner, 20 Aug 60, Mil Files XXI-3-1, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.; Interv, Moorhus with W. Justin Long, 14 Mar 95, pp. 11, 14–15.

Assistant Division Engineer separated responsibility for operations from supervision and allowed the division engineer to focus on the full range of the division's activities. The assistant division engineer exercised contracting authority, supported by the construction and supply staffs formerly attached to the Southern District. Working out of the Corallo Hotel as the Southern District had, Mediterranean Operations opened and supervised area, resident, and project offices in Italy, Greece, Turkey, Malta, Libya, Eritrea, Ethiopia, Somalia, and Saudi Arabia. Many of the projects supervised by the assistant division engineer had lower dollar values but were important because they involved the introduction of new technologies and the installation of new weapon systems.²

In 1962, the division shifted the Office of the Assistant Division Engineer and Mediterranean Operations to the staff of the Executive Office and merged all construction and engineering functions into its Engineering Division, thereby eliminating a separate Construction Division. This reorganization reflected the Mediterranean Division's concern over its declining workload. In April 1962, the division calculated that during the subsequent eighteen months it would have design work for construction projects valued at an estimated \$80 million. By October, few new projects had materialized and several projects had been postponed; thus, the division reduced its estimate to \$45 million. Bringing the assistant division engineer into the Executive Office and reorganizing construction and engineering functions allowed the division to eliminate thirty-four positions held by Department of the Army civilians and thirteen held by local nationals.³

Programs Under Mediterranean Division Management

The Mediterranean Division directly managed two major programs, a communications network called Troposcatter and a housing program for American military families called USAHOME. Both programs had construction sites in several countries, and both evinced a growing concern among government leaders over the outflow of American gold reserves as a result of the overall deficit in the U.S. balance of payments.

That imbalance in international payments came about because of the unique status of the United States after World War II, when it was the only nation with the financial strength to underwrite international trade and exchange. As a result, the dollar became the dominant currency in the world economy. Between 1945 and 1960, the United States had spent freely abroad to develop commerce and mutual defense. By 1960, the nation's leaders became concerned because foreign holders of these expatriated dollars were redeeming them for gold from the U.S. Treasury, reducing American gold reserves and threatening the stability of the dollar. To

² Interv, Moorhus with Long, 14 Mar 95, p. 14; Nauman to Itschner, 7 Oct 60, p. 2, and 9 Dec 60, pp. 3, 9, both in Mil Files XXI-3-1, OH, HQ USACE; Mediterranean Div, "Informational Brochure for OCE Command Inspection," 20 Nov 70, p. 1, box 18, access. no. 77-92-0001, Washington National Records Center (WNRC), Suitland, Md.

³ For this and the preceding paragraph, see Nauman to Wilson, 2 Apr 62, 10 Oct 62, 31 Dec 62, all in Mil Files XXI-3-2, OH, HQ USACE.



Malta resident office, ca. 1968

limit the exodus of dollars, the Eisenhower administration and Congress imposed regulations on military spending overseas and encouraged the Department of Defense to use American products wherever possible. Both *Troposcatter* and *USAHOME* reflect these new regulations.

Troposcatter

Troposcatter is a shorthand description of the scientific basis for the communications systems that were developed, designed, and funded under several names. All of the systems (EUR-MED, Ace-High, Big Rally, STARCOM, MEDCOM, 486L, and STRATCOM) used a layer of the earth's atmosphere to reflect communications signals to a point beyond the horizon. Creating a system comprised of several transmitting and receiving sites allowed signals to relay from point to point, thus extending communication over long distances. The high-frequency Troposcatter system, which provided more than 90 percent reliability, was developed to ensure the integrity of communications between U.S. military commands and American and NATO bases armed with nuclear weapons from Norway to Turkey.⁴

⁴ The description of the Troposcatter system is distilled from "History of TUSEG, 1958–1965," [ca. 31 Dec 65], R&D file 1134, Transatlantic Programs Center (TAC), Winchester, Va.; Intervs, Moorhus with Richard Wiles, 21 Oct 93, 7 Feb, 5 May 94, pp. 49–50; with Adrian Hromiak, 6 Feb

To serve the Mediterranean, a transmitter site in Spain passed signals to the islands of Mallorca; to Sardinia; to a site at Coltano, Italy; to two sites down the axis of Italy (Avelino and Martina Franca); and on to Greece and Turkey. From the principal sites along this trunk (also called the backbone), which included about a dozen installations, the signal could be distributed to substations at military installations in each country. In all, the Troposcatter program's design called for over sixty sites throughout the Mediterranean. The Mediterranean Division supervised the construction at all sites except those in Spain.⁵

Elevation above sea level helped the transmission of the communications signals, so the site selectors looked for mountaintops. The isolated nature of the remote mountain locations usually meant constructing an access road over difficult terrain. Structures at each site consisted of two or four large parabolic billboard antennas of sixty to one hundred twenty square feet, a power plant, an operations building with the electronic equipment to receive and retransmit the signals, housing and administrative accommodations for the personnel staffing the site, and supporting utilities.⁶

In the summer of 1960, the division received directives to design the Troposcatter facilities as semipermanent installations and assigned Richard Wiles as project manager for design.⁷ Appropriate sites proved difficult to locate and land difficult to obtain in both Italy and Greece, so site surveys did not begin until late summer 1961.⁸ Additional delays arose because the U.S. Air Forces in Europe, the agency providing design criteria for many sites, repeatedly failed to meet deadlines for furnishing the information to the Mediterranean Division. The division awarded the first construction contracts during the summer of 1963, but the Air Force continued to submit design changes throughout that year.⁹

To conform to the directives from Washington relating to gold outflow, designs for the Troposcatter facilities incorporated prefabricated structures built in the

95, pp. 2, 4, 6; with Paul Friesch, 22 Aug 89, pp. 14–15; with Arthur Textor, 1 Feb 90, pp. 2–4. See also Office of the Chief of Engineers (OCE), "Annual Historical Summary, 1 July 1962–30 June 1963," p. 32; "1 July 1963–30 June 1964," p. 28; "1 July 1965–30 June 1966," p. 36; all in Gen Files 5-4, OH, HQ USACE.

⁵ For a detailed list of proposed sites, see Federal Electric Corporation, "EUR-MED Tropo System: Initial Plan for Implementation," 1 Jul 61, box 51-83-8376, Richard T. Farrell Papers, OH, HQ USACE; Directorate of Wideband Communications, Ofc of the Dep for Communications Systems, HQ, Electronic Systems Div, Air Force Systems Command, U.S. Air Force, Program Status Rpt, 486L-MEDCOM System, 1 Dec 63, p. iii, passim, box 51-83-8376, Farrell Papers (hereafter cited as Program Status Rpt-MEDCOM).

⁶ OCE, "Annual Historical Summary, 1 July 1965–30 June 1966," p. 36; Intervs, Moorhus with Hromiak, 6 Feb 95, p. 4, and with Wiles, 21 Oct 93, 7 Feb, 5 May 94, pp. 49–50.

⁷ DF, Renshaw, 4 Nov 60, sub: ACAN [Scatter] Facilities, unmarked box, OH, HQ USACE.

⁸ Federal Electric Corporation, "EUR-MED Tropo System: Initial Plan for Implementation," 1 Jul 61, p. 4; OCE, "Annual Historical Summary, 1 July 1962–30 June 1963," p. 32.

⁹ Nauman to Wilson, 3 Jan, 2 Apr 62; Wilson to Nauman, 17 Apr 62; Nauman to Wilson, 6 Jul 62; Wilson to Nauman, 18 Jul 62; all in Mil Files XXI-3-2, OH, HQ USACE. Nauman to Wilson, 3 Apr 63; Chaffin to Wilson, 27 Sep 63. MacDonnell, Comments on Chaffin Letter, 27 Sep, 18 Oct 63, both in Mil Files XXI-3-3, OH, HQ USACE.

United States and shipped to the overseas sites. Plans also specified American generators and switching gear for the communications system rather than similar equipment available in foreign markets. Unfortunately, the American generators purchased initially were not sufficiently reliable to meet the rigorous criteria for the communications system; correcting the deficiencies created further delays in completing the sites.¹⁰

By the summer of 1964, the Mediterranean Division had completed construction on 3 sites, begun construction on 6 sites, completed design on 5 sites, and started design on 42 sites but lacked sufficient information to begin design on 12 sites. Over the next year, the Troposcatter program advanced markedly; only two sites still lacked design criteria. Although problems with the generators and a dock strike in the United States contributed to the overall slippage in construction, the division expected to complete ten sites in Greece and Turkey by October 1965. By June 1966, the division had substantially completed all sites in Italy and Greece and had only minor corrections to make on most of the eleven sites in Turkey. Between 1968 and 1970, the division extended the Troposcatter system to Wheelus Air Base in Libya via Malta. As the 1960s ended, the entire system was being overtaken by new technology and construction on the communications network ceased.¹¹

Because of the many sites involved, figures for the cost of the Troposcatter construction are fragmentary; but through the end of FY 1966, the system in the Mediterranean region alone had cost \$14.8 million. Roughly a third of that had been spent in the United States on prefabricated buildings and diesel-fueled generators.¹²

As part of another communications program in the early 1960s, the Mediterranean Division constructed facilities at Matratin, Libya; Catanzaro, Italy; and Targabarun, Turkey, for the U.S. Coast Guard. The installations formed part of a long-range navigation (LORAN) system that used transmission stations situated at precise geographic coordinates to broadcast very-low-frequency radio signals. Aircraft or ships with receiving units could pick up the signal and calculate their position in relation to the source station as an exact reference point. Construction for the LORAN stations consisted of the power and signal buildings, barracks for the troops manning the station, recreation buildings, and high towers for the antennae.¹³

¹⁰ Nauman to Wilson, 31 Dec 62; Program Status Rpt–MEDCOM, p. 2.

¹¹ Chaffin to Clarke, 30 Jun 64; Chaffin to Wilson, 8 Jul, 2 Oct 64; all in box 36, access. no. 77-92-0001, WNRC. Chaffin to Lt Gen W. F. Cassidy, 15 Jul, 28 Sep 65, Mil Files XII-3-4; Chaffin to Cassidy, 9 Mar, 8 Jun 66, Mil Files XII-3-5; all in OH, HQ USACE. TUSEG Hist, 1958–1965; “Chronological Construction History by Country: Malta,” n.d., box 24, access. no. 77-92-0002, WNRC; Interv, Moorhus with Hromiak, 6 Feb 95, p. 6.

¹² OCE, “Annual Historical Summary, 1 July 1965–30 June 1966,” p. 36, and “1 July 1962–30 June 1963,” p. 32.

¹³ Excerpt from “Engineer Division Mediterranean: Information Booklet,” 15 Aug 59, unmarked box, Farrell Papers; “Part V—Middle East Area Office,” p. 19, access. no. 77-92-0001, box 35, WNRC; “Chronological Construction History by Country,” n.d. [list runs to June 1970], box 35, access. no. 77-92-0001, WNRC; Interv, Moorhus with Wiles, 21 Oct 93, 7 Feb, 5 May 94, p. 58;



Part of the construction of the Troposcatter system on Malta, slabs upon which power equipment will be installed, May 1968

USAHOME

The attention in Washington to limiting the United States' depletion of its gold reserves influenced the purchase of American generators for the Troposcatter program. The same concern virtually created the USAHOME program. Housing to accommodate military families overseas had been a significant part of the Corps of Engineers' construction program during World War II; but in the 1960s, the funding basis for housing changed.

A USAHOME was a factory-made, prefinished, packaged house designed for use by American military families overseas. The program originated in July 1962 based on a recommendation from a study by the secretary of defense's Family Housing Office on how to reduce gold outflow while still providing good housing to American military personnel serving outside the United States. The housing office recommended a two-story structure designed so that several units could be linked together where land was scarce. The Department of Defense initially assigned design of the prefabricated housing units to the Air Force, which had experience

TUSEG Hist, 1958–1965. See also A. Binion Amerson Jr., "The Coral Carrier," *Military Engineer* (January-February 1972): 33–35.



Troposcatter Site 20-A, Brindisi, Italy, 26 March 1965

with relocatable housing. By mandate, all construction of the modular elements took place in the United States. Local contractors in the host nations prepared the housing site, poured the concrete slab, and fitted the modules together to complete the building.¹⁴

From the beginning, the USAHOME program encountered problems. In field tests at Eglin Air Force Base, Florida, the prototype of the initial design failed to fit together properly. In the spring of 1963, the Army Corps of Engineers received the assignment to take over the program from the Air Force and to procure and ship five hundred ten prefabricated homes for installation abroad as a part of the housing program for FY 1963. In September, the Corps awarded a contract for design and manufacture of FY 1963 USAHOME units; but the new contractor, Home Manufacturing Corporation of Sedalia, Missouri, also failed to produce a satisfactory prototype. Faced with cancellation of the contract, Home Manufacturing found a subcontractor in Tucson, Arizona, Lusk Corporation, which presented an acceptable prototype in March 1964. Lusk began producing the buildings in May,

¹⁴ For the historical sketch of the program contained in this and subsequent paragraphs, see “USA-HOME [Bfg for Vice Chief of Staff of the Army],” [Jul 65], Mil Files XXI-2-4, OH, HQ USACE. For the date, see Cassidy to Chaffin, 29 Jul 65, Mil Files, XXI-3-4, OH, HQ USACE. See also E. P. Yates, “USAHOME,” *Military Engineer* (November-December 1965): 415–16; J. Robert Newman, “Overseas Housing Strategies,” *Military Engineer* (September 1984): 392–93.



Monitor station for long-range navigation at Cagliari, Italy, February 1962

but the company badly underestimated the plant capacity needed to build thirty housing units a week as the contract stipulated. Even after leasing another building and doubling production, Lusk could not produce more than eighteen units a week. It was May 1965 before the contractor completed all units stipulated in the contract for FY 1963.

The USAHOME program for FY 1964 fared little better. The contract, awarded to Knox Homes of Georgia, called for one thousand three hundred fifty units; but the goal per week was reduced. The first prototype of the Knox design, erected in November 1964, proved unacceptable. Knox got help from its parent company, National Homes of Lafayette, Indiana, to refine its design and expand its plant capacity. The contractor produced a satisfactory prototype the following February, but orderly production began only in May—twenty-two weeks behind the schedule set in the contract.

The design and production problems encountered in the United States tell only half the story: the USAHOME program faced as many problems in the field. In October 1962, the Mediterranean Division began developing its plan to install 282 units at locations in Italy, Eritrea, Turkey, and Pakistan. The American construction agreement with the Italian government, however, required “local,” i.e., Italian, procurement. In February 1963, the division obtained a waiver for one installation where USAHOME houses represented only 12 percent of the total cost of construction; but the waiver admonished the division to observe in the future the restriction in

the bilateral agreement “which does not sanction the use of prefabricated buildings made in America.” Nine months later, the Italian Foreign Office approved the use of prefabricated housing units provided that only Italian firms bid on contracts to prepare the sites and to erect the units.¹⁵

In November 1964, the Mediterranean Division finally awarded a contract to assemble a prototype of a USAHOME on site in San Vito, Italy. The division issued several cost-plus-fixed-fee contracts to build eight USAHOME models with the different floor plans. The Italian workmen’s lack of experience with prefabricated structures slowed both the preparation of the site and actual assembly of the unit. As subsequent prototypes went up and actual costs could be determined, division personnel realized they had insufficient funds for the installation. In June 1965, money finally became available to award the contract to erect the ninety-two additional homes at San Vito.¹⁶

The division experienced similar problems in implementing the USAHOME program in Asmara, Eritrea, and at two sites in Turkey. In Asmara, the division began assembling eight prototypes under cost-plus-fixed-fee contracts late in June 1965. The contractor preparing the foundations had trouble finding cement and steel, which led to delays; but in the autumn of 1965, the division awarded a contract for the fifty-two units remaining from the FY 1963 program.¹⁷

In July 1965, the incoming chief of engineers, Lt. Gen. William F. Cassidy, briefed the vice chief of staff of the Army on USAHOME and found him “not particularly impressed by the magnitude of our problems.” General Cassidy let his Mediterranean Division commander know that the Corps of Engineers faced sharp criticism “at the highest level, within the Army and by the Air Force, and in OSD [the Office of the Secretary of Defense] on the basis of simple facts: The program was assigned to us in April 1963 and we have yet to produce a unit which we can turn over to a military family for its use.”¹⁸

By June 1966, all of the FY 1963 units at San Vito had been completed and transferred, as had fifty-four of the units at Asmara. In Karamursel, Turkey, only twenty-two out of two hundred units had been completed because of indecision by the Air Force regarding the layout of the housing complex and the late arrival of the prefabricated panels. A contract for another eighty-four units at Golbasi (near Ankara) had just been awarded. Nine months later, in March 1967, the division began design on the layout of one hundred eighty housing units at Iraklion, Crete.

¹⁵ Nauman to Wilson, 31 Dec 62, p. 4, Mil Files XXI-3-2; Nauman to Wilson, 14, 29 Jan 63, Mil Files XXI-3-3; all in OH, HQ USACE. “Site I-5 [Italy] Housing, USAHOME, Chronological Table of Events,” 11 Aug 65, box 24, access. no. 77-92-0002, WNRC (hereafter cited as Italy USAHOME Chronology). Quotation from Memo, Lt Col G. Santone, 23 Feb 63, sub: Construction Work at San Vito dei Romanni, Mil Files XXI-3-3, OH, HQ USACE.

¹⁶ Maj Gen R. G. MacDonnell to Chaffin, 20 Oct 64, box 36, access. no. 77-92-0001, WNRC; Chaffin to Wilson, 12 Jan 65; Chaffin to Wilson, 14 Apr 65, Mil Files XXI-2-4, OH, HQ USACE; Chaffin to Cassidy, 15 Jul 65, Mil Files XXI-3-4, OH, HQ USACE; Italy USAHOME Chronology, pp. 6–8.

¹⁷ Chaffin to Cassidy, 15 Jul, 28 Sep 65, Mil Files XXI-3-4, OH, HQ USACE.

¹⁸ Cassidy to Chaffin, 29 Jul 65.



USAHOMEs constructed in Asmara, 1967

From this point on, work on the USAHOME units in the Mediterranean region progressed satisfactorily.¹⁹

The idea of a prefabricated housing unit that could be installed and assembled anywhere in the world was always better than its realization. The failed prototypes in 1963 and 1964, the inability to meet DoD-mandated production schedules, the barriers presented by bilateral construction agreements, and the difficulties in finding workers skilled enough to prepare the foundations for the prefabricated structures all illustrate the practical problems that limited the program's effectiveness. Complications arose when schedules slipped on both sides of the Atlantic. By the time construction began in some areas, modules for the prefabricated homes had been in open storage for nearly a year. Since crating was insufficient to protect the pieces from damage by the elements, the new homes needed repairs immediately.²⁰

The Department of Defense installed homes under the same program in Japan, Ireland, Scotland, Alaska, Labrador, Spain, and the Philippines. The single standard model failed to stand up to local conditions in such disparate locations.²¹ In addition,

¹⁹ Cameron to Cassidy, 8 Jun 66, to Brig Gen J. C. Dalrymple, OCE, 26 Jul 66, to Cassidy, 6 Sep 66, all in Mil Files XXI-3-5; Cameron to Cassidy, 3 Mar 67, Mil Files XXI-3-6; all in OH, HQ USACE.

²⁰ Mediterranean Div Response to Army Audit Rpt, EU-65-43, 30 Jun 65, box 23, access. no. 77-92-0002, WNRC.

²¹ MFR, Clarke, 29 May 67, sub: Visit to Mediterranean Division, 16–28 May 1967, Mil Files XII-37-1, OH, HQ USACE.



USAHOME apartment construction in Brindisi, March 1965

from the outset, the Department of Defense had projected that the USAHOME program would increase overall production costs from 10 to 15 percent when compared to on-site construction of conventional masonry-and-frame housing. The program did meet its major objective—to retain expenditures for design and major construction in the United States—but the Department of Defense abandoned the USAHOME program in 1965 and authorized conventional on-site construction for subsequent housing at overseas bases.²²

Support for NATO's Southern Flank

In addition to administering multinational construction programs, the Mediterranean Division supported the U.S. military presence on Europe's southern tier. Some construction programs expanded the technical capabilities of the American armed forces and their NATO allies, while others provided for the welfare of the dependent communities in Italy, Greece, and Turkey. The assistant division engineer for Mediterranean operations carried responsibility for field offices in both southern Europe and North Africa.

Day-to-day construction for the Mediterranean Division in Italy involved airfields, communications sites, and troop and family housing. Occasionally, the division had an opportunity to set aside considerations of military effectiveness and to focus on

²² Newman, "Overseas Housing Strategies," pp. 392–93.

elements of community morale and aesthetics. This was the case in northern Italy near Venice, where the division supervised construction of a chapel for the military community at Aviano Air Base. Using local materials, the Army engineers built an interdenominational house of worship at less cost—but greater beauty—than if the builders had used the standard plans for a military chapel. The architectural firm, Pedersen and Tilney, used the Air Force chapel specifications as general guidelines but extensively incorporated local brick, terrazzo tile, and marble.²³

The contractor used a milk-white Carrara marble for the entrance area to the chapel. The terrazzo tile of the chapel nave, with marble chips of a type called Carrara Flower of Peach, created a violet-white tone on the chapel floor. Designers gave particular attention to the altar in the sanctuary, using a marble called “Rosa Aurora” ground to a high polish. Chaplains of several denominations participated with the resident engineer, the contractor, and the marble vendor to select a piece of marble with a symmetrical pattern of veining that rose diagonally to an imaginary apex at the center of the altar, focusing visual attention on sacred symbols, texts, and the presiding minister. The vertical faces of the altar steps were adorned with black Carrara marble lightly veined with gold and white. A bronze Bari marble with red veins covered the floor surfaces of the steps around the altar.

Italian stained glass, the end product of centuries of craftsmanship, filtered the light through cathedral windows designed in geometric patterns that took advantage of all five colors available: light amber, dark amber, purple, green, and light blue. After studying the natural light, designers determined that the altar would receive stronger light from the east side, so they used the two tones of amber glass, darker on the bright side, lighter on the opposite side. The choice balanced the play and intensity of light falling on the altar.

Through careful use of readily available local materials, the Army engineers and the Italian contractor, Geometer Luigi Salvi, created a striking place of worship for the Air Force community’s multiple denominations. Features that would be considered extravagant in another location in fact saved 35 percent per square foot over the cost of using standard materials for a chapel in the United States.

In Greece, construction for U.S. forces constituted a part of the Mediterranean Division’s work; but the division also designed and constructed for the Greek Army a modern training center, airfield facilities, and maintenance and repair shops. In September 1964, as the real estate for Troposcatter sites and housing became available and the pace of construction quickened, the division changed the status of its offices in Iraklion, Levkas, and Pateras from project offices to resident offices assigned to the Greece Area Office. The contracts were small, and the area office numbered just thirteen people in August 1965. By the summer of 1966, the work was again declining. Problems in acquiring real estate delayed construction of housing at Iraklion until late in the decade.²⁴

²³ Jay P. Dawley, “Aviano Chapel,” *Military Engineer* (March–April 1965): 105–07. Dawley was the assistant division engineer for Mediterranean operations in 1962–1963.

²⁴ “Chronological History of the Mediterranean Division,” n.d., pp. 10, 18; Mediterranean Div, General Orders (GO) no. 13, 25 Sep 64; both in box 24, access. no. 77-92-0001, WNRC. “Greece



Airmen's dormitory under construction at Cigli Air Base, December 1961

In Turkey, between 1960 and 1966, the Mediterranean Division managed over eighty contracts on a variety of projects, many of them classified. Less than 20 percent of the contracts involved construction of more than \$1 million; 43 percent of the contracts were under \$100,000 each.²⁵

The Izmir field office of The U.S. Engineer Group supervised four large projects priced between \$1.3 million and \$12.1 million each. All four contracts awarded in the early 1960s involved work at Cigli Air Base, used by NATO and U.S. Air Force units. Installing Jupiter missiles accounted for much of the construction; but the expansion of Cigli to accommodate the Jupiter missiles ceased when the U.S. government, as part of the settlement of the Cuban Missile Crisis, stopped the missile program in Turkey in April 1963.²⁶

From the TUSEG Area Office in Ankara, the division continued throughout the 1960s to supervise construction through resident offices on the Black Sea, at

Area USAHOME MDD [Mediterranean Division] Visit," 22 Aug 65, box 24, access. no. 77-92-0002, WNRC. Cameron to Cassidy, 6 Sep 66, Mil Files XXI-3-5, and 3 Mar 67, Mil Files XXI-3-6; MFR, Clarke, sub: Visit to Mediterranean Division, 16–28 May 1967, Mil Files XII-37-1; all in OH, HQ USACE.

²⁵ TUSEG Hist, 1958–1965, is a basic document for the next five paragraphs.

²⁶ Nauman to Wilson, 6 Jul 62, Mil Files XXI-3-2, OH, HQ USACE. Intervs, John T. Greenwood with Richard Wiles, 7 Nov 85, p. 2; Moorhus with Hromiak, 6 Feb 94, pp. 4–6; authors with Maj Gen (Ret) Louis W. Prentiss, 14 Sep 90, p. 34.

Karamursel, and at Incirlik, as well as at Izmir. TUSEG followed the internship program for Turkish engineering students of the late 1950s with an additional training program for Turkish graduate engineers between 1962 and 1964 funded by the U.S. Agency for International Development and the Turkish government. The program began with twenty English-speaking graduates from Turkish engineering programs who received ten months of training in Corps field offices. Colonel Nauman attributed the realization of the program to “the enthusiastic and persistent efforts of my TUSEG Area Engineer, Lt. Colonel Jerry G. Capka.”²⁷

Like many of the Mediterranean Division’s field offices, TUSEG remained a challenging environment for Corps personnel, whether American civilian engineers, third-country civilian professionals, or young Army officers. Colonel Capka’s deputy in the area office between 1960 and 1963, Capt. Norman Delbridge, remembered the experience as exhilarating. Delbridge, his wife, and their two-year-old son lived in rented quarters in Ankara. In the winter, the rooms on the upper story of the house stayed at 38°F. To keep warm, Delbridge “always wore a wool hat” and the family moved space heaters from room to room. Mrs. Delbridge learned Turkish, visited with neighbors, and shopped locally. The family babysitter, who studied civil engineering at a local technical university, was excited to find that Delbridge had a book on reinforced concrete written in English. When Delbridge learned the babysitter’s textbook was in German, he gave her his book. Delbridge remembered the mentoring attitude of the senior civilians in the area office, and he relished the wide range of practical field experience he gained in the assignment.²⁸

Civilian personnel of the Corps of Engineers assigned to the provincial offices worked in isolation; but for a young, venturesome man such as Adrian Hromiak, it was exciting. Hromiak, a Polish-born American of Ukrainian extraction, came to the Incirlik Resident Office in November 1964 from the Corps of Engineers’ two-year training program in the Chicago District. Recruited to supervise construction at three Troposcatter sites around Adana, he also worked on runway extensions, ammunition-storage facilities, and barracks. Hromiak found the responsibility far greater than he would have faced in any position in the United States. At the end of his eighteen-month tour, with work in Turkey declining, he accepted a position in Livorno. With the exception of a few years in the private sector, he spent thirty years with the Mediterranean Division and its successor organizations.²⁹

Third-country nationals working in Turkey for the Mediterranean Division also found the environment challenging. Giovanni Trapanese, an Italian citizen born in Spain of an Italian father and a French-English-Australian mother, learned Spanish, English, and French at home and Italian in a Christian Brothers school in Tripoli. He came to work with the Army engineers in December 1951 when the United States Forces Austria (USFA) began to build Camp Darby

²⁷ Nauman to Wilson, 8 Jul 63, Mil Files XXI-3-3, OH, HQ USACE; TUSEG Hist, 1958–1965.

²⁸ Interv, authors with Maj Gen (Ret) Norman G. Delbridge, 14 Feb 91, pp. 1–4, 25–30, 76–77.

²⁹ Interv, Moorhus with Hromiak, 6 Feb 94, pp. 1–6, *passim*.

near the port of Livorno. Trapanese worked successively with USFA, the Joint Construction Agency, and the Mediterranean Division. His first assignment in Turkey was two-month's temporary duty in 1961 at Cigli Air Base on the construction program for the Jupiter missiles. The local engineer commander, Lt. Col. Walter Gelini, asked Trapanese to accept a permanent assignment to the area. Beginning in October 1961, he, his wife, and their growing family spent seven years in Turkey, living and working at Samsun, Trabzon, Sinop, and Karamursel. Colonel Capka made sure that the division plane took baby supplies from the commissary in Ankara to the Trapanese family in remote areas on its normal monthly flight.³⁰

Continuing Work in Northern Africa

The Mediterranean Division continued work in Morocco and Libya throughout the 1960s, but the region became increasingly volatile as the politics of Arab nationalism began to impinge on the U.S. military presence. In Morocco, the U.S. Air Force withdrew from Nouasser, its last base, in December 1963 under terms of an agreement signed several years earlier by President Eisenhower.³¹

In Libya, the division's Middle East Area Office in Tripoli supervised relatively minor construction during the early 1960s, including some at Matratin and Marble Arch; but Wheelus Air Base remained the focus of most of the activity. The contract to build the Al Mellaha Road between Tripoli and Wheelus was awarded in June 1960, and work progressed through 1961 with a familiar array of delays: protests from property owners, late submission of cement samples by the contractor, breakdowns of equipment, and difficulties with compaction of the roadbed. In May 1962, the road was close enough to completion that it could be presented as a gift from the American people to the Libyan government. The following September, with no new work in sight, the division closed the Middle East Area Office. The division's Mediterranean Operations Branch supervised the remaining work in Libya directly from headquarters in Livorno.³²

By the time the United States presented the Al Mellaha Road to the Libyan government, the tenor of American relations in North Africa was changing. In February 1963, just months after the presentation ceremony, Egypt's president, Gamal Abdel Nasser, launched a propaganda attack against the British and American military installations in Libya. As leader of the secular Arab nationalist movement, Nasser denounced the Western presence as a carryover from colonial domination and as an infringement of Arab sovereignty and independence. Nasser's rhetoric struck

³⁰ Interv, authors with Giovanni Trapanese, 9 Jun 94, pp. 6–7.

³¹ "Chronological History of the Mediterranean Division," n.d., p. 6.

³² "MDD Internal Organizational Changes" [handwritten chronology, Aug 58–Jan 71, with GO numbers], n.d., p. 2, GO no. 6, 16 Sep 62, box 24, access. no. 77-92-0002, WNRC; "Chronological Construction History by Country: Libya," n.d. [list runs to June 1970], p. 3, box 35, access. no. 77-92-0001, WNRC; "Mediterranean Division, Corps of Engineers, United States Army," [1967], p. 25, unmarked box, Farrell Papers; Ltr, Baylor to authors, 1 Dec 95, p. 13, TAC.

a responsive chord in the Arab world, and the Libyan government reacted to the pressure by publicly demanding that the Western powers remove their bases. To quell the crisis, Libya's pro-Western King Idris threatened to abdicate if the government persisted in its demands. As a compromise, the British and the Americans agreed to review their presence at the bases, even though the agreements with the Libyan government granting them base rights had not expired. The crisis subsided, but it signaled a change in the situation of the United States in Libya.³³

The discovery of oil in Libya liberated the country's government from dependence on the rents paid for the Western military bases. The growing new wealth also provoked an increasing split between the Libyan elite and the common people. Nasser's revolutionary program of Arab socialism appealed to the disaffected populace in Libya and in other Arab countries. This political agitation came as the role of the bases in U.S. strategy was also changing. The development of longer-range bombers and missiles decreased the importance of Wheelus and other North African air bases. Wheelus itself became a staging facility and a training station rather than an essential point on the front line of U.S. defense against the Soviet Union.³⁴

Nonetheless, limited work continued throughout the decade in Libya. One project illustrates some of the unusual conditions faced by Mediterranean Division personnel in their day-to-day work. In 1964, the division dispatched Jack Baylor, chief of the Geology, Soils, and Materials Branch, to Libya to conduct a comprehensive investigation for a proposed airfield at Banghazi. Baylor took a team of four from Livorno to Tripoli, where they secured a truck and a jeep to transport their equipment to the site. Before they could begin their tests of the Banghazi soil's load-bearing properties, they had to call in a crew from the U.S. Air Forces in Europe to conduct a sweep for mines over the area of the proposed access road and a swath three hundred by eleven thousand five hundred feet corresponding to the runway. Even after the team had cleared the area in which Baylor and his crew worked, a "local" bomb squad continued to investigate the surrounding desert. Daily, this team brought in truckloads of mines and bombs, lined them up in rows, and exploded them within sight of the Mediterranean Division's crew. The ordnance represented one of the legacies of the World War II campaigns in the region.³⁵

The Mediterranean Division's presence and work in Asmara, Eritrea, continued into the 1960s. In 1962, Ethiopia incorporated Eritrea as a federated province against the will of Eritrea's parliament, which favored independence. In the short term, this dispute had little direct bearing on the mission of the U.S. Army engineers.

In addition to the Mediterranean Division's work in Eritrea for the Troposcatter system and USAHOME, it also managed construction on a major naval communications facility at Gura, southwest of Asmara. The project for the U.S. Navy started from scratch, so the office in Asmara supervised construction of all facilities: drilling wells for water, installing sewage-disposal and power systems, building residences

³³ John S. Badeau, *The American Approach to the Arab World* (New York: Harper & Row, 1968), p. 117.

³⁴ *Ibid.*

³⁵ Ltr, Baylor to authors, 1 Dec 95, p. 13.



Workmen laying floor tiles in barracks at Asmara

for the Navy personnel, installing transmitters and antenna fields, and erecting a rock wall that delineated the property. Discussions with the Navy and completion of design lasted until mid-May 1964, when the Mediterranean Division awarded a construction contract for the work at Gura for \$3.5 million.³⁶

In mid-1965, the Navy wanted facilities added at Gura on a high-priority basis. Mediterranean Division personnel informed the Navy that their rush schedule could be met only if the division were authorized to negotiate a sole-source contract with

³⁶ OCE, "Annual Historical Summary, 1 July 1963–30 June 1964," p. 38; Chaffin to Wilson, 8 Jul 64, p. 1, box 36, access. no. 77-92-0001, WNRC. The two documents give different totals for the construction contract: \$3.7 million and \$3.3 million, respectively. On the design phase and discussions with the Navy, see Nauman to Wilson, 3 Apr 63, to Clarke, 27 Dec 63, both in Mil Files XXI-3-3, OH, HQ USACE.

Reynolds Construction Company, which was working on the initial contract just two miles from the new site chosen by the Navy. The Mediterranean Division pointed out that such an arrangement would cost about 25 percent more than a competitively bid contract. The Navy chose the fast process, and the Corps and Reynolds negotiated a series of change orders to the company's existing contract to cover the additional work.³⁷ Reynolds also installed a telephone system at Gura between 1965 and 1967. By late summer 1968, construction at the Gura naval communications facility was complete.³⁸

To manage the division's work along Africa's Red Sea Coast, the division created the Southern Area Office in Asmara in September 1962. The area engineer, Maj. Charles I. McGinnis, reported to the assistant division engineer for Mediterranean operations and supervised resident offices in Asmara and in Somalia.³⁹

Given its responsibilities, the Southern Area Office had to take into account the political tensions of the region. Somalia claimed the territory of Ogaden, which had been assigned to Ethiopia during the period of British colonial rule over Somaliland. The territory had a large nomadic Somali population that moved back and forth across the common border between the two countries. Armed hostilities broke out in the spring of 1964, subsided temporarily under a cease-fire negotiated in April, but continued sporadically for the several years thereafter.

The Mediterranean Division continued operating in both countries throughout the tensions, but travel between the two countries had to be scheduled carefully to avoid offending political sensitivities. Major McGinnis, for instance, never traveled in uniform and always routed his trips between Asmara and Somalia through Aden, across the Red Sea, or through Nairobi, Kenya. On forms for entry into either Somalia or Ethiopia, he listed his occupation as "engineer" so that his military status never appeared on any official document. Such complications became routine. In July 1966, as the construction projects begun in the early 1960s neared completion, the division closed the resident office in Asmara and renamed the Southern Area Office the Ethiopia Area Office.⁴⁰

Somalia

In contrast to a long-standing presence in southern Europe and North Africa, the Mediterranean Division first entered Somalia in the 1960s. The Somali program grew

³⁷ Memos, William O. Tatum III, 23 Jun 65, sub: SATCOM Ground Station, Loc 04, Asmara, Ethiopia, and C. B. Rosseau Jr., 23 Jun 65, sub: SATCOM Ground Station, Loc 04, Asmara, Ethiopia, both in box 30, access. no. 77-84-2400, Transatlantic Division-Records Holding Area (TAD-RHA). See also the series of letters concerning change orders addressed to Reynolds between 15 July and 23 August 1965, box 126A of 357, TAD-RHA.

³⁸ Memos and correspondence between the Mediterranean Division and Reynolds Construction Company of Haifa and New York, dtd between Jun 67 and Jan 68, ETH-5, TAD-RHA. "Annual Historical Summary, 1 July 1967-30 June 1968," p. 44, Gen Files 5-8, OH, HQ USACE.

³⁹ "MDD Internal Organizational Changes," n.d., p. 2, GO no. 6, 16 Sep 62.

⁴⁰ Interv, Martin Reuss with Maj Gen Charles I. McGinnis, 5 Nov 79, p. 35; "MDD Internal Organizational Changes," p. 5, MDD GO no. 3, 3 Jul 66, box 24, access. no. 77-92-0002, WNRC.

out of efforts by the State Department's International Cooperation Administration (or ICA, renamed in 1961 the Agency for International Development) to strengthen the economy of Somalia by creating a modern port and supporting facilities at Chisimayu.⁴¹

Somalia lies on the eastern Horn of Africa, which also includes Eritrea and Djibouti (formerly French Somaliland), across the Gulf of Aden from the oil-rich Arabian Peninsula. (*See Map 18.*) The Italians controlled a substantial portion of the territory before World War II but lost it to the British in combat and in the postwar settlement. In 1950, Italian Somaliland became a UN trust territory under Italian control; in 1960, Somalia achieved its independence. At the same time, Great Britain relinquished control of its territory, which joined with the formerly Italian provinces to create the United Republic of Somalia. The drawing of artificial boundaries during the colonial period had left the newly independent Somalia with a legacy of border disputes involving Ethiopia, Kenya, and Djibouti. Moreover, by virtue of the Horn of Africa's strategic situation astride the oil routes through the Red Sea and the Gulf of Aden, the region became another proxy battleground for the Soviet Union and the United States in the Cold War.

As Somalia approached independence in 1959, the United States extended to its government the possibility of economic aid to enhance the new nation's ability to export one of its main crops—bananas. None of Somalia's ports was deep enough to permit direct loading or unloading of ocean transport ships, and the transfer of goods to shallow-water craft increased the costs of trade. To overcome the limits of nature, the United States proposed and the Somali government accepted a plan to deepen the harbor at Chisimayu. Somalia's second largest city in 1960 (about sixteen thousand inhabitants) lies 234 miles south of the Somali capital of Mogadiscio (Mogadishu) and twenty-eight miles south of the equator.

In late October 1959, the ICA asked the Corps of Engineers to investigate the feasibility of improving the Chisimayu harbor, a task that fell to the Mediterranean Division. In December, the division delivered its initial report and suggested that the division could carry out the design "without expensive stateside assistance." The formal written report submitted in January 1960 confirmed that the construction of port facilities at Chisimayu was both technically and economically feasible. The division's suggestion that it could accomplish the design of the port without outside help was the first of many mistakes in the Somalia program; the design of the breakwater, seawalls, and causeways proved much more complicated than the division anticipated.⁴²

⁴¹ The documents generally follow Italian spelling conventions in giving place names. Anglicized spellings are frequently quite different, so both are given here.

⁴² The basic document on this project is "Final Narrative Report, Phase I Port Facilities, Chisimaio, Somali Democratic Republic," Feb 71, Mil Files XII-49-1, OH, HQ USACE (hereafter cited as Final Rpt, Phase I, Chisimaio); Arthur C. Nauman and James L. McCall Jr., "Kisimaio Port," *Military Engineer* (March-April 1963): 114–17; "Chronological History of the Mediterranean Division," n.d., pp. 4–5. For the quoted passage expressing the International Cooperation Administration's (ICA's) positive response to the report, see Itschner to Shuler, 23 Dec 59, Mil Files XXI-2-7, OH, HQ USACE.



Administration and supply buildings at Kagnew Station, August 1968

During 1960, Somali officials remained preoccupied with independence and the unification of the former British and Italian Somalilands into a single country. In April 1961, the ICA and the Corps of Engineers signed an agreement for the construction in Somalia; in May, the Mediterranean Division engineers began the design. The division planned the project in two phases. The initial phase included design of the dock and wharf structure to accommodate four ships simultaneously; design of the dredged approach channel and the turnaround basin; and design of an access way and causeway (partly protected by armor stone) from the city to the port on Serpenti Island in the harbor. The construction of these facilities would take place between 1962 and 1965. Phase II, planned for the second half of the decade, included design and construction of the port's water and power systems, storage structures, transit sheds, shops, and office space with facilities for the port administrative staff.⁴³

Several interviewees attest to the difficulties of design, the shortcomings of the contractor, and the troubled progress of the Somali project.

⁴³ ICA, "Chisimaio Port Development," 15 Mar 61, unmarked box, OH, HQ USACE; Final Rpt, Phase I, Chisimaio, pp. 1–2; "Chronological History of the Mediterranean Division," n.d., pp. 5–6; Memo, Walter F. von Neudegg, [1975], box 51-84-5389, Farrell Papers.



Map 18

Corps engineers, working under informally drawn posters that proclaimed “THINK BANANAS,” completed their designs for Phase I by December 1961; the division issued requests for proposals to nineteen construction contractors. Twelve firms submitted bids, which the division opened in Livorno on 5 March 1962. The division entered into negotiations with the two lowest bidders, but even their bids exceeded the available funds. On 4 May, the division awarded a construction contract for \$6.8 million to Paul Smith Construction Company of Tampa, Florida. The company had worked on Cape Canaveral but had no experience with marine construction and no overseas construction experience.⁴⁴

On 23 August, the Mediterranean Division established a resident office in Chisimayu. On the same day, the Paul Smith Company loaded men and equipment onto two light barges, a crane barge, and two tugboats and set sail from Mombasa, Kenya, to begin operations in Chisimayu. The tow began with the first of many ill-advised decisions—the contractor chose not to hire a local pilot familiar with the region.⁴⁵ The tow reached the waters off Chisimayu in darkness in the early morning hours of 29 August, but the pilot failed to recognize the harbor and sailed by it. Only the next morning, when the tow was more than twenty miles too far north, did the party discover its error. The crew turned the tow about; but the prevailing currents now ran against them, and they progressed very slowly. By nightfall, they were still five miles north of the mouth of the Giuba (Juba) River, with Chisimayu slightly farther to the south. The party anchored for the night. Overnight, wave and wind action broke the anchor cables and all the barges washed aground on the beach. The crew left the barges stranded and the cargo at the mercy of scavengers.⁴⁶ This initial scenario typified the fate of the entire project.

The contractor began on 1 October to build a causeway from the shore of the harbor to Serpenti Island. By 20 November, work had progressed to the point that vehicles could drive to the island; the construction crew relocated its camp there. Because of the beaching of the barges in August, the contractor lacked the heavy equipment necessary to keep the construction of the breakwater on schedule. Replacement barges and a crane finally arrived in February 1963. The rock quarry from which Paul Smith expected to extract armor stone and fill for the breakwater lay at a distance of about twelve miles by land from the worksite but only about four miles by water. The contractor’s plans called for water transport because it was more efficient and less expensive. The delays in replacing the barges meant that the stone had to be moved during one of the region’s semiannual monsoons, when strong winds and currents ran against the direction of the haul. The contractor

⁴⁴ Interv, Moorhus with Robert E. Hall, 24 Mar 95, p. 7; Nauman to Wilson, 3 Jan 62, Mil Files XXI-3-2, OH, HQ USACE; Final Rpt, Phase I, Chisimaio, pp. 18–19; Edmond C. Hutchinson to L. W. McBride, 30 Apr 62, unmarked box, OH, HQ USACE; “Chronological History of the Mediterranean Division,” n.d., p. 6.

⁴⁵ Memo, McGinnis to Col Sidney T. Martin, 21 Jun 65, sub: Informal Observations, Som-28, TAD-RHA. McGinnis wrote his six-page review of the “highlights and/or achievements” of his two years in the “Paul Smith School of Hard Knocks.”

⁴⁶ Final Rpt, Phase I, Chisimaio, pp. 20–22; Interv, Richard T. Farrell with Wilbur Sheehan, Aug 75, p. 5.

invested substantial money in building a small wharf near the quarry for loading stone, but he never made the water transport system work effectively and had to shift to land transportation. He even lost an additional barge when it sank under the weight of improperly loaded stone. The investment in water transport coupled with the increased costs of land transport translated to a substantial financial setback. Moreover, inefficient management and operation of the quarry threatened to exhaust the available armor stone before enough had been gathered to complete the job.⁴⁷

Difficulties in getting adequate equipment and materials to the construction site continued to complicate the work at Chisimayu. The design called for steel-rod reinforcements for pilings to support the pier. The contractor shipped steel bar on an American flag carrier to Durban, South Africa, for transshipment to Mombasa. It took the contractor three weeks to locate the steel. Then, to load the steel rods onto the next ship, port workers in Durban used a crane and clamshell scoop. When the steel reached the beach in Chisimayu, it “bore the appearance of a dish of cooked spaghetti after having been mixed with sauce.”⁴⁸

Such mishaps and delays put the contractor seriously behind schedule by the spring of 1963. Over a quarter of the work had been scheduled for completion by that time, but actual construction amounted to less than 10 percent. Throughout the summer, Corps personnel pressed the contractor to expand his supervisory staff, to improve his management and organization of the work, and to increase productivity. Breakwater construction, the key element in the initial phase of the construction, did not start until 17 June, and, after the initial dump of stone, had to be suspended until December. In late December, the lifting boom on a barge-mounted crane buckled under an overload and the crane fell into the sea. Overnight, the barge itself, which had been taking on water for several days prior to the collapse of the crane, sank.⁴⁹

In January 1964, a visiting inspector from the Agency for International Development, which financed the construction, reported that “*this project is in an extremely sad condition*” (emphasis in the original) and that the operation of the quarry and the construction of the breakwater were both in a state “of almost utter chaos.” The inspector saw “obvious” signs that the Paul Smith Company was “making advance preparations for a large changed condition claim” on the project. The Mediterranean Division’s resident personnel estimated the contractor’s losses at \$1 million, potentially increasing to as much as \$3 million or \$4 million.⁵⁰ The AID inspection added pressure, and the contractor increased operations to twenty hours a day. In March 1964, the Mediterranean Division replaced the civilian

⁴⁷ Final Rpt, Phase I, Chisimaio, pp. 22–24; Intervs, Farrell with Sheehan, Aug 75, p. 5, and Moorhus with Wiles, 21 Oct 93, 7 Feb, 5 May 94, p. 56; Dawley to Kenneth P. Peel, Paul Smith Const. Co., 7 Jun 63, box 51-83-8378, Farrell Papers.

⁴⁸ Nauman to Lampert, 29 Mar 63, Mil Files XXI-3-3, OH, HQ USACE.

⁴⁹ Final Rpt, Phase I, Chisimaio, pp. 22–23; Nauman to Wilson, 8 Jul 63, p. 3; MFR, Marshall J. Spencer, 6 Jan 64, sub: Crane Barge Sinking, Som-19, TAD-RHA.

⁵⁰ Memo, F. R. Worthen to John W. Robinson, 11 Jan 64, sub: Chisimaio Port Phase I, pp. 1–4, box 20, access. no. 77-92-0001, WNRC.

resident engineer, who had maintained an optimistic view of the project's prospects throughout all its travails, with an engineer officer, Capt. Charles A. Debelius.⁵¹

Captain Debelius (promoted to major before the end of the year) took up his post on 30 March and almost immediately had his introduction to the bungling that continued to dog the project. On 13 April, a Smith Company employee used the contractor's only welding truck to try to rescue a private automobile stuck in the sand on a beach north of Chisimayu, only to strand the truck there as well and have it engulfed by the incoming tide. The company fired the employee, and the truck had to be replaced.⁵² Ten days later, a tugboat sank when it made too sharp a turn in windy conditions while attached to a barge loaded with stone. The combination of the turn, the wind, and the swells pulled the tow hawser so tight that the strain caused the barge to capsize. An investigation board noted that, apart from the other conditions that had contributed to the accident, the captain did not have a valid tugboat license. Other vexations included trucks that stood idle because their replacement batteries were the wrong size, equipment that broke down with alarming regularity, local labor officials who harassed the contractor to fire Italians in order to give more jobs to Somalis, and local government representatives who demanded the company pay taxes that had been waived by the agreements governing the construction.⁵³

By the summer of 1964, the contractor had completed only a quarter of the work that the original contract had scheduled for completion by April 1963.⁵⁴ Over the summer and autumn of 1964, the division engineer, Colonel Chaffin, reported to the Office of the Chief of Engineers (OCE) that the project continued to fall behind schedule and that the port would not likely be ready before 1966—two years behind schedule. Chaffin attributed the delays to the Smith Company's poor management and to the failure to mobilize properly; now the company faced "deep financial trouble." In late 1964, rumors circulated that the contractor would not be able to meet payrolls or commitments to pay American employees' return transportation. When the company implemented an austerity program at the job site in Chisimayu, it heightened unrest among its workers.⁵⁵

Debelius bore down harder on the contractor, but contractor personnel worked in the most dilatory manner. Debelius' construction log shows his exasperation. For

⁵¹ Nauman to Lampert, 23 Apr 63, Mil Files XXI-3-3, OH, HQ USACE.

⁵² Somali Residency Contract DA 91-211-ENG-260 Rcd, 9 Nov 63–5 Oct 64, entry for 13 Apr 64, Som-18, TAD-RHA (hereafter cited as Somali Residency Master Diary); Interv, Moorhus with Wiles, 21 Oct 93, 7 Feb, 5 May 94, p. 56.

⁵³ Documents related to the sinking of the tug *George Bonnie* on 23 April 1964, including "Report on the Findings of a Board of Investigation," 23 Apr 64, are in Som-5, TAD-RHA. Debelius records the incident in his logbook, Somali Residency Master Diary, entry for 23 Apr 64; see also diary entries between April and December 1964.

⁵⁴ OCE, "Annual Historical Summary, 1 July 1963–30 June 1964," p. 35; Final Rpt, Phase I, Chisimaio, p. 71. Memo, Worthen to Robinson, 11 Jan 64, sub: Chisimaio Port Phase I, pp. 3–4, box 20; Chaffin to Wilson, 2 Oct 64, box 36; both in access. no. 77-92-0001, WNRC.

⁵⁵ Chaffin to Wilson, 8 Jul 64, to Clarke, 22 Aug 64, both in box 36, access. no. 77-92-0001, WNRC. Quotation from 22 Aug 64 Ltr, p. 1. See also Intervs, Reuss with McGinnis, 5 Nov 79, p. 37, and Moorhus with Wiles, 21 Oct 93, 7 Feb, 5 May 94, pp. 52–58; McGinnis, "Trip to Somali Residency, 3–12 December 1964," p. 2, Som-28, TAD-RHA.

example, in late autumn 1964, he wrote that two men—a mason and a helper—could have handled the work on a small section of masonry wall:

Instead there were 10 men, including an American supervisor. The breakdown of duties appeared to be:

1. One man mixes mortar
2. One man shovels sand and cement onto board for mixing mortar
3. One man carries cement 10 yards to mason
4. One man carries rocks 6 yards to mason
5. One man slowly builds wall
6. One truck driver sleeps in the cab of his truck until time to bring the men in at the shift's end
7. One man watches the mason
8. One man watches the man carrying the rocks
9. One man watches the man carrying the mortar
10. One American supervisor watches the whole operation.⁵⁶

Troubles continued to hound the project. Somali strikers dynamited a contractor-owned truck in late December 1964, and a dock strike in the United States in the spring of 1965 delayed materials. A crane barge under repair sank in the harbor when the repair crew tried to tip it to work on the bottom. Major Debelius departed the resident office in March 1965, leaving to his successor a situation that Debelius described as “reminiscent of the Keystone Cops.”⁵⁷ The experiences encountered by the new resident engineer, Capt. Gene Boyer Fee, reinforced the impression that the project seemed to operate under Murphy’s Law. Dredging of the harbor began 6 May; but on 1 June, after just three weeks of work, the dredge collided with a sunken wreck in the harbor, tearing a hole in the dredge’s hull below the waterline. The dredge had to be sent to Mombasa for repairs, which delayed progress by another two months. As the AID inspector had predicted in January 1964, Paul Smith Company filed a claim of \$6.3 million in April 1965, contending that changed conditions had increased the costs of construction. The company argued that the change from hauling quarry stone by sea to hauling by land, made necessary by the inaccuracy of government specifications, accounted for over \$6 million of those claims. In 1974, the division finally negotiated a settlement with the Smith Company for a final payment of \$1.5 million.⁵⁸

⁵⁶ Somali Residency Master Diary, 9 Nov 63–5 Oct 64, entry for 16 Nov 64.

⁵⁷ *Ibid.*, entry for Dec 64, pp. 68–69; quotation from Debelius to Martin, 30 May 64, Som-28, TAD-RHA.

⁵⁸ Chaffin to Wilson, 12 Jan, 14 Apr, 15 Jul 65, Mil Files XXI-3-4, XXI-2-4, and XXI-3-4, respectively, OH, HQ USACE; Memo, Martin to McBride, 6 May 65, sub: Status of Claims Presented by Paul Smith Construction Co., 6 May 65, Som-28, TAD-RHA; OCE, “Annual Report of Major Activities, 1 July 1973–30 June 1974,” p. 58, copy in R&D File 2270, TAC.



Chisimayu Port construction using a clamshell on a crane barge to remove underwater high spots, September 1966

Despite all the mishaps, the project did progress. On 3 September 1965, the first oceangoing transport ship docked at one of the two completed sections of the wharf at Chisimayu, an event officials marked with a ribbon-cutting ceremony. Work to complete the two additional berths continued to June 1966, and dredging stretched to February 1967.⁵⁹

Unfortunately, inadequate design coupled with compromises and mismanagement during construction resulted in a breakwater and mole (extended causeway) unable to withstand the incessant pounding of the waves. The causeway and mole had been designed too low, and waves washed over regularly. Within a year of the first docking, the armor stone holding the fill that supported the mole was breaking up, serious voids were developing in the fill under the mole, and waves washing over the mole flooded the first floors of buildings and threw “rocks of considerable size” against doors and windows. The resident engineer warned that remedial action, although very expensive, ought to be taken if, in competition with the Soviet

⁵⁹ Chaffin to Cassidy, 3 Sep 65, unmarked box, and 28 Sep 65, Mil Files XXI-3-4; Cameron to Cassidy, 3 Mar 67, p. 4, Mil Files XXI-3-6; all in OH, HQ USACE. OCE, “Annual Historical Summary, 1 July 1965–30 June 1966,” p. 43; “Chronological History of the Mediterranean Division,” n.d., p. 8.

Union for the good will of “an emerging new nation,” the United States hoped to save face.⁶⁰

Before Phase I was finished, planning for the second phase—support facilities such as the water and power systems and the storage and office space at the port of Chisimayu—had begun. During the winter months of 1965, the Mediterranean Division conducted talks with AID representatives and with officials of the Somali government concerning the division’s role for Phase II. By early March 1965, the parties had worked out a schedule to issue a request for proposals late in the year. On 10 November 1965, a formal agreement with the Somali Republic assigned the division responsibility for construction management and engineering services on the AID-sponsored project to build the additional port facilities and supporting municipal utilities at Chisimayu.⁶¹

New Work in Saudi Arabia

Whereas Somalia was a new venue for the Mediterranean Division in the early 1960s, the division already had a decade of experience in Saudi Arabia. After managing improvements at the Dhahran airfield in the early 1950s, the division had closed its operations in the country in 1956. In 1958–1959, the Corps had returned to Saudi Arabia for the construction of the civil air terminal at Dhahran and for projects to support the United States Military Training Mission (USMTM). The Mediterranean Division again closed all offices in Saudi Arabia as that work came to an end in 1962; what work remained the division handled from its offices in Livorno, Italy. Then, in 1963–1964, the Saudi government requested help from the United States, specifically asking for assistance from the Army Corps of Engineers on a series of projects that bound the Mediterranean Division to the Arab kingdom in a relationship more enduring than any preceding involvement. Understanding the far-reaching nature of the relationship that arose from these Saudi requests for engineering assistance requires a review of the situation in the Arabian Peninsula from 1958 to 1964.

The year 1958 had brought crisis to Saudi Arabia. King Saud, who succeeded to the throne of the absolutist Saudi Arabian monarchy in 1953 and signed the agreement with President Eisenhower in 1957, proved a poor administrator. Even with steadily rising oil revenues, Saud provoked near bankruptcy for his country through financial mismanagement and lavish personal spending. In addition, Saud, who had been an early supporter of Nasser in his seizure of power in Egypt, now opposed the leader of secular pan-Arab nationalism. The growing hostility between Nasser and Saud strained relations with the United Arab Republic, a confederation that joined Egypt and Syria in a front to promote revolutionary change in the Arab

⁶⁰ DF, Capt Guy H. Payne, 13 Sep 66, sub: Sea Action Damage to Breakwater & Mole, Som-28, TAD-RHA.

⁶¹ Chaffin to Wilson, 12 Jan, 14 Apr 65, Mil Files XXI-3-4 and XXI-2-4, respectively, OH, HQ USACE.

Middle East. Nasser supported factions in Saudi Arabia that sought to overthrow the monarchy.⁶²

The combination of political and economic tensions forced Saud to cede some of his powers to his brother, Crown Prince Faisal ibn Abdulaziz, who took over management of the government as prime minister and foreign minister. Faisal initiated a careful fiscal program, and by 1960 he had stabilized the country's currency at 4.5 rials to the dollar, had replenished the country's monetary reserves, and had placed the external and internal debt on a path to complete liquidation.

In December 1960, King Saud reasserted his absolutist prerogatives by refusing to approve Faisal's budget proposal, which led to Faisal's resignation from the government. Saud's repudiation of Faisal's budget undermined the country's financial stability. In addition, political stability on the Arabian Peninsula broke down in 1962 with the outbreak of civil war in Yemen on Saudi Arabia's southwestern border. Pro-Nasser military officers overthrew the Muslim ruler and declared a secular republic in North Yemen. Egypt openly supported the military junta and quickly had thirty-six thousand well-equipped troops and supporting air force elements in Yemen. Although Saudi Arabia and Jordan aided the deposed royalist faction, they could not match Egypt's military presence. The entire Saudi Army numbered only about eighteen thousand troops, with another eighteen thousand men serving part- or full-time in the country's national guard.⁶³

By October 1962, the overlapping crises of the government's finances, the civil war in Yemen, and an intimidating Egyptian military presence on the southern Saudi border had led Saudi leaders and princes to insist that King Saud recall Prince Faisal and turn practical control of the government over to him. Moving quickly, Faisal reshuffled the cabinet to increase his own authority and the stability of the monarchy. He put three half-brothers, all a half-generation younger, in key positions: Prince Sultan in charge of the Ministry of Defense, Prince Fahd in charge of the Ministry of the Interior, and Prince Abdullah in command of the military unit that became the Saudi Arabian National Guard in 1963. Within weeks, Faisal completed his reorganization of the cabinet and launched a ten-point governmental reform program. Having vested new elements of the princely family with a share in governmental authority and power, Faisal created a cadre of leadership that continued to govern Saudi Arabia over the next thirty years, providing an exceptional degree of continuity and consistency in policy.⁶⁴ In March 1964, after months of internal but bloodless struggle among factions of the royal family, Saud was forced to renounce his powers in favor of Faisal; in November 1964, the country's leaders proclaimed Faisal king.

⁶² For a fuller discussion of the intricacies of internal and external politics in the region during this period, see Anthony H. Cordesman, *The Gulf and the Search for Strategic Stability: Saudi Arabia, the Military Balance in the Gulf, and Trends in the Arab-Israeli Military Balance* (Boulder, Colo.: Westview Press, 1984), pp. 96–114.

⁶³ *Ibid.*, p. 112.

⁶⁴ *Ibid.*, pp. 109–14.

The turbulent internal and external conditions in 1962–1964 provoked feelings of insecurity in Saudi Arabia. Nasser provided overt military aid to the military junta in Yemen and conducted air strikes between November 1962 and January 1963 on Saudi villages harboring Yemeni royalists. In addition, Nasser's ideology of secular pan-Arab nationalism, with its hostility to Islamic monarchies, appealed to many in Saudi Arabia, where a wide gap existed between the very rich and the very poor. As insecurity mounted, the leadership of Saudi Arabia decided to ask the United States for assistance. In response, the United States sent a squadron of F-100 fighter-bombers to the region to make clear to Nasser that Saudi Arabia had American support.⁶⁵

To address the longer-term military threat represented by Egypt, the Saudis wanted help in modernizing their own armed forces. To combat Nasser's propaganda, the kingdom wanted to be able to communicate more effectively with its own people. In the spring of 1963, the Saudis requested help in developing a government owned and operated nationwide television system. In January 1964, the Saudis asked for six American engineers, preferably military officers, to help them review their construction plans and to assist in modernizing the Saudi military forces. These overtures touched off three U.S.-Saudi programs that carried into the 1970s and 1980s.

Television Program

The Saudi request for American assistance in establishing a nationwide television system came in March 1963, less than six months after Prince Faisal had been restored to full governmental powers in the recurring struggle with his brother, King Saud. The request came directly from Faisal, but Saudi Minister of Information Jamil Hujaylan had responsibility for executing the program.⁶⁶

The main function of the Ministry of Information (MOI) was to control the flow of public information through official supervision of mass media such as radio, television, film, and press. The Saudis understood the potential of television in a society that was largely preliterate. A nationwide television system could serve as a major source of information, cover both local and international events, and broadcast programs on domestic subjects and cultural issues important to the conservative Islamic monarchy. Instructional programs could counteract what the Saudis saw as "devastating and misleading propaganda." In a country as large as the United States east of the Mississippi River, television could help bind people into a national whole.⁶⁷

⁶⁵ George Lenczowski, *The Middle East in World Affairs*, 4th ed. (Ithaca, N.Y.: Cornell University Press, 1980), p. 608; "The Secret Files," p. 11, transcript of WETA-TV broadcast, created by the *Washington Post*, 17 Feb 92, on U.S.-Saudi relations.

⁶⁶ Memo, Grant, 21 Aug 63, sub: Circular 175: Contracting for Television Installation in Saudi Arabia, unmarked box, OH, HQ USACE.

⁶⁷ The quoted passage and the more general description are taken from Abdulrahman S. Shobaili, "Saudi Arabian Television: A History and Descriptive Study," pp. 12–13, Jul 69, M.S. thesis, University of Kansas. As television director of the broadcast station at Riyadh, Shobaili worked as a telecaster and program director for the first television broadcasts.

Prince Faisal made the request for assistance during conversations with members of an American mission trying to negotiate a cease-fire in the Yemen civil war. In response, the State Department dispatched the chief of the Federal Communications Commission, Edward W. Allen, to Saudi Arabia; Allen's report, submitted on 30 April, recommended that the Saudi government contract with private companies. In subsequent discussions, the Saudis expressed a sense of their own limitations, arguing that their government lacked the skills to manage the cumbersome and time-consuming contracting procedures. Reiterating the request that the American government act as agent in developing the television program with Saudi funds, the Saudis indicated that, based on prior experience, they would be pleased to have the U.S. Army Corps of Engineers involved.⁶⁸

The U.S. ambassador to Saudi Arabia, Parker T. Hart, vigorously urged his government to take on the role that Prince Faisal had so strongly requested; the State Department found the appropriate legal mechanism in a clause of the Foreign Assistance Act of 1961. Although Section 601 of that act encouraged the maximum use of private-sector resources, as Allen had recommended in his report, Section 607 authorized U.S. government agencies, with the president's approval, to provide services and commodities to foreign countries on a reimbursable basis. The State Department asked the Corps of Engineers to undertake the contracting responsibilities associated with the Saudi television broadcasting network, and the chief of engineers assigned the task to the Mediterranean Division.⁶⁹

Between May and August 1963, negotiators worked out the specific terms of American assistance. The Saudi Arabian government wanted the Corps of Engineers to construct the television stations, to operate them initially, and to train Saudi personnel to operate them at a later date. The Saudis acknowledged that they lacked even the capacity to define their requirements for the program. The Corps agreed to help design and build a nationwide television system, beginning with two stations at Jiddah and Riyadh. (*Map 19*) The government of Saudi Arabia agreed to pay for all costs associated with the creation of the system. To transfer funds, the Saudis would establish an irrevocable letter of credit with the Chase Manhattan Bank in New York from which the Corps would withdraw money as needed.⁷⁰

The two governments exchanged notes constituting the formal government-to-government agreement on 9 December 1963 and 6 January 1964. The Mediterranean Division agreed to supervise operations and maintenance contracts, to monitor

⁶⁸ Cordesman, *The Gulf and the Search for Strategic Stability*, p. 111; Memo, Grant, 21 Aug 63; Mediterranean Div, "Saudi Arabian Television System: Completion Report to the Minister of Information (MOI)," Jun 71, p. 28, box 16, access. no. 77-92-0001, WNRC (hereafter cited as Saudi Arabian TV Sys Completion Rpt, Jun 71).

⁶⁹ Memo, Grant, 21 Aug 63; Memo of Law, Andreas F. Lowenfeld, [late 1963], sub: Circular 175: Proposed Agreement with Saudi Arabia Covering Television Installation Services, unmarked box, Barry Sude Papers, OH, HQ USACE (copy in R&D File 2657, TAC); Frank N. Schubert, "A Helping Hand: Three Decades of Corps of Engineers Involvement in Foreign Assistance Programs," n.d., p. 8, OH, HQ USACE, copy in R&D File 2214, TAC.

⁷⁰ Phillips Talbot to Wilson, 10 Feb 64, R&D Folders 2219–2223, Adrian Hromiak Papers, TAC; MFR, Brig Gen T. J. Hayes, 13 Oct 64, p. 1, box 24, access. no. 77-92-0001, WNRC.



Map 19

student training in the United States, and to serve as consultant to the Ministry of Information on the television system and other related matters. The division would also provide a television network adviser to the ministry and an electronics engineer to supervise network engineering. These two positions would be located in Riyadh. In addition, the Corps promised a qualified employee stationed in the United States as a full-time coordinator and adviser to the Saudi students sent to the United States to train in television programming and station operations and maintenance.⁷¹

⁷¹ [U.S. Embassy, Jiddah to] Omar Sakkaf [*sic*], 9 Dec 63, Hromiak Papers; Shobaili, "Saudi Arabian Television," pp. 16–18; Note, Umar Saqqaf [*sic*] to Hon Parker T. Hart, U.S. Ambassador, Jiddah, 6 Jan 64, Hromiak Papers; "Mediterranean Division, Corps of Engineers," [1967], p. 8; Saudi Arabian TV Sys Completion Rpt, Jun 71, p. 1.

On 2 March 1964, the division engineer, Colonel Chaffin, and others met with Saudi officials in Jiddah to discuss the development of interim stations at Jiddah and Riyadh. The Mediterranean Division's engineers looked for existing facilities in each city to house the new stations but concluded that new buildings would be necessary. Over the next half year, the Mediterranean Division awarded a series of letter contracts totaling about \$2.2 million. In May, the contract for design of the interim stations went to Frank E. Basil Inc. On 9 July, the Paul Hardeman Construction Company of Nevada won the construction contract. Six days later, the Radio Corporation of America (RCA) won the contract to procure and install the television equipment for the two stations. In July, the National Broadcasting Corporation International (NBCI), a British subsidiary of the National Broadcasting Company, received a contract to operate and maintain the two stations; in September, NBCI received a second contract to train Saudis in English and in television operations. Also in July, a second contract went to the design contractor, Basil Inc., for a feasibility study of a network of five additional television stations that would span the entire country. In mid-June 1964, to supervise all this activity, the Mediterranean Division opened the Saudi Arabia Area Office at Jiddah and a resident office in Riyadh. In Livorno, the assistant chief of the Engineering Division, James F. Vanek, worked up budget proposals for the coming Saudi fiscal year, which began in November.⁷²

The Basil design for the first two stations called for American-made prefabricated structures for the broadcast studios. In addition to the commercial power for normal conditions, designers provided for a utility building with a heavy-duty diesel generator as a backup power supply for the television broadcast facilities. Basil personnel completed the design in ninety-nine days. During the same period, the staff of the Mediterranean Division designed workshops and storage space for the station in Riyadh.⁷³

The first operational plan assumed that both stations would have identical staffs and equipment and that their broadcast schedules would be identical: 2 hours a day for the first 6 months, 4 hours a day for the second 6 months, and 6 hours a day for the next year. NBCI agreed to supply eleven people since there would be no Saudi personnel with the technical qualifications to operate the stations initially and to begin broadcasts using filmed programming to fill the daily schedule.⁷⁴

By mid-October 1964, the Hardeman Company had completed nearly a third of the construction at Jiddah and was about to begin at Riyadh. Over the summer, as construction got underway, the NBCI team screened Saudi students and selected

⁷² MFR, J. F. Vanek Jr., 23 Mar 64, sub: Television Project—Saudi Arabia, box 13, access. no. 77-92-0002, WNRC; MFR, Hayes, 13 Oct 64, p. 1; MFR, Vanek, 23 Nov 64, sub: Narrative Summary TV Project, Saudi Arabia (Draft), box 5, access. no. 77-92-0002, WNRC; "Chronological History of the Mediterranean Division," n.d., p. 7; Mediterranean Div Staff Mtg Min, 28 Jul, 24 Aug 64, Som-29, TAD-RHA.

⁷³ Shobaili, "Saudi Arabian Television," pp. 23–25; Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 5–8; Harold E. Anderson, NBC International Ltd., to Vanek, 28 Aug 64, box 5, access. no. 77-92-0002, WNRC.

⁷⁴ Shobaili, "Saudi Arabian Television," pp. 23–25; M. Klein, NBC International, to Col Sidney T. Martin, 5 May 64, box 5, access. no. 77-92-0002, WNRC.

fifty-six for professional development. The company began intensive English training in September 1964 for fifty-eight employees of the Ministry of Information assigned to television operations. By November, when the installation of broadcast equipment had reached the halfway point, Saudi trainees began working directly with the equipment. The thirty-six students who progressed most rapidly in English were selected to study at the RCA Institute in New York City. Two of those students enrolled for advanced degrees at Syracuse University early in 1965. Of the students remaining in Saudi Arabia, about twenty continued to work in each of the two cities, Jiddah and Riyadh, where they pursued both their formal class work and their on-the-job training with the NBCI operations and maintenance crews.⁷⁵

The Hardeman Company completed construction of the stations at Jiddah and Riyadh in May 1965; and the first broadcasts, fifteen-minute test transmissions from each station, took place on 17 July. Two days later, both stations began daily broadcast schedules lasting two hours. By the end of the year, telecasts lasted four to six hours daily.⁷⁶

Assisting the Saudis to develop the capacity to create their own programming presented a situation that both the U.S. State Department and the Saudi Ministry of the Interior considered “quite delicate.” NBCI’s contract required it to provide technical management and support; but program content had to come from the Saudis and NBCI could broadcast only what the Saudis furnished. Neither government wanted any suspicion that the United States might be using the television broadcasts to promulgate its own propaganda.⁷⁷

In the spring of 1965, the Mediterranean Division presented the Basil plan for the expansion of the television system to five additional stations. The expansion was just beginning when the initial television agreement of December 1963 approached its expiration date of 30 July 1966. The governments extended the agreement for construction of additional television broadcast stations at Medina, Buraydah, Taif, and Mecca and continued station operation.⁷⁸

Engineer Assistance Agreement

When the collaboration between the Mediterranean Division and the Saudi Arabian Ministry of Information began on the television program, the work seemed discrete and limited. In late 1963, the Saudis began to explore the possibility of collaboration on matters of military preparedness. This process led, after months of talks, to the Engineer Assistance Agreement.

⁷⁵ MFR, Hayes, 13 Oct 64, pp. 2–3; Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 20–22; Shobaili, “Saudi Arabian Television,” pp. 87–88.

⁷⁶ Saudi Arabian TV Sys Completion Rpt, Jun 71, p. 9.

⁷⁷ MFR, Hayes, 13 Oct 64, pp. 3–4.

⁷⁸ MFR, Chaffin, 14 Jan 66, sub: Briefing of Ambassador Eilts on MDD Saudi Arabian Activities, p. D4, box 5, access. no. 77-92-0002, WNRC; “Draft History of Saudi Arabia District,” [1970], p. 9, box 16, access. no. 77-92-0001, WNRC; Transatlantic Div, “A Short History of the Corps of Engineers in Saudi Arabia,” 1993, p. 1, Current Files, TAD-RHA.

After Faisal returned to power in October 1962, he dramatically increased spending for defense and the Ministry of Defense and Aviation (MODA) launched a series of military construction efforts to strengthen Saudi national security. By the end of 1963, the Saudis had more than fifty projects underway but were dissatisfied with the progress. They wanted help with planning, design, supervision, and inspection of construction—functions they had seen the Corps of Engineers perform on military construction projects.⁷⁹

In the first week of January 1964, Colonel Chaffin reported to the chief of engineers, Brig. Gen. Walter K. Wilson Jr., that the Saudis had informally approached division staff members concerning Corps assistance on military construction projects. Within weeks of Chaffin's report, the U.S. Military Training Mission alerted its higher command that MODA planned to ask the United States through diplomatic channels to assign five professional engineers and one ordnance motor vehicle planning and procurement specialist, preferably military officers, for one year to aid MODA in its review of its currently active military construction and logistics projects. When the Saudis asked what the six officers would cost, USMTM estimated \$55,000 for one year, assuming that officers would be assigned to the mission as advisers to MODA.⁸⁰

The Gulf District engineer, Col. Wyatt G. Trainer, visited the U.S. Military Training Mission in mid-February and learned that the Saudi military had suspended construction on all military projects pending MODA's exploration of ways to improve results. USMTM officers told Trainer that the Saudi military would like to have the Corps "supervise future military work using American prime contractors." USMTM personnel indicated that the Saudis had in mind several new army camps and additions at other facilities, a program of about \$100 million.⁸¹

On 8 March 1964, the Saudi deputy foreign minister submitted a formal request to the U.S. embassy in Jiddah for the services of six officers from the Corps of Engineers to work with MODA as advisers on military construction and military vehicles. The request indicated the Saudi Arabian government's willingness to pay the estimated cost of these services, to a total of \$55,000 a year. On 10 March, Ambassador Hart forwarded the request to the State Department, which provided a copy for the chief of engineers. The U.S. embassy judged the willingness of the Mediterranean Division to take on the television project, as well as its ability to deliver what the Saudis wanted, to be determining factors in MODA's decision to seek American help in strengthening the nation's armed forces.⁸²

The chief of engineers asked the Mediterranean Division for its comments on the Saudi request. The division observed that the Saudis seemed quite specifically

⁷⁹ MFR, Hayes, 13 Oct 64, p. 1; Cordesman, *The Gulf and the Search for Strategic Stability*, p. 112.

⁸⁰ Chaffin to Wilson, 10 Feb 64, sub: Potential Saudi Arabian Mil. Construction Program, box 36, access. no. 77-92-0001, WNRC; MFR, Hayes, 13 Oct 64, p. 1; Cordesman, *The Gulf and the Search for Strategic Stability*, p. 112.

⁸¹ Chaffin to Wilson, 20 Feb 64, box 36, access. no. 77-92-0001, WNRC.

⁸² MFR, Hayes, 13 Oct 64, p. 1.

to want one specialist in procurement and logistical support for military vehicles. Noting this comment, the Office of the Secretary of Defense passed the request to the Army's deputy chief of staff for logistics, expecting the U.S. Army Materiel Command (AMC) to furnish a Transportation Corps officer. This part of the Saudi request languished until it reemerged in a different form a year later.

In fact, the Saudis had both less and more in mind than the American military planners attributed to them. In making their request, they thought specifically of the last several Corps of Engineers officers who had served in Saudi Arabia—they requested the officers by name. The Army contacted each officer and asked if he wanted to return to Saudi Arabia. All declined, but the incident illustrates the Saudi desire for continuity and emphasis on the personal nature of the relationships established by governmental agreement.⁸³

After assessing the Saudi request, the Office of the Chief of Engineers suggested to the Department of Defense that the Corps undertake the advisory work on a "mission basis" as it had in other countries of the region, provided that an appropriate agreement could be worked out. Under such a plan, the Corps would assume complete responsibility for the design and construction of facilities to strengthen and modernize the Saudi armed forces. This approach would take advantage of both the military and civilian capabilities of the Corps. By giving Saudi officers on-the-job training to plan and execute future construction programs, the Corps would help the Saudi Arabian military develop its own contracting and management capabilities. Two days after the Corps submitted its alternate plan, the State and Defense Departments endorsed and forwarded it to Ambassador Hart, who greeted it enthusiastically. After discussions between the embassy and the U.S. Military Training Mission, Hart sent a favorable reply to the State Department urging that one or two Corps representatives be sent immediately to Saudi Arabia to help draft the agreement and gather data for a cost estimate.⁸⁴

The Mediterranean Division assigned the deputy division engineer, Col. John W. Burfening; the Gulf District engineer, Colonel Trainer; and the chief of the Programming and Reports Branch, Engineering Division, William O. Tatum III, to travel to Saudi Arabia. The division delegation met with the ambassador and USMTM personnel on 29 April 1964 and with MODA officials on 2 and 4 May. During these meetings, the Saudi minister of Defense and Aviation, Prince Sultan, responded positively to the idea of a more extensive involvement by the Corps of Engineers. Indeed, he wanted to broaden Corps involvement to include the entire MODA five-year program; but he also wanted the engineer officers he requested originally to provide immediate help with projects already underway.⁸⁵

⁸³ Interv, Moorhus with Col (Ret) Claude D. Boyd III, 9 Nov 95, pp. 24–25. Boyd, a captain at the time, was among the officers the Saudis requested.

⁸⁴ MFR, Hayes, 13 Oct 64, p. 2.

⁸⁵ MFR, Col John W. Burfening, 5 May 64, sub: Meeting with Prince Sultan, Minister of Defense and Aviation, Kingdom of Saudi Arabia; Memo, Burfening, 7 May 64, sub: Meeting with Staff of Ministry of Defense and Aviation, Kingdom of Saudi Arabia; MFR, Tatum and Burfening, 15 May

When the delegation returned to Livorno, the Mediterranean Division prepared a draft of a government-to-government agreement similar to the agreement of December 1963 concerning the television program but addressing the concerns derived from prior experiences in Saudi Arabia. The division sent the draft to Ambassador Hart and to the Office of the Chief of Engineers in late May; the embassy forwarded a revised version to the State Department in early July.⁸⁶

Because confusion existed between the Corps and the Military Training Mission in Saudi Arabia over which agency would take the lead on the Saudi request, no action occurred between early May and mid-June 1964. When the chief of engineers, General Wilson, discovered the inaction, he directed that the Mediterranean Division immediately provide a colonel to MODA. The division dispatched Colonel Burfening again, and he arrived on 16 June. On 31 August, Col. John E. Walker arrived in Saudi Arabia as the assigned Corps of Engineers representative to MODA.⁸⁷

Colonel Burfening initiated a study of the elements necessary for design and construction of the project that MODA designated as its top priority—an army cantonment at Khamis Mushayt, three hundred twenty miles southeast of Jiddah near the border with Yemen. The Saudis wanted a brigade post but had not devised a table of organization and equipment, that is, the organizational structure and list of necessary equipment for such a military unit. Burfening worked closely with the Army section of the U.S. Military Training Mission to develop his projections for brigade strength of six thousand six hundred men. He outlined the structures that such a force would need, and, in discussions with MODA, determined that the Saudis found unsatisfactory the criteria that the Corps had applied to building similar facilities in Iran.

Burfening and his staff arrived at an estimate of around \$50 million and a timetable of four years for the design and construction of the cantonment at Khamis Mushayt. Prince Sultan seemed startled by the price; but in August 1964, he sought approval from the Saudi government. Endorsing the project in principle, the government directed the Army engineers to reexamine all the elements to reduce costs, to study the adaptability of the planning to the actual site, and to develop budget details.

The division staff reworked the estimate, and Division Engineer Colonel Chaffin traveled to Jiddah to meet with Prince Sultan on 20 September for a lengthy discussion of the role of the Corps of Engineers in assisting the Ministry of Defense and Aviation. During this meeting, the two sides finally addressed the role of the six officers the Saudis had originally requested. Colonel Chaffin explained that, while a few officers could help MODA map out a broad construction program, this limited number could never manage or supervise an annual construction effort of \$10 or \$15 million. Overseeing the design and construction of the program the Saudis had in

64, sub: Trip to Saudi Arabia re Corps of Engineers Assistance to Saudi Ministry of Defense and Aviation; all in box 51-84-5389, Farrell Papers.

⁸⁶ MFR, Hayes, 13 Oct 64, p. 2; "Saudi Arabia Engineer Assistance Program Chronology—Program Conception to First A-E Contract Award," n.d., box 28, access. no. 77-92-0002, WNRC.

⁸⁷ For this and the two succeeding paragraphs, see MFR, Hayes, 13 Oct 64, pp. 3-4.

mind would involve many more people and cost a percentage of *each* contract. With great care, Colonel Chaffin explained the concept of a supervision and inspection rate to cover personnel checking design, monitoring construction, conducting tests, and training Saudi personnel. Colonel Chaffin's very thorough explanation of how the Corps of Engineers administers a construction project seemed to end the confusion, and subsequent discussions focused on the broad program rather than on the tasks of the six officers originally requested.⁸⁸

As the meeting continued, Prince Sultan committed the Saudi government to the Khamis Mushayt construction and proposed two additional cantonments: one at Qaysumah, about two hundred sixty miles north of Riyadh near the borders with Iraq and Kuwait, and one at Tabuk in northwestern Saudi Arabia near the border with Jordan. He also mentioned the possibility of a road construction program. Sultan emphasized the need for speed in getting these projects underway, and Chaffin promised to provide him with new figures before the mid-October meeting of the Saudi royal council. Corps representatives also explained that proper design took time, that shortening the design time would increase costs, and that the prince should anticipate at least another eleven months for design preparation.⁸⁹ On 12 October 1964, Colonel Walker informed Prince Sultan that the rough estimate for all three sites had risen to about \$120 million projected over five years. Prince Sultan approved the general framework of the projections but suggested stretching construction out over six years.⁹⁰

Although the cost estimates changed, the basic framework for the construction of three cantonments was set by mid-October 1964. The Mediterranean Division began to recruit the personnel needed to manage design and construction. Indeed, the division anticipated difficulties in recruiting enough qualified professionals for its engineering staff and in finding architect-engineer firms with enough staff to meet the projected design schedule.⁹¹

The two governments still lacked a diplomatic agreement to govern the work. Over the summer and autumn of 1964, the Mediterranean Division, OCE, and USMTM had worked out the details concerning the engineer officers assigned to assist MODA with its current short-term projects. On 3 November 1964, OCE issued a directive authorizing expenditure of \$55,000, the amount USMTM estimated for

⁸⁸ MFR, Walker, 22 Sep 64, sub: Meeting with HRH Prince Sultan on Cantonment Construction in Saudi Arabia, 20 Sep 64, box 51-84-5389, Farrell Papers.

⁸⁹ MFRs, Chaffin, 30 Sep 64, sub: Proposed Military Construction for Saudi Arabia, box 51-84-5389, and Hayes, 19 Oct 64, sub: Support of the Saudi Army Construction Program by the Corps of Engineers, box 51-84-9384, both in Farrell Papers.

⁹⁰ MFR, Walker, 22 Sep 64; MFR, Brig Gen Thomas J. Hayes, 13 Oct 64, sub: Construction of Army Bases, Saudi Arabia (SA), pp. 6–8, box 24, access. no. 77-92-0001, WNRC; Mediterranean Div Staff Mtg Min, 24 Aug, 21 Sep, 5 Oct, 20 Oct 64, Som-29, TAD-RHA.

⁹¹ Memo, Z. L. Zabban, 15 Oct 64, sub: Additional Personnel for Design Branch, Saudi Arabia Military Assistance Program; "Saudi Arabia Engineer Assistance, Comments by Engineer Division," [Mediterranean Div], [23 Oct 64], both in Som-29, TAD-RHA.

several officers to develop plans, scopes of work, and estimates for the existing Saudi military construction projects.⁹²

The draft agreement remained stalled between Washington and Jiddah while Ambassador Hart concentrated on a new agreement covering the USMTM role in Saudi Arabia. The Saudi government's final crisis between Saud and Faisal also slowed action; but with broad support among the royal family and notables, Faisal formally deposed Saud in early November 1964 and was declared king. In mid-November, the U.S. embassy forwarded the draft construction agreement to the Saudi government.⁹³

Even without a signed country-to-country agreement, the division continued its preparatory work for the three cantonments. On Colonel Chaffin's instructions, Colonel Walker made arrangements in November with Prince Sultan for several dozen engineers and architects to conduct preliminary surveys at Khamis Mushayt, Tabuk, and Qaysumah. The division staff then revised the budget and funding estimates for a six-year construction program at the three sites and arrived at a total of \$101,919,000. The division planned about three hundred buildings for a troop contingent of six thousand six hundred at Khamis Mushayt; with families, the population would total about ten thousand. They estimated a comparable size for Qaysumah and double that size for Tabuk.⁹⁴

Colonel Walker communicated these new figures to Prince Sultan in mid-February 1965 and then waited for an agreement. In March, the Saudi government and the U.S. embassy renewed discussions; on 24 May, the Saudis signed the draft accord sent to MODA. On 15 June, the American ambassador signed the same document creating the Engineer Assistance Agreement (EAA).

The EAA defined the manner in which the United States would assist Saudi Arabia in the construction of military facilities and outlined the responsibilities of the two governments in implementing the program. The agreement designated the Corps of Engineers as the agent for the U.S. government and the Saudi Arabian Ministry of Defense and Aviation as counterpart to the Corps of Engineers; it specifically named the Mediterranean Division engineer or his authorized representative to act for the Corps. Using standard Corps procedures, the Mediterranean Division would manage design and construction for MODA; the Saudi government would pay all costs.⁹⁵

Most of the EAA provisions described the standard tasks that the Mediterranean Division performed in its work with host nations; but some clauses reflected the

⁹² MFRs, Hayes, 13 Oct 64, and Chaffin, 14 Jan 66; "Saudi Arabia Engineer Assistance Program Chronology," n.d.

⁹³ Cordesman, *The Gulf and the Search for Strategic Stability*, p. 114; MFR, Hayes, 13 Oct 64; Chaffin to Wilson, 12 Jan 65, p. 2.

⁹⁴ Walker to Prince Sultan, 23 Nov 64, Gen Corresp, 1964, no. 2, OH, HQ USACE; "Saudi Arabia Military Construction Program Budget Estimates and Schedules, Six-Year Program," 15 Feb 65, box 51-84-5389, Farrell Papers; MFR, Chaffin, 14 Jan 66.

⁹⁵ The Ministry of Defense and Aviation retained responsibility for defining the projects. For a more extensive discussion, see Barry Sude, "A History of the Engineer Assistance Agreement with Saudi Arabia, 1965-1985," Draft Ms, 31 Jan 94, unmarked box, Sude Papers.

division's memory of the Saudi threat in 1956 to Maj. William Bailey in a dispute over taxes imposed on the contracting firm that had worked at the Dhahran air base. The agreement assigned to the "senior representative of the Corps element in Saudi Arabia" responsibility for assuring that Corps employees and their dependents "respect the laws of Saudi Arabia." If "any member of the Corps or dependent" were accused of violating Saudi law or arrested, the authorities of Saudi Arabia were to "promptly notify the senior representative of the Corps" and "transfer custody of the accused" to him. Further, the agreement granted Corps personnel and their dependents immunity from civil process for any actions taken in pursuit of their official duties. The agreement exempted all property, materials, equipment, services, and supplies imported to carry out the functions of the agreement from inspections other than for purposes of identification and from "import and export duties, taxes, licenses, excises, imposts, bonds, deposits and any other charges." It also exempted Corps personnel from "all kinds of taxes or charges imposed within Saudi Arabia." The EAA provisions conferred upon the Mediterranean Division personnel a status in Saudi Arabia not enjoyed by other U.S. military personnel. The division worked directly with the MODA, not through the USMTM as it had in constructing the training facilities for the Royal Saudi Air Force in the early 1960s.

Shortly after both countries had signed the exchange of notes defining the Engineer Assistance Agreement, Prince Sultan, the minister of Defense and Aviation, sent a letter to Colonel Walker authorizing the division to begin the design of the facilities at Khamis Mushayt and Tabuk. In reporting to the division, Walker commented, "Historical note: After 10 months of advisory negotiations this is the first paper received from and signed by Sultan."⁹⁶ A month later, the division received notice that the Saudi government had established a letter of credit with the Chase Manhattan Bank in New York in the amount of \$6.25 million, the first increment for the construction program. The schedule mapped out by the division's planners had anticipated having money available on 1 March; the release of the funds several months later in mid-summer 1965 required a new timetable.⁹⁷

With the funds in place, design development proceeded. On 9 August 1965, the division's architect-engineer selection board submitted to MODA the names of three companies that it endorsed as qualified and in keeping with the Engineer Assistance Agreement. Over the next four months, division personnel and the Saudis monitored the development of design elements. The Mediterranean Division, in addition to its normal role, explicitly focused on helping the Saudis learn to handle such contract management tasks. On 24 November, the division awarded the first design contract to a joint venture called BATMED: Frank E. Basil Inc. of Delaware; the Architects Collaborative International Ltd. Inc. of Massachusetts; and Metcalf & Eddy Inc. also of Massachusetts. Delays in receiving visas for the survey teams held up its commencement of work at the sites until January 1966; but by mid-February, the

⁹⁶ Telex, USACE Rep Riyadh to Div Engr, USAMED [Mediterranean Division]–Leghorn, 3 Jul 65, sub: Weekly Progress Report, unmarked box, Sude Papers.

⁹⁷ Chaffin to Wilson, 14 Apr 65, Mil Files XXI-2-4, OH, HQ USACE; Mediterranean Div Staff Mtg Min, 19 Jul 65, Som-29, TAD-RHA.

contractor had thirty-two people in the field in Saudi Arabia and another ninety working on the project in its offices in Athens.⁹⁸

An intangible but important element of the negotiations between the Mediterranean Division and the Saudi Arabian government for the Engineer Assistance Agreement was the participation of Mahmoud Nassief. From the start of the negotiations in May 1964, then Lieutenant Nassief served as translator/interpreter for Prince Sultan in the meetings with the Americans. Nassief had studied engineering at the University of Southern California, spoke English well, and came from a family prominent in Saudi society because of its intellectual tradition. His grandfather, Sheikh Muhammad Nassief, was reputed to be the most renowned living Arabic scholar in Saudi Arabia and the only person for whom the king would rise as he entered the room.⁹⁹

During the next decade, the younger Nassief became a key figure in the cooperation between MODA and the Mediterranean Division. In February 1966, Sultan appointed him the MODA liaison officer with the Corps, and the division began addressing all official correspondence to him rather than to the minister.¹⁰⁰ Nassief established close personal relations with many of the Corps employees who worked on the Saudi program. When he traveled to Livorno, he stayed in the home of Zeno Zabban, chief of the Design Branch in the Engineering Division. Rising to colonel in the Saudi Army, Nassief remained an important player in all of the Corps' dealings with MODA until he retired in the mid-1970s. He also retained the friendship and respect of many of the Americans who worked with him.¹⁰¹

Ordnance and Vehicle Support Program

In late 1963, when the Saudis first opened discussions about engaging U.S. Army engineer officers to help modernize their military establishment, they specifically requested one additional officer experienced in procurement and support for ordnance and motor vehicles. The resultant Mediterranean Division logistical and supply program, in its early years called the Saudi Arabia Mobility Program (SAMP), was out of the normal range of Corps of Engineer activities. Nonetheless, it became the longest-running engagement by U.S. Army engineers in Saudi Arabia and remained active into the late 1990s under a different name. SAMP was never a

⁹⁸ On the division's role as mentor, see Mediterranean Div Staff Mtg Min, 20 Oct 65; in addition, see minutes for staff meetings on 20 Oct, 8 Nov, 22 Nov, 6 Dec 65, and 24 Jan 66, in Som-29, TAD-RHA; Telex, [unclear] to Div Engr USAENGR Div MED Leghorn, 29 Nov 65, sub: Weekly Progress Report, box FB107, OH, HQ USACE.

⁹⁹ Telex, Ch MAAG [Military Assistance Advisory Group] Rome from USACE Rep Riyadh, 11 Jul 65, sub: Visit of Saudi Engineer Officers to Rome, unmarked box, Sude Papers; Memo, Blondell and Walker, 7 Sep 65, sub: Trip Report of MDD Party to Saudi Arabia, 21 Aug-1 Sep 65, box 51-84-5389, Farrell Papers.

¹⁰⁰ Walker to Col Francis G. McBride, 11 Feb 66, p. 2, box 51-84-5389, Farrell Papers.

¹⁰¹ The authors' interviews with Wiles, Reisacher, Hight, Oliva, and Dykes (see Bibliography) attest to Nassief's importance and to the friendships that he developed with members of the Mediterranean Division.

part of the Engineer Assistance Agreement, but the origins of the program paralleled the negotiations that yielded that agreement.

During the several months of negotiations leading to the EAA in May 1965, the Saudi request for ordnance support received little attention. The Saudis reiterated this request once the agreement was signed, specifically asking the U.S. Army to survey the Saudi Arabian Army Ordnance Corps (SAAOC). The U.S. Army Tank-Automotive Command's review, conducted without Corps participation, revealed that the Saudi Arabian Army had essentially no mobility and could not deploy its troops anywhere within the kingdom if a crisis developed. To rectify the situation, the Army Materiel Command recommended that the Saudis acquire all-new, compatible equipment; update their facilities; develop a modern maintenance and supply system; and create a technical training school to teach ordnance skills.¹⁰² The Saudis then requested help to devise a program for planning, procurement, maintenance, and logistical support for military vehicles. The Army Materiel Command, the appropriate agency to support the Saudi need, had no overseas capability or responsibility. Involved in its own reorganization, it declined to take on the responsibility. The USMTM had a presence in Saudi Arabia but no contracting authority, a necessary element in any program to develop a training and supply system. Only the Corps of Engineers, already deeply engaged through the Mediterranean Division in work for Saudi Arabia, had both a presence in the country and the contracting authority to sustain the operation. With approval from Washington, the division assumed the advisory role in support of the vehicle and ordnance program in March 1966. The division counted on the support of the Army Materiel Command to furnish the logistical expertise that the program demanded.¹⁰³

In late March 1966, the division appointed its assistant chief of engineering, James Vanek, as project officer to explore the prospects of establishing a program to manage the Saudi fleet of military vehicles. Vanek led a team from the division, augmented by officers from the U.S. Military Training Mission and the U.S. Army Ordnance Corps, to assess the condition of the Saudi Arabian Army's vehicles and the logistical and maintenance systems that supported them. The study team observed a wide range of problems. The Saudi Army had equipment from several countries. It could neither identify the spare parts it had on hand nor distribute them to the sites where they were needed for maintenance and repair. Moreover, Saudi personnel lacked the training and skills necessary to operate, maintain, or supply the vehicles in their possession. Nearly new trucks, including an immaculate-looking Mercedes truck with only 2,500 kilometers (1,550 miles) on its odometer, sat abandoned in virtual junkyards apparently because the Saudis did not know how

¹⁰² Thomas Bortner, "A Look Back: OPD Lineage Date Back to 1966 Signing of SAMP Agreement," *Transatlantic News*, October-November 1994, copy in R&D File 2363, TAC; Richard Wiles, "SAMP," Mar 98, provided by Wiles, authors' files.

¹⁰³ Wiles, "SAMP," p. 2. Mediterranean Div Staff Mtg Min, 21 Mar 66, pp. 2–3, Som-29, TAD-RHA, copy in R&D File 2759, TAC; Mediterranean Div, "History: Saudi Arabia Mobility Program (SAMP)," 30 Jun 70, p. 8, box 16, access. no. 77-92-0001, WNRC (hereafter cited as SAMP Hist, 30 Jun 70).

to service or maintain them. At a maintenance shop in Taif, the supply of small replacement parts for various military vehicles was in a jumbled pile about four feet high. The visiting Americans observed as three workmen pawed through the pile, each one trying to locate a part to match the one he held in his other hand. When team members asked the commanders of the Saudi Arabian Army Ordnance Corps how many vehicles the army had, the commanders had no answer.¹⁰⁴ The visit confirmed what the Saudis already knew—they needed help.

Upon returning to Livorno, Vanek's team prepared a report to define the scope of the problems and to set out recommendations to guide the Mediterranean Division's assistance. The Saudis needed an intensive training program in maintenance and supply. They needed procedures to supply and maintain the vehicles currently in the inventory. They needed an automated system to track the location, movement, and replacement of existing and new equipment. They needed a procurement system with maximum interchangeability of parts, components, tools, and equipment. The division did not command all this expertise, so it decided from the outset to engage a contractor to marshal the services the Saudi Army needed.¹⁰⁵

By May 1966, the division had completed its initial feasibility study and assembled data on budget and cost for the program that Vanek had proposed. The division sent its report to the Office of the Assistant Secretary of Defense for International Security Affairs, and the summer passed as the proposal made its way through the establishment in Washington. On 7 September 1966, Secretary of Defense Robert S. McNamara and Saudi Minister of Defense and Aviation Prince Sultan signed an agreement to create the Mobility Management Organization in Saudi Arabia. The United States agreed to sell modern equipment to the Saudi Arabian Army and to provide assistance in modernizing the Army's systems for procurement, maintenance, and supply for its vehicles. The endeavor was called the Saudi Arabia Mobility Program.¹⁰⁶

Between the signing and the end of 1966, the Mediterranean Division, the Office of the Chief of Engineers, and the Saudi government developed arrangements for financing and managing the engineer support to SAMP. The agreement specified that the Corps would "appoint a Program Manager in coordination with USMTM." The division engineer, Colonel Cameron, favored retaining the management authority in division headquarters and designating the division engineer as program manager, with a deputy program manager on site in Saudi Arabia. He reasoned that, because

¹⁰⁴ Bortner, "A Look Back"; Interv, Moorhus with Wiles, 21 Oct 93, 7 Feb, 5 May 94, pp. 63–64, and Wiles' comments on the draft manuscript.

¹⁰⁵ "Mobility Modernization and Armaments Program for the Saudi Arabian Army," 28 May 66, box 11, access. no. 77-92-0002, WNRC. Wiles, "SAMP," pp. 2–3.

¹⁰⁶ SAMP Hist, 30 Jun 70, p. 8; DF, Barber, Actg Cost to Dir MC, 29 Apr 66, sub: Restatement of ASD (ISA) Responsibility for International Logistics Negotiations, Mil Files XXI-3-5, OH, HQ USACE; Cameron to Cassidy, 8 Jun 66, OH, HQ USACE; Memo, Col W. G. Trainer, 27 Oct 66, sub: Special Instructions for Saudi Arabia Mobility Arrangements, box 27, access. no. 77-92-0001, WNRC; Bortner, "A Look Back"; Maj James F. Rosebery, "Ordnance Program Division (OPD), Historical Summary, 1986," 10 Feb 87, introduction, Current Files, TAD-PAO (hereafter cited as Rosebery, OPD Hist Sum: 1986).



Col. H. F. Cameron Jr. (*far right*) and Col. Dennis Grace (*second from right*) review the contract for the Saudi Arabia Mobility Program, February 1967.

of Saudi sensitivity to issues of prestige, the division engineer in Livorno should be in charge, just as he had been in presenting all other programs directly to King Faisal and to his ministers. Cameron felt that the program would enjoy greater continuity of personnel, an element favored by the Saudis, if it were managed from Livorno with support in Saudi Arabia. Cameron anticipated problems in recruiting personnel to serve in Riyadh. The U.S. Army designated military tours in Riyadh as unaccompanied because the city lacked the modern facilities available in Jiddah, the diplomatic capital and location of all the embassies.¹⁰⁷ By late 1966, the division began its search for a contractor who could furnish the services and personnel needed to make the Saudi Arabia Mobility Program successful.

Relocation to Camp Darby

In 1965 and 1966, as the division leaders worked to develop the new construction programs for the Saudi government, they also grappled with pressure from Washington to reduce overhead. In the spring of 1965, a DoD committee studying ways to reduce the United States' deficit in international balance of payments asked the division to consider relocating to Camp Darby, home of the U.S. Army 8th

¹⁰⁷ Cameron to Seedlock, 5 Nov 66, Mil Files XXI-3-5, OH, HQ USACE.



New location of the Mediterranean Division at Camp Darby, ca. 1967

Logistics Command, about ten miles north of Livorno. The 8th Logistics Command provided support to U.S. Army elements in the Southern European Task Force (SETAF) in Italy and to other elements under the United States Army, Europe (USAREUR). The Mediterranean Division itself already relied on the command for some support. A further consolidation would reduce the outflow of dollars and gold from the American economy into the Italian economy.¹⁰⁸

Division staff reviewed the possibility of the move and concluded that some local procurement could be combined with the 8th Logistics Command; it also appeared feasible to merge the civilian personnel functions of the two organizations. Other division functions had to remain separate. As a result of the study, the division engineer, Colonel Chaffin, informed the chief of engineers in June 1965 that he had no objection to relocating the division to Camp Darby into two barracks buildings converted for administrative use.¹⁰⁹

The order from Washington to relocate first put the date at 1 October 1965. The division objected that the buildings designated for it at Camp Darby were neither vacant nor immediately usable as office space. When the staff, citing the disruption

¹⁰⁸ Msg, Corps of Engrs to Div Engr, Mediterranean, 19 Mar 65, in file labeled Management Study of January 1966, MDD Move to Camp Darby, unmarked box, TAD-RHA.

¹⁰⁹ "Merger of Selected Functions of 8th Log Cmd and U.S. Army Engineer Division, Mediterranean," 7 May 65, in file labeled Management Study of January 1966, MDD Move to Camp Darby, unmarked box; Memo, Burfening, 9 Jun 65, unmarked box; both in TAD-RHA.

of work, resisted the suggestion to move first and have the renovation done “in the spring,” Washington relented. In December, funds arrived for the redesign and modest renovation of the barracks buildings at Camp Darby. Contractors completed the minor construction in the spring of 1966. In the meantime, the division terminated the lease on the Palazzo Grande in Livorno effective 15 June 1966. Between 18 May and 10 June, the move was completed with a minimum of confusion. In 1967, an additional building of permanent masonry construction was erected at Camp Darby to accommodate the division’s reproduction equipment.¹¹⁰

The Mediterranean Division in 1966

As 1966 ended, Colonel Cameron assessed the division’s status. Administratively, the situation was stable, with the division physically relocated to renovated buildings at Camp Darby. After much delay, Cameron had a nearly full complement of civilian pilots: two in Italy and one each in Turkey and in the Gulf, with an aviator due to arrive in February for Saudi Arabia.¹¹¹

In Turkey and Iran, the division’s workload continued to drop. In September, Cameron had alerted the Office of the Chief of Engineers that, with the work in Iran due for completion by June 1967, he expected to recommend closing the Gulf District that year.¹¹² The forecast for construction in Turkey, \$3.5 million in projects at Incirlik, Karamursel, Sinop, Samsun, Golbasi, and Izmir, meant the probability of phasing out the TUSEG Area Office as well. In Somalia, only the dredging and final cleanup remained at the Chisimayu Port to complete Phase I. Bids for Phase II construction, scheduled to be opened in early October, had been delayed indefinitely by the Agency for International Development in Washington, D.C.

Throughout the region, the late receipt and shortages of USAF design funds continued to be a problem. Although the division had completed design for thirty-five Air Force projects, lack of construction authorization, of funds, or of host-government approval kept the projects from going into construction.¹¹³

The prospective workload for the division using U.S. military construction funds looked bleak, and the division had only the Phase II Chisimayu Port project on the horizon for AID. The projects funded by the government in Saudi Arabia, however, seemed to multiply almost monthly. In late August, the division signed a contract with the Bin Ladin Organization to build Access Road A, the initial item of work for the cantonment at Khamis Mushayt.¹¹⁴

¹¹⁰ Mediterranean Div Staff Mtg Min, 6 Dec 65, 10 Jan, 7 Feb, 13 Jun 66, Som-29, TAD-RHA; Memo for Secretary of Defense, MEDIV [*sic*] Engineers (U[nclassified]), 15 Jun 71, sub: MEDDIV Engineers, box 6, access. no. 77-86-0008, WNRC.

¹¹¹ Ltr, Cameron to Cassidy, 2 Dec 66, Mil Files XXI-3-5, OH, HQ USACE; Mediterranean Div Staff Mtg Min, 4 Jan 67, box 51-83-8379, Farrell Papers.

¹¹² Cameron to Cassidy, 6 Sep 66.

¹¹³ Mediterranean Div Staff Mtg Min, 4 Jan 67, box 51-83-8379, Farrell Papers.

¹¹⁴ Cameron to Cassidy, 6 Sep 66, p. 2.

With the design on the Khamis Mushayt cantonment progressing well, the division expected to issue a request for proposals for construction early in January 1967. Field investigations and surveys for Tabuk were substantially complete; for Qaysumah, the third cantonment, negotiations were underway with the architect-engineer for surveys, field investigations, and a master plan.¹¹⁵

Expansion of the Saudi Arabian television system continued. Construction had started on the television station at Medina, and the contractor was ready to begin at Buraydah. In December, NBCI signed an option contract to operate the completed stations. The division had drafted and presented a five-year budget plan for expansion of the television network. The Saudi minister of information had then enthusiastically asked for a ten-year plan and indicated that he was considering the future addition of a 600-seat movie theater, a UN-type congress hall with seating for representatives from fifteen nations, a TV studio, and a film center. This would be a "sizable possible addition to our Saudi program," Cameron noted.¹¹⁶

By the end of 1966, the Mediterranean Division, the Office of the Chief of Engineers, and the Saudi Ministry of Defense and Aviation developed financial and managerial arrangements to initiate the SAMP. In January and February 1967, the Corps signed with the U.S. Military Training Mission in Saudi Arabia two letter agreements that defined the relationship between the two concerning the Saudi Arabia Mobility Program. Prince Sultan continued to want arms included in this program, offering another possibility for additional work for the division.¹¹⁷

Although the Mediterranean Division maintained its enormous area of responsibility, its attention was focused on Saudi Arabia. The division continued to construct facilities for the American military forces and, with State Department financing, for American allies. By contrast, the programs in Saudi Arabia were paid for entirely by the Saudis. To oversee the new and rapidly growing program, the division prepared to open a district in Saudi Arabia, the first newly created district in the division since the activation of the Gulf District in March 1956. As the year ended, the Mediterranean Division was poised to solicit bids from private American contractors to implement a support program for Saudi Arabia that would grow beyond anyone's expectations.¹¹⁸

¹¹⁵ Ltr, Cameron to Cassidy, 2 Dec 66.

¹¹⁶ Med Div Staff Mtg Min, 4 Jan 67, box 51-83-8379, Farrell Papers; quotation from Ltr, Cameron to Cassidy, 2 Dec 66.

¹¹⁷ SAMP Hist, 30 Jun 70, p. 9; Ltr, Cameron to Cassidy, 2 Dec 66.

¹¹⁸ Ltr, Cameron to Cassidy, 2 Dec 66, p. 3; Cameron to Cassidy, 3 Mar 67, p. 3.

8

DEVELOPING THE SAUDI ARABIAN PROGRAMS, 1967–1972

In the years immediately following the signing of the Engineer Assistance Agreement in 1965, the volume of construction that the Mediterranean Division supervised for the Saudi Arabian government began to increase. By contrast, in the areas where the division had invested most of its energy in the 1950s and early 1960s (North Africa, the NATO countries of southern Europe, and the buffer states between the Soviet Union and the oil-rich states of the Arabian Peninsula), the volume of construction waned steadily throughout the 1960s. Despite this decline, the Mediterranean Division provided construction management services outside Saudi Arabia for the U.S. Army, Air Force, Navy, Coast Guard, and Agency for International Development even while the main focus of the division's activity shifted progressively between 1967 and 1972.

As the 1960s ended and a new decade began, the anticolonial nationalism that had propelled Egypt's Nasser to world prominence provoked similar revolutions in Libya and Somalia. This made North Africa a political environment inhospitable to military construction by the United States. At the same time, the need for new facilities for the NATO countries of southern Europe would not sustain an overseas division of the Corps of Engineers. By the end of the decade, the war in Vietnam dominated the allocation of American resources for military construction and personnel. Of the Middle Eastern states, only Saudi Arabia evinced a very strong desire to have U.S. Army engineers heavily involved in building the country's military infrastructure. Moreover, the Saudi royal family had the money to pay for the engineers' services. This chapter explores the changing patterns of work as Saudi Arabia became the Mediterranean Division's principal customer.

Waning Operations in the Mediterranean

The division managed only a smattering of projects in Greece and Turkey in the late 1960s. In December 1968, the Mediterranean Division closed its materials testing laboratory in Athens, a sign of the division's declining activity in the region. Division personnel supervised for the Air Force construction of one hundred eighty family-housing units at Iraklion on the island of Crete and another two hundred units at Karamursel in Turkey. In 1969, the division received notification that the Office of the Secretary of Defense finally approved additional construction for the



Resident office in Karamursel, 1969

Air Force in Turkey at Incirlik and at Ankara. These construction projects in Greece and Turkey all dated from programs authorized in fiscal years 1965 and 1966.¹

NATO Countries

The Arab-Israeli War of June 1967 sparked one of the Mediterranean Division's rare new construction programs outside Saudi Arabia. The program, Theater Air Base Vulnerability Evaluation Exercise (TAB VEE), addressed the vulnerability of aircraft on the ground. Army engineers designed and constructed aircraft shelters that used reinforced concrete poured over liners made of corrugated-steel arches. In early 1969, the Mediterranean Division received authorization to design and build maintenance and parking hangars for the Air Force at Aviano in Italy and at Incirlik in Turkey. The number of structures and the criteria fluctuated as the Air Force repeatedly revised its requirements and specifications. Construction finally

¹ Cameron to Cassidy, 3 Mar 67, p. 2, Mil Files XXI-3-6; MFR, Clarke, 29 May 67, sub: Visit to Mediterranean Division, 16–28 May 1967, Mil Files XII-37-1; Waddell to Cassidy, 6 Jun 69, pp. 1–2, and 31 Dec 69, p. 1, Mil Files XXI-3-8; Waddell to Clarke, 3 Dec 69, p. 2, Mil Files XXI-3-8; all in Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va. MDD Internal Organizational Changes, Chronology with GO nos., Aug 58–Jan 71, n.d., p. 9, box 24, access. no. 77-92-0002, Washington National Records Center (WNRC), Suitland, Md.; Mediterranean Div, "Informational Brochure," 1 Feb 69, p. 5, box 24, access. no. 77-92-0002, WNRC.



Asphalt paving during road construction in the family housing area at Karamursel, June 1970

began very late in 1970 at Aviano; by early 1972, the division had completed sixteen aircraft shelters and two maintenance shelters at a cost of about \$1 million. At Incirlik, the division supervised construction of eighteen TAB VEE aircraft shelters in 1971 worth \$2 million. In 1973, the TAB VEE program at Aviano became a part of NATO's construction activities and responsibility for completing additional work passed to the Italian government.²

Work in North Africa

The work in Asmara, Ethiopia, typified the Mediterranean Division's activities in North Africa during the late 1960s. Here, the division administered half a dozen modest contracts to construct such facilities as a grade school for military dependents at Kagnew Station, a building to house a communications receiver for the U.S. Army Security Agency, an expanded system of water wells to alleviate the serious water shortage provoked by drought between 1968 and 1971, the rehabilitation of a heating plant, and relocation of power lines for the satellite-tracking station

² Waddell to Cassidy, 12 Nov 69, p. 1, box 26, access. no. 77-92-0001, WNRC; Waddell to Clarke, 17 Dec 70, p. 3, Mil Files XXI-3-9, OH, HQ USACE; Mediterranean Div Staff Mtg Min, 12 Nov 69, box 26, access. no. 77-92-0001, WNRC; Mediterranean Div, "Data Book," 1 Jan 72, pp. 12–13, box 51-84-9384, Richard T. Farrell Papers, OH, HQ USACE; Williams to Gribble, 14 Dec 73, p. 2, box 26, access. no. 77-92-0001, WNRC.

at Asmara run by the U.S. Army Strategic Communications Command, Europe. When the Army terminated its activities at Kagnev Station in June 1973, the Mediterranean Division's responsibilities in Asmara ended. Thereafter, the Navy operated a communications center from the post and provided engineering support for the remaining U.S. installations in Asmara.³

The division's final months in Asmara provide an example of the sort of pesky administrative problems that characterized management of construction operations in foreign countries. By terms of the construction agreement, the Corps of Engineers and its contractors used tax-exempt gasoline purchased from commercial sources and gave the dealer the forms to request tax waivers from the government. In January 1970, the Ethiopian government imposed a new regulation that all tax-exempt gasoline be dyed red to prevent it from entering the black market.⁴ In Eritrea, enforcement came only in May 1971 when Ethiopian customs officials began to refuse to honor the tax-exempt certificates submitted by the commercial outlets. Corps contractors bought gas directly from the U.S. military; it was tax exempt but not dyed red. If stopped, the contractors faced fines if they could not prove the gas was tax exempt. When the division's area engineer, Arthur Chapman, interceded with local customs officials on behalf of the contractors, the officials referred him to the government in Addis Ababa. Chapman sought help from the U.S. embassy, but months of efforts proved fruitless. Finally, American officials at Kagnev Station instructed contractors to buy gasoline on the commercial market and request compensation from the Army for the tax liabilities. This procedure was less expensive than establishing a distribution and accounting system that complied with the new regulations.⁵

The Corps of Engineers had worked at Wheelus Air Base in Tripoli, Libya, since 1951 when the Middle East District had been activated to manage construction there. In 1952, the Mediterranean Division incorporated the district; by 1958, the

³ Memo, Bertram W. Hoare, 13 Jul 67, sub: Starting and Completion Dates, Contract DACA75-67-C-0046, and other docs; Reginald Wong, "Time Extensions Due to Suez Canal Closure, Contract DACA75-67-C-0046, Dependent Grade School and Administration and Supply Additions, Asmara, Ethiopia," n.d.; Col Denis B. Grace to Geometra Gabriele Pollera, 27 Feb 69; all in ETH-9, Transatlantic Division—Records Holding Area (TAD-RHA). Melvin G. Green, Trip Rpt, 29 May 68, sub: Asmara and Saudi Arabia, 28 April–21 May 1968, box 29, access. no. 77-92-0002, WNRC; Mediterranean Div, Fact Sheets for Ch of Engrs, 16 Apr 70, box 51-83-8379, Farrell Papers; MFR, Green, 29 Jun 70, sub: Ground Water Production, Asmara, Ethiopia, box 21, access. no. 77-92-0002, WNRC; Memo, Philip M. Butler, Trip Rpt, 18 Aug 72, sub: Asmara, Ethiopia, 7–10 August 1972, box 12 of 357, TAD-RHA; Telephone/Verbal Conversation Rcd, Boer (STRATCOM, Heidelberg) to Holle, 11 Feb 71, sub: Relocation of Satellite Tracking Station, Asmara, Ethiopia, box 21, access. no. 77-92-0002, WNRC; Ltr from Maj Richard Chandler Jr., 21 Sep 72, box 12 of 357, TAD-RHA.

⁴ Maj Frederick E. Moss to Arthur Chapman, 15 Mar 72; DF, Chapman, 30 Nov 71, sub: Exemption of Duty Free Fuel Contracts DACA75-72-C-0005 and DACA75-71-C-0017; both in box 12 of 357, TAD-RHA.

⁵ DF, Chapman, 30 Nov 71; Moss to Chapman, 15 Mar 72. Memo of Conversation, Daniel H. Clare, 2 Sep 71, sub: Difficulties in Arranging for Duty-Free Gasoline for Kagnev Station Contractors; Edward W. M. Bryant, U.S. Embassy, to American Consul General, Asmara, 14 Sep 71; both in box 12 of 357, TAD-RHA.

division had completed all major construction for the U.S. Air Force at Wheelus. The division's activities in Libya thereafter were limited to small contracts to support and improve Air Force operations at Wheelus or to assist the Coast Guard at the LORAN navigation station at Matratin. Late in 1966, the division undertook projects to rehabilitate and expand the runways at Marble Arch Airfield adjacent to Matratin Station. The June 1967 war between Israel and the Arab states disrupted and delayed that work, and U.S. support of Israel in the war heightened anti-American feeling among Libyan nationalists. Despite the changing atmosphere, work continued. Between April and September 1968, contractors repaired the antenna towers that served Matratin Station; the following June, the division awarded a contract to improve several buildings at the installation.⁶

In addition to these projects, the Mediterranean Division supported PEACE DESERT, a program to construct facilities at Wheelus Air Base for the nucleus of a modern Libyan Air Force equipped with F-105 aircraft. In December 1967, the U.S. Air Force authorized design to begin; in June 1968, Morrison-Knudsen International (MKI) won a \$1.4 million construction contract for Wheelus.⁷

On 1 September 1969, a military coup led by a young Libyan nationalist, Col. Muammar Gadhafi, overthrew the Libyan monarchy. In mid-December, the newly installed revolutionary government asked the United States to end all construction in the country. At the time of the revolution, the Mediterranean Division had six active contracts in Libya, five related to PEACE DESERT and one for the LORAN station at Matratin. The division terminated two of the contracts, completed the remaining four, and turned all facilities over to the new Libyan government. On 10 March 1970, after nearly two decades in the country, the Corps of Engineers closed its area office at Wheelus Air Base and ended its operations in Libya.⁸ Within months, the Libyan government insisted that the United States and Great Britain withdraw from the military bases they had operated for a generation or more.

The largest volume of the division's work outside Saudi Arabia in the late 1960s was in Somalia. The completion of the Phase I construction at the port of Chisimayu (the construction of the breakwater and mole to control and reduce wave action, the wharf and ship berths, and the access road to Serpenti Island) overlapped the initiation of Phase II. The second phase involved construction of a water treatment and distribution system for the city, cargo sheds, warehouses, port administrative

⁶ "Chronological Construction History by Country: Libya," n.d. [list runs to June 1970], p. 3, box 35, access. no. 77-92-0001, WNRC; E. Tweedale, Taylor Woodrow International Ltd., to Corps of Engineers, USCG Loran Station, Matratin, Libya, 8 Jun 67, and other docs in LIB-6, TAD-RHA.

⁷ Cameron to Cassidy, 6 Dec 67, Mil Files XXI-3-6, and 29 May 68, Mil Files XXI-3-7, both in OH, HQ USACE; Cameron to Cassidy, 14 Mar 68, box 18, access. no. 77-92-0001, WNRC; "Chronological Construction History by Country: Libya," n.d.; OCE, "Annual Historical Summary, 1 July 1967–30 June 1968," p. 48, Gen Files 5-8, OH, HQ USACE; Memo, Rosseau, 16 Oct 68, sub: Trip Report—Malta, Wheelus—9/12 October 1968, box 35, access. no. 77-92-0002, WNRC.

⁸ Memo, Col Victor O. Wilson, 16 Mar 70, sub: Corps of Engineers Contracts in Libya, box 15 of 357, TAD-RHA; Waddell to Clarke, 5 Mar 70, p. 5, Mil Files XXI-3-9, OH, HQ USACE; Mediterranean Div Staff Mtg Min, 5 Mar 70, p. 7, box 18, access. no. 77-92-0001, WNRC.

buildings, and an electrical system adequate to support the facilities planned for the expanding port.⁹

In October 1965, the division engineer, Colonel Chaffin, traveled to Mogadiscio to complete negotiations with the Somali government for Phase II of the work at Chisimayu. The Somali government had signed directly with the Agency for International Development the agreement for funding Phase I, but AID preferred to have the Corps of Engineers negotiate an agreement for Phase II. In early November, the Somali government and the Mediterranean Division signed an agreement under Section 607 of the Foreign Assistance Act of 1961. The provision, which allowed a U.S. government agency to furnish services to a friendly state on a reimbursable basis, had covered the Mediterranean Division's management of the Saudi Arabian television program beginning in 1963. Like the work of Phase I, financing for the second phase of the Chisimayu work came from an AID loan to the Somali government.¹⁰

It took over a year before the Agency for International Development, the Mediterranean Division, and the Somali government reached agreement on design specifications and other criteria for a construction contract. AID then set an upper limit of \$5.5 million on all bids, which the Mediterranean Division opposed as too restrictive. In December 1966, the division invited construction proposals and received four bids, three of which exceeded the price ceiling. Morrison-Knudsen International, which priced the work at just over \$5.7 million, pointed out that the contract ceiling did not take into account either a trade embargo between Somalia and Kenya or the inflationary impact of the Vietnam War. MKI expressed a willingness to negotiate the price and specifically noted that if the contract's "Buy American" provisions were waived, the company could buy Italian pipe at considerable savings and reduce its bid. Because the MKI bid did not meet the terms of the solicitation, the division rejected it and the other two submissions as nonresponsive.¹¹

This left only the submission from Reynolds Construction Company. The Somali minister of public works refused to open the Reynolds bid, ostensibly because Reynolds had not been included on the list of nine contractors the Somali government had preapproved. More likely, the Somali government rejected the bid because Reynolds had an active contract with the Mediterranean Division for construction in Ethiopia, a country with which Somalia had fought in 1964 over

⁹ "Mediterranean Division, Corps of Engineers, United States Army," [1967], p. 26, unmarked box, Farrell Papers.

¹⁰ "Work for Other Nations," in *The History of the U.S. Army Corps of Engineers* (Washington, D.C.: U.S. Army Corps of Engineers, 1986), p. 112; Chaffin to Cassidy, 28 Sep 65, Mil Files XII-3-4, OH, HQ USACE; "Agreement Between the Government of the Somali Republic and the Corps of Engineers, Department of the Army of the United States of America, Relating to the Construction of Municipal and Port Facilities at Chisimaio," 10 Nov 65, box 20, access. no. 77-92-0001, WNRC.

¹¹ Cassidy to Cameron, 29 Jun 66, and Cameron to Cassidy, 2 Dec 66, both in Mil Files XXI-3-5, OH, HQ USACE; MFR, Rosseau and Frassrand, 2 Feb 67, sub: Trip Report to Mogadiscio, Somalia, for Bid Opening of Phase II, Chisimaio Project, box 102 of 357, TAD-RHA; Ltrs, John S. Withers, Grove, Shepherd, Wilson, and Kruge Inc., 25 Jan 67, and W. R. Conrow, MKI Inc., 26 Jan 67, both to Minister of Public Works, Republic of Somalia, both in box 102 of 357, TAD-RHA.

disputed territory along their common border. The contracting officer at the review of proposals, the assistant division engineer, Col. John M. Frassrand, said that the terms of the solicitation bound the Somali government to honor the bid from Reynolds, a bona fide American contractor. The AID representative at the meeting concurred, noting that AID had added Reynolds as a legitimate bidder in a letter to the Somali government. The Somali minister resisted these entreaties and left the Reynolds proposal unopened on the table. The review party moved its discussion to the office of the U.S. ambassador to Somalia, and he also urged to no avail that the bid be opened. That afternoon, the ambassador raised the matter with the Somali foreign minister, who agreed to discuss the issue with the prime minister.¹²

By late February 1967, the negotiations on the Reynolds bid had not advanced; but the last element of the work under the Phase I contract, the dredging of the harbor channel at Chisimayu, finally came to an end. Given the impasse over the Reynolds bid, and with Phase I completed, the division reduced its staff in Somalia to one officer and suspended all action on the Phase II contract. The Reynolds Company kept one representative in Somalia to monitor the situation.¹³

On 29 April 1967, after extensive correspondence with the Agency for International Development, the Somali government agreed to open the Reynolds bid. The \$5,329,636 bid fell under the ceiling and was judged responsive in all respects. After final negotiations, on 31 May, Reynolds signed a contract that contained two special conditions. First, Reynolds agreed to form a subsidiary to which it assigned the construction at Chisimayu. Second, the parties added a clause to require 100 percent employment of either American or Somali citizens. Citizens of other countries could be hired only after they had lived in Somalia for more than three years. Reynolds assigned the contract to its newly formed, wholly owned subsidiary, Overseas African Construction Corporation (OACC). On 7 August, AID finally cleared the contract so that the Mediterranean Division could issue a notice for OACC to proceed. Both the contractor and the division opened offices in Somalia.¹⁴

The contractor's mobilization proceeded slowly. OACC had planned to use four third-country nationals in its management team, but these appointments contradicted the contract provision governing citizenship of personnel. The area engineer, Maj. William S. Norris Jr., pointed out the violation; and OACC took some time adjusting its hiring practices.¹⁵ OACC had assurances that it could use Serpenti Island, but

¹² MFR, Rosseau and Frassrand, 2 Feb 67; MFR, Frassrand, 3 May 67, sub: FONCON Mr. Paul N. Shulman [Reynolds Exec] and Undersigned, box 102 of 357, TAD-RHA.

¹³ Cameron to Cassidy, 3 Mar 67, p. 4.

¹⁴ Ltr, Ahmed Jama Abdilleh, Dir Gen, Ministry of Public Works, Republic of Somalia, to Div Engr, Mediterranean Div, 18 May 67, box 102 of 357, TAD-RHA; Ltr, Cameron to Cassidy, 7 Jun 67, p. 3, and 5 Sep 67, both in Mil Files XXI-3-6, OH, HQ USACE; "Final Narrative Report, Phase II Port Facilities, Chisimaio, Somali Democratic Republic," Feb 71, p. 12, Mil Files XII-49-1, OH, HQ USACE (hereafter cited as Final Narr Rpt, Phase II, Chisimaio); OCE, "Annual Historical Summary, 1 July 1967–30 June 1968," p. 42.

¹⁵ MFR, John F. Elder, OACC [Overseas African Construction Corporation], and Maj William S. Norris Jr., 14 Sep 67, sub: Conference, Contract DACA75-67-C-0044, box 25 of 357, TAD-RHA;

a local contractor held a lease for the island from the Somali government. Despite repeated appeals, the local contractor did not clear the island for use by OACC until late January 1968, nearly five months after the anticipated date.¹⁶

Logistics created another delay. By contract, OACC had to provide housing and support facilities for the division's staff as well as its own personnel. The first shipment of prefabricated buildings and the furniture for those accommodations took three weeks to travel from Mogadiscio to Chisimayu, a distance of about two hundred fifty miles. Only part of the road between the two cities was paved: when the trucks carrying the materials ran into heavy rain, they became hopelessly mired in mud about ninety-five miles north of Chisimayu. For over a week, no one in Chisimayu knew the whereabouts of the truck convoy. Then one of the drivers reached Chisimayu and OACC officials dispatched a tractor to pull the trucks out of the mud.¹⁷

When the division's resident engineer, Walter F. von Neudegg, arrived in Chisimayu in September 1967 with his wife and ten-year-old son, he found no suitable accommodations for rent. For several months, the von Neudegg family shared a home that AID had leased for the last remaining Corps employee from Phase I. Von Neudegg described the accommodations as crowded and the sanitary facilities as "rudimentary." Meals consisted of canned goods and the prizes from the host's occasional hunting expeditions, including warthog and, on one occasion, a young crocodile. In very late December, the von Neudegg family moved into a housing unit rented by the contractor.¹⁸

Through the autumn and winter of 1967–1968, Major Norris worked in Mogadiscio to speed decisions by officials from AID and the Somali government and to assure that OACC's imported materials remained free of Somali taxes, tariffs, duties, and other levies. OACC needed about one hundred fifty workers to begin construction; but the news of major construction activity brought more than ten thousand job-seeking Somalis to Chisimayu, creating near chaos in the city of twenty thousand. When OACC was ready to begin construction in December, the Somali government had not yet acquired the land required at the water-treatment plant at Ionte, about ten miles upstream on the Giuba River north of Chisimayu.¹⁹

MFR, von Neudegg, 28 Sep 67, sub: Meeting with the Director of Public Works, GSR, Regarding Contract DACA75-67-C-0044 Problems, SOM-28, TAD-RHA.

¹⁶ MFR, Norris, 13 Oct 67, sub: Conference with Ambassador Thurston; Norris to Abdilleh, 20 Oct 67; Norris to Grace, 16 Dec 67, Mixed Files; all in SOM-28, TAD-RHA. MFR, Norris, 18 Dec 67, sub: Meeting with Director General of Public Works, box 25 of 357, TAD-RHA; Norris to Abdilleh, 29 Dec 67, SOM-28, TAD-RHA; MFR Prepared by Reginald Wong, Civil Engr CAB, Concurred by Douglas B. Ruddle, Asst Div Counsel, and Capt Robert G. Tames, Area Engr, 8 Jul 70, sub: Discussions of OACC Claim Relative to Non-availability of Serpenti Island under Contract DACA75-67-C-0004—Construction of Port and Municipal Facilities, Chisimaio, Somalia, Mixed Files, SOM-28, TAD-RHA.

¹⁷ "Mr. von Neudegg's Comments," typescript dating from late 1975–early 1976, p. 2, box 51-84-5389, Farrell Papers (hereafter cited as von Neudegg Comments).

¹⁸ *Ibid.*, pp. 1–2.

¹⁹ Norris to G. A. Froemming, USAID [U.S. Agency for International Development], 9 Oct 67, sub: USAID Engineering Function as Project Coordinator, Chisimio [*sic*], Phase Two Construction,

By mid-January 1968, OACC had assembled a professional staff of fifteen at Chisimayu but continued to make management decisions that led to delays. OACC had operations at three separate construction sites—at the port, in the city of Chisimayu, and at the water intake at Ionte—but only one concrete batch plant at Ionte. The contract required concrete at locations more than twenty miles away, making timely delivery of fresh concrete mixes difficult when work proceeded at all locations simultaneously. By similarly dubious logic, the contractor used an excavator that cut a 24-inch trench although the contract called for minimum 28-inch trenches for water pipes. OACC had to subcontract to an Italian firm that used its backhoes to widen the trenches from the intake point on the Giuba to the storage reservoir on the outskirts of town.²⁰

The area office's location in Mogadiscio helped early in the project, when key decisions had to be reached in negotiations with Somali officials and with the diplomatic support of the U.S. embassy. New radio communications linking Chisimayu, Mogadiscio, and Asmara enabled the division to relocate the area office in March 1968; thereafter, the area office and the resident office shared office space in Chisimayu.²¹

In addition to supervising construction, the division sought to prepare a trained and efficient Somali organization to take over the facilities that supported the new seaport. AID provided funds for five Somali trainees who worked under the resident engineer, von Neudegg, in Chisimayu. The office also engaged a Somali laboratory technician who had worked in the Corps' laboratory during Phase I.²²

OACC overcame many of its difficulties; by summer 1968, its workforce of 283 local laborers had construction ahead of schedule.²³ In March 1969, the Somali government even agreed to allow OACC to hire skilled third-country artisans because the contractor could not meet his needs with local craftsmen. A revised construction schedule anticipated completion of the work by December 1969. A military coup following the assassination of the president of Somalia on 15 October delayed OACC's completion of work; but on 31 March 1970, the Mediterranean Division transferred the Phase II construction to the Somali government.²⁴

SOM-28, TAD-RHA; Norris to Grace, 16 Dec 67, pp. 1–3; Norris to Abdilleh, 27 Nov 67, sub: Customs Duties Exemptions, SOM-28, TAD-RHA; MFR, Norris, 18 Dec 67; von Neudegg Comments, pp. 2–3; Waddell to Cassidy, 10 Mar 69, p. 3, Mil Files XXI-3-8, OH, HQ USACE.

²⁰ Ibid.; MFR, von Neudegg, 13 Dec 67, sub: Meeting with Contractor Project Manager, Contract DACA75-67-C-0044, 12 December 1967, p. 5, box 25 of 357, TAD-RHA.

²¹ MFR, Norris, 26 Feb 68, sub: Conference with Contractor, box 25 of 357, TAD-RHA; Cameron to Cassidy, 14 Mar 68; Final Narr Rpt, Phase II, Chisimaio, p. 15.

²² Norris, "Operations and Maintenance of Facilities, Chisimaio, Phase II," 10 Jan 68, SOM-28, TAD-RHA; von Neudegg Comments, pp. 4–5; Final Narr Rpt, Phase II, Chisimaio, p. 35.

²³ Final Narr Rpt, Phase II, Chisimaio, p. 35; Waddell to Cassidy, 7 Sep 68, Mil Files XXI-3-7, OH, HQ USACE.

²⁴ Final Narr Rpt, Phase II, Chisimaio, pp. 20, 24; MFR, Col Denis B. Grace, Daly C. Lavergne, and Dan F. Miller Jr., 10 Jul 69, sub: Corps of Engineers and AID Discussions on Chisimaio Projects, SOM-28, TAD-RHA.

For another eight months, the division's area office remained open to supervise remedial repair work on the breakwater and mole (extended causeway) constructed during Phase I. Since 1966, wave action during monsoons had overtopped the port's breakwater and washed over the mole area, causing erosion of the fill under the mole and inside the armor stone of the breakwater. The division's own engineers had designed the facilities, and they argued that the worsening erosion could have been prevented by adequate maintenance or by early remedial measures but that field inspectors had failed to show appropriate "adaptability to field conditions."²⁵

In 1967, the Agency for International Development awarded the first contract to correct the deficiencies; but the measures proved inadequate. After an inspection in January 1968, engineers in the division formulated a new plan. They proposed adding 500-pound stones to the breakwater to reduce surge from the wave action and placing additional armor stones to raise the breakwater by approximately nine feet along most of the mole area. The increased height would, they argued, "meet Somali Government objections to overtopping at certain times during the monsoons."²⁶

In June 1968, the Somali government signed an agreement with AID to complete the repairs. The Mediterranean Division wanted OACC to add the remedial repair of the wharf, breakwater, and mole area to its existing contract for Phase II; but the company declined. OACC doubted that it could find skilled local personnel or dependable subcontractors and sources of supply, and the Somali government's restrictions on the work already under contract discouraged any new commitment. The company also complained of the "unreliability of regular direct shipping services from the United States." In sum, the company declared, its overall "unsatisfactory" experience in Somalia and the "considerable loss" that it anticipated on the work already contracted for Phase II made it unwilling to remain active in Somalia.²⁷

With the on-site construction firm unwilling to bid, the division decided in late 1968 to contract with a local Somali firm to undertake most of the repair; in June 1969, the local contractor began work. The company's initial efforts received positive reviews from the division's engineers, but progress slowed in late summer because of poor and unreliable equipment.²⁸

In addition to all the other problems, the wharf area's concrete surface had developed cracks. To repair these, the Corps of Engineers proposed a relatively new technique, the application of epoxy mortar. During the mid-1960s, engineers had experimented using epoxy mortar to repair concrete exposed to water erosion

²⁵ Quotation from Cameron, "Inspection Trip with OCE Team," 15 Apr 66, p. 1, box 5, access. no. 77-92-0002, WNRC; Cameron to Cassidy, 3 Mar 67; OCE, "Annual Historical Summary, 1 July 1962–30 June 1963," p. 42, Gen Files 5-4, OH, HQ USACE.

²⁶ Cameron to Cassidy, 5 Sep 67. Quote from OCE, "Annual Historical Summary, 1 July 1967–30 June 1968," p. 43; Norris to His Excellency Mohamud Abdi Bur, Minister of Public Works, Mogadiscio, Somali Republic, 4 Jan 67, SOM-28, TAD-RHA.

²⁷ Vanderschaaf to Issah Ali Dereh, Port Captain, Chisimaio, 31 Jul 68, sub: Maintenance of Wharf Area, SOM-28, TAD-RHA; Waddell to Cassidy, 7 Sep 68. Quotations from Paul N. Shulman, Overseas African Construction Corp., to Grace, 13 Nov 68, box 102 of 357, TAD-RHA.

²⁸ Memo, G. A. Froemming [AID/Somalia] to U. L. James [AID/Washington], 16 Nov 68, sub: USAID Mogadiscio—Engineers Report, SOM-28, TAD-RHA; Waddell to Cassidy, 6 Jun 69, p. 3.

at civil works projects in the United States. The division sent Paul Wheeler, a civil engineer with experience in contract administration, to work with the contractor in determining the extent of the repairs. In February 1970, AID approved the use of epoxy to repair the wharves and reaffirmed its approval of the previously authorized deck and pile repairs. Over the spring and summer, the repairs progressed slowly, in part because essential materials did not arrive as planned. When the highly combustible chemicals needed to mix and thin the epoxy binder reached Italy from the United States, the division had difficulty finding ships that would transport them to Somalia.²⁹

The area office in Somalia remained open while the remedial work continued. Simultaneously, the division held negotiations in Livorno with the Overseas African Construction Corporation to settle all pending change orders and claims. During July and August 1970, the division reached a settlement with OACC by conceding the company an adjustment that brought the contract price for Phase II to a total of \$5,963,912. On 12 November, with the repair work completed, the Mediterranean Division closed its area office in Chisimayu and ended its decade of work in Somalia.³⁰ It left behind a functional modern port, an adequate municipal electrical system able to support the harbor's operations, and a system for the distribution of potable and sanitary water—the first in Chisimayu's history. It also left behind a small cadre of Somali citizens trained to operate the facilities.

Lt. Gen. Frederick J. Clarke, who oversaw the work in Somalia from Washington, D.C., as director of military construction before becoming chief of engineers in August 1969, reflected on Somalia as a microcosm of Cold War competition. "The Italians were in there with a banana subsidy; the West Germans were in on a road building program; the Red Chinese were in on agricultural assistance; and the Russians were in there building a cannery [while] the Americans were putting in a water system and the wharf facilities."³¹

Operations in Saudi Arabia

When the Mediterranean Division closed its office in Somalia, it had fewer than thirty people in field offices outside of Saudi Arabia.³² A modest contract (\$131,000)

²⁹ Donald R. Pope, "Epoxy Protection at Milford Dam," *Military Engineer* (March-April 1965): 119–20; Interv, Moorhus with Paul S. Wheeler, 31 May 95, pp. 23–24; MFR, Grace, Lavergne, and Miller, 10 Jul 69; Waddell to Cassidy, 10 Mar 69, p. 3; Waddell to Clarke, 5 Sep 69, Mil Files XXI-3-8, OH, HQ USACE; Mediterranean Div Staff Mtg Min, 5 Mar 70, pp. 1–2, and 28 Jul 70, pp. 4, 6, both in box 18, access. no. 77-92-0001, WNRC; Waddell to Clarke, 5 Mar 70, p. 4, and 6 Mar 70, p. 1, both in Mil Files XXI-3-9, OH, HQ USACE.

³⁰ Final Narr Rpt, Phase II, Chisimaio, p. 24; Mediterranean Div, Fact Sheets for Ch of Engrs, 16 Apr 70, box 51-83-8379, Farrell Papers; Mediterranean Div Staff Mtg Min, 28 Jul 70, p. 6; Waddell to Clarke, 17 Dec 70, Mil Files XXI-3-9, OH, HQ USACE.

³¹ *Interviews with Lieutenant General Frederick J. Clarke* (Washington, D.C.: Office of the Chief of Engineers, 1980), pp. 174–75.

³² See Table 10, "Mediterranean Division Personnel, End of Fiscal Year Strength," derived from fourth-quarter reports in Program Rev and Analysis Covering FYs 1967–1975, box 3 of 3, C-7-10, TAD-RHA.

covered drilling of water wells near Kagnew Station in Ethiopia. Two contracts totaling less than \$500,000 remained active in Greece; in Turkey, five contracts were active with a total value of \$1.8 million. By contrast, the division had contracts in Saudi Arabia worth hundreds of millions of dollars. As of 30 October 1971, estimates for programs sponsored by the Saudi Ministry of Defense and Aviation (MODA) alone reached \$143.1 million. Activities in Saudi Arabia accounted for 80 percent of the division's workload at the end of 1968 and over 95 percent by 1971.³³

The division traced the expansion of its operations in Saudi Arabia back to 1963, when division personnel began work for the Saudi Ministry of Information (MOI) on a modern television system. The Engineer Assistance Agreement with the Ministry of Defense and Aviation in 1965 further committed the division, initially to design and construct three brigade-size military cantonments to house elements of the Saudi Arabian Army. The division had also laid the basic groundwork for the Saudi Arabia Mobility Program (SAMP) to procure, maintain, and support a fleet of modern military vehicles. More generally, the division provided technical services as requested by Saudi governmental ministries, primarily in engineering and construction. These three large programs grew in the late 1960s to supplant the Mediterranean Division's work in other geographic areas.³⁴

As the geographic balance of the division's activities shifted, concerns arose about the division's continuing viability in Italy. As early as December 1965, the division's own projections suggested that it might not be practical to maintain a Corps of Engineers division in the Mediterranean region beyond the late 1960s. In June and September 1968, the division had received inquiries from the Office of the Chief of Engineers in Washington concerning possible reorganization. Proposals suggested consolidating the division headquarters with the newly activated Saudi Arabia District or relocating to the United States. Mediterranean Division personnel argued that any relocation would involve substantial one-time costs and increase the division's annual operating budget by well over a million dollars. They also contended that the move would adversely affect relations with the Italian government and thereby compromise the division's ability to serve the U.S. military installations there.³⁵

In the summer of 1969, Senator Stuart Symington (D-Missouri) questioned the chief of engineers about the proportion of the division's present and future

³³ Mediterranean Div, "Information Brochure for the Honorable Nicholas Thacher, United States Ambassador to Saudi Arabia," 14 Sep 70, p. 4, box 51-84-7361, Farrell Papers (hereafter cited as Info Brochure for Thacher); Program Rev and Analysis Rpts for FYs 1967-1975, box 3 of 3, C-7-10, TAD-RHA; Waddell, Farewell Address, 9 Jul 71, box 18, access no. 77-92-0001, WNRC; Mediterranean Div, "Informational Brochure for OCE Command Inspection," 20 Nov 70, unmarked box (SA-725), TAD-RHA (hereafter cited as Info Brochure: OCE Cmd Inspection, 20 Nov 70); Mediterranean Div, "Data Book," 15 Mar 72, p. 9, Walker Box 15, OH, HQ USACE.

³⁴ "Handbook, Saudi Arabia District," Oct 69, p. 13, unmarked box, OH, HQ USACE.

³⁵ Memo, Chaffin, 30 Dec 65, sub: Division Long Range Organization Plan, p. 7, box 682798, Record Group 77, access. no. 77-0004, Federal Records Center, Bayonne, N.J.; Robert E. Hall, "Organization and Workload of the Mediterranean Engineer Division," 6 Dec 68, box 6, access. no. 77-86-0008, WNRC.

workload devoted to Saudi Arabia. Symington's inquiry signaled the continuing, perhaps growing, opinion in Washington that the division headquarters might be more appropriately located in the United States. For the time being, the division retained its headquarters in Livorno. Colonel Cameron, the division engineer who had negotiated the Engineer Assistance Agreement, understood that the Mediterranean Division's increasing involvement in Saudi Arabia represented a commitment to give Saudi Arabia the basic management support and physical infrastructure needed to transform its existing army into a modern military force. He predicted that the division's support of Saudi Arabia would "last a minimum of ten years despite estimates for a shorter time."³⁶

In 1967, the Saudi Arabian Army, excluding the national guard, nominally numbered twenty-five thousand and was organized in five brigades. (Its real strength may have been fewer than eighteen thousand.) The forces lacked training facilities and had no modern combat equipment, communications equipment, or logistical transport. Given a hostile and well-armed Egypt that espoused a secular Arab nationalism, civil war in the Yemens, and unrest in the other states of the Arabian Peninsula, modernization of the military represented a pressing need for the Saudi monarchy.³⁷

Saudi Arabia District

When the Mediterranean Division's work for Saudi Arabia began to increase, the division activated field offices to put its managers close to the projects. In June 1964, the division opened a Saudi Arabia Area Office in the port city of Jiddah on the Red Sea to supervise the Saudi television program. As the division's work for the Saudi government expanded, the area engineer opened a small office in the capital, Riyadh, to maintain liaison with MODA and with the United States Military Training Mission (USMTM). In November 1965, the area engineer took over the duties of the Corps representative and assumed responsibility for liaison with MODA. On 1 January 1967, the division converted the office in Jiddah to the Saudi Arabia District. Jiddah, where diplomatic missions to Saudi Arabia had their offices, was a comfortable and cosmopolitan place to live; but Colonel Cameron was convinced that the new district would have to move to Riyadh, the location of MODA and the future site of a new administrative complex planned for the Ministry of Information.³⁸

³⁶ Reisacher to Harris, 22 Jul 69, p. 5; Stuart Symington, Chairman, Subcommittee [of the Foreign Affairs Committee] on U.S. Security Agreements and Commitments Abroad, to Maj Gen F. J. Clarke, 7 Jul 69; both in box 6, access. no. 77-86-0008, WNRC. Cameron to Seedlock, 5 Nov 66, pp. 1–3 (quotation from p. 1), Mil Files XXI-3-5, OH, HQ USACE.

³⁷ Anthony H. Cordesman, *The Gulf and the Search for Strategic Stability: Saudi Arabia, the Military Balance in the Gulf, and Trends in the Arab-Israeli Military Balance* (Boulder, Colo.: Westview Press, 1984), p. 136, more generally pp. 122–47.

³⁸ Telex, American Embassy, Jiddah, to Div Engr, USAENGR Div Med–Leghorn, 5 Nov 65, sub: Weekly Progress Rpt, box FB107, File 4-EAA, OH, HQ USACE; MFR, Chaffin, 14 Jan 66, p. A-1; GO no. 28, Dec 68, box 51-84-9384, Farrell Papers; quotation from Memo, Cameron, 19 Dec 66, sub:



Saudi Arabia District Office, Jiddah, 1968

In May 1967, a group of district personnel moved to Riyadh and set up offices in a leased villa in the city. Col. Joseph A. Bacci, who had served as area engineer before becoming district engineer, resisted moving the entire district to Riyadh. He argued that Jiddah was closer to the district's most active work at the cantonments of Khamis Mushayt and Tabuk, that work for the Saudi Arabia Mobility Program involved the Jiddah port, and that the embassy provided the new district with an excellent communications network. The MODA liaison officer, Maj. Mahmoud Nassief, also favored retaining a cadre in Jiddah, where he lived. When Colonel Bacci's tour ended in August 1967, his successor, Col. Albert G. Dancy, moved to Riyadh where the district leased forty-five villas, most housing staff members and their families. Because only one villa in Riyadh was suitable for office space and could not accommodate his entire operation, Dancy left part of his staff in Jiddah.³⁹

Establishment of Saudi Arabia District, Mil Files XXI-3-5, OH, HQ USACE; "Draft History of the Saudi Arabia District," [1970], pp. 8, 11, box 16, access. no. 77-92-0001, WNRC; MFR, Rosseau, 29 Dec 66, sub: Trip Report—Visit to Saudi Arabia, 12–21 December 1966, p. 3, box FB107, OH, HQ USACE.

³⁹ MFR, Rosseau, 29 Dec 66; Joseph A. Bacci to Richard T. Farrell, 26 Mar 76, box 17, access. no. 77-92-0001, WNRC; "Draft History of the Saudi Arabia District," [1970], pp. 11–12; MFR, George

Communications from Riyadh were so limited that Dancy's successor, Col. Peter Grosz Jr., found that district headquarters had only one telephone when he arrived to take over the district in June 1968. To make a call, district personnel had to ring the Arab telephone operator at Riyadh's central switchboard, so "it helped a great deal to be able to ask for the number in Arabic." Within the American community, only a few of the leased houses had telephones, and the city's limited system made adding new phones difficult. This meant that families, isolated by Saudi prohibitions against women driving, had no way to get in touch with a spouse at the office. To alleviate this isolation, the district won permission to establish a short-range CB radio system that linked district headquarters, SAMP offices, and at least one accommodation in each cluster of leased houses. The district abolished the CB radio network after 1969 when improvements to the Riyadh telephone system permitted telephones in most of the homes leased for Corps employees.⁴⁰

Communications between Riyadh and other cities were also severely limited. The district could send written communications to the embassy in Jiddah by means of the USMTM teletype or by pouch on either a USMTM or a district plane. Colonel Grosz found that the quickest way to converse with anyone in Jiddah was to fly the five hundred thirty miles there in one of the district's three light aircraft maintained by the Mediterranean Division's aviation detachment. To communicate with the division in Livorno, the district often used hand-carried pouches because international telephone calls were, in Grosz's words, "impossible in 1968 [and] still unreliable in mid-1970." Teletype to the division went first to the USMTM office at Dhahran and was retransmitted over the military communications system. The quickest turnaround was two days, and a message normally took at least three days.⁴¹

The Saudi Arabia District enjoyed an unusual place in the chain of command governing the U.S. military in Saudi Arabia. In Iran, all of the Gulf District's contacts with the government had passed through the USMTM office. In Saudi Arabia, the district engineer had direct, often face-to-face contact with the Saudi ministers. When Colonel Grosz wanted to establish the CB radio network to serve the district, Minister of Information Jamil Hujaylan helped arrange it. District engineers met frequently with Minister of Defense and Aviation Prince Sultan. In routine meetings, only one other person participated: the MODA liaison officer to the Corps of Engineers, Major Nassief, who acted as interpreter for both parties. In addition to direct access to the Saudi government, the district engineer and his staff had greater freedom of movement within the country than did the members of USMTM. When one district engineer wanted to give the commander of USMTM a tour of the cantonment under

Bogorad, 21 Mar 67, sub: Meeting of Coordinating Committee for Establishment of Saudi Arabia District, box 15, access. no. 77-92-0001, WNRC.

⁴⁰ Interv, Moorhus with Col (Ret) Peter Grosz Jr., 19 Mar 96, p. 33; Ltr, Grosz to authors, 18 May 96, R&D File 2814, Transatlantic Programs Center (TAC), Winchester, Va.

⁴¹ Ibid.; "Saudi Arabia District Historical Report," [1969], p. 13, SA-725, TAD-RHA. On the division's aviation detachment, see Waddell to Cassidy, 4 Dec 68, p. 7, Mil Files XXI-3-7, OH, HQ USACE.



Aircraft belonging to the Mediterranean Division, 1968

construction at Khamis Mushayt, the Saudis informed him that the USMTM officer could visit the site only upon invitation of Prince Sultan.⁴²

In June 1968, the district's offices had no single room to accommodate a meeting of the entire senior staff. Colonel Grosz's predecessor had already chosen a more suitable office building; in September, Grosz moved the district headquarters to a new three-story building designed for offices and apartments. The district then converted the former office villa into a social center and meeting place. Renamed the Desert Inn, the villa had a small outdoor swimming pool, making the site a center for family activities.⁴³

When the Gulf District in Iran closed in September 1968, Grosz, who had served there as deputy district engineer, arranged to have certain nonperishable provisions from the district's Castle Club shipped in a sealed container to Riyadh. The Desert Inn thereby acquired a selection of beverages for the district's social functions. The Desert Inn never sold the beverages but was able to maintain its supply by

⁴² Interv, Moorhus with Grosz, 19 Mar 96, pp. 29–30; Peter Grosz Jr., "Saudi Arabia District, 1968–1970," p. 11, draft of a speech to Soc of Amer Mil Engrs, Winchester, Va., 16 Feb 95, OH, HQ USACE.

⁴³ DF, Col Albert G. Dancy, 15 Apr 68, sub: District Operations, pp. 1, 3, unmarked box, TAD-RHA; Interv, Moorhus with Grosz, 19 Mar 96, pp. 26–27; Grosz, "Saudi Arabia District, 1968–1970," pp. 10–11.

accepting contributions in kind from members, many of whom developed the means to produce their own.⁴⁴

Col. Edward L. Waddell Jr., the division engineer, had specifically asked that Colonel Grosz bring his wife to Saudi Arabia; Grosz thus became the first district engineer to have an accompanied tour. Both Waddell and Grosz put a premium on the morale of the organization and its families. They saw the social activities, which the Desert Inn held about once a month, as a means of knitting the staff together; and Grosz's wife took an active role. To help recruit new employees for the district, Grosz prepared an orientation handbook and recruiting brochure. With Waddell's approval, the district provided direct help for district staff in finding and leasing accommodations. Grosz particularly tried to incorporate into the district's social activities the people serving the Saudi Arabia Mobility Program, who were often assigned to more isolated locations in the country.⁴⁵

By October 1969, the district held fifty-six leases including rented space for the area office in Jiddah in a building that offered eight transient billets. In Riyadh, the district provided thirty-three bachelor officers quarters divided among three buildings for men and one for women; one building in Jiddah had four units. For families, the district rented 39 villas in Riyadh, 5 in Jiddah, and 1 in Taif. It also maintained an apartment in Dammam. Recreational facilities included the Desert Inn in Riyadh and beach cabins in Jiddah. Housing for district personnel was dispersed among the local Saudi residences rather than concentrated in an American compound.⁴⁶

Recruiting remained difficult. Early in 1968, the division engineer arranged to have a representative of the Corps' personnel office in Washington spend a week in the Saudi Arabia District to acquaint him with local conditions and to encourage his recruiting for the district. Despite this effort, and to the detriment of work schedules, the district waited an average of nine months before a new civilian reported for duty; the wait was seven months for military personnel.⁴⁷

The district grew, albeit slowly. In May 1968, its staff included 6 Army officers, 3 noncommissioned officers, and 51 civilians accompanied by 60 dependents. By the end of the year, the district's staff included 34 military, 100 American civilians, and 25 foreign nationals. About a third of the district's staff occupied field offices around the country: an area office in Khamis Mushayt; resident offices in Dammam and Riyadh; a project office in Taif; SAMP project offices at Al Kharj, Jiddah, Khamis Mushayt, Riyadh, Tabuk, and Taif; and a SAMP training unit in Taif. In the next year, the staff barely held even. By late October 1969, the district's personnel had declined to 148 people while it waited for a score of new recruits to arrive. Fifteen of the thirty-one military personnel were from the U.S. Army Ordnance Corps

⁴⁴ Intervs, Moorhus with Grosz, 19 Mar 96, pp. 26–27; with Paul S. Wheeler, 31 May 95, pp. 7–8; Moorhus and Grathwol with John Cummings, 18 Nov 93, pp. 52–53.

⁴⁵ Interv, Moorhus with Grosz, 19 Mar 96, pp. 25–26, 28; Waddell to Cassidy, 4 Dec 68, p. 6.

⁴⁶ "Saudi Arabia District Historical Report," [1969]; Peter Grosz Jr., "Saudi Arabia in the Late 1960s," Speech to the Soc of Amer Mil Engrs, 16 Feb 95, p. 6, OH, HQ USACE.

⁴⁷ Interv, Moorhus with Grosz, 19 Mar 96, pp. 31–33; Cameron to Cassidy, 14 Mar 68; Clarke to Waddell, 3 Jul 68, Mil Files XXI-3-7, OH, HQ USACE; Waddell to Cassidy, 7 Sep 68.

assigned to the SAMP. Four of the military and fifty-two of the civilian employees had their families in the country.⁴⁸

The district also employed local personnel. In most other countries, the Mediterranean Division hired citizens of the host country; but very few Saudis worked for the division or the district. Saudis did occasionally drive vehicles, operate equipment, and serve as technicians; but the majority of the positions in construction, maintenance, and menial labor went to former slaves (their servitude was abolished in 1962) and to recent Islamic immigrants: Yemenis, Sudanese, Ethiopians, Pakistanis, Lebanese, and Indonesians.⁴⁹

With a staff of about one hundred fifty full-time personnel and the active support and involvement of division personnel based in Livorno, the Saudi Arabia District supervised the development of the installations and staff for a nationwide television and radio broadcast system; the cantonment construction program; and the logistical, maintenance, and mobility program known as the Saudi Arabia Mobility Program.

Completing the Saudi Television Network

The construction of the initial temporary television stations at Riyadh and Jiddah began in 1964; the two stations made their inaugural broadcasts in July 1965 with American equipment procured and installed by RCA Great Britain Ltd. Late in the year, the Saudi Arabian government approved the addition of four television transmitting stations. In January 1966, the Mediterranean Division awarded a contract to McGaughy, McMillan, Marshal, and Lucas of Norfolk, Virginia, and Rome, Italy, to design transmitting stations at Buraydah (also called Qassim Station) and Medina (one of Islam's two holiest cities), as well as microwave links to Taif and Mecca. (*See Map 19.*) Mecca and Taif, the king's summer capital, would receive broadcasts from the station in Jiddah transmitted by a microwave relay. Medina and Buraydah would have facilities for replaying filmed or taped broadcasts and only very limited local production capabilities.⁵⁰

In July 1966, U.S. Ambassador Hermann F. Eilts and Saudi Minister of Information Hujaylan agreed to extend the arrangement originally expressed through the exchange of notes in December 1963 and January 1964. As work progressed, the

⁴⁸ "Draft History of the Saudi Arabia District," [1970], p. 12; organizational charts provided by Grosz, "Saudi Arabia District Historical Report," [1969], p. 7; Waddell to Cassidy, 6 Jun 69, p. 5; Cassidy to Waddell, 2 Jul 69, Mil Files XXI-3-8, OH, HQ USACE; "Saudi Arabia District Historical Report," [1969], p. 10.

⁴⁹ MFR, Bogorad, 21 Mar 67, p. 1; Grosz, "Saudi Arabia District, 1968-1970," p. 5.

⁵⁰ MFR, Chaffin, 14 Jan 66; Amb Eilts, Semi-Monthly Progress Rpt for MDDGM, 31 Jan 66, unmarked box, OH, HQ USACE; Chaffin to Cassidy, 9 Mar 66; Mediterranean Div, "Saudi Arabian Television System: Completion Report to the Minister of Information (MOI)," Jun 71, pp. 5-11, box 16, access. no. 77-92-0001, WNRC (hereafter cited as Saudi Arabian TV Sys Completion Rpt, Jun 71); OCE, "Annual Historical Summary, 1 July 1967-30 June 1968," p. 46.

two countries renewed the agreement several more times.⁵¹ In September 1966, the division awarded contracts for construction of the stations at Medina and Buraydah to an American company, Briscoe-Cat International.

In the autumn of 1966, at the request of Hujaylan, the division developed a five-year budget plan to expand the Saudi television network. The plan incorporated voice-telephone-telegraph communications through the microwave system used to relay the television signals to create a link between Taif, Riyadh, and Dammam and to add links between Jiddah and Khamis Mushayt, between Jiddah and Medina, and between Riyadh and Buraydah. The plan also encompassed a permanent station at Riyadh and a new station at Dammam, conversion of all systems to make color transmission possible, and a 240-line telephone and telegraph capacity from Jiddah to Dammam.⁵²

The Ministry of Information encountered problems acquiring real estate for the television stations at Medina and Buraydah; by March 1967, additional delays in procuring materials and equipment had put construction for the stations two months behind schedule. The Arab-Israeli War of June 1967 extended those delays. The final design for Medina, adapted for Buraydah as well, stipulated masonry construction for a studio with office space and for a power plant. The construction contractor laid foundations for antenna towers, installed air conditioning and all other utilities, and provided paved parking and an access road. Because non-Muslims could not enter Medina, the television station had to be located outside the city boundaries. The project also involved construction of housing at the site to accommodate the Americans who staffed the station in its early years.⁵³

In March 1967, the contract for the last of the television stations, at Dammam, went to the Frank E. Basil Company. Because of Dammam's location in a highly populated region, the Saudis wanted this station to be equipped with a high antenna for maximum transmission over a wide area. The Saudis also hoped to reach the populations of the neighboring states of Kuwait and Bahrain with their television broadcasts. A powerful station would allow Saudi broadcasts to compete with the private Arabian-American Oil Company (ARAMCO) television station at Dhahran, just ten miles away.⁵⁴

Basil designed two parallel transmitters into the station's operating system so that if one failed the other would continue to broadcast with no loss of air time. The

⁵¹ OCE, "Annual Historical Summary, 1 July 1967–30 June 1968," p. 46; "Mediterranean Division, Corps of Engineers, United States Army," [1967], p. 8.

⁵² Abdulrahman S. Shobaili, "Saudi Arabian Television: A History and Descriptive Study," p. 1, Jul 69, M.S. thesis, University of Kansas; Memo, Area Engr Jiddah to Div Engr, 28 Sep 66, sub: Expansion of TV System, R&D File 2220, Adrian Hromiak Papers, TAC; Memo, Vanek, 1 Oct 66, sub: Expansion to TV System, Hromiak Papers; Cameron to Cassidy, 2 Dec 66.

⁵³ Cameron to Cassidy, 3 Mar 66, Mil Files XXI-3-6, OH, HQ USACE; Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 13–16; Memo, Rosseau and Grace, 30 Jul 68, sub: Trip Report, Saudi Arabia, 10–21 June 1968, p. 15, box 29, access. no. 77-92-0002, WNRC; Shobaili, "Saudi Arabian Television," p. 50.

⁵⁴ Cameron to Cassidy, 3 Mar 66; Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 14–16; Shobaili, "Saudi Arabian Television," pp. 54–55, 175.



Television studio building in Dammam, ca. 1968

design also incorporated an antenna tower of one thousand three hundred feet, four times higher than any other antenna in the system. In October 1967, the division awarded the construction contract for the station to the Saudi firm of Tamimi and Fouad.⁵⁵

The microwave system linking Jiddah, Mecca, and Taif began operating in December 1967. The transmitter at the holy city of Mecca, as with the facilities at Medina, had to be located outside the city limits. Medina went on the air in January 1968, followed by Buraydah in July. The station at Dammam made its first test broadcast in April 1969 and began regular telecasts in November. With its completion, the second phase in the construction of a Saudi television system came to an end.⁵⁶

While the physical construction of their television network proceeded, the Saudis also had to develop the personnel to staff the system. Late in 1964, the Mediterranean Division awarded a two-year contract to cover the interim operations

⁵⁵ Cameron to Cassidy, 3 Mar 67, p. 2, and 6 Dec 67, p. 3, both in Mil Files XXI-3-6, OH, HQ USACE; Memo, Frassrand, 11 May 67, sub: Authorization—Design and Construction of Facilities—Saudi Arabia MOI, box 2, access. no. 77-92-0002, WNRC; Shobaili, “Saudi Arabian Television,” pp. 41, 54–55.

⁵⁶ Shobaili, “Saudi Arabian Television,” pp. 40–41; Sum Rpt/Dammam Television/Saudi Arabian Television System/Ministry of Information, 30 Dec 69, p. 2, box 51-84-9384, Farrell Papers; Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 11, 16.



Saudi Arabian Minister of Information Jamil Hujaylan at the opening of the Dammam television station, 1968

and maintenance of the television system and for training Saudi personnel to take over operations in the future. The contract went to the National Broadcasting Corporation International (NBCI), which provided twenty-one American engineers, program and production personnel, and managers for the stations at Jiddah and Riyadh. Under the general direction of a project manager, this staff screened and hired personnel, ran the day-to-day operations, and controlled the budget of the two stations.⁵⁷

The NBCI team also launched an on-the-job training program for Saudis and helped the Ministry of Information select trainees for special programs of study in the United States. Most of the candidates were young, were not proficient in English, and had less than a high school education. Moreover, they had to jump from the conservative social milieu of Saudi Arabia to New York City where they attended English-language and technical courses at the RCA Institute. Keeping track of the students and keeping them focused on their training proved challenging.⁵⁸

The Saudi government provided a letter of credit to cover a stipend for each student, but many of the young men could not stay within their allowance. The

⁵⁷ MFR, Vanek, 23 Nov 64, sub: Narrative Summary TV Project, Saudi Arabia (Draft), pp. 3–4, box 5, access. no. 77-92-0002, WNRC; Shobaili, “Saudi Arabian Television,” p. 22.

⁵⁸ MFR, Vanek, 23 Mar 64, box 13, access. no. 77-92-0002, WNRC; Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 20, 29; Interv, John T. Greenwood with Richard Wiles, 7 Nov 85, pp. 46–47.

division's New York liaison office hired the Arabic-speaking wife of an Egyptian diplomat in New York to serve as an adviser to the students, but problems persisted. The Saudi government did not select new students for this study program in the United States in 1967. In early 1968, division representatives and Minister Hujaylan discussed the students' difficulties. Colonel Cameron and Hujaylan each agreed to dispatch a representative to the United States. The two subordinates would interview the students, inspect the facilities, and review the teaching methods and course work. Hujaylan also requested that the division review the feasibility of having the students train in Britain.⁵⁹

The American Institute of Foreign Trade at Thunderbird, near Tempe, Arizona, agreed to provide the Saudis with preliminary education and English-language courses. In mid-1968, the division arranged with Arizona State University for technical training. Even away from the temptations of New York City, the cultural adjustments remained difficult. Some students, however, went on from Arizona to graduate work at Ohio State and Kansas State Universities; others studied at the University of Kansas and at Syracuse University. Two-thirds of the 108 young men who participated finished their courses with certificates of completion from technical schools; three earned bachelor's degrees, and two earned master's degrees. When they returned to Saudi Arabia, the television system had a nucleus of seventy-eight trained Saudis. The system also had about three hundred other employees who had trained on the job with the Americans who operated the Saudi television studios during the 1960s.⁶⁰

When the contract for operations and maintenance of the television system came up for renewal in 1966, only NBCI submitted a bid. In the autumn of 1968, when NBCI submitted a proposal for a second renewal, the division found it unreasonably expensive and suggested that the Saudi Ministry of Information authorize a competitive bidding process. Although nervous about losing air time if a new contractor won the contract, the Saudis agreed. AVCO Electronic Division of Cincinnati, Ohio, submitted the low bid and received the new contract on 10 October 1968.⁶¹

The division assigned Adrian Hromiak from the Livorno headquarters to work with NBCI and AVCO to prepare for the transfer of responsibilities. For weeks, Hromiak shuttled between Italy, Saudi Arabia, and the United States to monitor the transition. The Saudis had the personnel to take over management and production;

⁵⁹ MFRs, Vanek, 26 Feb 68, sub: Trip Report, Saudi Arabia, 13–21 Feb 68, p. 4, and 5 Mar 68, sub: Trip Report, Saudi Arabia, 28 Feb–4 Mar 68, p. 2, both in box 29, access. no. 77-92-0002, WNRC.

⁶⁰ Intervs, Greenwood with Wiles, 7 Nov 85, pp. 46–47, and authors with Hromiak, 6 Feb 95, pp. 17–18. Hromiak accompanied a group of Saudi students to Arizona. Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 20, 24, 29, 87, 93. This report mentions Ohio State and Kansas State as hosting Saudi graduate students, but Abdulrahman Shobaili wrote his thesis at the University of Kansas. Two students also went directly from New York City to Syracuse University for master's degrees in radio and television. See Shobaili, "Saudi Arabian Television," p. 89; Info Brochure for Thacher, p. III-26.

⁶¹ MFR, Harold C. West and Vanek, 17 Oct 66, sub: Position Paper on Rejection of TV Operations Proposal by Thomson TV International, pp. 1–4, box 29, access. no. 77-92-0002, WNRC; Interv, authors with Adrian Hromiak, 6 Feb 94, p. 18; Saudi Arabian TV Sys Completion Rpt, Jun 71, p. 18; Shobaili, "Saudi Arabian Television," p. 21.

but AVCO provided about thirty American television technicians, including several who had worked for NBCI, to monitor the operations and utilities. On 1 January 1969, AVCO assumed operational responsibilities for the Saudi television system. The transition occurred without incident and with no loss of broadcast time.⁶²

By 1970, the Saudi Arabian government had seven television broadcast stations in operation: major studio-transmitter facilities at Jiddah, Riyadh, and Dammam; smaller television stations at Medina and Qassim (Buraydah) that had rebroadcast facilities; and satellite stations at Mecca and Taif linked with Jiddah by microwave repeaters. A microwave system fed two transmitter locations that propagated the television signals around the entire country. The microwave system also supported voice telephone and telegraph communication throughout the kingdom. In addition, mobile television vans made on-site television reporting possible.⁶³

Because RCA had acquired and installed U.S. equipment, each station resembled a small American television studio. Housed in pre-engineered buildings and equipped with emergency generators, stations could use both European and American tapes. Between 1964 and 1970, American management skills and technology had combined with Saudi Arabian money to create a complete, functioning monochromatic television system at a total cost of about \$28.5 million. During the same period, Saudi Arabia imported between fifty-two thousand and sixty-seven thousand television sets, giving the country a growing audience for its new broadcast system.⁶⁴

In October 1969, Hujaylan informed the Mediterranean Division that his ministry would assume full responsibility for the television system in 1970. The division drafted a transition plan proposing that the Saudis assume responsibility on 31 December 1970, the end date of the AVCO contract for operations and maintenance of the system. A team consisting of members from the division, the Ministry of Information, the Ministry of Finance, and AVCO conducted detailed inspections and performance tests in the closing months of 1970; on 1 January 1971, the Ministry of Information assumed responsibility for the Saudi Arabian television system.⁶⁵

Radio Broadcast Facilities

Beginning in 1966, the Mediterranean Division worked simultaneously on the television system and on a radio-broadcast complex for the Saudi Ministry of Information. Minister Hujaylan had turned to the Corps of Engineers for help because he was unhappy with earlier construction of radio facilities in Jiddah. That project dated from the mid-1950s, had stretched over more than eight years, and had involved

⁶² Interv, authors with Hromiak, 6 Feb 94, p. 18; Memo, Hromiak, 18 Dec 68, sub: Trip Report—Saudi Arabia, 4–12 Dec 68, Hromiak Papers; Saudi Arabian TV Sys Completion Rpt, Jun 71, p. 18; Shobaili, “Saudi Arabian Television,” p. 21; Info Brochure for Thacher, p. III-26.

⁶³ Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 2, 25–26.

⁶⁴ For an overview of costs, see Saudi Arabian TV Sys Completion Rpt, Jun 71, p. 31; Grosz, “Saudi Arabia District, 1968–1970,” pp. 10–11; Hermann F. Eilts, “Social Revolution in Saudi Arabia, Part II,” *Parameters* (Fall 1971): 27.

⁶⁵ Saudi Arabian TV Sys Completion Rpt, Jun 71, pp. 2, 25–26.

four different construction contractors, three of whom had gone bankrupt. The Corps had played no role in construction of the Jiddah radio facilities, but Hujaylan wanted Corps help in pursuing his plans. In September 1966, he authorized the division to issue a contract for redesign to the American architect-engineer firm of Ralph M. Parsons.⁶⁶ The following May, the United States and Saudi Arabia amended the agreement that governed the television project to include construction of the Ministry of Information's new administrative complex, including the headquarters and a studio building for radio broadcasting.⁶⁷

For six months, design engineers, members of the division's engineering team, and MOI representatives discussed specifications as Parsons prepared designs for three separate structures: a fourteen-story administration building, a three-story radio broadcast studio building, and a power plant to serve both. The request for construction proposals in April 1967 enticed only two firms to bid, and both bids substantially exceeded the government estimate for the project. The division then expanded the bidders list, designated some items to be awarded on an incremental basis depending on funding, and rebid the project in September. Again, only two bids came in: they showed no significant change in price.⁶⁸

Division staff and Minister Hujaylan next discussed scaling down the requirements of the construction. In November 1967, one of the key figures in the division, James F. Vanek, traveled to Saudi Arabia to present the results of the bidding. At a followup meeting on 18 November, Hujaylan accepted the division's recommendations to reduce the size of the project, generating a burst of labor-intensive work for the division. In this case, Hujaylan asked for twenty Arabic-language copies of the revised report; he wanted the translated report in a matter of days to present the request for funds quickly to the minister of finance.⁶⁹

Parsons received the charge to modify the design for certain features of the project; in January 1967, Vanek brought the new package back to Saudi Arabia with the new cost estimate of \$16.9 million. With Hujaylan's approval, the division sent the revised specifications to the two companies that had bid earlier. Both submitted proposals, and both were below the revised estimate. The low bid priced the construction for the buildings at \$15.6 million and set a total cost for the project of \$20.2 million.⁷⁰

⁶⁶ Memo, Filippo Borrello, 26 Oct 66, sub: Investigation of MOI Radio Building in Jeddah, box 13; MFR, Vanek, 21 Jan 67, sub: Trip Report—Radio-Studio Complex, Riyadh and SA TV Microwave Link, pp. 1, 7, box 13; "Saudi Arabia MOI Programs," 10 May 68, pp. 2–3, box 28; all in access. no. 77-92-0002, WNRC.

⁶⁷ Mediterranean Div Staff Mtg Min, 27 Jun 66, Som-29, TAD-RHA; Cameron to Cassidy, 6 Sep 66, Mil Files XXI-3-5, OH, HQ USACE; Saudi Arabian TV Sys Completion Rpt, Jun 71, p. 1.

⁶⁸ Cameron to Cassidy, 7 Jun 67; MFR, Vanek, 29 May 67, sub: Inspection, Saudi Arabia TV Program, box 5, access. no. 77-92-0002, WNRC; "Saudi Arabia MOI Programs," 10 May 68, pp. 2–3.

⁶⁹ MFRs, Vanek, 11 Nov 67, sub: Trip Report, Saudi Arabia, 31 Oct thru 8 Nov 67, pp. 1–3, and 24 Nov 67, sub: Trip Report, Saudi Arabia, 14–21 November 1967, pp. 1–5, both in box 29, access. no. 77-92-0002, WNRC.

⁷⁰ Cameron to Cassidy, 6 Dec 67; MFR, C. J. Egan, 16 Jan 68, sub: Discussion on Revised Final Design of Radio/Studio Complex—Riyadh, box 13; MFR, Vanek, 25 Jan 68, sub: Trip Report, Saudi

Although the winning bid was below the Mediterranean Division's estimate for the work, the Saudi Arabian council of ministers would not approve the price. Over the spring and summer, Vanek shuttled between Livorno, Los Angeles, New York, and Riyadh to adjust the specifications, to repackage the design, and to lower costs. The division reduced the administrative building to four stories and trimmed other features. It then separated the administration building from the solicitation. The construction package now included a redesigned radio studio and auditorium building, the power plant, surrounding landscaping, and supporting facilities at an estimated cost of \$12.5 million. The design called for utilities capable of supporting the administration building, leaving later expansion of the complex open.⁷¹

Aware of the Saudi government's previous rejection of bids, contractors balked at expending additional resources to prepare proposals unless the division could offer some assurance that an award would take place. Unable to give such assurances, the Mediterranean Division sought new contractors and found two willing companies, one French and one American. The French firm bid "slightly in excess" of the Saudi government's limit of \$12.5 million, while the American company's bid was \$13.4 million. The division rejected both bids and then contacted one British and two Italian contractors already working in Saudi Arabia. Judging that they could submit lower bids because they already had a presence in the country, the division set the maximum price at \$9 million for the radio studio/auditorium and power-plant buildings.⁷²

On 3 December 1968, Compagnia Generale Costruzioni Sp.A. (COGECO) of Rome, one of the three firms already working in Saudi Arabia, submitted a bid of just over \$9 million. Late in the month, a representative traveled to Riyadh to join Colonel Grosz in discussing the proposal with Minister Hujaylan. On 16 January 1969, the Mediterranean Division finally awarded COGECO a \$9.197 million contract to construct the studio complex. Total project costs, including nonconstruction items, were not to exceed \$12.5 million.⁷³

COGECO began work almost immediately and quickly discovered that the subsoil at the site was not the limestone fragments and sandstone described in the specifications but very hard limestone bedrock. Initial efforts to break it up with a jackhammer produced negligible results. Removing the bedrock would be a much longer and more expensive endeavor than anticipated at the time of the bid. Strikes in

Arabia, 9–24 January 1968, passim, box 29; MFR, Egan, 29 Jan 68, sub: Radio Complex, Riyadh, box 13; Memo, Vanek, 26 Feb 68, sub: Trip Report, Saudi Arabia, 13–21 Feb 68, pp. 1–2, box 29; all in access. no. 77-92-0002, WNRC. Cameron to Hujaylan, 27 Feb 68, box 272 of 357, TAD-RHA.

⁷¹ See Vanek's trip reports dated 5 Mar, 22 Apr, 25 Jun, 26 Jul, and 12 Aug 68; Dancy to Hujaylan, 14 Apr 68; all in box 29, access. no. 77-92-0002, WNRC. Cameron to Cassidy, 14 Mar 68, p. 3; Waddell to Hujaylan, 8 Jul, 2 Aug 68, and Grosz to Hujaylan, 28 Oct 68, all in box 272 of 357, TAD-RHA; OCE, "Annual Historical Summary, 1 July 1967–30 June 1968," p. 46; Grace to Grosz, 24 Jul 68, box 29, access. no. 77-92-0002, WNRC.

⁷² Waddell to Hujaylan, 2 Aug 68, and Grosz to Hujaylan, 28 Oct 68; Grace to Grosz, 24 Jul 68.

⁷³ Memo, Lt Col James C. Hartup and Grosz to Waddell, 1 Feb 69, sub: Semi-Monthly Narrative Status Report, RCS MDDVC-4, box 31, access. no. 77-92-0002, WNRC; Waddell to Hujaylan, 3 Feb 69, and attached notes, box 272 of 357, TAD-RHA.

Italy, border closings in Lebanon-Syria-Jordan, a cholera epidemic, and difficulties in delivering structural steel all contributed to further delays. COGECO finally completed work on the radio studio building, the power-plant building, landscaping, and supporting facilities on 31 May 1972. A few months later, Nippon Electric Company Ltd. of Japan won a contract to install the radio equipment, a step left out of the original contract to keep costs at a minimum. It took Nippon until May 1975 to complete the procurement and installation.⁷⁴

During 1969 and 1970, while COGECO worked on the radio studio complex, the Mediterranean Division continued to discuss with Minister Hujaylan the redesign of the administrative building. Despite design revisions, the Council of Ministers did not provide funds; when Ibrahim Angary succeeded Hujaylan as minister of information in the second half of 1970, the project disappeared.⁷⁵

With the completion of the studio complex in May 1972, the Mediterranean Division had accomplished all of its tasks for the Saudi Arabian Ministry of Information. Division staff then concentrated on work for the Ministry of Defense and Aviation. The planning for cantonment construction and the development of a comprehensive program for the Saudi Army's ordnance corps, begun in the mid-1960s, became the dominant element in the Mediterranean Division's activities.

Building Cantonments for the Ministry of Defense and Aviation

Developing a nationwide television system for the Saudi Arabian government marked a new departure for the Mediterranean Division. The cantonments for the Saudi Arabian Army involved the division in a more customary role—military construction similar to the work it had accomplished in Iran and Pakistan.

From the earliest discussions in 1964, the Saudis saw these cantonments as the cornerstone of the modernization of their armed forces. The Saudi minister of Defense and Aviation, Prince Sultan, anticipated three cantonments: in the southwest near Yemen; in the northwest near Jordan; and in the north near Iraq. Given the unrest throughout the entire region and the menacing foreign policy of Nasser's Egypt, he wanted construction to start on two of the cantonments within a year after serious discussions began. The Mediterranean Division's engineers found Prince Sultan's timetable unrealistic; during the negotiations for the Engineer Assistance

⁷⁴ Mediterranean Div, "Data Book," 15 Oct 72, p. 23, box 51-84-9384, Farrell Papers; Memo, West and Reisacher, 23 Oct 69, sub: Trip Report—Saudi Arabia—13 Sep–15 Oct 1969, p. 8, box 7 of 357, TAD-RHA; Waddell to Clarke, 3 Dec 69; Memo, Hromiak, 22 Nov 70, sub: Inspection of Studio Building by His Excellency Ibrahim Angary, Minister of Information, box 7 of 357, TAD-RHA; Mediterranean Div, "Data Book," 15 Mar 74, p. 21, box 5, access. no. 77-92-0001, WNRC; OCE, "Annual Report on Major Activities, Jul. 1, 1974–Jun. 30, 1975," p. 48, OH, HQ USACE, copy in R&D File 2207, TAC.

⁷⁵ Waddell to Clarke, 5 Sep 69; Mediterranean Div Staff Mtg Min, 9 Jun 69, pp. 1, 8, and 28 Jul 69, p. 5, box 26, access. no. 77-92-0001, WNRC.

Agreement, the division staff had tried to educate the Saudis about the planning time needed to develop a sound construction program.⁷⁶

After the EAA signing in May–June 1965, the division's efforts on the cantonment program moved forward. In late November, the division had awarded a \$3.28 million design contract to the joint venture Basil, the Architect Collaborative, and Metcalf & Eddy. In addition to field investigations, concept designs and criteria, and a master plan for the cantonments at Khamis Mushayt and Tabuk, BATMED's contract included preparation of the final design for Khamis Mushayt.⁷⁷

Khamis Mushayt

The town of Khamis Mushayt is situated less than eighty miles from the border with Yemen and about sixty miles east of the Red Sea's coast in southwestern Saudi Arabia in the rugged highlands of the province of Asir. The town lies at six thousand two hundred feet above sea level. Spring rains bring most of the annual rainfall that averages only about eight inches a year. A twelve-year record of temperatures showed a maximum of 81°F and a minimum of 41°F.⁷⁸

The inaccessibility of the site presented the first challenge in developing the cantonment. No road led from the town to the location of the construction, about ten miles away. The airport, about seven miles away, had a 10,000-foot runway and provided the only convenient arrival point for visitors. Air travel from Jiddah took one hour, from Riyadh an hour and a half. Overland travel took a minimum of four days and traversed country that remained virtually unmapped; not even a rail line ran there. The first construction contract therefore went to a Saudi contractor, Bin Ladin, to construct a road between the local airfield and the construction site. Work began on Access Road A in August 1966 and lasted until March 1967.⁷⁹

A scarcity of water created the second problem. No one had identified an adequate source of water to supply the cantonment. Finding a sufficient water supply and transporting it to the site involved several million dollars of additional expense.⁸⁰

⁷⁶ Memos, Hayes, 15 Oct 64, sub: Construction of the Army Bases, Saudi Arabia (SA), p. 11, and 19 Oct 64, sub: Support of Saudi Army Construction Program by the Corps of Engineers, p. 9, both in box 51-84-9384, Farrell Papers. "Saudi Arabia Engineer Assistance, Comments by Eng Div," [23 Oct 64], p. 1, Gen Corresp 1964, no. 2, OH, HQ USACE; Memo, Walker to Chaffin, 18 Nov 65, sub: MODA Crisis Concerning MDD's Inability to Expend Appropriated Funds—\$6.250 Million for Saudi FY 1385 and \$13.963 for Saudi FY 1386, unmarked box, OH, HQ USACE.

⁷⁷ Telg, [author unclear] to Div Engr USAENGR Div Med–Leghorn, 29 Nov 65, sub: Weekly Progress Report, box FB107, and Semi-Monthly Narr Rpt for MDDGM, 15 Jan 66, EAA Corresp, both in OH, HQ USACE; Basil, [The Architects Collaborative], Metcalf & Eddy, "Saudi Arabian Engineer Assistance Program: Khamis Mushayt, Engineering Feasibility Reports: Master Planning Analytical Report," 3 May 66, box 65 of 104, access. no. 77-84-2400, TAD-RHA (hereafter cited as BATMED Rpt).

⁷⁸ MFR, Chaffin, 30 Sep 64, sub: Proposed Military Construction for Saudi Arabia, box 51-84-5389, OH, HQ USACE.

⁷⁹ "Building the King Faisal Military Cantonment, 1967–1971," Aug 71, p. 3, Mil Files XII-49-2, OH, HQ USACE; BATMED Rpt, p. 9; Cameron to Cassidy, 6 Sep 66, p. 2.

⁸⁰ MFR, Clarke, 29 May 67, p. 2; Interv, Paul Walker with John Coony, 9 Feb 85, pp. 24–25.

Just as the designers had to compensate for inaccessibility and a lack of water, they had to adjust to unfamiliar cultural factors in the design of the cantonment. Although two-story construction was less expensive, MODA preferred single-story structures because of earthquakes. After much vacillation, they chose one-story construction except for the enlisted men's barracks. The Saudi practice of building high walls around living quarters added to the expense of construction. Initial design had failed to take this into account in the cost estimates.⁸¹

The architect-engineers preparing the designs incorporated the traditional Saudi architectural practice of orienting buildings on an east-west axis to mitigate the most severe effects of solar heating. Surrounding walls protected buildings from direct radiant heat when the sun was at low angles. Roof insulation and large overhangs to shade the sides of buildings provided protection from the sun at higher angles. Ventilation openings high in walls promoted and enhanced the natural flow of air for cooling. Designers included courtyards, trees, water pools, and fountains to minimize the heat and dust. The architect-engineers anticipated that these design features would apply to all three cantonments, with appropriate adaptations.⁸² Even for Khamis Mushayt, where extremes of heat or cold were uncommon, designers followed these design guidelines, using the east-west orientation and locating the latrines on the west end of buildings to reduce heat transfer to the interior. Family quarters had no windows on the east or west sides.⁸³

As initially designed, the Khamis Mushayt cantonment covered approximately three thousand acres and included over three hundred buildings to accommodate one army combat brigade with a projected size of 6,484 officers and enlisted men. Conscious of Saudi family mores, the engineers designed each house with segregated quarters for men and women. Schools were likewise segregated, with one for one hundred eighty females and a second for three hundred sixty males. Designers envisioned the space as a pedestrian community, so they avoided making walkways cross major traffic arteries and placed housing a maximum of eight hundred meters from the community center along the main entrance road.⁸⁴

In May 1966, the BATMED designers presented the proposal to Prince Sultan, organizing the prospective work in six broad categories of construction: troop housing, officers family housing, bachelor officers quarters (BOQ), community facilities, a hospital group, and a maintenance and storage area. Support facilities encompassed utilities (electricity, water, sewage, roads, and a POL storage and distribution system), a 100-bed hospital, a community center, two schools, and

⁸¹ Memo, Col John E. Walker to Vanek, 25 Apr 65, sub: Draft Criteria for Army Camps, box FB107, OH, HQ USACE.

⁸² Four documents, each entitled "Basis of Definitive Design," with subtitles, "Company Barracks," "Bachelor Officers Quarters," "Family Quarters," and "Civil Works," all dtd 5 Mar 66, box 10, access. no. 77-92-0002, WNRC.

⁸³ BATMED Rpt.

⁸⁴ *Ibid.*

two mosques. The cantonment had facilities to serve a total population of about ten thousand soldiers and supporting personnel.⁸⁵

Models and displays helped convince Prince Sultan to approve construction. In reviewing the design for Khamis Mushayt, Prince Sultan asked for changes that illustrate the attention to detail that recurred throughout the Saudi relationship with the Corps of Engineers. He asked that one of the duplex senior officers houses be redesigned as a single-family home for visiting dignitaries and that one BOQ building be furnished and reserved for visiting high-rank officers. In addition to approving the start of construction at Khamis Mushayt, Sultan also endorsed completion of the designs for Tabuk and Qaysumah.⁸⁶

The estimated costs for construction at Khamis Mushayt were higher than the division's earlier estimates, so the plan proposed two phases of construction: facilities that could be built with available funds and those that could be added later when more funds became available. To reduce costs, revised plans restricted hot water to mess halls, the laundry, the bakery, the brigade commander's house, and the hospital. Designers reprogrammed air conditioning only for the bakery, the commander's house, VIP housing, and the hospital; and only the commander's house and the hospital got central heating. Prince Sultan considered heating, air conditioning, and hot water elective amenities that officers could choose to add to their own quarters. The revisions reduced construction cost estimates. Successive reviews and approvals took from June to December 1966. On 1 October, the division opened a resident office at Khamis Mushayt.⁸⁷

On 5 January 1967, the division issued to eighteen companies a construction bidding package for the Khamis Mushayt cantonment. The three bids submitted and opened on 14 April were all higher than the Saudis had expected. Costs had risen steadily through the 1960s because of the inflationary pressure of the Vietnam War and the growth in construction activity worldwide. Within Saudi Arabia itself, the rapid pace of development had drawn down the available labor pool. When the Saudis raised questions about the discrepancy between estimates and bids, the division engineer, Colonel Cameron, pointed out that they had added twenty major items to the construction project and significantly expanded another twenty-six elements.⁸⁸ The willingness to make numerous changes in the scope of a project and the attention to minutiae of furnishings and design that complicated the development of the Khamis Mushayt cantonment recurred in virtually all of the Saudi projects.

⁸⁵ MFR, Emil L. Blondell, 3 Jun 66, sub: Presentation of Design-Planning Criteria for Cantonment at Khamis Mushayt to HRH Prince Sultan MODA, SAG on 21 and 25 May 1966, box 29, access. no. 77-92-0002, WNRC; Cameron to Cassidy, 8 Jun 66, and Cameron to Col Paul R. Sheffield, 1 Jun 66, both in Mil Files XXI-3-5, OH, HQ USACE; MFR, Chaffin, 14 Jan 66, pp. B-2–B-3.

⁸⁶ MFR, Blondell, 3 Jun 66; Cameron to Sheffield, 1 Jun 66, Mil Files XXI-3-5, OH, HQ USACE.

⁸⁷ Mediterranean Div, GO no. 19, 23 Sep 66, box 29, access. no. 77-92-0002, WNRC. For Prince Sultan's attitude, see Memo, Hayes, 19 Oct 64, sub: Support of the Saudi Arabia Construction Program by the Corps of Engineers, box 51-84-9384, Farrell Papers.

⁸⁸ Cameron to Prince Sultan, 30 Jun 67, box 139 of 357, TAD-RHA.

Between April and August 1967, the division negotiated with the two lowest bidders to try to reduce costs by changing the length of the contract period, removing some facilities, modifying specifications on others, and adjusting bonding requirements.⁸⁹ The conversations to trim costs led to revised specifications for construction; in mid-August, the division sent these new specifications to the two low bidders from the first round. The solicitation listed each of the facilities to be built, set out time schedules for completion of each stage, and stipulated that the contractor provide such things as transportation, electricity, housing, messing, medical, and other services for contractor and Corps personnel. Bids from the two joint ventures came to within \$5,000 of one another, but a chance happening disrupted the award of a contract. Just weeks after the submissions, the Saudi Arabian principal participant in one of the joint ventures, Bin Ladin, died in a plane crash. The final consultations proceeded only with the other joint venture.⁹⁰

On 19 December, the Mediterranean Division awarded a fixed-price contract for construction of the cantonment at Khamis Mushayt to Joint Venture Khamis Mushayt (JVKM), led by the West German Hochtief A.G. and including Compagnie Française d'Entreprises of Paris and Costruzioni Generali Farsura S.p.A. (COGEFAR) and Imprese Italiane all'Estero S.p.A. (Impresit), both of Milan. Most often, the group was simply called Hochtief. The total value of the contract came to \$58.98 million, more than double the estimate of six months earlier.⁹¹

Given Khamis Mushayt's isolation, Hochtief chose to develop a barge port at Shuqayq, about sixty miles southwest of Khamis Mushayt on the Red Sea, as the most efficient avenue for transporting materials to the construction site. The contractor also greatly improved the one hundred miles of road between Shuqayq and Khamis Mushayt. Maps of the day showed a good road from Taif, two hundred fifty miles northwest of Khamis Mushayt; but Hochtief concluded that the heavy loads that they had to ship would render the road impassable. Hochtief shipped materials to Shuqayq, where they were off-loaded to light boats and then hauled overland and seven thousand feet up to the construction site.⁹²

The contractor's first shipment of building materials cleared Saudi customs on 20 March 1968; by July, the contractor had set up a rock-crushing and screening plant on site to produce aggregate. On 20 July, the Mediterranean Division held an

⁸⁹ See numerous memos and correspondence, Apr–Aug 67, in box 44 of 357, TAD-RHA; Cameron to Prince Sultan, 30 Jun 67.

⁹⁰ "Specifications for Construction of Mil. Cantonment at Khamis Mushayt, Saudi Arabia," Specs no. 67/1, Aug 67, box 17 of 104, access. no. 77-84-2400, TAD-RHA; "Information Folder: Saudi Arabian Engineer Assistance Program," 10 May 68, p. 5, box 28, access. no. 77-92-0002, WNRC; "Khamis Mushayt Cantonment, Final Proposals Received 22 August," n.d., box 44 of 357, TAD-RHA; Cameron to Cassidy, 5 Sep 67, Mil Files XXI-3-6, OH, HQ USACE.

⁹¹ The companies participating in the joint venture at the time of the award are named in Cameron to Cassidy, 6 Dec 67, p. 3. By 1972, the contractor was using a letterhead that listed an American participant, Grove International of New York. See Joint Venture Khamis Mushayt to Mediterranean Div, 29 Aug 72, unmarked box, TAD-RHA.

⁹² Cameron to Cassidy, 14 Mar 68, p. 3; Grosz, "Saudi Arabia District, 1968–1970," p. 3; "Building the King Faisal Military Cantonment," pp. 1–2.



Mosque under construction at the Khamis Mushayt cantonment, December 1969

official dedication and groundbreaking ceremony that was attended by Prince Sultan and the deputy chief of engineers, Maj. Gen. Frederick J. Clarke. The ceremony drew thousands of local Saudis.⁹³

The original design had called for a combination of cast-in-place structural support elements with concrete-block filler. Hochtief received permission to precast the concrete elements of the structural framework using a precast plant built on site at Khamis Mushayt. The choice to use precast concrete provoked some concern because it delayed the visible signs of construction that the Saudis awaited, that is, buildings rising visibly out of the ground. The plant began producing the structural elements in December 1968, but buildings appeared much later. During the sixteen months of the plant's operation, it manufactured more than seventeen thousand six hundred concrete pieces for beams, columns, roof slabs, curbs, and sun shades. Once the elements were cast, the buildings rose rapidly. In April 1969, the contractor opened a plant to produce terrazzo and concrete floor tiles. By June, the cantonment had become a small town populated by the employees of Hochtief and of the Corps

⁹³ "Building the King Faisal Military Cantonment," pp. 1–2; "Report of Progress for Month of July 1968 for the Saudi Arabia Engineer Assistance Program," 31 Jul 68, box 5, access. no. 77-92-0002, WNRC.

of Engineers and their families. In October, the contractor opened its last on-site production facility, an asphalt plant.⁹⁴

While construction of the essential cantonment facilities proceeded at Khamis Mushayt, the division negotiated with MODA concerning such ancillary facilities as training ranges and access roads. By March 1969, the working estimate for Khamis Mushayt had risen to \$73.5 million and estimates for all three cantonments had increased from \$102 million (in 1965) to \$209.5 million.⁹⁵ The Saudi minister of finance expressed concern. Prince Sultan, facing pressure from his fellow minister, his uncle, began to look for ways to spread the costs over a longer period. He also decided to reduce the cantonment at Tabuk to a facility for only one brigade.⁹⁶

The discussion of how to handle the increasing construction costs coincided with a crisis in cash available to the division through the letter of credit in New York. As of 1 April 1969, all of the funds assigned to the letter of credit were obligated. The division engineer, Colonel Waddell, went to Riyadh, accompanied by the MODA liaison officer, Major Nassief, to persuade the minister of finance as well as the minister of defense, Prince Sultan, to add to the letter of credit. After several hours of consultation, Waddell obtained a promise that the Saudi government would immediately release \$7.1 million to cover work at Khamis Mushayt to 30 June and another \$6 million shortly thereafter to cover construction costs for the following quarter. Upon returning to Livorno, Waddell stopped in Jiddah to brief the ambassador, who interpreted the entire exchange as indicating a slowdown in Saudi defense spending.⁹⁷

While the division's administrative staff wrestled with the problem of available funds, its technical staff reviewed and adapted the water supply system designed by BATMED. The plan proposed developing a number of wells at Wadi Bishah North, where the division's geologists expected to find water close to the surface. In June 1969, the division awarded a contract for \$1.9 million to Joint Venture Khamis Mushayt to construct the water system at Bishah North, northwest of Khamis Mushayt and about sixteen miles from the cantonment. When completed, the system included twelve encased wells approximately ten feet deep, pumps, a collection line, booster pump houses, and a water conduit sixteen miles long that raised the water about four hundred feet above its ground location. Even with the enhanced

⁹⁴ "Building the King Faisal Military Cantonment," pp. 5–6; Waddell to Cassidy, 7 Sep 68; Intervs, authors with Col (Ret) Robert W. Reisacher, 25 Oct 94, pp. 17–18, and Paul K. Walker with Col (Ret) Robert W. Reisacher, 7 Feb 85, pp. 22, 39.

⁹⁵ Waddell to Cassidy, 10 Mar 69, p. 2; "Engineer Assistance Program: Saudi Arabia," 10 Mar 69, box 28, access. no. 77-92-0002, WNRC.

⁹⁶ Rough trans of Ltr, Minister of Finance to Minister of Defense, 30 Mar 69, sub: Tabuk and Qaysumah Cantonments, attached to MFR, Waddell, 4 Apr 69, box 51-84-9377; Waddell to Prince Sultan, 31 Mar 69, box 51-84-9384; all in Farrell Papers, OH, HQ USACE.

⁹⁷ MFR, Waddell, 4 Apr 69, sub: Funds for MODA Cantonment Construction Program, box 51-84-9377, Farrell Papers; Waddell to Prince Sultan, 31 Mar 69.

supply, division engineers expected the area's limited water to circumscribe the cantonment's growth.⁹⁸

Despite the difficulties with money and water, construction at Khamis Mushayt advanced on schedule throughout 1970. In January 1971, the Saudi Arabian Army Ordnance Corps (SAAOC) moved onto the base at Khamis Mushayt as the first official occupant. The division provided support to the Saudi officer charged with developing the staff and procedures to operate and maintain the base. In April, Saudi Arabian Army personnel began operating the water system that supplied the base. In May, after a month-long training period, they assumed responsibility for the power plant. By June, they operated the entire power system for the cantonment.⁹⁹

In August 1971, JVKM completed construction of the cantonment and MODA scheduled an official dedication of the new facility, to be called the King Faisal Military Cantonment. King Faisal attended the dedication ceremony and the four days of festivities. As part of the celebration, the emir of the provincial capital of Abha, Faisal's son Prince Khalid, hosted a banquet that the district engineer, Col. Robert W. Reisacher, described as "right out of the *Arabian Nights*." Reisacher characterized the ceremony and festivities surrounding it as "the most exciting and grandiose affair I have ever witnessed."¹⁰⁰

At the dedication, the King Faisal Military Cantonment at Khamis Mushayt contained 243 buildings in a two-square-mile area with almost five-and-a-half miles of boundary fence. Although scaled down from the original design, it accommodated over five thousand troops and the families of commissioned and noncommissioned officers. The cantonment cost \$67.8 million for construction alone; the Saudis spent an additional \$14.5 million on equipment and furnishings.¹⁰¹

In October 1971, the Saudi Arabia District closed the Khamis Mushayt Area Office and the last Corps civilian employee left the region. This transfer did not mean, however, that the division had ended its work on the cantonment. Since 1969, the division had been helping the Saudis organize an operations and maintenance staff to support a post engineer for the cantonment. Even after the Saudis assumed responsibility for all systems in 1971, the division continued to assist the post engineer by procuring supplies, equipment, and repair parts.¹⁰²

⁹⁸ Cameron to Cassidy, 14 Mar 68; "Building the King Faisal Military Cantonment," p. 5; Chaffin to Cassidy, 9 Mar 66; "Saudi Arabia District Historical Report," [1969], p. 4; Interv, Walker with Reisacher, 7 Feb 85, p. 41.

⁹⁹ Reisacher to Nassief, 4 Feb 71, box 214 of 357, TAD-RHA; "Building the King Faisal Military Cantonment," p. 8.

¹⁰⁰ Reisacher to Waddell, 21 Sep 71, box 51-84-9384, and Col Roy L. Kackley to Clarke, 7 Sep 71, p. 3, box 51-84-7361, both in Farrell Papers; Interv, Walker with Reisacher, 7 Feb 85, pp. 68–69.

¹⁰¹ "EIG [Engineer Inspector General] Inspection: Annual General Inspection, Saudi Arabia District, 29 May–1 June 1972," 16 May 72, pp. 4–4A, box 51-84-9384, Farrell Papers (hereafter cited as EIG Inspection: 1972); Mediterranean Div, "Data Book," 1 May 76, p. 14, box 1, access. no. 77-92-0001, WNRC.

¹⁰² Memo, Lt Col John R. Witt, 8 Mar 72, p. 2, box 51-84-9384, Farrell Papers; MFR, Waddell, 4 Oct 69, sub: Meeting with HRH Turki, Deputy MODA, box 51-84-9377, Farrell Papers; Memo of Conversation, 6 Nov 69, sub: Major General Dunn's Visit to Saudi Arabia, box 18, access. no. 77-92-0001, WNRC; Waddell to Clarke, 5 Mar 70, p. 3; Sultan bin Abd Al-Aziz to His Excellency the

Tabuk

The proposed site for the second cantonment, about three miles south of the town of Tabuk, lay in the northwest corner of the country on a sandy plateau about three thousand feet above sea level. The terrain was open and the atmosphere generally clear so that heat dissipated during the night, producing an average variation in temperature of 34°F between day and night. With the winter average just above freezing and a summer average of 103°F and highs up to 118°F, the region experienced a much wider range of temperatures than Khamis Mushayt. The wind was almost constant at about fifteen miles an hour.¹⁰³

BATMED prepared the basic design for the cantonment at Tabuk in 1966, at the same time that it drafted the design for Khamis Mushayt. It included almost identical facilities and was different only because it was originally designed to house two brigades and because the site already had thirty-two military warehouses and other shops and buildings. Designers incorporated the existing facilities into the new master plan by segregating them in an industrial area remote from the troop and family housing. On 31 January 1967, the division and BATMED briefed Prince Sultan on the design. MODA approved the design, and the division planned to make only minor changes to adapt it to the specific conditions at Tabuk. Months later, after Prince Sultan decided that Tabuk would contain only one brigade, BATMED prepared a redesign that nevertheless preserved sitings and utilities sufficient to support a second brigade.¹⁰⁴

Given the experience gained at Khamis Mushayt, the bidding process for Tabuk went more smoothly, but not without its own delays. In late October 1968, MODA approved a bidders list with the reservation that all other Saudi governmental ministries and agencies also approve all of the bidders. In mid-November, the division issued a request for construction proposals. It then learned that the Saudi Council of Ministers had not included funds in the coming year's budget for the construction at Tabuk; money would become available only in September 1969. The division extended the cutoff date for proposals and opened bids on 23 April. It took another six months before the division arrived at a satisfactory \$56 million contract with Philipp Holzmann A.G. of West Germany. On 23 October, Holzmann signed

American Ambassador, 3/2/92 [the Saudi date in year 1392], box 1, access. no. 77-92-0001, WNRC; "Proposed Plan for Assistance to Saudi Arabian Army Facility Engineer and CE [Chief of Engineers] Constructed Cantonments, Draft—Version II," Jul 75, box 31, access. no. 77-92-0002, WNRC.

¹⁰³ Basil, The Architects Collaborative, and Metcalf and Eddy, "Tabuk, Engineering Feasibility Reports," vols. 1 and 2, 30 May 67, box 65 of 104, access. no. 77-84-2400; Leo L. Anderson et al., "Exploratory Report of Wind Abatement and Dust Stabilization Near Tabuk, Saudi Arabia," 31 Mar 75, SA-725; both in TAD-RHA.

¹⁰⁴ "Study of Maintenance and Storage Facilities, Tabuk Cantonment," Mar 71, box 276 of 357, TAD-RHA; Cameron to Cassidy, 3 Mar 67; Cameron to Prince Sultan, 31 Jul 67, box 11, access. no. 77-92-0002, WNRC; Memo, John P. Coony, 6 Sep 67, sub: Tabuk Cantonment, box 11, access. no. 77-92-0002, WNRC; EIG Inspection: 1972; "Draft History of the Saudi Arabia District," [1970], p. 1.



Site plan for VIP complex at the Tabuk Cantonment, ca. 1969

the contract; on 30 October, the district held a groundbreaking ceremony in which Prince Sultan and the chief of the U.S. Military Training Mission participated.¹⁰⁵

Holzmann's difficulty obtaining entry visas for its management team and customs clearance for construction materials slowed mobilization. When Holzmann appealed for help, the area engineer designate, Lt. Col. Adolph Hight, learned that Holzmann would have to apply for each visa separately because the Saudis would no longer approve multiple applications in a single action. Made nervous perhaps by the assassination of King Idris of Libya on 1 September 1969, the Saudis insisted that Holzmann submit a personal data sheet with the visa application for *each* individual seeking admission. Holzmann also encountered obstacles when it sought permission to open a communications link between Jiddah and Tabuk. Finally, Hight interceded with the MODA liaison officer, Nassief, asking him to persuade the Saudi Ministry of Commerce to clear the communications system and to list Tabuk among its customs-exempt contracts.¹⁰⁶

Mediterranean Division personnel began to arrive at the Tabuk Area Office in early January 1970, and Holzmann's first personnel arrived two weeks later. Colonel

¹⁰⁵ Waddell to Cassidy, 10 Mar 69; Dunn to Waddell, 21 Mar 69, box 16, access. no. 77-92-0001, WNRC; "Information Folder: Saudi Arabian Engineer Assistance Program," 10 May 68; Telgs, Amb Hermann F. Eilts to Div Engr, 24 Oct, 10 Nov 68, box 276 of 357, TAD-RHA; Memo, Grace, 4 Apr 69, sub: Tabuk Cantonment, RFP 69-R-0014, box 276 of 357, TAD-RHA; "Draft History of the Saudi Arabia District," [1970], pp. 1, 9; Memo, 9 Mar 70, sub: Installation Historical Progress Report, p. 3, box 16, access. no. 77-92-0001, WNRC.

¹⁰⁶ Waddell to Clarke, 3 Dec 69; MOU, Nassief and Hight, 9 Dec 69, sub: Tabuk Mil. Cantonment, box 276 of 375, TAD-RHA; "Chronological Summary of Significant Events—1970, Tabuk Area Office," SA-725, TAD-RHA.

Hight moved to Tabuk in February. Holzmann's problems with customs and visa permits persisted throughout the winter and into the spring, and the contractor had trouble gaining approval from the Saudi Ministry of Civil Aviation to operate an aircraft in the country. During the same months, the Saudis began to increase pressure on the contractor to hire Saudi nationals and to subcontract with Saudi businesses where they were technically qualified.¹⁰⁷

One incident illustrates the aggravation that rigid application of such bureaucratic rules could produce. A Holzmann employee arrived at the Jiddah airport carrying two rolls of drawings for the Tabuk cantonment, but he was prevented from continuing until he had obtained a certificate from MODA allowing passage of *each* drawing. Hand-carrying drawings was the most efficient way to get them to the construction site, but only if they could pass Customs. Holzmann asked the area office staff to contact Nassief again about streamlining the process, perhaps by issuing multiple certificates for drawings to the contractor's office in Frankfurt.¹⁰⁸

The volatile situation in Jordan, where the Palestinian problem erupted in open civil war in 1970 between supporters of the Palestine Liberation Front and the government of Jordan, further delayed the progress of construction because the normal routes of commerce between the eastern Mediterranean and Saudi Arabia were cut off by the extended closure of the Syrian border. By July 1970, the contractor at Tabuk had constructed a field laboratory and had completed family quarters for contractor personnel. He had also received permission to operate the company's Cessna 402-A, a nine-passenger aircraft that transported both Corps and contractor personnel.¹⁰⁹

The Saudis continued to express dissatisfaction with the very low percentage of Saudi contractors or workers involved at Tabuk. The failure to hire Saudi subcontractors irritated Prince Sultan, Major Nassief, and the Saudi minister of labor. Colonel Reisacher, who moved in mid-June 1970 from his position as assistant division engineer in Livorno to become district engineer in Riyadh, expressed their frustration to division headquarters and suggested that using a Saudi subcontractor for "lightweight roofing" might help alleviate the pressure.¹¹⁰

Holzmann did make progress. By April 1971, a project engineer visiting the site from Livorno reported that "concrete seems to be coming out of the ground all over the cantonment"; by late that year, the contractor had completed about half of the cantonment. In early 1972, military officers from the U.S. and Saudi Armies built a geodesic dome at the Tabuk construction site. They constructed a wood frame with plastic sheets stapled in place as a cover to demonstrate to local farmers the

¹⁰⁷ MFR, Hight, 16 Mar 70, sub: Trip Report (7–11 March 1970); Memo, Philipp Holzmann A.G., 8 May 70, sub: Custom Clearance of Our Goods; G. W. Probasco to Nassief, 9 May 70; Nassief to Maj. R. Brickley, 25 Aug 70; all in box 276 of 357, TAD-RHA. Waddell to Clarke, 5 Mar 70; Memo, Hight, 16 Mar 70; "Draft History of the Saudi Arabia District," [1970], p. 2.

¹⁰⁸ Maj R. A. Roberts to Nassief, 19 Jul 70, box 276 of 357, TAD-RHA.

¹⁰⁹ Waddell to Clarke, 17 Dec 70, p. 4, Mil Files XXI-3-9, OH, HQ USACE; "Draft History of the Saudi Arabia District," [1970], p. 3.

¹¹⁰ Reisacher to Col V. O. Wilson, 30 Aug 70, p. 3, D-8-11, TAD-RHA.



Prince Sultan participated in a groundbreaking ceremony at the Tabuk cantonment, ca. 1969.

structure's potential as a greenhouse. At the same time, the commanding general of the Saudi military region began a beautification program using as fertilizer effluent from the sewage treatment plant at the construction camp. He also sponsored a nursery where local personnel, under guidance of a Saudi officer, rooted trees and shrubs for later use in the cantonment. On 30 August 1972, the Corps turned over

the first building, the post engineer maintenance shop, to the Saudi government. Pakistani engineers began arriving to staff the facilities engineering organization headed by a Saudi captain.¹¹¹

By the end of 1972, several Saudi subcontractors had become involved in the construction and four of five new projects had been set aside for Saudi firms. Early in 1973, the area office turned over substantial portions of the cantonment to the Saudi government. On 2 April, a command inspection team from the Office of the Chief of Engineers visited Tabuk. By mid-July, Holzmann had virtually completed the construction. The remaining work involved repairing cracks in family housing and completing additional work contracted through change orders.¹¹²

The Saudi government scheduled the dedication of the cantonment, known since early in the year as the King Abdulaziz Military Cantonment, for 22 September 1973. King Faisal presided at the ceremony, to which the chief of engineers sent Maj. Gen. George Rebh, director of military construction, as his representative. Rebh brought with him as a gift for Faisal a pair of ornately engraved six-shooter pistols. Over four days of festivities, the American engineers and their Saudi hosts celebrated the completion of a \$75 million military city capable of accommodating a 7,500-man brigade complete with hospital, schools, family quarters, maintenance shops, community facilities, and utilities.¹¹³

Saudi Arabia Mobility Program, 1967–1973

Throughout 1966, Mediterranean Division personnel had worked to define the program that MODA had requested to support its fleet of military vehicles. These efforts led to the agreements between the division and MODA in September and the elaboration of the Saudi Arabia Mobility Program. Further discussions established the program's primary objective, that is, to help modernize the Saudi Arabian Army's maintenance and supply systems to support its vehicles. As a concurrent objective, the division would arrange training to develop a staff within the Saudi Arabian Army capable of managing and operating the logistical, maintenance, and supply systems set up for the vehicle fleet. The maintenance and supply systems

¹¹¹ Quotation from Memo, John T. Ortino, 14 May 71, sub: Trip Report—Saudi Arabia—13–26 April 1971, p. 3, box 7 of 35, TAD-RHA; Memo, Lt Col P. D. Weinert, 28 Feb 72, sub: Highlights of Historical Events for 1971, Tabuk Area Ofc, SA-725, TAD-RHA; various Public Information Ofc releases from Tabuk Area Ofc to Mediterranean Div, 1972 and 1973, SA-725, TAD-RHA.

¹¹² Memo, Maj Daniel G. Barney, 27 Dec 72, sub: Additional Construction at Tabuk, box 276 of 357; various 1973 news releases from Public Information Ofc, Tabuk Area, SA-725; Capt Russell E. Milnes, "Chronological Summary of Significant Events—Tabuk Residency, 1973," 17 Mar 74, SA-725; all in TAD-RHA.

¹¹³ Inters, Thomas Tulenko with Col (Ret) Charles T. Williams, 20–21 Feb 85, p. 105; Milnes, "Chronological Summary of Significant Events—Tabuk Residency, 1973"; "Ceremony for the Dedication of the King Abdul Aziz Military Cantonment, Tabuk, Saudi Arabia, 21–24 Sep 73," SA-725, TAD-RHA; Williams, Notes from the Div Engr, Mediterranean Div Info Bull no. 9, 4 Oct 73, SA-725, TAD-RHA.

also needed a construction program for depots, warehouses, and repair shops around the kingdom.¹¹⁴

To implement the program, the division planned to engage a private contractor. Finding the appropriate contract instrument presented a challenge because standard Corps procedures did not cover the situation. A lump-sum, fixed-price contract worked well for a construction project based on detailed designs that allowed the contractor to estimate costs and craft a proposal. The mobility and supply program that the Mediterranean Division had agreed to manage had no such circumscribed scope. Indeed, the division expected the contractor to define the scope of the program as it progressed. A cost-reimbursable contract would require extensive staffing by the Corps in order to monitor its progress, and the division had no staff available for the task.

The Mediterranean Division eventually proposed a hybrid contract format that combined various pricing mechanisms. The contractor would provide management functions for services in supply, maintenance, and training on a fixed-price or lump-sum basis. The contractor would also hire mechanics, supply clerks, and other personnel to staff technical trades and be compensated for man-months of work as needed. The costs of procuring the large variety of supplies, equipment, and materials would be reimbursable. The division further identified the major facilities needed to support the program and contracted for their construction separate from the services portion of the program. The facilities to be constructed included a central inventory control point to be built in Riyadh near MODA headquarters and an ordnance school and training center in Taif. Other smaller facilities came under the original services contract or were added by supplemental agreement. The Letterkenny Army Supply Depot in Chambersburg, Pennsylvania, provided major assistance in defining the requirements of the supply operation. The U.S. Military Training Mission detailed its ordnance adviser to the Mediterranean Division to help define the maintenance operations and to develop the contract documents.¹¹⁵

On 26 May 1967, the Corps of Engineers awarded the first SAMP contract to Commonwealth-Tumpane Company Ltd., an American joint venture. The terms of the two-year, \$32.4 million services contract with options for extension set May 1972, five years after the official initiation of the program, as the target date by which Saudi staff would assume responsibility for operating the systems independently. Within days of the contract's signing, the June 1967 Arab-Israeli War, also called the Six-Day War, broke out. This conflict disrupted the entire region, complicating

¹¹⁴ Mediterranean Div, "History: Saudi Arabia Mobility Program (SAMP)," 30 Jun 70, p. 3, box 16, access. no. 77-92-0001, WNRC (hereafter cited as SAMP Hist, 30 Jun 70); Maj James F. Rosebery, "Ordnance Program Division (OPD), Historical Summary, 1986," 10 Feb 87, introduction, Current Files, Transatlantic Division–Public Affairs Office (hereafter cited as Rosebery, OPD Hist Sum: 1986).

¹¹⁵ For this and the preceding paragraph, Richard Wiles, "SAMP," Mar 98, pp. 3–4, provided by Wiles, authors' files.

the approval of visas for contractor personnel, slowing the shipment of contractor supplies, and delaying implementation of the new contract.¹¹⁶

Even before the conflict, the Saudi Arabian and U.S. governments had begun discussions to broaden the SAMP agreement to include a program of maintenance and support for armaments and weapons. These talks culminated on 17 October 1967, when the two governments signed a supplemental accord, “The Weapons Maintenance Arrangements.” Ten months elapsed while MODA secured approval for funding. In August 1968, the Mediterranean Division and Commonwealth-Tumpane modified the existing contract by incorporating support for Saudi armaments. Under the name Royal Armament Maintenance Program (RAMP), Commonwealth-Tumpane extended its development of procedures for procurement and supply to include weapons; ammunition; combat vehicles; and all maintenance equipment, systems, and supplies for the Saudi Arabian Army. The armaments program dealt only with artillery, tank turrets, and other large-caliber weapons, excluding small arms; but thereafter, SAMP applied to both the original and the expanded program.¹¹⁷

First Years

Officially, SAMP began with award of the contract to Commonwealth-Tumpane in May 1967. The initial two-year contract, the first of three planned contract increments, included the contractor’s mobilization of personnel and resources, an inventory, receipt of new vehicles, establishment of sites, and training of Saudi Arabian Army personnel. A quick preliminary inventory indicated that the Saudis used nearly two hundred fifty different makes and models of automotive equipment. This multiplicity of models defied efficient maintenance, repair, and supply. A large percentage of the fleet was inoperable, with many vehicles beyond economical repair. The Saudis had no records indicating what problems had put vehicles out of service. No manuals existed to guide repair, and no records identified the location of vehicles or their status. According to MODA’s own estimates, it had 3,666 vehicles—tanks, mobile armaments, and commercial and service vehicles—of which 769 (21 percent) were categorized as unserviceable.¹¹⁸

A more thorough inventory conducted during the first year of the Saudi Arabia Mobility Program revealed that MODA had 8,213 vehicles, more than twice as many as its records indicated. The revised inventory divided the vehicles into five categories based on their condition. Vehicles in the top three categories could be repaired and returned to service quickly, provided parts were available, without disassembly of power trains or other major systems. Vehicles in Category 4 (8 percent of the total) required disassembly and overhaul or replacement of major

¹¹⁶ SAMP Hist, 30 Jun 70, p. 9; “Saudi Arabia District Historical Report,” [1969], p. 5.

¹¹⁷ Wiles, “SAMP,” p. 8; Rosebery, OPD Hist Sum: 1986, p. 1; SAMP Hist, 30 Jun 70, pp. 2, 9–10.

¹¹⁸ SAMP Hist, 30 Jun 70, pp. 9, 14, 16–17.

systems. The 1,657 vehicles in Category 5 (20 percent) were beyond repair and could be used only for parts and salvage.¹¹⁹

Maintenance

The initial contract called for Commonwealth-Tumpane to return to service any and all vehicles that could be repaired with existing resources. During the first year, the contractor quickly managed to service several thousand vehicles and to repair 374 of the 1,300 vehicles in need of major overhauls. As the program extended into the second year, the contractor renovated and modernized existing shops at Al Kharj to establish a central facility for repair, overhaul, and rebuilding of vehicles.¹²⁰

The contractor concentrated facilities for routine maintenance at a central maintenance point in Riyadh, where he also kept cost data and records on all vehicles serviced. Statistical analysis of the data highlighted trends and identified problem areas. The company organized mobile maintenance teams, initially working from Taif, Khamis Mushayt, and Riyadh and expanding these operations as needed. (*See Map 20.*) The contractor also established a semipermanent operation in Najran, south of Khamis Mushayt. By the end of the first year, a team began to operate from Jiddah as well. Other maintenance centers existed at Al Kharj, Khamis Mushayt, Tabuk, Taif, Riyadh, and Jiddah. By the end of the second year, the contractor had eleven active teams.¹²¹

Supply

During the first year of the SAMP contract, Commonwealth-Tumpane received and processed 1,517 new vehicles for the Saudi Arabian Army. Through the same months, to control stock and to determine what was on hand or on order, Commonwealth-Tumpane established a major supply depot at Al Kharj and satellite depots at Taif and at Tabuk. By the end of the first year, the contractor had identified a total of sixty-two thousand supply items in the country.¹²²

To maintain inventory and to manage supply, the contractor depended on a central inventory control point (CICP). Commonwealth-Tumpane created and staffed the CICP during the first year of the contract. The contractor established basic recordkeeping procedures and replaced the pen-and-ledger system with an automated data-processing center. Electronic accounting machines and other data-processing equipment arrived in November 1967. Because an existing building had to be modified to accommodate the new equipment, the contractor did not install it until mid-April 1968. The electronic system became completely operational in late 1968 and by the end of the second year included two of the field sites as well.¹²³

¹¹⁹ Ibid., pp. 17–20.

¹²⁰ Ibid., pp. 19, 26; Grosz, “Saudi Arabia District, 1968–1970,” p. 3.

¹²¹ SAMP Hist, 30 Jun 70, pp. 3–5, 20–21, 23.

¹²² Ibid., pp. 32–33.

¹²³ Ibid., pp. 3–5, 28–32, 34.

The multiple pieces of computer equipment installed in the data-processing center in Riyadh attest to how early this was in the development of computers as management tools. By the end of the second year, the central inventory control point had an IBM 360 Model 20 computer that included a central processing unit, two dual-tape drives, a disk drive, a card reader, a card punch, and a printer. The center also had an IBM 407 accounting machine with three keypunch machines and other supporting equipment. IBM 407 models also served supply points at Al Kharj, Taif, Tabuk, and Khamis Mushayt.¹²⁴

Commonwealth-Tumpane needed manuals and publications to establish basic systems for maintenance and repair. During the first year, through arrangements made by the Mediterranean Division's liaison office in New York City, the contractor's headquarters in Marietta, Georgia, ordered over six hundred U.S. Army manuals. The contractor established a radio communications network that provided high-quality voice contact with all maintenance and supply sites in Saudi Arabia. The company also provided a leased airplane for traveling around the kingdom and ran a shuttle service, the "Green Ball Trucking Line," that supported all program and contractor requirements for shipping.¹²⁵

By June 1970, the Saudi Arabian Army's fleet of vehicles totaled 13,148, including over five hundred vehicles in field units that did not appear in the SAMP inventory. Commonwealth-Tumpane had identified over one thousand vehicles that were difficult to support and gathered them at Taif, Al Kharj, Tabuk, and Najran for elimination from the fleet.¹²⁶

Training

The contractor established three categories of training, on-the-job, counterpart, and classroom, for Saudi personnel. The training programs concentrated on operating the supply system, operating the maintenance system, and training techniques for the Saudis to use as they extended the programs.¹²⁷

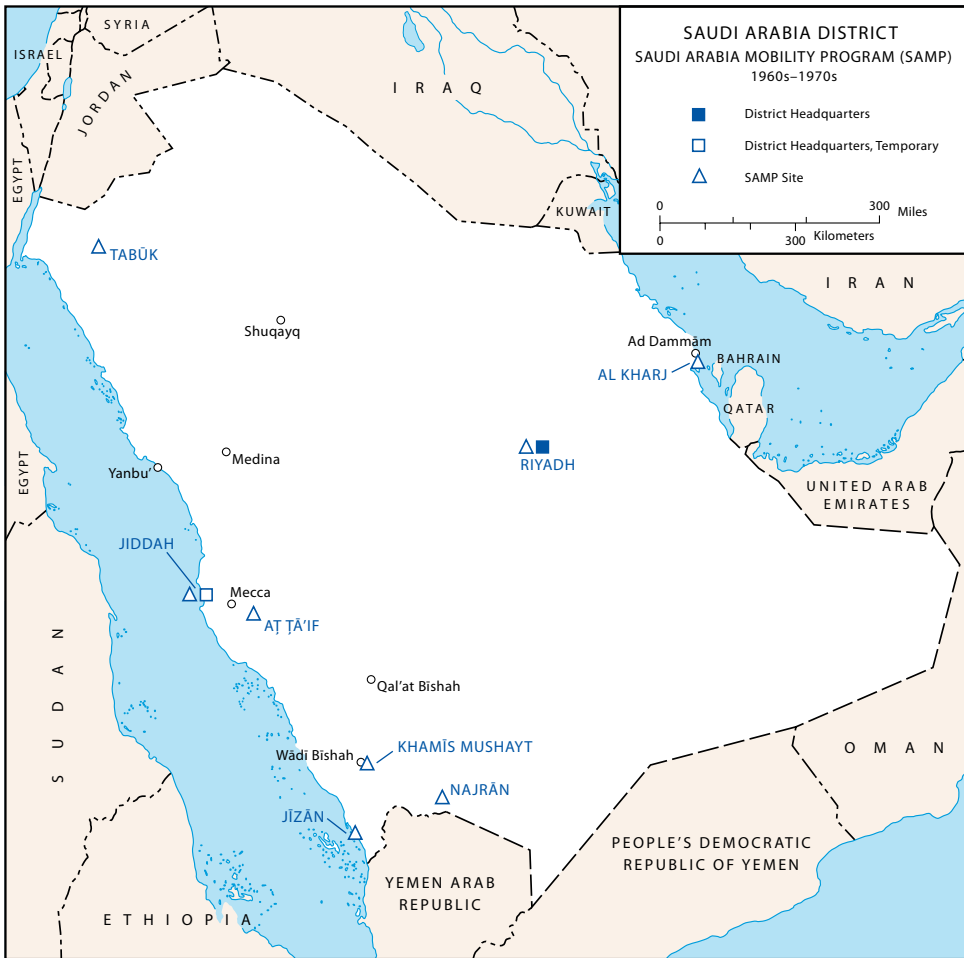
The Saudi Arabians who came to these programs had very little formal education, negligible technological experience, and few skills. Given the small demographic base and the absence of obligatory military service, meeting recruitment goals was difficult and selectivity impossible. Moreover, commanders of Saudi Arabian Army units frequently had little acquaintance with principles of logistics, maintenance, and supply. The Saudi command structure in the 1960s further complicated the effort to make a training program effective, because it largely ignored the experience and training of individuals in making military assignments. These drawbacks notwithstanding, the Saudi Arabian Army selected 698 students for on-the-job training in SAMP's first two years. After putting them through the instructional program, the contractor certified 542 soldiers as having passed the training, a success rate of 78 percent. In another dimension of the

¹²⁴ Ibid., pp. 28–32, 34, 38.

¹²⁵ Ibid., p. 35; Wiles, "SAMP," p. 5.

¹²⁶ SAMP Hist, 30 Jun 70, pp. 36–37.

¹²⁷ Ibid., pp. 3–5; Wiles, "SAMP," p. 5.



Map 20

training, the contractor identified 210 of its 1,322 defined staff positions as appropriate for counterpart training, where Saudi Arabians worked with contract employees to learn the duties, functions, and management principles of the positions. As of January 1970, only ninety-four Saudis held counterpart training positions.¹²⁸

The Ordnance Corps Center and School

The most far-reaching training program involved reform of the Saudi Arabian Ordnance Corps Center and School at Taif. Through the school, the contractor trained

¹²⁸ SAMP Hist, 30 Jun 70, pp. 40, 54–55.

the personnel for the administrative and technical responsibilities of managing the ordnance system and handling the equipment used by the Saudi Army. The Saudis had established a precursor to the school in 1953, which they moved to Taif in 1963. In 1967, the SAAOC integrated it into the training program established under SAMP to create the new center and school. Conforming to Saudi expectations, the center handled basic military training for recruits and trained them in technical fields. The school trained ordnance personnel to be technically proficient in supply and maintenance. The program also trained army instructors, administrators, and other personnel in the theory and practice of supply and maintenance activities.¹²⁹

Instruction under SAMP began with an interim program at the same time that construction for the improved school facility got underway. The program had startup problems and limitations such as shortages of training aids, materials, equipment, and instructors. By May 1968, when the first group of students graduated, the contractor had overcome most of these problems, in part by using materials and programs of instruction developed by the U.S. Continental Army Command (CONARC). The contractor established several levels of training, implemented testing procedures for selection and advancement of students, and proceeded to train Saudi officers and noncommissioned personnel in a variety of military occupational specialties. In the first two years, The Ordnance Center and School (TOCS) trained 767 students as mechanics, metal-body workers, machinists, drivers of different classes of vehicles, arms and artillery repairmen, and several varieties of maintenance-supply clerks and typists. By January 1970, the contractor had screened 1,489 members of the Saudi Arabian Army for schooling at TOCS. The average age of the candidate was 29.5 years, and 78 percent of the students were married. Of those screened, 38 percent were illiterate even in Arabic.¹³⁰

Construction of the new facilities at TOCS, begun in 1968, paralleled the development of the new curriculum. On 16 September 1970, Minister of Defense and Aviation Prince Sultan and the Prince of Holy Mecca Province, HRH Fauroy bin Abdulaziz, dedicated the facilities for the new Ordnance Center and School. By 1986, the center and school occupied a land area of one hundred fifty acres and encompassed forty modern buildings. The school conducted about ninety courses a year and annually graduated about six hundred students qualified to perform and manage the maintenance and related supply operations at all levels of the Saudi Arabian Army.¹³¹

Construction

Because maintenance, repair, and storage facilities in the kingdom were inadequate, construction of a variety of structures began in the first year of the SAMP contract. During the year, one training and two maintenance buildings

¹²⁹ Ibid., pp. 44–46; Rosebery, OPD Hist Sum: 1986, p. 2, tab N.

¹³⁰ SAMP Hist, 30 Jun 70, pp. 44–52.

¹³¹ Rosebery, OPD Hist Sum: 1986.

were rehabilitated or constructed at Khamis Mushayt, Tabuk, and Al Kharj. A deprocessing center went up at Jiddah, and school facilities were built at Taif.¹³²

Building the central inventory control point at Riyadh, the Ordnance Center and School, and other similar facilities cost \$4.7 million, nearly 50 percent more than the amount budgeted for construction at the outset of the program. Costs increased because the activities pursued under SAMP had expanded beyond the original scope. The school at Taif needed 83 percent more classroom space than planned, and the projections for housing and messing facilities for the soldier-students who attended the new school had not accounted for the high percentage of married students.¹³³

Costs also rose because not all of the equipment for training shops had been included in the original budget due to the misapprehension that the Saudi Arabian Army already had the necessary items. Moreover, to accommodate the data-processing equipment that the final design for the CICIP building demanded a quality of construction that exceeded the original estimates. Finally, neither the costs of relocating from the interim to the permanent school nor the cost of providing electrical power to the new school site had been included in the original estimates.¹³⁴

Other lapses in the early planning contributed to rising construction costs at the Ordnance Corps Center and School. When planning began in the late 1960s, no one included the commandant of the school in reviewing the designs, although he was the ultimate user of the facilities. When construction did not meet his expectations, he asked for additions not included in the original scope of work: drains, shower curtains, coldwater taps in the bathrooms, parade grounds, a mosque, a recreation room for the soldiers, a storage room for weapons, and a fence around the grassed area. In addition, maintenance, which Commonwealth-Tumpane provided, came as an addition to the cost of construction.¹³⁵

The school was one of several construction projects for which, beginning in 1967, Commonwealth-Tumpane developed design specifications. The Saudi Arabian Army had some facilities for maintenance and repair as a result of earlier work by Egyptian military advisers, but they were in dilapidated condition. Construction under SAMP involved rehabilitation of these facilities and construction of new ones at sites all around the kingdom. The contractor built or modified office facilities, maintenance shops, warehouses, and supply and training facilities at Al Kharj, Jizan, Jiddah, Najran, Riyadh, Taif, Tabuk, and Khamis Mushayt. Much of the early construction was completed by the end of 1969.¹³⁶

Other construction included shelters for vehicles at Taif and Khamis Mushayt and mess facilities at all of the SAMP sites throughout the kingdom. The Saudi

¹³² SAMP Hist, 30 Jun 70, p. 59; MFR, Hromiak, 16 Jan 69, and Memo, Ch, S&I [Supervision and Inspection] Br, 29 Nov 70, both in box 213 of 357, TAD-RHA.

¹³³ SAMP Hist, 30 Jun 70, pp. 50, 60–62.

¹³⁴ *Ibid.*, pp. 50, 61–62.

¹³⁵ Memo, Jimmie E. Kazaleh, 21 May 68, sub: Staff Visit Report—Khamis-Mushayt, Jizan, Jeddah [*sic*] and Tabuk, box 213 of 357, TAD-RHA.

¹³⁶ Interv, Moorhus with Grosz, 19 Mar 96, pp. 34–35; DF, Earl Dyer, 18 Jan 69, sub: Construction Review of SAMP Facilities, Contracts DACA75-68-C-0040 and -0033, box 213 of 357, TAD-RHA; Construction Rpts, Oct, Nov 69, unmarked box, TAD-RHA.



Saudi Arabia Mobility Program training complex, 1968

Arabian Army did not originally include food service for its personnel working in SAMP. As the program progressed and as the typical workday increased from six to eight hours, MODA realized that such facilities were necessary.¹³⁷

After April 1970, by directive of the Saudi Arabian government, all contracts for rehabilitation of facilities went to Saudi construction firms. Many of the subsequent projects were under \$100,000 in placement value; but during FYs 1970 and 1971, these small projects amounted to a total of nearly half a million dollars.¹³⁸

The contractor for the Saudi Arabia Mobility Program provided valuable support to the Mediterranean Division's personnel serving in the Saudi Arabia District. At both Riyadh and Taif, Commonwealth-Tumpane put the dining, lodging, and recreational facilities maintained for its employees at the disposition of all district personnel. At Riyadh, the company also provided potable water, cooking and heating fuels, and a substantial portion of the district's transportation.¹³⁹

¹³⁷ SAMP Hist, 30 Jun 70, p. 662; "Saudi Arabia District Historical Report," [1969], p. 5.

¹³⁸ Memo, Lt Col Jack R. Mullis to Div Engr, 24 Feb 71, sub: Installation Historical Program Report, with Encl, sub: Chronological List of SAD [Saudi Arabia District] Historical Activities, 1970, p. 1, box 20, access. no. 77-92-0001, WNRC; Memo, Hromiak, 23 Oct 71, sub: Construction Contractor Performance Evaluation Report, Shore Corporation, OMC and RAMP Rehabilitation, Taif, Saudi Arabia, box 111 of 357, TAD-RHA; Msg, Grosz to Waddell, 7 Mar 70, D-8-11, TAD-RHA. EIG Inspection: 1972, table "SAMP Construction," lists contracts awarded in FYs 1970 and 1971.

¹³⁹ Grosz, "Saudi Arabia District, 1968-1970," p. 3.

Personnel and Funding

The Saudi Arabia District began its management of SAMP with only three people. Between 1967 and 1970, the SAMP division within the district grew to a staff of thirty, two-thirds U.S. Army officers and about one-third civilian employees. A larger contingent of contractor employees executed most of the day-to-day work of the program. By June 1970, Commonwealth-Tumpane employed around one thousand people from numerous countries. In Khamis Mushayt and the surrounding region, for example, one-third of the 136 people were American. The third-country nationals serving at Khamis Mushayt, Jizan, and Najran came from Germany, Turkey, Jordan, Pakistan, France, Sudan, Spain, Lebanon, and Greece. Only one employee was Saudi.¹⁴⁰

SAMP operations were funded through Foreign Military Sales (FMS) procedures authorized by the Arms Export Control Act, which provided for the DoD-controlled sale of goods and services to strategically important foreign governments. Both the Corps of Engineers and the U.S. Army Materiel Command (AMC) carried numerous FMS cases in support of the Saudi military. The Corps cases funded the service and construction contracts, whereas the AMC cases funded the purchase of military vehicles as well as the parts and supplies to support them. In addition, in a highly unusual arrangement, the Department of Defense granted the Saudi Arabian Army Ordnance Corps the privilege of requisitioning repair parts directly from the U.S. Army supply system.¹⁴¹

Extending the Program, 1969–1973

In May 1969, when the initial phase of the contract came up for extension, Commonwealth-Tumpane had 684 employees working on the Saudi Arabia Mobility Program at half a dozen sites around the kingdom. Another 647 military and civilian employees of the Saudi Arabian Army also held positions in SAMP. Headquarters operations for SAMP, the central inventory control point, and the central maintenance point were all located in Riyadh. Al Kharj housed the main army depot for supply as well as maintenance and rebuild activities. General supply support and maintenance operations took place at Tabuk, Taif, Khamis Mushayt, Jiddah, Jizan, and Najran. In addition, Riyadh supported Dammam and Jiddah supported Yanbu, Medina, and Mecca. A vehicle-deprocessing facility at Jiddah received about four thousand new U.S. Army vehicles. Finally, mobile maintenance teams provided support for organizational maintenance and supply to individual army units throughout the kingdom. Satisfied with Commonwealth-Tumpane's performance, the Mediterranean Division extended the contract for another two years for \$25.9 million with an option for a fifth year.¹⁴²

¹⁴⁰ SAMP Hist, 30 Jun 70, pp. 5–7; Info Brochure for Thacher, p. III-17; Memos, Ward Hoover, 26 Oct 68, sub: Personnel in the Khamis Mushayt Area, and A. C. Nerdahl, CTCL [Commonwealth-Tumpane Company Ltd.], 29 Oct 68, sub: Contractor Personnel Khamis Mushayt Area, both in box 195 of 357, TAD-RHA.

¹⁴¹ Wiles, "SAMP," pp. 6–7.

¹⁴² *Ibid.*; SAMP Hist, 30 Jun 70, pp. 5–7, 62, 65.

Between the spring of 1969 and the autumn of 1970, the contractor's total workforce fluctuated between six hundred fifty and one thousand fifty. With the Saudis providing the funds through FMS administered by the Mediterranean Division, the contractor commanded the manpower and know-how to dominate the logistical and supply systems that supported the Saudi Arabian Army. Contractor personnel were privy to sensitive information concerning the repair status and readiness of the Saudi Arabian Army's fleet of military vehicles and heavy armaments. The contractor's staff, not personnel of the Saudi Ordnance Corps, actually ran the systems. In effect, the contractor's general manager in Saudi Arabia had become the chief of ordnance for the Saudi Arabian Army. The circumstances created an uncomfortable situation in which the Saudi military commanders had become a diminished element in the three-party arrangement that linked them to the Mediterranean Division and to Commonwealth-Tumpane.¹⁴³

Control of the program became an issue of great concern; as a result, the character of the Saudi Arabia Mobility Program changed between 1970 and 1973. The extension of the SAMP contract in May 1969 called for the systematic transfer of responsibility to personnel of the Saudi Arabian Army Ordnance Corps and the planned reduction of contractor participation. That goal remained unreachable because in 1970 and 1971 the SAAOC had too few people to fill the positions in the program. By the summer of 1970, the Saudis had about six hundred fifty people actually assigned to the program, less than half the number called for in the transition schedule. Moreover, Commonwealth-Tumpane supervisors judged only a fifth of those actually engaged as truly qualified to handle the responsibilities of their positions.¹⁴⁴

Because the pace at which the Saudi Arabian Army Ordnance Corps filled SAMP positions was so slow, Commonwealth-Tumpane had to delay withdrawing its personnel from the program. In 1971, the Mediterranean Division exercised the option for the fifth year of the contract with the company while it tried to negotiate SAMP's future.¹⁴⁵ The U.S. ambassador to Saudi Arabia wanted the Corps to continue supporting MODA for several years beyond the end of the current contract. Prince Sultan wanted continued support from the Corps but not a long-term commitment to Commonwealth-Tumpane. By contrast, the Mediterranean Division engineer, Colonel Waddell, had instructions from the chief of engineers to extricate the division from the program by shifting increasingly more responsibilities to the contractor and to the Saudis. In 1970, Waddell still anticipated closing the Saudi Arabia

¹⁴³ Wiles, "SAMP," p. 6, and Wiles commentary on manuscript during in-progress review, 10 Mar 98, Winchester, Va.

¹⁴⁴ Memos, Reisacher to Prince Sultan, 1 Oct 70, sub: Phasedown of Contractor Personnel, and Griffin C. Stuart, CTCL, 11 Aug 70, sub: November Phase-Out, both in D-8-11, TAD-RHA.

¹⁴⁵ MFR, Waddell, 2 Mar 70, sub: Meetings in Saudi Arabia, pp. 1, 6, box 51-84-9377, Farrell Papers; Mediterranean Div Staff Mtg Min, 28 Jul 70, p. 8, box 18, access. no. 77-92-0001, WNRC; Memo, Reisacher to Sultan, 1 Oct 70; Memo, Wiles, 13 Nov 70, sub: Status of Agenda Items for Discussion with Mr. Economou, D-8-11, TAD-RHA; Info Brochure: OCE Cmd Inspection, 20 Nov 70, p. 14; EIG Inspection: 1972, p. 2 entitled "PROGRAMS" (this page dtd 29 Apr 72).

Table 9—MEDITERRANEAN DIVISION ACTUAL CONSTRUCTION PROGRESS BY LOCATION
FISCAL YEARS 1967–1972 (\$000)

	1967	1968	1969	1970	1971	1972
Italy	1,593	2,847	2,174	490	864	1,364
Greece	599	49	407	476	119	297
Turkey	5,411	1,700	1,483	2,257	1,383	3,610
Iran	3,388	316	96	78	0	0
Afghanistan	5,139	3,913	0	0	0	0
Ethiopia	1,231	509	400	457	136	358
Somalia	324	2,091	2,680	1,382	525	1
Saudi Arabia	3,896	5,245	14,685	39,833	36,756	46,451
Totals	21,581	16,670	21,925	44,973	39,783	52,081
Saudi Arabia Percentage	18	31	67	89	92	89

Source: Derived from 4th Qtr Program Review and Analysis Rpts for FYs 1967–1975, box 3 of 3, C-7-10, Transatlantic Division–Records Holding Area.

District shortly after completing the work under the SAMP contract in May 1972. Accordingly, the Saudi Arabia District began to reduce its staff in June 1971.¹⁴⁶

By May 1972, the end of the fifth year of Commonwealth-Tumpane's contract, the parties had still not resolved the balance of influence and personnel. As a temporary measure, the Mediterranean Division arranged an extension of the existing contract for six months, to 26 November 1972. No arrangements existed for Corps support to the SAAOC beyond that date. In a March 1972 report to the chief of engineers, Waddell's successor as division engineer, Col. Roy L. Kackley, described the fate of SAMP beyond November as "a puzzle."¹⁴⁷ The extension in May proved to be the last SAMP contract for Commonwealth-Tumpane. The fifth year had garnered the company \$9.2 million and the extension of an additional \$4.4 million. The value of Commonwealth-Tumpane's five-and-a-half years of contract work totaled \$71,762,180.¹⁴⁸

Under SAMP, the Saudi Arabian Army had acquired regulations and written procedures that it had tested in operation in all areas of maintenance and supply. The

¹⁴⁶ Mediterranean Div Staff Mtg Min, 3 Nov 70, pp. 7–8, box 18, access. no. 77-92-0001, WNRC; Info Brochure: OCE Cmd Inspection, 20 Nov 70, p. 14; Info Brochure for Thacher, p. 6; Memo, Witt, 8 Mar 72.

¹⁴⁷ Kackley to Clarke, 15 Mar 72, box 51-84-7361, Farrell Papers.

¹⁴⁸ EIG Inspection: 1972, table "SAMP Construction," lists contracts awarded in FYs 1970 and 1971.

**Table 10—MEDITERRANEAN DIVISION PERSONNEL
END OF FISCAL YEAR STRENGTH**

	1967	1968	1969	1970	1971	1972
Division HQ	243	219	213	214	182	187
Division field offices	129	169	175	187	140	114
Other	0	4	3	0	0	4
Totals	372	392	391	401	322	305
Saudi Arabia	25	105	132	165	140	114
Percentage of total	7	27	34	41	43	38

Note: Figures for Saudi Arabia are included in total for the division.

Source: Derived from 4th Qtr Program Review and Analysis Rpts for FYs 1967–1975, box 3 of 3, C-7-10, Transatlantic Division–Records Holding Area.

program had implemented procedures to provide an adequate supply of repair parts, which came through the Army Materiel Command under a support agreement for supply. The Ordnance Center and School at Taif provided a steady flow of trained personnel. A new transportation system satisfied most of the Saudi Army's needs; and a system of base maintenance points around the kingdom, operated by specially trained directors, supported the entire system of logistics and supply.¹⁴⁹ Still, the issue of control remained to resolve in the next phase of the program's development.

The Mediterranean Division in 1972

Between 1967 and 1972, the workload in the Mediterranean Division shifted dramatically. Reflective of the change, the dispersion of division personnel shifted as well. (See *Tables 9 and 10*.)

In both 1968 and 1969, the Mediterranean Division weathered suggestions that it relocate to the United States as well as questions about the growing volume of work for the Saudi Arabian government. In the late 1960s, there was some speculation that the division would complete the work in Saudi Arabia by 1972 and close the Saudi Arabia District. At the end of calendar year 1971, it became clear that, rather than ceasing, the work in Saudi Arabia would expand in the next decade. At the same time, no substantial new construction programs emerged for the division in the NATO countries or in North Africa. How the Corps of Engineers and the Mediterranean Division responded to the growing disparity in workload is the subject of the following chapters.

¹⁴⁹ Saudi Arabia Dist, "Review and Analysis of SOCP [Saudi Ordnance Corps Program]," Aug 73, pp. 1–2, box 51-84-5389, Farrell Papers.

PART III

ARMY ENGINEERS IN SAUDI ARABIA 1972–1988

The Cold War between the United States and the Soviet Union had drawn the U.S. Army Corps of Engineers into the Mediterranean in the late 1940s and early 1950s. Beginning in the late 1960s, a series of events destabilized the Middle East and turned it into a new and critical theater of conflict in the Cold War.¹ As that happened, the Mediterranean Division responded to the new imperatives of U.S. foreign policy by becoming increasingly involved in the Arabian Peninsula. The territory progressively became a major focal point of the struggle for influence between the United States and the Soviet Union.

The Arab-Israeli War of June 1967 constituted the first major crisis that began to redefine the region's place in international politics and, as a consequence, the role that the U.S. Army engineers would play in the area. With a preemptive strike, the Israelis soundly defeated the Arab states in only six days. The humiliating defeat intensified pan-Arab nationalism and fueled Arab resentment and mistrust of the Western nations that had supported Israel. The war correspondingly enhanced the position of the Soviet Union and expanded its political and military influence in the region. It provoked civil war in Jordan between the Palestinian Liberation Organization and the Jordanian government. It laid bare the fissure in Lebanon between the Christian and Muslim populations, a situation that Israel exacerbated by its raids on Palestinian bases in Lebanon beginning in January 1969. Many in the Arab world denounced the United States—because of its support for Israel—for the subsequent collapse of Lebanon into civil war over the next six years.

The total eclipse of British influence in the region, manifested in the postwar dissolution of the British overseas empire and the kingdom's economic exhaustion in the decade after 1945, led to further destabilization. The Suez Crisis of 1956 had shown the new limits to Britain's power. In spite of that setback, Britain tried for another decade to maintain its traditional role as counterweight to the Russian state in the contest for influence in the region. Only tardily did Britain recognize the complete exhaustion of its wealth and power that World War II had exposed. In January 1968, the British government announced that it would remove all of its military forces and its political presence from the areas "east of Suez." With that,

¹ Analysis below based on Anthony H. Cordesman, *The Gulf and the Search for Strategic Stability: Saudi Arabia, the Military Balance in the Gulf, and Trends in the Arab-Israeli Military Balance* (Boulder, Colo.: Westview Press, 1984), pp. 54–62, 136–75, passim.

the British abandoned client states and positions of influence they had cultivated since the mid-1800s. The decline and withdrawal of the power that had imposed a degree of stability threw the region into a prolonged crisis. The tremendous riches of oil and the dependence of Western Europe and the United States on access to that oil made the stakes of the contest very high.

The states of the Gulf region took advantage of the waning British power to pursue their individual territorial ambitions to the further detriment of stability. Iran tried to seize several islands in the Straits of Hormuz that controlled access between the Persian (Arabian) Gulf and the Arabian Sea. In addition, it sought to exploit its status as a Shi'ite state to win influence over Bahrain, exacerbating tensions between Shi'ite and Sunni Muslims in the region. Iraq and Kuwait clashed as Iraq tried to secure its access to the Gulf at the mouth of the Tigris and Euphrates Rivers. The British withdrawal allowed tensions to build between conservative Islam and radical secular Arab nationalism throughout the southern Gulf area. Internal ferment and external pressures threatened the smaller states that lined the Arabian Peninsula's littoral: the United Arab Emirates, Oman, and North and South Yemen.

In the absence of Britain, the United States became the protagonist in the regional contest with the Soviet Union. To counter the growing Soviet influence, the administration of President Richard M. Nixon formulated a new approach to the regional balance of power. The United States selected Iran and Saudi Arabia as the "two pillars" of stability in the Gulf area. Iran had the military potential to hinder a Soviet expansion of power. Saudi Arabia had influence with the conservative Islamic regimes of the region. It also had tremendous reserves of oil that the Western powers needed both for their economies and for their military arsenals. In pursuing the two-pillar policy, the United States abandoned its prior policy of restraining arms sales in the area. It gave Iran in particular extensive access to the American market in armaments, aircraft, and equipment.

The Yom Kippur War of October 1973 further increased the region's volatility and instability. Egypt's surprise attack on Israel temporarily reversed the pattern of the 1967 war, but Israel recovered quickly and triumphed once more on the battlefield. This new Arab defeat again inflamed Arab nationalism, intensified Palestinian consciousness of their displacement, and won converts for the revolutionary radicalism that rejected all compromise with Israel. Iran provoked the enmity of the region's Arab states tacitly by supplying Israel with oil and disregarding the interests of fellow Muslims.

The defeat also gave the Arab states the cohesion to shape a successful policy of embargoing oil shipments to Western Europe and the United States to punish them for their continued support of Israel. The successful manipulation of oil supplies by the Organization of Petroleum Exporting Countries (OPEC) ran up the price of a barrel of oil from \$3.39 in 1973 to \$12.93 in 1978.² Given the rising price of oil and the power of the Arab states in the new market, international financiers began to speak of "petrodollars" that accumulated in the oil-producing countries of the

² Oil prices from *ibid.*, p. 12.

Middle East. The influx of wealth to the states of the region gave them a buying power in the arms market that they had never had before.

The British withdrawal from the Arabian Peninsula had left the small states of the region feeling abandoned and betrayed. The United States' failure to prevail in Vietnam and in Angola in the mid-1970s did nothing to allay the sense of vulnerability that these small states felt. The presence of over forty thousand Cuban soldiers in a dozen African countries in the late 1970s enhanced the influence of the Communist bloc in the region. When the Soviets increased their potential leverage over Arabia by gaining naval staging areas on Africa's eastern coast in Mozambique, uneasiness in the peninsula increased. The Soviet Navy could, from its new vantage point, threaten the oil routes out of the Gulf region. The Soviets strengthened their influence further when a substantial Soviet, East German, and Cuban presence helped Ethiopia prevail in its border clash with Somalia in early 1978. The Soviet presence in Ethiopia, linked with its support of radical forces in the Yemens, gave the Soviet Union the strategic positioning to menace the Red Sea, the Suez Canal, and Israel's sea lanes to the outside world.

In September 1978, the United States sponsored the Camp David accords that led to a peace agreement between Egypt and Israel. The U.S. policy of promoting this peace provoked a mixed response in the Arab world. Many Arab states and factions opposed the agreements as a betrayal of the goal of a Palestinian state. This fierce rejectionism inflamed Arab feeling and led to the assassination of the Egyptian proponent of the accords, President Anwar el-Sadat, on 6 October 1981. On the other hand, the realization of a peace accord between Egypt and Israel tempered one of the most dangerous destabilizing elements in the region.

Developments in Iran a few months later were more clearly detrimental to the U.S. position in the region. In January 1979, the regime of Mohammed Reza Shah Pahlevi collapsed and a fundamentalist Muslim movement, led by Ayatollah Ruhollah Khomeini, seized power in Iran. With the Iranian revolution, the only substantial military "pillar" of the Nixon policy in the area disappeared. Under the new regime, Iran became a hostile power rather than an ally in the United States' attempts to stabilize the region; Saudi Arabia remained aligned with the United States. Oil production in the region declined, and the price of crude oil rose from \$18.67 a barrel in January 1979 (\$10.64 in 1974 prices) to \$30.41 in May 1980 (over \$18.00 in 1974 prices).³

At the end of 1979, the Soviet Union took a bold step to extend its immediate military sphere of action by invading Afghanistan. The intervention became in the long run a quagmire akin to the American experience in Vietnam. The immediate impact, however, was to place eighty- to one hundred thousand Soviet Army troops closer to the petroleum resources of the Arabian Peninsula. In September 1980, Iraq further destabilized the region by launching an attack on Iran, hoping to topple the new regime. When Iraq failed to win a quick victory, the war became a vicious seesaw that lasted eight years with neither side achieving any strategic advantage.

³ *Ibid.*, p. 60.

This array of factors conditioned and shaped the activities of the Mediterranean Division, U.S. Army Corps of Engineers, and its successor, the Middle East Division, during the 1970s and 1980s. In the late 1960s, while events remained locked in an unknown future, the Mediterranean Division activated the Saudi Arabia District to manage the growing construction program there. Elsewhere in the division's area of responsibility, work had declined to a very low volume. The chief of engineers, Lt. Gen. William Cassidy, seriously contemplated closing the overseas division serving the Mediterranean and the Middle East, reckoning that the Corps could support design and construction for U.S. military forces in the region from offices in the continental United States. His successor, Lt. Gen. Frederick J. Clarke, took a similar position.

In 1968, the Office of the Chief of Engineers (OCE) in Washington, D.C., urged the Mediterranean Division to avoid becoming overextended in Saudi Arabia. The division engineer, Col. Harry F. Cameron, assured General Cassidy that the division would commit to "new SAG [Saudi Arabian government] projects . . . [only] on the basis of country-to-country agreements negotiated at the highest level." During a visit to Saudi Arabia in late 1969, the deputy chief of engineers, Maj. Gen. Carroll Dunn, expressed "Washington's desire to wrap up the Corps' operation in Saudi Arabia."⁴

Col. Edward L. Waddell, Cameron's successor as division commander, received a similar message from General Cassidy. Colonel Waddell admitted at the end of this tour (June 1971) that General Cassidy had sent him to Italy to close the division. After a year on the job, Colonel Waddell concluded that he could not do so because the work in Saudi Arabia kept increasing. Colonel Waddell reported to Cassidy's successor, General Clarke, that in Saudi Arabia "we keep getting pushed into doing more and more in the turnkey concept; everything that was left out . . . is now wanted."⁵

The expectation in Washington in 1970 that the Mediterranean Division would soon withdraw from Saudi Arabia proved to be an illusion. On the contrary, the volume of construction supervised by the Corps of Engineers for the Saudi Arabian government expanded colossally over the next decade. Once again, the Corps had to adjust to a changing geographic locus. Indeed, between April and June 1976, a new entity, the Middle East Division, supplanted the Mediterranean Division and located its headquarters in Saudi Arabia. During the months of transition, the two divisions coexisted, with the Middle East Division assuming an ever-increasing share of the work and responsibility, as well as much of the staff.

The next five chapters present the construction programs administered by the Army engineers in Saudi Arabia between 1972 and 1986. The historical narrative,

⁴ Cameron to Cassidy, 14 Mar 68; Memo of Conversation, 4 Nov 69, sub: Major General Dunn's Visit to Saudi Arabia; both in box 18, access. no. 77-92-0001, Washington National Records Center, Suitland, Md.

⁵ Interv, Moorhus with Richard Wiles, 21 Oct 93, 7 Feb, 5 May 94, p. 78; quote from Waddell to Clarke, 9 Jun 70, Mil Files XXI-3-9, Office of History, HQ U.S. Army Corps of Engineers, Alexandria, Va.

which has proceeded chronologically to this point, will continue in a topical organization with chronological overlap from one chapter to another.

Chapter 9 covers the rapid expansion of construction in Saudi Arabia, the participation of the Mediterranean Division, and the division's cession in 1976 to the Middle East Division headquartered in Riyadh, Saudi Arabia. The chapter will also look briefly at the origins and scope of the many Saudi programs initiated during the 1970s. Chapter 10 begins the treatment of the construction programs in greater detail by examining work undertaken in the 1970s for the Saudi Arabian Ministry of Defense and Aviation (MODA) under the Engineer Assistance Agreement of 1965. The programs encompassed work already begun for the Saudi Arabian Army and for MODA itself, such as improvements at Khamis Mushayt and Tabuk, headquarters complexes, officers clubs, special military schools, and the expansion of military medical facilities. The chapter also includes the modernization of the Royal Saudi Air Force (RSAF). Chapter 11 covers major construction programs for two Saudi military services that made decisions independently of MODA—the Royal Saudi Naval Forces (RSNF) and the Saudi Arabian National Guard (SANG). Chapters 12 and 13 describe the two largest construction programs undertaken for MODA under the Engineer Assistance Agreement: the creation of the King Abdulaziz Military Academy (KAMA) and the King Khalid Military City (KKMC).

By virtue of their size, KAMA and KKMC merit special treatment; in addition, they started and ended later than the other programs. On those programs discussed in Chapters 9 through 11, construction began quickly and reached the highest point of activity around 1978. Two of the programs—the Saudi Naval Expansion Program (SNEP) and the SANG modernization program—appeared at the outset to entail construction amounting to several billions of dollars each. It is clear only in retrospect that the grand expectations held for these programs in the 1970s would not materialize in the 1980s. SNEP and SANG were in rapid decline in the early 1980s as construction at KAMA and at KKMC expanded. Although the topical chapters are aligned according to a rough chronological tempo, each chapter covers substantially the same span of time as the stories of individual programs and projects parallel one another between 1972 and 1986.

9

NEW PROGRAMS AND ORGANIZATIONAL CHANGES, 1972–1977

The idea of closing the Mediterranean Division corresponded to a general decline in the division's work in the late 1960s. Even in Saudi Arabia, an end seemed in sight. Late in 1970, with the construction at Khamis Mushayt approaching its completion, with work just beginning at Tabuk, and with all efforts concerning the third cantonment suspended, the division projected that it would close the Saudi Arabia District in the spring of 1972. The value of construction in the division's traditional area of operation, the Mediterranean basin, declined from \$7.2 million in 1969, to \$5.1 million in 1970, to \$3.03 million in 1971.¹

As the work dropped off, the division could not retain the same number of positions and could promise nothing to those whose jobs were about to end. Engineer Adrian Hromiak's situation was typical. He had been with the division since 1964; but in the spring of 1972, he had few options. Although he had reemployment rights in the Chicago District, that district offered him a pay grade below the GS-13 he had attained overseas. He made several inquiries at division headquarters in Livorno; nothing materialized, and he decided that he had better prospects in private industry. Hromiak was just one of nearly one hundred employees who lost positions between July 1968 and October 1972 as the division's staff strength declined from 392 to 298.²

The Burgeoning Workload

The seeming lack of new work that characterized the years 1968 to 1972 was misleading. Between 1972 and 1975, the Corps of Engineers' role in Saudi Arabia expanded dramatically as the Saudi Arabian government sought to modernize its

¹ Mediterranean Div, "Information Brochure for the Honorable Nicholas Thacher, United States Ambassador to Saudi Arabia," 14 Sep 70, p. 6, box 51-84-7361, Richard T. Farrell Papers, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va. (hereafter cited as Info Brochure for Thacher). Figures on the value of construction are derived from 4th Qtr Prog Rev and Analysis Rpts, FYs 1969–1971, C-7-10, box 3 of 3, Transatlantic Division–Records Holding Area (TAD-RHA), R&D Files 3014 and 3015, Transatlantic Programs Center (TAC), Winchester, Va.

² Interv, authors with Adrian Hromiak, 6 Feb 94, p. 25; Reisacher to Col C. E. Harris, 29 Jul 69, attachment giving actual strength at end of FY 1968, box 6, access. no. 77-86-0008, Washington National Records Center (WNRC), Suitland, Md.; Mediterranean Div, "Data Book," 15 Oct 72, p. 5, box 51-84-9384, Farrell Papers.

military forces. The decision to modernize coincided with a rapid increase in Saudi wealth as a result of the rise in oil revenues, which gave the government of Saudi Arabia the cash to support its building programs.

Projects such as expanding the facilities at the new cantonments at Khamis Mushayt and Tabuk for the Saudi Arabian Ministry of Defense and Aviation (MODA) continued. Simultaneously, the division developed new construction programs for the Royal Saudi Navy, the Royal Saudi Air Force, and the Saudi Arabian National Guard (SANG).³ In the space of three years, the Mediterranean Division quickly had commitments for programs that added up to a staggering volume of design and construction with a total value estimated in excess of \$20 billion. The contrast with the volume of work executed in the late 1960s, when contracts for a few *million* dollars seemed large, was dramatic.

On 16 January 1972, the U.S. and Saudi Arabian governments signed a memorandum of understanding that initiated the Saudi Naval Expansion Program (SNEP). Subsequently, the October 1973 war between Egypt and Israel, the resulting oil embargo, the quadrupling of oil prices, and the growing threat of Soviet power in the waters around the Arabian Peninsula intensified the Saudi desire to expand its own naval facilities. The kingdom's entire navy had only about a thousand men in 1972, and it had very limited equipment: one 100-ton coastal patrol boat; two 170-ton torpedo boats; and an assortment of about a dozen other small patrol boats, hovercraft, landing craft, and speed boats. The Saudis wanted to develop a fleet to patrol the country's two coasts and to defend the shipping and supply lines in the region.⁴

To fulfill the 1972 agreement, the Mediterranean Division undertook to design and construct deepwater naval ports at Jiddah on the Red Sea and at Jubayl on the Arabian Gulf. The program included all the off-shore and on-shore facilities at both locations to support naval operations. Early estimates of the program's costs ranged around \$350 million. Even though the Saudis anticipated a limited, coastal fleet, the scope of work expanded rapidly: By October 1974, the division's new estimate for SNEP surpassed \$1 billion.⁵

Within six weeks of the agreement on the Saudi naval program, the Mediterranean Division received another new project. Through the Peace Hawk program, the Royal Saudi Air Force received F-5 aircraft and the facilities to support them. The U.S. Air Force, not the Corps of Engineers, managed the program from design through construction, with the Corps providing only limited service by reviewing budgetary issues, technical criteria, and engineering design and specifications and by inspecting

³ Anthony H. Cordesman, *The Gulf and the Search for Strategic Stability: Saudi Arabia, the Military Balance in the Gulf, and Trends in the Arab-Israeli Military Balance* (Boulder, Colo.: Westview Press, 1984), pp. 136–48.

⁴ *Ibid.*, p. 174.

⁵ Office of the Chief of Engineers (OCE), "Annual Report of Major Activities, 1 Jul. 1972–30 Jun. 1973," p. 49, box 7a, Gen Files, OH, HQ USACE (hereafter cited as OCE, Major Activities, FY 1973); Mediterranean Div, "Data Book," 15 Oct 72, p. 22; Williams to Clarke, 15 Mar 73, box 18, access. no. 77-92-0001, WNRC; G. Wayne Dykes to Lt Cdr Rashad A. Abu Al-Samh, 28 Oct 74, sub: Saudi Naval Expansion Program Status Report, p. 1, box 5, access. no. 77-92-0001, WNRC.

and supervising construction of facilities at Dhahran and Taif. At only \$12.9 million, the estimated value of the division's involvement was small by comparison to its other work in Saudi Arabia; but it was still more than double the division's entire workload outside of Saudi Arabia.⁶

King Faisal wanted the Saudi Arabian National Guard, commanded by his half brother, Prince Abdullah, included in the overall modernization of Saudi Arabian armed forces. The National Guard had a numerical strength of about thirty-five thousand, but many of its soldiers were paramilitary irregulars who operated from regional centers throughout the country to keep order. SANG recruited heavily from Bedouin tribes traditionally loyal to the house of Saud. In September 1971, the king asked for assistance from the United States. The resulting study formulated a plan to improve the National Guard's equipment and training. In early 1972, Prince Abdullah began talks with the Mediterranean Division about implementing a modernization program. A year later, on 19 March 1973, the United States and Saudi Arabia signed a memorandum of understanding that included the sale of equipment; design and construction of facilities; development and initial operation of a training program; and design and implementation of communications, logistical, and maintenance systems.⁷

The Department of the Army assigned overall management responsibility for the SANG modernization program to the U.S. Army Materiel Command (AMC). The Corps of Engineers managed the planning, design, and construction of facilities. Mediterranean Division staff and National Guard leaders defined a construction program including a new headquarters complex at Riyadh and new training, maintenance, and support facilities at Khashm al An, northwest of Riyadh. In 1973, the division estimated that the construction program would exceed \$100 million. By the summer of 1975, that estimate had risen to \$250 million with intimations that construction might expand to several billion dollars more.⁸

Continuing Work, 1972–1975

In addition to the new work from the Royal Saudi Navy, the Saudi Arabian National Guard, and the Royal Saudi Air Force, the Mediterranean Division continued to serve the Saudi agencies with which it had been working since the

⁶ Kackley to Clarke, 15 Mar 72, p. 1, box 51-84-7361, Farrell Papers; Mediterranean Div, "Data Book," 15 Oct 72, pp. 10, 23; OCE, Major Activities, FY 1973, p. 50; OCE, "Annual Report of Major Activities, FY 74," p. 64, copy in R&D File 2270, TAC (hereafter cited as OCE, Major Activities, FY 1974).

⁷ Cordesman, *The Gulf and the Search for Strategic Stability*, pp. 136–48, 173; Memo, Durham, 15 Apr 72, sub: Saudi Arabian National Guard Program, box 20, access. no. 77-92-0001, WNRC; Maj Gen Verne L. Bowers, "Saudi Arabia National Guard Modernization Program," 27 Apr 73, box 51-84-9384, Farrell Papers.

⁸ OCE, Major Activities, FY 1974, p. 64; Mediterranean Div, "Data Book," 1 May 76, p. 23, box 1, access. no. 77-92-0001, WNRC; "Saudi Arabia Programs," 28 Feb 78, p. 9 (map), unmarked box, TAD-RHA.

mid-1960s: the Ministry of Defense and Aviation and the Saudi Arabian Army Ordnance Corps (SAAOC).

The Saudi Ordnance Corps Program

In 1971–1972, the Saudi Arabia Mobility Program (SAMP) remained an active part of the Mediterranean Division's mission in the kingdom. In 1971, the Saudi Arabia District engineer set a goal of completing by the end of the year all of the rehabilitation and construction facilities needed to support the procedures in procurement, logistics, and training developed under SAMP for the Saudi Arabian Army's military vehicles. Total construction for SAMP to that point came to just under \$100 million.⁹

Over the same period, while division personnel continued their SAMP work, representatives of the American contractor, Commonwealth-Tumpane Company Ltd.; the division; and the Saudi Army held a long series of discussions concerning shifting control of the program's activities from contractor personnel to the personnel of the Saudi Arabian Army Ordnance Corps. In the spring of 1972, in order to maintain continuity while the discussions of who controlled the program continued, the division extended Commonwealth-Tumpane's contract six months beyond its five-year limit.¹⁰

In early June 1972, the Mediterranean Division distilled from the discussions new terms of administrative and logistical support that satisfied the minister of defense, Prince Sultan. In November, the SAAOC assumed full responsibility for the operation and management of all of the systems established during the five years of Commonwealth-Tumpane's activities. The Saudi commander became self-sufficient, at least in authority. His ascendancy was enhanced by the support of U.S. Army Ordnance Corps officers serving with the Mediterranean Division. Prince Sultan also emphatically insisted that the U.S. government, through the Corps of Engineers, continue its advisory support—training in contract administration, budgeting, and fiscal management—for at least another two years. The Mediterranean Division continued to train SAAOC personnel so as to develop the capability for contract management within the Saudi Arabian Army.¹¹

To emphasize the break with past arrangements and the diminished role of the contractor in managing the program, the Mediterranean Division advertised a new competitive contract proposal. On 1 November 1972, on behalf of SAAOC,

⁹ Reisacher to Prince Sultan, 1 Oct 70, sub: Phasedown of Contractor Personnel, D-8-11, TAD-RHA; Reisacher to Commonwealth-Tumpane, 27 Dec 70, D-8-11, TAD-RHA; "Activities of the Corps of Engineers in Saudi Arabia," [1974], box 51-84-5389, Farrell Papers; Mediterranean Div, "Data Book," 15 Oct 72, p. 17.

¹⁰ Mediterranean Div Staff Mtg Min, 13 Apr 71, p. 9, box 20, access. no. 77-92-0001, WNRC; Kackley to Clarke, 23 Jun 72, pp. 1–2, box 51-84-7384, Farrell Papers.

¹¹ Kackley to Clarke, 23 Jun 72, pp. 1–2; Mediterranean Div, "Data Book," 15 Oct 72, p. 19, and 1 May 76, pp. 19–20; Mediterranean Div, "Appendix I-L: Planning," 28 Feb 74, p. 12, box 19, access. no. 77-92-0001, WNRC; "USACE Activities in Saudi Arabia," 12 Jul 76, p. 3, Walker box 6, OH, HQ USACE. Richard Wiles, "SAMP," Mar 98, pp. 8–9, provided by Wiles, author's files.



Saudi Arabia District Office, Riyadh, 1969

the Corps signed a personal-services contract with a joint venture made up of the America-based Bendix Corporation and the Saudi Maintenance Company Ltd. (SIYANCO). Bendix-SIYANCO agreed to supply about four hundred fifty skilled personnel—fewer than half the number Commonwealth-Tumpane had furnished—to execute the program under SAAOC direction. The new contract, with a value of \$14.55 million, took effect on 26 November. The overall objective of the program remained the modernization of the Saudi Arabian Army’s fleet of military vehicles, limited maintenance of nonelectronic weapons, and continuing development of a modern logistics system.¹²

The newly modified SAMP restored to the SAAOC commander the appropriate authority and responsibility for operations and management of the support systems. Many of the employees of the new contractor continued in positions that they had held under Commonwealth-Tumpane, but Bendix-SIYANCO was more clearly subordinate to the SAAOC commander. The Corps of Engineers provided advisers to work with and to assist SAAOC officers. The Corps also continued to execute the contracts that supported the systems. In the months after signing the contract with Bendix-SIYANCO, the Mediterranean Division realigned its activities to transfer all direct authority from division headquarters in Livorno to the Saudi Arabia District

¹² Ibid.; Mediterranean Div, “Data Book,” 15 Oct 72, p. 19, and 1 May 76, pp. 19–20; Mediterranean Div, “Appendix I-L: Planning,” 28 Feb 74, p. 12; “USACE Activities in Saudi Arabia,” 12 Jul 76, p. 3.



Quarters built in Riyadh for the district engineer, late 1970s

in Riyadh. Planning and programming became a joint effort involving the Saudi Arabian Army and the district staff. The district engineer disbursed all funds for the program, while the division retained only cost accounting and overall monitoring of the Corps activities associated with the program. Financing grew to \$132.9 million for the period 1972–1976, an 85 percent increase over 1967–1973.¹³

In 1971, a series of changes in organizational structure and nomenclature began that paralleled the negotiations leading to the new contract. On 8 February 1971, the Mediterranean Division discontinued the SAMP Construction Project Office at division headquarters in Livorno and assigned the office's responsibilities to the Saudi Arabia District. On 16 August 1972, the district element supervising SAMP became the Ordnance Program Management Assistance Division (OPMAD) with no change in functions or mission. The agreement that led to the contract with Bendix-SIYANCO in November 1972 declared that the Saudi Arabia Mobility Program and Royal Armament Maintenance Program (RAMP) had been completed to the satisfaction of all parties. On 12 January 1973, the designation of the management unit, OPMAD, was shortened to Ordnance Program Management Division

¹³ Mediterranean Div, "Data Book," 1 May 76, p. 20.



U-shaped bachelor officers quarters, Taif, 1969

(OPMD). Simultaneously, the new program—as distinguished from the management unit—received the designation Saudi Ordnance Corps Program (SOCP).¹⁴

On 1 September, the division activated a project office that was located at The Ordnance Center and School (TOCS) in Taif and reported to OPMD at the district. On 4 October 1976, the Saudi Arabia District's management organization, headed by an officer of the U.S. Army Ordnance Corps, received its final name change to become the Ordnance Program Division (OPD), the name that it retained through the next two decades.¹⁵

In August 1973, the Mediterranean Division and the Saudi Arabia District conducted a thorough review and analysis of the SOCP. The study concluded that the Saudi Arabian Army Ordnance Corps would not have the proficiency to become independent in November 1974 when the Bendix-SIYANCO contract ended. The study group recommended continuing support by the U.S. government but that the Corps pass to the SAAOC the responsibility for awarding the personal-services contract. In May, Prince Sultan accepted the recommendations. He also asked the Corps to continue its role in SOCP and to help negotiate a two-year continuation, to November 1976, of the contract with Bendix-SIYANCO. In November 1974, despite the recommendation that SAAOC take over contracting, it was the Saudi

¹⁴ Ibid.; Wiles, "SAMP," pp. 9–10.

¹⁵ Maj James F. Rosebery, "Ordnance Program Division (OPD), Historical Summary, 1986," 10 Feb 87, Current Files, Transatlantic Division–Public Affairs Office; Durham to Col G. B. Gray, 4 Feb 74, box 19, access. no. 77-92-0001, WNRC.

Arabia District that signed the new two-year contract with Bendix-SIYANCO. The extension was priced at \$26 million.¹⁶

The Saudis were willing to see the contract with Bendix-SIYANCO renewed, but they were reluctant to fund additional staff positions in the face of the Saudi Ordnance Corps' persistent inability to provide the SOCP with sufficient qualified personnel. As a result, the passage of responsibilities to the Saudis remained more nominal than real. The situation led, in the judgment of the chief of the Saudi Arabia District's Ordnance Program Division, to a degradation of the contractor's ability to train the Saudis. Contractor personnel had to spend too much time and attention keeping the maintenance, supply, and logistical system in operation, all to the detriment of their role as teachers and trainers.¹⁷

In 1975–1976, having already invested a total of \$156.39 million in sales cases supporting the Ordnance Corps Program over the preceding four years, the Saudi government decided to extend to other elements of the Army the logistics system that had developed under SAMP and SOCP. The decision created additional tasks for the Corps advisers engaged in the program at just the time that the transition to the Middle East Division stretched the command's resources. As of July 1976—the month in which the Middle East Division officially supplanted the Mediterranean Division, which nonetheless remained active for several months as it closed out operations—the programmed amount for SOCP stood at \$379.6 million. This included the option year 1977 contained in the Bendix-SIYANCO contract. The Corps expected to obligate directly about 30 percent of that amount. The Saudi Arabian Army obligated the balance, but the Corps continued to disburse all funds obligated under the program.¹⁸

Questions Concerning the Role of the Corps

Throughout the involvement in the supply programs, doubts circulated in Washington about participation by the Mediterranean and Middle East Divisions. The tasks of the mobility program and its successor, the Ordnance Corps Program, involved first creating and then overseeing a logistics system. The Corps specialized in construction management, not logistics. The Mediterranean Division, already active in Saudi Arabia, took on the program somewhat by default only when the

¹⁶ Saudi Arabia Dist, "Review and Analysis of SOCP [Saudi Ordnance Control Program]," Aug 73, pp. 149–51, box 51-84-5389, Farrell Papers; Durham to Williams, 13 Oct 73, p. 2, box 51-84-9384, Farrell Papers; OCE, Major Activities, FY 1974, p. 62; Mediterranean Div, "Appendix I-L: Planning," 28 Feb 74, pp. 12–13; "Annual Historical Summary Report, U.S. Army Corps of Engineers, Saudi Arabia District, 1 January 1974 to 31 December 1974," [31 Dec 74], pp. 2, A3, B3, box 15, access. no. 77-92-0001, WNRC.

¹⁷ Col Robert A. Meese to Brig Gen Yahya Fadil Daftardar, 14 Jul 74, pp. 1–3, box 19; Williams to Gribble, 14 Jun 74, p. 2, box 26; both in access. no. 77-92-0001, WNRC.

¹⁸ OCE, "Annual Historical Review, 1 July 1975–30 September 1976," p. 34, box 9, Gen Files, OH HQ USACE (hereafter cited as OCE, AHR, FY 1976); Mediterranean Div, "Data Book," 1 May 76, p. 28.

Army Materiel Command, which did have logistical expertise, declined in the mid-1960s to undertake the program that the Saudis wanted.

The Office of the Chief of Engineers (OCE), particularly under Generals Cassidy and Clarke, showed considerable skepticism about the appropriateness of Corps involvement. In 1969, the deputy chief of engineers, Maj. Gen. Carroll H. Dunn, visited Saudi Arabia to attend the opening of the Dammam television station. He presented these reservations clearly, emphasizing that the Corps role in SAMP ought to pass to the United States Military Training Mission (USMTM) in Saudi Arabia.¹⁹ The issue resurfaced in 1973 when a new USMTM commander, Brig. Gen. John Hill, arrived in Saudi Arabia. Hill pursued the goal of uniting under his command all advisory programs sponsored by the U.S. military, including Corps programs with the Saudi Arabian Army Ordnance Corps and with the Saudi Arabian National Guard.²⁰ General Hill's efforts continued over the next two years and seemed to prevail. In June 1975, the U.S. Joint Chiefs of Staff and the deputy secretary of defense directed that responsibility for the SOCP be transferred from the Corps to the USMTM. Although the Office of the Chief of Engineers supported the realignment, Prince Sultan vetoed it. As a result, Corps advisers to the SOCP continued to operate after 1976 under the supervision of the Mediterranean Division's successor, the Middle East Division.²¹

Even after Prince Sultan intervened to override the proposed reorganization in mid-1975, the Corps expected the transfer to the USMTM to occur eventually.²² The U.S. deputy secretary of defense even asked the new Middle East Division commander, Brig. Gen. Richard M. Wells, to speak to Prince Sultan about having USMTM take over the program. Wells recalled Sultan's answer: "Either the Corps of Engineers keeps the ordnance program or I'll give it to another nation." The transfer never occurred, and the Corps continued as the advising agency to the Saudi Arabian Ordnance Corps. In addition, the Corps continued its role in disbursing funds. The Saudis placed all orders to vendors and suppliers, but the Corps paid the invoices. The arrangement, intended to be temporary when the SOCP began, became a permanent part of the Corps' relationship with Saudi Arabia.²³

¹⁹ Memo of Conversation, 6 Nov 69, sub: Major General Dunn's Visit to Saudi Arabia, p. 1, box 18, access. no. 77-92-0001, WNRC.

²⁰ Durham to Williams, 13 Oct 73, p. 4, 28 Nov 73, p. 1, and Attached Draft Msg, Brig Gen Hill, 28 Dec 73, p. 2, all in box 51-84-9384, Farrell Papers; Williams to Gribble, 14 Dec 73, p. 3, box 26, access. no. 77-92-0001, WNRC.

²¹ On Hill's persistent efforts, see Durham to Williams, 22 Apr 74, box 20, access. no. 77-92-0001, WNRC; Telex, Hill to Williams, 25 Nov 74, sub: Saudi Ordnance Corps Program, box 51-84-9384, Farrell Papers. On Prince Sultan's veto despite Corps support, see Brig Gen Richard M. Wells to Lt Gen John W. Morris, 26 Sep 76, p. 2, unmarked box, TAD-RHA. See also "Report to Congress by the Comptroller General of the United States: Perspectives on Military Sales to Saudi Arabia," 26 Oct 77, p. 38, Walker box 6, OH, HQ USACE.

²² Mediterranean Div, "Data Book," 1 May 76, p. 21.

²³ Wiles, "SAMP," p. 11; Interv, John T. Greenwood with Maj Gen Richard M. Wells, 29–30 Jun 91, p. 163; Memo, 2 May 82, sub: Middle East Division Position "Stovepiping" in European Command (EUCOM) Area Security Assistance Agreements (SAO), pp. 1–2, Walker box 6, OH, HQ USACE.

Cantonments at Khamis Mushayt and Tabuk

The Saudi Ordnance Corps Program, successor to the Saudi Arabia Mobility Program, remained something of an anomaly for an engineer division. The Mediterranean Division pursued a more typical role through its continuing work on the cantonments at Khamis Mushayt and Tabuk. Although Khamis Mushayt was officially turned over and dedicated in August 1971 and Tabuk in September 1973, the division's activities continued at both locations beyond those dates. Part of the ongoing work involved hospitals at both cantonments that were not activated upon completion of construction. By 1974, with the country's wealth in petrodollars burgeoning, the Saudi Ministry of Defense and Aviation decided to staff both medical facilities, as well as a third hospital at the Royal Saudi Air Force's Peace Hawk site at Jiddah. MODA negotiated a contract to open and staff the hospitals; in late 1974, the Mediterranean Division arranged for design and construction of housing, administrative buildings, and related services. The working estimate for these facilities at all three sites exceeded \$65 million.²⁴

At Tabuk, the division had to oversee correction of the cracking that occurred in a number of buildings. The structural design had not paid sufficient attention to the thermal stresses imposed by the variations in temperature. As buildings expanded in the heat of the scorching daytime sun and contracted during the cool desert nights, the structural materials cracked. An alteration during construction of the joint between roofs and walls exacerbated the stresses.²⁵

MODA added other facilities at both Khamis Mushayt and Tabuk. By the spring of 1976, the Mediterranean Division had instructions to develop a master plan for Khamis Mushayt that would expand facilities by an estimated \$431 million. In March 1976, construction began at Tabuk on an additional three hundred twenty units of family housing, adding about \$120 million to the cost of construction for the cantonment.²⁶

Third Cantonment

Beginning in 1964, the Saudis had talked of three cantonments; but by the early 1970s, the third cantonment, planned for Qaysumah in north-central Saudi Arabia near the border with Iraq, had hardly advanced at all. Initially, the Saudis had thought that the cantonment at Qaysumah would be built after the facility at Khamis Mushayt; its predesign actually began before work on Tabuk. In December 1966, the Mediterranean Division contracted with BATMED, a joint venture of three architect-engineer firms, for field work and master planning at Qaysumah. Over time, priorities changed. BATMED also had the contract for a master plan

²⁴ "Annual Historical Summary Report, U.S. Army Corps of Engineers, Saudi Arabia District, 1 January 1974 to 31 December 1974," an. B, p. 3.

²⁵ *Ibid.*, p. 1; Interv, Paul K. Walker and William C. Baldwin with John Blake, 24 Jun 88.

²⁶ Mediterranean Div, "Data Book," 1 May 76, pp. 14–15; Mediterranean Div Staff Mtg Min, 15 Dec 75, p. 3, box 18, access. no. 77-92-0001, WNRC.

at Tabuk, and the work on Tabuk took precedence. Still, the design for Qaysumah proceeded; in late September 1968, BATMED presented the master plan to Prince Sultan. The Mediterranean Division expected final design, primarily site adaptation, in another year.²⁷

The expectation turned out to be overly optimistic. Between 1968 and 1970, the work at Khamis Mushayt and at Tabuk took much longer than initially anticipated, slowing completion of the final plan for Qaysumah. In February 1970, facing financial constraints and with only about 60 percent of the cantonment's design completed, the Saudi government instructed the Mediterranean Division to suspend all effort at Qaysumah.²⁸

Signs of Saudi interest in Qaysumah surfaced again in late 1971 and early 1972, but only in September 1972 did the Saudi government inform the division that money was available to complete the design. When work resumed in February 1973, a technical team from the division conducted field examinations and engineering evaluations at Khamis Mushayt and Tabuk to identify ways to improve the design for Qaysumah. The team's assessment indicated that the cost of adapting the earlier designs approached the cost of a complete redesign and creation of a new master plan. In April, given the team's assessment, Prince Sultan approved a preparation of a completely new master plan.²⁹

In May 1973, the division conducted an aerial survey of the area and concluded that the site near Qaysumah was inadequate. The division recommended placing the cantonment at an alternate site, Hafar al Batin, southwest of the original site. Before proceeding further, the division chose to confirm Prince Sultan's commitment to a complete redesign. The MODA liaison officer, Lt. Col. Mahmoud Nassief, affirmed Prince Sultan's decision and instructed the division to continue with the new design.³⁰

²⁷ On the early priority of Qaysumah, see Memos, Charles J. Arado, Design Br, 25 Sep 64, sub: Saudi Arabia Mil. Assistance Program, Revised Cost Estimate—Khamis-Mushayt [*sic*], and 25 Sep 64, sub: Saudi Arabia Mil. Assistance Program, Revised Cost Estimate—Qaysumah, both in box 5, access. no. 77-92-0002, WNRC; MFR, Hayes, 15 Oct 64, sub: Construction of Army Bases, Saudi Arabia (SA), box 51-84-9384, Farrell Papers; Memo, Hayes, 19 Oct 64, sub: Support of Saudi Construction Program by the Corps of Engineers, box 51-84-9384, Farrell Papers. Information on contracts with BATMED for Qaysumah and Tabuk in "Informational Folder: Saudi Arabian Engineer Assistance Program," 10 May 68, box 28, access. no. 77-92-0002, WNRC; Waddell to Cassidy, 4 Dec 68, Mil Files XXI-3-7, OH, HQ USACE.

²⁸ Waddell to Clarke, 5 Mar 70, Mil Files XXI-3-9, OH, HQ USACE; Mediterranean Div, "Data Book," 15 Oct 72, p. 21.

²⁹ Kackley to Clarke, 7 Sep 71 and 15 Mar 72, both in box 51-84-7361, Farrell Papers; Mediterranean Div, "Data Book," 15 Oct 72, p. 21. Memo, Lt Cdr P. W. Drennon, 21 Feb 73, sub: Trip Report SNEP [Saudi Naval Expansion Program] and Qaysumah Design, pp. 3–5; Drennon, Trip Rpt, 21 Feb 73, SNEP (Athens, Greece) and Qaysumah Design (Saudi Arabia), 28 Jan–14 Feb 73; Williams to Nassief, 8 Jan 74; all in Walker box 8, OH, HQ USACE.

³⁰ Memo, W. H. Voelker, A. E. Charnot, and Z. I. Zabban, 16 May 73, sub: Trip Report—Greece, Turkey, Saudi Arabia—23 Apr–7 May 1973, p. 3, Walker box 8, OH, HQ USACE; OCE, Major Activities, FY 1973, p. 48. Williams to Nassief, 8 Jan 74; Telex, Nassief to Williams, 28 Jan 74; Williams to Maj Gen George Rebh, 1 Feb 74; all in Walker box 8, OH, HQ USACE.

Between spring 1973 and early 1974, MODA increased the scope of the facilities at the new cantonment to include an airfield, a fighter squadron, and a firing range. In early 1974, the Mediterranean Division engineer, Col. C. Torrey Williams, exchanged notes with Nassief. The latter once again confirmed Prince Sultan's steadfast commitment to a total redesign of the final cantonment, incorporating the lessons learned from the construction of Khamis Mushayt and Tabuk. MODA also approved the division's recommendation to change the site from Qaysumah to Hafar al Batin.³¹

In March 1974, the Mediterranean Division issued contracts to conduct topographic surveys, to explore for water, and to begin a new master plan and concept design for the cantonment. The division anticipated that the contractors would complete the survey work at the new site by December, after which full-scale design could begin. The commitment by the Saudi government to this new series of contracts bespoke an enormous construction program for this one cantonment alone. Mediterranean Division personnel estimated total costs for the Hafar al Batin project in the range of \$8 billion to \$15 billion. The contemplated scope dwarfed any previous project undertaken by the U.S. Army Corps of Engineers anywhere in the world.³²

New Medical Center and General Hospital for the Ministry of Defense and Aviation

MODA's ambitions did not stop with facilities to garrison its prospective troops. The leadership also sought to provide the troops with the best possible health and medical facilities. In addition to activating the hospitals at Khamis Mushayt, Tabuk, and Jiddah in the early 1970s, MODA instructed the Mediterranean Division to begin planning entirely new medical facilities, specifically a highly specialized patient-care and medical-training center near Al Kharj, about fifty miles southeast of Riyadh, and a general hospital at Taif.

To design the facilities, the division engaged the architect-engineer company Ellerbe Architects Inc. of Minneapolis, Minnesota, which formed a joint venture with Daniel, Mann, Johnson, and Mendenhall (DMJM) of Los Angeles. As the planning concepts evolved, the medical center came to include a 600-bed hospital; a training and research institute; and facilities to support the medical staff and their families. This amounted to creating a small city to accommodate a population of about eight thousand five hundred. The general hospital at Taif would have three hundred thirty beds and facilities for a population of about five thousand, including

³¹ Williams to Nassief, 8 Jan 74; Nassief to Williams, 28 Jan 74; Williams to Rebh, 1 Feb 74; Memo, Williams, 12 Apr 74, sub: Assignment of Responsibilities for Al Batin, box 5, access. no. 77-92-0001, WNRC.

³² Mediterranean Div, "Data Book," 15 Mar 72, p. 16; Memo, Williams, 12 Apr 74; "Annual Historical Summary Report, U.S. Army Corps of Engineers, Saudi Arabia District, 1 January 1974 to 31 December 1974," p. 1, an. A, p. 2; Interv, Moorhus with Gordon W. Dykes, 24 Oct 95, p. 42.

a 112-room motel and a vocational rehabilitation center. Within a year of the award of the design contract, the estimated cost of the facilities had risen to \$5 billion.³³

Other Projects for the Ministry of Defense and Aviation

The Saudi Ministry of Defense and Aviation recognized that facilities alone do not make a military force, so the ministry planned to provide its military with the best training that money could buy. To develop the training program, MODA commissioned the Mediterranean Division to contract for the construction of a new academy for military cadets as well as four specialized schools and training centers.

Advanced planning for King Abdulaziz Military Academy began in 1973. In April 1974, MODA approved a contract to prepare a master plan for an installation about thirty miles northwest of Riyadh. Saudi planners envisioned an academy comparable to the U.S. Military Academy at West Point: a self-contained military community of one thousand five hundred cadets, faculty and their families, and supporting staff—a total population of about ten thousand. Preliminary estimates put the cost at \$125 million. As with many Saudi projects, the scope of work expanded and the cost rose. By 1976, the Saudis had approved \$600 million for the academy and projections of the total cost of the program exceeded \$1 billion.³⁴

In the spring of 1974, MODA also authorized the Mediterranean Division to design and construct four new centers for training soldiers and leaders for the specialized branches of the Saudi Arabian Army.³⁵ MODA located the artillery and infantry schools at the Khamis Mushayt cantonment, the airborne school at Tabuk, and the engineer school at the cantonment planned for Hafar al Batin. When the division's chief of planning, Dick Wiles, asked for clarification concerning the scope of the authorization, Colonel Nassief responded that the Saudis wanted the four military centers to be “the most modern and comprehensive instructional institutions for their respective military specialties in the Middle East and for their size unsurpassed in the world.” He pointedly called Wiles' attention to his use of the word “centers” rather than “schools.”

The Centers must be capable not only of instructing all grades in the various aspects of Modern Warfare, but be also able to develop Doctrine and advanced training methods. The Corps, and all who assist them in this project, should let their

³³ “Saudi Arabia Programs,” 28 Feb 78, pp. 88, 90; Trip Rpt, Maj J. Fero, 16 Sep 75, sub: MDD for LNO Conference, 10–11 Sep 75, box 5, access. no. 77-92-0001, WNRC; Interv, authors with David Dobberman, 31 Oct 96.

³⁴ MFR, John Blake, 30 Apr 74, sub: Meeting with Mr. Nassief, Major Barney, and Mr. Peterson, 28 April 1974, Walker box 8, OH, HQ USACE; Mediterranean Div, “Data Book,” 15 Mar 74, isolated pages, box 5, access. no. 77-92-0001, WNRC; “Saudi Arabia Programs,” 28 Feb 78, p. 72; Mediterranean Div, “Data Book,” 1 May 76, p. 9.

³⁵ “Annual Historical Summary Report, U.S. Army Corps of Engineers, Saudi Arabia District, 1 January 1974 to 31 December 1974,” p. 1; Mahmoud H. Nassief to Richard R. Wiles, sub: Military Schools, 6 May 74, R&D File 2282, TAC.

imagination soar. The product should be so outstanding as to attract the attention of the whole world.³⁶

Nassief's guidance rippled throughout the Mediterranean Division. People quoted his admonition to "let their imagination soar" often and applied it to all projects—not just to the training centers. His words captured the vision that moved the Saudis to spend money lavishly on project after project.³⁷

In addition to the work associated with SNEP, SAMP, SANG, the cantonments, the medical facilities, and the schools, MODA had other, smaller projects. In August 1973, Phillip Holzmann A.G. of West Germany began a three-story marble-faced executive office building in Riyadh for the ministry. In May 1974, the Corps awarded J. A. Jones a \$10.3 million contract for construction of an officers club complex, also in Riyadh. Four years earlier, the working estimate of the club's cost had been just \$3 million.³⁸

In the summer of 1973, to coordinate the growing construction program, the Ministry of Defense and Aviation established the Military Works Department. Colonel Nassief assumed command of the new department, assisted by a young Saudi Army lieutenant, Naser F. Al Faisal. The Saudi Arabia District's chief of construction, John Blake, tells an instructive story about Al Faisal. In 1973, shortly after Blake arrived in Riyadh, he had to pick up some documents; Al Faisal, who had been a Corps trainee at Tabuk between 1970 and 1973, drove Blake to the MODA headquarters.

[We] walked in a room that was full of Saudi Arabian military officers, ranging all the way from captains to major generals. When we walked in the room everyone stood up. Now, since they didn't know who I was from Adam, and I obviously was not one of them and I was not in any uniform, I knew they weren't standing up because of me. And when major generals stand up at the entrance of lieutenants, you have got to know that there is something [unusual] about that lieutenant.³⁹

Blake's insight was correct: Al Faisal was a member of the royal family. In January 1976, Al Faisal, by then a captain, succeeded Nassief as the director of military works and became the person in MODA with whom the Corps staff had the most contact. Americans who worked with Al Faisal described him as "very intelligent," as having "very high business acumen," and as both tough and reasonable in

³⁶ Nassief to Wiles, 6 May 74.

³⁷ Nassief's words are cited in *Intervs*, authors with Frank Oliva, 13 Jan 95, pp. 10, 27, and with Wiles, 21 Oct 93, p. 101; Ltr, Col Williams to Ch of Engrs, 14 Jun 74, box 26, access. no. 77-92-0001, WNRC. See also *Interv*, Paul K. Walker with Gus Woodall, 5 Feb 85, p. 4. Woodall applies the words directly to King Khalid Military City (KKMC) and attributes them to Prince Sultan.

³⁸ Mediterranean Div, "Data Book," 1 May 76, p. 15; "Annual Historical Summary Report, U.S. Army Corps of Engineers, Saudi Arabia District, 1 January 1974 to 31 December 1974," p. 1; Memo, Dist Engr USAMED Riyadh to RUEADWD/Ch of Engr ENGMC Dept Army, 24 Jan 70, sub: Riyadh Officers Club Med Lb, box 6, access. no. 77-86-0008, WNRC.

³⁹ *Interv*, Paul Walker and William Baldwin with John Blake, 24 Jun 88, p. 239.

negotiations. For all the positive tone, the characterizations of Al Faisal lacked the warmth, admiration, and sense of friendship that Corps personnel expressed in describing Nassief.⁴⁰

Funding the Projects

The Saudi government paid for all of the management and construction services that the Mediterranean Division provided. The initial mechanism had been the irrevocable letter of credit at Chase Manhattan Bank through which the Saudi government made funds available to the Corps of Engineers, which then paid contractors. Another mechanism, Foreign Military Sales (FMS), became available when the U.S. Congress passed the Foreign Military Sales Act of 1968. If the defense ministry of a foreign government initiated a request for support and the host government made a formal request for assistance to the U.S. embassy that was approved by the U.S. government, the Corps of Engineers cooperated with the host government to specify terms for the project in a letter of offer and acceptance (LOA).⁴¹

The LOA, also frequently called the sales case, was a single-page document that described in very broad terms the needed services. The LOA included an initial estimate of the total cost, allowing for a more precise definition of scope as the project took shape. It was neither an open-ended nor a rigidly defined, inflexible contract. By signing an LOA, a foreign government made a commitment to pay for the services it sought. Payment could take the form of a cash deposit at the time that the government accepted the sales case, or it could be a “dependable undertaking” subject to the approval of the U.S. Department of Defense (DoD). Dependable undertakings could involve three forms. The host government could establish an irreversible commercial letter of credit from which funds could be drawn as required. It could give a formal promise to make payments as the project progressed. It could make a cash advance, normally 10 percent of the total sales case, combining this with the two methods previously described to cover the total cost of the project. The balance of money available in a sales case always had to cover contractual commitments and obligations, a minimum of three months of

⁴⁰ On Al Faisal as successor to Nassief, see [Prince] Sultan ibn Abdul Aziz to U.S. Amb, 15 Jan 76, E-7-6, TAD-RHA. On Al Faisal’s status as a member of the royal family, see Col George W. Page, “Mediterranean Division [*sic*] Command Briefing,” 21 Jun 77, p. 1, unmarked box, TAD-RHA. For Blake’s observations, see Interv, Walker and Baldwin with Blake, 24 Jun 88, p. 239. Other commentaries on Al Faisal appear in Intervs, John Greenwood with Brig Gen George R. Robertson, 1 Oct 83, pp. 9, 37–38; with Elmer Parkin, 4 Oct 83, pp. 109–10; with Col Gurnie C. Gunter, 8 Jul 86, pp. 3, 10; with Earl Kramer, 14 Mar 83, pp. 28–29; with Tom Connor, 21 Nov 82, pp. 9–10; Paul Walker with Col Maurice Leiser, 27 Feb 85, p. 92; Thomas Tulenko with Col (Ret) Charles T. Williams, 20–21 Feb 85, p. 104.

⁴¹ OCE, “Annual Historical Summary, 1 July 1967–30 June 1968,” p. 48, Gen Files, box 5, OH, HQ USACE; USACE, “Technical Assistance Operating Procedures,” Apr 82, pp. 14–15, unmarked box, TAD-RHA.

anticipated disbursements, and a reserve that corresponded to the estimated liability that accrued in case of termination of the contract.⁴²

Because the processes used in FMS cases could make money immediately available to begin project planning, such cases became the method of choice for financing the work in Saudi Arabia. Projects begun under the bilateral Engineer Assistance Agreement of 1965 continued to use letters of credit until the U.S. Department of Defense insisted in the mid-1970s that they be incorporated into the FMS reporting system. To comply, the Mediterranean Division established a series of “dummy” sales-case designators. These accounting entries allowed the division to track funds using the FMS reporting system, even though no FMS money was involved.⁴³

The use of FMS cases became prevalent about the same time that MODA requested the Corps’ help for its new directorate—referred to as both the Military Works Directorate and the General Directorate of Military Works (GDMW). The Saudis wanted to develop GDMW’s capacity to take over construction management from the Corps of Engineers. In March 1974, the division engineer, Colonel Williams, assigned the task of coordinating with the new directorate to the division’s Saudi Arabia District.⁴⁴

Creation of the new directorate in MODA confirmed the growing scope of the building program, and leaders of the Saudi Arabia District understood that 1974 was a pivotal year.⁴⁵ In that year, in Saudi Arabia alone, the Mediterranean Division awarded a sufficient array of contracts to sustain a U.S. Army engineer division in the region for years to come. Less clear was where that division should be headquartered.

Emergency Water System Repair in Jiddah

The early months of 1975 brought two totally unpredictable disasters in Saudi Arabia that affected the work of the Corps of Engineers. On 25 March, a disaffected and possibly unstable prince of the royal family shot and killed his uncle, King Faisal. Crown Prince Khalid quickly assumed the throne, but the reorganization of the government and the redistribution of influence continued for another six months. During this period, many issues of Saudi national security underwent special scrutiny and action slowed on the modernization programs.⁴⁶

The second disaster, natural rather than regicidal, impinged on the work of the Mediterranean Division more directly. In early April, torrential thunderstorms

⁴² USACE, “Technical Assistance Operating Procedures,” Apr 82, pp. 14–16; Maj Jules S. Kincaid to Ahmed T. Sedairy, 9 May 83, sub: Letter of Credit Procedures, SA 1176, TAD-RHA.

⁴³ Mediterranean Div, “Data Book,” 1 May 76, pp. 27–29.

⁴⁴ Quotation from Williams to Gribble, 18 Mar 74, p. 2, box 26, access. no. 77-92-0001, WNRC. On the creation of the office, see Durham to Gray, 4 Feb 74, pp. 4–5, box 19, access. no. 77-92-0001, WNRC.

⁴⁵ “Annual Historical Summary Report, U.S. Army Corps of Engineers, Saudi Arabia District, 1 January 1974 to 31 December 1974,” p. 1.

⁴⁶ Cordesman, *The Gulf and the Search for Strategic Stability*, pp. 181–86.

caused flash floods in the Jiddah area that inundated water wells, destroyed pumps and pumping plants, and washed out the pipelines in the system that supplied the city with water. The Saudi Arabian Ministry of Agriculture and Water estimated that repairs would take three to six months—longer than the city’s population could safely endure. Faced with a severe shortage of safe water in one of its major cities, the Saudi Arabian government appealed to the U.S. ambassador for emergency assistance. Within days of the floods, the Saudi Arabia District engineer, Col. George Gray, led a team of Army engineers to assess the damage in the area. On 19 April, the district set up an emergency project office under Lt. Col. William Badger to supervise the reconstruction of the water system.⁴⁷

The reconnaissance team quickly determined that twenty-three of the thirty-two wells that formed the basis of the city’s water supply had been damaged and fouled. Over the following week, the team mobilized fourteen contractors, both American and Saudi Arabian, to make emergency repairs to the system. Working twenty-four hours a day under the supervision of district personnel, the contractors managed to clear the wells and to restore the pipelines to the city by 2 May. By 9 May, crews had cleaned and repaired the system sufficiently to deliver 6.5 million gallons of usable water a day, approximately 80 percent of the system’s pre-flood production. The initial repairs addressed less than 25 percent of the damage done to the region’s water system; but over the following eight months, the Saudi Arabia District worked with contractors to modernize the water system and to make it more resistant to damage by flash flooding. By 1 January 1976, the new system had an increased capacity to distribute 110 percent of the system’s water flow prior to the flood.⁴⁸

The responsiveness of the Saudi Arabia District to the emergency in Jiddah enhanced the standing of the U.S. Army Corps of Engineers at a moment when the assassination of King Faisal had engendered an atmosphere of uneasiness and stress. It confirmed the Corps’ managerial capabilities and contributed to a confidence that the Saudi Arabian government could count on the Corps.

Transition to the Middle East Division

By the second half of 1974, the volume of design either underway or approved for construction in Saudi Arabia made an expansion of the Mediterranean Division’s staff imperative. Colonel Williams launched a recruiting campaign for the Saudi Arabia District that added about a dozen people to the district’s staff by December.⁴⁹

⁴⁷ Cristobal S. Berry-Caban, “To Give People Water: The U.S. Army Corps of Engineers Flood Emergency Relief Project in Saudi Arabia,” abstract, p. 31, Walker box 8, OH, HQ USACE, R&D File 2713, TAC; Interv, Cristobal S. Berry-Caban with Col George Gray, [12 Jun 85], pp. 5–13, Walker box 8, OH, HQ USACE; Interv, Tulenko with Williams, 12 Jun–5 Jul 85, pp. 123–26.

⁴⁸ Fact Sheet, Jiddah Water Proj, n.d., box 5, access. no. 77-92-0001, WNRC; Interv, Paul K. Walker with Robert Meehan, 6 Feb 85, pp. 75–76; Memo, Gray, 16 Sep 75, sub: General Order to Establish the Jiddah Water Project Resident Office, box 5, access. no. 77-92-0001, WNRC; Berry-Caban, “To Give People Water,” abstract, pp. 31–55.

⁴⁹ Intervs, Moorhus with Ron Friestad, 7 Feb 94, pp. 3–4, 7–8; with Patricia Hill, 24 Nov 93, pp. 1–3, 24–25; authors with Oliva, 13 Jan 95, pp. 20–21.

The district activated area offices in Jiddah and in Al Khobar to manage construction for the Saudi Navy in Jiddah and Jubayl, respectively. It also established a planning and liaison office in Riyadh to facilitate communications on engineering issues between the division headquarters, the district, and MODA.⁵⁰

The assassination of King Faisal only temporarily dampened the Saudi government's appetite for military modernization. The construction activity both reflected and stimulated a rapidly expanding national economy in which petrodollars fueled expansion. The unstable political and military situation in the Middle East generally, and in the Arabian Gulf region specifically, motivated the Saudi government to invest even more money in modernizing its military forces. At the same time, the influx of money and the intense economic demand contributed to inflationary pressures, which reached 30 percent in Saudi Arabia in the middle 1970s and remained in double digits into the 1980s.⁵¹ The combination of a volatile political climate and such inflation made the award of contracts and the movement of construction materials more difficult.

Handling the Growing Volume of Materials

The growing demand for construction created a need to import vast quantities of construction materials and labor. The region had only limited capabilities for dealing with the inflow of goods and workers. When construction began at Khamis Mushayt in 1966, strained Saudi port facilities had barely coped. To compensate, the contractor had chosen to build its own small port on the Red Sea; but at the end of that project, the joint venture closed and dismantled the port. Nothing had improved by the mid-1970s. Mediterranean Division personnel became increasingly concerned about the limited ability of Saudi Arabia's ports to handle the volume of shipping needed to sustain the large construction projects under design. As serious discussions began concerning construction of the cantonment at Hafar al Batin, the military academy, and the medical research and treatment center at Al Kharj, the division's engineers again voiced their concern about port capacity. In late 1974, the division commissioned a study of the port conditions and the transportation facilities needed to support the planned programs.⁵²

In mid-November 1975, Mediterranean Division personnel presented to Prince Sultan the idea of constructing a port on the Saudi east coast at Ras al Mishab near the border with Kuwait. The port would handle only materials imported for the

⁵⁰ "Annual Historical Summary Report, U.S. Army Corps of Engineers, Saudi Arabia District, 1 January 1974 to 31 December 1974," pp. 2-3.

⁵¹ Abdul Kasim Mansur, "The American Threat to Saudi Arabia," *Armed Forces Journal* (September 1980): 47-60.

⁵² MFR, Blondell, 3 Jun 66, sub: Presentation of Design Criteria for Khamis Mushayt, box 29, access. no. 77-92-0002, WNRC; "EIG [Engineer Inspector General] Inspection: Annual General Inspection, Saudi Arabia District, 29 May-1 June 1972," 16 May 72, pp. 4-4A, box 51-84-9384, Farrell Papers; "Building the King Faisal Military Cantonment," Aug 71, box 23, access. no. 77-92-0001, WNRC; Interv, Walker with Woodall, 5 Feb 85, pp. 9-10; Williams to Gribble, 14 Jun 74, p. 2, box 26, and 12 Sep 75, p. 3, box 6, both in access. no. 77-92-0001, WNRC.



Silos at Ras al Mishab, a new seaport built in Saudi Arabia between 1976 and 1981

MODA project at Hafar al Batin. The division quickly furnished a cost analysis of eight-berth seaports at two locations—one in the east at Ras al Mishab and the other in the west on the Red Sea at Sharm Yanbu (never built). MODA approved the concept; in late July 1976, the recently established Middle East Division awarded a \$161 million contract to Santa Fe Overseas Inc. of Orange, California, to build at Ras al Mishab. Over the next five years, the Saudis added facilities and extended construction in two phases. When completed in 1981, the port had seven general

cargo berths, a bulk cement berth, on-shore storage, and related port facilities and housing. The total program cost \$218.2 million.⁵³

Staffing for the Expanding Workload

Given the steady increase in the projected volume of work through the early 1970s, the Mediterranean Division had thirty-three recruitment actions pending at the Office of the Chief of Engineers in mid-December 1974 and an additional sixty-two requests ready to forward. Colonel Williams planned recruitment visits to districts and divisions in the United States during the spring and, if necessary, similar recruitment drives in Europe. Over the next year, these efforts garnered an influx of new staff members both for the Saudi Arabia District and for division headquarters in Livorno.⁵⁴

The Mediterranean Division's expanding construction program also made necessary a review of the division's organization and operations. Williams commissioned an internal study to make sure that the division was organized effectively to meet the requirements of its growing and shifting workload. Williams' first alternative involved enhancing the authority of the Saudi Arabia District over work in the kingdom while retaining the engineering and design functions at the division level. Headquarters in Italy would continue to act as an operating division in relation to work in countries other than Saudi Arabia. The second organizational scheme included adding a second district to the division to execute the programs outside Saudi Arabia, with the division office functioning as a supervisory element for both districts.⁵⁵

Completed on 1 February 1975, the Williams study examined eight scenarios for reorganizing and eleven possible cities in the Mediterranean–Middle East area for division headquarters. The top two candidates for relocation were Athens and Beirut. The clash in Cyprus between Greeks and Turks and the resulting Greek hostility toward the United States persuaded the U.S. embassy in Athens that a Corps presence there was untenable. When Richard Wiles visited Beirut on behalf of the division, U.S. diplomats suggested that the political situation between Lebanese and Palestinians in the country was too unstable to make establishing the Corps there

⁵³ Fact Sheet, Saudi Arabian Govt Mil Ports in Saudi Arabia, 1 Dec 75, box 5, access. no. 77-92-0001, WNRC; Gray to Lt Gen Otham Al-Humaid, 8 Nov 75, sub: Request for Authorization for Access to Various Sites on the Arabian Gulf and Red Sea Coasts, box 5, access. no. 77-92-0001, WNRC; Bennett to Al Faisal, 25 Jan 77, sub: MODA [Ministry of Defense and Aviation] Ports—Sharm Yanbu and Ras al Mishab, unmarked box, TAD-RHA; Memo, Thomas L. Carnes, 19 Jul 82, sub: Contract DACA86-78-C-0017, Additional Facilities, RAM II Contract Closeout Meeting, K-8-4, TAD-RHA; "Saudi Arabian Programs," [1981], p. 6, box SH-6-93-0006, TAD-RHA.

⁵⁴ Williams to Gribble, 16 Dec 74, p. 3, box 26, access. no. 77-92-0001, WNRC. Intervs, Moorhus with Friestad, 7 Feb 94, pp. 3–4, 7–8, and with Hill, 24 Nov 93, pp. 1–3, 24–25; authors with Oliva, 13 Jan 95, pp. 20–21.

⁵⁵ Williams to Gribble, 16 Dec 74, pp. 3–4.

advisable. Within months of Wiles' visit, Beirut and Lebanon had descended into chaos and civil war.⁵⁶

The study also gave serious consideration to relocating the division's headquarters to either Jiddah or Riyadh in Saudi Arabia but rejected such a move. It anticipated that recruitment to Saudi Arabia would prove very difficult. Whereas Livorno, Italy, had worked positively, Saudi Arabia might become an impediment to attracting both the numbers and the quality of staff that the division needed. The mismatch of workdays (the Saudi weekend falls on Thursday–Friday) and office hours between Saudi Arabia and the Western world presented more problems. Study leaders worried about the restrictions on movement around the country, the limited facilities for communications, the difficulties in getting items through customs, and the general impediments to conducting business. In addition, they feared that placing the headquarters in Saudi Arabia would inhibit work that was developing for the governments in Jordan, Iran, and Kuwait.⁵⁷

The Williams study recommended increasing the authority and autonomy of the Saudi Arabia District and retaining the role of division headquarters as an operating division to supervise all other work in areas outside Saudi Arabia. The study also proposed that the division's role in North Atlantic Treaty Organization (NATO) countries be retained as long as its headquarters remained in Italy. This would avoid compromising the status of forces arrangements under which the division's personnel functioned.⁵⁸

Williams had launched his study in mid-December 1974, just after personnel from the Office of the Secretary of Defense (OSD) Audit Office, Europe, visited the division to gather information on a possible consolidation of construction activities in Europe. The OSD auditors reached conclusions quite different from those of the division. The auditors' report, presented in draft form on 23 January 1975, concluded that the Department of Defense would save money by merging the two Army engineer divisions in Europe under the Europe Division (EUD) that had been activated in Frankfurt, West Germany, in the summer of 1974. The auditors argued that the limited work in southern Europe managed by the Mediterranean Division could easily be handled by EUD and that the Saudi Arabia District could report to the Europe Division.⁵⁹

The OCE staff marshaled a variety of arguments against the consolidation of the two divisions. They disputed the OSD auditors' estimate of savings in personnel and challenged the feasibility of consolidation on both operational and political grounds. The volume of work administered by the Europe Division demanded

⁵⁶ Exec Sum, 1 Feb 75, sub: A Study of the Organizational Structure of the U.S. Army Engineer Division, Mediterranean, pp. i–iii, box 6, access. no. 77-86-0008, WNRC; authors' conversation with Wiles, 6 May 97; Interv, Walker and Baldwin with Blake, 24 Jun 88, p. 232.

⁵⁷ "Study," 1 Feb 75, box 6, access. no. 77-86-0008, WNRC.

⁵⁸ Ibid.

⁵⁹ Memo, Williams to Headquarters, Department of the Army (HQDA), 16 Dec 74; Col Guy F. Cardinalli, "OSD Audit of Support Functions in the European Theater (D75-103)," 28 Feb 75; both in box 6, access. no. 77-86-0008, WNRC.

its full attention. It was a new organization that needed time to work out standard procedures (OCE projected two years at a minimum). Its span of control could not be extended without compromising its ability to fulfill its mission. A merger would create strains on EUD's capabilities that it could not overcome by increasing its staff size. Moreover, the programs and the orientation of the Europe Division and the Mediterranean Division were largely incompatible. The Europe Division served the United States Army, Europe (USAREUR); the U.S. Air Forces in Europe; and U.S. military units assigned to the Atlantic alliance. Its funding came from congressional appropriations and through NATO. Funding for Mediterranean Division projects came almost exclusively from foreign governments. Given the 3,000-mile distance between the two primary locations of work—West Germany and Saudi Arabia—management would require an inordinate amount of effort and the costs in time, talent, and travel would be disproportionately large. OCE also saw no reason to believe that the Saudi Arabian government, which was paying for all of its construction projects and 90 percent of the Mediterranean Division's operating costs, would accept a relocation that moved the division's headquarters even farther from the kingdom.⁶⁰

Throughout the spring of 1975, discussions of the OSD auditors' draft report continued among USAREUR, OSD, and OCE. The discussion formed one small part of DoD efforts to increase the ratio of "tooth to tail" in the alignment of U.S. military forces overseas. For the most part, the Mediterranean Division remained uninvolved in the discussions. Colonel Williams pursued his plans to increase the authority of the Saudi Arabia District. He also sought cooperation and support from OCE to recruit additional personnel for the district.⁶¹

On 30 June 1975, the auditors from the OSD Audit Office, Europe, issued their final report with the recommendation to merge the Mediterranean Division into the Europe Division in Frankfurt unchanged. A week later, OCE's chief of military construction, Maj. Gen. George A. Rebh, and several civilians from the OCE staff met in Livorno with the EUD commander, Brig. Gen. Louis Prentiss; Colonel Williams from the Mediterranean Division; and Colonel Gray from the Saudi Arabia District. During the meeting, the participants reached three decisions that reshaped the organization of engineering responsibilities in Europe.⁶²

First, the participants concluded that the Europe Division could take over responsibility for U.S. military construction in the NATO countries of southern Europe: Italy, Greece, and Turkey. The USAREUR commander favored this reorganization because it consolidated all construction work for NATO countries under

⁶⁰ "OCE Comments on OSD [Office of the Secretary of Defense] 'Draft Report on Review of Consolidation of Army Engineer Divisions in Europe,'" 24 Feb 75; Talking Paper, 15 May 75, sub: OSD Draft Audit Report on Consolidation of EUD and MDD Headquarters; both in box 6, access. no. 77-86-0008, WNRC.

⁶¹ Williams to Gribble, 14 Mar 75, p. 4, and 19 May 75, p. 4, both in box 6, access. no. 77-92-0001, WNRC.

⁶² Clement E. Roy, OSD, "Report on Review of Consolidation of Army Engineer Divisions in Europe," 30 Jun 75, box 6, access. no. 77-86-0008, WNRC; Interv, Tulenko with Williams, 20–21 Feb 85, pp. 130–33.

one engineer organization. That change left the Mediterranean Division focused almost exclusively on projects in Saudi Arabia. The division depended heavily on contracts with American architect-engineer firms to develop concept designs, master plans, and detailed design for construction in Saudi Arabia because the firms had sufficient capacity to deal with very large projects. This led to the second major decision. The division's engineering functions, that is, all of the planning and design to the point of awarding a construction contract, would relocate to the continental United States, enabling division personnel to work in easy proximity with American firms.⁶³

If just the Mediterranean Division's construction management personnel needed to remain on site in Saudi Arabia, the third decision seemed foreordained. That portion of the division's work involving construction and construction management would move forward to Saudi Arabia.⁶⁴

Reorganizing Engineering Responsibilities

Before the end of July 1975, OCE approved these decisions; by mid-September, the two divisions and OCE had a draft plan to transfer military construction in Italy, Greece, and Turkey to the Europe Division. Simultaneously, Colonel Williams instructed Colonel Gray to begin looking for family housing for the personnel who would be moving to Jiddah. (Williams chose Jiddah, where the division had a liaison office, over Riyadh as the appropriate site for the division's forward element because of its better amenities and its experience accommodating Westerners.) Several locations emerged as candidates for the division's rear echelon in the United States: Huntsville, Alabama, site of the Corps of Engineers' Huntsville Division, which had provided many of the Mediterranean Division's staff members in recent years; the area between Baltimore and Washington; and the rural areas of Virginia west of Washington. Considering the need for easy access to international travel, Williams himself preferred locating to Northern Virginia for proximity to Dulles International Airport.⁶⁵

By mid-October 1975, information about the planned move had begun to circulate as rumor, so Williams met with his entire headquarters staff to lay out the plan, emphasizing that its details might still change. About one-third of the division's personnel would move to Jiddah to oversee the construction programmed for Saudi Arabia. About two-thirds of the staff, augmented by a significant number of new personnel, would establish the division rear element in the vicinity of Washington,

⁶³ Memo, Cardinalli, 28 Feb 75, sub: OSD Audit of Support Functions in the European Theater, D75-103, Encl 1, box 6, access. no. 77-86-0008, WNRC. Intervs, Tulenko with Williams, 20–21 Feb 85, pp. 130–33; Walker with Woodall, 5 Feb 85, pp. 69–70; John T. Greenwood with Ralph Wheeler, 6 Nov 85, p. 16.

⁶⁴ Interv, Tulenko with Williams, 20–21 Feb 85, pp. 130–33. The decisions reached at the meeting in early July are confirmed by Prentiss to Gribble, 14 Jul 75, sub: Quarterly Report, file 11B, box M-1-12, Europe Division–Records Holding Area (EUD-RHA).

⁶⁵ Mediterranean Div Staff Mtg Min, 28 Jul 75, box 6, access. no. 77-92-0001, WNRC; Gribble to Prentiss, 11 Sep 75, file 11B, box M-1-9, EUD-RHA; Williams to Gribble, 12 Sep 75, pp. 1–2.

D.C. Division personnel involved with the military construction contracts underway in Italy, Greece, or Turkey could continue their work as members of the Europe Division at the headquarters in Frankfurt or in field offices in the southern NATO countries.⁶⁶

Two weeks after Colonel Williams' address to the division staff, Maj. Gen. John W. Morris, acting for the chief of engineers, asked the chief of staff of the Army to approve and forward to OSD the plan to relocate the Mediterranean Division's headquarters to Jiddah, Saudi Arabia; to activate a rear element in Virginia; and to transfer the Mediterranean Division's work in NATO countries to the Europe Division. In addition to arguments concerning the size and changing focus of the Mediterranean Division's workload, General Morris added a new justification: The transfer of personnel to a division rear echelon in the United States and the relocation of the division's headquarters from Italy to Saudi Arabia helped meet the ceiling, imposed by the U.S. Senate to take effect 30 June 1976, on the number of civilian employees in Europe.⁶⁷

General Morris' 28 October 1975 memorandum projected that by 1978 the new division headquarters in Saudi Arabia would have a construction placement of more than \$500 million, giving it the largest construction program of any Corps of Engineers division. For that reason, and to improve comprehensive planning, policy development, and liaison with the government of Saudi Arabia, the chief of engineers intended to appoint a general officer to head the division. The new division would add two districts in addition to the district based in Riyadh. A district in Jiddah would become active in the summer of 1977 as the work for the Saudi Naval Expansion Program grew; and a district would open at Hafar al Batin, where the third cantonment would be built for the Saudi Arabian Army.⁶⁸

Approval came quickly; in early November 1975, OCE authorized the transfer of NATO work to the Europe Division. In December, General Prentiss sent his special assistant, William Cambolor, to Livorno to familiarize himself with procedures used in handling work in southern Europe. On 1 February 1976, the Europe Division assumed full responsibility for the construction in Italy, Greece, and Turkey. EUD retained numerous Mediterranean Division staff members and set up a small design section at Camp Darby comprised of Italian nationals. In April, the Europe Division also assumed responsibility for work in Iran that had developed for the Mediterranean Division, easing the concerns prompted by the delicate relationship between Saudi Arabia and Iran.⁶⁹

⁶⁶ Williams Address to Mediterranean Div Personnel, 16 Oct 75, Misc Files, EUD-RHA; *Castle Comments*, 29 November 1975, box 6, access. no. 77-92-0001, WNRC.

⁶⁷ Decision Memo, Maj Gen John W. Morris, 28 Oct 75, sub: Realignment Plan—Relocation of U.S. Army Engineer Division, Mediterranean, Mil Files XII-36-9, OH, HQ USACE.

⁶⁸ *Ibid.*, encl. A, pp. 7–9; *Castle Comments*, 29 November 1975.

⁶⁹ OCE, General Orders (GO) no. 44, 7 Nov 75, sub: Change of Military Construction Boundaries, box 51-84-7361, Farrell Papers. On the visits by Cambolor and other EUD staff, see Mediterranean Div Staff Mtg Min, 15 Dec 75, pp. 1–2, 4, and 29 Dec 75, p. 5, both in box 18, access. no. 77-92-0001, WNRC; Memo, Cambolor, 29 Dec 75, Misc Files, EUD-RHA; Robert P. Grathwol and Donita M. Moorhus, *Building for Peace: U.S. Army Engineers in Europe, 1945–1991* (Washington, D.C.: U.S.

Implementing the Move to Saudi Arabia

Even before the formal approvals, Colonel Williams traveled to Saudi Arabia to brief his two most influential customers: the commander of the National Guard, Prince Abdullah, and the minister of Defense and Aviation, Prince Sultan. Prince Abdullah seemed pleased by the division's proposed move to Jiddah. Williams' personal meeting with Prince Sultan ended abruptly before Williams had laid out the plan to move to Jiddah, when the minister had to attend to other pressing business. As a result, Williams presented the proposal to Prince Sultan in a letter from Italy.⁷⁰ In exchanges over the following six weeks, the Saudis made clear that Prince Sultan wanted the division headquarters in Riyadh, closer to the Military Works Directorate, to MODA headquarters, and to other government ministries.⁷¹

Williams remained convinced that Jiddah offered numerous advantages over Riyadh, including what he called "space-time insulation" from the pressures and influence that MODA and SANG might exert. Although he disliked having the Saudis tell the Corps of Engineers "how to run its business," he understood that opposing Prince Sultan's wishes would be costly and self-defeating. In January 1976, Williams traveled to Saudi Arabia with instructions from Washington to move the division's forward headquarters to Riyadh.⁷²

Locating the Division Rear in Virginia

On 24 February 1976, the secretary of the Army announced plans to reorganize the Corps of Engineers activities in the Mediterranean and the Middle East. The next day, the Office of the Chief of Engineers issued a general order to establish a rear echelon of the Mediterranean Division near Berryville, Virginia, about thirty-five miles west of Dulles Airport, and to activate the U.S. Army Construction Activity, Mideast, in Riyadh, Saudi Arabia. The public announcement intensified efforts in Italy to complete a plan for moving personnel to the two new locations in Saudi Arabia and Northern Virginia. By early March, the division had established an ad hoc staff section to handle planning and coordination of the moves and to close out activities at division headquarters at Camp Darby. Within weeks, the division had established organizational structures for the two locations and had begun to issue transfer-of-function letters. The division scheduled the first contingent of personnel

Army Center of Military History, U.S. Army Corps of Engineers, 2005), p. 356. On the work in Iran, see Williams to Gribble, 14 Dec 73, p. 3; OCE, "Annual Report of Major Activities, Jul. 1, 1974–Jun. 30, 1975," pp. 54–56, box 8, Gen Files, OH, HQ USACE. On EUD's takeover of the work in Iran, see OCE, AHR, FY 1976, pp. 37–38.

⁷⁰ Williams to Maj Gen Bates C. Burnell, 14 Nov 75, and Williams to Prince Sultan, 13 Nov 75, both in box 4, access. no. 77-92-0001, WNRC.

⁷¹ Williams to Burnell, 31 Dec 75, sub: Move of MDD HQ to Riyadh or Jiddah; Al Humaid to Williams, 27 Dec 75, sub: The Move of the Engineer Division to the Kingdom; both in box 14, access. no. 77-92-0001, WNRC.

⁷² Williams to Hon William J. Porter, U.S. Amb to Saudi Arabia, 22 Jan 76, box 14, access. no. 77-92-0001, WNRC; Interv, Tulenko with Williams, 20–21 Feb 85, pp. 130–33.

to move to Virginia beginning in April, with others following throughout the spring and summer. Relocation to Saudi Arabia began at the same time and continued throughout the rest of 1976.⁷³

The designation of the engineer unit in Saudi Arabia as a “construction activity” lasted less than two months. On 20 April 1976, the engineer entity working in Saudi Arabia became the U.S. Army Engineer Division, Middle East, or simply the Middle East Division. Concurrent with the new designation, the chief of engineers announced the appointment of General Wells as division engineer. The Mediterranean Division continued to exist, overlapping with the Middle East Division as it transferred all of its functions and personnel to Saudi Arabia and Virginia. Earlier, in February 1976, the entity organized in Northern Virginia had been formally placed under the command of the Mediterranean Division’s deputy engineer, Col. George W. Page, as the Rear Echelon, Mediterranean Division. In late June, orders transferred the Rear Echelon and other elements, such as the Saudi Arabia District, the liaison office in New York that had existed since the 1950s, and the liaison office in Jiddah from the Mediterranean to the Middle East Division. The Mediterranean Division closed out its remaining responsibilities in late 1976 and quietly passed out of existence.⁷⁴

Physical preparations at the site in Northern Virginia paralleled the administrative efforts at Camp Darby. Five buildings at the Federal Preparedness Agency’s special facility on Mt. Weather near Berryville were designated to become the home of the Rear Echelon—initially an element of the Mediterranean Division that passed, by the end of 1976, to the Middle East Division. Four of the buildings had to be renovated and the fifth moved and renovated. Because time constraints did not permit careful delineation of construction specifications, the Corps sought and received permission to bypass the normal competitive bidding process and to negotiate a single contract for the renovation and new construction with modifications as criteria became more clearly defined. Early in 1976, the Baltimore District, acting on behalf of the Mediterranean Division, awarded a \$2.3 million contract and supplemental agreements for the work at Mt. Weather.⁷⁵

⁷³ Mediterranean Div Staff Mtg Min, 28 Feb, 8 Mar, 22 Mar 76, box 17, access. no. 77-92-0001, WNRC; OCE, GO no. 19, 25 Feb 76, sub: Rear Echelon, U.S. Army Engineer Division Mediterranean . . . near Berryville, Va., and U.S. Army Engineer Construction Activity, Mideast, Riyadh, Saudi Arabia, in unmarked box, TAD-RHA; Mediterranean Div, Info Bull no. 17, 15 Mar 76, sub: Relocation of MDD, box 19, access. no. 77-92-0001, WNRC.

⁷⁴ On the change of names, see Mediterranean Div Staff Mtg Min, 28 Apr 76, p. 1, box 19, access. no. 77-92-0001, WNRC; OCE, GO Seq for MDD to MED, 6 Apr 76, box 51-84-9384, Farrell Papers; OCE, GO no. 31, 20 Apr 76; OCE, AHR, FY 1976, pp. 32–33; Mediterranean Div, GO no. 16, 15 Jun 76, sub: U.S. Army Engineer Division, Middle East . . . Activation of Division Organizational Elements, box 3, access. no. 77-92-0001, WNRC. On the transfers and final closeout of the Mediterranean Division, see OCE, GO no. 45, 15 Jun 76, and OCE, AHR, FY 1976, p. 65. On the final activities in Livorno, see Wells to Morris, 28 Sep 76, unmarked box, TAD-RHA.

⁷⁵ Memo, Williams to HQDA, 3 Feb 76, sub: Request for Approval to Procure by Negotiation the Rehabilitation and Modernization of Facilities at Berryville, Va., E-5-3, TAD-RHA; Memo to Div Engr, North Atlantic, Burnell, 24 Feb 76, sub: Approval to Procure by Negotiation the Rehabilitation and Modernization of Facilities at Berryville, Va., E-5-3, TAD-RHA; Mediterranean Div, Staff Mtg Min, 2 Feb 76, box 17, access. no. 77-92-0001, WNRC; Decision Memo, Morris, 28 Oct 75.



Mt. Weather, Virginia, was the location of Mediterranean Division and then the Middle East Division rear echelons.

New Staff in Berryville

The Mediterranean Division had a staff of 418 in September 1975, before the relocation to Saudi Arabia and to Northern Virginia. A small number of staff positions passed to the Europe Division in February 1976. Most of the division's staff moved to Riyadh; only forty-nine employees relocated to Berryville to form the nucleus of the division's rear headquarters. By late September, most of the staff had left Livorno, although the Finance and Accounting Branch remained at Camp Darby awaiting the completion of the automated data-processing center in Riyadh.⁷⁶ Several longtime employees of the division, such as the comptroller, Stuart Wagman, and the chief of design, Zeno Zabban, exercised a third option: They retired to retain the pleasant life they had established and enjoyed in the Italian coastal region of Livorno.

The moves caused economic hardship for some of "the 49ers" who relocated to Virginia from Italy, especially those who had been recruited into the Engineering Division in early 1975 and had expected to serve three years in Italy. Some division employees had to terminate long-term leases in Italy and then find temporary quarters

⁷⁶ Williams to Gribble, 30 May 75, p. 4, box 6, access. no. 77-92-0001, WNRC; Decision Memo 48F, Wells, 21 Dec 76, sub: MED Stovepipe Summary, p. 2, Encl 3, box 36, access. no. 77-92-0001, WNRC; Wells to Morris, 28 Sep 76, p. 2.

until the move took place. All this occurred at the height of the Italian tourist season when rents were high and availability low. Temporary living allowances were well below the real rental costs. Some of the repatriates had leased their homes in the United States for three years and could not readily sell them without breaking the lease. Unable to sell these homes, they had difficulty finding money to buy in the Berryville-Winchester area. In all cases, because regulations did not cover moving between continents while retaining the same bureaucratic functions, they did not qualify for all of the benefits normally associated with a required relocation.⁷⁷

As chief of the Engineering Division, Gordon W. “Wayne” Dykes relayed these issues to the Mediterranean Division’s personnel officer early in the discussions of the move. One of the concerns, the retention of reemployment rights in their “home” offices of the Corps in the United States, surfaced as an issue during the spring of 1976: the division’s personnel retained their rights for a year after their assignment to Virginia. In August, Dykes reiterated the grievances of the 49ers, who had relocated, as he pointed out, “for the convenience of the government.” He objected to inadequate living allowances and disqualification from reimbursement on real estate sales and acquisitions fees. Dykes estimated that uncompensated real estate costs averaged about \$5,000 per employee. The uncovered costs represented a particular burden because there was only a small rental market in the Berryville-Winchester area and the real estate market had been inflated by the sudden arrival of both transferring and new Corps of Engineers employees. Interest rates had reached historic highs in the mid-1970s and continued to climb into the 1980s, leaving many of the Corps employees, who held short-term, adjustable-rate mortgages, faced with a credit squeeze as those mortgage rates adjusted upward.⁷⁸

General Wells tried to gain monetary relief for those who had moved from Italy to Virginia. In arguing their case with the chief of engineers, Wells pointed out that had the civilians moved from Italy to their district of origin and then to Virginia, they would have qualified for financial support. Because they had moved directly from Italy—for the convenience of the government—they were excluded from compensation. Despite Wells’ and Dykes’ efforts, the employees received no redress, which fueled resentment for many. In their minds, bureaucratic rigidity triumphed over logic, economy, and fairness.⁷⁹

⁷⁷ Intervs with Dykes, Friestad, Wood, Oliva, et al. Although the group that moved from Livorno to Berryville referred to themselves as “the 49ers,” there is a list of fifty names attached to Memo, Dykes to All Personnel Relocating from Overseas, 30 Aug 76, sub: MDD Relocation Allowance, in Interv, authors with Oliva, 13 Jan 95.

⁷⁸ Memo, Dykes, 10 Dec 75, sub: Relocation of MDD Personnel to CONUS, and attachment, “Pending Move to CONUS, Items of Concern Requiring Clarification or Resolution,” prepared by staff members and their spouses who had recently arrived in Italy. See also Memo, William L. DeLong to Oliva, 22 Mar 76, sub: Transfer of Functions; Intervs, authors with A. O. Werner, 20 Oct 93, p. 3, and with Roger Thomas, 27 Aug 96, pp. 22–23; Memo, Dykes to All Personnel Relocating from Overseas, 30 Aug 76, with attachments.

⁷⁹ Wells to Morris, 12 Dec 76, p. 8, box 3, access. no. 77-92-0001, WNRC; “Summary of Division (Fwd) Staff Meeting—8 February 1977,” unmarked box, TAD-RHA; Interv, Moorhus with Dykes, 24 Oct 95, p. 32.

An unintended consequence of the financial problems of the relocation to Virginia occurred in the early 1980s. When it came time for those who had bought houses to refinance their short-term mortgages, interest rates were even higher than they had been in 1976–1977. As a result, the division lost the services of several well-seasoned veterans. Unable to afford to refinance their homes at the higher rates, they accepted other positions in the Corps of Engineers and qualified for compensation of the costs of the real estate transactions.⁸⁰

Three third-country nationals represented a unique situation. These men had a wealth of experience with the Mediterranean Division and with the Saudi program, and the division wanted to retain them when it relocated to Virginia. Because they were not American citizens, they were not eligible for employment with the Corps in the United States under normal civil service rules. To keep them employed, the division needed to obtain a special immigration visa and approval by the Civil Service Commission.⁸¹

Orhan Ahmet Cankardes had begun work for the Corps of Engineers in his home country, Turkey, in 1950. In addition to his native Turkish, Cankardes spoke French, Italian, German, English, and Arabic. Albert Charmot had worked on the Moroccan airfields and had moved with the division to Italy in 1957. French by parentage, Charmot had grown up in Cairo; like Cankardes, he was fluent in several languages, including Arabic. The division had recruited the third employee, Wilhelm “Willi” Voelker, from Germany in the late 1950s when it needed personnel to staff the Gulf District in Tehran. In the 1960s, the district sent Voelker to Afghanistan; when work there ended, he moved to Livorno. He was multilingual because he learned the language of each locale in which he worked. Over time, all three had won a reputation for technical excellence.⁸²

In February 1976, Colonel Williams petitioned the State Department for special immigrant status for the three men and their families, arguing that each man was an essential employee. A few days later, the Office of the Chief of Engineers requested that the Civil Service Commission grant them civil service status so they could continue to work for the division. The commission first responded that regulations did not permit them to approve the appointments except in the absence of qualified American citizens for the positions that they held. The division advertised the positions, including in its list of qualifications basic knowledge of Arabic and extensive experience in Saudi Arabia. In May, OCE reported to the Civil Service Commission that, of forty-five applicants and another 155 possible candidates who had applied for other engineering positions with the division, no one else met these qualifications. After a second appeal by OCE, the commission issued its approval on 17 June for

⁸⁰ Interv, Moorhus with Thomas, 27 Aug 96, pp. 22–23.

⁸¹ Interv, Tulenko with Williams, 20–21 Feb 85, p. 141.

⁸² On Cankardes, see Memo, Williams to Hon Henry M. Kissinger, 26 Feb 76, sub: Visas: Advisory Opinions, unmarked box, TAD-RHA; Interv, Frank Schubert with Wilhelm Voelker, 25–26 May 88, *passim*. The information on Charmot is from Intervs, authors with Blake, Boyd, Carozza, Dykes, Wheeler, and Wiles and Tulenko with Williams.

the division to employ Cankardes, Charmot, and Voelker in Berryville.⁸³ The three continued their work as integral members of the division staff.

By the beginning of 1977, the U.S. Army Corps of Engineers had completed reorganizing its operations in the Mediterranean and the Middle East. At its forward headquarters in Riyadh, the new Middle East Division had a minimum staff composed of construction personnel, a small Engineering Division Liaison Office, program planning staff, and support staff. On a day-to-day basis, this group worked with the Saudis to ensure they had the information they needed to incorporate the construction program into the government's budget process. The forward staff tracked the Saudi budget cycle and reviewed funding levels. They maintained the contacts with Saudi government and military officials that allowed them to develop criteria to complete definitive design on new projects. The forward headquarters maintained a personnel office with a suboffice located in Virginia.⁸⁴

The Rear Echelon's largest branch was its Engineering Division, with a staff of nearly 200 authorized positions, although only 135 were filled by January 1977. The rear headquarters, commanded by the deputy division engineer, also included a modest construction element of fewer than forty spaces, a very small executive office and an office of counsel, an automated data-processing center, an office administration staff, a procurement and supply staff, and a resource management office. These elements negotiated with companies to encourage international ventures among contractors, to prequalify potential contractors, and to issue requests for proposals and solicit bids. The Construction Division personnel stationed in Berryville then conducted discussions with the firms whose bids were in the competitive range to ensure they had full understanding of the scope of work and to arrive at best and final offers. The division rear office awarded the contracts. The resource management staff quickly put the division on the Corps of Engineers Management Information System (COEMIS) to track costs.⁸⁵

Over the summer of 1976, with personnel in transition from Italy to Virginia, the Middle East Division (Rear) awarded five new contracts with a total value of \$767 million. Two of these contracts set new highs for the Corps of Engineers—a construction contract worth \$208 million for the SANG headquarters complex and a contract valued at \$361 million to construct on-shore facilities at Jubayl for the SNEP.⁸⁶

⁸³ Memo, Williams to Kissinger, 26 Feb 76; Ralph Loschialpo to U.S. Civil Service Commission (CSC), 4 Mar 76; Joseph A. McMaster, CSC, to Loschialpo, 31 Mar 76; "Transfer of CWS [Continental Wage Scale] Employees," 28 May 76; Loschialpo to CSC, 21 May, 14 Jun 76; Charles O. Leins, CSC, "Authority to Appoint Non-citizens," 18 Jun 76; all in unmarked box, TAD-RHA.

⁸⁴ Page, "Mediterranean Division [*sic*] Command Briefing," 21 Jun 77, pp. 33–34.

⁸⁵ On the authorized strength and organization of the division rear, see Decision Memo 48F, Wells, 21 Dec 76, p. 2, encl. 3. For Engineering Division strength, see "U.S. Army Engineer Division, Middle East (Rear), Saudi Arabia Government Funded Projects," n.d. [after Jun 78], provided by Dykes. Concerning tasks, see Page, "Mediterranean Division [*sic*] Command Briefing," 21 Jun 77, pp. 33–34.

⁸⁶ Wells to Morris, 28 Sep 76, p. 2.



Chief of Engineers Lt. Gen. John Morris (*third from left*) joined Corps employees and spouses in a traditional Middle Eastern dinner while visiting in October 1976.

The Middle East Division's Initial Years

In the spring of 1976, as commander designate of the Middle East Division, General Wells faced a situation totally different from that of his Mediterranean Division predecessors. The year before, the United States had ended its long engagement in South Vietnam, and the American construction capacity and energy that had been committed there needed new focus. Three years earlier, the Yom Kippur War had provoked the Arab oil embargo; the price per barrel of oil had quadrupled between 1973 and 1978.⁸⁷ As a result, a large quantity of petrodollars flowed to Saudi Arabia and became available to fund the monarchy's plans to modernize the country's military establishment.

The dramatic increase of military construction programs since 1974 represented one aspect of this new situation. The scale of construction facing the new Middle East Division in 1976 exceeded anything the Mediterranean Division had undertaken. Only the Moroccan air base program came close in size and complexity, and even it was small by comparison. After only a few months on the job, Wells became concerned that the division's "organizational posture" might be inadequate and cumbersome. The complete division staff totaled 742 persons, about two-thirds of

⁸⁷ Cordesman, *The Gulf and the Search for Strategic Stability*, p. 12.



Map 21

the staff strength of 1,100 that he felt he needed to handle the work. The total staff allocation for the rear headquarters amounted to just over 300 positions.⁸⁸

As a result of these concerns, during the first year of his tenure, General Wells established several new organizational elements. He set up a procurement system to allow the division to supply contractors with government-furnished materials. He established a unit to manage the logistics of getting those materials from the United States to Saudi Arabia and then to the specific construction sites. He activated new

⁸⁸ Wells, "Establishment of a Planning and Control Capability in Middle East Division," 24 Aug 76, box 12, access. no. 77-92-0001, WNRC; Wells to Morris, 28 Sep 76, p. 2, unmarked box, TAD-RHA. On the authorized strength and organization of the division rear, see Decision Memo 48F, Wells, 21 Dec 76, p. 2, encl. 3.

districts within Saudi Arabia to divide the area of responsibility formerly handled by the Saudi Arabia District into more manageable proportions. These three initiatives created the framework in which the new division operated.

New Districts

General Wells' predecessor, Colonel Williams, and the commander of the Saudi Arabia District, Colonel Gray, both recognized that the division needed more than one district in Saudi Arabia to monitor construction in a land mass as large as the United States east of the Mississippi River. Since 1975, the Mediterranean Division had planned to activate a new district in Jiddah, but the transition to the new Middle East Division postponed those plans.⁸⁹

During 1975 and 1976, the need for a district based in Jiddah increased. MODA developed programs for additional construction at the cantonments in Khamis Mushayt and Tabuk at the same time that the Saudi Navy planned a port at Jiddah. In late 1976, General Wells began to identify positions and personnel to move to Jiddah from the existing district in Riyadh. The division projected a staff of one hundred seventy for the Jiddah District, but recruiting remained behind schedule. In February 1977, Wells dispatched a recruiting team to visit Washington, Berryville, Chicago, Omaha, Portland, San Francisco, Vicksburg, and Mobile, hoping to attract qualified applicants for the new district and for the division's forward headquarters.⁹⁰

On 1 April 1977, the Middle East Division activated the Jiddah District with Col. Phillip D. "Dave" Engle as district engineer. At the same time, the division reduced the Saudi Arabia District's area of responsibility to eastern Saudi Arabia and renamed it the Riyadh District, staffing it with about two hundred sixty people. (*Map 21*) Reporting on the change, the Middle East Division's news circular *Castle Comments* referred to the Saudi Arabia District established in January 1967 as the "expeditionary force of the Middle East Division."⁹¹

Because the division expected to open a third district the following year to manage work on the cantonment at Hafar al Batin, Wells charged the Riyadh District with the task of developing a second district staff parallel to its own. On 1 September, five months after the Riyadh District came into being, the division activated the Al Batin District exclusively to supervise work at the third cantonment, King Khalid Military City.⁹²

⁸⁹ Wells, "Establishment of a Planning and Control Capability"; *Castle Comments* 7, 29 November 1975, box 6, access. no. 77-92-0001, WNRC.

⁹⁰ Wells to Morris, 12 Dec 76, p. 4; Wells to Morris, 16 Mar 77, p. 5, box 6, access. no. 77-92-0001, WNRC; Decision Memo 48F, Wells, 21 Dec 76.

⁹¹ See U.S. Army Engr Dist, Jiddah, Permanent Order 12-1, 3 Apr 77, on Authority of OCE Permanent Order 4-1, 11 Mar 77, SA 725, TAD-RHA; Wells to Morris, 16 Mar 77, p. 5. Quotation from *Castle Comments*, *MED, Saudi*, Spring/Summer 1977, p. 1, box 31, access. no. 77-92-0001, WNRC.

⁹² Interv, Moorhus with Col (Ret) Rayburn L. Williamson, 28 Sep 95, p. 5; OCE, "Annual Historical Review, Oct. 1, 1976–Sept. 30, 1977," p. 9, OH, HQ USACE (hereafter cited as OCE, AHR, FY 1977).



New headquarters for the Riyadh District, 1979

Engineer Logistics Command

In addition to realigning the districts, General Wells wanted to be sure that the Middle East Division had the capacity to provide logistical planning and support for contractors and Corps personnel in Saudi Arabia. With the dramatic expansion of the construction program between 1973 and 1976, the Mediterranean Division had decided that it had to procure and supply materials for the construction contractors. Otherwise, the competing demands of numerous contractors would lead to inefficiency, confusion, and inflation of costs for goods and machinery bought for construction. To promote uniformity in procurement and to lower costs, the division proposed to act as sole agent to buy the materials and equipment. Wells remained uncertain that the existing division organization satisfied the need. In mid-August 1976, he commissioned an internal study and committed staff to examining alternative organizational structures.⁹³

The series of study papers prepared by division staff examined government-furnished property (GFP), government-furnished materials (GFM), the planning necessary to manage both of these, and which entities ought to do that planning. The division vested these responsibilities in several elements within the command: the Logistics and Operations Division, the Engineering Planning and Liaison Office (EPLO), and the Engineer Support Group. Wells wanted a single organizational unit responsible for managing cost-plus-award-fee (CPAF) contracts with companies that would in turn act as buyers and suppliers for the major construction projects in Saudi Arabia.⁹⁴

⁹³ Wells, "Establishment of a Planning and Control Capability." Decision Memo, George F. Miller, 18 Aug 76; Memo, Miller, 21 Aug 76, sub: Establishment of a Planning and Control Capability in MED, and similar docs, Aug 76–Aug 77; all in box 12, access. no. 77-92-0001, WNRC.

⁹⁴ Decision Memo, Miller, 18 Aug 76; Memo, Miller, 21 Aug 76; Page, "Summary of Division Staff Meeting—28 September 1976," 28 Sep 76, p. 5, box 3, access. no. 77-92-0001, WNRC. Wells'



Col. and Mrs. Ray Williamson at the dedication of new headquarters for the Riyadh District, August 1979

The Engineer Logistics Command (ELC) came the closest to what Wells had in mind. Planning for this group's formation went back at least to the activation in March 1976 of the Riyadh Base Support Division within the Saudi Arabia District. This support division exercised administrative responsibility for directing and coordinating all logistical activities in Saudi Arabia, including maintenance of materials and equipment, movement of materials and personnel, and management of housing and housing assignments. The Base Support Division had as one of its basic responsibilities the award and administration of a CPAF contract for service support throughout all of Saudi Arabia. The Middle East Division intended that the Engineer Support Group take over these responsibilities; but because Wells proposed to give the group the same authority vested in a Corps of Engineers district, he needed special permission before taking action.⁹⁵

remarks in the meeting on 28 September apply particularly to KKMC, but the tenor of the studies of 18 and 21 August 1976 indicates the same intent for the division's operations as a whole. See Ltr, Wells to Morris, 29 Sep 76, unmarked box, TAD-RHA.

⁹⁵ On the Riyadh Base Support Division, see Mediterranean Div, GO no. 8, 5 Apr 76, and Memo, James R. Sides, 21 May 76, sub: Riyadh Base Support Division, both in box 31, access. no. 77-92-0001, WNRC. On the Engineer Support Group, see MFR, Vandenberg, 28 May 76, sub: Establishment of Engineer Support Group (ESG), and Vandenberg to HQDA, 10 Jun 76, sub: Organization of Saudi Arabia Engineer Support Group (ESG), both in box 31, access. no. 77-92-0001, WNRC.

The Office of the Chief of Engineers approved the unit as equivalent to a district, as the Middle East Division requested, but objected to the name. OCE's chief of construction, Fred McNeely, urged the division to give "serious consideration" to restricting the support group's function of procuring construction materials for projects to materials purchased in Saudi Arabia and proposed that the commander of the new unit in the Middle East Division limit his role to oversight and coordination of procurement actions. He suggested that the division's procurement actions be handled by procurement and supply branches that already existed in the United States. He seems to have had in mind the Huntsville Division, which had lost its primary mission when Congress eliminated funding for the Sentinel and Safeguard Ballistic Missile Systems in 1969 and 1975.⁹⁶

The Mediterranean Division and the Huntsville Division already had a number of cooperative agreements. The Huntsville Division had worked with the Mediterranean Division on projects in Iran and Jordan earlier in the decade; in March 1976, the two divisions reached an agreement that put Huntsville in charge of procurement of furniture and household items for 129 leased villas in Riyadh, Jiddah, and Dhahran.⁹⁷ Beginning in September 1976, Middle East Division personnel met with staff from the Huntsville Division to work out cooperative arrangements for Saudi Arabia. Huntsville formed a team of instructors to visit Riyadh late in the year to coach Middle East Division personnel in administering CPAF contracts. The Huntsville Division also agreed to review the Middle East Division's draft of a request for proposals for a logistics management contractor to handle transport of goods and materials from the United States to the construction sites in Saudi Arabia. By mid-November, the Huntsville Division had become the procurement agent for purchases of nonconstruction materials in the United States for the Saudi Arabian modernization programs.⁹⁸

During the intervening weeks, the Middle East Division accepted a suggestion from the chief of engineers, General Morris, that the new element be named the Engineer Logistics Command. The division also signed the first CPAF contract that the ELC would administer with Pacific Architects and Engineers (PAE). This American company, which had held a combination of fixed-price and CPAF contracts in Vietnam dating back to the early 1960s, became the division's countrywide service contractor, supplying life-support services throughout Saudi Arabia to Corps and contractor personnel except those working on the cantonment at Hafar al Batin.⁹⁹

⁹⁶ Memo, F. B. McNeely, 2 Aug 76, sub: Organization of Saudi Arabia Engineer Support Group (ESG), box 3, access. no. 77-92-0001, WNRC.

⁹⁷ Louise S. Heidish, *A History of the Huntsville Division, U.S. Army Corps of Engineers, 1977-1981 Update* (Huntsville, Ala.: U.S. Army Engineer Division, Huntsville, ca. 1986), pp. 22-26; James A. Kitchens III, *A History of the Huntsville Division, U.S. Army Corps of Engineers, 1967-1976* (Huntsville, Ala.: U.S. Army Corps of Engineers, 1978), p. 162.

⁹⁸ MFR, Lt Col Joseph J. Arcari, 3 Oct 76, sub: Logistic Meeting, 30 September 1976; John A. Hildenbrand, "Presentation of ESG Organization," 17 Nov 76; both in box 31, access. no. 77-92-0001, WNRC.

⁹⁹ "Summary of Division Staff Meeting—6 November," 11 Nov 76, pp. 3, 5; Wells to Morris, 12 Dec 76, p. 4; both in box 3, access. no. 77-92-0001, WNRC. See the definition of life support in MOU,



Housing built in Riyadh for lieutenants, ca. 1979

Life support included housing, transportation, medical services, recreational services, furnishings and equipment, utilities, and maintenance of equipment and facilities. By March 1977, PAE had completed its mobilization, and the division served notice to local contractors that by June the company would provide all management and operations for life-support functions.¹⁰⁰

On 17 January 1977, the Middle East Division formally established the Engineer Logistics Command with Col. John Hatch as its commander having authority similar to a district engineer. The Engineer Logistics Command contracted, initially with PAE, for life support on a countrywide basis to serve all personnel, families, and others associated with the Middle East Division's work in Saudi Arabia. Progressively, the ELC took over management of leases. The ELC also provided the logistical management for all government-furnished procurement and materials. This included tracking of procurement requests from their origin to their delivery

Brig Gen Richard M. Wells, Div Engr, and Capt Nasser F. Faisal, Dir General, Directorate of Military Works, 1 Nov 76, sub: Construction Operations, Support Activities and Contracting for KKMC, app. G, Walker box 8, OH, HQ USACE; "Project Plan Update, King Khalid Military City, revision 4 August 1979," vol. 1, p. 4, vol. 2, app. 7, an. B, pp. 1–8, Walker box 13, OH, HQ USACE (hereafter cited as Project Plan Update: KKMC). On PAE in Vietnam, see Lt Gen Carroll H. Dunn, *Base Development in South Vietnam, 1965–70* (Washington, D.C.: Department of the Army, 1991), pp. 92–94.

¹⁰⁰ Bennett, "Command, Staff and Customer Relationships—Engineer Logistics Command," 2 Jun 77, box 31; Wells to Morris, 16 Mar 77, box 3; both in access. no. 77-92-0001, WNRC. Project Plan Update: KKMC, revision 4 Aug 79, vol. 1, p. III-2.

to the construction contractor and involved transportation of the materials to Saudi Arabia and their reception, storage, and transshipment from the port of entry.¹⁰¹

The ELC used two additional CPAF contracts to address its second responsibility. On 1 September 1977, the division signed a contract with an American company, Global Associates, to provide operations and maintenance services for the newly constructed port of Ras al Mishab. In late 1978, the ELC assumed management of a contract with Todd Warehouse and Distributors Inc. of Bayonne, New Jersey (also referred to as Todd Logistics International), to manage the division's logistical operations.¹⁰²

With the establishment of the Engineer Logistics Command in January 1977, the new districts in Jiddah and Riyadh in April, and the Al Batin District in September, the Middle East Division had completed its creation of a new organizational structure to manage military construction on behalf of the Saudi Arabian government. Despite the disruption caused by the dissolution of the Mediterranean Division, the relocation of personnel to the United States and to Saudi Arabia, and the organization of the Middle East Division, the construction program in Saudi Arabia had never stopped. Indeed, throughout the period of transition, Corps personnel launched some of the largest construction programs in the history of the Corps of Engineers. The story of those individual programs over the next decade constitutes the history of the Middle East Division.

¹⁰¹ The date for the ELC's activation comes from OCE Regulation no. 10-1-28, Organization and Functions, U.S. Army Engineer Division, Middle East, 29 Sep 78, C-7-10, TAD-RHA, and Memo, Bennett, 2 Jun 77, sub: Command, Staff and Customer Relationships—Engineer Logistics Command, 1977, box 31, access. no. 77-92-0001, WNRC. See also *Castle Comments, MED Saudi*, Spring/Summer 1977, p. 2, which gives a date ten days later. On the transfer of leases, see Memo, Gray to Col John Hatch, 28 Mar 77, sub: Transfer of Lease Files from MEC to MEL, box 30, access. no. 77-92-0001, WNRC.

¹⁰² Memo, R. Phillip Benson [and] Earl J. Kramer to Div Engr, 28 Sep 77, sub: Project Narrative Report, Aug. 16–Sept. 15, 1977, p. 4, E-7-3, TAD-RHA. For early comments on the logistics management role and delays related to work at KKMC, see Wells to Morris, 28 Sep 76, p. 5, and 12 Dec 76, p. 4; Project Plan Update: KKMC, revision 4 Aug 79, vol. 1, sec. 2, p. 4. For a wide-ranging discussion of the role of the Engineer Logistics Command, see Interv, Moorhus with Maj Gen (Ret) James N. Ellis, 27–29 Sep 95, pp. 312–27.

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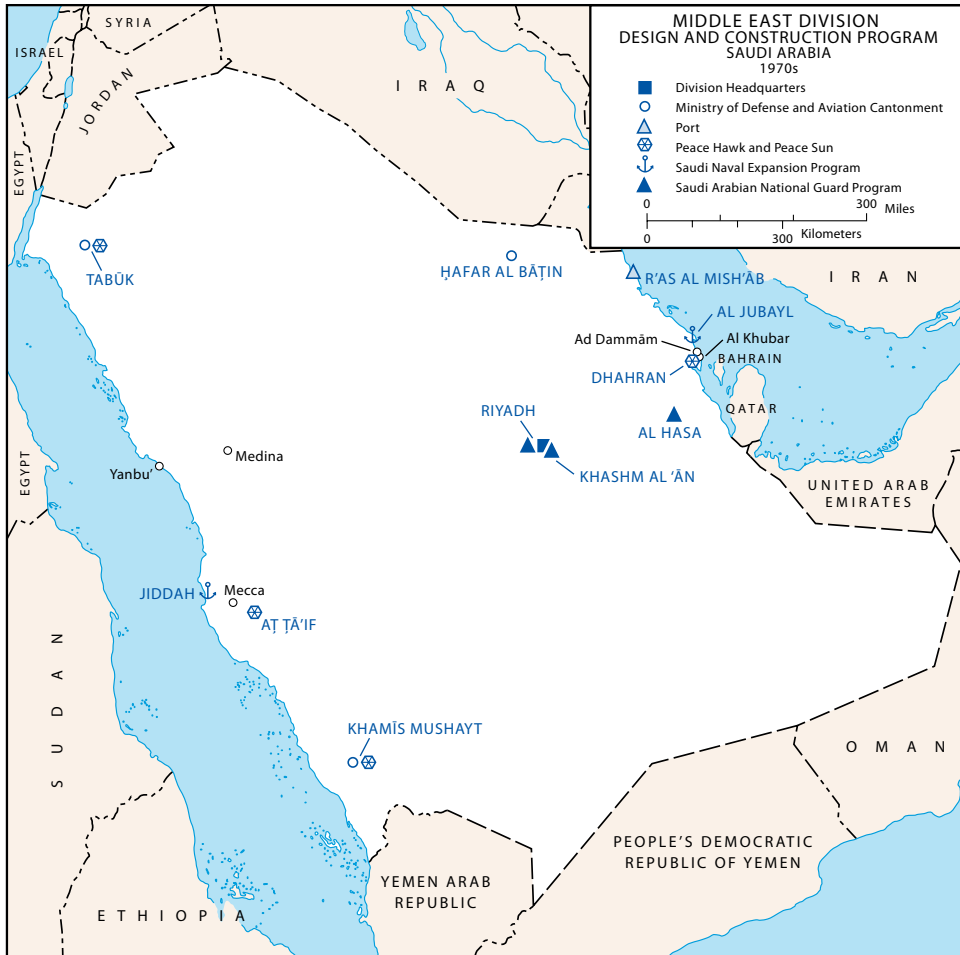
PROGRAMS FOR THE MINISTRY OF DEFENSE AND AVIATION IN THE 1970S AND 1980S

Between 1972 and 1976, the Saudi Arabian government asked the U.S. Army Corps of Engineers to undertake a broad range of construction programs for the Saudi Army, Air Force, Navy, and National Guard—a total armed force of only forty- to fifty thousand men.¹ This chapter focuses on projects executed for the Saudi Ministry of Defense and Aviation (MODA), most of which came under the Engineer Assistance Agreement (EAA) of 1965. The EAA projects included expanded facilities for the Saudi Arabian Army at Khamis Mushayt and Tabuk, specialized military branch schools and developmental centers, new headquarters complexes for MODA and the Royal Saudi Air Force (RSAF), a new all-service officers club in Riyadh, and several military medical centers. (See Map 22.) The two governments had other agreements that regulated the construction MODA ordered to support U.S. aircraft bought by the Saudi Air Force. The large construction programs commissioned by the Royal Saudi Naval Forces (RSNF) and the Saudi Arabian National Guard will be treated in the next chapter.

The EAA covered several new specialized schools built to train Saudi soldiers.² The Artillery Center and School, the Infantry Center and School, and the Airborne and Physical Training School were all part of the general expansion of facilities at Khamis Mushayt and Tabuk. The Corps also managed the design and construction of the most ambitious of the school projects, the King Abdulaziz Military Academy, discussed in Chapter 12. A fourth center, the Engineer School, was included in the development of the third cantonment, King Khalid Military City, which will be covered in Chapter 13.

¹ Numbers on the size of the Saudi armed forces vary. The best discussion of their growth from the 1950s through the 1970s is in Anthony H. Cordesman, *The Gulf and the Search for Strategic Stability: Saudi Arabia, the Military Balance in the Gulf, and Trends in the Arab-Israeli Military Balance* (Boulder, Colo.: Westview Press, 1984). See also Walter Pincus, “The Saudi Connection,” *Washington Post*, 1 May 1975, and “Foreign Entanglements: Now Saudi Arabia,” *New Republic* (29 March 1975): 9.

² For a slightly different but general overview of the programs under the Engineer Assistance Agreement, see “Saudi Arabian Programs,” [1981], passim, box SH-6-93-0006, Transatlantic Division—Records Holding Area (TAD-RHA).



Map 22

Upgrading Khamis Mushayt and Tabuk

From 1964 to 1974, the Saudi Arabian government spent over \$160 million to construct the King Faisal Military Cantonment at Khamis Mushayt and the King Abdulaziz Military Cantonment at Tabuk. From the mid-1970s to the mid-1980s, the Ministry of Defense and Aviation spent an additional *billion* dollars to expand the facilities at both cantonments.

The millions spent to build Khamis Mushayt were far greater than the estimates for the project as outlined in 1964. In cost projections that year, the Mediterranean Division reduced the initial calculation of \$47 million to \$31 million, but the scope of the cantonment expanded during construction. Costs, including all equipment and the establishment of facilities-engineering operations, rose to about \$82.3 million by



Concrete batch plant at Khamis Mushayt

1972 when Saudi Army units began to occupy the cantonment. Construction of the cantonment at Tabuk took place between 1969 and 1974. Because early planning for Tabuk designated it as a two-brigade installation, cost estimates, around \$64.6 million, ran higher than for Khamis Mushayt. The scope of work was adjusted to make the installation a one-brigade facility; but before the end of the initial construction in March 1974, costs reached \$80 million.³

The Saudis hardly paused in their modernization program when they moved into the two cantonments. They immediately asked the Mediterranean Division to develop proposals for additional facilities at both Khamis Mushayt and Tabuk: medical support facilities, VIP complexes, specialized training centers, headquarters facilities for the area commander, and water and sewage treatment systems to support the growing population.

³ For the early cost estimate and revisions, see “Saudi Arabia Military Assistance Program, Revised Design Cost Estimate—Khamis Mushayt [*sic*],” [Sep 64], box 5, access. no. 77-92-0002, Washington National Records Center (WNRC), Suitland, Md. For the cost of construction by 1971, see Mediterranean Div, “Data Book,” 1 May 76, p. 7, box 1, access. no. 77-92-0001, WNRC; “EIG [Engineer Inspector General] Inspection: Annual General Inspection, Saudi Arabia District, 29 May–1 June 1972,” 16 May 72, p. 4A, box 51-84-9384, Richard T. Farrell Papers, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.; “Saudi Arabia Military Construction Program Budget Estimates and Schedules, Six-Year Program,” 14 Feb 65, p. 1, box 51-84-5389, Farrell Papers; “Annual Historical Summary Report, CY 74,” [31 Dec 74], p. 1, box 15, access. no. 77-92-0001, WNRC (hereafter cited as Annual Hist Sum, CY 1974).



Sand mining at Wadi Tindaha for construction at Khamis Mushayt

Medical Support Facilities

When the Saudi government initially commissioned the construction of the cantonments, its leaders had envisioned small post hospitals at each location staffed by a Saudi medical corps; but they did not have the pool of military or professional personnel to staff the hospitals. In late 1973, MODA contracted directly with the Whittaker Corporation to staff and operate the three medical facilities; accommodating the influx of Whittaker personnel required construction for housing and other support.⁴

The U.S. ambassador to Saudi Arabia, Nicholas G. Thacher, recommended engaging the Corps of Engineers to develop the medical communities. In June 1974, the Mediterranean Division negotiated a letter contract with the J. A. Jones Construction Company to design and build community-support facilities and housing in all three locations. The contract required Jones to provide some facilities as an “urgent project” to be completed within a year at an estimated cost of \$175 million. The package called for two hundred twenty family-housing duplexes to house doctors, one thousand three hundred twenty apartments for nurses and other medical personnel, recreational facilities, dining halls, and medical and basic support buildings. The second phase of the

⁴ Interv, Thomas Tulenko with Col (Ret) Charles T. Williams, 20–21 Feb 85, p. 118; Memoirs by George Zeiler [1980], unmarked box, TAD-RHA (hereafter cited as Zeiler Memoirs; Annual Hist Sum, CY 1974, pp. A2, B3; Pincus, “The Saudi Connection,” and “Foreign Entanglements,” pp. 8–10; MFR, Blake, 15 Dec 74, sub: Trip Report—Tabuk, Jiddah, and Khamis Mushayt—8 thru 11 December 1974, p. 2, box 51-84-9384, Farrell Papers.



Outpatient clinic at Khamis Mushayt, March 1978

construction, estimated at \$35 million, encompassed space for training, administration buildings, outpatient clinics, vehicle-maintenance facilities, and water storage. In a third phase, principally at Khamis Mushayt, the Jones Company contracted to build a boys school, a girls school, additional training facilities, and guardhouses.⁵

In late 1975, during Jones' work at Khamis Mushayt, MODA requested the Mediterranean Division's help for new, unrelated facilities at the cantonment: firing ranges, roads, parade grounds, and bleachers. Because MODA wanted the parade grounds and bleachers to be ready in six months, the division proposed negotiating a modification of the Jones contract to include these items. The division proposed to follow the normal process of solicitation for the other work. The 1975 working estimate for these additional facilities, including expansion of the power supply, was \$33 million. The firing ranges alone, on which work continued into the early 1980s, cost a total of \$16.7 million.⁶

⁵ Durham to Williams, 8 Aug 73, p. 3, box 51-84-9384, Farrell Papers; OCE, "Annual Report of Major Activities, FY 74," p. 66, copy in R&D File 2270, Transatlantic Programs Center (TAC), Winchester, Va. (hereafter cited as OCE, Major Activities, FY 1974); Chart, "Engineer Assistance Agreement," attached to Brazier, "Various Aspects of the Army's Construction Effort," 6 Jun 75, unmarked box, OH, HQ USACE; Annual Hist Sum, CY 1974, p. A2; "Saudi Arabia Programs," 28 Feb 78, p. 26, unmarked box, TAD-RHA; J. A. Jones Construction Company, *Jones Journal* (Fall 1978): 8-9.

⁶ Mediterranean Div Staff Mtg Min, 8 Jan 76, pp. 2, 5-6, box 17, access. no. 77-92-0001, WNRC; Chart, "Engineer Assistance Agreement"; Robertson to Al Faisal, 13 Dec 82, sub: Closeout Documents for Firing Ranges, Khamis Mushayt (Index 016), box 9, K-8-4, TAD-RHA.



Swimming pool at Khamis Mushayt

Schools

MODA planned to place two of its specialized training centers—the Infantry Center and School and the Field Artillery Center and School—at Khamis Mushayt as satellite installations. In October 1975, the American architect-engineer firm of Perkins and Will received the contract to develop a master plan for each school. The infantry center, estimated to cost \$75 million, would accommodate about one thousand seven hundred students, staff, and cadre. The plan included a headquarters building, an academic complex, dining facilities, a housing complex, a mosque, sports and recreational facilities, and a maintenance and warehouse complex. The company designed the Field Artillery Center and School, estimated to cost about \$50 million, with similar facilities for a population of about one thousand two hundred students, staff, and cadre. J. A. Jones completed construction on the infantry center in early 1977 and on the artillery center in early 1978.⁷

In May 1975, another American architect-engineer firm, Sverdrup and Parcel from St. Louis, Missouri, began work on the master plan for the Airborne and Physical Training School to be built at Tabuk. Sverdrup and Parcel engineers used as a starting point a preliminary plan approved by the Saudi military liaison officer. In June, MODA added a ranger headquarters facility, a company administration and supply building,

⁷ “SAA Infantry Center, Preliminary Plan,” May 75, box 31, access. no. 77-92-0002, WNRC; Chart, “Engineer Assistance Agreement”; Mediterranean Div, “Data Book,” 1 May 76, pp. 17–18; “Saudi Arabia Programs,” 28 Feb 78, pp. 82, 84.

a cargo-rigging building, and an obstacle course. The Saudis increased the scope of the other facilities and changed the concept of the school to include ranger training, jumpmaster training, and heavy cargo rigger training instead of just basic parachute training as originally envisioned. In October, they requested an enclosed gymnasium for basketball, a swimming pool with locker rooms and offices, a fencing gymnasium, and an additional volleyball court. Since the Corps had already scheduled the presentation of the master plan for early November, Sverdrup and Parcel did not include these items in their plan.⁸

On 2 November, Sverdrup and Parcel made their presentation to the minister of Defense and Aviation, Prince Sultan. A week later, MODA approved the plan pending incorporation of a number of modifications requested by the prince—a shaded training area, a mosque to accommodate seven hundred people instead of five hundred, an indoor swimming pool for the physical-training program, and a second confidence-building course for ranger training. The Saudi Arabian Army area commander also insisted that the designers add a running track and a soccer field exclusively for the school. In December, after Sverdrup had begun revisions, the Saudis added a requirement to include quarters for eight guards adjacent to the Airborne School gatehouse. The final plan located the school adjacent to the Tabuk cantonment and provided for a completely self-contained living and training complex, including ninety-six family-housing units.⁹

The interventions and changes of scope at the Airborne and Physical Training School typified the design process for many of the projects that the Saudis commissioned. The changes often led to delays in completing the designs, and the costs of a project increased as the scope expanded. Even after the Corps issued the request for proposals for construction, the Saudis introduced changes—such as relocating stairwells and moving instructor offices farther away from classroom space—involving major architectural, structural, mechanical, and electrical redesign. Middle East Division personnel repeatedly sought to convey to Capt. Naser F. Al Faisal—a Corps trainee as a young engineer and director general of military works since 1 January 1976—and to others in MODA that their requests for changes substantially increased costs.¹⁰

In the spring of 1977, the You One Construction Company of Seoul, Korea, won the construction contract with a bid of \$83.5 million for the Airborne Physical Training School, which included the largest concentration of solar energy collectors in the world. The collector system provided 40 percent of the heat and all of the hot water for the installation's main complex, which held fourteen of the school's

⁸ Fact Sheet, Abn Sch—Increase in Project Scope, 1 Nov 76, E-7-2, TAD-RHA.

⁹ Mediterranean Div, "Data Book," 1 May 76, p. 16; Fact Sheet, Abn Sch—Increase in Project Scope, 1 Nov 76; Bennett to Al Faisal, 17 Nov 76, sub: MODA Budget Item 240/2/15 Airborne School, Tabuk, E-7-2, TAD-RHA; "Saudi Arabia Programs," 28 Feb 78, p. 62; Mediterranean Div Staff Mtg Min, 15 Dec 75, p. 3, box 18, access. no. 77-92-0001, WNRC.

¹⁰ Quotes from DF, Wiles, 18 Feb 77, sub: MLO Final Design Review Comments for the Airborne and Physical Training School at Tabuk, E-7-2, TAD-RHA. See also "Responses to MLO Final Design Review Comments of Airborne & Physical Training School Design," n.d., attached to Bennett to Al Faisal, 1 Mar 77, sub: MODA Budget Item 240/2/15 Airborne School, Tabuk, E-7-2, TAD-RHA.



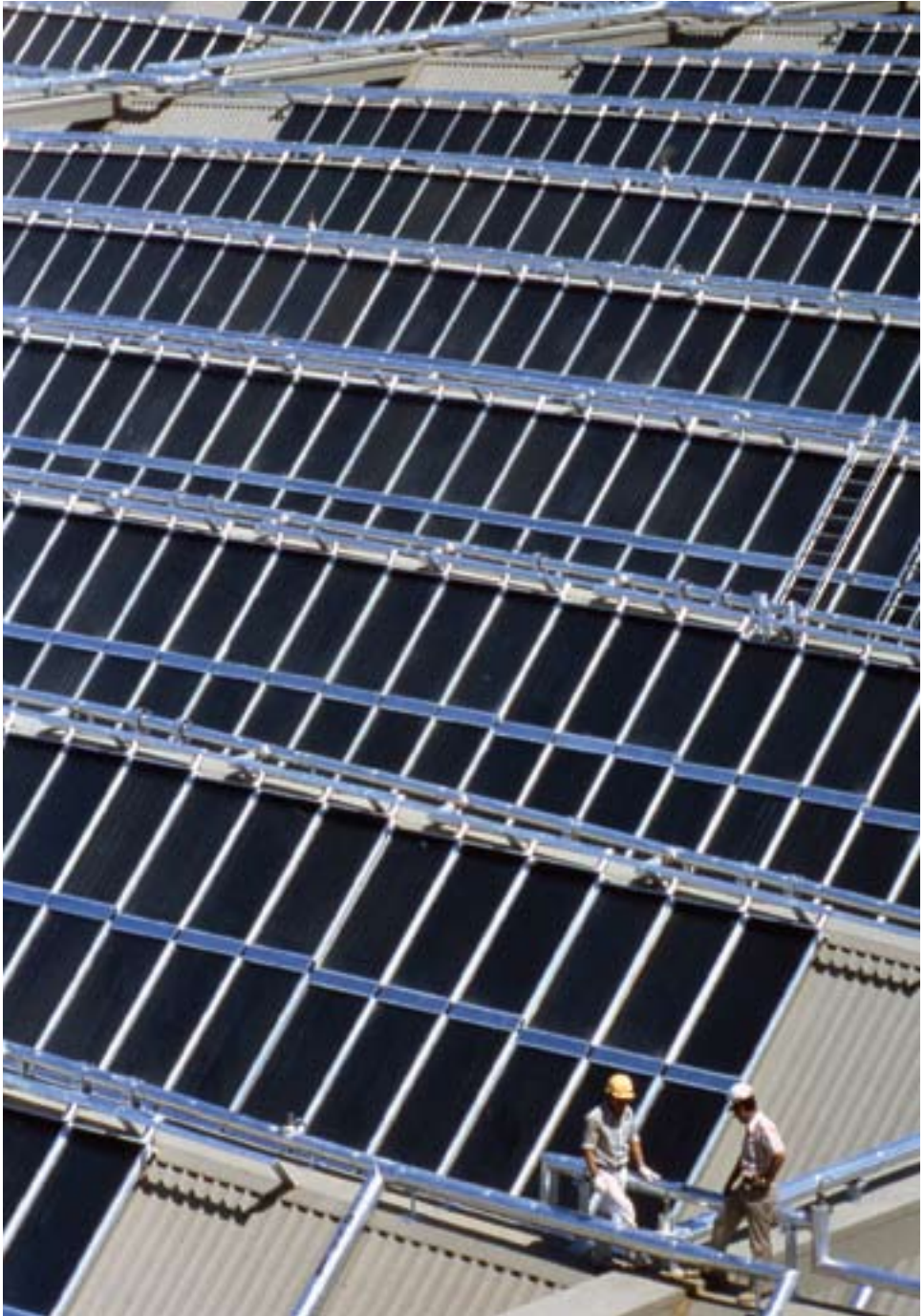
Mosque at the Airborne and Physical Training School, Tabuk

twenty-two buildings. The You One Company completed construction in May 1980 at a total cost of \$107 million.¹¹

As part of the expansion of services at Tabuk, MODA asked the Corps to add a \$1.4 million air-conditioning system to the Armor School and to link the school to the cantonment's sewage system. Other Corps activities at the cantonment included renovations of the Tabuk officers club and construction of underground storage for petroleum, oil, and lubricants (POL).¹²

¹¹ Col George W. Page, "Mediterranean Division [*sic*] Command Briefing," 21 Jun 77, p. 18, unmarked box, TAD-RHA; "Saudi Arabia Programs," 28 Feb 78, p. 62; Brig Gen James N. Ellis, "Formal Testimony, House Foreign Affairs Subcommittee, Europe and the Middle East," 25 Jun 79, p. 10 of typescript, PAO [Public Affairs Office], TAD-RHA; U.S. Congress, House, *Activities of the United States Army Corps of Engineers in Saudi Arabia. Hearings Before the Subcommittee on Europe and The Middle East (Lee H. Hamilton [Indiana], Chairman), of the Committee on Foreign Relations*, 96th Cong., 1st sess., 1979, p. 11 (hereafter cited as Hamilton Comm Hearings); "Airborne School Uses Solar Power," *Mt. Weather Bulletin*, September-October 1980; Fact Sheet, MED Projects in Saudi Arabia, 29 Mar 85, unmarked box, TAD-RHA.

¹² "MODA Fund Recapitulation," app., MDD Directive no. 71, 4 Feb 76, E-7-6, TAD-RHA; Lively to Al Faisal, 9 Jul 77, sub: Sewage Treatment Plant, Tabuk, E-7-2, TAD-RHA; Memo, Drennon, 21 Feb 73, sub: Trip Report, SNEP (Athens, Greece) and Qaysumah Design (Saudi Arabia), 28 January–14 February 1973, p. 4, Walker box 8, OH, HQ USACE; Memo, Maj D. G. Barney, 27 Aug 73, sub: Tabuk Dedication, box 276 of 357, TAD-RHA; Albro to Al Faisal, 15 Dec 80, sub: Closeout Documents for Air Conditioning, Armor School, Tabuk, L-8-5, TAD-RHA;



Solar panels, Tabuk, late 1970s

Area Commander's Headquarters

In February 1976, the Saudi Arabian government formally requested Corps support to design and build, adjacent to the existing brigade headquarters at Khamis Mushayt, a headquarters complex for the Saudi Arabian Army's area commander. MODA wanted a facility with modular flexibility able to accommodate a staff of sixty initially and adaptable up to one hundred eighty as staff needs increased. MODA set a budget for the project of \$1.4 million. Corps personnel worked on the design in house during the 1976 transition from the Mediterranean to the Middle East Division. In 1977, when the Middle East Division awarded a contract for construction to the low bidder, Najeeb Establishment of Riyadh, division staff advised Al Faisal that "additional funds in the amount of \$3,577,811 are required." When finally completed in the early 1980s, the new headquarters' costs had exceeded \$5.77 million.¹³

In early 1977, MODA asked the Corps to undertake the construction of an area commander's headquarters building at Tabuk as well, using the same approach as at Khamis Mushayt. Within weeks, however, MODA suspended action on that building as the ministry contemplated the prospect of reductions by as much as 50 percent in programs submitted for budget consideration within the Saudi Arabian government.¹⁴

VIP Complexes and Family Housing

All of the facilities that the Saudis built in the modernization of their armed forces included special housing for dignitaries and for the king and his entourage. At Khamis Mushayt, the VIP complex consisted of a 50-unit guest house, an 8-bedroom guest house, and a 4-bedroom executive villa. In August 1977, the Middle East Division signed a \$14.5 million contract for the construction of this complex with Hanil Development Company Ltd. of Seoul, Korea. The division closed accounts on the project in early 1984 at a total cost of \$18.4 million, including furniture, furnishings, and equipment.¹⁵

USACE, "This Is Saudi Arabia," 7 Feb 76, p. 4, box 2, access. no. 77-92-0001, WNRC; Page, "Mediterranean Division [*sic*] Command Briefing," 21 Jun 77, p. 19.

¹³ Memo, Bennett to Al Faisal, 9 Apr 77, sub: Area Commander Headquarters Tabuk and Khamis Mushayt, E-7-4; Fact Sheet, Area Commanders' [*sic*] HQ, Khamis Mushayt, 10 Nov 77, E-7-4; Al Faisal to Lively, 24 Sep 77, sub: Area Commander's Headquarters Building, Khamis Mushate [*sic*], E-7-4; Bennett to Al Faisal, 13 Mar 79, sub: Request for Authority to Award Construction Contract—Area Commander's Headquarters, Khamis Mushayt, E-7-5; Robertson to Lt Col Abdulaziz Otaishan, 10 Mar 84, sub: Closeout Documents for Area Commanders' [*sic*] Headquarters, Khamis Mushayt, K-8-3; all in TAD-RHA.

¹⁴ Memo, Bennett to Al Faisal, 9 Apr 77; Memo, Al Faisal to Bennett, 27 Apr 77, sub: Area Commander Headquarters, Tabuk and Khamis Mushayt, E-7-4, TAD-RHA; Wells to Morris, 16 Mar 77, box 3, access. no. 77-92-0001, WNRC.

¹⁵ MFR, Emil L. Blondell, Project Engr, 3 Jun 66, sub: Presentation of Design-Planning Criteria for Cantonment at Khamis Mushayt, box 44 of 357, TAD-RHA; MFR, Blake, 15 Dec 74, sub: Trip Report—Tabuk, Jiddah, and Khamis Mushayt—8 thru 11 December 1974, p. 2, box 51-84-9384, Farrell Papers; Trip Rpt, 9 Dec 78, sub: Khamis Mushayt, Saudi Arabia, 13–14 Nov 78, p. 2, E-5-6,

In late 1975, Sverdrup and Parcel, the same company that prepared the master plan for the Airborne and Physical Training School at Tabuk, received the contract to design the VIP complex at that cantonment. In July 1977, the Middle East Division awarded a contract to the You One Company with \$21.6 million to build the main VIP complex and another \$6.32 million for a special villa. The division included in the same construction contract two smaller projects—renovation of the officers club estimated at \$1 million and construction of an underground POL storage facility at just under \$2.2 million. Construction began on the VIP villas in late 1977 with a completion date of June 1979.¹⁶

Family housing for servicemen constituted the largest single category of facilities in the Corps of Engineers' support for the Saudi Arabian military, accounting for over 25 percent of the total spending. The Corps estimated the cost of housing additions at Khamis Mushayt and Tabuk at \$250 million for each location. In June 1976, J. A. Jones received a notice to proceed with construction of forty-eight housing units for army officers at Khamis Mushayt. A much larger, and over time more troublesome, contract went in March 1976 to the Blount Brothers Corporation for construction of over three hundred family-housing units at Tabuk. Blount fell behind schedule very early, and it appeared unlikely that the company would recover enough to complete the work on time. The work was only marginally satisfactory and progress very slow. By July 1977, Al Faisal concluded that Blount should receive no additional work in the kingdom. The chief of the Middle East Division's Engineering Planning and Liaison Office in Riyadh, Earl J. Kramer, reached the same conclusion and observed: "Given Blount's difficulties and apparent lack of progress with the family housing project," the company "should not be considered for any work outside their current contract." By the date set for completion of the contract, January 1978, Blount had only a few facilities ready to turn over. Turnover continued in stages until the builder completed the work on 13 June 1979.¹⁷

TAD-RHA; Bennett to Al Faisal, 25 Jun 77, sub: VIP Complex, Khamis Mushayt, RFP DACA 78-77-R-0012, E-7-2, TAD-RHA; Construction Contract, DACA 92-77-C-0005, Hanil Development Co. Ltd., 6 Aug 77, box 231 of 357, TAD-RHA; Robertson to Otaishan, 26 Feb 84, sub: Closeout Documents for VIP Complex, Khamis Mushayt, I-5-2, TAD-RHA.

¹⁶ Mediterranean Div Staff Mtg Min, 12 Nov 75, p. 3, box 18, access. no. 77-92-0001, WNRC; Bennett to Al Faisal, 9 Nov 77, sub: VIP Complex, Special VIP Villa, Tabuk, DACA 78-77-C-0063, E-7-4, TAD-RHA; Bennett to Al Faisal, 20 Jul 77, sub: Request for Authority to Award Four Projects at Tabuk, E-7-2, TAD-RHA; Bennett to Al Faisal, 1 May 77, sub: Renovation of MODA Officers' Club, Tabuk, E-7-2, TAD-RHA; John R. Lewis, "VIP Complex and Special VIP Villa, Tabuk," 30 Oct 77, E-7-4, TAD-RHA; Mediterranean Div Staff Mtg Min, 12 Nov 75, p. 3, box 18, access. no. 77-92-0001, WNRC; Earl J. Kramer, "VIP Complex, Tabuk," 13 Nov 77, E-7-4, TAD-RHA.

¹⁷ "Distribution of MED Program by Type Facility," in Hamilton Comm Hearings, p. 6; Chart, "Engineer Assistance Agreement"; Memo, Kramer, 13 Jul 77, sub: Sliding Partitions for Officer's Housing Khamis Mushayt & Tabuk, E-7-2, TAD-RHA; Mediterranean Div, "Data Book," 1 May 76, p. 15; [Saudi Arabia District?], Qtrly Hist Narrative Rpt (1 Jan 77–31 Mar 77), E-1-2, TAD-RHA; Contract DACA 75-76-C-0044, Family Housing Cantonment, Tabuk, Saudi Arabia, Completion Date, 2 Aug 82, K-8-4, TAD-RHA; quotation from Kramer, "Additional Work at Tabuk; Accomplishment of," 9 Jul 77, E-7-2, TAD-RHA.



VIP villa at Khamis Mushayt

Providing the Infrastructure

Throughout Saudi Arabia, both the scarcity and the mineral content of groundwater created vexing problems. The amount of water available at any location was always a concern in planning construction. The water system developed for Khamis Mushayt, which drew from the Wadi Bishah North, was adequate to support only the population of the cantonment itself, not the 100 percent increase in population that occurred in the area as construction on the cantonment advanced. Aware of the strain on the water supply, the division designed an interim solution—a station and a booster pump to the Wadi Bishah waterline. The division projected that the needs of the cantonment and the air base at Khamis Mushayt would again exceed the water supply by early 1978. So short was water in the area that, as MODA developed new wells, local farmers shut them down because they believed that the wells interfered with their own irrigation.¹⁸

In January 1976, the Mediterranean Division negotiated a contract with the architect-engineer firm of James E. Montgomery Inc. to design a longer-term solution to the water shortage. One solution involved “massive engineering efforts,” such as pumping water from sea level up the 7,000-foot escarpment to Khamis Mushayt.

¹⁸ Memo, Melvin Green, 29 Jan 71, sub: Trip Report—Khamis Mushayt, Saudi Arabia, and Asmara, Ethiopia, 5–26 Jan 71, p. 3, box 21, access. no. 77-92-0002, WNRC; Bennett to Al Faisal, 27 Dec 76, E-7-2, TAD-RHA; Maj Richard J. Vedell to Al Faisal, 1 Oct 79, sub: Saudi Arabian Armed Forces Signal Center and School, Taif, Saudi Arabia, p. 2, E-7-5, TAD-RHA.

Preliminary calculations suggested that such an operation would cost in excess of \$200 million and would demand a competent contractor to operate and maintain the system. Although water was never drawn from the bottom of the escarpment, concern over the water shortage did prompt development of a second water source. In mid-July 1979, the division awarded a contract to Al Harbi Establishment for construction of a system to draw water from the Wadi Itwed to the cantonment. The line was completed in the early 1980s.¹⁹

Even when water was available, there were problems. The high concentration of chemicals in the water on the Arabian Peninsula fouled the circulation systems the Corps installed. Studies commissioned by the Corps determined that the water contained dissolved gasses and minerals in a highly unstable state. Any change in the concentration of hydrogen ions (pH), in temperature, or in pressure and velocity during pumping or water circulation provoked precipitation of chemical salts, principally calcium and magnesium carbonates. Encrusted salts corroded pipes, metal fixtures, and boiler and cooler parts, leading to performance degradation, bursting pipes, and equipment failure.²⁰

The division's Engineering Planning and Liaison Office proposed hiring an engineering firm, Black and Veatch of Kansas City, to study the problem of chemical salts. The company concluded that the Corps had to design a system that would process the water to remove the troublesome chemicals. In early November 1976, MODA's General Directorate of Military Works approved the study. In late 1979, the division added a water-treatment project to the contract for the VIP complex at Tabuk. The resulting construction created the facilities to neutralize the scaling and corrosive properties of the water systems at military installations around the country. The project, implemented over the next several years, cost \$3.768 million.²¹

Like the water system, the sewage system planned for the original installation at Khamis Mushayt became inadequate as the population in and around the cantonment increased. During the 1970s, the Corps managed the construction of two supplementary sewage-treatment plants at the cantonment. One was an expansion of the existing system to accommodate the cantonment and the infantry and artillery schools. The second was a new system to serve new family housing. In March 1976, the Frank E. Basil Company completed design for the expanded system as part of the support facilities for the medical center staff. Problems with funding delayed award

¹⁹ Mediterranean Div Staff Mtg Min, 29 Dec 75, p. 2, and 8 Jan 76, p. 2, box 17, access. no. 77-92-0001, WNRC; Bennett to Al Faisal, 27 Dec 76; Kramer, "Development of Wadis Itwed and Tindahah," 27 Sep 77, E-7-2, TAD-RHA; Col James B. Hall to Al Faisal, 5 Aug 79, sub: Reprogramming Funds, K-8-5, TAD-RHA; Ellis to Morris, 11 Jan 80, pp. 5-6, and 24 May 80, p. 7, Walker box 6, OH, HQ USACE; Albro to Morris, 21 Sep 80, p. 6, box 1, access. no. 77-92-0001, WNRC.

²⁰ "Field Lessons-Learned Comments," 11 Aug 76, E-5-3, TAD-RHA; Kramer to Al Faisal, 12 Oct 76, 3-7-2, TAD-RHA; DF, Blake, 17 Nov 76, sub: Cooling Water Problems at Tabuk (Similar Problems Exist at Jeddah and K-M), E-5-3, TAD-RHA; MFR, Blake, 15 Dec 74.

²¹ Kramer to Al Faisal, 12 Oct 76; "Water Corrosion Study, Tabuk," [6] Nov 76, 3-7-2, TAD-RHA; Ellis to Morris, 19 Sep 79, p. 5, Walker box 6, OH, HQ USACE; Robertson to Al Faisal, 30 Nov 82, sub: Closeout Documents for Water Corrosion and Scaling Protection, Tabuk (Index 039), K-8-4, TAD-RHA.

of a construction contract for over a year. In September 1976, Perkins and Will, the architect-engineer company designing additional family housing at Khamis Mushayt, completed a design for the new sewage-treatment plant that served the housing units. Construction began in late 1977; in December 1979, the division turned the new plant over to the Saudi Arabian Army. The project cost \$11.7 million.²²

The expansion of facilities at Tabuk also created a need to increase the capacity of the sewage-treatment system there. Frank E. Basil delivered the cantonment's new master plan to the Middle East Division at the end of 1976, and the division designed the sewage-treatment plant in house in conformance with the Basil master plan. Early in 1977, the Saudis asked the division to modify design of the sewage-treatment plant to include the armor school and to increase capacity from a population base of twenty-six thousand to one of forty thousand. They also requested that the plans include a similar increase in the system that used sewage wastewater to irrigate landscaping. The division estimated that the additional costs would amount to \$8.2 million in construction. Contractors completed work on the irrigation system in late 1979 and the sewage plant in early 1980.²³

As other facilities expanded, the power plants at Khamis Mushayt and Tabuk had to be improved and augmented; in 1973, the Saudis requested assistance from the Corps. Poor maintenance and the hard water caused serious corrosion in the cooling system for the diesel generators that provided the electricity. The engines needed overhaul to allow them to generate to capacity. Between 1975 and early 1977, the J. A. Jones Company at Khamis Mushayt and Sverdrup and Parcel at Tabuk worked to overhaul and redesign the power plants.²⁴

Closing Out the Projects

Taken together, the various additions and improvements constructed at the Khamis Mushayt cantonment between 1974 and 1979 totaled \$310 million. During the 1980s, the Corps supervised another \$5 million in construction. In September 1981, the Corps of Engineers left Khamis Mushayt and turned over the compound to a U.S.-Saudi agency active in the country since 1974 and alternately called the Joint Commission of Economic Cooperation or the Joint Economic Commission

²² Kramer, "Sewage Treatment Plants, Khamis Mushayt," 26 May 77, E-7-2, TAD-RHA; Ellis to Morris, 11 Jan 80, pp. 5-6; Robertson to Otaishan, 29 Mar 84, sub: Closeout Documents for Sewage Treatment Plant, Khamis Mushayt, K-8-3, TAD-RHA.

²³ Memo, Jarel P. Starling, 29 Oct 76, sub: Trip Report, Firm Frank E. Basil, Athens, Greece, 25 through 28 October 1976, E-7-2, TAD-RHA; Lively to Al Faisal, 2 Mar 77, sub: Sewage Treatment Plant, Tabuk, E-7-2, TAD-RHA; Lively to Al Faisal, 9 Jul 77; Ellis to Morris, 11 Jan 80, pp. 5-6, and 24 May 80, p. 7, Walker box 6, OH, HQ USACE.

²⁴ Memo, Maj John F. Sobke, 24 Jun 72, sub: Visit to the King Faisal Military Cantonment, box 107 of 357, TAD-RHA; MFR, Blake, 15 Dec 74; Durham to Williams, 13 Oct 73, p. 3, box 51-84-9384, Farrell Papers; [Saudi Arabia District?] Qtrly Hist Narr Rpt (1 Jan 77-31 Mar 77). Bennett to Al Faisal, 9 Jun 77, sub: Power Plant Expansion, Phase II, Tabuk, E-7-2, TAD-RHA; Memo, Lewis to Dept of the Army, 3 Oct 78, sub: Construction Progress Report, attachment Qtrly Status Rpt for Facilities Construction . . . Saudi Arabia [30 Sep 78], E-5-6, TAD-RHA.

Representative Group (Riyadh, Saudi Arabia)—with the acronym JECOR used for both titles. The transfer included trailers, furniture, generators, and other capital assets worth over \$430,000. Subsequent construction work at Khamis Mushayt came under supervision of the Western Area Office of the Riyadh District.²⁵

At Tabuk, the supplemental work had begun in 1974; by the autumn of 1978, the Middle East Division had contracts for all the work outlined in plans for expansion except for one project, a water-treatment facility completed in 1980. On 30 August 1980, with the supplemental work substantially completed, King Khalid dedicated the Airborne School at the cantonment.²⁶

Although the work was done, Tabuk remained an active concern for the division because of the Blount contract. In June 1979, upon completion of the new family housing, Blount Brothers initiated a claim against the Corps. In late November 1979, the company submitted a formal justification that ran to seven volumes of printed material. Blount contended that delays and cost overruns attributable to government failures to meet the terms of the contract had cost the company \$65.1 million.²⁷

Following usual procedures, the division conducted an audit of the contract to determine what portions of the claim were legitimate. To assist with the closeout negotiations, the division called a contract analyst and negotiator, Calvin S. Martin, out of retirement. Early in 1980, the two sides entered into preliminary talks led by Col. Gurnie C. Gunter, who as the district engineer at Jiddah since 1979 had been the contracting officer on the project. In an agreement reached on 22 April 1980, the Corps acknowledged \$21.49 million of Blount's claims as valid: \$18.9 million on the family housing and \$2.59 million on other facilities.²⁸

With an agreement in hand, Gunter requested permission from Al Faisal to make the payment to Blount. Al Faisal balked and refused to authorize the payment, pointedly noting that any attempt by the division to transfer funds unilaterally would constitute "stealing" Saudi government monies. Al Faisal was adamant that the EAA prohibited the Corps of Engineers from transferring funds between projects without MODA's explicit approval. Indeed, the practice of the Mediterranean and Middle East Divisions, to which the division could find no exception in its records, had been to request such approval. The Corps was equally adamant that the EAA

²⁵ Fact Sheet, MED Projects in Saudi Arabia, 29 Mar 85, unmarked box, TAD-RHA; "A Short History of the Corps of Engineers in Saudi Arabia," 1993, p. 2, Current Files, PAO, TAD-RHA; Memo, Lt Col George R. Leonard, 30 Sep 81, sub: Turnover of Compound in Khamis Mushayt from MED to JECOR, box 30, access. no. 77-92-0001, WNRC; Ellis to Morris, 24 May 80, p. 4. On JECOR, see Middle East Div, "Information Booklet," [hand-dtd Dec 81], p. II-3, box 3, access. no. 77-92-0002, WNRC. On the creation, composition, and objectives of JECOR, see Pincus, "Foreign Entanglements," pp. 8–10.

²⁶ Ellis to Morris, 26 Sep 78, 11 Jan 80, p. 6, Walker box 6, OH, HQ USACE; Albro to Morris, 21 Sep 80, p. 6.

²⁷ DF, Charles T. Frew, 6 Feb 80, sub: Claim on Contract DACA 75-76-C-0044, Additional Family Housing, Tabuk, K-8-5, TAD-RHA.

²⁸ Ellis to Mayor, Goldendale, Wash., 18 Nov 79, box 14, access. no. 77-92-0001, WNRC; DF, Frew, 6 Feb 80; Frew to Calvin S. Martin, 23 Apr 80, box 14, access. no. 77-92-0001, WNRC; Memo, Col Gurnie C. Gunter to Al Faisal, 5 May 80, sub: Request for Reprogramming Authority, unmarked box, OH, HQ USACE.

acknowledged the authority of the contracting officer to settle claims and fixed the responsibility on the Saudi Arabian government to pay for claim settlements.²⁹

The Corps found itself caught between Al Faisal's anger over the settlement with Blount and the practices and obligations under U.S. law. The division could not repudiate the settlement that Gunter had reached with Blount. Moreover, in estimating the potential liability faced by the government, the Defense Contracting Audit Agency had concluded that, if the claim went to adjudication, Blount might win substantially *more* than the proposed settlement. The division therefore considered Gunter's compromise about as advantageous as possible under the circumstances.³⁰

The matter stalled for months. At the behest of the installation facilities engineer, the division sent an inspection team to Tabuk to examine structural failures in the houses that Blount had built. The team identified contractor error as a substantial element in the structural failures. The contractor had used improper materials to backfill the area—a former landfill—on which it built the housing units. The team tested only a sample of twenty-eight houses but concluded that the situation required further geotechnical investigation of all structures in the landfill area to determine the extent of risk of future problems.³¹

In early May 1981, the Middle East Division commander, Brig. Gen. Ames S. Albro Jr., met with Prince Sultan. General Albro reviewed the Corps' methods and procedures for supervising construction contracts. He emphasized that the contracting officer had the authority to negotiate and settle claims with the contractor on behalf of the Saudi government. Albro then reviewed the Blount Brothers contract for the Tabuk housing project. Blount had claimed over \$65 million in compensation. The project's contracting officer had through negotiations reduced this claim to \$18.9 million. The division did not have the money in the project's budget to pay this amount, so Albro requested the prince's authorization to allocate funds to pay the contractor.³²

Prince Sultan responded that in his judgment the contractor had no right to any such compensation. MODA refused to pay a contractor who had "delayed the project for one year and whose quality of work was poor." If the contractor wished to seek compensation from the Saudi Arabian government, he would have to take his claim to the Saudi Grievance Council. Albro then indicated that, if MODA refused to pay, the Corps had only one alternative—to take the money to pay the contractor out of its supervision and administration (S&A) funds. Prince Sultan repeated that he did not want MODA "involved." When Albro explained that the

²⁹ Fact Sheet, Status of Blount Brothers Claim, 29 Jul 80, pp. 1–2; Memo, Maj Jules S. Kincaid, 21 Jul 80, sub: Meeting with MAJ Faisal on Impact at Al Batin without MKSAC Extension, 19 July 1980; both in unmarked box, OH, HQ USACE.

³⁰ Fact Sheet, Status of Blount Brothers Claim, 29 Jul 80, p. 1.

³¹ Gunter to Al Faisal, 19 Jan 81, sub: Cracks in Concrete Masonry Unit Walls, Family Housing Units Constructed by Blount Brothers, Tabuk, Saudi Arabia, and attached Rpt dtd Dec 80, K-8-5, TAD-RHA.

³² M. A. Faraj, "Record of BG Albro's Meeting with HRH Prince Sultan," 6 May 81, K-8-4, TAD-RHA.

8 percent charge for S&A was not sufficient to meet operating costs and that the deficit would be compounded by having to pay \$18.9 million to Blount Brothers, Prince Sultan responded that he “wishes that the U.S. Government would absorb part of the loss in the same way that Saudi Arabia absorbs some loss by supplying the U.S. with oil below the market price.”³³

Albro charged the cost of the claim to the division’s S&A budget over the next two fiscal years and increased the S&A costs to 8.5 percent. The Saudis understood the cost “pass through”; nonetheless, they had made their dissatisfaction very clear. The incident was symptomatic of a growing assertiveness on the part of the Saudis. In the 1980s, poor performance by contractors, contractor claims, and the cost of Corps’ supervision and administration all became knottier problems in the construction program that the Corps managed in Saudi Arabia.

The payment of the Blount claim removed the last obstacle to closing out the work at the King Abdulaziz Cantonment at Tabuk. Over a decade and a half, the Corps of Engineers administered construction with a total value of \$356 million. In October 1984, the Middle East Division closed its resident office at Tabuk.³⁴

Peace Hawk and Peace Sun

The Royal Saudi Air Force was the Corps of Engineers’ oldest customer among the Saudi Arabian military services. In 1960 and 1961, the Mediterranean Division’s Gulf District, headquartered in Tehran, Iran, had supervised a \$3.7 million project to construct a sixteen-building training school complex in Riyadh and another \$3 million in construction at airfields in Jiddah and Taif.³⁵ The five thousand five hundred men of the Royal Saudi Air Force came in for additional attention in the 1970s as RSAF modernization paralleled the expansion of the army cantonments. The two programs that carried the modernization forward were Peace Hawk (1972–1984) and Peace Sun (1978–1985).

The RSAF attracted to its ranks young officers who had been educated in the West and favored modernization. Their outlook made them critical of the practice, prevalent since the 1950s, of promotion to the highest ranks of military service on the basis of nepotism and corruption. These attitudes overlapped with ideas propounded by radical and secular Arab nationalists in Yemen, Iraq, and Syria who opposed the Saudi monarchy. In the late 1960s, small dissident groups formed within the Air Force, largely focused on discontent over the pace of modernization, the poor quality of middle management, and the corruption and nepotism that they encountered. In May 1969, the Saudi government cracked down on dissent throughout the kingdom.

³³ Ibid.

³⁴ Ellis to Morris, 11 Jan 80, p. 6; Albro to Morris, 21 Sep 80, p. 6; “A Short History of the Corps of Engineers in Saudi Arabia,” 1993, p. 2; Mid East Div, Bfg for Ch of Engrs, 5 Jan 85, re Phaseout from Saudi Arabia and Future of MED, p. 2, Uncatalogued Hist Files, TAD-RHA, R&D File 2455, TAC.

³⁵ “History of the [Gulf] District, March 1956–June 1965,” Jun 65, p. 74, box 21, access. no. 77-92-0002, WNRC.

By September, the government had arrested more than one hundred thirty members of the Saudi military.³⁶

From late November to mid-December 1969, just as the arrests slackened, Saudi Arabia experienced one of its periodic border clashes with the People's Democratic Republic of Yemen. South Yemeni forces crossed the border and quickly captured a small post defended by a few Bedouins. The Saudi Air Force counterattacked, supported by British military advisers, and helped drive the invading forces out of the country. The loyal and effective performance by the RSAF helped restore its relationship with the Saudi ruling elite, leading the monarchy to coopt rather than persecute the dissident elements. The royal family accelerated the pace of the Air Force's modernization, shifted promotion to merit rather than ethnic or tribal background, committed to reducing corruption and nepotism, and expanded improvements in living conditions for members of the military.³⁷

In the 1960s, Saudi Arabia had purchased British aircraft and equipment; in the 1970s, it chose to buy American planes. In June 1971, using Foreign Military Sales (FMS) procedures, the Saudi government bought one hundred F-5 fighter aircraft, to be delivered over several years, at a cost of \$130 million. In late February 1972, the U.S. Air Force Logistics Command (AFLC), acting as project manager, signed a memorandum of understanding with the Corps of Engineers to provide budgetary and technical reviews of the criteria, schedules, spending, and engineering and design specifications for the program called Peace Hawk. In May, the AFLC awarded a letter contract with the manufacturer of the F-5, Northrop Corporation, to build facilities, train Saudi Air Force personnel, and maintain the aircraft.³⁸

The construction took place initially at Taif and Dhahran and was later extended to Khamis Mushayt and Tabuk. Between mid-1972 and early 1974, Mediterranean Division staff provided about \$13 million worth of supervision and inspection services to the Peace Hawk program. By February 1974, with the facilities defined in the early phases (I through IV) of the program completed, the division closed its resident office at Taif.³⁹

Starting in 1974, the U.S. Air Force undertook several studies of the threat of a hostile attack by air, as well as Saudi Arabia's ability to defend against such attacks. These studies led the Saudis to acquire later-model F-5s and more advanced aircraft—acquisitions that created the need to expand support facilities. In January 1975, the Air Force signed a memorandum of understanding that gave the Corps of Engineers a larger role in the Peace Hawk program—more responsibility for design and construction, including furnishings and equipment for all facilities required in

³⁶ Cordesman, *The Gulf and the Search for Strategic Stability*, pp. 137–38.

³⁷ *Ibid.*, pp. 138–40.

³⁸ Barry Miller, "USAF to Deliver F-5Es to Saudi Arabia," *Aviation Week and Space Technology* (12 November 1973): 14–15; Cordesman, *The Gulf and the Search for Strategic Stability*, p. 143; Mediterranean Div, "Data Book," 15 Oct 72, pp. 23–24, box 51-84-9384, Farrell Papers; Kackley to Clarke, 15 Mar 72; OCE, Major Activities, FY 1974, p. 64.

³⁹ *Ibid.*; Kackley to Clarke, 15 Mar 72, p. 1; Mediterranean Div, "Data Book," 15 Oct 72, p. 10; "Sequence of Chronological Events, Taif—January 1974 to Completion," n.d., box 5, access. no. 77-92-0001, WNRC; Annual Hist Sum, CY 1974, p. A1.



Construction for Peace Hawk, February 1978

the phase of the program designated Peace Hawk V. The estimated cost of these facilities, funded by the RSAF through FMS, was \$480 million.⁴⁰

Because the construction for Peace Hawk V involved seventy-eight diversified and complex technical facilities located in three widely separated parts of Saudi Arabia—Dhahran, Taif, and Khams Mushayt—the Mediterranean Division proposed to manage the work through a Peace Hawk Area Office located in Dhahran with resident offices at each of the three sites. Construction included depot supply buildings, power plants, aircraft hangars, avionics shops, headquarters buildings, armament shops, training buildings, aircraft maintenance buildings, firing ranges for the aircraft, and the full complement of infrastructure and utilities (electric, water, sewer, communications, streets, and roads) needed to support the RSAF communities.⁴¹

The U.S. Air Force had set a tight, two-year construction schedule, and the Corps of Engineers warned of difficulties in meeting the deadlines. The Peace Hawk

⁴⁰ Cordesman, *The Gulf and the Search for Strategic Stability*, p. 165; OCE, “Annual Report of Major Activities, Jul. 1, 1974–Jun. 30, 1975,” p. 53, box 8, Gen Files, OH, HQ USACE (hereafter cited as OCE, Major Activities, FY 1975); MOU, HQ, U.S. Air Force, and USACE, [23 Jan 75], sub: Saudi Arabian F-5 Program, box 5, access. no. 77-92-0001, WNRC.

⁴¹ Mediterranean Div Staff Mtg Min, 12 Nov 75, pp. 1–2, box 18, access. no. 77-92-0001, WNRC; DF, Lt Col Thomas R. Braun, 26 Nov 75, sub: Proposed Organization for Peace Hawk Area Office, pp. 1–2, unmarked box, TAD-RHA.



Construction of a potable-water tank for the Royal Saudi Air Force headquarters, Riyadh

programming data contained no master plan or site layout for the facilities. The construction industry in Saudi Arabia was overextended because of the volume of building, making it difficult to acquire basic materials and compounding the normal logistical problems of getting materials to the construction sites.⁴² Corps personnel also remained uncomfortable that their roles in review, supervision, and inspection gave them only limited authority over design and construction.⁴³

In 1978, with only about a third of the F-5s delivered, the Saudi Arabian government reduced the number of F-5s on order, having succeeded, in spite of sharp opposition in the U.S. Congress, in purchasing the more-advanced F-15. Work on the facilities for the F-5s continued into another phase, Peace Hawk VII. At the same time, the Corps entered into a new agreement with the Air Force to supervise construction of facilities for the F-15s, a project called Peace Sun. For Peace Sun, the Corps took on total responsibility for construction management.⁴⁴

⁴² Durham, "Construction Estimate for Peace Hawk V," 23 Jun 75, pp. 1-2, box 5, access. no. 77-92-0001, WNRC. See also Memo, Clements to Secretary of the Army, 25 Jun 75, sub: Contractor Services and Construction (Peace Hawk V), pp. 1-2, box 5, access. no. 77-92-0001, WNRC.

⁴³ Mediterranean Div Staff Mtg Min, 12 Nov 75, p. 1, box 18; Wells to Morris, 16 Mar 77, p. 9, box 3; both in access. no. 77-92-0001, WNRC.

⁴⁴ Cordesman, *The Gulf and the Search for Strategic Stability*, pp. 165-67; "Saudi Arabian Projects," [mid-1981], p. 2, unmarked box, OH, HQ USACE.

The first Peace Sun contract came in December 1979, and the work continued over the next five years. The program involved construction at Khamis Mushayt and Taif of aircraft shelters, avionics maintenance buildings, hangars, engine-repair facilities, flight-simulator buildings, squadron operations buildings, taxiways and parking aprons, roads, fencing, and staff housing. By mid-June 1981, the division had awarded thirteen Peace Sun contracts and four new Peace Hawk contracts. The construction to support RSAF aircraft reached its peak in FY 1982. At the end of the first quarter, December 1981, the division had about \$314 million in construction underway for Peace Sun and another \$9 million for Peace Hawk.⁴⁵

The division engineer, General Albro, hoped in 1980 that the Peace Sun program would prove “a fresh start and a chance to do a professional job all the way through.” But the division quickly ran into problems with several contractors. The most serious situation arose with a Korean firm, Pacific Construction Company Ltd. (PCC), the lead partner in a joint venture responsible for one package of construction at Dhahran. The contractor fell thirty-seven days behind schedule in the first five months of work, prompting an interim unsatisfactory performance rating from the contracting officer in mid-October 1980. Two other Korean contractors had also received unsatisfactory ratings on other parts of Peace Sun construction. When the director general of the Korean Overseas Corporation Bureau visited Saudi Arabia in December 1980, the division informed him that the three firms would not be considered on any future work until they had corrected their unsatisfactory ratings.⁴⁶

Although late in 1980 the Middle East Division considered terminating PCC’s contract for the work at Dhahran, eighteen months later, General Albro recounted that the division had turned “an early ‘loser’ . . . into a very successful contract.” By October 1981, PCC had won removal of the unsatisfactory interim performance rating and had all critical aircraft-support facilities ready prior to the arrival of the F-15s at Dhahran in January 1982. Albro credited the “continuous pressure by Colonel Bob Whitley and his dedicated area office staff at Dhahran” for the successful turnaround. At Taif, the division delivered support facilities for the F-15s in July 1982.⁴⁷

The Peace Sun program continued at a slow pace over the next two years. The Middle East Division awarded all major contracts by January 1983, and the Royal Saudi Air Force had taken delivery of sixty F-15s and over one hundred F-5s.

⁴⁵ Ellis to Morris, 11 Jan 80, pp. 1, 6; “Saudi Arabian Projects,” [mid-1981], p. 2; Fact Sheet for Lt Gen Joseph K. Bratton’s Visit to Middle East Div, 1 to 7 Jan 81, prepared 31 Dec 80, Walker box 6, OH, HQ USACE (hereafter cited as Fact Sheet for Bratton Visit, Jan 81); “Project Management Assignments—Riyadh,” 15 Jul 81, SA 719, TAD-RHA; Albro to Morris, 21 Sep 80, p. 6; Middle East Div, “Information Booklet,” [Dec 81], p. II-6.

⁴⁶ Quotation from Albro to Morris, 13 Jul 80, p. 2, Walker box 6, OH, HQ USACE; Fact Sheet for Bratton’s Visit, Jan 81.

⁴⁷ Quotation from Albro, Cdr’s Periodic Ltr, 5 Jun 82, Walker box 6, OH, HQ USACE; Middle East Div, “Information Booklet,” [Dec 81], p. II-6; Albro, Cdr’s Periodic Ltr, 5 Jun 82; DF, Col James P. Oppenheim, 1 Feb 84, sub: Division Commander’s Periodic Letter, p. 14, E-1-1, TAD-RHA.

By the summer of 1984, contractors had completed about 85 percent of the work associated with Peace Hawk and Peace Sun.⁴⁸

The Peace Hawk and Peace Sun programs were relatively modest. At their peak in the early 1980s, these programs never exceeded 4 percent of the Saudi construction program conducted by the Middle East Division. Still, they accounted for forty-one contracts, cost \$790 million divided among four locations, and demanded significant management attention. They also contributed to the creation of the modern technological base and gave the Royal Saudi Air Force the tools to become a proficient, well-equipped, and well-trained air combat force.⁴⁹

Headquarters Complexes

The modernization program for the Saudi Arabian armed forces included the command elements as well as combat units. The Saudi Arabian government commissioned the Corps of Engineers to design and construct headquarters complexes for the Ministry of Defense and Aviation, the Royal Saudi Air Force, the Royal Saudi Naval Forces, and the Saudi Arabian National Guard. The latter two projects are discussed in Chapter 11.

During the development of plans for the various headquarters complexes, the military leadership in Saudi Arabia decided that it wanted to include underground command centers. The Corps cooperated with the U.S. Army officers assigned to the United States Military Training Mission (USMTM) in Saudi Arabia to develop design and construction. The design of the operations centers was linked to a larger debate concerning the strategic justification for them. The Saudis wanted multiple underground centers—one each at the headquarters buildings being planned for MODA, the Air Force, and the Navy, and at headquarters buildings planned for the area commanders in Khamis Mushayt, Tabuk, and King Khalid Military City (Hafar al Batin).⁵⁰

USMTM advisers saw the six centers as “a tremendous drain on manpower” for the Saudi military. They strongly recommended one national center with subordinate satellite centers as a more strategically effective plan. A combined national command center in Riyadh would promote sharing of common facilities and communications systems by MODA, RSNF, RSAF, and Saudi Arabian Land Forces, while permitting the independent operation of each service. American advisers acknowledged that

⁴⁸ “Col. Schroder Briefing to SAD [South Atlantic Division],” 23 Dec 85, p. 6, unmarked box, TAD-RHA; Fact Sheet, MED Projects in Saudi Arabia, 29 Mar 85; Cordesman, *The Gulf and the Search for Strategic Stability*, p. 165; “Briefing for HRH Prince Sultan bin Abdulaziz, 2nd Dep Premier and Minister of Defense and Aviation,” Aug 84, SA 719, TAD-RHA.

⁴⁹ “Briefing Middle East/Africa Projects Office,” [30 Jun 87], unmarked box, TAD-RHA; Cordesman, *The Gulf and the Search for Strategic Stability*, p. 165.

⁵⁰ DF, Dykes, 28 Sep 77, sub: PPR for UG Shelters & Operations Centers, Various Locations, S.A., E-7-6; MFR, Melvin G. Dailey, 25 Jun 77, sub: Trip Report to United States—Meeting re Underground Shelter, Command Posts, Various Locations Saudi Arabia and Meeting in Division (Rear), E-7-3; Brig Gen Carl H. Cathey Jr. to Kramer [Nov 77], sub: Preliminary Planning Report for Underground Shelters and Operations Centers, Saudi Arabia, E-7-4; all in TAD-RHA.

their strategic argument for consolidating command in one location was only one of several factors that the Saudi service commanders weighed as they considered separate command centers.⁵¹

Between the autumn of 1977 and the summer of 1978, USMTM and Corps planners and MODA representatives discussed the first three underground shelters: two in Riyadh for MODA and the RSAF and one in Khamis Mushayt.⁵² The Middle East Division's advisers lent their weight to the argument that the Saudis needed fewer command centers and that the individual services did not require specially reinforced, or "hardened" shelters.⁵³ The Saudis remained unpersuaded.

The entire consideration of underground command centers developed after work had begun on several of the headquarters complexes. As a result, plans for the command centers often had to be grafted onto existing headquarters designs. Construction already underway had to be modified to accommodate the addition of an underground facility. The exercise added to the cost and to confusion of work in progress.

Royal Saudi Air Force Headquarters Complex

The RSAF planned a headquarters complex in Riyadh. Preliminary criteria and design work for the complex, undertaken by the architect-engineer firm of Smith, Henschman, and Grill, began in 1973, with cost estimated at \$30 million. By September 1976, the Corps had a final design; but the cost estimate for the project, including an underground command center, had risen to \$160.6 million. The following February, the Middle East Division issued a request for proposals for the construction and in May awarded a contract to a joint venture of Saudi Tarmac and Tarmac Overseas Ltd.⁵⁴

The design set out a building with strong horizontal lines faced with Travertine and Riyadh stone. The main portion of the building was seventy feet tall. Set back from the facade by almost thirty feet and extending the building's height by another fifteen feet was a penthouse for mechanical equipment. The ground floor opened onto a courtyard and a VIP parking area. The building occupied an area of about 180 by 656 feet and provided almost 323,000 square feet of office space, excluding an offset area that created extra floor space for a mosque.⁵⁵

⁵¹ Col R. R. Battreall to Kramer, 2 Oct 77, E-7-6, TAD-RHA; Cathey to Kramer [Nov 77], pp. 1-3.

⁵² Lively to Al Faisal, 25 Apr 78, sub: Underground Shelters and Operations Centers, Various Locations, E-7-4, TAD-RHA.

⁵³ Memo, Col Donald J. Palladino, 14 Feb 78, sub: Summary of Division (Rear) Staff Meeting, pp. 17-18, unmarked box, TAD-RHA.

⁵⁴ Brazier, "Various Aspects of the Army's Construction Effort," 6 Jun 75; Page, "Mediterranean Division [*sic*] Command Briefing," 21 Jun 77, p. 12; Bennett to Al Faisal, 24 Sep 76, sub: RSAF Headquarters, Riyadh, and 22 May 77, E-7-2, TAD-RHA.

⁵⁵ Lively to Al Faisal, 8 Aug 77, sub: RSAF Headquarters: Information for Building Permit, and attachment, "Riyadh Headquarters Building," 26 Jul 77, E-7-2, TAD-RHA.



Model of the Royal Saudi Air Force headquarters, Riyadh, October 1979

As the construction contractor prepared to begin work, he encountered a number of design errors involving reinforcing steel in the concrete, surface and subsurface drainage, and architectural details. Changes to the site of the underground command center came at the same time. To address and correct all these problems, the division established weekly meetings among staff from the Engineering and Construction Divisions and the project manager for the headquarters complex. The meetings continued from early September to early November, until the team had resolved most of the problems.⁵⁶

Competition for working space added to the construction contractor's problems. Adjacent to the site of the RSAF headquarters, other builders worked under contract with MODA independent of the Corps on construction projects for the Saudi Air Defense Command. When these contractors began to erect an air-traffic control building on the northwest corner of the headquarters site, Middle East Division personnel asked MODA's General Directorate of Military Works to help coordinate the activities of the two groups.⁵⁷

By the spring of 1979, the various changes that the contractor had had to make in the scope of work since the summer of 1977 amounted to \$9.3 million. In requesting additional funds from the GDMW, the division explained that nearly \$5.6 million of those changes stemmed from requests made by the Saudi Air Force. The balance was attributed to changed site conditions. The contract set the original completion date for the RSAF headquarters as 15 May 1980; but at that point, the contractor still had one thousand six hundred workers on site. In addition to structural changes

⁵⁶ DF, Kramer, n.d., sub: RSAF Headquarters: Design Errors Noted by Contractor, E-7-2, TAD-RHA; MFRs, Robert M. Stone Jr., Sep, Oct, and Nov 77 in E-7-2, TAD-RHA.

⁵⁷ Lively to Al Faisal, 23 Jul 78, E-7-4, TAD-RHA.

to the headquarters building, the contractor had to modify work already completed in a barracks building and a utility building when construction in the adjacent area created subsurface water and drainage problems. The contractor also constructed a separate and unplanned facility to accommodate the Riyadh Electric Company's transformers and switching gear.⁵⁸

By the autumn of 1980, contractors were able to set a firm date for turnover at 1 April 1981. During the winter and early spring of 1981, the division worked with MODA and RSAF officials to plan the dedication ceremony with about one hundred guests for 22 April. In May, the division awarded the sixth contract for the project for construction of the underground command center. When the division finally closed out the project, design and construction of the RSAF headquarters complex had cost \$187 million.⁵⁹

Ministry of Defense and Aviation Headquarters Complex

As the bureaucratic force behind modernization, the Ministry of Defense and Aviation wanted a new headquarters facility for itself. MODA's existing headquarters building in Riyadh, constructed nearly two decades earlier under Egyptian supervision, began to seem inadequate as newer construction sprang up. To provide fitting surroundings for himself and his staff, Prince Sultan decided to rebuild MODA's offices.

Executive Office Building

The construction of the new facilities for the MODA headquarters staff took place in stages. In August 1973, the Mediterranean Division awarded a \$4.8 million construction contract to Holzmann to build a three-story executive office building designed by Brown, Daltas & Associates of Rome. The Holzmann contract included landscaping, an irrigation system, exterior lighting, paving, and all supporting utilities in addition to the building's construction. The contract also provided for

⁵⁸ Memos, Hall to Al Faisal, 18 Mar, 27 May 79, sub: Additional Funding Requirements—RSAF Hqs Building, both in E-7-5, box 5, TAD-RHA; Albro to Al Faisal, 13 Dec 80, sub: Contract DACA 78-77-C-0047, RSAF Headquarters Building Completion Date, K-8-5, box 13, TAD-RHA; Ellis, "House Foreign Affairs Subcommittee on Europe and the Middle East," Informal Bfg on 11 Mar 80, Current Files, Transatlantic Division—Public Affairs Office (TAD-PAO). Another document makes it clear that this was an "informal" briefing that Representative Hamilton had requested as an update on Ellis' published testimony from the previous June. See Memo, Ellis to Ludwig, 7 Feb 80, sub: Briefing for Subcommittee on Europe & Middle East, House Committee on International Relations, box 14, access. no. 77-92-0001, WNRC; Albro to Al Faisal, 13 Dec 80.

⁵⁹ Albro to Morris, 21 Sep 80, p. 5; Memos, Lt Col John F. Donahue, 24 Mar 81, sub: Meeting with MODA and RSAF Officials on Transfer of RSAF HQ Building, and 25 Mar 81, sub: Meeting with Maj. Nafisah on Details of RSAF Dedication Ceremony, both in K-8-4, box 10, TAD-RHA; Albro to Bratton, 12 Aug 81, p. 2, Walker box 6, OH, HQ USACE; Memo, Col Frank D. Miller Jr., 24 Jun 91, sub: Authorization: Design and Construction of Facilities Under Engineering Assistance Agreement (EAA), Royal Saudi Air Force Headquarters (RSAF HQ), Current Files, Transatlantic Division—Resource Management (TAD-RM); "Riyadh District Command Briefing for Brig Gen James W. Ray, Commander, Middle East Division," n.d. [first half of 1985], unmarked box, TAD-RHA.

complete furnishing of the offices and conference spaces. Project costs rose to \$7.8 million by the time the executive office building was completed in June 1975.⁶⁰

As the new executive office building progressed, it highlighted the deteriorated condition of the old headquarters building that sat immediately behind it. Prince Sultan therefore asked for proposals to improve the appearance of the existing building. The Mediterranean Division engaged McGaughy, Marshall & McMillan (MMM), who proposed a solution to preserve the older building but to disguise it by constructing anodized metal architectural screens to cover its entire facade and to shade the exterior walls.⁶¹

The Saudis rejected this concept in favor of a plan that would involve two separate office buildings—a headquarters building and an operations building, the latter to be designed by Parsons, Brinckerhoff, Quade & Douglas (PBQ&D). In a subsequent meeting in Livorno in early 1976, the director general of military works, Captain Al Faisal, decided to place the operations center in a wing of the headquarters building, eliminating the need for a separate building. The division relayed this decision to MMM and instructed PBQ&D (later Parsons, Brinckerhoff International) to develop a preliminary report defining requirements for the underground command center.⁶²

In May 1976, the division reviewed the MMM concept design. Although earlier designs had called for the rehabilitation of the existing headquarters building constructed by the Egyptians, the new plan called for its demolition. The designers now proposed a new headquarters building on the same site, just behind the executive office building completed in June 1975. They also placed a multistoried, 1,000-car parking structure at the back of the site. McGaughy, Marshall & McMillan proposed that contractors erect a three-story prefabricated temporary office building to accommodate the MODA staff during the construction. The construction site would also include a 1,000-worker mobilization camp.⁶³

Design and Construction of the Headquarters Complex

In February 1977, as MODA leaders weighed the general issues of the underground command centers, the Middle East Division submitted a list of architect-engineer firms qualified to prepare the final design of the MODA headquarters building. By the end of the year, the division selected Hotchkiss, Thompson, and Ball Inc. (HTB), of Oklahoma City, Oklahoma. At meetings in April and May 1978 with representatives of HTB, Major Al Faisal “adjusted” the design plans.

⁶⁰ Annual Hist Sum, CY 1974, pp. 1, A2; Zeiler Memoirs; Memo, Lt Col James W. Neal, 31 Jan 76, sub: Annual Historical Summary Report, pp. B1, B2, SA-725, TAD-RHA; “Saudi Arabia Programs,” 28 Feb 78, pp. 15, 20, 80.

⁶¹ Hamilton Comm Hearings, p. 10; Ltr, Wiles to authors, commenting on manuscript, 5 Oct 97, TAD-RHA, with Interv, and R&D File 3158, TAC.

⁶² Memo, Kramer, 17 Nov 76, sub: Combined Operation Building, MODA, Riyadh, E-7-3, TAD-RHA.

⁶³ Mediterranean Div Staff Mtg Min, 7 May 76, p. 3, box 17, access. no. 77-92-0001, WNRC; “Saudi Arabia Programs,” 28 Feb 78, pp. 20, 78. In Interv, John T. Greenwood with Elmer Parkin, 4 Oct 83, pp. 63–64, Parkin mentions the switch from rehabilitation to demolition of the Egyptian building.

He specified the shape of the new seven-story headquarters building and the site of the data-processing building, added parking space around certain buildings, and insisted on a larger bedroom for the chief of staff.⁶⁴

In late October 1978, design engineers presented the concept design for the underground command center with the expectation that they would complete final design in March 1979. The Corps projected awarding the construction contract for the entire complex in the late summer of 1979, allowing MODA to take occupancy by mid-1982. Despite the extensive early consultations on the design, the Saudis made changes in late 1979 that necessitated a major redesign of the headquarters. One of the changes eliminated the building for automated data processing and made room for the ADP functions in the main headquarters building by adding an extra story.⁶⁵

While HTB worked on the design, planning also went forward for the temporary office building. In January 1978, MODA authorized the Middle East Division to advertise the construction contract for the temporary office building and the mobilization camp. Lack of funds delayed the request for proposals so that the division awarded a contract only in April to Hyundai Construction Company of Korea to erect the temporary office building at a cost of \$3.5 million. In May 1980, rather than in August 1979 as planned, the division awarded the contract for construction of the new MODA headquarters complex in Riyadh. Miryung Construction Company Ltd. of Korea won the \$168 million contract for the main office building, the underground command center, the parking garage, and supporting facilities.⁶⁶

Miryung began construction in August 1980. In May 1981, the division modified Miryung's contract to include construction of the underground command center at the headquarters. Demolition of the old headquarters building and ancillary structures took place in May 1981 with an expectation that the new building would be completed early in 1984. In midsummer 1981, Al Faisal directed the division to redesign the underground command center, the executive office space, and the facade of the headquarters building, thereby interrupting construction. Severe technical problems compounded the delays and increased costs. In excavating for the foundations, Miryung found cavities and loose materials where the company

⁶⁴ Lively to Al Faisal, 7 Feb 77, sub: Approval of A/E Slate for Design of MODA HQ Complex Rehabilitation, E-7-3; Lively to Al Faisal, 11 Dec 77, sub: MODA Headquarters Complex: Architect-Engineer Site Visit and Pre-design Conference, E-7-4; MFR, Anwar Badwan, 2 Apr 78, sub: MODA HQ Briefing, E-8-6; Lively to Al Faisal, 2 May 78, sub: MODA Headquarters Complex: Resolution of Questions of Architect-Engineer, and attachment, E-8-6; Lively to Al Faisal, 30 May 78, sub: MODA Headquarters Building: Design Information, E-8-6; all in TAD-RHA.

⁶⁵ Maj Louis J. Martinez to Al Faisal, 12[?] Sep 78, E-7-4; Lively to Al Faisal, [1 Oct 78], sub: MODA HQ Complex: Survey of Existing Facilities, E-7-5; A. L. Maier to Ellis, 24 Dec 78, sub: MODA Command Center, E-7-5; all in TAD-RHA. Ellis to Morris, 19 Sep 79, p. 2.

⁶⁶ DF, Dykes, 16 Jan 78, sub: Significant Activities Report—Dec 77/Jan 78, p. 7, E-5-6, TAD-RHA; Bennett to Al Faisal, 3 Apr 78, sub: Request for Authority to Award Temporary Office Building—MODA Headquarters Complex, Riyadh, E-8-6, TAD-RHA; Albro to Morris, 21 Sep 80, p. 6.

had expected to find solid rock. To assure stable footings for the foundation, the contractor had to excavate to greater depth in these areas.⁶⁷

Additional delays occurred because the division had to comply with a recently implemented Department of the Army regulation requiring approval by the assistant secretary of the Army prior to issuing a notice to proceed for any contract changes that exceeded \$3 million. The changes involved totally gutting the executive office building completed in 1975 and physically connecting it with the new headquarters building. The costs of the redesign qualified the project for review, and the procedures slowed construction.⁶⁸

By the end of 1984, with construction over 80 percent complete, the Middle East Division had issued a total of 116 change orders for the MODA headquarters complex. Saudi requests triggered about 96 percent of the change orders and escalated the cost of construction. The original contract called for 1,260 calendar days of work for \$168 million. As of 31 December 1984, 427 days beyond the original allotment, the contract had cost \$248 million and the projections of final costs exceeded \$300 million. The division commander, Brig. Gen. James W. Ray, recommended to Al Faisal's successor as director general of military works, Lt. Col. Abdulaziz Al-Otaishan, "that no additional changes be made to the Miryung contract."⁶⁹

General Ray's advice went unheeded. In July 1985, in an effort to arrive at a "more structured way of addressing changes," the Riyadh District engineer created a Modification Review Board and invited Al-Otaishan and his staff to participate in the board's deliberations. The Saudis continued to issue change orders, and only the completion of construction ended their requests for changes. Final inspection of the new facilities took place in December 1985. On 4 May 1986, MODA finally held the dedication. The total cost of the headquarters complex, including the underground command center and renovations to the executive office building, came to \$425.6 million.⁷⁰

⁶⁷ Albro to Bratton, 12 Aug 81, pp. 2–3. Ellis, "House Foreign Affairs Subcommittee on Europe and the Middle East," 11 Mar 80, p. 5, mentions "tearing down an existing structure before erecting a new office building." Albro, "House Foreign Affairs Subcommittee on Europe and the Middle East," typescript of testimony, 22 Jul 81, p. 8, Current Files, TAD-PAO; Albro to Bratton, 22 Jul 81, p. 8, Current Files, TAD-PAO; Memo, Donahue, 11 Jul 81, sub: Record of Meeting with MWGD [Military Works General Directorate] Concerning MODA Headquarters Facade Executive Suite and UGCC [Underground Command Center], K-8-4, TAD-RHA; Albro to Al Faisal, Contract no. DACA 86-80-G00013, MODA Headquarters Excavation [Jul 81], unmarked box, TAD-RHA; Zeiler Memoirs, pp. 3–6.

⁶⁸ Intervs, John T. Greenwood with Brig Gen George R. Robertson, 22 Nov 83, pp. 44–46, and with Wayne Henry, Nov 85, pp. 14–15; DF, Oppenheim, 1 Feb 84, page marked "MODA Headquarters Complex."

⁶⁹ Brig Gen James W. Ray to Otaishan, 8 Apr 85, K-8-3, TAD-RHA. Ray exempted changes demanded to maintain structural integrity. The work is described as 85 percent completed in Fact Sheet, Middle East Div Reorg, 24 Mar 84, E-1-1, TAD-RHA.

⁷⁰ Ray to Otaishan, 8, 10, 21 Apr 85, and Otaishan to Ray, 30 Apr, 14 May 85, all in K-8-3, TAD-RHA; Col J. E. Gross to Otaishan, 20 Jul 85, sub: MODA Headquarters, K-8-3, TAD-RHA; Maj Robert A. Ross, "Annual Historical Summary Report," 1986, p. 2, OH, HQ USACE; Memo, Lt Col



Headquarters, Ministry of Defense and Aviation, Riyadh, June 1986

Officers Club in Riyadh

Concurrently with the construction of the headquarters complex, Prince Sultan sought to improve amenities for the officer corps serving in Riyadh. Discussions of a new officers club began within MODA in the mid-1960s; early in 1970, the liaison officer asked the Mediterranean Division to provide a master plan for such a facility. Brown, Daltas completed a design in March 1972. In August 1973, Prince Sultan formally requested that the U.S. ambassador “kindly instruct the U.S. Corps of Engineers to supervise the construction of the Officers’ Club in Riyadh.” In May 1974, the Saudi Arabia District awarded J. A. Jones a \$10.3 million contract due for completion in 1976.⁷¹

Daniel R. Wells, 6 Oct 89, sub: Authorization—Design and Construction of Facilities under Engineering Assistance Agreement, Ministry of Defense and Aviation (MODA) Headquarters Complex, p. 1, Current Files, TAD-RM; Bfg Outline, marked in longhand “Heiberg Briefing,” 14 Jul 86, Transition, unmarked box, TAD-RHA.

⁷¹ “Officers’ Military Club in Riyadh, Saudi Arabia: MDD Review Comments Relative to Design Prepared by MODA,” Jan 67, box 5, access. no. 77-92-0002, WNRC; Memo, DIST ENGR USAMED RIYADH to RUEADWD/CHIEF OF ENGR ENGMCD DEPT ARMY], 24 Jan 70, sub: Riyadh Officers Club Med Lb, box 6, access. no. 77-86-0008, WNRC; DF, Charles J. Arado, 9 Dec 70, sub: Concept Design, Officers’ Club Complex, Riyadh, Contract DACA 75-71-C-0001, box 8 of 357, TAD-RHA; Doc marked in longhand “MDD Data Book,” 15 Mar 74, p. 22, box 5, access. no. 77-92-0001, WNRC;

The complex included a recreation and dining facility and living facilities for Saudi Arabian military officers. It featured a 450-seat lecture hall; executive quarters; a swimming pool; athletic fields; and decorative pools, fountains, and gardens. The architectural materials, the furnishings, and the appointments of many of the club facilities had the sumptuous quality characteristic of much of the Saudi building program. Persian carpets covered floors of white Italian Carrara marble. Fabric and teak paneling decorated walls, and curtains draped the many arched glass windows. Heavy bronze grillwork on windows facing the atrium provided protection from the intense sunlight. Thirteen exterior pools and fountains were constructed of green and white Italian marble, while red marble and granite graced building interiors. Hand-painted Italian tiles decorated kitchens, baths, and toilet areas.⁷²

The facilities included light fixtures specially designed and exclusively manufactured for the project. The main reception hall had a spectacular 7,000-pound stainless steel and blown-glass chandelier fabricated in northern Italy. The fixture was shipped in pieces to the construction site, where skilled artisans from the fabricator's shop assembled and installed it. The Saudis specially commissioned two wall-size mosaics from a French ceramicist.

The arched windows and parapets on the exteriors of buildings featured native limestone, a traditional material widely used in Saudi Arabian monumental architecture. Middle Eastern masons cut the stone into individual pieces with a tolerance of plus or minus one millimeter. Modern concrete, used in a series of thin-shelled domes, complemented the traditional materials used in walls and facades. Over one hundred small domes eighteen feet in diameter created cover for spaces within the complex, and six 36-foot domes adorned special rooms. The lecture and reception halls were centered beneath domes that spanned fifty-four feet. Two inches of foamed-in-place urethane provided insulation, and application of acrylic coatings created a waterproof membrane resistant to ultraviolet light. The basic chemicals for the urethane foam were shipped to the construction site under refrigeration because the freon foaming agent would boil at the temperatures—up to 120°F—that prevailed during construction.

Construction proved more difficult than anticipated and took much longer than the initial estimate. The elaborate character of the Brown, Daltas design, which included fine detail work and design elements that were not always clear, contributed to the problems. Unskilled labor made the construction contractor's quality control difficult and time-consuming. A severe groundwater problem, the result of the prevalent use of septic systems in the area, also hindered progress.⁷³

The contractor completed the club early in 1978, but it remained vacant for several months. The J. A. Jones Company took care of the facility under a contract with the Middle East Division, while MODA grappled with the issues of its operations

Sultan bin Abd Al-Aziz to U.S. Amb, 27 Aug 73, sub: Implementation of Project, box 276 of 357, TAD-RHA. Annual Hist Sum, CY 1974, p. 1.

⁷² The descriptions in this and the next two paragraphs are taken from "The Officers' Club Complex: An Elaborate Display of the World's Designs and Technologies," *Jones Journal* (Fall 1978): 2–3.

⁷³ Zeiler Memoirs, p. 10.



Ministry of Defense and Aviation officers club, Riyadh, April 1978



and maintenance. The club officially opened on 15 December 1978; but for some time thereafter, Saudi officials used it exclusively to entertain foreign dignitaries, much to the chagrin of MODA officers. In February 1979, the club won the Honor Award for Architecture in the 1978 Chief of Engineers Design and Environmental Awards Program. By the time of its completion, the total cost for the officers club complex rose from a projected \$15.7 million to \$21 million.⁷⁴

Designing Medical Centers

The Ministry of Defense and Aviation's willingness to build facilities to modernize every aspect of the Saudi Arabian military structure seemed nearly limitless in the aftermath of the Yom Kippur War and the concomitant increase in oil revenues. In reality, some programs that the Saudi military leaders proposed did not reach fruition. One of the most ambitious programs, the development of major military medical facilities, went through several years of development before evaporating with unexpected rapidity.

In 1971, at the request of MODA, two representatives of the U.S. Army Office of the Surgeon General and one member of the Mediterranean Division staff conducted a study of the Saudi Arabian Army's medical facilities. The study formed the background for a decision in early 1974 by the Saudi Council of Ministers to approve a new 400-bed military hospital for Riyadh and the rehabilitation and enlargement of the hospital at Taif. The council's order also directed construction of an administrative building for the medical corps in Riyadh.⁷⁵

The Corps of Engineers then began discussions with American architect-engineer firms. A joint venture of Ellerbe Architects and Daniel, Mann, Johnson, and Mendenhall (DMJM) became the leading candidate. Ellerbe had designed a number of medical facilities in the United States, while DMJM had extensive international experience. In late August 1974, the Ellerbe/DMJM team delivered a presentation in Livorno on its design concepts for the medical construction program. By the following February, MODA had approved the concept and the division issued a design contract to Ellerbe/DMJM to develop a master plan for medical facilities at Riyadh and Taif. By the summer of 1975, discussions had broadened to the creation of medical centers—hospitals plus teaching and research facilities. The estimated cost was \$526 million for Riyadh and \$400 million for Taif.⁷⁶

⁷⁴ Ellis to Morris, 26 Sep 78, p. 3, and 30 Jan 79, p. 4, Walker box 6, OH, HQ USACE; "A Short History of the Corps of Engineers in Saudi Arabia," 1993, p. 20; "MED Tops in Architecture," *Mideast Engineer* (February 1979): 1–3. Estimated project cost was \$15.7 million in MDD Directive no. 71, app. A, "MODA Fund Recapitulation," 4 Feb 76, p. A4; final costs in Fact Sheet, MED Projects in Saudi Arabia, 29 Mar 85, p. 1.

⁷⁵ Mediterranean Div Staff Mtg Min, 18 Mar 71, p. 3; MFR, Blake, 28 Apr 74, sub: Meeting with Mr. Nassief, Major Barney and Mr. Peterson, p. 3; all in box 20, access. no. 77-92-0001, WNRC.

⁷⁶ Interv, Moorhus with David Dobberman, 31 Oct 96, pp. 1–3. Dobberman was technical director of the Ellerbe/DMJM team. Telex to Ellerbe, 9 Aug 74, setting the date of presentation for 26 August, provided by Dobberman, in Interv, Moorhus with Dobberman, 31 Oct 96. Visa stamps in Dobberman's

In mid-June, representatives of the Saudi Arabian Armed Forces Medical Service Department traveled to Minneapolis to discuss the program with the Ellerbe/DMJM team and, after the meeting, to tour medical facilities in the United States.⁷⁷ These visits stimulated an expanded wish list from the Saudis, and the design team put together a new array of medical facilities that substantially increased the estimated cost of the program.

The design team discovered that the Saudis had no precise scope of work in mind and no understanding of how the wish list defined the design. For instance, the Saudis wanted the facility at Riyadh to be an acute-care hospital. The experienced designers translated this into criteria for four hundred fifty to six hundred beds—the critical number needed to sustain such a hospital and to attract specialists to practice there. The Saudis also wanted the facility at Riyadh to be a teaching and research hospital with emphasis on military medicine. This new criteria also defined—and added—facilities. The Saudis' need to train nurses and paramedics to support the hospital staff again added to the requirements for the medical center. Finally, all these people had to have support facilities. By degrees, the designers came to realize that they were planning not just hospitals but small medical cities with populations of ten- to fifteen thousand people. About this time, it became evident that MODA did not have enough land available in Riyadh for the size of the medical center they wanted. Land was readily available at Al Kharj, only thirty miles southeast of Riyadh and easily accessible from the capital city. Planning for the major facility therefore shifted from Riyadh to the area around Al Kharj.⁷⁸

By September 1975, given the expanded scope of work resulting from the Saudis' visit to the United States, the Corps' project manager indicated that the current working estimate for the MODA medical centers and hospitals "could go as high as \$5 billion." In November, the division staff outlined this revised plan to the deputy minister of Defense and Aviation, Prince Turki bin Abdulaziz, Prince Sultan's younger brother. In December, three division staff members, including the chief of engineering, Gordon W. Dykes, visited the Ellerbe offices in Minneapolis to review concept sketches and data for the two hospital complexes. Division representatives worked with the Ellerbe/DMJM designers to try to reduce the scope of the project as it had been presented to Prince Turki in November, cutting the number of personnel residing at each site (by 56 percent at Taif and by 48 percent at Al Kharj).⁷⁹

Despite the trimming, the master plan for the MODA medical program included design for the two complete small cities. Al Kharj had a 600-bed hospital providing highly specialized patient care, a training and research institute to develop Saudi healthcare professionals, troop and family housing, and an urban site plan to support a population of about eight thousand five hundred. At Taif, the plan called

passport confirm the date. OCE, Major Activities, FY 1975, p. 53; Brazier, "Various Aspects of the Army's Construction Effort," 6 Jun 75, attached table of projects.

⁷⁷ Mediterranean Div Staff Mtg Min, 7 Jul 75, box 6, access. no. 77-92-0001, WNRC.

⁷⁸ Interv, Moorhus with Dobberman, 31 Oct 96, pp. 9–15.

⁷⁹ Trip Rpt, Maj James P. Fero to MDD, 16 Sep 75, sub: LNO Conference 10–11 Sept, p. 1, box 5; Mediterranean Div Staff Mtg Min, 2 Feb 76, p. 1, box 17; both in access. no. 77-92-0001, WNRC.

for a 330-bed general hospital, family housing, troop housing, a 112-room hotel, a vocational rehabilitation center, dependent schools, recreation clubs, warehousing, and community and support facilities for a population of about five thousand. The designers took their master plan to the division offices in Italy on 20 January 1976, and they returned a few months later to make a presentation at the 50 percent stage of the master plan. By the time of this review, cost estimates had risen to \$4.1 billion for the facilities at Al Kharj and \$1.5 billion for Taif.⁸⁰

The Ellerbe/DMJM design team continued working; and in December 1976 in Minneapolis, they gave a major presentation of the master plan to staff from Corps headquarters, the U.S. Military Training Mission, and the Middle East Division. The director general of military works, Captain Al Faisal, and the head of the Medical Services Department, Lt. Col. Hammeed Al Fareedi M.D., represented MODA. The meeting lasted from morning to late afternoon, with the final three hours devoted to general discussion of the plan with extensive commentary and “guidance” from Al Faisal concerning specific facilities and the priorities to follow in future work.⁸¹

Taif had superseded Al Kharj in MODA’s priorities, so Al Faisal instructed the designers to proceed immediately to final design of those facilities. In the case of Al Kharj, he asked for a construction schedule in three phases with each increment providing a fully operational medical facility. He indicated that funding might delay completion of the later phases, and he suggested “as a likely possibility” a twenty-year period for funding of the fully developed medical center at Al Kharj. He wanted the entire 600-bed hospital included in the first phase of construction. On 12 February 1977, division representatives and the Ellerbe/DMJM designers presented the completed master plan to Prince Turki in Riyadh. Turki “appeared extremely pleased with the presentation,” and division personnel were “optimistic” that the medical program would receive approval.⁸²

The February 1977 presentation was the last optimistic occasion for the military hospital program. By July, Corps personnel had heard informally that the Saudi Arabian government had “disapproved or deferred” all funding for it. The deputy division engineer informed MODA staff that slightly less than half of the \$30.22 million designated for design remained on hand and that it might be used to complete design/construction packages for the 600-bed hospital at Al Kharj and the 330-bed hospital at Taif. The Ellerbe/DMJM team, which numbered nearly one hundred people, spent the next several months putting its design work into deliverable form for the closeout of the contract. In January 1978, the Middle East Division’s

⁸⁰ “Saudi Arabia Programs,” 28 Feb 78, pp. 88–91 (including photographs of the design models); Mediterranean Div Staff Mtg Min, 22 Mar 76, p. 2, box 17, access. no. 77-92-0001, WNRC; Dobberman’s passport stamps and calendar-diary entries; “Status of Corps Projects in Saudi Arabia,” 1 May 76, p. 7, box 1, access. no. 77-92-0001, WNRC.

⁸¹ MFR, T. Rex Kell, 2 Dec 76, sub: MODA Medical Center and Taif General Hospital, Saudi Arabia, box 18, E-7-2, TAD-RHA; Wells to Morris, 12 Dec 76, p. 7, box 3, access. no. 77-92-0001, WNRC.

⁸² MFR, Kell, 2 Dec 76; quotations and report in Telex, Kramer, n.d., sub: Master Planning Presentations of MODA Hospitals and Admin [*sic*] School, box 18, E-7-2, TAD-RHA; Wells to Morris, 16 Mar 77.

hospital section reported that the lack of directions and inadequate design funds had “brought all A–E selection and design effort on MODA Medical Center and Taif General Hospital to a halt.”⁸³

The MODA medical program never went any further. Between 1974 and 1976, it grew to a multibillion-dollar undertaking, just as the Corps of Engineers, in anticipation of multiple programs worth billions of dollars, reorganized its overseas operations in the region to locate a division headquarters in Saudi Arabia. When it became clear in 1978 that the medical program would fail to fulfill earlier expectations, the division still had abundant work to keep its staff occupied. When, in a similar manner, other programs failed in 1980–1981 to live up to multibillion-dollar projections for them, the decline in future work forced a reassessment of the Corps’ overseas operations.

⁸³ Bennett to Al Faisal, 23 Jul 77, sub: MODA Hospital Program, Al Kharj & Taif, box 18, E-7-2, TAD-RHA; DF, Dykes, 16 Jan 78, p. 2; Interv, Moorhus with Dobberman, 31 Oct 96, p. 21.

11

MODERNIZATION OF THE SAUDI ARABIAN NAVY AND NATIONAL GUARD

In supervising the programs described in the previous chapter—the Khamis Mushayt and Tabuk cantonments, Peace Hawk and Peace Sun, and headquarters facilities—the Corps of Engineers worked in cooperation with the Saudi Arabian Ministry of Defense and Aviation (MODA) through its engineering management service, the General Directorate of Military Works (GDMW). For two other major programs, the Corps took its instructions directly from the military services that commissioned the work: the Royal Saudi Naval Forces (RSNF) and the Saudi Arabian National Guard (SANG). Although the Corps acted as if the terms of the Engineer Assistance Agreement (EAA) of 15 June 1965 governed these programs, they were quite different because funding and authorization came directly from the services through several separate Foreign Military Sales (FMS) cases.

Saudi Naval Expansion Program

Like the MODA medical program, the RSNF modernization offered the prospect of a series of major design and construction projects totaling several billions of dollars. The Saudi Navy was even smaller than the Air Force, with only about one thousand men and a dozen vessels in the early 1970s. Despite the size of the Saudi Navy, the Saudi Naval Expansion Program (SNEP) developed into the second largest construction program the Corps managed in Saudi Arabia, even though the expenditures fell far short of the levels of spending imagined for it in the mid-1970s.

The naval expansion program formally began in January 1972, when Saudi Arabia and the United States signed a general memorandum of understanding establishing the concepts that guided the development of effective naval operations to protect Saudi Arabia's coastlines.¹ In May, the U.S. secretary of defense designated the U.S. Department of the Navy as the SNEP program manager. The

¹ "Naval Supply Systems Command Involvement in the Saudi Naval Expansion Program (SNEP) Shore Facilities Supply Support Program, January 1972–September 1983," 20 Dec 83, unmarked box, Transatlantic Division–Records Holding Area (TAD-RHA); Anthony H. Cordesman, *The Gulf and the Search for Strategic Stability: Saudi Arabia, the Military Balance in the Gulf, and Trends in the Arab-Israeli Military Balance* (Boulder, Colo.: Westview Press, 1984), pp. 173–78, including table, pp. 176–77.

Navy would advise the Saudis concerning weaponry and equipment, while the Corps of Engineers would provide construction management and other procurement support and would design and build new deepwater ports on the Arabian Gulf at Jubayl and on the Red Sea at Jiddah. These ports would include facilities for ship docking, drydocking and repair, fuel storage, and maintenance, as well as training, living, and recreation for naval personnel. The construction program also included a headquarters complex for the Saudi Navy in Riyadh.² The Corps was to provide fully equipped and operable facilities, including stocks, equipment, spare parts, furniture, fixtures, and operational equipment.³

Although the Royal Saudi Naval Forces were subordinate to the Ministry of Defense and Aviation, during the 1970s the Saudi Arabian government provided funding directly to the RSNF. Payments for the Saudi Naval Expansion Program came through the FMS program.⁴

Initiating the Program

The Corps began work on SNEP in September 1972 through the Mediterranean Division in Italy and the Saudi Arabia District in Riyadh. For the next two years, a joint study team from the U.S. Navy and the RSNF designed a modernization plan through which the navy would acquire a score of American vessels—ranging from guided-missile patrol boats to coastal minesweepers and smaller craft—and the ordnance to make them an effective military force for coastal defense. In the same period, the division worked with Parsons, Basil Inc. of Athens, Greece, to prepare a master plan for the first phase of the SNEP construction program. In November 1973, RSNF leaders approved the master plan the designers had prepared.⁵

In April 1974, after delays caused by the Yom Kippur War of the previous October, the American and Saudi governments signed a detailed protocol that specified training of key Saudi personnel, design and construction of two major naval bases at Jubayl and Jiddah, creation of a naval academy, and expansion of smaller facilities. The protocol also called upon the Corps of Engineers to build and equip an RSNF headquarters in Riyadh. Early estimates set the cost for the

² Mediterranean Div, "Data Book," 15 Oct 72, p. 22, box 51-84-9384, Richard T. Farrell Papers, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.

³ "Naval Supply Systems Command Involvement," 20 Dec 83.

⁴ MOU, Gov'ts of United States and Saudi Arabia, 18 Jan 72, sub: Technical and Advisory Assistance to be Furnished by the United States Government in Connection with the Saudi Arabian Naval Expansion Program, unmarked box, TAD-RHA.

⁵ U.S. Congress, House, *Activities of the United States Army Corps of Engineers in Saudi Arabia. Hearings Before the Subcommittee on Europe and the Middle East (Lee H. Hamilton [Indiana], Chairman), of the Committee on Foreign Relations*, 96th Cong., 1st sess., 1979, p. 63 (hereafter cited as Hamilton Comm Hearings); Memo, Drennon, 21 Feb 73, sub: Trip Report, SNEP (Athens, Greece) and Qaysumah Design (Saudi Arabia), 28 January–14 February 1973, p. 1, Walker box 8, OH, USACE; "Annual Historical Summary Report, CY 74," [31 Dec 74], p. A2, box 15, access. no. 77-92-0001, WNRC (hereafter cited as Annual Hist Sum, CY 1974).

two ports and the headquarters complex at approximately \$350 million over three to four years.⁶

The scope of the construction expanded rapidly and dramatically; the Saudi naval command directed the Corps to initiate designs that would extend construction through the 1980s. By October 1974, only thirteen months after receiving approval of the initial master plan, the Corps estimated SNEP construction costs at \$1 billion. Changes in scope, inflation of 25–30 percent, and the intense competition for resources engendered by the construction boom in Saudi Arabia accounted for the increased costs. Costs continued to escalate; by the time the construction program had run its course, in the mid-1980s, SNEP had absorbed \$3.7 billion.⁷

Ports at Jiddah and Jubayl

In February and March 1974, the Mediterranean Division awarded the design contracts for ports at Jiddah, to be called King Faisal Naval Base, and at Jubayl, the King Abdulaziz Naval Base. Each naval base was essentially a small city with the appropriate family housing, schools, shopping, and recreational facilities in addition to the training, maintenance, and support facilities for the naval personnel and vessels stationed there. The design contract for the off-shore facilities at both sites was \$1.5 million and for the on-shore facilities \$4.7 million. Most of the design work went to the same firm that had prepared the master plan—Parsons, Basil. With few exceptions, the two naval bases had similar capabilities and similar construction plans. In general, the designs were created for Jubayl and then site adapted for Jiddah.⁸

The first construction contracts for the ports, awarded between March and April 1974, involved preparation of the sites. The division awarded a \$2.6 million contract for cleanup and fencing at Jiddah to a Saudi firm, Al Hamidi Contractors of Riyadh, and a \$7.1 million contract for the landfill at the same site to another Saudi firm, Al Turki of Al Khobar. Al Hamidi completed its work at Jiddah in March 1975, and Al Turki finished in December 1976. At Jubayl, Khodari-Intergreen, a Saudi-American joint venture, won contracts for fencing and landfill in April 1975. The company

⁶ Office of the Chief of Engineers (OCE), “Annual Report of Major Activities, 1 Jul. 1972–30 Jun. 1973,” p. 49, box 7a, Gen Files, OH, HQ USACE (hereafter cited as OCE, Major Activities, FY 1973); Cordesman, *The Gulf and the Search for Strategic Stability*, pp. 173–75.

⁷ Memo, Dykes to Lt Cdr Rashad A. Abu Al-Samh, 28 Oct 74, sub: Saudi Naval Expansion Program Status Report, p. 1, box 5; Williams to Gribble, 16 Dec 74, box 26; both in access. no. 77-92-0001, Washington National Records Center (WNRC), Suitland, Md. Interv, Moorhus with Ben Wood, 27 Jun 96, pp. 12–13.

⁸ OCE, “Annual Report of Major Activities, FY 74,” pp. 62–63, copy in R&D File 2270, Transatlantic Programs Center (TAC), Winchester, Va. (hereafter cited as OCE, Major Activities, FY 1974). Annual Hist Sum, CY 1974, p. A2; “Saudi Arabian Programs,” [1981], p. 8, box SH-6-93-0006, TAD-RHA; Memoirs by George Zeiler [1980], p. 8, unmarked box, TAD-RHA (hereafter cited as Zeiler Memoirs); Interv, Moorhus with Wood, 27 Jun 96, p. 46.



Placing a beam for the wharf at Jiddah, December 1977

completed its work before the end of February 1976, ten months before similar work ended at Jiddah.⁹

The area selected for development at Jiddah had long been the municipal garbage dump. Approachable in 1974 only by a narrow road, the site lay south of the city across a stretch of tidal flats and just beyond an ancient slaughterhouse that, although still active, had declined over the years. The Saudi Arabia District chief of construction, John Blake, visited the site with George Zeiler prior to the cleanup. The experience left an indelible imprint on Blake's memory and imagination:

About three-fourths of the buildings associated with the slaughterhouse were in some sort of decay, falling in. . . Everything about it looked rotten. Once you pass the slaughterhouse you are in the dump. They kept the dump burning all the time. . . And there were kind of windrows where the trucks would pull up and dump, and of course the new stuff was burning in the background.

At the slaughterhouse, when they butchered the meat, they just threw the waste over the wall. They kept the meat and the hides, but whatever the offal was, they threw it over the wall. What this had done was generate a pack of dogs that probably

⁹ Zeiler Memoirs, p. 7; Annual Hist Sum, CY 1974, pp. A1–A3; List, “Construction Placement, Riyadh District, Red Sea Area Office,” in Bfg for OCE Inspection Team, 1 Oct 83, unmarked box, TAD-RHA; “King Abdulaziz Naval Base” [Bfg], 16 May 79, box 3, K-8-4, TAD-RHA.



Cutterhead dredge at Jiddah, February 1978

numbered a hundred or more. Try to get the mental image here. The first time I drove up there, driving over this narrow road to these tidal flats, the tide was out, these dogs had these pieces of flesh, and they had gathered and were laying around, bellies in the cool sand. Of course, they are looking at you over their eyebrows, and in the background are these square miles of burning refuse. And try to imagine the stench. The slaughterhouse has been there for centuries. I told Zeiler, “I guess that is as close to my Judeo-Christian image of hell as hopefully I will ever see.”¹⁰

Cleaning up the Jiddah site enough to permit construction cost about two-and-a half times the \$10 million spent for site preparation at Jubayl.¹¹

In July 1975, construction passed to the next phase when the Korean firm Sam Whan Corporation won a \$22.2 million contract to build the workers camp at Jiddah. In October, a similar contract at Jubayl—for \$45.2 million—went to another Korean firm, Miryung Construction Company Ltd. About the same time, the division awarded a construction contract for the off-shore facilities at Jiddah to a Greek firm, the J. S. Latsis Group, and a similar contract for Jubayl to Hyundai Construction Company Ltd. The award of three early contracts under SNEP to South Korean firms—Sam Whan, Miryung, and Hyundai—marked the beginning

¹⁰ Interv, Paul K. Walker and William C. Baldwin with John Blake, 24 Jun 88, pp. 199–201.

¹¹ Zeiler Memoirs, p. 7.

of the long-term affiliation of mammoth Korean construction companies with Saudi Arabian projects.¹²

Parsons, Basil Inc. completed the designs for on-shore facilities at both sites in early 1976. The designs thus became available for review just as the Corps reorganized its operations, establishing the Middle East Division in Riyadh and moving the engineering and design staff from Italy to Virginia. Because of the transition, the division did not have sufficient personnel available for design review. To compensate, the chief of engineering, Wayne Dykes, received permission to recruit temporary-duty personnel from Corps districts around the United States. The reviewers settled into a hotel just outside Athens to work with the designs produced by Parsons, Basil.¹³

In October 1976, Hyundai, which already held the contract for off-shore construction at Jubayl, won what was at the time the largest construction award ever made by the Corps: a \$361 million contract for the on-shore facilities at Jubayl. At that point, money became a serious concern for the Saudi Naval Expansion Program. In March 1976, the Corps had estimated the total cost for planning, design, and construction at \$1.2 billion. To match the limited funds that RSNF had available, the Middle East Division repackaged the on-shore facilities at Jiddah into two phases. In the summer of 1977, the Miryung Construction Company won a \$137 million contract for Phase I construction. It took another year and a half before Miryung received the contract for construction of the second phase of Jiddah's on-shore facilities.¹⁴

Between the summer of 1976 and the following spring, the division conducted a thorough review of the escalating costs of the program. The move from Italy to Virginia had broken up the SNEP project team, so the division put together a new team consisting of Ken Griggs, Marion Davidson, Charles Taylor, and Ben Wood. Wood, hired by the Corps in the summer of 1976, had five years' experience as an engineer and project manager with the U.S. Navy, a background that he found valuable in working with the Saudis and in dealing with the contractors. The new Corps team worked with personnel from Parsons, Basil to identify the factors in the increasing costs. By the end of 1976, SNEP project costs reached approximately \$2 billion, although the approved program authority was only \$1.307 billion. Cost

¹² "Construction Placement, Riyadh District," 1 Oct 83; "King Abdulaziz Naval Base," 16 May 79, table: "Contract Summary—Eastern Area Office," E-1-1, TAD-RHA; Mediterranean Div, "Data Book," 1 May 76, p. 22, box 1, access. no. 77-92-0001, WNRC; Interv, Moorhus with Phil Dinello, 19 Sep 96, p. 6.

¹³ Mediterranean Div, "Data Book," 1 May 76, p. 22; Interv, Moorhus with Gordon W. Dykes, 24 Oct 95, pp. 25–26.

¹⁴ Wells to Morris, 28 Sep 76, p. 2, unmarked box, TAD-RHA; "King Abdulaziz Naval Base," 16 May 79, Table "Contract Summary—Eastern Area Office," E-1-1, TAD-RHA; Mediterranean Div, "Data Book," 1 May 76, p. 22; Memo, Col G. W. Page, 23 Nov 76, sub: Summary of Division (Rear) Staff Meeting, unmarked box, OH, HQ USACE; Col George W. Page, "Mediterranean Division [*sic*] Command Briefing," 21 Jun 77, p. 17, unmarked box, TAD-RHA; "Construction Placement, Riyadh District," 1 Oct 83.

increases worth \$240 million were directly attributable to new work added by the Royal Saudi Naval Forces.¹⁵

Early in 1977, division representatives traveled from Virginia and Riyadh to Dammam to detail the increased costs for the RSNF commander, Capt. Ibrahim Al Saja; his deputy, Col. Othman Al Khweet; and other leaders of the Saudi Navy. After extensive questioning of the team, Al Saja and his staff accepted the explanations concerning the costs of their program and why these had risen so dramatically; they then requested and received a \$2.12 billion appropriation from the Saudi Arabian government.¹⁶

The construction contracts for off-shore facilities at both Jiddah and Jubayl called for ship-repair facilities featuring the Syncrolift system. Early in the program (June 1974), the Mediterranean Division contracted with Pearlson Engineering Company of Miami, Florida, to provide both ports with Syncrolift at a cost of \$3.4 million. The Syncrolift system featured two closely spaced piers between which a ship would float over a lifting mechanism that operated on synchronous electric motors. The motors lifted the ship out of the water on a carrier resembling a railroad car, and the ship was then pulled into a dry slip for maintenance and repair. Each port received a ship-repair facility with four slips, thus allowing several ships, depending on the length of each, to receive attention simultaneously.¹⁷

Although the construction plans for the two ports were similar, as construction progressed, the work at Jiddah fell behind schedule. Site cleanup, which involved razing the old slaughterhouse and filling in the dump, took longer than planned. The Jiddah harbor was not as deep as the master plan anticipated, so more dredging was necessary, which also led to delays and increased costs. Dredging was further slowed by a grounded freighter.¹⁸ Finally, at the Jiddah site, three different contractors from three different nations competed for space, one building off-shore facilities and two others working on shore. At Jubayl, one contractor, Hyundai, handled both off- and on-shore construction, making coordination easier.

The local government also hindered progress at Jiddah. The access roads to the Jiddah site were severely inadequate. In the late spring of 1978, the Saudi Navy persuaded the local authorities to provide emergency funding to build temporary roads. Other problems with municipal officials involved inadequate telephone lines,

¹⁵ Interv, Moorhus with Wood, 27 Jun 96, pp. 1–6, 13–20; Ltr, Wells to Morris, 16 Mar 77, pp. 2–3, box 3, access. no. 77-92-0001, WNRC.

¹⁶ Ltr, Wells to Morris, 16 Mar 77, pp. 2–3; Interv, Moorhus with Wood, 27 Jun 96, pp. 13–19. Wood recalls that the briefings took place in Dhahran (p. 15), but Wells' letter indicates Dammam. Wood also mentions an additional "joint Saudi Navy-Corps briefing" for Prince Turki in Jubayl (p. 3). Wells to Morris, 21 Jan 78, p. 2, A-9-9, TAD-RHA.

¹⁷ OCE, Major Activities, FY 1974, pp. 62–63; Annual Hist Sum, CY 1974, p. A2; Charles N. Dunnam, Min of Mtg with Royal Saudi Naval Force, 10 Feb 75, pp. 1–2, access. no. 77-92-0001, box 5, WNRC; Interv, Moorhus with James Edinger, 9 Mar 95, p. 3.

¹⁸ Memo, B. F. Jordan, 30 Nov 76, sub: Deepening of SNEP Harbors, p. 6, E-7-6, TAD-RHA; Interv, Moorhus with Wood, 27 Jun 96, pp. 41–42; Memo, Earl Kramer, 7 May 78, sub: Interference from Off-site Landfill, p. 1, unmarked box, TAD-RHA; Wells to Al Saja, 21 Dec 77, sub: Removal of the Freighter M/V Arolos, unmarked box, TAD-RHA.



This page and right, Syncrolift in operation: When a ship is in position, the Syncrolift motors raise the platform, pulling the ship out of the water, where repairs can be made.





lack of electrical power, and a nearby landfill that threatened to cause flooding at the construction site. The RSNF was not always able to act as a successful liaison between the Corps and its contractors and Jiddah authorities. An encampment of Bedouins living on the grounds of the naval base in early 1978 further delayed construction. The Saudi Navy had to seek MODA's help to move the Bedouins from the site.¹⁹

At Jubayl, foundation work for the on-shore facilities began early in 1977; but not everything proceeded smoothly. In March, just as work on the on-shore facilities began, Hyundai workers rioted because of poor living conditions and harsh treatment by their supervisors. The rioting workers destroyed structures, beat several people, and burned vehicles. Although the incidents took place after dark, Col. George Gray, commander of the Saudi Arabia District, decided to fly to Jubayl immediately. Before leaving Riyadh, Gray instructed the area engineer to clear the runway of the debris left by rioters and to burn oil in barrels to light the strip for the night landing. He then boarded one of the Corps planes and sent a second Corps plane to Jiddah to pick up the Korean ambassador to Saudi Arabia and fly him to Jubayl. When Gray landed, Captain Al Saja had already arrived from Dhahran with a small contingent of Saudi troops.²⁰

¹⁹ MFR, Joseph Wu, 5 Jun 78, sub: Meeting with Lt. J. B. Abdulaziz Al Namla, 4 June 1978; Memo, Col Phillip D. Engle, 25 Jan 78, sub: Bedouins Living on the King Faisal Naval Base (KFNB), Jiddah, pp. 1–2, unmarked box; both in TAD-RHA.

²⁰ The account is drawn from Intervs, Thomas Tulenko with Col George Gray, 12 Jun–5 Jul 85, pp. 367–81; Moorhus with Wood, 27 Jun 96, pp. 43–44; Walker with Meehan, 6 Feb 85, pp. 73–74.

Rumors circulated that “armed Koreans” had commandeered “30 Euclid dump trucks” to link up with other rioters. Al Saja deployed his troops and local police. The Saudi force successfully cut off the rioters who arrived a few hundred strong—not the rumored thousands—in fewer than a dozen trucks. Isolated, and having spent their anger in their initial rampage in the mobilization camp and a nearby quarry, the rioters calmed down. There was no repetition of the rioting when Gray and Al Saja toured the streets in a jeep convoy. The Saudis asked the Korean ambassador and Hyundai executives to address the issues that had provoked the rioters. The Korean government then appointed to the ambassador a number of construction aides who functioned as overseers and inspectors of conditions and treatment of the workers. Over the next several months, the facilities at workers camps were cleaned up and expanded. Despite the disturbance, Hyundai managed to maintain work on both on- and off-shore facilities ahead of schedule.²¹

At Jiddah, construction proceeded in 1977 without incident. In the summer, with the mobilization camp completed, Miryung began construction of Phase I on-shore facilities. In December, Miryung won a \$47.1 million contract to build housing and community facilities for operations and maintenance (O&M) workers.²²

Over the summer of 1977, Al Saja visited the division offices in Virginia to discuss schools at the naval bases and to select furniture and furnishings for the new facilities. In fiscal year 1978, the Corps awarded contracts for construction of schools for both boys and girls of the Saudi families stationed at Jubayl and Jiddah and contracts for housing for the O&M staff at Jiddah. In mid-January 1978, the division awarded a second contract, valued at \$167.7 million, for the on-shore facilities at Jiddah to a Taiwanese firm, Ret-Ser Engineering Agency.²³

In the spring of 1978, after discussions with the U.S. Navy and the Corps of Engineers, Al Saja expanded the scope of work for SNEP. In a letter to the U.S. ambassador, he conveyed a number of “new scope items that he wished included in the Saudi Naval Expansion Program.” The list included 4 items for Riyadh, 21 for Jubayl, and 16 for Jiddah. The projects encompassed a “SNEP Film,” a computer center for each of the three sites, additions and revisions to the VIP complex, construction of ladies lounges at both Jiddah and Jubayl, a stadium and a Harpoon-missile repair workshop at Jubayl, and O&M contractors for each site. Al Saja acknowledged that the new work added another \$272.5 million to the cost of SNEP.²⁴

Wells to Morris, 16 Mar 77, p. 8.

²¹ Interv, Tulenko with Gray, 12 Jun–5 Jul 85, pp. 375–81; Wells to Morris, 21 Jan 78, p. 4; “King Abdulaziz Naval Base,” 16 May 79, p. 1.

²² Wells to Morris, 21 Jan 78, p. 4; “Construction Placement, Riyadh District,” 1 Oct 83.

²³ Wells to Prince Sultan, 1 Jun 77, E-7-6, TAD-RHA; Mediterranean Div, “Data Book,” 1 May 76, p. 22; Wells to Morris, 21 Jan 78, p. 4; “Project Manager [PM] Assignment—Riyadh Dist, Active Projects,” 15 Jul 81, unmarked box, TAD-RHA (hereafter cited as PM Assignment—Riyadh Dist); Wells to Morris, 20 May 78, p. 2, A-9-9, TAD-RHA.

²⁴ Al Saja to Hon John C. West, n.d., attached to Wells to West, 24 Apr 78, box 8, E-7-4, TAD-RHA; Wells to Morris, 20 May 78, p. 5.

In FY 1979, the Middle East Division awarded a series of construction contracts at Jiddah. The first was a \$12.2 million award on 3 May to Miryung for Phase II community facilities for O&M workers to include a community center, pools, tennis courts, and parking areas. On 12 July, the Corps also awarded Miryung a \$6.9 million contract for a prayer shelter, a bowling facility, and a ladies lounge. At Jubayl, the division contracted for a range of facilities including a hospital, airstrip improvements, a desalinization plant, and landscaping.²⁵

By the spring of 1979, all of the construction activity began to produce visible results. In May, the Middle East Division commander, Brig. Gen. James N. Ellis, described the naval base at Jubayl as “taking shape.” Hyundai had completed the off-shore facilities and approached completion of the first phase of the on-shore facilities. Delays in connecting with the commercial power company made it impossible to test utilities such as the chiller plant and electrical switching gear, but they were ready. The U.S. Navy had awarded a contract for operations and maintenance of the base to Hughes, Bendix, Holmes, and Narver (HBH). Hyundai prepared to turn over its mobilization and workers camps to the HBH personnel, even though the company had work to complete on Phase II of the on-shore construction.²⁶

The first U.S. naval vessel, the USS *Elmer Montgomery*, berthed at the King Abdulaziz Naval Base at Jubayl in July 1979. RSNF ships arrived at Jiddah for the first time in September, when four RSNF minesweepers and a U.S. Navy escort ship stopped there en route on their 63-day voyage from Virginia to Jubayl. Offshore facilities were incomplete; but, as Ellis reported the event, the channel configuration and the other piers “proved outstanding.” In December, the Corps’ Red Sea Area Office awarded contracts for ornamental planting and for a cable television system at the Jiddah base. Over the winter of 1979–1980, contractors completed work on the rest of the on-shore facilities, community-support facilities, an airstrip, and a patrol road. Between May and October 1980, Hyundai finished work at Jubayl on community-support facilities, warehouse space, and a building for the ship-repair facility. When King Khalid officially dedicated the base in late November, work was not yet complete.²⁷

Although work advanced satisfactorily, the construction at the naval bases included a major misunderstanding indicative of the issues that troubled the relationship between the Corps and the Saudis. The conflict occurred over the seating capacity of the mess hall at Jubayl. When division personnel explained the designs to Al Saja, they described the mess hall at King Abdulaziz Naval Base as capable of serving one thousand seven hundred people. In considering the ceremony at which King Khalid would dedicate the base, Al Saja anticipated using the hall for a royal

²⁵ Dykes, Significant Activities Rpt–Dec 77/Jan 78, 16 Jan 78, p. 5, E-5-6, TAD-RHA; PM Assignment—Riyadh Dist, 15 Jul 81; “King Abdulaziz Naval Base,” 16 May 79, p. 1; “Construction Placement, Riyadh District,” 1 Oct 83.

²⁶ Ellis to Morris, 22 May 79, p. 5, Walker box 6, OH, HQ USACE.

²⁷ “U.S. Naval Vessel Berths at Jubail,” *Mt. Weather Bulletin*, July 1979; Ellis to Morris, 19 Sep 79, p. 4, and 11 Jan 80, p. 5, both in Walker box 6, OH, HQ USACE; PM Assignment—Riyadh Dist, 15 Jul 81.



Pier piles at King Abdulaziz Naval Base, Jubayl, June 1978

banquet. As the mess hall neared completion, RSNF officials could see that it had less than half the seating capacity they had expected. Faced with the embarrassment of having to reduce the scale of the dedication banquet, Al Saja wrote a scathing letter to Ellis expressing anger at having been misled. Either the Corps had a serious problem with its architect-engineer firms, he wrote, or it had failed to provide him with correct information.²⁸

The acting division engineer, Col. James B. Hall, replied to Al Saja in a letter asserting that the information provided by the Corps had been accurate but that the Saudis had failed to understand it. The Corps had described not a seating capacity but a “serving capacity of 1700.” “The mess hall can serve 1700 enlisted personnel over an operating time of less than one hour and 15 minutes, if the mess hall operator can serve at a rate of 30 personnel per minute and the EM personnel can complete their meals on the average of 15 minutes.” Hall quoted for Al Saja the exact information that the division had provided in explaining the design: “Enlisted Men—2 Serving Lines with 320 seats. Students—1 Serving Line with 160 Seats.”²⁹ The arithmetic of Hall’s explanation is not self-evident, and the assumptions concerning the tempo of the serving lines and the meals are certainly American, not Saudi.

At Jiddah, construction advanced less quickly than at Jubayl, delayed in part by the transition from the Mediterranean Division to the Middle East Division

²⁸ Al Saja to Ellis, 30 Jul 79, sub: KANB Mess Hall Capacity, unmarked box, TAD-RHA.

²⁹ Hall to Al Saja, 14 Aug 79, sub: Mess Hall at KANB, Jubail, p. 1, Encl, p. B-94, E-7-6, TAD-RHA.

throughout 1976 and in part by the slow cleanup of the slaughter facilities and landscape that John Blake so vividly described. In late 1979, activity on the contract for Phase I of the on-shore facilities, begun a year earlier, slowed because Miryung had an insufficient number of laborers and because of delays in receiving government- and contractor-furnished equipment. In January 1980, when not all the housing under construction was ready for occupancy, personnel from the Royal Saudi Navy and from the contractors providing operations and maintenance—Hughes, Bendix, Holmes, and Narver—began jointly to use the available housing.³⁰

Because of the foreseeable end to the work in the western area at the King Faisal Naval Base and other installations, such as Khamis Mushayt and Tabuk, the division began planning in early 1980 to draw down the Jiddah District and to place the staff in other positions. The district closed 1 April 1980; the Riyadh District assumed responsibility for the mission, personnel, equipment, and facilities. In September 1980, the contractor completed the off-shore facilities at Jiddah; the Corps anticipated the turnover of on-shore facilities the following month.³¹

By the end of 1980, the naval bases at Jubayl and Jiddah each consisted of three main groups of completed facilities: off-shore harbor and ship facilities, on-shore facilities to support the naval mission directly, and facilities to support the RSNF personnel.³²

Headquarters of the Royal Saudi Naval Forces

Over the same years that the two naval bases took shape, the Corps supervised the design and construction in Riyadh of a headquarters complex for the RSNF. Early estimates put the cost of the headquarters complex at \$27 million. In the spring of 1976, using Parsons, Basil designs, the Mediterranean Division advertised a request for proposals; in June, the division awarded a construction contract to a German company, Weimar and Trachte. In mid-March 1977, the preliminary site work for headquarters began. The project managed to stay on schedule despite a strike by U.S. dockworkers in late 1977–1978. Weimar and Trachte completed work on the RSNF headquarters on 11 March 1980, a few months before the completion of the facilities at Jiddah and Jubayl.³³

By early 1980, the approved amount of construction for the headquarters complex had risen to \$94.98 million. Saudi base commanders and project officers had requested numerous changes in scope and design as well as numerous additional

³⁰ Ellis to Morris, 11 Jan 80, p. 5.

³¹ *Ibid.*, p. 4; Permanent Orders no. 4–1, 13 Mar 80, Gen Files 54-2, OH, HQ USACE; Albro to Morris, 21 Sep 80, p. 4, box 1, access. no. 77-92-0001, WNRC.

³² Fact Sheet, Saudi Naval Expansion Program (SNEP) Jubail, Jiddah, Riyadh, Dammam, Saudi Arabia, 31 Dec 80, p. 1, unmarked box, TAD-RHA.

³³ Wells to Morris, 16 Mar 77; Mediterranean Div Staff Mtg Min, 28 Apr 76, p. 3, box 17, access. no. 77-92-0001, WNRC; Mediterranean Div, “Data Book,” 1 May 76, listing “Under RFP for Construction,” p. 8; Page, “Mediterranean Division [*sic*] Command Briefing,” 21 Jun 77, p. 12; PM Assignment—Riyadh Dist, 15 Jul 81; Wells to Morris, 21 Jan 78, p. 4; Ellis to Morris, 24 May 80, p. 5, unmarked box, OH, HQ USACE.

services without authorization from the RSNF command. As a result, Captain Al Saja issued instructions that contractors should follow the specifications of the contract only unless a change had his explicit approval. The Middle East Division commander, General Ellis, issued his own instructions to clarify guidelines for determining whether a change was minor or major and to ensure in the latter case that it had RSNF command approval.³⁴

In addition to the construction costs, SNEP spent a great deal of money acquiring furnishings for the facilities. The memorandum of 1972 called for the Corps of Engineers to provide the RSNF with “fully furnished and operable facilities.” In addition to equipment such as the Syncrolifts, that included offices and living quarters. The Saudis interpreted fully operational to mean ready to use, “down to the paper clips in the drawers.” Procurement even extended to fish for the aquariums at the naval bases.³⁵

Government-furnished property and equipment came to comprise a significant dimension of the Saudi Naval Expansion Program.³⁶ Some of the spending went to purchase fine china and silver, a practice that engendered public derision in the United States in a March 1980 article in the *Washington Post*. Headlined “His Majesty’s Silver Service, The Royal Saudi Arabian Navy’s \$4.5 Million Dinnerware Deal,” the article dwelt on the extravagance of Saudi spending on Steuben glass, Limoges china, Christoffle silver, and Baccarat crystal—“the stemware Czar Nicholas II of Russia used to drink from, then smash.” With American hostages in the hands of radical Muslim revolutionaries in Iran, the reference to the czar whose ineptitude had ushered in the Russian Revolution of 1917 was particularly pointed. In disdainful tones, the article set out a series of comparisons. The Ceralene-Raynaud custom-made china bought for the king’s use at \$530 per three-piece place setting contrasted with “the china used by the U.S. chief of naval operations . . . called ‘GSA-issue, standard hotel/motel grade’” available at \$20.03 per six-piece place setting. Each four-piece place setting of Reed & Barton silverware for senior Saudi officers cost \$911, while the commercial-grade silver plate used for the U.S. Navy’s top brass cost \$8.66 for a seven-piece place setting.³⁷

The Saudi Navy, of course, was doing nothing markedly different from the other Saudi services in furnishing its VIP quarters and officers homes. Many of the luxurious furnishings that the Navy bought were destined for celebratory occasions, such as the king’s dedication of the naval bases or a visit by Queen Elizabeth II of Great Britain. There is also no doubt that the level of luxury that the Saudis provided for their military was far beyond that the United States provided to American service personnel. Because the Saudi Navy was so small, the spending per sailor came under

³⁴ Bfg for Lt Gen Morris, 20 Jan 80, p. 15, E-6-4; Memo for Div Engr, 26 Feb 78, sub: Meeting with RSNF, box 17 of 20, K-8-5; Decision Memo, Ellis, 28 Aug 78, pp. 1, 2–4, E-7-6; all in TAD-RHA.

³⁵ Quotation from Interv, Moorhus with Wood, 27 Jun 96, p. 29; Carlson to Wible and Griggs, 18 Jul 79, E-7-6, TAD-RHA.

³⁶ Wells to Prince Sultan, 24 Sep 77, E-7-6, TAD-RHA.

³⁷ Elisabeth Bumiller, “His Majesty’s Silver Service, The Royal Saudi Arabian Navy’s \$4.5 Million Dinnerware Deal,” *Washington Post*, 4 March 1980.



Residence for the commander of the Royal Saudi Naval Forces, ca. 1980

heavy criticism in hearings before the House of Representatives, even though no U.S. funds were being spent.³⁸

Naval Program Constrained

Cost increases characterized all of the Saudi programs, but they particularly troubled the long-range development of the Saudi Navy. In 1980, the RSNF still had only one thousand five hundred servicemen. This small service had a construction program exceeding \$2 billion and projects worth another several hundred million dollars in various stages of design. A program of that size demanded a cadre of managers capable of overseeing it, but the Saudi Navy never created its own effective staff structure, such as MODA's General Directorate of Military Works, for managing its multibillion-dollar expansion.³⁹

One setback to the development of the bureaucracy necessary to support the RSNF came in the spring of 1978, when one of Al Saja's most effective staff officers, Colonel Al Khweet, died in an automobile accident in Italy. A Saudi engineer with an Italian wife, Al Khweet was fluent in English, which Al Saja did not command, and was comfortable in technical discussions with the American engineers and

³⁸ Interv, Moorhus with Wood, 27 Jun 96, pp. 57–62; Hamilton Comm Hearings, pp. 27–30.

³⁹ Interv, Moorhus with Wood, 27 Jun 96, p. 73; Cordesman, *The Gulf and the Search for Strategic Stability*, p. 175.

designers.⁴⁰ The Saudi Navy had too shallow a manpower pool of technically trained managers to be able to afford the loss of someone like Al Khweet.

The RSNF's political position within Saudi Arabia also appears to have been weaker than that of the other services. The Navy had no direct connection to the royal family as did the National Guard through Prince Abdullah or MODA through Prince Sultan. In the competition for the nation's limited manpower pool, the Saudi government gave its Army and Air Force priority in selecting high-quality recruits. The Saudi Naval Expansion Program also suffered from the relative inattention given it by the U.S. Navy. The experience of the first half-dozen years of the program, as assessed by one knowledgeable observer, suggested that the Navy "lacked the advisory experience of the other U.S. services [and] continued to provide low-quality or mediocre personnel" to support SNEP. Further, much of the equipment that the U.S. Navy advised the Saudis to buy developed serious reliability problems.⁴¹ All these factors rendered the Saudi Navy's expansion program particularly vulnerable.

In retrospect, the momentum behind the Saudi Naval Expansion Program depended too heavily on the vision of one person, Captain Al Saja. He wanted to bring the RSNF to a high degree of self-sufficiency so that, after the Corps and the U.S. Navy turned over facilities and equipment, it would be able to sustain its operations independently. To achieve that goal, Al Saja ordered the largest changes in the program's scope in areas that improved O&M facilities, training, and spare-parts warehousing. Al Saja also thought of the Saudi Navy and its facilities as the nucleus of a larger Arab naval force. He envisioned cooperation with the other Gulf states.⁴²

The timing of the *Washington Post* article, "His Majesty's Silver Service," on 4 March 1980—when the Saudi government was reviewing all spending—was particularly unfortunate. The article cannot have registered well with a government that shunned publicity. In the internal political struggles that developed in 1979 and 1980 over allocations within the defense budget, Captain Al Saja lost.⁴³

Whatever the reasons, the results of a SNEP reorientation became evident during 1980 and 1981. The perceived inadequacies of American equipment and advice led to a shift in emphasis by the Saudi Arabian government, which concluded that several European countries could provide naval vessels, equipment, and training services better suited to Saudi needs. At the turn of the decade, the Saudis entered into serious negotiations with both the Italian and French governments. In October

⁴⁰ Interv, Moorhus with Wood, 27 Jun 96, pp. 8–9. Captain Al Saja mentioned Al Khweet's death in a briefing in June 1978. See MFR, Anwar Badwan, 11 Jun 78, sub: SNEP Briefing, box 17, K-8-5, TAD-RHA.

⁴¹ Cordesman, *The Gulf and the Search for Strategic Stability*, pp. 174–75, quotations from p. 175. See also Interv, Moorhus with Wood, 27 Jun 96, pp. 33–34.

⁴² Interv, Moorhus with Wood, 27 Jun 96, pp. 20–21, 36.

⁴³ Cordesman, *The Gulf and the Search for Strategic Stability*, p. 175.

1980, Saudi Arabia signed an agreement with France to supply \$35 billion in naval equipment and advice.⁴⁴

In early 1980, at the same time that negotiations advanced with the French, a new “acting” naval commander, Capt. Mohammad Own Sharaf Al Barakati, emerged as the RSNF head. Between spring and autumn, “acting” disappeared from Al Barakati’s title; the Middle East Division commander addressed his correspondence to Captain, then Commodore Al Barakati. Al Saja’s name disappeared altogether from the documents passing between the Corps and the Saudi Navy. The dedication ceremony for the King Abdulaziz Naval Base at Jubayl, which Al Saja had been planning since 1978, was postponed from 1979 to March 1980, then to September, then again to late November. With Al Saja’s removal, the energy behind SNEP dissipated. The situation is reminiscent of what occurred after the minister of information, Jamil Hujaylan, was replaced in 1970 and the Corps of Engineers’ construction for the television and radio broadcast programs declined.⁴⁵

Although the SNEP construction program continued beyond 1980, and the change was not immediately evident, events during 1980 and 1981 would show that SNEP had ceased to expand. In February 1980, Ellis described the prospects of the naval academy as “iffy” because of cost. By May, as a result of consultations during the spring, he felt that he had “firm commitments” for the academy’s final design, as well as for the expansion of the RSNF headquarters complex just completed in Riyadh. To prepare plans for the naval academy, the division engaged the Washington, D.C., firm of Warnecke, Ewing, Desmond, and Lord, which had been involved for two decades in master-planning and design at the U.S. Naval Academy.⁴⁶ Within days of Ellis’ report on the academy and the expansion of RSNF headquarters, the Saudis requested a conference with the U.S. Navy’s SNEP project manager and with the Middle East Division.

The discussions in late May 1980 began a series of meetings to develop a new memorandum of understanding for the program. The Saudis wanted assurances that the Corps of Engineers could complete the SNEP construction within the Saudi Arabian government’s current five-year plan. The Saudis wanted to review the projects that would be included in future construction, to establish completion dates, and to generate new estimated annual expenditures for the program. Finally, they wanted to have the new memorandum as a tool for coordinating three agencies involved in SNEP: the U.S. Navy, the U.S. Army Corps of Engineers, and the Royal Saudi Naval Forces. Over the summer, the parties met, compiled lists of all projects not yet under construction, established milestone dates, and agreed on the text of a

⁴⁴ Ibid., pp. 175, 220–23.

⁴⁵ MFR, Capt Dennis J. Garbis, 24 Mar 80, sub: Visit with Capt Sharif [Sharaf] (Acting Cdr, RSNF), box 17, K-8-5, TAD-RHA; Interv, Moorhus with Roger Thomas, 27 Aug 96, p. 37, and with Wood, 27 Jun 96, pp. 12–13, 26–28, 38–40.

⁴⁶ Ellis to Morris, 7 Feb, 24 May 80, Walker box 6, OH, HQ USACE. “King Khalid Dedicates Jubail Base,” *Mt. Weather Bulletin*, January-February 1981, pp. 6–7.

memorandum, signed on 2 August 1980. These discussions also led the three parties to begin quarterly meetings, the first of which took place in November 1980.⁴⁷

In December, the Middle East Division took stock of those SNEP projects that had not been included in the memorandum of understanding of August or added to the list at the November meeting. The omitted projects included the Royal Saudi Naval Academy; music centers for the Navy's marching band at Jiddah and Jubayl; additional housing and warehouse space at Riyadh, Jiddah, and Jubayl; a training center referred to as The Institute of Naval Studies (TINS); and a special-forces training center planned for Jiddah. The total value of the projects put on hold exceeded \$1 billion.⁴⁸

By mid-1981, there were other changes. On 30 May, the RSNF's participant in the quarterly review meetings informed division staff that they would need to cut \$2 billion from the current estimates of projects. In early July, SNEP, which had always been funded directly by the Saudi Arabian government, came under the authority of MODA's director general of military works, Col. Naser F. Al Faisal. Noting that of the seventeen projects scheduled for construction under the August 1980 memorandum of understanding only thirteen had actually been awarded, the Middle East Division moved \$685 million in future projects out of the "firm" category. The division still anticipated \$5.2 billion in construction for the RSNF—a third of the division's anticipated work.⁴⁹

The fate of the naval academy was symptomatic of the dilatory progress that the SNEP projects were making. The architect-engineer firm completed concept designs in June 1981. For six months, the Saudis discussed relocating the academy; but by the end of 1981, the GDMW had placed the project on hold. In 1982, Saudi officials terminated the project.⁵⁰

Projects already under construction continued. Contractors completed a significant expansion of the RSNF headquarters complex in Riyadh in late January 1986 at a cost of \$181 million. The headquarters building itself consisted of a nine-level facility that included subbasement and basement floors and renovations to the floors above ground and to the penthouse. The headquarters building was the last facility completed in the expansion project for the complex that also encompassed

⁴⁷ Fact Sheet for Lt Gen Joseph K. Bratton's Visit to Middle East Div, 1 to 7 Jan 81, prepared 31 Dec 80 (hereafter cited as Fact Sheet for Bratton Visit, Jan 81); MOU, Royal Saudi Navy, U.S. Navy PM, and Middle East Div, 31 Dec 80, sub: Scheduling of Design and Construction for the Royal Saudi Naval Expansion Program; both in Walker box 6, OH, HQ USACE.

⁴⁸ Fact Sheets for Bratton Visit, Jan 81, Fact Sheet 20, "SNEP Projects Not Attached to MOU During the 4 and 5 November 1980 Update," 31 Dec 80.

⁴⁹ Memo, Donahue, 1 Jun 81, sub: SNEP Budget, box 11, K-8-4, TAD-RHA; Albro to Bratton, 12 Aug 81, p. 1; Fact Sheet: SNEP MOU Performance Evaluation, 19 Jul 81, K-8-4, TAD-RHA; Albro, "House Foreign Affairs Subcommittee on Europe and the Middle East" (typescript), 22 Jul 81, p. 5, Current Files, Transatlantic Division—Public Affairs Office (TAD-PAO).

⁵⁰ R. L. Rousseau, "Middle East Division (Rear) 1981 Historical Summary Report," 26 Mar 82, p. 5, Current Files, OH, HQ USACE (hereafter cited as Rousseau, Mid East Div [Rear] Hist Sum, 1981); R. L. Rousseau, "Middle East Division (Rear) 1982 Historical Summary Report," 28 Mar 83, p. 1, unmarked box, TAD-RHA (hereafter cited as Rousseau, Mid East Div [Rear] Hist Sum, 1982).



Geodesic dome at the Saudi Naval Expansion Program headquarters, Riyadh, May 1979

an underground command center, a seven-level parking garage with over five hundred parking spaces, bachelor enlisted quarters, gatehouses, a central mechanical and electrical building, a 500,000-gallon water tank, and other work on utilities to support these expanded facilities. MODA dedicated the multistory office building and parking garage on 4 May 1986. About the same time, contractors completed a housing complex at Al Kharj with 520 houses, 320 of which were designated for Navy officers and enlisted men and 200 of which went to MODA personnel. July 1988 saw completion of the last SNEP project, a multipurpose stadium at King Abdulaziz Naval Base in Jubayl; but the \$23.5 million stadium stood unused and unmaintained for several years. When Corps of Engineers personnel who had worked on the project revisited it in the early 1990s, it showed extensive disrepair and erosion of the concrete. Nonetheless, during the Gulf War of 1990–1991, the stadium, which accommodated U.S. Marine Corps forces, served both the Kingdom of Saudi Arabia and the United States well, as did the facilities at the Jiddah and Jubayl naval bases.⁵¹

⁵¹ “RSNF Headquarters Expansion Project Review for Maj Gen Richard M. Wells, Deputy Chief of Engineers,” 13 Jul 84, unmarked box, TAD-RHA; Col R. M. Danielson to Otaishan, 31 May 86, sub: Royal Saudi Naval Forces Headquarters Expansion, Riyadh, Saudi Arabia, Final Completion of Work/Warranty of Construction, box 1, K-8-3, TAD-RHA; “Three Major Saudi Projects Wrap Up,” *Middle East Division News*, Summer 1986, pp. 1ff; Brig Gen James W. Ray, “Completion and Turnover of the Royal Saudi Naval Forces Headquarters Project,” 18 Mar 86, unmarked box, TAD-RHA; Interv, Moorhus with Wood, 27 Jun 96, pp. 70–73, and with Ron Breen, 30 Jan 95, pp. 16–19; Wayne Henry, Comments on Draft Ms, 1 Oct 97, TAD-RHA.

In December 1990, the Middle East Division's successor organization, the Middle East/Africa Projects Office (MEAPO), closed the accounts of the Saudi Naval Expansion Program. The program had a total cost of \$3.7 billion, making it the second largest construction program measured by dollar value in the history of the relationship between the Saudi military and the U.S. Army Corps of Engineers. When measured by the sixty-eight contracts awarded for SNEP work, it surpassed the largest dollar program, King Khalid Military City, which had about fifty contracts.⁵²

The program never fulfilled the vision of the Royal Saudi Naval Force's leader, Captain Al Saja. Competing agendas within the Saudi Arabian government brought piecemeal reductions to SNEP projects. For all its limitations, SNEP did provide the Saudi Arabian government with two modern naval ports, a naval command center, and a stronger, more modern navy than it had a decade earlier.

Modernizing the Saudi Arabian National Guard

In contrast to the Royal Saudi Naval Forces, which had always been nominally subordinate to the Ministry of Defense and Aviation even when it operated independently in the 1970s, the Saudi Arabian National Guard existed completely independent of MODA. Its commander, Prince (King since August 2005) Abdullah bin Abdulaziz, was one of the most powerful men in the kingdom. He took command of the SANG in the early 1960s as an ally of his half brother, Prime Minister Faisal (who became king in November 1964), in the struggle to wrest control of the government from King Saud. The limitations on the involvement by the U.S. Army Corps of Engineers in the modernization of the National Guard came not from the loss of influence of its commander but from Abdullah's sense that the program, and possibly the Corps of Engineers, had failed to meet his expectations.

In the early 1970s, at the insistence of King Faisal, Abdullah acquiesced to modernize the Guard and began talks to secure assistance from the U.S. government. SANG had twenty-thousand regular troops dispersed throughout the kingdom and approximately thirty thousand irregular soldiers who supplemented the regular force by serving part time. These military and paramilitary forces came from the Bedouin tribes of the Arabian Peninsula. Some of the guardsmen were organized into effective infantry units; but overall, the force was poorly armed and ill trained for modern warfare or for the control of internal security in an era of growing terrorism.⁵³

⁵² The dollar total is from Memo, David Brown to Wiles, 14 Dec 90, sub: Authorization—Design and Construction of Facilities, Saudi Arabian Naval Expansion Program (SNEP), FMCS Case HAQ, Current Files, Transatlantic Division—Resource Management (TAD-RM). The number of contracts is given in "Briefing, Middle East/Africa Projects Office," n.d. [1987], one-page summary, "Saudi Program," unmarked box, TAD-RHA.

⁵³ Cordesman, *The Gulf and the Search for Strategic Stability*, p. 178. Mark Heller, ed., *The Middle East Military Balance, 1984* (Tel Aviv, Israel: Jaffee Center for Strategic Studies, 1984), p. 181, gives statistics on the strength of the various branches of the Saudi military force. Hermann F. Eilts, "Social Revolution in Saudi Arabia" (Part II), *Parameters* (Fall 1971): 31.

By personal background and culture, Prince Abdullah had a far greater affinity to the Bedouin world than to the modern world of American technology. As talks progressed in early 1972, Abdullah repeatedly requested explanations from Mediterranean Division personnel of the processes involved in Foreign Military Sales. The Saudi Arabia District engineer, Col. William L. Durham, concluded that the Corps had a substantial amount of work to do “in developing working relationships and procedures . . . [with] HRH Abdullah and National Guard Staff.” Drawing on a long-standing relationship between the British military and the Saudi Arabian National Guard, one of the experienced British advisers warned Durham that SANG leaders had no real knowledge even of their own government’s administrative procedures for approving projects or for arranging payments. Durham acknowledged that the division would need to help the SANG staff to develop internal decision-making procedures and methods of coordination with other agencies of the Saudi Arabian government in order to support the construction program.⁵⁴ The Guard had neither an institutional bureaucracy comparable to MODA’s growing General Directorate of Military Works nor a decade of experience working with the Americans.

On 19 March 1973, after more than a year of talks, the governments of the United States and Saudi Arabia signed a memorandum of understanding establishing the U.S. role in the SANG modernization program. This document was very similar to the memorandum signed in 1972 establishing the Saudi Naval Expansion Program. It specified five areas of “technical and supervisory assistance” that the U.S. Department of Defense would provide:

1. Preparation of a National Guard Modernization Plan to cover such functions as organization, training, procurement, construction, maintenance, supply, and administrative support;
2. Development and administration of training programs;
3. Procurement of facilities, materials, equipment, and services necessary to implement the plan;
4. Supervision of the design and construction of training, maintenance, supply, and communications facilities and other facilities related thereto, as necessary to implement the plan;
5. Management of the establishment and operation of training, administrative, and logistic support elements.⁵⁵

In late April 1973, the U.S. Army Materiel Command (AMC) received orders to appoint a program manager and to establish a program management office for the SANG modernization program. AMC established the Office of the Program Manager for the Saudi Arabian National Guard (OPM-SANG). For its part, the Corps of Engineers pursued the construction management objectives set forth in the

⁵⁴ Memo, Durham, 14 Apr 72, sub: Saudi Arabian National Guard Program, p. 1, box 20, access. no. 77-92-0001, WNRC.

⁵⁵ MOU, Govts of United States and Saudi Arabia, 19 Mar 73, sub: Saudi Arabian National Guard Modernization Program, p. 1, unmarked box, TAD-RHA.

memorandum: planning, designing, and building the facilities necessary to realize the modernization program.⁵⁶

Design Phase

Preliminary discussions of the SANG program addressed first a headquarters complex in Riyadh and a troop-training area near the capital. Later, when the design for the headquarters project was well advanced, the Guard began to explore creation of military cities to station troops throughout the kingdom.

Headquarters Complex

When SANG first began discussions with the Corps in early 1972, it had a design for a new headquarters building in Riyadh that had been prepared by the Saudi Ministry of Public Works.⁵⁷ Abdullah gave these design drawings to Colonel Durham, who sent them, and subsequent additions developed during the next year as the specifications grew, to the Mediterranean Division headquarters in Italy for review. In June 1973, three division representatives, after completing their review of the Saudi designs, traveled to Riyadh to confer with the SANG staff and, in a separate meeting, with Abdullah. The chief of engineering, William McCormick, suggested that the size of the headquarters building and complex might exceed SANG needs; but Saudi officials replied that they had studied the Guard's needs carefully and that the building met those needs appropriately. When McCormick presented a preliminary budget estimate of \$22 million for the headquarters, SANG officials reacted to the amount with surprise. Still, they indicated that they preferred to seek a budget increase rather than to reduce the scope of the building.⁵⁸

Abdullah also reacted negatively to the high estimate, but he was prepared to have his staff again review the criteria and scope of the construction for possible economies. McCormick estimated that it would take approximately nine months to convert the Saudi designs to Corps standards. Abdullah pressed to have the designs completed in five months. He displayed impatience that the building could not be designed and built within a year. When division engineers explained to him how long it had taken to build at Khamis Mushayt and Tabuk, he acquiesced; but he remained uncomfortable and annoyed with every delay throughout the project.⁵⁹

The conferees also discussed the criteria for the underground command center Abdullah had decided to add to the headquarters. The specifications located the facility apart from the headquarters building but connected the two buildings by a tunnel. The command center, designed to withstand a direct strike with conventional

⁵⁶ Memo, Maj Gen V. L. Bowers, 27 Apr 73, sub: Saudi Arabia National Guard Modernization Program, p. 5, box 51-84-9384, OH, HQ USACE; OCE, Major Activities, FY 1973, p. 50.

⁵⁷ Interv, John T. Greenwood with Elmer Parkin, 4 Oct 83, pp. 5, 11–17.

⁵⁸ MFR, William N. McCormick Jr., R. R. Wiles, and J. K. Soper, 28 Jun 73, sub: Meetings in Riyadh and Jiddah, Saudi Arabia, 17 thru 20 June 1973, pp. 2–3, box 51-84-9384, Farrell Papers.

⁵⁹ *Ibid.*; Interv, Greenwood with Parkin, 4 Oct 83, p. 8.

weapons, would be provisioned to maintain a contingency staff for fourteen days. The SANG staff directed the Mediterranean Division to proceed with a concept design and a budget estimate for the underground command center but not to let its development delay construction of the headquarters building.⁶⁰

After the discussions with the SANG staff, two division staff members left Riyadh; but the third, Dick Wiles, remained to meet with Brig. A. Donaldson, the British military adviser to SANG, at Donaldson's request. The British officer sketched for Wiles the expansiveness of the thinking within SANG concerning the modernization program. Abdullah had recently visited the Saudi Arabian Army's new cantonment at Khamis Mushayt. Impressed by the quality of the facilities, he had begun to discuss building similar complete cantonments for the regular troops of the National Guard. Donaldson noted that SANG had more men than the Saudi Army, which meant that such an undertaking would involve possibly six to eight cantonments throughout the country. Donaldson confirmed that the Guard would build a central training installation, and he asserted that discussions also included regional headquarters complexes. He concluded by observing that the SANG modernization program was very large in scope and would last ten to fifteen years. In reporting the conversation, Wiles raised at least the possibility that the SANG modernization program would grow to rival the MODA construction program in scope.⁶¹

In September 1973, the Saudi government approved three architect-engineer firms as potential designers for the SANG headquarters complex. In mid-December 1973, five months after McCormick's June briefings, the division presented Abdullah with revised time and cost estimates. Abdullah expressed impatience with the projected schedule that allowed four years for construction, and he pressed the division's personnel both directly and through Donaldson to move more quickly.⁶²

The following February, a month after the government established the FMS case for the project, the Saudi Arabia District awarded a \$1.4 million contract to Leo A. Daly Company of Omaha, Nebraska, for design of the SANG headquarters complex. In March, the district received authority to conduct studies and prepare drawings for training facilities for a SANG vehicle-management program. This prompted initiation of another FMS case in August for the planning, programming, and development of the criteria for the program. The district commissioned Daly to conduct the study, which the company delivered in mid-1975. The Corps had no further involvement in the vehicle management program, which SANG pursued through a contract with Chrysler International Corporation.⁶³

⁶⁰ Interv, Greenwood with Parkin, 4 Oct 83, p. 19; MFR, McCormick, Wiles, and Soper, 28 Jun 73, p. 2.

⁶¹ Ibid.

⁶² Durham to Williams, 3 Sep 73, p. 1; 18 Dec 73, pp. 1–2; 22 Dec 73, p. 1; all in box 51-84-9384, Farrell Papers.

⁶³ Fact Sheet, Foreign Military Sales (FMS) Cases Saudi Arabia National Guard (SANG), 22 Oct 74, p. 1, box 20, access. no. 77-92-001, WNRC (hereafter cited as Fact Sheet, FMS SANG, 22 Oct 74); Annual Hist Sum, CY 1974, p. A1; Mediterranean Div, "Data Book," 1 May 76, p. 24.

When the Saudi Arabian National Guard signed the FMS case covering the headquarters complex in January 1974, the Corps programmed completion in three years at an estimated cost of \$52 million, more than double the first estimate of \$22 million. By the time the Mediterranean Division staff prepared to brief the SANG staff again the following April, the cost estimate had risen to \$62 million and the projected date of completion had slipped to late 1977. McCormick anticipated an angry reaction from Abdullah; but during the briefing, Abdullah's staff accepted the cost increases with no visible protest. The discussion concerning the slippage in the completion date for the headquarters, on the other hand, took "a very interesting twist" when SANG staff asserted that King Faisal had not yet authorized the headquarters facility and that "His Majesty hasn't decided that the Corps of Engineers is going to do this work." McCormick concluded that "the SANG program is in real trouble right now from an authorization standpoint, at a level above the people that we have been working with. . . . The problem seems to be with the Ministry of Finance."⁶⁴

If Prince Abdullah showed no visible concern over the rising cost estimates for the headquarters complex, it may have been because he had launched his own plans for dealing with the costs of construction. In an 8 April 1974 letter to U.S. Ambassador James E. Akins, Abdullah conveyed his desire to proceed. However, he wanted three additional stipulations—to apply to all final contracts—incorporated in the document governing the SANG modernization. First, Abdullah wanted a clause stipulating that contract prices be final, with no opportunity for price review as work progressed. Second, he wanted all costs related to contractor personnel and workers, including lodging and other facilities, assumed by the contractors as part of the salaries they paid their employees, rather than having the costs paid by the Saudi government. Third, Abdullah wanted a clause specifying that all contract prices be in U.S. dollars with no obligation to adjust or compensate for devaluation of currency due to inflation and with no obligation to adjust to fluctuating currency rates.⁶⁵

If accepted, these clauses would fundamentally change the character of the agreements under which the Corps had operated in Saudi Arabia since the 1960s. When the Americans involved in the negotiations asked what had prompted the addition of these conditions, Abdullah replied that "the Ministry of Finance had recommended them in a letter to His Majesty, King Faisal . . . and that His Majesty had directed they be carried out in his letter to Prince Abdulla [*sic*]."⁶⁶

The Saudi Arabia District engineer, Colonel Durham, and the ambassador both recognized that Prince Abdullah's clauses had to be rejected—without offending him. Therefore, in carefully crafted letters with similar lines of argument, Durham wrote to the prince and Ambassador Akins wrote to the minister of finance and national

⁶⁴ Mediterranean Div Staff Mtg Min, 22 Apr 74, pp. 1–3, box 20, access. no. 77-92-0001, WNRC.

⁶⁵ Durham to Prince Abdullah ibn Abdul Aziz, [23 Apr 74], box 20, access. no. 77-92-0001, WNRC.

⁶⁶ James E. Akins, U.S. Amb, to HRH Prince Musa'id ibn Abdul Rahman, 29 Apr 74, box 20, access. no. 77-92-0001, WNRC.

economy, Musa'id ibn Abdul Rahman—also a royal prince. Each indicated that the U.S. government and the Corps of Engineers had as their objective to provide the best possible service and support to the Saudi Arabian government in its program to modernize the National Guard. Including the three clauses in the letter of offer and agreement that established the FMS case would contradict that basic objective. In addition, it would put the agreement at odds with contract law in the United States, which the U.S. government and the Corps were both obliged to observe.

The ambassador appealed to “Your Royal Highness’s known astuteness and discernment . . . to grasp the problem which has prompted this letter.”⁶⁷ Durham used slightly different language:

To enable the Corps of Engineers to protect the interests of the Saudi Arabian Government, the Corps must be able to study the conditions of each contract situation and prescribe in each contract at the time of award those provisions which will insure the highest quality construction at the lowest cost to the Saudi Arabian Government.⁶⁸

The two men conveyed the same message—Abdullah’s clauses were unacceptable. In discussions over the following weeks, Corps representatives advanced the additional argument that the three clauses, by transferring all risk to the contractors, would mean that contractors would add money to their bids to cover unforeseen contingencies and thus increase the costs of construction. It took several months to resolve this contretemps; but in late August 1974, SANG effectively abandoned its position by approving the preliminary designs for its headquarters complex. This cleared the way for final design with no reference to the problematic provisions.⁶⁹

In late October, SANG staff informed the Corps of Engineers that they had resolved problems with the Ministry of Finance and that an additional \$3 million would be provided. Ten days later, the division awarded a \$3 million contract for the final design of the headquarters complex now projected to cost \$85 million. In mid-May 1975, the Mediterranean Division and the Daly team presented to Prince Abdullah the final design of the headquarters complex.⁷⁰

Military Cities at Al Qasim and Al Hasa

In September 1975, the SANG staff began informal discussions with the Corps about fulfilling Prince Abdullah’s desire to have installations comparable to the

⁶⁷ Ibid.

⁶⁸ Durham to Abdullah, [23 Apr 74].

⁶⁹ Memo, Maj Howard Brown, Jun 74, sub: Talking Paper [on Modernization Program], box 51-84-9384, Farrell Papers; Fact Sheet, FMS SANG, 22 Oct 74, pp. 1–2.

⁷⁰ Fact Sheet, FMS SANG, 22 Oct 74, pp. 1–2; OCE, “Annual Report of Major Activities, Jul. 1, 1974–Jun. 30, 1975,” p. 53, box 8, Gen Files, OH, HQ USACE; Williams to Gribble, 13 Jun 75, p. 1, box 6, access. no. 77-92-0001, WNRC.

army cantonment at Khamis Mushayt. The discussions addressed preparation of master plans for two military cities to be located at Al Qasim, about ninety miles west-southwest of Buraydah, and at Al Hasa, south-southwest of Dhahran and six miles northwest of Hufuf. The Mediterranean Division commissioned the Leo A. Daly Company to undertake preliminary work on the military cities, using the specifications that SANG outlined. Each city would have facilities to support a population of seven thousand five hundred, including areas for a cantonment, specialized training, firing ranges and maneuvers, recreation, a main post, family housing (nine hundred houses), and contractor housing. After the division turned over its preliminary work to the Guard, nothing happened until late October 1976, when the Saudi Ministry of Finance gave SANG's deputy commander, Sheikh Abdul Aziz Al Towajri, approval for the study and design of the military cities. The Corps estimated facilities would cost roughly \$1.33 billion.⁷¹

The Middle East Division staff encouraged SANG to send a letter to the U.S. government to initiate an FMS case for the military cities; but again, no action occurred for months. Then, on 31 August 1977, the Guard formally requested that the Middle East Division submit an FMS case. The next day, the division engineer, Brig. Gen. Richard M. Wells, sent a letter to Prince Abdullah forwarding the FMS case for his approval and signature. Within days, the division informed the U.S. ambassador that the Guard had verbally requested cost estimates and a construction schedule for one military city. SANG wanted the work delivered by April 1978 so construction of the military city could be programmed into the government's budget for the next fiscal year. Abdullah sent a letter requesting "timely completion of the study and design."⁷²

After a series of exchanges, the Saudi Arabian government accepted the FMS case on 2 October 1977. On the same day, the Middle East Division engaged the Daly Company to prepare the concept design and cost estimate. Over the following fourteen weeks, designers, engineers, and planners met periodically with division personnel and with SANG officials to develop preliminary designs and sketches of the cityscapes of the two military cities. At one point, in mid-November, Deputy Commander Al Towajri instructed Daly to suspend all work while he consulted with the minister of agriculture and water concerning a new site at Al Qasim that would offer sources of water better than the one on which the company had been working. The delay lasted about two weeks. At a meeting in mid-January, Al Towajri requested that the division have its budget data ready to submit in mid-March, a month *earlier* than his original instructions.⁷³

⁷¹ Locations given in Fact Sheet, New SANG Construction Projects in Saudi Arabia, 29 Jan 78, E-7-4, TAD-RHA; Fact Sheet, National Guard Military Cities Projects, 31 Dec 80, and attachments, Walker box 6, OH, HQ USACE; MFR, Maj Martin C. Fisher, 1 Nov 76, sub: Meetings with HE Sheikh Towajri, SANG Deputy Assistant Commander, p. 4, E-7-3, TAD-RHA; Wells to Morris, 12 Dec 76, p. 6, box 3, access. no. 77-92-0001, WNRC.

⁷² Rpt, Lawrence F. S. Wu [after 6 Jan and before Apr 79], sub: Chronological Events, SANG Military Cities, box 20, K-8-6, TAD-RHA.

⁷³ *Ibid.*

By February 1978, estimates for construction of the two cities had reached \$2 billion, nearly twice the original rough estimate. Wells became concerned that, “if we go that high we can forget about construction.” On 14 March, the division/contractor team presented the concept design and budget data for the military cities to Prince Abdullah and four days later presented a more technical briefing to the SANG staff. Between April 1978 and January 1979, work on the design of the military cities slowed because of a disagreement between the division and SANG over which architect-engineer firms would participate in preparing final designs. The division wanted to divide the final designs into nine packages—family housing, hospital, cantonment, post support, centrum, schools, power plant, water-treatment plant, and site and utilities—and assign one package to each of nine American architect-engineer companies. The list did not include Daly, which had prepared the preliminary designs, because Daly had neither responded to the solicitation nor expressed any interest in submitting a proposal for final design of the project. Informally, SANG officials made clear that they preferred a list of three or four firms and that they wanted Daly on the list.⁷⁴

While the two sides engaged in the debate over architect-engineer firms, the costs of design and the estimated costs for construction dictated a change in approach. Until early 1978, the designs for the two cities, which had similar facilities, had proceeded in tandem because the early construction packages for the two were the same. Over time, the design for the military cities had grown to roughly twice the size of the 1975 specifications. By March 1978, instead of a population of 7,500 per city, the projection was for 14,000. Instead of 900 houses, it was now 2,250. Instead of a small dispensary, the criteria now called for a 100-bed hospital expandable to 200 beds. Although the original concept included no airfield, a field capable of handling C-130 aircraft became part of the design. The Guard had also added a VIP complex, a 4,000-seat stadium, and sixty-one bomb shelters each with a 400-person capacity—all features absent in the original scope.⁷⁵

When the Middle East Division presented the concept design in March 1978, it had added water-well fields with a pipeline and had extended topographical surveying and mapping to adjust to a changed boundary line—all to accommodate the cities’ increased sizes. In June, the division informed the Guard that more funds would be needed to continue work on the design. In response, the SANG staff verbally directed the Corps to concentrate design funds on Al Qasim; thus, the division stopped all further design effort on the military city at Al Hasa. In mid-September, General Wells’ successor as division engineer, General Ellis, formally notified the SANG staff that the \$24 million originally estimated as adequate for the design of both

⁷⁴ Memo, Col Donald J. Palladino, 14 Feb 78, sub: Summary of Division (Rear) Staff Meeting, p. 16, unmarked box, TAD-RHA; Fact Sheets for Bratton Visit, Jan 81, att. E, Chronology of Events; Rpt, Wu, [after 6 Jan and before Apr 79]; Ellis to Abu Haimid, 7 Oct 78, sub: AE Selection for Final Design of Military City, Al Qasim, FMS Case HCE, box 5s, E-7-5, TAD-RHA.

⁷⁵ Memo, Palladino, 14 Feb 78, p. 16; “National Guard Military Cities Projects,” 31 Dec 80, att. D, “Matrix Illustrating Variations in Project Scope With Time,” Walker box 6, OH, HQ USACE.

cities would no longer suffice. The division now projected the cost for designing both Al Qasim and Al Hasa to be \$36.9 million.⁷⁶

In early August 1978, the division submitted the list of nine firms, not including Daly, buttressed by an explanation of the advantage to the Saudi Arabian government of having multiple firms preparing the designs.⁷⁷ In late September, the SANG deputy for technical affairs, Sheikh Abdul Rahman Abu Haimid, “approved” the list—with several changes. Abu Haimid added Daly to the list as the first choice for the design package for cantonment facilities, explaining that he had talked with Al Towaijri and “his excellency wanted Leo A. Daly to be No. 1 for cantonment. . . . Leo A. Daly must be given a chance on the cantonment because they are our friends and we like their work.”⁷⁸ Abu Haimid also rearranged some of the other design packages among the companies on the list.

The Corps faced a dilemma. Since Daly had not submitted a proposal, including the company on the list of architect-engineers would be anomalous and subject to challenge by competitors under American contracting procedures. The Corps reconvened its architect-engineer selection board specifically to reevaluate Daly’s qualifications and again denied Daly a place on the list. The evaluation constituted a professional assessment that the firm “was not as qualified as other firms for the final designs in question.” Ellis informed Abu Haimid in a letter that emphasized that to award the cantonment design package to this company would place the Corps in a tenuous legal position.⁷⁹

In late October 1978, in an effort to resolve the impasse, Ellis met with Abu Haimid and proposed that Daly be retained as the “executive” architect-engineer firm to advise the other firms concerning the basic elements of the design. In addition, Daly could be assigned to design early construction items such as the workers camp, the VIP villa, access roads, and perimeter fencing, as well as the mosques, mess halls, slaughterhouse, and communications complex. Abu Haimid accepted the proposal and approved the selection list on 3 December, nearly eight months after the approval of the concept design.⁸⁰

In early January 1979, the deputy division engineer, Col. Joseph Bennett, met with the SANG staff to submit a construction schedule and startup program. The division was poised to pursue negotiations with the architect-engineer firms and anticipated that contracts for final design could be awarded by spring 1979. In April, representatives of the division and the Daly Company conducted a series of detailed briefings for the SANG staff, during which the staff requested a wide range

⁷⁶ Ellis to Abdullah, 30 May 79, sub: Military Cities at Al Qasim and Al Hasa, box 16, K-8-5; Ellis to Abu Haimid, 13 Sep 78, sub: National Guard Military Cities’ Design Budget, box 20, K-8-6; TAD-RHA.

⁷⁷ Rpt, Wu, [after 6 Jan and before Apr 79].

⁷⁸ MFR, Vedell, 8 Oct 78, sub: Selection of A/E Firms for SANG Military Cities, box 20, K-8-6, TAD-RHA.

⁷⁹ *Ibid.*; Rpt, Wu, [after 6 Jan and before Apr 79]. Quote from MFR, Vedell, 10 Oct 78, sub: Meeting with SH Abu Haimid ref: A/E Selection for Military Cities, box 20, E-8-6, TAD-RHA.

⁸⁰ *Ibid.*; Ellis to Al Towaijri, 28 Aug 78, sub: National Guard Military City—Al Qasim, box 8, E-7-4, TAD-RHA; Rpt, Wu [after 6 Jan and before Apr 79].



Construction of the Saudi Arabian National Guard headquarters using precast concrete, August 1978

of changes in the design. Division personnel pointed out that some changes—such as increasing the capacity of the airport, doubling the size of the hospital, shifting from central air conditioning to window units (more expensive but simple to replace, thereby avoiding the headaches of maintaining a central system), and redesigning the mosques—dramatically increased the costs of redesign, of construction, and of maintenance. The SANG staff consistently replied that “the cost of the additional facilities did not concern them” and that “it must be done regardless of cost.”⁸¹

On 27 May 1979, the Saudi Arabian government approved its budget for the coming fiscal year. It contained no money for starting new projects in any ministry and no money for SANG military cities. The budget realities that had also curtailed the naval program during the same review stood in stark contrast to the expansiveness that prevailed in the design-review meetings held with the SANG staff a month earlier. Three days after the budget announcement, Al Towajri instructed the division not to incorporate any of the review comments developed during the recent meetings.⁸²

⁸¹ Rpt, Wu [after 6 Jan and before Apr 79]. MFR, Vedell, 12 May 79, sub: Record of Meetings About SANG Military Cities, box 16, K-8-5, TAD-RHA, covers about a dozen meetings between 13 and 30 April 1978 (cited passages are from pp. 2 and 15 of the 22-page memo).

⁸² Ellis to Morris, 19 Sep 79, p. 1; Ellis to Abdullah, 30 May 79, p. 1.

SANG officials appeared exceedingly distressed at having received no funding and at the realization that the funds set aside for the design of the two military cities would now barely cover the design of Al Qasim. They directed their anger and disappointment at the Corps. Ellis sought to mollify SANG's most important leaders, Prince Abdullah and Sheikh Al Towajjri, with letters identifying the factors (changes, modifications, and increases in scope of work) that had increased costs. Assuring them that the division stood ready to "cooperate to our utmost," he said the division would execute the instructions it had received from Al Towajjri to complete the designs for Al Qasim as soon as possible. Any additional effort to complete the designs for Al Hasa would, however, require supplemental funding of \$12 million.⁸³

Over the summer, division staff met frequently with SANG personnel to try to find ways to complete the design of Al Qasim sufficiently for the Guard to present it to the Saudi Arabian Ministry of Finance. The hardest problem to overcome, and the key to maintaining any dialogue with the Guard, seemed to be bringing them to understand that "FMS cases are not firm-fixed-price contracts." The division had awarded ten contracts for design packages between January and early May 1979—before the Saudi Arabian budget for the coming fiscal year appeared. The division awarded an eleventh design contract, for special project design, to Daly on the last day of May and awarded a final contract, for design of the water-treatment plant, on 21 August 1979. Taken together, these twelve contracts exhausted the \$24 million originally budgeted for design. The division did not award a contract for "Executive A-E Support," because no funds remained to cover it.⁸⁴

With all design packages under contract by September 1979, the designs for Al Qasim could move forward. In late December, Ellis informed Al Towajjri and then Prince Abdullah that design of Al Qasim would be complete on 15 January 1980. The division report on the meetings noted that "HRH seemed to be pleased." Between January and August 1980, the designers completed work on Al Qasim and the division turned the designs over to the Saudi Arabian National Guard. Despite the perception in the December meeting that the prince was pleased, relations between the Corps and SANG remained delicate and somewhat tense. The Corps received no request for assistance to construct the military cities.⁸⁵

Saudi officials provided little information about the results of the governmental budget cycle in May 1980. Neither MODA nor SANG offered any guidance to the Middle East Division concerning their share of the budget or the implications for the Corps. Ellis did hear informally that "SANG received funds for the military

⁸³ Ellis to Abdullah, 30 May 79, p. 1; Ellis to Al Towajjri, 10 Jun 79, sub: Military Cities at Al Qasim and Al Hasa, box 5, E-7-5, TAD-RHA.

⁸⁴ "National Guard Military Cities Architect-Engineer Design Contracts," 11 Sep 79, attached to Status Sheet, NG Military City—Al Qasim, 11 Sep 79, box 5, E-7-5, TAD-RHA.

⁸⁵ See, for example, "Resiting Alternatives of the Hospital/Hospital Complex for the NG Military City at Al Qasim," [15 Sep 79], box 5, E-7-5, TAD-RHA; MFR, Vedell, 29 Dec 79, sub: Meeting with NG officials on 23 December 79, p. 1, K-8-5, box 16, TAD-RHA. Middle East Div, "Information Booklet," [hand-dtd Dec 81], pp. IV-17-18; Fact Sheet, National Guard Military Cities, 16 Dec 81; both in box 3, access. no. 77-92-0002, WNRC.

cities.” In August, the staff from the division began working with an engineer and architect, Abdullah Al Swailem, newly appointed as the SANG director general of housing and military cities and as the project manager for the military cities. Al Swailem indicated that the Guard wanted a major redesign to update the existing plans for Al Qasim and Al Hasa and to incorporate the changes identified in April 1979. Over the next several months, the division pursued a carefully paced dialogue with Al Swailem to explore establishing a new FMS case with funding for the additional design.⁸⁶

In December 1980, the Guard informed the Corps that it planned to provide housing and other facilities for its units at various locations around the kingdom. Part of this program might include construction of the military cities at Al Hasa and Al Qasim, reversing the previous order of priority. SANG anticipated that funding for this construction would come in the following fiscal year’s budget. The division suggested that the Guard use the \$3 million that remained from the original FMS case for design of the military cities to prepare the information and criteria necessary to award a new design contract for Al Hasa. SANG staff accepted this recommendation and asked in addition that the division’s personnel provide a list of all the construction packages for the two military cities that could be ready for advertising in five months, along with a recommended construction schedule.⁸⁷

On 22 December 1980, the Middle East Division formally proposed four steps—outlined in the earlier discussions—to prepare a complete redesign of Al Hasa using the remaining \$3 million in FMS money: (1) a soils investigation; (2) surveys at the site and development of a land-use plan; (3) criteria for the city; and (4) a memorandum of understanding to include a schedule for accomplishing anticipated tasks and designation of responsibilities. Despite special measures by Al Swailem and the division to “prod their system into action,” the SANG leaders took no initiative to renew activity on the military cities. On the contrary, in a meeting that took place in mid-February, Al Swailem asked if it was true that SANG still owed \$12 million to the Corps under the existing sales case. When that debt was confirmed, Al Swailem commented that SANG might refuse to authorize payment of this debt “until the terms of the Sales Case have been carried out, i.e., two military cities have been designed to the requirements of the National Guard.” At issue was “whether the CE proceeded with the design of Al Qasim, thereby spending NG funds, after becoming aware that the city being designed did not meet the needs and desires of the NG.”⁸⁸

⁸⁶ Ellis to Morris, 24 May 80, p. 1. For the series of contacts between August and December, see Maj R. J. Winkel Jr. and Col Gurnie C. Gunter, “NG Military Cities,” 15 Aug 80; Donahue, “NG Military Cities,” 12 Oct 80; Albro to Al Swailem, 8 Nov 80, sub: National Guard Military Cities; Donahue, “Visit to NG Dept. of Technical Affairs,” 8 Nov 80; Donahue, “NG Military Cities,” 3 Dec 80; all in box 14, K-8-5, TAD-RHA.

⁸⁷ The decisions are recorded in Donahue, “National Guard Military Cities,” 16 Dec 80, box 14, K-8-5, TAD-RHA.

⁸⁸ Gunter to Al Swailem, 22 Dec 80, sub: Redesign of Military Cities, box 14, K-8-5; MFR, Robert T. Beach, on copy of Ltr, Albro to Abu Haimid, 15 Feb 81, sub: National Guard Military Cities, box 11, K-8-4; MFR, Winkel, 23 Feb 81, sub: NG Military Cities, box 11, K-8-4; all in TAD-RHA.

Over the next several days, while Al Swailem was out of town, the division prepared a chronology, with supporting documents, of the points at which SANG had approved the division's use of funds and the decision to focus spending on the design of Al Qasim. The chief of the SANG branch in the division's Riyadh Liaison Office, Maj. R. J. Winkel, presented the documentation to Al Swailem on 22 February. Al Swailem "revised his opinion," but urged that the Corps postpone discussing the \$12 million in arrears until he, Al Swailem, had an opportunity to brief Al Towaijri on the history of the matter.⁸⁹

The Saudi Arabian National Guard never asked the Corps for any additional work on the military cities and indeed remained in arrears on payment of the FMS case that had funded design. The Middle East Division, in spite of repeated efforts, never succeeded in conveying to SANG leaders the cumulative impact of the design changes that the Guard's staff had requested. Some division employees felt that it had created problems in the relationship in 1978 by strongly recommending a multitude of firms to design the cities when the Guard's leadership clearly preferred maintaining long-term relationships with the Daly Company.⁹⁰ In addition, the impact of inflation and worldwide economic trends around 1980 strained the Saudi national budgets, dictating a cutback in defense spending and hurting the SANG modernization program. Ultimately, the British adviser to SANG had been prescient in warning that the National Guard's lack of a cadre of administrators would cause the Corps trouble. The cultural gap between Bedouin traditions and the technical and administrative inclinations of the Corps may have been too great to bridge effectively in a mere decade.

Construction Phase

The Corps did construct three projects for the Saudi Arabian National Guard. The first, training facilities at Khashm al An, moved very quickly from design to construction, with most of the work carried out under a design-build contract. The second, a camel racetrack, was a small project with major implications. The third was the largest construction project carried out for the National Guard by the Corps in the 1970s and 1980s: the SANG headquarters complex in Riyadh.

Training Facilities at Khashm al An

The frustration that overtook the development of the military cities was not evident in 1974–1975, when work on the SANG training area at Khashm al An, twelve miles east of Riyadh, moved from design to construction. In February 1974, the Corps selected the Sam Whan Corporation of Seoul, South Korea, to survey the site in preparation for design and construction of training facilities, a maintenance support area, and a cantonment area for three battalion-size units of one thousand men each. The division had completed in-house design of the training area and firing

⁸⁹ Ibid.

⁹⁰ Interv, Greenwood with Parkin, 4 Oct 83, pp. 28–29. Interv, Moorhus with Dykes, 24 Oct 95, pp. 28–29, mentions the association's "lobbying" to have more American firms involved.

ranges, and Sam Whan designed the rest of the facilities. In April, the U.S. State Department announced that the U.S. and Saudi Arabian governments had signed a \$335 million contract to provide military hardware and training to the Guard. In July, approval came for the FMS case to finance the work by Sam Whan. On 20 October, SANG approved the final design for the facilities, with construction scheduled to begin in February 1975 at the Khashm al An site where a training center already existed.⁹¹

Throughout 1975 and 1976, Sam Whan worked on construction of training facilities and firing ranges. By November 1976, the contractor had completed construction valued at about \$11 million—the first training facilities and Phase I of the firing ranges. When SANG took over these facilities, it pronounced itself “very pleased” with Sam Whan’s work. Construction continued on Phases II and III of the firing ranges as well as on maintenance and other facilities. By the beginning of 1978, completed work amounted to \$18.3 million and another \$36.7 million of construction work was still in progress.⁹²

Request for a Camel Racetrack

The area around Khashm al An became the site of one of the more positive moments in the Corps/SANG relationship. On a Thursday evening in early March 1978, Maj. Martin C. Fisher of the division’s Riyadh Liaison Office (RLO) received a summons to visit Prince Badr ibn Abdulaziz, the SANG deputy commander, in his palace. Accompanied by the Guard’s director of military operations, Brig. Gen. Maashi Al Duqan, and another member of the RLO staff, Fisher appeared at the appointed hour of 8:00 p.m. Prince Badr asked what progress the Corps had made on the new camel racetrack that the Guard wanted built. Fisher replied that the Corps had just learned of the request and that General Wells, who was inspecting projects in the western province, had not yet been informed of the request.⁹³

Prince Badr explained that the course laid out the previous year for the king’s annual Invitational Camel Race was unacceptable. The Guard, in charge of staging the race, wanted the Corps to design and construct the 22-kilometer course in the Khashm al An area for use this year. Fisher asked when the race would take place. Badr replied that although the king had not selected a date, it would most likely be in six or seven weeks and that Prince Abdullah wanted to see the site and a design as soon as possible—as early as the following Monday or Tuesday. Fisher stalled, observing that if the race was not for six weeks, the design ought not to be rushed; one had to consider wind direction, location of the sun, and other critical factors to

⁹¹ “Probe Urged of Contract to Train Saudi Oil Guards,” *Rome Daily American*, 11 February 1975; Fact Sheet, FMS SANG, 22 Oct 74, p. 1; Wells to Morris, 12 Dec 76, p. 8; Memo, Lt Col L. R. Nunn, 11 Nov 76, sub: Summary of Division Staff Meeting, 6 November, p. 3, unmarked box, TAD-RHA.

⁹² Wells to Morris, 12 Dec 76, p. 8, box 3, access. no. 77-92-0001, WNRC; Memo, Nunn, 11 Nov 76, p. 3; “SANG Modernization Program, Status of Funds (U.S. \$), FMS Case HBB,” 31 Jan 78, E-7-4, TAD-RHA.

⁹³ The account in this and the next two paragraphs from MFR, Fisher, 11 Mar 78, sub: Meeting with HRH Prince Badr ibn Abdul Aziz, Deputy Commander, SANG, box 20, K-8-6, TAD-RHA.

design the best possible course. Badr thereupon turned over the project to General Al Duqan, instructing him to inform the Corps about timing the preparation of the design to allow review and approval by King Khalid.

Asked by the prince for an estimate of the cost, Fisher tried to temporize, pointing out that no criteria existed; but his deflection proved ineffective. Badr explained that the track would be similar to last year's, with graded natural earth and ditches defining both sides. Pressed, Fisher guessed that such a track could be built for 20,000 Saudi riyals (SR) per kilometer. Badr said that the money for the project would come from the Equestrian Club, of which Prince Abdullah was president. General Al Duqan declared that he and Fisher would inspect the area of the camel race on Saturday, 11 March, with Corps technical personnel. Badr concluded that "he was confident that the Corps would provide the National Guard a good race track."

When apprised of the request for the camel track, General Wells recognized immediately that construction of a track for a camel race was well outside the mission of the Corps but that this was neither "just a camel race" nor "just a request to build a track." The king's camel race, an annual event that drew competitors and dignitaries from the entire Arab world, was more important to the royal family and to Saudi society than any single race or sporting event was to U.S. spectators.

General Wells took the request as an opportunity to perform a service for Prince Abdullah, one of the three or four most powerful men in Saudi Arabia and a difficult customer for the Corps. Wells asked his designers at the division headquarters to create a plan and specifications for construction of the race course, and he asked the Riyadh District engineer, Col. Rayburn L. Williamson, to act as an adviser to Sheikh Al Towajri, who was in charge of the preparation of the race for the National Guard. While the designers worked, Williamson contacted the contractors already active in Saudi Arabia and alerted them to the coming solicitation.⁹⁴

Division engineers prepared a one-page specification sheet for the project with a blueprint of a jellybean-shaped track, narrower between the straightaways than across the looping curves at each end. To this they added a VIP reception and seating area and access roads. After receiving modifications from General Al Duqan, division personnel hand-carried the design and specifications to Colonel Williamson, who prepared a solicitation. By 21 March, the Riyadh Equestrian Club had a contract with Hyundai Construction Company Ltd. to build the track with access roads, to grade and compact parking lots, and to prepare the earthwork for the king's reviewing area on a mound adjacent to the track. The contract was for SR 575,310, roughly SR 26,000 per kilometer, with a like amount set aside to pay for field changes, modifications, or additional work that might arise during construction.⁹⁵

The design placed the start and finish lines directly in front of the king's seat in the viewing stand. The track was one thousand three hundred yards wide at the start line to accommodate the hundreds of camels that would begin the race. Over

⁹⁴ Interv, Moorhus with Col (Ret) Rayburn Williamson, 28 Sep 95, pp. 11–16.

⁹⁵ DF, Kramer, 22 Mar 78, sub: Camel Race Track, and Attached Copy of Contract; Bennett to Al Towajri, 19 Apr 78, sub: Final Report on the Construction of the Camel Race Track at Al-Janadriah, both in box 18, K-8-5, TAD-RHA.

the first three miles, the track narrowed to fifty-five yards wide in the middle of the first turn and remained that width to the finish line. On 29 March, with construction underway, General Al Duqan asked the division to inform Hyundai that the National Guard wanted the area for the royal family improved. The instruction directed the contractor to add a facing of desert stone to the earth embankments, to lay concrete slabs instead of compacting gravel for the reviewing area, and to modify sidewalks so the king would not have to negotiate stairs. In early April, the Corps received notice of other modifications. Taken together, the changes to the contract brought the total final cost to SR 2,209,310.⁹⁶

Although funding for the camel racetrack came nominally from Prince Abdullah's Riyadh Equestrian Club, King Khalid actually paid for it. As with so many other Saudi projects, the cost increases became an issue. Based on the contract price, Al Towajri had informed the king that the track would cost SR 1.15 million and the king had provided that amount to SANG. As the contractor accommodated the requests for additions and changes, the cost of the construction rose. In mid-April, Al Towajri requested that Williamson meet with him to discuss the cost overrun. Williamson went, accompanied by Al Duqan, who had authorized all of the cost increases.⁹⁷

Al Towajri began the meeting by acknowledging that the National Guard had "caused the Corps a lot of trouble" by requesting help on this project that was beyond the scope of the Corps' mission. He expressed his gratitude and then presented the situation to Williamson as a problem for which he wanted help in finding a solution. He explained his correspondence with the king concerning costs and the dilemma he found himself in because of the increases in cost.⁹⁸

Colonel Williamson chose not to address the cost increases specifically nor to place responsibility for them on General Al Duqan, who had requested and authorized them. He responded rather by expressing the Corps' sense of honor at having been asked to help the Guard prepare the new camel track. He reminded Al Towajri that the bid price had been for an "austere facility." When the sheikh acknowledged that improvements had been added, Colonel Williamson agreed, praising the improvements as "many and outstanding" and noting that the contractor had continued to show his good disposition by bringing in additional workers and working 24-hour days to have the track ready on time. Al Towajri finally requested that the Corps send him a letter stating the reasons for the increase. When asked whether the SR 2,209,310 was the final amount, Williamson replied that "if there are no more changes, it is the total cost."⁹⁹

⁹⁶ Bennett to Al Towajri, 19 Apr 78; Riyadh Equestrian Club, Riyadh, "Request for Proposal 78-R-076-0001 for Construction of a Camel Race Track at Khashm al An, Saudi Arabia," n.d., with blueprints of the proposed track, box 18, K-8-5, TAD-RHA; Interv, Moorhus with Williamson, 28 Sep 95, pp. 13–15.

⁹⁷ MFR, Fisher, 18 Apr 78, sub: Meeting with HE Sheikh Abdul Aziz Towajri, SANG Deputy Commander, on 16 Apr 78, box 20, K-8-6, TAD-RHA.

⁹⁸ Ibid.

⁹⁹ Ibid.

Al Duqan sat through the hour-plus exchange feeling as much on the spot as the American officer. The memo recording the meeting notes laconically that “after the meeting, BG Maashi [Al Duqan] expressed his gratitude to COL Williamson.” Williamson remembers Al Duqan’s response more vividly: “We walked out and General Maashi [Al Duqan] gave me a big hug. And he said, ‘Not only are you a superb engineer, and a great friend, you are an outstanding negotiator.’”¹⁰⁰

The story of the camel racetrack takes more space to recount than its official dimensions merit. Officially, the Corps sought to avoid any overt connection with the construction. A first draft of the request for proposals issued by the Equestrian Club mentioned the Corps as the appointed agent for construction, but that sentence was removed from the version that circulated. In fact, the Corps’s contribution of the design and management time was modest. In its final accounting, the Middle East Division posted a modest line-item charge labeled “camel track” to the FMS Case HBB, Khashm al An, of \$3,266.24.¹⁰¹

The incident illustrates several important elements in the Saudi-U.S. relationship. Prince Abdullah looked upon the Corps as an extension of his own staff. The Corps did construction, he needed a camel track built, and the Corps could build it. General Wells recognized that this was a relatively inexpensive way to foster good relations with the commander of the Guard and the second deputy premier of the kingdom. Colonel Williamson understood that haggling over price was as much a part of the Saudi culture as camels and horses. He dealt with Al Towajjri not by making excuses, shifting responsibility, or rationalizing, but by emphasizing how the changes, which the Saudis had initiated, contributed to a much improved facility and how honored he and the Corps felt to be asked to help. As a result, he cemented his personal relations with both Al Towajjri and Al Duqan, with whom he worked on other SANG projects.

Building the Headquarters

Whereas building the camel track appeared peripheral, building a headquarters for the National Guard was clearly central to the Corps’ mission in Saudi Arabia. The Leo A. Daly Company presented the final design for the headquarters complex to the SANG commander, Prince Abdullah, in May 1975. Over the following year, the Mediterranean Division and then the Middle East Division worked with the designers to prepare a request for proposals for the construction. At the same time, the Engineering Division under Wayne Dykes, encouraged by the Association of General Contractors in the United States, sought willing U.S. construction firms. Several firms expressed interest; but as the time approached to submit bids, three of the five firms that had inquired about the contract backed out, citing the price volatility of the Saudi construction market as too risky for fixed-price contracts. One firm, Leon D. DeMatteis & Sons Inc. of Elmont, New York, joined with Sam

¹⁰⁰ First quotation from MFR, Fisher, 18 Apr 78; second quotation from Interv, Moorhus with Williamson, 28 Sep 95, p. 16.

¹⁰¹ Memo, Verne Brandt, 27 Nov 89, sub: Overpayment of Funds on Saudi Arabian National Guard (SANG) Sales Case HBB, attached form DD 1513-2, [12 Aug 85], Current Files, TAD-RM.

Whan Enterprises of Seoul, South Korea, to bid on the contract. On 31 July 1976, the Corps awarded a \$208 million construction contract for the SANG headquarters complex in Riyadh to the joint venture, DeMatteis–Sam Whan.¹⁰²

By the time of the award, the scope of work had grown to include a multistory headquarters building, an executive office building (which came to include the underground command center), a police barracks, a stockade, a police headquarters building, a signal building, an auditorium, a mosque, a utility plant and utilities, a vehicle maintenance building, a wastewater-treatment plant, ancillary structures, and complete site development. The complex was located on a fifty-acre site in Riyadh and when completed would accommodate three thousand five hundred people.¹⁰³

Over the year between final design and award of the construction contract, Prince Abdullah grew increasingly impatient to see progress on his headquarters building. To expedite the start of construction, the division pulled the site preparation and fencing out of the construction package and awarded those tasks to a local contractor who could make the start on the construction visible. Al Badr Establishment was on site early in the morning on 17 July 1976 to begin work, but the workers could not start because an official from the Ministry of Finance instructed the contractor that the land had not yet been officially turned over to the National Guard. The Al Badr crew chief and a Saudi trainee with the Corps, Nabil Musallam, drove to SANG headquarters to seek help. They returned with an official letter authorizing work to begin and with instructions that “any interference from the Ministry of Finance should be referred to SANG by the CE.”¹⁰⁴

The prime contractor for the headquarters project, DeMatteis–Sam Whan, got off to a slow start after receiving the notice to proceed in mid-September 1976. Problems of financing and procurement and the lack of a cohesive working relationship between the two partner firms compounded the problems of mobilization. The Saudi Arabia District engineer, Colonel Gray, sent a series of letters warning the contractor that he viewed the “delays in the initial phases of the construction to be the responsibility of the Joint Venture” and insisting that the company make up the lost time. He upbraided the contractor for poor preparation and for lack of “orderly plans for staffing a capable and adequate construction organization, with clearly defined functions.”¹⁰⁵ Between November 1976 and February 1977, Gray met with executives of the firms, cajoling, setting out benchmarks for progress,

¹⁰² Williams to Gribble, 13 Jun 75, p. 1; Mediterranean Div Staff Mtg Min, 29 Mar 76, p. 2, box 17, access. no. 77-92-0001, WNRC; Interv, Moorhus with Dykes, 24 Oct 95, pp. 28–29; Vandenberg to Al Towajjri, 12 Mar 76, sub: Sales Case HBA, Saudi Arabia National Guard Headquarters Complex, p. 1, box 250 of 357, TAD-RHA; Wells to Morris, 28 Sep 76, p. 2.

¹⁰³ Saudi Arabia National Guard, Riyadh, Contract DACA 78-76-C-0002, SANG HQ Complex, hand-dtd 1 Sep 78, unmarked box, TAD-RHA; “Saudi Arabia Programs,” 28 Feb 78.

¹⁰⁴ Mediterranean Div Staff Mtg Min, 1 Jun 76, p. 2, box 17, access. no. 77-92-0001, WNRC; Interv, Moorhus with Dykes, 24 Oct 95, p. 29; MFR, Nabil Musallam, 19 Jul 76, sub: Inspection of SANG HQ Complex Site, box 250 of 357, TAD-RHA.

¹⁰⁵ Gray to Leon DeMatteis & Sons Inc. and Sam Whan Enterprises Co. Ltd. (J-V), 18 Sep 76, sub: Start of Construction for Contracts . . . SANG HQ Complex and SANG Maint. Facilities, p. 1, unmarked box, TAD-RHA. On the pressure from Prince Abdullah, see Decision Memo no. 8R, Wells,



General Wells (*right*) observes a briefing for Prince Abdullah (*second from left*), October 1976.

and occasionally raising the threat of contract termination. By mid-March 1977, construction on the headquarters complex had reached only 5 percent. Even the mobilization camp for workers was not yet complete.¹⁰⁶

While Colonel Gray worked on DeMatteis–Sam Whan, both he and the division commander, General Wells, sought to promote good relations with the Saudi Arabian National Guard. They held weekly meetings with Al Towajri to review the progress of the headquarters complex. Wells initiated two audits to address questions Abdullah raised concerning spending by the Corps. He also tried to involve Saudi firms in the SANG program, although the leadership of the Guard remained unconvinced by the Corps' efforts. Relations did improve somewhat when the Guard appointed as its liaison officer a young Saudi engineer, Ibrahim Madani, who had the technical education to discuss engineering-related problems.¹⁰⁷

26 Oct 76, sub: Prince Abdullah's and Secretary Clements' Concern about Corps Work on SANG Projects, box 9, access. no. 77-92-0001, WNRC.

¹⁰⁶ MFR, Capt Phillip R. Anderson, 6 Dec 76, sub: 30 November 1976 Meeting with Sam Whan Representatives, p. 1, unmarked box; Gray to Leon D. DeMatteis & Sons Inc. and Sam Whan Enterprises Co. Ltd. (J-V), 7 Feb 77, sub: SANG Headquarters Complex, p. 1, unmarked box; MFR, Anderson, 27 Feb 77, sub: Unsatisfactory Contract Performance of the DeMatteis–Sam Whan Joint Venture, unmarked box; all in TAD-RHA. Wells to Morris, 16 Mar 77, p. 8; David L. Fulton, Semi-monthly Narr Rpt for Period Ending 15 Mar 77, 20 Mar 77, unmarked box, TAD-RHA.

¹⁰⁷ Quotation from Wells to Morris, 12 Dec 76, p. 1; Memo, Nunn, 11 Nov 76, p. 3; Wells to Morris, 16 Mar 77, p. 3; MFRs, Fisher, 1 Nov 76, p. 3, and 2 Feb 77, p. 2, both in box 18, E-7-2, TAD-RHA.



Prince Abdullah touring the construction site of the Saudi Arabian National Guard headquarters complex, 1977

Construction gained momentum in late 1977 and early 1978; by early July, DeMatteis–Sam Whan had completed roughly half of the construction at the headquarters complex. Prince Abdullah remained impatient. During a visit to the site, Abu Haimid informed the Riyadh District engineer, Colonel Williamson, that Abdullah wanted the Corps to put pressure on the contractor to speed up work. Corps staff pointed out that access to water for the construction had become a significant impediment because it had to be hauled to the construction site at very high cost. Construction could be accelerated, they noted, if the Guard could assist in connecting the construction site to the municipal water system, use its influence to have the local electrical power company install transformers, or approve the use of Italian marble, which was more plentiful than Saudi marble.¹⁰⁸

Abu Haimid also expressed his concern about the water supply. He asked for a report on the daily rate of consumption and cost of water for construction purposes. Ten days later, he raised the possibility that DeMatteis–Sam Whan, which had

¹⁰⁸ MFR, Faraj, 10 Jul 78, sub: HE Sheikh Abu Haimid's Visit to SANG's New HQ Complex, pp. 1–2, box 20, K-8-6, TAD-RHA. See also Memo, John R. Lewis to Dept of the Army, 3 Oct 78, sub: Construction Progress Report, attached Qtrly Status Rpt for Facilities Construction as of 30 Sep 78, E-5-6, and MFR, Wu, 14 Dec 77, sub: Briefing to BG Wells on HBA Funds, p. 1, E-7-3, both in TAD-RHA; MFR, Faraj, 10 Jul 78, p. 2. On the lack of Saudi marble, see MFR, Beach, 28 Mar 78, sub: SANG Headquarters Complex, to Discuss Various Project Topics, Especially Construction Stone (Marble), E-7-3, TAD-RHA.

another contract in Riyadh, might have workers from that project living at the mobilization camp and using water paid for by SANG. The sheikh “did not want any of the workers, working on other projects, to live in the National Guard MOB Camp [nor] to pay for water used at another project.”¹⁰⁹

The antagonism over the cost of water for workers is indicative of the uneasiness that some SANG leaders felt in dealing with the large construction program they had launched. In a later discussion, Abu Haimid accepted the contract that the division had worked out to supply water to the mobilization camp but voiced his fundamental objection to what he described as the Corps’ “method of telling a contractor to do something and discussing the price later.”¹¹⁰

In February 1979, division personnel reviewed with the SANG staff the status of the headquarters construction and the likely delay of the completion date given the changes to the scope of work. Al Towaijri asked that the division analyze in detail the alternatives for adjusting to the effects of the changes on time and cost. In late April, the deputy division engineer, Col. James B. Hall, delivered that report listing seven changes that had altered both cost and time. The contractor had been asked to waterproof the underground command center and to create a subsurface drainage system. The company had also added interfaces for a British communications system to be installed later. The National Guard had ordered an access for private vehicles to the executive office building. In an effort to accommodate the Riyadh electric company’s requirements, the contractor had redesigned and relocated an electrical substation, a task for which he was allowed only two months. Still, the change had come at a time of severe labor shortage and had impeded progress on the rest of the project. The contractor had to find new sand for his architectural concrete because the sand provided by the National Guard failed to meet specifications. Finally, at SANG request, the contractor had redesigned the space requirements and layouts and modified toilets in both the headquarters building and the executive office building.¹¹¹

The division offered four alternatives to address the cumulative effects of these and lesser changes. First, implement none of the modifications still pending. Second, seek to complete the contract as originally scheduled by paying a premium to expedite the work. Third, select one portion of the work to expedite. Finally, make equitable adjustments to cost and time with the contractor. The division had raised but not analyzed a fifth possibility: reduce the scope of work to offset the other increases. It had rejected this alternative as likely to yield a facility that the National Guard would find unsatisfactory.¹¹²

The division advised that alternative four—equitable adjustment with the contractor of schedule and costs—provided the most cost-effective approach to the

¹⁰⁹ MFR, Vedell, 8 Aug 78, sub: Meeting with HE SH Abu Haimid, Deputy Assistant for Technical Affairs, on Funds Analysis of Foreign Military Sales Case HBA, p. 2, E-7-3, TAD-RHA.

¹¹⁰ MFR, Vedell, 11 Sep 78, sub: Meeting at SANG Headquarters, E-7-3, TAD-RHA.

¹¹¹ Hall to Al Towaijri, 22 Apr 79, sub: National Guard Headquarters Construction Completion Date, attachment Changes Impacting Contract Completion, box 16, K-8-5, TAD-RHA.

¹¹² *Ibid.*, p. 1.

problem and gave the greatest likelihood of long-term satisfaction. The analysis offered a perfectly rational assessment, but it did little to resolve—or perhaps even to address—the inherent conflict among the National Guard’s own contradictory desires: sophisticated facilities, cost consciousness, and early occupancy of the new and exceedingly impressive headquarters complex. The tensions between SANG and the Middle East Division persisted.¹¹³

The reaction of SANG leadership to the division’s recommendation reflects what Colonel Bennett described as a consistent disposition to “ignore administrative requirements until the last moment, then become irritated when ‘instant buildings’ cannot be produced.”¹¹⁴ To Corps personnel, it was clear that, given the changes in scope, some adjustments in the deadline for completion and in the contract price were necessary. On 23 December 1979, Wells informed Al Towajiri that the headquarters complex would be completed in mid-1980. The actual completion and turnover of the headquarters complex occurred on 31 July 1980.¹¹⁵

Ground Settlement Problems

Even before the completion of the complex, problems reflecting poor or hurried workmanship began to appear. The area immediately around the SANG headquarters building contained fill to a depth of thirty feet in some places.¹¹⁶ An extensive system of esplanades and sidewalks rested on this fill. Beginning in February 1980, significant settlement started to show. A number of buried asbestos-cement and PVC pipes, used in the irrigation system to water the landscaping and for domestic water distribution, broke at scattered locations around the project site.

In August 1980, the division hired an architect-engineer firm to study the situation and to make recommendations. The firm completed the study in November and determined that the breaks resulted from “deficient compaction and improper bedding.” The study also concluded that the major ground settlement, and therefore the strain on pipes, had already taken place. Unfortunately, breaks continued to occur. The division held the contractor responsible under warranty and latent-defect provisions of the contract, and DeMatteis–Sam Whan responded in a timely way to repair the breaks.¹¹⁷

As problems developed, the Middle East Division took steps to address them in cooperation with the Saudi Arabian National Guard. On 22 September 1980, five division representatives toured the headquarters complex with members of SANG’s recently formed O&M team to review deficiencies the maintenance staff had discovered. In early December, the Riyadh District engineer, Col. Edward K.

¹¹³ MFR, Faraj, 3 Apr 79, sub: Colonel Hall’s Courtesy Call on SANG Officials, p. 1, box 16, K-8-5, TAD-RHA.

¹¹⁴ Bennett to Hon John C. West, U.S. Amb, 27 Feb 79, p. 1, box 16, K-8-5, TAD-RHA.

¹¹⁵ MFR, Vedell, 29 Dec 79, p. 1; Albro to Morris, 21 Sep 80.

¹¹⁶ MFR, A. E. Wanket, 31 Jan 83, sub: Blue Ribbon Panel on Construction Quality—MED & EUD Visits, pp. 7–8, M-1-6, Europe Division—Records Holding Area.

¹¹⁷ For this and the preceding paragraph, see Fact Sheet, Saudi Arabian National Guard (SANG) Headquarters Complex, 30 Nov 81, in Middle East Div, “Information Booklet,” [Dec 81]; Fact Sheets for Bratton’s Visit, Jan 81, “SANG Headquarters Complex.”



Model of the Saudi Arabian National Guard headquarters

Wintz, and the new division engineer, Brig. Gen. Ames S. Albro Jr., initiated weekly meetings with SANG officials to provide updates on the progress of corrections and to keep both sides informed of any new problems.¹¹⁸

Although the weekly meetings offered a forum for discussion, the Saudis were far from satisfied. In January 1981, on the occasion of a visit by the chief of engineers, Lt. Gen. Joseph K. Bratton, the Saudi government appointed a committee consisting of four high-ranking officials—an ambassador from the Saudi Ministry of Foreign Affairs; the director general of military works for MODA, Colonel Al Faisal; the director general for the National Guard Maintenance and Operations Department, Abdul Rahman Abdullah Al Abdan; and the director general of Housing and Military Cities for the National Guard, Abdullah Al Swailem. The committee met with Bratton and Albro and presented a list of criticisms of Corps practices in dealing with projects paid for by the Saudi Arabian government. Giving vent to their frustration, the Saudis offered scathing observations that can be summarized in five propositions:

1. The Corps' estimates were inflated.
2. The Corps concentrated on procurement from the United States at additional cost to the Saudi Arabian government.

¹¹⁸ Donahue, "Tour of National Guard Headquarters Complex," 22 Sep 80; Albro to Abdul Rahman Al-Abdan, 17 Dec 80, sub: Major Problems Remaining at the National Guard HQ Complex," both in box 14, K-8-5, TAD-RHA.

3. The Corps did not use Saudi suppliers of manufactured goods.
4. The Corps should require competition among architect-engineer firms for award of design projects.
5. The Corps did not effectively deal with change orders. Often, when the Saudi Arabian government requested a change, it was not informed of its cost in time or money.¹¹⁹

Albro addressed each point in turn, offering plausible explanations and refutations and proposing new procedures to accommodate the Saudis' concerns:

1. Figures showed that Corps estimates were lower than the average bids on projects and certainly lower than the high bids.
2. Design specifications were expressed in terms of U.S. standards, but products from any country that met those specifications were acceptable. The safest assumption was that contractors made their decisions on the basis of cost.
3. Construction contractors would buy Saudi goods if they were truly cheaper because they would earn higher profits; if they chose not to buy Saudi goods, it was because those goods were more expensive. If the Saudi government so wished, the Corps would certainly add clauses to contracts mandating purchases in Saudi Arabia.
4. Congressional legislation governed the Corps' contracting procedures with architect-engineer firms and expressly forbade competition among them. The Corps process of negotiating with the firms ensured the interests of the Saudi Arabian government while guaranteeing high-quality designs.
5. Contract changes came in three types: field changes, changes dictated by differing site conditions, and customer-directed changes. The Corps attempted to issue no change order until after it had negotiated a price with the contractor. In situations where the change or its delay affected the "critical path" or the final completion date, the Corps ordered immediate implementation of the change.¹²⁰

Although the answers were all well formulated and rational, the Saudis were not persuaded.

The Saudi delegation mentioned several other points. They accused the Corps of violating Saudi law by allowing women to work and by allowing family members to work without permits. They charged that the Corps did not protect the rights of the Saudi government on deficiencies in design and construction and made the Saudi government pay for errors committed by others. They complained that the Corps protected contractors by allowing them to perform their own quality control. The Saudis wanted these points addressed in a renegotiation of the Engineer Assistance Agreement.¹²¹

¹¹⁹ MFR, Winkel, 10 Jan 81, sub: LTG Bratton's Meetings at the National Guard Headquarters, box 11, K-8-4, TAD-RHA.

¹²⁰ Ibid.

¹²¹ Ibid.



Sunshades at a Saudi Arabian National Guard facility, late 1970s

While the SANG committee and the Corps of Engineers debated, extensive settlement of the ground around buildings at the headquarters complex continued, creating a highly unsightly exterior condition at what was otherwise an exceptionally attractive building. During the late spring of 1981, the contractor corrected several areas; but the basic problem persisted. In May, the division began an extensive soil investigation that indicated poor compaction. The contractor had improperly filled around several buildings, especially around the underground command center. When water infiltrated the soil, either from a break in a pipe or from the system installed to irrigate the landscaping, the poor fill settled, causing the failure of sidewalks, curbs, and streets. The division redesigned the curb-sidewalk and irrigation system in an effort to avoid saturating the soil adjacent to and under sidewalks and curbs. The modifications raised questions about the appropriateness of the original design and thereby opened the issue of liability on the part of the architect-engineer.¹²²

Despite the visible problems, the buildings faced no risk to their structural integrity because their foundations rested solidly on the rock substratum under the headquarters site. Albro assured the Guard that the buildings were not at risk, but this assurance may have been difficult to accept when the most visible features of the office complex (sidewalks, flowerbeds, even a sun-shade portico designed to cover the walk around a building) began to settle and break. The problem was pervasive,

¹²² On the general character of the problem, see Intervs, Moorhus with Thomas, 27 Aug 96, pp. 14–16; John T. Greenwood with Paul S. Wheeler, 31 May 85, pp. 42–43; John T. Greenwood with Col. Gurnie Gunter, 24 Mar 84, pp. 67–68; Paul K. Walker with Gus Woodall, 5 Feb 85, pp. 110–13. Fact Sheet, 30 Nov 81, in Middle East Div, “Information Booklet,” [Dec 81].

affecting the grounds, sidewalks, and streets around half a dozen buildings at the complex.¹²³

The settlement of soils was devastating to the aesthetics of the headquarters site and to the precarious element of trust that the Saudi Arabian National Guard felt regarding the work of the Corps. SANG leaders took the position that the architect-engineer, the construction contractor, or the division had to pay the costs of correcting the situation. The division countered that it held the construction contractor and the architect-engineer firm responsible for errors that were demonstrably attributable to them. Beyond that, funding for correcting deficiencies had to come from contingency funds built into the working estimate for the project. That meant that the Saudi government paid.¹²⁴

It took time; but by 1982, the Corps and SANG had come to terms on most issues. In a January meeting, Al Towaijri expressed to the new Riyadh District engineer, Col. James R. Whitley, his judgment that a project as large as the headquarters complex “could not have gone without some mistakes.” He simply wanted the Corps to study the mistakes, describe them, decide which were minor and which were major, and determine the cost involved in correcting them. The sheikh considered the Corps and the Guard “as one team,” and he wanted the Corps’ “honest and professional opinion in the evaluation.” The meeting left the division representatives feeling that they had reestablished effective communications and that the requested study would allay the Guard’s doubts.¹²⁵

The question of contractor liability remained. In the spring of 1982, General Albro telegraphed an urgent request to the commander of the Corps’ Waterways Experiment Station in Vicksburg, Mississippi, asking him to expedite test results on soil samples related to the problems at the headquarters complex. Albro expected that the claims arising from the corrective work would find their settlement only “in a court of law.” Over the remaining months of 1982, the division continued to negotiate with the joint venture DeMatteis–Sam Whan. By the end of the year, the contractor had decided to demobilize and to perform no further work on deficiencies. The Middle East Division’s position, supported by SANG, was to let that occur, to hire another contractor to correct deficiencies, and to pay that contractor out of project funds that might otherwise have gone to DeMatteis–Sam Whan.¹²⁶

The context of the period 1979–1982 is crucial to assessing the crisis of confidence of the Saudi Arabian National Guard toward the Corps of Engineers. The

¹²³ Albro to Abu Haimid, 25 Feb 81, sub: National Guard Construction Problems, p. 1; Rpt, [Sep 81], sub: “D” Building Repairs, and Status of M&O Reported Civil Deficiencies; both in box 1, K-8-41, TAD-RHA.

¹²⁴ Fact Sheet, 30 Nov 81, in Middle East Div, “Information Booklet,” [Dec 81].

¹²⁵ MFR, Faraj, 6 Jan 82, sub: Meeting with HE Sheikh Abdul Aziz bin Al Towaijri, National Guard Deputy, box 9, K-8-4, TAD-RHA.

¹²⁶ Telex, Albro to Cdr WES Vicksburg, 21 Apr 82, sub: Saudi Arabian National Guard HQ Complex, Riyadh SA, Walker box 6, OH, HQ USACE; Memos, Thomas L. Carnes, 4 Dec 82, sub: Meeting with HE SH Abdul Rahman Abu Haimid, National Guard Deputy for Technical Affairs, and 19 Dec 82, sub: Meeting with SH Abu Haimid, SANG Deputy for Technical Affairs, Concerning the Remaining Repair Work at SANG HQ Complex, both in box 9, K-8-4, TAD-RHA.

Guard's grievances had factual bases in the construction that the Corps delivered. At the same time, the grievances may also have been an expression of the uneasiness that Saudis in general felt about the Americans and in particular about their relationship with the U.S. military establishment. The concerns of the SANG, in many ways the most traditional and conservative element of the Saudi military forces, came at a time when the position of the United States was in crisis throughout the Arab world. The Camp David agreements of 1978, the collapse of the government of the shah of Iran in 1979 and the hostage crisis that continued throughout 1980, the Soviet incursion into Afghanistan, the fundamentalist Muslim seizure of the Grand Mosque in Mecca, and the abortive attempt to rescue the American hostages in Iran in April 1980 all undermined the prestige of the United States in the eyes of the Saudi Arabian leadership.¹²⁷

The misunderstandings between SANG and the Corps of Engineers eventually diminished in intensity, and both sides could look with satisfaction on what had been accomplished while not overlooking what had remained undone or poorly done. The office space was large enough to accommodate three thousand five hundred people in a building that, as several observers commented, turned out to be one of the most beautiful the Corps constructed in Saudi Arabia. The entire complex, with all the modifications and changes, cost \$286 million. Sheikh Al Towaijri was right: In so large a project, problems were inevitable. On balance, the problems were small compared to the accomplishment. A comment made by the last commander of the Middle East Division in Saudi Arabia, Brig. Gen. James W. Ray, puts the problems relating to construction for SANG in perspective. In describing the total program in Saudi Arabia in 1985, Ray pointed out that problems had arisen with less than 0.5 percent of the construction measured by value. "That," he concluded, "converts to a success rate of 99.5 percent."¹²⁸

¹²⁷ *Foreign Affairs Chronology of World Events*, 2d ed., 1978–1991 (New York: Council on Foreign Relations Press, 1992).

¹²⁸ Fact Sheet, MED Projs in Saudi Arabia, 29 Mar 85; "Authorization—Design and Construction of Facilities, Saudi Arabia National Guard Program (SANG), FMS Case HBA," 9 Apr 86, app. A, Current Files, TAD-RM; "Saudi Arabian Programs," [1981], p. 10. On the building's beauty, see MFR, Wanket, 31 Jan 83, p. 8; Interv, John T. Greenwood with Wayne Henry, Nov 85, p. 26; "Saudi Arabia: Still a Healthy Program," *Middle East Division News*, March-April 1985, p. 5.

12

KING ABDULAZIZ MILITARY ACADEMY

The volume of contractor activity in Saudi Arabia in the late 1970s was truly staggering. The Saudi government's ambitious five-year development plan for 1976–1980 devoted to construction over half of its \$142 *billion* budget. In characterizing the rapidity of modernization taking place, one commentator noted that as recently as the early twentieth century the wheel had been virtually unused in Saudi Arabia. This made the pace of construction to establish roads, ports, communications facilities, and all the accouterments of the modern age all the more astounding. The Saudis referred to the efforts to modernize their entire economy as “The Battle of the Infrastructure.”¹

Modernization of the Saudi Arabian military constituted only one small part of the Saudi five-year plan. Among the many projects for which the U.S. Army Corps of Engineers had preliminary plans that exceeded a billion dollars, two large building programs stood out: the new King Abdulaziz Military Academy (KAMA) and King Khalid Military City (KKMC), the third cantonment near Hafar al Batin. This and the following chapter cover the general issues that relate to the two mega-programs and discuss each in detail.

When the leadership of the Saudi Arabian Ministry of Defense and Aviation (MODA) embarked on modernization of its military forces, the country had an academy to train military officers. In its early years, the school was in Makkah and then Taif; it was relocated to Riyadh in 1955. MODA envisioned a permanent facility and an expansion to make the existing two-year program comparable to the training at the U.S. Military Academy at West Point. To realize these plans, MODA approached the U.S. Army Corps of Engineers in the early 1970s to supervise design and construction of a new academy.²

In July 1973, the Mediterranean Division received authorization from the Office of the Chief of Engineers (OCE) to undertake advanced study for the design and

¹ Peter A. Iseman, “The Arabian Ethos,” *Harper's* (February 1978): 37–56.

² Williams, “Notes from the Division Engineer,” 4 Oct 73, unmarked box, Transatlantic Division–Records Holding Area (TAD-RHA), mentions the first graduating class from the King Abdulaziz Military Academy. Interv. Grathwol with Col (Ret) Dr. Terrence Ryan, 21 May 97, Alexandria, Va., p. 4d, and Albro, “House Foreign Affairs Subcommittee on Europe and the Middle East” (typescript), 22 Jul 81, Current Files, Transatlantic Division–Public Affairs Office (TAD-PAO), both mention the two-year cadet program in Riyadh.

construction of King Abdulaziz Military Academy. The initial estimates for the project put construction costs at \$125 million. The division assigned a new employee in the Engineering Division, Frank Oliva, as project manager.³

In September 1973, Oliva traveled to Riyadh to meet with Saudi officials. Because Saudi Arabia had a limited population from which to recruit cadets, the division instructed Oliva to inquire whether MODA intended to build an all-service academy or one designed to train only army officers.⁴ Just after Oliva arrived, the Yom Kippur War broke out and oil prices quickly tripled, generating vast revenues and reserves of “petrodollars” for the Saudi Arabian government. With their wealth increasing, the Saudis chose to build the academy exclusively for army officers.

In March–April 1974, the Saudis approved the joint venture of Caudill, Rowlett, and Scott (CRS) of Houston, Texas, and McGaughey, Marshall and McMillan (MMM) of Norfolk, Virginia, to develop a master plan for the military academy. By late 1975, the joint venture had drawn up a design for the designated site fifty-five kilometers northwest of Riyadh in a previously undeveloped area. The plan called for a self-contained complex of facilities, including seventy buildings, distributed in three zones: the academic campus, the general maneuver and training area, and a complex of training ranges. In addition to facilities for instruction and physical education, a library building, cadet quarters, and a mess hall, the academic campus included bachelor quarters, family housing for the faculty and support staff, space for community worship, market areas, and family recreational areas. The housing area, which featured a series of plazas, also had elementary and high schools. A separate area for support services contained plant-maintenance facilities, the central utilities, warehouses, POL facilities, maintenance and facilities engineering shops, and the energy plant.⁵

To present the master plan to Prince Sultan, the minister of Defense and Aviation, in November 1975 the CRS lead architect assembled slides, sketches, display panels, and about a dozen models of different facilities. CRS then created a video simulating a walk through the academy that began by ascending along a steep road from the plateau to the front gates set high on the bluff above. The display panels and models supplemented the video. Saudi Arabia’s military liaison officer, Lt. Col. Mahmoud Nassief, presented the master plan to Prince Sultan and the MODA staff using the

³ Joan Kibler, “Saudis Host Close-out Ceremony,” *Engineer Update*, May 1988; Durham to Williams, 3 Sep 73, p. 3, box 51-84-9383, Richard T. Farrell Papers, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.; Interv, authors with Frank Oliva, 13 Jan 95, pp. 7–8.

⁴ Durham to Williams, 3 Sep 73, p. 3; Interv, authors with Oliva, 13 Jan 95, pp. 10–11; U.S. Congress, House, *Activities of the United States Army Corps of Engineers in Saudi Arabia. Hearings Before the Subcommittee on Europe and The Middle East (Lee H. Hamilton [Indiana], Chairman), of the Committee on Foreign Relations, 96th Cong., 1st sess., 1979, p. 77 (hereafter cited as Hamilton Comm Hearings).*

⁵ “King Abdul Aziz [sic] Military Academy Project Plan,” Apr 78, p. 1, E-1-1, TAD-RHA; MFR, Blake, 30 Apr 74, sub: Meeting with Mr. Nassief, Major Barney, and Mr. Peterson, 28 Apr 74, p. 1, Walker box 8, OH, HQ USACE; “King Abdulaziz Military Academy Master Plan,” Dec 81, OH, HQ USACE.

slides and artists' sketches of the academy mounted on eight large panels stretched across the room. Oliva placed his project team of engineers behind the panels armed with documentation on all aspects of the project in case any questions arose. Nassief made his presentation in Arabic and handled all the questions himself.⁶

Prince Sultan approved the KAMA concept; on 15 December 1975, an MMM representative hand-delivered the joint venture's design proposal for the next phase to the Corps offices in Italy. As the architects, engineers, and the division's project team worked to prepare the contract for final design, the division engineer, Col. Torrey Williams, and his deputy, Col. William E. Vandenberg, scrutinized the master plan. From their perspective as graduates of West Point, they insisted that the distances between locations on the campus made it impossible for cadets to get from one class to another on time. To address this concern, designers moved the large parade grounds from the center of the academic campus to the side next to the physical education facilities and moved the academic buildings closer together. Colonel Williams was pleased that, although "it took us at least four tries . . . CRS finally came up with a layout . . . [that was] acceptable and practical" for the cadets.⁷

Beginning Construction

In July 1976, CRS-MMM received a notice to proceed with final design. By October, the design team had completed the final designs for three early construction packages involving the development of water wells and stockpiles of aggregate. Not until January 1978, eighteen months after approving initiation of detailed design, did MODA program the funds needed to begin construction of the military academy. The Corps convened a task force to plan the contracting schedule. When MODA urged the Middle East Division to reserve some work for Saudi contractors, the task force rearranged the construction packages to match the technical capabilities of Saudi construction firms. Of the thirty-two contract packages the task force defined for the project (later consolidated to twenty-nine), the division set aside nine for Saudi firms. By March, the team from CRS-MMM had completed 70 percent of the design for the entire academy complex. At this point, mid-March 1978, the Corps had \$346 million available for construction contracts, nearly a threefold increase over the original \$125-million estimate for the entire KAMA project. The estimated costs for the whole project had grown to \$2.56 billion, but this turned out to be nearly \$1 billion higher than the actual final costs.⁸

⁶ Mediterranean Div Staff Mtg Min, 12 Nov 75, p. 3, box 18, access. no. 77-92-0001, Washington National Records Center (WNRC), Suitland, Md.; MFR, Wanket, 31 Jan 83, sub: Blue Ribbon Panel on Construction Quality—MED & EUD Visits, p. 7, M-1-6, Europe Division—Records Holding Area. For a description of Nassief's presentation, see Interv, authors with Oliva, 13 Jan 95, pp. 15–17.

⁷ Med Div Staff Mtg Min, 15 Dec 75, p. 3, box 18, access. no. 77-92-0001, WNRC; Interv, Thomas Tulenko with Col (Ret) Charles T. Williams, 20–21 Feb 85, p. 117. On Lawrence's solution, see Interv, authors with Oliva, 13 Jan 95, pp. 16–17.

⁸ Mediterranean Div, "Data Book," 1 May 76, p. 17, box 1, access. no. 77-92-0001, WNRC; Bennett to Al Faisal, [20] Oct 76, sub: MODA Budget Item 4/8/15, King Abdul Aziz [sic] Mil Academy, E-7-3, TAD-RHA; DF, West, 13 Jan 78, sub: Significant Activities Report, 16 Dec–15 Jan, Construc-

The project team identified six contract packages as critical to the sequencing of construction: development of a water source, creation of the mobilization camp for five thousand to seven thousand five hundred workers, development of a system for delivering concrete, construction of the academic campus, excavation into the limestone rock that lay beneath the surface soil on the site, and installation of central utilities. The first five construction contracts, awarded between July and November 1978, included the water source and the mobilization camp but not the other critical packages. Early in 1979, the division awarded contracts for the development of a zone as a contractor area and for support services. The value of the contracts for this preparatory work made KAMA the second largest project in the Saudi program at that time.⁹

Designating the concrete-delivery system as a critical contract established an element in common between the projects to build KAMA and KKMC. The design concept for both projects called for a single cost-plus-award-fee (CPAF) contractor to provide ready-mix concrete, concrete block, and precast concrete elements for all other construction contractors working on the project. The plan also called for the contractor that won the award for the concrete-delivery system to provide life-support services for the contractors working on other construction packages.¹⁰

The Middle East Division developed the specifications for the concrete-delivery system contract at KAMA in early 1978, but various delays postponed solicitation of bids. In the early stages of planning for KAMA and KKMC, the division's managers anticipated using similar contracting approaches. When the delays put the KAMA project nearly two years behind the contract negotiations for the prime contractor at Hafar al Batin, division planners decided on different contracting arrangements. Initially, division managers assumed that they would have to offer a contract with a price redetermination clause allowing renegotiation after three years. In 1953–1954, the Mediterranean Division had used such a clause in converting the Atlas Constructors' cost-plus-fixed-fee (CPFF) contract in Morocco to a fixed-price contract.

tion Programs Branch, p. 4, E-5-6, TAD-RHA; Kramer, "King Abdulaziz Military Academy: Site and Other Information," 19 Feb 78, E-7-4, TAD-RHA; "King Abdul Aziz [*sic*] Military Academy Project Plan," Apr 78, pp. 1–3, 8–9, E-1-1, TAD-RHA; Telex, Ghani and Lt Col Daly to Reichel, 29 Sep 79, sub: KAMA Briefing, K-8-5, TAD-RHA; Memo, Palladino, 14 Feb 78, sub: Summary of Division (Rear) Staff Meeting, Historical Files, unmarked box, TAD-RHA; Memo, Bennett to HQDA, 7 Mar 78, sub: Request by MODA for Source Selection, E-7-4, TAD-RHA. The increase to the estimated total cost is in Bennett to Al Faisal, 5 Jun 78, sub: Increase in Design Requirement—King Abdulaziz Military Academy, Riyadh, I-5-1, TAD-RHA. Final cost is given in Memo, Lt Col Charles S. Cox, 9 Apr 91, sub: Authorization—Design and Construction of Facilities Under Engineering Assistance Agreement, King Abdulaziz Military Academy, HAY, Current Files, Transatlantic Division—Resource Management.

⁹ "King Abdul Aziz [*sic*] Mil Academy Project Plan," Apr 78, pp. iv, 9–17; Interv, authors with John Cummings, 18 Nov 93, p. 5; KAMA Contract Status Rpt, 27 Feb 85, attached to Riyadh Dist Serial Ltr 85/3/96, sub: Construction Status Report, King Abdulaziz Military Academy (KAMA), Oyeyneh, Saudi Arabia, K-8-3, TAD-RHA; Ellis to Morris, 26 Sep 78, p. 2, Walker box 6, OH, HQ USACE.

¹⁰ "King Abdul Aziz [*sic*] Military Academy Project Plan," Apr 78, p. iv.

By the spring of 1979, the economic conditions in Saudi Arabia had stabilized substantially; the staff in Riyadh concluded that contractors would accept a fixed-price contract, even for a five-year period of performance. In early April, the division recommended that MODA authorize award of a fixed-price contract for just under \$112 million to Hyundai Construction Company. Ten weeks later, on 26 June, the division awarded Hyundai the contract. A month after that, the division awarded a contract for \$178.44 million—the largest of the KAMA contracts—to another Korean contractor, Chin Hung International Inc., to build the academic campus and buildings.¹¹

Effective 19 December 1979, the office overseeing the academy's construction became the KAMA Area Office. Its staff of about one hundred administered fourteen current construction contracts with a total value of \$492 million. When the KAMA Area Office took charge, Hyundai had its concrete plant well underway. Until the plant was fully operational, Hyundai supplied ready-mix concrete to other contractors by using a temporary batch plant. By May 1980, the team from CRS-MMM had the design for KAMA essentially complete and Hyundai had its batch plant producing concrete for other contractors. The contractor also had nearly completed the precast plant. In just six months, the value of construction managed by the KAMA Area Office had increased to \$750 million.¹²

Notwithstanding the progress, delays put the KAMA project far behind the schedule planners had set in 1976. Although the division had awarded twenty of the twenty-nine construction contracts by the autumn of 1980, it was evident that KAMA would not open, even for partial occupancy, by the projected date of October 1982. The division engineer, Brig. Gen. Ames S. Albro Jr., attributed the failure to meet the deadline at least in part to “over-optimistic scheduling” in the early planning for the academy.¹³

Procuring Equipment, Furniture, and Furnishings

As contractors signed on progressively during 1978 and 1979, construction moved ahead on the academic campus. By mid-September 1979, twelve construction contracts, about half the number anticipated, were underway. With work progressing, the Middle East Division began planning to have its Rear Echelon in northwestern Virginia arrange procurement for KAMA of equipment, furniture, and furnishings for the academy.¹⁴

¹¹ Hall to Al Faisal, 8 Apr 79, sub: King Abdulaziz Military Academy, Concrete Delivery System, 21, Request for Authority to Award, E-7-5, TAD-RHA; KAMA Contract Status Rpt, 27 Feb 85, attached to Riyadh Dist Serial Ltr 85/3/96; Ellis to Morris, 19 Sep 79, Walker box 6, OH, HQ USACE.

¹² Ellis to Morris, 11 Jan 80, p. 13, Walker box 6, OH, HQ USACE; Ellis, “House Foreign Affairs Subcommittee on Europe and the Middle East,” Informal Bfg on 11 Mar 80, p. 5, Current Files, TAD-PAO; Ellis to Morris, 24 May 80, Walker box 6, OH, HQ USACE.

¹³ Ellis, “House Foreign Affairs Subcommittee on Europe and the Middle East,” 11 Mar 80, p. 5; Albro to Morris, 21 Sep 80, p. 4, box 1, access. no. 77-92-0001, WNRC.

¹⁴ Ellis to Morris, 19 Sep 79. For this and the following paragraph, see also Interv, Moorhus with Roger Thomas, 27 Aug 96, pp. 28–31.

In setting out the scope of design contracts, division planners insisted that the architect-engineers working on KAMA hire interior decorators and designers to define the needed equipment and furnishings. The firms prepared sample books for carpets and drapes and photographs of furniture and equipment. The division also sent staff to visit the manufacturers and suppliers of items such as desks, desk chairs, filing cabinets, laboratory tables, and lecture hall desk-seats.

The sample books and photographs of the merchandise did not always satisfy the Saudis. In May 1981, Maj. Mohammad Nafisah, a MODA officer who had been an engineer-trainee with the Corps in Livorno in the early 1970s, dismissed the catalogs. He wanted furniture displays set up, preferably in Saudi Arabia, for representatives of the General Directorate of Military Works (GDMW) and the academy staff to examine. Staff from the division in Virginia arranged to have manufacturers create seven mockup rooms at Robert F. Kennedy Memorial Stadium in Washington, D.C. Col. Naser F. Al Faisal and other GDMW officers looked at the configurations and selected pieces to create office ensembles for the executive conference room and the superintendent, the chief of staff, and other academy staff.¹⁵ This attention to detail, even to selecting specific pieces of furniture for individual offices, typified Saudi involvement in the massive construction program. At KAMA, as in other projects, it lengthened the process of procurement and construction.

The program to build and furnish the academy created more than the usual range of problems for the division's procurement team. Procurement personnel had to know the curriculum to configure space for teaching and research and to buy equipment. Science courses that included laboratory work dictated a certain type of classroom and specific equipment. Curriculum development for the academy often lagged, slowing the procurement efforts.¹⁶

The scope of the program—creating a whole new academy—translated into buying the furnishings for an entire small college. Few manufacturers of desks, filing cabinets, and laboratory equipment had the production capacity to supply large quantities of goods in a very short span of time. Some companies declined the offer to bid, explaining that the volume and the short deadlines imposed by this one-time order threatened their ability to maintain production for regular customers. One company, Steelcase of Michigan, solved the problem by rearranging its production schedule. Crews worked overtime for several months to build up an inventory surplus of the items most frequently ordered and then devoted full production to the Saudi order for ninety days.

The procurement team ran into unanticipated complications in furnishing the one thousand three hundred fifty family-housing units for students and faculty. When the furniture arrived in Saudi Arabia, some pieces did not fit. Modifications

¹⁵ MFR, Donahue, 3 May 81, sub: Record of Meeting with MDW Personnel on KAMA & RSAF HQ, p. 1, K-8-4, TAD-RHA. On Nafisah's service as a trainee in Italy, see MFR, Oliva, 18 Jan 78, sub: King Abdulaziz Military Academy, E-7-4, TAD-RHA; MFR, Roger Holloway, 2 Jul 81, sub: Col. Faisal's Comments on Furniture for KAMA, K-8-4, TAD-RHA; Albrot to Bratton, 7 Mar 81, p. 1, Walker box 6, OH, HQ USACE.

¹⁶ Interv, Moorhus with Thomas, 27 Aug 96, p. 28.



Construction of bachelor officers quarters and club at King Abdulaziz Military Academy, April 1982

made during construction had changed the dimensions of the living rooms, but no one had informed the procurement team.¹⁷

Getting the Program on Track, 1981–1983

By the summer of 1981, 80 percent of the KAMA construction packages were under contract. The academy occupied a tract of land with a total area of just over one hundred square miles. Most of the construction activity took place in the academic zone, which, at slightly more than half a square mile, represented less than 1 percent of the total area. In that limited space, the workers from a score of individual contracting companies, drawn from almost as many nationalities, operated two dozen tower cranes and other machinery in an effort to build seventy buildings and the utilities to support them. Activity was intense; despite the best efforts of the KAMA Area Office staff, construction continued to fall further behind the scheduled pace for completion.¹⁸

¹⁷ Ibid., pp. 31–33, for this and preceding paragraph.

¹⁸ “King Abdulaziz Military Academy Master Plan,” Dec 81, maps on pp. 2–3; MFR, Wanket, 31 Jan 83, p. 7; Intervs, Moorhus with Thomas, 27 Aug 96, pp. 28–29, and authors with Ryan, 21 May 97, pp. 4–5, 13.



Utility trench excavation at King Abdulaziz Military Academy, early 1980s

The Middle East Division revised the construction plan for KAMA almost yearly after the original formulation in early 1978. The arrival of a new area engineer, Lt. Col. Terrence Ryan, in August 1981 became the occasion for another update. Ryan had studied construction management and had several years of experience teaching at West Point. Concerned that construction was not proceeding according to plan, he decided to compare the actual progress of construction with the scheduled progress using his own Apple II+ computer and an early spreadsheet application (Visicalc). The KAMA area office had just begun to acquire its own computer capability and to apply it to management analysis.¹⁹

Ryan and the staff devised computer models to track the pace of construction needed to get the project on track. They programmed the models to compare that pace with the amount of the crucial materials and utilities—concrete, power, and water—necessary to sustain construction. They found that by FY 1982, when construction placement increased to the level of \$1 million a day, the supply of critical materials would fall below the level the construction contractors needed.²⁰ Armed with this information, area office personnel began looking for ways to balance the supply of construction materials with demand.

In the case of the concrete-delivery system, the solution was conceptually simple but contractually more complicated. Hyundai had planned and constructed the concrete-delivery system using projections of contractor demand from the construction schedules in the solicitations. Delays in awarding construction contracts reduced the early demand for concrete, but that shortfall would have to be “made up” in 1982. Hyundai’s plants did not have the production capacity to meet the projected demand. The Saudi Arabian government approved the recommendation of the planning task force to modify Hyundai’s contract, giving the company nearly \$50 million to build increased capacity. The decision to spend the additional money saved money in the long run by avoiding claims from the construction contractors for delays imposed by the lack of deliverable concrete.²¹

In reworking the master schedule, the area office staff formulated solutions to overcome the shortages predicted in other critical materials. They proposed to expand the electrical power plant by adding thirteen gas-powered generators from KKMC. They outlined contingency strategies to compensate for projected shortages of water and sewage capacity and to address anticipated problems with the heating and air-conditioning systems. In the summer of 1982, General Albro reported to the chief of engineers that the division had made “significant management improvements” at the KAMA Area Office. He observed that “the key element . . . [was the] automated master network which is being used to predict, and hopefully

¹⁹ “King Abdulaziz Military Academy Master Plan,” Dec 81, p. 7; Interv, authors with Ryan, 21 May 97, pp. 2, 21–22.

²⁰ “King Abdulaziz Military Academy Master Plan,” Dec 81, pp. 4–8; Interv, authors with Ryan, 21 May 97, pp. 27–28. See also Albro to Bratton, 16 Dec 81, p. 5, Walker box 6, OH, HQ USACE, on Ryan’s role in the “comprehensive review” of the KAMA program.

²¹ “King Abdulaziz Military Academy Master Plan,” Dec 81, pp. 23–24; Interv, authors with Ryan, 21 May 97, pp. 27–28d.

overcome” the delays brought on by changes made in the contracted work. He concluded that “predictions are optimistic that all necessary facilities will be ready by 1 May 1983 for the scheduled activation of the Military Academy at the 500-cadet occupancy level.”²²

Colonel Ryan, who left Saudi Arabia in August 1982, was the last military commander of the KAMA Area Office. His successor, George J. Zeiler, had served as chief of the Riyadh District’s Construction Division. Supervising a staff of nearly one hundred fifty, Zeiler used the contingency plans to circumvent delays and the computer programs to chart progress. As a result, he was able to maintain the schedules for placement laid out in the revised project plan of 1981. Albro’s prediction of completion by May 1983 came close; the facility received the first five hundred cadets in September 1983. In 1984, the Society of American Military Engineers awarded Zeiler the George W. Goethals Medal in recognition of his achievement.²³

While the procurement team shopped for equipment and furnishings and the area office moved construction forward, the Riyadh District prepared the Saudis to take over the facilities. Beginning in October 1980, the district helped MODA develop capabilities for the operations and maintenance (O&M) of King Abdulaziz Military Academy. In January 1982, the district’s Facilities Engineering Branch helped MODA draft an interim O&M contract; nine months later, the district issued a request for proposals. The Corps began turning over the KAMA facilities to the Saudis in May 1983. As turnover progressed, district staff continued to assist MODA with planning, organizing, and transferring the functions associated with operations and maintenance of the facilities. By October 1983, MODA assumed all O&M functions at KAMA.²⁴

Completing the Academy

The key to steady progress at KAMA was full operation of Hyundai’s concrete-delivery system. The Hyundai precast plant had eight production bays, each measuring 230 by 394 feet. They produced at a rate of one hundred to three hundred thirty elements per day, depending on the type of element. The precast pieces varied from small products about 1 foot by 3 feet by 6 inches to pieces measuring 30 feet by 22 feet by 6 inches that weighed as much as 34 tons each.²⁵ One of the

²² “King Abdulaziz Military Academy Master Plan,” Dec 81, pp. 32–67, 118–21; quotation from Albro, Cdr’s Periodic Ltr, 5 Jun 82, p. 2, Walker box 6, OH, HQ USACE; Memo, Albro to Hal West, 31 Mar 82, p. 1, Walker box 6, OH, HQ USACE; Interv, authors with Ryan, 21 May 97, p. 26. The generators have a brand name, Solar, that leads to confusion when the documents are examined.

²³ Interv, authors with Ryan, 21 May 97, p. 25; “Zeiler, Topp Win Society Awards,” *Mt. Weather Bulletin*, March-April 1984.

²⁴ See DF, Col James P. Oppenheim, 1 Feb 84, sub: Division Commander’s Periodic Letter, p. 14, E-1-1, and Fact Sheet, Facilities Engineering Br, Riyadh Dist, unmarked box, both in TAD-RHA.

²⁵ The source for this and following paragraphs uses English rather than metric measurements. See “Concrete Is in Full Command at Saudi Arabia’s West Point,” *Concrete Products*, March 1984, pp. 34–35.

more innovative elements was the tri-beam, a triangle-shaped beam designed to fulfill three functions: structural, architectural, and mechanical. Structurally, the beam was a load-bearing element. At its center, it had a four-inch hole that ran its entire length and was designed to hold air-conditioning ducts and, in some instances, drainage pipes. Hyundai produced more than four thousand five hundred tri-beams, typically measuring 9 inches wide, 10 inches deep, and 32 feet long.

To supply the precast plant, as well as to provide concrete for cast-in-place elements, Hyundai constructed two central mix plants and used seventeen mixer trucks to deliver the ready-mixed concrete to the pour sites. The company produced concrete block on two machines, each of which could turn out three hundred eighty units an hour. The company also used three paver machines. Hyundai made all the precast elements in flat steel molds. Once the concrete set, pieces were steam-cured for nine hours. Pieces that would be externally exposed were sandblasted to produce an architectural finish. Getting a satisfactory finish on the precast and cast-in-place pieces proved to be an enormous challenge.²⁶ So did the pattern of production.

When Colonel Ryan arrived in August 1981, Hyundai was producing pieces by size, giving preference to the small pieces that could be handled easily. Ryan insisted that production be shifted to turn out the structural pieces needed early in the construction so that the contractors would have them to erect the buildings.²⁷ The large site area had ample space for storage locations, so the contractor could stockpile as many as twenty-six thousand pieces. Forty-eight A-frame trailers and ten flatbed trailers transported pieces from the production plant to storage and to the construction sites.

The area office had to sequence construction carefully to allow orderly progression of the work of the twenty-four multinational contractors and their twelve thousand workers. Staff also identified critical meeting points between segments of utility systems put in place by different contractors. These interfaces had to be monitored so that physical hookups—conduits for wiring, pipes for water—would meet and match. The staff catalogued five hundred such interface points between contract packages and used computer-generated management reports to coordinate placement at these critical points.²⁸

In August 1982, with construction proceeding rapidly, the division invited the cadets attending the military academy in Riyadh to visit the facilities they would occupy the following year. The assistant area engineer gave a slideshow on the facilities for the cadets while a member of the faculty provided an Arabic translation. The cadets then boarded buses for the tour of the facilities.²⁹

The instructors for military tactics, most of whom were Pakistani, showed special interest in the ten ranges where cadets trained in everything from small-arms fire to

²⁶ MFR, Wanket, 31 Jan 83, p. 8; Interv, authors with Ryan, 21 May 97, pp. 13–18.

²⁷ Interv, authors with Ryan, 21 May 97, pp. 13–18, 22–24.

²⁸ Ibid., pp. 33–34; “Duke Wins Tudor Medal for KAMA Work,” *Middle East Division News*, March–April 1985.

²⁹ MFR, Maj Wesley J. McMillan, 21 Aug 82, sub: Visit of Existing King Abdulaziz Military Academy (KAMA) Cadets, K-8-4, TAD-RHA.



This page and top right, precast concrete panels were used extensively in construction at King Abdulaziz Military Academy.





Below, because of the volume of construction, it was commonly said that “the crane is the national bird of Saudi Arabia.”





Main entry to the library/administration building under construction at King Abdulaziz Military Academy, early 1980s

mortar and antitank firing. All of the ranges had state-of-the-art electronic equipment, including pop-up and swing-out targets. Among the ranges was an infiltration course where trainees would traverse terrain while a machine gun fired over their heads. To convey a sense of combat conditions, the course incorporated numerous shell holes, trenches, and firing devices that simulated exploding shell bursts. Here, too, the Saudis had state-of-the-art technology, with running-man targets, swing-out targets, pop-up targets in windows, battle-sound devices, and shell-burst simulators. The instructors particularly appreciated the mock village, where the touring group observed a training demonstration of urban combat. The cadets found the size of the academy's built spaces imposing. Inside, they liked the size of the rooms they would occupy as quarters, but they wanted more storage space for clothing. Cadets also questioned the size of beds and raised concerns about living so far from Riyadh, where many had second jobs.³⁰

The cadets who arrived in the autumn of 1983 for their initial term at King Abdulaziz Military Academy found a fully functional institution with quarters and classrooms ready for about one thousand students. Contractors had completed the mess hall, the administration building and library, the utility systems, roughly half of the housing units, and eight VIP villas. By February 1984, all of the principal facilities required to support the academy were complete. On 15 May 1984, the Saudi Ministry of Defense and Aviation held a formal dedication ceremony in the academy's new stadium. In all, the academy—the cantonment and academic complex, a general maneuver and training area, and the training ranges—cost \$1.5 billion.³¹

The cantonment area contained most of the seventy buildings and both the campus and a service-support zone. The academic campus included administrative and instructional buildings, along with lodging and dining facilities that would eventually accommodate one thousand five hundred cadets. The campus also had the main mosque with space for two thousand worshippers; a medical clinic with twenty beds; a thousand-seat auditorium; a parade field with a grandstand for four thousand people; a stadium with fourteen thousand six hundred seats; 5 soccer, 6 basketball, 6 volleyball, and 20 tennis courts; horse stables; and an equestrian performance arena.

A family-housing area contained the VIP villas and sufficient houses, with two to five bedrooms, to accommodate 1,348 families. The housing area contained schools for the children of the community, six mosques, and four shopping centers and markets. In the service-support zone, an office building supported the O&M contractor. The chiller plant

³⁰ "Welcome to the King Abdulaziz Military Academy Area Office," [14 Jul 84], TAD-RHA. For a similar description of the training facilities, see Gen Robertson's Bfg to Col Faisal on SALFAAP, 18 Jan 83, unmarked box, TAD-RHA; MFR, McMillan, 21 Aug 82.

³¹ DF, Oppenheim, 1 Feb 84; Fact Sheets, Facilities Engineering Br, Riyadh Dist, and Activation Status—KAMA, both in unmarked box, TAD-RHA; Brig Gen James W. Ray to Otaishan, 27 Nov 84, sub: Contract DACA 86-80-C-0012, Stadium, Stables and Horse Arena, King Abdulaziz Military Academy, Riyadh, Saudi Arabia, Security/Maintenance Services at the Stadium, K-8-3, TAD-RHA. Unless otherwise noted, the description in the following paragraphs is taken from "Welcome to the King Abdulaziz Military Academy Area Office," [14 Jul 84].



Parade ground at King Abdulaziz Military Academy, mid-1980s

was the starting point of a utility tunnel that looped around the area with radial tunnels to individual buildings throughout the academy. The service-support zone also contained gas and fire stations, a communications center, office space, shops, a landscape nursery, a sewage-treatment plant, a slaughterhouse, a stockade, and other structures.³²

The academy faced several problems and deficiencies. In April 1984, even before the official dedication, a heavy rainfall caused the ground to settle nearly six-and-a-half feet in some public areas and roadways. The settling of soil in streets collapsed manholes and damaged water pipes, problems comparable to those experienced at the headquarters complex of the Saudi Arabian National Guard. Occupants of the new houses reported odors, cracking stairs and walls, roof-tile shifting, roof leaks, and other problems.³³ The contractor corrected numerous deficiencies.

Saudi social practices that the designers had not anticipated led to certain problems. For instance, most of the family houses had flat roofs, each with a membrane to make the roof watertight. The Saudi residents used the roofs as patios, and serious leakage resulted when foot traffic and furniture caused the sealing membranes to break. The bakery illustrated an even more striking lack of understanding by designers. As the installation of the equipment in the bakery neared completion, General Albroy wryly described the

³² MFR, Wanket, 31 Jan 83, p. 7.

³³ Brig Gen A. Aldugheim, "Detailed Report on Settling That Occurred at Some Areas, KAMA," 16 Apr 84 [Trans], and attached Rpt, K-8-3, TAD-RHA.



Mosque at King Abdulaziz Military Academy, mid-1980s

situation: “We appear to have a gross overkill in the ability to make American loaf bread and Parker House rolls. The ability to make pita bread appears marginal.”³⁴

Maintenance, or the lack of it, became a major issue at KAMA. In April 1984, the division turned over the stadium to the Saudis. In the months after the May dedication ceremony, the stadium received no regular maintenance. Unregulated pedestrian traffic made the situation worse, degrading the grounds and turning the neglected facility into a potential safety and security hazard. The division engineer, Brig. Gen. James W. Ray, recommended that GDMW work out a contract with the construction company to perform interim operations and maintenance until the Saudis made more permanent arrangements.³⁵

The stadium had one serious deficiency directly attributable to design. The CRS-MMM design used cantilevered spiraling ramps for access. In 1982, well before the stadium’s completion, cracks appeared in the spiral ramps. An investigation by division staff revealed that the cantilevered portion of the ramp was much longer than the physical structure could support. One of the division’s chief structural engineers, A. O. “Ollie” Werner, commented that the CRS engineers simply “blew

³⁴ Intervs, Moorhus with Thomas, 27 Aug 96, pp. 34–36; with George Rouse, 10 Jan 95, p. 9; with Ron Breen, 30 Jan 95, p. 18. Quotation from Memo, Albro to West, 31 Mar 82.

³⁵ Otaishan to Col R. E. Schroder, 8 Oct 84, sub: Deficiencies COE [Corps of Engineers], and attached Rpt, Settlement of Parade Field Bleachers; Ray to Otaishan, 27 Nov 84, sub: Contract DACA 86-80-C-0012, Stadium, Stables and Horse Arena, King Abdulaziz Military Academy, Riyadh, Saudi Arabia, Security and Maintenance Services at the Stadium; all in K-8-3, TAD-RHA.



Settlement problems at King Abdulaziz Military Academy, shown here in 1990, led to some tension between the Corps of Engineers and Saudi officials.



the design” of the stadium ramp. Werner, who participated in the negotiations for a solution, convinced the company that they were lucky that the error was discovered early, before the ramp had collapsed under the weight of a crowd. In a settlement of the claim to compensate for the error, CRS-Sirrinc, the successor company to the designer, paid \$75,000.³⁶

Sometimes the division succeeded in satisfying the Saudis by arranging remediation of problems. In late 1984, the east reviewing stands at the parade field cracked seriously because of ground settlement. The division determined that the cause was traceable to low density in the backfill and to a significant quantity of fill that did not meet the requirements specified in the contract. The contractor was still on site, and the Corps held him responsible for demolition of the existing construction, for correction of the basic problem of ground fill, and for reconstruction of the structure.³⁷

At other times, the Corps could not provide satisfaction. In January 1986, for instance, the Saudis reported ground settlement at the sewage-treatment plant. Staff from the Riyadh District investigated and determined that the settlement apparently occurred because of a broken or leaky pipe near one of the water clarifiers. This suggested that the problem had arisen from common breakage, a normal development in a sewage-treatment plant that had been in operation for four years. The district engineer, Col. J. E. Gross, pointed out that the contract had closed in 1983. The contractor had repaired, at his own expense, the ground settlement in the plant’s pump room; as a part of the agreement, he had received assurances that he would face no further liability. Gross suggested that GDMW have its own O&M department correct the problem at the sewage plant.³⁸

The ground settlement and other visible failures created tensions between the Saudis and the Army engineers. By the time Gross had to turn away the Saudi complaint concerning the sewage plant, the Corps of Engineers had sharply reduced its operations at KAMA and in Riyadh. The Corps had no contractors on site to turn to for remedial work. In July 1986, the Corps closed its KAMA Area Office.³⁹

³⁶ R. L. Rousseau, “Annual Historical Summary Report,” 28 Mar 83, and attachment, “Middle East Division (Rear) 1982 Historical Summary Report,” p. 2, unmarked box, TAD-RHA; Ray to Otaishan, 24 Jun 84, sub: Architect-Engineer Liability, K-8-3, TAD-RHA; Interv, authors with A. O. Werner, 20 Oct 93, p. 23.

³⁷ Schroder to Otaishan, 19 Nov 84, sub: Contract DACA 86-79-C-0023, Academic Campus, King Abdulaziz Military Academy (KAMA), Oyeyneh, Saudi Arabia, Settlement in Parade Field East Reviewing Stands, K-8-3, TAD-RHA.

³⁸ Gross to Otaishan, 27 Jan 86, sub: Sewage Treatment Plant, King Abdulaziz Military Academy, Riyadh, Saudi Arabia, K-8-3, TAD-RHA.

³⁹ Interv, authors with Werner, 20 Oct 93, p. 22; Maj Charles D. Whaley to Nafisah, 27 Jul 86, sub: Communication Equipment at King Abdulaziz Military Academy (KAMA), K-8-3, TAD-RHA.

13

KING KHALID MILITARY CITY

By any standard, the scope of the U.S. Army Corps of Engineers' largest project for the Saudi Arabian government, the creation of King Khalid Military City (KKMC), was colossal. The Mediterranean Division's early estimates ran to \$15 billion, although later estimates were considerably less.¹ Building King Khalid Military City was by far the largest of the Saudi projects and indeed constituted the largest single construction effort in the history of the Corps. The management challenges presented by the program were intensified by the simultaneous construction of the King Abdulaziz Military Academy (KAMA), the Saudi Naval Expansion Program (SNEP), and all of the other construction efforts that Army engineers managed over the same years.

Planning for what became KKMC began in the 1960s when the Mediterranean Division built new cantonments for the Saudi Arabian Ministry of Defense and Aviation (MODA) at Khamis Mushayt and Tabuk. The third cantonment, constructed on a site near Hafar al Batin, which became KKMC, dwarfed the two of them combined. MODA asked the Corps of Engineers to manage the creation of an entire city for seventy thousand inhabitants at a desert location forty miles from the nearest highway where no settlement of any kind existed. The area had no local labor force and no readily available construction materials other than aggregate.² The coordination and sequencing of work in building the military city, from the earliest concept designs through completion of all construction, engaged the Army engineers for fifteen years.

New Master Plan

In the spring of 1973, MODA approved changing the site of the third cantonment from Qaysumah to Hafar al Batin and the Mediterranean Division initiated the design for the new military city. In March 1974, the division awarded a \$1.5 million contract to a joint venture consisting of the architect-engineer firms of Brown, Daltas & Associates with offices in Rome and Sippican Consultants International of Cambridge, Massachusetts, to produce a completely new master plan for the

¹ Interv, Moorhus with Gordon W. Dykes, 24 Oct 95, pp. 41–43.

² E. R. Heiberg III, "The Future of Macro-Projects: A Global Perspective," speech to the American Society for Macro-Engineering, Washington, D.C., 13–14 Mar 86.

Hafar al Batin site. Over the next thirteen months, the joint venture's personnel surveyed the location and prepared a concept design. The lack of a reliable estimate for the total military and dependent population of the proposed city made the task more challenging. Nonetheless, the designers identified the necessary structures, infrastructure, and utilities and set the architectural themes for the buildings, neighborhoods, and facilities. In May 1975, Brown, Daltas presented to MODA a concept design and master plan for a one-brigade cantonment at Hafar al Batin.³

Prince Sultan, the Saudi minister of Defense and Aviation, approved the outlines of the concept design during the presentation, but he also said that he wanted to add two additional brigades to the military city. The Mediterranean Division estimated that redesigning for three brigades would expand total project costs dramatically—to over \$3 billion—and would delay work on the preliminary construction packages for water supply, fencing, premobilization facilities, and a temporary airstrip. These contracts would have to be modified before they could be awarded.⁴

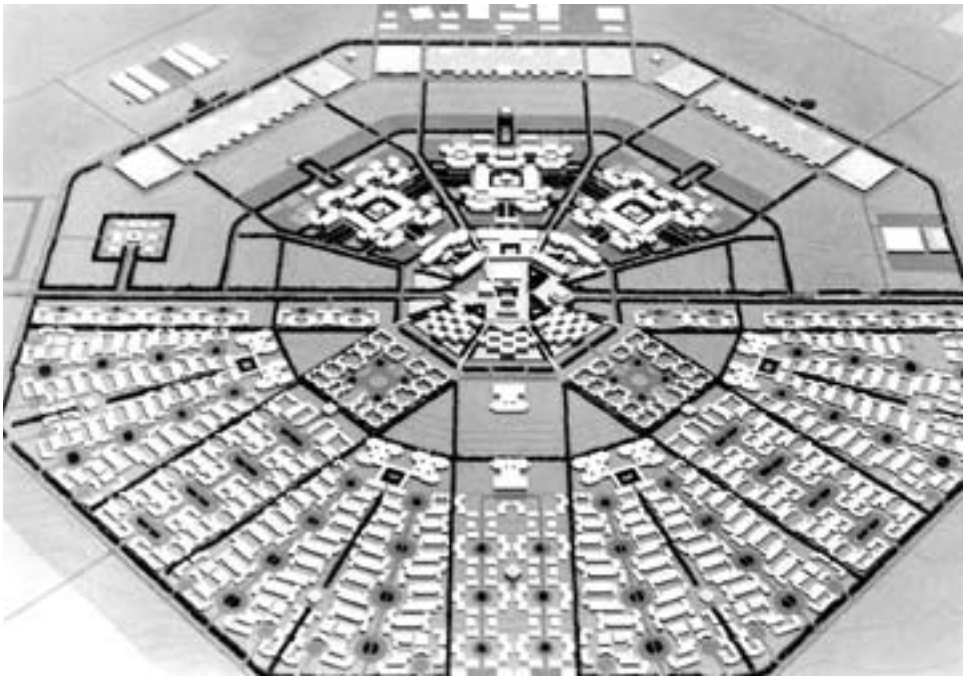
By June 1975, the division had tentative Saudi approval to negotiate a new contract, at \$9 million, for a more complete design of a military city capable of supporting three brigades, each with troop strength of about five thousand five hundred men. MODA also authorized the division to begin preparing advanced procurement packages as soon as additional funds became available. On 3 December, the division completed negotiations with Brown, Daltas–Sippican for the revised master plan and for definitive drawings. Division personnel generally referred to the third cantonment as the Hafar al Batin project until the first week of January 1976 when the Saudi Arabian military liaison officer instructed them to refer in all official dealings to King Khalid Military City.⁵

The project was too large for one design firm to execute all of the design drawings. In the concept design, Brown, Daltas included identical precast concrete structural pieces that fit in buildings intended for quite different activities. Studies indicated that having one firm design all these repeated elements would realize great economy of effort, so the division commissioned Brown, Daltas to complete the design. The division assigned other facilities—secondary schools, commissaries, the airfield, and an administrative telecommunications system—to different architect-

³ Office of the Chief of Engineers (OCE), "Annual Report of Major Activities, Jul. 1, 1974–Jun. 30, 1975," p. 49, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va. (hereafter cited as OCE, Major Activities, FY 1975); "Annual Historical Summary Report, CY 74," [31 Dec 74], p. 2, box 15, access. no. 77-92-0001, Washington National Records Center (WNRC), Suitland, Md.; Mediterranean Div, "Data Book," 1 May 76, p. 16, box 1, access. no. 77-92-0001, WNRC; Williams to Nassief, 20 Jun 74, sub: Al Batin Master Plan, Walker box 7, OH, USACE. For a useful description of the scope of the master plan, see Interv, Moorhus with George Rouse, 10 Jan 95, p. 6.

⁴ OCE, Major Activities, FY 1975, p. 49.

⁵ "KKMC Facts & Figures," n.d., original provided by A. T. Carozza, R&D File 2531, Transatlantic Programs Center (TAC), Winchester, Va.; Williams to Lt Gen William C. Gribble Jr., 13 Jun 75, box 6, access. no. 77-92-0001, WNRC; John J. Fialka, "Huge Plan to Modernize a Desert," *Washington Star*, 18 February 1980. Mediterranean Div Staff Mtg Min, 15 Dec 75, p. 3, box 18; 8 Jan 76, p. 3, box 17; both in access. no. 77-92-0001, WNRC.



Model of King Khalid Military City

engineer firms for final design. Still other firms worked up the detailed plans for an engineer center and school, a hospital, a nursery, and a workers community. All these designs and drawings had to follow the general guidelines set out in the master plan and had to be integrated into the final plan.⁶

Brown, Daltas' concept design for KKMC featured an inventive octagonal layout 1.7 miles in diameter with a dual-level plaza, the centrum, in the middle of the octagon. The design confined all vehicular traffic in the centrum to the lower level except that a ramp would lead to the main, ceremonial entrance to the military headquarters building. Common facilities and administrative office buildings encircled a central pool and fountain, providing an "oasis" to which residents could walk from either the residential or the office sectors. The main focus of the centrum was the Friday mosque designed to accommodate two thousand people. Other facilities located in the centrum around the oasis included a bank, the officers and enlisted clubs, a post office, the main theater, commissary facilities, and a motel to accommodate visitors.⁷

⁶ "Project Plan Update, King Khalid Military City," rev. 4 Aug 79, vol. 2, app. 1, pp. 1–2, Walker box 13, OH, HQ USACE (hereafter cited as Project Plan Update: KKMC); Interv, Moorhus with Dykes, 24 Oct 95, pp. 41–43.

⁷ The description of facilities in this and the following paragraph comes from Morrison-Knudsen Saudi Arabia Consortium (MKSAC), "A New City Is Born," 1978, p. 12, box 78 of 84, A-10-5, Trans-

The southern half of the octagon contained the facilities for three brigades arranged in three contiguous segments with troop housing, dining, recreational space, and administrative facilities in each segment. Maintenance facilities and vehicle parking filled the southern perimeter. Across the centrum on the north side, the designers located housing units and supporting facilities for about six thousand five hundred families. The plan called for small neighborhood mosques throughout the city. An oasis-like plaza provided a focal point for each neighborhood, with other facilities such as schools and shops placed around it.

In separate compounds outside the octagon, the designers placed supporting facilities. These included a 300-bed hospital and attendant facilities; various base maintenance facilities, utility plants, and warehouses; quarters for workers to be used during the construction phases; an airfield about six miles to the south; the engineer center and school just west of the city; and VIP quarters consisting of a sumptuous royal pavilion to accommodate the king and five villas for other Saudi royalty or distinguished guests.⁸

Cost-Plus-Award-Fee Contracting

With construction contractors swarming over Saudi Arabia by 1975, Corps of Engineers personnel became concerned about the complicated and dizzying multiplicity of activities, contracts, and subcontracts for which they were responsible. All of the workforces for the various construction programs would simultaneously need support in a country where much of the infrastructure of utilities and services existed at the most minimal level, if at all. KKMC, planned as a community of seventy thousand, would be considerably larger than KAMA, projected to accommodate ten- to fifteen thousand. The undertakings for the Saudi Naval Expansion Program and for the Saudi Arabian National Guard involved construction at several sites. At KKMC, as at KAMA, everything, from the underground utilities to the overhead power lines and all the structures in between, had to be in place before construction could begin.⁹

An inflation rate of up to 30 percent added to the Corps' concerns about building KKMC. The political situation in the region was also volatile. Goods to supply the construction boom clogged Saudi ports. These factors intensified the difficulties faced by contractors and combined to inhibit true competition. The number of American contracting companies willing to accept projects in Saudi Arabia was always small; but in the mid-1970s, it got smaller. Contracts required high guarantees and bonds, and the risks appeared out of proportion to the possible return. In solicitations for fixed-price contracts, the division received on average only two to four bids from

atlantic Division—Records Holding Area (TAD-RHA), also in R&D Files 387 and 3002, TAC, and Mil Files XIV-2-61, OH, HQ USACE; "Saudi Arabia Programs," 28 Feb 78, p. 46, unmarked box, TAD-RHA; Interv, John T. Greenwood with Maj Gen (Ret) Richard M. Wells, 29–30 Jun [91], pp. 172–73; "Saudi Arabia Programs," 28 Feb 78, p. 46; Interv, Moorhus with Rouse, 10 Jan 95, pp. 4–6.

⁸ "Saudi Arabia Programs," 28 Feb 78, p. 46; Fialka, "Huge Plan to Modernize a Desert."

⁹ MKSAC, "A New City Is Born," p. 12.

international contractors; these bids often exceeded the division's estimates.¹⁰ The division concluded that, on contracts as big as those planned for the Hafar al Batin cantonment and the military academy, solicitations might attract no bidders at all. Alternately, bids might be so inflated to cover the imponderable risks as to make them unacceptable.¹¹

Given the myriad problems associated with the volatile market conditions and the concentration of so much construction in a confined area of Hafar al Batin, planners considered special management measures. In February–March 1976, the leadership of the Mediterranean Division proposed to reduce both the time of construction and the risk to contractors by using cost-plus-award-fee (CPAF) contracts for the largest projects in Saudi Arabia. The proposal was an adaptation of an old idea, the use of cost-reimbursable contracting, that is, contracts that paid the contractor for the actual costs incurred in performing the work.¹²

The Mediterranean Division's experience with Atlas Constructors in Morocco in the 1950s under such a cost-plus contract had not been entirely positive. Intensely negative criticism from the U.S. Congress, combined with changing economic conditions, induced a renegotiation with Atlas to a fixed-price contract. The cost-plus contract had had one major virtue: It had enticed the contractor to start work on a project of otherwise prohibitive immensity and had thereby made the successful completion of the Moroccan air-base program possible. In more recent years, cost-plus contracting had become more sophisticated; in 1966, the U.S. military had introduced CPAF contracts in Vietnam. Award-fee contracts offered the award fee in addition to a guaranteed base fee calculated as a percentage of the estimated cost of construction. The government invoked CPAF contracts for work involving efforts and activities not susceptible to finite measurement or estimation.¹³

In a CPAF contract, the rate of the guaranteed base fee and the rate of the possible award fee, to be determined by the contractor's performance evaluation, are negotiated at the outset of the project. Decisions on the award fee are based on subjective criteria identified in the contract such as progress, quality control, cost containment, and responsiveness. The award fee that the contractor receives varies according to the government's assessment of his performance in terms of these criteria. The government alone determines the award fee, and its decision is not subject to the disputes clause in the contract. An outstanding performance earns the maximum award fee, but the fee decreases if the contractor's performance ratings on the specified criteria fall.

¹⁰ Mediterranean Div, "The Use of Cost Reimbursable Construction Contracts in Saudi Arabia," 12 Mar 76, pp. 1–2, box 51-84-7361, Richard T. Farrell Papers, OH, HQ USACE.

¹¹ Ibid.; Interv, Thomas Tulenko with Col. George Gray, 12 Jun–5 Jul 85, p. 292.

¹² Richard M. Wells, "Corps Experts and Saudi Arabians Are Growing Modern Cities in the Desert," *Engineer Update*, October 1977; Mediterranean Div, "Use of Cost Reimbursable Construction Contracts," 12 Mar 76, passim.

¹³ Mediterranean Div, "Use of Cost Reimbursable Construction Contracts," 12 Mar 76, passim, pp. 3–4. Unless otherwise noted, the arguments for CPAF contracting come from this document.

Negotiators for the Mediterranean and Middle East Divisions viewed CPAF contracts as offering multiple advantages. By paying for actual rather than estimated costs, the Saudi Arabian government could remove unpredictable costs as a risk factor for contractors. Removing unpredictability would encourage contractors to bid on projects they might otherwise avoid altogether. Furthermore, compensation for real costs protected the contractor against bankruptcy brought on by having costs escalate far beyond estimates.¹⁴

A CPAF contract also offered flexibility. Work could begin quickly on those parts of the project already defined while design continued on other facilities. Work orders for changes could follow immediately and easily for anything less than a change in the total scope of the project. Finally, the cost-plus-award-fee contract created a strong incentive for the contractor to perform well in order to earn the maximum award fee and thus increase his profits.

In February 1976, the Mediterranean Division commander, Col. Torrey Williams, and his chief of planning, Dick Wiles, marshaled all these arguments and presented to the Saudis the possibility of using cost-plus contracting. MODA's chief of procurement raised no objections, leading the two division representatives to conclude that Williams should write a letter to Prince Sultan explaining the cost-plus contracting mechanism and requesting approval to use it.¹⁵

In March, the Mediterranean Division sent the prince a thirteen-page memorandum with a cover letter recommending that MODA use CPAF contracts for the work on three major programs: KKMC, KAMA, and the medical research center and hospitals at Al Kharj and Taif. Colonel Williams urged that such contracts be awarded to consortia of "the largest and most capable US contractors . . . [with] inclusion of international sub-contractors to the extent necessary to be cost-effective." The Corps would require the prime U.S. contractors to have extensive experience and to maintain their internal cost records in a form that allowed the U.S. government to audit them over the life of the contract. In conclusion, Williams asserted that cost contracting was not one of several acceptable choices but rather "the only method that will allow us to construct your major projects within a reasonable cost and period of time."¹⁶

Preparing a Cost-Plus-Award-Fee Contract

The Saudi reply to Colonel Williams' March 1976 letter to Prince Sultan came indirectly. MODA's liaison officer, Capt. Naser Al Faisal, informed Williams that Prince Sultan was considering the matter and that an in-person presentation of the pros and cons of cost-reimbursable contracting would be helpful. In early May 1976, Williams dispatched his deputy division engineer, Col. William E. Vandenberg, and the division's chief of engineering, Gordon Dykes, to meet with Prince Sultan. The prince agreed to a CPAF contract for KKMC as long as it contained two

¹⁴ Ibid., p. 5.

¹⁵ Mediterranean Div Staff Mtg Min, 28 Feb 76, p. 2, box 17, access. no. 77-92-0001, WNRC.

¹⁶ Williams to Prince Sultan, 12 Mar 76, pp. 2-3, box 51-84-7361, Farrell Papers.

stipulations. First, he wanted international firms and consortia, not just U.S. firms, to bid on the major construction in Saudi Arabia. Second, he wanted the Corps to hold a groundbreaking ceremony no later than the coming November to lay the cornerstone for the main mosque at KKMC.¹⁷

Williams had named KKMC as one of the three projects for which only CPAF contracting would attract acceptable bidders. As events developed, the division used CPAF contracts only sparingly in managing other Saudi Arabian programs. The MODA medical centers, which Williams mentioned as appropriate for such a contract, never went beyond the early planning stages, so the issue never arose. Contracts for KAMA, which Williams also mentioned, came several years later under totally different economic conditions that allowed the division to use fixed-price contracts. Major service contractors—Pacific Architects and Engineers, the countrywide service contractor; Global Associates, which operated the port of Ras al Mishab; and Todd Logistics Inc., the logistics management contractor—operated under CPAF contracts. KKMC thus became the only *construction* project on which a CPAF contract came into play.¹⁸

The CPAF contract seemed appropriate for KKMC not only because of the size of the project but also because of the undeveloped and isolated location. Hafar al Batin lay four hundred miles inland from the nearest existing port and one hundred fifty miles from the new port of Ras al Mishab, on which construction began only late in the summer of 1976. Before any permanent construction could begin at KKMC, the CPAF contractor had to create an infrastructure capable of supporting the construction effort itself. Under a CPAF contract, a single contractor could begin preliminary construction of workers camps, temporary housing for management staff, concrete batch plants, warehouses, offices, and the production facilities for precast concrete. These facilities would then serve all of the subsequent construction contractors working on the city. Nearly every material needed for the construction had to be imported to Saudi Arabia and transported to the site.¹⁹ Only a CPAF contract would induce a contractor to take on such a prodigious effort. Even with the guarantees built into the CPAF contract, finding a willing contractor presented a challenge.

The construction plan scheduled the work for KKMC in phases, in part because the Saudis wanted to occupy the military city progressively. Also, the sheer volume of construction demanded a logical progression to ensure availability of the facilities needed at each step along the way. As a CPAF contractor developed the infrastructure to support additional operations, other construction contractors could begin work. Officials within the Corps remained convinced that this progressive development would reduce the cost of later bids for fixed-price construction packages. The Saudis,

¹⁷ Mediterranean Div Staff Mtg Min, 29 Mar 76, p. 1; 20 Apr 76, p. 1; 7 May 76, p. 2; all in box 17, access. no. 77-92-0001, WNRC.

¹⁸ Williams to Sultan, 12 Mar 76, pp. 2–3; Mediterranean Div, “Use of Cost Reimbursable Construction Contracts,” 12 Mar 76, *passim*.

¹⁹ MKSAC, “A New City Is Born,” p. 12.

however, remained uncomfortable. They were not convinced of the need for CPAF contracting and made clear that they preferred fixed-price contracts.²⁰

In early June 1976, staff from the Office of the Chief of Engineers (OCE) and the Mediterranean/Middle East Division met in Italy and in Washington to make final arrangements to solicit proposals on the contract for KKMC. On 17 June, division personnel met in Washington with U.S. construction firms judged capable of taking the lead in forming a consortium to bid on the project. A few days later, the division notified twelve established and experienced American companies that the Corps planned to issue a call for proposals on a CPAF contract, worth over \$700 million, for life support and construction of KKMC. The notice went out just as the division was redistributing its personnel from Italy to Virginia and Riyadh.²¹

The June 1976 notice identified eight major tasks associated with the creation of the King Khalid Military City:

1. Build a workers community and operate it during the life of the contract;
2. Develop and operate a concrete-delivery system with a plant and appropriate equipment, including a capability to receive equipment and materials purchased by others;
3. Procure, ship, erect, and operate on site a precast concrete plant;
4. Construct and maintain support facilities as the first element of the permanent facilities;
5. Build an airfield;
6. Provide permanent city facilities, to include the grading and drainage necessary for construction of utility mains, utility plants, urgently needed housing, and other operational facilities;
7. Receive, store, distribute, and/or install all government-furnished materials;
8. Give general construction advice and other services to support the management role of the Corps of Engineers.²²

The announcement further indicated that American companies wishing to participate had to form an international consortium that included non-U.S. firms. The notification invited the companies to an “amplification briefing” in Reston, Virginia, in early July.

²⁰ “Saudi Arabia Programs,” 28 Feb 78, p. 46; Project Plan Update: KKMC, rev. 4 Aug 79, vol. 2, app. 4, p. 2; Mediterranean Div Staff Mtg Min, 26 Apr 76, box 17, access. no. 77-92-0001, WNRC; “A Study of Contracting Arrangements for Construction of King Khalid Military City,” 4 Jan 79, p. 4, R&D File 2527, TAC.

²¹ Mediterranean Div Staff Mtg Min, 7, 14 May, 7 Jun 76, box 17, access. no. 77-92-0001, WNRC; Telex, Page to Selected Companies, 22 Jun 76, box 30, access. no. 77-92-0001, WNRC; Memo, 5 Dec 76, sub: CPAF Contractor Selection for KKMC, Selection Board Report, p. 2, file 28, Walker box 8, OH, HQ USACE (hereafter cited as CPAF Contractor for KKMC, 5 Dec 76); Vandenberg to HQDA, 10 Jun 76, sub: Organization of Saudi Arabia Engineer Support Group (ESG), pp. 1–2, box 3, access. no. 77-92-0001, WNRC.

²² Telex, Page to Selected Companies, 22 Jun 76.

Of the twelve companies notified, only five joint ventures expressed the intention to submit proposals; but on 19 July, the division notified them to suspend all preparatory effort because of “the regrettable change in position by the Saudi Arabian Government concerning our intended use of Cost Plus Award Fee procedures.” Over the summer and early autumn, the Middle East Division worked with the Saudis to overcome their reservations about CPAF contracting and to elaborate a more detailed construction plan for KKMC. On 23 October, the Saudi government approved a revised plan and reaffirmed its acceptance of CPAF contracting. On 1 November, the military liaison officer, Captain Al Faisal, and the commander of the Middle East Division, Brig. Gen. Richard M. Wells, signed a memorandum of understanding approving the construction plan and the use of CPAF contracting for KKMC.²³

Finding the Right Contractor

The Corps moved quickly to negotiate with the five joint ventures that had indicated a willingness to bid on the project. On 4 November 1976, the Middle East Division issued a revised scope of work and invited detailed proposals. On 29 November, a review panel of half a dozen experienced senior civilian personnel from the Corps began a weeklong review of the proposals submitted. On successive days, each firm made a three- to four-hour oral presentation. In addition to the oral presentations, the firms gave the review committee thousands of pages of printed material to support their proposals.²⁴

Evaluation of each proposal lasted a full day. The oral presentations occupied the mornings, while Corps technical staff assessed the written materials in the afternoons. During the evening hours, the senior review board deliberated and prepared written judgments. After meeting on 3 and 4 December to review their findings, the board compiled a list of five firms in rank order and submitted it to General Wells.²⁵

The joint venture Morrison-Knudsen Saudi Arabia Consortium (MKSAC) emerged in the first position on the final list. The consortium included Morrison-Knudsen of Arabia Inc. with offices in Boise, Idaho, and Riyadh; Fischbach and Moore International Corporation of Dallas, Texas; and Interbeton Construction N.V. of Netherlands Antilles, an operating company of Hollandsche Beton Groep N.V. of the Netherlands with offices and production factories in Delft.²⁶

²³ Quote from Page to C. A. Shirk, President and CEO, Austin Co Intl, 16 Aug 76, E-7-3, TAD-RHA. On the course of the negotiations with the companies, see CPAF Contractor for KKMC, 5 Dec 76, p. 3; Wells to Morris, 12 Dec 76, p. 6, box 3, access. no. 77-92-0001, WNRC; “Study of Contracting Arrangements,” 4 Jan 79, pp. 3–4; Project Plan Update: KKMC, rev. 4 Aug 79, vol. 2, app. 4, pp. 2–3.

²⁴ CPAF Contractor for KKMC, 5 Dec 76, p. 5; Interv, authors with A. Thomas Carozza, 26 Jan 95, pp. 4–17.

²⁵ CPAF Contractor for KKMC, 5 Dec 76; Interv, authors with Carozza, 26 Jan 95, pp. 4–17.

²⁶ MKSAC, “A New City Is Born,” p. 59; MKSAC, “Project Historical Report, King Khalid Military City,” 22 Feb 82, p. 6, A-10-5, TAD-RHA (hereafter cited as MKSAC Hist Rpt, 22 Feb 82).

The Middle East Division anticipated that negotiations with MKSAC would move quickly. On 5 December 1976, General Wells set out a schedule for negotiations that projected signing the contract with MKSAC by late January. In fact, the Corps waited until 27 January 1977 to obtain MODA approval to negotiate a contract with MKSAC and the discussions stretched out over the next several months. The Saudi government had already deferred the initial funding of the KKMC project, forcing the division to modify the logistics management contract that it was also negotiating. After receiving MODA approval, another month passed before division and OCE representatives had a preliminary meeting with MKSAC negotiators.²⁷

By 1976–1977, the Corps estimated the cost of building KKMC at \$8 billion, of which about \$1.5 billion could reasonably go into the three-year CPAF contract, including the base fee and the award fee. MKSAC's initial cost proposal was \$2.7 billion. By dropping facilities programmed for Riyadh and the Dhahran area and by reducing the scope of work at KKMC itself, the Corps brought the total estimated value of the contract down to \$1.199 billion. The parties agreed on a guaranteed base fee of 3 percent and an additional maximum award fee of 3 percent. On 26 July 1977, days after Prince Sultan gave his final approval to the CPAF contract, the division signed with MKSAC.²⁸

Progress at Ras al Mishab

During the period of negotiation with MKSAC, the Middle East Division kept abreast of construction of the port at Ras al Mishab. In July 1976, the division had awarded a design-build contract for the port to Santa Fe Overseas Inc. Progress of the KKMC construction depended on the rapid completion of Santa Fe's work, and the Saudi government set July 1977 as the target date for completion of a usable portion of the port. To minimize costs, the contract called for a port with only four berths. The division estimated that the costs for supporting onshore facilities would bring the total cost of the port to \$205.6 million.²⁹

Between late 1976 and the spring of 1977, while construction at Ras al Mishab proceeded, the Middle East Division and the Saudi liaison officer, Captain Al Faisal, continued to discuss building a second port at Sharm Yanbu on the Red Sea. The division examined the shipping traffic arriving through the Red Sea and concluded that the volume could not sustain this port. Division representatives

²⁷ Wells to Headquarters, Department of the Army (HQDA), n.d. [before 8 Dec 76], sub: CPAF Contractor Selection for King Khalid Military City, Al Batin, Saudi Arabia, and Wells to Morris, 12 Dec 76, p. 6, both in box 3, access. no. 77-92-0001, WNRC; "Pre-Award Activities, CPAF Contract KKMC," 2 Feb 77, A-10-5, TAD-RHA; MKSAC Hist Rpt, 22 Feb 82, p. 6.

²⁸ For discussions of the division's negotiations with MKSAC, see Intervs, authors with Carozza, 26 Jan 95, pp. 13–18; with Adrian Hromiak, 6 Feb 94, p. 36; Tulenko with Gray, 12 Jun–5 Jul 85, pp. 387–404. See also MKSAC Hist Rpt, 22 Feb 82, pp. 3, 6; "Study of Contracting Arrangements," 4 Jan 79, p. 4; OCE, "Annual Historical Review, Oct. 1, 1976–Sept. 30, 1977," p. 9 (hereafter cited as OCE, AHR, FY 1977).

²⁹ Bennett to Al Faisal, 25 Jan 77, sub: MODA Ports—Sharm Yanbu and Ras Al Mishab, p. 2, unmarked box, TAD-RHA.

therefore recommended reprogramming funds earmarked for the construction of the second port to buy operations and maintenance (O&M) services for the port at Ras al Mishab, services not included in the contract with Santa Fe. In addition to minimal traffic, opposition from the emir of Yanbu worked against a second port. In late February 1977, the emir told a Corps of Engineers officer that he feared the construction would spoil the natural beauty of the cove, which the local population used for recreational purposes. In April, MODA postponed construction at Sharm Yanbu indefinitely; thereafter, the Red Sea port disappeared from the MODA construction program.³⁰

To encourage rapid development of the port at Ras al Mishab, the Corps had included an incentive clause in the Santa Fe contract that paid a premium if the company completed two berths in less than a year. The payment was \$100,000 for each day short of a year, with a limit of \$3 million (thirty days). Santa Fe collected the entire premium because the port opened for limited operation early in the summer of 1977. On 1 September, the Middle East Division awarded to Global Associates a contract worth \$13.1 million for the operations and maintenance of the new port. An advance party of Global personnel arrived at the port in mid-September with plans to open the port for full operation on 10 October.³¹

In early 1978, Santa Fe completed additional construction at the Ras al Mishab port, including a facility for unloading bulk cement. Tons of cargo began to arrive at the new port. Seven ships unloaded more than 4,200 metric tons between January and May. Another eleven ships brought 11,411 metric tons between 1 July and 13 September.³² All this cargo was destined for KKMC; and, because MODA controlled port operations, the goods were not subject to what one Corps employee called “the whims and fancies of the [Saudi] customs inspectors.” As a result, construction materials reached their destination much more quickly.³³

Although the port functioned during 1978, facilities were not complete. The cargo staging area needed strengthening and resurfacing. It needed modification to accommodate side-loading and stern-loading roll-on/roll-off ships and to permit expansion to speed unloading. Containers and trailers needed a larger hardstand on the causeway for loading and discharging materials and to facilitate movement to and from the sea islands used for docking. To increase efficiency and safety, the port needed a ramp for loading heavy equipment directly onto trailers. Shippers needed

³⁰ Maj Dan McDonald, “Sharm Yanbu,” 19 Oct 76, E-7-3; Bennett to Faisal, 18 Nov 76, sub: MODA Ports—Sharm Yanbu and Ras al Mishab, unmarked box; MFR, Capt John E. Wright, 2 Mar 77, sub: Conversation with the Emir of Yanbu Regarding the Location of MODA Unloading Facility at Sharm Yanbu, E-7-3; Kramer, “Funding Ras al Mishab Port Operations and Logistics Management Contract,” 27 Apr 77, E-7-3; all in TAD-RHA.

³¹ Col George W. Page, “Mediterranean Division [*sic*] Command Briefing,” 21 Jun 77, p. 29, Oral History Collection, OH, HQ USACE; Memo, R. Phillip Benson [and] Earl J. Kramer to Div Engr, 28 Sep 77, sub: Project Narrative Report, Aug. 16–Sept. 15, 1977, p. 4, E-7-3, TAD-RHA; OCE, AHR, FY 1977, p. 11.

³² Wells to Morris, 21 Jan 78, p. 6, and 20 May 78, p. 4, both in A-9-9, TAD-RHA; Ellis to Morris, 28 Sep 78, p. 5, Walker box 6, OH, HQ USACE.

³³ Interv, John T. Greenwood with Calvin Curtis, 16 Nov 82, p. 19.

general-purpose, covered warehouse space; stevedores who worked the ships and docks needed accommodations.³⁴

At the behest of the Saudi government, the Middle East Division continued to arrange expansion of the port. The division opened negotiations with Santa Fe to add four berths to the original construction package, but the parties could not reach a satisfactory agreement. The division therefore issued a request for competitive proposals and in the summer of 1978 awarded a contract to Hyundai to build the additional berths. By the spring of 1979, Hyundai had its labor force working simultaneously on a new sea island, an airstrip, and onshore facilities expansion. The latter included water storage, duplex housing, a VIP villa, roads, and utilities.³⁵

Organizing for the Construction

The Middle East Division organized to manage the KKMC construction well before the final award of the CPAF contract. In April 1977, the Riyadh District, the successor to the Saudi Arabia District in the Middle East Division's rearrangement of regional responsibilities, became the supervisory center for the developing project at Hafar al Batin. The division also created a management analysis team to formulate plans, functional statements, and operating procedures for managing the construction of the King Khalid Military City.³⁶

In late June, the division offices in Virginia developed plans for a new Corps district at Hafar al Batin. In August, the division established the KKMC Project Office, Continental United States (CONUS); in November, they changed its name to the Al Batin Project Office. The division activated a KKMC Area Office and a CPAF Contract Management Office (originally named the KKMC Support Office) at Hafar Al Batin. The three offices—the Al Batin Project Office, CONUS; the KKMC Area Office; and the CPAF Contract Management Office—were distinct but coequal. On 1 September 1977, the Middle East Division activated the Al Batin District, which oversaw the work of all three subordinate units. The district operated out of Riyadh until facilities existed at Hafar al Batin to allow its staff to move there.³⁷

In August 1977, the Corps made Col. Maurice Leiser the designated Al Batin District engineer. In November, General Wells took the unusual step of naming Leiser program manager for all activities relating to KKMC. In theory, this appointment brought into the hands of one person the responsibilities for planning, budgeting,

³⁴ DF, Col John F. Hatch, 22 Nov 78, sub: Request for Additional Construction at Ras al Mish'ab, E-7-6, TAD-RHA.

³⁵ Wells to Morris, 21 Jan 78, p. 6; Ellis to Morris, 22 May 79, p. 4, Walker box 6, OH, HQ USACE.

³⁶ Charles R. Wells et al., Mgmt Eval Team Rev Rpt, 3 Oct 78, p. 1, C-7-10, TAD-RHA; OCE, AHR, FY 1977, p. 9; OCE, Engineer Regulation (ER), 10-1-28, 29 Sep 78, "Organization and Functions, U.S. Army Engineer Division, Middle East," C-7-10, TAD-RHA.

³⁷ Project Plan Update: KKMC, 4 Aug 79, vol. 1, pp. 1-2; C. Wells et al., Mgmt Eval Team Rev Rpt, 3 Oct 78, p. 1; OCE, AHR, FY 1977, p. 9; OCE, ER 10-1-28, 29 Sep 78; "KKMC: Then and Now," *Middle East Division News*, May-June 1985, pp. 6-7.

engineering, procurement, logistics, and construction.³⁸ Leiser and his successors as Al Batin District engineer also exercised authority as contracting officer for all fixed-price construction contracts and contracts for support services associated with the KKMC project. The consolidation of authority created the opportunity for regular, timely review of priorities and very rapid reprogramming to accommodate changes requested by MODA. Leiser spent the first year dividing time between the district and area offices in Riyadh and Hafar al Batin and division and district offices in Virginia and Maryland. Alternating between the United States and Saudi Arabia, Leiser met monthly with the staff supervising the huge project.³⁹

Maj. Daniel M. Wilson, who served in Saudi Arabia between early 1976 and April 1977 as area engineer at Hafar al Batin, became Leiser's deputy district engineer and the administrative contracting officer. As area engineer, Wilson had monitored early construction contracts at the KKMC site, including a drilling contract for water wells awarded in May 1976. A second contract had gone to a Saudi company to complete a small airstrip, supporting facilities, and fencing of the entire area destined for construction. At the end of his tour in Saudi Arabia, Wilson, by then a lieutenant colonel, had worked in Virginia defining the terms of the CPAF contract.⁴⁰

Mobilization of the Morrison-Knudsen Saudi Arabia Consortium

Upon signing the contract for KKMC in July 1977, the Morrison-Knudsen Saudi Arabia Consortium began to organize and assemble its personnel. The day after signing the contract, MKSAC rented space in Columbia, Maryland. On 19 August, it formally activated the KKMC Project Office as the consortium's base of operations in the United States.⁴¹ MKSAC provided space for Major Wilson, the Al Batin District deputy, and his staff, and for representatives of the Defense Contract Audit Agency. The office in Maryland existed for nearly five years to provide state-side coordination and support for construction at KKMC.⁴²

Initially, MKSAC authorized the office in Columbia, Maryland, to hire one hundred fifty employees; but the number grew to over five hundred as the work expanded. At the outset, the office served as the center of administration, planning, and operations for the activities of the contract. As the MKSAC presence in Saudi Arabia grew, the offices at the KKMC site in Saudi Arabia assumed primary

³⁸ Authors' conversation with Richard Wiles concerning comments on draft manuscript, 6 May 97.

³⁹ Project Plan Update: KKMC, 4 Aug 79, vol. 1, pp. 3, II-3; Interv, Paul K. Walker with Col Maurice Leiser, 27 Feb 85, p. 31; Min, Al Batin Prog Mgrs Mtg, 3 Dec 77, A-10-4, TAD-RHA; Wells to Morris, 21 Jan 78, p. 3.

⁴⁰ "Active Construction Contracts—Al Batin District," 1 Dec 80, box 13, K-8-5, TAD-RHA; Intervs, Paul K. Walker with Col Daniel Wilson, 13 May 85, pp. 1-2, 10-11, 33-42, and with Leiser, 27 Feb 85, pp. 27-28.

⁴¹ Memo, Benson and Kramer to Div Engr, 28 Sep 77, p. 2.

⁴² "MKSAC Contract Nearly Closed," *Mt. Weather Bulletin*, March-April 1982, p. 18; MKSAC Hist Rpt, 22 Feb 82, p. 26.

responsibility for the activities in country. The Columbia office provided assistance in administration, engineering, and management. It played an important role in mobilizing the MKSAC workforce and remained the administrative center primarily responsible for finance and accounting, procurement, personnel, data processing, and similar general services.⁴³

In October 1977, MKSAC opened offices at Delft, the Netherlands. As operations grew there, the space became too limited; a year later, the joint venture rented additional office facilities at the Hague. At the high point of activity on the construction site, MKSAC had three hundred twenty people in the Netherlands. The Netherlands staff engineered and designed the structural elements, the molds to form them, and the precast plant with its several production lines that would fabricate them at King Khalid Military City. The offices also provided support for procurement, data processing, project/cost control, communications, and administration.⁴⁴

MKSAC's first permanent offices in Saudi Arabia opened in Riyadh in January 1978. MKSAC personnel lived in a hotel for several weeks until the company found more permanent lodging. The office in Riyadh, housed in a villa and then in the Intercontinental Hotel, established the first in-country administrative, accounting, banking, and purchasing operations for the KKMC project.

In mid-January 1978, the consortium leased from the Middle East Division a building formerly used for work on the Peace Hawk program. The building was in Al Khobar, about five miles east southeast of Dhahran and close to the port at Dammam on the Arabian Gulf. MKSAC used the space in Al Khobar to open its administrative and purchasing offices and to provide transient quarters. Al Khobar had unique advantages, such as an international airport and a military air cargo facility that eased quick transit of both equipment and personnel to the construction site at Hafar al Batin. Late in January, the consortium leased a guest house, enabling it to extend lodging and limited meal service to permanent employees. By the spring of 1978, MKSAC had 185 employees at its several offices in Saudi Arabia and Al Khobar had become the principal administrative center.⁴⁵

MKSAC entered a second and intense phase of recruitment between February 1978 and the spring of 1979. The consortium recruited and hired workers primarily in Turkey, Thailand, and El Salvador, with the United Kingdom, the Netherlands, and the United States targeted to fill certain positions. Between the spring of 1979 and the summer of 1980, MKSAC maintained a fairly steady level of manpower, ranging from about six thousand four hundred to seven thousand three hundred employees. In the final phase of the CPAF contract, beginning in June 1980, the joint venture reduced its manpower until, by May 1981, it maintained only a caretaker staff to liquidate the office's final business. To train its workforce, the consortium conducted an orientation program in Saudi Arabia in several languages, including Thai, Turkish, and Spanish, and translated various written materials from these

⁴³ MKSAC Hist Rpt, 22 Feb 82, pp. 25–26.

⁴⁴ *Ibid.*, p. 27.

⁴⁵ "Consolidation of PA&E and MKSAC Life Support Functions," 15 Oct 78, C-7-10, TAD-RHA; MKSAC Hist Rpt, 22 Feb 82, pp. 28–29, 33, 36.

languages, as well as from English, into Arabic to provide documentation of its personnel to the Saudi Arabian government.⁴⁶

The first major public undertaking for MKSAC in Saudi Arabia was the ceremony to dedicate the site and to break ground. Although Prince Sultan had wanted the ceremony to take place in November 1977, delays in reaching agreement on the CPAF contract pushed the dedication into early 1978. To prepare for the ceremony, MKSAC lengthened the runway at the local airfield from four- to seven thousand feet; paved about four miles of road from the airfield to the dedication site; and prepared an area in the city's future centrum suitable to receive King Khalid, members of the royal family, Saudi Arabian dignitaries, and high government officials.⁴⁷

On 1 February 1978, the deputy prime minister, Crown Prince Fahd bin Abdulaziz, welcomed King Khalid to the celebration. To dedicate the site, the king ceremonially removed a green satin veil from the cornerstone, a 4,000-pound stone of Yanbu granite adorned with a bronze relief of the planned layout of the city. Each member of the royal family received a leather-bound commemorative book containing photographs and a narrative description of the project. Bilingual paperback versions of the same book went to other dignitaries. The ceremony included a film, narrated by Maj. Naser Al Faisal, which used models and artists' drawings to depict the future city. After the unveiling, MKSAC provided a banquet for one thousand persons.⁴⁸

Less than two months later, in late March 1978, the new Al Batin District moved from Riyadh to office space provided by MKSAC at the construction site, although the district's work continued at multiple locations—Hafar al Batin, Riyadh, Al Khobar, Delft, and the United States. In Columbia, Maryland, the district's office managed activities throughout the United States and in Delft. The area office on site monitored MKSAC's operations in Saudi Arabia. The district headquarters coordinated and supervised the work at all locations.⁴⁹

Responsibilities of the Morrison-Knudsen Saudi Arabia Consortium

Concurrently with preparing for the dedication ceremony, MKSAC began to grapple with the wide range of its responsibilities. These included life support for personnel at KKMC, construction and construction support, and management assistance to the Corps of Engineers.⁵⁰

Life Support

All of the activities and deployment of resources to support the total force of laborers and managers fell into the category of life support. This included building,

⁴⁶ MKSAC Hist Rpt, 22 Feb 82, pp. 28, 33, 145–52.

⁴⁷ *Ibid.*, p. 3; After-Action Report (AAR), 1 Feb 78, sub: Dedication of King Khalid Military City, attached to Memo, Col Maurice H. Leiser, 18 May 78, A-10-4, TAD-RHA.

⁴⁸ MKSAC Hist Rpt, 22 Feb 82, p. 3; AAR, 1 Feb 78.

⁴⁹ OCE, AHR, FY 1977, p. 9; Wells to Morris, 20 May 78, p. 3.

⁵⁰ MKSAC Hist Rpt, 22 Feb 82, p. 17.



Children of Corps employees attended schools operated by the Department of Defense Dependent Schools, which followed the American school curriculum, June 1980.

managing, and maintaining housing for the work crews, as well as food service in mess halls, healthcare, recreational activities, programs to promote welfare and morale, mail services, banking, commissaries, and other concessions. The CPAF contract also covered site security, coordination of on-site logistics activities, and operation of all temporary utilities.⁵¹

The Morrison-Knudsen Saudi Arabia Consortium had to provide housing not only for its own employees in Saudi Arabia but also for Corps of Engineers personnel and the workers on other contracts. A workers camp for one thousand two hundred men had been started before the MKSAC contract; in February 1978, the consortium took over the camp's construction. In March, MKSAC began work on a new installation, called the workers community, designed to provide better and more permanent facilities for more than fifteen thousand workers. At the same time, to provide additional beds temporarily, MKSAC began construction of a camp for one thousand five hundred workers. The two workers camps lay just over a mile

⁵¹ MOU, Brig Gen Richard M. Wells, Div Engr, and Capt Nasser F. Faisal, Dir General, Directorate of Military Works, 1 Nov 76, sub: Construction Operations, Support Activities and Contracting for KKMC, app. G, Walker box 8, OH, HQ USACE; Project Plan Update: KKMC, 4 Aug 79, vol. 1, p. 4, vol. 2, app. 7, an. B, pp. 1-8.



Mobilization housing at King Khalid Military City

east of the edge of the military city, the workers community about one-half mile northeast of the city.⁵²

The two workers camps provided basic shelter and services. The 1,200-man camp had a complex of forty-two prefabricated buildings with two- and three-bedroom family housing units, bachelors quarters, dormitories, mess halls, and recreational and administrative facilities. MKSAC completed the utilities systems that the previous contractor had begun; converted some of the living space to office space; and either constructed or moved a laundry, a post exchange, additional mess halls, an ice-making facility, and a post office.

The 1,500-man camp had 14 bachelors quarters that housed 16 men each, 32 dormitories each with a 40-man capacity, 5 dining facilities, 2 recreation halls, a laundry, and a water system with a 378,000-liter storage tank. The buildings were prefabricated Porta-Kamps. When housing became critical in late 1978, MKSAC resorted to double bunking and the two camps held about five hundred people more than their designed capacity.⁵³

The third living area, the more permanent residential area known as the workers community, covered one-and-a-half square miles and contained housing, dining, recreation, religious, medical, shopping, and other facilities. The first buildings

⁵² Interv, Walker with Leiser, 27 Feb 85, pp. 27–29; MKSAC Hist Rpt, 22 Feb 82, pp. 48–50.

⁵³ MKSAC Hist Rpt, 22 Feb 82, p. 50; Project Plan Update: KKMC, 4 Aug 79, vol. 2, app. 1, p. 2.



Mobilization camp at King Khalid Military City

in the community of more than five hundred structures were ready for occupancy in early November 1978. The compound included barracks buildings, two-man bachelor quarters, and 209 family units known as J1 models. Work proceeded in two phases to allow progressive occupancy and continued throughout the three years of MKSAC's contract.⁵⁴

The consortium also constructed and maintained housing in a compound for MODA. Although another contractor had constructed royal villas, MKSAC built the permanent power plant and water system for the royal compound and repaired the interior and exterior of the structures as needed. For the Al Batin District compound's two hundred villas, built by another contractor for Corps of Engineers personnel and MKSAC senior staff, MKSAC provided complete water, sewer, power, and road systems, as well as landscaping.⁵⁵

Construction Support

The CPAF contract required MKSAC to develop and maintain an array of facilities to support the essential activities of construction itself. From facilities for storage and processing plants for concrete, asphalt, and aggregate, MKSAC had to provide construction materials at no cost to the contractors working under fixed-price

⁵⁴ MKSAC Hist Rpt, 22 Feb 82, pp. 48–50.

⁵⁵ *Ibid.*, p. 51.



King's villa and compound at King Khalid Military City, October 1978

VIP villa at King Khalid Military City, August 1979





Rock crusher at Hafar al Batin, site of King Khalid Military City

contracts. MKSAC also had to create electrical, water, fuel, and sewage-treatment systems. In effect, MKSAC had to construct the utilities systems necessary to sustain both the construction activity and the working population that would increase in the military city as the project progressed.⁵⁶

MKSAC began work on a concrete batch plant in early February 1978 and had it in production by 25 July, one year after signing the contract. In May 1978, the consortium began developing a quarry about thirteen miles southwest of KKMC's perimeter and plants for producing sand and crushed aggregate to support construction. A second concrete batch plant began producing in May 1979. Between July 1979 and June 1980, MKSAC constructed three cement storage silos with a capacity of 4,535 metric tons each and a fourth silo that held 1,905 metric tons. MKSAC completed the first asphalt concrete plant in September 1979 and delivered the first asphalt for construction operations fourteen weeks later.⁵⁷

The consortium provided maintenance and repair for all vehicles. It received, stored, and dispersed government-furnished materials and equipment. It provided utility services such as power, sewage, and water for domestic and industrial use and for use during construction. It installed underground utilities for over 25 percent of the permanent city, which the follow-on contractors used while constructing the

⁵⁶ Project Plan Update: KKMC, 4 Aug 79, vol. 1, p. III-13, vol. 2, app. 7, an. C, p. 1.

⁵⁷ MKSAC Hist Rpt, 22 Feb 82, pp. 47-48.



Generator turbines at Hafar al Batin

rest of the city. MKSAC also provided other contractor-support services such as blasting assistance.⁵⁸

The operation of the precast concrete plants constituted a particularly critical service that MKSAC provided to other construction contractors. Completion of the plants on a timely schedule was key to the progress of the project. In mid-November 1977, MKSAC received a verbal notification to proceed with design of the precast concrete plants and with the molds of the structural elements used in various buildings. The following January and February, MKSAC and Al Batin District personnel agreed on plans for five precast concrete “plants,” that is, five separate production lines scheduled for sequential construction as adjacent structures at the KKM site. At a February meeting, MKSAC received the directive to “proceed with design, procurement and construction of Plants 2 and 4.” Simultaneously, the consortium was told to postpone work on production lines 1, 3, and 5 until the Saudi Arabian government had made funding for FY 1979 available.⁵⁹ The dual instructions—to proceed and to postpone—epitomized the problems and delays that dogged MKSAC’s efforts.

In February 1978, because the Corps and the Saudis wanted to see the results that the precast design would yield, the district instructed MKSAC to construct

⁵⁸ Ibid., p. 53; Project Plan Update: KKM, 4 Aug 79, vol. 1, p. 4.

⁵⁹ Project Plan Update: KKM, 4 Aug 79, vol. 1, p. 1; MKSAC Hist Rpt, 22 Feb 82, pp. 17, 44, 74.



Precast concrete stacked for storage at Hafar al Batin

a test house at the project site using precast structural elements. In subsequent weeks, the criteria for the test house went through several conceptual changes. By midsummer, MKSAC had sufficiently precise specifications and instructions to produce two identical sets of panels in the Netherlands. MKSAC shipped one set to Saudi Arabia, where the contractor erected the test house at KKMC during the week ending 21 September. The contractor roughed in the interior electrical and mechanical work and finished one room with painted walls and a tiled floor. The Saudis made substantial modifications in the design. Engineers incorporated the changes in the structural elements before full production began, thereby saving substantial sums of money; but MKSAC also had to modify the precast concrete production lines. These revisions, though unavoidable, slowed completion of the entire precast system.⁶⁰

By September 1978, when MKSAC built the test house, work on Precast Plant 4 had progressed to the pouring of its concrete footings. Work continued on Plants 4 and 2 throughout the autumn of 1978 and spring of 1979. Plant 4 produced its first precast building element in mid-April 1979 and began regular production in early June, two months behind the construction schedule established in the previous summer. Ground leveling for Plant 2 began in October 1978; one year later, the

⁶⁰ MKSAC Hist Rpt, 22 Feb 82, pp. 44, 75; Interv, Paul K. Walker with Gus Woodall, 5 Feb 85, pp. 89, 165–66; MKSAC Hist Rpt, 22 Feb 82, p. 44.



Massive lifts were used to move precast concrete panels from the storage area to trucks, which took them to the construction sites.





Test house built at Hafar al Batin using precast concrete panels, April 1979

plant produced its first structural element. Work on Plants 1 and 3 began only in mid-1979. Just as ground was being leveled for Plant 3, MKSAC received an order to halt all work on it pending a review of the entire production sequence. A major fire in late September 1979 set the operation back further. MKSAC completed work on Plant 2 in January 1980, but the plant failed to reach full production because of shortages of molds, other materials, and manpower.⁶¹

After reassessing the production sequence for precast structural elements, designers decided that they could eliminate Plant 3 by reprogramming certain elements for production in Plant 1. The redesign thus pushed back the target date for completion of Plant 1. Delays mounted when the Saudi government limited funding and imposed ceilings on MKSAC's recruitment of needed personnel. Plant 1 began producing two months late, in May 1980. Therefore, by May 1980, MKSAC had eliminated Plant 3 and completed Plants 4, 2, and 1. A rapid increase in the rate of production of precast elements followed over the next five months. In November, MKSAC completed the final plant, Plant 5, which produced specialized paving tiles. Plants 4, 2, and 1 all produced vertical building elements.⁶²

⁶¹ Memo, Palladino, 19 Jun 78, sub: Summary of Division Staff Meeting—13 June 1978, p. 11, box 9, access. no. 77-92-0001, WNRC; MKSAC Hist Rpt, 22 Feb 82, pp. 41–45.

⁶² Ellis to Morris, 11 Jan 80, p. 2, E-6-4, TAD-RHA; MKSAC Hist Rpt, 22 Feb 82, pp. 35, 41–45, 74.

Management Assistance and Support

The memorandum of understanding governing work at KKMC stipulated that the CPAF contractor provide assistance to the Corps of Engineers in certain management areas. With the prospect of thirty or more fixed-price construction contracts at KKMC, the division anticipated needing additional staff to review designs, to coordinate contractors on site, to schedule and deliver materials, to monitor progress, and to maintain records for cost control and budgeting. Once in place, MKSAC's personnel also provided constructability reviews and quality assurance; reviewed shop drawings, as-built drawings, and materials and equipment; developed procedures, catalogues of data, manuals, and training programs to cover the operations and maintenance of many of the facilities constructed; and assisted the contracting officer with procedures for acceptance and inspection of completed facilities. MKSAC's employees undertook all these operations in coordination with Corps personnel.⁶³

The contract for logistical support, signed with Todd Warehouse and Distributors Inc. of Bayonne, New Jersey, in late 1978, involved managing the logistics of moving construction materials and supplies from Ras al Mishab to the construction site near Hafar al Batin, a distance of about one hundred eighty miles. The O&M contractor for the port, Global Associates, offloaded the cargo, cleared it through customs, and loaded it onto transport equipment for overland shipment by Todd. The process freed the fixed-price contractors from the concerns and costs of port operations and delivery of materials. Both Todd and Global worked under CPAF contracts administered by the Middle East Division's Engineer Logistics Command.⁶⁴

Supervising the Morrison-Knudsen Saudi Arabia Consortium

The dedication and groundbreaking for KKMC in February 1978 showcased a successful project; but behind the scenes, the project was not proceeding smoothly. MKSAC's effective provision of life support, construction and construction support, and management assistance all depended on careful planning and coordination. The CPAF contract specified that, in the first sixty to ninety days after award, MKSAC would submit for approval a number of plans, systems, and procedures outlining its organization; its functional positions; its proposed staffing; and its arrangements for quality control, financial management, and procurement.

Although a substantial amount of work had been completed on the KKMC design, the Corps had engaged in little systematic planning for construction of the facilities that MKSAC needed in order to provide the broader services. Moreover, not much

⁶³ Project Plan Update: KKMC, 4 Aug 79, vol. 1, p. III-14, vol. 2, app. 7, an. A, p. 1; MOU, Wells and Faisal, 1 Nov 76, app. G; MFR, Carozza, 3 Mar 78, sub: Management Assistance Concept—KKMC CPAF Contract, Walker box 8, OH, HQ USACE.

⁶⁴ Memo, Benson and Kramer to Div Engr, 28 Sep 77, p. 4; Project Plan Update: KKMC, vol. 1, p. 4; MOU, Wells and Faisal, 1 Nov 76, p. 6. Ellis to Morris, 26 Sep 78, p. 5; 30 Jan 79, p. 7; 11 Jan 80, p. 9; 24 May 80, p. 7; all in Walker box 6, OH, HQ USACE.

thought had gone into a comprehensive administrative plan to allow progress to be monitored on the CPAF contract.⁶⁵ In reality, it became MKSAC's responsibility to devise and execute a plan of construction for the facilities required to support the work of other contractors. Simultaneously, the consortium had to integrate its construction timetable into a management plan for the entire undertaking.

Within days of signing the contract in July 1977, MKSAC management met with Middle East Division personnel to draw up a new working schedule to replace the outdated timeline of November 1976. The revised plan, "KKMC Current Plan and Alternatives," signed on 19 August, became the new baseline for MKSAC's activities. It called for an eight-year construction period dating from 1 August 1977, rather than the earlier six-year period beginning July 1976.⁶⁶ This was not a comprehensive management plan but only an initial step toward establishing one.

By September 1977, MKSAC had about seventy-five employees in its office in Maryland. Corps personnel judged this number insufficient to handle all of the firm's myriad assignments, and the shortage of staff persisted through the end of the year.⁶⁷ The staff shortage and MKSAC's seeming inability to supply the plans, systems, and procedures called for in the contract became a major issue of contention between the officers who led the Al Batin District—Colonel Leiser and his deputy, Colonel Wilson—and the MKSAC management group.

Controversy Over Management

Leiser and Wilson considered the integrated management plan that the contract required MKSAC to create as the key to controlling the entire KKMC effort. They saw the plans, systems, and procedures generated by such a plan as essential elements, and they repeatedly directed MKSAC to produce a plan and procedures—to no avail. At first, Leiser ascribed the failure to incompetence. In November 1977, he complained directly to the president of Morrison-Knudsen that three of MKSAC's top personnel—the chief of procurement, the chief of administration, and the chief engineer—had insufficient qualifications to manage such a large project. Over the following months, the consortium continued to resist or to submit materials that the engineer officers found totally inadequate. MKSAC's top managers, for their part, saw the insistence on the multiplicity of submissions as over-management by the Corps. Although the consortium did change personnel in several management positions, tensions persisted between MKSAC and leaders of the Al Batin District.⁶⁸

CS-Squared

One of the principal issues was a management tool named the Cost/Schedule Control System, commonly called CS-Squared and written CS². The system origi-

⁶⁵ Interv, Walker with Wilson, 13 May 85, sess. 3, p. 13.

⁶⁶ Project Plan Update: KKMC, 4 Aug 79, vol. 1, pp. 1–3; Wells to Morris, 12 Dec 76, pp. 4–5.

⁶⁷ Project Plan Update: KKMC, 4 Aug 79, vol. 2, pp. 1–2, and app. 2, encl. 1.

⁶⁸ Interv, Walker with Leiser, 27 Feb 85, pp. 34–35.

nated as a set of criteria for tracking the relationship between progress in production and prorated spending on Department of Defense (DoD) projects. It had been used in the development and manufacture of the F-14 aircraft and a few other projects, but it was still very new. Wilson and Leiser understood CS² as a set of criteria to define accountability. The criteria represented a management device that required the contractor to set a schedule that they as supervisors could use to measure costs; progress of mobilization; and implementation of life support, construction, and construction support. They readily conceded that changing circumstances might force adjustments to the schedule but insisted that certain facilities and equipment had to be in place to permit the timely award of fixed-price construction contracts. Scheduling, they argued, was essential because it determined what was purchased, how much of the total was paid for, when funds were needed, and what needed to be staffed at any point. Without a construction schedule, the Al Batin District could not measure progress.⁶⁹

MKSAC's managers viewed CS² as an attempt to impose a management system. They contended that it required them to reveal proprietary information about their operations. They found the criteria confusing and complicated. In this judgment, they were not alone. Many managers in the headquarters in Washington also found the criteria complicated, a circumstance that repeatedly required Leiser and Wilson to try to explain the system.⁷⁰

In October and November 1977, the tension between Al Batin District and consortium managers reached an uncomfortable level. Colonel Leiser judged the consortium's performance unsatisfactory during the first months of operation. He believed the company had not put the best managers in the consortium, and he faulted the consortium for not delivering the management plans stipulated in the contract. Overall, the Middle East Division rated the company's performance for the first quarter as "marginal." Given the clash over CS² and the negative evaluations, MKSAC management quickly concluded that the consortium could never win the 3 percent maximum in its award fee.⁷¹

Morrison-Knudsen's top executives raised the issue of Leiser and Wilson's management with personnel they knew in Corps headquarters, which prompted civilian Corps leaders to intervene with Leiser and Wilson to urge improved relations. The district engineer and his deputy resented this intervention as an intrusion. The incident, which Leiser labeled the "inquisition of the [Washington] chiefs," also made Leiser and Wilson feel that Morrison-Knudsen had more influence with Corps

⁶⁹ C. Wells et al., Mgmt Eval Team Rev Rpt, 3 Oct 78, p. 2. The study visits took place between 14 and 23 August 1978. See also Interv, Walker with Wilson, 13 May 85, pp. 67-90, and sess. 3, pp. 1-20, on the tensions between the Corps and MKSAC.

⁷⁰ Interv, Walker with Wilson, 13 May 85, pp. 67-90; C. Wells et al., Mgmt Eval Team Rev Rpt, 3 Oct 78, *passim*.

⁷¹ Interv, Walker with Leiser, 27 Feb 85, pp. 34-35. "Marginal" comes from Wells to Morris, 21 Jan 78, p. 3, A-9-9, TAD-RHA. See also Interv, Paul K. Walker with Cecilia Lane, 6 Oct 83, p. 10. Lane contrasted the situation in Saudi Arabia with her experience with Morrison-Knudsen in Vietnam. Interv, Paul K. Walker with Jerry J. Cavens, 11 Feb 85, p. 22, and with Wilson, 13 May 85, sess. 3, p. 6.

leaders than they did. Their determination to hold MKSAC to the criteria very quickly became a source of acrimony, defensiveness, and resentment. In this atmosphere, mutual trust, confidence, and teamwork broke down in a way detrimental to the completion of the mission.⁷²

Tensions Over Management Decisions

The tensions provoked by the issue of CS² made other issues more difficult to resolve. Leiser and Wilson thought that MKSAC should concentrate its staff in the United States, while MKSAC wanted to concentrate staff in Saudi Arabia. In spite of concerns about insufficient staff strength at the outset, the Corps supervisors thought that MKSAC increased staff too quickly for the amount of money available. The two parties clashed over data-processing needs as well. MKSAC claimed that it needed expensive computing equipment to track the data that the Corps supervisors were demanding, while Corps personnel were convinced that the equipment MKSAC wanted was more powerful and more expensive than needed.⁷³

Locating the offices for developing precast concrete operations and for producing prototypes in the Netherlands complicated the consortium's project management because Dutch tax and labor laws increased costs. The country imposed a value-added tax on all manufactured products. In addition, by law, the minimum labor contract in the Netherlands was for five years so the company could not economically hire workers to accelerate production. Moreover, Dutch law forbade overtime. Finally, because the Dutch partner in the consortium was not accustomed to American procedures, tensions arose between Morrison-Knudsen and its partner that created additional problems for the Corps.⁷⁴

Furthermore, Corps personnel disagreed with MKSAC's Dutch corporate partner, Interbeton, over the design and construction of the precast concrete facilities. The Al Batin District commanders wanted to have interim production so that construction could proceed in stages with the support of the precast plants already on line. The Middle East Division had hired three architect-engineer firms to prepare preliminary designs for the precast concrete plants that reflected this approach. By contrast, Interbeton wanted to build one huge plant and start production only when that was fully completed. When Interbeton rejected the designs prepared by others, Colonel Leiser concluded that the firm was "redesigning the wheel."⁷⁵

Seven years after the fact, Colonel Wilson could see that designing the precast molds and the precast production system on the huge scale imposed by a project the size of KKMC was far more complicated than anyone appreciated at the time. He further acknowledged that the gap between starting and getting to full productivity

⁷² Intervs, Walker with Leiser, 27 Feb 85, pp. 64, 72, 77 (quotation from p. 95), and with Wilson, 13 May 85, pp. 62, 70, 71, 73, 81–82.

⁷³ Interv, Walker with Wilson, 13 May 85, sess. 3, pp. 20–22, 27–28.

⁷⁴ Interv, Walker with Leiser, 27 Feb 85, pp. 22–26, 29–30.

⁷⁵ Interv, Walker with Woodall, 5 Feb 85, pp. 46–47, 95–96. Quotation from Interv, Walker with Leiser, 27 Feb 85, p. 30.

on the KKMC project “was a lot bigger than we had ever anticipated. . . . I’m not sure that that would have been any different with any other contractor.” With the passage of time, he also concluded that, however good the CS² system may have been, trying to implement it on the contract for KKMC proved counterproductive.⁷⁶ In the midst of the operation, however, the wrangling over all these issues threatened to paralyze the project entirely.

The tensions between the Al Batin District personnel and MKSAC raised the concern of the chief of engineers, Lt. Gen. John W. Morris. In May 1978, he ordered a management evaluation team formed to review and analyze the KKMC project. Working in late August, the review team observed that, one full year after the contract award, MKSAC still had no coherent organizational structure or staffing plan, although Colonel Wilson had tried repeatedly to get the consortium to submit organizational information. The team concluded that “this is a *major* [emphasis in the original] cause of confusion; poor interfaces; lack of operating procedures; vague product flows; and general frustration of personnel at all levels, including top management officials in MKSAC.”⁷⁷

In defense of MKSAC, the team observed that incremental funding, rather than full funding at the outset as envisioned in November 1976, “precludes orderly and realistic scheduling and budgeting for the full scope of work . . . over the original time frame” of three years from the date of the award. Given the pattern of funding, MKSAC could not achieve “a smooth and aggressive momentum” but became victim of “a ‘start-stop’ mode . . . which disrupts planned actions, logistic pipelines and financial controls.”⁷⁸

The management review team reached the overall conclusion that the parties could achieve a working operation but that it would take willingness on both sides to cooperate and compromise. MKSAC had to organize more effectively, the district engineer and deputy had to intervene less often and less forcefully, and both sides had to engage in more oral discussion and consultation to improve communications. No progress would occur, however, unless “all parties promptly recognize the unacceptable consequences [of the existing situation] and start working together toward the same objective (i.e., get the job done well, on time, at acceptable cost).”⁷⁹

MKSAC never fully overcame its shortcomings. In the spring of 1979, it again received low evaluation scores. As late as January 1980, the Middle East Division commander pointedly noted that “MKSAC, after 30 months, has yet to produce reliable scheduling, budgeting, or production data.”⁸⁰

⁷⁶ Interv, Walker with Wilson, 13 May 85, p. 74, sess. 3, pp. 27–28, 31–33; C. Wells et al., Mgmt Eval Team Rev Rpt, 3 Oct 78, pp. 1–2.

⁷⁷ C. Wells et al., Mgmt Eval Team Rev Rpt, 3 Oct 78, pp. 1–2.

⁷⁸ Ibid., pp. 4–5.

⁷⁹ Ibid., pp. 7–8.

⁸⁰ Rcd of Mtg with [Saudi] MWD [Military Works Directorate], 22 May 79, p. 2, K-8-5, TAD-RHA; Ellis to Morris, 11 Jan 80, p. 4.

TABLE 11—AL BATIN DISTRICT ACTIVE CONSTRUCTION CONTRACTS
1 DECEMBER 1980

Calendar Year	No. Contracts Let	Value (\$ millions)
1976	2	39.20†
1977	1*	28.10
1978	0	—
1979	9	514.94†

*Does not include MKSAC contract valued at \$1.343 billion.

†In the original contracts, the monetary values are denominated in Saudi riyals.

Source: Adapted from "Active Construction Contracts—Al Batin District," 1 Dec 80, box 13, K-8-5, Transatlantic Division—Records Holding Area.

Implications for Progress

The accumulation of problems and delays slowed the award of construction contracts for KKMC. The November 1976 memorandum of understanding on its construction had laid out a schedule for sequencing work under fixed-price contractors that specified twenty-four construction contracts during the first two-and-a-half years of the MKSAC contract. In reality, the division awarded only two such contracts in that time, one on 31 December 1977 and a second in January 1979. No awards at all occurred in 1978.⁸¹ (*Table 11*)

Although the Al Batin District awarded no construction contracts in 1978, the project did move forward. The MKSAC consortium worked on two precast plants, developed a quarry and a sand borrow, and began constructing concrete batch plants. It erected prefabricated warehouses, a workers school, and other buildings in the contractor-support area. MKSAC also completed the two camps for workers and rushed to open the first units in the workers community. Still, all this activity amounted to construction placement of only \$182.6 million, 31 percent below the level projected for FY 1978. Of course, this represented nearly fifteen times the Mediterranean Division's construction placement for 1974.⁸²

In 1979, the Al Batin District began to award fixed-price contracts for specific construction projects, including family housing and troop facilities in areas to be

⁸¹ MOU, Wells and Faisal, 1 Nov 76, app. F; Wells to Morris, 21 Jan 78, p. 3, and 20 May 78, p. 4; MKSAC Hist Rpt, 22 Feb 82, p. 51.

⁸² Prog Rev and Analysis, 4th Qtr FY 1978, p. 8-8, and 4th Qtr FY 1977, pp. 11-13, both in C-7-10, TAD-RHA; MKSAC Hist Rpt, 22 Feb 82, pp. 48-51. For placement in FY 1979, see Rev and Analysis, Oct 79, n.p. For the level of placement in FY 1974, see Bfg, Middle East/Africa Proj Ofc [second half of CY 1987], unmarked box, TAD-RHA.

occupied by the Saudi First Brigade. However, MKSAC's inability to keep pace with the planned progress of construction at KKMC had serious reverberations. Because the precast plants remained behind schedule, the Middle East Division had to delay award of several contracts. These delays continued into 1980, when the Al Batin District had to delay erection of family housing units and troop facilities because the precast elements needed for their construction were not ready on time.⁸³

Network Analysis System

Except for the initial work on infrastructure and support undertaken by MKSAC, the plan for building KKMC provided that fixed-price contractors would complete all permanent construction for the city. The contracts had to be managed in a way that integrated the contractors' efforts into a coordinated sequence of activity. Responsibility for managing the project as a whole involved the integration and coordination of life support, construction support, design, and construction placement. By late 1979, the Al Batin District personnel had finally developed an automated master network analysis system (NAS) that included all of the design packages associated with the project, including design for the precast elements, the molds, and their procurement and delivery. This NAS assumed only a 10 percent increase in available funds from year to year.⁸⁴

The NAS was one of the principal elements of the master plan that Colonel Leiser had hoped MKSAC would produce. The system developed by the district had to be adjusted constantly to account for new constraints and unanticipated contingencies. Still, Corps personnel felt that for the first time in the project they had a tool that allowed them to deal effectively with slippage, unanticipated problems, or proposed changes because it allowed them to assess the "ripple effect" of such adjustments on all aspects of the total KKMC construction program.⁸⁵

The constraints on funding, the frequent design changes, and the disputes between district personnel and MKSAC's leadership all converged to put KKMC construction well behind schedule. The Project Plan Update of August 1979 programmed production of two precast concrete plants for over eleven thousand molded elements by the end of December. In fact, Plants 2 and 4, the only ones operating, produced fewer than five thousand elements. Calculations in the August 1979 plan indicated for the eight-year projection that precast plants would have to produce ten thousand elements a month and for the ten-year projection seven

⁸³ Ellis to Morris, 30 Jan 79, p. 6; 19 Sep 79, p. 2; 11 Jan 80, pp. 2-3; 24 May 80, p. 3; all in Walker box 6, OH, HQ USACE. For the contracts and their award dates, see "Active Construction Contracts—Al Batin District," 1 Dec 80, unmarked box, TAD-RHA.

⁸⁴ Project Plan Update: KKMC, vol. 1, pp. II-5-9.

⁸⁵ *Ibid.*, esp. p. II-8.

thousand a month. Even in its best month, June 1980, MKSAC achieved a production total of fewer than six thousand precast elements.⁸⁶

The pace of construction improved through the second year of the CPAF contract. By the end of FY 1979 (30 September 1979), construction placement had risen to \$479.3 million, 33 percent above the projections for the year and more than two-and-a-half times the placement for FY 1978. By July 1980, the end of the three-year contract period, MKSAC had completed over 99 percent of the tasks assigned to it in the revised plan of August 1979.⁸⁷

However laudable the achievement, the impression remained that throughout its three years of work MKSAC produced too little and too late. Even delays that were not entirely the consortium's fault became its responsibility.

Shortcomings of the Morrison-Knudsen Saudi Arabia Consortium

Explanations for MKSAC's failure to meet the targets of the contract are not hard to find. The consortium had to prepare specific job descriptions before it could hire staff, and the Saudi government delayed granting visas to incoming MKSAC personnel. It also took time to master the logistics involved in large-scale transfers of men and materials to the remote location. A longshoreman's strike at the docks in the United States in December 1977 and January 1978 also slowed progress. Many of the delays MKSAC encountered in building the precast concrete plants derive from proceeding simultaneously rather than sequentially with both design and construction. Without definitive designs for the structural elements that the plants were to produce, construction of the precast plants had to be delayed. As late as January 1980, KKMC's designs remained only 90 percent complete.⁸⁸

In addition, Saudi funding for the KKMC project consistently failed to match the amounts programmed. The Saudis also made available only about 15 percent of the money needed for FY 1978, whereas the Middle East Division and MKSAC had expected the entire amount at the start of the year in October 1977. The Saudis provided the balance of funding for the year only in mid-March, after the dedication ceremony. In FY 1978, the Saudi government programmed \$1.7 billion but actually made only \$290 million accessible. For FY 1979, the comparable figures were \$1.52 billion programmed versus \$715 million accessible and for FY 1980 \$1.18 billion programmed versus \$742 million accessible.⁸⁹

⁸⁶ MKSAC Hist Rpt, 22 Feb 82, pp. 35, 73; Ellis to Morris, 11 Jan 80, p. 2; "KKMC Planning Update—Briefing for Major Faisal," 6 Aug 79, p. 2, K-8-5, TAD-RHA.

⁸⁷ For the amount of placement in FY 1978, see Prog Rev and Analysis, 4th Qtr, FY 1978. For the projects, see 4th Qtr, FY 1977, pp. 11–13. For placement in FY 1979, see Rev and Analysis, Oct 79, n.p.; MKSAC Hist Rpt, 22 Feb 82, p. 17.

⁸⁸ MKSAC Hist Rpt, 22 Feb 82, pp. 33–34, 41–44; Ellis to Morris, 11 Jan 80, p. 13.

⁸⁹ Wells to Morris, 21 Jan 78, p. 3, and 20 May 78, p. 1; DF, West, 13 Jan 78, sub: Significant Activities Report, 16 Dec–15 Jan, Construction Programs Branch, p. 4, E-5-6, TAD-RHA; Project Plan Update: KKMC, vol. 2; figures in MOU, Wells and Faisal, 1 Nov 76, amend. no. 1, 1 Aug 79, attached to Draft Ltr, Ellis to Faisal, Walker box 13, OH, HQ USACE.

In June 1978, MKSAC and Al Batin District leaders negotiated revisions to the schedule of work that had been fixed in August 1977. The parties revised the schedule again in August 1978 as a direct result of the “substantially reduced funding” from the Saudis for FY 1979. In the spring of 1979, the division planners began a new review of the project’s construction schedule. The Project Plan Update of 4 August 1979 was the fourth formal revision since November 1976 and became the new baseline for MKSAC. The new plan proposed two possible construction schedules, one of them based on “optimum support,” the other based on “constrained funding.” This new distinction recognized for the first time the reality that the Saudi government had funded MKSAC’s work more slowly than earlier plans had programmed. In addition, the August 1979 update restored several projects that were eliminated from the memorandum of November 1976 and the revisions of August 1977 to reduce costs—including the hospital, the airfield expansion, and the Engineer School.⁹⁰

Allegations of Corruption

In August 1979, charges surfaced publicly that several MKSAC employees had engaged in a scheme to inflate prices for materials bought to support the KKMC construction and that they had accepted payments for their cooperation. The allegations touched off a number of newspaper articles around the United States and raised questions about kickbacks or illegal payments in business dealings in Saudi Arabia.⁹¹

The problem had come to light in mid-June during a routine audit of MKSAC’s procurement records by Al Batin District personnel. The initial examination uncovered irregularities that prompted the Middle East Division commander, Brig. Gen. James N. Ellis, to order an in-depth audit, to request an investigation by the U.S. Army Criminal Investigation Command (CIC), and to alert U.S. Ambassador John C. West.⁹² With the full cooperation of MKSAC executives, fourteen members of the Defense Contract Audit Agency examined eighteen thousand records covering procurement valued at \$35 million. The audit revealed questions concerning \$1.4 million in purchases. Because the transactions had taken place in Saudi Arabia and involved Saudi materials, the Corps took the issue to the Saudi government to seek its cooperation. The Saudi government then presented MKSAC with a list of thirty-one employees, including nineteen U.S. citizens, whom it wanted held in the country as potential material witnesses.⁹³

⁹⁰ Project Plan Update: KKMC, 4 Aug 79, vol. 1, pp. 1–3, quotations from pp. 2, 3, III-12; MKSAC Hist Rpt, 22 Feb 82, pp. 17, 45, A-10-5, TAD-RHA.

⁹¹ “MKSAC Audit and Detainment of Employees in Saudi Arabia,” 8 Aug 79, and News Query Form, 6 Aug 79, query from Bill Currie, *Chicago Tribune*, Current Files, Transatlantic Division–Public Affairs Office (TAD-PAO).

⁹² Ellis to Maj Gen William Wray, 27 Jul 79, sub: CID [Criminal Investigation Division] Report Initial SSI [Serious or Sensitive Incident] 007-79-0139, unmarked box, TAD-RHA.

⁹³ *Ibid.*

Once the Saudi government confiscated the passports of U.S. citizens, the incident became a public issue. The public relations offices at Corps headquarters and at the division offices in Virginia began receiving inquiries from newspaper reporters, frantic relatives, and congressional offices. The *Idaho Statesman* from Boise, the headquarters of Morrison-Knudsen, published an article that concentrated on an Idaho resident among the thirty-one detainees and his assertion that “we have been taken advantage of [and] our rights have been taken away from us.”⁹⁴

The likelihood of any serious charges emerging from the investigations lessened when a key figure in the probe, the Lebanese sales representative of the local vendor, managed to leave Saudi Arabia surreptitiously. The charges never involved Morrison-Knudsen or MKSAC as entities. The individual employees detained were all middle-ranking functionaries at the highest, and the investigations never developed significant evidence against more than two U.S. citizens. By early September, all passports had been returned, the auditors and agents of the U.S. Army Criminal Investigation Command had submitted their reports, and the incident disappeared from the headlines. Division records do not show whether any legal action ever occurred.⁹⁵

No evidence suggests that the incident involved more than individual corruption. No one from the Corps of Engineers was implicated, and MKSAC had no corporate culpability. The company agreed to repay the project for those procurement items that the audit had identified as irregular. The entire affair represents a relatively small and uncharacteristic incident in the history of the Corps of Engineers in Saudi Arabia.

Ending the Cost-Plus-Award-Fee Contract

In 1976, the leadership of the Corps of Engineers had convinced a reluctant military staff at MODA to accept a CPAF contract to build King Khalid Military City. The first full year of the MKSAC contract did little to reduce the skepticism of the Saudis regarding CPAF contracting. The consortium’s performance during 1977 and 1978 fell far short of the level of productivity that the Middle East Division’s managers had expected.⁹⁶

It came as no surprise that, shortly after the end of MKSAC’s first year, leaders in the Al Batin District and in the Middle East Division began to reexamine the CPAF contract. The memorandum of understanding of November 1976—the document defining the role of the CPAF contractor in building King Khalid Military City—specified the use of fixed-price contracts in conjunction with and eventually as a replacement for the CPAF contract. The memorandum even provided for periodic

⁹⁴ Steve Ahrens, “Saudis Detain 31 M-K Workers,” *Idaho Statesman*, 1 August 1979.

⁹⁵ Action based on the CID report remained pending at the Department of Justice when division records ceased to report the incident. See Col Daniel D. Ludwig to Sen Dale Bumpers [D-Ark.], 23 Oct 79, unmarked box, TAD-RHA. Documentation ends in the spring of 1980 with no mention of action by the Justice Department.

⁹⁶ Project Plan Update: KKMC, vol. 1, p. VIII-1.

review of circumstances to decide when it might “become desirable to convert the CPAF contract.” By late 1978, that time seemed to be at hand. The Saudis strongly favored terminating the contract with MKSAC at the end of its three-year term and proceeding with competitive bidding. A study group within the Middle East Division considered a variety of approaches and arrived at a set of recommendations.⁹⁷

The CPAF contract set out separate categories of work, each of which was subject to termination, modification, or extension. The study group proposed to negotiate exclusively with MKSAC to continue two of the categories—construction support and management assistance—under a fixed-price contract. For other functions, such as life support and additional technical support, the division proposed to advertise fixed-price contracts and to make awards after competitive bidding. By combining negotiations with MKSAC for certain services and open bidding for others, the division could take advantage of MKSAC’s experience. The consortium would have an opportunity to continue as the on-site contractor if it could negotiate a fair and reasonable price for its services and if MODA approved. In the absence of an agreement with MKSAC, all the services would pass to new contractors.⁹⁸

In mid-December 1978, the Al Batin District deputy, Colonel Wilson, briefed the chief of engineers, General Morris, on the alternatives and won his approval to proceed; although Morris expressed concern over ending MKSAC’s involvement in the project. On 15 January 1979, the Middle East Division engineer, General Ellis, met with his staff and the study group in Virginia to review the alternatives. After weighing the recommendations, Ellis approved discontinuing the consortium’s CPAF contract for support services. In its place the division would pursue competitively bid fixed-price contracts. Although MKSAC’s performance ratings remained barely satisfactory, with some activities still marginal, the division leaders proposed to seek a fixed-price contract with that consortium to continue its involvement in construction support and management assistance.⁹⁹

On 2 February 1979, personnel from the division and the Al Batin District briefed General Morris and key members of his staff again. The chief of engineering in headquarters, Lee Garrett, expressed concern about “changing horses” and said he did not want to “let the client dictate our way to do the job,” believing that a CPAF contract represented a better tool to get the job done. The director of military construction, Maj. Gen. Bates Burnell, echoed Garrett’s concerns, but General Morris approved the division’s decision to end the CPAF contract and to replace it with a number of fixed-price contracts. One week later, the Al Batin District formally presented the plan for converting the CPAF contract with MKSAC to fixed-price contracts and Major Al Faisal at MODA gave his approval. During the

⁹⁷ Quoted passage from memo as cited by Project Plan Update: KKMC, vol. 1, p. VIII-1. MOU, Wells and Faisal, 1 Nov 76, pp. 5–6; MFR, Wilson, 5 Jan 79, sub: Briefing for LTG J. W. Morris on 18 December 1978 . . . in MED (REAR), p. 2, A-9-3, TAD-RHA.

⁹⁸ “Study of Contracting Arrangements,” 4 Jan 79, p. 11; Project Plan Update: KKMC, vol. 1, p. VIII-1–2; Ellis to Morris, 30 Jan 79, p. 6.

⁹⁹ MFR, Wilson, 5 Jan 79, p. 2; MFR, Ab al Kassim, 15 Jan 79, sub: Al Batin District Briefing to Division Engineer in Berryville, A-9-3, TAD-RHA.

next several months, district personnel repeatedly briefed Al Faisal on the progress of the negotiations.¹⁰⁰

Throughout the spring and summer of 1979, division staff, working mostly from the district office in Maryland, developed scopes of work for various contract packages. In April, MKSAC indicated an interest in negotiating a contract to continue its role in construction support and management assistance. By contrast, the consortium expressed no interest in continuing to offer life support. Corps staff pursued two functions simultaneously: first, monitoring the day-to-day activities of MKSAC and other contractors as they executed construction at KKMC and second, planning the closeout of the CPAF contract while developing contracts in life-support services. They also prepared to negotiate with MKSAC for a construction support contract. As a measure of prudence, the division developed a request for proposal and a bidders list of prequalified companies capable of executing the construction support and management assistance services.¹⁰¹

By late October 1979, when Major Al Faisal visited the office in Maryland, Corps personnel had a scope of work ready for the life-support contract and had passed the list of prequalified bidders to the Saudi military liaison office. Al Faisal approved a schedule that would allow award of the contract in mid-April 1980. In November 1979 in Riyadh, he reaffirmed his approval of the division's intention to negotiate a contract with MKSAC to continue construction support at KKMC. He thought that "the negotiations would be fruitless," however, and had no plans to participate or to send a MODA representative. He urged the division negotiators not to be too accommodating to MKSAC and to hasten preparations of the materials necessary to solicit bids from other firms when, as he expected, the discussions with MKSAC ended.¹⁰²

In December 1979, the division opened formal negotiations with the consortium that led in late January 1980 to a final series of meetings in St. Louis. On 2 February, MKSAC submitted its revised proposal to the Middle East Division for an additional eighteen months of construction support services. After several days, the division's negotiators concluded that the gap between MKSAC's final offer and the government estimate of the cost of work was too great to reconcile. On 8 February, the Corps team ended the negotiations; the next day, the division issued a request for competitive proposals on construction support.¹⁰³

¹⁰⁰ MFR, West, 5 Feb 79, sub: KKMC Briefing for LTG Morris on 2 February 1979, A-9-3; MFR, Maj Louis J. Martinez, 11 Feb 79, sub: MLO Attendance at MKSAC Award Fee Evaluation, K-8-5; MFR, James L. McFaul [after 20 May 79], sub: MODA Approval to Convert CPAF Contract DACA 86-77-C-0091, Support Services, KKMC, to Firm Fixed Price (FFP), K-8-5; MFR, Chester A. Taylor, 25 Oct 79, sub: Maj Faisal Visit to CONUS Office, K-8-5; Addendum by Maj Richard J. Vedell, Riyadh Liaison Ofc, to MEDRL's MFR, dtd 27 Nov 79, 28 Nov 79, K-8-5; Memo, Vedell, 17 Dec 79, sub: Meeting with MODA Officials on 16 Dec 79, K-8-5; all in TAD-RHA.

¹⁰¹ MFR, Martinez, 11 Feb 79. Ellis to Morris, 19 Sep 79, p. 2; 11 Jan 80, p. 4; 24 May 80, p. 2. Project Plan Update: KKMC, vol. 1, sec. 8, pp. 14, III-2.

¹⁰² Vedell, Addendum to MFR dtd 27 Nov 79, 28 Nov 79; Memo, Vedell, 17 Dec 79, pp. 2-3.

¹⁰³ Ellis to Morris, 19 Sep 79, p. 2; 11 Jan 80, p. 4; 24 May 80, pp. 2-3.

When discussions with MKSAC ended, the division had the documents and bidders lists for the life-support contract ready. Within days, the division convened a series of pre-proposal conferences with seven firms that had expressed an interest in bidding on site management and life support. In early April, five companies submitted bids that ranged from a high of \$279.9 million to a low of \$136.3 million. The Al Batin District negotiating team met with the bidders to clarify issues in the proposals and then solicited best and final offers for submission. On 13 May 1979, the Al Batin District engineer signed a \$128.8 million, three-year contract with the low bidder, Saudi Maintenance Company Ltd. (SIYANCO). This contract with SIYANCO was more limited than the MKSAC contract because experience established that many construction contractors preferred to provide their own life-support services, especially ethnic foods.¹⁰⁴

In March 1980, the Al Batin District hosted a preliminary meeting with nine firms interested in taking over construction support functions. District personnel also arranged site visits to Hafar al Batin for companies interested in bidding on the automated data processing (ADP) services that MKSAC had provided as part of its management assistance. On 2 June, the district awarded a contract valued at \$9.17 million to a joint venture of Saudi Computer Services Ltd. and Statskonsult International A.B. for data processing. The district covered other management assistance functions under contracts with other firms. Seven days after signing the ADP contract, the district let a construction support contract to the Korean firm, Sam Whan Corporation, for \$265.99 million. The three fixed-price contracts—SIYANCO for life support, Sam Whan for construction support, and Saudi Computer Services/Statskonsult for data processing—replaced MKSAC's functions.¹⁰⁵

When the Middle East Division broke off negotiations with MKSAC in February 1980, less than six months remained to the end of the CPAF contract. The contractors who followed MKSAC could not take up the work effectively before the autumn of 1980, making it necessary to extend the MKSAC contract beyond the expiration date, 26 July, to allow for a smooth transition. The division formed scores of three- and four-person teams to inventory and to prepare documentation to facilitate the transition. MKSAC's extension period ultimately lasted two hundred ten days.¹⁰⁶

¹⁰⁴ Ellis to Morris, 24 May 80, pp. 2–3; MFR, Phillip L. Dinello, 18 Apr 80, sub: RFP DACA 78-80-R-0051, Site Management/Life Support Services, KKMC Negotiations with SIYANCO, A-9-3, TAD-RHA; "Active Construction Contracts—Al Batin District," 1 Dec 80; Project Plan Update: KKMC, vol. 1, p. III-2.

¹⁰⁵ Ellis to Morris, 24 May 80, pp. 2–3; MFR, C. A. Donaldson, 8 Apr 80, sub: Review of Offers on DACA 78-80-R-0051, A-9-3, TAD-RHA; MFR, Dinello, 18 Apr 80; "Active Construction Contracts—Al Batin District," 1 Dec 80.

¹⁰⁶ Ellis to Morris, 24 May 80, p. 2; Memo, Maj Jules S. Kincaid, 21 Jul 80, sub: Meeting with MAJ Faisal on Impact at Al Batin without MKSAC Extension, 19 July 1980, p. 1, unmarked box, OH, HQ USACE; Bfg Slide, "CPAF/KKMC, Background," attached to Memo, Thomas L. Carnes, 28 Dec 82, sub: MKSAC Close-out Briefing, 15 December 1982, K-8-5, TAD-RHA; Albro to Morris, 21 Sep 80, pp. 1–3. On the division's transition teams, see Interv, Moorhus with Allen R. Lane,

SIYANCO formally began to assume its responsibilities on 11 August 1980; the contract for data processing took effect on 4 September; and Sam Whan began its work on 7 September. Throughout the autumn of 1980, MKSAC transferred its responsibilities, functions, property, and equipment by phases. In September and October, it turned over to Sam Whan the precast concrete plants that had already begun production and in December completed construction on Plant 5 and turned it over. In all, by the end of the transition period in February 1981, MKSAC transferred \$175 million in inventory to Sam Whan Corporation and another \$62 million in warehoused materials to fourteen other contractors working at KKMC.¹⁰⁷

At the peak of its operations in May 1980, MKSAC had over seven thousand five hundred employees in Saudi Arabia. By the end of February 1981, the consortium had fewer than ten employees at KKMC. The company retained a presence in Saudi Arabia, including a few people in its Riyadh office and at Al Khobar, through 31 December 1981. In December 1980, the Middle East Division established a suboffice in Baltimore to deal with the closeout of the MKSAC contract; that office closed in December 1982. When MKSAC and the Corps of Engineers settled all claims in 1989 and closed out the contract, the consortium's total compensation came to just over \$1 billion.¹⁰⁸

Completing King Khalid Military City

As MKSAC approached the end of its three-year contract, Brig. Gen. Ames S. Albro Jr. assumed command of the Middle East Division. Albro indicated in his initial public comments in the summer of 1980 that the division's program of military construction in Saudi Arabia had reached its apogee. He expected it to end about 1987 with the completion of King Khalid Military City.¹⁰⁹

When General Albro made his remarks, KKMC appeared nowhere close to completion. Little evidence of a city existed above ground at Hafar al Batin, reflecting the construction plan that called for MKSAC to concentrate first on developing the infrastructure. Much of what the consortium had constructed was either underground or stood outside the perimeter of the octagon city: the two workers camps and the workers community to the east, the temporary airport and the 200-villa compound to the southeast, and four precast-concrete production plants in the contractor-support area to the southwest. In addition, MKSAC had laid out the Engineer Center and School, the military hospital, the permanent airport, and

9 Mar 95, pp. 12–13; Lt Col Guy H. Payne, "Summary of Negotiations [with MKSAC]," [Jul 80], unmarked box, TAD-RHA.

¹⁰⁷ Albro to Bratton, 7 Mar 81, p. 2; MKSAC Hist Rpt, 22 Feb 82, pp. 33, 35, 73, 78–79, 96, 113, 152.

¹⁰⁸ Taylor, "Info Briefing for Mr. Zamel Fahad I., GDMW Status of Close Out of MKSAC Cost Plus Award Fee Contract KKMC," Dec 82, K-8-4, TAD-RHA; MKSAC Hist Rpt, 22 Feb 82, pp. 33, 35, 73, 78–79, 96, 113, 152; "MKSAC Contract Nearly Closed" and "KKMC Final Closeout," *Middle East/Africa News*, May 1989.

¹⁰⁹ Sherrie L. Moran, "Customer Gets Top Priority," *Mt. Weather Bulletin*, September–October 1980.



New bachelor enlisted quarters at King Khalid Military City, August 1981

other support facilities. MKSAC had set the geometry of the city, but little of the city itself had taken shape.¹¹⁰

MKSAC's failure to meet production deadlines for delivery of precast elements had a ripple effect and accounted for some delays in construction. In late 1979, the Middle East Division awarded a contract for the first cluster of enlisted men's housing and a similar contract for the first troop area. When production of precast elements lagged, the division had to revise both contracts. As a result, little vertical construction arose within the city's central octagon. In March 1980, MKSAC delivered the first vertical precast elements produced on site, for an electrical power substation. In June, the first precast concrete panel erected in the city proper went into place. When General Albro assumed command of the Middle East Division in the summer of 1980, the follow-on fixed-price contractors, who had the task of building the visible elements of the city, had hardly begun.¹¹¹

Packaging Construction Tasks

The Al Batin District put together ten packages of specific construction assignments. Each package included projects for a particular area of KKMC and a

¹¹⁰ Al Batin Dist, Bfg Slides, "The City Builders," [Jan 83], with layout plan of KKMC, color coded to show the facilities supporting each of the three brigades, box 6 of 6, SH-6-93-0006, TAD-RHA. For the CPAF contractor's role in laying out the "geometry of the site," see KKMC Master Plan Bfg, Mar 84, copy in R&D File 2530, TAC. For photographs of this work, see MKSAC Hist Rpt, 22 Feb 82, p. 238.

¹¹¹ MKSAC Hist Rpt, 22 Feb 82, pp. 198, 238, 234; Ellis to Morris, 11 Jan 80, p. 3; Interv, Paul Walker with Col Gene Schneebeck, 6-7 Oct 83, pp. 13-14.

particular stage of the overall construction. As design was completed, the division issued bidding documents on each package in the order defined by the master network analysis system.¹¹²

First, the division awarded the contract to the Saudi company Al Huseini for construction of over one thousand seven hundred fifty family-housing units for enlisted men and junior officers assigned to the First Brigade.¹¹³ Another package included family housing, troop facilities, and industrial facilities. Sam Whan, the Korean contractor that succeeded MKSAC in providing general construction support, participated in a joint venture that won this fixed-price construction contract. A third package involved such general-support components as the sewage-treatment plant, the well-water control system, the water plant, the chilled-water plant, and the fuel facility, all located around the perimeter of the octagon. MKSAC had already installed utilities in these areas. By the end of 1980, the Middle East Division had awarded construction contracts for all First Brigade facilities. At that point, the division had twenty-three contracts active at KKMCC and another thirty-two waiting to be awarded.¹¹⁴

Packaging and sequencing construction for the city's centrum presented special problems. The area was small and very congested, given the number of contractors working in it simultaneously. Completion of any structure restricted movement of equipment and materials, especially large precast concrete elements, within the limited ground space. Over the summer of 1980, the resident engineer at Hafar al Batin, Jim McFaul, took the precaution of having a scale model of the centrum made that could be assembled and disassembled. He wanted to use the model as a tool for project management, to study the problems of sequenced construction in the model and to test what could be done, before work proceeded on the ground. The model had to include all of the equipment, such as construction cranes with their booms, scheduled to work in the segments under construction. Brown, Daltas developed the detailed model and, in conjunction with it, a network analysis system for the centrum.¹¹⁵

Pace of Construction, 1981–1983

Construction delays at KKMCC recurred throughout the early 1980s. In December 1980, MODA asked General Albro to postpone further work on construction for the Third Brigade. Albro and his staff advised MODA that discrete segments of this construction could be delayed without disrupting progress on other segments

¹¹² Project Plan Update: KKMCC, vol. 1, pp. III-3–7; MOU, Wells and Faisal, 1 Nov 76, app. B.

¹¹³ Information derived from Al Batin Dist, Active Contracts Status Rpt, 1 Sep 81, 1 Oct 81, K-8-5, TAD-RHA; Al Batin Dist, "City Builders," [Jan 83], with layout plan of KKMCC. See also "First Units for Saudi City Draw Nine Bids, \$206 Million Low," *Engineer News-Record*, 30 August 1979, p. 24.

¹¹⁴ Al Batin Dist, "City Builders," [Jan 83]; MKSAC Hist Rpt, 22 Feb 82, p. 54; Fact Sheets for Lt Gen Joseph K. Bratton's Visit to Middle East Div, 1 to 7 Jan 81, prepared 31 Dec 80, Walker box 6, OH, HQ USACE (hereafter cited as Fact Sheets for Bratton Visit, Jan 81).

¹¹⁵ Carozza, Fact Sheet, Centrum Model Study and NAS, 20 Jan 81, copy in R&D Files 2527–2533, TAC; Interv, authors with Carozza, 26 Jan 95, pp. 39–42.



Centrum at King Khalid Military City under construction

but that work in the centrum, even on some elements exclusively identified with the Third Brigade, needed to continue. Returning to construct them later in a highly congested area would make the construction vastly more difficult and more costly. In addition, later construction would disrupt the functions and operations of the two brigades already using the centrum.¹¹⁶

In the early months of 1981, the division consulted with MODA about what facilities ought to be postponed in conjunction with the delay of work for the Third Brigade and what facilities had to remain part of the construction sequence. The model of the centrum, completed in early spring, became one of the tools that the Al Batin District used to ensure that construction tasks could in fact be executed on the ground.¹¹⁷

Other construction delays arose because the Saudis introduced changes that required modifications in the sequence and placing of facilities. MODA wanted mosques, for instance, at intervals around KKMC to minimize the walking distance for worshipers. In January 1981, Maj. Ali A. Kahtany from MODA proposed adding

¹¹⁶ Albro to Al Faisal, 16 Dec 80, sub: Delay of Construction of Facilities for the Third Brigade at King Khalid Military City, K-8-5, TAD-RHA.

¹¹⁷ Carozza, Fact Sheet, 20 Jan 81; Interv, authors with Carozza, 26 Jan 95, pp. 39–42; MFR, Carozza, 13 Jan 81, sub: Engineering Division Meeting with Major Kahtany, copy in R&D Files 2527–2533, TAC; Memo, Col J. E. Gross to Otaishan, 15 Sep 85, sub: King Khalid Military City Third Brigade Facilities, K-8-3, TAD-RHA.

two mosques to areas where construction plans called for other facilities. The request involved redesign of several spaces and structures and required particular attention to changes in vehicle and pedestrian traffic patterns.¹¹⁸

Still other delays occurred as a result of interventions by MODA in the procurement process. In early 1980, Lt. Col. Naser Al Faisal directed that all requests for proposals and contract awards pass through his office before being published. This review added about four weeks to the process of bids and awards. In November, Al Faisal ordered that contractors use Saudi Arabian cement mills to the maximum extent possible in the construction of KKMC. At his direction, the Al Batin District awarded a contract to a Saudi firm in November for seventy-five thousand metric tons of cement. The contractor was unable to produce the quantities needed to sustain construction at the site, and the lack of other qualified Saudi bidders for the bulk-cement contracts meant that emergency procurement requests became frequent. The failure to maintain the required supply of cement for KKMC construction forced the Middle East Division into what one participant called "crisis management," with the attendant delays and increased likelihood of claims by the contractors.¹¹⁹

Even with imported cement, the contractors could not count on its timely arrival at the construction site. The transportation system for moving goods between the port of Ras al Mishab and Hafar al Batin broke down in the spring of 1981 because of a shortage of trucks. As cement piled up in the onshore facilities at the port, the Al Batin District staff sought a solution to the problem. One construction contractor proposed that he provide his own inland transportation from the port to the KKMC site at a charge of SR 3,000 per truckload. The district recommended that MODA accept the proposal as a less costly solution than the 80,000-riyal-a-day charge that the contractor could ask in a claim to recover the costs of a work stoppage for lack of materials. MODA officials rejected the offer.¹²⁰

Moving materials from the port to KKMC remained a problem throughout the summer of 1981. Representatives of the district and MODA met repeatedly before finally establishing monthly meetings to try to resolve the problems. In spite of the effort, cement shortages put construction behind schedule over the summer and led to \$5 million in claims from the contractors.¹²¹

Another problem created safety hazards as well as construction delays. During the development of the sewage-treatment plant, an increasing number of Saudi Arabian citizens used the site as a convenient place to collect water for their personal

¹¹⁸ MFR, Carozza, 13 Jan 81.

¹¹⁹ Fact Sheets for Bratton's Visit, Jan 81.

¹²⁰ Memo, Lt Col David O. Lindsay to Mr. Fahad Zamel, 11 May 81, sub: Request for Video Tape Pictures at KKMC; "Areas 8 & 12, Phase I, Non-Delivery of Materials from RAM," 13 May 81; "KKMC Construction Program," 24 May 81; all in Walker box 8, OH, HQ USACE.

¹²¹ Schneebeck to Albro, 14 Dec 81, p. 3, Walker box 6, OH, HQ USACE; Albro to Bratton, 16 Dec 81, p. 1; Donahue, "MED-MWD Meeting 1300 Hours 9 June 1981," 20 Jun 81, and Memo, unsigned, 15 Jun 81, sub: MED-MWD Meeting 1300 Hours 9 June 1981, K-8-4, TAD-RHA.



Completed centrum at King Khalid Military City, mid-1980s



Mosque in Area 3, King Khalid Military City, December 1983

use. In May 1981, the deputy district engineer described the traffic as “four to six pickups per day” and noted that “while one person fills the canvas bags in the bed of the pickup with water, two or three other persons (including children) tend to wander around the construction site watching the work.” Raising the matter with the MODA military liaison officer, the deputy pointed out that, in addition to the danger of accidents, the construction water was nonpotable and presented a potential health threat.¹²²

The various delays slowed but did not stop progress at KKMC. By August 1981, General Albro reported to the chief of engineers, Lt. Gen. Joseph K. Bratton, that KKMC “is really beginning to look like a city.” Indeed, the division awarded the highest one-year total of fourteen contracts for KKMC in 1981. Despite Albro’s positive tone, the Al Batin District engineer, Col. Gene A. Schneebeck, continued to describe the construction of facilities for the First Brigade as “laced with problems.”¹²³

By December 1981, the Al Batin District staff had increased to 297 people, 21 percent of the division’s total of 1,422. In anticipation of greater activity, the district projected just over 400 people by October 1982 and had begun vigorous

¹²² Lindsay to Zamel, 5 May 81, sub: Contract No. DACA 93-79-C-0006, Sewage Treatment Plant, Area 20, Safety of Unauthorized Personnel at the Sewage Treatment Plant, Walker box 8, OH, HQ USACE.

¹²³ Albro to Bratton, 7 Mar 81, p. 6, and 12 Aug 81, p. 3; Al Batin Dist, Active Contracts Status Rpt, 1 Sep 82, K-8-5, TAD-RHA; Schneebeck to Albro, 14 Dec 81.

recruiting to reach that authorized strength. Throughout most of 1982, KKMC construction made good progress. The contractors prepared to activate the utility systems, and precast elements and other government-furnished materials arrived on site in timely fashion. The division awarded a \$93 million contract for the Engineer Center and School to a Saudi Arabian firm, Obaid and Al Mulla Construction Company; its construction began just west of the cantonment. In midyear, General Albroy projected that the facilities for the First Brigade would be ready for occupancy by early 1983.¹²⁴

Facing Crises in Funding

In the autumn of 1982, the Middle East Division encountered a problem that would persist for over a year and become progressively more serious—a shortage of funds to pay for work already under contract. In early autumn, the new division commander, Brig. Gen. George R. Robertson, notified Al Faisal that the “funding situation at KKMC is becoming critical.” Without an increase in the letter of credit by 15 November, Robertson would be compelled “to begin notifying contractors that funds will soon be exhausted, and [that] work should stop.”¹²⁵ The Saudis overcame the funding crisis in late 1982; but in early 1983, the crisis recurred and remained chronic for much of the year.

By early 1983, contractors had a prodigious volume of work underway at KKMC with one hundred fifty separate funding lines in use for projects. The Al Batin District had a staff of 365, and construction workers for the thirty-four active contracts numbered around sixteen thousand. By March, the Middle East Division had spent \$3.58 billion on the design and construction of King Khalid Military City. Talk arose that work might even resume on facilities for the Third Brigade, and division planners drew up documents to define the impact resumption would have on existing construction. Still, the total effort had brought the project only about one-third of the way to completion.¹²⁶

In fact, construction work in the Saudi economy as a whole had begun to decline in mid-1982 and continued that trend through 1983. During the first four months of 1983, the number of new construction contracts awarded in the Saudi Arabian market fell by 21 percent over the previous year. The building boom of

¹²⁴ Schneebeck to Albroy, 14 Dec 81; Albroy to Bratton, 16 Dec 81. Albroy to Bratton, 5 Jun 82, Walker box 6, OH, HQ USACE; “Engineer Center Contract Awarded,” *Mt. Weather Bulletin*, May-June 1982.

¹²⁵ Robertson to Al Faisal, n.d., sub: King Khalid Military City (KKMC) Funding, K-8-5, TAD-RHA; “Robertson New Commander,” and “Engineer Center Contract Awarded,” both in *Mt. Weather Bulletin*, May-June 1982.

¹²⁶ Robertson to Faisal, 11 May 83, sub: KKMC Funding, Walker box 7, OH, HQ USACE; MFR, Wanket, 31 Jan 83, sub: Blue Ribbon Panel on Construction Quality—MED & EUD Visits, p. 3, M-1-6, Europe Division—Records Holding Area; Fact Sheet, COPs [Change Order Proposals] for Areas Impacted by Third Brigade Resumption, 15 Apr 82, and accompanying Memo, n.d., sub: Resumption of Third Brigade, copy in R&D File 2533, possibly also docs on Mid East Div—KKMC—Third Brigade Facilities, Early 1980s, R&D File 3005, TAC.

past years seemed to be turning into a serious recession. In April, as a response to a drop in oil prices brought on by recession in the Western industrialized economies, the Saudi government proposed a budget for the pending fiscal year that cut the funds allocated for the completion of KKMC from \$1,112 million to \$580 million, a reduction of 48 percent. General Robertson told Al Faisal that such a cutback would drastically affect KKMC's progress. Such a steep decline of funds would remove money already programmed to cover current contractual obligations, and U.S. contract law would require Robertson to send letters instructing contractors to halt work on existing contracts. This would immediately impinge on contracts for the engineer school, the hospital, and the centrum, as well as contracts involving seven other construction areas. Moreover, because the funds to pay for the work were not accessible, Robertson would have to cancel all requests for proposal.¹²⁷

The Saudis had not anticipated such a radical curtailment of activities at KKMC. After discussions with Robertson, MODA's leadership agreed to send funds in June to supplement the existing letter of credit for the Engineer Assistance Agreement projects. Division staff examined funding and progress for other MODA contracts to see what funds might be temporarily transferred to cover the budgetary shortfalls for work at KKMC. The division managed to use standby funds through May to avoid sending out stop letters while awaiting transfer of funds in early June; but the basic problem remained unresolved.¹²⁸

On 6 June 1983, General Robertson, accompanied by his predecessor, General Albro—who by this time had become director of military construction at Corps headquarters in Washington—met with the Saudis in Riyadh. The Saudis indicated that their budget cutbacks had been a necessary response to the declining price of oil and the resulting general economic squeeze but that they did not want any KKMC contracts terminated or suspended. General Albro reinforced General Robertson's earlier insistence that U.S. law required the Middle East Division to have funds available *in advance* of incurring obligations. Robertson added that, even with all transfers to KKMC of funds available under other project budget lines, the division would still come up short by almost \$200 million given the contracts currently ready for award.¹²⁹

¹²⁷ "Saudi Arabia—The Construction Bubble Bursts," *Middle East Economic Digest* (17 June 1983): 8. MFR, Robertson, 26 Apr 83, sub: Meeting with LTC Naser Al Faisal, Walker box 6; Memo, Thomas L. Carnes, Meeting [5 Jun] with HE Sheikh Al-Hemaid, Deputy Minister of Defence and Aviation for Military Affairs, 6 Jun 83, Walker box 7; Robertson to Al Faisal, 7 May 83, sub: KKMC Funding, and 7 May 83, sub: Suspension of New Contract Awards . . . , both in Walker box 7; all in OH, HQ USACE.

¹²⁸ Robertson to Al Faisal, 11 May 83, sub: KKMC Funding, and 25 May 83, sub: KKMC Funding Problem; Memo, Carnes, 1 Jun 83, sub: Meeting with Mr. Zamel, KKMC Funding Requirements, and attached Info Paper, KKMC Funding, [Saudi FY] 1403/04; Carnes, "Meeting [Jun. 5] with HE Sheikh Al-Hemaid, Deputy Minister of Defence and Aviation for Military Affairs," 6 Jun 83; all in Walker box 7, OH, HQ USACE.

¹²⁹ Memo, Carnes, 19 Jul 83, sub: Meeting with GDMW, KKMC Funding, pp. 1–2, Walker box 7, OH, HQ USACE.

The division leadership met several more times with the Saudis to work through the funding crisis. After extensive discussions, the parties reached an agreement that all funds from other MODA projects not currently committed would be used for KKMC. MODA approved an immediate reprogramming of \$141.9 million. The remaining \$198.3 million needed to cover the costs of continuing work at KKMC would be reprogrammed only after MODA had explored with the Ministry of Finance a method to replace the funds for KAMA and MODA headquarters and only if the money were required to keep KKMC funding ahead of obligations.¹³⁰

In the course of the meetings, Major Abdulaziz Al-Otaishan, who succeeded Al Faisal as the Corps' principal contact on engineering issues, advised the division that all of its funding decisions should be made on the assumption that the First Brigade would not occupy its facilities at KKMC in 1983. In fact, the contractor had the basic facilities for the First Brigade ready for turnover by July but the Saudis had not yet arranged an operations and maintenance contract to service the facilities. The Saudis also had no military command to which the Corps could deliver the facilities.¹³¹

In late 1983, the funding shortfall again became acute. The Saudi Arabian government failed to transfer funds to the Chase Manhattan Bank to increase the letter of credit in time to avoid a crisis. As a result, the division had insufficient funds as of October to continue paying contractors beyond the work already committed. General Robertson ordered Colonel Schneebeck to prepare a letter to all contractors, to be sent 1 October 1983, suspending all work at the end of thirty days. Again by reprogramming funds and through unscheduled infusions of Saudi money, the crisis passed without a complete breakdown of activities. Construction continued. Despite the problems with funding, contractors managed to complete more than 80 percent of the work at KKMC by early 1984.¹³²

Completing First Brigade Facilities, 1984

By June 1984, contractors completed the family-housing units for the First Brigade and the Middle East Division prepared to turn over the facilities. Because the brigade would arrive with about four thousand five hundred troops and with one thousand seven hundred to one thousand eight hundred families accompanying the troops, contractors working in the city on other facilities had to take special precautions. They separated areas of occupancy from areas of active construction by erecting temporary construction fences and temporary sidewalks. They also arranged the construction schedule to give highest priority to completion of those

¹³⁰ Ibid., encl. 1.

¹³¹ Ibid., p. 1; Intervs, John T. Greenwood with Brig Gen George R. Robertson, 1 Oct 83, p. 31; authors with Edgar L. Tohill, 23 Jan 95, pp. 18–19; Paul K. Walker with Col Gene Schneebeck, 6–7 Oct 83, p. 17.

¹³² Interv, Greenwood with Robertson, 1 Oct 83, pp. 27–30; Fact Sheet, Middle East Div Reorg, 24 Mar 84, Table, "Major Projects," E-1-1, TAD-RHA.

elements that the First Brigade needed to function and to minimize the delay of progress on the rest of the construction. The brigade actually took up residence in November 1984.¹³³

With the First Brigade in place and with 90 percent of the total construction completed, Saudi Arabia's King Fahd dedicated King Khalid Military City. The ceremony, hosted by Prince Sultan, second deputy premier as well as minister of Defense and Aviation, took place on 6 April 1985. By May, contractors had completed all of the troop facilities and housing for the Second Brigade. On 26 June, the official presence of the Middle East Division in Hafar al Batin changed its status from a district to an area office. At that time, only fifteen of the forty-nine contractors who had worked actively in the city remained on site, with less than \$250 million of the \$6 billion construction project left to complete (about 4 percent). By December, contractors had completed another \$100 million of construction. In late 1985, the Middle East Division awarded one of the last contracts, a renewal (Phase IV) of the construction support contract to Sam Whan, with the expectation that all construction would be completed by 1987.¹³⁴

Late in 1986, contractors completed construction begun in 1982 on the Engineer Center and School. The U.S. architect-engineer firm of Reynolds, Smith & Hills of Jacksonville, Florida, had undertaken master planning for the center in March 1976. The school, which cost a total of \$106 million to build, provided the facilities for four hundred soldiers to train with six hundred staff and support personnel as combat and construction engineers for service in the Saudi Arabian Army.¹³⁵

In March 1976, just as Reynolds, Smith & Hills had begun work on the master plan for the Engineer Center, a young U.S. Army Corps of Engineers officer, Maj. Dan Wilson, had made his first visit to Hafar al Batin. Only an isolated drilling rig marked the site in the middle of the desert. A decade and \$6 billion later, the site supported a bustling city with a population of twenty-six thousand.¹³⁶

¹³³ Middle East Div, "Briefing Book . . . MG Ames S. Albro Jr., Director of Engineering & Construction, OCE, Visit to King Khalid Military City, Al Batin, Saudi Arabia," 3 May 84, box 31, access. no. 77-92-0001, WNRC; Chronology at End of Bfg Book Prepared for the Occasion of Maj Gen N. G. Delbridge, Dep Ch of Engrs, Visit to King Khalid Military City, Al Batin, Saudi Arabia.

¹³⁴ Chronology and Bfg List, KKMC Contract Status as of 1 Apr 85, box 31, access. no. 77-92-0001, WNRC; "King Fahd Inaugurates KKMC," March-April 1985, and "KKMC: Then and Now," May-June 1985, both in *Middle East Division News*; "Col. Schroder Briefing to SAD [South Atlantic Division]," 23 Dec 85, p. 6, unmarked box, TAD-RHA (hereafter cited as Schroder Bfg, 23 Dec 85); Gross, KKMC Construction Support Contract, 18 Sep 85, K-8-3, TAD-RHA.

¹³⁵ Mediterranean Div Staff Mtg Min, 28 Apr 76, box 17, access. no. 77-92-0001, WNRC; Schroder Bfg, 23 Dec 85, p. 7; Fact Sheet, MED Projs in Saudi Arabia, 29 Mar 85, p. 2, unmarked box, TAD-RHA. The figures on the number of students and staff come from U.S. Congress, House, *Activities of the United States Army Corps of Engineers in Saudi Arabia. Hearings Before the Subcommittee on Europe and The Middle East* (Lee H. Hamilton [Indiana], Chairman), of the Committee on Foreign Relations, 96th Cong., 1st sess., 1979, p. 78.

¹³⁶ "KKMC: Then and Now"; "Military City Costs SR18 Billion," *Arab News*, 6 April 1985; Schroder Bfg, 23 Dec 85; Bfg Outline, Heiberg Bfg, "14 July 86 Transition," unmarked box, TAD-RHA.

PART IV

CHANGING GEOPOLITICS IN THE MIDDLE EAST

The Camp David accords of September 1978 provoked negative reactions from many Arab countries. The collapse of the shah's regime and the Islamic revolution in Iran, the seizure of American hostages in the U.S. Embassy in Tehran in November 1979, and the abortive attempt to rescue them in April 1980 all undercut America's prestige and the credibility of the country's political influence and military power. By contrast, Soviet influence in eastern Africa and South Yemen seemed to be increasing and the Soviet invasion of Afghanistan in December 1979 added to the restiveness felt by the United States' Arab allies. These geopolitical factors and the reactions they engendered impinged on the atmosphere in which the Middle East Division conducted its operations.

Just months after the signing of the Camp David accords, the commander of the Middle East Division, Brig. Gen. James N. Ellis, reported to the chief of engineers that "events of last summer and fall in the two Yemens, Somalia and, more recently, in Iran have greatly alarmed the SAG [Saudi Arabian government] and have influenced in various ways the relationship between SAG and USG [United States government]." Several months later, Ellis commented that he and his counterparts in the U.S. embassy and in the United States Military Training Mission (USMTM), with whom he met regularly for routine discussions, all agreed that the "special relationship" between the Americans and the Saudis "is not as special as it once was." In another year, after the United States failed in its attempt to rescue the hostages in Iran, Ellis noted that members of the Saudi Arabian government were voicing "a low-keyed disapproval of the US action."¹

New U.S. Policy

The United States and Saudi Arabia remained close partners, but the series of destabilizing developments forced the U.S. government to formulate a new policy for the defense of its interests. The new strategy envisioned a network of air bases and

¹ Quotations from Ltrs, Ellis to Morris, 30 Jan 79, p. 2; 22 May 79, p. 1; 24 May 80, pp. 8-9; all in Walker box 6, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va.

ports that would support the rapid deployment of U.S. military power.² In October 1979, the United States created a rapid deployment force, renamed a few months later the Rapid Deployment Joint Task Force (RDJTF). This task force, composed of U.S. military units from the four services, was at the outset essentially a planning staff. It organized potential deployment to forward bases from which U.S. military forces could move quickly to crisis points throughout the Middle East. The U.S. government approached pro-West states in the region to obtain a network of such bases. As those bases became a reality, the Middle East Division served as agent within its area of responsibility for the engineering and management necessary to prepare the facilities needed to make the force effective.³

Adjusting the Work in Saudi Arabia

The U.S. government's relationship with Saudi Arabia, and by extension the Corps' relationship, depended in a general way on the reputation of the United States within the region and more specifically on the credibility of the security guarantee that the United States could offer. The interconnectedness between geopolitics and the Middle East Division's work can be seen in the Saudi Arabian reaction to the United States' sponsorship of the settlement between Egypt and Israel that grew out of the Camp David accords and to the progressive loss of American influence in Iran throughout 1979.

The Middle East Division commander, General Ellis, characterized the reactions of the governments in his region to U.S. policies as ranging from "mildly critical to outright negative." He noted that the government of Oman was reconsidering whether to allow construction of U.S. facilities on its territory because South Yemen had linked better bilateral relations to Oman's denying the U.S. request. Ellis also reported that Somalia, while indicating that it would permit U.S. facilities on its territory, would do so at "substantially increased costs."⁴

The shifting strategic balance hastened the natural tendency among Saudi Arabian leaders to assert their own autonomy and to lessen their dependence on the United States. Having gained professional experience through their cooperation with the Corps, the Saudis could now handle designs and construction contracts for themselves. By 1981, the Saudi Arabian Ministry of Defense and Aviation (MODA) managed, without assistance from the Middle East Division, about three-quarters of the construction for the Saudi Arabian land forces. The Saudis had gained not just experience and proficiency in engineering and management but also the confidence to handle their own engineering programs. MODA's General Directorate of Military Works (GDMW) played an increasingly assertive role in relations with the Middle East Division. In 1981, GDMW took over management of the Saudi Naval Expansion Program (SNEP). This assumption of responsibility for SNEP

² Lawrence R. Benson, "USAF Aircraft Basing in Europe, North Africa, and the Middle East, 1945–1980," 23 Apr 81, pp. 93–94, HQ U.S. Air Forces in Europe.

³ Ibid.

⁴ Ltr, Ellis to Morris, 24 May 80, pp. 8–9.

ended the independence that the Royal Saudi Navy had enjoyed in financing its own construction since SNEP's inception in 1972.⁵

The normal progression of the major programs begun in the 1970s to modernize the Saudi Arabian military establishment meant that construction projects were approaching completion in the 1980s. This translated to a declining volume of work for the Middle East Division. Work for the Royal Saudi Naval Forces (RSNF), which represented 33 percent of the division's effort in 1981, was by then in its waning stages. Construction for King Khalid Military City (KKMC)—which in mid-1981 represented 61 percent of the total value of the division's work in Saudi Arabia—would reach completion after mid-decade.⁶ Declining oil prices in the early 1980s also placed the Saudi Arabian government in a tighter economic situation and curtailed more ambitious plans for expansion of the country's military establishment.

The change in U.S. security policy in the region, the growing assertiveness of the Saudi leaders responsible for military engineering, tighter Saudi budgets, and the culmination of the construction program in Saudi Arabia all combined to reshape the Middle East Division's plans for the 1980s. The division had to staff the growing demands of newer programs in countries neighboring Saudi Arabia, balancing this effort against the need to reduce over the coming years the dimensions of its activities within Saudi Arabia. At the same time, the division had to preserve the good working relationship with the Saudi Arabian government that had developed under the Engineer Assistance Agreement (EAA).

Iran-Iraq War

The Islamic revolution in Iran created an opportunity for its neighbor, Iraq, to press old claims to disputed territory that controlled Iraq's access to the Persian Gulf. The revolution appeared to have weakened Iran militarily; and Saddam Hussein, who ascended to the presidency of Iraq in 1979, reopened claims to the territory. After a series of skirmishes along the border, Iraq launched an attack on Iran in late 1980. The resulting conflict continued for eight years.⁷

The administration of Ronald Reagan, who succeeded Jimmy Carter as president in January 1981, extended the U.S. policy more ambitiously in an effort to check the apparent destabilization of the region exemplified by Soviet fighting against rebel forces in Afghanistan and the Iran-Iraq War. The administration gave public guarantees to protect Saudi Arabia and put more money and muscle into the rapid

⁵ Albro, "House Foreign Affairs Subcommittee on Europe and the Middle East," Informal Bfg on 22 Jul 81, p. 3, Current Files, Transatlantic Division—Public Affairs Office; Interv, Frank N. Schubert with Maj Gen Ames S. Albro Jr., 5 Jun 84, pp. 131–32; Ltr, Albro to Bratton, 12 Aug 81, p. 1, Walker box 6, OH, HQ USACE.

⁶ Albro, "House Foreign Affairs Subcommittee on Europe and the Middle East," pp. 4–5.

⁷ The discussion of regional geopolitics in this section is indebted to Frank N. Schubert and Theresa L. Kraus, eds., *The Whirlwind War: The United States Army Operations in DESERT SHIELD and DESERT STORM* (Washington, D.C.: U.S. Army Center of Military History, 1995).

deployment initiative, including building support facilities in Morocco, the Azores, and on the island of Diego Garcia in the Indian Ocean, as well as bases on the Arabian Peninsula for which the Corps of Engineers was responsible. The Department of Defense heightened the profile of the rapid deployment force itself and assigned troops to fill it out. On 1 January 1983, the force became the U.S. Central Command responsible for operations in Southwest Asia and northern Africa and one of six U.S. multiservice commands. One of the cornerstones of the command's approach to the politics of the region was emphasis on supporting friendly nations and strengthening their military establishments through training, arms sales, and close military contact including joint maneuvers. The assertion of strength had a reassuring effect.

Collapse of Bipolar Geopolitics

The Iran-Iraq War ended in August 1988 with both countries exhausted, a situation that brought no improvement in the stability of the region. The last months of the war had been concurrent with portentous changes in Europe that had far-reaching implications for the Cold War. In December 1987, the United States and the Soviet Union signed the Intermediate-Range Nuclear Forces Treaty. Six months later, the two superpowers began to withdraw missiles from Europe.⁸ In December 1988, Soviet President Mikhail Gorbachev announced his plan to reduce Soviet forces in Eastern Europe by five hundred thousand. The following April, he stated that the Soviet Union would pull its tanks out of Hungary. The removal of the Soviet military presence emboldened the Hungarian government to remove the barbed-wire fencing along its border with Austria. This opened an avenue of migration for East Germans. Whereas they could readily receive visas to travel to other Eastern bloc countries but not to the West, they could now move through Czechoslovakia and Hungary to Austria. From there they could migrate into West Germany, where they had rights of citizenship and social support under West German law. Through the summer of 1989, a trickle—and then a torrent—of East Germans followed this path to West Germany.

In early October 1989, East Germans began demonstrating internally in East Berlin, Dresden, and Leipzig to demand greater freedom. A month later, on 9 November, the East German government admitted that it could no longer contain its people and opened all border points with West Germany, including the Berlin Wall. The Communist parties rapidly lost control in Hungary, Poland, Bulgaria, Czechoslovakia, East Germany, and Rumania. In the face of the rapid disintegration of Soviet control in Eastern Europe, the four powers that had remained in Berlin since the end of World War II agreed to withdraw their forces from the city. This collapse of the bipolar rivalry between the Soviet Union and the United States in Central Europe allowed East and West Germany to reunite on 3 October 1990.

While the monumental change in the balance of power in Germany reduced the threat of a superpower confrontation, it did little to stabilize the politics of the

⁸ Jim Hoagland, "Europe's Destiny," *Foreign Affairs* (1990): 40.

Middle East. One of the precipitating factors in the collapse of the Soviet Union's control over Eastern Europe was its long and costly engagement in the civil war in Afghanistan—the Soviet Union's Vietnam. After a decade of trying to shore up a friendly satellite government, the Soviet Union abandoned the effort. Between April 1988 and January 1989, all Soviet troops withdrew. In spite of this, the Middle East remained as volatile as ever.

Iraq's Attack on Kuwait

Although Iraq's economy was in a shambles after its long war with Iran, Saddam Hussein had a formidable military force that had sustained combat for nearly a decade. Both the United States and Kuwait had supported Iraq in its war against Iran, and both continued their support after the cessation of hostilities. To Iraq, the dependence was a source of bitterness and resentment that tended to focus on Kuwait, a wealthy but smaller and vulnerable neighbor. Iraq had disputes with Kuwait, just as it had with Iran, over territory at the headwaters of the Persian Gulf. In the months after the end of fighting with Iran, Iraq applied increasing pressure on Kuwait. In October 1989, the United States warned that it would defend its vital interest in the region by force if necessary; but Iraq continued to pressure Kuwait by massing troops at the common border. On 2 August 1990, Iraq launched an attack across Kuwait that carried its forces to the border with Saudi Arabia and declared that Kuwait no longer existed. The invasion galvanized the United States to form a worldwide coalition of powers that began military preparations for the liberation of Kuwait.⁹

These events formed the framework in which the Corps of Engineers pursued its mission in Saudi Arabia and in neighboring countries during the 1980s. The Middle East Division opened the decade with a substantial construction program to complete in Saudi Arabia but with growing interests in other countries (Chapter 14). By mid-decade, the Middle East Division ceded place to a smaller, district-level entity called the Middle East/Africa Projects Office (Chapter 15). The 1990s, which opened with the Iraqi attack on Kuwait and the resultant Gulf War, saw still another organizational adjustment of the Corps presence in the region.

⁹ Schubert and Kraus, *Whirlwind War*, and Peter Hayes, ed., *Foreign Affairs Chronology, 1978–1989* (New York: Council on Foreign Relations Inc., 1990), provide the basis for this account.

14

REORIENTING THE ENGINEER EFFORT 1981–1986

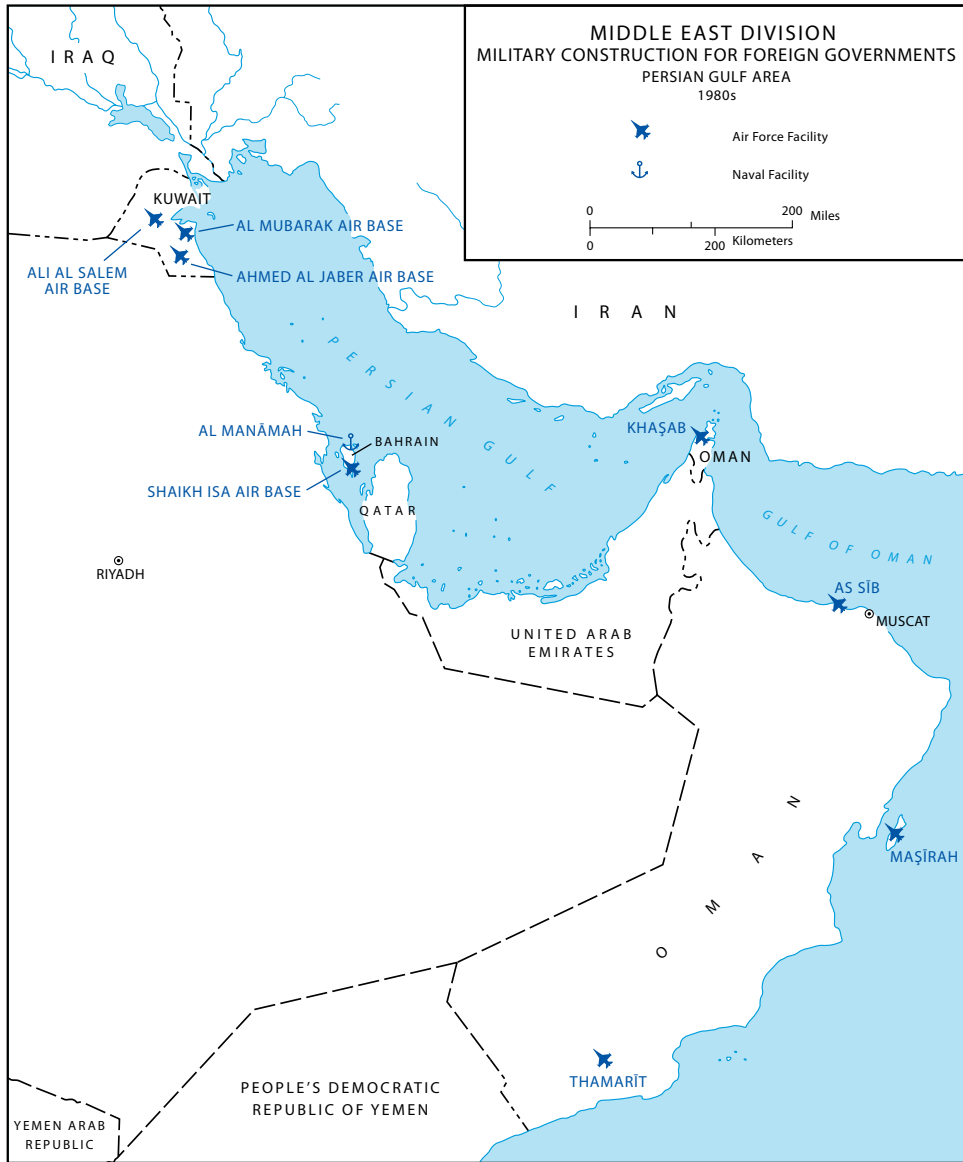
When the United States' relationship with Iran deteriorated in 1979, the nation launched new diplomatic initiatives in and around the Arabian Peninsula. The strategy aimed to establish a network of support bases for U.S. military forces to use in the event of any crisis that threatened American interests or allies in the region. Through diplomatic efforts, the United States persuaded several countries to grant wartime use of bases: Berbera in Somalia, Mombasa in Kenya, and Ras Banas in Egypt.¹ On the Arabian Peninsula itself, the United States continued its enormous construction effort in Saudi Arabia; but it also strengthened and expanded its ties to Saudi Arabia's neighboring states of Oman, Kuwait, Bahrain, and Jordan. (*See Map 23.*) A part of this overall strategy involved the Corps of Engineers and its ability to translate diplomatic bonds into operational military installations, either to strengthen the military establishments of friendly nations or to support directly the military forces of the United States.

The efforts of the Middle East Division reflected this shift in U.S. diplomatic and military strategy. The work in Saudi Arabia continued to dominate the division's efforts, but the growing importance of developing relations with other states in the region occupied an increasing share of the division's attention. Indeed, since the work in Saudi Arabia would peak in 1983–1984 and decline thereafter, work outside of Saudi Arabia held more promise for the division's longer-range involvement in the region. The dominant motif in the story of the Army engineers in the Middle East during the 1980s is one of adjustment to the changing balance of these interests.

The Middle East Division in the Region

The division's work had never been confined exclusively to Saudi Arabia; and as work in that country reached and passed its apogee, the division continued to manage projects elsewhere. Some of that work had passed from the Mediterranean Division to the Middle East Division in 1976. Other parts of the division's work arose from the changing balance of forces and interests in the area. In Jordan and Kuwait, the Corps undertook construction programs in the early 1970s paid for by the host governments with funds handled through Foreign Military Sales (FMS) case procedures.

¹ Frank N. Schubert and Theresa L. Kraus, eds., *The Whirlwind War: The United States Army in Operations DESERT SHIELD and DESERT STORM* (Washington, D.C.: U.S. Army Center of Military History, 1995), p. 15.



Map 23

Jordan

The Corps of Engineers' role in Jordan originated in 1972 when U.S. military advisers identified a need for an armor-rebuild center located somewhere in the Middle East region. Jordan's position between Israel on its west, Syria to the north, and Saudi Arabia to the east and south made it strategically important in the

politics of the region. The exact origins of the idea of the armor-rebuild center, the evolution, and the anticipated uses of the facility remain obscure; but studies by the Joint Chiefs of Staff seem to have prompted plans for a center capable of servicing the major types of American and British armored vehicles in use by several Arab states. Existing facilities permitted only routine field-level maintenance at best. For complete overhaul or other depot-level maintenance, vehicles had to be returned to the suppliers in Europe and the United States.²

The principal function of the proposed armor-rebuild center would be to convert American-made M48A1 tanks owned and operated by the Jordanian Armed Forces (JAF) to the later model, M48A5. The work involved complete disassembly, modification, and reassembly of several hundred tanks, tasks that no existing facility in the area could perform. In addition to the conversion, a depot-level rebuild facility could undertake the routine maintenance for tanks, armored personnel carriers, armored cars, artillery, and light vehicles impossible with only field-level maintenance.³

Consultation with U.S. military advisers led the Jordanian government to dispatch a team of JAF representatives on a six-month inspection tour of the U.S. Army's M48 tank depot at Anniston, Alabama. Before definitive plans developed, the Yom Kippur War of October 1973 broke out, disrupting all such ventures. The parties returned to the idea in 1974, when the Jordanian government asked for assistance in planning construction to support its armored units. Conversations began between the Military Assistance Program (MAP) office in Amman, Jordan, and the U.S. Army Materiel Command (AMC). When AMC indicated in January 1975 that it could not staff the project that Jordanian officials had outlined, the Department of the Army assigned responsibility for most of the project to the Corps of Engineers. Discussions in March and April among members of the Jordanian Armed Forces, the U.S. State and Defense Departments, and the Corps of Engineers led to an agreement that the Corps would be responsible for design and management of a construction contract awarded by the Jordanian government. The Jordanian Armed Forces would bear all costs.⁴

On 24 April 1975, the Jordanian Armed Forces signed the initial FMS case of \$500,000 for planning and design of the facility. Almost simultaneously, the U.S. and Jordanian governments signed a technical agreement regarding assistance from the Corps of Engineers in design and construction of the armor-rebuild facility. The Corps' Mediterranean Division assumed responsibility for the entire project. The division sent a study team to Jordan that came away convinced that the Jordanians had a clear idea of what they wanted but concerned that their \$15 million estimate of the cost diverged substantially from the team's own estimate of \$80 million to \$100 million. Nonetheless, the project continued to develop.⁵

² James A. Kitchens III, *A History of the Huntsville Division, U.S. Army Corps of Engineers, 1967–1976* (Huntsville, Ala.: U.S. Army Corps of Engineers, 1978), p. 157.

³ *Ibid.*

⁴ *Ibid.*

⁵ Office of the Chief of Engineers (OCE), "Annual Report of Major Activities, Jul. 1, 1974–Jun. 30, 1975," pp. 56–58, Office of History (OH), HQ United States Army Corps of Engineers (USACE), Alexandria, Va. (hereafter cited as OCE, Major Activities, FY 1975).

Design of the facility involved frequent interaction with American architect-engineer firms and vendors over a period of several years. Therefore, the Mediterranean Division, with its headquarters in Livorno, Italy, requested assistance from the Corps' Huntsville Division in Alabama in procuring equipment. In early November 1975, Huntsville awarded a design contract to Giffels Associates Inc. of Detroit, Michigan, for a preliminary design, which the company completed the following June.⁶ A year later, in July 1977, Jordan signed a \$3 million sales case for final design of the facility and development of equipment lists. Huntsville then arranged with Giffels to add the final design as a modification of the existing contract. In June 1978, personnel from the Jordanian Armed Forces met with representatives from Giffels and the Huntsville Division to review the design, which was 90 percent complete.⁷

While Giffels worked on the final design in late 1977, the recently activated Middle East Division began planning for a field office in Jordan to manage construction. The parties subsequently revised the 1975 agreement to clarify the role of the U.S. contracting officer as an agent of the Jordanian Armed Forces, to allow the use of Jordanian contracting procedures, and to name the Middle East (rather than the Mediterranean) Division as the responsible agency.⁸

In April 1978, representatives of the Middle East Division, the Military Assistance Program Jordan, and the Jordanian Armed Forces met in the U.S. embassy in Amman to discuss the armor-rebuild facility. With design nearly completed, the Corps wanted to gather data for planning the next phase, construction management. The participants in the meeting discussed options for the Corps' involvement in the construction and briefly discussed costs involved in maintaining a field office. The Jordanians urged that the Corps staff the organization with a nucleus of its personnel supported by JAF technicians. Because Jordan did not appear to have sufficient funding for construction, the participants also considered other nations to provide the money. Corps personnel then met with the U.S. embassy to discuss possible support arrangements.⁹

Seven years after discussions of the project began, in May 1979 Middle East Division representatives met with Jordanian officials to prepare terms for an FMS

⁶ *Ibid.*, pp. 157–58; OCE, Major Activities, FY 1975, pp. 37, 56; Mediterranean Div, "Data Book," 1 May 76, p. 28, box 1, access. no. 77-92-0001, Washington National Records Center (WNRC), Suitland, Md.; "Technical Agreement Concerning Assistance by USACE in Designing and Constructing an Armor Rebuild Facility for the Government of Jordan," Apr 75, J-10-4, Jordan, Transatlantic Division—Records Holding Area (TAD-RHA); Williams to Gribble, 18 Mar 74, p. 3, and 16 Dec 74, p. 2, box 26, access. no. 77-92-0001, WNRC; Memo, Wiles, 22 Mar 74, sub: Trip Report—Visit to Jordan 12–15 Mar 74, pp. 1–3, box 19, access. no. 77-92-0001, WNRC.

⁷ OCE, "Annual Historical Review, Oct. 1, 1976–Sept. 30, 1977," OH, HQ USACE (hereafter cited as OCE, AHR, FY 1977); "Armor Rebuild Depot Underway in Jordan," *Mt. Weather Bulletin*, November–December 1981.

⁸ Memo, Wells, 19 Dec 77, sub: Proposed Changes to Jordanian Technical Agreement for the Armor Rebuild Facility, J-10-4, TAD-RHA.

⁹ MFR, Bennett, 8 May 78, sub: Coordination Trip, Armor Rebuild Facility, Amman, Jordan—23–25 Apr 78, E-7-4, TAD-RHA.



Building no. 1 of the armor-rebuild facility in Jordan, October 1982

case to cover the Corps' limited construction management role in building the armor-rebuild facility. Based on those meetings, Brig. Gen. James N. Ellis, the division commander, delivered a \$2.75 million sales case to the Jordanian Army on 22 July. The next day, when Ellis met with JAF officials to discuss the case, the Jordanians asked for more time to study the proposal. The issue of cost, identified by the Corps team in 1974, reemerged. The Jordanians found the price too high, so Ellis explained the cost factors and promised to provide a more detailed account later. He also assured the Jordanians that the Middle East Division personnel in Jordan would work for the contracting officer, who would be a JAF official. Months of delicate and extended negotiations ensued. On 20 October, only ten days before the sales case expired, the Jordanian Armed Forces signed the FMS case for construction management with few changes.¹⁰

In September 1979, the Middle East Division activated an area office in Amman. Although under the supervision of division headquarters in Riyadh, the small contingent of Middle East Division employees, with a proposed staff of two

¹⁰ Ellis to Maj Gen Abdul-Hadi Al Majali, 22 Jul 79, unmarked box, OH, HQ USACE; Msg, Ellis, 22 Aug 79, sub: Jordan Armor Rebuild Facility, unmarked box, OH, HQ USACE; U.S. Department of Defense, "Offer and Acceptance to the Govt of Jordan," 1 Jul 79, unmarked box, TAD-RHA; MFR, Ellis, 23 Jul 79, sub: Meeting with MG Majali, Chief of Staff, JAF [Jordan Armed Forces], on FMS [Foreign Military Sales] Case JO-B-HAD (Corps Construction Management Services), unmarked box, OH, HQ USACE; Ellis to Col Alfred B. Prados, 30 Oct 79, unmarked box, OH, HQ USACE.

military officers and twelve civilians, received life-support services from the U.S. embassy in Jordan. The Huntsville Division remained involved, signing a separate sales case with Jordan in December 1979 to cover procurement of equipment and, commencing the following February, procuring over one thousand seven hundred items of industrial equipment and machinery to be furnished for the rebuild plant by the U.S. government. An additional two thousand four hundred items brought the total procurement program to about \$10 million. Huntsville awarded an \$80,000 contract to William H. Muller Shipping Corporation to transport the government-furnished materials to Jordan. In June 1981, Huntsville engaged another contractor, Dynetics Inc., to supply the Jordanian Armed Forces with a management plan for initial startup and operation of the facility.¹¹

In the spring of 1980, the Jordanian Armed Forces awarded a construction contract worth nearly \$40 million to John Laing International of London. The contract, with an estimated completion date of October 1982, included installation of government-furnished equipment procured in the United States and involved the construction of facilities capable of rebuilding tracked vehicles and armored equipment with an output of about eighty tanks per year. The contract called for a complex of eleven major buildings and four warehouses in Zarqa, northeast of Amman, to include an industrial workshop, two large warehouses, several administrative office buildings, utilities, roads, and other support facilities. The complex had the capability to rebuild both U.S. and third-country tracked equipment then in use in the Jordanian Army. The project was patterned after the Anniston Army Depot, where Jordanian personnel received training.¹²

Although construction of the facility fell slightly behind schedule in 1981 and 1982, by the end of 1983, the Corps' support for what became a \$43 million facility was essentially complete. In August 1984, the Middle East Division closed its area office in Jordan. In 1985, the Jordanian Armed Forces again requested that the Middle East Division provide assistance in obtaining post-construction warranty services. Because sufficient funds remained on the sales case, the division was able to provide this assistance.¹³

¹¹ "Middle East Division Reorganization Ceremony: Leaders in Customer Care," 30 Sep 86, unmarked box, TAD-RHA (hereafter cited as Middle East Div Reorg Ceremony); Memorandum of Agreement (MOA), Ofc of the Area Engr and U.S. Mil Assistance Program Ofc, 10 Dec 81, signed by Col Alfred B. Prados and Richard A. Carr, unmarked box, TAD-RHA; "Armor Rebuild Depot Underway in Jordan"; Louise S. Heidish, *History of the Huntsville Division, U.S. Army Corps of Engineers, 1977-1981 Update* (Huntsville, Ala.: U.S. Army Engineer Division, Huntsville, ca. 1986), pp. 26-27; "Armor Rebuild Depot Underway in Jordan."

¹² "JARF," n.d., handwritten notes, J-10-4, Jordan, TAD-RHA; Ellis to Morris, 24 May 80, Walker box 6, OH HQ USACE; "Armor Rebuild Depot Underway in Jordan"; Albro, "House Foreign Affairs Subcommittee on Europe and the Middle East," Informal Bfg on 22 Jul 81, p. 3, Current Files, Transatlantic Division-Public Affairs Office. The preceding sources conflict on the actual date of award, ranging from March to April 1980. Heidish, *History of the Huntsville Division*.

¹³ Albro to Bratton, 12 Aug 81; Cristobal S. Berry-Caban, Kathryn C. Bruce, and Ralph Dezell, "Annual Historical Review," OCE, FY 1983, box 9A, Gen Files, OH, HQ USACE; "Col. Schroder Briefing to SAD [Saudi Arabia District]," 23 Dec 85, unmarked box, TAD-RHA (hereafter cited as

Oman

The sultanate of Oman became one of the keys to the new military strategy the United States pursued in the Middle East after the collapse of the U.S.-Iran relationship. In 1980, the United States secured an agreement with Oman that made it the only state in the Arabian Peninsula to permit an effective American combat presence on its territory during peacetime.¹⁴ The agreement involved building and improving military facilities for the sultanate as well as for the United States. The Middle East Division became the executor of a \$300 million construction program at four sites in Oman: Khasab, Seeb, Thamarit, and Masirah Island. Oman would own and use the facilities; but they would be available, with approval from the sultan, for use during emergencies by U.S. troops operating as part of the Rapid Deployment Joint Task Force.¹⁵

On the southeastern corner of the Arabian Peninsula, Oman borders Saudi Arabia and the United Arab Emirates to the west and Yemen to the south. The Arabian Sea washes Oman's eastern coast, and a narrow passage of the Strait of Hormuz to the north separates Oman from Iran. Oman's one hundred fifteen thousand eight hundred square miles (slightly larger than Arizona) contain a variety of terrain, including stony plains, sand dunes, a central plateau, jagged mountains rising to almost ten thousand feet in height, and nearly one thousand two hundred fifty miles of coastline. The country had a population of about 2 million in 1980. Sultan Qaboos bin Said, who ascended the throne in July 1970, began to modernize his country by seeking to improve infrastructure, healthcare, and education. Qaboos expanded Oman's diplomatic relations and joined the United Nations, the Arab League, and many other international organizations. The expanded relationship with the United States and the military construction program in Oman was part of Qaboos' efforts to improve and strengthen the country's international position.¹⁶

On 30 April 1980, the U.S. and Omani governments signed a country-to-country agreement in preparation for the construction program. In June, an engineering inspection team made an initial visit to Oman. At the same time, Middle East Division representatives joined personnel from an Oman Construction Advisory Team (OCAT) organized by the United States Air Forces in Europe (USAFE) to establish contacts with Omani officials in the country's capital city, Muscat. The division's rear headquarters then began planning a new area office to manage the construction. Both the U.S. State Department and the United States Air Force (USAF) wanted to begin construction in Oman quickly to demonstrate the United

Schroder Bfg, 23 Dec 85); Middle East Div Reorg Ceremony; Memo, Larry C. Graham, 18 Dec 85, sub: Additional MED Support on FMS Case JO-HAD, unmarked box, TAD-RHA.

¹⁴ Schubert and Kraus, *Whirlwind War*, p. 15.

¹⁵ "Briefing for Major General Richard Wells, Deputy Chief of Engineers, U.S. Army, and Party, 13–15 Jul 84," p. 4, box SA 1176, TAD-RHA (hereafter cited as Wells Bfg, 13–15 Jul 84); Lawrence R. Benson, "USAF Aircraft Basing in Europe, North Africa, and the Middle East, 1945–1980," 23 Apr 81, pp. 93–94, HQ U.S. Air Forces in Europe.

¹⁶ *Oman '91* (Sultanate of Oman: Ministry of Information, 1991).

States' commitment to the program. The Air Force chose to upgrade an airstrip at Khasab first and then to develop facilities on Masirah Island.¹⁷

In November 1980, the Air Force officially designated USAFE the host command for the bases in Egypt and Oman. USAFE also acted as the program manager in Oman for planning and programming of military construction, while the Middle East Division served as the agent for design and construction. The Department of Defense established the Military Construction and Program Management Office in Muscat to provide overall management of the program under general guidance from the U.S. embassy. The Construction and Program Management Office consisted of one representative each from USAFE and the Middle East Division and acted as a liaison to the Omani Ministry of Defense and to U.S. Department of Defense.¹⁸

The construction program in Oman was complex because of the variety of facilities needed, the compressed schedule, and the remote location. To expedite the work, the Corps of Engineers' headquarters asked the Middle East Division (Rear) in Winchester, Virginia, to develop alternatives to standard contracting procedures. The alternative recommended by the rear headquarters was partial design followed by a fixed-price design/construct contract for the Masirah Air Base. Corps and Air Force personnel spent the end of 1980 engaged in intensive discussions with Omani officials about the construction program. In December, Corps of Engineers Capt. Paul T. Gard traveled to Oman to establish an area office. To house the initial staff of four, he leased a four-bedroom villa near Muscat for \$4,000 a month.¹⁹

About the time that the Corps appointed Gard as area engineer for Oman, the Department of Defense issued the "Preliminary Plan of Proposed Construction for the Sultanate of Oman," with a current working estimate of \$209.6 million. On 16 December 1980, the advisory team made a formal presentation of the program to the Omani government. All sides agreed in principle on the facilities and their locations at the four sites. The construction at Khasab was limited primarily to improving the runway. The facilities at the other sites fell into four general categories: (1) operational facilities, such as runways, taxiways, aprons, aircraft shelters, fuel hydrant systems, and maintenance buildings; (2) utility improvements for water and power; (3) storage facilities for fuel, liquid oxygen,

¹⁷ Wells Bfg, 13–15 Jul 84, p. 5; "Middle East Division (Rear) 1980 Historical Summary Report," attached to Memo, Rousseau, 1 Apr 81, E-6-4, TAD-RHA; Draft Memo, 4 Nov 80, sub: Oman Construction Program, W-4-9, TAD-RHA; MFR, Albro, 1 Nov 80, sub: Record of Several Discussions with Col. Hall and Mr. Lee Garrett on 30 & 31 October, unmarked box, OH, HQ USACE.

¹⁸ Fact Sheet, CENTCOM Prog, Sultanate of Oman, 6 Apr 84, in Fact Sheets, Brig Gen George R. Robertson, Middle East Division (Rear) Bfgs, 9–12 Apr 84, E-1-1, TAD-RHA, copy in R&D File 3151, TAC (hereafter cited as Robertson Bfgs); Telex, SECDEF, 12 Sep 81, sub: Establishment of MILCON Management Office, W-4-9, TAD-RHA; Fact Sheet, RDF Prog, Sultanate of Oman, 19 Jan 84, p. 1, with attachments, box SA-1176, TAD-RHA.

¹⁹ Memo, G. A. Yager, 9 Dec 80, sub: Prequalification of Proposers for Projects in Egypt and Oman, W-4-9, TAD-RHA; Draft Ltr, Hall, 24 Dec 80, sub: Expediting Construction in Oman, W-4-9, TAD-RHA; Fact Sheet, Discussion of Work in Oman, 31 Dec 80, Walker box 6, OH, HQ USACE; Middle East Div Reorg Ceremony.



Corps of Engineers villa, Muscat, October 1982

ammunition, and general supplies; and (4) personnel support such as dormitories, dining halls, and latrines.²⁰

The Omanis requested that the Corps integrate all new facilities with those already at the bases and that separate U.S. facilities be “downplayed.” In negotiating the financial arrangements, the Omanis pointed out that U.S. requirements imposed the need for new utilities systems at the sites. To share the overall costs, the Omanis agreed to help finance the lengthening of the runway at Khasab. The Department of Defense, bound by congressional mandate, initiated an American Preference Policy which essentially restricted to U.S. firms competition for prime construction contracts in the Indian Ocean and Persian Gulf areas. Design work was to be completely American, and construction contracts over \$5 million were to be awarded to U.S. firms or to joint ventures between U.S. and Omani companies. U.S. companies had to furnish all supplies except cement products and aggregate, and American-flagged vessels had to carry all materials. Because only two American transport companies shipped directly to Oman, this requirement caused problems for the construction contractors. The limited number of shippers, Oman’s monsoon season, severe winter storms on America’s east coast, and the relatively small size of the cargo destined

²⁰ Sultanate of Oman, Ministry of Defense [MOD], “Preliminary Plan of Proposed Construction,” Dec 80, box 5; Red of Discussions with USAF and Corps of Engrs at HQ SOAF [Sultan of Oman Air Force] on 16 and 17 Dec 80, [Dec 80], box 4; Draft Exec Sum, Oman Construction Advisory Team (OCAT), Jan 81, box 5; all in W-4-9, TAD-RHA. See also Schroder Bfg, 23 Dec 85.

for Oman all combined to produce scheduling problems, increased costs, and construction delays. The construction contractors purchased most of their cement, exempt from the “Buy American” policy, from neighboring United Arab Emirates and later from new Omani cement plants.²¹

By February 1981, officials from the Omani Ministry of Defense, USAFE, and the Corps of Engineers endorsed an addendum to the formal governmental agreement that incorporated the Omani requirements. These “Processes and Procedures” stipulated that contractors bidding on the projects had to register to work in Oman, that the evaluation of bidders would consider the firms’ degree of compliance with Omani laws and regulations, and that Omani officials would participate in opening and evaluating bids.²²

The supplemental agreement also specified several contracting procedures. The document reiterated the Corps’ decision to prequalify construction contractors, subject to approval by the Omani government. It incorporated the U.S. insistence that firms be limited to U.S. or joint U.S./Omani concerns. This insistence was tempered by a provision that the Corps agreed to encourage the use of Omani subcontractors as much as possible. The Omani government provided land, easements, and rights of way for construction and support facilities. Except for the small portion of the Khasab runway, the United States agreed to bear all construction costs.

On 17 September 1981, the Corps and the Air Force signed a memorandum of understanding explaining that statutes and regulations used for military construction programs would govern the design and construction of the Omani facilities. Under terms of the agreement, USAFE would establish design criteria and standards, the Corps would manage the design and construction, and the Middle East Division would establish a resident office at each construction site to give instructions to the contractors. The division also provided housing, office space, and other support to the USAFE officer serving in Oman as the Air Force regional civil engineer.²³

Design for the Oman Program

In mid-December 1980, division personnel briefed contractors interested in prequalifying for the mobilization camp at Masirah Island and for work on the

²¹ Memo, Robert A. Stone, 23 Sep 82, sub: American Preference Policy, unmarked box, TAD-RHA; “MED Receives Oman Mission,” *Mt. Weather Bulletin*, January-February 1981; “Part B—Discussions with the SOAF on the Construction Plan,” 16 Dec 80 [handwritten], box 1, W-4-9, TAD-RHA; MFR, Wiles, 14 Jan 81, sub: Discussions with the SOAF on the Construction Plan, box 5, W-4-9, TAD-RHA; Intervs, Frank N. Schubert with Lt Col James Andrews, 21 Jun 82, pp. 1–3b, and John T. Greenwood with Col Pat Stevens IV, 13 Aug 85, p. 36.

²² For this and the following paragraph, see MFR, Hall, 16 Dec 80, sub: Meeting with Omani Officials, Al Gubra Guest House, 16 December 1980, box 5, W-4-9, TAD-RHA; “Processes and Procedures Concerning the Design and Construction of Improved Facilities in the Sultanate of Oman for the Joint Use of the United States Department of Defense and the Ministry of Defense of the Sultanate of Oman,” signed by Col Salim Abdullah Al-Ghazali on 21 Dec 80, by Brig Gen Ames S. Albro Jr. on 1 Feb 81, and by Brig Gen Sheldon J. Lustig on 20 Jan 81, box 4, W-4-9, TAD-RHA.

²³ MOU, HQ USAFE and Middle East Div, Corps of Engrs [Sep 81], sub: Providing for Technical Services for Upgrade/Construction of Various Facilities in Oman, box 1, W-4-9, TAD-RHA.

airstrip at Khasab. The division's team then issued a request for proposals for the mobilization camp. In early January, division personnel approached Stanley Consultants of Muscatine, Iowa, to expedite the design for the program in Oman. Roger Thomas, who had just completed procurement work for the King Abdulaziz Military Academy project in Saudi Arabia; Anthony DiSalvo, another engineer from the division office in Virginia; and several Air Force representatives traveled to Muscatine for a predesign conference. They discussed the design requirements, the scope, and the criteria for all facilities except for Khasab, which the division planned to design in house. USAFE wanted the design to conform to the NATO criteria of austerity to enhance possible future NATO involvement in the Rapid Deployment Joint Task Force being organized by the United States.²⁴

On 10 January 1981, the Corps awarded to Stanley Consultants a letter contract authorizing the firm to proceed with up to \$400,000 of design work for the Masirah Island facilities. Stanley agreed to deliver complete design for facilities programmed for FYs 1981 and 1982 by 15 April. Stanley prepared four categories of design for the facilities: complete design, turnkey, design/build, and site adaptable. Following negotiations in February, the division awarded Stanley a design contract for \$2 million, a figure below the government estimate. Ultimately, Stanley Consultants would perform the design for nearly all of the projects built in Oman except the improvements at the Khasab airstrip.²⁵

Masirah Island Construction

Moved by the U.S. government's concerns over the international situation, the Corps pushed to award a contract to build the mobilization camp for the construction contractor's staff on Masirah Island before the monsoon of 1981 began. The first package designed and built in Oman was the workers camp on Masirah Island, situated ten to fifteen miles off the eastern coast of Oman in the Arabian Sea. The island has low-lying, sandy topography and is about forty miles long and ten miles wide. In 1981, the relatively treeless island boasted a "pristine" environment and abundant wildlife, including gazelles, donkeys, birds, and turtles. Because of its lack of development, contractors had to use barges to transport materials to the construction site.²⁶

²⁴ MFR, Henry, 18 Dec 80, sub: Prequalification of Proposers for Mobilization Facilities, Masirah and Airstrip, Khasab, box 5, W-4-9, TAD-RHA; "Middle East Division (Rear) 1980 Historical Summary Report"; Draft Exec Sum, Jan 81; MFR, Anthony W. DiSalvo, 7 Jan 81, sub: Predesign Conference Meeting Between the COE, Air Force, and Stanley Consultants Inc. on Design Criteria, Requirements, and Siting for Facilities to be Constructed in Oman, box 1, W-4-9, TAD-RHA; Memo, Wiles, 21 Nov 80, sub: A-E Selection, Oman RDF, box 1, W-4-9, TAD-RHA; Interv, Moorhus with Roger Thomas, 27 Aug 96, pp. 25–26.

²⁵ DiSalvo, Fact Sheet, Indian Ocean Prog—Oman, Masirah Air Base, Masirah Island, 14 Jan 81, box 1, W-4-9, TAD-RHA; Fact Sheet, Middle East Div Oman Proj, 22 Sep 82, unmarked box, W-4-9, TAD-RHA; Msg, Kramer/Thomas to Albro, 2 Feb 81, sub: Status Report—Masirah Island, unmarked box, OH, HQ USACE.

²⁶ MFR, Albro, 1 Nov 80; Interv, Schubert with Andrews, 21 Jun 82, p. 8; Interv, Moorhus with Col (Ret) Claude D. Boyd III, 9 Nov 95, p. 25. Boyd notes the abundance of whales and turtles sur-

On 28 February, the Middle East Division awarded a \$3.5 million contract for a 75-person mobilization camp to Taylor Woodrow–Towell, a British-Omani joint venture. During 1981, this venture placed eighty-five housing units purchased from International Shelters Systems and Cliff Industries, Inc. The camp consisted of prefabricated, assembled, and furnished units that were selected for reasons of economy and speed and ease of construction. The contract company completed the camp in early December, only slightly behind schedule. On 10 December, 15 Corps field personnel, 20 staff members from the follow-on construction contractor, and 40 transient or contract laborers took up residence. In addition to housing, the camp included office space, dining facilities, and a laundry.²⁷

Well before work started on the mobilization camp, the Corps began planning for the permanent facilities on Masirah Island. In mid-January 1981, the Middle East Division announced its interest in prequalifying firms for a fixed-price contract for the Masirah Island construction. The construction site was at a former British airfield on the northern end of the island. Construction included improvements to utilities such as water, power, and sewage treatment plants; extension and paving of runways and taxiways; and installation of lighting. The construction plan called for an instrument landing system and a new parking apron with a hydrant refueling system, new aircraft shelters, maintenance buildings, an administrative headquarters, a 150-person dormitory, and a dining hall. The air base needed new storage facilities for fuel, ammunition, water, and general use, as well as a system of connecting access roads.²⁸ As with the other Omani projects, the pattern of congressional funding compelled the Corps to organize contracting for the facilities at Masirah Air Base into several packages to be awarded over a number of fiscal years.

On 15 April, Stanley Consultants completed the basic design for the construction slated for FYs 1981 and 1982. In September, the division awarded a \$67 million construction contract to Dillingham Construction International Corporation, which later joined forces with an Omani partner, Towell. The following February, the division exercised the option for FY 1982 and added a \$30 million modification to the existing contract, bringing the combined program total to nearly \$100 million. To provide a quick start on substantial construction, Stanley had produced only rudimentary designs for the Masirah Island facilities. To complete the designs as construction progressed,

rounding Masirah Island. "Masirah, Copied from an Original Written by an Unknown Member of the Royal Air Force in 1977," 2 Apr 83, unmarked box, TAD-RHA.

²⁷ Msg no. 270, 2 Dec 81, sub: Weekly Status Report—Oman Area Office, box 1 of 8, W-4-9, TAD-RHA; Wells Bfg, 13–15 Jul 84; Fact Sheet, RDF Prog, Sultanate of Oman, 19 Jan 84, pp. 6–7, with attachments, box 1 of 8, W-4-9, TAD-RHA; Memo, Jack D. Stewart, 30 Jun 81, sub: Plant Inspections of Mobilization Living Units, Contract DACA 78-81-C-0098, Misirah [*sic*] Island, Oman, box 5/8, W-4-9, TAD-RHA; Interv, Schubert with Andrews, 21 Jun 82, pp. 7–8; Draft Bfg, Albro, 16 Jun 81, sub: House Foreign Affairs Subcommittee on Europe and the Middle East, pp. 10–11, unmarked box, TAD-RHA; Handwritten Notes, "Execution of Design and Construction for Facilities To Be Constructed in the Sultanate of Oman," 4 Dec 80, box 1, W-4-9, TAD-RHA.

²⁸ Press Release no. 80–68, 15 Jan 81, sub: Construction and Rehabilitation of Facilities at Masirah Island, Sultanate of Oman, PAO, MED, box 1, W-4-9, TAD-RHA; Wells Bfg, 13–15 Jul 84, pp. 9–12; Oman, MOD, "Preliminary Plan of Proposed Construction," Dec 80.



Site plan for Masirah Air Base, July 1984

Dillingham-Towell contracted with another firm, Keller-Gannon. With the aid of nearly one thousand Indian, Pakistani, and Sri Lankan laborers and over forty British supervisors on site, Dillingham-Towell completed the FY 1981–1982 packages in July 1984. The design program for FY 1983 was completed on 24 September 1982; the following February, Dillingham-Towell received the FY 1983 construction contract for \$14 million. They completed construction in February 1985.²⁹

On 10 May 1984, the division issued a request for proposal for the FY 1984 program estimated at over \$10 million. Although several U.S. firms expressed interest, only Dillingham submitted a formal bid—at a price significantly higher than the government estimate. After a series of unsuccessful negotiations with Dillingham, the division decided to resolicit proposals, this time allowing international firms to bid. On 13 February 1985, the Corps awarded the FY 1984 Masirah Island program to the low bidder, the British firm Pauling (Oman) L.L.C., for \$11.2 million, for completion in May 1986.³⁰

²⁹ Interv, Greenwood with Stevens, 13 Aug 85, pp. 14–15; Wells Bfg, 13–15 Jul 84, p. 14; Fact Sheet, RDF Prog, Sultanate of Oman, 19 Jan 84, pp. 6–7, with attachments; Fact Sheet, Middle East Div's Oman Proj, 29 Mar 85, unmarked box, TAD-RHA.

³⁰ Wells Bfg, 13–15 Jul 84, p. 14; Fact Sheet, RDF Prog, Sultanate of Oman, 19 Jan 84, pp. 6–7, with attachments; Fact Sheet, Middle East Div's Oman Proj, 29 Mar 85, unmarked box, TAD-RHA; Interv, Greenwood with Stevens, 13 Aug 85, pp. 37–38.



Truck with equipment and supplies arriving on Masirah Island by boat, October 1981

Khasab

Whereas the work at Masirah Island was the largest project in the Oman program, the project to improve and lengthen the Khasab airstrip was the smallest. Like Masirah Island, it was one of the early projects that the Corps undertook in Oman. The construction site was located south of the town of Al Khasab on the Musandam peninsula. This rugged piece of land juts north into the Strait of Hormuz, narrowing to about twenty miles the water passage that separates Oman from Iran. The northernmost portion of Oman, the Musandam peninsula is physically separated from the rest of the country by a 200-mile-wide corridor of the United Arab Emirates. At the time of construction, travel to and from Khasab was by air or sea only. The Khasab site originally consisted of only a few facilities and a 2,000-foot gravel airstrip.

The division completed in-house design for the new runway on 6 April 1981. On 15 June, the Omanis signed a \$1.3 million FMS case to finance a further lengthening of the runway. On 16 July, the Corps awarded a \$4.5 million fixed-price contract to Mothercat Ltd. of Lebanon to construct a new 6,500-foot paved asphalt runway, concrete turnaround, and parking apron capable of accommodating C-130 aircraft and Jaguar fighters. The project also included a sophisticated drainage structure in one of the local wadis (dry riverbeds). Mothercat began construction in mid-September 1981 using one hundred ten Pakistani and Lebanese laborers. Labor problems arose during construction when the Omani government began to prevent operators of heavy equipment, drivers of



Aircraft shelters at Masirah, mid-1980s

heavy trucks, and workers under twenty-five or over fifty-five years old from entering Oman. Despite these problems, Mothercat successfully completed the jointly funded project on 5 May 1982, ahead of schedule, and the Corps' involvement at Khasab came to a close. In June, the Omani government took full control of the completed airfield.³¹

Seeb

The Seeb International Airport, slightly more than twenty miles from Muscat on Oman's northern coastal plain, was the third site in Oman at which the Corps managed construction. The project provided a temporary power generator and additional storage and distribution for both fuel and water. Construction included new aprons, taxiways, a liquid oxygen plant, six aircraft shelters, maintenance buildings, and several storage buildings with access roads.³²

On 1 February 1982, Stanley Consultants completed the design for the FY 1982 program. The company finished the design for the FY 1983 program in January 1983 and for the FY 1984 program eleven months later. On 15 September 1982, the

³¹ Wells Bfg, 13–15 Jul 84, pp. 7–8; Fact Sheet, RDF Prog, Sultanate of Oman, 19 Jan 84, p. 5, with attachments; Msg no. 134, Oman Area Engr, 15 Sep 81, sub: Weekly Status Report—Oman Area Office, box 1, W-4-9, TAD-RHA; Msg no. 162, Oman Area Engr, 29 Sep 81, sub: Change in Labor Regulations—Oman, box 1, W-4-9, TAD-RHA; Interv, Schubert with Andrews, 21 Jun 82, pp. 10–12, 32.

³² Wells Bfg, 13–15 Jul 84, pp. 15–17.



Mobilization camp at Khasab, October 1981

Corps awarded a \$35.6 million construction contract for the FY 1982 package to the joint venture of Oman Construction Company Inc./Fischbach & Moore International Corporation/Abdulla Moosa Contracting & Trading Company (AMCAT). Later modifications brought the contract amount to \$41.8 million. Oman-Fischbach, employing over four hundred personnel, including over three hundred Indian laborers, completed the project in December 1984. On 11 September 1983, Laing Oman L.L.C. received a \$700,000 contract for construction of four portable, modular, covered storage units that comprised the FY 1983 package. The contractor completed the work in April 1984. On 1 June 1984, the FY 1984 program was awarded to MWK International Ltd. Inc. for \$7.7 million. The program was completed in December 1985. The FY 1985 program went to Wimpey Alawi L.L.C., with a \$1.3 million contract awarded on 28 June 1985. This contract, for an air-conditioned warehouse, a liquid-oxygen maintenance building, and a small access road, was scheduled for completion in September 1986.³³

³³ Ibid.; “FY-82 Program and FY-84 Program, Seeb, Sultanate of Oman,” [ca. Jul 84], box SA 1176, TAD-RHA; Fact Sheet, RDF Prog, Sultanate of Oman, 19 Jan 84, p. 7, with attachments; Fact Sheet, Middle East Div Oman Proj, 29 Mar 85; Thomas, Project Stakes Sheet, MCAF MILCON Prog, Sultanate of Oman, 30 Jun 87, Current Files, Transatlantic Division–Public Affairs Office (TAD-PAO). “Liberia Housing Contracts Awarded,” *Middle East Division News*, July-August 1985, also reports on the contract at Seeb.



Plan for Khasab Airfield, ca. 1980



Khasab Airfield

Thamarit

The Middle East Division also developed a project at Thamarit, a remote town built on the salt flats south of the “Empty Quarter” in Oman, about six hundred miles from Muscat across open desert. Thamarit is separated from coastal plains by hills approaching five thousand feet. An installation that included a paved airstrip, a taxiway, and some support facilities had been built there in the early 1970s to outflank the Soviet-backed People’s Democratic Republic of Yemen. The Corps’ construction program improved utilities, such as water, sewage, and a power plant. The program also included a new apron for the airstrip, a munitions maintenance building, general-purpose warehouses, and facilities for storage of fuel, ammunition, and liquid oxygen. New housing to accommodate up to fifty people would augment existing billets.³⁴

Stanley Consultants completed the designs for the FY 1982 program in March 1982, for the FY 1983 program in September 1982, and for the FY 1984 program in December 1983. On 1 December 1982, AMCAT received a construction contract for \$978,000 to build the FY 1982 package and completed that project in August 1983. The Corps awarded to Perini Corporation of Framingham, Massachusetts, a \$32 million construction contract for FY 1983 in February 1983 and a \$6.6 million contract for FY 1984 in May 1984. Perini completed the 1983 program in March 1985 with the 1984 program anticipated for completion by November 1985. On 4 December 1985, the division awarded the \$150,000

³⁴ Wells Bfg, 13–15 Jul 84, pp. 20–21; Benson, “USAF Aircraft Basing,” 23 Apr 81.



Aircraft shelter in Thamarit, January 1981

FY 1985 contract for a liquid-oxygen storage facility to AZD-Hochtief Construction L.L.C., with a scheduled completion date of August 1986.³⁵

At Thamarit, Perini, its Omani subcontractor Hamdan, and the Thai and Lebanese laborers found the most unpleasant construction site in Oman. The contractor brought about half of his needed supplies to the hot and dusty location through a small southern port and up the steep, 5,000-foot hills to the plateau town. The alternate route was overland across the desert from Muscat. The only paved road through the desert was completely desolate, and drivers had to carry with them sufficient water and gasoline to last for the entire 600-mile trip.³⁶

At both Seeb and Thamarit, contractors encountered difficulties finding adequate rock for aggregate. Further difficulties with the borrow areas at both locations led to one of the biggest single change orders in the Oman program. The Omani government had designated areas where the contractors could gather rock for crushing and use in the base course during construction. Certain elements of the Omani government, unaware of the contractors' rights, blocked both Oman/Fischbach/Abdulla Moosa at Seeb and Perini at Thamarit from gathering the rock as planned. The bureaucratic snare led to delays and higher overhead costs. The area engineer, Lt. Col. Pat M. Stevens IV,

³⁵ Interv, Schubert with Andrews, 21 Jun 82, pp. 18–19; Wells Bfg, 13–15 Jul 84, p. 23; Fact Sheet, RDF Prog, Sultanate of Oman, 19 Jan 84, p. 8, with attachments; “VOA Design Award Tops Contracts List,” *Middle East Division News*, January-February 1986.

³⁶ Interv, Schubert with Andrews, 21 Jun 82, pp. 18–19.



Ammo storage igloos at Thamarit

drew two lessons from the experience. First, early intervention by the U.S. embassy in any bureaucratic confusion within the host government was imperative. Second, future contracts ought to include no guarantee of borrow sources to the construction contractors.³⁷

Program Status in Oman by the Mid-1980s

Initially, the division experienced difficulty in recruiting qualified personnel to Oman because the relative isolation made the assignment unattractive. Except for two (later four) supervisory positions in the area office, all positions were classified as unaccompanied, meaning that personnel could not bring their families to Oman. Housing and food were difficult to obtain, particularly in the early days of the project. Air conditioning, an important consideration in the oppressively hot climate, was a rare luxury. The military could not provide services such as medical help, postal services, commissaries, and recreational facilities, although Corps personnel had permission to make purchases from U.S. Navy ships that docked in Muscat every three months. Unfortunately, the Navy goods came in bulk packages that were too big for a single individual. To offset the high prices in Oman, the Corps paid its personnel a cost-of-living allowance; civilian employees received a 25 percent supplement because the location qualified as a hardship assignment.

³⁷ Ibid., pp. 33–34.

For most Americans, Saudi Arabia remained a much more attractive venue, where Corps employees received substantially more benefits.³⁸

Nonetheless, the division managed to recruit sufficient personnel to increase the staffing level over time. To accommodate the growth, personnel moved into larger leased office space in August 1981 and again in April 1983. The Corps' strength in Oman, which peaked at just over forty people, was limited by the desire of the U.S. State Department, the ambassador, and the Omani government to maintain only a minimal presence in the country. The area office in Muscat had the main contingent of Middle East Division personnel; but the division also had staff at resident offices in Khasab, Thamarit, Masirah Island, and Seeb. Area office personnel supported the resident offices by making frequent trips to the construction sites using complimentary air service provided by the Omani government. By the summer of 1987, because Congress had declined to approve funds for programs beyond FY 1986, the Oman program had devolved to caretaker support for personnel facilities at Seeb, Thamarit, and Masirah Island.³⁹

Kuwait

Although the Mediterranean Division had worked in Kuwait in the early 1970s, the Corps' involvement in the country grew in the 1980s when the United States was eagerly cultivating new bonds in the region. In May 1973, the division forwarded to the U.S. ambassador in Kuwait a letter of offer for design and construction of three alert airstrips, a complete air base, and a joint operations center. In 1974, the role of the division expanded. New tasks included development of an air-defense system using the improved Hawk (I-HAWK) missile, study of the feasibility of establishing a military technical training center, estimation of the cost, and preparation of an FMS case for such a facility. The Kuwaiti government suspended the training school project but placed an order for the Hawk missiles, the air-defense system, and ancillary equipment.⁴⁰

The tempo of the Middle East Division's activity in Kuwait increased in the early 1980s, initially at the behest of the U.S. Navy. The Naval Supply System Command and its contractor, TGS International Ltd., began a program in 1981 to help the Kuwait Air Force develop its supply system. Early in 1982, Kuwait requested that the U.S. Navy extend additional aid by issuing a contract

³⁸ *Ibid.*, p. 28; Interv, Moorhus with James J. Edinger, 9 Mar 95, p. 14.

³⁹ Maj John D. MacInnes, Trip Rpt—Oman, 14 Feb 81, unmarked box, OH, HQ USACE; Memo, West, 26 Mar 83, sub: Trip Report—Muscat, Oman, 19–24 March 1983, unmarked box, OH, HQ USACE. Intervs, Schubert with Andrews, 21 Jun 82, p. 4; Greenwood with Stevens, 13 Aug 85, p. 28; Moorhus with Edinger, 9 Mar 95, p. 14. Thomas, Proj Stakes Sheet, MCAF MILCON Prog, Sultanate of Oman, 30 Jun 87.

⁴⁰ OCE, "Annual Report of Major Activities, 1 July 1972–30 June 1973," p. 51, box 7a, Gen Files, OH, HQ USACE; Williams to Gribble, 14 Dec 73, p. 4, box 26, access. no. 77-92-0001, WNRC; Mediterranean Div, "Data Book," 15 Mar 74, p. 25, box 5, access. no. 77-92-0001, WNRC; OCE, Major Activities, FY 1975, pp. 58–61; Williams to Gribble, 16 Dec 74, p. 2, box 26, access. no. 77-92-0001, WNRC; Mediterranean Div, "Data Book," 1 May 76, p. 26.

to TGS for rehabilitation of warehouses for DC-9 and C-130 aircraft at the Kuwait Air Force International Base. In December, the Navy's Supply System Command sought technical assistance from the Middle East Division. Shortly thereafter, the division signed a memorandum of understanding with the Navy that permitted the latter to use funds from an FMS case to award a contract to TGS for rehabilitation and installation of a warehouse shelving system. Signed on 5 January 1983, the TGS contract was valued at \$1.3 million. The next month, a Middle East Division representative arrived on site; seven months later, in July, despite delays and problems with the designs, TGS and its three subcontractors completed the warehouse rehabilitation.⁴¹

In early 1983, the Kuwaiti government requested an amendment to the Navy sales case to provide for a larger, \$5 million warehouse project at the Ali al Salem Air Base where French-built F-1 Mirage aircraft were stationed. The Corps managed the contract for design and construction awarded to TGS on a sole-source basis and at a fixed price. In April, a team from the Middle East Division made a site visit to the air base in preparation for the new project; in August, the division established a resident office in Kuwait.⁴²

The Corps also cooperated with the U.S. Navy to expand a computer center for the Air Defense Base by adding more computer room, classrooms, and an auditorium. Reprogrammed Navy sales case funds supported the project under the management of the Navy Fleet Material Support Office. In November 1984, the Middle East Division awarded a \$904,000 construction contract to the U.S.-Kuwaiti joint venture of Fischbach and Moore International Corporation/Al Hamra Kuwait Company W.L.L. The \$1 million contract provided for construction of a 50x150-foot pre-engineered metal addition to the computer center and some modifications to the existing building. On 2 March 1986, the contractor completed the computer center.⁴³

Concurrently, the division became engaged in a U.S. Navy project to build a flight-training center for the Kuwaiti Air Force at the Al Jabar Air Base. When disagreements arose between the Navy and the Corps over construction management, the Department of Defense reaffirmed the Middle East Division's

⁴¹ MFR, Simon Mouer, 24 May 83, sub: Lessons Learned on Contract N00600-83-C-0538 C-9/C-130, Warehouse Improvement; Fact Sheet, Kuwait Warehouse Rehabilitation, 1 Mar 83; both in unmarked box, 94-2-7-3, TAD-RHA.

⁴² Fact Sheet, Future Work in Kuwait, 18 May 93, unmarked box, 94-2-7-3; MFR, Thomas R. Conner, 26 Apr 83, sub: Trip Report for Site Investigation and Coordination for Potential Kuwaiti Projects, unmarked box, 94-2-7-3; "Warehouse Rehabilitation and Ordnance Storage Projects, Kuwait Air Force," 8 Jun 83, unmarked box, 94-2-7-3; Middle East Div (Rear), "Annual Historical Summary Report, 1983," p. 5, E-1-1 (hereafter cited as Middle East Div [Rear], Hist Sum Rpt, 1983); all in TAD-RHA. Middle East Div Reorg Ceremony, hist chronology.

⁴³ Fact Sheet, Computer Bldg (K-4) Expansion, Kuwait, 6 Apr 84, "Briefing Book for Brigadier General George R. Robertson . . . Briefings 9-12 April 1984," E-1-1, TAD-RHA; Bfg, "Kuwait Resident Office," attached to DF, Schroder, 18 Aug 86, sub: AE/RE Conference, unmarked box, 94-1-31-2, TAD-RHA; "Kuwait Computer Center Expansion Awarded," *Middle East Division News*, December 1984.

responsibility for design and construction of projects in the area of operations: The Corps and the Navy had signed a joint operating agreement in March 1984. Fully funded by the Kuwaiti government through an FMS case, the project involved an operational trainer building with a flight simulator, an academic/administrative building, and an auditorium.⁴⁴

Because the Kuwaiti Air Force wanted a single competitive contractor for the whole training-center project, including its post-construction operation, the Middle East Division prepared the proposal for design and construction and the Navy prepared the proposal for provisioning, curriculum design, and operations. The proposals were then combined and issued by the Navy as two awards to one contractor. On 13 July, the Middle East Division awarded a package for the training center's concept design to Aeck Associates/Tippett & Associates/Newcomb & Boyd, a joint venture based in Atlanta, Georgia. The design, completed in September 1985, was used as the basis for the design-construct package. On 4 April 1986, the division awarded a \$9.6 million contract to MUSAAD Al Saleh & Sons Ltd. of Kuwait to build the flight-training center, with completion expected in two years.⁴⁵

During the summer of 1984, Kuwait's Air Force requested additional Corps assistance in making improvements at several of its Hawk missile sites. Design for the project was completed in September 1984, and the Middle East Division awarded a \$1.1 million contract for one site to Neuero Industrieanlagen of West Germany in early October. The scope of the contract expanded to include procurement of prefabricated steel buildings for Hawk missile shelters at four—and then six—sites. On 25 April 1986, the Hawk shelter project was completed at all six sites for a total cost of \$4.3 million.⁴⁶

Bahrain

The Middle East Division increased its involvement in the Persian Gulf in the early 1980s. When in May 1982 the government of Bahrain, a small island country in the Persian Gulf east of Saudi Arabia and close to Qatar, issued a request for general assistance, the division responded by sending a fact-finding team. During the conversations, the division engineer explained FMS case

⁴⁴ Fact Sheet, Kuwait Flight Training Sch, 9 Apr 84, in Robertson Bfgs; Memo, Wiles, 17 Feb 84, sub: Trip Report on Kuwait Visit, 9–16 February, Flight Training Ctr, box SA 1176, TAD-RHA; "MED Gets Go-Ahead on Ras Banas," *Middle East Division News*, August 1984; Interv, Frank N. Schubert with Maj Gen Ames S. Albro Jr., 5 Jun 84, p. 32.

⁴⁵ Fact Sheet, Kuwait Flight Training Sch, 9 Apr 84; Msg, SECDEF, 3 Mar 84, sub: Kuwait Air Force Flight Training School, box 1176, TAD-RHA; Schroder Bfg, 23 Dec 85; "MED Gets Go-Ahead on Ras Banas"; Bfg, "Kuwait Resident Office"; "MED Completes Logistics Facilities, Prepares for New Contract in Sudan," *Middle East Division News*, Summer 1986; Bfg, Col Butler, Offers Call Presentation, 25–26 Apr 88, p. 7, unmarked box, TAD-RHA.

⁴⁶ Msg, U.S. Embassy, 21 Aug 84, sub: Hawk Site Improvement, Kuwait, box SA 1176, TAD-RHA; Schroder Bfg, 23 Dec 85; "VOA, Bahrain Work Brightens Future," *Middle East Division News*, October 1984; Bfg, "Kuwait Resident Office"; Comments on Draft Ms, 10 Mar 98.

procedures to members of Bahrain's government. This led military officials of the Bahrain Defense Forces (BDF) to request assistance in building additional military facilities at the Bahrain International Airport. As a consequence, a second team, consisting of employees from the Corps of Engineers and the U.S. Air Force, traveled to Bahrain. During this visit, the Bahraini officials unveiled more ambitious plans for an entirely new military air base elsewhere in the country that they wanted the Corps to design and construct. The Middle East Division team members recommended that Bahrain make an official request for Corps assistance through the U.S. embassy.⁴⁷

On 13 November 1983, the government of Bahrain formally requested through the embassy that the Middle East Division design a new air base to accommodate two fighter squadrons and one helicopter squadron. A Corps team visited Bahrain in early December to discuss the project, at which point the Bahraini government signed an initial FMS case of \$237,000 for planning, programming, and site investigation. A followup team of personnel from the Middle East Division and the U.S. Air Force returned in mid-January 1984 to visit potential sites and to hold more discussions. The BDF leadership selected a site on the southern end of the island and provided the division with a preliminary list of desired facilities. In April 1984, after division personnel completed final planning and programming, they presented the results to the BDF and embassy staffs.⁴⁸

Plans for the air base included a 12,500-foot runway, a taxiway, aircraft shelters, aprons, warehouses, maintenance facilities, administration buildings, housing, and support facilities. The division estimated that construction would cost approximately \$250 million and be divided into several construction phases. Phase I, estimated at \$115 million, included sufficient facilities to make the base operational and to allow the Bahrain Defense Forces to respond to hostilities. The parties amended the original sales case to cover concept and final design. In the autumn of 1984, Bahrain signed the \$5.3 million sales case amendment for master planning and surveys for the entire base and the final design for Phase I.

The architect-engineer company, Daniel, Mann, Johnson, and Mendenhall (DMJM) of Los Angeles, received the design contract and completed design during 1985. At that point, the government of Bahrain decided to defer construction. In 1986, Bahraini leaders reopened discussions with the Corps on a revised scope of work for the base; on 22 July, the government signed a

⁴⁷ "Corps of Engineers Assistance, Initial Briefing," [3-5 May 1982], box 1176, TAD-RHA; Msg, Wiles, 16 Sep 83, sub: CE Assistance to Bahrain, Aircraft Support Facilities, unmarked box, 94-3-29/11, TAD-RHA; Msg, Wiles, 29 Sep 83, sub: Future Construction Projects for BDF [Bahrain Defense Forces] in Bahrain, unmarked box, 94-3-29/11, TAD-RHA.

⁴⁸ For this and the following paragraph, see Middle East Div (Rear), "Historical Summary Report, 1983," p. 5; Fact Sheet, Bahrain Southern Air Base, 9 Apr 84, in Robertson Bfgs; Fact Sheet, Bahrain Southern Air Base, 6 Sep 84, W-4-9, TAD-RHA; "New Work in Bahrain, Sudan," *Mt. Weather Bulletin*, January-February 1984; "VOA, Bahrain Work Brightens Future"; Interv, Schubert with Albro, 5 Jun 84, p. 32.

new sales case to cover the Middle East Division's construction management services for Phase I of the project. For this project, the division served only to administer the contract, whereas the Bahraini government awarded the contract and made the progress payments under the rules of the Fédération Internationale des Ingenieurs-Conseils (FIDIC), which were modified to include standard Corps of Engineers' contract language.⁴⁹

The construction contract for what became known as the Shaikh Isa Air Base went to the Taiwan-based international construction firm Ret-Ser Engineering Agency in May 1987 for \$89.15 million. The contractor substantially completed work on all facilities in August 1990 with increased costs raising the total to \$130.88 million. Contractor claims carried over through the mid-1990s.⁵⁰

As the division developed plans for the air base, it garnered two other small projects at the request of the U.S. Navy. The commander of Middle East Forces turned to the division to construct warehouse facilities in Bahrain. The project entailed designing two hundred fifty thousand square feet of open-bay warehouse buildings and another five hundred thousand square feet of open-area storage space outside the warehouses. The internal space also included administrative offices, a maintenance bay, and twelve thousand five hundred square feet of cold storage. The facilities were programmed but never built. In addition, the Naval Facilities Engineering Command asked the Corps to act as the design and construction agent for an indoor recreation facility at the Navy's administrative support unit in Manama, Bahrain. The unit supported naval troops who had limited opportunities for shore recreation on ships in the Persian Gulf and the Arabian Sea. The facility was a 15,000-square-foot pre-engineered metal building housing a gymnasium with weight room, bowling alley, and snack bar with patio area. In April 1984, a joint team of Navy and division personnel made a visit to the site and held discussions on funds and schedules. Since funding for the design and construction, estimated at \$3.1 million, came from FY 1987 military construction appropriations, the project remained in abeyance.⁵¹

Egypt

For the United States, Egypt held a key position strategically, as the most populous Islamic state in the Middle East, and geographically, because of its location across the Red Sea and the Sinai from the Arabian Peninsula. (*See Map 24.*) As a consequence, the Corps' work grew continuously in the country throughout

⁴⁹ "Planning & Programming Report of the Bahrain Southern Airbase, Volume I of II, Narrative," Dec 84, unmarked box (1980–1992), TAD-RHA; "Bahrain Requests Assistance on New Cantonment," May-June 1985, and "A Firm Base for MED's Future," Summer 1986, both in *Middle East Division News*.

⁵⁰ Memo, [Hutchinson], [May–Aug 95], sub: Shaikh Isa Air Base, Bahrain, Current Files, TAD-PAO.

⁵¹ Fact Sheet, Warehouse Facilities, Bahrain, 6 Apr 84, in Robertson Bfgs; Comments on Draft Ms, 10 Mar 98; Fact Sheet, Indoor Rec Facility, Bahrain, 6 Apr 84, in Robertson Bfgs; Fact Sheet, Indoor Rec Facility, Bahrain, 17 Oct 84, W-4-9, TAD-RHA.

the 1970s and 1980s. The Middle East Division executed work in Egypt on behalf of U.S. military commands, using funds appropriated by Congress, and on behalf of the Egyptian government under FMS case procedures. By 1990, with Corps offices in Saudi Arabia closed, Egypt enjoyed the largest commitment of Corps resources in the Middle East.

The Corps of Engineers began an association with the professional community of Egyptian design and construction engineers in the early 1970s through the Mediterranean Division's support of the U.S. Naval Medical Research Unit (NAMRU). Located in Cairo since World War II, NAMRU's medical staff pursued research in cooperation with the Egyptians on diseases prevalent in the Middle East and northern Africa. The program also included a training component for Egyptian doctors. In November 1971, personnel from the Mediterranean Division performed soils investigations for a project at NAMRU's request.⁵²

Late in the decade, NAMRU again requested assistance from the Corps. The Middle East Division responded in the spring of 1979 by awarding a design contract to the architect-engineer firm of Haines, Lundberg, Waehler of New York for a new laboratory facility in Cairo. Eighteen months later, the division awarded a construction contract to a joint venture, Dongsan Construction and Engineering Company, which combined Korean and Egyptian firms. The \$7.8 million contract specified a six-story facility that provided thirty-nine thousand square feet of space for departments of virology, bacteriology, parasitology, biochemistry, and immunology. The Middle East Division's chief of construction, Earl Kramer, participated in the groundbreaking ceremony on 30 October 1980.⁵³

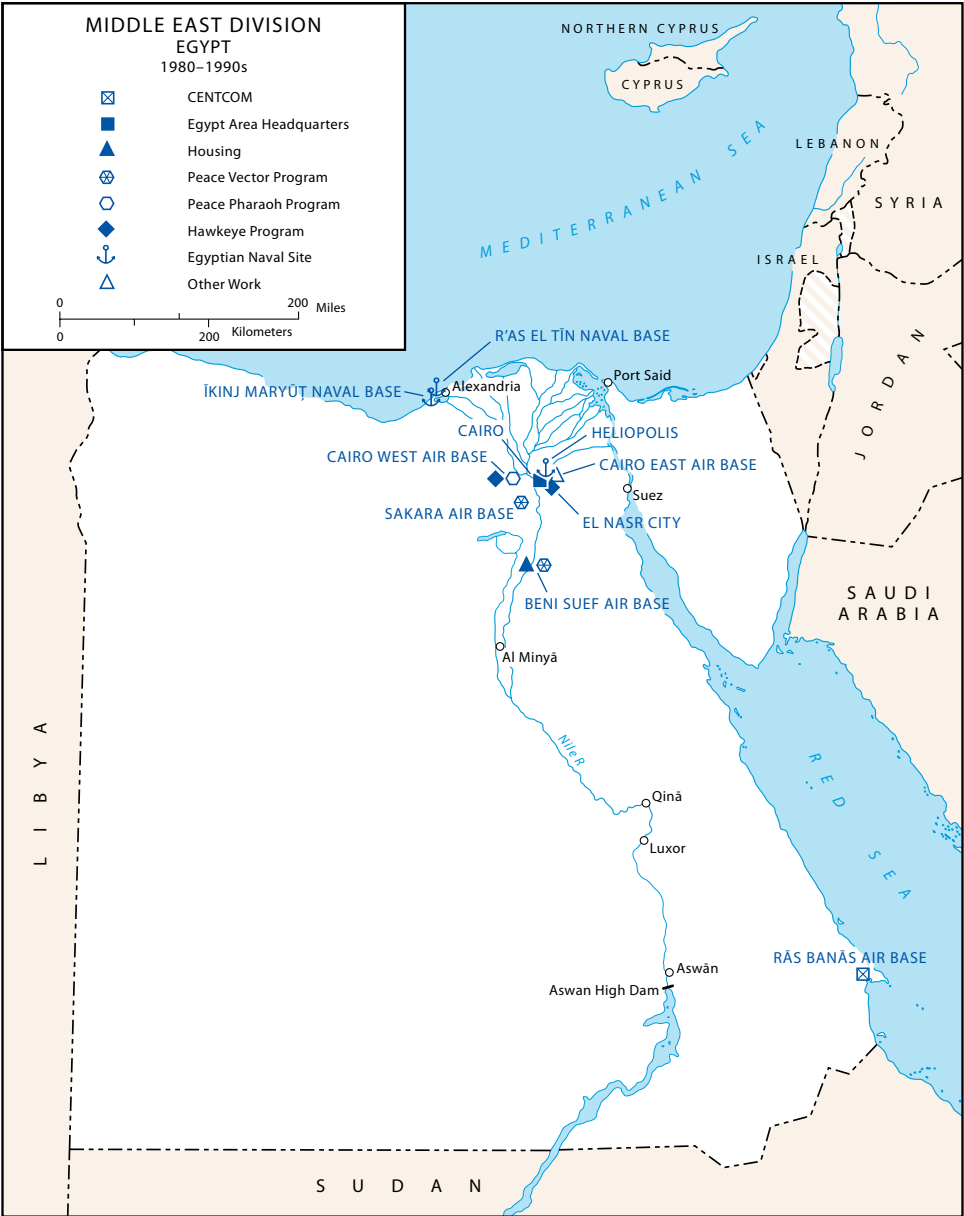
The Middle East Division undertook another project in Egypt more in the category of civil works. In May 1980, the Suez Canal Authority and the government of Egypt requested that the Corps explore possible technical improvements to the Suez Canal. To provide the expertise needed for various aspects of the project, the division formed a team that included members from the Corps' Waterways Experiment Station in Vicksburg, Mississippi; from the South Atlantic Division in Atlanta, Georgia; and from the Cold Regions Research and Engineering Laboratory in Hanover, New Hampshire. The team submitted the study to the Suez Canal Authority early in 1981.⁵⁴

In the late 1970s, U.S. and Egyptian military forces expanded their cooperation in conjunction with the Camp David accords. Throughout the 1980s, the division worked on the basis of dollar credits made available to Egypt as part of the reconciliation with Israel. The money came with the requirement that Egypt buy U.S. goods and services. Each U.S. military service engaged in the bilateral programs concluded

⁵² Mediterranean Div, "Data Book," 15 Oct 72, p. 15; Memo, G. Greig, 16 Mar 73, sub: Miscellaneous Maintenance, Repairs, Alterations and Improvements, NAMRU-3, Cairo, Egypt, unmarked box, TAD-RHA; "New Lab Studies Cures," *Mt. Weather Bulletin*, November-December 1980.

⁵³ *Ibid.*

⁵⁴ "MED Completes Suez Canal Study," *Mt. Weather Bulletin*, January-February 1981; "Suez Canal Improvement Study," Apr 81, unmarked box, TAD-RHA.



Map 24



Biomedical research lab in Cairo for the U.S. Naval Medical Research Unit, ca. 1980s

an FMS case with the Egyptian government and then assigned responsibilities for design, construction, or both to the Corps of Engineers.⁵⁵

The division's new responsibilities in Egypt began in November 1980 with Peace Vector I and Peace Pharaoh, projects to support multiple sales of American-manufactured F-16 and F-4 aircraft to the Egyptian government. The foreign aid, amounting to \$1 billion to \$1.5 billion annually, that the U.S. government granted Egypt paid for the aircraft and the services to support them. The FMS cases funded weapons systems, equipment, and facilities for use by the Egyptian armed services. The U.S. Air Force Logistics Command (AFLC) acted as the designated program manager for USAF systems adapted for use by the Egyptian Air Force (EAF).⁵⁶

When the EAF asked for assistance in upgrading its facilities at An Shas Air Base to support F-16 aircraft (a USAF weapons system), the U.S. government named the AFLC as the program manager for the project, called Peace Vector I. The EAF planned to perform the architectural, civil, and structural design as well as all the necessary construction and installation of equipment. The AFLC assumed responsibility to execute mechanical and electrical design and to procure equipment and materials not available in Egypt.⁵⁷

In September 1980, the USAF requested that the Corps take over these design responsibilities along with design and procurement of a power-plant system for the An Shas Air Base. The following January, the two U.S. agencies signed a memorandum of agreement regarding the work for Peace Vector I. Subsequently, with revision of the memorandum, the Air Force asked the Corps to procure mechanical and electrical equipment and construction materials. In March, the USAF added more responsibilities, including complete design of a flight simulator facility and procurement of its equipment and spare parts. In pursuing these programs, the Middle East Division worked closely with General Dynamics Corporation, the manufacturer of the F-16s. The company acted as contractor for technical consultation to ensure that the systems installed were appropriate for an F-16 air base.

In November and December 1980, the division engaged Burns and McDonnell Engineering Company and Black and Veatch, both of Kansas City, Missouri, as primary architect-engineer firms for the Peace Vector projects. Corps representatives accompanied personnel from Burns and McDonnell on a site visit to An Shas, where the company's engineers worked on the electrical and mechanical designs to upgrade facilities at the base. Because of time pressures, the Corps awarded the project as a supplemental agreement to the contract that Burns and McDonnell held for the airfield at King Khalid Military City. Concurrently, the division began fulfilling its procurement mission. On 9 January 1981, the Corps awarded a \$1.4 million contract for the power-plant equipment to Melley Energy Systems Inc. and

⁵⁵ "MED's Expanding Role in Egypt," *Middle East Division News*, January-February 1986.

⁵⁶ "Egyptian Program Management Review Held," *Transatlantic News*, June-July 1991; Interviews, Moorhus with Edinger, 9 Mar 95, p. 24, and with Richard Wiles, 21 Oct 93, p. 121.

⁵⁷ For this and the following paragraph, see Fact Sheets, Proj Peace Vector, 11 May 81, unmarked box (SNEP, RSNF, PVI), and Proj Peace Vector I, 6 Apr 84, Robertson Bfgs; "Division's Expanding Missions in Egypt," and "Mission in Egypt Expands with Peace Vector II Work," both in *Mt. Weather Bulletin*, September-October 1982.

on 3 February awarded a procurement contract for the prefabricated power plant building to National Steel Products Company.⁵⁸

Burns and McDonnell began the electrical and mechanical design for the air-base facilities in January 1981 and design of a flight simulator building in March. Black and Veatch completed designs for the electrical, mechanical, and foundation installations for the power-plant building and delivered them to the overall coordinator for Peace Vector I, the Air Force Logistics Command, on 8 May. That same month, Egypt took delivery of the prefabricated power-plant building. In March 1981, while the architect-engineer firms pursued their work, the AFLC decided to expand the Middle East Division's role by adding responsibility for procuring the equipment for the flight-simulator building under design by Burns and McDonnell. By early June, company designers submitted the final electrical and mechanical designs to the AFLC. Over time, these designs underwent many revisions as criteria for the project changed. Between late June and August 1981, the division awarded the procurement contracts for the flight simulator building's mechanical and electrical equipment. On 30 September, the AFLC asked the division to purchase a two-year supply of spare parts for the equipment. In October, the AFLC allocated an additional \$1.5 million for purchase of simulator equipment.⁵⁹ Burns and McDonnell finished designs for the flight simulator in January 1982.

The first delivery of F-16s arrived at An Shas Air Base in March 1982. By November, the Middle East Division's \$8 million portion of the Peace Vector I program was nearly complete. Division personnel had overseen preparation of design for the air-base facilities, the simulator building, and the power plant. They had also completed procurement of the power plant and its equipment, construction materials and equipment for the simulator building, and spare parts. The small work that remained for Peace Vector I included design of an upgrade to an existing storage facility and procurement of the related equipment and materials.⁶⁰

Whereas Peace Vector I covered air-base facilities and systems to support aircraft, Peace Pharaoh involved installing microwave towers at various sites in Egypt to provide a communications network for logistical support between the Peace Vector facilities and the headquarters of the Egyptian Air Force. In early February 1981, the AFLC asked the Middle East Division to conduct soils investigations and to recommend appropriate foundation designs for seven microwave towers ranging in height from fifty to two hundred fifty feet. In October 1981, the Middle East Division activated the Egypt Area Office in Cairo. The Peace Pharaoh program

⁵⁸ Fact Sheets, Rouse, Proj Peace Vector, Egypt, 13 Jan 81, and 19 Mar 81, both in unmarked box (SNEP, RSNF, PVI), TAD-RHA.

⁵⁹ Fact Sheet, Proj Peace Vector, Background, 16 Dec 81; Fact Sheet, Peace Vector I (PVI)—MED Performance, 17 Feb 84, box SA 1176, TAD-RHA; "Division's Expanding Missions in Egypt"; Fact Sheet, Proj Peace Vector I, 22 Feb 83, unmarked box, TAD-RHA; Memo, Lt Cdr James E. Ealy, 23 Mar 81, sub: Trip Report, Procurement and F-16 Simulator Building Design Criteria Meeting and Wright-Patterson Air Force Base, Ohio—Project Peace Vector, 16 and 17 March 1981, unmarked box (SNEP, RSNF, PVI), TAD-RHA; Fact Sheet, Proj Peace Vector, 16 Dec 81, box 3, access. no. 77-92-0002, WNRC.

⁶⁰ Fact Sheet, Middle East Div Projs in Egypt, 12 Nov 82, unmarked box, TAD-RHA.

expanded with the addition of a power plant and procurement of three generators for the Cairo West Air Base, the home of the F-4 fighters purchased from the American manufacturer. A year later, by November 1982, the Corps finished the design and procurement of the power plant and completed procurement of the generators and other equipment by April 1983. Costs for Peace Pharaoh in these first two years amounted to nearly \$3 million.⁶¹

Throughout 1983, work continued at An Shas Air Base and Peace Pharaoh approached completion. This work overlapped with the Peace Vector II program, which began in May 1982 when the governments of the United States and Egypt concluded a second sale of F-16 aircraft, with the initial delivery scheduled for January 1986. All of the principal participants maintained most of their Peace Vector I responsibilities. The project included upgrading seventeen existing facilities and building nine new ones at Beni Suef Air Base, south of Cairo. The facilities included housing, shops, water and sewer system, hangars, maintenance facilities, warehouses, a power plant, and aircraft shelters. The Middle East Division was again responsible for mechanical and electrical design of the facilities, as well as the architectural, civil, and structural design previously performed by the Egyptian Air Force. In addition, the Corps would manage the total design of a new utility system and procure all items except concrete, steel, masonry, and some electrical equipment. The estimated cost for Peace Vector II was \$20 million. Burns and McDonnell designed all the Peace Vector II facilities, completing this phase of the work in December 1983. The contractor continued to provide additional designs for Peace Vector II through 1987.⁶²

Still other construction tasks in Egypt accrued to the Middle East Division as the result of the division's role as agent for the engineering and construction needs of the rapid deployment force. Shortly after its establishment by President Jimmy Carter in October 1979, the Rapid Deployment Force was renamed the Rapid Deployment Joint Task Force, superseded on 1 January 1983 by the U.S. Central Command. With Egyptian cooperation, CENTCOM decided to expand facilities at Ras Banas, an air base originally built for the Egyptians by the Soviet Union. CENTCOM wanted immediate construction of a power plant; a desalinization plant; storage for petroleum, oil, and lubricants; and a utility system to support its contingency forces. Over the summer of 1984, Congress authorized \$49 million in Military Construction, Army (MCA), funds, to be matched by the Egyptian

⁶¹ Fact Sheet, Proj Peace Pharaoh, 16 Dec 81, p. VI-5 of Middle East Div, "Information Booklet," Dec 81, box 3, access. no. 77-92-0002, WNRC; Middle East Div Reorg Ceremony, 30 Sep 86; Berry-Caban et al., "Annual Historical Review, Fiscal Year 1982" (hereafter cited as Berry-Caban et al., AHR, FY 1982); Fact Sheet, Middle East Div Projs in Egypt, 12 Nov 82; Fact Sheet, Indian Ocean Projs-Proj Peace Pharaoh, 12 May 81, unmarked box, TAD-RHA; "Division's Expanding Missions in Egypt."

⁶² Rousseau, "Middle East Division (Rear) 1983 Historical Summary Report," 7 Mar 84, unmarked box, TAD-RHA. Fact Sheets, Proj Peace Vector II, 22 Feb 83, unmarked box, and Peace Vector II, 6 Apr 84, in Robertson Bfgs; Performance Eval (Architect-Engr), Contract no. DACA 78-83-C-0040, Design of Peace Vector II Aircraft Support Facilities at Beni Suef Air Base, Egypt, 26 Jan 88, X-1-10, Egypt; all in TAD-RHA. "Mission in Egypt Expands with Peace Vector II Work."



Egypt Area Office, May 1987

government, for “bare-bones construction” of the CENTCOM base at Ras Banas. The facilities, maintained by the U.S. Air Force, would become a rear staging area for U.S. forces if an emergency arose in the Persian Gulf region. By late 1984, the program grew to six active contracts with architect-engineer firms.⁶³

The division also began preparing for the Hawkeye program, which supported the Egyptian purchase of U.S. Navy aircraft. In 1983, using funds from an FMS case made possible by the Camp David accords, the Egyptian Armament Authority purchased for the Egyptian Air Force four Grumman Aerospace E-2C Hawkeye airborne early-warning planes and four F-4 aircraft. Scheduled for delivery in January 1987, the planes were to be based at Cairo West Air Base, where thirty-five F-4s were already stationed.⁶⁴

As in the Peace Vector programs, the Middle East Division oversaw design of mechanical, electrical, and general utility systems for existing and new facilities at Cairo West Air Base. It also managed procurement of mechanical and electrical materials. For the Hawkeye program, the division worked with the U.S. Navy; but the Egyptian Air Force played its accustomed role, providing civil, architectural, and structural design and managing the construction and installation of equipment.

⁶³ Schubert and Kraus, *Whirlwind War*, pp. 15–17; Benson, “USAF Aircraft Basing in Europe,” pp. 93–94; Interv, Grathwol with Col (Ret) John M. Dorr, 11 Aug, 12 Sep, 26 Sep, 31 Oct 94, p. 115; “MED Gets Go-Ahead on Ras Banas”; “U.S. Army Engineer Division Middle East (Rear) Active Ongoing A-E Contracts by Location,” Nov 84, unmarked box, TAD-RHA.

⁶⁴ “MED Mission May Expand in Egypt,” *Mt. Weather Bulletin*, May-June 1983.

Planners estimated that the \$20 million construction program would be completed by July 1986, well ahead of the January 1987 delivery of the aircraft. The division expected its portion of the program at Cairo West to cost approximately \$10 million: \$3 million for the design, \$6 million for the procurement, and \$1 million for optional construction management assistance. The division was responsible for mechanical and electrical design for four maintenance shops and two aircraft shelters, as well as minor rehabilitation for the E–2C aircraft and for the rehabilitation of a hangar and maintenance shops for the F–4s.⁶⁵

In early 1984, after the division started preliminary design, the project at Cairo West Air Base was placed on hold. The U.S. Navy had not received a decision from the Egyptian Air Force concerning the Navy's proposal to use the Corps for construction management assistance on the Hawkeye program. When the Egyptian approval came, it allowed the division and the Navy to conclude an interagency agreement on 8 June 1984 authorizing work for the E–2C and F–4E facilities at Cairo West. In November 1984, the Corps shipped to Egypt final design documents for the E–2C facilities and the power-distribution system. By early 1986, the division was monitoring about three thousand line items of equipment and materials for the Hawkeye program.⁶⁶

The Hawkeye program also included a computer center and software lab at the Nasr City military installation near Cairo. In 1986, the division assumed responsibility for the design and construction of the computer center for the Egyptian Armament Authority. Division personnel designed the single-story metal-frame building and, in July 1986, awarded a \$1.5 million construction contract to the joint venture of Fischer Engineering & Maintenance Company of Portland, Oregon, and Egyptian Building Systems. Construction began in August.⁶⁷

The work associated with the Egyptian programs increased the number of Americans in Egypt, leading the U.S. and Egyptian Air Forces to request that the Middle East Division manage the design and construction of a housing complex at Beni Suef. The Egyptians needed the compound to accommodate the people attached to U.S. Air Force technical assistance field teams (TAFTs) and the support personnel hired to train EAF cadre to fly and maintain the F–16s. The USAF field team monitored the contract with General Dynamics for operational maintenance and hands-on training and the contract with Pratt & Whitney for training to maintain the aircraft engines.⁶⁸

⁶⁵ Ibid.; "New Projects in Egypt, Sudan," *Mt. Weather Bulletin*, Fall 1983.

⁶⁶ Fact Sheet, Egyptian Hawkeye Prog, 6 Apr 84, in Robertson Bfgs; Msg, Ralph N. Wheeler, 3 Dec 84, sub: Egyptian Hawkeye/F–4E Program Status Report, Cairo West AB, MED Facilities Design, unmarked box, mixed-1, TAD-RHA; "MED's Expanding Role in Egypt"; "P&S Supports U.S. Air Force, Navy in Egypt Procurement Missions," unmarked box, mixed-1, TAD-RHA.

⁶⁷ Fact Sheet, Egyptian Hawkeye Prog, 6 Apr 84; "MED Mission May Expand in Egypt"; Bfg, Col Butler, Ofc's Call Presentation, 25–26 Apr 88, p. 5; "MED's Expanding Role in Egypt"; "MED Completes Logistics Facilities, Prepares for New Contract in Sudan," *Middle East Division News*, Summer 1986; "Computer Center Dedicated in Cairo," *Middle East/Africa News*, March–April 1988.

⁶⁸ Fact Sheet, Proj Peace Vector II, 22 Feb 83; Col Schroder, AGC Presentation, 6 Mar 87, R&D File 2470, TAC; "MED's Expanding Role in Egypt"; "Peace Vector II Procurement Nears End," *Middle East/Africa News*, July–August 1987.

The Beni Suef housing project involved one hundred twenty prefabricated two-bedroom units and the facilities to support them. The first phase included fifty houses, an administration building, a dispensary, a commissary and post office, a vehicle maintenance shop, and roads—all funded under an FMS case with an initial value of \$8 million. The second phase included seventy houses, recreational facilities, a dining building, a gatehouse, a swimming pool, utilities, and landscaping. The project's design was completed in December 1983, and in March 1984 the Middle East Division awarded a sole-source letter contract to General Dynamics Services Company for construction of the first phase of the housing project. Within weeks, the division terminated the contract because the parties could not reach agreement on the cost of work. In August, the division then awarded a \$12 million construction contract for the same project to Turner International Industries/MAK, a U.S.-Egyptian joint venture, for the second phase. The one hundred twenty housing units and related facilities at Beni Suef Air Base were intended to accommodate the contract support/technical assistance field team (CS/TAFT) of U.S. personnel.⁶⁹

In the mid-1980s, still another project, an EAF conference center, emerged as an FMS case adjunct to the Peace Vector II program. The U.S. Air Force and the Middle East Division were responsible for the project's total design, construction, and furnishings. The four-story, 5,143-square-yard building in downtown Cairo provided conference space for sixty participants and office space for seventy to eighty staff members attached to USAF or EAF agencies, as well as support personnel hired by General Dynamics. The center included an auditorium, conference rooms, underground parking, and a standby power plant. In September 1984, Sverdrup and Parcel of St. Louis won the contract to design the conference center. On 27 December 1985, the division awarded a \$10.4 million construction contract to Turner International Industries of New York, which completed the construction three years later, in November 1988.⁷⁰

The Corps of Engineers carried out work involving the United States Army Security Assistance Command (USASAC) and the Egyptian Army engineers. In 1983, the Middle East Division contracted with Giffels Associates to design a \$21 million rebuild facility for tanks and other tracked vehicles outside of Cairo. In the autumn of 1983, Giffels finished the design, which the Egyptian Engineering Authority modified. On 26 June 1984, the Egyptian Armament Authority awarded a construction contract to El Abd Contracting Company with the Corps providing construction management assistance. The primary facilities were scheduled for completion in June 1986, with the remainder completed by June 1987. The division

⁶⁹ Fact Sheet, Peace Vector II—ICS/TAFT Housing, 6 Apr 84, in Robertson Bfgs; "VOA, Bahrain Work Brightens Future," *Middle East Division News*, October 1984; Fact Sheet, Peace Vector II—ICS/TAFT Housing, 17 Feb 84, box SA 1176, TAD-RHA; Comments on Draft Ms, 10 Mar 98; Schroder Bfg, 23 Dec 85, pp. 9–10, slides 40, 45.

⁷⁰ Fact Sheet, Egyptian Air Force Conf Ctr, 6 Apr 84, in Robertson Bfgs; "MED's Expanding Role in Egypt"; "EAF Conference Center Complete," *Middle East/Africa News*, November-December 1988; Schroder Bfg, 23 Dec 85, pp. 9–10, slides 40, 45.

also supervised work on a hangar and other support facilities to accommodate C–130 aircraft and the acquisition of new computer equipment for the Egyptian Armament Authority. The several projects meant that the division had approximately \$76.7 million in construction programmed for Egypt at the end of 1985.⁷¹

Sudan

The Middle East Division became active in Sudan in 1980 when, at the request of the U.S. embassy, a division team visited the country to conduct a study of navigation on the White Nile River. Trade Development Programs (formerly the Agency for International Development) funded the study to improve transportation between Khartoum and Port Sudan. (See Map 25.) A second Corps project in Sudan arose at the suggestion of the U.S. Office of Military Cooperation, in Sudan since 1979 to manage the U.S. military aid program that delivered U.S. military equipment to the Sudanese armed forces. The office indicated that the Sudanese military needed to establish a supply, logistics, and maintenance system. The Military Assistance Program funded the project, under USASAC direction, to design and construct maintenance and logistics facilities through rehabilitation of existing facilities.⁷²

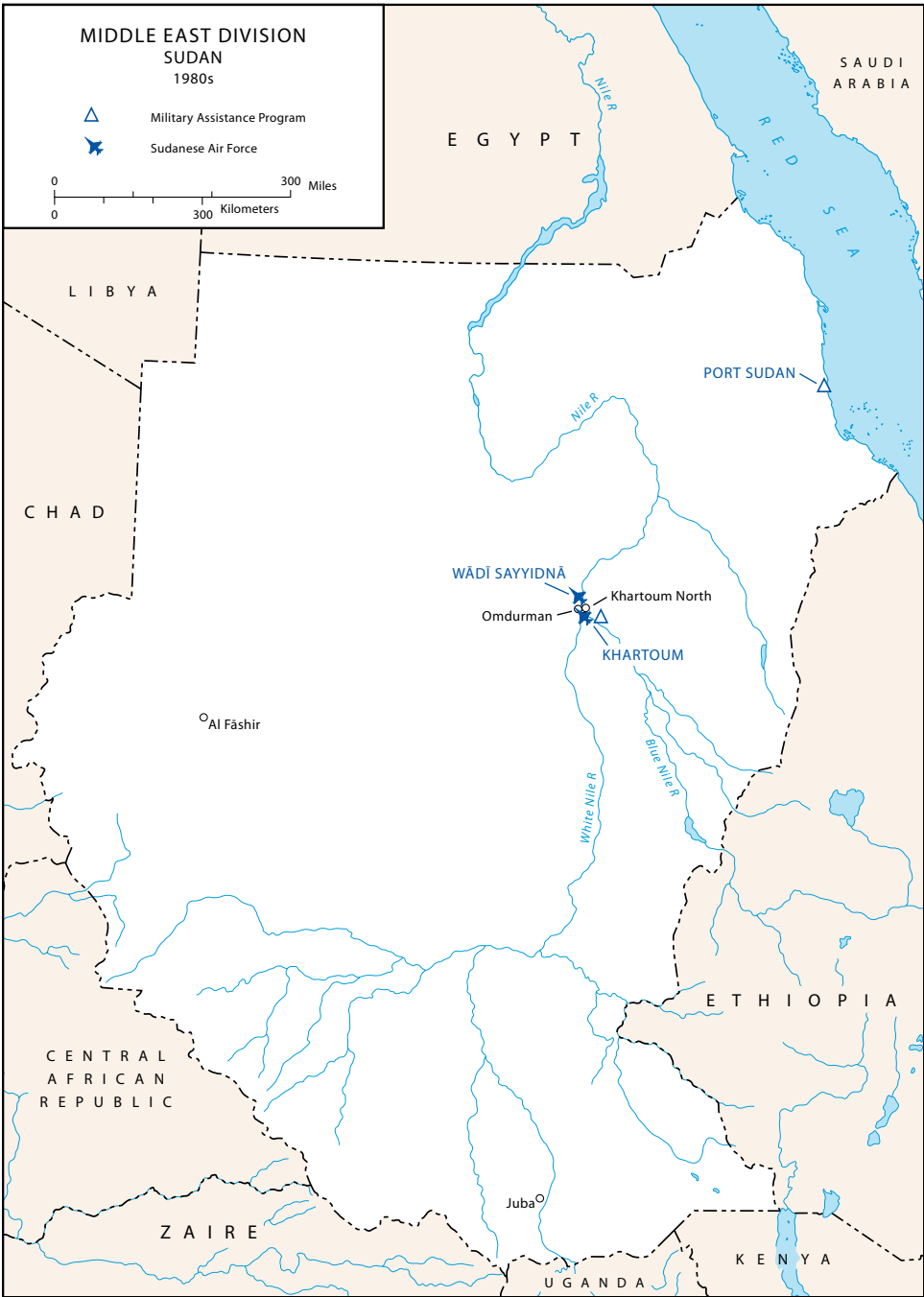
Saudi Arabia purchased and donated to the Sudanese government several lightweight, pre-engineered steel buildings. The government erected ten of them around Khartoum and two in Port Sudan and then asked the United States to complete the interiors under an FMS case to pay for construction of partitions, lighting, power, and utilities. The Corps of Engineers assigned the Middle East Division to cooperate with the U.S. Navy to execute the work. The rehabilitation included upgrading administrative areas, classrooms, cafeterias, lounges, machine shops, and warehouses by installing concrete floors, internal walls, and a power-distribution system. Funding totaling \$6 million came from the Military Assistance Program for FY 1983.⁷³

In the autumn of 1983, Middle East Division representatives traveled to Sudan to gather data on the proposed work. About the same time, the division began a second project to assist the Sudanese Air Force by designing and building maintenance facilities for C–130 transport planes at Khartoum and for F–5E aircraft at the Wadi Saidna air base near Khartoum. In January 1984, the Corps issued a request for proposal to Reading & Bates Construction Company of Houston, which was already firmly established in Sudan. The request was issued on a sole-source negotiated basis, as suggested by the Sudanese government and the Office of Military Cooperation and provided for in the sales case. Division personnel then made another trip to

⁷¹ “New Projects in Egypt, Sudan”; “Egypt Program Booming,” *Middle East/Africa News*, May 1989; Zone Workshop #101, Cairo, Egypt, 18 Nov 84, unmarked box, 94-1-31-14, TAD-RHA; Schroder Bfg, 23 Dec 85, pp. 10–11, slide 46.

⁷² “Study Takes Rouse to Africa’s White Nile,” *Mt. Weather Bulletin*, September–October 1980; “U.S. Office of Military Cooperation, Khartoum, Sudan,” [Jan 83], unmarked box, TAD-RHA; Fact Sheet, Maintenance-Log Facilities, Sudan, 6 Apr 84, in Robertson Bfgs.

⁷³ *Ibid.*; Fact Sheet, Sudan, n.d., in Robertson Bfgs; “New Projects in Egypt, Sudan.”



Map 25

establish priorities and to make a final review of the design/construct documents prepared in house. On 13 June 1984, the Corps awarded to Reading & Bates a design/construction contract for seven of the facilities for \$4.4 million, with a \$3.3 million optional add-on for the remaining five buildings.⁷⁴

In September 1984, the division established a resident office to manage the construction in Sudan. The acting resident engineer, Caesar Santucci, went to Sudan to lease office space in a Khartoum villa for the resident engineer and a secretary, to establish relations with the Sudanese minister of defense and the U.S. ambassador, and to help get Reading & Bates started on its contract.⁷⁵

During the course of construction, Reading & Bates encountered problems with procurement, customs, and logistics, as well as civil unrest in Sudan. The original completion date was pushed back from November 1985 to January 1986, but even this estimate proved optimistic. By February, some facilities were nearing completion and most were at least 80 percent finished; but construction dragged on through the spring.⁷⁶

Other Occasional Work

The Middle East Division also undertook occasional work for other countries of the region. In 1978, it carried out an engineering study on dredging in Qatar that it delivered to the U.S. embassy there. Similarly, the division prepared a study of Omani water resources for the U.S. Agency for International Development.⁷⁷

In February–March 1983, the division conducted a three-week survey of one thousand miles of roads planned by the government of Gabon to promote development and to enhance security within the country. The resulting study and report, submitted in French to the Gabonese government, examined the engineering, logistical, and financial issues related to construction of the roads. In October, the Middle East

⁷⁴ Middle East Div (Rear), Hist Sum Rpt, 1983, p. 5; “New Work in Bahrain, Sudan”; Fact Sheet, Maintenance-Log Facilities, Sudan, 6 Apr 84, in Robertson Bfgs; Fact Sheet, Improvements to Maintenance-Log Facilities, Khartoum and Port Sudan, 20 Jan 84, box SA 1176, TAD-RHA; Fact Sheet, Maintenance-Log Facilities–Sudan, 18 Jul 84, box SA 1176, TAD-RHA; Memo, Boyd, 20 Dec 83, sub: Request for Authorization to Enter into a Negotiated Sole-Source Contract, W-4-10, TAD-RHA; Rcd of Contract Negotiations, 17 May 84, W-4-10, TAD-RHA; Memo, Koterwas to Reading & Bates, 14 Jun 84, sub: Contract DACA 78-84-C-0023, Design and Construct Maintenance-Logistics Facilities, Sudan, W-4-10, TAD-RHA; “MED Gets Go-Ahead on Ras Banas.” *Note: In 1986, the name of Reading & Bates was changed to Associated Pipe Line Contractors Inc. For clarity, this book refers to the contractor as Reading & Bates, the name in use at the time of contract award.* See Amendment of Solicitation/Modification of Contract, 17 Sep 86, W-4-10, TAD-RHA; Schroder Bfg, 23 Dec 85, p. 11, slide 49.

⁷⁵ Middle East Div Reorg Ceremony, 30 Sep 86; Memo, Caesar Santucci, 2 Oct 84, sub: Request for Recruitment Action for an Administrative Secretary, W-4-10, TAD-RHA; “Santucci Sets in Motion Maintenance Logistic Contract,” *Middle East Division News*, January 1985.

⁷⁶ DF, Schroder, 30 Jun 86, sub: AE/RE Conference, with attachments, unmarked box; Memo, Michael F. Iarosis to Brig Gen Tag El Sir, 15 Feb 86, sub: Progress to 15 February 1986, W-4-10; both in TAD-RHA.

⁷⁷ Ellis to Morris, 30 Jan 79, p. 2.

Division also participated in a U.S. Army Military Training Requirements Survey conducted for the government of Nigeria.⁷⁸ Near mid-decade, the division began a cooperative program with the Voice of America that expanded throughout the rest of the decade.

In addition to these projects, the Middle East Division sought to support the Agency for International Development (and the State Department's Trade Development Program) by providing it with the benefits of the division's experience in the region. The division set up a computer-aided cost-estimating system and established a set of unit-price books for African countries, much as it had done in Saudi Arabia. In 1984, the division sent estimators to Sudan, Somalia, Kenya, Cameroon, and Senegal to gather raw data to construct the cost-estimating system. The system provided current and reliable cost information for estimating work in these countries.⁷⁹

Inside Saudi Arabia, the Middle East Division managed a small construction project in support of a civilian governmental organization. The United States Geological Survey (USGS), a component of the Department of the Interior, had maintained a delegation in Jiddah since 1963. Its staff assisted the Saudi Arabian government's Ministry of Petroleum and Mineral Resources with geological investigations in the kingdom. Early in 1980, the USGS asked the Middle East Division to act as its agent in construction of administrative facilities and housing for its personnel in Jiddah. In the spring, the division awarded a design contract to the joint venture STV/Lyon Associates. Two years later, on 23 March 1982, the division awarded a \$31.9 million contract to Development International Trade Company Ltd. (DITCO) for the first-phase construction of the USGS facilities.⁸⁰

The division's project for the USGS was unique—the only civil works construction undertaken in Saudi Arabia. All other projects involved military construction. Other aspects of the project were all too typical. Construction was delayed for a full year after the award of the contract in March 1982 because local Saudi authorities required that the contractor obtain a building permit before construction began. The authorities insisted on reviewing all plans and specifications, surveying the property, and stamping all design drawings. Even after the contractor obtained the permit, local authorities changed the boundary limits to decrease the amount of land available for the complex. That introduced further delays because several facilities had to be redesigned to accommodate the changed dimensions and locations of buildings.⁸¹

The construction contractor, DITCO, eventually subcontracted the project to Hanil Development of Korea, which successfully completed the work over

⁷⁸ Middle East Div (Rear), Hist Sum Rpt, 1983; "Study Takes MED Engineers to Gabon," *Mt. Weather Bulletin*, March-April 1983.

⁷⁹ "MED Estimators on the Road to Africa," *Middle East Division News*, October 1984.

⁸⁰ Ellis to Morris, 24 May 80, p. 2; "USGS Work Underway in Jeddah," *Mt. Weather Bulletin*, March-April 1982; Albro to Edward J. Grant, United States Geological Survey (USGS), 9 May 82, p. 1, Walker box 6, OH, HQ USACE. "USGS Complex Turned Over to Client," *Middle East/Africa News*, Fall 1986.

⁸¹ "USGS Complex Turned Over to Client," *Middle East/Africa News*, Fall 1986.

the summer of 1986 at a final cost of \$33 million. The completed compound for USGS personnel consisted of an office building with a laboratory for geological science, a power plant, water and sewage treatment plants, and a warehouse and shop building. In addition, construction included ten villas, a mosque, a recreational facility, and a building with units to house as many as twenty-three persons on temporary duty.⁸²

Refocusing the Organization, 1981–1986

The Middle East Division had originated in 1976 to manage the prodigious construction program developing in Saudi Arabia. Construction in Saudi Arabia remained the largest part of the Middle East Division's operations through the first half of the 1980s. By mid-1981, the division had completed construction worth \$4.3 billion in the kingdom but estimated that it still had \$15.6 billion programmed for the coming years. The division had already awarded contracts for \$5.6 billion of the remaining construction, with another \$5.7 billion under design and an additional \$3 billion in proposed programs.⁸³ As Brig. Gen. Ames S. Albro Jr. assumed his position as division commander in the summer of 1980, he faced the immediate task of renewing with the Saudi government the agreement that governed construction in the kingdom.

Extending the Engineer Assistance Agreement

The Engineer Assistance Agreement, originally signed through an exchange of notes in May–June 1965, came up for renewal in May 1981. The two governments had extended the EAA for five years in 1973 and again at the end of that term for an additional three years. In both instances, the extension took place with no changes in the terms of the agreement. Indeed, during discussions in 1977, the general director of military works, Maj. Naser F. Al Faisal, indicated a reluctance to reassess the terms of the agreement. Such discussions, he observed, might provoke pressures within Saudi Arabia sufficient to erode the privileged position of the Corps of Engineers in the country.⁸⁴

When General Albro took command of the division, such negative pressures were certainly stronger as the deadline for the EAA renewal approached. In December 1980, Albro opened a formal exchange of letters with Al Faisal to address an extension. Subsequent exchanges revealed that both parties wanted modest modifications in the agreement but found the relationship's general terms satisfactory. On 21 April 1981, with the existing agreement set to expire on 24

⁸² Ibid.

⁸³ Albro, "House Foreign Affairs Subcommittee on Europe and the Middle East," 22 Jul 81, pp. 1–3.

⁸⁴ "Saudi Arabian Programs," [1981], p. 8, SH-6-93-0006, TAD-RHA; Morris to Lt Gen H. M. Fish, 17 Jun 77, box 6, access. no. 77-86-0008, WNRC.

May, Al Faisal recommended a one-year extension to provide additional time for discussions. Albro concurred.⁸⁵

Discussions continued into the autumn of 1981. By then, both Albro and Al Faisal had reached the same conclusion: A simple extension with no changes offered the solution least likely to raise questions about the agreements. Any changes might lead to challenges that would disrupt the satisfactory working arrangements that had evolved since 1965. The two parties settled on an extension of three years to carry construction through 1983–1984, when Albro expected the Saudi Arabian construction to peak and then decline through the rest of the decade. Albro anticipated that all construction would end in FY 1987 and that the division would then need another year and a half to complete all activities in Saudi Arabia. As the division's work waned, modifications of the EAA might prove superfluous.⁸⁶

Adjusting Staff Size

While General Albro could contemplate how declining demands in the future for the division's services might affect EAA revisions, the division had to cope with the still-increasing pace of construction placement in 1980–1981. The division therefore still had to recruit aggressively to ensure it had sufficient staff to manage existing tasks. In 1981, the division added an average of thirty-one people a month. By early December 1981, staff strength had risen to 1,565, with about 25 percent in the rear headquarters in Virginia. Most overseas personnel still served in Saudi Arabia, with a very small number in other Middle Eastern countries. Over the first nine months of 1982, the division added another one hundred fifty positions.⁸⁷

⁸⁵ Albro to Al Faisal, 14 Jan 81; Al Faisal to Albro, 14 Feb 81; Albro to Al Faisal, 14 Mar 81; Telex, Clark J. Hulce and Albro, [21?] Apr 81, sub: Extension of Engineer Assistance Agreement (EAA), and related docs; Fact Sheet, EAA, Purpose: To Respond to an Inquiry by the House Foreign Affairs Subcommittee on Europe and the Middle East Regarding Renegotiation of the EAA, 30 Jul 81; all in box 28, access. no. 77-92-0002, WNRC.

⁸⁶ Fact Sheet, The Engineer Assistance Agreement (EAA), 27 Aug 81, unmarked box, OH, HQ USACE; Memo, Donahue, 22 Sep 81, sub: Customs Exemption Status, p. 1, K-8-4, TAD-RHA; Middle East Div, "Information Booklet," Dec 81, pp. v–3ff; Fact Sheet, Corps Procurement and Contracting Procedures in Saudi Arabia, 30 Nov 81, box 3, access. no. 77-92-0002, WNRC; DF, A. L. Maier, 31 Oct 78, sub: Special Provisions Review, New Required/Standard Clause, SP-44, Use of Saudi Arabian Firms and Products, E-5-2, TAD-RHA; Memo, Albro to Al Faisal, 6 Apr 82, sub: RFP for Chilled Water Treatment Plant at King Khalid Military City, and Future RFPs, Kingdom of Saudi Arabia, K-8-5, TAD-RHA; Albro, "House Foreign Affairs Subcommittee on Europe and the Middle East," 22 Jul 81, p. 3; Albro to Richard W. Murphy, U.S. Amb, 1 Nov 81, unmarked box, OH, HQ USACE; Middle East Div, "Information Booklet," Dec 81, p. II-3; "Engineer Assistance Agreement (EAA)," box 3, access. no. 77-92-0002, WNRC; Albro to Bratton, 12 Aug 81, p. 5, Walker box 6, OH, HQ USACE.

⁸⁷ Memo to Ch, USMTM, 2 May 82, sub: Middle East Division Position "Stovepiping" in European Command (EUCOM) Area Security Assistance Organization (SAO), Walker box 6, OH, HQ USACE, gives the division's total staff strength as 1,774. "Personnel Summaries for Civilians and Military, Review and Analysis," Oct 82, box 11, access. no. 77-92-0001, WNRC, give a figure lower by about 100. The figures on average recruitment per month for 1981 and 1982 come from Middle East Div,

Despite Saudi Arabia's preeminence in dollar terms, the division had already begun in 1980 to plan for the end of this work. In January 1980, The division's commander, General Ellis, noted that design for two of the largest projects, King Khalid Military City and King Abdulaziz Military Academy, had reached 90 percent. This meant that the division would need fewer and smaller architect-engineer firms in the future, selected for their expertise in design of a particular type of facility. Just two months later, Ellis closed the Jiddah District. He also commissioned a study, completed in June 1981, that clearly depicted a downward trend in the division's volume of work after 1983–1984. In June 1982, Ellis' successor as commander of the Middle East Division, General Albro, began to prepare an orderly reduction of the Engineering Division in Virginia in the face of the declining volume of design work. Upon arriving in Riyadh as division commander in August 1982, Brig. Gen. George R. Robertson quickly initiated his own study to explore the implications of the changing workload and to offer recommendations for reorganization. While his staff examined the situation, Robertson informed Al Faisal that, in the absence of an "appropriate sustaining workload," the division would soon present a plan to reduce the number of staff positions.⁸⁸

In the spring of 1983, the Middle East Division developed plans to consolidate the Engineer Logistics Command (ELC) with the division's forward headquarters in Riyadh; to augment the Riyadh District to support the division's work in Saudi Arabia; and to begin moving headquarters functions from Saudi Arabia to Virginia, deferring transfer of the commander's flag until June 1984. Robertson explained through the division's newsletter that staff salaries and other operating expenses came out of a supervision and administration fee paid by the Saudis as a percentage of the cost of construction. As the dollar value of the programs declined in the years after 1983 so too did the division's income. In the absence of additional work, the division had a responsibility to plan for reductions in staff and expenses.⁸⁹

The dissolution of the Engineer Logistics Command took place on schedule. In the summer of 1983, it appeared that transfer of the headquarters command to Virginia might proceed more rapidly than initially proposed. Construction of an airfield at Hafar al Batin and of facilities for the third brigade at King Khalid Military City had been deferred. In August, the Middle East Division issued to division employees in Virginia the first notices of a reduction in force as a step toward the proposed elimination of eight hundred positions over the next two years. Predictably,

"Organizational and Workload Study for International Projects" [draft], May 85, p. 15, unmarked box, TAD-RHA; Albro to Bratton, 16 Dec 81, p. 2, Walker box 6, OH, HQ USACE.

⁸⁸ Ellis to Morris, 11 Jan 80, p. 13, Walker box 6, OH, HQ USACE; Permanent Order no. 4-1, 13 Mar 80, sub: Jiddah District Discontinued, Gen Files 54-2, OH, HQ USACE; Cain, Fact Sheet, Middle East Div Construction Trends, 1976–1980, 30 Jun 81, box 11, K-8-4, TAD-RHA; Albro, Cdr's Periodic Ltr, 5 Jun 82, p. 4, and Robertson to Bratton, 15 Feb 83, pp. 2–3, both in Walker box 6, OH, HQ USACE; Middle East Div Cdrs Conf Bfg Book, "Status of Phase Down and Consolidation Planning (Division Forward), 15 October 1983," unmarked box, R&D File 3161, TAC.

⁸⁹ Middle East Div Cdrs Conf Bfg Book, 15 Oct 83; "Robertson Answers Questions on MED's Future," *Mt. Weather Bulletin*, March-April 1983.

the action generated pessimism and produced an exodus of people seeking positions with a more secure future.⁹⁰

Managing Work from Forward and Rear

In early 1981, the division had to balance its management of resources between the predictable decline of work in Saudi Arabia and the growing volume of work elsewhere in the region. Two years before the reduction in force imposed in 1983, General Albro had placed his deputy in Virginia, Col. James B. Hall, in charge of managing the programs in Egypt and Oman, where work for the Rapid Deployment Joint Task Force was developing into a major new responsibility for the division. Administratively, the reorganization made sense. The two active districts in Saudi Arabia, at Riyadh and Hafar al Batin, had their hands full with over \$700 million in construction placement annually, all funded by the Saudi government.⁹¹ The projects in Egypt and Oman, by contrast, represented a part of the congressionally appropriated funds.

Meeting all of the governmental regulations associated with congressional funding made careful tracking of the money imperative. Additionally, the other agencies involved in the construction program were located in Washington. Politically, the reorganization addressed Saudi sensitivities to the division's involvement in work in other countries. Fixing responsibility for the U.S.-funded programs in the office in Virginia separated management of them from the Saudi-funded work and provided a clear distinction on overhead costs. As the prospect of work outside Saudi Arabia increased for the division, that separation became increasingly important.⁹²

Shortly after Col. Claude D. "Buck" Boyd III arrived in mid-December 1981 to replace Colonel Hall in Virginia, General Albro placed him in charge of all work outside Saudi Arabia. Albro retained direct control of the work in Saudi Arabia. Only one non-Saudi area, the field office in Jordan (which closed in August 1984) reported directly to division headquarters in Riyadh. This arrangement gave Boyd what he wanted, a separate, identifiable organizational element as the headquarters unit supporting the division's non-Saudi work. Although created in 1982, the new management element officially became the Southwest Asia Construction

⁹⁰ Robertson to James C. Shirey, Pres., Russell & Axon, 15 Jun 83, p. 2, Walker box 6; Robertson to Bratton, 9 Aug 83, p. 3, Walker box 6; Schroder to Otaishan, 24 Sep 83, sub: Middle East Division S&A Costs, Walker box 7; all in OH, HQ USACE. "Reduction in Force: How It Affected MED Employees" and "Wheeler Readies Engineering for New Overseas Work," both in *Mt. Weather Bulletin*, Fall 1983.

⁹¹ Memo, Albro to HQDA, 18 Apr 81, sub: Management of Construction Programs in Oman & Egypt, unmarked box, OH, HQ USACE. Intervs, Moorhus with Edinger, 9 Mar 95, p. 18; authors with Adrian Hromiak, 6 Feb 94, pp. 41-42; and Moorhus with Boyd, 9 Nov 95, pp. 24-25.

⁹² For this and the following paragraph, see Fact Sheet, Discussion of Work in Oman, 31 Dec 80, Walker box 6, OH, HQ USACE; Robertson to Bratton, 15 Feb 83. Intervs, Moorhus with Edinger, 9 Mar 95, p. 18; authors with Adrian Hromiak, 6 Feb 94, pp. 41-42; and Moorhus with Boyd, 9 Nov 95, pp. 24-25.

Management Office (SACMO) only in 1983.⁹³ Wayne Henry, the chief of the Construction Programs Branch at the rear office, directed SACMO's work. A contracting officer and staff located in Virginia, not the staff at the division headquarters in Riyadh, supported area office personnel. The rear office staff performed construction, comptroller, and personnel activities. Only if the work in Oman or Egypt were to grow substantially would the Corps consider establishing a "mini" district in Cairo to supervise work in both countries.⁹⁴

In mid-1983, the Middle East Division's rear headquarters in Virginia began searching for office space to replace quarters on Mt. Weather leased from the Federal Emergency Management Agency. In the autumn, the division announced that it would relocate its staff to a building in Winchester, twenty-five miles southwest of its current location. The move, in April 1984, contributed significantly to savings in operating costs.⁹⁵

In the autumn of 1983, the Middle East Division hired Ralph Wheeler as chief of engineering in Winchester. During the selection process, Wheeler had expressed concerns about the division's long-range prospects. In conversations with the deputy chief of engineering, Dick Wiles, Wheeler became convinced that the division could find work if it pursued leads with potential customers in its area of operations. Wheeler and Colonel Boyd supported Wiles' recommendation to expand the Middle East Division's list of customers. To realize this objective, Wiles promoted the division's capabilities to both foreign and U.S. governmental agencies who had interests in the region. "Whenever we had an inkling of a project, I would write or send messages to the office of the military cooperation or the embassy or others and throw our hat in the ring."⁹⁶

In July 1984, Col. John M. "Jack" Dorr replaced Boyd as deputy and commander of division rear headquarters in Winchester. Dorr also supported Wiles' effort to generate additional work. He described Wiles as the division's "vice president for marketing," with responsibilities comparable to a position vital to growth in any private-sector company. Over the next several years, the effort led by Wiles contributed substantially to the division's new work in Bahrain, in Africa, for the Voice of America, and for other work in the region.⁹⁷

⁹³ Memo, Graham, 17 May 82, sub: After Action Report—General Albro's Visit, unmarked box, 1980–1992, TAD-RHA; Interv, Moorhus with Boyd, 9 Nov 95, pp. 24–25; Memo, Henry, 10 Jan 83, sub: Reorganization of Construction Programs Branch, unmarked box, TAD-RHA. For SACMO's growing share of the work, see Middle East Div, "Organization Study, 1983," n.d., p. 4, E-1-1, TAD-RHA; Middle East Div Cdrs Conf, 15–17 Oct 83, "Southwest Asia Construction Management Office, Middle East Division (Rear)," Bfg charts, maps, and tables, unmarked box, TAD-RHA.

⁹⁴ Fact Sheet, Discussion of Work in Oman, 31 Dec 80, Walker box 6, OH, HQ USACE; Robertson to Bratton, 15 Feb 83. Intervs, Moorhus with Edinger, 9 Mar 95, p. 18; authors with Hromiak, 6 Feb 94, pp. 41–42; Moorhus with Boyd, 9 Nov 95, pp. 24–25.

⁹⁵ "MED to Move to Winchester," *Mt. Weather Bulletin*, Fall 1983; "MED's Relocation Saves \$1.6 Million," *Middle East Division News*, May-June 1985.

⁹⁶ "Wheeler Readies Engineering for New Overseas Work"; Intervs, Moorhus with Wiles, 21 Oct 93, pp. 132–34, and with Joan Kibler, 11 Jan 95, p. 17.

⁹⁷ Quote from Interv, Grathwol with Dorr, 11 Aug, 12 Sep, 26 Sep, 31 Oct 94, pp. 114–20. Intervs, Moorhus with Wiles, 21 Oct 93, pp. 132–34, and with Kibler, 11 Jan 95, p. 17.

Dorr and Wheeler shared concerns about the division's high overhead costs. In Dorr's judgment, the Winchester staff was living beyond the revenues it would generate in the near future. To be attractive to potential customers, the division had to cut expenses, a task that Dorr approached "with a big cleaver." A self-described "nitpicker" on issues of cost, Dorr marked up each month's budget report with numerous questions and demands for explanation. He reduced staff by attrition, expanded the responsibilities of some full-time positions to cut down on part-time staff, and reduced other positions from full to part time.⁹⁸

A projection from early in 1984 put the total value of all of the Middle East Division's non-Saudi projects at over \$385 million. This was small when compared with the estimated total costs for the Saudi program in the billions of dollars; but in contrast to the Saudi program, the non-Saudi work retained at least the possibility of growing. By August 1984, construction at both King Abdulaziz Military Academy and at King Khalid Military City was over 90 percent complete while the MODA and RSNF headquarters complexes both exceeded 80 percent completion. Of the projects, new housing for the Royal Saudi Naval Forces alone stood at less than 50 percent completion.⁹⁹

In mid-1984, the division began to track and to analyze the prospects outside Saudi Arabia, categorizing the pending work as "firm," "high potential," or "possible future projects." Analysts estimated that to remain viable the division needed design assignments worth \$12.2 million a year. By December, authorized and funded work for FY 1985 had reached \$12.4 million, with another \$3 million in authorized work for which funding was pending. The total, \$15.4 million, made up the division's firm workload. For FYs 1986 and 1987, including the totals for pending "high potential" work, the division's analysts concluded that the division had sufficient work to sustain its engineering operations and its staff at division-level strength.¹⁰⁰

By October 1983, General Robertson knew that opinion in Washington favored delaying the transfer of command back to Virginia for a year beyond June 1984. In December, Chief of Engineers Lt. Gen. Joseph K. Bratton confirmed that he wanted the division's headquarters and commander to remain in Riyadh until the summer of 1985. He also announced that he would appoint another general officer to command the division from Riyadh when Robertson completed his tour. Throughout the transition, the division would maintain a headquarters forward office distinct from the Riyadh District office. Despite Bratton's decision, Robertson remained committed to the early and progressive transfer of the headquarters support staff to Virginia.¹⁰¹

⁹⁸ "Wheeler Readies Engineering for New Overseas Work"; Interv, Grathwol with Dorr, 11 Aug, 12 Sep, 26 Sep, 31 Oct 84, pp. 114, 116–19.

⁹⁹ Cost estimates taken from Fact Sheet, Potential Future Projs, 6 Apr 84, in Robertson Bfgs; "Briefing for HRH Prince Sultan bin Abdulaziz, 2d Deputy Premier and Minister of Defense and Aviation," Aug 84, unmarked box, TAD-RHA.

¹⁰⁰ "Maintaining Engineering Capability," Dec 84, pp. 1 (quotes), 4–5, unmarked box, TAD-RHA.

¹⁰¹ Middle East Div Cdrs Conf Bfg Book, 15 Oct 83; Memo, Bratton, 6 Dec 83, sub: Request for MED Reorganization, unmarked box, TAD-RHA.

With headquarters functions incrementally moving from Riyadh to Virginia, and with construction projects active in Saudi Arabia and in other countries around the region, the Construction Division had to operate at two levels of authority. For programs continuing in Saudi Arabia, the Construction Division at headquarters functioned as a division-level element, providing supervisory oversight and support for the Riyadh and Al Batin Districts, which remained directly involved in the projects. For the missions outside Saudi Arabia, the Construction Division functioned as a district-level element and provided direct support. Throughout 1984 and into 1985, the Construction Division had a suboffice in Virginia but remained in Riyadh as part of the forward headquarters.¹⁰²

The division also adjusted its management of design contracts. The Saudi Ministry of Defense and Aviation had long urged that Saudi firms play a larger role in construction projects financed by the Saudi government. Between 1981 and 1984, the division awarded two open-ended (indefinite delivery/indefinite quantity) contracts to Saudi Arabian architect-engineer firms for design work on numerous small projects. In the spring of 1984, the general director of military works, Lt. Col. Abdulaziz Otaishan, approved a plan advanced by the Middle East Division to negotiate and award an indefinite delivery contract for any future design requirements in Saudi Arabia.¹⁰³

Relocating Command Authority

In the summer of 1984, General Bratton named Brig. Gen. James W. Ray to succeed Robertson as commander of the Middle East Division. Ray took command in mid-October 1984, but the retention of a general officer billet did not slow the measured transfer of the command's focal point from Saudi Arabia to Virginia. In January 1985, Ray reassigned Col. Romaine E. "Rom" Schroder, deputy commander in Riyadh during the previous nineteen months, to Winchester "as part of the division's overall reorganization plan."¹⁰⁴

Under Ray's overall authority, Schroder supervised matters pertaining to programs in Saudi Arabia and general administrative or policy issues. Colonel Dorr, deputy commander in Virginia since the previous July, continued to exercise responsibility for all non-Saudi programs and for all contractual matters administered from that office. Schroder explained his relocation to division staff as an effort "to make the transition smoother as the division readies to pull out of Saudi." It was "another visible symbol that the rest of the division headquarters really is moving

¹⁰² Henry to Comptroller, 15 Feb 84, sub: Request for Reorganization of Construction Division (Rear), unmarked box, TAD-RHA; "News Briefs: Office Names Change," *Middle East Division News*, August 1984.

¹⁰³ Robertson to Otaishan, 4 Jun 84, sub: Saudi Arabian Architect-Engineer (A-E) Selection for an Open-Ended Contract, K-8-3, TAD-RHA.

¹⁰⁴ "Ray Leads Middle East Division," October 1984, and "Schroder Transfers to Winchester," January 1985, both in *Middle East Division News*.

[to Virginia].” Shortly after Schroder’s transfer, the Construction Division also relocated from Riyadh.¹⁰⁵

Despite the downtrend of work in Saudi Arabia, the Middle East Division still administered about eighty construction contracts worth approximately \$700 million in construction placement in 1985. The division began the year with a total work force of 1,173, down from more than 1,300 in 1984. In May, the division still maintained a staff of 823, plus dependents, in the kingdom but planned to reduce those numbers to under 500 by the end of the year.¹⁰⁶

Throughout 1985, the division pursued work outside Saudi Arabia as opportunities arose. When the New York District of the Corps’ North Atlantic Division needed help with a new Army installation at Fort Drum in Upstate New York, the Middle East Division provided design support. Specifically, the division undertook to negotiate and award architect-engineer contracts for the industrial and aviation packages programmed for FY 1987. The Fort Drum project had a budget estimate of \$1.2 billion, making it comparable in scope to some of the projects that the Middle East Division had supervised in Saudi Arabia.¹⁰⁷

The division’s involvement in the Fort Drum project entailed conducting two studies. The first examined precast construction’s applicability to family housing in the project. The second sought lessons learned in the Saudi Arabian experience that might have relevance for the work at Fort Drum. Middle East Division personnel also designed an addition to a health clinic and a new child development center.

Consolidation and change occurred rapidly for the division in mid-1985. On 1 May, Corps of Engineers headquarters issued the order, effective 1 July, to discontinue the Al Batin District, which had supervised construction at King Khalid Military City since 1977. Supervision of the remaining KKMC work passed to the Riyadh District, the only district left in Saudi Arabia. On 1 July, the Middle East Division officially relocated its headquarters from Riyadh to Winchester, Virginia. Because the division still had substantial work in Saudi Arabia, the chiefs of several headquarters elements—including construction and personnel—remained temporarily in Riyadh even though they had divisionwide responsibilities. Other elements that had more parochial responsibilities—safety, provost marshal, liaison—remained because their functions were closely linked to the Riyadh District.¹⁰⁸

¹⁰⁵ Quotation from “Schroder Transfers to Winchester”; “News Briefs: Construction Reorganizes,” *Middle East Division News*, March–April 1985.

¹⁰⁶ Ray to Otaishan, 27 Mar 85, 22 May 85, sub: Extension of the Engineering Assistance Agreement, both in K-8-3, TAD-RHA; Schroder, “Annual Historical Summary Report [for 1985],” 1 Apr 86, Current Files, OH, HQ USACE; Bfg, Middle East/Africa Projects Office [Oct 86], unmarked box, TAD-RHA (hereafter cited as MEAPO Bfg [Oct 86]).

¹⁰⁷ For this and the following paragraph, see “MED Assists New York District on Fort Drum,” January 1985, and “MED Provides More Fort Drum Design,” March–April 1985, both in *Middle East Division News*.

¹⁰⁸ Permanent Order no. 12–1, 1 May 85, sub: U.S. Army Engineer District, Al Batin . . . , Gen Files 32-1, and no. 8–1, 20 Mar 85, sub: U.S. Army Engineer Division, Middle East . . . , Current

Most important, General Ray remained in Riyadh and continued to command the division. Construction placement in Saudi Arabia for the fiscal year, just entering its final quarter when the headquarters relocated, approached \$893 million. For the succeeding fiscal year, 1986, the division projected a sharp drop to \$290 million in construction placement. The Riyadh District supervised the work through its thirteen field offices.¹⁰⁹

In conjunction with all these changes, the division went through another round of personnel cuts. Plans called for the elimination of twenty-three existing spaces, only two of which were occupied. Reduction-in-force letters were scheduled to go out by 1 October. Even with the limited number of people being formally discharged, the specter of job loss hurt morale in the organization. The end of the year found the division's strength under eight hundred with fewer than two hundred remaining in Saudi Arabia.¹¹⁰

Within a few weeks of the official transfer of division headquarters to Virginia, General Bratton's successor as chief of engineers, Lt. Gen. E. R. Heiberg III, appointed General Ray as the new commander of the Corps of Engineers' Europe Division (EUD), headquartered in Frankfurt, West Germany, a position that had opened unexpectedly. The appointment took effect on 1 October; for ten days, General Ray commanded both the Middle East Division and the Europe Division. On 10 October, Heiberg placed Colonel Schroder in command of the Middle East Division but retained Ray as "Principal Assistant Responsible for Saudi Arabian Programs" to the chief of engineers.¹¹¹

The transfer of division headquarters out of Saudi Arabia marked an end to a very long chapter in the history of the Army engineers in the region. Although the engineer presence continued, for the first time since February 1952, the Corps of Engineers had no division headquarters located in the Mediterranean and Middle East area of operations. Although the chief of engineers retained General Ray as a principal adviser on Saudi affairs, command of the division had again reverted from a general officer to a colonel. Outside Saudi Arabia, the division anticipated \$46 million in construction placement for FY 1985 and \$56 million for the following

Files, both in OH, HQ USACE; "Headquarters Moves to Winchester," *Middle East Division News*, May-June 1985.

¹⁰⁹ Col Terence. J. Connell, "Change in Organizational Structure of Middle East Division," 12 Jul 85, box 54-2, Gen Files, OH, HQ USACE; Ray to Sheikh Abdul Rhaman Abu Haimid, 10 Jul 85, sub: Meeting with Sheikh Abu Haimid, 25 February 1985, K-8-3, TAD-RHA; Permanent Order no. 12-1, 1 May 85; "Saudi Arabia: Still a Healthy Program" and "Headquarters Moves to Winchester," both in *Middle East Division News*, March-April 1985.

¹¹⁰ "This Summer's RIF: Its Effect on the Work Force," May-June 1985, and "Managing Finances in Fiscal 1986," July-August 1985, both in *Middle East Division News*; Interv. Moorhus with Ronald Friestad, 7 Feb 94, pp. 18-19; Ray to Otaishan, 22 May 85; Schroder, "Annual Historical Summary Report [for 1985]"; MEAPO Bfg [Oct 86].

¹¹¹ "Ray to Command Europe Division," "MED to Remain in Winchester," and "A Year of Change at MED," all in *Middle East Division News*, July-August 1985.

year.¹¹² Still, the work in Saudi Arabia was declining faster than the work in other countries was growing and the future of the organization was under scrutiny.

¹¹² “Saudi Arabia: Still a Healthy Program.”

15

FROM DIVISION TO MIDDLE EAST/ AFRICA PROJECTS OFFICE, 1985–1991

Months before the chief of engineers appointed Col. Romaine E. Schroder to succeed Brig. Gen. James W. Ray in mid-October 1985 as commander of the Middle East Division, the leadership of the Corps of Engineers began questioning the need to maintain a full-fledged division in the Middle East. As the debate developed throughout 1985, Middle East Division personnel argued forcefully that, despite the decline in work in Saudi Arabia, the U.S. military and the Corps of Engineers would be best served by preserving the organization as a full-fledged division. By the division's own projections, work in the region seemed adequate to support a small division. Nonetheless, the Middle East Division passed out of existence, succeeded by a district-level operation which came to bear the name Middle East/Africa Projects Office (MEAPO), with headquarters in Winchester, Virginia.¹

In providing engineer services in the region, the Middle East/Africa Projects Office completed the work in Saudi Arabia; continued the expansion of its responsibilities into other areas; and, late in the decade, addressed a series of administrative changes initiated by the Office of the Chief of Engineers in Washington. By 1991, circumstances in the Middle East had changed so dramatically that the chief of engineers decided to re-create a division-level organization to manage military construction for the United States and its allies in the area.

Transition to the Middle East/Africa Projects Office

In early 1985, Corps headquarters in Washington began the debate over the future role of the Corps of Engineers in the Middle East by undertaking an assessment of its mission in the region. In February, David A. Spivey, chief of the Policy Planning Branch in the headquarters' Engineering and Construction Division, and E. Scott Chronister, chief of the Organization and Studies Branch in Resource Management, submitted a proposal for a confidential study, "The Future of the Corps of Engineers

¹ For this and the next three paragraphs, see E. Scott Chronister and David A. Spivey, "Study Proposal: The Future of the Corps of Engineers in the Middle East," 21 Feb 85; Memo, Chronister and Spivey to Maj Gen Hatch, Maj Gen Wall, Brig Gen Ray, Col Connell, Mr. Loschialpo, 13 May 85, sub: Draft Report on the Study of the Future of the Corps of Engineers in the Middle East; Chronister and Spivey, "The Future of the Corps of Engineers in the Middle East, Draft," May 85, introduction; all in Current Files, Transatlantic Division–Resource Management (TAD-RM).

in the Middle East.” Maj. Gen. Mark J. Sisinyak, director of engineering and construction, approved the study on 13 March, with a schedule that would give him the results to present to the chief of engineers in late May.²

The Chronister-Spivey study addressed four major questions: What was the near (two-year) and midterm (five-year) need for a Corps of Engineers presence or capability in the Middle East? What military, political, and other factors influenced the need for Corps involvement in the Middle East? What organizational options existed for the Corps that would allow it to respond to the needs in the region? Finally, what were the staffing and funding implications of the organizational options identified? Chronister and Spivey surveyed written materials and interviewed thirty-six people, including the deputy commander at the time, Colonel Schroder; the division’s current commander, General Ray; and a former commander, Brig. Gen. Ames S. Albro Jr. The lone civilian interviewee from the Middle East Division was its chief of construction, William E. Crouthers.³

In a draft report prepared in May, Chronister and Spivey concluded that the work available to the Middle East Division outside Saudi Arabia would be limited in volume and would consist of a collection of projects spread out over a wide geographic area. The overhead costs associated with the dispersion of projects in widely separated, relatively underdeveloped countries would be high. They projected that the dollar value of the work over the next five years would be insufficient to sustain a full-service division such as the existing Middle East Division, which had just over one thousand employees at the time.⁴

Having concluded that the division was not sustainable in its existing form, Chronister and Spivey proposed that the remaining work in Saudi Arabia continue under the existing organization in Virginia until the work generated too little income to support its overhead staff. All work in the region outside Saudi Arabia “can and should be dealt with separately.” Reasoning that the volatility of the workload in the region dictated that only an organization with a large, stable existing workload could handle the fluctuations, the two analysts proposed that the Corps of Engineers’ South Atlantic Division or its Europe Division take over the Middle East Division’s work.⁵

Corps headquarters circulated the study to a very limited number of people, including the Middle East Division commander, General Ray. As Ray’s copy of the

² Chronister and Spivey, “Study Proposal,” 21 Feb 85; Memo, Chronister and Spivey to Hatch et al., 13 May 85; Chronister and Spivey, “The Future of the Corps of Engineers in the Middle East, Draft,” May 85, introduction.

³ Chronister and Spivey, “The Future of the Corps of Engineers in the Middle East, Draft,” May 85, introduction, app. C.

⁴ Memo, Chronister and Spivey to Hatch et al., 13 May 85; Fact Sheet, Realignment, Middle East Div, USACE [United States Army Corps of Engineers], Riyadh, Saudi Arabia, and Winchester, Virginia, attached to DF, Maj Gen Mark J. Sisinyak, 26 Jun 85, sub: Memorandum for Transmission to Secretary of the Army—HQ USACE Study on Future of the Corps of Engineers in the Middle East and Africa, Current Files, TAD-RM.

⁵ Chronister and Spivey, “The Future of the Corps of Engineers in the Middle East, Draft,” May 85, introduction.

draft report passed to the staff members with whom he shared it, it accumulated an array of marginal comments that sharply challenged the assumptions and conclusions therein.⁶

Arguments for Division Status

In responding to the Chronister and Spivey study, Middle East Division personnel argued that the demand for engineer services in the Middle East region would continue, an assertion based on “30 years of the Corps of Engineers [experience] in the Middle East, Africa, the Mediterranean area and Southwest Asia.” The division’s defenders cited the 1984 edition of *World Military Expenditures and Arms Transfers*, which indicated that military spending, even adjusted for inflation, was growing at 3.1 percent annually and would exceed \$1 trillion in 1985. Moreover, the countries with the highest per capita spending on defense in the early 1980s were, in descending order, Saudi Arabia, Qatar, Oman, United Arab Emirates, Israel, Kuwait, and Libya. Advocates for the division asserted that “short term economic downturns,” such as the drop in oil prices cited by Chronister and Spivey, might slow but “will not stop these trends.”⁷

The division’s analysts also took a very different view of the volume of work currently available. Whereas the headquarters report found an estimated value of \$7.593 million in “known firm” design for FY 1986, the division assessed the “firm/funded” design workload at \$13.209 million. The two studies were even farther apart in evaluating work that was less definite. The Chronister-Spivey study used \$5.316 million as an estimate of the “pending” design work. The division calculated “high potential” design—with a list of nine projects, including Voice of America, Egypt, Kuwait, Bahrain, U.S. Central Command (CENTCOM), and Oman—as totaling \$31.193 million, nearly six times the value of work anticipated by the headquarters analysts.⁸ The two parties differed on anticipated construction placement for future years as well.

The division also argued that its staff offered unique capabilities that the Corps of Engineers should retain. The staff had extensive experience designing facilities appropriate for the region’s harsh environments. They had developed rare expertise in the design standards and criteria of the region and had the skills needed to manage construction in remote, underdeveloped areas with little logistical support. Staff members were familiar with regional customs, materials, products, and standards. They were practiced at dealing with local officials, and several were fluent in local languages. These assets meant that “the Division has been able to put engineers on

⁶ Ibid.

⁷ Middle East Div, “Organizational and Workload Study for International Projects” [draft], May 85, pp. 2, 13, unmarked box, Transatlantic Division–Records Holding Area (TAD-RHA), Winchester, Va.

⁸ The comparisons are based on figures given in Chronister and Spivey, “The Future of the Corps of Engineers in the Middle East, Draft,” May 85, “Engineering Workload” section, and Middle East Div, “Organizational and Workload Study for International Projects” [draft], May 85, p. 7.

the ground, fully operational, within 48 hours notice.” Not surprisingly, the staff who prepared the reply to the Chronister-Spivey study concluded that “the Middle East Division is a valuable Corps resource which should be continued in the best interests of the Corps of Engineers to manage a major portion of international construction.”⁹

When General Sisinyak briefed the chief of engineers, Lt. Gen. E. R. Heiberg III, on 31 May, Heiberg asked for “a formal study on the Corps organization appropriate to respond to future projects in the Middle East and Africa.”¹⁰ To the study team of Chronister and Spivey, Heiberg added a former commander of the Riyadh District (1981–1983), Col. James R. “Bob” Whitley, who was serving as executive director of the Engineering and Construction Division at Corps headquarters. Heiberg asked that the team examine the option of retaining a division to manage future projects in the Middle East and Africa. Other options involved reassigning that responsibility to one of three other Corps divisions. On 8 and 9 August, representatives from each of the four divisions—Europe Division, Huntsville Division, South Atlantic Division, and Middle East Division—met in Winchester with Chronister, Spivey, and Whitley to review and discuss the practical questions involved in realigning engineer services in the Middle East.¹¹

Following that meeting, General Ray marshaled all of the Middle East Division’s arguments into a seven-page letter with attachments. Ray challenged the scenarios Spivey and Chronister advanced. He described as “meaningless” any formula for predicting the division’s viability based exclusively on an analysis of “firm non-Saudi” workload. “Because the visibility of the ‘firm’ non-Saudi workload is only months in advance,” it would never appear in time to weigh the predictions. Only by including possible work and by taking into account the “steady rise in workload and proliferation of customers” that the division had recently experienced could analysis, in Ray’s judgment, offer a sound basis for future planning.¹²

Ray further argued that, in addition to “cost and staffing factors alone,” analysts should consider the need for the Corps to maintain “an organization that can be responsive to future projects in the region while maximizing the economic use of USACE [United States Army Corps of Engineers] resources.” Measured by this consideration, the Middle East Division “clearly has a technical advantage over other Corps organizations. . . . If disrupted, it would be several years before another organization could rebuild a cohesive work force that would understand and be compatible with operations in the area.” Dissipating the talent assembled by the Middle East Division “would lead to inefficiency, and any manpower savings

⁹ Ibid.

¹⁰ Quotes from Memo, Col John H. Sullivan, [23 Jul 85], sub: Study of USACE Middle East/Africa Program Realignment Options, Current Files, TAD-RM.

¹¹ Ibid.; “Managing Finances in Fiscal 1986,” *Middle East Division News*, July-August 1985; Fax, Chronister to Schroder, 5 Aug 85, with attachments, Current Files, TAD-RM.

¹² Ltr, Ray, 26 Aug 85, sub: Study of USACE Middle East/Africa Program Realignment Options, endorsed by Schroder, unmarked box, TAD-RHA. Ray’s arguments are outlined in the five paragraphs that follow, and the quotes are from this document.

that others might forecast . . . pale in comparison to the potential for disruption in technical capability.”

The sensitive political dynamics that characterized the Middle East, Ray observed, meant that “any radical change in the present customer-Corps” relationship might frustrate, prejudice, or preclude future Corps involvement in the region. Even more significantly, any “disruption in the continuity of Corps activities” could provoke concern in Saudi Arabia and its neighboring states that the United States was altering its position concerning security assistance in the region.

The policies set by the Corps of Engineers should take into account the risks that were inherent in the politics of the area rather than assess them as impediments to operating there. Workloads in the region had always been hard to predict and had seldom been accurate beyond a single year. Citing planned construction activities funded by agencies of the U.S. government—the State Department’s program to upgrade security at embassies and the Agency for International Development’s plans for multimillion-dollar construction ventures in Africa—as well as the existing market in the region for facilities to support weapon systems, Ray asserted that the Corps of Engineers had an opportunity to develop new customers. The challenge for the Corps was “to convince these Agencies that the Corps is the best alternative to provide the full-service project management expertise they require; that we can accomplish it at a competitive price; and that we will deliver a quality product.”

Continuing his defense of the division, Ray noted that Winchester, Virginia, had the advantage of being located near many foreign embassies, which facilitated his staff’s contacts in making arrangements for their frequent travel in the region near all the foreign embassies. The division had succeeded in obtaining “passport and visa applications [in] an average processing time of seven days; one day service is not uncommon.” The extensive travel was no luxury. The staff accepted as part of their job the hardships of travel on short notice, the lack of a U.S. sponsor at the destination, frustrating customs procedures, language barriers, starkly different social customs, exposure to abnormal health risks, and family separations. Having the embassies close by eased at least some of the burden.

General Ray concluded that “a viable future workload exists in the Middle East/Africa and that this Division is both uniquely qualified and ideally located to extend to that work, and the broad range of customers involved, the special focus required for success.” Ray invoked five criteria that the Corps applied in evaluating architect-engineer firms: “professional qualifications necessary to perform the mission, specialized experience and technical competence in the type of work required, capacity to accomplish the work in the required time, past performance, experience in the geographic area.” Judging by these standards, the Middle East Division “clearly exceeds all other options” and deserved to be retained.

Despite General Ray’s arguments, General Heiberg chose not to preserve the division but did preserve the cohesive organization that the division had built. On 5 December 1985, Corps headquarters announced that a new Corps element, replacing the Middle East Division, would operate as a district-level entity under the South Atlantic Division beginning as early as 1 October 1986. The majority of the Middle East Division’s employees would remain in Winchester as part of the

new organization.¹³ For another nine months, the organization remained without a new name and continued to operate as the Middle East Division.

Status of Projects in December 1985

In late December 1985, General Ray's successor as commander for the reduced Middle East Division, Colonel Schroder, traveled to Atlanta to brief his new superior, the commander of the South Atlantic Division. Schroder briefly sketched the 35-year history of the Army engineers in the Mediterranean and the Middle East and named the countries and clients for whom the division performed work at that moment. He then offered details concerning three topics: the division's closeout efforts in Saudi Arabia, the extent of current work in countries outside Saudi Arabia, and the staffing levels the division would have to maintain to accomplish the range of its activity.¹⁴

In describing the status of the division's work in Saudi Arabia, Schroder mentioned the major construction projects either completed or "virtually completed." By the end of the month, contractors would complete work on the multistory addition to the Royal Saudi Naval Forces (RSNF) headquarters complex in Riyadh. The last remaining project at King Abdulaziz Military Academy, the water-treatment plant, was scheduled for completion in February 1986. At the naval bases, only the stadium at Jubayl was left unfinished. Contractors had work at the Ministry of Defense and Aviation (MODA) headquarters in Riyadh that would continue to the end of the summer of 1986. Work on the housing community for the Royal Saudi Naval Forces would last about as long. Work still remained at four locations for Peace Hawk/Peace Sun construction to support the Saudi purchase of American F-5 and F-15 aircraft. King Khalid Military City (KKMC) had the largest amount of unfinished work—\$150 million of a total anticipated placement for 1986 of approximately \$250 million remaining—including the centrum, a hospital, housing in two sectors, and the Engineer Center and School. The division administered a \$15 million construction support contract for KKMC. The Ordnance Program Division (OPD), the successor to the Saudi Arabia Mobility Program (SAMP) and the Saudi Ordnance Corps Program (SOCP), continued to support the Saudi Arabian Ordnance Corps.

Between December 1984 and Schroder's December 1985 briefing, the division had resolved 153 of the 331 contractor claims. It had concentrated effort on arriving at settlements with the seven contractors that had 54 percent of the dollar value of the claims. Resolving the remaining 178 claims would constitute a major part of the division's administrative task in closing out the Saudi program.

In addition to the programs remaining in Saudi Arabia, Schroder described for South Atlantic Division personnel the Middle East Division's programs in other

¹³ Schroder, "Annual Historical Summary Report [1985]," 1 Apr 86, p. 1, Current Files, Office of History (OH), HQ USACE, Alexandria, Va.; "MED to Remain in Winchester," *Middle East Division News*, July-August 1985.

¹⁴ For this and the following four paragraphs, see "Col. Schroder Briefing to SAD [Saudi Arabia District]," 23 Dec 85, unmarked box, TAD-RHA (hereafter cited as Schroder Bfg, 23 Dec 85).

TABLE 12—MIDDLE EAST DIVISION CUSTOMERS
DECEMBER 1985

	Minister of Defense and Aviation
Saudi Arabia	National Guard
	U.S. Geological Survey
Egypt	Egyptian Air Force/U.S. Air Force
	Egyptian Army
Egypt/Saudi Arabia	U.S. Navy
Sudan	Sudanese Air Force
Bahrain	Bahrain Defense Force
Kuwait	Kuwait Air Force
Oman	U.S. Air Force
Various, Middle East	U.S. Central Command
Various, Africa	Agency for International Development/Trade Development Program
	Office of the Assistant Secretary of Defense for International Security Affairs
Various	Voice of America

Source: "Col. Schroder Briefing to SAD [Saudi Arabia District]," 23 Dec 85, unmarked box, Transatlantic Division–Records Holding Area.

countries in its area of operation. Those projects had advanced, and the division had new offices about to open in Liberia and Morocco. Schroder named the division's clients and sketched the geographic expanse as shown in *Table 12*.

Schroder then outlined the Middle East Division's involvement in each of the non-Saudi programs. In Oman, the division had active work at four sites: Al Khasab, Seeb, Masirah Island, and Thamarit. The projects had an estimated value of \$271.8 million, with Masirah Island representing 56 percent of the total. All work in Oman was covered by congressionally appropriated funds for U.S. military construction to support CENTCOM's combat forces.¹⁵

In Kuwait, the division's projects included managing design and construction for an expansion of a computer facility and for a flight training school. The division had also agreed to arrange procurement, design, and construction management for

¹⁵ Ibid., p. 8, slide 38.

prefabricated steel shelters at four Hawk air-defense missile sites. The estimated value of work in Kuwait totaled \$27.1 million. Work in Bahrain included an air base for fighter aircraft and, under separate Foreign Military Sales (FMS) cases, programs for an underground command center (\$22 million) and a cantonment to house a new armored battalion (\$100 million).¹⁶

The Middle East Division also had projects in Africa. In addition to the expanding programs in Egypt, the division became active in new programs in Liberia and more broadly through the Africa Civic Action program. In Liberia, the division acquired a new mission in early 1985—a five-year construction program involving military housing for the Liberian Army under an FMS case. About \$14 million worth of work remained of the original \$40 million project, and the division expected to complete the work in a year. The division opened a resident office to supervise the work and awarded several construction contracts over the summer of 1985. One of the engineers involved in the project, Phil Dinello, observed that, when the housing was turned over to Liberian soldiers, they were visibly moved with gratitude. “It was touching and probably the only time in my career that I was involved in a project where the user was so elated to receive it.”¹⁷

The broader involvement in Africa grew out of the Africa Civic Action program devised by the Office of the Assistant Secretary of Defense for International Security Affairs (OASD/ISA) to encourage African military agencies to undertake construction to benefit their civilian populations. Schroder reported that as of December 1985 the division had Africa Civic Action projects pending for an airfield and primary schools in Niger, medical centers in Sierra Leone and Malawi, and other work on the Ivory Coast.¹⁸

In addition to work for foreign countries, the division also served the Voice of America, an element of the U.S. Information Agency. In 1984, VOA asked the Middle East Division to embark on a \$1.2 billion modernization program to upgrade its overseas transmitter installations and to construct several new broadcast stations. VOA programmed the construction over a five-year period as an effort to make high-quality, easily heard shortwave radio broadcasts available around the world. During FY 1985, the Corps managed \$2 million of design placement and \$3.4 million of construction placement for VOA projects. At the time of Schroder’s briefing, the division had projects pending for the VOA valued at \$22.1 million.¹⁹

¹⁶ Ibid., pp. 12, 15, slides 54, 56, 57, 66. Fact Sheets, Kuwait Flight Training Sch, 9 Apr 84; Computer Bldg (K-4) Expansion, Kuwait, 6 Apr 84; Miscellaneous Aircraft Support Facilities, Kuwait, 6 Apr 84; all in Brig Gen George R. Robertson, Middle East Division (Rear) Bfgs, 9–12 Apr 84, E-1-1, TAD-RHA, copy in R&D File 3151, Transatlantic Programs Center (TAC), Winchester, Va. (hereafter cited as Robertson Bfgs).

¹⁷ Schroder Bfg, 23 Dec 85, p. 15, slide 66; “MED Gains New Work in Liberia,” *Middle East Division News*, March–April 1985; “Liberia Housing Contracts Awarded,” *Middle East Division News*, July–August 1985. Quotation from Interv, Moorhus with Phil DiNello, 19 Sep 96, p. 26.

¹⁸ Schroder Bfg, 23 Dec 85, pp. 15–16, slide 67.

¹⁹ Ibid.; “VOA, Bahrain Work Brightens Future,” *Middle East Division News*, October 1984; MFR, Paul D. Robinson, 20 Feb 85, sub: VOA, USGS [United States Geological Survey] FY 1985 Construction and Design Placement, SA-1176, TAD-RHA.



Housing built in Liberia, 1986

Adjusting to a New Entity

The announcement in late 1985 by the chief of engineers, Heiberg, that the Middle East Division would become a district-level element of the South Atlantic Division left the division's staff in limbo. Despite the wide-ranging responsibilities and work in hand that Schroder described in his briefing to the South Atlantic Division commander, the new status required additional staff reductions. Key staff members sought assignments in late 1985 and early 1986 that promised greater job security, and the outplacement programs operated by the Corps began to work too well. General Ray, who began as commander of the Europe Division in October 1985, worked hard and with considerable success to help place staff members from Saudi Arabia in positions opening in the Europe Division. The departures threatened the Middle East Division's effectiveness because many of the departing personnel had important roles in wrapping up the work in Saudi Arabia.²⁰

On 28 April 1986, another organizational adjustment emphasized the Middle East Division's changing role. Corps headquarters redesignated the Riyadh District, activated in January 1967, as the Riyadh Area Office effective 30 April. The area office continued to monitor the remaining work in Saudi Arabia. For FY 1987, its

²⁰ "New Requirements for Outplacement Registration," *Middle East Division News*, January-February 1986; Intervs, authors with Patricia Hill, 2 Nov 93, pp. 18–19, and with Phil Butler, 19 Nov 93, p. 18.

staff allowance of fourteen persons was sufficient to manage warranty inspections and adjustments after the Saudis took possession of facilities.²¹

The staff in Riyadh continued its work throughout 1986 and oversaw the completion of three significant Saudi Arabian projects. In February, contractors completed the seven-story addition to the RSNF headquarters in Riyadh, nearly six years after the division had turned over the original headquarters structure. On 4 May, the district participated in the dedication ceremony for the headquarters of the Ministry of Defense and Aviation, a \$320 million complex equivalent to the Pentagon in Washington, D.C. Finally, in late summer, contractors completed the family-housing complex and related support facilities for RSNF officers and enlisted men. The complex, constructed in Al Kharj, near Riyadh, at a cost of \$356 million, contained five hundred twenty houses. Two hundred units were intended for use by MODA personnel, while the remainder housed naval personnel.²²

In mid-August 1986, Heiberg announced that the new Corps element would bear the name Middle East/Africa Projects Office and retain the location in Winchester that the Middle East Division had established. Although not named as such, MEAPO would have the “full stature, rights, responsibilities, and authorities of a district” under the South Atlantic Division. The new “projects office” had construction-management responsibility for the Middle East (except Israel), the entire continent of Africa, and countries of Southwest and South Asia as far east as Burma.²³

Heiberg issued special instructions to govern the alignment of the new entity for one year. For the program in Saudi Arabia, MEAPO would continue to have division-level authority and the MEAPO commander would work with Heiberg’s “Principal Assistant and Representative for Saudi Arabian Programs [General Ray] for all guidance and assistance.” All contracting authority would flow from Corps headquarters in Washington to MEAPO rather than through the South Atlantic Division, including contracting authority for non-Saudi work. Heiberg also instructed the South Atlantic Division commander and staff to refrain from “any TDY [temporary duty] trips to Saudi Arabia during the transition year.” In October 1987, at the end of the transition year, the special provisions would lapse and MEAPO would become fully subordinate to the South Atlantic Division.²⁴

MEAPO’s designation as a projects office had a curious ring for employees of the former Middle East Division. No one understood what the title meant. It did not have the connotation of a district, and yet people felt that their responsibilities made them “more than a district.” The initialism MEAPO, they commented mordantly,

²¹ Permanent Orders no. 15–1, 28 Apr 86, Gen Files, OH, HQ USACE; Info Paper, 1 Feb 86, sub: USAED-ME Organization Required for Riyadh, FY 1988, p. 3, unmarked box, TAD-RHA; “A Little of Yesterday,” *Middle East Division News*, Summer 1986.

²² “Three Major Saudi Projects Wrap Up,” *Middle East Division News*, Summer 1986; “Information Booklet, COE Customers in MED,” 30 Nov 81, p. IV-9, box 3, access. no. 77-92-0002, Washington National Records Center (WNRC), Suitland, Md.; Bfg Outline, marked in longhand “Heiberg Briefing, 14 July 86, Transition,” unmarked box, TAD-RHA.

²³ Memo, Heiberg, 19 Aug 86, sub: Approval of MED/South Atlantic Division Realignment, box 54-2, Gen Files, OH, HQ USACE.

²⁴ *Ibid.*

sounded like a dog food. The reductions in personnel continued. Employees feared that the name change was just another step toward eliminating the entire staff and dissolving the organization altogether.²⁵

Some voices argued against this discouraging view. The deputy commander, Col. John M. Dorr, insisted to staff that the reorganization had preserved virtually intact the talent and experience that the Middle East Division had assembled over time. The chief of engineers had not scattered personnel among several other Corps offices as might have happened. Moreover, Heiberg's special provisions had preserved for MEAPO some of the characteristics of a division, at least for a time. In a visit to Winchester, the South Atlantic Division commander, Brig. Gen. C. E. Edgar III, ensured the MEAPO staff that he saw no indication of a decline in the volume of work that would warrant moving the program out of Winchester. Nonetheless, rumors persisted that MEAPO was a "short-term organization" and that the headquarters office would ultimately move to Atlanta. Because of such perceptions, Horry T. Johns, who replaced Ralph Wheeler as chief of engineering in December 1986, faced difficulties recruiting engineers, even though he could point to what he called "a stabilizing, sustaining workload."²⁶

The relationship with the South Atlantic Division preserved for MEAPO a great deal of autonomy of action. Col. D. Fred Butler succeeded Schroder, who retired in June 1987, as MEAPO commander. Staff continued efforts to develop projects in the region. Whereas the Mediterranean Division had had work placement in 1974 of \$12.6 million, MEAPO anticipated placement in FY 1987 of \$99.7 million.²⁷

Ordnance Program Division

In December 1985, Colonel Schroder had conducted a rapid survey of the Middle East Division's activities for the South Atlantic Division engineer who was about to assume command of the Middle East Division. In that briefing, Schroder mentioned only in passing the Ordnance Program Division, the successor to the Saudi Arabia Mobility Program. In fact, by the time the Middle East Division became the Middle East/Africa Projects Office in 1986, the program of support to the Saudi Arabian Army Ordnance Corps (SAAOC) had become the most enduring Corps of Engineers program in the kingdom.

Since the program's origins in 1967, it had also become larger in dollar value than nearly all of the construction programs that the Corps of Engineers had managed in Saudi Arabia. Between 1967 and 1972, the value of the Corps' portion of the ordnance program amounted to \$97.8 million. By 1977, after a full

²⁵ Intervs, Moorhus with Richard Wiles, 21 Oct 93, p. 136; with Joan Kibler, 11 Jan 95, p. 17; with Ronald Friestad, 7 Feb 94, pp. 18–19.

²⁶ Interv, Grathwol with Col (Ret) John M. Dorr, 11 Aug, 12 Sep, 26 Sep, 31 Oct 94, p. 131; "A New Charter as Projects Office," Fall 1986, and "Recruitment Poses Biggest Challenge," January-February 1987, both in *Middle East/Africa News*.

²⁷ "A New Charter as Projects Office"; "A Firm Base for MED's Future," *Middle East Division News*, Summer 1986. The figures are not adjusted for inflation.

decade of operation, the estimated total value of activities under the Saudi Arabia Mobility Program and its successor, the Saudi Arabian Ordnance Corps Program administered by the Ordnance Program Division, approached three-quarters of a billion dollars.²⁸ That year, the Saudi Council of Ministers approved a continuation of services by both the Corps of Engineers and by the contractor for the program, Bendix-SIYANCO. Funding for the FMS case through which the Saudi Arabian government paid for the services was increased by \$604.6 million in 1977 to cover the extension of the program.²⁹

In reporting on the SOCP to a congressional subcommittee in 1979, the Middle East Division engineer, General Ellis, described the program as an “anomaly among our programs because it includes very little construction.” It consisted rather of advising and training SAAOC personnel in logistics management through an arrangement with a contractor. The Corps further assisted the SAAOC by contracting for equipment to modernize the Saudi fleet of nonarmored vehicles, by providing limited maintenance support, and by disbursing funds for the contracts awarded by SAAOC.³⁰

Although an acknowledged anomaly, the ordnance program continued into the 1980s because, as Prince Sultan, the minister of Defense and Aviation, told Ellis personally, he was “well satisfied” with the support that the division provided to the Saudi Ordnance Corps. By September 1979, the existing FMS case stood at over \$1 billion. At that point, the ordnance program had thousands of line items to track in its maintenance, supply, and repair operations. The IBM equipment that supported the logistical system was by then ten years old; and the Middle East Division urged the SAAOC to update its equipment and software, using the FMS case for financing. The division also assisted the SAAOC with new construction to provide additional warehouses, vehicle storage sheds, maintenance shops, and housing complexes for Ordnance Corps personnel throughout the kingdom.³¹

In late March 1980, the Corps redefined the mission of the Ordnance Program Division. The redefinition included “assisting the Saudi Arabian Army Ordnance Corps (SAAOC) in operating and managing the Ordnance Corps Logistics system at the Headquarters, directorate and field site levels (to include the Ordnance School),” working with and helping the SAAOC headquarters staff to execute and administer contracts on behalf of the Saudi Arabian government. These contracts secured

²⁸ “Report to Congress by the Comptroller General of the United States: Perspectives on Military Sales to Saudi Arabia,” 26 Oct 77, p. 38, Walker box 6, OH, HQ USACE.

²⁹ Office of the Chief of Engineers (OCE), “Annual Historical Review, 1 October 1976–30 September 1977,” p. 11 (hereafter cited as OCE, AHR, FY 1977).

³⁰ U.S. Congress, House, *Activities of the United States Army Corps of Engineers in Saudi Arabia. Hearings Before the Subcommittee on Europe and The Middle East (Lee H. Hamilton [Indiana], Chairman), of the Committee on Foreign Relations, 96th Cong., 1st sess., 1979*, p. 3 (hereafter cited as Hamilton Comm Hearings).

³¹ Ellis to Morris, 19 Sep 79, pp. 9–10, and 11 Jan 80, pp. 10–11, both in Walker box 6, OH, HQ USACE.

personal services and supplies required for operation and support of the “logistics system and for SAAOC construction projects throughout the Kingdom.”³²

In September 1980, the U.S. Congress approved a new three-year sales case with a two-year option. Several months before, in July 1980, the Saudi Maintenance Company Ltd. (SIYANCO) replaced the joint venture of Bendix-SIYANCO as provider of the technical-services personnel needed to support the SOCP. In many cases, the same people stayed on under the new contract; but the managing company was now more clearly Saudi Arabian. The contract carried a fixed price of \$110 million and a term of three years. In a short span of months, SIYANCO also won the life-support services contract for King Khalid Military City and the operations contract for the port at Ras al Mishab. At KKMC, it succeeded the Morrison-Knudsen Saudi Arabia Consortium (MKSAC). At Ras al Mishab, it succeeded Pacific Architects and Engineers. SIYANCO remained the SOCP technical-services contractor throughout the 1980s.³³

The Ordnance Program Division remained active in Saudi Arabia as a forward element of the Middle East Division after division headquarters relocated to Virginia and continued operations under its successor organization, the Middle East/Africa Projects Office. In late 1981, a total of thirty-five persons—thirteen military and twenty-two civilians (reversing the ratio of military to civilians of the late 1960s)—staffed OPD at six locations around Saudi Arabia. They provided support and advice concerning maintenance, supply, automated data processing, contract administration, financial management, training, and construction. OPD continued to advise the Saudi Arabian Army Ordnance Corps. The SAAOC now managed an increasingly sophisticated system of maintenance and supply, servicing a growing range of Saudi Arabian Army equipment: tanks, armored personnel carriers, artillery, trucks, generators, engineer equipment, forklifts, ground missile systems, air-defense guns, electronic instruments and testing equipment, and a wide range of commercial vehicles. The SAAOC ran programs through the Ordnance Corps Center and School at Taif to train its own personnel. It also supervised construction of its maintenance and supply facilities, barracks, bachelor officers quarters, mess halls, and base support facilities.³⁴

OPD supported these activities directly and through the contract for technical services for which the OPD chief served as contracting officer. Under the contract, SIYANCO deployed about one thousand two hundred employees who worked directly for SAAOC officers and noncommissioned officers at sites throughout the kingdom. OPD also served as the contact point between the SAAOC and the U.S.

³² Maj James F. Rosebery, “Ordnance Program Division (OPD), Historical Summary, 1986,” 10 Feb 87, p. 4, Current Files, Transatlantic Division–Public Affairs Office (TAD-PAO) (hereafter cited as Rosebery, OPD Hist Sum: 1986).

³³ Ibid.; Ellis, “House Foreign Affairs Subcommittee on Europe and the Middle East,” Informal Bfg, 11 Mar 80, p. 7, Current Files, TAD-PAO; Ellis to Morris, 24 May 80, p. 8, Walker box 6, OH, HQ USACE; Albro to Morris, 21 Sep 80, pp. 2–3, 8, box 1, access. no. 77-92-0001, WNRC; Albro to Bratton, 7 Mar 81, p. 4, unmarked box, TAD-RHA.

³⁴ Fact Sheet, Ordnance Prog Div, 30 Nov 81, in Middle East Div, “Information Booklet,” Dec 81, box 3, access. no. 77-92-0002, WNRC.

government on all FMS-related activities. The sales cases funded the technical services contract with SIYANCO; the cost of operations for OPD/Middle East Division; construction and rehabilitation; procurement of commercial and tactical military vehicles; support for military equipment; and supplies, training, and repair, all purchased from American companies.³⁵

During the 1980s, the program changed little, although the manner of its execution evolved continuously. On 12 July 1983, OPD opened a new field site at Hafar al Batin to coordinate work for the SAAOC at King Khalid Military City. A month later, it closed its site at Jiddah. The SAAOC exercised the options in its contract with SIYANCO to extend it to the full five years and renewed it in 1986. The sales cases through which the Saudi Arabian government paid the costs of support by the Corps of Engineers continued in uninterrupted succession. Between 1972 and 1986, the three major sales cases amounted to \$3.72 billion. A multiplicity of smaller sales cases accounted for another \$1.4 billion. In addition to the \$5.12 billion spent since 1972, the program continued with the ninety-two FMS cases that remained active in 1986.³⁶

When the division moved its headquarters from Saudi Arabia to Virginia, in the summer of 1985, a question arose about the appropriate location of the Ordnance Program Division. In the summer of 1986, the division commissioned a study team that recommended three options. OPD could be transferred to the U.S. Army Security Assistance Command under the Army Materiel Command. It could remain an element equivalent to a district under MEAPO. It could be transferred to the U.S. Military Training Mission in Saudi Arabia under CENTCOM. The leadership in the Office of the Chief of Engineers consistently expressed a willingness to relinquish the program provided that those in favor of a change could persuade Prince Sultan to accept it.³⁷

Ultimately, the Saudi Arabian government refused to endorse a transfer of the support program for its Ordnance Corps to any other agency and insisted on continued involvement by the Corps of Engineers. The Ordnance Program Division continued to function under MEAPO; by the end of the decade, the program distributed about \$10 million each month for commercial repair parts, supplies, and services in support of the SAAOC.³⁸

What began as the Saudi Arabia Mobility Program in 1967 and became the Saudi Ordnance Corps Program in 1973 continued to operate in much the same way into the 1990s under the Ordnance Program Division. In August 1990, Iraq attacked its neighbor state Kuwait and thereby threatened Saudi Arabia. An international coalition led by the United States took quick action to send military units to defend Saudi Arabia. When the first of these units attached to Operation DESERT SHIELD

³⁵ Ibid.

³⁶ Rosebery, OPD Hist Sum: 1986.

³⁷ Interv, Moorhus with Brig Gen Eugene S. Witherspoon, 23 Feb 95, pp. 15–16.

³⁸ Col David F. Matthews, "The Ordnance Program Division: For More Than 20 Years, Helping the Saudis Become Self-Sufficient," *Middle East/Africa News*, July 1989.

arrived in the Arabian Peninsula, the personnel of the Ordnance Program Division were there to meet and to support them.³⁹

Closing Out the Saudi Program Under the Middle East/Africa Projects Office

The Middle East/Africa Projects Office inherited the Ordnance Program Division and all the other programs that the Middle East Division had administered in and outside of Saudi Arabia. During five years of operations, MEAPO oversaw the end of the construction program in Saudi Arabia and the continued evolution of its responsibilities throughout the Gulf region and in Africa.

Very little military construction remained in Saudi Arabia by the time of MEAPO's official activation in October 1986. In one of its early public functions as the successor to the Middle East Division, MEAPO turned over to the U.S. Geological Survey the \$33 million complex for which the construction contract had been awarded in March 1982. Of the remaining \$70 million in outstanding construction in the kingdom, King Khalid Military City accounted for the largest portion. Ten contracts remained active at KKMC, but most of them involved small projects. On 30 September 1986, the Al Batin Resident Office still had sixty-six staff members but closed before the end of September 1987. During 1987, the Saudi Arabia Area Office, successor to the Riyadh District since April 1986, reduced its staff from ninety-nine to thirty-three employees.⁴⁰

On 12 April 1988, the Saudi Ministry of Defense and Aviation hosted a quiet ceremony and luncheon marking the formal end of the role that the Corps had played in the kingdom since the signing of the Engineer Assistance Agreement in 1965. The list of honored guests included thirty Corps of Engineer officers, some retired, and civilian employees including the MEAPO public affairs officer, Joan Kibler, the only woman invited. On that occasion, the chief of engineers, General Heiberg, observed: "The Saudis asked us to bring in our standards for construction and to set up a training program for Saudi engineers. In providing this huge amount of construction and in training the cadets to assume this mission, we have helped Saudi Arabia ensure peace through strength." Heiberg acknowledged the clear benefits to the United States: "We have learned more about engineering and construction as a result of being here, and we have learned more about you as a people." In a tangible way, the Saudi Arabian program had also benefited the American economy. Most of the \$355 million spent on the 133 design contracts had gone to American architect-

³⁹ Maj James Hayes, "OPD, SOMC Employees Support DESERT STORM," April 1991, and "OPD Supports Saudi Land Forces During DESERT STORM," August-September 1991, both in *Transatlantic News*.

⁴⁰ "USGS Complex Turned Over to Client," Fall 1986, p. 21, and "Area Office Manages Saudi Work," Summer 1986, both in *Middle East/Africa News*; "Staffing Data—FY 86–95," 27 Sep 94, Current Files, TAD-RM; Contract Closeout Schedule [Jan or Feb 87], unmarked box, TAD-RHA; "Saudi Closeout on Schedule," *Middle East/Africa News*, November-December 1987.

engineer firms, and U.S. specifications in the designs had led to procurement of \$1 billion worth of materials and equipment from the United States.⁴¹

In a special part of the ceremony, Heiberg and one of his predecessors, Lt. Gen. (Ret.) Fred Clarke, paid tribute to the long-standing relationship between the two engineering establishments. They installed the director of the Saudi General Directorate of Military Works, Col. Abdulaziz Al-Otaishan, as an honorary member of the Corps of Engineers regiment. This was the first time such a distinction had been extended to anyone outside the United States.⁴²

Within a month of the ceremony, only thirteen employees remained in the Saudi Arabia Area Office to oversee the remaining work of closing out contracts. The office finished September 1988 with a staff of three. By then, the only significant Corps presence in Saudi Arabia was the Ordnance Program Division, with a staff of thirty civilians and military who continued to advise and support the Saudi Arabian Ordnance Corps.⁴³

In 1951, and again in 1963, the U.S. Army Corps of Engineers went to Saudi Arabia at the invitation of that nation's government. The Corps, upon completing its work in the 1980s, scaled down its operations and withdrew as it had in the early 1960s. The concluding ceremony that the Saudis hosted in April 1988 took place in an atmosphere of celebration, satisfaction, and mutual respect. No engineer officers remained in the kingdom. Nonetheless, the ties between the U.S. Army engineers and their Saudi counterparts remained vital and strong.

Projects Throughout the Region

While the Middle East/Africa Projects Office presided over the conclusion of the Corps of Engineers' construction program in Saudi Arabia, it continued to pursue projects elsewhere in the region. MEAPO successfully expanded its list of customers to new countries and continued to serve U.S. governmental agencies such as Voice of America, the United States Information Agency (USIA), and OASD/ISA. The Projects Office also found new customers among the military commands, including U.S. Army, Europe; European Command; and Pacific Command.⁴⁴

Oman

When the Middle East Division initially undertook the program in Oman in 1980, the Department of Defense paid for the first year of work with contingency funds because the international situation dictated a quick start. Construction costs in following years depended on congressional appropriations. To conform to the

⁴¹ "Ceremony Marks End of Saudi Program," *Middle East/Africa News*, March-April 1988 (includes quote from Heiberg); "Corps Ends Saudi Mission," *Engineer News Record*, 21 April 1988; Comments on Draft Ms, 10 Mar 98.

⁴² Joan Kibler, "Saudis Host Close-Out Ceremony," *Engineer Update*, May 1988.

⁴³ *Ibid.*; "Staffing Data—FY 86–95."

⁴⁴ Bfg for Mr. Allen Carton and Lt Col James Behan, 1 Jun 90, unmarked box, TAD-RHA.

procedures necessary to secure congressional funding, construction at Masirah Island, Seeb, and Thamarit was divided into projects that relied on yearly funding from Congress. Funding limitations and unexpectedly high costs caused slippage that stretched the program beyond the original three-year schedule. Work at Masirah Island, Seeb, and Thamarit developed more in sequence than simultaneously as originally planned. Furthermore, the Omani government enlarged the program with “constant request[s] for additional facilities.”⁴⁵

Early in the program, with the fall of the shah of Iran and the Soviet invasion of Afghanistan fresh in memory, the U.S. Congress willingly provided funds for the construction in Oman. As these events receded from immediate concern, Congress showed less inclination to fund overseas bases owned by a foreign government. Funding dropped considerably in 1984 and 1985, although Congress appropriated limited amounts in later years for small construction packages, especially housing and offices for the U.S. Air Force contractor responsible for caretaker support.⁴⁶

As a result of the congressional unwillingness to appropriate funds, construction activity in Oman ceased in early 1987. By this time, MEAPO had finished the majority of its construction there and had signed over all completed projects to the U.S. Air Force. MEAPO placed the military construction program on standby status until the Air Force could reprogram funds for the FY 1987 program. Effective 1 June 1987, the Corps downgraded Oman’s area office to a resident office.⁴⁷

The construction program remained on hold for nearly a year and a half. After the reprogramming of funds by the U.S. Air Force, small programs for FYs 1987 and 1988 recommenced in the autumn of 1988. In August, the Corps awarded an \$18.3 million contract for the combined FY 1987–1988 program to a joint venture, H. B. Zachary Company of San Antonio and Consolidated Contractors Company of Oman. The construction package included an administrative building, a building for communications and maintenance management, a supply building, warehouses, and a foam deluge system at Seeb. Similar buildings were constructed at Thamarit and Masirah Island. MEAPO also supervised construction of living compounds at the sites and the renovation of a mess hall at Masirah Island. In June 1990, contractors essentially completed the FY 1987–1988 military construction program in Oman, with only the navigational aids awaiting testing in September. Construction for the two fiscal years came to a total of \$19.1 million.⁴⁸

⁴⁵ Draft Memo, 4 Nov 80; Interv, Moorhus with Roger Thomas, 27 Aug 96, pp. 25, 39–41; Memo, Andrews, [Jun 82], sub: After Action Report, Oman Area Office, June 1981–June 1982,” unmarked box, TAD-RHA. Quote from Interv, Frank N. Schubert with Lt Col James Andrews, 21 Jun 82, pp. 9b, 15.

⁴⁶ Interv, John T. Greenwood with Col Pat Stevens IV, 13 Aug 85, pp. 9–11.

⁴⁷ Bfg, Col Butler, Ofcra Call Presentation, 25–26 Apr 88, unmarked box, TAD-RHA; “Oman Program Placed on Stand-by Status,” *Middle East/Africa News*, May–June 1987.

⁴⁸ Interv, John T. Greenwood with Capt Wes Reynolds, 17 Jun 87, p. 7. “Focus on Oman: After Long Delay, FY 87–88 Program Underway,” June 1989; “MEAPO Awards \$60 Million in Contracts,” July–August 1988; “FY 87–88 Oman Program Complete,” May 1990; all in *Middle East/Africa News*. Bfg for Carton and Behan, 1 Jun 90.

In September 1989, the Corps awarded a \$7.6 million contract to the Zachary joint venture for the FY 1989 program, which included petroleum, oil, and lubricants (POL) storage and distribution at Seeb and runway lighting at Masirah Island. Small projects undertaken as part of the FY 1990 program included additional warehouses at Seeb and Thamarit and airfield improvements at Thamarit. Contractors finished these projects quickly. On 4 March 1991, the Air Force accepted the completed construction; the Oman Resident Office closed on 7 March.⁴⁹

In all, the Corps had managed the construction of over \$300 million worth of facilities in Oman. The Corps of Engineers and its contractors, supervised by the Middle East Division and then the Middle East/Africa Projects Office, produced four quality air bases in Oman and received high praise from U.S. Air Forces in Europe for their work. The construction and expenditures served both American and Omani forces effectively during Operations DESERT SHIELD and DESERT STORM. Despite some of the difficulties associated with the location and lack of amenities, many Corps personnel enjoyed their assignments in Oman and working with the Omani people.⁵⁰

Kuwait

MEAPO's work in Kuwait consisted of completing projects that the Middle East Division had begun early in the decade. Only late in the decade did new work come to the Projects Office. In August 1989, the Kuwait Defense Ministry asked MEAPO to design and construct three high-priority facilities for the Kuwait Air Force's purchase of F-18s scheduled to arrive in January 1992. The estimated \$35 million project included a training facility, a missile maintenance and storage building, and an addition to a technical institute at Al Jaber Air Base southeast of Kuwait City. Because of the pressure of deadlines, MEAPO insisted on having its own sales case with Kuwait and using U.S. firms or joint ventures between U.S. and Kuwaiti firms for the construction. MEAPO proposed to design the facilities in house, using U.S. Navy facilities in California as a basis for adaptation. MEAPO also planned to use expedited construction contracting, that is, issuing a request for proposal based on the current design and awarding a fixed-price contract that would

⁴⁹ Robert G. Dow, Serial Ltr no. SOAF-89-048, 30 Sep 89, sub: Contract no. DACA 78-89-C-0028, FY 89 MILCON Program, Sultanate of Oman, Award of FY 89 Program, box 1, box Z-4-6 (Zachary), TAD-RHA; "FY 87-88 Oman Program Complete"; "Transfer and Acceptance of Military Real Property, MEAPO to TAC, DEE (AFRCCE), Job no. FY 1989 Seeb, Contract no. DACA 78-89-C-0028," 4 Mar 91; Bfg for Carton and Behan, 1 Jun 90; "Oman Office Closes," *Transatlantic News*, March 1991.

⁵⁰ "Oman Office Closes"; Intervs, Moorhus with James J. Edinger, 9 Mar 95, pp. 13, 16, 27, and John T. Greenwood with Ralph Wheeler, 6 Nov 85, pp. 22-23. Edinger, chief of construction and deputy area engineer, recalled that the Omani people were probably the best he ever worked with. Wheeler noted that Oman is "one of the best places that we've worked in."

be modified during construction. However, the F–18 facilities project was cut short by Iraq’s invasion of Kuwait in August 1990.⁵¹

The destruction caused by that invasion led to the Corps of Engineers’ continued involvement in Kuwait. In anticipation of liberation, Kuwaiti officials began contingency planning to restore civil services and turned to the United States for help. On 15 December 1990, the Defense and State Departments, which had joint responsibility for the effort, signed agreements with the government of Kuwait on emergency assistance and reconstruction. In January 1991, the Corps received the first formal request from Kuwait for emergency management assistance and accepted a \$46.3 million sum to begin the first ninety-day emergency phase. The Corps was designated to make damage assessments and manage contracts to restore infrastructure and systems controlled by the Ministry of Public Works, the Ministry of Electricity and Water, and the National Guard. To manage the effort, MEAPO established the Kuwait Emergency Recovery Office (KERO) under Col. Ralph V. Locurcio of the Savannah District.⁵²

At 3:00 a.m. on 17 January 1991 (the evening of 16 January in the United States), a coalition of UN forces launched airstrikes on Iraqi military positions. On 28 January 1991, a KERO advance party traveled to Dhahran, Saudi Arabia, to begin contracting actions and logistical purchases to support the reconstruction of Kuwait. On 3 March, just a week after the allied attack on 24 February that liberated Kuwait in one hundred hours, the KERO team awarded eight contracts. The next day, about forty Corps employees moved to Kuwait City to help rebuild a country shrouded in the acrid smoke of hundreds of fires set at the country’s oil wells by the retreating Iraqis.⁵³ The Kuwait Emergency Recovery Office continued its mission in Kuwait to early 1992.

Bahrain

In Bahrain, MEAPO maintained work on the indoor recreation facility for the U.S. Navy carried over from the Middle East Division. Starting in July 1987, the contractor, J&P (Bahrain) W.L.L., constructed the \$1.5 million facility at the Navy’s administrative support unit in Manama in only fifteen months. The Corps supervised the construction through a project office and in the final stages through the resident office in Oman. On 15 October 1988, MEAPO delivered the completed facility to

⁵¹ “MEAPO to Build F–18 Facilities in Kuwait,” *Middle East/Africa News*, October 1989; Engr Strategic Studies Ctr, “United States Army Corps of Engineers International Activities: Preliminary Assessment,” Dec 91, p. A-29, U.S. Army Engineer Strategic Studies Center, Fort Belvoir, Va.

⁵² Memo, Graham, 9 Jan 95, sub: Support Agreements, Memorandums of Understanding (MOU), Memorandums of Agreement (MOA), and Foreign Affairs Administration Support (FAAS) Agreements, Current Files, TAD-RM; “USACE Plan for Emergency Response Assistance to the Government of Kuwait,” 7 Jan 91, unmarked box (1980–1992), TAD-RHA; Info Paper, 6 May 91, sub: Kuwait Emergency Recovery Office, unmarked box (1980–1992), TAD-RHA; “New Role in Kuwait: MEAPO to Assist in Emergency Phase of Recovery Effort,” *Middle East/Africa News*, January 1991.

⁵³ “August 1990–August 1991: A Look at the Past Year,” *Transatlantic News*, August–September 1991.



George Holloway and Allen Dale at the Bahrain Resident Office, 1991

the U.S. Navy one month ahead of schedule.⁵⁴ That same year, the Naval Facilities Engineering Command made tentative plans to design and have MEAPO manage the construction of a 12,000-square-foot command and communications facility for the Navy's administrative support unit in Manama.

To manage the construction of the Bahraini fighter air base, MEAPO used the same people who had supervised the project through 1986 under the Middle East Division. Phase I construction began in May 1987 when the Bahrain Defense Forces awarded a construction contract for approximately \$100 million to Ret-Ser Engineering Agency of Taiwan. At that point, MEAPO staffed a resident office in Bahrain with nine Americans and six local employees. Plans called for completion of the base, now named Shaikh Isa Air Base, in May 1989.⁵⁵ In October 1988, Ret-Ser had approximately one thousand five hundred workers at the site. Even though this number had reached two thousand two hundred by February 1989, the contractor had completed only 48 percent of the construction at that time instead of the planned 75 percent. Problems with procurement of equipment, earthwork, and the POL system had contributed to the delays. To help recover the lost time, Ret-Ser subcontracted with the Korean firm AK Group to perform plastering and

⁵⁴ "Rec Center in Bahrain Complete," *Middle East/Africa News*, November-December 1988.

⁵⁵ "MEAPO Being Considered for Embassy Work," *Middle East/Africa News*, March-April 1988; Fax, George Holloway, 20 Oct 93, sub: History Project, copy in R&D File 2393, TAC; "Bahrain Office Being Staffed," *Middle East/Africa News*, May-June 1987.



Shaikh Isa Air Base

to finish the buildings. Another subcontractor, United Gulf Asphalt, encountered problems with its paving operation when it was prohibited from removing sand from the beach, denied blasting permits, and encountered other problems that led to substantial contractor claims.⁵⁶

In conjunction with the air base, the Bahrain Defense Forces had signed two additional sales cases for MEAPO assistance in May 1987. MEAPO's Engineering Division designed about \$60 million worth of facilities and systems at the air base, including an operations center, aircraft shelters, a recreation area, warehouses, and an air-traffic control system. The sales cases also paid for MEAPO to assist in managing procurement of furniture, rolling stock, air-traffic equipment, and communications systems.⁵⁷

By May 1990, Ret-Ser had nearly completed construction of the first phase of the air base. Design of Phases II and III of the project—additional maintenance, administrative, and recreational facilities and an air operations center—was also nearly complete. Design for a fourth phase of the Bahrain defense system, helicopter facilities and an armor cantonment, had only begun when funding restraints prompted

⁵⁶ Memo, Col D. Fred Butler, 27 Feb 89, sub: Trip Report—Bahrain—10–12 February 1989, unmarked box, 94-3-29/11, TAD-RHA; Comments on Draft Ms, 10 Mar 98.

⁵⁷ Fax, Hollowell, 20 Oct 93; "Bahrain Office Being Staffed."

Bahrain to discontinue contracts for the subsequent phases of the work and the Corps closed its resident office.⁵⁸

Egypt

In the decade from 1980 to 1990, the Corps of Engineers became increasingly involved in design and construction projects in Egypt that by November 1990 totaled nearly \$1 billion. When MEAPO assumed management, some of the work was well advanced. MEAPO assumed responsibility for completing the armor-rebuild facility begun under the Middle East Division in 1983. The work for Peace Vector II at Beni Suef approached an end by the summer of 1987 as MEAPO completed orders for approximately \$10 million worth of materials. Simultaneously, construction of the housing complex at Beni Suef neared completion. Already, twenty-five people from the U.S. Air Force technical assistance field team had taken up residence in the compound. In March 1988, a year and a half after construction began on the computer center and software lab at Nasr City near Cairo under the Hawkeye program, the Corps held a dedication ceremony and transferred the completed building to the Egyptians.⁵⁹

The Hawkeye project, like the Peace Vector programs, expanded from its original scope. On 22 September 1989, MEAPO awarded a \$4.5 million contract to Wallace O'Connor Inc. of Carrollton, Texas, for Phase II of the support facilities for the E-2C and F-4E aircraft. This phase, involving rehabilitation of twenty-two aircraft facilities, was scheduled for completion in March 1991.⁶⁰

Other work had barely begun when MEAPO succeeded the Middle East Division in October 1986. Earlier that year, the Air Force Logistics Command identified a five-year military master facility program for the Egyptian Air Force. The AFLC established an initial sales case, dubbed Pacer Forge, for design, construction, and operations and maintenance support for five air bases. Several subsequent Egyptian Air Force programs fell under Pacer Forge, a program to support renovation or construction of facilities at any Egyptian base that had a U.S. weapon system present. Various small projects, such as a water and sewer upgrade at Cairo East Air Base, came within the master plan.⁶¹

⁵⁸ "Bahrain Resident Office to Close This Summer," December 1989, and "Offices List Year's Top Events," January 1991, both in *Middle East/Africa News*; Jim Knight, "Shaikh Isa Air Base Bahrain," 31 May 90, in Bfg for Carton and Behan, 1 Jun 90.

⁵⁹ Prog Rev for Lt Col Kenneth Ashhurst, Dep Cdr, Military Progs, South Atlantic Div, 30 Nov 90, unmarked box, TAD-RHA; "Peace Vector II Procurement Nears End"; Schroder, AGC Presentation, 6 Mar 87, R&D File 2470, TAC; Butler, Ofcrs Call Presentation, 25-26 Apr 88, p. 5; "MED's Expanding Role in Egypt," *Middle East/Africa News*, July-August 1987; "MED Completes Logistics Facilities, Prepares for New Contract in Sudan," *Middle East Division News*, Summer 1986; "Computer Center Dedicated in Cairo," *Middle East/Africa News*, March-April 1988.

⁶⁰ "Pacer Chariot, VOA Station Among Contracts Awarded," *Middle East/Africa News*, October 1989.

⁶¹ "A Firm Base for MED's Future"; "82nd Engineer Company Aids MEAPO in Egypt," *Middle East/Africa News*, May-June 1987.

In addition, the Egyptian Air Force requested a Peace Vector III program. Estimated at \$190 million, Peace Vector III represented another major upgrade of an existing air base for F–16 aircraft scheduled to arrive in December 1991. For this project, the AFLC authorized MEAPO to perform full design and construction of facilities at Amoun Air Base. The project included upgrades to pavement and lighting, maintenance shops, storage facilities, utilities, base security, communications, fuel storage and distribution, and administrative facilities. On 20 August 1987, representatives of the Corps of Engineers and Burns and McDonnell went to Egypt for a site survey and to prepare to start design in January 1988.⁶²

In late 1987, the Egyptian Air Force took over construction under Peace Vector III and accelerated the schedule, although the Corps still provided advice and assistance during construction. The Corps remained responsible for procuring construction materials not available in Egypt, including about \$25 million of materials from the United States. The size of the program at Amoun required the Corps to create a special project management team comprised of personnel in Winchester and the Peace Vector III resident office. The resident office also became part of the new Joint Management Engineering Team in Egypt alongside the U.S. and Egyptian Air Forces. The team became the direct contact between the U.S. government and the Egyptian contractor. By the end of the decade, Peace Vector III had become the largest project ever undertaken by Egyptian Army engineers.⁶³

On 15 January 1988, MEAPO awarded an \$8.26 million contract to Burns and McDonnell for full design of the upgrade of facilities under Peace Vector III. The award modified a contract from 25 August 1986 originally awarded for \$108,000 to prepare a project-development brochure. The company completed the design in several phases between March and July 1989.⁶⁴

In 1988, the Corps awarded a \$2.8 million cost-plus-fixed-fee contract for procurement of mostly Egyptian-made construction materials to Willbros Butler Engineers Inc. of Tulsa, Oklahoma. Through its subcontractor, Perini International of Framingham, Massachusetts, Willbros also provided warehousing and in-country support such as housing, office space, and transportation to the engineering team. After the Egyptian Army had the first stage of construction underway with materials procured in Egypt, MEAPO awarded another contract for procurement of materials made in the United States. In March 1989, MEAPO awarded a \$40.3 million cost-reimbursement contract for construction materials and services to Willbros Butler.⁶⁵

⁶² “A Firm Base for MED’s Future”; “MEAPO Gets Green Light for PV III,” *Middle East/Africa News*, July-August 1987; Memo, Graham, 9 Jan 95; Memo, Paul H. Baker, 14 Aug 86, sub: Trip Report, August 1986, PVI, PVII and Pacer Forge PMR [Program Management Review], unmarked box, 94-1-31-2, TAD-RHA.

⁶³ Capt Larry (Haleem) Washer, “Peace Vector III: A View From the Field,” July 1990; “PV III Phase II Award Caps Team Effort,” March 1989; “PVIII, Phase II: Construction’s Role in Managing the Contract,” April 1989; all in *Middle East/Africa News*.

⁶⁴ “Contracts Awarded,” *Middle East/Africa News*, January-February 1988; Memo, Butler, 9 Jun 89, sub: Trip Report—Egypt—31 May thru 4 June 1989, with attachments, unmarked box, 94-3-29-11, TAD-RHA.

⁶⁵ “PV III Phase II Award Caps Team Effort.”



Karlene Morgan of the Corps of Engineers and members of the Egyptian military at the site of the Peace Vector III project

In October 1991, the first shipment of F-16 planes arrived from the United States when the Peace Vector III project at the Amoun Air Base was about 75 percent complete. In the interim, the contract held by Willbros Butler had increased from \$40 million to \$63 million.⁶⁶

In 1990, the Peace Vector participants began planning for a potential fourth sale of F-16 aircraft to Egypt. This project, at Sakara Air Base, included airfields, maintenance shops, utility plants, roads, personnel support, and administrative facilities. MEAPO received \$1 million for planning and \$3 million of the estimated \$8.5 million for design under the Pacer Forge sales case. The air base design required rehabilitation, site adaptation from Peace Vector III designs, and new designs. MEAPO began the site adaptation designs as an in-house effort. On 25 October 1990, MEAPO awarded a \$7.8 million contract to Burns and McDonnell for new design of the Peace Vector IV facilities scheduled for completion in November 1992.⁶⁷

MEAPO also assumed responsibility for a number of smaller projects when it replaced the Middle East Division as construction agent in Egypt. In January 1986, the Middle East Division began the design of a hangar to house two C-130 aircraft and supporting shops at Cairo East Air Base for which the Corps had full design and

⁶⁶ "First F-16s Arrive at Egyptian Air Base," *Transatlantic News*, November 1991.

⁶⁷ "MEAPO Begins Design of PV IV Facilities," July 1990, and "PV IV Contract Awarded," October 1990, both in *Middle East/Africa News*.

construction responsibility. In November 1987, MEAPO awarded an \$11 million construction contract to the joint venture of EBASCO Overseas Corporation and Taylor Woodrow Inc. of New York for the C-130 hangar and a utility upgrade at the base. This contract also included work on other projects, including a welding shop, warehouse, and fire alarm at An Shas Air Base and a fire alarm and utility building at Beni Suef Air Base. As of May 1989, EBASCO had completed about 50 percent of the hangar construction at Cairo East.⁶⁸

In 1986, the Middle East Division extended its responsibilities by taking on an Egyptian Navy program to design and build a Syncrolift system at Alexandria Harbor, another project that passed to MEAPO. The system, which cost \$2 million to design, was almost identical to the one used by the Corps at the Jiddah and Jubayl naval bases in Saudi Arabia. The division established a resident office in Alexandria to supervise the work. The project involved two phases: dredging followed by installation of the lift and construction of supporting facilities. On 21 December 1987, MEAPO awarded a \$9 million contract to Philipp Holzmann A.G./Jan De Nul N.V., a German-Belgian joint venture, for dredging and filling in preparation for the Syncrolift and dry-docking facilities. Planning called for completion of Phase I by April 1989.⁶⁹ By the autumn of 1989, the dredging phase of the Syncrolift project was almost complete but at an increased cost of \$14 million. The contractor had moved seven hundred thousand cubic meters of clay and 1 million cubic meters of other material from the turning basin and had built a 550-meter quay wall. As work progressed, MEAPO began to prepare planning and programming reports for \$30 million to \$40 million of new work for the Egyptian Navy. Most of the additional work was associated with the Syncrolift and included new shops and equipment for ship support and some renovations to existing repair facilities.⁷⁰

On 24 August 1988, MEAPO awarded a \$20 million contract to George A. Fuller of New York (later known as American International Contractors Inc.) for construction of the marine lift and dry-docking facilities, supporting buildings, and a new electric substation. Although the 12,000-square-meter (14,350-square-yard) facility was scheduled for completion in December 1990, it was turned over to the Egyptian Air Force in June 1991.⁷¹ MEAPO awarded a second contract in August 1988, worth \$17.2 million, to J. A. Jones Construction Company of Charlotte, North Carolina, for construction of an aeromedical facility in Cairo (Heliopolis) for pilot training and medical research.⁷²

⁶⁸ “MED’s Expanding Role in Egypt”; “Construction, Design Contracts Awarded,” *Middle East/Africa News*, November-December 1987; “Egypt Program Booming,” *Middle East/Africa News*, May 1989.

⁶⁹ Prog Rev for Ashhurst, 30 Nov 90; “A Firm Base for MED’s Future.” “Living in Egypt: Area Office Teeming with Activity,” July-August 1987; “Phase I of Syncrolift Project Nearly Complete,” August 1989; “Contracts Awarded,” January-February 1988; all in *Middle East/Africa News*.

⁷⁰ “Phase I of Syncrolift Project Nearly Complete”; Prog Rev for Ashhurst, 30 Nov 90; “New Work for Egyptian Navy Planned,” *Middle East/Africa News*, September 1989.

⁷¹ “Egypt Program Booming”; “Aeromedical Center Completed in Egypt,” *Transatlantic News*, January 1992.

⁷² “MEAPO Awards \$60 Million in Contracts.”

In mid-1988, MEAPO awarded to Sadelmi New York Inc. a \$4 million contract (later increased to \$7 million) for a Harpoon missile weapons station at King Maryut with February 1990 as the scheduled date of completion. In November 1990, the Egyptian Navy signed an FMS case to fund additional projects. The expanded program managed by the Corps included facilities for ship support and ship repair (\$20 million), a torpedo-repair facility (\$6 million), and Syncrolift auxiliary equipment (\$14 million). The Syncrolift facility experienced delays and cost increases to \$25 million; but in September and October 1991, the system passed tests at Alexandria when it moved a 5,000-metric-ton load and a submarine from Alexandria Harbor overland to the dry-dock berth at nearby Ras El-Tin navy base.⁷³

MEAPO also became involved with the Egyptian land forces in design and construction of maintenance facilities for the Hawk and Chaparral missiles. On 29 September 1987, MEAPO awarded a \$394,000 contract to Metcalf & Eddy International Inc./Frank E. Basil Inc. to design a Hawk ground-support depot and Chaparral maintenance facilities in Cairo. The project included a maintenance area, shops, and repair facilities. On 20 April 1989, MEAPO awarded a \$4.7 million contract to Wallace O'Connor Inc. to build the facilities, with completion expected in February 1991.⁷⁴

Given the growth in work, the Egyptian Area Office received authorization in August 1988 to add thirty-nine new positions for FY 1989. About half of those were programmed to support Peace Vector III, whereas the balance was divided among the Cairo East, Cairo West, and Cairo Central Resident Offices and the resident office at Alexandria.⁷⁵

In December 1989, the U.S. Army Aviation Systems Command asked MEAPO for assistance with an estimated \$20 million Apache helicopter project in Egypt. In 1990, MEAPO began preparing a scope of work to build and improve facilities to house two Apache helicopter squadrons at an air base northeast of Cairo. New facilities included a control tower, a refueling station, water supply, and a combat mission simulator and training center, with rehabilitation of shelters, hangars, and battery shops. On 7 February 1991, the Corps awarded a \$930,000 contract to Allen and Hoshall of Memphis, Tennessee, to design the facilities. Design and construction of the project, later supplemented with construction of housing for a technical-assistance field team, continued into the 1990s under the Cairo East resident office.⁷⁶

⁷³ Prog Rev for Ashhurst, 30 Nov 90; "Egypt Program Booming"; "MEAPO Awards \$60 Million in Contracts"; Clancy Wahl, "Syncrolift Successfully Tested in Egypt," *Transatlantic News*, October 1991.

⁷⁴ "Construction, Design Contracts Awarded"; "Contracts Awarded," *Middle East/Africa News*, May 1989.

⁷⁵ "RRAC [Resource Review and Allocation Committee] Approves 8.5 Positions for Winchester," *Middle East/Africa News*, July-August 1988.

⁷⁶ "Apache Helicopter Facilities Get Green Light," *Middle East/Africa News*, September 1990; "Contract Awarded," February 1991, and Julie K. Shoemaker, "'Dalton Gang' Finds Success at Cairo East," September 1993, both in *Transatlantic News*.

Sudan

When the Middle East/Africa Projects Office assumed responsibility for the Corps work in Sudan, it faced an exceedingly tense atmosphere. The Middle East Division had begun work on a logistical system for the Sudanese Army in the early 1980s. In mid-April 1986, anti-American feelings erupted, inflamed by the air raid ordered by the U.S. government on Libya in retaliation for a terrorist attack in Berlin. Sudanese citizens demonstrated in Khartoum against the attack, and the demonstrations led to the shooting of an American citizen. The U.S. ambassador warned Americans to stay in their homes. He subsequently directed the evacuation of dependents and contract personnel to Nairobi, Kenya. The contractor for the division's project, Reading & Bates, sent its project manager to Kenya; on 19 April, two division representatives were also evacuated from Sudan.⁷⁷

The contractor briefly halted work on the construction project; but because the company had British staff members who remained in Sudan, it resumed activities on 27 April and continued to work during the Corps' absence from the country. Corps representatives returned in July to conduct final inspections of the project, now valued at \$7.9 million. During the last week of July 1986, the Corps transferred the remaining eight completed buildings to the Sudanese government. Following the inspections and turnover, Corps employees left Sudan again, expecting to return that autumn to supervise another contract, this time for the Sudanese Air Force.⁷⁸

The Middle East Division also had work dating from December 1983 when the U.S. Air Force had asked the division to design and build aircraft-maintenance facilities for the Sudanese Air Force. Like the logistical system, this project was funded by the Military Assistance Program. The scope of work included rehabilitation of an existing hangar; installation of utilities and partitions; construction of parking aprons for a new F-5 maintenance hangar at Wadi Saidna Air Base; and building a pre-engineered metal shop facility, utilities, and roads for a new C-130 maintenance shop at Khartoum International Air Base. The division had provided final design sketches to the Sudanese Air Force in January 1984.⁷⁹

In March 1986, the division awarded a contract worth nearly \$6 million to Arkel International Inc. of Baton Rouge, Louisiana, for construction of the facilities for the Sudanese Air Force. Because of political demonstrations and the danger posed to American employees, the Office of Military Cooperation requested on 17 April

⁷⁷ MFR, Michael F. Iarosis, 18 Apr 86, sub: Stoppage of Work Due to Civil Unrest; MFR, Iarosis, 18 Apr 86, sub: Evacuation Status of Sudan Resident Office; Telex, 19 Apr 86, sub: MEDCD-S Evacuation [*sic*] from Sudan; Telex, 24 Apr 86, sub: Reading and Bates Operations; all in W-4-10, 1 of 3, TAD-RHA.

⁷⁸ MFRs, Iarosis, 18 Apr 86, sub: Stoppage of Work Due to Civil Unrest, and 18 Apr 86, sub: Evacuation Status of Sudan Resident Office; Telex, 19 Apr 86; Telex, 24 Apr 86; DF, Iarosis, 6 Aug 86, sub: DACA 78-84-C-0023, Design/Contract [*sic*] of Maintenance-Logistics Facilities, Sudan, Transmittal of DD Forms 1354—Physical Completion, with attached Forms 1354, W-4-10, TAD-RHA. "MED Completes Logistics Facilities, Prepares for New Contract in Sudan."

⁷⁹ Fact Sheet, Sudanese Air Force Aircraft Maintenance Facilities, 6 Apr 84, in Robertson Bfgs, 9–12 Apr 84, E-1-1, copy in R&D File 3151, TAC.



Maintenance facility near completion in Sudan, 1988

that the Corps postpone the notice to proceed and the possibility arose of canceling the contract. On 15 July, however, the Corps told Arkel to proceed.⁸⁰

In addition to the delays caused by the Corps' absence from Sudan for nearly three months, Arkel encountered other difficulties. The Sudanese government remained unstable; the economy was in trouble; and a civil war was ongoing in the south. The contractor's primary problem was getting materials to the site. Completion dates were pushed back as the construction project fell behind schedule.⁸¹

The arrest and detention in Sudan of American employees as Arkel was finishing its work created major difficulties. Arkel became involved in a legal dispute with its Sudanese subcontractor, Hydra Engineering Ltd., which sued Arkel in Sudanese courts. Two of Arkel's representatives were arrested, a familiar practice in Sudan during legal disputes. When these two employees were released, no Arkel representatives remained in country to arrest. The Sudanese arrested the only remaining American associated with the project, Richard Bassett, an electrical and mechanical subcontractor of Arkel. The Corps, although concerned with Bassett's situation, had no legal authority to intervene in the dispute between Arkel and its subcontractor.

⁸⁰ Msg. Iarosis to Amb Horan, 14 May 86, sub: Corps of Engineers Construction Contracts in Sudan, W-4-10, TAD-RHA; DF, Schroder, 30 Jun 86, sub: AE/RE Conference, with attachments, unmarked box, TAD-RHA; "MED Completes Logistics Facilities, Prepares for New Contract in Sudan."

⁸¹ Butler, Ofcers Call Presentation, 25-26 Apr 88, p. 7; "Armstrong Challenged by Sudan Work," September-October 1987, and "Life in Sudan Marked by War, Famine," November-December 1988, both in *Middle East/Africa News*.

Bassett was confined to his hotel room in Khartoum for over four months before he was allowed to leave the country in October 1989.⁸²

In June 1989, the Corps closed its resident office in Sudan upon completion of the upgrade of an F–5 hangar at Wadi Saidna and of C–130 facilities at Khartoum. Arkel had a few items of work remaining on the project. Because of the recent anti-American incidents, Arkel hired an Indian subcontractor to complete the work.⁸³

Voice of America

The Voice of America's program of modernization, in which the Middle East Division became involved, began in the early 1980s. President Ronald Reagan and the National Security Council directed the VOA, a division of the U.S. Information Agency, to expand and improve its worldwide broadcasting system. Pursuing the president's directive, the VOA initiated a five-year, \$1.2 billion modernization program to construct new stations and to upgrade existing overseas transmitter installations to provide the capability to broadcast high-quality shortwave radio signals.⁸⁴

At the time, the VOA was broadcasting from twenty-two locations in forty-two languages to an estimated 100 million listeners. But the VOA had not updated its equipment or operations in decades and had fallen behind other international broadcasters in hours, languages, transmitters, and equipment. The broadcast agency turned to the Middle East Division to provide planning, programming, and design assistance for all locations worldwide. In addition, the division would provide direct construction management for those facilities within the division's area of operations. The Corps of Engineers responded through the Support for Others program, which provided Corps services on a reimbursable basis to federal, state, and local agencies. The program allowed agencies without engineering capabilities to obtain quality services in design and construction management without building up their own staffs. The Corps' headquarters designated the Middle East Division as the program manager for all planning, program development, and preconstruction design activities for the worldwide VOA program.⁸⁵

A new station in Morocco was the Voice of America's top priority; in 1983, the Middle East Division's first assignment was to provide a realistic and firm cost

⁸² George A. Robinson, Arkel International Inc., to Wayne E. Henry, 24 Apr 89, sub: Contract DACA 78-86-C-0019, Aircraft Maintenance Facilities, Khartoum and Wadi Seidna, Sudan; Memo, Lt Col Daniel R. Wells, 30 Jun 89, sub: Potential Congressional Inquiry Reference Incarceration and Pending Court Action Against Mr. Richard Bassett in the Sudan, with encl; both in TAD-PAO.

⁸³ "Sudan Resident Office Closes," *Middle East/Africa News*, June 1989; Robinson to Henry, 10 Nov 89, sub: Your Serial Letter Number 89-28, TAD-PAO.

⁸⁴ Memo, F. B. McNeely, 9 Aug 84, sub: U.S. Army Corps of Engineers (USACE) Assistance to the Voice of America, SA-1176, TAD-RHA; Dorr, "VOA Brief," 10 Jun 87, Civic Presentations (contains many public lectures), Uncatalogued Historical Files, R&D File 2470, TAC.

⁸⁵ Dorr, "VOA Brief," 10 Jun 87; "VOA, Bahrain Work Brightens Future"; Memo, Lloyd A. Duscha, 24 Jul 84, sub: Voice of America (VOA) Program, SA-1176, TAD-RHA; Schroder Bfg, 23 Dec 85, p. 14, slides 61–62.

and time estimate for the construction. The initial memorandum of understanding between the division and the VOA identified the terms of the Morocco project. The division provided site preparation (earthmoving) at the location near Tangier and agreed to prepare a manual of design criteria for all VOA facilities and to design test facilities for transmitters at the VOA relay station at Greenville, North Carolina. In a second phase, the project would move to design and construction at Tangier, with terms specified in a separate support agreement.⁸⁶

Under the Support for Others agreement with VOA, the Middle East Division began work in Morocco in October 1984 when it established a resident office in Tangier to supervise work on a new transmitter station. Eight division employees traveled to Morocco on temporary duty in late October and November to prepare for the division's new mission there. This brought the Corps of Engineers back to the country where the Mediterranean Division got its start more than thirty years earlier. The team identified an area for excavating fill near the fifteen hundred acres of land twenty-two miles southwest of Tangier that the Moroccan government had donated for the new station. Phase I of the project, site preparation, involved moving 2 million cubic meters of soil from the borrow pit to the valley. The contractor built embankments to keep water from flooding the valley during the rainy season, constructed the main entrance, built roads, and landscaped the site. The station at Tangier needed a high-power, shortwave broadcast facility with maintenance and administrative facilities and a power plant. The budget for the station, including equipment, was estimated at \$175 million. The station and related facilities would sit on a hub, and eleven antennae would rise from three bases extending from the hub. While in Morocco, Corps representatives placed prequalification announcements for the Phase I construction in local papers. They arranged for housing and office space for the resident engineer's office. The Corps planned to prequalify firms by December 1984, issue the request for proposals in January 1985, award Phase I in February, and open the resident office in March.⁸⁷

On 14 December 1984, an umbrella agreement for worldwide support to the VOA was enacted. The agreement, signed by the U.S. Information Agency and the assistant secretary of the Army for civil works, obviated the need for individual memorandums of understanding for each new country where work was planned.⁸⁸

In late 1984, the Corps signed two more memorandums, one for work in Puerto Rico and one for the project in Thailand. In Puerto Rico, the agreement for Phase I differed from the others. Land near Cabo Rojo was identified for purchase, but

⁸⁶ MFR, Wiles, 13 Aug 84, sub: MG Wall Debrief on VOA/USIA [United States Information Agency] Meeting of 1 August 1984, SA-1176, TAD-RHA; "VOA, Bahrain Work Brightens Future"; "VOA Program Gets Into Swing with First Trip to Morocco," *Middle East Division News*, October 1984.

⁸⁷ "VOA Program Gets Into Swing with First Trip to Morocco"; "VOA, Bahrain Work Brightens Future"; "Middle East Division Reorganization Ceremony: Leaders in Customer Care," 30 Sep 86, hist chronology, unmarked box, TAD-RHA; Statement of Work for Contract DACW 78-86-C-0001, Modification P00006, Facilities Design for the Morocco Relay Station, 13 May 87, unmarked box, TAD-RHA.

⁸⁸ Memo, Graham, 9 Jan 95; Corps-Govt Agreements [1991], R&D File 2227, TAC.



Voice of America site in Morocco, ca. 1990

work could not immediately proceed. Puerto Rico was a U.S. territory, and the National Environmental Protection Act mandated an environmental assessment report. The Middle East Division scheduled an engineering investigation report, and the Jacksonville District of the South Atlantic Division then assumed responsibility for the environmental report and the remaining work.⁸⁹

In the meantime, the division discovered that the land identified in Morocco as a borrow area was owned by over one hundred people. Instead of trying to deal with many landowners, in January 1985 the Corps returned to Morocco for another survey and selected a new borrow area north of the site. On 24 April, the division awarded a \$7.8 million contract to Cherifiennne de Travaux Africains (Morocco) for a site development package for the Tangier station. The contractor completed construction, which included stonework and building embankments and culverts, on 19 September 1986.⁹⁰

The support agreement for VOA work in Thailand closely paralleled that for the Morocco work. Phase I again involved site preparation, including clearing the land, building access roads on the 1,280-acre site, and fencing for a new station to be built near Udorn at the northern border and Mekong River. The Middle

⁸⁹ “VOA, Bahrain Work Brightens Future”; “VOA Work Begins in Thailand, Puerto Rico,” *Middle East Division News*, January 1985.

⁹⁰ “VOA Work Begins in Thailand, Puerto Rico”; “Tangier Resident Office” [1986], unmarked box, TAD-RHA; “First VOA Award,” *Middle East Division News*, March-April 1985.

East Division sent a team to the Udorn site in January and February 1985. They interviewed Thai contractors, manufacturers, suppliers, and shipping companies to collect information concerning the cost of construction. They also performed geotechnical investigations. The Corps of Engineers Pacific Ocean Division managed construction of the broadcast facilities.⁹¹

During the year of transition between the Middle East Division and the Middle East/Africa Projects Office, staff in Winchester continued to develop the design and construction program for the Voice of America. On 14 February 1986, the division awarded a \$2.7 million contract, to be completed by December, to Holmes and Narver Inc. of Orange, California, for design of a prototype radio relay station adaptable to site conditions at all major VOA sites. After months of negotiations and revisions, on 12 June 1987 the Corps awarded a \$1.05 million modification to the Holmes and Narver contract to include adapting the prototype transmitter relay station to the site at Tangier. Design was expected by December 1987, with construction to start in the spring of 1988.⁹²

MEAPO's role in the VOA program continued to expand during the Projects Office's early months. In December 1986, the VOA requested that the Corps prepare support agreements for design contracts for the stations in Morocco, Thailand, and Botswana. The agreements provided authority, funding, and guidance, allowing the Corps to manage contracts to design transmitter relay stations using the Holmes and Narver prototype. The VOA requested a fourth support agreement to cover the Corps' technical review of designs for a station in Sri Lanka, a design contract that the VOA let directly.⁹³

Earlier, over the summer of 1986, the Middle East Division had begun site investigation for work on a transmitter radio relay station in Botswana. On 27 August 1987, MEAPO awarded a \$1.8 million contract to Lockwood Greene Engineers Inc. of Atlanta, Georgia, to adapt the prototype station to the Botswana site. In February 1987, Thai Huat Engineering Company completed site preparation for a facility at Udorn under a \$700,000 contract let by the Corps' Honolulu District. In June 1987, the contract to design the adaptation of the prototype for the radio relay station in Thailand went to Hennington, Durham, and Richardson of Alexandria, Virginia. With site preparation completed and design under contract, the Honolulu District then took responsibility to manage the \$14.5 million construction contract, awarded on 29 December 1989, to Brown and Root USA Inc. of Houston, Texas.⁹⁴

Delays occasioned by congressional cuts in modernization funding disrupted construction schedules for the stations in Morocco, Thailand, and Botswana. On

⁹¹ "VOA Work Begins in Thailand"; "Work Begins on Udorn VOA Station," *Middle East Division News*, January 1985.

⁹² "VOA Design Award Tops Contract List," *Middle East Division News*, January-February 1986; Résumé of Negotiations, VOA Facilities Design for the Morocco Relay Station, Contract DACW 78-86-C-0001, MOD P00006, Holmes and Narver Inc., Orange, Calif., 13 May 87, unmarked box, TAD-RHA; "JOC, VOA Contracts Awarded," *Middle East/Africa News*, May-June 1987.

⁹³ Robert E. Kamosa to Dorr, 4 Dec 86, box 3 of 4, T-6-7, TAD-RHA.

⁹⁴ "A Firm Base for MED's Future"; "Contract Awarded," September-October 1987, and "MEAPO, POD, Team Up for VOA Project," February 1990, both in *Middle East/Africa News*.

21 September 1988, MEAPO awarded a \$22.9 million contract to J. A. Jones Construction Company for the relay station in Tangier. The contract called for construction of a transmitter and administration building, maintenance and storage buildings, guard quarters, a gatehouse, storage facilities, wastewater treatment, an electrical substation, and a water tank. The contractor began construction in Morocco in 1989. The field office staff of eleven Corps employees and a team of five VOA construction managers initially found office space in the old consulate building in downtown Tangier. In 1989, they moved to a new office at the construction site. Completion was expected in November 1990.⁹⁵

Work for the Voice of America had also developed in Liberia in western Africa, where MEAPO sent three representatives to inspect a 25-year-old VOA relay station near the capital of Monrovia. The planned work called for installing two diesel generators, a metal shed, and other small facilities. On 25 September 1989, MEAPO awarded an \$8.24 million contract to ENCORP AMCA International of Cincinnati, Ohio, for an upgrade of the Liberian station. The contract called for ENCORP to design, engineer, furnish, install, and test an upgraded electrical power plant with completion scheduled for July 1991. In March 1990, the Corps opened a resident office in Liberia to oversee the VOA project but closed the office the following month when the U.S. State Department urged nonessential personnel to leave the country because of increased fighting between government and rebel forces.⁹⁶

The next year, the Corps had a similar experience in Morocco. In early January 1991, the U.S. embassy ordered four MEAPO employees and their dependents to leave Morocco. The embassy felt that labor disturbances and tensions that broke out in the country posed a danger to Americans. Three MEAPO employees remained in Morocco along with three local hires and contract personnel. The Moroccan government provided military personnel and gendarmes as security for the Americans who remained.⁹⁷

In early 1990, the VOA asked MEAPO to adapt designs in house for facilities in Sri Lanka and for the revived Botswana project and to act as the VOA's procurement agent for communications and control-room equipment. Because of sensitivities concerning a visible U.S. military presence, MEAPO's support for Sri Lanka had been limited to technical review of the designs of the architect-engineer under direct contract with the VOA. Although the VOA eventually canceled the final design of the Sri Lankan facilities and awarded its own design/construct contract, the Corps continued its procurement activities into the 1990s. The Botswana project involved construction of a medium-wave relay station to replace an old station.⁹⁸

⁹⁵ Butler, Ofc's Call Presentation, 25–26 Apr 88, p. 11; "VOA, SWAPDOP Contracts Awarded," September-October 1988, and "Facilities Construction Starts in Tangier," July 1989, both in *Middle East/Africa News*.

⁹⁶ "Team Inspects VOA Site in Liberia," April 1989; "Pacer Chariot, VOA Station Among Contracts Awarded," October 1989; "Liberia Resident Office Closes Temporarily," April 1990; "1990: A Retrospect," January 1991; all in *Middle East/Africa News*.

⁹⁷ "Employees Evacuated in Morocco," *Middle East/Africa News*, January 1991.

⁹⁸ "MEAPO Gets New Work From VOA," *Middle East/Africa News*, April 1990; Kamosa to Dorr, 4 Dec 86; Butler, Ofc's Call Presentation, 25–26 Apr 88, p. 11; TAD, International Activities Rpt, 1



Old pier at Bonjul, Gambia, mid-1980s

By the end of 1990, MEAPO had a steady construction program for the Voice of America. The construction of facilities in Morocco had reached over 60 percent completion. Installation of equipment, including an audio, communications, and control-room subsystem, took place in 1991. Continuing civil strife in Liberia led to termination of the Monrovia power plant rehabilitation, which was just over 50 percent finished. The Corps settled with the contractor in January 1992. The work for the VOA in Botswana had not begun by the end of 1990.⁹⁹

Africa Civic Action

The idea for the program called Africa Civic Action took form in 1983 but reached implementation only in 1985 under the direction of various U.S. governmental agencies. The undertaking aimed to establish ties between the U.S. military and the military establishments of selected African countries through support of projects and activities that each country's military would undertake to benefit the local civilian population. The State Department designated the recipient countries and allocated funds; the Office of the Assistant Secretary of Defense for

Apr 92, unmarked box, TAD-RHA; "Botswana Office to Open This Fall," April 1991, and "RRAC Approves 70 New Spaces for Division," March 1991, both in *Transatlantic News*.

⁹⁹ Bfg for Carton and Behan, 1 Jun 90; Prog Rev for Ashhurst, 30 Nov 90; TAD, International Activities Rpt, 1 Apr 92; "Botswana Office to Open This Fall."



Construction workers at Camp du Kassai Bridge, Central African Republic

International Security Affairs exercised program management and project approval; and the Defense Security Assistance Agency handled direction, authorization, and funding. Various unified commands and U.S. embassies provided management and coordination, and troops from the military forces of the host government executed the construction projects. Although the Department of Defense implemented the program, the activities fell under the State Department's foreign assistance program. Congress funded Africa Civic Action annually through the budget line for the Military Assistance Program, a part of the Foreign Assistance Act. Funds came to Africa Civic Action projects through FMS case procedures.¹⁰⁰

Under Africa Civic Action, the host government's military establishment constructed facilities for civilian benefit or at least dual use by the military and civilian sectors. The United States furnished construction materials and technical assistance to the local project managers and laborers. The program aimed to improve the construction expertise of each host nation's military engineers, to improve the host nation's economic and political situations by providing infrastructure for social and economic development, and to promote regional stability. The benefits

¹⁰⁰ Engr Strategic Studies Ctr, "Corps of Engineers International Activities," Dec 91, p. 31; "Africa Civic Action: Planning and Implementation Guide," 17 Mar 88, R&D File 2437, TAC; Bfg to Maj Gen Kem on Middle East & Africa Projects Office and African Civic Action Program, 11 Jun 87, R&D File 2433, TAC.

provided to the civilian population constituted an important criterion in judging each proposed project.¹⁰¹

Africa Civic Action was subdivided into three categories: Military Civic Action, African Coastal Security, and Military Health Affairs.¹⁰² The primary purpose of the Military Civic Action component was to include African armed forces in nation building by providing them the necessary training and materials. Projects under this heading had to have a primary benefit to the civilian population in the categories of education, public works, agriculture, transportation, communications, or health and sanitation.

The African Coastal Security program, developed by the Department of Defense, focused on helping coastal states control their waters and maritime resources. Under this program, the United States did not generally provide combat vessels. Instead it provided training, technical assistance, advice, and some equipment to improve the host nation's abilities to conduct maritime reconnaissance and law enforcement, smuggling deterrence, search and rescue, pollution control, and fishing resource protection.

The Military Health Affairs program provided medical assistance to African nations, such as construction or rehabilitation of clinics, improvements to military hospitals, or provision of medical supplies and equipment. This component differed from the others in that Military Health Affairs projects were not required to benefit the civilian population directly.

The Corps provided project planning and cost estimates for the Civic Action Program, performed site surveys and technical evaluations, prepared and monitored FMS cases, and furnished technical assistance and procurement services to the various African military establishments, leaving construction to the host nation's military elements. When the program began, the Corps assigned responsibility for it to the Middle East Division; that responsibility transferred to the Middle East/Africa Projects Office.¹⁰³

The first Civic Action Program undertaken by the Corps was to rehabilitate a remote airfield built in 1956 near the town of Dirkou in the former French colony of Niger. Dirkou is in the northern reaches of Niger, eight hundred miles from the country's capital Niamey and about two hundred fifty miles south-southwest of Niger's northern border with Libya.

In December 1984, the president of Niger requested assistance from the United States with the project, intended to provide a logistical lifeline for the local citizens. In March 1985, a survey team traveled to Niger to assess the project's feasibility and to determine design and construction standards. In October, the government of Niger signed the original FMS case for \$1.23 million. Starting the following month and continuing through May 1986, Corps employees in Virginia coordinated the

¹⁰¹ Engr Strategic Studies Ctr, "Corps of Engineers International Activities," Dec 91, p. 31; Bfg for Carton and Behan, 1 Jun 90.

¹⁰² The three subdivisions are described in "Africa Civic Action," 17 Mar 88.

¹⁰³ "A Firm Base for MED's Future"; Engr Strategic Studies Ctr, "Corps of Engineers International Activities," Dec 91, p. 31; Bfg to Kem, 11 Jun 87.



Project site in Kenya, November 1989

procurement of machinery and materials for the construction project. Local troops mobilized for the work in June 1986. A Mobile Training Team from United States Army, Europe (USAREUR), arrived in July to train the Nigerian soldiers to use the equipment and to advise them on construction and maintenance. Construction started in August 1986. Almost immediately, problems arose with the equipment operated by the Nigerian troops—particularly the poorly maintained crusher—and because of the lack of usable rock.¹⁰⁴

Beginning in July 1986, the sales case underwent several amendments to increase the money available. In September, Niger requested technical assistance from the Corps; in response, MEAPO sent Dr. Robert S. Barneyback in November. At this time, MEAPO also took over responsibility for the ever-increasing requests for spare parts and the sales case was again increased, to \$1.73 million. Although by early 1987 Niger's engineer troops had laid much of the runway's base course and asphalt, problems were discovered with both. Throughout the spring, construction slowed as equipment failed and as MEAPO negotiated with the Mobil Corporation to replace the poor-quality asphalt that the company

¹⁰⁴ Lt Col Terry L. Rice, "Dirkou Airfield Rehabilitation Project, Comments by the Final Liaison Officer," 14 Dec 87, Mil Files XIV-3-2, OH, HQ USACE; Bfg to Kem, 11 Jun 87; "Barneyback, Voelker Cited for Work in Dirkou," *Middle East/Africa News*, July-August 1987.



Foundation wall for medical center at Chilumba, Malawi, October 1990

had originally supplied. In February and again in May 1987, the sales case was increased, reaching over \$2.5 million.¹⁰⁵

The overall project suffered from poor initial planning as well as from lack of unity of command and clearly defined roles. The harsh conditions in Niger and lack of suitable base course material came as a surprise to those on site and caused difficulties and delays. The lack of a central responsible agency led to difficulties in making decisions and getting the project on track. With so many agencies involved—the embassy, the Office of the Secretary of Defense, MEAPO, the European Command, USAREUR, and the 18th Engineer Brigade—the hierarchical structure and responsibilities were never clearly defined.

Originally expected to take two months, the rehabilitation project at Dirkou dragged out for sixteen months. However, on 1 December 1987, a local engineering company successfully completed a 5,250-foot runway, turnarounds, and parking aprons capable of handling C-130 aircraft. Despite the difficulties, the liaison officer assigned to the Office of Defense Attaché in the capital noted that the “mutual respect that the Americans and Nigerians [*sic*] gained is a benefit at least equal in importance to the completion of the airfield.”¹⁰⁶

The somewhat inauspicious beginnings to the Africa Civic Action Program did not discourage the U.S. government from continuing. Despite the problems in Niger, officials involved felt the program was an excellent vehicle to promote American interests.¹⁰⁷ The difficulty with the Dirkou airfield proved to be an anomaly, and later projects were completed with far fewer problems. Over the next several years and into the 1990s, the Corps continued to lend its assistance to the armed forces of several African nations. The Middle East/Africa Projects Office provided technical and logistical assistance to other U.S. agencies and foreign governments involved in the construction of roads, bridges, schools, medical facilities, and housing. A list of some of MEAPO’s projects under the Africa Civic Action Program follows in *Table 13*. Funding for the program is indicated in *Table 14*.

Department of Defense Dependent Schools

In addition to its regional responsibilities, the Middle East/Africa Projects Office also handled work for Department of Defense Dependent Schools (DODDS) worldwide. In 1986, the U.S. Congress passed the Asbestos Hazard Emergency Response Act, which mandated removal from all DoD schools of asbestos previously used in a variety of building materials. DODDS contracted with MEAPO to design a program to inspect 269 schools worldwide for the presence of asbestos and

¹⁰⁵ “Barneyback, Voelker Cited for Work in Dirkou”; Rice, “Dirkou Airfield Rehabilitation Project,” 14 Dec 87; Bfg to Kem, 11 Jun 87.

¹⁰⁶ Rice, “Dirkou Airfield Rehabilitation Project,” 14 Dec 87.

¹⁰⁷ *Ibid.*

TABLE 13—SAMPLE OF PROJECTS UNDER THE AFRICA CIVIC ACTION PROGRAM

Botswana	Provision of ambulances
Central African Republic	Camp Du Kassai Bridge
Djibouti	Site preparation for refugee and low-income housing
	Earthen dam to catch rainwater
	Repair of earth road linking Djibouti city to Hol Hol
Gambia	Yundum Medical Clinic
	Pier upgrade at Bonjul
Ghana	Water improvement project at military hospital in Accra
Guinea	Permanent floating dry dock in Conakry Harbor
Ivory Coast	Bouake Medical Clinic
Kenya	Tiwi-Mtonge Water Project, Mtonge Naval Base
Madagascar	Road and irrigation projects
	Over twenty duplexes in Antananarivo
Malawi	Chilumba Medical Clinic
Mali	Medical facilities
Mauritania	Selibaby Bridge
	Community center in Nouakchott
Niger	Airfield rehabilitation at Dirkou
	Medical facilities
Rwanda	Kanombe Pediatric Clinic
	Engineering spare parts and equipment
Senegal	Naval facility at Elinkine in Casamance region
	Hospital/clinic rehabilitation in Dakar
	Murraytown Primary School complex at Freetown for 800 students
Sierra Leone	Engineering spare parts and equipment
	Provision of a patrol boat
Togo	Engineering spare parts and equipment

Source: "Africa Civic Action: Planning and Implementation Guide," 17 Mar 88, R&D File 2437, Transatlantic Programs Center, Winchester, Va.

TABLE 14—ANNUAL FUNDING FOR AFRICA CIVIC ACTION PROGRAM
FISCAL YEARS 1985–1990
(\$ MILLIONS)

1985	1986	1987	1988	1989	1990
2.80	3.90	2.0	1.0	0.43	0.94

Source: Bfg for Mr. Allen Carton and Lt Col James Behan, 1 Jun 90, unmarked box, Transatlantic Division—Records Holding Area.

then to structure a program to remove it. MEAPO's plan called for a three-phase approach.¹⁰⁸

In Phase I, a contractor surveyed the schools and developed a plan for interim operations, containment, and abatement. Because of the concerns for the health of children, the program had an urgent status that recommended a sole-source contract, awarded to Dynamac Corporation, a Maryland company, in 1987. Dynamac took seventy samples in each school, a total of over seventeen thousand samples by mid-1988 when the survey was completed. Dynamac's tests showed that no schools were in an emergency state.

Phase II of the program involved destructive testing and design of an abatement program, and Phase III scheduled the actual removal. For this work, MEAPO was responsible for about 175 schools. In September 1988, it awarded an indefinite delivery order contract for Phase II to Baker/TSA of Pittsburgh, Pennsylvania. MEAPO used computer-aided design and drafting (CADD) to create a general design adaptable to particular schools. In September 1990, Baker/TSA received a \$4.37 million contract for Phase III hygienic and engineering services to oversee and conduct removal of asbestos, to train workers, and to conduct further surveys and assessments at several of the schools.¹⁰⁹

Eventually, the DODDS program involved 269 schools and about one thousand five hundred buildings in nineteen countries in which a total of seven different languages were spoken. MEAPO engaged one prime contractor for architect-engineer services and twelve subcontractors and consultants to work with eight Corps of Engineers field offices and five regional DODDS offices to correct the situation in schools operated for the Army, Navy, and Air Force. Phase I cost \$3.8 million. At the halfway point in late 1990, the work for Phase II had a total estimated value of \$24 million. Phase III, for which only 10 percent of the work was completed, had

¹⁰⁸ For this and the following paragraph, see Memo, Graham, 9 Jan 95; "MEAPO Tapped for Asbestos Program," *Middle East/Africa News*, January-February 1988; "VOA, SWAPDOP Contracts Awarded."

¹⁰⁹ Memo, Graham, 9 Jan 95; "MEAPO Tapped for Asbestos Program"; "VOA, SWAPDOP Contracts Awarded"; "DODDS: Asbestos Abatement Program in Full Swing," December 1989, and "PV IV Contract Awarded," October 1990, both in *Middle East/Africa News*.

TABLE 15—MEAPO PROGRAM PROJECT COST ESTIMATES
JUNE 1990
(\$ MILLIONS)

Military construction (Oman)	108.7
U.S. Central Command support	12.0
DoD Dependent Schools	125.0
Egypt	580.5
Kuwait	23.0
Bahrain	248.0
Voice of America	150.1
Africa Civic Action	11.0
Total	1,258.3

Source: Bfg for Mr. Allen Carton and Lt Col James Behan, 1 Jun 90, unmarked box, Transatlantic Division—Records Holding Area.

a total estimated value of \$100 million. Planners anticipated two additional phases to encompass periodic reinspection of the schools.¹¹⁰

Status at the End of the Decade

In FY 1990, the Middle East/Africa Projects Office expected to place \$149 million in construction. Egypt accounted for 68 percent of all placements, much of that dedicated to Peace Vector III and the Amoun Air Base. Bahrain accounted for another large portion of the placement because of construction at the Shaikh Isa Air Base. The DODDS work accounted for 32 percent of MEAPO's design work between 1987 and 1990. Other work scheduled for future years brought MEAPO's total estimated program in mid-1990 to \$1.2583 billion (*Table 15*).¹¹¹

In June 1989, MEAPO's commander, Colonel Butler, issued a memorandum that carried one of the organization's most painful announcements: "By now, most of you have read or heard that Willie Voelker pleaded guilty in U.S. District Court for the Eastern District of Virginia to accepting a bribe and filing a false tax return.

¹¹⁰ Bfg for Carton and Behan, 1 Jun 90; Prog Rev for Ashhurst, 30 Nov 90.

¹¹¹ "Miller Briefs Chief of Engineers on MEAPO Programs," *Middle East/Africa News*, April 1990; Charles Hendricks, Handwritten Notes on Staff Mtgs at HQ USACE, 16 Nov 87 and 9 May 88, OH, HQ USACE, copies in R&D File 2387, TAC; Bfg for Carton and Behan, 1 Jun 90.

Mr. Voelker had been chief of the Geotechnical Branch, from which he retired last Fall. He has been a respected Corps employee.”¹¹²

Voelker’s plea bargain had come after a three-year investigation by the Department of Justice and the U.S. Army Criminal Investigation Command of accusations initially raised in 1986 that he had issued restrictive specifications for the preparation of concrete and had accepted money from the company that the specifications favored. The case involved contracts for projects at King Khalid Military City between 1982 and 1985. The specifications mandated the use of a plasticized liquid additive to concrete called Rheobuild manufactured by a single company, Modern Advance Concrete (MAC), with offices in Boca Raton, Florida, and production facilities in Italy. The product made concrete softer, more workable, and more effective for filling molds. The special agent who conducted the investigation reported that “Rheobuild was tested thoroughly, and it was the best product on the market at the time. There’s no doubt about that.” The impropriety concerned Voelker’s accepting a MAC senior vice president’s offer of a special commission for each liter of Rheobuild used in the Saudi contracts. Over several years, the MAC vice president, who also pleaded guilty in the court hearing, arranged to have the commissions paid into overseas accounts. Over the three years of the contract, he transferred nearly \$107,000 to Voelker and retained nearly \$200,000 for himself. Neither man reported the income to the Internal Revenue Service and thus faced not only bribery but tax-evasion charges as well. When sentenced in August, Voelker received three years in prison on the bribery charge, with all but six months suspended; one year on the tax evasion charge, which was also suspended; and a fine of \$25,000.¹¹³

Colonel Butler characterized the reaction of the MEAPO community as “shocked and saddened” over the news of Voelker’s conviction. A native German, Voelker had thirty years of service with the Corps of Engineers, beginning when the Mediterranean Division had hired him to join the staff of its newly opened Gulf District. In 1976, at the time of the move from Italy to Virginia, he was one of three “indispensable” non-U.S. citizens for whom the Middle East Division petitioned the Civil Service Commission for permission to employ in positions in the United States. He had a superb reputation as a materials engineer and as an eminent expert in concrete. Throughout the investigation, many of his colleagues had defended his ethics as impeccable; they were shaken by his admission of guilt.¹¹⁴

¹¹² Memo, Butler, 12 Jun 89, sub: DoD Inspector General Investigation of Mr. Voelker, unmarked box, TAD-RHA.

¹¹³ The quote from the investigating agent appears in “Former Employee Pleads Guilty to Bribery,” *Middle East/Africa News*, June 1989. See also “2 Plead Guilty to Contract Bribery,” *Washington Post*, 10 June 1989, and other press reports, including “Voelker Sentenced to Six Months in Jail,” *Middle East/Africa News*, August 1989.

¹¹⁴ Loschialpo to U.S. Civil Service Commission, 4 Mar 76, unmarked box, TAD-RHA; Memo, Butler, 12 Jun 89, sub: DoD Inspector General Investigation of Mr. Voelker, unmarked box, TAD-RHA; Interv, Grathwol with Dorr, 11 Aug, 12 Sep, 26 Sep, 31 Oct 94, pp. 150–52, quotation from p. 151.

The Voelker conviction was a sad but, seen in proportion, minor incident in the long history of the Corps of Engineers' relations with Saudi Arabia. The illegal action involved \$300,000 out of a construction program that totaled more than \$14 billion, and it in no way compromised the quality of the construction accomplished nor implicated anyone else in the Corps. It was one of the rare breaches of integrity in a relationship between the Corps and the Saudis that spanned four decades.

Major Administrative Actions, 1986–1991

While the Middle East/Africa Projects Office managed design and construction in the Middle East and Africa, Corps initiatives and geopolitical events again produced organizational changes in the late 1980s. Pressured by strong civilian leaders in the Army secretariat, landmark legislation, and declining budgets for both civil works and military construction projects, leaders at Corps headquarters took several actions near the end of the decade to change the day-to-day procedures for managing projects. Not all of these initiatives affected MEAPO, but the adoption of the process called project management—sometimes called lifecycle project management (LCPM)—required MEAPO to manage projects differently and to reorganize its staff.

Lifecycle Project Management

The assistant secretary of the Army for civil works (ASA[CW]), Robert W. Page Sr., an engineer who came to government service in 1987 from private industry, pressed the Corps to adopt project management. Although enthusiastic about the capabilities of the Corps, Page nevertheless thought that outmoded operating and management systems burdened the organization. In early January 1988, Page told the chief of engineers, General Heiberg, that the Corps had to make basic changes in how it developed projects. He specifically suggested that districts adopt the project manager concept.¹¹⁵

At each administrative level, the Corps organized its staff by function: planning, engineering, construction, and operations. A project passed from one functional area to the next as it progressed from concept through delivery. The handoff from one function to another was often awkward, and the break in continuity confused and irritated customers.¹¹⁶ In contrast, project management as it operated in the private sector required that one person, a project manager, manage the costs and schedules for the project through all phases. The authority of the project manager extended

¹¹⁵ Interv, Martin Reuss with Robert Page, 3, 25 Jan 91, pp. 7–9, quotation from p. 9; Page to Heiberg, 4 Jan 88, Maj Gen Henry Hatch Papers, OH, HQ USACE.

¹¹⁶ “The Report of the Corps of Engineers Panel on Project Development in Partnership,” Mar 88, p. 20. Intervs, Donald Fitzgerald with Donald Cluff, 2 Dec 94, pp. 2–3; with William Augustine, 5 Apr 95, pp. 5, 16; with John Elmore, 1 Dec 94, pp. 6–8; with Allen M. Carton, 6 Dec 94, pp. 19–25; Paul Walker with Lt Gen Henry J. Hatch, 12 Feb 91, pp. 12–13.

to selection and evaluation of staff, and the system emphasized teamwork above loyalty to a technical specialty or supervisor.

The director of civil works at Corps headquarters, Maj. Gen. Henry Hatch, had personal experience with project management and endorsed Page's initiative for civil works projects. In June 1988, Hatch was promoted and succeeded Heiberg as chief of engineers; on 1 July, the Corps formally adopted project management for civil works projects.¹¹⁷ Over the next year, Corps headquarters, divisions, and districts struggled to implement the new management system.

Initial guidance regarding project management specified that, within the current allocation of staff positions, each district would designate a civilian as the deputy district engineer for project management (DDE[PM]). Districts were also to assign independent project managers for large projects and a team of project managers to oversee the projects too small to be managed individually. A project review board chaired by the district DDE(PM) would meet monthly to review and evaluate the status of all projects. A program management office at the district level would provide technical advice to the DDE(PM). The chiefs of the functional areas (planning, engineering, and construction) retained responsibility for developing the schedules, budgets, and manpower requirements for their respective functions and for providing traditional products. The first "notional" district organization chart showed project managers reporting directly to the DDE(PM); it did not show a relationship between the project managers and the functional staff.¹¹⁸

The principal lines of authority—and loyalty—in the Corps were "stovepipes," or vertical functional chains. Confronted with resistance, questions, and a variety of district organizational plans, Hatch issued memos establishing the position of DDE(PM) equal to the rank of the chiefs of engineering and construction. The directives announced that assigning a functional chief from Engineering or Construction to serve simultaneously in the DDE(PM) position, so-called dual-hatting, was not acceptable because it violated "the principles" behind the establishment of the position.¹¹⁹

Although MEAPO staff knew about the turmoil in other districts and divisions, the project management initiative had no impact on them prior to September 1989. At that time, Hatch announced that all Corps programs, including military projects,

¹¹⁷ Interv, Walker with Hatch, 12 Feb 91, pp. 4–5, 7; "Western Resources Wrap-Up," 15 Sep 88, pp. 1–2; "Special: I-88," *PAR [Public Affairs Report]*, Sacramento Dist, Dec 88; "Managers, Projects Marry for Life," *Engineer Update*, July 1988; "Implementation of Project Management," 30 Jun 88, all in Hatch Papers.

¹¹⁸ "Implementation of Project Management," 30 Jun 88, Hatch Papers.

¹¹⁹ Intervs, Fitzgerald with Augustine, 5 Apr 95, pp. 26–27; Gregory Graves with G. Edward Dickey, 6 Sep 96, pp. 25, 44–45, Hatch Papers; "Temporary Shift of Key Personnel," *Daily Staff Journal*, 3 November 1988, Gen Files 23L-5, OH, HQ USACE. Memos, Hatch, 24 Oct 88, sub: Implementing Life Cycle Project Management; Loschialpo, 27 Oct 88, sub: Grading of Positions as Deputy District Engineer (Project Management); Hatch, 11 Jan 89, sub: Implementing Life Cycle Project Management; all in Hatch Papers.

would also be managed under the project management model.¹²⁰ Because the military customer—the Army or the Air Force—obtained funds from Congress and *then* turned to the Corps for design and construction, only two functional areas—design and construction—handled the project.

In early December 1989, MEAPO held a two-day workshop to determine the most effective organization to carry out LCPM and to establish a timetable for implementation. In his opening remarks, the commander, Colonel Butler, noted that the organization had some systems in place that would make implementation of the new project management system easier: “knowing our costs of doing business, using the team approach to managing projects, and being aware of the importance of customer care to meet the customer’s needs.” In discussions at the workshop, participants decided that MEAPO would combine the Engineering and Construction Divisions to form a new, single element. The new entity would include technical and management functions, as well as some functions of contracting. Butler designated Richard Wiles as the deputy district engineer for project management and appointed a “tiger team” to refine the proposed organization. The team, headed by Larry Graham in Resource Management, included Wiles, A. O. “Ollie” Werner, Wayne Henry, and management analyst Merle Moody.¹²¹

On 1 February 1990, the acting director of military programs at Corps headquarters, Allen M. Carton, sent out initial guidance and procedures for implementing project management for military projects.¹²² Initially, only one to three Military Construction, Army (MCA), projects in each district would be managed in the new LCPM system. Since MEAPO had no MCA projects at all, the organization had several additional months to complete its plan for reorganization.

Corps headquarters issued other memos in February clarifying the guidance on project management. On 5 February, Hatch instructed division engineers to organize a new Programs and Project Management Directorate (PPMD) and district engineers to organize a similarly titled division.¹²³ This guidance gave the project management function a stovepipe, and the staff responsible for project and program management gained some parity with the chiefs of engineering and construction.

On 15 February, the MEAPO commander and key staff members briefed the South Atlantic Division commander, Maj. Gen. Robert Bunker, and his staff about the MEAPO proposal and received their approval. The MEAPO plan called for two

¹²⁰ Memos, Hatch, 29 Sep 89, sub: Project Management (PM) for Corps Programs, and Page, 1 Aug 89, sub: Reporting Scheme for Military Projects, both in Hatch Papers.

¹²¹ Memo, 1 Dec 89, sub: Life Cycle Project Management Workshop, Hatch Papers; “MEAPO to Reorganize under LCPM,” *Middle East/Africa News*, December 1989; Min, [MEAPO] Life Cycle Project Management Workshop, 4–5 Dec 89, unmarked box, TAD-RHA; Memos, 11, 22 Jan 90, 20 Feb 90, sub: MEAPO Reorganization; Memo, Merle Moody, 25 Feb 90, sub: MEAPO Reorganization Briefing to South Atlantic Division, both in unmarked box, TAD-RHA.

¹²² Memo, Carton, 1 Feb 90, sub: Project Management Guidance for Military and Support for Other Programs, Hatch Papers.

¹²³ Memo, 5 Feb 90, sub: Division and District Programs and Project Management (PPM) Organizations, Hatch Papers; Interv, Fitzgerald with Augustine, 5 Apr 95, pp. 21–22, 26–27. See also “Programs Chosen for Life Cycle Project Management,” *Middle East/Africa News* 5, no. 2 (February 1990): 8.

deputy commanders, one for support and one for programs and project management. The Office of the Deputy Commander for Programs and Project Management would oversee the Engineering and Construction (E&C) Technical Division and the E&C PPMD. On 12 March, MEAPO formally requested headquarters approval to reorganize.¹²⁴

Expecting “complete consensus by HQUSACE staff” and formal approval in early May 1990, MEAPO staff briefed the Military Programs Directorate staff at headquarters in mid-April. The headquarters response was negative.¹²⁵ In recommending rejection of the plan, Carton criticized the loss of “constructive tension” between design and construction managers and cited Hatch’s explicit prohibition against combining engineering and construction. Carton also questioned the very existence of MEAPO “in its present form” and offered several alternative organizations, including the transfer of MEAPO to the Huntsville Division or to the Europe Division. The leaders in Winchester had not expected this challenge to the very existence of their organization.

Key MEAPO leaders rebutted the points in Carton’s memo. Wayne Henry emphasized the effective working relationship between engineering and construction at MEAPO. He saw this as a contrast to the headquarters’ “very low confidence in the professionalism and integrity of the work force.” Henry defended the plan, asserting, “We [MEAPO] have gone beyond life cycle project management to life cycle project execution.” In mid-June 1990, the MEAPO commander, Col. William A. Miller, submitted a formal point-by-point rejoinder to the South Atlantic Division commander. He included a compromise proposal and a revised organization plan calling for two distinct divisions—E&C Technical Division and E&C Programs and Project Management Division—both reporting to the commander and the deputy commander for programs and project management.¹²⁶ Miller deemed the attempt to link the reorganization plan with rethinking MEAPO’s future roles and missions “inappropriate.” Nevertheless, the MEAPO plan to reorganize became tied up in the concerns at headquarters about the Corps’ overseas missions and workload, as well as in the Corps-wide difficulties of implementing project management.

Recognizing the resistance in numerous districts to implementing project management, in late June 1990 senior leaders from headquarters and various Corps field offices met at St. Michaels, Maryland, to thrash out several issues.

¹²⁴ Memos, Col William A. Miller, 20 Feb 90, sub: MEAPO Reorganization, unmarked box, TAD-RHA; Moody, 25 Feb 90, sub: Reorganization Briefing to SAD; 12 Mar 90, sub: Request for Change in Organization, with attachments; all in unmarked box, TAD-RHA.

¹²⁵ Memos, 23 Mar 90, sub: Reorganization, and 6 Apr 90, sub: LCPM Reorganization; Reorganization Bfg, MEAPO, 12 Apr 90. Memos, Dan Mauldin, 23 Apr 90, sub: Request for Approval of MEAPO Reorganization; Carton, 11 May 90, sub: Comments on MEAPO’s Proposed Reorganization; Miller, 4 Jun 90, sub: Status of MEAPO Reorganization; all in unmarked box, TAD-RHA.

¹²⁶ Memos, Miller, n.d., sub: Comments Keyed to CEMP-CP MEMO Dated 11 May 90, and Henry, 5 Jun 90, sub: Comments on OCE Nonconcurrency with MEAPO’s Proposed Reorganization; A. O. Werner, “Comments on OCE Nonconcurrency with MEAPO’s Proposed Reorganization and Subsequent Comments by Col Miller and Wayne Henry,” 6 Jun 90; Memo, Miller, 11 Jun 90, sub: Response to CEMP-CP Comments on MEAPO’s Reorganization Request; all in unmarked box, TAD-RHA.

They defined and differentiated the roles and responsibilities of the Program and Project Management (PPM) staff and the technical staff. The project manager, working under the DDE(PPM), would have responsibility for project schedule and cost and would provide overall leadership in project implementation. The technical managers, working under the functional chiefs, would provide the technical products such as studies, plans, and designs.¹²⁷ Even with this clarification, the MEAPO proposal to combine the two major technical divisions under a single manager was an anomaly.

Rethinking the Future of the Middle East/Africa Projects Office

While MEAPO and other Corps field offices in the continental United States were struggling with the mandate to implement project management, several significant international events and geopolitical changes took place. For decades the two superpowers—the United States and the Soviet Union—had faced each other across fortified borders that divided Europe. The most visible and symbolic expression of the divide between West and East was the Berlin Wall. Between 1989 and 1991, the Berlin Wall fell, the Cold War ended, and the Soviet Union disintegrated into its constituent states. In another quarter of the world, a broad coalition of nations participated in a short but intense war in the Middle East involving the oil resources of the Arabian/Persian Gulf region. The monumental changes in the world order suddenly and dramatically affected U.S. national security policy, defense budgets, and the Corps' military construction program.

The sudden “outbreak of peace” in Europe and the concomitant reassessment of U.S. foreign policy had a particularly severe impact on the U.S. military construction program, particularly the Corps of Engineers' Europe Division.¹²⁸ With headquarters in Frankfurt, Germany, the division's principal customers for design and construction services were U.S. Army, Europe, and U.S. Air Forces in Europe.

In January 1990, barely two months after the Berlin Wall fell, Secretary of Defense Richard Cheney imposed a hiring freeze throughout the Department of Defense and a three-month moratorium on new military construction. When Cheney extended the moratorium in April and again in June, the financial problems of the Europe Division, already under orders to reduce the staff, worsened. Although EUD cut the number of employees from 1,011 in September 1989 to 710 in September 1990, the projection of affordable staff for FY 1990 was only 535. The discrepancy created a deficit for the division of \$7.4 million. The acting director of Military

¹²⁷ Min of Mtg, HQ USACE Senior Leaders on Progs and Project Mgmt, 27–28 Jun 90, St. Michaels, Md., an. A, in Engr Strategic Studies Ctr, “U.S. Army Corps of Engineers Program and Project Management (PPM) Study,” 1991; Memo, Maj Gen Patrick Kelly and General Ray, 8 Mar 91, sub: Project Management Regulation ER 5–7–1; both in Hatch Papers.

¹²⁸ Robert P. Grathwol and Donita Moorhus, *Building for Peace: U.S. Army Engineers in Europe, 1945–1991* (Washington, D.C.: U.S. Army Center of Military History, U.S. Army Corps of Engineers, 2005), pp. 372–88.

Programs, Carton, injected his concern about “the EUD problem” into considerations of MEAPO’s request for reorganization to implement project management.¹²⁹

By mid-1900, Corps headquarters had initiated another process that impinged on issues of organization and structure. In response to a congressional mandate, the Corps undertook a study of the field structure—divisions and districts—that had existed virtually unchanged since the 1930s. MEAPO, which operated overseas using money from foreign governments and U.S. funds other than Military Construction, Army, and Military Construction, Air Force, was not directly affected by the possibility of reorganization explored in that study. Nevertheless, MEAPO stood out as an unusual field element. EUD was not directly affected by the reorganization study either; but as the mission in Europe declined, the rationale and support for retaining an operating division in Germany dissipated.

Like Carton, Brig. Gen. Ernest J. Harrell, EUD’s commander, saw similarities between the EUD and MEAPO missions. Administering both construction programs seemed an attractive option. On 1 June 1990, Harrell wrote a letter to Hatch proposing the transfer of the Corps’ Middle East and Africa responsibilities and operations to EUD in Frankfurt. Hatch assigned to the Resources Management Office (RMO) in headquarters responsibility for recommending a response. Colonel Miller informed the MEAPO staff of these developments and reported that Hatch would meet with Harrell; General Bunker, the commander of South Atlantic Division; and Miller in July. With this meeting pending, Miller decided to put “in abeyance” requests for approval of the MEAPO proposal to reorganize for project management and the proposal for a new headquarters building.¹³⁰

The first staff paper from the RMO at Corps headquarters endorsed Harrell’s proposal, but both the South Atlantic Division and the Middle East/Africa Projects Office found it unacceptable. Bunker indicated support for an EUD/MEAPO merger if it resulted in a new division-level organization with the division flag in the United States. Miller and the MEAPO director of resource management, Larry Graham, met with the headquarters chief of resource management, John Wallace. With his permission, they drafted a decision document recommending establishment of a joint EUD and South Atlantic Division/MEAPO task force to prepare a plan to locate a division-level organization in Winchester, Virginia. Hatch received the draft memo in mid-July but took no immediate action.¹³¹

On 30 July, Hatch met with Bunker, Harrell, Wallace, Carton, and Miller in Washington. The chief of engineers approved in concept a consolidation of EUD and MEAPO into a new operating division with principal headquarters in Winchester. He

¹²⁹ Memo, Brig Gen Ernest J. Harrell to Staff, 17 Jan 90, OH, HQ USACE; Msgs, Harrell, 7 Feb 90, Current Files, EUD-RMO; “Commander’s Comments” and “Reduction in Force Procedures Show Employees Their Standing,” both in *Corps’ Line*, June 1990; Bfg dtd 13 Jul 90, Current Files, EUD-RMO. See also Intervs, authors with Allen M. Carton, 22 Apr 97, pp. 338–44, and with John Wallace, 19 Dec 96, pp. 6–28, Europe Division, Records Management Office.

¹³⁰ Memo, Miller, 25 Jun 90, sub: Important Information Regarding MEAPO’s Future, R&D File 2370, TAC.

¹³¹ Memos, Miller, 28 Jun 90, sub: Update on Merger of MEAPO and EUD, and 17 Jul 90, sub: Update #3 on Merger of MEAPO and EUD, both in R&D File 2370, TAD-RHA.

also directed a task force of EUD and South Atlantic Division/MEAPO employees to develop a study plan that would recommend the best organizational structure of a merged EUD and MEAPO.¹³² Leaders from USACE, MEAPO, and EUD agreed that there would be no public disclosure of the discussions and that neither EUD nor MEAPO would be subordinate to the other during the transition period.

International Events Intervene

Before Corps staff could begin the organizational study, international events intervened in a way that directly and immediately involved MEAPO. On 2 August 1990, more than one hundred thousand Iraqi soldiers launched an attack on Iraq's neighboring state of Kuwait. Four days later, after conferring with Secretary of Defense Cheney and top U.S. military officials, the Saudi Arabian government formally invited the United States to send troops to defend Saudi Arabia, to enforce UN sanctions imposed on Iraq, and to prepare an offensive attack to liberate Kuwait. On 8 August, President George H. W. Bush ordered U.S. forces deployed to the region in an operation called DESERT SHIELD. The Iraqi invasion of Kuwait, the Saudi request for assistance, and Operation DESERT SHIELD created a number of pressures on MEAPO, which had civilian employees in field offices in Egypt, Oman, Bahrain, Morocco, and Kuwait, as well as in Saudi Arabia.¹³³

The harrowing experiences of two civilians in Kuwait since 1987 illustrate the perils that MEAPO employees working in the region and their families faced. Following instructions from the U.S. embassy, Bobby Higgins and his wife Odessa remained in their apartment from 1 to 5 August 1990, after which they fled to the embassy with their car, food, and three pieces of luggage. Among the first Americans to take sanctuary in the embassy, the Higgins couple stayed there until they were told they could leave—under Iraqi military escort—in an auto caravan to Baghdad. During the trip, their car was rammed and Mrs. Higgins broke her hip. The couple returned to Kuwait City to find medical treatment. Embassy officials and well-meaning Kuwaitis took them to three different hospitals before they were accepted for treatment in apparent safety. Finally, on 1 September, the Iraqis evacuated the couple on a small plane to Baghdad. The next day, they flew to Paris, then on to London and Washington, D.C.¹³⁴

Because MEAPO was the DoD agent for contract construction in the Middle East, virtually all of its offices became intensely involved in the war. Numerous employees went to Saudi Arabia and Kuwait on temporary duty. The Corps sent both the commander, Colonel Miller, and the deputy commander, Lt. Col. Charles

¹³² Miller, Rpt to MEAPO Staff, n.d., sub: Results of General Officers Meeting 30 July 1990; Bfg, EUD/MEAPO Merger IPR [In-Progress Review], 12 Sep 90; both in Documents on Merger of MEAPO and EUD, 1990–1991, R&D File 2370, TAC.

¹³³ For coverage of the activities of the Corps of Engineers in the Gulf War, see Janet A. McDonnell, *Supporting the Troops: The U.S. Army Corps of Engineers in the Persian Gulf War* (Alexandria, Va.: U.S. Army Corps of Engineers, 1996).

¹³⁴ "Trapped in Kuwait," *Middle East/Africa News*, January 1991.

“Stoney” Cox, to the area. On 15 August 1991, Cox arrived in Dhahran to set up the MEAPO (Southwest Asia) forward office. Later in the month, Hatch dispatched Miller to CENTCOM headquarters in Riyadh. The South Atlantic Division assigned the deputy district engineer from Jacksonville, Lt. Col. William D. Brown, to Winchester as acting commander of MEAPO.

In mid-August 1990, just days after the Iraqi invasion of Kuwait, the task force considering the future of EUD and MEAPO had its first meeting. Jude Breitwieser from RMO in headquarters chaired the meeting. Ollie Werner, Larry Graham, and Merle Moody represented MEAPO; EUD sent two representatives; and the South Atlantic Division sent one. The task force recommended creating an operating division in Winchester and downsizing EUD to “appropriately-sized area office(s) in Europe.” The proposed timetable called for autumn meetings in Frankfurt and Winchester, with a new organizational chart and allocation of manpower completed by 1 March 1991 and the new division formally activated seven months later, on 1 October 1991. By September 1990, a timeline for establishing the new division had been advanced by six months, to 2 April 1991.¹³⁵

Despite the task force’s recommendations, both Harrell and the new South Atlantic Division commander, Maj. Gen. John Sobke, offered counterproposals, citing the additional work developing in the Middle East. MEAPO informally asked EUD about sending temporary-duty personnel to Winchester. Harrell responded by suggesting that his division take on the new work, noting that it had a number of people with experience in the Saudi program. Sobke proposed maintaining MEAPO as a district and downsizing the Europe Division to a district, both under the South Atlantic Division. In mid-October 1990, activities at Corps headquarters geared toward reorganizing the entire field structure became more prominent. Concerned that any action regarding MEAPO or EUD might “adversely affect” the flexibility he wanted for restructuring the entire Corps field structure, Hatch “decided to hold in abeyance” the decision on the Corps’ operations in Europe and the Middle East.¹³⁶

Transatlantic Division

On 20 December 1990, Hatch announced that EUD would be a “tailored district subordinate to a renamed ‘MEAPO’” and that the new organization would be subordinate to the South Atlantic Division. This announcement came after meetings in Frankfurt in mid-December to develop an action plan for implementing the new organization. Ken Griggs of the South Atlantic Division, Ollie Werner of MEAPO, and Louis Brettschneider of EUD met with EUD leaders. Because Harrell would be leaving Europe to command the North Pacific Division in Portland, Oregon, Sobke

¹³⁵ Memo, n.d., sub: Consolidation of EUD-MEAPO Information to all Employees, 27 Aug 90; Bfg, EUD/MEAPO Merger IPR [In-Progress Review], 12 Sep 90; both in unmarked box, TAD-RHA.

¹³⁶ Harrell to Hatch, 14 Aug 90, sub: Work in Saudi Arabia; Sobke to Edgar, 14 Sep 90; Memo, Hatch, 11 Oct 90, sub: Organization Structure and EUD Future; all in unmarked box, TAD-RHA.

was “solely in charge” of the transition planning.¹³⁷ The team developed milestones that set 28 February 1991 as the transition date.

Selecting names for the new entities posed a problem. Werner’s memo to the MEAPO commander reported that the team proposed “the European District” reporting to the “Atlantic Ocean Division answering to the South Atlantic Division.” Staff in MEAPO, military and civilian alike, welcomed the opportunity to get a new name; but being a division that reported to *another* division would continue the confusion over the organization’s independence and authority. What to call the revamped Europe Division also created some controversy. Some staff in Europe did not want to be “reduced” to a district; but the EUD deputy, Col. John Moravec, thought the organization should become an area office because of its small workload.¹³⁸ “Atlantic Division” drew at least one expression of concern that it “may cause some confusion to an outsider because of the perceived sense that a subdivision of the whole (South Atlantic Division) should answer to the whole (Atlantic Division), and not the reverse.”¹³⁹ In the end, the Corps settled on Transatlantic Division (TAD) and Europe District (EUD). The chief of engineers selected Brig. Gen. Eugene S. Witherspoon as TAD commander and named Col. Daniel Waldo, former deputy of the Europe Division, as EUD commander.

Tying Up Loose Ends

For several months, the staff team led by Griggs, Werner, and Brettschneider continued working to develop the parameters of authority and procedures for the new operating division and its district. One challenge for both organizations was the implementation of a new organizational structure and new procedures to implement lifecycle project management. Although Sobke urged Hatch in late October to approve the MEAPO reorganization, the chief of engineers did not act on MEAPO’s 11 June 1990 memo until 28 January 1991, less than a month before MEAPO was redesignated as the Transatlantic Division. Witherspoon named Richard Wiles the deputy commander for programs and project management, Wayne Henry as head of the E&C Programs and Project Management Division, and Ollie Werner as chief of the E&C Technical Division.¹⁴⁰

¹³⁷ Memo, Hatch, 20 Dec 90, sub: Futures of Europe Division (EUD) and the Middle East/Africa Projects Office (MEAPO), unmarked box; “Roles Shift as Europe Division Reorganizes,” HQ USACE Internal News Briefs, 7 Jan 91, unmarked box; Interv, authors with Col Daniel Waldo, 4 Dec 91, pp. 6–7, Oral History Collection; Memo, Werner to Miller, 20 Dec 90, sub: MEAPO/EUD Transition, unmarked box; all in TAD-RHA.

¹³⁸ Memo, Werner to Miller, 20 Dec 90; MFR, Griggs, 20 Dec 90, sub: EUD Merger, unmarked box, TAD-RHA.

¹³⁹ Memo, Gary Lloyd, 8 Jan 91, sub: Name Change for Middle East/Africa Projects Office (MEAPO), unmarked box, TAD-RHA.

¹⁴⁰ Memos, Werner, 1 Apr 91, sub: Authorities and Procedures for the Transatlantic Division and Europe District; Sobke to Hatch, 23 Oct 90, sub: MEAPO’s Implementation of Life Cycle Project Management (LCPM); Hatch, 28 Jan 91, sub: MEAPO’s Reorganization Request; Witherspoon, 1

On 17 January 1991, coalition forces commenced Operation DESERT STORM, an air campaign to destroy critical Iraqi targets. The coalition launched a ground campaign on 24 February; within one hundred hours, coalition forces had routed the Iraqi Army.¹⁴¹ After the fighting ceased, U.S. forces helped to protect Iraqi Kurds in northern Iraq and to rebuild Kuwait. The new Transatlantic Division played an active role in both operations.

Coming Full Circle

The civilian personnel who had staffed the Middle East Division in 1986 had found the demotion of their organization to district status uncomfortable. On their behalf, their commander, General Ray, had made a strong argument that the talents existing among the division's staff represented a resource that allowed the Corps of Engineers to "be responsive to future projects in the region while maximizing the economic use of USACE resources."¹⁴² Ray had insisted that no other organization within or outside the Corps could respond with a "cohesive work force that would understand and be compatible with operations in the area." The events of 1990–1991 justified every confidence that General Ray showed in his personnel and in their abilities to respond to an emergency situation with alacrity and aplomb. Fortuitously and perhaps significantly for the successful integration of MEAPO personnel into Operation DESERT SHIELD/DESERT STORM, Ray had advanced to major general and director of military programs for the Corps of Engineers by the time Iraq invaded Kuwait.

MEAPO personnel performed well during the crisis, and the volume of business handled by the Projects Office increased as a result of the Gulf War and the postwar reconstruction. As a result, the chief of engineers, General Hatch, decided to return the organization to division status, even in the midst of downsizing within the Department of Defense. The Transatlantic Division, created in early 1991, inherited an illustrious tradition built by Corps of Engineers personnel in the Mediterranean and the Middle East over forty years.

Feb 91, sub: LCPM Reorganization; all in unmarked box, TAD-RHA. "Engineering and Construction Reorganization Approved," *Middle East/Africa News*, January 1991.

¹⁴¹ "Department of the Army Historical Summary, 1990–1991" (Draft), pp. 12–13, copy in archives, U.S. Army Center of Military History.

¹⁴² All quotations in this paragraph from Ltr, Ray, 26 Aug 85.

CONCLUSION

ARMY ENGINEERS OVERSEAS CHALLENGES, OPPORTUNITIES, AND CHANGING TIMES

The activities of the U.S. Army Corps of Engineers in the Mediterranean and the Middle East after World War II were closely tied to U.S. security interests and foreign-policy objectives during the Cold War. In 1947, when the Truman administration announced its decision to protect Greece and Turkey from Soviet and Communist pressures, the engineers became agents of economic recovery in Greece and advisers for military modernization in Turkey. When the United States needed air bases in proximity to the Soviet Union to make credible the policies of containment and nuclear deterrence, the engineers built bases in Morocco, Libya, and Turkey. Advances in technology extended the range of U.S. military aircraft, but the contest with the Soviet Union for worldwide influence continued. Particularly in the Middle East, U.S. foreign policy shifted to emphasize the cultivation of friendly nations through military and economic assistance. Army engineers progressively expanded the geographic extent of the Corps' activity by setting up operations in Iran, Pakistan, Afghanistan, and East Africa. To monitor work in the Mediterranean and Middle East, the Corps of Engineers maintained a division headquartered in the area—in Morocco, in Italy, and then in Saudi Arabia—from 1952 to 1985. Even after the Corps returned the division headquarters to the continental United States, a cadre of personnel remained at work throughout the region.

With U.S. funds, the engineers built airfields, warehouses, schools, hospitals, chapels, communications sites, and dormitories for use by the U.S. military services: the Army, the Air Force, and occasionally the Navy. They built cantonments, air bases, runways, mess halls, maintenance shops, and storage facilities in an effort to modernize and improve readiness and living conditions for military forces in countries generally supportive of the West and of anti-Communist alliances. In several countries, the engineers undertook projects designed to improve the local infrastructure, such as roads, air terminals, wharves, and piers. Elsewhere, particularly in Saudi Arabia, the engineers oversaw the design and construction of projects paid for by the host country.

In all of the countries in which the engineers operated, they worked in accordance with U.S. government regulations on contracting and the procedures of American professional engineers. American architect-engineer firms executed the majority of design; American contractors handled the construction, particularly in the early decades. Nevertheless, the engineers working overseas encountered special challenges and unusual problems. The programs that were sponsored by other U.S.

agencies, such as the Agency for International Development, required the engineers to develop effective interagency partnerships. Maintaining a close working relationship with the U.S. embassy in each country was mandatory. As a representative of the United States, each employee of the Corps had to be adept in diplomacy as well as a specialist in design, construction, or management. Collectively, Corps actions, activities, and efforts came under scrutiny from the U.S. Congress, the Department of Defense, and the ultimate users of the facilities.

For all of the billions of dollars (and riyals) spent, for all of the tons of aggregate, sand, cement, and steel used to construct facilities in the Mediterranean basin, the accomplishments of the Corps of Engineers redound to people—literally thousands of individuals who worked for and with the organization. People formulated the plans, created the designs, let the contracts, ordered and managed the flow of equipment and materials, assembled the workforces, inspected the construction, operated the machinery, and paid the bills. The stories of the few people who appear in this historical narrative as actors in particular events capture little of the rich tapestry of individuals that comprised the day-to-day history of over forty years. Although the organization changed successively from the Mediterranean Division to the Middle East Division to the Middle East/Africa Projects Office and then to the Transatlantic Division, the significance of the people remained constant and central.

In the first three decades of this history, the preponderance of men and women engaged in the mission of the Corps overseas lived and worked overseas. Those serving in the military usually did not have the option of accepting or declining the overseas assignment, and often their families did not have a choice either. Civilian employees of the Corps of Engineers chose the overseas assignments. Numerous service members, civilians, and their dependents found the work and the living situation satisfying as well as challenging.

In the 1950s, Americans rarely had opportunities to live and work abroad. Even in 1960s and 1970s, an assignment to the region generally meant a location that qualified as exotic: Turkey, Iran, Afghanistan, Pakistan, Somalia, Libya, Eritrea, and the Arabian Peninsula. The people who chose these locations were willing to live and work in circumstances vastly different from the comfortable life and conventional career paths that employment with the Corps offered in the continental United States.

The work itself offered challenges as well as a range of experience, responsibility, and freedom that was simply not available in the United States. The pace was often intense—the pressure to complete the Moroccan air bases, for example—but the engineers keenly felt the importance of their mission. Unlike some projects in the United States, overseas projects could not drag out for decades. The intensity of activity continued in the Saudi program in the 1970s and early 1980s, in part because of the sheer volume of the program. George Kingsley, who joined the counsel's office of the Middle East Division in Riyadh, Saudi Arabia, in February 1982, said that he developed “a completely different work ethic [because] you just had to work constantly.”¹

¹ Interv, authors with George Kingsley, 10 Mar 95, p. 7.

The leaders overseas, civilian as well as military, became intensely involved with their employees because they had responsibility for the *whole life* of the staff—from housing, to education of dependents, to medical care, to recreation. The behavior of the employee, or any family member, had potential diplomatic implications that could impinge on the relations between the United States and the host country. For example, Col. Peter Grosz established guidelines for what women could wear in public in Saudi Arabia—dresses that reached at least down to the knee, sleeves to at least mid-arm, and no slacks or shorts.² With Italy as the exception, social outlets in the overseas locations were circumscribed and family members had limited opportunities for work. The life-support issues were of vital concern to the leaders who had to attract and retain personnel.

Life in Morocco, Libya, and Turkey had a certain allure. Italy, even with all its postwar problems, was enchanting, what several employees called “the best-kept secret” in the Corps of Engineers. Along with Greece, Turkey, Iran, and Egypt, it offered architectural and archaeological remains of great civilizations of the past, many accessible for a weekend visit. In the 1950s and 1960s, the cost of living and touring in these countries was still a bargain for Americans who ventured there.

Conditions of life for Corps personnel working in the Mediterranean and Middle East fostered a spirit of community. When housing at remote construction sites was scarce, expensive, and/or inadequate, the contractor supplied housing for Corps personnel. In Morocco in the mid-1950s, contractor personnel, military personnel, and civilian employees of the Corps lived and worked together in the same communities, “intermixed to the point where you would not have been able to tell one from another . . . in civilian attire.” A similar cohesion developed among employees in the Mediterranean Division in Italy, even though employees lived in housing dispersed along the coast and near Livorno. Some division staff enjoyed the Scuderia Aurelia Sports and Touring Car Club, a group of sports-car enthusiasts who held rallies once a month on a Sunday afternoon followed by a communal meal in a local restaurant. Another group of division employees—American civilians, U.S. military, Italian coworkers, and new-found Italian friends—took a chartered rail coach to Monaco each May for three or four days to watch the Grand Prix of Monte Carlo auto race. The division offered folk-dancing classes and had a theater group that produced plays and musicals.³

The cohesiveness was harder to maintain in remote and less-developed areas, but the district offices tried nonetheless. The Castle Club in the Gulf District from the late 1950s to 1967 and the Desert Inn in the Saudi Arabia District after 1967 served as popular gathering places. District headquarters in Tehran also maintained sports facilities such as squash and racquetball courts, tennis courts, soccer fields, and swimming pools.

² Peter Grosz, “Saudi Arabia District, 1968–70,” n.d., pp. 5–6, provided by Colonel Grosz, copy at Transatlantic Programs Center, Winchester, Va.

³ Intervs, Moorhus with W. Justin Long, 14 Mar 95, p. 15, and authors with Wolfram Wolz, 19, 24 Nov 93, pp. 27–28; quotation from Interv, Nanse Grady and Charles Hendricks with Col (Ret) Philip W. Regar, 20 Dec 89, 26 Feb 90, pp. 133–34, 138–39.

Conditions for Corps employees working in Saudi Arabia changed markedly from the mid-1960s to the late 1980s, in part because conditions in the country changed so dramatically. In the early years, Corps employees lived in leased villas scattered around Riyadh; into the early 1970s, Saudis and Americans mixed socially as well as officially. Although the country was Islamic and activities for women were severely restricted, Colonel Reisacher entertained frequently in his home and developed close relations with several Saudis. As one gesture of friendship, the former liaison to the Corps from the Ministry of Defense and Aviation, Mahmoud Nassief, gave Reisacher two ornately carved wooden doors that had graced the entrance to Nassief's grandfather's library, reputedly one of the finest literary collections in all of Arabia.⁴

In the years after the Corps activated the Middle East Division and large numbers of Americans arrived in Saudi Arabia, the atmosphere changed. As Saudi Arabia moved increasingly into international prominence and the cities took on modern characteristics, the Saudi bureaucracies became more structured and relations between Saudis and Americans became more formal. Given the good employment market in the United States in the late 1970s, the new division's first commander faced an old problem—recruitment. His response was similar to that of Corps leaders in Morocco, Karachi, and Tehran: consolidate the living quarters and sponsor construction of two major housing complexes, one designated for families and one for single and unaccompanied personnel. Through the remaining years of the Middle East Division in Saudi Arabia, division employees in Riyadh lived in large, self-contained compounds. Because women could not drive in the country, the division provided buses and drivers for the unaccompanied female employees. What employees gained in comfort and security they lost in contact with the local people and culture.⁵

One of the characteristics of Corps offices outside the United States is the presence of both local nationals as coworkers and employees who are neither Americans nor nationals of the host country. Citizens of the host country worked for the Corps in virtually every division and field office, frequently in clerical or manual-labor positions, occasionally in more technical positions. The local nationals generally worked under their own country's employment rules rather than under U.S. labor law. The Italians in the Design Section of the Mediterranean Division, for example, received all of the benefits of Italy's civil service, as well as all official Italian holidays. When the division left Italy, the Italian employees still on its roster could not by Italian law be terminated, so they were transferred to the Europe Division's payroll.

Although Saudi military officers and engineer trainees worked in Corps offices, few Saudi civilians worked for the Corps. One, however, became well known to virtually all Corps employees who worked in or traveled to the country during the

⁴ Inters, authors with Adrian Hromiak, 6 Feb 94, pp. 22–23, and with Col (Ret) Robert Reisacher, 25 Oct 94, p. 26; Conversation, Reisacher with authors.

⁵ Inters, authors with Patricia Hill, 24 Nov 93, p. 12, and Moorhus with Betty Jo Naylor, 31 Jan 95, pp. 10–13.

1970s and 1980s. The Corps engaged Bakheet M. Al Malik through a personal-services contract. Dubbed Superman, he earned his nickname because he proved extraordinarily adept in bringing newly arriving personnel through customs, in wending his way through the Saudi governmental bureaucracy, and in a variety of very practical services.

Foreign nationals played an important role in the successful execution of the programs and projects. The Corps recruited foreign nationals on site in all the countries in which it operated and from countries in northern Europe as well. Germany proved a fertile recruiting ground in the 1950s; but division employees also came from France, Morocco, Egypt, Turkey, Greece, and other countries around the region. The occasional appearance of names such as Orhan Cankardes from Turkey, Albert Charmot from France, Wilhelm Voelker from Germany, Arthur Chapman from England, and Giovanni "John" Trapanese from Italy barely suggests the range and the importance of the contributions made by third-country or local nationals. Not least of their contributions was a facility with the language and culture of their respective regions.

One incident illustrates the sort of inventiveness demanded of Corps employees in the overseas environment. After the Gulf District had closed its offices in Tehran, the Mediterranean Division headquarters in Italy received a letter in Farsi from the Iranian Planning Commission. Paul Wheeler, a former Gulf District employee, read some Farsi but not enough to decipher the letter. A second American employee, Robert Imagire, spoke Farsi with his Iranian wife but did not read it. A third employee, Egyptian-born Victor Saikali, knew Arabic, not Farsi, but he could sound out the words in the letter because the two languages use the same alphabet and phonetic marks. Saikali read the letter aloud; Imagire translated what he heard to English; and Wheeler, who knew the work that the division had accomplished in Iran, extrapolated from Imagire's translation to make sense of the letter.⁶

When the Corps operations in the Mediterranean/Middle East split into a forward headquarters in Riyadh and a rear headquarters in Winchester, Virginia, the nature of the workforce engaged in the Corps' overseas mission changed. Although the division needed a large number of people to work in Saudi Arabia and these positions offered challenges, opportunities, and promotions for a wide range of job classifications, the work assigned to the rear also offered an unusual range of opportunities. The workforce in Virginia included old-timers like Dick Wiles, a Corps employee since 1957, well-known both for his willingness to travel overseas "at the drop of a hat" and for never taking more than a single carry-on bag, whether the trip was three days or three weeks. The new recruits into the overseas work included Roger Thomas, who transferred from the Baltimore District. After working on the Saudi Arabian National Guard and King Abdulaziz Military Academy programs, he was given responsibility for the Oman program at age twenty-nine. Once, when asked by Corps employees from other divisions what he was working on, he answered, "a couple of housing packages." His answer to the followup

⁶ The incident is described in Interv, Moorhus with Paul S. Wheeler, 31 May 95, pp. 10–11.

question about the estimated construction cost startled his colleagues: “A billion dollars.” “You mean a million, right?” “No,” he answered, “No, I mean a billion.” The scope of the projects seemed unbelievable. Although he never had an overseas assignment, Thomas traveled to Saudi Arabia, Oman, and Bahrain, frequently for stays of thirty to sixty days.⁷

As Thomas’ career illustrates, advances in communications and in airline travel, as well as willing employees, made it possible to manage overseas construction efficiently from within the continental United States. Construction managers still had to work at the project sites, which were often remote; but enhanced communications (improved telephone service, the fax machine, and e-mail) helped these employees feel less isolated. Improved travel opportunities made frequent home visits possible.

In spite of changes made possible by technology, the challenge remains for the Corps: how to manage the overseas construction mission. However much money, whatever the projects, people are the essential ingredient. For almost forty years, in almost every instance at the initiation of a major program, Corps offices began their work with insufficient and inexperienced staff. What was true in Morocco, Libya, Turkey, and Saudi Arabia in the early 1950s; in Iran and Pakistan in the late 1950s; and in Afghanistan, Somalia, and Saudi Arabia in the 1960s remained true for new programs in the 1970s and 1980s. Recruiting remained a problem throughout the Corps’ involvement in the Mediterranean and the Middle East.

Col. Paul D. Troxler, who faced this situation, drew lessons from his experiences as deputy district engineer in Greece in 1947–1948 and as district engineer in Libya in the early 1950s. Having seen the effects of understaffing in the early stages of the programs, Troxler suggested that the chief of engineers maintain a permanent group of overseas specialists directly under his command. Troxler envisioned that seasoned overseas hands—construction workers, auditors, supply personnel, administrators, legal personnel, and all the rest—would have permanent assignments within the Corps but would be organized and on call for deployment overseas. They would command all of the talent, experience, and skill necessary to launch a district-level office and to integrate its operations into a foreign theater. If the Department of Defense wanted to initiate a construction program abroad, the chief of engineers could call on the talent and experience of these trained and experienced civilian specialists and military personnel to get the project or program started. Troxler’s proposal never received formal endorsement or implementation, perhaps not even an acknowledgment.⁸ The technological advances of the intervening years, especially the facsimile of the 1980s and the e-mail of the 1990s, have made management of overseas work easier. Still, electronic communications devices are only tools; they do not replace people.

⁷ Interv, Moorhus with Roger Thomas, 27 Aug 96, pp. 4, 37–40.

⁸ “Historical Summary, Mid. East Dist., June 1950–September 1951,” p. 19, in Office of the Chief of Engineers, “Historical Summary, 1950–1951,” Gen Files 2-1, Office of History, HQ U.S. Army Corps of Engineers, Alexandria, Va.

Fortunately for the United States, the Middle East/Africa Projects Office (MEAPO) retained the services of the experienced engineers and managers that Troxler had counted on to staff his proposed teams. These people were still organized to act quickly in an overseas setting. Thus, when Saddam Hussein attacked Kuwait in August 1990 and the U.S. military needed to provide for a rapid buildup to support a strike force in Saudi Arabia, MEAPO filled the role. Drawing on the experience of forty years of service in the region and twenty-five years of contract work in Saudi Arabia, MEAPO personnel rushed into action to organize the construction and contracting necessary to support half a million coalition soldiers preparing to engage the enemy. The performance delivered by the men and women of the Middle East/Africa Projects Office confirmed the value of the overseas mission and of the experience reaped by the Corps of Engineers in its half century of service in the Mediterranean and the Middle East.

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Records Collections, Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Virginia

The Records Collections are located on the ground level of the Kingman Building at the Humphreys Engineer Center in Alexandria. Records include an extensive oral history collection of both tapes and transcripts; sorted documents in Military Files and General Files; the papers of former chiefs of engineers, Lt. Gens. Samuel D. Sturgis, Walter K. Wilson Jr., and Frederick J. Clarke; documents from the Mediterranean Division collected by Richard T. Farrell; documents from the Middle East Division collected by Dr. Paul Walker, identified in this manuscript as “Walker box” with a number. Dr. Farrell collected ten boxes of documents, a total of about fifteen linear feet, in the mid-1970s to write the history of the Mediterranean Division. He died before completing the project.

Copies of documents collected by the authors for a history of military construction in Europe, many of them relevant to the Mediterranean and Middle East Divisions, are also located at the Office of History in Virginia and designated as the Europe Division (EUD) Collection.

Washington National Records Center, Suitland, Maryland, and Federal Records Center, Bayonne, New Jersey

The WNRC is a branch of the National Archives and Records Administration. It contains all of the Standard Form 135 sheets that the Corps of Engineers uses to retire materials. The documents held in the records center are still owned and controlled by the retiring governmental agency.

Two accessions deposited by the Corps of Engineers are located within Record Group (RG) 77: accession number 77-92-0001 (thirty-eight large boxes) and 77-92-0002 (thirty-five large boxes). The one relevant holding in Bayonne is RG 77, accession number 77-004, box 682799.

Records Holding Area, Transatlantic Programs Center, Winchester, Virginia

The successor organization of the Mediterranean and Middle East Divisions and of the Middle East/Africa Projects Office is the Transatlantic Programs Center. The large, warehouse-like section of the TAC headquarters building holds about ten thousand large boxes, and more than five hundred contain documents with material of interest and value to this study. Some date from the 1960s and cover the programs in Ethiopia, Pakistan, Iran, and Libya. A larger number date from the 1970s and 1980s and relate to the work in Saudi Arabia. A smaller number of records relating to more recent projects in Oman, Egypt, Jordan, and Kuwait have also been retired to the TAC records holding area.

The Corps of Engineers has prepared several finding aids for the documents at all three repositories. Unfortunately, the finding aids are confusing and difficult to use because documents have been reboxed, shuffled, and divided in ways that the finding aids do not reflect. As an example, the finding aid publicly available at the Office of History, HQ, USACE, for the boxes that are deposited at the Washington National Records Center in accession numbers 77-92-0001 and -0002 does not reflect the redistribution of document folders in new boxes that took place at the records center. The computerized inventories maintained for the records held in Winchester do not always contain information useful to the historian in determining the relative value of the contents of individual boxes.

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ABBREVIATIONS

AACS	Airways and Air Communications Service
AC&W	aircraft control and warning
ADP	Atkinson-Drake-Park
ADP	automated data processing
AFLC	U.S. Air Force Logistics Command
AHC	Afghanistan Highway Constructors
AID	U.S. Agency for International Development
AMC	U.S. Army Materiel Command
AMCAT	Abdulla Moosa Contracting & Trading Company
ARAMCO	Arabian-American Oil Company
ARMISH-MAAG	Army Mission and Military Assistance Advisory Group to Iran
ASA(CW)	assistant secretary of the Army for civil works
ATC	Air Transport Command
BATMED	Frank E. Basil Inc., the Architects Collaborative International Ltd. Inc., and Metcalf & Eddy Inc.
BDF	Bahrain Defense Forces
BOD	Beneficial Occupancy Date
BOQ	bachelor officers quarters
CADD	computer-aided design and drafting
CENTCOM	U.S. Central Command
CENTO	Central Treaty Organization
CIC	U.S. Army Criminal Investigation Command
CICP	central inventory control point
COEMIS	Corps of Engineers Management Information System
COGECO	Compagnia Generale Costruzioni Sp.A.
CoGeFar	Costruzioni Generali Farsura S.p.A.
CONARC	U.S. Continental Army Command
CONUS	Continental United States
CPAF	cost-plus-award-fee
CPFF	cost-plus-fixed-fee
CRS	Caudill, Rowlett, and Scott
CS	contract support
CSS	Crow-Steers-Shepherd
CWE	current working estimate
CWS	continental wage scale

DAC	Department of the Army civilian
DCS	deputy chief of staff
DDE(PM)	deputy district engineer for project management
DFS	Direct Forces Support
DITCO	Development International Trade Company Ltd.
DLF	Development Loan Funds
DMJM	Daniel, Mann, Johnson, and Mendenhall
DoD	Department of Defense
DODDS	Department of Defense Dependent Schools
E&C	Engineering and Construction
EAA	Engineer Assistance Agreement
EAF	Egyptian Air Force
ELC	Engineer Logistics Command
EPLO	Engineering Planning and Liaison Office
EUD	Europe Division
FIDIC	Fédération Internationale des Ingenieurs-Conseils
FMS	Foreign Military Sales
FY	fiscal year
GDMW	General Directorate of Military Works
GED	Gulf Engineer District
GFM	government-furnished materials
GFP	government-furnished property
Globecom	global communications
GO	general orders
GPM	gallons per minute
HTB	Hotchkiss, Thompson, and Ball Inc.
ICA	International Cooperation Administration
IG	inspector general
Impresit	Imprese Italiane all'Estero S.p.A.
JAF	Jordanian Armed Forces
JAMMAT	Joint American Military Mission for Aid to Turkey
JCA	Joint Construction Agency
JUSMAGG	Joint United States Military Aid Group Greece
JUSMMAT	Joint United States Military Mission for Aid to Turkey
JVKM	Joint Venture Khamis Mushayt
KAMA	King Abdulaziz Military Academy
KERO	Kuwait Emergency Recovery Office
KKMC	King Khalid Military City

KTA	Knappen-Tippetts-Abbett
LCPM	lifecycle project management
LOA	letter of offer and acceptance
LOI	letter of instruction
LORAN	long-range navigation
MAAG	Military Assistance Advisory Group
MAC	Modern Advance Concrete
MAP	Military Assistance Program
MATS	Military Air Transport Service
MCA	Military Construction, Army
MEAPO	Middle East/Africa Projects Office
MKI	Morrison-Knudsen International
MKO	Morrison-Kaiser-Oman
MKSAC	Morrison-Knudsen Saudi Arabia Consortium
MMM	McGaughy, Marshall & McMillan
MODA	Ministry of Defense and Aviation
MOI	Ministry of Information
NAF	U.S. Naval Air Facility
NAMRU	U.S. Naval Medical Research Unit
NAS	network analysis system
NATO	North Atlantic Treaty Organization
NBCI	National Broadcasting Corporation International
O&M	operations and maintenance
OACC	Overseas African Construction Corporation
OASD/ISA	Office of the Assistant Secretary of Defense for International Security Affairs
OCAT	Oman Construction Advisory Team
OCE	Office of the Chief of Engineers
OFW	Oman-Farnsworth-Wright
OH	Office of History
OPD	Ordnance Program Division
OPEC	Organization of Petroleum Exporting Countries
OPMAD	Ordnance Program Management Assistance Division
OPMD	Ordnance Program Management Division
OSD	Office of the Secretary of Defense
PA	Pakistani Army
PAE	Pacific Architects and Engineers
PBQ&D	Parsons, Brinckerhoff, Quade & Douglas
PCC	Pacific Construction Company Ltd.
PL	Public Law

PN	Pakistani Navy
POL	petroleum, oil, and lubricants
PPM	Program and Project Management
PPMD	Programs and Project Management Directorate
RAMP	Royal Armament Maintenance Program
RCA	Radio Corporation of America
RCT	regimental combat team
RDJTF	Rapid Deployment Joint Task Force
RHA	Records Holding Area
RLO	Riyadh Liaison Office
RMO	Resources Management Office
RSAF	Royal Saudi Air Force
RSNF	Royal Saudi Naval Forces
S&A	supervision and administration
SAAOC	Saudi Arabian Army Ordnance Corps
SAC	U.S. Air Force Strategic Air Command
SACMO	Southwest Asia Construction Management Office
SAD	Saudi Arabia District
SAMP	Saudi Arabia Mobility Program
SANG	Saudi Arabian National Guard
SEATO	Southeast Asia Treaty Organization
SETAF	Southern European Task Force
SIYANCO	Saudi Maintenance Company Ltd.
SNEP	Saudi Naval Expansion Program
SOCP	Saudi Ordnance Corps Program
SR	Saudi riyals
TAB VEE	Theater Air Base Vulnerability Evaluation Exercise
TAD	Transatlantic Division
TAFT	technical assistance field team
TINS	The Institute of Naval Studies
TOCS	The Ordnance Center and School
TUSAFG	The United States Air Force Group
TUSAG	The United States Army Group
TUSEG	The U.S. Engineer Group
TUSNG	The United States Navy Group
UN	United Nations
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USAFE	United States Air Forces in Europe
USAREUR	United States Army, Europe
USASAC	United States Army Security Assistance Command

USEA	United States Employees Association
USFA	United States Forces Austria
USGS	United States Geological Survey
USIA	United States Information Agency
USMTM	United States Military Training Mission
VOA	Voice of America
WNRC	Washington National Records Center

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