Conduct of the Persian Gulf Conflict

An Interim Report to Congress

Pursuant to
Title V Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 1991 (Public Law 102-25)

#305

CAVEAT

This interim report contains preliminary information subject to change as additional information is received.

Conduct of the Persian Gulf Conflict

An Interim Report to Congress

Pursuant to
Title V Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 1991 (Public Law 102-25)

July 1991

Table of Contents

Table of Contents (Continued)

PROLOGUE
TO THE INTERIM REPORT
ON THE CONDUCT OF HOSTILITIES IN THE PERSIAN GULF

EXCERPTS FROM THE GRADUATION BANQUET
ADDRESS TO THE CLASS OF 1991
UNITED STATES MILITARY ACADEMY, WEST POINT, NEW YORK

JUNE 1991

BY RICK ATKINSON

MR. ATKINSON IS AUTHOR OF *THE LONG GRAY LINE*,
(A HISTORY OF THE WEST POINT CLASS OF 1966) AND
COVERED THE PERSIAN GULF CONFLICT FOR
THE *WASHINGTON POST*

INTRODUCTION TO THE INTERIM REPORT

From Iraq's invasion of Kuwait on August 2, 1990, to the Coalition military victory over Iraq seven months later, the attention of the world focused on the Persian Gulf crisis. The armed forces of the United States, along with the forces of the Coalition of nations that opposed Iraq's wrongful aggression, played a decisive role in the liberation of Kuwait and the defeat of Iraq. A proper understanding of the conduct of these military operations — the achievements and the shortcomings — is an important and continuing task of the Department of Defense as we look to the future.

Pursuant to Title V of Public Law 102-25, the Department of Defense has prepared this Interim Report on the Conduct of the Persian Gulf Conflict. This report reflects many of the preliminary impressions formed by the Department since the cessation of hostilities. However, much of the technical information needed for sound analysis is still being collected. The final report of the Commander-in-Chief of Central Command has not yet been completed. Nonetheless, it is possible to describe some of the key events that occurred in this conflict and to identify preliminarily some lessons to be learned. The Department of Defense will continue to study the lessons of the war and will submit a final Report in accordance with Title V in January 1992.

Saddam Hussein's invasion of Kuwait on August 2, 1990, sparked the first major international conflict of the post-Cold War era. Operations Desert Shield and Desert Storm presented the most important test of American arms in 25 years. The victory was impressive and important; it will affect the American military and American security interests in the Middle East and beyond for years to come.

Our Coalition victory was impressive militarily. Iraq possessed the fourth largest army in the world, an army hardened in long years of combat against Iran, a war in which Iraq killed hundreds of thousands of Iranian soldiers in exactly the type of defensive combat it planned to fight in Kuwait. Saddam's forces possessed superb artillery, front line T-72 tanks, modern MiG-29 aircraft, ballistic missiles, biological and chemical weapons and a vast and sophisticated air defense system. Saddam's combat engineers, rated among the best in the world, had months to construct their defenses. Nonetheless, the Coalition routed this force in six weeks with miraculously low casualties among Coalition forces.

The Coalition dominated every area of warfare. The seas belonged to the Coalition from the start. Naval units were first on the scene and contributed much of our military presence in the early days of the defense of Saudi Arabia. The United Nations approved economic sanctions against Iraq to reduce that country's access to the wherewithal to make war. Coalition naval units enforced those sanctions by inspecting ships and, when necessary, diverting them away from Iraq and Jordan. This maritime interdiction effort formed a core around which the Coalition coalesced in its earliest hours, signaled its resolve, and helped to deprive Iraq of outside resupply and revenues. The Coalition controlled the skies from virtually the beginning of the air war, freeing our ground and naval units from air attack. Coalition planes destroyed 41 Iraqi aircraft or helicopters in air-to-air combat without the loss of a single fighter. Air interdiction crippled Iraqi command and control and known unconventional weapons production, severely degraded the combat effectiveness of Iraqi forces and paved the way for the final land assault that swept Iraqi forces from the field in only 100 hours. The successful daily execution of thousands of multinational air sorties and a complex multinational ground assault reflected extraordinary international cooperation and technical skill.

American arms played a leading role. American forces led one of the most impressive deployments of force in history. It was widely recognized that no other nation could marshal so much strategic

lift. American F-117 Stealth jets and cruise missiles repeatedly struck Iraqi command and control facilities in Baghdad. Despite sophisticated Iraqi air defenses, not a single F-117 was lost. Iraq lost 3,800 tanks to Coalition fire; the US lost fewer than two dozen. The American armored forces that took part in the envelopment of Iraq's elite, specially trained and equipped Republican Guards traveled 230 miles in 100 hours, one of the fastest movements of armored forces in the history of combat.

The military victory reflected strategic insight. Coalition strategy made Saddam Hussein fight our type of war. We matched Coalition strengths against Iraqi weaknesses. We sapped the will and strength of his army and then we broke the formations themselves. We defeated his strategy as well as his forces. We frustrated his efforts to inflict large casualties on Coalition forces or on Saudi and Israeli civilians, as well as his attempts to draw Israel into the war.

The war marked the dawn of a new technological era. Precision guided munitions proved immensely effective. Cruise missiles, antiballistic missile defenses, advanced reconnaissance systems and Stealth aircraft were all used successfully for the first time in major combat. Our forces fought at night on a scale and with an effectiveness unprecedented in the history of warfare. In their first tests in major combat, F/A-18s and Light Armored Vehicles proved their versatility. High technology systems, such as the Apache helicopters and M1A1 tanks proved immensely valuable and consistent performers in their first real combat test. American technology saved Coalition lives and contributed greatly to victory.

The Coalition military campaign will be remembered for its effort, within the bounds of war, to be humane. Coalition airstrikes were designed to be as precise as possible. Coalition pilots took additional risks and planners spared legitimate military targets to minimize civilian casualties. Tens of thousands of Iraqi prisoners of war were cared for and treated with dignity and compassion. The world will not soon forget pictures of Iraqi soldiers kissing their captors' hands.

Lastly, this victory was neither easy nor certain, although in hindsight it may have come to seem both. Events would have been very different if Saudi Arabia had not welcomed Coalition forces, or if Hussein had carried his attack into Saudi Arabia in the last weeks of summer, when Coalition forces were still only beginning to build. We will not know how different things might have been if the air attack had been less brilliantly orchestrated, Coalition relations less aptly handled, or if Israel had retaliated against Iraq's Scud launchers in western Iraq. Had the Coalition attacked sooner or with many fewer forces, our casualties might have been higher and the war might have lasted longer.

This war saw bitter fighting. It saw long hours in desert heat, or rainstorms and intense moments under enemy fire. It was not easy for any American personnel, including the quarter of a million reservists whose civilian lives were disrupted, or for the families separated from their loved ones. It was especially hard for American prisoners of war, our wounded, and, above all, the Americans who gave their lives for their country and the families and friends who mourn them.

But this victory was important. It was important for what it signifies for the post-Cold War world. America demonstrated that it would act to redress a great wrong and to protect its national interests. America showed it would stand up to a formidable army and to the threat of great casualties. America withstood the psychological pressures created by Iraq's seizure of hostages and threats of chemical or biological warfare. America played a leadership role that only America has the ability to exercise in the post-Cold War world.

The world responded to this crisis and to American leadership. The Iraqi invasion violated one of the fundamental tenets underlying the Charter of the United Nations, and the United Nations played

a dramatic and historic role in resisting that aggression. The cooperation of all of the permanent members of the UN Security Council was essential, and was forthcoming. Many nations participated in enforcement of the economic sanctions against Iraq. Thirty-six nations, including some former members of the Warsaw Pact, provided forces to the maritime interdiction effort or for the final conflict itself. Others provided equipment or economic assistance to the front line states or to Coalition countries. Foreign participation in US costs alone included promised transfers to the US of over $50 billion, a sum far larger than the defense budget of any country in the world except the Soviet Union and the United States. This amount covered the vast preponderance of the total incremental costs the US incurred in the war. These contributions were important both financially and for what they signified about international cohesion and determination.

Had the international community not responded to Saddam Hussein's invasion of Kuwait, the world would be a much more dangerous place today, much less friendly to American interests, much more threatening to the peoples of the Middle East and beyond. With the seizure of Kuwait, Saddam Hussein threatened to control or dominate a key region and much of the world's known oil resources. His nuclear weapons program and chemical and biological weapons production continued, and it was clear he would use Kuwait's wealth to accelerate the acquisition of weapons of mass destruction. Saddam Hussein's ballistic missile inventory also threatened to expand in size and quality. His army dwarfed those of the Arabian Peninsula. He had built and hardened his facilities and infrastructure for war on a massive scale. His brutality toward Kuwait and his rhetoric toward the rest of the region showed an immense and restive ambition. He had set a dangerous example of naked aggression that, unanswered, might have led to more aggression.

Within Iraq, the brutality of the Iraqi regime, which long preceded this war, has unfortunately survived it. The Coalition had no mandate to end Saddam Hussein's tyranny over Iraq, but it did have a mandate to prevent him tyrannizing other parts of the Middle East. The world will be a better place when Saddam Hussein no longer misrules Iraq either.

Operations Desert Shield and Desert Storm were also important for what they gave to America. The war reaffirmed America's faith in its armed forces. And in some small measure, Desert Storm also helped to reaffirm America's faith in itself, in American products, in American performance, in American purpose and dedication.

Finally, the war was important for what it tells us about our armed forces, and America's future defense needs. On August 2, 1990, the very day Saddam Hussein invaded Iraq, President Bush was in Aspen, Colorado, presenting for the first time America's new defense strategy for the nineties and beyond, a strategy that takes into account the vast changes in Eastern Europe and the Soviet Union and envisions significant reductions in our forces and budgets. A distinguishing feature of this new strategy — which was developed before the Kuwait crisis even began — is that it focuses more on regional threats, like the Gulf conflict, and less on global conventional confrontation.

The new strategy and the Gulf war continue to be linked, as we draw on the lessons of the war to inform our decisions for the future. As we reshape America's defenses, we need to look at Operations Desert Shield and Desert Storm for indications of what military capabilities we may need not just in the next few years, but 10, 20 or 30 years hence. We need to consider why we were successful, what worked and what did not, and what is important to protect and preserve in our military capability.

As we do so, we must remember that this war, like every other, was unique. We benefitted greatly from certain of its features — such as the long interval to deploy and prepare our forces — that we cannot count on in the future. We benefitted from our enemy's near-total international isolation and from our own strong coalition. We received ample support from the nations that hosted our forces

and relied on a well-developed coastal infrastructure that may not be available the next time. And we fought in a unique desert environment, challenging in many ways, but presenting advantages too. Enemy forces were fielded largely in terrain ideally suited to armor and air power and largely free of noncombatant civilians.

We should also remember that much of our military capability was not tested in Operations Desert Shield and Desert Storm. There was no submarine threat. Ships did not face significant anti-surface action. We had little fear that our forces sent from Europe or the US would be attacked on their way to the region. There was no effective attack by aircraft on our troops or our port and support facilities. Chemical warfare and biological warfare, though threatened, were never employed. American amphibious capabilities, though highly effective for deterrence and deception, were not tested on a large scale under fire. Our Army did not have to fight for long. Saddam Hussein's missiles were inaccurate. As such, much of what was tested needs to be viewed in the context of the unique environment and conflict we are addressing.

Even more important to remember is that potential adversaries will study the lessons of this war no less diligently than will we. Future adversaries will seek to avoid Saddam Hussein's mistakes. Some potential aggressors may be deterred by the punishment Iraq's forces suffered. But others might wonder if the outcome would have been different if Iraq had acquired nuclear weapons first, or struck sooner at Saudi Arabia, or possessed a larger arsenal of more sophisticated ballistic missiles, including some with nuclear, chemical or biological warheads.

During the war, we learned a lot of specific lessons about systems that work and some that need work, about command relations, and about areas of warfare where we need improvement. We found we did not have enough Heavy Equipment Transports or off-road mobility for logistics support vehicles. Helicopters and other equipment were maintained only with extra care in the harsh desert environment. We were not nearly good enough at clearing land and sea mines, especially shallow water mines. This might have imposed significant additional costs had large scale amphibious operations been required. We moved quickly to get Global Positioning System receivers more widely in the field and improvised to improve identification devices for our ground combat vehicles, but more extensive navigation and identification capabilities are needed. The morale and intentions of Iraqi forces and leaders were obscure to us. Field commanders wanted more tactical reconnaissance and imagery. We had difficulty with battle damage assessment and with communications interoperability. Tactical ballistic missile defense worked, but imperfectly. Mobile missile hunting was difficult and costly; we will need to do better. We were ill-prepared at the start for defense against biological weapons, even though Saddam possessed them. And tragically, despite our best efforts, there were here, as in any war, civilian casualties and losses to fire from friendly forces. These and many other specific accomplishments, shortcomings and lessons are discussed in greater depth in the body of the report.

Among the many lessons we must study from this war, five general lessons stand out:

- Decisive Presidential leadership set clear goals, gave others confidence in America's sense of purpose, and rallied the domestic and international support necessary to reach those goals;
- A revolutionary new generation of high-technology weapons, combined with innovative and effective doctrine, gave our forces the edge;
- The high quality of our military, from its skilled commanders to the highly ready, well-trained, brave and disciplined men and women of the US Armed Forces made an extraordinary victory possible;

- In a highly uncertain world, sound planning, forces in forward areas, and strategic air and sea lift are critical for developing the confidence, capabilities, international cooperation, and reach needed in times of trouble; and
- It takes a long time to build the high-quality forces and systems that gave us success.

President Bush's early conviction built the domestic and international consensus that underlay the Coalition and its eventual victory. The President accepted the enormous personal burdens of committing our prestige and our forces, and then he helped the nation and world withstand the pressures of confrontation and war. Many counseled inaction. Many predicted military catastrophe or tens of thousands of casualties in a desert war far from our shores. Our enemy seemed implacable. He had just inflicted more than half a million casualties in an eight-year war; he cared little for his own losses. Some counseled that even if we won, the Arab world would unite against us. But, having made his decisions, the President never once hesitated or wavered.

This crisis proved the wisdom of our Founding Fathers, who gave the office of the Presidency the authority needed to act decisively. When the time came, Congress gave the President the support he needed to carry his policies through, but those policies could never have been put in place without his personal strength and the institutional strength of his office.

Two critical moments of Presidential leadership bear particular mention. In the first few days following the invasion, the President determined that Saddam Hussein's invasion of Kuwait would not stand. At the time we could not be sure that King Fahd of Saudi Arabia would invite our assistance to resist Iraq's aggression. Without Saudi cooperation, our task would have been much more difficult and costly. The Saudi decision to do so rested not only on their assessment of the gravity of the situation, but on their confidence in the President. Without that confidence, the course of history might have been different. A second critical moment came last November, when the President decided to double our forces in the Gulf. The President gave the military clear objectives, the tools to do the job, and the support to carry out their assigned task. Those decisions saved American lives.

While President Bush's leadership was the central element in the Coalition, the success of Operations Desert Shield and Desert Storm reflect as well the strength and wisdom of leaders from many countries. King Fahd and the other leaders of the Gulf states — Bahrain, Qatar, the UAE, and Oman — chose to defy Saddam Hussein when there was only our word to protect them. President Mubarak of Egypt helped to rally the forces of the Arab League. President Ozal of Turkey chose to cut off an oil pipeline from Iraq and permit Coalition forces to strike Iraq from Turkey, although this would hurt Turkey economically and expose it to potential Iraqi military action. Iraq attacked with its Scud missiles, but Israel refused to be provoked into retaliating. Prime Ministers Thatcher and Major and President Mitterand devoted their efforts and their forces to the Coalition. Germany and other European nations opened their ports and airfields and yielded priorities on their railroads to speed our deployment. Countries from other distant regions, including Africa, East Asia, South Asia, the Pacific, South America, and, a sign of new times, Eastern Europe chose to make this their fight. Their commitment made possible the military Coalition and provided essential elements to the ultimate victory.

A second general lesson of the war is that high technology systems dramatically increased the effectiveness of our forces. This war was the first to exploit the new technological possibilities of what has been called the "military-technological revolution." This technological revolution encompasses several broad areas: Stand-off precision weaponry and the sensors and reconnaissance capabilities to make their targeting effective; stealth for surprise and survivability; and the development of missile defenses in response to the expanding proliferation of tactical ballistic missiles and

weapons of mass destruction. In large part this revolution tracks the development of new technologies such as the microprocessing of information that has become familiar in our daily lives, sophisticated sensors, and new materials and designs that substantially reduce radar signatures. The exploitation of these new technologies will change warfare as significantly as did the advent of tanks, airplanes and aircraft carriers.

The war tested an entire generation of new weapons at the forefront of this revolution. It represented the coming of age of precision-guided munitions, which made possible a bombing campaign that could achieve strategic results in days rather than months or years, and the use of stealth technology and cruise missiles to achieve strategic surprise and to reduce aircraft losses dramatically. The war also saw the first combat use of the Patriot (or, indeed, of any weapon) in an anti-ballistic missile defense role. Battlefield combat systems, like the M1A1 tank, AV-8 jet, and the Apache helicopter, and critical subsystems, like advanced fire control, global positioning (GPS), and thermal and night vision devices, gave us maneuverability and reach our opponents could not match.

The war showed that we must work to maintain the tremendous advantages that accrue from being a generation ahead in weapons technology. A continued and substantial research and development effort, along with renewed efforts to prevent or at least constrain the spread of advanced technologies, will be required to maintain this advantage against what potential adversaries will be able to obtain from the world arms market. In today's budget debate, we need the high technology advantages offered to our future forces by the B-2 stealth bomber, the F-22 Stealth fighter, and the anti-ballistic missile defense program known as Global Protection Against Limited Strikes (GPALS).

The Persian Gulf War was not the first in which ballistic missiles were used, and there is no reason to think that it will be the last. Indeed, ballistic missiles were the only weapon system with which Saddam Hussein was able to take significant offensive action against US forces and allies, and the only one to offer him an opportunity (via the attacks on Israel) to achieve a strategic objective. We must expect that even more countries will acquire ballistic missiles and will be prepared to use them in future conflicts. Therefore, our planning calls for a more robust defense against ballistic missile attack. We cannot allow tomorrow's forces to be defenseless against the more advanced ballistic missiles that one day soon will be found in a number of third world arsenals, perhaps armed with unconventional warheads. Patriot missiles cannot handle these advanced threats.

The third general lesson is the importance of high quality forces, both troops and commanders. Warriors win wars, and smart weapons require smart people to operate them. The best technology in the world cannot win battles. We need highly trained, highly motivated people for our armed forces. The highly trained, highly motivated all-volunteer force we fielded in Operations Desert Shield and Desert Storm is the highest quality fighting force the world has ever known.

Every aspect of the war — the complexity of the weapons systems used, the speed and intensity of the operations, the harsh physical environment in which it was fought, the unfamiliar cultural environment — tested the training, discipline and morale of the members of our Army, Navy, Air Force, Marines, and Coast Guard. They passed with flying colors. Over 98 percent of our all volunteer force are high school graduates. They are well trained. When the call came, they proved not just their skills, but their bravery and dedication. To continue to attract such people we must continue to meet their expectations for topnotch facilities, equipment and training and to provide the quality of life they and their families deserve. In taking care of them, we protect the single most important strategic asset of our armed forces.

The units that we deployed to the Gulf contrast meaningfully with the same units a decade ago. Among our early deployments to Saudi Arabia following King Fahd's invitation were the F-15 air

superiority fighters of the 1st Tactical Fighter Wing from Langley Air Force Base in Virginia. Within 53 hours of the order to move, 45 aircraft were on the ground in Saudi Arabia. Ten years ago, that same wing failed its operational readiness exam; only 27 of 72 aircraft were flyable, the rest were parked for lack of spare parts.

The 1st Infantry Division out of Fort Riley, Kansas, did a tremendous job in the Gulf. When we called upon them to deploy last fall, they were ready to go. But 10 years ago, they only had two-thirds of the equipment needed to equip the division, and half of that was not ready for combat.

The 3d Armored Division destroyed Iraqi Republican Guard formations in southern Iraq with very low casualties on our side. Many of the soldiers in the division had been to the National Training Center at Fort Irwin, California, where they practiced armored warfare operations. One sergeant, who had been there six times, has said that the National Training Center was tougher than anything they ran into in Iraq. That is the way training is supposed to work.

The war also highlighted the importance and capability of the reserves. The early Operation Desert Shield deployments would not have been possible without volunteers from the Reserves and National Guard. The callup of additional reserves under the authority of Title 10 Sec 673b — the first time that authority has ever been used — was critical to the success of our operations. Reserves served in combat, combat support and combat service support roles — and they served well. However, the use of reserves was not without some problems. For example, we need to rethink the wisdom of including reserve brigades in our earliest-deploying divisions. Tested in combat, the Total Force concept remains an important element of our national defense. Nonetheless, as we reduce our active forces under the new strategy, we will need to reduce our reserve components as well.

Lastly, our success in the Gulf reflected outstanding military leadership, whether at the very top, like Colin Powell, Chairman of the Joint Chiefs, and Norman Schwarzkopf, Commander in Chief of the forces in Central Command; or at the Component level, like Chuck Horner, who orchestrated the Coalition's massive and brilliant air campaign, or Hank Mauz and Stan Arthur, who led the largest deployment of naval power into combat since WW II; or Corps commanders like Freddie Franks of VII Corps and Gary Luck of the 18th Airborne Corps, who led the tremendous flanking maneuver that enveloped Iraq's Republican Guards, or Walt Boomer of I MEF who led his Marines to the outskirts of Kuwait City, while continuing to divert Iraqi attention to a possible amphibious attack; or division commanders like Barry McCaffrey, who led the 24th Mechanized Division on one of the swiftest armored advances in the history of warfare, or Mike Myatt, who led the 1st Marine Division in their swift breaching effort through the heavily fortified defenses Iraq had constructed on the Kuwaiti border.

CINCCENT deftly managed relations with the various forces of the nations of the Coalition. This was a particularly difficult task, given the number of countries represented, and the large cultural differences among them. The problem was solved by an innovative command arrangement involving parallel international commands, one, headed by CINCCENT, incorporating the forces from Western countries, and another, under the Saudi commander, for the forces from Arab and Islamic Coalition members. The Persian Gulf conflict also represented the first test in a major war of the provisions of the Goldwater-Nichols Act.

The nature of the combat at the dawn of this military technological revolution also imposed enormous tasks on the military commanders as they sought to integrate the forces of the different Services and of the different nations of the Coalition. For example, the air campaign was unprecedented in its complexity and speed. Managing the multitude of aircraft, weapons systems, and

missions involved the daily preparation of a combined Air Tasking Order the size of a telephone book. Simply to disseminate this Order to all elements of the force took creative efforts.

Finally, the air war, and the rapidity and depth of the ground war posed tremendous challenges in terms of logistics and command, control and communications (C^3). The demand for intelligence support required not just collection and processing but difficult cross-service dissemination to the proper level of command. Our experience emphasizes the importance of advance planning of the overall "architecture" of the communications and intelligence (C^3I) system.

The fourth general lesson of the Persian Gulf conflict is the importance in a highly uncertain world of sound planning, of having forces forward that build trust and experience in cooperative efforts, and of sufficient strategic lift.

In early 1990, few expected that we would be at war within a year. Few in early 1989 expected the dramatic developments that occurred in Eastern Europe in that year. Looking back over the past century, enormous strategic changes often arose unexpectedly in the course of a few years or even less. The Persian Gulf conflict reminds us that we cannot be sure when or where the next conflict will arise.

Advance planning played an important role as the Persian Gulf conflict unfolded. It was important in the days immediately following Saddam Hussein's invasion of Kuwait to have a clear concept of how we would defend Saudi Arabia and of the forces we would need. This was important not just for our decisionmakers, but for King Fahd and other foreign leaders, who needed to judge our seriousness of purpose, and for our quick action should there be a decision to deploy. Our response in the crisis was greatly aided because we had planned for such a contingency.

In the fall of 1989 we shifted the focus of planning efforts in Southwest Asia to countering regional threats to the Arabian peninsula. The primary such threat was Iraq. As a result, CENTCOM prepared a Concept Plan to this effect in the Spring of 1990. The Concept Plan contained both the overall forces and strategy for a successful defense. This plan was in the final stages of review in July 1990. In conjunction with the update of his plans, CINCCENT had arranged to conduct a major exercise, INTERNAL LOOK 90, which began in July. This exercise included wargaming aspects of the plan for the defense of Southwest Asia. When the decision was made to deploy forces in response to King Fahd's invitation, this plan was selected as the best option. It gave CENTCOM a head start.

Also critical to the success of our efforts were past US experience in the region, and Saudi Arabia's airports and coastal infrastructure, which were well-developed to receive a major military deployment. Each of these, in turn, reflected a legacy of past defense planning. Without this legacy of past cooperation and experience in the region, our forces would not have been as ready, and the Saudis might never have had the confidence in us needed for them to confront Iraq.

A key element of our strategy was to frustrate Saddam Hussein's efforts to draw Israel into the war and thereby change the political complexion of the conflict. We devoted much attention and resources to this problem, but we could not have succeeded without a history of trust and cooperation with the Israelis.

The success of Operations Desert Shield (including the maritime interdiction effort) and Desert Storm required the creation of an international coalition and multinational military cooperation, not just with the nations of the Arabian peninsula, but with the United Kingdom, France, Egypt, Turkey and a host of other nations. These efforts were greatly enhanced by past military cooperation in NATO, in joint exercises, in US training of members of Allied forces, and in many other ways. The

Persian Gulf conflict reminds us of how important it will be to build on such efforts in a world where joint international efforts are important both militarily and politically.

Finally, we were fortunate to have more than five months in which to deploy an overwhelming force, to collect specific kinds of detailed intelligence, and to put together the complex command arrangements and communication systems that we needed. Our carrier presence in the region and long reach airpower helped to deter Iraq in the earliest days of the crisis. The rapid insertion of tactical air, airborne units and two Maritime Prepositioning Squadrons, along with their Marine Expeditionary Brigades, gave us early combat capability. However, the absence of more significant forward based forces or large scale prepositioning of Army equipment exposed our forces to potential risk in the initial phases of our military buildup. In future contingencies, we obviously cannot count on having so much time. Operation Desert Shield taught us a great deal about preparedness and lift for future contingencies.

A fifth general lesson that we must take from the Gulf conflict is how long it takes to build a high-quality military force. A general who is capable of commanding a division in combat is the work of more than 20 years' training. To train a senior noncommissioned officer in the Marine Corps to the high level of performance that we expect today takes 10 to 15 years.

The precision weapons that everyone watched on television were dropped by F-111 bombers first introduced into the force in 1967. The cruise missiles that people watched fly down the streets of Baghdad were first developed in the mid-'70s. The F-117 stealth fighter bomber that flew so many missions so successfully — not one of them was ever struck — was developed in the late '70s. About half of the aircraft carriers we had in the Gulf were over 20 years old.

Development and production of major weapons systems today remains a long process. From the time we make a decision to start a new aircraft system until the time it is first fielded in the force averages roughly 13 years, and double that before most of the planes are fielded.

The work of creating military forces takes a very, very long time.

As the Department of Defense reduces the armed forces over the next five years, two special challenges confront us, both of which were highlighted by Operation Desert Storm. The first is to hold our technological edge out into the future. The second is to be ready for the next Desert Storm — like contingency that comes along. Just as the high technology systems we used in the Gulf war reflect conceptions and commitments of 15, 20, or 25 years ago, so the decisions we make today will affect our forces 15, 20, or 25 years from now. We want our forces of the year 2015 to have the same high quality and the same technological edge our forces had in the Persian Gulf.

Our ability to predict events 5, 10, or 15 years out is quite limited. But, whatever occurs, we will need high-quality forces to deter aggression or, if necessary, to defend our interests. No matter how hard we wish for peace, there will come a time when a future President will have to send young Americans into combat somewhere in the world.

To provide that high quality force of the future, we must be smart today. We must keep up our investment in R&D, personnel and crucial systems. But we must also cut unneeded production, reduce our active and reserve forces, and close unneeded bases. F-16 aircraft and M1A1 tanks are superb systems, but we have enough of them. We can better use the money saved by investing in the systems of the future. Reserve forces are valuable, but as we cut the active forces we must cut the Reserves and National Guard units assigned the mission of supporting them. Our declining defense budgets need to sustain the high level of training our remaining forces need. And as we cut forces, we should cut base structure. Common sense dictates that smaller forces require fewer bases.

If we choose wisely today, we can do well something America has always done badly before — we can draw down our military force wisely. We did not do this well after WW II, and we found ourselves unprepared for the Korean war barely five years later. We did not draw down intelligently after Vietnam, and we found ourselves with the hollow forces of the late '70s. We are determined to avoid repeating these costly errors.

Our future national security and the lives of young Americans of the next decade or beyond depend on our learning the proper lessons from the Persian Gulf conflict. It is a task the Department of Defense takes seriously. Those Americans lost in the Persian Gulf Conflict and their families paid a heavy price for freedom. If we make the wrong choices now, if we waste defense dollars on force structure we cannot support, or on more weapons than we need, or on bases we cannot afford, then the next time young Americans go into combat we may suffer casualties that could have been avoided.

America can be proud of its many roles in the Persian Gulf conflict. There were lessons to be learned and problems to be sure. But overall there was an outstanding victory. We can be proud of our conviction and international leadership. We can be proud of one of the most remarkable deployments in history. We can be proud of our partnership in arms with many nations. We can be proud of our technology and the wisdom of our leaders at all levels. But most of all we can be proud of those dedicated young Americans — soldiers, sailors, airmen and marines — who showed their skill, their commitment to what we stand for, and their bravery in the way they fought this war.

PROLOGUE
TO THE INTERIM REPORT
ON THE CONDUCT OF HOSTILITIES IN THE PERSIAN GULF

EXCERPTS FROM THE GRADUATION BANQUET
ADDRESS TO THE CLASS OF 1991
UNITED STATES MILITARY ACADEMY, WEST POINT, NEW YORK

JUNE 1991

BY RICK ATKINSON

MR. ATKINSON IS AUTHOR OF *THE LONG GRAY LINE*,
(A HISTORY OF THE WEST POINT CLASS OF 1966) AND
COVERED THE PERSIAN GULF CONFLICT FOR
THE *WASHINGTON POST*

"There is a tendency now to believe that victory in [the Persian Gulf] war was easy and cheap. True, that in terms of national treasure expended or American lives lost, we were lucky. But it wasn't easy. The seeds of this victory were planted more than 20 years ago in the jungles of Vietnam. The officers who were brigade, division and corps commanders in this war, commanded platoons, companies and battalions in Vietnam. They stayed the course after Vietnam when the Army was an institution in anguish, when it was an institution beset with the anarchy of drugs, racial strife, and utter indiscipline. They remained true to the profession of arms and set out to make things right, to develop the doctrine, the training methods, the standards of professionalism that evolved into the outstanding force which you will formally join tomorrow. In this sense, the Persian Gulf War didn't last for 42 days, it lasted for 20 years. And it was not easy.

It wasn't cheap either. One thing that struck me as I circulated among various Army units was the intensity of some of the fighting [in the Persian Gulf]. I'll give you one example.

Afternoon on the 26th of February, Alpha Troop of the 4th Squadron of the 7th Cavalry, the most infamous commander of which is buried over here in the West Point cemetery. VII Corps had wheeled on line and was about to attack eastward into the heart of the Republican Guard. A terrible shamal had blown in so that unaided visibility was down to 200 meters at times; with the thermal sights you could see maybe 900 meters at best.

2nd Armored Cav was on the right, the 1st Brigade of 3rd Armored Division on the left. The 4th Squadron in effect was serving as flank screen for the division's right, and they had been squeezed into progressively narrower confines — from a five kilometer front to three kilometers to one kilometer. At 1530 hours, scouts detected hot spots through their thermals; the squadron came up over a low ridge and 3rd platoon, in the lead, saw infantry, then armored personnel carriers, then tanks. Unwittingly, the unit had stumbled into the main defensive line of the [Iraqi] Tawakalna Division.

In a space of seconds, all 14 Bradley Fighting Vehicles in the troop were firing. Bradley Number Alpha 2-4 destroyed a BMP, an Iraqi armored personnel carrier, with a TOW missile and started to back up for better cover when a T-72 tank round ripped into it.

The unit's command sergeant major was a fellow named Ronald Sneed, short, tough, shaved head, with a grip like a blacksmith's and a rolling gait like a sailor on the quarterdeck. From 1966 to 1971, Sneed had spent virtually all of his time in Vietnam with the 173rd Airborne Brigade and in that time — including the infamous battle of Hill 875 — he had never faced a more intense 45 minutes than he was facing now.

Sneed was 150 meters from Alpha 2-4 when he saw it hit. As another Bradley destroyed the T-72 with a TOW, Sneed pulled up to Alpha 2-4 and started to climb down from his track when another Iraqi tank fired from 600 meters away. The round landed 10 meters short, spraying dirt and shrapnel against Sneed's Bradley and blowing him to the ground. As an American M1A1 moved up to shoot that enemy tank, Sneed climbed into Alpha 2-4. Platoon Sergeant Raymond Egan had a shattered left leg and the gunner, Sergeant Kenneth Gentry, was barely conscious. Sneed helped get Egan and Gentry into another Bradley where a medic, Sergeant Tafari Houston, worked on Gentry until he died and then worked on Egan. The nearest Iraqi infantry was only 50 meters away, and the Army scouts were trying to suppress them with 25mm cannon fire. All this time small arms fire was beating a tattoo off the side of the track, and the green tracers were as thick as mosquitoes, and 120mm mortar rounds began landing. Red star clusters were bursting overhead and the radio nets were frantic with pleas for a medic.

Then track Alpha 3-3 was hit. A .51 caliber round struck the radio and deflected, hitting the Bradley commander in the hip and badly wounding him. Then Alpha 3-6, which had been immobilized by a fluke shot to the transmission, was hit with a rocket propelled grenade, which destroyed the turret and wounded all four soldiers who had been climbing out of the track. Then Alpha 3-1 took two 125 mm tank rounds through the turret. One passed within 2 feet of a young lieutenant and ignited some of his 25mm ammo, temporarily blinding him and causing flash burns.

Third platoon began to withdraw, covered by her sister platoon, when a 125mm tank round slammed into Alpha 2-2, killing the gunner, Sergeant Edwin Kutz, and wounding the Bradley commander and another soldier in the back. Third platoon completed its withdrawal and the enemy line was eventually overrun. The troop got credit for destroying 18 Iraqi personnel carriers and 6 T-72 tanks.

Now, conventional wisdom notwithstanding, this wasn't cheap. It sure wasn't cheap for Sergeant Kutz or Sergeant Gentry, who gave their lives, or for the other soldiers who were wounded. It seems to me that, as a nation, we ought not to diminish the sacrifice of men like this any more than we should glorify the amount of killing that went on in this war. I believe there's also a danger that we will assume that this war is a paradigm for the next, that subconsciously we'll presume all future wars can be relatively pain free. . . ."

★ ★ ★ ★ ★

The courageous acts described by Mr. Atkinson were not unique to the members of the 4th Squadron of the 7th Cavalry. Their skill and valor were duplicated thousands of times during the war in hundreds of engagements, skirmishes, and missions. The Marines breached formidable obstacle belts under threat of attack by chemical weapons and pressed their advance into unknown Iraqi defenses. SEAL teams operated in the mine infested waters off Kuwait. F-117 pilots braved the thick, nightly storm of anti-aircraft fire over Baghdad. Navy, Marine, and Air Force air crews flying ground support missions faced intense anti-aircraft fire as they came in low, under the clouds and the smoke of burning oil wells, to attack dug in Iraqi positions. These and countless other acts of personal bravery were all accomplished against a dangerous foe who had the capability to exact a price for success and often did so. As we examine the conduct of this war, we must not forget the cost of victory borne by the American service men and women – soldiers, sailors, airmen, and marines – who unselfishly gave of themselves in defense of American interests and ideals.

TITLE V – REPORT ON THE CONDUCT OF THE PERSIAN GULF CONFLICT

SEC. 304. DEPARTMENT OF DEFENSE REPORT ON THE CONDUCT OF THE PERSIAN GULF CONFLICT

(a) REPORT REQUIRED – Not later than January 15, 1992, the Secretary of Defense shall submit to the congressional defense committees a report on the conduct of hostilities in the Persian Gulf theater of operations. The Secretary shall submit to such committees a preliminary report on the conduct of those hostilities not later than July 1, 1991. The report (including the preliminary report) shall be prepared in consultation with the Chairman of the Joint Chiefs of Staff and the Commander-in-Chief, United States Central Command.

(b) DISCUSSION OF ACCOMPLISHMENTS AND SHORTCOMINGS – The report (and preliminary report, to the extent feasible) shall contain a discussion, with a particular emphasis on accomplishments and shortcomings of the following matters:

(1) The military objectives of the multinational Coalition.

(2) The military strategy of the multinational Coalition to achieve those military objectives and how the military strategy contributed to the achievement of those objectives.

(3) The deployment of United States forces and the transportation of supplies to the theater of operations including assessment of airlift, sealift, afloat prepositioning ships, and Maritime Prepositioning Squadron ships.

(4) The conduct of military operations.

(5) The use of special operations forces, including operational and intelligence uses classified under special access procedures.

(6) The employment and performance of United States military equipment, weapons systems, and munitions (including items classified under special access procedures) and an analysis of–

(A) any equipment or capabilities that were in research and development and if available could have been used in the theater of operations, and

(B) any equipment or capabilities that were available and could have been used but were not introduced into the theater of operations.

(7) The scope of logistics support, including support from other nations, with particular emphasis on medical support provided in the theater of operations.

(8) The acquisition policy actions taken to support the forces in the theater of operations.

(9) The personnel management actions taken to support the forces in the theater of operations.

(10) The role of women in the theater of operations.

(11) The effectiveness of reserve component forces, including a discussion of each of the following matters:

(A) The readiness and activation of such forces.

(B) The decisionmaking process regarding both activation of reserve component forces and deployment of those forces to the theater of operations.

(C) The post-activation training received by such forces.

(D) The integration of forces and equipment of reserve component forces.

(E) The use and performance of the reserve component forces in operations in the theater of operations.

(F) The use and performance of such forces at duty stations outside the theater of operations.

(12) The role of the law of armed conflict in the planning and execution of military operations by United States forces and the other Coalition forces and the effects on operations of Iraqi compliance or noncompliance with the law of armed conflict, including a discussion regarding each of the following matters:

(A) Taking of hostages.

(B) Treatment of civilians in occupied territory.

(C) Collateral damage and civilian casualties.

(D) Treatment of prisoners of war.

(F) Use of ruses and acts of perfidy.

(G) War crimes.

(H) Environmental terrorism.

(13) The actions taken by the Coalition forces in anticipation of, and in response to, Iraqi acts of environmental terrorism.

(14) The contributions of United States and Coalition intelligence and counterintelligence systems and personnel, including contributions regarding bomb damage assessments and particularly including United States tactical intelligence and related activities (TIARA) programs.

(15) Command, control, communications, and operational security of the Coalition forces as a whole, and command, control, communications, and operational security of the United States forces.

(16) The rules of engagement for the Coalition forces.

(17) The actions taken to reduce the casualties among Coalition forces caused by the fire of such forces.

(18) The role of supporting combatant commands and Defense Agencies of the Department of Defense.

(19) The policies and procedures relating to the media, including the use of media pools.

(20) The assignment of roles and missions to the United States forces and other Coalition forces and the performance of these forces in carrying out their assigned roles and missions.

(21) The preparedness, including doctrine and training, of United States forces.

(22) The acquisition of foreign military technology of the United States or other countries in the multinational Coalition.

(23) The problems posed by Iraqi possession and use of equipment produced in the United States and other Coalition nations.

(24) The use of deception by Iraqi forces and by Coalition forces.

(25) The military criteria used to determine when to progress from one phase of military operations to another phase of military operations, including transition from air superiority operations to operations focused on degrading Iraqi forces, transition to large-scale ground offensive operations, and transition to cessation of hostilities.

(26) The effects on the conduct of United States military operations resulting from the implementation of the Goldwater-Nichols Department of Defense Reorganization Act of 1986.

(c) CASUALTY STATISTICS – The report (and the preliminary report, to the extent feasible) shall also contain the (1) number of military and civilian casualties sustained by Coalition nations, and (2) estimates of such casualties sustained by Iraq and by nations not directly participating in the hostilities in the Persian Gulf area during the Persian Gulf Conflict.

(d) CLASSIFICATION OF REPORTS – The Secretary of Defense shall submit both the report and the preliminary report in a classified form and an unclassified form.

QUESTION 1:

Military objectives of the Coalition.

QUESTION 1:

Military objectives of the Coalition.

National Policy Objectives

On the day of the Iraqi invasion of Kuwait, 2 August 1990, the United Nations Security Council (UNSC) condemned the invasion and demanded the withdrawal of Iraqi forces. During the succeeding months the UNSC passed 12 additional resolutions as Iraq's unlawful behavior and occupation of Kuwait continued, culminating on 29 November with authorization for United Nations members to use "all means necessary" to enforce previous resolutions if Iraq did not leave Kuwait by 15 January 1991. (A summary of UNSC Resolutions is included as Table 1-1.)

Stating on 5 August "this shall not stand", President Bush framed US national policy objectives:

- Immediate, complete, and unconditional withdrawal of all Iraqi forces from Kuwait;
- Restoration of Kuwait's legitimate government;
- Security and stability of Saudi Arabia and the Persian Gulf; and
- Safety and protection of the lives of American citizens abroad.

These objectives remained the Coalition's compass throughout Operations Desert Shield and Desert Storm. The Secretary of Defense and the Chairman of the Joint Chiefs of Staff provided implementing guidance to the Department. The goals thus became the underpinning for our military objectives and the strategy to achieve those objectives.

The initial defensive orientation of the Coalition changed with the failure of exhaustive efforts by the international community to convince the Iraqis to withdraw. After 11 previous UN resolutions produced no discernible effect, the UNSC passed Resolution 678 authorizing the use of force, if required, after 15 January 1991, to ensure Iraqi withdrawal from Kuwait. The resolution specifically authorized UN Member States "cooperating with the Government of Kuwait.... to use all necessary means to uphold and implement Security Council Resolution 660 [the demand for "an immediate and unconditional withdrawal of forces" from Kuwait] and all subsequent relevant resolutions and to restore international peace and security in the area." In January, the US Congress passed a joint resolution, the Authorization for Use of Military Force Against Iraq Resolution, stating that President Bush had the authorization "to use US Armed Forces pursuant to UNSC Resolution 678 (1990) in order to achieve implementation of Security Council resolutions 660, 661, 662, 664, 665, 666, 667, 674, and 678". The resolution stated that, before exercising his authority to use force, the President must make a determination that "(1) the United States has used all appropriate diplomatic and other peaceful means to obtain compliance by Iraq with the UNSC resolutions; and (2) those efforts have not and would not be successful in obtaining such compliance."

Operation Desert Shield

Military Objectives

During Operation Desert Shield the US military was directed to establish a defensive capability in theater to deter Saddam Hussein from continued aggression, to build and integrate Coalition forces, to enforce sanctions, to defend Saudi Arabia, and to defeat further Iraqi advances, if required.

To support the deterrence mission, an air option was developed to conduct a strategic air campaign against Iraq in the event the President and the United Nations directed the use of force. As early as mid-September, the Coalition was capable of conducting offensive air operations against Iraqi forces in Kuwait and targets in Iraq itself. The military objectives of such an air operation would be to halt an attack or force Iraq to desist from other wrongful conduct.

Operation Desert Storm

Military Objectives

Based on Secretary of Defense guidance, the military objectives for Operation Desert Storm were:

- Neutralization of the Iraqi national command authority's ability to direct military operations;
- Ejection of Iraqi forces from Kuwait and destruction of Iraq's offensive threat to the region, including the Republican Guard in the Kuwait Theater of Operations;
- Destruction of known nuclear, biological, and chemical weapons production and delivery

capabilities, to include Iraq's known ballistic missile program; and

- Assistance in the restoration of the legitimate government of Kuwait.

Keeping Israel out of the war with Iraq was not an explicitly stated military objective of either the United States or the Coalition. Nevertheless, Israel's decision to remain a noncombatant contributed to the cohesiveness of the Coalition and to the ability of US and Coalition forces to prosecute the war. Israeli retaliation could have diverted international attention away from Saddam Hussein's aggression and made it more difficult for the President to build and sustain support in the United Nations and among the Arab nations of the Coalition. It would almost certainly have led to Jordan's involvement in the war, a development that would have had disastrous consequences for Jordan and for King Hussein, but also would have been damaging to US interests in the region and to regional perceptions of the Coalition. A more complete discussion of this issue is contained in the response to Question 2.

EMERGING OBSERVATIONS

Some Accomplishments

— Clearly articulated political objectives helped define the military mission, focus domestic debate and win international and domestic support.

— Military objectives were clear, attainable, and achieved.

Table 1-1

UNITED NATIONS SECURITY COUNCIL RESOLUTIONS

DATE	NUMBER	SUMMARY
2 Aug 90	660	Condemned invasion. Demanded withdrawal. Adopted 14-0-1, Yemen abstaining.
6 Aug 90	661	Imposed a trade and financial embargo. Established special sanctions committee. Called on UN members to protect Kuwaiti assets. Adopted 13-0-2, Cuba and Yemen abstaining.
9 Aug 90	662	Declared Iraq's annexation of Kuwait null and void. Adopted unanimously.
18 Aug 90	664	Demanded immediate release of foreigners from Kuwait and Iraq. Insisted Iraq rescind its order closing missions in Kuwait. Adopted unanimously.
25 Aug 90	665	Called on UN members cooperating with Kuwait to enforce sanctions by inspecting and verifying cargoes and destinations. Adopted 13-0-2, Cuba and Yemen abstaining.
13 Sep 90	666	Reaffirmed Iraq was responsible for safety of foreign nationals. Specified guidelines for delivery of food and medical supplies. Adopted 13-2, Cuba and Yemen against.
16 Sep 90	667	Condemned Iraqi aggression against diplomats. Demanded immediate release of foreign nationals. Adopted unanimously.
24 Sep 90	669	Emphasized only special sanctions committee could authorize food and aid shipments to Iraq or Kuwait. Adopted unanimously.
25 Sep 90	670	Expanded embargo to include air traffic. Called on UN members to detain Iraqi ships used to break the embargo. Adopted 14-1, Cuba against.
29 Oct 90	674	Demanded Iraq stop mistreating Kuwaitis and foreign nationals. Reminded Iraq it is liable for damages. Adopted 13-0-2, Cuba and Yemen abstaining.
28 Nov 90	677	Condemned Iraq's attempts to change Kuwait's demographic composition and Iraq's destruction of Kuwaiti civil records. Adopted unanimously.
29 Nov 90	678	Authorized UN members to use "all means necessary" to enforce previous resolutions, if Iraq does not leave Kuwait by 15 January 1991. Adopted 12-2-1, Cuba and Yemen against, China abstaining.
2 Mar 91	686	Demanded Iraq cease hostile action, return all POWs and detainees, rescind annexation, accept liability, return Kuwaiti property, and disclose mine locations. Adopted 11-1-3, Cuba against, Yemen, China, and India abstaining.

QUESTION 2:

Military strategy of Coalition and how that strategy contributed to achievement of objectives.

QUESTION 2:

Military strategy of the Coalition and how that strategy contributed to achievement of objectives.

Following its successful 2 August invasion of Kuwait, Iraq moved armed forces south to the Kuwaiti-Saudi border. By 6 August, Iraq had six divisions in Kuwait, many more relatively close at hand, and the option of attacking south into Saudi Arabia. The Saudis had few defensive forces in place. A successful Iraqi attack could have led rapidly to the occupation of Saudi Arabia's most significant oil producing regions and the primary ports through which United States and Coalition forces would otherwise enter.

President Bush determined that the seizure of Kuwait and the potential Iraqi domination of Saudi Arabia through intimidation or invasion presented a significant threat to US national interests requiring a decisive response. He sent Secretary of Defense Dick Cheney to Saudi Arabia to confer with King Fahd about a possible military response.

On 6 August, Secretary Cheney and General H. Norman Schwarzkopf (Commander-in-Chief, US Central Command–CINCCENT) met with King Fahd in Riyadh. Secretary Cheney described to King Fahd the willingness of the United States to provide substantial forces to assist in the defense of Saudi Arabia, making clear that the US would leave Saudi Arabia when the job was done. King Fahd invited the United States to send forces.

President Bush promptly issued instructions for US forces to deploy to Saudi Arabia. The US Central Command (CENTCOM) Phase I deployments began on 7 August.

Secretary Cheney and CINCCENT were able to respond quickly to President Bush's request for the strategy and forces necessary to defend Saudi Arabia. The Defense Planning Guidance, developed in the fall of 1989 and issued by the Secretary of Defense in January 1990, called for increased focus on the defense of the Arabian Peninsula against non-Soviet, regional threats (as opposed to the more traditional or predominant concern with rebuffing a Soviet attack through Iran). The development of the new defense strategy announced by President Bush 2 August had continued that advance of policy and strategy. In addition, the long standing US regional presence and program planning for Southwest Asia contingencies had provided an important baseline of experience and capabilities.

Within that new policy framework, and based on the threat scenario developed by the Defense Intelligence Agency and the CENTCOM Directorate for Intelligence, in the spring of 1990, CINCCENT was in the process of reviewing plans for the defense of Saudi Arabia, and had submitted a general Concept Outline Plan in accordance with the Joint Strategic Capabilities Plan to the Chairman of the Joint Chiefs of Staff for approval. The Concept Outline Plan described both the overall forces levels and the strategy needed for a successful defense. This plan was being reviewed in July 1990. When the decision was made to deploy forces in response to King Fahd's invitation, this plan was selected as the best available option, and gave CENTCOM a framework on which to build specific deployment plans.

In conjunction with the update of his plans, CINCCENT conducted a major exercise, Internal Look 90, in July. This exercise included wargaming a second draft of the operational plan, 1002-90, which was based on the Concept Outline Plan. This plan did not yet have specific deployment data, but the overall concept had been tested.

Additional key factors aiding the deployment were past US experience in the region (see Question 21) and Saudi Arabia's well-developed coastal infrastructure supporting a military deployment. Much of this infrastructure was itself a legacy of past defense planning and bilateral defense cooperation between the United States and Saudi Arabia.

With this background, the Department of Defense began its deployments and refined its strategies for the various phases of the confrontation to come.

Operation Desert Shield

Deterrent and Defensive Strategies

The overall strategy for Operation Desert Shield was based upon rapidly deploying and employing forces to deter attack and, if necessary, to support the Saudis in defending key facilities. Combined Saudi and US military objectives during Operation Desert Shield were to

establish a defensive capability in theater to respond to further Iraqi thrusts and deter Saddam from continued aggression. Precise military strategies to accomplish those ends shifted as Coalition forces in place grew to levels adequate for a robust regional defense.

Initially the mission of US and Coalition forces was to deploy to the area of operations to deter further Iraqi aggression and defend Saudi Arabian territory against an Iraqi attack should it occur. In order to deter the Iraqis, Coalition forces were to confront Iraq with the prospect of unacceptable costs for continued aggression. Major force deployments of US, Saudi Arabian, and other friendly nations would contribute to deterrence by demonstrating international solidarity.

CINCCENT's strategy to defend Saudi Arabia in the earliest weeks of Operation Desert Shield reflected the limited forces he could first deploy to the theater. The mission of these forces was to defend Saudi Arabia and other friendly regional states and to deter further Iraqi aggression.

If the Iraqis had invaded Saudi Arabia in the early weeks of the crisis, the Coalition strategy would have emphasized ground defensive operations combined with strategic aerial offensive operations against Iraq. The intent of defensive operations would have been to impose the maximum delay and disruption of their advance, to inflict the maximum number of casualties on their forces, to permit continued improvement of friendly defensive capabilities, and force the Iraqis to abandon their offensive operations. Strategic air operations against key Iraqi air offensive and defensive military capabilities, C^3I, and military supporting infrastructure assets would have been conducted to degrade Iraq's military capability and isolate the Saddam Hussein regime.

In order to ensure that the greatest amount of combat power possible arrived during the crucial early days of the crisis, the decision was made to defer deployment of logistics forces and to deploy combat forces first. Because carrier battle group and amphibious forces are regularly deployed to key regions, sustainable Navy carrier and shipboard assets were quickly available. The US Army's 82d Airborne Division Ready Brigade and two squadrons of Air Force air superiority fighters from the Tactical Air Command began to arrive on 8 August. Additional forces soon followed, including other Army forces, and Air Force and Navy combat aircraft capable of conducting the full range of missions, from strategic attack through close air support. The 7th Marine Expeditionary Brigade (MEB) began to arrive in Saudi Arabia on 14 August. With the arrival of Maritime Prepositioning Squadron-2 on 15 August containing the equipment for the 7th MEB, a mechanized Marine Air Ground Task Force of 16,800 Marines was in place with supplies to sustain 30 days of combat. Additional naval forces were soon deployed to underscore US resolve and to enforce economic sanctions ordered by the President and the United Nations Security Council (UNSC) Resolutions 661 and 665.

CINCCENT's strategy was to deter Iraq with the knowledge that US forces would immediately be engaged if Iraq continued its advance down the peninsula. The Coalition also sought to deceive Iraq by concealing the weakness of its forces.

On 8 August Saddam announced that Iraq had annexed Kuwait. He also moved another 50,000 forces toward the Saudi border.

Sanctions and Deployment

Throughout the month of August the Coalition continued to form. Partly in response to Saddam's continued defiance, the Arab league voted on 10 August to send forces to Saudi Arabia. The first contingent of Egyptian troops arrived 11 August. As military contingents from members of the Coalition began to arrive, the range of options broadened.

On 25 August, UNSC Resolution 665 approved the use of force to enforce trade sanctions against Iraq. Soon after, US and allied naval forces in the Persian Gulf and Red Sea began to enforce economic sanctions and ensured the continued flow of logistics.

As US and Coalition forces continued to arrive in theater, Saddam did not advance down the Arabian Peninsula. However, Saddam remained in Kuwait and would not release the hostages he had taken there, nor would he release the citizens of other countries–including the US–held against their will in Kuwait and Iraq. This was in contravention of both the President's objectives and UNSC Resolution 664. Additionally, reports of atrocities and looting by Iraqi soldiers and security forces continued to emerge from occupied Kuwait.

The Coalition maritime interception force and air forces tightened the economic sanctions imposed by the United Nations through a naval embargo authorized by UNSC Resolution 665 and an air embargo authorized by UNSC Resolution 670. While the air embargo was not a key factor until hostilities commenced on 17 January 1991, the maritime interception operations played a major role beginning in August 1990. Hundreds of ships were boarded and many diverted for carrying prohibited cargo. Other ships were deterred from on-loading Iraqi oil and other prohibited products. Turkey and Saudi Arabia prohibited use of Iraqi oil pipelines traversing their territory. While the full impact of these sanctions is the subject of speculation, they cut off virtually all Iraqi oil revenues, severely restricted other trade, and began to deprive Iraq of some critical materials required for sustainment of military operations. However, Saddam remained unwilling to comply with the requirements specified by the UNSC resolutions calling for Iraqi withdrawal from Kuwait.

As additional US and Coalition ground combat forces began to arrive in theater, the strategy shifted from the early reliance on airpower to a combined arms approach that employed the full panoply of available military power. However, the early development of a contingency air option (described briefly in response to Question 1) served as the basis for the robust theater campaign plan that was to follow.

Operation Desert Storm

Planning for Offensive Operations

Even as Operation Desert Shield deployments and sanctions enforcement continued, the Coalition began to plan for the possibility that air, land, and sea offensive operations would be needed to eject Iraq from Kuwait. Coalition strength steadily increased, both in terms of material assets and in terms of resolve. The key theater military objectives as stated in Operations Order (OPORD) 91-001, dated 17 January 1991 were: attack Iraqi political-military leadership and command and control; gain and maintain air superiority; sever Iraqi supply lines; destroy known chemical, biological and nuclear production, storage, and delivery capabilities; destroy Republican Guard forces in the KTO; and liberate Kuwait City.

In order to achieve these goals, additional forces were required. Most of these came from the US, although Coalition partners made critical contributions. Given the uncertainties of war, it was decided at the end of October that it would be prudent to increase the forces available in theater to ensure successful execution of the strategy with minimal casualties against a formidable opponent. The roughly doubling of forces would also send a further signal of Coalition resolve to Saddam Hussein, bolstering any chances that he might withdraw peacefully.

Strength Against Weakness

The overall offensive strategy was designed according to tested principles of applying strength against the enemy's weakness, while preventing him from doing the same to Coalition forces. Although reliant upon a cross-cultural Coalition which early on was outnumbered, operating in an alien environment seemingly more familiar to the opponent, uncertain about Saddam's intent to use weapons of mass destruction, and operating across an enormous area and with extended lines of communication, the Coalition nevertheless enjoyed a number of advantages. Among these advantages were:

- The high quality of Coalition air, ground, and naval forces:
  - Superior personnel and training; and
  - Technological advantages in weaponry;
- The prospect of early and effective air superiority;
- A superior ability to acquire intelligence throughout the theater, including unimpeded access to space;
- Widespread international support; and
- The high caliber of Coalition political and military leadership.

In order to apply these advantages in the most effective way, Coalition planners sought a thorough understanding of the forces arrayed against them.

The Iraqi Threat

Iraq emerged from the eight-year war with Iran with battle-tested armed forces of over one million men. That war, Saddam's territorial ambitions, and his determination to be the dominant regional power had driven him to invest heavily in his military. The Iraqi army had shown itself capable of conducting effective operations even after sustaining heavy casualties, and the Iraqi

leadership proclaimed its willingness to accept more. The Iraqi army had evolved from a four-corps defensive force to an eight-corps force capable of conducting coordinated multi-corps offensive thrusts more than 100 kilometers into Iran. It had modified its defensive strategy to include an offensive combined arms strategy, supported by massive artillery fire (including chemical weapons) and airpower (both army and air force). The Iraqi inventory included capable T-72 tanks and state-of-the-art French, Austrian and South African artillery. While its Air Force was not one of Iraq's strengths, Iraq had obtained late-generation Soviet and French fighter aircraft, including the MiG-29 Fulcrum, Su-24 Fencer and the versatile, multi-role Mirage F-1. Iraqi pilots had conducted air strikes on Iranian facilities at a range of 1,000 kilometers through the use of extensive aerial refueling. Finally, the Iraqis had demonstrated their capability to employ chemical weapons, and were believed to have a limited capability to use chemical or perhaps even biological weapons on their Scud missile fleet. It was the most powerful military force in the Persian Gulf region. In the Middle East, only Israel possessed a more capable force.

Iraq had also developed a sophisticated system of both air and ground defenses that threatened to make a frontal assault costly. Many believed the Iraqi army to be among the best in the world at defensive warfare. The air defense system was modern and redundant. It featured a multi-layered, automatic data linked detection and command and control system. It integrated over 700 non-shoulder launched surface to air missile (SAM) launchers and 6,000 antiaircraft artillery (AAA) (23mm and larger) pieces with an air force of 550 combat aircraft, including capable MiG-29 and Mirage F-1 fighters.

Iraq also placed significant emphasis on developing a secure, redundant communications system. This multilayered system included many built-in backups. If one layer were disrupted, other layers would theoretically take up the slack. In addition to a "civil" telephone system which carried more than half of the military's telecommunications, there was a microwave system, and a high-capacity fiber optics network. Much of this system was buried or dispersed.

By October Saddam had over 300,000 troops on the ground in Kuwait, dug in and arrayed in mutually supporting defenses in depth; this number would continue to grow and was believed to have reached over 500,000 by January 1991. At least two defensive belts interspersed with formidable triangular fortifications had been established along the Saudi border with Kuwait. Minefields and oil filled fire trenches were coordinated with interlocking fields of fire from tanks, artillery, and machine gun positions. Strong, mobile, heavily armored counterattack forces composed of the best elements of the Iraqi army–including elements of the Republican Guard–stood poised to strike at Coalition penetrations of the initial lines of defense. Equally strong positions were constructed along the sea coast, incorporating naval and land mines. Iraqi troops also fortified high rise apartment buildings fronting on the Gulf–turning them in effect into multi-tiered fortresses.

Iraqi forces had further constructed an impressive system of roads, buried communications lines and supply depots. This infrastructure did much to multiply the combat power of an already powerful defensive force. It allowed reinforcements and supplies to move over multiple routes to any point on the battlefield. These roads, many of which were multi-lane, were so numerous that it was not feasible to destroy all of them. Buried telephone lines and fiber optic cables for command and control purposes were difficult to attack. Stocks of supplies in Kuwait or just north of the Iraq-Kuwait border were estimated to be sufficient to last through a month–or more–of combat without replenishment, and many of these stocks had been dispersed to make targeting and destruction more difficult.

Enemy Vulnerabilities

Despite Iraq's numerical strength, DOD knew Saddam's forces had vulnerabilities:

- The rigid top-down nature of the command and control system and the inability of Iraqi forces to operate in autonomous modes;
- An air defense system that could be surprised by stealth and overwhelmed by massive lethal and electronic warfare air attacks;
- Ground forces and logistics vulnerable to air attack in desert conditions;
- A generally defensive approach to battle;
- Inexperience at sustaining offensive forces over great distances;
- Despite pre-stockage, an overextended and cumbersome logistics system;

- Faulty understanding of the full operational capabilities of Coalition forces;
- Inability to interfere with US space-based assets;
- Limited air offensive capability; and
- Ineffective foreign intelligence.

Centers of Vulnerability

In addition to these weaknesses, the Coalition had identified Iraq's centers of gravity. These decisive sources of power also constituted crucial vulnerabilities. First was the command and control and leadership of the Saddam Hussein regime. If rendered unable to command and control their military forces, or to maintain a firm grip on their internal population control mechanisms, they might be compelled to comply with Coalition demands. Second, degrading Iraq's weapons of mass destruction capability would remove a major part of the threat to regional states. This meant degrading the known Iraqi nuclear, chemical and biological warfare production facilities along with various means of delivery–ballistic missiles and long-range aircraft. Finally, the third of Iraq's centers of gravity were the various elements of the Republican Guards. If the combat potential of those Republican Guard forces located in Iraq just north of the Kuwaiti border were eliminated, Iraq would be unable to continue its occupation. Eliminating the Guard in the KTO as a combat force would dramatically reduce Iraq's ability to conduct a coordinated defense during Operation Desert Storm or to pose an offensive threat to the region later.

Saddam's Military Dilemma

Compared to the early days of Operation Desert Shield the military environment had improved in the Coalition's favor by October, and this trend continued. While Saddam still held political cards–such as release of hostages, terrorism or other efforts to split the Coalition, or even a withdrawal or partial withdrawal from Kuwait–his military position had greatly weakened and his military options had narrowed. Saddam increasingly was presented with a strategic dilemma despite the significant capabilities of his forces

- To the east were three aircraft carrier battle groups with 180 combat aircraft, a large amphibious task force, and a variety of other naval forces. Also to the east was Iran, with whom Iraq hurriedly made peace at the beginning of the crisis. While Iran was not an active participant, its mere presence on Iraq's flank and their uncertain state of relations limited Iraq's options.
- To the west lay unfriendly regional states–with the exception of Jordan, whose capabilities were limited and who offered Iraq little real support, despite reports of the transshipment of some goods across the Jordanian border.
- To the north was Turkey and its military forces, as well as more than 100 US Air Force combat and support aircraft from US European Command and three squadrons of aircraft from other NATO members of the Coalition.
- In the Red Sea were three more aircraft carrier battle groups with approximately 180 combat aircraft and other Coalition naval forces.
- To the south, inside Saudi Arabia, were the bulk of Coalition air and ground forces. There were the equivalent of more than seven Army divisions, more than two Marine Corps divisions, and the equivalent of more than 20 US fighter wings throughout the theater (including more than 600 combat aircraft from 11 allied countries). Additionally, there were combat assets located in other regional Coalition countries. In all there were more than 541,000 US military personnel, plus their equipment, arrayed against Saddam's forces.
- There was a network of sensors and aircraft that could map, and examine or threaten every square yard of exposed Iraqi territory, and its occupation army in Kuwait.
- Outside the CENTCOM Area of Responsibility were over 60 Air Force B-52 bombers that were able to carry out punishing attacks on Iraqi military targets. Beyond this were the bulk of the forces of non-regional Coaltion nations.

Saddam's Strategy

We have only limited insight into Saddam's strategy. Many attempts to guess at his thinking during the course of the crisis proved mistaken. Nonetheless, the main outlines of Saddam's thinking would seem to have been as follows: First, he sought to prevent the formation of the Coalition and the introduction of significant US forces into Saudi Arabia, and later, he sought to split the

Coalition. He sought to accomplish these goals by stirring resentment of Kuwait as unworthy of support and by asserting historical rights, by calling on Arab unity, by appealing to supposedly radical Arab populations to undercut moderate Arab governments, by outlasting the embargo, by threatening a costly war of attrition, and by involving Israel in the crisis. These was much speculation during the crisis that Saddam would eventually buckle to pressure and choose to withdraw from southern Kuwait and Kuwait City, while retaining two strategic islands and the valuable northern Kuwaiti oil fields. In the end, he chose to risk combat.

Theater Campaign Plan

The Operation Desert Storm theater campaign plan called for four phases: phase I, a strategic air campaign; phase II, a short but intense effort to establish air superiority in the Kuwait Theater of Operations (KTO); phase III, attacks on the Republican Guard and other Iraqi army forces in the KTO; and, finally, phase IV, a ground offensive supported by air and naval forces. The Coalition sought to cut off and destroy Iraq's army of occupation in Kuwait and, in addition, to destroy Iraqi ability to threaten further regional peace and stability. The military actions to accomplish this would weaken significantly the Saddam Hussein regime by bombing carefully selected targets whose destruction would collapse vital military capabilities and military-related industrial systems, but leave most of the basic economic infrastructure of the country intact. Unless Iraq capitulated, these air attacks would be followed at the appropriate time by land and sea operations to eject Iraqi forces from Kuwait.

The employment strategy envisioned opening the war with a focused, intense air campaign. If Saddam Hussein counterattacked he would be met by massive Coalition air forces and ground forces whose primary planned mission was to defeat any Iraqi attack. Meanwhile, the air campaign would continue attacks into Iraq's heartland and against Iraqi forces in the field.

Air Campaign Plan

The air campaign was developed to attack critical Iraqi centers of gravity–the heart of what allowed Iraq to maintain its occupation of Kuwait. The strategy was designed to paralyze the Iraqi leadership's ability to command and control the operations of its forces both offensively and defensively, to destroy Iraqi capability to threaten the security and stability of the region, to render Iraqi forces in the KTO ineffective, and to minimize the loss of life. The air campaign was designed to be executed in three phases. Once the air campaign had brought the ratios of combat power to a point where they favored the Coalition, and if the Iraqis had not yet complied with United Nations demands, multinational ground forces supported by Coalition air forces, would conduct a coordinated attack to eject Iraqi forces occupying Kuwait and to reduce those forces supporting them.

The plan was based upon achieving the five overarching goals listed below. Behind each goal are listed the key targets sets that would be attacked to secure the goal. (Although degrading a target set commonly would help achieve more than one goal, key targets sets are listed only once.)

- Isolate and incapacitate the Iraqi regime. (Leadership command facilities, electricity production facilities that power military and military-related industrial systems, and command, control and communication systems)
- Gain and maintain air supremacy to permit unhindered air operations. (Strategic air defense systems including radar sites and air defense control centers, and airfields and air forces)
- Destroy the known nuclear, biological, and chemical (NBC) warfare capability. (NBC research, production, and storage facilities)
- Eliminate Iraq's offensive military capability by destroying major portions of key military production, infrastructure, and power projection capabilities. (Scud missile production and storage facilities, naval forces and port facilities, and oil refining and distribution facilities–as opposed to long-term production)
- Render the Iraqi army in Kuwait ineffective, causing their collapse. (Railroads and bridges connecting Iraqi military forces with their means of support, army units to include Republican Guard forces in the KTO, and military storage sites)

It was recognized at the outset that this campaign would cause some unavoidable hardships for the Iraqi populace. It was impossible, for example, to destroy the electrical power supply for Iraqi command and control

facilities or chemical weapons factories, yet leave untouched that portion of the electricity supplied to the general populace. Coalition targeting policy and aircrews made every effort to minimize civilian casualties and collateral damage. Coalition rules of engagement directed pilots to withhold their weapons if the target could not be positively identified or if other factors were likely to degrade weapons performance (for example, cloud cover, weather, or other constraints). Because of these restrictive policies, only the use of precision guided munitions enabled the destruction of key targets in the heart of downtown Baghdad while leaving untouched civilian buildings virtually next door.

By January 1991, there were enough air forces available that Coalition leaders decided to execute the three phases of the air campaign almost simultaneously, thus applying the greatest amount of pressure from the opening minutes of the war. The resulting attack on critical targets throughout Iraq and the KTO deprived Saddam Hussein of the initiative, and, as planned, provided the basis for the ground assault to complete the destruction of Iraqi forces in Kuwait with minimal losses.

Once the air campaign began, Saddam Hussein was faced with the prospect of fighting the war in a manner not of his choosing. Although his forces were being punished constantly by aerial bombardment, he continued to present Coalition planners with a number of concerns. His only effort to counter the Coalition's air campaign that achieved any degree of success was the Scud attacks on Saudi Arabia and Israel. Intense efforts suppressed but could not completely eliminate the Scud attacks. In late January, the Iraqis also attempted a major land battle which culminated in their telling defeat at Khafji. The Iraqi Air Force (IZAF) made a brief attempt to fight, but many aircraft were shot down after inflicting no losses on Coalition aircraft. As a result, early in the first week, the IZAF began to hide in hardened aircraft shelters. The Coalition feared they might be able to launch one massive strike against Coalition bases and create the effect of an "Air Tet"– similar to the Vietnam War's Tet offensive of 1968, which achieved limited military success but embarrassed the US and caused an erosion of public support for the war. As the US shelter-busting campaign proved effective, elements of the Iraqi Air Force began to flee to Iran. Iran's promises to intern these aircraft were watched carefully by Coalition planners. The possibility of Silkworm missile attacks against the Coalition naval armada aligned against Iraq remained a constant concern. The threat of terrorist attacks against Coalition interests was always present. Finally, it was feared that when ultimately cornered, the Iraqis might use biological or chemical weapons.

Ground Campaign Plan

As the air campaign achieved its goals, the President approved the beginning of ground operations. The ground war began on 24 February. The main attack in the ground assault was based on the "left-hook" or "Hail Mary" sweep from the west designed to avoid most of Hussein's fixed defenses, while bringing Coalition forces–British, French, and US–directly to bear on Saddam's strategic reserve within and to the north of the KTO–the Republican Guard armored and mechanized divisions. This sweep employed the strength in AirLand battle doctrine, including agility, depth, synchronization of combat power, initiative, and sustainment of the force. Accurate intelligence and technological advantages made it possible to traverse the vast open desert area successfully, and in many cases undetected, to bring power to bear at the right place and time. This assault was designed to be supported by an amphibious feint and by fixing attacks along the Kuwaiti-Saudi border conducted primarily by Egyptian, Kuwaiti, Saudi, Bahraini, Qatari, Omani, Syrian, US Marine Corps, and United Arab Emirates forces. Supporting attacks by the First Marine Expeditionary Force (I MEF) into the heart of Iraqi defensive formations in Kuwait, Joint Forces Command-East along the coast, Joint Forces Command-North on I MEF's left flank, and US Army XVIII Airborne Corps on the extreme western flank and the threat of an amphibious assault on the Kuwaiti coast all helped to prevent Hussein's forces from responding to the main attack. The deception plan appears to have successfully reinforced Iraqi beliefs that the US would mount an amphibious assault and Coalition forces would not go into Iraq.

Coalition leaders were intent on achieving their objectives with minimum Coalition casualties and maximum combat efficiency. If combat operations became necessary, the concept was to apply overwhelming force. Although Coalition political leaders and commanders may have held some hope that the air phases of the theater campaign plan might cause Saddam to agree to Coalition demands without the need to launch a ground offensive, they were prepared to commit ground force to battle if required. The campaign plan for Operation Desert Storm reflected Coalition determination to commence the land battle only after the battle-

field had been properly prepared to minimize the risks of high casualties and a prolonged war.

The Coalition campaign plan successfully exploited Iraq's weaknesses. Saddam's rigid command and control system was undermined, as were his warfighting doctrine, his logistics system, and his air defense system. Coalition forces used the Iraqi inability to gather tactical intelligence–to see the battlefield–against him. The Coalition applied its mobility to avoid Saddam's fixed defenses and exploit openings in them. Airpower and astute planning allowed the Coalition to avoid Iraq's strengths and to dictate the terms of the battle.

The US took unprecedented steps to persuade Israel not to retaliate against Iraq, in some cases diverting military assets. A special, secure communications link established between DOD and the Israeli Ministry of Defense enabled immediate and frequent contact between senior US and Israeli officials. Near real-time early warning of Iraqi Scud missile attacks on Israel passed over this link gave the Israeli populace as much as five minutes to take shelter before missile impact. In the fall of 1990, the President authorized the transfer of two Patriot batteries to Israel along with the training for IDF forces in their employment. After the initial Scud attack, Israel agreed to accept four additional US Patriot missile batteries manned in this case with US troops. Finally, the CENTCOM Air Force component devoted a significant amount of its combat capability to combating the Scud threat. The President twice dispatched Deputy Secretary of State Lawrence Eagleburger and Under Secretary of Defense for Policy Paul Wolfowitz to Israel to reaffirm our commitment to Israel's security and ensure the US objectives were clearly understood.

Israel's decision to remain a noncombatant contributed significantly to holding the Coalition together. Likewise, our enhanced cooperation with Israel contributed to their decision to exercise restraint in the face of extreme provocation. The issue of whether Israel would or could have retaliated effectively will undoubtedly be debated for years. It is clear, however, that Israeli restraint was in its own best national interests, its best policy option, and overwhelmingly supported by the Israeli public, senior leadership, and strategic policy makers. Support for Israel was not only in the best interests of the US and the other Coalition members, but also enhanced Israel's standing in the world community.

Overall, the Coalition succeeded in what Sun Tzu calls the greatest achievement of a commander, defeating the enemy's strategy. Saddam Hussein's strategy was to inflict casualties on the Coalition to break our will, to draw Israel into the war to break the Coalition and to inflict casualties on Israel to claim a victory among the Arabs. Expecting that the Coalition would blunder into these traps, Saddam found himself frustrated. Taking significant casualties himself, without inflicting any serious blows on his enemies, he launched the ground attack on Khafji. His disastrous defeat in that engagement foreshadowed his larger, ultimate defeat in the ground campaign.

EMERGING OBSERVATIONS

Some Accomplishments

— The Coalition military strategy was well tailored to negate Iraqi capabilities and exploit their vulnerabilities. The campaign plan took full advantage of Coalition strengths and Iraqi weaknesses to attain its objectives quickly with remarkably light losses. The combination of massive airpower applied precisely and simultaneously against key Iraqi centers of gravity overwhelmed the Iraqis' ability to resist or recover from the damage inflicted upon them. This led to the rapid and progressive collapse of vital Iraqi military and supporting capabilities and paved the way for the lightning fast ground offensive.

— The strategy frustrated Iraqi political and military objectives while advancing those of the Coalition.

— The strategy exploited superior planning, training, doctrine, and technology to achieve tactical and strategic surprise.

— The strategy successfully employed strategic and tactical deception to divert Iraqi forces and to maximize the effects of surprise.

— The theater strategy was crafted to minimize both collateral damage and friendly casualties.

— The Coalition strategy let the Coalition determine the timing and place of combat.

A Shortcoming

— During Operation Desert Shield, initial Coalition strategy options were limited by the lead time required to move forces, especially heavy forces, into the theater.

A Selected Issue

— We do not understand the reasoning underlying many of Saddam Hussein's strategic decisions.

QUESTION 3:

f

The deployment of United States forces and the transportation of supplies to the theater of operations including the assessment of airlift, sealift, afloat prepositioning ships, and Maritime Prepositioning Squadron ships.

QUESTION 3:

The deployment of United States forces and the transportation of supplies to the theater of operations including the assessment of airlift, sealift, afloat prepositioning ships, and Maritime Prepositioning Squadron (MPS) ships.

The United States Central Command began the Phase I Deployment sequence to Southwest Asia on 7 August (C Day), the day after Secretary Cheney's meeting with King Fahd in Riyadh. The deployment was to be based on the Concept Outline Plan and draft Operations Plan developed as part of the Department's normal planning process in the spring and summer of 1990.

Typical deployments of United States units are predicated upon Operations Plans (OPLANS) and accompanying Time Phased Force Deployment Data (TPFDD) and Time Phased Force Deployment Lists (TPFDL). The TPFDD provides the data needed to construct the TPFDL. The TPFDL contains the scheme of deployment, including the sequence as to when specific units are to deploy; the location of the ports of debarkation for specific units; and the amount and types of lift required to deploy them.

However, the Concept Outline Plan prepared in the spring and summer of 1990 did not yet have specific deployment data. Accordingly, early movement of units to Saudi Arabia was accomplished with a draft TPFDD, which was being built even as it was executed.

The Commander-in-Chief, Central Command (CINCCENT) orchestrated early deployments through direct conversations with the Joint Staff and US Transportation Command (TRANSCOM). Service components were also brought into the sequence and began to determine which units would deploy in the early phases and which would deploy later. Because of the developmental nature of the Joint Operations, Planning and Execution System (JOPES) and the need to tailor the deployment to the specific mission and circumstances, this phase of the deployment was performed manually.

As need for particular units arose, the US Central Command (CENTCOM) staff would notify the Joint Staff Crisis Action Team, which in turn initiated the procedure to produce a deployment order. (The procedure is described in the answer to Question 11, The Effectiveness of Reserve Components.) At approximately the same time, CENTCOM discussed transportation requirements with TRANSCOM. Simultaneously, the Services, CENTCOM, and TRANSCOM had begun work on the construction of a TPFDL. This document, not completed until the third week of August, provided discipline to the system, enhanced deployment procedures, enabled JOPES to begin functioning as designed, and gave TRANSCOM the necessary perspective on the total deployment requirements.

Meanwhile, in the first 10 days after the decision to assist Saudi Arabia, a significant force had begun to deploy to the AOR. Its deployment was aided by the availability in Saudi Arabia and other Gulf States of a well-developed coastal infrastructure built by the host nations in prior years. The air fields and port facilities available in August 1990 contributed significantly to the success of the follow-on deployment. The developed infrastructure on the coast, however, dissolved quickly into a rudimentary road system inland.

The first naval combatants, the aircraft carriers USS Dwight D. Eisenhower, USS Independence and their escorts, had been ordered on 4 August to deploy to waters adjacent to the Gulf. On 7 August the initial combat forces deployment order was issued. Maritime Prepositioning Squadrons 2 and 3 (based in Diego Garcia and Guam) were ordered to sail; Fast Sealift Ships (FSS) were activated; and the first Military Airlift Command aircraft landed in Saudi Arabia. The first combat aircraft, F-15Cs from the 1st Tactical Air Wing, arrived in theater on 8 August, as did ground forces from the 82d Airborne Division's ready brigade. Additionally, in order to ensure a more efficient deployment, the Military Traffic Management Command (MTMC) Contingency Response Program was activated on 8 August. This organization ensured that Department of Defense requirements for commercial transportation within the continental United States were appropriately coordinated and met.

On 10 August the first 17 ships of the Ready Reserve Force were activated; the first FSS ship arrived at Savannah, Georgia, to begin loading the 24th Infantry Division, and the first agreement to charter a US ship was signed. Also by 10 August, over 100 aircraft had been deployed to the theater. On 11 August, the first foreign ship was chartered, and the first squadron of

C-130 transports arrived in Saudi Arabia. The following day elements of the I Marine Expeditionary Force at Camp Pendleton, California, and the 101st Airborne Division (Air Assault) stationed at Fort Campbell, Kentucky began to deploy by air. Additional naval combatant forces were deployed simultaneously to underscore our resolve and to enforce economic sanctions ordered by the President on 12 August. The first MPS ships arrived at ports of debarkation by approximately 16 August and were quickly linked with Marine Corps units. This Marine Air-Ground Task Force (MAGTF) with 30 days of supplies gave Central Command the first mechanized force with supporting air at an early point in the operation. In order to improve the speed of deployment of forces to Saudi Arabia, Phase I of the Civil Reserve Air Fleet (CRAF I) was activated on 17 August.

Although the manual deployment procedure used in early August worked, it depended heavily upon personal interface and the skill of staff officers in resolving problems. Some of the issues that developed were not simple ones. For example, the lack of a structured deployment schedule, the lack of a system to conduct rapid transportation feasibility studies, and the number of changes necessitated by the situation had the effect of hindering the contribution of TRANSCOM. Also, CENTCOM made the decision at the outset to deploy as many combat elements as possible at the expense of logistics and administrative units, given the very real threat that Saddam might exploit Saudi Arabia's vulnerability and continue his drive south. Separation of combat and non-combat units is not always simple because some formations, such as Army divisions, have organic logistics support. Thus, there were definitional problems with respect to what constituted a combat force. Additionally, the decision to change deployment priorities required a mid-course correction in the flow of units already enroute to ports of embarkation. Another issue involved transportation feasibility. Rapid response units, such as the 82d Airborne Division, the 1st and 7th Marine Expeditionary Brigades, and Air Force tactical fighter squadrons, were the only ones for which transportation feasibility data was available. The feasibility of moving other units was determined while deployment decisions were made. Planned modifications to JOPES will help to eliminate problems of this kind, and will facilitate planning and execution of deployments when adjustments must be made to the TPFDL during crisis action planning or execution.

Several observations emerge from a review of air and sea lift. Airlift delivered over 544,000 tons of cargo–about 15% of the total of approximately 3.5 million tons of dry cargo–and more than 501,000 passengers. During the early deployment period, over 25% of the cargo delivered by air was outsized, deliverable today only on C-5s. Another 60% was oversize, most of which could be more efficiently delivered by military (as opposed to CRAF) aircraft. Reserve volunteers initially provided critical augmentation for the Military Airlift Command (MAC) effort, and eventually over 20,000 Reserve and Air National Guard personnel augmented the MAC system. Early on there may have been some bottlenecks in the MAC system caused by crew-aircraft mismatches. However, these do not appear to have had a major effect.

The Civil Reserve Air Fleet (CRAF) was activated to supplement MAC. CRAF is a program in which commercial airlines agree to make aircraft available for DOD deployments in exchange for peacetime military business. This was the first CRAF activation, and it initially provided 18 Long Range International (LRI) passenger aircraft and crews and 21 LRI cargo aircraft and crews. Additional cargo requirements necessitated implementation of CRAF II on 16 January, providing access to another 59 LRI passenger aircraft and 17 more LRI cargo aircraft. CRAF I and II assets delivered 22% of the air cargo and 69% of the air passengers. However, CRAF is less flexible than MAC organic assets. For example, some kinds of cargo cannot be carried on civil aircraft, or are extremely difficult to load on civil aircraft, and most crews of civil aircraft are not trained for specialized military missions.

Strategic airlift was critically dependent on enroute bases in Germany, Portugal, and Spain. Despite the substantial infrastructure the United States and Saudi Arabia had built up over the years, another limiting factor at the outset was the lack of adequate ground equipment at some airfields in Saudi Arabia. At the beginning of the deployment, shortages of airfield infrastructure limited MAC to two main deployment bases. These limitations illustrate the importance of maintaining adequate overseas support bases as part of a forward basing structure. They also serve to highlight the need to give priority to pre-crisis agreements on the development and use of host nation infrastructure assets.

Sealift delivered the bulk of the United States' cargo and equipment. By the end of the war, 95% of all

cargo-dry cargo and petroleum products – and nearly 3,000 passengers were moved by sea and delivered to Saudi ports. Strategic sealift especially was crucial to deploying Army forces. Although most soldiers were airlifted to the Gulf, the bulk of their equipment and supplies was too large to transport by air and could be efficiently and economically brought in only by sea. This in itself required close coordination to ensure those individuals deployed by air reached the theater within a four day window around the date that their equipment was scheduled to arrive. Arrival prior to that time would place a burden on the Saudi infrastructure to support the unit before it moved to its tactical positions. It would also expose troops in the ports to possible attack by ballistics missiles and aircraft.

The Marine Corps MPS and the prepositioned ships containing supplies for other Services performed well, providing early forces, as well as initial sustainment supplies. The MPS equipped and sustained a Marine force of over 30,000. Eventually all three MPS squadrons were committed to Southwest Asia.

Preliminary sealift data indicate the key role played by the large, modern Saudi port facilities. Initial data suggest that the overall shipping performance was sound. During Phase I, only 6 of 110 ships that entered the sealift system had problems that prevented them from accomplishing their missions. Fast sealift also appears to have worked well. The size and speed of the seven Fast Sealift Ships (FSS) allowed them to deliver over 13% of the cargo. (By comparison, 116 World War II Liberty Ships would have been required to move the same tonnage.) FSS have both a container and a roll-on/roll-off (RO/RO) capability and are a versatile means of transport for unit equipment. They have a larger capacity than break bulk ships and require less time to load and unload. However, there are only eight FSS ships, and the loss of any one of them can have serious repercussions. Unfortunately, one FSS, the Antares, failed in mid-ocean with a considerable amount of the 24th Infantry Division's supporting equipment aboard. This cargo had to be reloaded onto another FSS in Spain. Prior to the war, this ship had been scheduled for a major overhaul. A degree of risk was accepted in the decision to use Antares to speed the deployment. Despite these difficulties, the ship's cargo arrived in Saudi Arabia only three days later than planned.

The Ready Reserve Force (RRF) provided RO/RO ships, break bulk cargo ships and barge carriers that are no longer readily available in sufficient numbers in the active US fleet. There were some initial problems with slow RRF activations–only 12 of the initial 44 RRF ships were activated within the five day period specified. Part of the delay can be attributed to the fact that the ships were called up without regard to their readiness status. Most of the delay was due to the fact that some ships had deteriorated as a result of prior year cuts in maintenance and activation exercise funding. The median activation time was about 11 days. Once activated and brought to operating condition, however, RRF ships performed well. They maintained a respectable 93% reliability rate and delivered 28% of the cargo for US forces.

Chartered commercial ships, most of which were foreign flagged, carried 37% of all unit equipment. United States flag charters carried approximately 15% of this cargo while the remaining 22% was carried by foreign flag ships. The lack of RO/ROs in the US merchant fleet required the chartering of foreign vessels. In addition to these charters, special arrangements were made to ship containerized cargo on a regularly scheduled United States-Middle East liner service. Eventually, this service, the Special Middle East Shipping Agreement (SMESA), delivered almost all of the containerized sealift cargo, capitalizing on the container ship strength of the US maritime industry.

When necessary, the Military Sealift Command can call on commercial ships from the Sealift Readiness Program (SRP). SRP, a contractual program, requires that shipping companies which bid on Military Sealift Command (MSC) contracts commit 50% of their cargo capacity to the program. Additionally, vessels receiving government subsidies must participate in the SRP. In this crisis, SRP was not used for three primary reasons. First, two thirds of the dry cargo ships and one quarter of the tankers enrolled in the SRP were already engaged in the movement of Desert Shield cargo. Second, activation would have had a negative effect on US commercial shipping. Companies that had vessels activated would lose valuable customers to foreign firms. A final reason that the SRP was not activated was that the United States maritime industry responded voluntarily with vessels available for charter.

The advantages of RO/RO and container vessels were clear in this deployment. Currently, the majority of the RRF consists of break bulk ships which generally have a smaller cargo capacity and take two to three days

longer to load and unload. During the crisis, much of our ammunition was transported in break bulk bottoms, the same method used to transport ammunition in World War II. The use of containerized cargo shipments was not as widespread as it might have been during deployment. This had a dramatic effect on the speed with which materiel could be loaded, unloaded and moved through the ports. Containerization can increase throughput capacity of ports by a significant margin. (An example is the rapid off-load of MPS which have containerized supplies.) Had events moved more quickly, the two or three days of delay caused by the lack of more modern types of vessels might have been critical.

In November, the President authorized the deployment of follow-on forces which included: a heavy division from the United States and the European-based VII Corps, as well as associated combat and support elements, three additional carrier battle groups, one battleship, Amphibious Group 3 with the 5th Marine Expeditionary Brigade, the II Marine Expeditionary Force, and 410 additional Air Force aircraft.

The ready availability of the VII Corps was essential to the success of the ground operations. Because it was forward based in Europe it could be moved into the theater much more rapidly than forces from the United States. Distances to port were often shorter in the case of VII Corps units, which could make that part of the journey on a rail or barge system accustomed to moving NATO units. Their deployment was further speeded because NATO countries often gave priority, in response to our requests, on their transportation systems and in their harbors to speed VII Corps movements. Additionally, once loaded aboard ships, the transit time was much less. The value of forward basing a portion of our combat power in geostrategically located areas from which they can then be redeployed was demonstrated in this instance. Forward based forces increasingly may have to plan for out of area contingency missions.

The success of the deployment as a whole was due to the availability of aircraft, ships, and crews; timely decisions to augment active force lift assets with Selected Reserve, CRAF, and RRF equipment; forward staging bases for international flights; forward deployed forces; superb off-loading facilities in Saudi ports; cooperation of our European allies; the energy, readiness, and initiative of the deploying units; and, most of all, time. Additionally, the United Nations' resolutions simplified the process of acquiring world transportation assets. But deployment in a future crisis may be more challenging if the United States does not have the luxury of time in which to execute deployment plans; unchallenged access to staging and modern port and airfield facilities; and sufficient air and sea lift of the right types and mix.

The issue of time, in particular, is one over which the Department of Defense may not have much control in future crises. DOD can improve its ability to respond to crises by taking several actions in advance. First, sea and land based prepositioning and forward deployed forces can provide ready forces and initial sustainment early, easing lift requirements. Comprehensive host nation support agreements with those nations where there are vital US interests may be of aid. Finally, as we move toward a strategy that bases a larger proportion of our forces in the United States, response to regional contingencies must be convincing and expeditious. Strategic lift will play a critical role in our plans and capability. The Mobility Requirements Study and further analysis of the deployments in Operations Desert Shield and Desert Storm will help us assess those needs.

EMERGING OBSERVATIONS

Some Accomplishments

— Policy and contingency planning in the Spring and Summer of 1990 aided the deployment.

— Airlift and sealift successfully moved enormous quantities of personnel and equipment.

— Airlift transported about 15% of all dry cargo and more than 501,000 passengers in support of both Desert Shield and Desert Storm. CRAF and volunteer civil carriers chartered by the Department delivered 22% of the air cargo and 69% of the air passengers. Organic MAC aircraft delivered the remainder.

— Sealift delivered 95% of all cargo. This cargo was carried in government owned and chartered bottoms.

— Prepositioned ships and MPS worked well and added flexibility to strategic lift.

— Staging bases in Europe were critical to efficient strategic airlift. Forward basing in Europe of combat and service support elements also enhanced the speed of deployment.

Some Shortcomings

— Had the Coalition not had an extended period of time to deploy, the tactical situation might have been precarious. The Department must be able to move larger and heavier numbers of forces into the theater in less time in order to be able to defend with a low degree of risk.

— Planners encountered difficulties in using the still developmental JOPES system.

— CRAF does not have the degree of flexibility we have come to expect from MAC, especially in terms of handling military cargo and equipment.

— Most RRF ships were not activated on schedule. The median activation time was about 11 days.

— Delays were created because of the longer times required to load and unload break bulk ships compared with RO/ROs and container vessels. RO/ROs and containerization demonstrated advantages that should be weighed in the Mobility Requirements Study.

— The mix of ship types in the RRF may require adjustment.

— Some prepositioned assets, which are normally deployed for other contingencies, were located in areas that were not convenient to the KTO. Nevertheless, they were closer to the KTO than if they had been stored in the continental United States.

Some Issues

— There were early problems in airlift systems management. Coupled with the absence of a TPFDD and the uncertain situation confronting CINCCENT, the airlift system did not operate initially at full capacity.

— Although deployment to the KTO was generally successful, DOD needs to consider for the future the problems that would be posed by a second, concurrent crisis.

— There are reports that more lift than programmed was required to transport deploying forces. What appears to have happened is that units which had previously deployed only for exercises took much more equipment and supplies when they deployed for actual combat missions.

— The Commander-in-Chief, Transportation Command has reported that there is a shortage of maritime prepositioning in the CENTCOM area of operations. This requires additional study.

QUESTION 4:

The conduct of military operations.

QUESTION 4:

The conduct of military operations.

The success of combat operations during Operation Desert Storm directly flowed from the planning, deployment, and training operations mounted by US and Coalition forces during Operation Desert Shield. Those vital aspects of Operation Desert Shield are discussed in the responses to Questions 2, 3, 12, and 21.

Supporting Naval Operations – Maritime Interdiction, Protection of Shipping and Amphibious Presence

Some limited military options were available to the President immediately after the Iraqi invasion in the form of the forward deployed Middle East Naval Force, long range air strikes from carrier battle groups in the Indian Ocean and Mediterranean, and from long range Air Force land-based bombers around the world. However, the balance of forces in the region at the time was heavily in Saddam's favor. Executing the limited warfare options immediately available would have initiated action prior to the necessary military buildup and the critical political and Coalition building process that was needed to insure political and military victory.

The United States demonstrated its early resolve by emphasizing and in some instances moving forward its Naval forces already deployed in the region. The presence of these capable, sustainable, politically tenable Naval forces reduced the risk to the land-based fighter assets and facilitated the quick deployment of US Marine and Army light forces to the theater with the mission to deter and to defend airfields and ports for subsequent reinforcement. Early in August, US forces faced the possibility of combat operations against a numerically superior force.

While demonstrating this resolve, the US also had to broaden the international support for economic, political and potential military actions against Iraq. The Maritime Intercept Operations undertaken initially by the US as a unilateral action and eventually as a part of a multinational coalition allowed us to put teeth into its warnings and political statements. The multinational naval force grew to incorporate ships and aircraft from over 20 navies. Under the overall coordination of the Commander, Middle East Force, intercept operations implemented United Nations Security Council Resolutions 661, 665, and 670 and the guidance of the UN Sanctions Committee. On 17 August 1990, warning shots were fired as US Navy forces moved to stop Iraqi shipping on the high seas. This predominance of seapower using forward deployed and surged forces from the United States imposed economic interdiction upon Iraq, frustrated some of its purpose in the conquest of Kuwait, and facilitated worldwide political and military participation in the actions against its aggression. The embargo enforced at sea and imposed upon all routes to and from Iraq and Kuwait, continued to deplete the civilian and military capabilities of the Iraqis. From the beginning of interdiction operations until 24 June 1991, Coalition vessels intercepted over 10,600 ships, boarded over 1,660, and diverted nearly 100 vessels. Interdiction operations continue as this interim report is submitted.

Amphibious forces provided a flexible deployment option in responding to the early developing situation. These units added security to vital areas during the buildup of forces. The 4th Marine Expeditionary Brigade (MEB), embarked aboard 13 amphibious ships, arrived in theater in mid September. The 13th Marine Expeditionary Unit (MEU) also arrived during the same time frame. The 5th MEB, embarked aboard 13 additional amphibious ships, joined Gulf operating units shortly after the first of the year. These forces presented a continuous threat to the lateral flank of any enemy that might have considered advancing south from Kuwait.

An additional facet of Operation Desert Shield was the naval escort of the many ships delivering forces and logistics into the theater. Iraq's lack of a significant open-ocean navy facilitated the movement of seaborne reinforcements. By December, 1990, however, the growing mine threat began to preclude easy transit of the Gulf. With all ships alert, explosive ordnance disposal (EOD) personnel assisted individual ships with the destruction of floating mines. During hostilities, EOD teams and arriving minesweeper helicopters and ships assured that channels to key ports remained open and began to clear mines from the approaches to some of the potential amphibious landing areas. Mine clearing operations also continue as this interim report is being submitted.

The naval operations built on the decades of "over the horizon" naval presence which had sustained an active US presence in the theater, reinforced the credibility of the US commitment to the region. The unprecedented

naval presence in the Gulf and in the Red Sea complemented other military operations and enhanced the political cohesiveness of the Coalition.

Operation Desert Storm

Air Campaign Overview

The Operation Desert Storm air campaign was designed to paralyze Iraq's ability to maintain its occupation of Kuwait. The air campaign strategy was to paralyze the Iraqis leadership's ability to operate offensively and defensively, destroy Iraqi capability to threaten the security and stability of the region, render Iraqi forces in the Kuwait Theater of Operations (KTO) ineffective as a fighting force, and minimize Coalition and Iraqi civilian casualties. In order to rapidly accomplish these ends, the Coalition directed numerous air strikes on the following 12 target sets in Iraq and Kuwait: (See question 2 for additional discussion of Coalition air strategy)

- Leadership command facilities.
- Electrical production facilities powering military systems.
- Command, control, and communication nodes.
- Strategic and tactical integrated air defense systems.
- Air forces and airfields.
- Known nuclear, chemical, and biological weapons research and production facilities.
- Scud production and storage facilities.
- Naval forces and port facilities.
- Oil refining and distribution facilities, as opposed to long-term oil production capability.
- Railroads and bridges connecting Iraqi military forces with logistical support centers.
- Iraqi military units to include Republican Guard Forces in the KTO.
- Military storage sites.

The initial strikes of the air campaign attacked the entire target base to achieve nearly simultaneous impact against all target sets as opposed to striking one target set at a time. In this way, visible pressure and destructive effects against key Iraqi centers of gravity would occur all at once. While attacking all target categories, focus was maintained within the target sets. The highest initial priorities were to establish air supremacy by eliminating the Iraqi integrated air defense system, render enemy air forces ineffective, and to prevent Iraqi use of chemical and biological weapons. Achieving air supremacy facilitated the conduct of continuous air attacks with non-stealth aircraft against the complete range of targets. Stealth aircraft and cruise missiles allowed the Coalition to keep continuous pressure on key leadership as well as command and control nodes. Follow on strikes were conducted against each target set until the desired objective for each was obtained. Prior to D-Day, 43 Iraqi Divisions were situated throughout Iraq and Kuwait (Map 1).

Phase I – The Strategic Air Campaign

The Strategic Air Campaign used the combined airpower of the Coalition to attack carefully selected enemy centers of gravity deep inside Iraq. Among those targets singled out for destruction were the command and control centers vital to Saddam's ability to direct the war effort and key infrastructure targets, needed to sustain Saddam's war effort. During the first 24 hours, over 1,300 combat sorties were flown by US and Coalition air forces, including 812 strike sorties by fixed wing aircraft. Additionally, the US Navy launched 106 Tomahawk missiles. After disrupting the Iraqi regime's vital functions, strategic air attacks continued throughout the war to prevent reconstitution, to restrike targets not completely destroyed, and to destroy other, newly identified targets supporting Iraq's war effort. In the aggregate, over 18,000 attack sorties were flown against strategic targets.

Phase I of Operation Desert Storm attacks began well before sunrise on the morning of 17 January 1991 (Maps 2, 3). H-Hour was fixed at 0300 local time. Prior to H-Hour, US Army Apache helicopters of the 101st Airborne Division, led by US Air Force MH-53J Pave Low helicopters from the US Special Operations Command, struck Iraqi early warning radar sites along the Iraqi border with Hellfire missiles. Minutes before H-Hour, an Air Force F-117A Stealth fighter from the 37th Tactical Fighter Wing destroyed a hardened air defense operations control center in Southern Iraq. The Coalition achieved strategic, operational, and tactical surprise with these first attacks. Unrelenting strikes continued until the ceasefire was ordered 43 days later.

At H-Hour, other F-117A pilots, having passed undetected through Iraqi air defenses, struck selected targets in Baghdad. Precision guided 2,000 pound bombs were directed to specific aim points on communications buildings, command and control facilities, and the headquarters for the internal security and intelligence organizations (Maps 4,5). These strikes began the systematic and progressive dissection of the most critical elements of the national-level Iraqi military and political command. Throughout the war, F-117A Stealth aircraft, attacking at night, were the only manned aircraft to attack targets in central Baghdad. Beginning a few minutes after H-Hour, US Navy TLAMs from the Red Sea and Persian Gulf repeatedly attacked military targets (military headquarters, communications links, and power distributions centers in Baghdad) to assure constant pressure on enemy decision makers.

Attacks continued across the theater (Map 6). Air Force F-15E Strike Eagles began attacks against Scud production and launch facilities in western Iraq. Simultaneously, large numbers of US Navy, Marine, Air Force, and Coalition attack and support aircraft closed on strategic targets throughout Iraq and Kuwait, focusing on the integrated air defense system and Iraq's command and control infrastructure, including its communications and electrical power distribution system which supported Iraqi military operations. The air defense system, partially blinded by the first attacks, was overwhelmed by the sheer number of attacking aircraft. Nothing approaching the depth, breadth, magnitude, and simultaneity of this coordinated air attack had been previously achieved. The Iraqi air defense system could not coordinate a defense.

The early impact of the strategic air campaign on Iraqi war supporting infrastructure was significant. Iraq's internal fuels refining and production capability (as opposed to its crude oil production system, which was not targeted) was shut down, thus limiting Iraq's ability to supply fuel to its tanks, planes, and war machine. Saddam Hussein's internal telecommunications capability was badly damaged so that, while he could broadcast televised propaganda to the world via satellite, he was limited in the use of telecommunications to influence the Iraqi populace (Map 7). NBC weapons research and production was hampered.

A wide variety of combat aircraft were involved throughout the campaign. Navy and Marine A-6s and F/A-18s, Marine AV-8s and Navy A-7s attacked and destroyed air defense radars, communications nodes, and military headquarters. US and Coalition aircraft, such as UK and Saudi Tornado fighter-bombers, attacked Iraqi airfields to destroy aircraft and bomb support facilities, and to suppress air defenses. Air Force F-15s, Navy F-14s and Marine F/A-18s provided combat air patrol and sweeps for attack packages and played an important role in quickly establishing air supremacy. Air Force F-111s during the day and F-15Es at night and Navy A-6s conducted "tank plinking" missions with precision guided bombs. F-16s bombed a full range of targets throughout the theater. B-52 bombers dropped their ordnance on logistics sites and other targets. Air Force A-10s performed Scud-hunter and tank-killer missions. Forward based Marine Corps AV-8B aircraft responded to calls for air support by attacking enemy artillery positions north of Khafji.

Critical to the success of the air campaign was the role played by support aircraft. Without airborne tankers from the Air Force, Marine Corps and Navy, many Coalition warplanes would not have been able to hit targets deep in Iraq. Many aspects of Coalition air operations, from the initial deployments to the Scud-hunting efforts later in the war, would have been nearly impossible without aerial refueling. It enabled full exploitation of air supremacy by allowing combat aircraft to extend operational missions in terms of both time on station and distance to targets.

Also crucial to success were electronic countermeasures (ECM) "jamming" or "defense suppression"provided by support aircraft. Air Force EF-111 Ravens and F-4G Wild Weasels, Marine and Navy EA-6B Prowlers and F /A-18 Hornets, and Air Force EC-130 Compass Call participated in actions which determined threat locations, jammed enemy radar installations and attacked them with high-speed anti-radiation missiles (HARM). Additionally, long range Army tactical missiles (ATACMS) were used to attack Iraqi air defense sites. The support aircraft benefited from the early attacks and the fragmentation of the Iraqi air defense system which enabled the destruction of individual nodes. The Coalition suppression of enemy air defenses (SEAD) effort was instrumental in limiting aircraft losses.

Air Force E-3 airborne warning and control aircraft (AWACS) and Navy E-2C early warning aircraft operated around-the-clock to guard against attacks by Iraq's remaining air force and to provide airborne command

and control. The Joint Surveillance Target Attack Radar System (JSTARS) operated during hours of darkness to provide surveillance of battlefield ground movement, to include Scud activities.

Careful targeting and expert use of technological superiority–including precision guided munitions–throughout the strategic air campaign minimized collateral damage and casualties to the civilian population, reflecting US policy that Saddam Hussein and his military machine, not the Iraqi people, were the enemy. Regrettably, there were civilian casualties. The most notable incident of Iraqi civilian casualties occurred when a penetrating bomb destroyed a hardened shelter in Baghdad used for military command communications. Many civilians who had, unbeknownst to the Coalition, taken shelter inside, were killed or injured.

One target of the Coalition's initial air campaign was Iraq's strategic offensive capability, including Iraq's Scud capability from production, to assembly, to storage, to launch sites. The first anti-Scud missions were flown on D-Day against fixed launch complexes in western Iraq in an attempt to prevent launches against Israel. Chemical weapons filling capability was also attacked on the first day. By the third day of air operations, attacks had begun on ballistic missile production and storage capability.

However, as the Iraqis began launching Scuds from their mobile systems, the Coalition effort was shifted to finding and destroying the mobile launchers (Map 8). The equivalent of three squadrons of aircraft were eventually assigned this very difficult mission against targets which would emerge from hiding places, fire, and hide again. F-16s in the west and A-10s in the east were placed on constant airborne alert during daylight hours, with F-15Es, F-16s and A-6Es on constant airborne alert at night. RF-4C and F-14A reconnaissance aircraft flew daily flights against suspected Scud sites. However, once a suspected Scud site was found through intelligence or following a launch, aircraft would proceed to the target area to search for and destroy the launch complex. In the end, Scud launches were not stopped, but they were suppressed. Launches averaged five per day for the first 10 days; however, they averaged only one per day for the remainder of the war. Tragically, one struck an Army barracks in Dhahran, inflicting the greatest casualties of the war on US forces due to a single event.

Many of the Scuds that were successfully launched went astray or were engaged by US missile defenses. Sensors detected Scud launches and sent attack warning and assessment information to Patriot batteries. The Patriot air defense missile system intercepted a high percentage of the engageable Scud missiles, although the warheads were sometimes not destroyed and debris fell on civilians. Nonetheless, the Patriot system proved to be an effective counter to Iraqi Scud attacks on innocent civilians, boosting civilian morale and enhancing Coalition cohesion. Patriots countered a sense of helplessness that civilian populations would otherwise have encountered. Without them, and without close communications established between the US and Israel during the war, Israel might have retaliated against Iraq, stressing the Coalition's political unity. Analyses of the Patriot systems and engagements are continuing. (Patriot systems are also discussed in response to Question 6.)

Within the first three weeks of the air campaign, Naval air (A-6 and F/A-18) and surface ships with armed helicopters sank and disabled Iraq's missile gunboats, minesweepers, patrol craft, and armed hovercraft and also destroyed Silkworm anti-ship sites. By 2 February the Iraqi Naval force was considered combat ineffective.

Overall, with the growing success of the Strategic Air Campaign, the weight of operations shifted to the KTO.

Phase II – Air Superiority in the KTO

Phase II was envisioned as a short period of intensive, focused air attacks on Iraqi air defense capability in the KTO to establish air superiority. In reality it took place in conjunction with Phase I, and established air supremacy over both Kuwait and Iraq. Phase II was a combined operation involving the aircraft of a number of Coalition nations as well as Navy, Marine and Air Force assets. The effectiveness of the Coalition counter air effort can be seen in several ways. The air-to-air fixed-wing score was 35 to none; Coalition aircraft shot down 35 Iraqi fixed wing aircraft without a single loss of friendly aircraft. Six Iraqi helicopters also were destroyed. Other targets included surface-to-air missile sites, airfields and command and control systems in the KTO. When the Iraqi Air Force attempted to hide in hardened shelters, Coalition air systematically began to destroy them, prompting the Iraqi Air Forces' "flight to Iran." The result was quick attainment of air supremacy over Iraq

and the KTO, enabling use of the air for Coalition purposes while denying it to the enemy. The purpose was to prepare the way for Phase III of the air campaign by enabling the operation of fixed and rotary wing aircraft at the medium altitudes where Iraq's extensive network of anti-aircraft artillery (AAA) would be less effective and bombing accuracy would be improved. By the 10th day of the air campaign, air supremacy over Iraq and Kuwait was declared.

Phase III – Battlefield Preparation

Unrelenting Coalition airpower from Air Force, Navy, Marine, Army and Coalition air elements, naval gunfire from Navy units in the Gulf, and ground based artillery and rocket systems methodically reduced Iraqi armor, artillery, and infantry forces. Over 35,000 attack sorties were flown against targets in the KTO, including 5,600 against Republican Guard forces. Artillery, command posts, command and control facilities, armor, and logistics installations were hit daily. As the start of the ground war (G-day) approached, more sorties were allocated to pave the way for battlefield preparation and breaching operations. B-52s were used along enemy front lines in conjunction with aircraft delivering psychological warfare leaflets to warn Iraqi forces of what to expect if they did not leave Kuwait.

Other than Scud attacks on Saudi and Israeli cities, one of the only responses Iraq was able to mount was the attack on Khafji which occurred on 29 January. The attack achieved some tactical surprise. Saddam's exact purpose is not known for certain, although he may have sought to probe Coalition forces or provoke the ground battle he had repeatedly said he wanted. Although Iraqi forces were able to mount the probing attack, their effort said much about what they could not do and did much to bolster the confidence of Arab members of the Coalition and confirmed the difficulty and vulnerability for Iraqi forces of attempting to move under air attack. The inept way that the Iraqi forces handled the attack, their weakness in night operations, the failure to introduce follow-on forces to exploit the advantage gained initially, and the disorder and chaos that accompanied their withdrawal were strong indications that the capability and the will of Saddam's armed forces had been broken. In tactical terms what his forces had set out to do was not difficult. Yet they were unable to achieve these limited objectives and their efforts required the resources of several divisions where one should have sufficed. Two to three divisions of what should have been the main thrust were caught in marshaling areas and on the roads north of the border and attacked effectively by Coalition air in 10 hours of night air attacks. By morning these elite forces were retreating. Meanwhile, Saudi and other Gulf Cooperation Council (GCC) states, supported by Marine air and artillery assets, evicted those elements in Khafji after a short fight. Khafji was an early indicator of how the Iraqi ground forces might perform in a full ground campaign and instilled further confidence in Coalition ground forces.

Throughout the occupation of Kuwait, Iraqi forces had systematically committed atrocities against the Kuwaiti people that included acts of torture and rape, and the murder of men, women and children. The country was also being stripped of public and private property by indiscriminate looting. During Phase III, Iraqis intentionally spilled millions of barrels of crude oil into the Gulf and also set fire to Kuwaiti well heads–either as acts of wanton destruction or as futile defensive efforts. The Coalition reaction to these events is discussed in the answer to Question 13. Two Navy ships struck mines on 18 February and suffered damage in the Northern Persian Gulf.

Phases I through III sought to shift the correlation of forces more in favor of the Coalition; this goal was achieved. In all, approximately 112,000 total combat and support sorties were flown and 288 TLAMS launched during Phases I-III (Map 9). Of the total sorties flown, 60% were combat missions. Damage to Iraqi forces was extensive, and Iraqi command and control was radically disrupted. Saddam was unable to direct the operations of his fielded forces, and in many cases corps, division and brigade commanders lost touch with their commands. Large amounts of equipment were rendered useless. Vast stockpiles of supplies Iraq positioned to support the KTO were depleted or destroyed, and the road nets over which replenishment had to pass were degraded. The intensive interdiction operations against fielded forces during Phase III sapped the morale of Iraqi forces–according to Iraqi officers later captured, desertion rates were substantial. Finally, Phase III greatly reduced the ability of Saddam to bring the strength of his army to bear against the Coalition forces. At the end of over a month of bombardment Iraqi forces remained in Kuwait; however, they were in poor condition with heavy desertions, low morale and their capability to coordinate an effective defense severely degraded. At the time the ground war was launched, the Commander-in-Chief, Central Command

(CINCCENT) had assessed that, largely through the results of the Coalition air campaign, the overall combat effectiveness of the opposing Iraqi forces had been degraded by about 50%.

Weather was a factor during all phases of the operation. Approximately 40% of all scheduled attack sorties during the first 10 days of the air war were cancelled due to poor visibility or low overcast sky conditions in the KTO. Ceilings of 5,000 to 7,000 feet were not uncommon, especially during the last few days of the ground war. Coalition planners assumed the customary 13% cloud cover, typical for the region at that time of year. In fact, the cloud cover measured 39%, the worst in 14 years and possibly longer.

Throughout the war, air supremacy attained by the Coalition air forces enabled the Coalition ground forces to move across the battlefield without fear of interdiction. Air supremacy also played a key role in keeping undetected and unopposed massive lateral movements by Coalition forces prior to conducting the sweep around the right of the Iraqi position. Additionally, air attacks, combined with the rapidity of the ground advance in phase IV, kept Saddam Hussein from mounting a successful counter offensive.

Phase IV – The Ground Campaign

Phase IV was a combined land-air-sea operation designed to cut the lines of communication in southeastern Iraq, liberate Kuwait, and destroy the Republican Guard formations in the KTO. In concept, it was a coordinated, multinational, air, naval, and ground attack along multiple routes into Iraq and Kuwait–highlighted by a massive left flank envelopment through the Iraqi desert. A violent, rapid combined arms main attack deep into the rear along the Euphrates River Valley avoided the strength of the enemy's prepared defensive positions, and enveloped the elite Republican Guard. The rest of the Iraqi Army, trapped in Kuwait by the envelopment to the north and west and pressed from the south, would be forced either to surrender or be destroyed.

The Coalition ground forces for Phase IV of Operation Desert Storm were arrayed from left to right (west to east) in five major formations (Map 10). On the left flank was the XVIII Airborne Corps consisting of the 82d Airborne Division, the 101st Airborne Division (Air Assault), the 24th Mechanized Division, the 6th French Armored Division (light), the 3d Armored Cavalry Regiment (ACR), and the 12th and 18th Aviation Brigades. To the right of the XVIII Airborne Corps was the US VII Corps with the 1st Infantry Division, 1st Cavalry Division (-) (initially as theater reserve), the 1st and 3d Armored Divisions, the 1st British Armored Division, the 2d ACR, and the 11th Aviation Brigade. In the center was Joint Forces Command-North (JFC-N) which consisted of the 3d Egyptian Mechanized Division, the 4th Egyptian Armored Division, the 9th Syrian Armored Division, an Egyptian Ranger Regiment, the 45th Syrian Commando Regiment, the 20th Mechanized Brigade of the Royal Saudi Land Forces (RSLF), the Kuwaiti Shaheed and Al-Tahrir Brigades, the 4th Saudi Armored Brigade (RSLF). On the right of JFC-N was the I Marine Expeditionary Force (I MEF), composed of the 1st and 2d Marine Divisions and the attached 1st (Tiger) Brigade of the US Army's 2d Armored Division. On the right flank was Joint Forces Command-East (JFC-E), composed of three task forces. TF Omar was comprised of the 10th Infantry Brigade (RSLF), United Arab Emirates Motorized Infantry Battalion, and an Omani Motorized Infantry Battalion. The second Task Force, TF Othman, consisted of the 8th Mechanized Infantry Brigade (RSLF) Bahrain Infantry Company, and the Kuwaiti Al-Fatah Brigade. The final Brigade, Abu Bakr, had the 2d Saudi Arabian National Guard Motorized Infantry Brigade and a Mechanized Battalion from Qatar armed forces.

VII and XVIII Corps and a number of Coalition forces–over 65,000 armored and support vehicles–were moved to attack positions on Iraq's right flank (Map 11). (XVIII Corps moved approximately 250 miles; VII Corps moved 150 miles. The total amount of personnel and equipment moved exceeded that moved by General Patton during his Army's attack into the German flank during the Battle of the Bulge.) This movement, which continued 24 hours a day for more than three weeks prior to the start of the ground war, was one of the largest movements of combat power in the annals of warfare. Whole divisions and their extensive support structures moved hundreds of miles undetected by the Iraqis. The move was conducted over what were for the most part unimproved roads, hardly more than tracks in the desert. The paucity of the road network not only made movement difficult, but also complicated the management of the movement. In order to avoid massive traffic jams, movement schedules were worked out to the last detail–every 15 seconds a vehicle passed a checkpoint.

Vast quantities of supplies were also shifted to the west by the 22d Support Command. These supply bases contained enough materiel to support combat operations for up to 60 days. Some of them were moved several times, first to the west and then northward once the operation commenced. Several lessons emerged from the planning for this initial shift, including the fact that US forces lack sufficient heavy equipment transporters (HETs) and trucks with off-road capabilities. The necessary HETs and trucks were only obtained by seeking assistance from other Coalition countries. A more complete description of this issue is contained in the response to Question 7.

During the same period numerous active deception measures were carried out by Special Operations Forces, Marine, Navy and Army units to deceive Iraqi forces of the Coalition's true intent. These included aggressive patrolling by ground forces, artillery raids, amphibious feints and the movement of ships, as well as air operations. All were designed to distract Iraqi attention and fix its forces in place. Ground force units were also engaged in reconnaissance-counter-reconnaissance with Iraqi forces during this period to deny the Iraqis information about Coalition intentions. Coalition air superiority was one of the single most important factors in denying the Iraqis a grasp of Coalition actions and preventing them from responding if they had received better intelligence.

Efforts to prepare the battlefield included a number of innovative approaches. Iraqi artillery, modern by any standard, often outranged Coalition guns, and had acquitted itself well in the Iran-Iraq war. While the Coalition could fix Iraqi ground forces in position–and did so–Iraqi artillery, left unchecked, could disrupt Coalition ground assaults. It provided a degree of flexibility to the Iraqis. Properly employed, enemy artillery could have delayed breaching operations long enough for some Iraqi counterattack units to be deployed against them. Additionally, at this juncture, the possibility that Iraqi commanders might employ artillery-delivered chemical weapons was still a real concern. Accordingly, artillery raids were conducted by US Army and US Marine indirect fire elements to destroy Iraqi artillery positions. The Marines employed attack aircraft to counterstrike Iraqi artillery responding to these raids.

Another innovative approach was the extensive use of helicopters to locate Iraqi observation and command posts. Flying at night, teams of observation and attack helicopters found and destroyed a number of these positions using Hellfire and laser designated rounds such as Copperhead. The same tactics proved effective for air defense sites, which improved access for fixed wing aircraft.

Deception and preparation operations continued through G-Day. At G-1 final preparations in the form of cross-border raids and artillery raids were conducted while units moved into their final assembly areas. I MEF, including 1st and 2d Marine Divisions, destroyed 18 tanks and took 143 enemy prisoners of war (EPWs) on G-1 and continued a series of deception operations. VII Corps, designated as the main effort and given the task of driving northeast to destroy the Republican Guard units in the KTO, continued reconnaissance, counter-reconnaissance, artillery raids, and heliborne raids. Some of its elements established screening positions as far as 15 miles into Iraq.

At 0400 hours local time, 24 February 1991, the ground assault to liberate Kuwait began (Map 12). Four supporting attacks were launched to fix Iraqi operational reserves and Republican Guard forces so that they could be destroyed by the main attack. I MEF began the assault at 0400 with the 1st Marine Division breaching the first and second obstacle belts quickly and continuing to attack toward Al Jaber airfield. The division defeated several armored counterattacks throughout the day. At 0530, the 2nd Marine Division conducted breaching operations and continued the attack on the left flank of 1st Marine Division. These breaching operations were conducted efficiently due to detailed preparation, including reconnaissance and mapping of obstacles, followed by extensive training and rehearsals. At the end of the day, I MEF had captured over 8,000 EPWs. In the east, JFC-E cut six lanes through the first obstacle belt and began moving at 0800. It secured its initial objectives and continued north, capturing large numbers of Iraqis as it went. In the Gulf, the battleship USS Wisconsin engaged targets in Kuwait in support of the ground forces. In the west, the 1st Cavalry Division, the theater reserve, continued to conduct a feint into Wadi Al-Batin, the dry ravine that separates Kuwait from Iraq, where the Iraqis believed a main attack would come.

XVIII Corps also swept forward through its sector, with the 101st Airborne Division leaping ahead by air assault to secure objectives half way to the Euphrates. The Corps attack carried it to the west of the Iraqi

obstacle belt. Less than seven hours into the operation, the French 6th Light Armored Division, supported by the 82d Airborne, secured its objectives and continued the attack northward. The 24th Infantry Division and the 3d ACR, on the extreme right of XVIII Corps, crossed the line of departure abreast and pressed their attacks as well. In the first day, the XVIII Corps captured about 2,500 EPWs. The high rate of advance of the I MEF, JFC-E, and the XVIII Airborne Corps enabled the theater commander to accelerate the time table for the remainder of the force.

VII Corps, the European based corps whose training prior to the crisis had been focused on conducting operations in a completely different environment, was able to cross the line of departure almost 15 hours ahead of schedule as a result of the success of the supporting attacks. A total of 16 lanes were cut through a complex obstacle belt of wire and land mines against little resistance. With the 2d ACR leading, the 1st Infantry Division and 1st and 3d Armored Divisions crossed the line of departure and attacked north. Their zone of attack was well to the west of Wadi Al-Batin in Iraq proper.

The 3d Egyptian Mechanized Division of JFC-N, followed by Force Khalid, also attacked on 24 February and encountered fire trenches. The Egyptians, concerned about an Iraqi armored counterattack, established blocking positions in sector.

On the second day of the ground war (G+1, 25 February), Coalition forces continued to press the attack (Map 13). JFC-E secured its objectives against light resistance and with very few casualties; however, by this point, progress was slowed by the large number of Iraqis who had surrendered. The 1st Marine Division completed the consolidation of Al-Jaber airfield and penetrated to within 10 miles of Kuwait City. Both Marine Divisions, attacking on a battlefield obscured by fog and smoke from intense oil fires, repulsed repeated enemy armor counterattacks, destroying or capturing between 175 and 200 tanks. The 5th MEB began to offload from amphibious ships and assumed the mission of I MEF reserve.

In the center, JFC-N continued to attack in concert with VII Corps. The Egyptian Corps secured a 16 square kilometer bridgehead. The 3d Egyptian Division continued its attack to the north and captured 1,500 EPWs and two tanks. Other units, including the 9th Syrian Armored Division, prepared to follow.

In the VII Corps zone of attack, the 1st British Armored Division attacked through the breach expanded by the 1st Infantry Division and destroyed the Iraqi 12th Armor Division. The 1st and 3d Armored Division continued their drive north with the 2d ACR as the advance guard. Units of VII Corps continued to focus their efforts on destroying Republican Guard forces. XVIII Corps continued supporting attacks to isolate Iraqi forces and intersect lines of communication.

The 1st Cavalry Division, in the role of theater reserve, conducted feints into the tri-border area. Additionally, feints and demonstrations by Navy and Marine amphibious forces off the coast tied down up to 10 divisions along the coast. The Amphibious Task Force conducted strike missions against Faylaka and Bubiyan islands along with a simulated Marine helicopter assault against Kuwaiti beaches, added to the confusion paralyzing the Iraqi High Command.

During this period, the massive exodus of Iraqi forces from the eastern portion of the theater began. Elements of the Iraqi III Corps, commanded by one of the best Iraqi field commanders, were pushed back on Kuwait City by I MEF and JFC-E. Iraqi units became intermingled and disorder ensued. These forces were joined by occupation troops based in Kuwait City. During the early morning hours of 26 January, military and civilian vehicles of every description loaded with Iraqi soldiers and goods looted from Kuwait, clogged the main four-lane highway north from Kuwait City. To deny Iraqi commanders the opportunity to reorganize their forces and establish a cohesive defensive line, these forces were repeatedly struck by air attacks.

Coalition forces continued operations well ahead of schedule on G+2 (26 February), meeting generally light resistance, although there were several sharp engagements (Map 14). JFC-E was so successful that its boundary was changed twice, and it was given four additional objectives. By day's end, units of the JFC-E, which was composed of forces from each of the GCC states, were positioned to lead a drive into Kuwait City.

I MEF advanced against moderate resistance. The 1st Marine Division seized Kuwait International Airport. This engagement lasted until the airport was secured at 0330, 26 February. The 2d Marine Division secured key objectives and road intersections west and northwest of Kuwait City. By securing Al Jahrah and the Mutla Ridge

above Kuwait City, movement was controlled into and out of the city.

The JFC-N continued to attack seizing intermediate and final objectives before evening. The Egyptian Corps then turned east and drove 60 miles to seize Al-Salem airfield.

VII Corps penetrated deep into Iraq and attacked reserve formations composed of armored and mechanized units of the Iraqi army and Republican Guards. The Corps executed a right turn and changed its focus with 1st British Armored Division continuing its attack to the east along the Iraq-Kuwait border. This had the effect of trapping and leaving open to destruction large numbers of Republican Guard forces. The XVIII Corps secured objectives and, after driving more than 200 miles across inhospitable desert, the 24th Mechanized Infantry Division reached the Euphrates River valley to complete the envelopment of Saddam's forces in southern Iraq and Kuwait. Although many Iraqis surrendered, some did not and there were a number of engagements with those forces. Supported by air and artillery, elements of VII and XVIII Corps overwhelmed the Iraqis, took large numbers of prisoners, and destroyed their equipment. By sunset on G+2, Coalition forces had pushed hundreds of miles into Iraq; captured over 30,000 EPWs; destroyed or rendered combat ineffective 26 of 42 Iraqi divisions; overwhelmed the Iraqi decision making process, rendered its command and control ineffective; and forced the Iraqi Army into full retreat. The XVIII Airborne Corps had secured the Coalition's left flank, and elements of the 101st Airborne Division and the 24th Mechanized Division controlled Highway 8.

Coalition forces continued to advance on the night of 26 February. VII Corps made the main effort in a coordinated attack against the three mechanized Republican Guard Divisions–the Tawakalna, the Medina, and the Hammurabi. As this operation began, the 1st Infantry Division in the south of the Corps zone, conducted a night passage through the 2d ACR, a very difficult maneuver, and immediately engaged the Iraqi forces. To the north, the 1st and 3d Armored Divisions attacked to the east and the 1st Cavalry Regiment, now committed to the main effort, attacked on the northern flank to prevent an Iraqi breakout in that direction. These attacks–against pockets of sometimes stiff resistance–continued into the next day.

Coalition air forces provided deep and close air support under adverse weather and anti-air threats during the ground campaign. Air Force A-10s and F-16s were launched from bases in Saudi Arabia during the day while F-15Es provided coverage at night. Navy carriers in the Gulf provided A-6s, A-7s and F/A-18s to strike targets beyond the fire support coordination line. Marine F/A-18s and A-6s from Bahrain and forward based AV-8s attacked targets and responded to requests for close air support in Kuwait. Army AH-64 Apache and Marine AH-1W Cobra helicopters provided close-in fire support for ground forces. Some aircraft flying combat missions were damaged and lost to AAA and IR missiles made more formidable by those aircraft having to fly under deteriorating weather conditions.

Exploitation and pursuit continued through G+3 (27 February) against rapidly disintegrating resistance (Map 15). JFC-E consolidated its position in southern Kuwait City and coordinated a link-up with JFC-N forces which were preparing to enter Kuwait City from the west. I MEF completed its offensive operations by securing its last objectives: the international airport and the high ground west of the city ahead of schedule. VII and XVIII Corps continued their attacks at 0800 local time to complete the offensive against the Republican Guard forces.

On G+4 (28 February) offensive operations ceased (Map 16).

Military-to-Military Talks at Safwan, Iraq

After the US and Coalition decision to cease offensive operations on 28 February, the Iraqis agreed to attend military-to-military talks to discuss cessation of hostilities, implementation of a cease fire, return of prisoners of war, and accounting for those missing in action, among other matters. A meeting lasting about 90 minutes was held on 3 March at Safwan airfield in southern Iraq, immediately north of the Kuwaiti border. CENTCOM chose the location because it was inside Iraq and near an airfield.

CINCCENT, the senior US officer, was accompanied by the senior commander of each coalition contingent. On the Iraqi side was Lieutenant General Sultan Hashim Ahmad Al-Jabburi, the Iraqi Vice Chief of Staff, accompanied by a staff of 10 senior officers, including the commander of the Iraqi III Corps, Major General Al-Dughastani. After preliminary formalities, General

Schwarzkopf stated that he assumed that Baghdad had agreed to all US conditions or the Iraqi delegation would not be there. The Iraqis indicated that they were there to cooperate, although their attitude appeared hostile.

Two points emerged during this meeting that underscore the breadth of the Iraqi defeat. Following the Iraqi accounting of Coalition prisoners of war in Iraqi hands, Lieutenant General Al-Jabburi asked that the Coalition reciprocate and provide an accounting of Iraqi prisoners of war being held by the Coalition. When told that the counting was still going on, but at that time the number was in excess of 58,000, Lieutenant General Al-Jabburi appeared stunned. In apparent disbelief he asked the Iraqi III Corps commander if that was a correct number. Major General Al-Dughastani replied that it was possible, but that he did not know.

General Schwarzkopf proposed that a line be drawn on a map from which all forces would withdraw at least one kilometer to prevent inadvertent contact between Iraqi and Coalition forces. Lieutenant General Al-Jabburi agreed. When shown the CENTCOM proposed line, the Iraqi asked why the line was drawn behind his troops. General Schwarzkopf said that the line was the forward line of the US advance. Lieutenant General Al-Jabburi again appeared stunned. Once again he queried his III Corps commander, who again said it was possible, but that he did not know. Following this, the Iraqi attitude was noticeably more subdued.

EMERGING OBSERVATIONS

Some Accomplishments

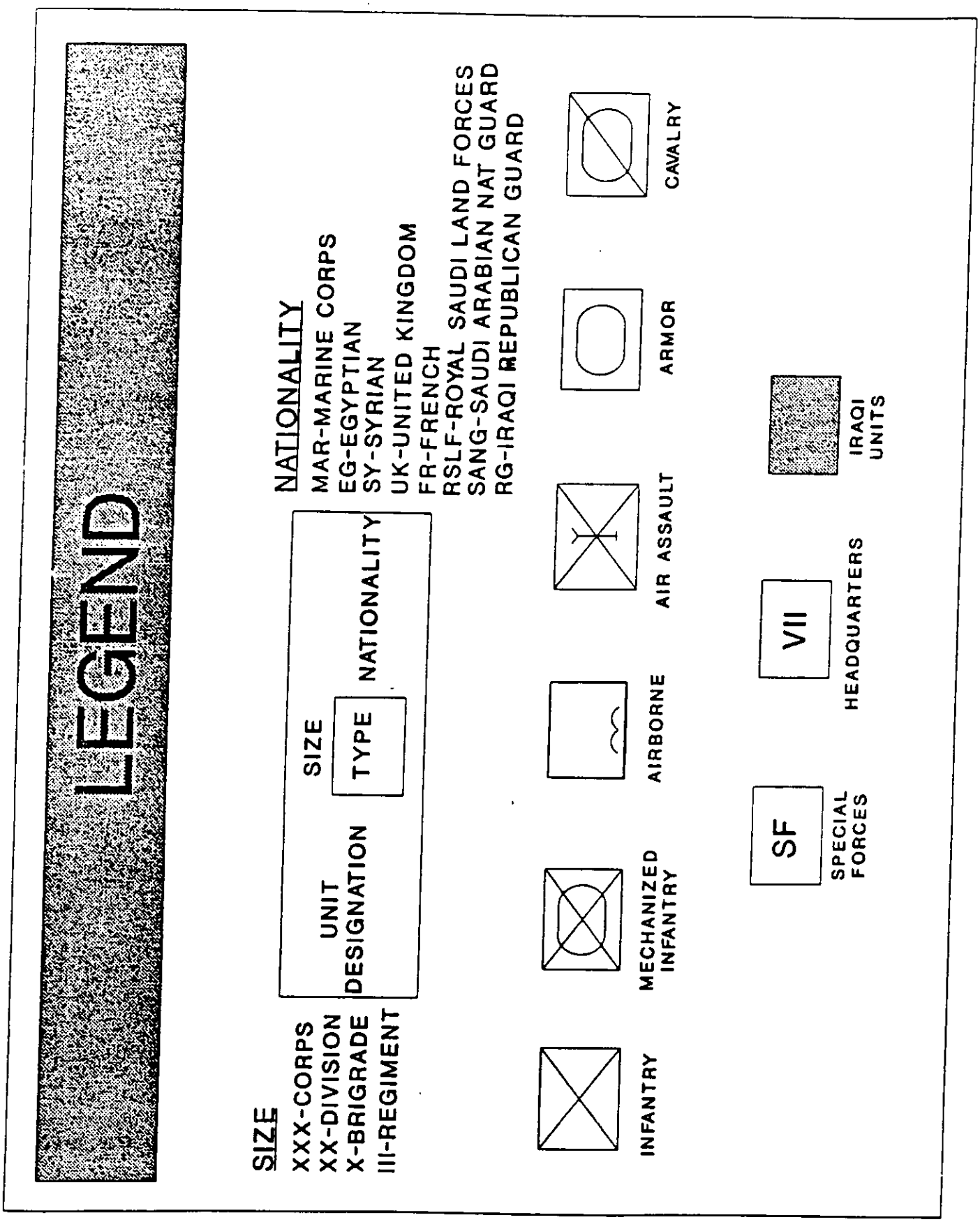
- Multinational air campaign isolated and incapacitated the Iraqi command structure and severely degraded and demoralized Iraqi forces.
- Multinational, multi-axis ground campaign succeeded in enveloping Iraqi forces, penetrating Iraqi lines to liberate Kuwait City, and destroying the remaining combat effectiveness of Iraqi units, including Republican Guard, in the KTO.
- Strategic deception was important to ground campaign success.
- Scud attacks failed to bring Israel into the war. With efforts, the number of Scud launches were reduced.
- Known Iraqi NBC production facilities were degraded.
- Coalition casualties were light by historical standards.
- US equipment previously untested in major combat engagements worked well.

Some Shortcomings

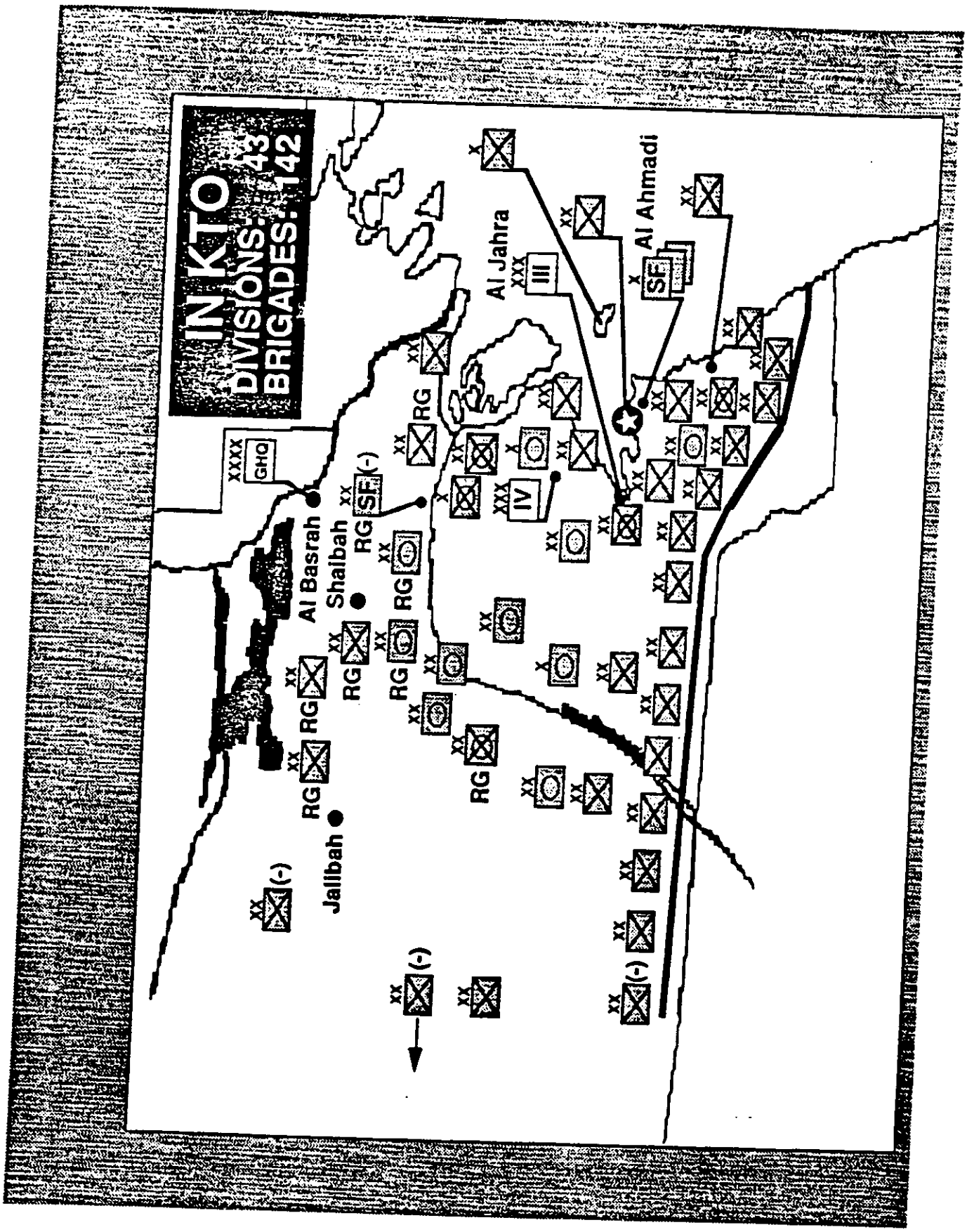
- Sea countermine and especially shallow water countermine capabilities need improvement.
- Continual expansion of the tactical missile threat, as illustrated by Iraqi Scud attacks, indicate that US anti-tactical ballistic missile (ATBM) capabilities must be improved.
- Many ground units lacked sufficient off-road mobility vehicles and heavy equipment transporters.
- The opportunity to place forces in theater with seven months to train aided in the effectiveness of the Coalition. In a faster paced situation, those opportunities may not be available. There needs to be continued emphasis on inter-Service training in combined and joint operations.
- Locating and destroying mobile missiles proved very difficult and diverted significant resources.

Some Selected Issues

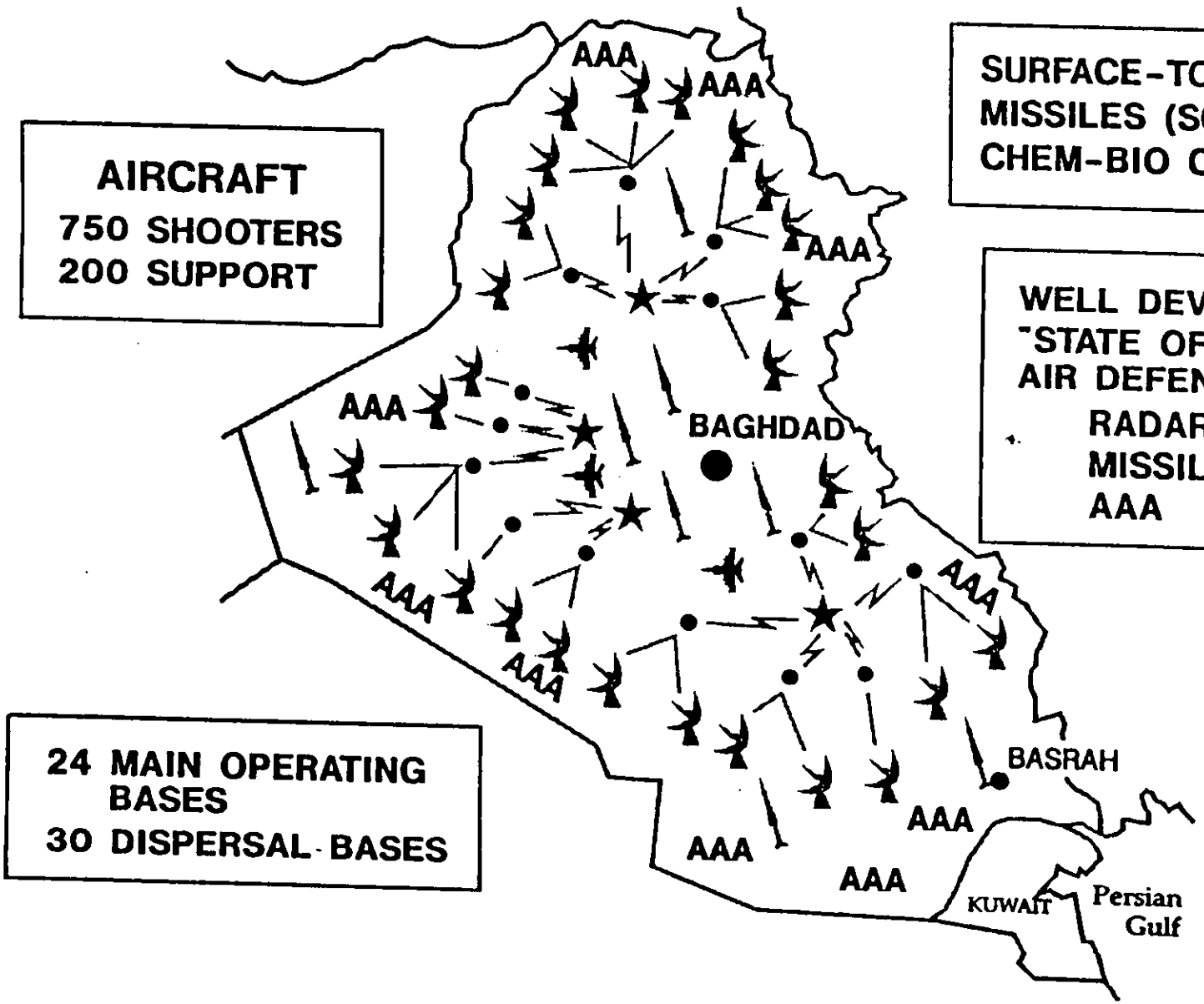
- Available lift for a second large crisis would be severely constrained.
- The complexities of joint military contingency planning are compounded when forces of many nations respond together. Improved, flexible planning processes compatible with such improvised, quick response contingencies are needed.
- Strategic Air Command (SAC) combat wings in Southwest Asia were composed of people and equipment from more than one stateside wing in order to maintain Single Integrated Operations Plan (SIOP) capabilities.
- Maritime Intercept Operations were of enormous scope. They required that detailed guidance be issued to international merchantmen.


LEGEND
SIZE
XXX-CORPS
XX-DIVISION
X-BRIGRADE
III-REGIMENT
UNIT DESIGNATION
SIZE
TYPE
NATIONALITY
NATIONALITY
MAR-MARINE CORPS
EG-EGYPTIAN
SY-SYRIAN
UK-UNITED KINGDOM
FR-FRENCH
RSLF-ROYAL SAUDI LAND FORCES
SANG-SAUDI ARABIAN NAT GUARD
RG-IRAQI REPUBLICAN GUARD
INFANTRY
MECHANIZED INFANTRY
AIRBORNE
AIR ASSAULT
ARMOR
CAVALRY
SF
SPECIAL FORCES
VII
HEADQUARTERS
IRAQI UNITS

Map 1

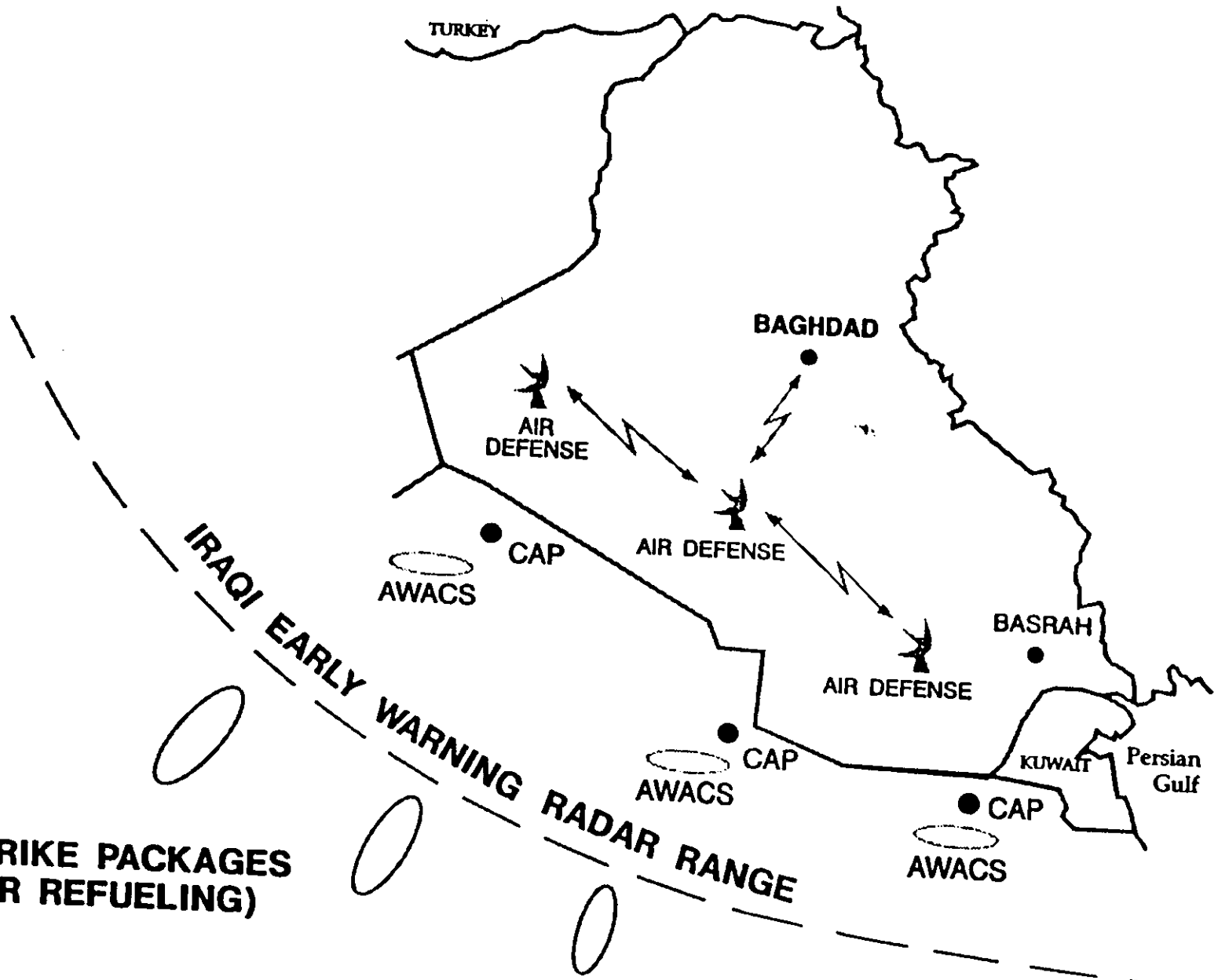

IN KTO
DIVISIONS: 43
BRIGADES: 142
Al Jahra
Al Ahmadi
Al Basrah
Shaibah
Jallbah
GHQ
SF
RG
III
IV

IRAQI AIR THREAT



Map 2

IRAQI PICTURE (BEFORE H-HOUR)

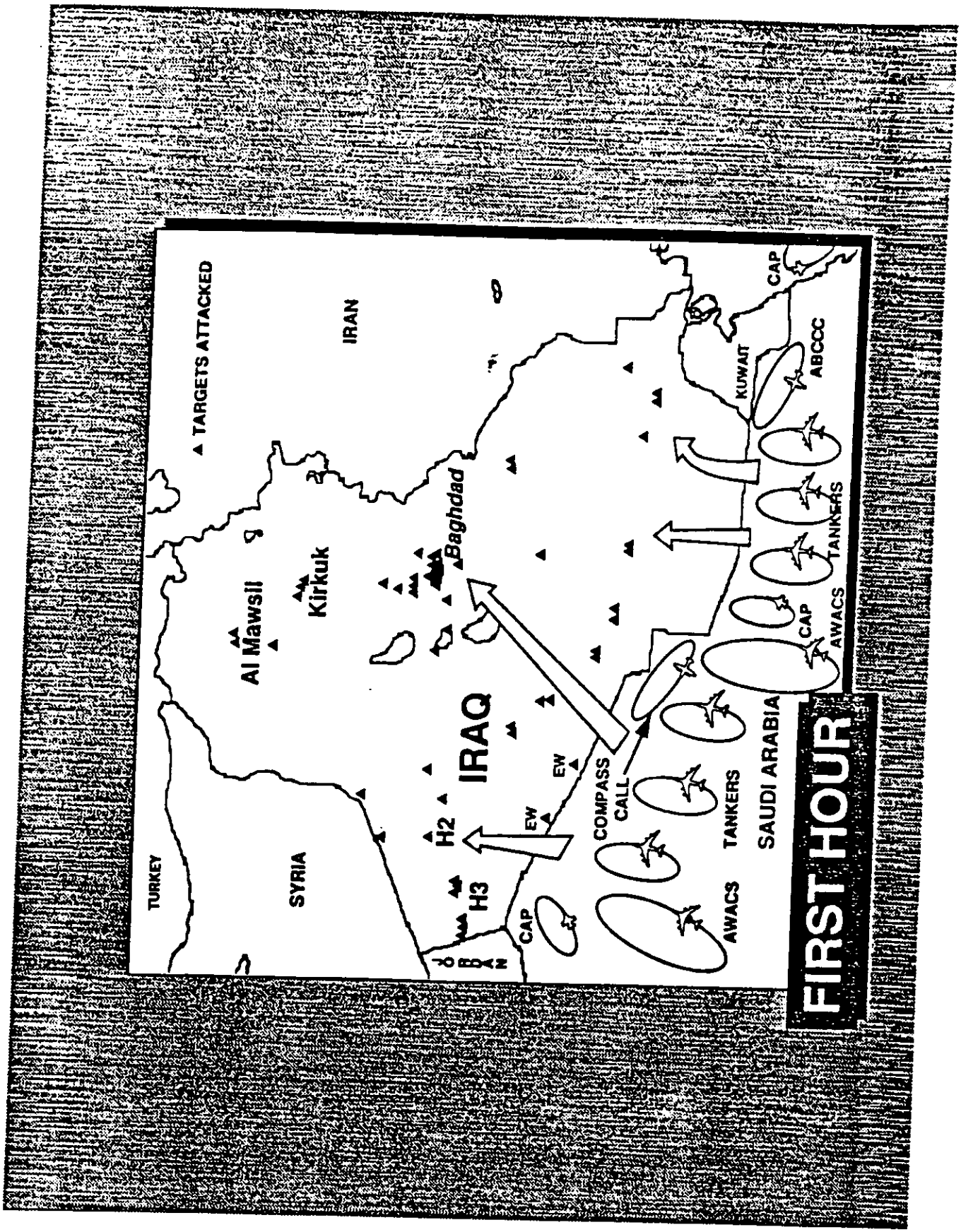


Map 3

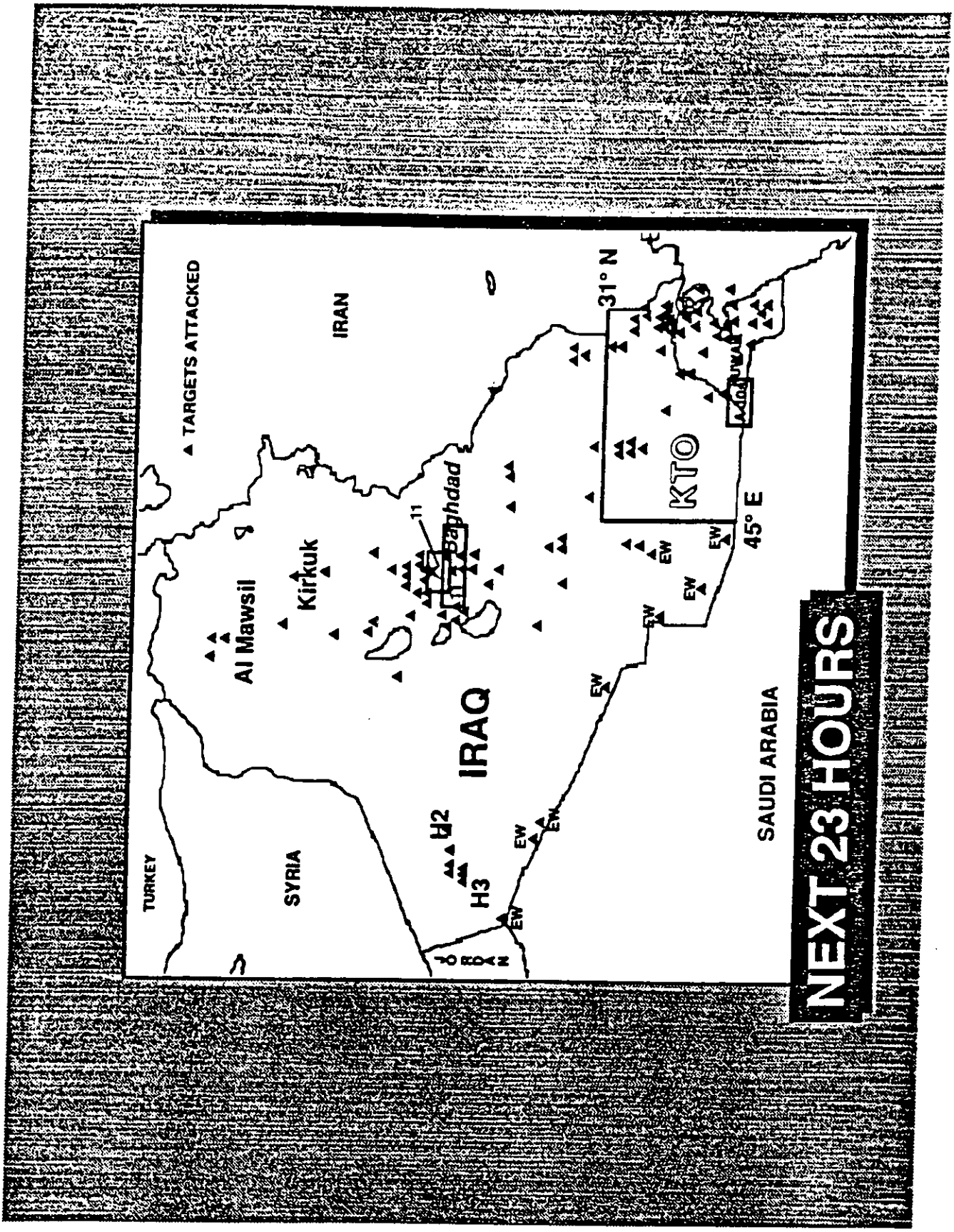
Interim Report

H – HOUR ATTACKS

Map 4

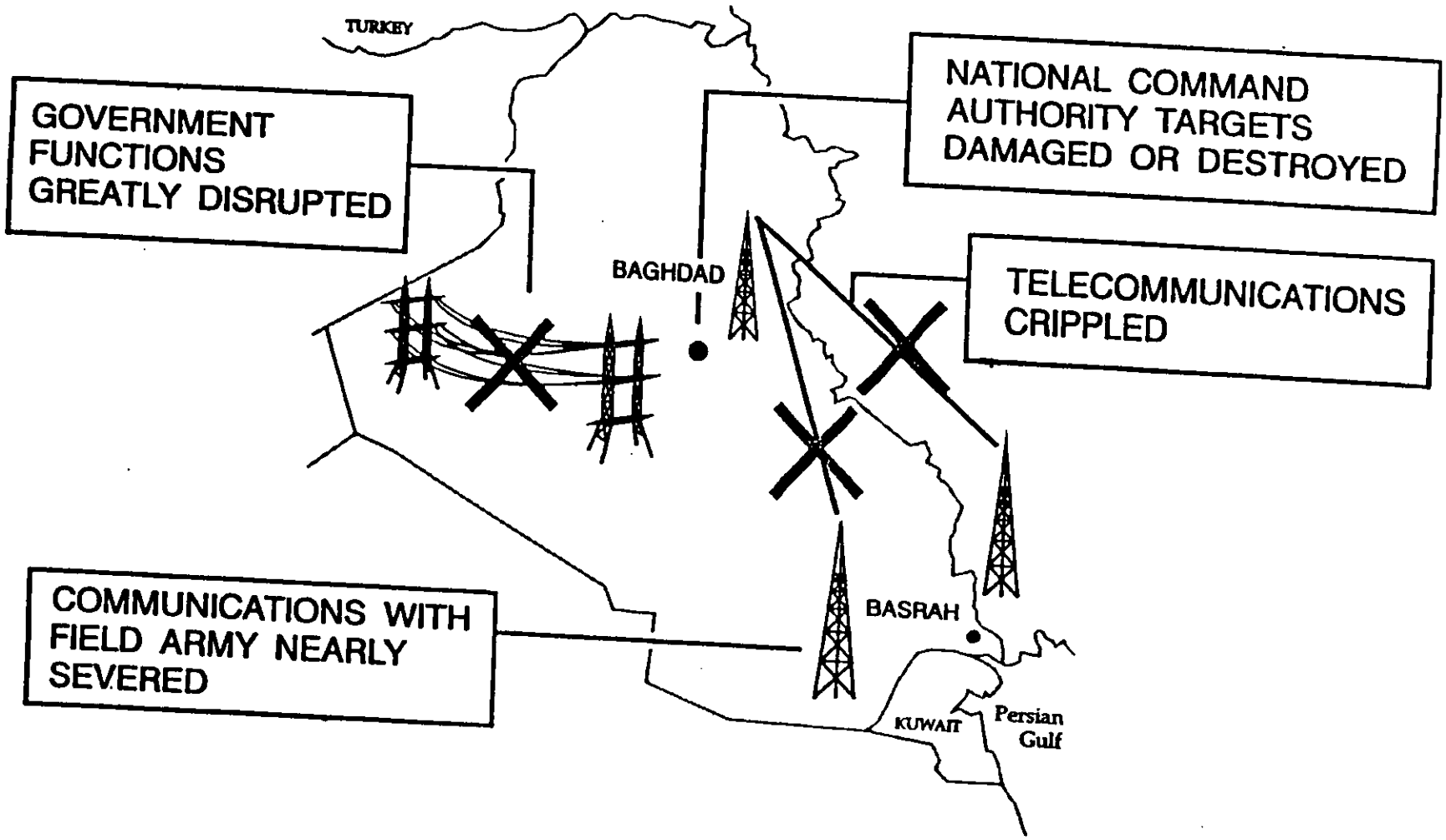

TARGETS ATTACKED
IRAN
Baghdad
Al Mawsil
Kirkuk
IRAQ
TURKEY
SYRIA
H2
H3
EW
EW
COMPASS CALL
AWACS
TANKERS
SAUDI ARABIA
CAP
JORDAN
CAP
KUWAIT
ABCCC
CAP
AWACS
TANKERS
FIRST HOUR

Map 5


TARGETS ATTACKED
IRAN
31° N
45° E
KTO
Baghdad
Kirkuk
Al Mawsil
IRAQ
SYRIA
TURKEY
SAUDI ARABIA
H2
H3
EW
NEXT 23 HOURS

Map 6

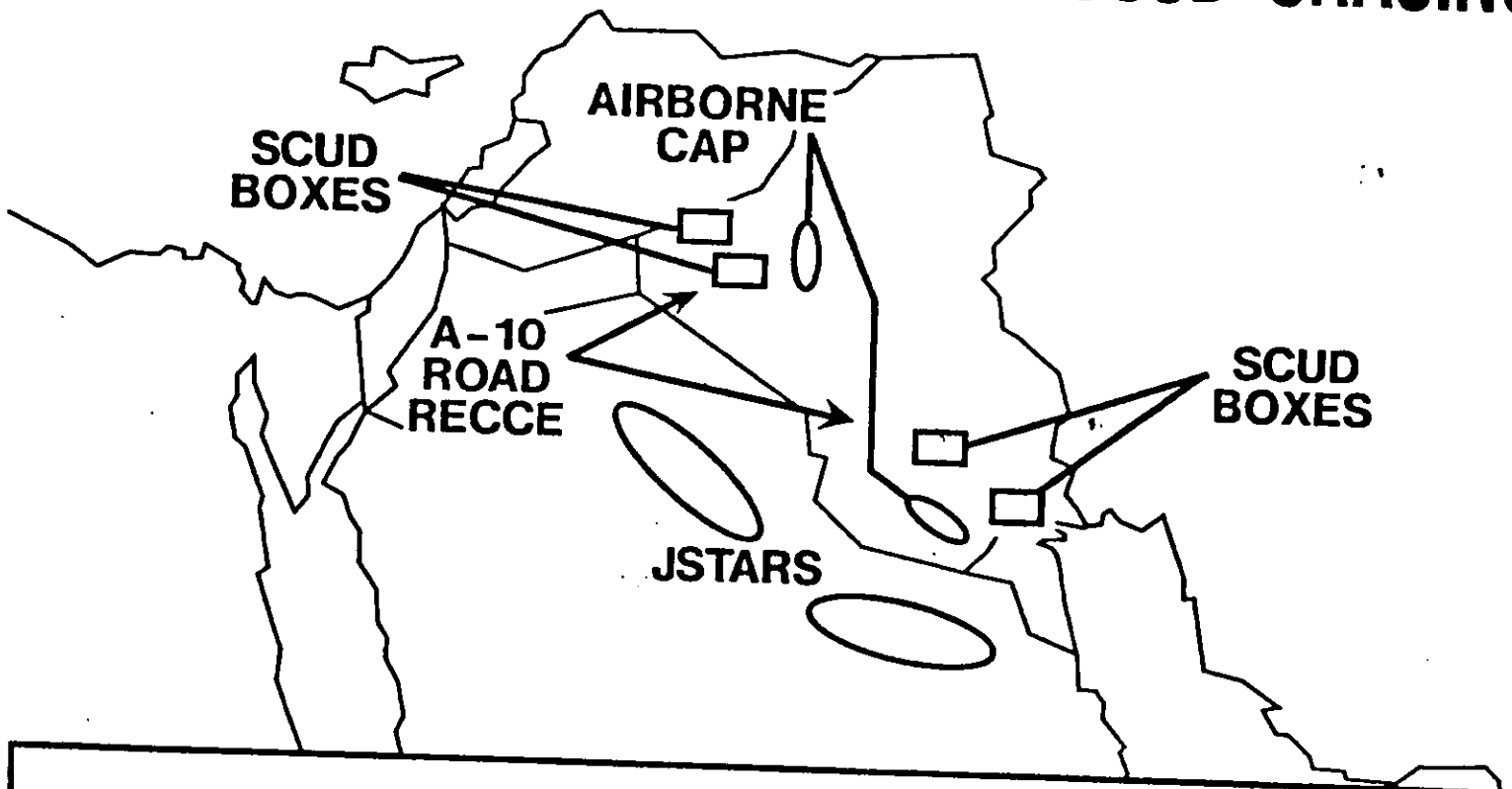
ISOLATED & INCAPACITATED IRAQI COMMAND STRUCTURE



Map 7

Interim Report

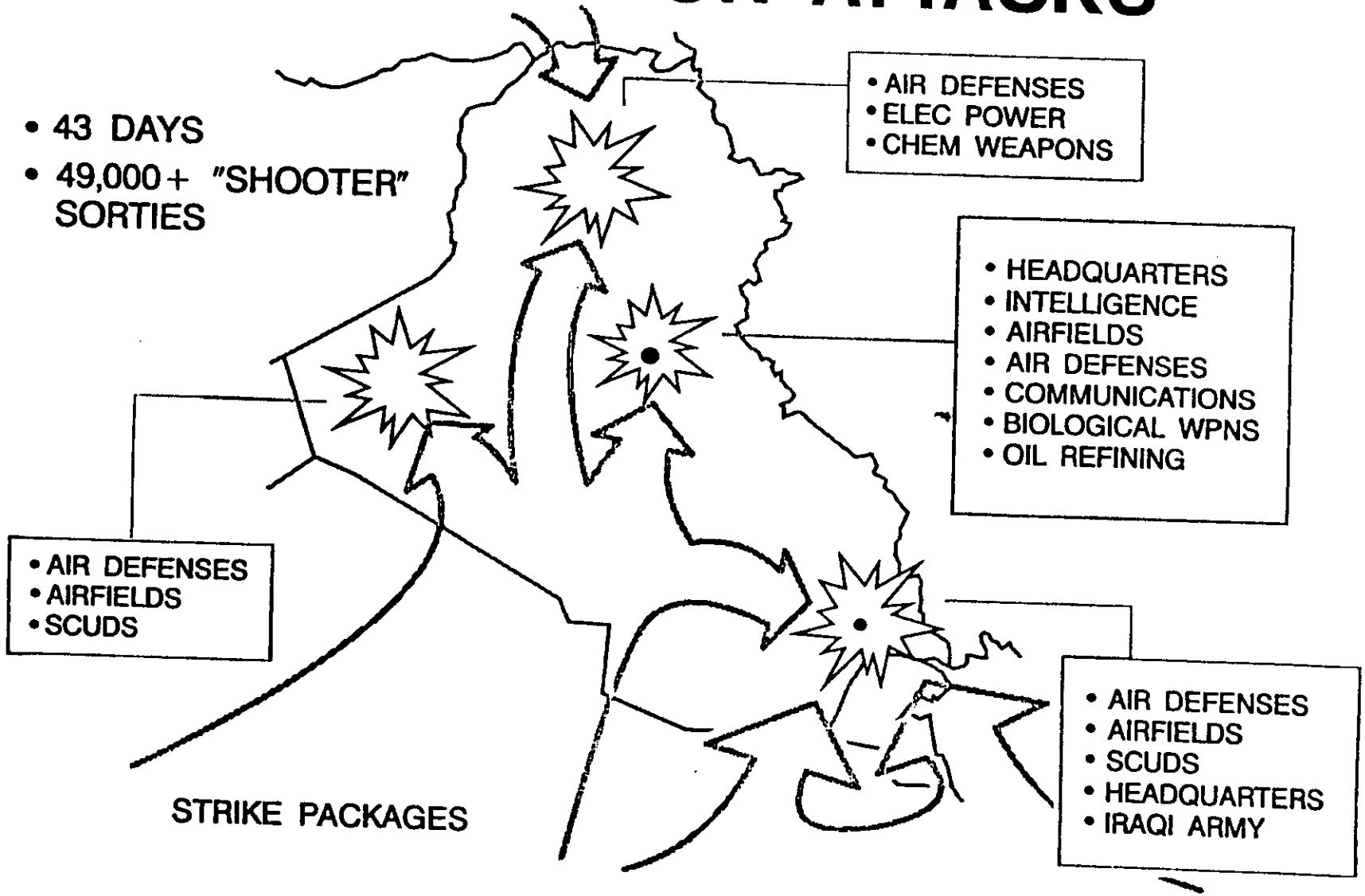
OPERATIONAL PROCEDURES FOR SCUD CHASING



- FIGHTER AIRCRAFT IN AIRBORNE ORBIT
- A-10 ROAD RECCE
- CUEING ACCOMPLISHED BY SPACE ASSETS, ETC.

Map 8

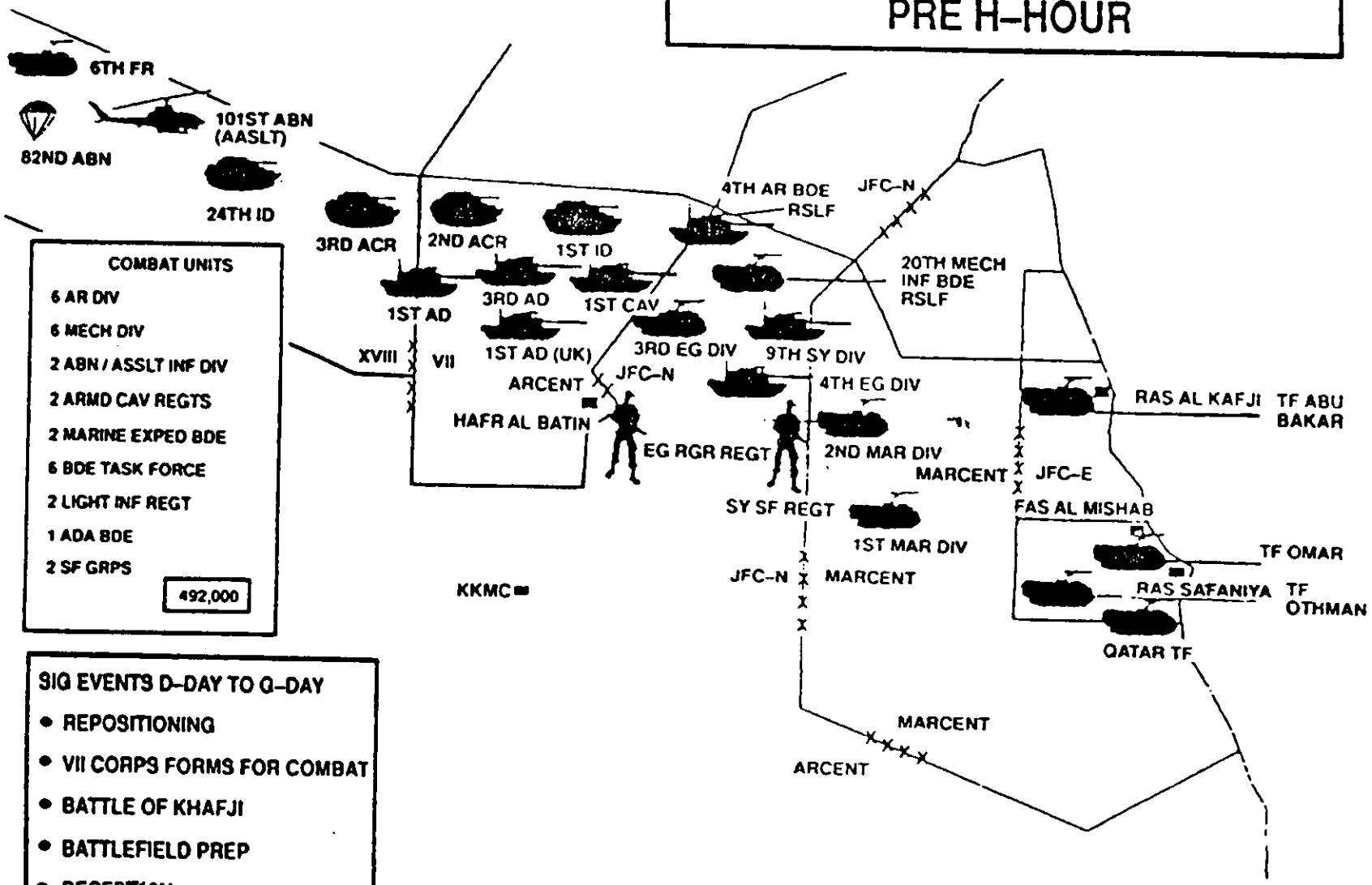
FOLLOW-ON ATTACKS



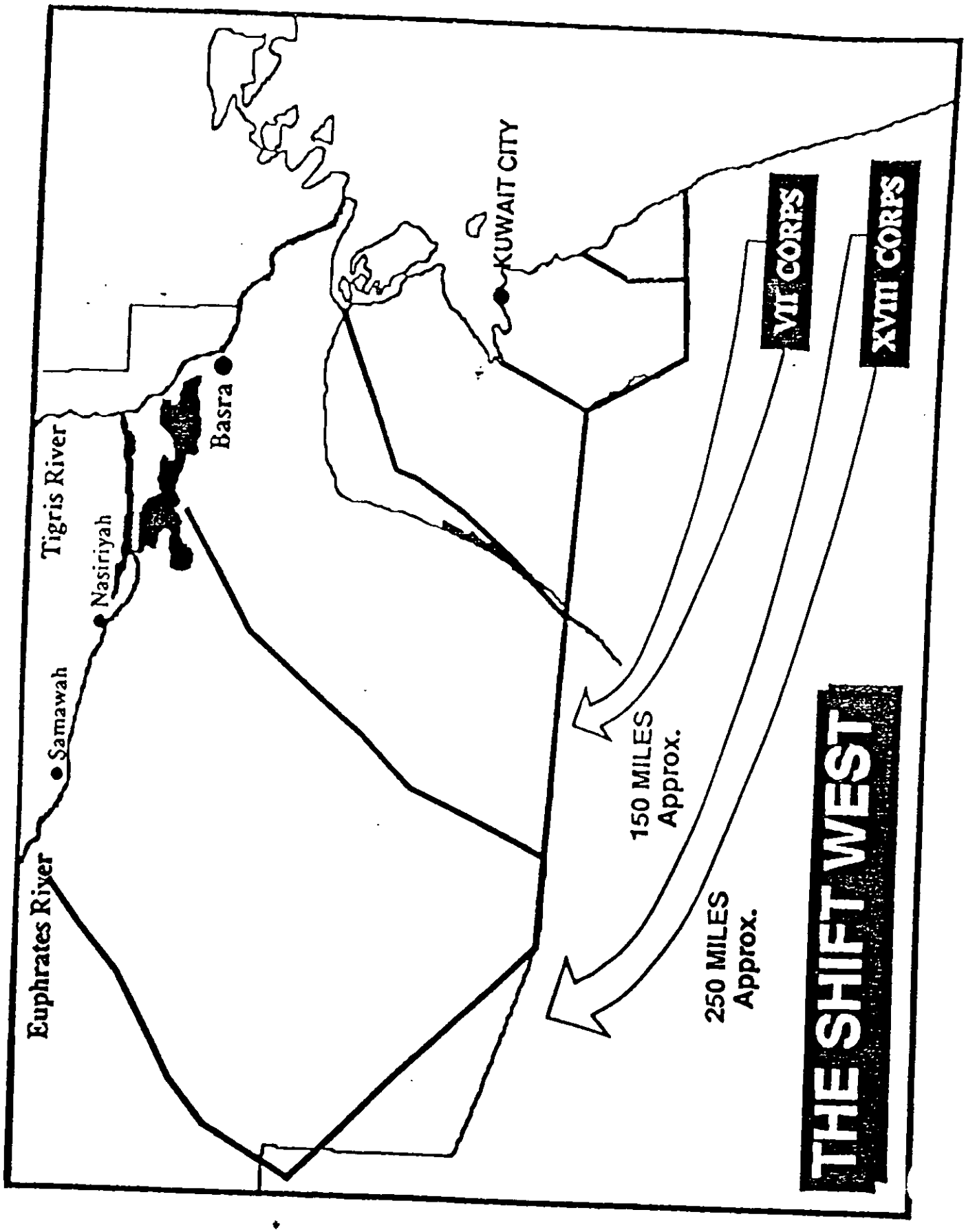
Map 9

Interim Report

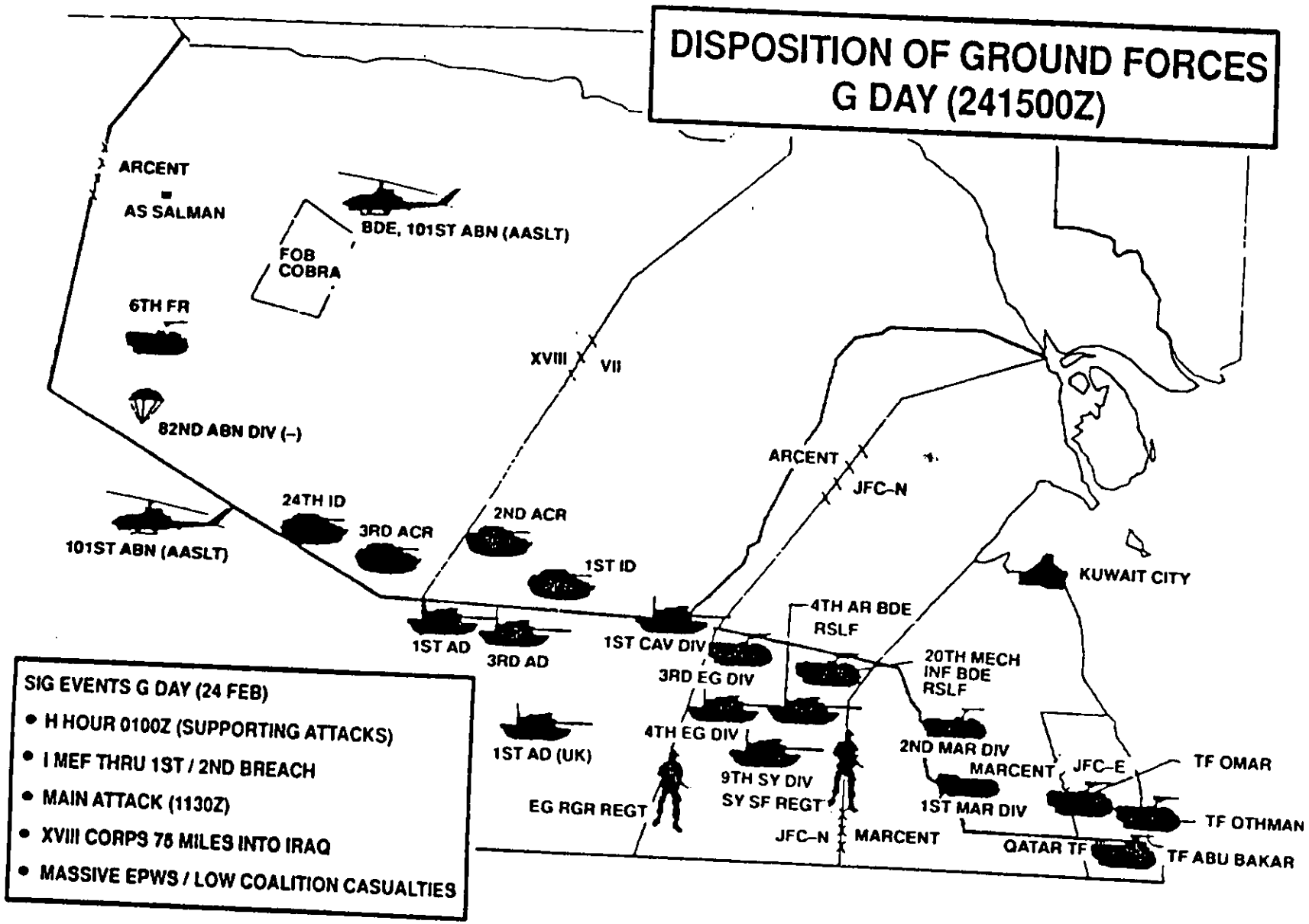
DISPOSITION OF GROUND FORCES PRE H-HOUR



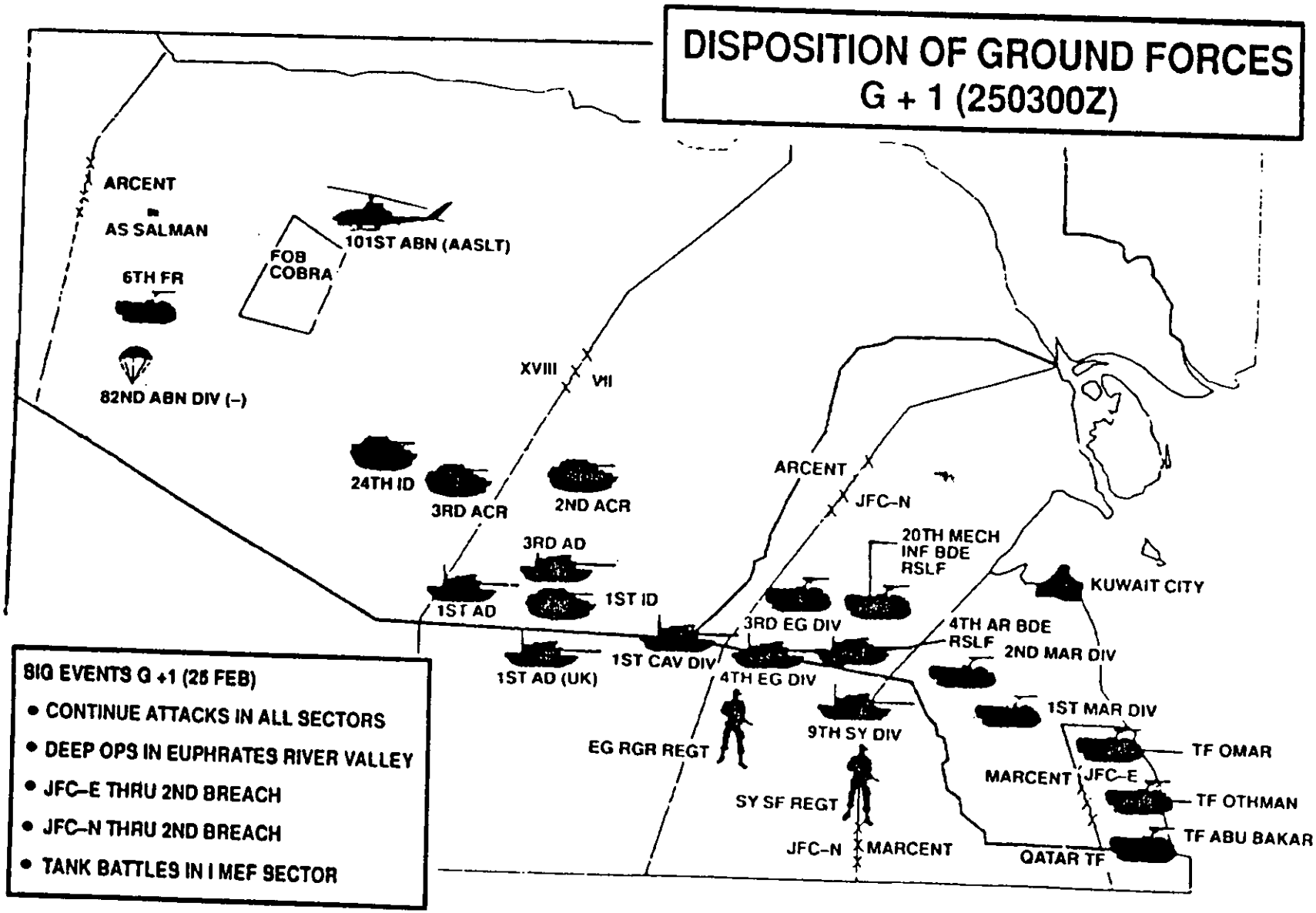
Map 10


KUWAIT CITY
VII CORPS
XVIII CORPS
Basra
Tigris River
Nasiriyah
Samawah
Euphrates River
150 MILES
Approx.
250 MILES
Approx.
THE SHIFT WEST

Map 11

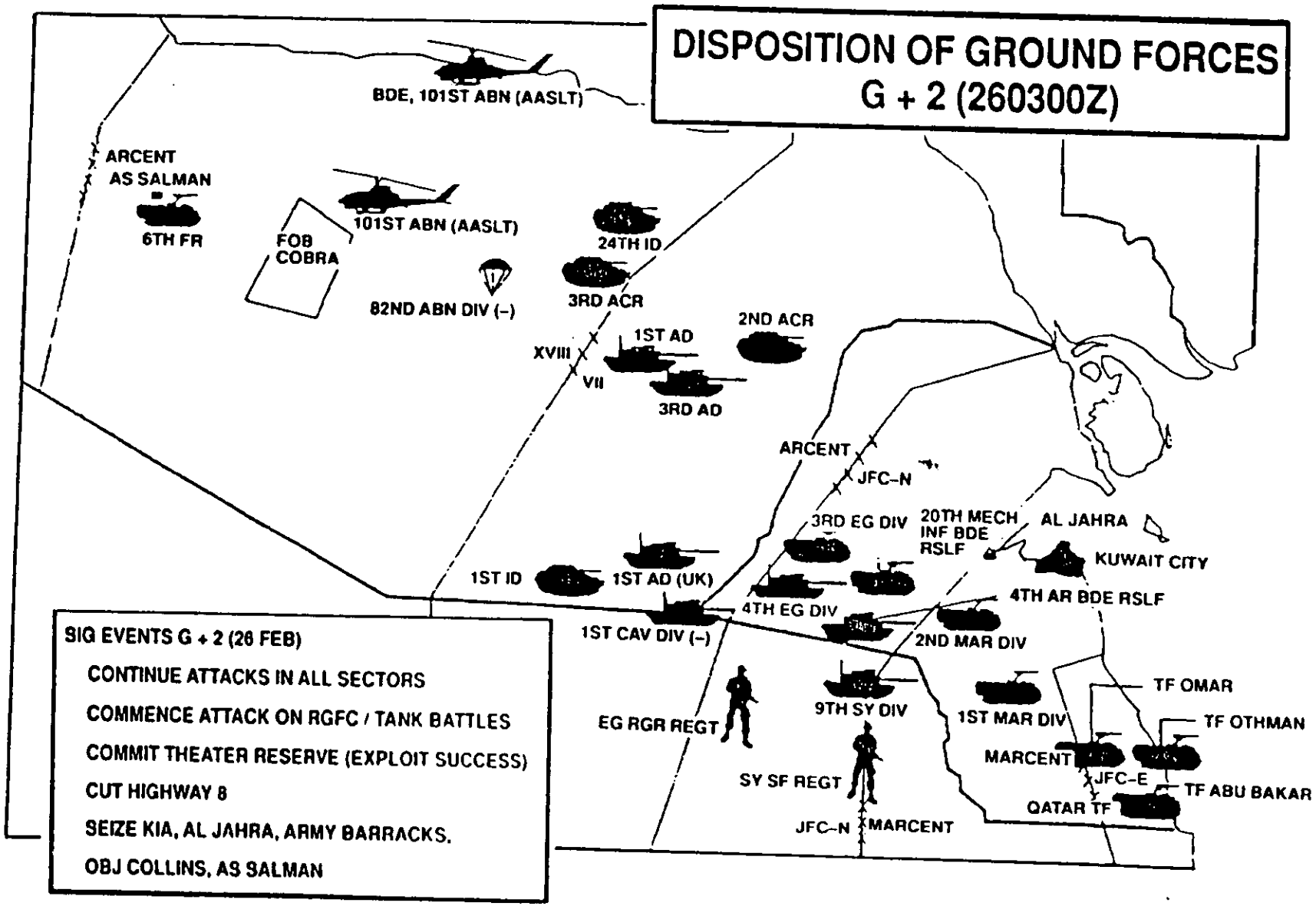

DISPOSITION OF GROUND FORCES
G DAY (241500Z)
ARCENT
AS SALMAN
BDE, 101ST ABN (AASLT)
FOB COBRA
6TH FR
82ND ABN DIV (–)
XVIII
VII
ARCENT
JFC–N
24TH ID
3RD ACR
2ND ACR
101ST ABN (AASLT)
1ST ID
KUWAIT CITY
4TH AR BDE
RSLF
1ST AD
3RD AD
1ST CAV DIV
3RD EG DIV
20TH MECH INF BDE RSLF
1ST AD (UK)
4TH EG DIV
2ND MAR DIV
MARCENT
JFC–E
TF OMAR
9TH SY DIV
SY SF REGT
EG RGR REGT
1ST MAR DIV
TF OTHMAN
JFC–N
MARCENT
QATAR TF
TF ABU BAKAR
SIG EVENTS G DAY (24 FEB)
• H HOUR 0100Z (SUPPORTING ATTACKS)
• I MEF THRU 1ST / 2ND BREACH
• MAIN ATTACK (1130Z)
• XVIII CORPS 75 MILES INTO IRAQ
• MASSIVE EPWS / LOW COALITION CASUALTIES

Map 12

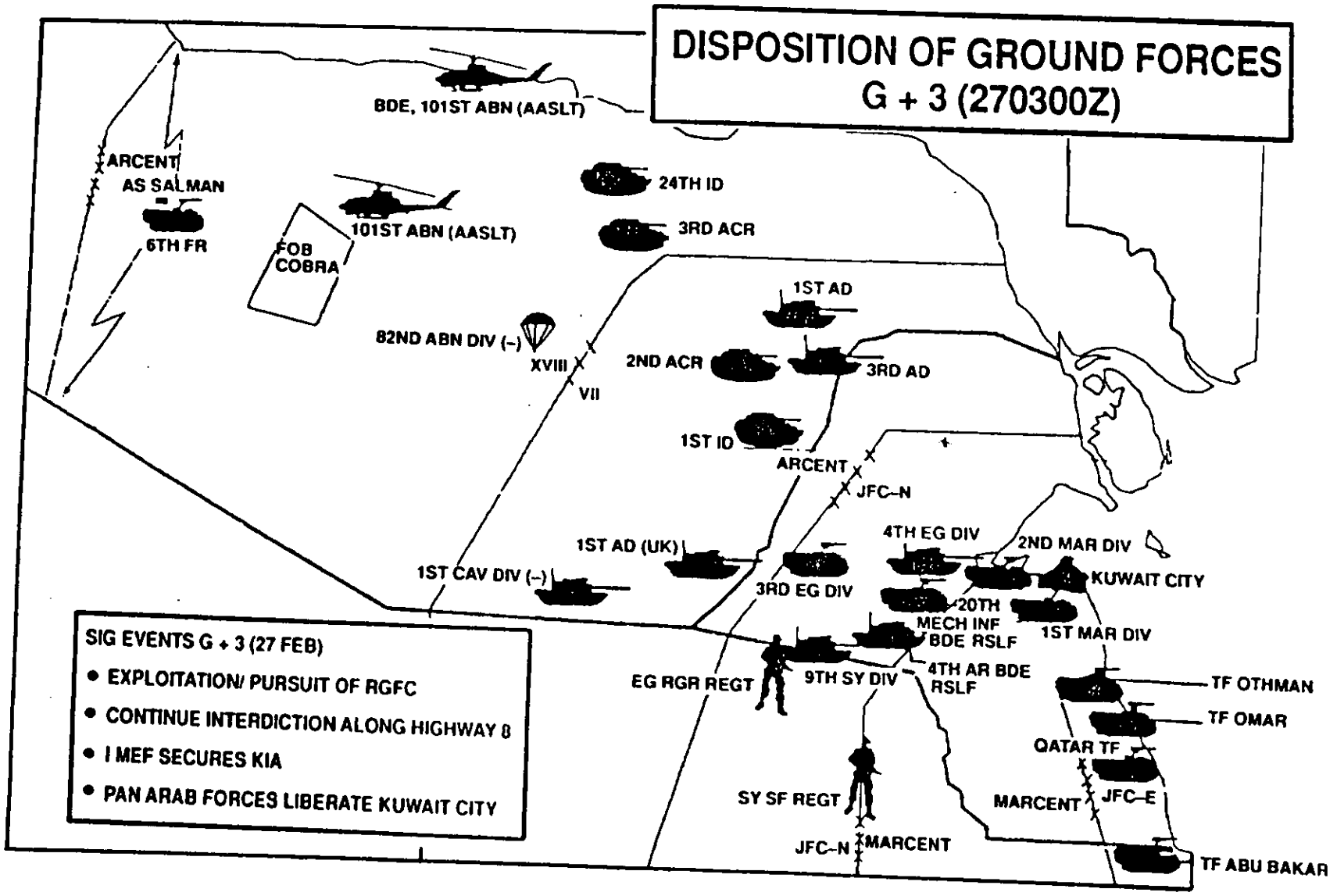


Map 13

Interim Report

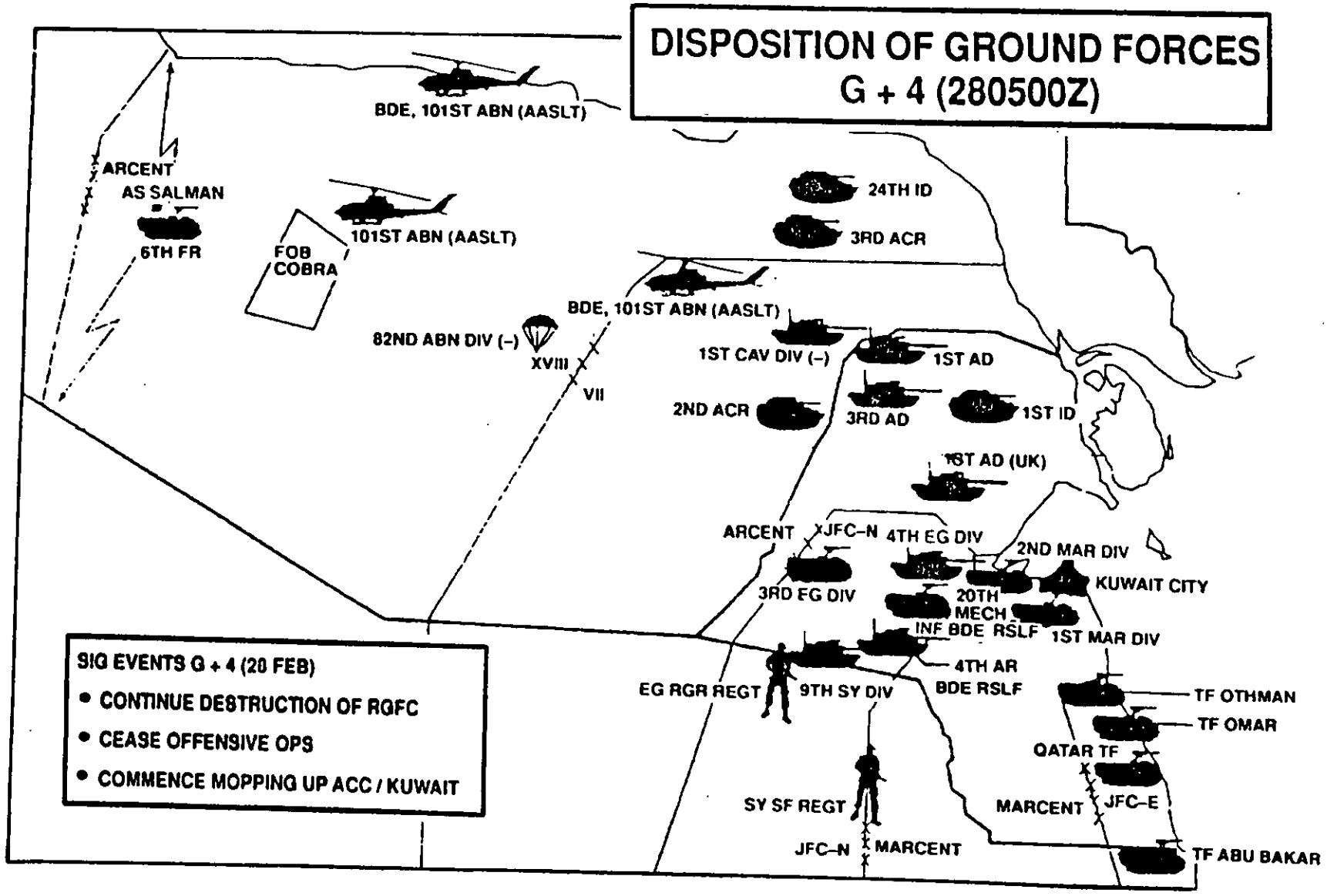

DISPOSITION OF GROUND FORCES
G + 2 (260300Z)
BDE, 101ST ABN (AASLT)
ARCENT
AS SALMAN
6TH FR
FOB
COBRA
101ST ABN (AASLT)
82ND ABN DIV (-)
24TH ID
3RD ACR
2ND ACR
XVIII
1ST AD
VII
3RD AD
ARCENT
JFC-N
3RD EG DIV
20TH MECH
INF BDE
RSLF
AL JAHRA
KUWAIT CITY
1ST ID
1ST AD (UK)
4TH EG DIV
4TH AR BDE RSLF
1ST CAV DIV (-)
2ND MAR DIV
TF OMAR
9TH SY DIV
1ST MAR DIV
TF OTHMAN
EG RGR REGT
MARCENT
JFC-E
TF ABU BAKAR
SY SF REGT
QATAR TF
JFC-N
MARCENT
SIG EVENTS G + 2 (26 FEB)
CONTINUE ATTACKS IN ALL SECTORS
COMMENCE ATTACK ON RGFC / TANK BATTLES
COMMIT THEATER RESERVE (EXPLOIT SUCCESS)
CUT HIGHWAY 8
SEIZE KIA, AL JAHRA, ARMY BARRACKS.
OBJ COLLINS, AS SALMAN

Map 14



Map 15

Interim Report


DISPOSITION OF GROUND FORCES
G + 4 (280500Z)
BDE, 101ST ABN (AASLT)
ARCENT
AS SALMAN
6TH FR
FOB COBRA
101ST ABN (AASLT)
24TH ID
3RD ACR
BDE, 101ST ABN (AASLT)
82ND ABN DIV (–)
XVIII
VII
1ST CAV DIV (–)
1ST AD
2ND ACR
3RD AD
1ST ID
1ST AD (UK)
ARCENT
JFC–N
4TH EG DIV
2ND MAR DIV
3RD EG DIV
KUWAIT CITY
20TH MECH INF BDE
RSLF
1ST MAR DIV
4TH AR BDE RSLF
EG RGR REGT
9TH SY DIV
TF OTHMAN
TF OMAR
QATAR TF
SY SF REGT
MARCENT
JFC–E
JFC–N
MARCENT
TF ABU BAKAR
SIG EVENTS G + 4 (28 FEB)
• CONTINUE DESTRUCTION OF RGFC
• CEASE OFFENSIVE OPS
• COMMENCE MOPPING UP ACC / KUWAIT

Map 16

QUESTION 5:

The use of special operations forces.

QUESTION 5:

The use of special operations forces.

In support of Operations Desert Shield and Desert Storm, the US Special Operations Command (SOCOM) executed the largest deployment of Special Operations Forces (SOF) in history. SOF were among the first units to deploy to the Kuwait Theater of Operations (KTO). The lead elements of SOF arrived in Saudi Arabia on 12 August. SOF employed by the Commander-in-Chief, US Central Command (CINCCENT) included Army Special Forces and Army Special Operations Aviation aircraft; Navy SEALs (Sea, Air, and Land) and Special Boat Units; Air Force Special Operations aircraft and Special Operations Combat Control Teams; and Psychological Operations (PSYOP) and Civil Affairs units. SOF aircraft were employed to exploit their unique capabilities. A Joint Special Operations Task Force (JSOTF) was employed in operations to support preparation of the battlefield and confirmed its numerous capabilities.

SOF, including the JSOTF, were under the combatant command of CINCCENT and under the operational control (OPCON) of Special Operations Command Central Command (SOCCENT) except: Civil Affairs units which were under the OPCON of the Army component, Central Command (ARCENT); AC-130 Spectre gunships and EC-130 Volant Solo PSYOP aircraft which were under the OPCON of the Air Force component, Central Command (CENTAF); and those SEAL platoons and Special Boat Detachments normally assigned to the Sixth and Seventh Fleets which were under the OPCON of the Navy component, Central Command (NAVCENT). SOF conducted operations in support of several mission areas: Coalition Warfare Support; Kuwaiti Military Reconstruction; Combined Special Reconnaissance; Special Reconnaissance; Psychological Operations (PSYOP); Civil Affairs and Direct Action; Combat Search and Rescue (CSAR). Many of the missions performed during Operations Desert Shield and Desert Storm were identified in pre-war plans, others were not anticipated before the crisis.

Coalition Warfare Support

In August, CINCCENT recognized the need to assess the capabilities and limitations of the Coalition forces being committed to support Operation Desert Shield. It was also necessary to ensure that Coalition forces, using different equipment and command and control procedures, were integrated at the operational and tactical level. The Coalition warfare support mission was given to SOF because of their unique capabilities–language and cultural orientation skills, wide range of tactical and technical expertise, and high levels of training. SOCCENT, in turn tasked US Army Special Forces, Navy SEALs, and Air Force Special Operations Combat Control Teams to perform a wide range of missions in support of Coalition forces. Coalition warfare support included individual, joint and combined training and operations, and liaison with Coalition forces.

SOF were attached to Coalition units during the war down to battalion level. Their presence proved to be a tremendous confidence builder for Coalition commanders. SOF assessed the levels of readiness of Coalition forces, provided necessary training and critical communication links, coordinated tactical operations, provided theater essential information necessary to ensure effective operational control of Coalition forces ("ground truth"), provided fire support coordination and other assistance. For example, a SEAL platoon and a battalion of the 5th Special Forces Group (SFG) trained the Royal Saudi Land Forces in close air support, naval gunfire support, and fire support coordination. Another SEAL platoon trained Royal Saudi Navy and Royal Saudi Marines in small unit tactics, diving operations, air operations, demolitions, weapons, mission planning, and high-speed boat operations. Execution of these and other activities ensured that Coalition forces were well-versed in the key skills necessary to operate in a lethal, high technology combat environment.

Despite these successes, overall SOF language skills and the number of language trained personnel available were not sufficient to meet the full range of Operations Desert Shield and Desert Storm requirements. Although language trained personnel, possessing requisite skill levels, were attached to Arab Coalition units, other language needs could not be filled because of deficiencies in total numbers of linguists and levels of proficiency. A continuing need is to identify SOF language requirements and to reconcile the competing training priorities between foreign language capability and other special operation mission requirements.

Combined Special Reconnaissance

SOF elements participated in Combined Special Reconnaissance missions with Coalition forces, primarily

during Operation Desert Shield. Some special command relationships were established. Some operations involved the establishment of early warning observation posts, using both mobile reconnaissance and fixed sites, to gather intelligence on front-line Iraqi units; to, on occasion, assist Saudi Arabian forces in the recapture of Saudi border posts; and, during Operation Desert Storm, to support their Coalition partners by directing close air support and artillery fires against Iraqi units and positions. These observation posts served as a trip wire to provide early warning of an Iraqi attack.

Special Reconnaissance

While combined special reconnaissance missions continued into Operation Desert Storm, US SOF were tasked to conduct additional unilateral Special Reconnaissance missions. Special Reconnaissance complements national and theater intelligence collection assets and systems by obtaining specific, well-defined, time-sensitive information of strategic or operational significance. While the integrated system of reconnaissance was being established during Operation Desert Shield, SOCOM (at the request of the US Central Command – CENTCOM) deployed the Special Operations Command Research Analysis and Threat Evaluation System (SOCRATES), an intelligence data handling system, to Southwest Asia. SOCRATES is a SOCOM-developed intelligence support system which improved CENTCOM's capability to perform complex intelligence handling and management tasks. Other Special Reconnaissance missions satisfied a wide range of requirements, from reconnaissance along the Kuwaiti coast to support of conventional tactical operations deep inside Kuwait.

During the period 23 August to 12 September, Navy SEALs and Navy Special Boat units conducted nightly patrols off Jubayl Harbor while the US Marine Corps maritime prepositioned force off-loaded. These operations were conducted to provide security for the initial entry of forces into the Kuwait Theater of Operations (KTO).

Beginning 5 January, Navy SEALs and Navy Special Boat Units conducted nightly coastal patrols in the Northern Arabian Gulf from Ras Al-Mishab north to Ras Al-Khafji on the Saudi coast. They collected intelligence regarding Iraqi small boat operations and established a US presence in northern coastal waters.

Commencing 16 January, Navy SEALs conducted Special Reconnaissance missions on Kuwaiti beaches. During these missions, Iraqi beach patrols passed as close as 50 yards. The SEALs were never discovered.

SOF also were tasked to perform unilateral Special Reconnaissance missions along the Saudi border. One SEAL platoon was directly involved in operations during the battle for Khafji. As Iraqi forces prepared to move south, the SEALs called in close air support. The unit remained in position on the border, providing real time intelligence regarding Iraqi troop and vehicular movement, until they were engaged by .50 caliber and mortar fire as the Iraqi Army advanced. These SEALs were the last US forces to leave that part of the Saudi border prior to the battle for Khafji.

During the same time period, Army Special Forces performed Special Reconnaissance missions in support of XVIII Airborne Corps and VII Corps. These operations required long range helicopter infiltrations and exfiltrations into central and west-central Iraq. Special Reconnaissance teams provided essential information to ground tactical commanders during their final preparations for combat. This information included certain ground trafficability analysis (for example, an analysis of soil conditions to determine whether heavy armored vehicles could pass) and other details which could not be acquired by other means. In central Iraq some teams were discovered and attacked, and had to be extracted early. Other teams continued to operate throughout Operation Desert Storm, or until linking up with advancing Coalition forces.

Psychological Operations (PSYOP)

As the initial combat forces were deploying to the KTO, PSYOP planners were assisting CENTCOM in the development of strategic and tactical PSYOP plans to support combat operations, if necessary. By the end of October, a combined cell for developing PSYOP products had been formed with representatives from the US, Saudi Arabia, Egypt, and the United Kingdom. Early on, intelligence had identified weaknesses in Iraqi troop morale. These weaknesses became the key focus of PSYOP efforts.

In November, broadcasting began into the KTO. By 12 January, all necessary PSYOP assets were in place to support tactical operations, and PSYOP products had been prepared to begin the PSYOP campaign. Examples

of PSYOP leaflet activity included a 12 January drop of 1,027,620 leaflets over southern Kuwait, and a 20 January drop near Baghdad of 265,000 leaflets. These and other leaflet drops put important information in the hands of many Iraqi soldiers.

The PSYOP effort was focused on breaking the Iraqi will to resist, and on increasing the fears of Iraqi soldiers, while pointing out that the Coalition was opposed not to the Iraqi people, but only to Iraq's national policy. In one especially effective method, air superiority permitted Coalition forces to drop leaflets on specific units announcing that they would be bombed, then to conduct such bombing, then to drop new leaflets reminding them that they could be bombed again at will. PSYOP products stated that Iraqi forces' only hope was to cease resistance and leave the battlefield. This amplified the psychological impact of the bombings and lent credibility to other messages. Leaflets dropped on Baghdad carried similar messages.

Broadcast efforts supplemented the leaflet campaign and enabled Coalition forces to reach Iraqi soldiers and civilians with more sophisticated messages. Air National Guard Special Operations EC-130 Volant Solo aircraft (specially configured with radio transmitters to support PSYOP), three ground stations, and a joint US/Saudi television station were employed.

During the combat phase, broadcast operations capitalized on previous leaflet delivery of "safe conduct passes" to Iraqi forces. At the front lines, PSYOP loudspeaker support of deception operations facilitated the "end run" by Coalition forces. Additionally, loudspeaker teams attached to maneuver units encouraged the surrender of Iraqi soldiers. In one case, an entire Iraqi battalion surrendered to a 1st Cavalry helicopter patrol when the attached PSYOP team broadcast that "death from above" was imminent.

Psychological operations played a key role in the destruction of enemy morale and contributed to the large-scale surrender and desertion of Iraqi soldiers. According to statements by an Iraqi division commander, PSYOP leaflets were a great threat to troop morale, second only to the Coalition bombing campaign. PSYOP radio broadcasts also had great impact on morale. These and other PSYOP gave Iraqi soldiers information which, in addition to undermining their morale, gave them detailed instructions on how to surrender, instilled confidence that they would be treated humanely and fairly by Coalition forces, and provided advance warning of impending attacks, allowing them to save their lives. The reach of PSYOP was clearly evident from debriefings of enemy prisoners of war (EPWs). Discussions with Iraqi EPWs indicated that the PSYOP campaign was a factor in influencing a substantial portion of them to surrender.

Because of higher deployment priorities, PSYOP units were not deployed in strength to the Persian Gulf until November 1990. In addition, there were long delays in approval for parts of the initial PSYOP and deception plans; other parts were promptly disapproved. These delays were the products of a number of factors, including the inherent complexity of the issues, the multiplicity of US Government agencies involved in the process, very strict legal limitations on propaganda and deception activities, and the extreme sensitivity of a number of Coalition partners with whom coordination was essential. Further analysis is needed to identify ways to streamline the planning and approval process and to strengthen the orchestration of military PSYOP organizations and campaigns with the complimentary assets of US public diplomacy programs and the related information efforts of other participating nations. However, it is important to recognize that even the most streamlined process and most well prepared plans will have to conform to strict US legal requirements and take account of Coalition partners' sensitivities, which are more likely to apply much greater restrictions on such activities in peacetime than after war has broken out.

Civil Affairs

Civil Affairs units played an important role throughout Operations Desert Shield and Desert Storm. The Civil Affairs mission included providing emergency support to the civilian sector, assessing the availability of host nation support, and assisting in the control, care, and movement of dislocated civilians and EPWs.

In October, at the request of the State Department, Civil Affairs planners were directed to assist the Kuwaiti government in planning for and executing its reconstruction effort. Beginning in December, the Kuwait Civil Affairs Task Force was formed using personnel from the 352d Civil Affairs Command (United States Army Reserves). The task force performed an essential advisory and planning mission. It advised representatives of the Government of Kuwait in the development and implementation of an emergency recovery program.

to be executed when Kuwait was liberated. The task force deployed to the KTO in January and continued to advise Kuwaiti officials at the ministerial level during their efforts to complete the planning and execution phases of their emergency recovery program.

Civil Affairs forces contributed to the success of the host nation support mission in the KTO by locating and facilitating procurement of supplies and services from US allies in the region. Initially the 96th Civil Affairs Battalion, and eventually the 304th Civil Affairs Group, worked in direct support of the ARCENT Support Command on host nation support matters throughout the theater. Their efforts helped sustain the buildup of forces in the KTO.

Civil Affairs forces also contributed in the management of dislocated civilians and EPWs. Civil Affairs forces were assigned to most combat maneuver units and assisted in the control, movement, and sustainment of civilians and EPWs in the rear areas. Civil Affairs forces provided humanitarian assistance support to dislocated civilians and the indigenous population and transitioned that assistance either back to the host nation or to international relief organizations. Their efforts helped minimize civilian and EPW interference with combat operations.

There were, however, problems in the Civil Affairs arena. Civil needs including refugees, humanitarian assistance, and the eventual restoration of Kuwait, were overshadowed initially by more immediate problems associated with potential combat operations and host nation support required to expedite and facilitate the buildup of Coalition forces throughout the Gulf. Civil Affairs tactical support considerations were accorded increasing priority as host nation support requirements were met. Deployment of Civil Affairs force structure, active or reserve, competed in the early stages of the operation with the deployment of combat capability. As an example, planning for the restoration of the Kuwaiti infrastructure upon the withdrawal or eviction of Iraqi occupation forces was delayed and compressed until early December. Initial planning was done in isolation from CINCCENT and his tactical plan. Furthermore, most of the Civil Affairs forces that ultimately provided combat service support to frontline units did not actually deploy until late January or early February, making it difficult to fully incorporate the Civil Affairs units into the plans of the supported units.

Direct Action

SOF also conducted Direct Action missions in support of Operation Desert Storm. In the conduct of Direct Action missions, units may employ raid, ambush, or other direct assault tactics; emplace munitions and other devices; conduct standoff attacks by fire from air, ground, or maritime platforms; and provide terminal guidance for precision-guided munitions.

On the evening of 16 January, SOF launched a Direct Action mission that assisted the opening of the air campaign. At 0238 hours local time, 22 minutes prior to commencement of Phase I of Operation Desert Storm (H-Hour), Air Force Special Operations MH-53 Pave Low helicopters crossed into Iraqi airspace leading a flight of Army AH-64 Apache attack helicopters. They destroyed key Iraqi radars creating a 10-kilometer wide air corridor subsequently used by some Coalition air forces to pass through enroute to key targets–primarily in western Iraq. Iraqi air defense forces fired two heat-seeking missiles at the joint attack team during their return flight, which were avoided through electronic countermeasures and evasive maneuvers.

As the air corridor-opening operation was being mounted. SOF emplaced radar beacons along the northern Saudi border. These beacons were used by Coalition pilots to confirm their position when entering and leaving Iraq and greatly aided in the command and control of Coalition aircraft.

Special Operations fixed-wing aircraft were also involved in Direct Action missions. The MC-130E Combat Talon, because of its ability to penetrate hostile airspace, was selected to support operations. These missions required the support of AWACS aircraft, electronic jamming aircraft, and air defense suppression and support aircraft.

Special Operations AC-130 Spectre gunships were involved in Direct Action missions in their armed reconnaissance and fire support roles. They operated in southern Iraq, northwest of Kuwait, and within Kuwait. They were particularly effective in attacking Iraqi ground forces in Kuwait and in suppressing the Iraqi incursion into Khafji. Unfortunately, at Khafji one Spectre was lost while supporting Marine ground forces. All 14 Air Force crew members were killed.

Navy SEALs also were instrumental in supporting CENTCOM's deception plan. On 24 February, the day the ground campaign of Operation Desert Storm began, SEALs swam ashore prior to the start of ground operations, detonated charges, and simultaneously attacked bunkers by calling in air strikes all along the beach.

SOCCENT, in cooperation with Coalition forces, was given the mission of coordinating, supporting, and controlling the simultaneous seizure and occupation, if required, of the US, British, and French Embassies in Kuwait City. This operation was executed on 28 February.

These successful efforts demonstrated some continuing need for specialized equipment to support Direct Action missions.

Combat Search And Rescue (CSAR)

In addition to the primary missions discussed above, SOF also conducted Combat Search and Rescue (CSAR) missions. CINCCENT tasked the theater CSAR mission to SOCCENT primarily because SOF possessed the best capability in theater to conduct long range personnel recovery missions given the threat in the KTO. The SOCCENT commander was designated as commander of CSAR forces. SOCCENT designated Air Force Special Operations Command Central the single air manager for all aviation assets committed to the CSAR mission. These Army, Navy, and Air Force aircraft were responsible for providing 24-hour, on-call CSAR

CENTCOM's CSAR procedures required reasonable confirmation of a survivor's situation and location be established before a CSAR mission would be launched. Due to dense enemy concentrations on the battlefield, downed pilots were frequently captured immediately after parachuting to the ground. There were a total of 35 downed Coalition aircraft and 64 downed aircrew. Seven CSAR missions were launched, resulting in three saves.

The first save, 21 January, was a daring daylight recovery of a Navy F-14 pilot downed deep in Iraq. Quarterbacked by an AWACS, two A-10s and a Pave Low helicopter flew into the area of the survivor, over 160 miles inside Iraq. The A-10s destroyed an Iraqi radio-intercept truck and the Pave Low used the smoke from the truck as a final reference point to find the pilot. After a successful pickup, the Pave Low returned to its base nearly eight hours after the F-14 was downed.

The second save, 23 January, involved the rescue of a US Air Force F-16 pilot who had ejected over the Northern Arabian gulf. Using a Navy SH-60 Seahawk, the CSAR mission took 35 minutes.

The third save, 17 February, was a nighttime save of an Air Force F-16 pilot downed 60 miles behind enemy lines. Army SOF responded with two MH-60 Blackhawk helicopters. Following the successful recovery, an Iraqi missile was fired at the trailing helicopter. The Blackhawk defeated the missile with evasive maneuvers. This rescue was flown using night vision goggles.

The use of SOF in a CSAR role saved lives. However, the use of SOF aviation assets in support of CSAR missions, combined with the demand placed on those assets by ongoing SOF missions, left little room to handle additional contingency missions.

Special Operations aircraft are built to provide many of the same capabilities of the non-SOF aircraft designed for CSAR activities. In addition, SOF aircraft have sophisticated radar evading, communications, and weapons system countermeasure capabilities that were deemed critical to the CSAR missions faced in Operation Desert Storm. As a result of their sophisticated capabilities, there was an unusual demand for SOF aircraft during Operation Desert Storm, in many cases for innovative missions outside the traditional special operations role. On several occasions, the CSAR requirement presented SOF planners with situations where the relatively scarce SOF aircraft were the preferred system for missions that had to occur simultaneously. As a result, in some instances, SOF planners had to make careful decisions about how to allocate SOF aircraft to the many competing demands for their services.

In planning for future CSAR activities, the Department expects to reexamine the capabilities of its CSAR aircraft to determine if it should provide them with the more sophisticated capabilities found useful in Operation Desert Storm. CSAR planning scenarios, doctrine, and tactics may also be examined.

General Observations On Mission Capabilities

In addition to the issues already noted, the war has revealed other issues, applicable to a number of SOF mission categories, that merit attention.

SOF capability did provide detailed real-time information from Iraqi-controlled areas and contributed significantly to the quality and quantity of intelligence supplied to Coalition forces. It allowed CINCCENT to extend his own surveillance beyond the ranges provided by organic capabilities of general purpose forces. However, SOF operational headquarters was pressed to handle the significant volume of high-priority communications which taxed its command and control capabilities. Due to distances involved and the complexity, sophistication and volume of communication required, Special Operations commands require greater communication capabilities.

SOF high frequency radios hampered dismounted operations and were easily detectable. Ongoing Joint Advanced Special Operations Radio Systems (JASORS) research and development may allow SOF to resolve the requirement for a communications system that ensures a low probability of intercept and detection. Additionally, to exploit fully the sophisticated navigation advantages provided by the Global Positioning System (GPS), lightweight systems must be integrated with communications equipment to support search and rescue operations.

Conclusion

SOF played a valuable role in Operations Desert Shield and Desert Storm. They proved that they could conduct a wide range of missions in a mid-intensity environment. However, use of Special Operations capabilities requires difficult tradeoffs between the potential political risk that often accompanies the conduct of special operations and the military advantage they can generate. Pre-hostility and cross-border operations can provide both tactical and operational level advantages to general purpose force commanders; however, inadvertent disclosure or compromise of these activities can signal strategic objectives, incurring both military and political repercussions.

EMERGING OBSERVATIONS

Some Accomplishments

— SOCOM executed the largest deployment of SOF in history.

— SOF units performed numerous missions well.

— SOF liaison with Coalition forces was important and effective.

— The numerous capabilities of the Joint Special Operations Task Force (JSOTF) were verified.

— PSYOP contributed to the collapse of the Iraqi Army.

— Civil Affairs forces contributed significantly in the areas of civil administration, host nation support, and in the handling of displaced civilians and EPWs.

Some Shortcomings

— SOF aviation assets were pressed to support simultaneous mission requirements.

— Further analysis is needed to identify ways to streamline the PSYOP planning and approval process.

— Planning for the restoration of Kuwait was delayed and compressed until early December.

— Debriefings of aircrews indicated they were not comfortable with CSAR capabilities.

— Overall SOF language skills, and the number of language trained personnel available, were insufficient to meet the full range of requirements generated during Operations Desert Shield and Desert Storm.

Some Selected Issues

— Impact of Time Phased Force Deployment List (TPFDL) changes on SOF.

— Range capabilities of aircraft in support of SOF, especially in terms of exfiltration.

— Clarification of the responsibilities of the Service components to provide logistic sustainment support to service SOF elements and the theater SOC.

— Proper allocation of SOF to CSAR and other missions.

— Refinefment of PSYOPS planning and implementation processes.

QUESTION 6:

The employment and performance of United States military equipment, weapon systems, and munitions (including items classified under special access procedures).

QUESTION 6:

The employment and performance of United States military equipment, weapon systems, and munitions (including items classified under special access procedures).

Technology and sophisticated weapons systems had an enormous effect on the conduct and the outcome of the Persian Gulf War. While some equipment, weapons and munitions had been in the inventory for some time, others were new. In fact, some were still in the developmental stages when the war began and were fielded prior to completion of normal test and evaluation schedules. A few systems had been used in combat prior to the Gulf War, but many were not combat proven. Therefore, an evaluation of the employment and performance of military equipment, weapons and munitions takes on a special significance, and requires a thorough, systematic analysis of all available data.

The performance of systems was influenced by a number of factors, including weather conditions, the nature of desert terrain, employment criteria (e.g., rules of engagement, altitude restrictions, attempts to minimize collateral damage), munitions capabilities, and Iraqi capabilities and tactics. These factors will be considered as a backdrop in evaluating the contributions of specific systems. The data collection efforts and preliminary analyses are underway. When complete, this will provide a basis for continuing, more detailed analyses designed to allow the Department to draw conclusions about weapons' performance.

This report provides a broad overview of how a few, selected weapons were employed, together with some very preliminary comments concerning effectiveness of several key weapon systems. Other candidate systems which may be selected for detailed analysis are listed at the end of this section. Following is a brief, preliminary overview of the operations of the F-117A, F-15C/E, F/A-18, M1A1, AH-64, Patriot, Chemical Warfare protection, Tomahawk Land Attack Missile (TLAM), and Unmanned Aerial Vehicles (UAVs) plus a synopsis of candidates for further, detailed examinations.

Caveats

It must be reemphasized that this is a preliminary submission. An extensive data collection and analysis program has begun but is necessarily in its early stages. As complete data are collected and evaluated, it may well be that some of the information and assessments below will be significantly altered.

It is not practicable to discuss in this interim report all the different systems and forces which contributed to the overwhelming victory of the Coalition in Operation Desert Storm. Those systems discussed in this interim report were by no means the only new systems to play a major role in this conflict. Many systems performed well and made major contributions to the war effort. As indicated below, the final report will discuss the employment and performance of additional systems, albeit on a necessarily selective basis.

Air Warfare

Coalition airpower was the principal instrument of military force for the first 38 days of Operation Desert Storm. During the final four days, airpower operated hand-in-hand with the fast moving ground forces. Virtually every type of combat aircraft operated by the Army, Navy, Air Force, and Marine Corps took part in Operation Desert Storm. These aircraft–both fixed and rotary wing–delivered a wide variety of munitions, many of which were precision guided. Over 100,000 combat missions were flown against Iraq by fixed-wing aircraft. These combat missions covered all aspects of air warfare, from offensive counterair and interdiction to forward air control and close air support to aerial refueling. Preliminary information indicates a total of 28 US fixed wing aircraft were lost in combat, for an unprecedented, low attrition rate of 0.03%. This is especially impressive given the characteristics and potential of Iraq's air force and air defense system.

Strategic Bombing Operations

A wide array of aircraft were used to attack strategic targets, including the A-6E, A-7E, B-52G, F-15E, F-16, F/A-18, F-111, and F-117. Operating from aircraft carriers and bases throughout the theater, with some aircraft operating from bases in Europe and the United States, these aircraft effectively destroyed the Iraqi command and control and telecommunications system, eliminated Iraq's strategic and offensive capability, and disrupted the war-supporting infrastructure. The strategic bombing campaign had the effect of virtually isolating and immobilizing the Iraqi army in the field. The F-117 stealth aircraft was a major factor in this effort.

The F-117 Stealth Fighter is the first operational aircraft designed to exploit low observable technology. Shrouded in secrecy during the early and mid 1980s, the Department of Defense did not acknowledge the existence of the F-117A until November 1988. A total of 42 F-117As were deployed to the theater in three packages. Package one consisted of 18 F-117s from the 415 Tactical Fighter Squadron (TFS) and deployed on 19 August 1990. Package two deployed in early December 1990 and consisted of another 18 F-117s, this time from the 416 TFS. The final package of six F-117s came from the 417 TFS and deployed to the theater in early January 1991. The F-117s in theater provided an unprecedented combination of stealth and precision delivery.

The F-117 was a stellar performer. Dropping the first bomb of the war on an air defense control center, the F-117 provided the advantage of surprise. With the ability to cruise to the target, identify it before surface threats became active, and hit it with precision, the F-117 had extraordinary impact on the enemy. Because of the combination of stealth and precision a very small number of aircraft were able to accomplish a great deal. The 42 deployed F-117s flew approximately 2% of the total attack sorties of the war, yet struck over 40% of the strategic target list. During the war, it flew almost 1,300 attack sorties, dropped over 2,000 tons of bombs and flew over 6,900 hours. Tactical surprise helped the F-117 assure air superiority over the Iraqi skies as it destroyed command and control capabilities, major facilities in the Iraqi Integrated Air Defense System (IADS), hardened aircraft shelters, and valuable strategic targets in Baghdad and a multitude of other targets in both Iraq and Kuwait. The F-117 was the only aircraft to operate in the heavily defended skies over downtown Baghdad. Precision delivery assured the F-117A could strike targets in a single mission with great certainty of achieving the desired damage. According to the Air Force, over 80% of the precision guided bombs released were hits, limiting collateral damage.

The F-117, by virtue of its stealth characteristics, allowed operations without the full range of support assets required by non-stealthy aircraft. By contrast, in one attack against one airfield, eight conventional (non-stealth) bombers required escort by 30 other aircraft to provide radar jamming, carry radar-homing missiles and provide force protection. Because stealth eliminated the need for suppression of enemy air defense (SEAD) and force protection aircraft, fewer resources were required to attack each target. This freed up additional aircraft to attack additional targets, allowing coverage of a larger portion of the target base during one attack. Viewed in terms of the total requirements to hit a target, stealth systems expose fewer lives, reduce total sorties, and reduce requirements for munitions, manpower, fuel and support infrastructure.

One area for improvement is mission planning. The mission planning system for the F-117A was developed around small attack packages and a limited number of targets. Operation Desert Storm required a system that could handle large numbers of aircraft targeted against numerous targets. The mission planning system needs improvements in flexibility, speed, and the user interface. Investigation into these improvements has already begun.

Offensive Counterair

Following the first week of the air war, US aircraft encountered little opposition from the Iraqi air force. Nonetheless, US fighter aircraft shot down 33 Iraqi fixed wing aircraft, five of which were modern MiG-29 aircraft. Virtually all of the kills were made with the AIM-7 (Sparrow) and AIM-9 (Sidewinder) missiles. Additionally, US aircraft were reported to have collectively shot down six Iraqi helicopters. The factors affecting Air Force and Navy air combat results need thorough examination, including the apparent reluctance of Iraqi pilots to challenge US fighters. The analysis should yield useful information on the effectiveness of US aircraft and missile systems employed in the few aerial engagements that occurred.

A vital aspect of the offensive counterair effort was the campaign to destroy the Iraqi air force in its hardened aircraft shelters. Coalition aircraft, predominantly F-117s and F-111s, employing penetrating precision guided munitions, destroyed or severely damaged over 300 hardened aircraft shelters according to preliminary estimates.

Every type of US fighter aircraft participated in the highly successful counterair offensive, including the F-14, F-15, F-16, and F/A-18. An analysis of the specific performance of these aircraft in Operation Desert Storm is continuing as of submission of the interim report. Preliminary information on one of these aircraft, the F-15C, follows.

One of the first combat aircraft to deploy to the theater in early August 1990, the F-15C provided a defensive umbrella that permitted the early build-up of forces and equipment in Saudi Arabia. Flying round-the-clock combat air patrol missions along the Iraqi border, F-15Cs were an early deterrent to further Iraqi aggression. Once hostilities began, the F-15C was a major force in the offensive counterair campaign which quickly gained air superiorty in the early days of the war.

The 120 F-15Cs deployed to SWA are reported to have flown a total of 5,906 sorties with an average sortie length of 5.19 hours. According to the Air Force, 34 of the 39 US air-to-air kills (including one MiG-29 pilot who flew into the ground) were attributed to the F-15C. The AIM-7 missile accounted for 25 kills; the AIM-9 missile 8 kills. There were no F-15C combat losses.

Interdiction

The interdiction campaign appears to have been highly successful. Attacks on transportation networks, communications links, supply dumps, and similar targets reduced Iraq's ability to supply and reinforce its forces in southeastern Iraq and inside Kuwait. Near the end of the air campaign 42 of 52 bridges were reportedly made impassable by Coalition attacks.

Instrumental to the interdiction campaign was the round-the-clock bombing against Iraqi targets provided by fighter and attack aircraft. Virtually every US attack bomber played a role in this highly successful campaign, including the A-6E, A-7E, B-52, F-15E, F-16, F/A-18, F-111, and F-117.

The F/A-18, a multi-mission aircraft flown by the Navy and the Marine Corps, was one of many aircraft employed for the first time in combat during Desert Storm. The F/A-18 is capable of performing several missions: offensive air-to-air, interdiction, battlefield air interdiction, close air support, and suppression of enemy air defenses. This capability allowed the F/A-18 to execute interdiction strikes while providing its own air cover, thus eliminating the requirement for fighter escort aircraft. Not only did this multi-mission capability allow the Services to generate/support greater numbers of strike missions, but fewer support aircraft were required to fly into hostile enemy territory.

No single event of the war demonstrated the value of multi-role capability more than the events of the first day when two F/A-18s from VFA-81, a fighter/attack squadron, embarked in USS Saratoga shot down two Iraqi MIG-21s . The F/A-18s were on a scheduled bombing mission against an Iraqi airfield when they detected the two "bogies" seven miles away. They switched their weapons computer systems from the bombing mode to the air-to-air mode, confirmed the planes as hostiles and downed both MIGs using Sparrow and Sidewinder missiles. They then successfully completed their assigned mission of bombing in support of a Coalition strike against an enemy airfield.

In the execution of interdiction missions, the F/A-18 carried a variety of munitions: precision-guided weapons (Standoff Land Attack Missile, Walleye, Maverick, HARM), non-precision weapons (MK-80 series bombs and Rockeye cluster weapons); and Sparrow and Sidewinder air-to-air missiles. Additionally, the Forward Looking Infrared (FLIR) capability of the F/A-18 expanded its employment to include both day and night operations. The F/A-18 was deployed aboard four aircraft carriers in the Persian Gulf and Red Sea (87 aircraft) and by the Marine Corps in Bahrain (84 aircraft). There was one combat loss during Desert Storm.

United States Air Force F-15E Strike Eagles provided early precision air-to-ground capability with 24 aircraft deployed on the third day of Operation Desert Shield. An additional 24 aircraft deployed in December even though the squadron involved had been operational for only three months.

The F-15E was a key contributor in the highly successful air campaign. On the first day of the war, F-15Es attacked fixed Scud sites, forward C3 positions, and airfields. By the third day a squadron of F-15Es had shifted primarily to the Scud hunting mission, using two aircraft in airborne night patrols over suspected Scud areas.

As a relatively new weapon system, the F-15E accomplished Low Altitude Navigation Targeting Infrared For Night (LANTIRN) navigation and target pod follow-on test and evaluation in the theater. LANTIRN was used effectively in delivering over 1,700 laser guided bombs. It is reported that two F-15Es on a "tank plinking" mission, each loaded with eight GBU-12 precision guided bombs, were able to kill up to 16 tanks in approximately 30 minutes. Flying primarily at night, the F-15Es flew 2,210 sorties. There were two combat losses, both early in the war.

The ability to operate at night deprived the Iraqis of the sanctuary of darkness. Iraqi doctrine emphasizes the movement and resupply of forces under the cover of darkness. Coalition air forces flew thousands of sorties at night using a variety of night capable systems to locate and destroy Iraqi forces.

Defense Suppression

The dedicated suppression of enemy air defense (SEAD) campaign was both effective and essential to air superiority. F-4G, EA-6B, EF-111, F/A-18, A-6E, and A-7E aircraft all played a key role in this highly successful effort. The continual use of both escort and standoff jammers, antiradiation missiles (ARMs), decoys and self-defense suites thoroughly disrupted the Iraqi IADS. Although Coalition aircraft were able to fly virtually unopposed in Iraqi airspace, the surface-to-air missile (SAM) and antiaircraft artillery (AAA) threats were at times very heavy and sometimes lethal.

Nonlethal Electronic Combat

Nonlethal electronic combat systems consist of aircraft self-protection systems (radar and missile warning systems, expendable countermeasures and radar jammers), general support radar, communications jamming systems and deception devices. Most fighter, bomber, special operations and reconnaissance aircraft deployed to the Persian Gulf were equipped with some kind of self-protection system. At a minimum, these systems consisted of radar warning receivers and flare and chaff dispensers. However, most aircraft also operated with active self-protection jammers, which use deceptive signals to confuse and mislead enemy radar-guided weapons. Radar warning receivers and self-protection jammers appear to have worked, and support jamming provided by EF-111s, EC-130s, and EA-6Bs was reported to have significantly degraded enemy air defense coordination.

Aerial Refueling

Tanker aircraft played a vital role in Operations Desert Shield and Desert Storm. The in-flight refueling services they provided increased the range, payload, and endurance of tactical aircraft employed in the conflict. KC-10s were used both as strategic airlifters and as tankers. In reviewing the contribution of aerial refueling to the operation, the analysis will examine the numbers and types of tankers used, the number of sorties flown and receivers refueled, and the amount of fuel delivered.

Land Warfare

The ground phase of Operation Desert Storm was brief and successful. Coalition forces completed the defeat of the Iraqi army after just 100 hours of ground combat. This victory was achieved with low casualties to the Coalition. The performance of ground systems was affected by a number of factors, including the weather, terrain and operational conditions. These and other factors affect the analysis, and many of them are substantially different from areas in which the Services have more operational experience. Overall, the equipment used by Coalition forces was judged to be far superior to that of the Iraqi army.

Direct Fire Combat

Direct fire operations during Desert Storm were used to destroy Iraqi forces, to fix the Iraqi forces in place and to increase the mobility of forces maneuvering against Iraqi flanks and rear areas. Initial reports indicate that US direct fire systems performed successfully in terms of operational readiness, lethality, and survivability.

The success of the ground campaign depended heavily on the capabilities of the M1-series tank. This system constituted the bulk of the direct firepower of US heavy forces. Its lethality is tied to the performance of 120mm armor piercing ammunition and to crew proficiency. A thorough analysis of the M1A1 performance in Operation Desert Storm is continuing.

In late November 1990, the Army began to replace older M1 tanks in theater with M1A1 tanks. Over 1,100 M1A1s and M1A1s HA (Heavy Armor modified) were shipped to the theater from European POMCUS sites and from the US. The M1A1's 120mm main gun and NBC overpressure system provided key improvements in capability against the Iraqi threat, which included the T-72M with a 125mm gun and the potential use of chemical weapons. Additionally, VII Corps and the 2d ACR were fielded with the heavy armor version, the M1A1(HA), which provided an even greater degree of protection. About 27% of M1A1s in theater on G-Day, the day the ground war began, were of this version.

The M1A1 appears to have performed successfully in fast-paced, complex, offensive and defensive operations. The combat operations in which the M1A1 participated continued day and night under adverse weather and visibility conditions including heavy rain, high winds, sandstorms, and dense smoke from oilfield fires. The capability to employ the armored force in mass was important to the success of the campaign. VII Corps, for example, was the largest armor corps in history with over 1,400 tanks and over 1,200 Bradley Fighting Vehicles. In addition, US forces were often able to take Iraqi units by surprise as a result of the M1A1's excellent cross-country speed.

Defensively, the M1/M1A1 special armor package proved extremely successful. For example, there are no confirmed reports of penetrations by Iraqi projectiles of M1/M1A1's.

Some number of M1A1s may have been damaged or destroyed due to fire from friendly forces; an investigation of the circumstances surrounding these losses is underway. While not subjected to chemical warfare, the M1A1 NBC defensive system provided crews with a high level of confidence.

Offensively, the M1A1 scored many of its first round hits while it was on the move. Many of the targets it destroyed may also have been moving at the time of engagement. Such a situation presents a difficult gunnery problem. But the M1A1 target acquisition and fire control capabilities enabled it to fire and destroy targets before Iraqi tanks were able to engage them. The capability provided by the M1A1's thermal sight–through darkness, smoke, haze, etc.–was also crucial to these successes. Furthermore, M1A1s were able to engage Iraqi tanks from beyond the Iraqis' range. An example of the effectiveness of the M1A1 is the Battle of Medina Ridge. In this engagement, the 2d Brigade of the 1st Armored Division destroyed as many as 100 Iraqi tanks and 30 BMP armored personnel carriers in 45 minutes.

When engaging Iraqi T-72 tanks, the M1A1 ammunition consistently achieved catastrophic kills, even against Iraqi tanks located behind thick berms and other defensive emplacements. These rounds are kinetic energy penetrating rounds which have an extremely flat trajectory and an extremely high velocity. Initial reports suggest that these rounds performed better than expected.

The M1A1 appears to have maintained high operational readiness rates throughout this campaign. On one occasion the 3d Armored Division reportedly moved over 300 tanks some 200 kilometers in one night without a single breakdown. Potential maintenance hazards of the desert environment, such as sand fouling of engine filter systems or tanks "throwing" their tracks were addressed in the course of operations by commanders who emphasized the need for frequent cleaning, inspections, and care.

M1A1 operations indicated several specific areas for improvement. Support and command and control vehicles (M88A1s, M577s and M113s) could not keep up with the M1A1s. The supply distribution system also had difficulty keeping up; in a longer operation the need for more supply trucks would have posed difficulties. Additionally, the rapid movement of ground forces over the featureless desert terrain indicated the need for an identification system (friend or foe) and a Global Positioning System (GPS) receiver for key ground vehicles.

Indirect fire systems such as Multiple Launch Rocket System (MLRS), Army Tactical Missile System (ATACMS) and supporting naval gun fire also contributed to the success of the land campaign. These systems will be addressed in the final report.

Air Assault Operations

A variety of helicopters were employed in combat and combat support roles. They lifted troops, equipment and supplies to the battle area, provided command and control support, conducted long range search-and-rescue operations, and evacuated Iraqi prisoners of war. The deep strike into the Iraqi rear by the 101st Airborne Division (Air Assault) was the principal air assault operation of the war.

AH-64 Apache helicopters, assisted by MH-53E Pave Low helicopters, conducted the first strikes in Operation Desert Storm. Flying into enemy territory on the first night of the war, Apaches attacked and destroyed early warning sites. Later, the Apaches were used in their primary role of attacking armor. The following is a preliminary report on the Apache performance.

The Apache helicopter was one of the first night/adverse weather mobile anti-armor platform deployed

to the theater–15 AH-64s deployed with the Ready Brigade of the 82d Airborne. In all, 15 battalions were deployed, from CONUS and Europe, for a total of 274 AH-64s, or some 72% of the total battalions. The stand-off range of AH-64 with the Hellfire missile outdistanced most Iraqi threats. Hellfire missiles proved very effective; preliminary reports indicate that 2,876 Hellfires were fired. On 2 March, an AH-64 battalion of the 24th Mechanized Division attacked a Republican Guard armored column west of Basrah, rotating its companies through the engagement area in concert with ground forces. The AH-64s destroyed 84 tanks and armored vehicles, four air defense systems, eight artillery pieces and 38 wheeled vehicles.

Only one AH-64 was lost to enemy fire, and there were no AH-64 crew fatalities. Apache operational readiness rates appear to have exceeded Army standards throughout Operations Desert Shield and Desert Storm. The AH-64s had a 30 day inventory of spare parts in Saudi Arabia, and an additional 30 days inventory in Army component command stocks.

Some corrective measures proved necessary to acclimate the AH-64 to the harsh desert environment. Blowing sand eroded rotor blades, requiring protective taping of blades. Portable shelters were often used for ground maintenance, and protective covers were used for Hellfire's vulnerable seeker head.

Operation Desert Storm indicated that the AH-64s would benefit from an on-board Global Positioning System (GPS) receiver. GPS may help reduce the danger of firing on friendly vehicles.

Tactical Missile Defense (TMD)

A total of 29 Patriot batteries were employed in support of Operation Desert Storm: 21 in Saudi Arabia, and six in Israel (four US, two Israel Defense Force batteries), and two in Turkey.

Patriot's anti-Tactical Ballistic missile (TBM) capability provides a self-defense and limited area protection capability. Intercept success is defined as preventing damage to the asset/protected area by killing the warhead and/or diverting the warhead off its intended trajectory. Preliminary indications are that Patriot successfully intercepted the majority of Scud missiles that were within its engagement envelope.

The political significance of the Patriot in assisting with the defense of Israel, Saudi Arabia, and other civil targets and in frustrating Saddam's most politically visible weapon was enormous. This is discussed further in the responses to Questions 2 and 4.

In the case of the Scud attack on the Army barracks in Dhahran, it appears that the Patriot battery did not effectively detect the incoming missile due to software problems. The Patriot computer had apparently miscalculated target location. Software modifications were subsequently applied in theater to correct the problem.

The Army modified the Patriot–which was originally designed to destroy aircraft–into a successful anti-tactical ballistic missile system. While this initiative appears to have been relatively successful, there is room for further improvement. Data gathered from the operation should permit a more detailed evaluation of Patriot's ability to destroy Scud warheads and its potential capability against more sophisticated targets.

Chemical and Biological Defense

The threat of chemical or biological attack forced allied units to train and operate frequently in a Mission-Oriented Protective Posture (MOPP). Even though no such attacks occurred, Desert Storm experience will be useful in assessing the suitability of protective gear and other defensive measures for use in a desert environment.

As the crisis progressed, intelligence assessments focused on the potential that, among many agents, Iraq had weaponized both anthrax and botulinum toxin. Either agent could have created enormous numbers of fatalities and could have overtaxed the medical treatment system. A protective mask can filter out all BW agents. However, at the outset, there were no fielded systems to detect covert attacks, so there were no mechanisms to provide a warning until after medical symptoms appeared–too late to be of best value. Vaccines were not available in significant quantities until early 1991. In August 1990, the Department did not have a policy regarding vaccination against BW agents.

With the Army serving as DOD Executive Agent and with an executive level coordinating committee working within the Office of the Secretary of Defense, the Department embarked upon a crash program to field a comprehensive BW defense system before the ground

war began. The United Kingdom carefully coordinated its BW defense efforts with the United States; past collaborations under the auspices of NATO proved especially valuable.

The Department of Defense promulgated a vaccination policy while it identified new vaccine manufacturers. Vaccinations were begun on US personnel who also were provided with antibiotics to self-administer when directed after suspected exposure. The Army and the Navy established laboratories in the theater with special upgrades to identify and confirm rapidly any BW use. To make use of all of this data, the command and control system prepared to pass time-sensitive information and warnings back to National Command Authority and down to the lowest troop echelons.

All units deployed to SWA with standard chemical defense equipment needed to survive chemical attacks and continue to fight and win on a contaminated battlefield. A typical company-sized unit deployed with equipment to avoid contaminated areas such as the M8A1 Automatic Chemical Alarms and the M256 Chemical Detector Kits, as well as individual protective equipment. Units also had decontamination equipment. As a rule each unit had an M11/M13 Decon Apparatus for each combat vehicle and a number of M258A1 Individual Decon Kits. Specialized chemical units were deployed with power-driven decontamination equipment and chemical reconnaissance vehicles. German-donated Fuchs NBC reconnaissance vehicles were also employed. CONUS replacement centers outfitted individual soldier replacements with chemical protective equipment prior to deployment.

All items of chemical defense equipment were used extensively both in training exercises during the buildup phase and during the offensive portion of the campaign. Initial reports suggest that this equipment performed as it was designed, despite the harsh desert environment. Large quantities of expendable supplies were consumed in training as units honed their chemical defense skills in preparation for expected Iraqi chemical attacks. Many units donned chemical protective ensembles at the start of Operation Desert Storm and continued to wear portions of them throughout the ground offensive phase. Extensive training acclimatized soldiers so that the additional heat of this equipment during Operation Desert Storm would not unduly slow the pace of offensive operations. However, similar activities during summer months would have been much more difficult, a subject for further study.

Of particular interest was the performance of the Fuchs NBC Recon System. Chemical reconnaissance units, operating these systems with just three weeks of training, were able to conduct missions rapidly over wide expanses of terrain, providing real-time information on suspected chemical attacks. Maintained by contractor personnel, Fuchs NBC Recon Systems appear to have sustained very high operational readiness rates.

The harsh desert environment made it necessary to change filters frequently on air intakes of chemical alarms and monitors as well as on collective protection systems of combat vehicles, vans and shelters. High temperatures during the early phases of Operation Desert Shield shortened battery life considerably. A training battery pack using inexpensive flashlight batteries was fielded on short notice to conserve Chemical Agent Monitor batteries for offensive operations. Consumption of chemical protective clothing exceeded expectations causing a drawdown of worldwide theater war reserves stocks. In theater distribution of bulky, high demand items (such as chemical protective clothing) required intensive supply management to satisfy requirements. Also, the industrial base for consumable chemical defense items was hard pressed to keep pace with the drawdown of war reserve stocks. As a result of experience in SWA, stockage levels and resupply procedures are being reconsidered for high demand items of chemical defense equipment.

Naval Warfare

Naval forces were employed in a variety of political and military roles in Operations Desert Shield and Desert Storm. The rapid deployment of the carrier battlegroups into the theater helped to deter further Iraqi aggression, allowing Coalition forces the necessary build-up time. Forward deployed naval forces provided protection for the early introduction of land-based ground and air assets. Maritime superiority enabled the Navy's Military Sealift Command to effect the safe and timely delivery of the equipment, supplies and spare parts necessary to support the allied campaign and kept the sea lanes open for commercial traffic.

Interdiction of Iraqi sea trade, an ongoing operation, cut enemy resupply and degraded Iraq's economic health and military capabilities. Naval aviation

fixed-wing and helicopter aircraft assisted the Maritime Interdiction Force (MIF) effort to embargo goods bound for Iraq by sea. Key to the achievement of total sea control during Operation Desert Shield, Navy and Marine Corps aircraft provided constant, complete radar coverage and reconnaissance of the Persian Gulf, Red Sea, and Eastern Mediterranean, conducted special operations and were instrumental in counter-mine warfare.

Once hostilities began, naval task forces conducted offensive as well as defensive operations. Navy and Marine Corps aviation flew combat missions into Iraq and Kuwait, Tomahawk missiles struck heavily defended strategic targets while naval gunfire supported attacks against shore targets. At sea, battle groups quickly engaged and neutralized Iraqi naval forces. Amphibious forces, poised for an assault, forced the Iraqis to commit additional divisions to the defense of the Kuwaiti coast. Mine countermeasures operations were conducted throughout Operations Desert Shield and Desert Storm and are still ongoing.

Overall, naval operations were successful throughout the campaign. A discussion of some preliminary findings concerning TLAM and UAV systems follows.

Cruise Missile Operations

TLAMs were deployed in the Persian Gulf and the Red Sea to provide day and night, all weather strike capabilities against targets in high threat areas. TLAM targets included command and control headquarters, power generation facilities and strategic infrastructure. TLAMs were deployed aboard four types of naval vessels: battleships, cruisers, destroyers and submarines. Two types of missiles were available: TLAM-C (unitary warhead) and TLAM-D (submunitions payload). Some 477 TLAMs were deployed in theater.

From the outset, TLAM was integrated into theater strike packages and was employed from the opening minutes of the war. Desert Storm provided the first combat test of TLAM. Initial indications are that it was highly successful. A total of 288 Tomahawks reportedly were fired, 276 by surface ships and 12 by submarines. Of these firings, 282 are assessed to have successfully transitioned to a cruise profile for a 98% launch success rate. Missile firings originated from the Persian Gulf, and the Red Sea. Approximately 80% of the attacks took place in daylight, the remaining 20% at night.

TLAM was effective against fixed and semi-fixed targets, degrading Iraqi infrastructure and command and control of its armed forces. At the same time, TLAM freed Coalition aircraft for other missions which could be better executed by manned aircraft. TLAM's abilities to strike multiple objectives when weather conditions restricted other precision munitions and to strike Baghdad in daylight without endangering pilots or requiring large support efforts complemented the capabilities of other strike platforms in Operation Desert Storm.

The collection of detailed mission planning, targeting, firing and damage assessment data is in progress. Based on a preliminary assessment, strategic targets struck by Tomahawk suffered at least moderate damage. The level of damage contributed by individual missiles is difficult to discern in instances where multiple missiles were used against the same aimpoint.

Additional areas of analysis will include the assignment and process of targeting, the adaptability of Tomahawk to changing targeting requirements, the performance of individual launch platforms and associated fire control systems and the reliability of different Tomahawk variants.

UAVs

UAVs were employed in a variety of missions including direct and indirect gunfire support, day and night surveillance, target acquisition, route and area reconnaissance and BDA. Services were equipped with the same system (Pioneer); a total of six units (3 Marine, 2 Navy, and 1 Army) were deployed to the theater. Each unit consisted of about five vehicles and approximately 40 personnel.

Pioneer proved to be valuable and appears to have validated the operational employment of UAVs in combat based on preliminary data.

Amphibious Operations

Although there were no amphibious assaults in Operation Desert Storm, two Marine Expeditionary Brigades (the 4th and 5th) and a Marine Expeditionary Unit (13th MEU) were mobilized and deployed aboard amphibious ships. The adequacy of MEB support ships needs examination. The threat of an amphibious assault was an important deception effort which diverted and fixed many Iraqi divisions and materially aided the

ground assault phase of operations. The placement of the amphibious group in the Persian Gulf provided the Commander-in-Chief, Central Command with a flexible power projection force.

Mine Warfare

Operations Desert Shield and Desert Storm highlighted the dangers that sea mines pose to naval forces. Mines will continue to pose a difficult problem. Refocusing our national defense strategy away from the European theater and toward regional contingencies has exposed a gap in US mine warfare capability that our European allies were previously expected to fill. Much useful operational data can be gleaned from Operation Desert Storm experience, as a number of untested systems were deployed in the Gulf, including the first Avenger-class ship as well as a host of influence and mechanical sweep systems. GPS also promises to be of great utility in mine countermeasures.

The Navy found a minefield laid in rows, each roughly one mile apart, in the major shipping lane into Kuwait. Allied forces are, at present, continuing mine clearance operations in the area.

Iraq also possessed the capability to employ shallow water mines to counter an over-the-beach amphibious operation.

Space-Based Systems

During Operation Desert Storm, Coalition forces made heavy use of space-based systems. The Defense Satellite Communications System provided 75% of all intra- and inter-theater satellite communications. Weather data was provided by the Defense Meteorological Satellite Program and civil weather satellites–the principal means of acquiring weather data over Iraq.

Multi-spectral imagery data obtained from the US LANDSAT satellite imagery system was used in attack planning, monitoring Iraqi actions, and cueing intelligence sources during the war.

The NAVSTAR GPS played a vital role in the success of the overall operation. The SLAM missile used GPS for mid-course guidance, allowing pilots greater stand-off distance. Other aircraft used GPS to improve navigation accuracy, to enhance emitter source location and to precisely locate downed aircrews. GPS was also essential to land operations in the featureless desert. Field commanders have stated that the VII Corps sweep across the western desert was not expected by the Iraqis because of the lack of terrain features and could not have been accomplished without GPS.

QUESTION 6A:

Any equipment or capabilities that were in research and development and, if available, could have been used in the theater of operations.

There are equipment and a number of capabilities in research and development or other phases of development short of full scale production that, if available, would have been used. This interim response focuses only on a few that could be adapted for some immediate use.

At CENTCOM request, the Office of the Secretary of Defense (OSD) created a high leverage technology office within its crisis management structure. This office coordinated a technology review of all Service, National laboratory, and private sector research proposals. Over 80% of the proposals met the criteria established by CENTCOM. The experience elicited a recommendation to change the threshold for reprogramming funds under crisis conditions to gain flexibility in research priorities during crises.

Additionally, a Defense Science Board (DSB) task force was established to provide another source of recommendations for high leverage systems. Among the DSB initiatives was the ALQ-162 system. The ALQ-162s are advanced self protection jammers.

The following lists some equipment in research and development that was used or could have been used in the theater of operations:

— Joint Surveillance Target Attack Radar System (JSTARS), Standoff Land Attack Missile (SLAM), Advanced Medium Range Air-to-Air Missile (AMRAAM), Advanced Air-to-Air Missile (AAAM), Advanced Interdiction Weapons Systems (AIWS), Advanced Bomb Family (ABF), Sensor Fuzed Weapons (SFW), AGM-130, GBU-28, Wide Area Mine (WAM), fuzes, laser protection appliques for thermal sights, Fire Fly Infrared Beacons, SHORTSTOP JAMMER.

Preliminary information available on the performance of JSTARS is provided below.

Although still a prototype, the JSTARS aircraft proved effective in detecting and rapidly targeting tactical air assets against enemy ground units. Of particular importance, JSTARS offers both wide area coverage and more focused imagery of moving or fixed items of interest. It is reported that during Operation Desert Storm, two JSTARS aircraft flew 49 combat support sorties totaling 535 hours.

JSTARS was an integral part of the system used to locate and track the movements of Scud launchers and to direct aircraft into position to search for and attack Scuds. JSTARS also detected and tracked movements of enemy ground vehicles. The system detected movements of enemy ground forces and facilitated destruction of those forces. For example, JSTARS played a vital role in detecting and attacking two-to-three divisions which were preparing to support the Iraqi battalion engaged at Khafji. The system also successfully spotted columns of vehicles fleeing North to Iraq and provided intelligence and targeting information.

Throughout Operation Desert Storm JSTARS performed well. While it is not scheduled to be operational until 1997, experience in Operation Desert Storm indicates a developmental system can be fielded on short notice.

QUESTION 6B:

Any equipment or capabilities that were available and could have been used but were not introduced into the theater of operations.

The B-1B was available for employment but was not used in Operation Desert Storm. The B-1B was not used for the following reasons. First, there were adequate numbers of tactical aircraft in the theater (including the conventionally equipped B-52s) to execute the Air Campaign Plan. The B-1B and B-52H are an integral part of the current Single Integrated Operations Plan (SIOP) and could not be withdrawn for extended periods without degrading the SIOP as it is presently structured. Second, the B-1B had not completed its conventional weapons tests, and was only certified to carry the 500 pound MK82 bomb and the MK36 mine. Third, logistics and weapons loading equipment were not available in sufficient quantities to support a sustained deployment. The grounding of the fleet and lack of ALQ-161 Core defensive avionics are sometimes cited as the reasons for B-1B nondeployment but these considerations had little or no bearing on the decision.

A prototype Relocatable Over-the-Horizon Radar (ROTHR) was available for deployment but was not used in Operation Desert Storm. ROTHR is a new, land-based radar which provides wide-area surveillance of aircraft in support of tactical forces. ROTHR complements Airborne Early Warning (AEW) aircraft and can reduce operation hours and maintenance costs. ROTHR could have tracked the repositioning of tactical aircraft deep in Iraq and Iran, and provided early warning of Scud launches. Follow-on operational testing of the prototype system at Amchitka Island, Alaska was not completed until December 1990. Relocation would have taken about 90 days, cost $25-30 million, and required agreement with a host nation.

Systems Which Are Candidates For Further Examination

Air Warfare

AIRCRAFT: A-6E, A-7E, A-10, OV-10, B-52G, F-14, F-15C, F-15E, F-16A/C, F/A-18, F-111, F-117A, AV-8B, AH-64, KC-10, KC-130, KC-135, KA-6D, S-3, EA-6B, P-3C, EP-3A, E-2C, E-3 , E-8 (JSTARS).

MUNITIONS: General Purpose Bombs, Precision Guided Weapons, Laser Guided Bombs, TLAM, SLAM, Cluster Bomb Units, I-2000, AIM-7 Air-to-Air Missile, AIM-9 Air-to-Air Missile, GATOR, HYDRA 70 Rockets, Maverick, Hellfire, TOW missiles, 30/25/20mm guns, Fuel Air Explosives, HARM, Shrike, Sidearm, Decoys, torpedoes.

Land Warfare

PLATFORMS: Tanks (M1A1, M-60), Amphibious Assault Vehicles, IFV, Light Armored Vehicle, Missile systems, Night Vision Devices, Ground Detection Radars , Man Portable antiarmor systems, HMMWV, CH-46, CH-47D, CH-53, UH-1N, UH-60A, AH-1S, AH-1W, AH-64, OH-58C/D, ATACMS, M109A2/A3 155mm Self Propelled Howitzer, M198 155mm Towed Howitzer, M110 8-inch Howitzer, 105mm Howitzer, Multiple Launch Rocket System (MLRS), Army Tactical Missile System (ATACMS), TPQ-36/37, TACFIRE, Battery Computer System, Mine Clearing Systems, Bridging Equipment, Reconnaissance Vehicles, Protective Clothing, Land Transportation Vehicles.

MUNITIONS: 25mm ammunition, 105/120mm tank ammunition, antitank missiles, Dragon, AT-4, Light Antitank Weapon, Grenade Launchers, MLRS missiles, 8-inch high explosive, 8-inch Rocket Assisted Projectile, 8-inch Dual Purpose Improved Conventional Munitions, 155mm high explosive, 155mm Copperhead, 105mm high explosive, MICLIC, Line Charges, Stinger, Vulcan, Hawk, and Patriot.

Naval Warfare

PLATFORMS: LHA, LPH, LSD-36, LSD-41, LST, LKA, AAV, LCAC, LCM, BB, CG, CGN, DD, DDG, FF, FFG, AGEIS SYSTEM, MH-53, MCM-1, MSO, LAMPS, Sea Mine Neutralization Equipment, CIWS.

MUNITIONS: TLAM, RAP, Naval 5-inch and 16-inch Guns, Naval 76mm Gun.

Spaced-Based Systems

DSCS, DMSP, MSI, NAVSTAR GPS.

EMERGING OBSERVATIONS

Some Accomplishments

- — Preliminary indications are that a number of systems performed well including notably Stealth (F-117), TLAM, M1A1, APACHE, JSTARS, PGMs, GPS, and UAVs.
- — Radical change in warfare brought on by Stealth, Precision Guided Weapons, and first use of Ballistic Missiles Defenses.
- — Patriot succeeded in the first tactical ballistic missile combat interceptions.
- — Significant improvement in capability to fight at night.

Some Shortcomings

- — Mine countermeasures in open ocean and shallow water need improvement.
- — Biological warfare defense requires attention.
- — Patriot required software modifications while in theater to improve its anti-tactical ballistic missile capability. Due to the nature of the system and some failures to kill the warhead, Patriot did not always prevent damage even if it intercepted a Scud.
- — Currently available chemical protective suits may not be optimal for wear in the desert during the summer months.

Some Selected Issues

- — Equipment/systems maintenance in desert environment.
- — Performance of Patriot vs Scud.
- — Tomahawk adaptability to changing targeting requirements.
- — UAV requirements for improved operability.

QUESTION 7:

The scope of logistics support, including support from other nations, with particular emphasis on medical support provided in the theater of operations.

QUESTION 7:

The scope of logistics support, including support from other nations, with particular emphasis on medical support provided in the theater of operations

Logistics Support

Logistics support of both Operations Desert Shield and Desert Storm was done professionally and successfully despite extremely adverse conditions. Logisticians from all Services supported over half a million US Service men and women with supplies, services, equipment maintenance, and theater transportation. A survey of logisticians' accomplishments shows, among other things, that they maintained 51 major weapons systems at or above maintenance standards; they moved over 1.3 billion ton miles of cargo from ports to combat units; they armed weapons systems with over $2.5 billion worth of munitions; and, at the peak of operations, they issued up to 19 million gallons of fuel per day.

Logisticians ensured that complicated support systems worked efficiently under very demanding climatic conditions in a remote theater whose well-developed coastal infrastructure quickly dissolves into a rudimentary road system inland. Operations Desert Shield and Desert Storm logisticians also succeeded despite the lack of detailed planning data that resulted from situations that were often uncertain. Finally, logistics challenges were magnified by the very complex structure of the force. Although logistics was a national responsibility throughout the crisis, there were occasions when assistance had to be rendered to other Coalition partners. Except for air and sealift, each Service is normally self-supporting. However, exceptions were made to this rule as a result of conditions unique to the theater (e.g., designated Services provided common logistic support for specified commodities across the theater). In some cases, common item support responsibilities exceeded the capabilities of the providing Service.

As in any complex operation, there were areas that could be improved. A number of them are discussed in this section. However, these shortcomings should in no way overshadow the effort of the thousands of men and women who worked to support the combat forces.

In the early stages of the crisis–at the time it was believed that Iraq might continue its attack into Saudi Arabia – the Commander-in-Chief, Central Command (CINCCENT) determined that his primary need was combat forces. This assessment resulted in slipping the priority for deployment of support units and thus the support units available to support early arriving combat units. As a result, CINCCENT requested the Department dispatch a team to negotiate a Host Nation Support agreement with the Saudis. The team arrived 17 October 1990. Although it eventually proved successful and the Saudis provided a large amount of logistics support, the initial negotiation process proved to be a difficult one. This was partly the result of local customs, but it also appears that there may have been systemic problems. In order to facilitate the CINC's ability to support his force and to develop a theater infrastructure, changes in laws and regulations governing host nation contract procedures may be in order.

Development of a theater infrastructure was also constrained. Funding for minor construction projects was limited by law to $200,000 per project. Because of these limitations, it was difficult to improve on the infrastructure necessary to receive and sustain a large force. Most of the required construction exceeded the contracting authority. Emergency construction authority under 10 USC 2808 was obtained by Executive Order on 14 November. We will continue to explore this issue to determine what changes might be made to expedite the approval of the emergency construction authority under 10 USC 2808, to include consideration of legislative changes.

Deploying forces were dependent on extensive lateral support and depot resupply prior to deployment to overcome normal peacetime deficits. Post deployment support was significantly enhanced by the surge of organic depot production, the efforts of the Defense Logistics Agency, the availability of lateral support from the European Command, and the availability of airlift to bring high priority items into the theater quickly.

Support for the forces deployed to the theater depended in several areas on the ability of the industrial base to respond to new and increased demands. There were many categories where these expectations were satisfied. However, not all requirements were met in the quantities and time period desired. As an example, the Army's field feeding plan relied on ample supplies of

T-rations, a ration that serves 8-10 people that requires only heating prior to serving. Although T-rations are the desired ration for training exercises, they are not currently in War Reserves stocks. Industry was unable to gear up production quickly enough to meet the Army's increased requirements. Our war reserve stocks of Meals Ready to Eat (MRE) were sufficient to fill the gap until industry could respond with commercial substitutes, which were used to complement T-ration meals.

Similarly, through increased production the theater requirement for 120mm tank ammunition was met in terms of quantity, but not in terms of providing the desired mix of rounds. Specifically, the industrial base was unable to meet the theater requirement for the newest and most preferred tank killing round. Also, while industry came on line quickly in response to increased demand for desert camouflage clothing and boots, this response was not instantaneous because the cloth had to be produced before the uniforms could be made. Thus, a significant portion of the force deployed with woodland pattern uniforms. Desert boot production was not instantaneous because there was no immediate requirement for them until September 1990.

Literally thousands of items were accelerated to meet the increased requirements of US Central Command (CENTCOM). From weapons systems to individual items of supply, a tremendous demand was placed on the nation's industrial base. Items such as chemical protective clothing were surged from 33,000 per month to 70,000 per month, desert combat boots went from zero to 124,000 per month, and desert camouflage uniforms went from zero to 376,000 per month over a six month period. In some cases, the increase in the production rate was the direct result of an individual contractor's performance, in other cases, additional contracts were required. Preliminary investigation indicates that despite some shortcomings, the industrial base was reasonably responsive to the needs of the force. These and similar instances reinforce the continuing requirement to balance our war reserve programs and depot production capabilities with a realistic assessment of industrial base capability.

In increasingly greater degrees, the Marine Corps, Air Force, and Army each deployed greater percentages of several key types of their combat service support than combat forces to Southwest Asia. (Ground transportation is an example in point. Each service deployed a greater percentage of truck transportation units than combat units, yet still had transportation requirements that had to be met with host nation support because the area where our forces operated had few roads and no railroads.) A great number of support units which facilitated execution of the logistics mission came from the Reserves. Although this was anticipated in our force structure planning, we need to monitor the support-to-supported unit ratios as the total force draws down.

Support from the European Command (EUCOM), availability of contractor support, and host nation support reduced the requirement for in-theater logistics support. It is also fortunate that the conflict was brief and the damage to Coalition forces light, thus moderating demands on the entire system. Finally, in this instance, units not deployed to the theater reduced their demands upon the logistics system without any immediate adverse affects. In short, logistic support was a success during Operations Desert Shield and Desert Storm, but the system was taxed. It should not, however, be assumed that future crises–without forward basing, host nation, contractor support or with a second crisis occurring concurrently–can be provided the same high quality support.

Trucks–both heavy equipment transporters (HETs) and vehicles with good off-road mobility capability–were a concern during operations. The most efficient way to move armored vehicles over long distances in noncombat conditions is to move them on trucks or by rail. This reduces the number of mechanical breakdowns and ensures that the crews arrive rested and prepared to conduct tactical operations. Over 1,200 HETs were required to support US forces during Operation Desert Storm. The Department had only about 500 HETs available. This deficiency was satisfied by obtaining 182 HETs (134 leased and 48 purchased) from US trucking companies and acquiring 715 HETs from other nations as follows: 330 from Saudi Arabia (leased), 189 from Germany (donated), 100 from Egypt (loaned), 60 from Italy (donated) and 40 from Czechoslovakia (bought). As described in the response to the query concerning the conduct of military operations, HETs were crucial to the movement of forces from Saudi ports to desert tactical assembly areas; many of which were over 300 miles away. Without these assets, it would have been very difficult to move forces over the vast distances involved in a timely manner. (There are few railroads in the theater, and none that could be used to move equipment or supplies to forward forces.)

Good off road mobility is required to move large forces and to keep them supplied over great distances with the limited road networks common to many Third World countries. Throughout Operation Desert Shield there was a long haul requirement to move supplies from ports to theater storage areas and from theater storage areas to consuming units. Division-sized units consume hundreds of tons of supplies each day, even when they are engaged in static defense operations. These supplies must be replenished, and the requirement to move replenishment stocks increases when active training, rehearsals, and actual combat operations commence. When VII Corps and XVIII Airborne Corps began shifting to the west prior to their "end run" sweep, the transportation system was taxed to the limits. Many vehicles made numerous round trips in order to haul equipment and supplies to new locations. Often the one-way distances approached 200 miles over dirt and gravel roads. The newly introduced Heavy Expanded Mobility Tactical Truck (HEMTT) and the Marine Logistics Vehicle System (LVS), performed well in this mission, but there were not enough of them. Other trucks, especially those originally designed for line haul, improved surface use and without a true off-road capability, such as HETs and petroleum tankers, did not fare as well. Once the ground offensive began, many types of trucks struggled to keep up with the maneuver forces. Not all of the data necessary to draw conclusions has been received and more analysis is necessary before arriving at recommendations with respect to determining the numbers of trucks required and the degree of off-road mobility needed in the future.

At the outset of the operation there was a brief period when an adequate structure for Army command and control of logistics units was not available in the theater. Army logistics command and control units for echelons above corps formations are largely in the Reserve Components and activation and deployment were delayed while other units with higher priorities were introduced into the theater. CENTCOM elected to establish an ad hoc logistics headquarters to oversee this portion of the force. This was a satisfactory solution during the first phases of the deployment, and when the size of the force increased in November, CENTCOM did not request mobilization of a theater level logistics command and control element because to have done so would have disrupted an already functioning system. A more detailed discussion of reserve activation and mobilization procedures is contained in the interim response to Question 11.

Although our ability to make our systems and doctrine work effectively is the primary reason for our logistic success, there were several significant factors that also contributed. The Saudi coastal and military city infrastructure ranks among the finest in the world–better than most European and Asian facilities; well ahead of all other Gulf, Middle East, or African countries. This greatly simplified importation of supplies and materiel. Commander-in-Chief, United States European Command made his assets available to forces engaged in Operations Desert Shield and Desert Storm without reservation. Access to units and stores of this forward base did much to ensure continuous and timely support in all areas and greatly reduced transport times. Availability of airfields allowed an air line of communication to be established which further enhanced operational readiness of equipment. Also, it is worth noting that a great deal of time was available to accomplish logistic objectives without the exacerbating pressures of combat, and there were no other major crises competing for resources.

Support From Other Nations

Another factor that multiplied the effectiveness of the logistics effort was the support provided by other nations. In fact this support was absolutely critical to the rapid deployment of forces to the theater and it allowed us the flexibility of deploying substantial amounts of combat power early in the sequence when risks were greatest. Had support in the form of host nation or assistance in-kind not been provided by our Coalition partners and other responsible allies and friends, some combat units would have had to have been displaced by support units at a time when that did not seem prudent. This sort of support was critical to our efforts throughout the operation. Food supplements, fuel and services provided by the Gulf Cooperation Council (GCC) states were invaluable. Assistance in-kind provided by other nations was similarly important. An example is the 60 Fuchs NBC reconnaissance vehicles, provided by Germany, which filled a shortfall of critical equipment that might have been crucial had things gone differently. Another example of support from other nations as well as an indication of NATO interoperability was the provision of 120mm tank gun ammunition to US forces by Germany.

Medical Support

Operations Desert Shield and Desert Storm were supported by medical organizations in CENTCOM, EUCOM, Pacific Command (PACOM) and the Continental United States (CONUS). The medical system was tailored throughout to meet the command's needs based on the number of troops in theater and the estimates of casualties expected for various types of combat operations. As the mission of the deployed force evolved from deterrence to offensive operations, the medical support requirements expanded. Deployment of medical units began on 8 August, and units from all Services were involved. In addition, beds were provided by EUCOM and through host nation support agreements with Saudi Arabia and Bahrain. The Commander-in-Chief, Forces Command (CINCFOR) was directed to develop a concept of operations for execution of The Integrated CONUS Medical Mobilization Plan to ensure that the Services were prepared to care for casualties evacuated from the theater to the United States. Had it been necessary, the Department of Veterans Affairs and Department of Defense Emergency Operations Act could have been implemented, and we were prepared to execute the National Disaster Medical System to augment the Department of Defense and VA capacity. Although the operational situation required us to use only a small portion of our assets, an examination of how we organized to meet the medical needs of our forces is nevertheless worthwhile.

During the early phases of Operation Desert Shield the CENTCOM surgeon validated a requirement for 7,350 hospital beds in theater with an additional 5,500 beds in EUCOM, a requirement that remained constant until planning for offensive operations began. When the decision was made to augment the forces in theater to provide an offensive capability, medical requirements were adjusted accordingly. In-theater bed requirements increased, based on doctrinal rules, to 18,100 of which 4,100 were to be provided by the host nation and staffed by US military personnel. When the air war began 7,680 fully staffed beds were in the CENTCOM area of responsibility. At the commencement of the ground war all required assets were in-place, however, not all were set up in order to retain an appropriate degree of flexibility. The deployment of the medical infrastructure to CENTCOM occurred according to the following schedule:

Table 7-1

BED CAPACITY OF THE MEDICAL EQUIPMENT SETS DELIVERED BY MONTH

	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 15	Feb 15
Air Force	100	325	500	750	750	750	750
Navy	0	1350	1500	2500	2500	2500	3500
Army	0	90	292	2060	2060	4080	13580
Host Nation	250	250	350	350	350	350	500
Total	**350**	**2015**	**2642**	**5660**	**5660**	**7680**	**18330**

Note: 4,100 of these beds were host nation support beds staffed by Army personnel, and 3,150 beds were uploaded on trucks to deploy to casualty concentrations as required.

EUCOM's requirement was provided by both the Air Force and the Army. Of the 5,500 beds, 1,724 could be staffed by the US Army, with the remaining medical personnel to come from the United States when directed by CINCCENT. The Navy provided two 1,000 bed hospital ships and a 500 bed fleet hospital initially, and an additional two 500 bed fleet hospitals prior to the start of Operation Desert Storm. Clear command relationships were established and medical support concepts of operations documents were drafted and promulgated.

While the Air Force and Navy originally managed their own medical resupply, by November, the Army Component Command (ARCENT) was designated as the single integrated medical logistics manager for the theater. Though having peacetime experience in this role in Europe, this was the first time the Army served in this role in a contingency. The US Army Medical Materiel Center Saudi Arabia was established and served as the primary source of medical resupply for all units to include the two hospital ships. Although

there were some supply distribution problems during the early phases of Desert Shield and a number of innovative work arounds were developed, by the start of the ground war the Army had deployed five Medical Supply Optical and Maintenance Units to the theater. The US Army Medical Materiel Center Europe served as the primary resupply source for the Medical Materiel Center in Saudia Arabia, while the Defense Logistics Agency provided resupply to both Europe and the Gulf.

Among the issues emerging from our analysis of the crisis is that communications requirements among the medical commands must be examined in more detail. Also, some improvement in the joint capabilities of the Theater Medical Management Information System appears warranted, and a new system is being developed to provide these improvements.

EMERGING OBSERVATIONS

Some Accomplishments

— Services' logistics forces successfully met all essential requirements without experiencing any shortfalls that turned into "war stoppers". In those cases where established procedures and systems proved inadequate, logisticians provided innovative and effective solutions.

— Logisticians provided continuous support despite the challenges of a distant theater located half a world away; an expansive operational area with limited roads; demanding environmental and operational conditions; a very complex structure characterized by Coalition, Joint Service, Active and Reserve and National Guard composition.

— Wartime host nation support was essential for rapid force sustainment and was a force multiplier until and after combat service support units arrived. However, very few support agreements had been negotiated with governments in the region prior to 2 August 1990. A concentrated effort resulted in completion of the necessary agreements.

— Assistance in-kind made up for critical shortfalls of equipment, especially Heavy Equipment Transporters. There were also other items that were provided to United States forces during deployment and Operations Desert Shield and Desert Storm that were essential to success.

— Joint command and control and communications and joint employment of medical resources has advanced significantly over the past decade.

Some Shortcomings

— Quick delivery requirements, particularly for newly developed items, sometimes exceeded industrial base capabilities.

— Communications requirements among the medical commands must be examined in more detail.

— Some improvement in the joint capabilities of the Theater Army Medical Management Information System appears warranted.

— Financial ceilings on minor construction and local procurements constrained the CINC's ability to house and support the deploying force.

Selected Issues

— To increasingly greater degrees, the Marine Corps, Air Force, and Army each deployed greater percentages of several key types of their combat service support than combat forces to SWA. In some cases even those logistics forces were unable to meet all of CENTCOM's requirements, and CENTCOM had to rely on host nation to provide additional support. There were not sufficient heavy and petroleum transport, water supply units, and grave registration units even though virtually all in the Total Force were deployed to the theater. Consequently, there may not be enough remaining logistics units in the Total Force to support an additional major regional crisis concurrently. As force reductions are undertaken, the ratio of combat support and service support units to combat units in regional contingencies must be closely assessed. We will need to study and monitor this issue.

— War Reserve Policies must be based on and balanced with an accurate assessment of US industrial base capabilities, as well as the capabilities of various depots organic to the Services.

— Earlier efforts to support troops would have been enhanced if extensive host nation programs had been in place prior to the conflict. Host nation support will become more critical as forward deployed forces decrease worldwide.

— The authorities, administrative procedures, and staff support for a deployed CINC engaged in a rapidly developing regional crisis may require review.

— The Army field feeding plan requires revision to overcome shortfalls in equipment, personnel, and the apparent inability of the industrial base to respond to dramatically increased requirements on short notice.

— There are preliminary indications that certain preferred munitions could not be provided as requested because the industrial base could not respond quickly enough with the notice given. Some of these shortfalls were satisfied by obtaining ammunition from Germany.

— Off road mobility must be a major consideration in future truck acquisition decisions.

— Work arounds were developed to satisfy some requirements. Echelons above Corps (EAC) command and control structure for CSS units exist only in the RC, and these had not been mobilized early enough. Thus, there was a requirement to establish an ad hoc structure. Adequate EAC command and control assets are imperative as the theater matures.

— Active Army units deploying first to the theater were equipped with Medical Unit Surgical Transportable (MUST) configured sets. These had previously been programmed for conversion to Deployable Medical System (DEPMEDS). Due to difficulties experienced with MUST-equipped units, all were converted to DEPMEDS in the theater.

— Certain short lived drug stocks (i.e. some drugs, including chemical and biological warfare vaccines) were available only in extremely limited quantities or only in test quantities. For short lived drugs in general, a rolling inventory system may be necessary to insure their availability, and legislative remedies may be necessary to improve the responsiveness of industry and regulatory agencies to surge requirements.

— Mobile Army Surgical Hospitals (MASHs) and Combat Support Hospitals (CSHs) were uploaded and prepared to deploy to casualty concentrations. The employment of these assets in a rapidly evolving battlefield may require analysis to determine optimal methods to provide support in such an environment.

— The theater offered unique tactical challenges which required innovative solutions. While some of the tactical evacuation legs were too long for Army MEDEVAC helicopters, Air Force C-130s were used to satisfy this requirement. In addition, Army MEDEVAC helicopters were used to transport patients to and from the hospital ships. These operational considerations may affect overall requirements for the Services.

QUESTION 8:

The acquisition policy actions taken to support the forces in the theater of operations.

QUESTION 8:

The acquisition policy actions taken to support the forces in the theater of operations.

The Services adapted their regular acquisition policy actions during the course of Operations Desert Shield and Desert Storm to meet the needs of Coalition forces. The following areas were of special importance: Service rapid acquisition programs; procurement simplification actions; Saudi and other international support for US forces; use of commercially available items; use of military construction (MILCON) authority under Section 2808; and priority production and logistics under Section 468 of the Selective Service Act.

Service Rapid Acquisition

Each Service used rapid acquisition methods to address the time-sensitive needs of US Central Command (CENTCOM). For example, the Army speeded its procurement of "modified" Patriot air defense missiles with an enhanced Scud defense capability. This effort saved lives and had a major strategic impact on the conduct of the war. The Air Force rapid response process from initial request to funding was usually completed in two weeks, rather than the normal 12 months required in peacetime. Delivery times were also shortened. For example, a need was identified for an air-to-ground conventional weapon that could successfully destroy certain deep underground hardened targets. Some targets were repeatedly struck with 2,000 pound hardened penetrating bombs, but were apparently not neutralized because the targets were buried too deeply. In response, the Air Force contracted to procure 50 newly developed GBU-28/B, 4,700 pound hardened penetrating bombs. Four of these bombs were rushed to the theater; two were employed before cessation of hostilities; others were in the pipeline. The time from identifying the need for a munition to bombs on target was less than six weeks. The Marine Corps expedited acquisition of the necessary types and quantities of countermine-counterobstacle equipment. Total time, including transportation into theater, was 60 days. To support the requirement of the operational air component commander, the Navy initiated a request for an additional 291 Tomahawk Land Attack Missiles (TLAMs) to replenish the number that planners initially expected to use. This request was approved; however, because of the TLAMs' successful employment in integrated strike warfare, fewer were needed and the accelerated procurement was not completed. Following instructions from the Director of the Joint Staff to develop solutions to minimize the problem of inadvertently firing on friendly forces, the Army, Air Force, and Marine Corps coordinated efforts using off-the-shelf technology. (For additional discussion see Question 17.)

The Joint Services Coordination Committee (JSCC) for Chemical Defense Equipment (CDE) effectively managed portions of the industrial base as well as orchestrating the exchange of chemical defense equipment among the Services and Foreign Military Sales. As an example, the Army exchanged protective masks and miscellaneous NBC equipment for 1,004 USMC Chemical Agent Alarms to support Army units in Southwest Asia. The JSCC was instrumental in ensuring that even non-DOD US civilians residing in the region were provided with adequate individual protective equipment. The US also called upon allies to assist when required. As an example, the Canadian government provided the US 500 Chemical Agent Monitors under an American, British, Canadian, Australian Armies Reciprocal Use of Materials Loan. Over $250 million of worldwide theater reserve assets of CDE were drawn upon to support both the deploying and deployed forces.

Procurement Simplification

The sudden and rapid buildup of forces and supplies in the theater gave little opportunity to revise plans and provide for advance logistics support. This imposed a heavy burden on contracting offices that had to establish operational field locations and acquire urgent services and supplies simultaneously. Items such as fuel, transportation, food, water, accommodations and facilities, and personal items were acquired on the local market. Until either arrangements could be made for host nation support (HNS), or requirements-type contracts could be established with local merchants, a large volume of individual, low-dollar purchase orders was generated. It became apparent that the stateside threshold of $25,000 permitting simplified ordering procedures was unrealistically low in the theater and thus statutory and regulatory relief was necessary. The Assistant Secretary of Defense (Production and Logistics) issued instructions authorizing limited simplified procedures up to $100,000 and obtained rapid support within the Administration and Congress for raising the statutory limit for all standard simplified procedures to the $100,000 threshold. This procedure, in conjunction with standard contracting procedures and

local government support, proved generally satisfactory. However, the lead time required to effect the statutory relief, while only a matter of weeks, negatively affected the operation.

Saudi and Other International Support

Shortly after United States forces were first stationed in the theater, the Saudi Arabian Government (SAG) offered to contribute toward US deployment costs. By early fall, the US had awarded hundreds of contracts for support to US forces in Saudi Arabia and surrounding waters in the five categories of support the SAG agreed to provide (fuel, transportation, food, water, and accommodations and facilities). The US executed a bilateral implementation plan with the SAG to pay to the US Treasury for the costs of support in the agreed categories or to provide that support "in-kind." Between 2 August 1990 and 30 April 1991, Saudi Arabia provided about $3.4 billion of in-kind assistance to offset US costs.

During the same period, other nations provided a total of approximately $1.7 billion of in-kind assistance to the US. Germany provided $782 million; Japan $637 million; the United Arab Emirates $197 million; Korea $53 million; Kuwait $24 million; Denmark $7 million; Luxembourg $5 million; Bahrain $1 million; and Oman/Qatar $1 million.

From the outset of Operation Desert Shield, construction support for beddown of forces and operations was constrained by lack of contract and troop construction capability. Capabilities were further constrained by lack of adequate authority to accomplish construction using O&M and military construction appropriations. Fortunately, the governments of Japan and Saudi Arabia were willing to provide contract construction support to US forces on an in-kind or host nation support basis.

The Commander-in-Chief, US Central Command (CINCCENT) established procedures implementing the organic engineer capability and support from other countries. Construction requirements were identified by the Service components and sent to CENTCOM headquarters, where they were screened for compliance with CINCCENT's austere construction policy, then prioritized. A cell composed of engineer representatives from each of the components and CENTCOM determined the best method of accomplishment, contract support (either Japanese or Saudi Arabian) or troops.

The Japanese executed contracts for design and construction or materials based on the requirement package provided. Construction was monitored by the Army Corps of Engineers to ensure that construction met our needs. The Japanese contracting support was very responsive. They would contract for anything specified and were willing to use US sources exclusively if requested.

Saudi Arabian construction support was negotiated as part of the Host Nation Support Agreement providing facilities, food, fuel, and other needs. Requirements, along with a pre-design package, were provided through the Corps of Engineers to the Ministry of Defense and Aviation, Joint Forces Support Unit. The Saudis executed those contracts and were monitored by the Corps of Engineers.

Of the 300 construction material requirements and projects worth approximately $1.5 billion received from the components in theater, almost 200, worth over $600 million, were validated by CENTCOM and executed. Only a minimal amount of those projects were funded from US appropriations (this does not include O&M-funded minor construction projects). If we had not had the construction and construction material support provided by the Saudis (over $350 million) and the Japanese (approximately $250 million), CINCCENT, his components, and the Corps of Engineers would have needed literally hundreds of additional staff members to administer contracting support and troop construction. Additionally, the Army in particular would have needed to deploy more troop units sooner to provide construction to support operations.

Commercially Available Items

Unique yet urgent requirements in the theater of operations provided a rare opportunity for the US industrial base to provide commercially available items for military use. The Department has increasingly placed greater emphasis on bringing commercial items into the inventory, thereby reducing the time and expense involved in developing new items, or in adapting commercial items for military use with a minimum of alteration. Procurement of literally thousands of items, from weapons systems to individual items of supply, was accelerated to meet the increased requirements of CENTCOM. For example, chemical protective clothing was surged from 33,000 to 150,000 outfits per month. Desert combat boot production went from zero to 160,000 pairs per

EMERGING OBSERVATIONS

Some Accomplishments

— The availability of Section 2808 authority allowed military commanders to program required facility construction.

— Service rapid acquisition processes responded well to CINCCENT requirements.

— Host Nation Support and in-kind assistance was critically important to US operations.

Some Shortcomings

— The authority in the Selective Service Act is not as broad nor as flexible as that in the Defense Production Act. Provisions and authority as provided by the Defense Production Act should be reauthorized by Congress. Although logistics support during Operation Desert Storm was maintained, a conflict of a longer duration would necessitate the original DPA provisions.

— The lead time required to effect the statutory relief authorizing limited simplified procedures up to $100,000, while only a matter of weeks, delayed the operation. Furthermore, the relief is limited to support of Operations Desert Shield and Desert Storm and to Fiscal Year 91. The Congress should consider permanent legislation authorizing the Secretary of Defense to implement similar relief in possible future contingency operations such as this.

Some Selected Issues

— Operations Desert Shield and Desert Storm acquisition and procurement experience indicates a requirement for additional study on the appropriate balance between war reserve programs and industrial base capability.

— The dependence of US forces on non-Selective Availability (SA) capable commercial Global Positioning Satellite (GPS) receivers required that the security-enhancing SA function of GPS be turned off.

month. Desert battle dress uniforms (BDUs) went from zero to 376,000 outfits per month.

The Navy's Safety and Survivability Non-Development Item Office was able to purchase numerous items and ship them to the fleet within 45 days, including a small, flashlight sized, infrared detector known as "Fire Finder"; the "Jaws of Life," a device normally used for extracting victims from vehicle wrecks; a jelled water impregnated blanket used both for protection from fire and to treat burns; a water driven air pump replacement to the electrically driven "red devil" blower used in shipboard fire fighting; an improved aluminum cutting torch; an improved air hammer; and high performance body armor that replaced the standard issue flak jacket.

Finally, a commercial item that received wide publicity was the small, light-weight global positioning system receiver (SLGR)–a hand-held device used by personnel to pinpoint their location. SLGR was extremely useful to enhance helicopter and tank mission accomplishment and to help avoid casualties by fire from friendly forces. Because US forces did not have sufficient numbers of military Global Positioning Satellite (GPS) receivers available, ten thousand commercial receivers were purchased. This provided US forces with the means to determine their position in the desert, but it also impacted the use of the Selected Availability (SA) feature of the GPS system, which denies highly accurate positioning data to non-authorized users. Since 90% of the GPS receivers used by US forces were non-SA capable commercial units, the SA feature was turned off, which would have allowed the Iraqis to exploit our receivers, if they had the capability. At this point it appears that they did not have the capability. (See Question 15 for further discussion.)

MILCON

Section 2808, 10 U.S.C. authorizes the Secretary of Defense to undertake military construction projects not otherwise authorized by law that support our armed forces involved in a declared war or national emergency. The authority enables the Department of Defense to construct required facilities without first obtaining Congressional approval. To activate this authority, the President must specifically cite Section 2808 in an Executive Order. Such an order was signed on 14 November 1990 and allowed the use of all unobligated military construction funds for construction in support of Operation Desert Shield. Two projects were completed at Dover Air Force Base which improved cargo handling capacity and expanded the mortuary service area.

Unfortunately, Section 2805 (c) (1), Title 10, limits use of Operations and Maintenance funds to $200,000 for unspecified minor construction. It would enhance commanders' flexibility if temporary facilities used only to support a contingency were not subject to the limitation, if they were not facilities on a military installation as defined in Section 2801 (c) (2). For example, facilities for US forces, such as tent camps with initial standard support and administrative facilities or helipads in the middle of the desert would not be subject to the same limitation as the facilities built to support the operation at Dover Air Force Base.

Section 468 of the Selective Service Act

Priority production and logistics authority under the Defense Production Act (DPA) expired on 20 October 1990 and was not renewed. Title I of the DPA authorized the President to require priority performance of defense contracts and orders needed for national security purposes. Section 468 of the Selective Service Act contains a comparable authority to Title I of the DPA, but this authority had not been delegated previously by the President to the appropriate Departmental Secretaries. With the cooperation of other agencies, DOD developed an Executive Order to delegate the authority in Section 468 of the Selective Service Act to the Secretaries of Defense, Energy, Commerce, and Agriculture. Executive Order 12742 maintains to a large extent the same rules, regulations and procedures that were established under the Defense Production Act as they pertain to production of goods and materials. In the area of services, the Defense Department essentially had no authority to enforce priorities, and relied on voluntary cooperation of the civil sector. As a result of these combined efforts, priority production and logistic support activities were not interrupted, and support to the theater during Operations Desert Shield and Desert Storm was maintained.

QUESTION 9:

Personnel management actions taken to support the forces in the theater of operations.

QUESTION 9:

Personnel management actions taken to support the forces in the theater of operations.

Our superb soldiers, sailors, airmen, marines and civilians were the most important factor in our victory in the Persian Gulf conflict. Long before 2 August 1990, our investment in personnel, in a strong personnel management system, and in the Total Force Policy created a qualitatively superior armed force.

There were a number of personnel management actions taken prior to and during the Persian Gulf conflict. Every category of manpower was affected: Active, Reserve, retired military, and civilian. The following are some of the most important personnel decisions and actions.

Several Executive Orders were signed by the President which enabled our military forces both to retain and to increase the military strength to support the conflict. Executive Order 12727, dated 22 August 1990, implemented for the first time the 10 USC 673b authority to order to active duty the Selected Reserve of the Armed Forces. This gave the Department the authority to activate up to 200,000 Selected Reservists for a period not to exceed 90 days, with authority to extend for another 90 days. This authority was further delegated to the Service Secretaries. Further flexibility for extended duty was provided when the Department proposed, and was given approval through the FY 1991 Department of Defense Appropriations Act to extend further the order to active duty of combat units only to 180 days, with authority to extend another 180 days.

Executive Order 12728, dated 22 August 1990 (10 USC 673c, Delegating the President's Authority to Suspend any Provision of Law Relating to the Promotion, Retirement, or Separation of Members of the Armed Forces) suspended the laws relating to promotion, separation, and retirement. The Stop-Loss program provided the Services with force stability, increased personnel strength, and provided a sufficient manpower pool of fully trained, immediately available personnel for manning units worldwide. When the decision was made to deploy an offensive force, authority was given to expand the Stop-Loss program. Stop-Loss actions served the Department of Defense well as it sought to maintain unit integrity and retain personnel with critical skills.

Additional call-up of Ready Reservists and suspension of strength limitations were authorized under Executive Order 12743 on 16 January 1991. This implemented the call-up of the Ready Reserve under 10 USC 673. The Executive Order also contained authority for the suspension of limitations including officer strength and officer distribution in grade, thereby enhancing the orderly administration of personnel and personnel management programs.

Executive Order 12744, dated 21 January 1991, officially designated the combat zone. Tax benefits associated with combat zone service initially were established, and later were extended to include members outside the combat zone on an exception basis.

The Department's policy on the deployment of military couples and single parents was tested fully for the first time since the inception of the all volunteer force. Military couples and single parents are required to develop plans to provide parent-like care for their family in the event they are called away in the performance of their duties. The Department's policy granted no exemptions from the Persian Gulf conflict based solely on marital or parental status. Members were deployed to the Persian Gulf with their units, or as individuals based on skills and qualifications. This policy, which was unfamiliar to most Americans, became a highly visible issue.

Morale was high during the conflict, in part because soldiers saw all equally qualified service members sharing the burden of service and time away from family. Military couples and single parents performed superbly; however, public debate continues over the role of military couples and single parents with young children. Arguments center on the effects of family separation on children when the single parent or both parents are deployed to fight a war. The Department will continue to look at this issue and will work to determine a uniform deployability criteria for military couples and single parents.

Special pay and allowances were available to deployed members who qualified under statutory conditions during the conflict. These included family separation allowance for all married members, Imminent Danger Pay, and Certain Places pay for enlisted members in the theater of operations. However, this operation brought to light a number of pay issues under law and policy. For example, considerable attention

was drawn to the recoupment of Basic Allowance for Subsistence (BAS) from deployed members who were provided meals-in-kind. Also, several legislative initiatives were required to correct inequities in the law governing the housing allowance entitlements for reservists. The Department is conducting separate studies to resolve all inequities which have not already been corrected.

Special leave accrual was provided Service members who were unable to reduce their leave balance to 60 days before the end of the FY 1990 because of assigned duties in support of the Persian Gulf conflict, thus permitting members to save leave they otherwise would have lost.

The Department granted authorization for bonus pay to Military Sealift Command mariners in theater, thus appropriately compensating the civil service mariner. Establishing the bonuses on a retroactive basis accomplished the dual objective of fairly compensating the civil service mariner for risking life and limb in the war zone and encouraging them to do so again in any future conflicts that may occur.

Civilian employees of the Department were offered guaranteed return rights if they accepted assignments overseas. They were guaranteed a one-year delay in exercising an option to draw a lump sum payment at retirement. The Department's hiring freeze policy was modified to allow hiring in support of operational requirements. Foreign post differentials ranging up to 25% of base pay were authorized for civilians volunteering for temporary duty overseas. This additional compensation assisted DOD recruiting efforts.

Though constrained by many factors (including lack of transportation assets and facilities, climatic and cultural restrictions, security considerations, and political concerns) the Department was able to support very successfully the theater leave and liberty program. Rest and Recuperation (R&R) programs were implemented effectively. Key to that success was the use of the staff of the US Army Community and Family Support Command as the Executive Agent. Their singular experience within the DOD as the manager of the Armed Forces Recreation Centers and professional expertise in hospitality management and morale, welfare, and recreation facilities operations and management were critical to the execution and success of this R&R program. Use of the cruise ship Cunard Princess to meet the need for "troop relief" was an unqualified success from the troops' perspective.

There are other personnel management actions that were taken to support the forces in the theater of operations, such as free mailing privileges, and the Secretary of Defense authorizing members of the armed forces assigned to duty in the Persian Gulf to participate in the Uniform Services Savings Deposit Program. This program allowed depositors to earn 10% interest on amounts up to $10,000 while serving in the region. We continue to examine the effects of these actions and policies, especially with respect to compensation.

Reserve issues are discussed in Question 11.

EMERGING OBSERVATIONS

Some Accomplishments

— DOD's existing personnel policies contributed to victory.

— Implementation of 10 USC 673c Stop-Loss program provided the Services with force stability, increased strength, and a qualified manpower pool.

— Tax benefits associated with combat zone service were implemented.

— DOD policy on deployment of military couples and single parents was fully tested for the first time.

— Compensation packages for civilian civil service members were implemented.

— Morale, welfare and recreation support appears to have been very successful.

Some Selected Issues

— While public attention was drawn to the burdens of military couples and single parents deployed to the theater, Office of the Secretary of Defense and Service policies seem adequate, especially in view of the inherent conditions of military service.

— Deployability criteria for military couples and single parents differ among the Services.

— There are a number of pay issues under law and policy that merit further examination.

QUESTION 10:

Role of women in the theater of operations.

QUESTION 10:

Role of women in the theater of operations.

Department of Defense women played a vital role in the theater of operations. By late February, over 35,000 military women were in the Persian Gulf, making up approximately 6.6% of US forces. By Service, there were approximately 26,000 Army, 3,700 Navy, 1,200 Marine, and 5,300 Air Force women deployed. Women served in almost all of the hundreds of occupations open to them with their male counterparts, enduring all of the same hardships under the same harsh conditions.

Women were administrators, air traffic controllers, logisticians, engineer equipment mechanics, ammo technicians, ordnance specialists, communicators, radio operators, drivers, law enforcement specialists and guards. Many women truck drivers hauled supplies and equipment into Kuwait. Some brought Enemy Prisoners of War (EPWs) back to holding facilities. Many flew helicopters, reconnaissance aircraft, and refueling aircraft. Still others served on hospital, supply, oiler and ammunition ships. Others served as public affairs officers and chaplains. A number of women commanded brigade, battalion, company, and platoon size units in the combat support and combat service support areas. Two women were taken as Prisoners of War (POWs). In sum, women were fully integrated into the force.

Initial reports and observations indicate that the deployment of women was highly successful and that women performed admirably and without significant friction or special considerations. Additional analysis currently is being conducted that will refine observations and provide more insight concerning key issues. For example, the Army is conducting studies in two categories: "soldier human factors research" during Operations Desert Shield and Desert Storm, and "family factors research" focusing on post Operation Desert Storm family issues. The Navy is conducting a study of women serving in a combat environment. Researchers have conducted a survey of units in the Persian Gulf and currently are analyzing their data.

DOD is working with the General Accounting Office on a more extensive study to analyze the role of military women in the Persian Gulf. This study will examine issues such as the impact of women on deployment and field operations; women's role in the deployed units; unit operations issues, such as unit cohesion/bonding; and ground deployment issues, such as hygiene. Additionally, Service historians have been asked to document contributions made by women in the Persian Gulf.

Data will document the overall number of women who deployed, the skills of those women, the number of single member parents and married military couples, and data comparisons with males on the numbers and types of separations from the military. We anticipate additional requirements for analyses as we prepare this report. These analyses and assessments will serve as the basis for further evaluation of current policies concerning women in the military.

A number of observations are beginning to emerge. For example, there were instances of misunderstanding concerning the application of combat restrictions. DOD policies are not designed to shield women from all hostilities, but are designed to limit their exposure to a level which is less than that in direct combat. Direct combat means closing with the enemy by fire, maneuver, or shock effect in order to destroy or capture, or while repelling assault by fire, close combat, or counterattack. The Risk Rule is used to determine if a non-direct combat position should be closed to women. Noncombat units can be closed to women on grounds of risk of exposure to direct combat, hostile fire, or capture, provided the type, degree, and duration of risk is equal to or greater than that experienced by associated combat units (of similar land, sea, or air type) in the same theater of operation.

Deployment criteria also require further investigation. Emerging results of analyses conducted on personnel found to be non-deployable suggest that the non-deployability percentages for female personnel were somewhat higher than the percentage for male personnel. Pregnancy accounted for the largest difference in non-deployable percentages. Other differences are not as easily identified and require additional analysis. While non-deployability did not affect the overall conduct of the operation, it is nevertheless an issue that will require further study for future deployment criteria for women.

Finally, the significant social and cultural differences involving the role of women in Saudi Arabia have received some attention. While there are significant

differences, they did not affect the military's role in Operations Desert Shield and Desert Storm. The mission was not one of changing cultural values and beliefs. In fact, the Saudi government ensured that our military members, both female and male, were not restricted in the performance of their military duties, even if such duties were counter to normal Saudi culture. This was best demonstrated by Saudi acceptance of American women driving military vehicles. However, outside of military duties, our Service members were obliged to respect the cultural distinctions of the host country. This courtesy was extended within Saudi Arabia, just as it is within all other countries where we have military members.

Although US forces had a military, not a civilian mission, this does not mean that our presence did not have an impact on Saudi culture. Our men and women deployed in Saudi Arabia were selected based on mission need, with no distinction made for gender, other than application of restrictions contained in US combat exclusion laws and policies. As previously mentioned, this meant our women performed a wide range of critical missions. This fact alone clearly sets a visible example of our principles.

EMERGING OBSERVATIONS

Some Accomplishments

- — Women were fully integrated into their assigned units.
- — Women performed vital roles, under stress, and performed well.
- — Current laws and policies were followed.

Some Selected Issues

- — The media and public interest was centered on female casualties and POWs.
- — In some respects, deployment criteria for women differ among Services. In a few cases, these differences and different interpretations by local commands caused concerns.

QUESTION 11:

The effectiveness of Reserve Component forces.

QUESTION 11:

The effectiveness of Reserve Component forces.

Operations Desert Shield and Desert Storm required the largest mobilization and deployment of Reserve Component (RC) forces in the post-World War II period. Over 231,000 reservists from all Services were called to active duty during the crisis, and approximately 116,000 of these served in the Kuwait Theater of Operations (KTO). They played a vital role. What the Department of Defense accomplished in the resolution of the Persian Gulf crisis simply could not have been done without the skilled contributions of the thousands of Reservists and National Guard personnel who served in combat, combat support, combat service support and administrative roles both in the theater and elsewhere.

Initial Volunteers

Volunteers from the Reserves and National Guard augmented the active duty force from the first day of the deployment, long before the decision to authorize an involuntary call-up. From the outset, the Air Force was heavily dependent upon these volunteers to provide essential strategic airlift. In August, for example, Air Force Reserve and Air National Guard volunteers flew 42% of all strategic airlift missions and 33% of the aerial refueling missions. Volunteers from the reserves of other Services also made essential contributions. Naval Reserve volunteers performed important medical, logistics, intelligence and cargo handling functions. During August, 1,100 Marine Corps Reserve volunteers served in support of the deployment of forces to Southwest Asia (SWA), providing liaison, linguist, and transport services. Army Reservists made up shortfalls in port handling, water purification, supply, and other logistics units, while Army National Guard volunteers assisted in movement control, military police, medical, legal, and transfer port facilities management. Coast Guard Reserve volunteers provided port security and supervised the loading of hazardous cargo. When the President authorized the involuntary recall of reservists on 22 August 1990, more than 10,500 volunteers were already serving on active duty.

This remarkable volunteer response underscored the dedication of the reservists from all Services. It also brought to light two potential problems. First, so many volunteered that when reserve units were activated pursuant to the President's call, some units had critical personnel vacancies. Preliminary investigation indicates that this problem was generally corrected by cross-leveling and similar personnel actions. A second issue that will require more detailed study is job protection for those reservists who volunteered.

Activation and Deployment of Reserves

The President signed Executive Order Number 12727 on 22 August 1990, exercising his authority under Title 10, Section 673b of the US Code. This was the first use of Section 673b since its enactment in 1976. Under Section 673b, the President has authority to order to active duty up to 200,000 Selected Reservists for as long as 180 days (90 days plus a 90 day extension) whenever reserve units are needed to augment active forces for any "operational mission." The recall began expeditiously. Prior planning, exercises, commitment to the Total Force Policy, and the Department's partnership with Congress in designing appropriate legislation years ago made this possible. Implementation of Section 673b provided manpower managers with important personnel resources. The Secretary of Defense delegated to the Service Secretaries the authority to order members of the Selected Reserve to active duty. Initial authorization provided for the recall of 25,000 Army; 14,500 Air Force; 6,300 Navy and 3,000 Marine reservists. Simultaneously, the Secretary of Transportation authorized the Coast Guard to order to active duty as many as 1,250 Coast Guard Reservists.

The first calls to active duty were announced on 24 August, and within the next few days reservists from the Army, Navy, and Air Force had been notified to report. Marine Corps Reservists were not called until 11 October 1990 because of Marine Corps expeditionary capability to deploy without reserve reinforcement for the first 60 days of a conflict. By mid-November the Army had activated 235 National Guard and Reserve units from 44 states and Puerto Rico. More than 285 Naval Reserve units from 39 states, Puerto Rico and the District of Columbia had been ordered to active duty, as were 32 Selected Reserve units from the Air Force. The Marine Corps had activated 1,183 Reservists.

On 1 December, again pursuant to Section 673b of Title 10, the Service Secretaries were authorized to call-up 188,000 members of the Selected Reserve. This authorization included as many as 115,000 Army members; 30,000 Navy members; 23,000 Marine

Corps members and 20,000 Air Force members of the Selected Reserve.

On 16 January 1991, the President authorized both the Department of Defense and the Department of Transportation to call-up members of the Ready Reserve, to include both unit and individual members of the Selected and the Individual Ready Reserve, pursuant to Section 673 of Title 10. This decision permitted retention of reservists with critical skills beyond the 180 days authorized by Section 673b. (Congress had extended 673b on 5 November 1990 to permit activation of combat units for up to 360 days, but had not extended this authority to other elements.) The decision also authorized calling to active duty a number of Ready Reservists in excess of the 200,000 provided by Section 673b. When combat operations began, 202,337 Selected Reservists and 20,277 Individual Ready Reservists had been called to active duty. On 19 January, the Services were authorized to call up to a total of 365,000 reservists.

While analysis is ongoing, early examination indicates that Reservists involuntarily called to active duty responded well. Very few Reservists did not report when their units were mobilized.

Activation and deployment decisions were based on requests validated from the component commands of the Central Command and from other Unified Commands to the Chairman of the Joint Chiefs of Staff. Requests for units were delivered to the Crisis Action Teams (CAT) of the Joint Staff. (Information copies of these requests were sent to the appropriate Service to provide advance notice.) Service representatives were collocated with each CAT, and the requests were passed to the appropriate representative for Service staffing. The Services made the decision as to which unit to mobilize. In some cases, Active Component units were selected to deploy to the theater of operations and reserve forces were mobilized to back fill these units in either the United States or elsewhere.

Under the Total Force Policy, reserves now provide the overwhelming proportion of certain capabilities. Because of this reliance on the reserves in certain mission categories, some of the units providing those skills were activated soon after the President's 673b call-up.

Once the unit was designated, the Service Secretary or his designee approved the activation. Once that approval was granted, deployment orders could be prepared. A response cell within the CAT would then prepare a deployment order which was coordinated with the Service involved, elements of the Joint Staff, and the DOD General Counsel. Coordinated deployment orders were sent to the Secretary of Defense for his approval. Copies were then delivered to the Service to allow it to begin the deployment process and to the requesting CINC in order to facilitate reception of the unit.

The Joint Staff Logistics Directorate became the principal action agency for mobilization and reserve call-up within the Defense Department. The Logistics Directorate coordinated intensively on a daily basis with US Central Command (CENTCOM), Office of the Secretary of Defense, the Military Services, the staffs of the Unified and Specified Commands, the Department of Transportation, and the Coast Guard to ensure mobilization issues were dealt with in the most efficient manner consistent with mission requirements. The Department also conducted exhaustive research into policy and legal aspects of mobilization. Additionally, a Congressional and public affairs notification program was developed to provide information to Congress and the public on the status of mobilization.

Once reservists began to report, and continuing throughout the operation, the Joint Staff used several management tools to track activated reserve units and individuals. Force Augmentation Planning and Execution System (FAPES), a Joint Operations Planning and Execution System (JOPES) prototype, provided information on units. The numbers of reservists activated were tracked with the daily Manpower Mobilization and Accession Status Report (MOBREP). Information from these systems was provided to decision makers daily and was used to assist in determining requirements for additional mobilization and for deployment of Reserve Component forces.

Most reserve units were deployed with the personnel and equipment assigned to them at the time of activation. However, because of the large number of units involved and because of their specialization and diversity, some cross leveling of personnel and equipment was accomplished, generally in Army units. This was a carefully controlled process in which fully trained personnel from other reserve units were substituted for untrained personnel. In compliance with Section 671 of Title 10, US Code, members who had not completed initial training could not be deployed. Most Army Reserve and

National Guard units contain a percentage of new soldiers who have not yet completed initial training and these accounted for many of the individuals who were replaced. Presently, Title 10, section 673b does not authorize the activation of personnel for training. Equipment was also replaced in some cases to ensure the newest and best equipment was sent to the theater. At present, it appears that when this happened, it was done in accordance with Department procedures.

Some units spent several weeks at mobilization stations after activation and prior to deployment. This occurred primarily when the unit's equipment was transported by sea. Because the theater infrastructure was not capable of supporting units waiting for equipment for an extended period of time, the decision was made to hold units in the United States until shortly before their equipment was scheduled to arrive in Saudi Arabia. During the waiting period, units finished processing and underwent training.

Post-Activation Training

Post-activation training requirements depended on a number of factors. These included the relative difficulty of large unit as opposed to individual skills, and the transferability of the skills practiced by reservists in civilian life to the requirements of their military occupation specialties. For example, civilian doctors, pilots, mechanics, and truck drivers who served in the same positions when mobilized required little training prior to deployment. Conversely, those with more exclusively military jobs–infantrymen and tankers–required more training to bring their proficiency to acceptable levels. This reflects a recognized deterioration of skills not frequently practiced, the complexity of many modern combat skills, and the difference in training individuals and small units as compared to those of larger units and the staffs which must control larger tactical operations.

In most cases some post-mobilization training was necessary, even if it was only training to familiarize deploying personnel with the Gulf environment. A number of individual Naval Reservists were activated and augmented active commands as planned units. These individuals received training for specific mission requirements, although they were generally well trained in basic skills. The Air Force reservists may well have required the least training because many of them were pilots and aircraft mechanics who worked in these skills daily and many had experience in the Arabian Peninsula. US Marine Corps Reservists arrived at mobilization points exceptionally well trained. However, they were given additional training to meet the challenges of the environment and the Iraqi threat and to prepare for operations under chemical warfare conditions, obstacle breaching techniques, and desert warfare. Army forces received similar training as well as training unique to their military occupation skills.

Post-mobilization training was, for the most part, well supported by the Active Component, and was effective. Perhaps the best example of the effectiveness of this training is found in Company B of the 4th Tank Battalion, 4th Marine Division. This unit had been equipped with M60A1 tanks, a system that is much different than the more modern M1 and M1A1. When this unit was activated in November, it completed a 23 day M1A1 training program in 18 days. The unit arrived in Saudi Arabia on 19 February and went into battle on 24 February. In four engagements during the course of the war Company B destroyed 59 enemy tanks, about half of which were T-72s, without losing one of its tanks.

Three Army National Guard brigades were called to active duty in connection with Operation Desert Shield: the 155th Armor Brigade from Mississippi, the 48th Infantry Brigade (Mechanized) from Georgia, and the 256th Infantry Brigade (Mechanized) from Louisiana. The brigades constituted less than 7% of the total number of reservists who were called to active duty, but they have been the subject of much attention.

Some of the attention resulted from the fact that when the Army's 24th Division was deployed to Saudi Arabia shortly after the Iraqi invasion of Kuwait, it was not yet clear that it would be necessary to order any reserve forces to active duty. Since the request submitted by the Commander-in-Chief, Central Command (CINCCENT) called for the immediate deployment of a full division, the division was deployed without the 48th Brigade, its "roundout" brigade. The Army sent an available active duty brigade from Fort Benning, Georgia. When the President authorized the activation of reservists on 22 August, the limitations of 10 USC 673b (which then restricted activations of reservists to an initial period of 90 days and one extended period of 90 days) made a call-up of such large combat units impractical.

On 5 November 1990, Congress extended Section 673b of Title 10 to permit activation of reserve combat units for Operation Desert Shield for as long as 360 days. Three days later, the Secretary of Defense announced that the three Army National Guard brigades would be activated. Subsequent to that activation, they received extensive training at various locations. When the temporary cease fire took place, they had either been validated or were about to be validated by the Army as ready for combat, if needed. Since the President had directed the Department to minimize casualties even if that objective required a prolongation of an armed conflict involving US forces, Secretary Cheney made it clear from the beginning of Desert Shield that no military unit, Active or Reserve, would be sent into combat until it was ready. Any other policy would have been a disservice to the soldiers whose lives would have otherwise been at greater risk.

Finally, it should be remembered that continuous training was carried out by all units throughout the operation. Exercises, drills and rehearsals were conducted regularly by forces in the Kuwait Theater of Operations (KTO) in order to keep skill levels high and increase force proficiency. This training helped our forces – Active and Reserve – to hold their edge in the long build-up period prior to hostilities.

Integration of Reserve Component Forces

The Military Services have conducted a strenuous program to integrate the Active and Reserve Component forces. They have modernized much reserve equipment along with that of the Active Component. Training plans used by Reserve Components are extracted from published Service doctrine and training material. For a number of years now, reserve forces have been integrated into training exercises such as Reforger, Team Spirit, Cobra Gold, and Certain Sage. All these programs, and others as well, have done much to ensure that the Total Force is trained regardless of component.

Initial examination indicates that the integration of reserve units into the Operations Desert Shield and Desert Storm force structures went well. Reserve Component units and individual reservists filled critical manpower and capabilities shortfalls. The Air Force established provisional wings that consisted of both active and reserve units. Naval Reservists augmented in-theater Combat Search and Rescue capability, working very closely with Air Force Active Component elements, and contributing substantively to this important task. Two Naval Reserve Mine Sweeper Ocean (MSO) vessels, the USS Adroit and the USS Impervious, were activated and deployed to the Gulf with Reserve crews. US Coast Guard detachments were integrated into Navy units where their expertise in boarding operations was invaluable during maritime interception operations.

Compensation and special duty pay was an area of concern. There is some preliminary evidence that suggests that there were difficulties in assimilating reservists into the Active Component finance systems once their units were mobilized. These problems may stem from shortcomings in the automatic data processing systems or from operator errors in the reserve accession process. This needs to be reviewed. Stipends paid to certain medical personnel and Special Duty Assignment pay given to Service members in certain skills (divers, for example) also require review. At present, these entitlements cannot be given until after a lengthy amount of time has passed, or well into the mobilization period.

In another action, at DOD request, to address the special problems of reservists called to active duty, Congress enacted legislation to exempt reserve physicians from their malpractice insurance premiums when serving on active duty.

Use and Performance of Reserve Component Forces in the Theater

In all Services, reservists performed vital missions. They multiplied the existing combat power of the force, and, in several cases, performed unique missions, such as water purification operations. Many such instances have been discussed above. However, others also merit mention.

The Army Reserve's 416th Engineer Command served as the theater Army engineer command, performing tasks critical to the sustainment of forces and the success of operations. In this Command, Active and Reserve Component units served side-by-side. Two Army National Guard field artillery brigades, the 142d and the 196th, provided fire support to both VII and XVIII Corps during Desert Storm. Army Reserve Components also provided considerable logistics

support not only to the Army, but to other Services as well.

The Navy depended upon reserve forces for medical care, harbor and port security, the Naval Air logistics effort, countermine efforts, and the military sealift command. In each of these roles, success depended upon integration and close cooperation.

Marine Corps Reservists increased aggregate combat power by providing armor, artillery, infantry, aviation and combat engineer forces to complement Active Component Marine formations. The exemplary performance of B Company, 4th Tank Battalion has already been discussed. There are other examples as well. Reservists were assigned to Task Force Troy, whose mission was to deceive the Iraqis on the timing and location of I MEF attacks.

Air Force Reservists, as discussed in the section on deployment, performed services that were critical to ensuring CENTCOM had the personnel and materiel needed to accomplish its mission. Elements of the 926th Tactical Fighter Group were closely involved in combat from the outset of Desert Storm, for example, and recorded the first air-to-air kill with an A-10.

As CINCCENT has stated, Reserve Component forces performed extremely well. The degree of professionalism demonstrated by these forces was remarkable. The job could not have been done without them.

Use and Performance of Reserve Component Forces Outside of the Theater

Reserve Component units and personnel were used to backfill deploying units and personnel from both the United States and overseas. These reservists' contributions were no less important than those of the forces who served in Southwest Asia. US Marine Reservists stood in for Active Marine Corps units thus enabling the Corps to continue to fulfill its global commitments. The Marines 6th Combat Engineer Battalion, based in the United States, conducted extensive studies and tests of techniques for breaching operations. Army Reservists were used to provide critical support functions. These included terminal operations in support of the deployment, such as those provided by the 1181 Transportation Terminal Unit, and sustainment of the medical care system. The Army also activated a National Guard Special Forces Group to respond should a requirement emerge elsewhere in the world. Navy Reservists deployed outside of the theater also provided support. For example, when the Fast Sealift Ship USNS Antares was disabled at sea, Reserve Cargo Handling Battalion 4 mobilized and deployed to Rota, Spain to off-load the cargo. Air Force Reservists were employed to provide critical support services such as aerial refueling support, security, medical support for units remaining in the United States and the dependents of deployed personnel, and port operations.

The use of Reserve Components to replace Active Component units deployed to the theater of operations gave DOD considerable flexibility. It allowed DOD to deploy more rapidly and to get into place needed combat elements and their supporting activities.

EMERGING OBSERVATIONS

Some Accomplishments

— Numerous volunteers augmented all Services prior to initiation of involuntary call-up, thus ensuring that many critical missions were performed from the outset.

— First large scale involuntary call-up of reserve units and individuals was implemented in a systematic fashion in accordance with the provisions of Title 10 of the US Code, Sections 673b, 673c, and 673. There was sufficient flexibility within the system to facilitate changes required by CINCCENT's needs.

— The overall performance of reserve units was excellent. Reserves served in a variety of roles including combat, combat support, combat service support and administrative functions. Their performance was indispensable to the success of the operation.

Some Shortcomings

— Volunteers enhanced the early response to the crisis . However, when their units were activated, their absence resulted in some critical personnel vacancies, although this did not affect all units.

— Roundout brigades, as expected, were not deployed with divisions with an early deployment mission. The complexity of modern combat may indicate that Roundout brigades will continue to require some training following activation.

Some Issues

— There may have been some problems in reserve compensation. Also, there may have been other, isolated instances where reserve units were not integrated as fully or as completely as desired.

— The Army has expressed a desire to have access to a select portion of the Individual Ready Reserve earlier in the mobilization cycle.

— There have been some reports of complaints concerning treatment of the Reserve Components by Active Component forces. CINCCENT testified that he had investigated all such reported complaints and found them to be unsubstantiated. Should other complaints come to light, the Department will investigate them.

QUESTION 12:

The role of the law of armed conflict in the planning and execution of military operations by United States forces and the other Coalition forces and the effects on operations of Iraqi compliance or noncompliance with the law of armed conflict.

QUESTION 12:

The role of the law of armed conflict in the planning and execution of military operations by United States forces and the other Coalition forces and the effects on operations of Iraqi compliance or noncompliance with the law of armed conflict.

Taking of Hostages

All parties to an armed conflict must take reasonable steps to distinguish combatants from persons not taking part in the conflict. Whether for intimidation, concessions, retaliation, or to render areas immune from military operations, under Article 34 of the Fourth Geneva Convention, "The taking of hostages is prohibited." Under the Fourth Geneva Convention, Iraq could intern foreign nationals only if internal security made it "absolutely necessary" (in Iraq) or "imperative" (in Kuwait) (Fourth Convention, Art. 42, 78). The Iraqis made no claims under this authority.

UNSC Res 664 overrode any theoretical rights Iraq might have had to restrict the departure of Americans and other third country nationals from Kuwait or Iraq and clarified the legal status of non-combatants.

For these purposes, hostage taking by Iraq can be divided into three categories:

(1) Capture, removal and holding of Kuwaiti nationals in connection with the invasion;
(2) Capture, removal and holding of third country nationals in connection with the invasion; and
(3) Capture, removal and holding of Kuwaiti nationals (and non-Kuwaiti nationals resident in Kuwait) later in the conflict, especially in connection with the Iraqi withdrawal.

Use of Coalition Prisoners of War (POWs) to shield military targets will be considered in the section of this question on treatment of POWs.

Although it was known that some Kuwaiti nationals were being held in Iraq prior to the commencement of offensive combat operations by the Coalition, their presence did not appreciably affect United States or Coalition force planning or execution of military operations. Thus, although the President had declared that the United States would not be deterred from attacking legitimate targets merely because Iraq may have placed protected persons in their vicinity, it does not appear that any Kuwaiti nationals were placed at risk in that fashion. Also, prior to Coalition commencement of combat operations, Iraq had announced that it was holding no US hostages as "human shields" at legitimate military targets.

Because all third country nationals were permitted to depart Iraq and Kuwait well before the commencement of offensive combat operations, Iraq's initial taking of hostages from such countries did not have any effect on United States or Coalition force planning or execution of military operations.

Kuwaiti nationals (and other residents of Kuwait) were taken captive and removed from Kuwait by retreating Iraqi troops near the end of offensive combat operations by Coalition forces. Although the plight of those taken captive was a source of great concern to US and other Coalition forces as soon as hostilities ceased, the fact of their capture did not have a significant effect on the planning or execution of military operations, which were directed at legitimate military targets.

Treatment of Civilians in Occupied Territory

The treatment of civilians in occupied territories is governed by the Geneva Convention relative to the Protection of Civilian Persons in Time of War of August 12, 1949 ("GC"). Of the 169 nations in the world, 164 are parties to this convention. All parties to the conflict to liberate Kuwait, including Iraq, are parties to this convention.

The treaty's application was triggered by the Iraqi invasion of Kuwait on 2 August 1990, and was specifically recognized in various United Nations Security Council Resolutions.

An earlier law of war treaty that remains relevant is the Hague Convention IV Respecting the Laws and Customs of War on Land of 18 October 1907 ("Hague IV"). This treaty was held to be customary international law by the post-World War II war crimes tribunals, a view shared by international legal scholars and is considered binding law on all nations conducting warfare. Hague IV contains regulations relating to the protection of civilian property (public and private) in occupied territory; the GC sets forth the obligations of an occupying power in providing protection for civilians in

occupied territory. From the beginning of its invasion of Kuwait, Iraq exhibited an intent not only to refuse to conduct itself as an occupying power, but to deny that it was an occupying power. Its mission was to annex Kuwait as a part of Iraq, and remove any vestige of Kuwait's previous existence as an independent nation.

Iraqi actions read like a very long list of violations of these treaties. Kuwaiti citizens and foreign nationals were deported forcibly to Iraq; others were summarily executed. Kuwaiti public records were removed or destroyed, apparently to prevent or impede the reconstitution of Kuwait in the event Kuwait was liberated. Cultural, public and private property was confiscated. Civilians who remained in Kuwait were denied basic necessities for survival, such as food and water.

The Iraqi occupation remained brutal until the very last; a number of civilians were murdered in the final days of that occupation to eliminate witnesses to the repression. On their departure, Iraqi forces sabotaged the vast majority of Kuwait's oil wells, in an act of unnecessary destruction that continues to pose a threat to the environment.

Coalition forces briefly acted as an occupying power. With commencement of the land campaign portion of Operation Desert Storm, US and Coalition forces moved into Iraq. Physical seizure and control of Iraqi territory triggered the application of Hague IV and the GC. Both treaties initially had little practical application, as the Coalition was occupying uninhabited desert. As hostilities between Coalition forces and Iraq diminished, the internal conflict that erupted in Iraq caused thousands of civilians to flee the fighting (such as in Basra, between Iraqi military units and Shi'ite forces) and enter territory held by Coalition forces. Allied forces provided basic food, water and medical care to these refugees. International relief agencies assumed this role as Coalition forces withdrew from Iraq.

Collateral Damage and Civilian Casualties

The law of armed conflict (also referred to as the law of war) with respect to collateral damage and collateral civilian casualties is derived from the Just War tradition of discrimination; that is, the necessity for distinguishing combatants from noncombatants and legitimate military targets from civilian objects. Although this tradition is a major part of the foundation on which the law of war is built, it is one of the least codified portions of the law of war.

As a general principle, the law of war prohibits the destruction of civilian objects not imperatively required by military necessity and the intentional attack of civilians not taking part in hostilities. The United States strictly observes these proscriptions in its development and acquisition of weapons systems, as well as in the employment of weapons systems in combat and the use of force. US Central Command (CENTCOM) forces scrupulously adhered to these fundamental law of war proscriptions in the conduct of military operations during Operation Desert Storm through target selection and the matching of available forces to selected targets and Iraqi defenses, notwithstanding Iraqi violations of its law of war obligations toward the civilian population and civilian objects.

Several treaty provisions specifically address the responsibility to minimize collateral damage to civilian objects and injury to civilians. Article 23(g) of the Annex to the 1907 Hague Convention Respecting the Laws and Customs of War on Land prohibits destruction not "imperatively demanded by the necessities of war," while article 27 of that same annex offers protection from intentional attack to "buildings dedicated to religion, art, science, or charitable purposes, historic monuments, hospitals, and places where the sick and wounded are collected, provided they are not being used at the time for military purposes." (Article 5 of the 1907 Hague Convention Concerning Bombardment by Naval Forces in Time of War contains similar language.) While the prohibition contained in article 23(g) generally refers to intentional destruction or injury, the prohibition includes collateral damage or injury clearly disproportionate to the military objectives, as discussed below. Hague Convention IV was found to be customary international law in the course of the war crimes trials that followed World War II and continues to be so regarded.

An uncodified but like provision is the principle of proportionality. It prohibits military actions in which the negative effects (such as collateral civilian casualties) clearly outweigh the military gain. CENTCOM conducted the air and ground campaigns with a purposeful focus on minimizing collateral civilian casualties and damage to civilian objects. United States and Coalition forces took a number of steps to minimize the risk of injury to noncombatants. To the degree possible and consistent with risk to aircraft and aircrews, aircraft

and munitions were carefully selected so that attacks on targets within populated areas that could provide the greatest degree of accuracy and the least risk to civilian objects and the civilian population. Where required, attacking aircraft were accompanied by a high number of support mission aircraft in order to minimize aircrew distraction from their assigned missions. Aircrews attacking targets located in populated areas were directed to return to base with their munitions if they lacked positive identification of their target; a significant percentage of the sorties by attack aircraft did so. One reason for the maneuver plan adopted for the ground campaign was the fact that it avoided populated areas, where US, Coalition, and Iraqi civilian casualties and damage to civilian objects necessarily would have been high.

The principle of proportionality acknowledges the unfortunate inevitability of collateral civilian casualties and collateral damage to civilian objects when noncombatants and civilian objects are co-mingled with combatants and targets, notwithstanding the best efforts of the parties to a conflict to minimize collateral injury and damage.

This proved to be the case in the air campaign waged against Iraq by the Coalition. Despite conducting the most discriminate military campaign in history, to include extraordinary measures by US and Coalition aircrews to minimize collateral civilian casualties, some collateral damage and injury did occur. The Government of Iraq located military assets (personnel, weapons, and equipment) in populated areas and adjacent to protected objects (mosques, medical facilities, historical/cultural sites) in an effort to obtain protection for its military forces. Military supplies were stored in mosques, schools, and hospitals in Iraq and Kuwait; a cache of Silkworm surface-to-surface missiles was found inside a school in Kuwait City, for example.

Iraq utilized any collateral damage that occurred – including damage or injury resulting from its own air defenses – in its disinformation campaign, conveying the impression that the Coalition was targeting populated areas and protected sites. The Coalition's bombing of legitimate Iraqi military targets, notwithstanding that it resulted in collateral injury and damage to civilians and private property, was lawful.

Minimization of collateral damage and injury is a responsibility shared by attacker and defender. Article 48 of the 1977 Protocol I Additional to the Geneva Conventions of 12 August 1949, provides that:

> In order to ensure respect for and protection of the civilian population and civilian objects, the Parties to the conflict [i.e., both defender and attacker] shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives . . . .

For military, political, and humanitarian reasons, the United States in 1987 declined to become a party to Protocol I; nor was Protocol I in effect during the recent conflict, as Iraq is not a party to that treaty. However, the language of Article 48 quoted above is regarded as a codification of the customary practice of nations, and therefore binding on all nations.

In the effort to minimize collateral civilian casualties, a substantial responsibility for protection of the civilian population rests with the party controlling the civilian population. The presence of civilians will not render a target immune from attack; legitimate targets may be attacked wherever they are located. An attacker must exercise reasonable precaution to minimize incidental or collateral injury to the civilian population or damage to civilian objects, consistent with mission accomplishment and allowable risk to the attacking forces. The defending party must exercise reasonable precautions to separate the civilian population and civilian objects from military objectives, and avoid placing military objectives in the midst of the civilian population; a defender is expressly prohibited from utilizing the civilian population or civilian objects as a shield from attack.

The Government of Iraq was aware of its law of war obligations; in the month preceding the Coalition air campaign, for example, a civil defense exercise was conducted during which more than one million civilians were evacuated from Baghdad. However, no formal evacuation program was undertaken during the Coalition air campaign, and the Government of Iraq intentionally co-mingled military objectives and the civilian population, in essence using its own population as a human shield.

Similar actions were taken to utilize cultural property to protect legitimate targets from attack; a classic exam-

ple is the positioning of two fighter aircraft adjacent to the ancient temple at Ur on the theory that Coalition respect for the protection of cultural property would preclude the attack of those aircraft. While the law of war would have permitted the attack against the two fighters, with Iraq bearing responsibility for any damage to the temple, the Commander-in-Chief, Central Command elected not to attack the aircraft on the basis of respect for cultural property and the belief that positioning of the aircraft adjacent to Ur (without servicing equipment or runway nearby) effectively had placed each out of action, thereby limiting the value of their destruction by Coalition air forces when weighed against the risk of damage to the temple.

Treatment of Prisoners of War

All US personnel captured during the Gulf War were transported to Baghdad by land soon after capture. Depending on their location at the time of capture, their route of travel was usually through Kuwait City to Basrah and then on to Baghdad. Those taken to Kuwait City and Basrah were usually only detained there for a few hours or overnight. Limited interrogation of POWs occurred in these cities and most POWs were treated reasonably well.

On arrival in Baghdad, most Air Force, Navy, and Marine Corps POWs were taken immediately to what they referred to as "The Bunker" (most probably located at the Directorate of Military Intelligence) for initial interrogation. They were then taken to what appears to be the main long-term incarceration site located in the Iraqi Intelligence Service Regional Headquarters (dubbed "The Biltmore" by the POWs). Food deprivation was experienced by all US POWs who were incarcerated at the "Biltmore." Following a 23 February bombing of this facility by Coalition pilots, the POWs were relocated to either Abu Ghuraib Prison (dubbed "Joliet Prison") or Al Rashid Military Prison (dubbed "The Half-Way House"), both located in the vicinity of Baghdad. The US Army POWs, on the other hand, were believed to have been sent directly to the Al Rashid Military Prison where they remained until release. All US POWs were released from captivity from the Al Rashid Military Prison.

Lack of access to (non-US) Coalition POW debriefs precludes comments on their treatment. From US POW debriefs, it is known that several Coalition POWs, especially the Saudi and Kuwaiti pilots, were mistreated.

DIA was able to monitor the situation and disseminate information on POW-MIA identification and status to interested parties in a timely manner throughout the operation with only limited augmentation. Nevertheless, the intelligence community was not able to pinpoint the exact location of the POWs prior to their release on 3 March 1991. Iraqi POW handling procedures and treatment were reasonably predictable based on a study of Iraqi treatment of Iranians during their eight year war. Iraqi treatment of US POWs violated its obligations under the Geneva Convention of 12 August 1949.

Repatriation of Prisoners of War

During Operation Desert Storm, approximately 69,000 Enemy Prisoners of War/Civilian Internees (EPW/CI) passed through US operated facilities between 22 January 91, when the first EPW was captured, and 2 May 91, when the last EPW was transferred to Saudi Arabian control. This was the largest EPW operation since World War II. US forces captured 61,597 EPWs and interned 1,483 CIs during the conflict. Allied forces (France and the UK) captured an additional 5,849 EPWs and transfered them to US control. Coalition forces captured approximately 17,300 EPWs. Reconciliation of data may cause minor changes in numbers in future reports.

US and Coalition forces treated EPWs and CIs in accordance with the Third Geneva Convention of 12 August 1949. International law accords a special role for the International Committee of the Red Cross (ICRC). By multilateral agreement, the ICRC had access to Coalition EPW/CI facilities, assured humane treatment was accorded detainees, and reviewed their findings in periodic meetings in Riyadh, Saudi Arabia. The ICRC facilitated repatriation operations and interviewed each individual before his return to Iraq.

The National Prisoner of War Information Center was activated at the start of the conflict to account for EPW/CIs in US channels and to ensure compliance with the reporting requirements of the Geneva Convention. After hostilities and initial negotiations, the US repatriated 294 EPWs directly to Iraq. Follow-on repatriation procedures, coordinated with all parties, provided for

Saudi repatriation of EPWs/CIs through the auspices of the ICRC to Iraq at a point near Judayyiat Ar'ar at a planned rate of approximately 5,000 EPWs/CIs per day. Those who declined repatriation to Iraq (approximately 13,700) were returned to Saudi EPW/CI facilities.

Use of Ruses and Acts of Perfidy

Stratagems and ruses are trickery of the enemy by legitimate means, that is, means consistent with the law of war; for example, surprise, deception, or ambush. Treachery and perfidy injure the enemy by his adherence to the laws of war; for example, feigning surrender or injury. The marker between ruse and perfidy is drawn by the breach of good faith, and recognizes that perfidy damages the basis for restoration of peace short of total annihilation.

There were few examples of perfidious practices during the conflict. The most publicized were those associated with the battle for Khafji in early February, in which Iraqi soldiers waved a white flag and laid down their weapons. When a Saudi patrol went forward to accept their surrender, they were fired upon by Iraqi forces hidden in buildings on either side of the street.

Necessarily, these incidents instilled in Coalition forces a greater sense of caution once ground combat commenced.

The fundamental principles of the law of war applied to Coalition and Iraqi forces throughout the war. Iraq's perfidious practices did not provide a legal basis for similar conduct from Coalition forces. Thus, aside from encouraging caution, the Iraqi misconduct had no impact on the planning or execution of military operations.

War Crimes

Iraqi war crimes were extensive and premeditated. They included illegal detention, torture, and murder of civilians; looting of civilian property, to include cultural property; torture and other mistreatment of Coalition prisoners of war; indiscriminate attacks in the launching of Scud missiles against cities; violation of the law of naval warfare in its method of employment of sea mines; and unnecessary destruction, as evidenced by the release of oil into the Persian Gulf and the sabotage of hundreds of Kuwaiti oil wells.

The United States is party to a number of law of war treaties. Each assumes good faith in their application and enforcement. The four Geneva Conventions for the Protection of War Victims of 12 August 1949, share language in common article 1 that all parties to those conventions pledge to "respect and ensure respect" for each of those treaties. Of the 169 nations in existence, 164 are parties to the 1949 Geneva Conventions, including all nations participating in the conflict brought on by Iraq's invasion of Kuwait. Therefore, the obligation to "respect and ensure respect" was binding upon all.

The United States has one of the most comprehensive law of war programs in existence. Department of Defense Directive 5100.77 is the foundation for the military law of war program. It contains four policies:

- The law of war and the obligations of the US Government under that law ... [will be] observed and enforced by the US Armed Forces.
- A program, designed to prevent violations of the law of war ... [will be] implemented by the US Armed Forces.
- Alleged violations of the law of war, whether committed by or against US or enemy personnel, ... [will be] promptly reported, thoroughly investigated, and, where appropriate, remedied by corrective action.
- Violations of the law of war alleged to have been committed by or against allied military or civilian personnel shall be reported through appropriate military command channels for ultimate transmission to appropriate agencies of allied governments.

The Joint Staff, each of the military departments, the unified and specified commands, and subordinate commands have issued implementing directives. It is within this framework that war crimes investigations were conducted in the course of Operations Desert Shield and Desert Storm.

Department of Defense Directive 5100.77 appoints the Secretary of the Army as the Executive Agent for the Department of Defense for the administration of the DOD law of war program with respect to alleged violations of the law of war committed against US personnel. Army Chief of Staff Regulation 11-2 assigns to The Judge Advocate General of the Army responsibility for investigation, collection, collation, evaluation, and

reporting in connection with war crimes alleged to have been committed against US personnel.

Collection of information on Iraqi war crimes began on 3 August 1990, following press reports that US citizens in Kuwait had been taken hostage by Iraqi forces and moved to Iraq. This act constitutes a grave breach of the 1949 Geneva Convention relative to the protection of civilian persons in time of war. Collection of information continued as reports of other Iraqi war crimes were received.

Interagency meetings were held during August to establish a process for informal coordination on war crimes issues, and to ensure that policymakers were kept informed on this issue. The Department of State was successful in incorporating into United Nations Security Council Resolution 674 (1990) language regarding Iraq's accountability for its war crimes and inviting States to collect relevant information regarding Iraqi war crimes.

Although US hostages in Iraq were released in December, Iraqi abuses in Kuwait continued at such a pace that it appeared that a greater effort would be necessary with regard to collection of evidence and investigation of war crimes. The Judge Advocate General of the Army accordingly recommended the mobilization of two Reserve Component Judge Advocate international law detachments. The 199th Judge Advocate Detachment was deployed to the Kuwait Theater of Operations, while the 208th Judge Advocate Detachment served within the Office of The Judge Advocate General of the Army as the DOD War Crimes Documentation Center (WCDC). The former, in cooperation with the governments of Saudi Arabia and Kuwait, collected information on war crimes committed in Kuwait; it redeployed to the United States on 29 April 1991. The latter collected information from a variety of sources, including other agencies of the United States Government, and private sources, such as Amnesty International, Human Rights Watch, and the International Committee of the Red Cross.

Environmental Terrorism

For purposes of this report, the term "environmental terrorism" is understood to refer to two acts that continue to have significant effect on the environment of the region: the intentional release of oil into the Persian Gulf from ships and from the Mina al-Ahmadi facility, and the intentional damage to, and ignition of, hundreds of Kuwaiti oil wells as well as the destruction of desalinization and oil infrastructure facilities.

Iraq's release of oil and burning of the wells could implicate a variety of customary and conventional international law principles, including:

(1) Rule 23g of Hague IV forbids a belligerent "[to] destroy ... the enemy's property, unless ... imperatively demanded by the necessities of war ...";

(2) Art. 147 of the Geneva Convention on protection of civilians declares to be a grave breach, "extensive destruction ... of property, not justified by military necessity and carried out unlawfully and wantonly";

(3) Additional Protocol I to the Geneva Conventions of 12 August 1949 (to which neither Iraq nor the United States is a party) contains, in Articles 35 and 55, "a prohibition of the use of means or methods of warfare ... intended or ... expected to cause" widespread, long-term and severe damage to the environment.

Other international law principles may also be germane. For example, if intended to foul Saudi Arabia's water supply by contaminating the desalination plants, Iraq's release of oil might be construed as a violation of traditional customary law prohibitions on the use of poison. In addition, it has been suggested that both the release of oil and the burning of the wells contravenes the Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques (to which Iraq is not a party). It is, however, by no means clear that actions of the kinds perpetrated by Iraq constitute environmental modification techniques contemplated by that convention.

It is not yet clear why Iraq released oil into the Persian Gulf. Conceivably, Iraq hoped to interfere with Coalition naval operations in the Gulf, perhaps to impede expected amphibious operations. By threatening desalination plants, Iraq may also have hoped to disrupt Coalition military operations and Saudi civil life dependent on a steady flow of fresh water. As it turned out, the cooperative efforts of the Coalition members, the Coast Guard, and the National Oceanic & Atmospheric Administration resulted in the presence of the oil slick having a negligible effect on the operations of Coalition naval forces.

Perversely, Iraq's actions did necessitate responsive Coalition operations to protect the environment that inflicted further damage on Kuwaiti property. Specifically, the flow from the Al Ahmadi terminal was stopped by aerial destruction of vital equipment in the vicinity of the terminal.

As the first Kuwaiti oil wells were ignited by Iraqi forces, there was speculation that the fires and smoke were intended to impair the ability of Coalition forces to conduct both air and ground operations, primarily by obscuring visual and electro-optical sensing devices. As with the release of oil into the Persian Gulf, however, this aspect of Iraq's wanton destruction of Kuwaiti property had little effect on Coalition offensive combat operations. Both air and ground forces continued to operate effectively. It quickly became obvious, however, that, whatever Iraq's initial motivations, it would not be deterred and had decided to render wholesale destruction of Kuwait's oil production capacity. Ultimately, over 500 oil wells were detonated or set on fire.

Conduct of Neutral Nations

The issue of neutrality in the Persian Gulf Conflict is a particularly intriguing one, because the traditional concepts of neutral rights and duties are substantially modified when, as in this case, the United Nations authorizes collective action against an aggressor state. It was the consistent position of the United States that, regardless of assertions of neutrality, all countries were obliged to facilitate Coalition operations, at least by virtue of UN Security Council Resolution 678's request of all states "to provide appropriate support for the actions undertaken" by countries pursuant to its authorization of use of all necessary means to uphold and implement prior resolutions. The United States position is based upon Article 49 of the Charter of the United Nations which states: "The Members of the United Nations shall join in affording mutual assistance in carrying out the measures decided upon by the Security Council."

This report will focus on the conduct of Jordan, Iran, and traditionally neutral European nations (primarily Switzerland and Austria) during the course of the hostilities.

Although Jordan's attitudes toward Iraq and the Coalition were topics of continual interest from the very beginning of the invasion of Kuwait, mere sympathy for one belligerent does not, of course, constitute a violation of traditional neutral duties, nor even a rejection of Resolution 678's request to provide appropriate support to countries fighting Iraq. Conduct is what is at issue, and this discussion will be confined to a consideration of Jordanian conduct.

There have been reports that Jordan may have supplied materials, including munitions to Iraq, during the course of hostilities. Furnishing supplies and munitions to a belligerent has traditionally been considered a violation of the obligations of a neutral. In this case, it would have been an even more palpable contravention of Jordan's obligations–both because of Resolution 678's request that all states support those seeking to uphold and implement the relevant resolutions, and because the sanctions established by Security Council Resolution 661 explicitly prohibit the supply of war materials to Iraq. As the United States became aware of specific cases, they were raised with the Government of Jordan. Some of these cases were without foundation but some were substantiated. Regarding the latter, the Government of Jordan took action to terminate and reassured the United States that these instances had been the result of individual initiative and not as a result of governmental policy. In any event, it seems fair to say that such logistical assistance as Jordan may have provided Iraq did not substantially improve Iraq's ability to conduct operations, nor did it have an appreciable effect on the operational capabilities of the Coalition forces.

During the period of actual hostilities, the Saudis stopped pumping oil to Jordan and the Jordanians obtained petroleum from Iraq, taking delivery by truck. Although not necessarily a violation of a neutral's duties under traditional principles of international law, such purchases were technically in violation of the UN Security Council sanctions.

While the Jordanian importation of oil products from Iraq did not significantly affect military operations, additional steps were required to protect civilians from attack. The method of importation was by oil truck, across roads in western Iraq. Some oil trucks were mistaken for Scud launchers and other military vehicles during night attacks; others were struck collaterally during daytime attacks on nearby military targets. The destruction, which occurred despite extraordinary Coalition efforts to avoid collateral damage to civilian targets, was largely attributable to Jordan's failure to ensure adherence to UNSC sanctions and to warn its

nationals of the combat zone's perils. Additionally, Coalition forces took additional measures to avoid collateral damage to civilian vehicles and incidental injury to noncombatants. As a result, the ability to target Iraqi military vehicles and convoys, including mobile Scud missile launchers and support equipment, was affected.

Iranian conduct during hostilities was essentially consistent with that expected of a neutral under traditional principles of international law.

Immediately after the initiation of the air campaign, numerous Iraqi civil and military aircraft began flying to Iran, presumably to avoid damage or destruction by Coalition forces. Under traditional principles of international law, when belligerent military aircraft land in a nation not a party to the conflict, the latter is obliged, for the duration of the conflict, to intern the aircraft, as well as the aviators and accompanying military personnel. Although civil (and perhaps military) transport aircraft may have returned to Iraq, at least with respect to tactical military aircraft, it appears that Iran complied with its obligations. That notwithstanding, US forces in the Persian Gulf were alert to a possible flanking attack from Iran.

Although the situation never arose, the United States advised Iran that, in light of Security Council Resolution 678, Iran would be obliged to return downed Coalition aircraft and aviators, rather than intern them. It was also the position of the United States that entry into Iranian (or Jordanian) airspace to rescue downed aviators would be consistent with its international law obligations as a belligerent.

On several occasions, Iran protested alleged entry of its airspace by Coalition aircraft or missiles. Although unable to confirm the allegations, the United States expressed regret for any damage that may have been suffered in Iranian territory by virtue of inadvertent entry into Iranian airspace. The United States replies did not, however, address whether Iranian expectations of airspace inviolability were affected by Security Resolution 678.

Early in the Persian Gulf crisis, the United States had approached the Governments of Austria and Switzerland, seeking permission for overflight of military transports carrying equipment and personnel to Southwest Asia. Despite initial misgivings, both countries agreed. Although military aircraft must, except in distress, have permission to enter another country's airspace, both the Swiss and Austrian governments had, prior to the invasion of Kuwait, routinely granted such permission for US transport aircraft. That they were hesitant to grant permission early in the crisis–i.e., when the United States was not involved in hostilities–demonstrates that their conception of neutrality may be more expansive than the traditional understanding of that term in the law of armed conflict.

Given their reluctance to permit pre-hostilities overflights, it was natural to expect that Switzerland and Austria would weigh very carefully any requests for overflights once hostilities had commenced–and they did. Nevertheless, both governments decided that, in light of the Security Council request that all states support the efforts of those acting to uphold and implement Security Council resolutions, overflights by US military transport aircraft would not be inconsistent with their neutral obligations. Accordingly, permission for overflights was granted, facilitating logistical support for combat operations.

EMERGING OBSERVATIONS

Some Accomplishments

— Security Council Resolution 664 clarified the legal status of non-combatants in Iraq and Kuwait, removing the ability of Iraq to claim the requirement to intern civilians for security reasons.

— CINCENT conducted air and ground campaigns directed at military targets. As frequently briefed during the conduct of the conflict, exceptional care was devoted to minimize collateral damage to civilian population and property.

— Special trust and confidence in the military by the National Command Authority permitted the military to accomplish its mission consistent with law of war with minimum risk to the civilian population of Iraq, and US and Coalition forces.

— DOD mandates instruction in the law of war. US operations reflected this training and were in keeping with historic American adherence to the precepts of the law of war.

A Selected Issue

— Strategy to respond to Iraqi violations of law of war so as to make clear that a price will be paid for such violations–and deter violators in the future.

QUESTION 13:

The actions taken by the Coalition forces in anticipation of, and in response to, Iraqi acts of environmental terrorism.

QUESTION 13:

The actions taken by the Coalition forces in anticipation of, and in response to, Iraqi acts of environmental terrorism.

During the Persian Gulf crisis, Iraq intentionally inflicted significant damage on the environment. It is estimated that 7-9 million barrels of oil were deliberately released into the Gulf and 590 oil wellheads were damaged (508 set on fire and 82 were free flowing). The long term effects of the deliberate and wanton assaults on the environment by Iraqi forces in Kuwait have not yet been determined, and may not be fully known for years to come.

While it was impossible to predict the scale of potential environmental damage, Coalition forces were aware relatively early on in the crisis that acts intentionally harmful to the environment were likely. Early efforts were made to formulate contingency responses and significant efforts were made during the war to minimize damage.

Pre-crisis contingency planning had identified the potential use of oil in attacks. Oil could be dumped into the Persian Gulf either from on-shore terminals or from tankers lying at anchor. This would foul the Gulf and might force states further south to shut down their desalinization plants with resulting shortages of potable water with severe military, as well as civilian and ecological consequences. In addition, dumping oil into the Gulf also might impact naval operations, including amphibious operations. This was based not so much on the fact that the oil might be ignited, as upon the fact that it might be drawn into the ships' cooling and evaporation systems.

Other contingencies included oil trench and well fires which could be ignited either as military obstacles or obscurants, or to damage Kuwait economically. Another oil-related danger was the creation of pools of oil high in hydrogen sulfide, creating potentially lethal pockets of gas.

A major concern during contingency planning was the protection of Saudi facilities. A threat to these facilities did not materialize. Nevertheless, countering it was part of the Coalition's planning.

Early recognition of the threat of inflicting environmental damage led to several interagency studies designed to assess the potential effects of what was essentially a new form of coercion. The Department collaborated closely with the intelligence community and the Department of Energy (DOE) in this effort. The intelligence community provided several assessments on Iraqi capabilities and probable intentions on the use of oil as a potential weapon. DOE sponsored a Sandia National Laboratories evaluation of the potential environmental impacts if oil were used against the Coalition. The problems that were faced were twofold: how to deter Iraqi use of oil, and, if it were used, how to minimize the effects.

Means to deter or restrict Saddam's capability to inflict environmental damage were limited. Assessments weighed whether aerial bombardment by the Coalition of key Kuwaiti facilities prior to Iraqi sabotage might cause more damage than it prevented or provoke the Iraqis to embark on an even more widespread campaign. As with other remaining uncertainties about Iraqi decision making, their motivation continues to be unclear.

When Saddam began the environmental sabotage, the Coalition responded with measured military force and technical assistance that achieved limited success. On 24 January, Iraq started releasing oil into the Gulf. US attempts to ignite floating oil slicks in the vicinity of the terminal to limit the spread of oil met with little success. On 25 January, DOD established a 24-hour oil spill task force. On 27 January, US air strikes against oil manifolds at the tank farms upstream from the Al-Ahmadi terminal stopped the flow of oil into the Gulf. DOD and intelligence community experts provided specific targeting information which was essential to mission success. At the request of the Saudi government, the US dispatched on 27 January an interagency team to provide advice and to train Saudi specialists on oil spill response techniques. The Saudi Arabian Ministry of Environmental Protection contracted for installation of additional deep and shallow water booming equipment and skimmers to mitigate the effects of oil spills on the coast line and to prevent leakage into ports, desalinization plants, and adjacent industrial areas. Some critical equipment was delivered by air. Action on the part of the Coalition, based upon prior consideration of the potential for environmental sabotage, did much to limit the damage.

The danger of oil slicks to ships' cooling and evaporation systems was avoided. Interagency assistance team members from the National Oceanic and Atmospheric Administration (NOAA), aided by US Coast Guard aircraft, closely tracked the oil slick. Based on accurate current reports, naval forces navigated around oil slicks or shut down vulnerable systems when needed to avoid damage.

The operational impact of oil fires and smoke on the Coalition forces attacking toward Kuwait City was mixed. Air support was severely hampered. As direction and strength shifted, surface winds initially complicated then ultimately favored Coalition forces by blowing from south to north during the ground offensive.

Oil fires continue as of this report; the environmental impact of the oil field fires and oil spills is massive and continuing. The environmental dimensions of such sabotage remains of great concern to the Department. Analysis of the effects of such environmental pollution on military operations remains an Administration priority.

EMERGING OBSERVATIONS

Some Accomplishments

— Early recognition of the threat of oil as a potential terrorist weapon resulted in study and planning to counter this threat to military operations, desalinization plants and the environment.

— US air strikes on 27 January 1991 on the oil manifolds at the tank farms upstream from the Al-Ahmadi terminal stopped the flow of oil into the Gulf. Cooperation of DOD and intelligence community experts resulted in mission success.

— Coalition bombing to destroy feeder lines and ignite fire trenches largely reduced this threat prior to the ground campaign.

— US and allied forces were strategically situated in Saudi Arabia to defend oil facilities within their zones.

— While preparations for a significant impact to Saudi desalinization plants were made, the oil spilled had negligible impact on the fresh water supply. Rapid containment actions minimized the impact on water desalinization plants.

— Oil slicks did not have any significant impact on naval operations in the Gulf despite the earlier fears that oil might be drawn into ship evaporation systems and cooling lines.

— On 27 January 1991, a US Government Interagency Team was dispatched to Saudi Arabia, at the request of the Saudi Arabian Ministry of Environmental Protection to advise and train on oil spill response techniques.

Some Shortcomings

— Exercising physical control over Kuwait's oil fields and collection facilities, Iraq could not be stopped from detonating numerous oil wells. Iraq succeeded in releasing oil into the Persian Gulf.

— Significant environmental damage was done; its scope continues to be investigated.

A Selected Issue

— The deterrence of, and responses to, environmental attacks are new dimensions to national security challenges.

QUESTION 14:

The contributions of the United States and Coalition intelligence and counterintelligence systems and personnel, including contributions regarding bomb damage assessments and particularly including United States tactical intelligence and related activities (TIARA) programs.

QUESTION 14:

The contributions of the United States and Coalition intelligence and counterintelligence systems and personnel, including contributions regarding bomb damage assessments and particularly including United States tactical intelligence and related activities (TIARA) programs.

No other nation or coalition of nations has ever had the ability that the Coalition possessed during the Gulf crisis to collect information and disseminate intelligence. No combat commander has ever had as full and complete a view of his adversary as did our field commander. Overall, intelligence support to Operations Desert Shield and Desert Storm was a success. This success reflected investments in technology and the efforts of thousands of professionals.

Nonetheless, there were problems, compounded by the magnitude of the intelligence effort and the number of systems and agencies involved.

Contributions of United States Intelligence Systems and Personnel

Both the US Central Command (CENTCOM) and the Defense Intelligence Agency (DIA) issued warnings in late July of possible Iraqi military action against Kuwait. These were followed by warnings of the imminent invasion of Kuwait by Iraqi forces.

The entire national intelligence community mobilized to support Operations Desert Shield and Desert Storm. On 1 August 1990, DIA activated two crisis monitoring elements–an Intelligence Task Force and the Operational Intelligence Crisis Center. Shortly after the invasion of Kuwait, the Central Intelligence Agency (CIA) formed 24-hour task forces in its Operations and Intelligence directorates. The National Security Agency (NSA) increased its operations to support military commanders. Virtually every national intelligence collection system with a capability to collect on Iraqi targets or related targets worldwide was used to support Operations Desert Shield and Desert Storm.

Realizing that US forces might face a threat from Iraq's modified Scud missiles, the national intelligence community melded intelligence and operations assets to provide warnings to theater-based US Army Patriot air defense units.

In Washington, a DOD Joint Intelligence Center (DOD-JIC) was established on 2 September 1990 to provide one integrated Defense Intelligence position to the theater users. This national-level center was manned by analysts from the various intelligence organizations. Further, all national and Service intelligence organizations deployed analysts forward to the theater to support CENTCOM and component intelligence staffs. This included 11 National Military Intelligence Support Teams (NMIST) deployed from DIA to CENTCOM and component commands.

The intelligence community began a worldwide search for information that might be of value to US decision makers and military commanders. Areas of interest were the military and government facilities constructed by foreign firms; Iraqi nuclear, chemical and biological weapons research programs; capabilities and characteristics of Baghdad's modified Scud missiles; and foreign weaponry in Saddam's arsenal. Assistance from the nations united against Iraq was helpful.

The CENTCOM Directorate of Intelligence, or J-2, was not structured for a deployment or conflict on the scale of Desert Storm. The Military Intelligence Board, composed of the senior Defense Intelligence leadership, assisted in identifying required wartime architecture and functions, and in providing qualified personnel from throughout the armed forces. The CENTCOM J-2 (in both Riyadh, Saudi Arabia and at MacDill Air Force Base, Florida) quadrupled in size from the beginning of Desert Shield to the launching of Desert Storm.

The development of joint operations doctrine has outpaced the development of supporting intelligence doctrine. Because the DOD is now organized to fight as joint commands, there is a need to further refine the joint intelligence center (JIC) doctrine to provide support to the theater Commander-in-Chief. This doctrine and supporting architecture must be institutionalized and exercised regularly.

The intelligence community is examining ways to provide intelligence more quickly to the combat commander in the field. One lesson learned is that all the services and agencies must deploy with compatible intelligence dissemination and communications sys-

tems. Although field expedient solutions were developed, it was often at the expense of timeliness. Development of the National Imagery Transmission Format (NITF) Standards will provide the essential capability for modern interoperable Secondary Imagery Disseminations Systems (SIDS).

Contributions of United States Counterintelligence Systems and Personnel

Operations Desert Shield and Desert Storm provided the first opportunity to conduct theater-level counterintelligence doctrine developed since the Vietnam conflict. Integration of counterintelligence assets in the theater was accomplished effectively through a centralized authority. Counterintelligence services of the Air Force, Navy and Army were active in minimizing the ability of Iraqi intelligence services to acquire information on US forces' capabilities and intentions. They conducted counterintelligence operations and investigations, counterterrorism surveys and supported foreign intelligence efforts.

Contributions of Coalition Intelligence Systems and Personnel

Combined intelligence efforts worked well during the crisis. The CENTCOM J-2 was augmented with intelligence officers of the United Kingdom, Canada and Australia. Other Coalition partners shared intelligence with US forces through a coordination center in Riyadh. The contributions of these nations were helpful in compiling a complete picture of the Iraqi threat.

Contributions of Coalition Counterintelligence Systems and Personnel

Coalition nations each conducted their own counterintelligence operations. While many of these operations remain very close-hold, it appears that Iraqi intelligence operations were less than adequate.

Bomb Damage Assessment (BDA)

Although BDA at the outset of Operation Desert Storm was not adequate, improvement was noted as the war continued. We are continuing to evaluate our BDA efforts, but this process is complicated by a number of factors, notably the number of targets struck and the large number of assessments made by the BDA cells formed for that purpose. A complete evaluation also must take into account the availability of reconnaissance assets to support the mission of the BDA cells. Poor weather early in the campaign severely hampered verification of target destruction and created difficulties in providing the verifications to target planning staffs in a near real-time manner. This is further complicated by the way precision guided munitions attack their targets, often leaving minimal exterior damage while destroying the interior of the target. These factors tend to render BDA inflexible and time-consuming. Some of these problems were corrected when cockpit videos became available. Additionally, although DIA provided 24-hour system-wide assessments, field commanders, as CINCCENT has stated, want a more detailed assessment of the overall degradation of enemy combat effectiveness similar to a correlation of forces assessment. The CENTCOM JIC BDA cell developed a method of combining objective national and theater damage assessments with sound military analysis to provide CINCCENT with this type of overall assessment by target set. BDA processes clearly need continued improvement, including the development of better procedural doctrine.

Theater and Tactical Intelligence Systems

A substantial number of tactical systems and national systems dedicated to the theater commander were employed throughout both Operations Desert Shield and Desert Storm. The US Air Force/US Army Joint Surveillance Target Attack Radar System (JSTARS), a system still in project development and testing, was deployed to provide all-weather, near real-time targeting information in coordination with other tactical and theater systems, such as the US Army OV-1D Mohawk. These moving target indicator systems provided us with critical information concerning Iraqi forces during the Iraqi raid on Khafji, and on the level of flow of Iraqi logistics during Operation Desert Storm.

Tactical imagery was vital to Coalition operations. Imagery was collected by US Air Force RF-4C, and US Navy F-14 aircraft. US Army, Navy and Marine units employed unmanned aerial vehicles (UAV) in direct support of the tactical commander. In the western KTO, the US VII Corps used a prototype UAV for targeting and intelligence collection. Navy UAVs launched from battleships and Marine UAVs launched by maneuvering ground units were used in high-threat airspace for surveillance, reconnaissance, target identification and BDA. Despite the presence of these systems, there is still a need for more imagery

collection systems with real-time, all-weather and night capabilities with greater range.

CENTCOM was also provided a host of other sensitive technical intelligence collectors that were responsive to the field commanders. The performance of these systems is being reviewed.

EMERGING OBSERVATIONS

Some Accomplishments

- — The intelligence community predicted Iraqi use of oil as a weapon of environmental terrorism.
- — JSTARS was apparently effective in detecting and targeting enemy ground forces.
- — DOD Joint Intelligence Center was created in Washington to provide an integrated intelligence position.
- — CENTCOM Joint Intelligence Center coordinated theater intelligence operations, to include development of BDA procedures.
- — British, Canadian and Australian officers were integrated into CENTCOM J-2.
- — There were continuous exchanges with coalition military intelligence services.

Some Shortcomings

- — Joint intelligence architecture may need further refinement.
- — There is a requirement for better imagery reconnaissance assets to support all levels of command.
- — BDA was difficult and slow, especially for determining the need to re-strike targets.
- — Procedures for secondary imagery dissemination may require improvement.
- — Broad area, all-weather, search/surveillance systems are required to improve the intelligence available to tactical commanders.

QUESTION 15:

Command, control, communications, and operational security of the Coalition forces as a whole; and command, control, communications, and operational security of the United States forces.

QUESTION 15:

Command, control, communications, and operational security of the Coalition forces as a whole; and command, control, communications, and operational security of the United States forces.

In August 1990, there was little in the way of a communications infrastructure in Southwest Asia. Unlike the well developed infrastructure of ports and airfields, indigenous communications systems were rudimentary. The command, control, communications, and intelligence (C^3I) system built to support the Coalition was largely introduced into the theater with arriving forces and evolved in capability as the deployment progressed.

This was not always a simple task. The coalition was large and diverse–over 800,000 personnel from 36 nations with dozens of different weapons systems. In addition to equipment differences among various members of the Coalition, there were differences among US forces. Ultimately, several generations of equipment and many different commands and staff elements were melded. The resulting systems accommodated an unprecedented demand for communications of all types. US, Coalition, and commercial communications assets were employed to support deployment, sustainment, and combat operations. All of this required considerable innovation. The success of Coalition forces during Operations Desert Shield and Desert Storm was due in no small measure to the effectiveness of the command, control and communications systems.

Command and Control Arrangements

Operation Desert Storm owes much of its success to a C^3I system that got the job done. While it is important to understand the equipment used to construct the C^3I architecture, it is equally important to understand the command and control arrangements that were established to control and direct effectively the forces in theater. The Coalition Coordination Communications and Integration Center (C^3IC) and the combined planning teams were formed to accomplish this command and control function. Due to myriad political, military and cultural considerations among countries participating in the Coalition, separate parallel lines of command/authority were established. In general, the Islamic forces were organized into a Joint Forces/Theater of Operations command structure under Saudi Lieutenant General Khalid bin Sultan bin Abdul-Aziz. The Commander-in-Chief, Central Command (CINCENT) commanded US and non-Islamic members of the Coalition. However, no single overall commander was designated. The C^3IC was employed to ensure that the lack of a single "supreme" commander did not disrupt operations. C^3IC was the conduit for General Schwarzkopf and Saudi Lieutenant General Khalid bin Sultan bin Abdul-Aziz to coordinate and plan the efforts of the Coalition forces. The C^3IC coordinated the efforts of American, British and French forces with those of the Arab/Islamic forces. The C^3IC concept had been discussed with the Saudis prior to the crisis, but had never been tested or exercised in peacetime.

All operations require an effective working relationship between the C^3 and the intelligence communities. In some cases, the communications "pipes"– individual elements of the communications network – were narrow, fragile, and subject to failure. Some systems were incompatible and required additional communications circuits to ensure connectivity. In order to minimize disruption and expeditiously correct problems of this nature, the Military Intelligence Board was convened. This Board, composed of the Defense Intelligence Agency (DIA), the National Security Agency (NSA), and Service intelligence organizations representatives, ensured that key requirements were disseminated and consensus on issues and policy directions was reached. As the Military Intelligence Board resolved numerous C^3I issues, coordination between the Board and the US Central Command (CENTCOM) J-2 improved communications and intelligence interfaces.

Overall, the systems and procedures for command, control and communications (C^3) of US forces were effective in the CENTCOM area of responsibility (AOR), and, although five months passed from the initial deployment of forces to the initiation of the air war, the C^3 network was in-place and functioning early on. However, it continued to change significantly on a daily basis until the cessation of hostilities in order to accommodate troop displacements and combat operations. A number of factors allowed command and control systems to be effective despite some integration challenges. For example, superior allied airpower, including in-flight refueling, allowed deep basing that removed some air assets from most of the Iraqi air threat, taking pressure off the defensive C^3 network.

Command and Control with Coalition Forces

Coalition C^3 was enhanced through the use of Secure Telephone Units (STUs), personal computers, and fax machines, as well as the sharing of national and commercial satellite resources, and the exchange of liaison teams to overcome language and technological problems. Doctrinal exceptions were required to allow the use of some items of equipment by foreign Coalition members. The variety of equipment in use required the communications architecture to be improvised as requirements for systems became known. For example, there was a requirement for an interoperable secure voice system. An architecture that satisfied this requirement was constructed; however, while it was possible to build the structure around existing equipment, various innovative modifications and upgrades were required.

Military Satellite Communications Systems (MILSATCOM)

Operations Desert Shield and Desert Storm highlighted our increasing dependence on MILSATCOM to provide operational flexibility tailored to prioritized command and control needs. Central management of all MILSATCOM systems resulted in effective allocation of scarce resources and expedient solutions to critical C^2 needs consistent with CINCCENT and Coalition force operations.

Examples of this include: moving two spare satellites to the AOR to support intra-theater communications for VII Corps (Army) and I Marine Expeditionary Force (MEF) (USMC); exchanging Service MILSATCOM assets between the US Army, US Air Force and US Navy; and obtaining additional communications capacity on a UHF satellite controlled by another US government agency. These additional communications satellites enhanced and optimized communications capabilities.

Commercial Satellites

The Coalition forces also procured numerous commercial satellite communication sources to provide a surge capability to supplement military requirements for communication channels. Because of the significant demand for communications connectivity, commercial satellites (INTELSAT and INMARSAT) and allied satellites were used to complement the US MILSATCOM systems.

Defense Satellite Communications Systems (DSCS)

During Operation Desert Storm, Coalition forces made heavy use of space-based systems. The DSCS was the principal multichannel transmission system for intra- and inter-theater communications during the early deployment. At the outset of hostilities, DSCS provided 75% of all inter-theater connectivity and was used extensively to support intra-theater requirements covering troop deployments over long distances not supportable by terrestrial systems.

Other Space-based Systems

Other space-based systems made vital contributions to CINCCENT's ability to plan and to command and control his forces. For example, weather data was provided by the Defense Meteorological Satellite Program (DMSP) and civil weather satellites–the principal means of acquiring weather data over Iraq. This data and weather imagery were broadcast directly to US forces at the theater level and used to predict the rapidly changing weather patterns and sandstorms that characterize the area of operations. Weather data was used as part of cruise missile data loads; to determine how reconnaissance platforms were to be configured; in selecting precision guided munitions; and, once the ground war started, to allow US and Coalition commanders to choose weather conditions that emphasized the superiority of their night vision equipment and night-capable targeting systems.

SATCOM Vulnerability

Despite our success in Operation Desert Storm, current space-based communications, including military and commercial, were vulnerable to jamming had the enemy chosen to do so.

Launch Capability

It would be difficult, if not impossible, to operate effectively without the communications capabilities US space systems provide. During Operation Desert Storm, the inability to accelerate the scheduled launch of a communications satellite demonstrated the inflexibility of the US space launch capability. The need for a responsive space launch capability was highlighted once again during the Gulf conflict. US combat and

peacetime launch capabilities continue to be constrained by existing launch systems which cannot respond quickly to short-notice requirements.

Space capabilities were available to US and Coalition forces in theater, but significant effort was needed to optimize their effectiveness.

Joint Surveillance and Target Attack Radar System (JSTARS)

Although still a prototype, the Joint Surveillance and Target Attack Radar System (JSTARS) and the Coalition C^3 system proved effective in detecting and rapidly targeting tactical air assets against enemy ground units. Using JSTARS in conjunction with aircraft equipped with GPS for navigation allowed accurate direction of aircraft to attack positions over targets.

Joint Communications Electronics Operating Instructions (JCEOI)

During the initial stages of the operation, it became apparent that a JCEOI was essential to manage effectively CENTCOM C^3 assets. The JCEOI provides information required to make the C^3 system work efficiently. This document was compiled by NSA and distributed in September. The rapid growth of the force structure, coupled with the rigid design of the JCEOI, made it difficult to publish changes that were required by the increasing force structure. Eventually, the JCEOI provided information required to operate over 10,000 different radio nets. Although there were some delays in the process during Operation Desert Shield, a Joint Staff working group has examined this issue and developed a JCEOI concept that will significantly improve the system for future crises.

Air Tasking Order Command and Control

The highly complex command and control process for the theater air campaign was successful because CINCCENT developed a coherent plan from the beginning of operations and placed authority for ashore air tasking in the hands of a single commander, the Joint Force Air Component Commander (JFACC). Nonetheless, writing and implementing the air tasking script is a complex process. The amount of detail needed to plan operations for over 1,000 sorties per day includes inflight refueling call signs, frequencies, times, locations, altitudes, targets, munitions, and more. Equal or greater detail needs to be assembled for electronic countermeasure support, escort or combat air patrol, AWACS or ground controllers, forward air controllers, and search and rescue. The result is an Air Tasking Order (ATO) the size of a phone book that is time consuming to prepare, disseminate, and digest.

The typical time to transmit a record copy of the ATO was two hours. The Air Force Computer Aided Force Management System (CAFMS) used to produce the daily ATO was not fully interoperable with Navy units. The lack of a sufficient common transmission media to send and receive the ATO between the Air Force and the Navy was a problem. Prior to Operation Desert Storm, the Navy relied on the AUTODIN message service to receive the daily training ATO. To support all of the aircraft based in the AOR, the Air Force deployed a second set of CAFMS terminals and acquired a third set through the Rapid Requirements Process. In early January 1991, five CAFMS terminals were made available to the Navy. Due to the Navy's lack of on-board SHF communications, transmission of the ATO via CAFMS was not possible. UHF radio solutions were tried unsuccessfully and HF radio communications did not provide timely transmission of the message. Although additional solutions were being investigated prior to and after the outbreak of the war, the primary means of distribution to the Navy was to ferry the ATO, on floppy diskette, each night from Riyadh to the command aircraft carrier in the Red Sea and Persian Gulf. From there the ATO was carried by helicopter to other carriers and ships. Efforts will continue among the Services to streamline the ATO process, reduce transmission time, and procure compatible equipment in order to ensure full interoperability.

NAVSTAR Global Positioning System (GPS)

The NAVSTAR (GPS) played an important role in the success of the overall operation. The Standoff Land Attack Missile (SLAM) used GPS for mid-course guidance, allowing pilots greater stand-off distance. Other aircraft used GPS for improved navigation accuracy, to enhance emitter source location, and to precisely locate downed aircrews. GPS gave our forces a major advantage over the Iraqis. It was critical to the ability of ground forces to more accurately conduct maneuver

(including the end run), fire support, and logistical resupply operations over the vast, featureless, desert terrain. GPS also allowed precise mapping and marking of minefields both ashore and at sea.

Tactical Communications Systems

There were three generations of tactical communications systems deployed during Operations Desert Shield and Desert Storm. Mobile Subscriber Equipment (MSE) performed well, adding robustness to corps and division C^3, enabling commanders to exercise command and control over great distances. Ease of operation and rapid installation added flexibility and mobility to MSE. However, the mixture of MSE and other tactical communications equipment required many interfaces, intensive management, and substantial workarounds in both equipment and software. The new electronic counter-countermeasures (ECCM) – capable Single Channel Ground Airborne Radio System (SINCGARS) worked well, but only a few Marine and Army units were equipped with the radio.

Operational Disclosures

Some unprotected information–such as aircraft operational capabilities and parameters, tactics, techniques and limitations–might still be exploited by foreign intelligence agencies. Of course, the conflict exhibited the characteristics of many US weapons systems and operational procedures. This provided substantial data for Soviet and other intelligence agencies collecting information to support future weapon system development and military planning.

Commercial Telecommunications

Telecommunications were part of the most successful and technologically sophisticated health, morale, and welfare services ever assembled in support of deployed US armed forces. Commercial vendors offered a wide array of popular services. In the future, the Department should be prepared to employ these commercial services more effectively to enhance the health, morale and welfare of US forces.

EMERGING OBSERVATIONS

Some Accomplishments

- The technical competence and innovativeness of US forces allowed them to find solutions to many technical challenges to establish a workable C^3I system.
- Secure voice systems (STU-II, STU-III, KY-57, KY-68, and SVX-2400) and commercial telephone and fax systems were reliable and effective.
- Tactical trunking and switching equipment, along with telephones, fax, and personal computers provided flexible connectivity and compatibility and were important to operations.
- The campaign plan was well thought out and translated into ATOs and other command and control taskings to guide theater operations toward a clear set of goals.
- The JFACC and ATO provided a central authority and means for efficient allocation of sorties and resources.
- US surveillance and C^3 systems provided tactical warning and communications to help suppress the Scud threat.
- The GPS was an unqualified success for US and Coalition land, sea, and air forces.

Some Shortcomings

- A comprehensive C^3I interoperable plan between Services and other defense agencies had to be constructed with many work arounds.
- NSA, the Joint Staff and Army Staff had to develop a theater COMSEC management plan, and a Theater COMSEC Management Unit was deployed to provide key management, distribution and storage that was managed by a single activity for in-country COMSEC logistics support.
- Operations in this theater confirmed the value of GPS navigation to individual tactical units – a requirement which had to be met with rapid acquisition of commercial units. GPS was also

susceptible to exploitation, although the Iraqis were not able to do so. There is a need to continue to press toward the production, distribution, and integration of GPS receivers incorporating Selective Availability (SA) decryption – a function that allows denial of highly accurate position data to non-authorized users–into our force structure. Small, man-portable and vehicle-mounted receivers are especially needed by joint and allied forces to successfully navigate in featureless terrain and in all weather conditions.

— The ATO transmission process was slow and cumbersome because of inadequate interoperability. This was particularly true in the case of the Navy due to the lack of on-board SHF communications on their aircraft carriers to permit on-line integration into CAFMS. This increased workloads, lengthened transmission times, and reduced the potential flexibility and responsiveness of Coalition forces.

— Battlefield communications systems in Southwest Asia were primarily designed to support command and control operations. The availability of links to support combat service support requirements were inadequate. As a result, the primary means of logistics data transfer was by courier using a floppy disk or magnetic tape. The impact of this system was a lack of visibility for a requested item from order to delivery to customer.

Some Selected Issues

— The only US MSI capability is the aging LANDSAT system under control of the Department of Commerce. The DOD is analyzing the utility of improved collection capabilities of greater use to military users.

— In general, the need for improved, reliable, all-weather surveillance capabilities (both wide-area and discrete) responsive to tactical users was reaffirmed.

— Recent experience reinforces the need to continue to make space systems more responsive to the tactical user, and to continue upgrading existing launch systems and pursue alternate launch vehicle concepts like the National Launch System.

— The use of space-based support by operational and tactical commanders needs to be improved, institutionalized into military doctrine and training, and routinely incorporated into operational plans.

QUESTION 16:

The rules of engagement for Coalition forces.

QUESTION 16:

The rules of engagement for Coalition forces.

In US use, Peacetime Rules of Engagement, or ROE, are formal guidelines approved by the National Command Authority (NCA) governing the employment of military weaponry in encounters with hostile or potentially hostile forces. Based on the principle of self-defense, the ROE are established through a process which is explicitly designed to support the needs of commanders in the field to tailor ROE to their specific circumstances and missions. Continued application and lessons learned over many years in many contingencies have led to the frequent refinement of both the ROE and the ROE-tailoring processes employed in this conflict.

The following sections briefly describe the management of formal US ROE, and then, going beyond the strict bounds of "ROE," the broader subject of the coordination achieved among the national forces of the different members of the Coalition.

US ROE Management

For Operation Desert Shield, standing Peacetime Rules of Engagement, supplemented with measures to enhance protection of US forces in light of demonstrated Iraqi aggressiveness, met the needs of the defensive mission. ROE were modified as the Iraqi threat evolved and as the mission expanded to include offensive tasks. In order to speed NCA approval, proposed changes were coordinated by a staff network which linked a Joint Staff planning cell and their Central Command (CENTCOM) counterparts with the office of the Under Secretary of Defense (Policy) and the office of the DOD General Counsel. This continuous process was judged to have provided timely, responsive ROE authorizations.

Coalition Coordination

As military command relationships developed among the Coalition, US ROE became effective for, or were consistent with, all Coalition combatant forces. This compatibility was ensured by coordination meetings between US and allied commanders. Additionally, US liaison teams linked US commanders with other forces to assure that US and many different Coalition forces acted in harmony and operated effectively together.

Guidance for the conduct of maritime intercept operations was derived from the principles established by United Nations Security Council Resolutions and the UN Sanctions Committee. US Navy ships conducting the interdiction operations were augmented by US Coast Guard law enforcement detachments which provided training and technical expertise to Navy boarding teams and, where available, accompanied the ships' boarding parties. As with the operations ashore, meetings between the various national naval commanders and liaison teams ensured a notably effective degree of consistency and cooperation among the many different navies engaged in the sanctions-enforcing mission.

EMERGING OBSERVATIONS

Some Accomplishments

- The US ROE process proved effective in providing for timely NCA approval as the Commander-in-Chief, Central Command sought to tailor ROE to evolving circumstances and missions.
- The use of US liaison teams and coordination meetings provided for effective coordination among the multinational forces.

QUESTION 17:

The action taken to reduce the casualties among Coalition forces caused by the fire of such forces.

QUESTION 17:

The actions taken to reduce the casualties among Coalition forces caused by the fire of such forces.

During Operation Desert Storm the risks of inadvertently firing on friendly forces were amplified by several factors inherent to modern warfare. These included modern maneuver tactics of close confrontation, continuous operations through night/reduced visibility conditions, longer range engagements, nonlinearity (intermixture of forces), and desert terrain. These problems were complicated further by the nature of coalition warfare, notably including mixed US and foreign equipment.

Ground target identification and the resulting engagement of friendly/allied forces remained a serious problem. Five separate incidents have been identified so far in which ground vehicles were struck by friendly aircraft. There are no reports of air-to-air or ship-to-ship engagements, and there appear to have been no incidents of ground-to-air fire from friendly forces. However, there appear to have been several incidents of fire between friendly ground forces. While still under investigation, some number of tanks and other vehicles damaged or destroyed in the war may have been struck by fire from friendly forces.

Identifying friendly forces was a problem which required extensive coordination. All standard control measures and some innovative new ones were employed, but the speed of advance on a featureless desert, in particular, posed many challenges. For example, airspace coordination and control was a top priority implemented using the Airspace Coordination Order (ACO) from the Commander-in-Chief, Central Command (CINCCENT). All friendly and allied forces were briefed on airspace coordination procedures. Airspace control sectors were coordinated with Saudi Arabia and other allied forces. These sectors were the same for all forces. Airborne command and control (AWACS and E2C Hawkeye) and ground sector control centers provided coordination for all ground and air forces. AWACS had both Saudi and US operators.

Aircraft with Identification Friend or Foe (IFF) capabilities were required to operate their systems during flight operations. Airspace corridors provided additional control and safety for aircraft crossing the Iraqi border. More stringent IFF procedures were used in these corridors.

Air-to-air engagements beyond visual range were governed on a day-to-day basis by the Air Tasking Order. Several factors were used to declare a target as either friendly, hostile, or unknown.

After the first incident of losses due to fire from friendly forces, the Director of the Joint Staff requested that a review of current technology be conducted in an effort to develop a "quick fix" to the problem of firing on friendly forces. The Army, Marine Corps, and Air Force coordinated efforts, using off-the-shelf technology to achieve quick solutions for application during Operation Desert Storm. More than 60 proposals examining both the air-to-ground and ground-to-ground identification problem were reviewed. These proposals represented 41 different technical approaches across five technology categories, including thermal, infrared (IR), laser, radio-frequency, and visual. Tests were conducted between 15 and 22 February at the Yuma Proving Ground and adjacent ranges. One of the best solutions determined during the test was the blinking IR beacon known as the "DARPA light," developed by the Defense Advanced Research Projects Agency.

On 6 February, at the request of the Director of the Joint Staff, the Defense Advanced Research Projects Agency (DARPA) began work on an anti-fratricide solution for Army and Marine Corps ground combat vehicles. What followed was an extraordinary government-industry effort that produced an off-the-shelf technology device called the Anti-Fratricide Identification Device (AFID) (called "DARPA light"). The AFID was on the ground in Saudi Arabia on 26 February, just 20 days after receipt of the request. The AFID is a battery powered (it uses a set of seven standard alkaline "C" batteries) beacon which uses two high-powered infrared diodes to generate a skyward-directed signal, visible through standard third-generation night vision goggles from a distance of approximately five miles under normal nighttime viewing conditions. The light can be attached to vehicle surfaces with a "high-technology Velcro." Because the Coalition forces had achieved air supremacy, there was little concern of Iraqi aircraft using the emitters to target Coalition vehicles. The AFID had a protective collar to prevent the IR energy from being seen by ground forces.

Some 15,000 simpler but similar IR beacons known as "bud" lights were shipped to the theater of operations and used to mark tanks and tank fire zones. Approximately 190 "DARPA lights" reached the KTO on or about 26 February. The urgency applied to the program is one signal of how aggressively DOD will pursue more long-term solutions to the friendly fire problem now that hostilities are over.

In an effort to facilitate ground-to-ground and air-to-ground identification, CINCCENT and Lieutenant General Khalid designated the inverted "V" and the VS-17 panel (a fluorescent orange cloth panel) to be used as the standard vehicle markings in the Kuwait Theater of Operations (KTO). Ground vehicles were marked with VS-17 panels on the top and inverted "V" symbols on the sides. Inverted "V" symbols were made using fluorescent placards, white luminous paint, black paint, and thermal tape . IR strobe lights and special paint with IR characteristics were used in some instances for longer range identification. However, the procedures and materiel used by Coalition forces were only marginally effective. They worked well at close ranges but did not work well at longer ranges. The effectiveness of many of the "quick fix" solutions which were provided on short notice was reduced by various factors, primarily environmental and battle tempo. The immediate testing to field the devices showed the limitations in range and visibility caused by dust. Conditions during much of Operation Desert Storm which included low clouds, haze, smoke, rain and darkness reduced the effective visibility for both ground and air personnel in locating and identifying special markings. The increased tempo of ground combat operations caused dust and mud to coat vehicles, further reducing the visibility of such markings.

High technology optics and navigational systems, especially the Global Positioning System (GPS), helped reduce the risks of inadvertently firing on friendly ground forces. Given the featureless desert environment, GPS proved especially critical to the control and safety of ground forces. Although GPS system receivers were available among the Coalition forces, wider distribution greatly would have aided the command, control, and safety of ground units.

Key to the effort to reduce the risk of firing on friendly forces was the liaison role of Special Operations Forces (SOF) and Air Naval Gunfire Liaison Company (ANGLICO) Marines with Coalition forces and the use of high technology navigational aids such as GPS. However, we have yet to devise a cost effective approach to achieving improved identification procedures.

Ground vehicles lack a positive IFF system. Simply put, the basic problem is that we can shoot farther than we can positively identify targets. Efforts to develop both short and long term solutions continue. The Army has the lead. The Army's Advanced Systems Concept Office at Ft. Meade, Md., now owns the 10,000 AFID units delivered since the end of hostilities. They are in the process of making the devices available to ground units for incorporation in training exercises for further evaluation in both reduction of losses to fire from friendly forces and command and control improvement. This is a short-term fix. Any longer-term solution to the friendly fire problem will require a capability other than a device that continuously illuminates a friendly vehicle. Additionally, AFID-type technology does not address the problem of thermal-imaging systems such as the Maverick missile. The introduction of more beyond-visual-range weapons further complicates the problem.

A Training and Doctrine Command/Army Materiel Command (TRADOC/AMC) Positive Combat Identification Task Force has been formed for extraordinary management of the combat identification issue. The effort will be overseen by a General Officer Steering Committee to include representatives from Headquarters Department of the Army, TRADOC, AMC, United States Air Force Tactical Air Command, and United States Marine Corps Combat Development Command, representing the Department of the Navy. The desired solution will be an integrated approach that addresses the contributions of doctrine, organization, training, materiel, leader development and advanced technology across the Services.

EMERGING OBSERVATIONS

Some Accomplishments

— Coalition forces made great efforts to minimize the risk among Coalition forces of inadvertently firing on friendly forces.

— There were apparently no friendly air-to-air or ship-to-ship engagements.

— Extraordinary government-industry efforts produced procedures and material in record time that could have made a positive contribution to reducing the risk of friendly fire had the hostilities continued past 28 February.

— A task force has been formed for extraordinary management of the combat identification issue.

Some Shortcomings

— Despite Coalition efforts, there were casualties due to friendly fire.

— We need an identification system that identifies friendly vehicles from the air at long ranges in reduced visibility/darkness.

— There were incidents of inadvertent air-to-ground firing on friendly forces.

— There were a few incidents of inadvertent ground-to-ground firing on friendly forces.

— We need more GPS receivers–hand-held and on-board vehicles and aircraft–to reduce the risk of firing on friendly forces and continued improvement in night and all-weather vision devices.

Some Selected Issues

— The causes of the incidents involving inadvertent firing on friendly forces are being investigated.

— Efforts are underway to develop better control methods to prevent friendly fire incidents.

QUESTION 18:

Role of supporting combatant commands and Defense Agencies of the Department of Defense.

port elements composed of active and reserve units from the continental United States to support Operations Desert Shield and Desert Storm. FORSCOM also provided forces to backfill EUCOM. FORSCOM units provided essential light forces for early deterrence, conducted the largest air assault in history and provided lead mechanized forces for both the breach and exploitation of the ground offensive.

Commander-in-Chief, Space Command (SPACECOM) utilized space-based tactical and strategic assets such as satellites to provide communications, weather forecasting, and navigation assistance in what has been described as the first "space war." These systems, including the Global Positioning System (GPS), weather satellites and communications satellites also had to support other unified and specified commands and could not be entirely dedicated to CENTCOM. This required maximum cooperation between SPACECOM and CENTCOM to insure the needs of Operations Desert Shield and Desert Storm as well as other missions were met. Additionally, civil and foreign space systems were employed to meet CENTCOM requirements. Across the spectrum the US Space Command met the needs of our land, sea and air forces, often providing capabilities and support not envisioned when the systems were acquired. Space-based assets were critical to many phases of the war.

As a resource manager, the Commander, Tactical Air Command deployed ready tactical air forces from active, Reserve, and Air National Guard units in the United States. These combat forces arrived early in theater and helped deter further aggression. During the war these tactical air units carried the weight of Phases I - III air attacks.

Service staffs and all of our unified and specified commands contributed to Operations Desert Shield and Desert Storm in many ways. Many installations provided medical personnel on a temporary basis to make up projected shortfalls in CENTCOM requirements. In another example, at CINCCENT's request, an Air Staff cell in the Directorate of Plans assisted in the planning and execution of the air campaign. Throughout the Department of Defense, special requests for skills and talent in a variety of specialties were made available expeditiously as requirements were identified.

Overall, CENTCOM was provided with outstanding support from our supporting unified and specified commands. Every effort was made to give CENTCOM the support it needed, while maintaining the worldwide alert against other contingencies.

Numerous agencies within the DOD also played critical roles in Operations Desert Shield and Desert Storm.

Defense Logistics Agency (DLA)

Within hours of the invasion of Kuwait, the Defense Logistics Agency (DLA) moved to a full national emergency support posture. DLA immediately activated its crisis action command and control system to support rapidly the operation around the clock. Support covered the wide range of logistics, from commodities, spare parts, and petroleum products to a variety of logistics services. DLA responded to over 2.26 million requisitions valued at over $3.4 billion.

DLA filled requirements for over 225 million meals valued at $1.096 billion. The agency increased production of Meals Ready to Eat (MREs) from 2.4 million per month to over 28 million per month. DLA provided $945.5 million worth of clothing support. By the end of February DLA met and surpassed the Army's requirement for two sets of desert uniforms for every ground combatant. Formal requirements were expedited to manufacture and ship 390,000 pairs of desert boots to the theater. Production of chemical suits also was expedited and more than 300,000 suits were shipped.

There were shortcomings in the agency's contribution to the Gulf War. Notably, the industrial base was strained to meet requirements, even though these requirements were for a regional conflict rather than the global war we had planned for during the Cold War. As the number of contractors during peacetime is reduced, there is a declining ability to produce adequate quantities of critical items. For example, the producers of nerve agent antidotes and chemical protective gloves already had declined to two producers each. For these items, procurements were coming to an end and new requirements had not been identified. The industrial base for these and several other items would have been greatly diminished if Operation Desert Shield had commenced six months later. The agency notes the continuing requirement to balance our war reserve programs with a realistic assessment of industrial base capability.

DLA accomplished a huge logistics task. Besides the areas mentioned above, DLA procured support in the

QUESTION 18:

Role of supporting combatant commands and Defense Agencies of the Department of Defense.

Commander-in-Chief, Central Command (CINCCENT) was the combatant commander responsible for all military operations within his area of responsibility (AOR). The US Central Command (CENTCOM) has the responsibility for the Southwest Asia region. Significant forces provided by each of the supporting Commander-in-Chiefs (CINCs) came under the Combatant Command (COCOM) of CINCCENT as they were transferred to his authority. In addition, the Strategic Air Command (SAC) and the US European Command (EUCOM) actively participated in combat operations in support of CENTCOM. These forces, such as B-52 bombers and the Patriot missile batteries in Israel, were retained by their parent commands. The B-52's were placed under the Operational Control (OPCON) of CINCCENT; the Patriots in Israel, however, were under the OPCON of the Israel Defense Force. Other Unified and Specified commands that provided forces to Operations Desert Shield and Desert Storm, such as SAC, Forces Command (FORSCOM), and EUCOM are denoted supporting combatant commands.

SAC conducted air refueling of US and allied air forces, and provided continuous strategic reconnaissance support. Tankers were integral to attack operations in Kuwait and Iraq and to keeping the air bridge open from the US to the Middle East. SAC forces, under operational control of CINCCENT, also launched offensive bomber attacks. Long-range bombers struck from bases in Spain, the United Kingdom and the United States.

Commander-in-Chief, European Command (EUCOM) provided significant support throughout the crisis. Personal contacts enabled political and military initiatives that resulted in unprecedented allied support. EUCOM developed Operation Proven Force to provide tactical air units from Turkey to conduct air operations against Iraq's northern flank, further stretching Iraqi forces. Joint combat search and rescue missions from Turkey added to coalition combat power. EUCOM also provided carrier battle groups which contributed significantly to naval strike, fleet defense, and interception operations. In addition, the deployment of Patriots encouraged Israeli restraint and enhanced Coalition security. Theater-based intelligence assets also were relocated/deployed to provide reconnaissance, surveillance, and target acquisition. Furthermore, EUCOM deployed a heavy armored corps, smaller specialized US Army units, and several US Air Force wings to CENTCOM's control. EUCOM's VII Corps executed the main attack which climaxed the war.

Commander-in-Chief, Transportation Command directed strategic lift assets to facilitate the timely flow of forces and materiel. A total of 406 strategic airlifters transported over 501,000 passengers and 544,000 tons of cargo. Two hundred six ships moved 3.2 million short tons of cargo and 4.2 million tons of petroleum. The US Transportation Command (TRANSCOM) projected US forces and sustainment farther, more quickly, and in larger quantities than ever before in supporting the largest deployment in history. (Question 3, above, discusses the deployment of US forces in detail.)

Commander-in-Chief, Special Operations Command provided CENTCOM with Special Operations Forces which conducted Direct Action missions, Special Reconnaissance, Unconventional Warfare, Psychological Operations (PSYOP), Civil Affairs and liaison/coordination with Coalition forces. These forces from the US Special Operations Command (SOCOM) acted as combat multipliers and were an essential element in the successful prosecution of the Gulf War on the ground, in the air, and at sea. (Special Operations are discussed in detail in the answer to Question 5 above.)

Commander-in-Chief, Atlantic Command and Commander-in-Chief, Pacific Command provided Navy and Marine forces which conducted both carrier and land-based combat air operations, maritime interception, Tomahawk cruise missile attacks, naval gunfire support, mine clearing, and ground assaults into Kuwait. The forces conveyed a threat of an amphibious landing which pinned down significant enemy forces and prevented timely reaction to ground operations deep into Iraq. Two hospital ships were staffed and deployed. One hundred eleven Navy ships and two thirds of Marine Corps combatant forces were in theater, most of whom deployed from the US Atlantic Command (LANTCOM) and the US Pacific Command (PACOM).

Commander-in-Chief, Forces Command (FORSCOM) deployed five divisions, a Corps headquarters, and combat support and combat service sup-

Operations (ACOC) team. The ACOC team had deployed on numerous CENTCOM exercises prior to Operation Desert Shield, and were trained and prepared to deal with CENTCOM's strategic communications requirements. Both teams, in conjunction with CENTCOM, focused their efforts on: 1) developing satellite scenarios to meet the myriad of possible deployment and employment options, 2) tracking and mapping the flow of tactical C^3I assets into theater, 3) estimating the configuration and size of voice, message, and other C^3 network requirements, 4) evaluating strategic communications interface requirements, and 5) monitoring the phasing of forces deploying to the theater of operations. Shortly after Iraqi forces threatened the Saudi border, there was an experienced communications team in place building the initial C^3I network architecture.

CENTCOM increasingly demanded expanded strategic inter- and intra-theater connectivity and reliable C^3I support. DCA was able to meet CENTCOM'S requirements and by the end of the ground war, the CENTCOM strategic network consisted of over 100 DSCS satellite links, 9 T-1 systems, over 300 DSN trunks, 26 AUTODIN circuits, and numerous dedicated-user, point-to-point, and data circuits.

Operations Desert Shield and Desert Storm underscored DCA's pivotal role in providing the war fighting CINC with sufficient and reliable strategic communications. Through a combined effort, DCA and CENTCOM learned a valuable lesson: a viable C^3I architecture required the total integration of commercial and military communications systems in planning, implementation, and management.

Defense Intelligence Agency (DIA)

The Defense Intelligence Agency (DIA) led Military Intelligence Board (MIB) was effective in providing leadership and coordinating actions in support of Operations Desert Shield and Desert Storm. The MIB was active in structuring the capabilities of the national intelligence community to meet theater requirements. It dispatched a team of experts to Saudi Arabia to assist the CENTCOM intelligence staff. The result was an improved theater intelligence structure, including an increased intelligence staff It also included the deployment of a near real-time national imagery dissemination capability, a fully operational Joint Intelligence Center, daily courier service, and enhanced communications and collection capabilities.

It deployed nearly 100 civilian and military personnel to the theater, including 11 National Military Intelligence Support Teams (NMIST) to CENTCOM, the component commands within CENTCOM, UK and Turkey. A NMIST deployed with the first US forces. These teams provided analytical support and rapid dissemination of time-sensitive imagery and intelligence text via secure voice and facsimile.

DIA provided daily tailored intelligence support to selected foreign governments, participated in daily press briefings, and provided periodic briefings to Congress and Coalition attaches. (DIA's contributions also are discussed in the responses to Questions 14 and 15).

Defense Nuclear Agency (DNA)

The Defense Nuclear Agency (DNA) conducted an extensive review of research and development programs.

area of petroleum products, construction and barrier material, medical support, weapons support, contract administration and technical support. Additionally, DLA coordinated the flow of all US donor-provided items, e.g. TVs, VCRs, cookies, and candy. The DLA and problems with logistical support are discussed further under Question 7, which reviews overall logistics for the operation.

Defense Security Assistance Agency (DSAA)

The Defense Security Assistance Agency (DSAA) was responsible for the administration and supervision of the security assistance program with Coalition partners during Operations Desert Shield and Desert Storm. Security assistance programs administered by DSAA contributed to the success of Operations Desert Shield and Desert Storm by providing the bases that directly enhanced Coalition interoperability and host nation support. DSAA received $24 billion in orders from Persian Gulf countries and let over $7 billion in contracts for Saudi Arabia alone; and by expediting these cases through the Washington community, helped ensure Coalition partners had the means to fully contribute to the Coalition effort to retake Kuwait. The developed infrastructure in Saudi Arabia facilitated the support of a large US contingent with its massive logistical requirements.

Defense Technology Security Agency (DTSA)

The Defense Technology Security Agency (DTSA) assisted the targeting effort by providing information on Iraq's nuclear, chemical, biological, missile R&D and conventional production facilities which had a major reliance on western technology. DTSA helped identify those weapon program suppliers who were actively attempting to break the UN embargo, including assisting in several prosecution efforts. DTSA also identified those critical technologies that were vital to the Iraqi war effort.

Defense Advanced Research Projects Agency (DARPA)

The work of the Defense Advanced Research Projects Agency (DARPA) in support of the Gulf conflict consisted of two classes of activities: pre-existing research and development programs that were either accelerated or refocused in light of the war, and special activities undertaken in response to outside requests for support. The pre-existing programs included MACSAT, a store and forward communications light satellite; DART, a transportation planning system; SRIP, a remote imaging periscope for special operations forces; and LAST, add-on armor for light armored vehicles. Project ODIN integrated the TACNAT/ FULCRUM targeting support system with three-dimensional visualization and made the combined product mobile. DARPA undertook a special project to respond to a Joint Staff request for a solution to the air-to-ground friendly fire problem. The Anti-Fratricide Identification Device (AFID) went from concept to production in eleven days and the contractor was on the way to producing 10,000 units when the war ended. Additional detail regarding AFID is contained in the response to Question 17. The agency reports that contracting delays hindered some of their contributions.

Defense Mapping Agency (DMA)

The Defense Mapping Agency (DMA) provides mapping, charting and geodesy products in response to CINC requirements. These requirements include map production and support for Tomahawk Land Attack Missile (TLAM) navigation and mission planning. DMA produced more than 12 thousand new or updated products, over 116 million map copies and hundreds of thousands of photo image maps in support of Operations Desert Shield and Desert Storm.

Archived source material was used to produce Digital Terrain Elevation Data (DTED), Point Positioning Data Bases (PPDB) and Terrain Contour Matching (TERCOM) products to support the 288 TLAM's launched during Desert Storm. Fortunately, due to aspects of the terrain, DMA was able to use older, archived source material and still attain acceptable accuracy in most cases.

Additionally, we need to build the movement of large quantities of maps into deployment plans to insure adequate stocks are available from the outset of operations.

Defense Communications Agency (DCA)

The Defense Communications Agency (DCA) had the responsibility for providing CENTCOM with sufficient and reliable strategic communications support. DCA had, within the first forty-eight hours of the operation, established a Crisis Action Team at its headquarters and deployed an Areas Communications

QUESTION 19:

Policies and procedures relating to the media, including the use of media pools.

EMERGING OBSERVATIONS

Some Accomplishments

— On the whole, CINCCENT was well supported by supporting unified and specified commands, as well as the Office of the Secretary of Defense and defense agencies.

— EUCOM provided support to Desert Shield and Desert Storm with readily deployable forward forces, essential to Proven Force operations in Turkey. In addition, EUCOM rapidly supplied Patriot Defender batteries to Israel, encouraging Israeli restraint and enhancing Coalition solidarity. EUCOM also contributed CVBG's to significantly enhance naval strike, fleet defense, and interception operations.

A Shortcoming

— A declining industrial base may pose a risk in relying on surge production for critical items.

A Selected Issue

— Some commands expressed concern that the transfer of forces and reserve stocks to the crisis theater was eroding their ability, should it become necessary, to respond to concurrent contingencies in their own regions.

The Saudi Ministry of Information was also located with the JIB in Dhahran, which enabled visiting media to register with the Saudi government and the JIB at one location. The JIB coordinated with reporters and worked to facilitate visits to those units that reporters desired to cover. The Saudi government required that reporters visiting Saudi bases be escorted by a US official. The CENTCOM public affairs office assumed this responsibility and provided escorts to facilitate coverage on Saudi bases and to US units on the ground and at sea and throughout the theater.

One of the concerns of news organizations in the Pentagon press corps was that they did not have enough staff in the Persian Gulf to cover hostilities. Since they did not know how the Saudi government would respond to their requests for more visas, and since they couldn't predict what restrictions might be imposed on commercial air traffic in the event of a war, they asked the Pentagon to provide a military plane to take in a group of reporters to act as journalistic reinforcements. A US Air Force C-141 cargo plane left Andrews Air Force Base on 17 January, the morning after the bombing began, with 126 news media personnel on board. That plane left at the onset of hostilities, during the most intensive airlift since the Berlin blockade. The fact that senior military commanders dedicated one of their cargo airplanes to the job of transporting another 126 journalists to Saudi Arabia demonstrated the military's commitment to take reporters to the scene of the action so they could get the story out to the American people.

The Pentagon worked closely with CENTCOM Public Affairs to determine how best to facilitate coverage of potential hostilities in the Persian Gulf. After several meetings at the Pentagon with military and civilian public affairs officials experienced in previous conflicts, and bureau chiefs of the Pentagon press corps, the Department published on 14 January 1991 a one-page list of ground rules and a one-page list of guidelines for the news media to follow during the course of Operations Desert Shield and Desert Storm.

As early as October 1990, it appeared that hostilities in the region could result in a large, fast-moving, and deadly battle. The Pentagon sent a joint public affairs team to Saudi Arabia on 6 October to evaluate the public affairs aspects of hostile action and assist CENTCOM in preparing for media coverage of any such eventuality. The team was convinced that given the size and distances involved, the probable speed of advance of US forces, the potential for the enemy to use chemical weapons, and the sheer violence of a large scale armor battle would make open coverage of a ground combat operation impractical, at least during its initial phase.

The team, therefore, recommended that pools of reporters be assigned to units to cover activity within those units. These reporters would stay with units in order to ensure that they would be present with military forces at the beginning of any combat operations. Although the plan was initially rejected, the command ultimately implemented a similar plan calling for ground combat news media pools, all of which would be in place before hostilities commenced.

The second contentious issue was the requirement that in the event of hostilities, all pooled media products undergo a security review. Although the majority of reporting from the theater had been unrestricted, the military was concerned that reporters might not realize the sensitivity of certain information and might therefore inadvertently divulge details of military plans, capabilities, operations, or vulnerabilities that would jeopardize the outcome of an operation or the safety of US or Coalition forces. The plan called for all pooled media material to be examined by the public affairs escort officer on scene solely for its conformance to the ground rules, not for its potential to express criticism or cause embarrassment. The public affairs escort officer would discuss ground rule problems he found with the reporter, and, if no agreement could be reached about the disputed material, it would be dispatched immediately to the JIB Dhahran for review by the JIB Director and the appropriate news media representative. If they could not agree, the issue would be elevated to the Assistant Secretary of Defense (Public Affairs) for review with the appropriate bureau chief. The ultimate decision on publication rested with the originating reporter's news organization, not the government or the military.

While the pools were in existence, only five of more than 1,300 print pool stories were appealed through the stages of the review process to Washington for resolution. Four of those were cleared in Washington within a few hours. The fifth story dealt in considerable detail with the methods of intelligence operations in the field. The reporter's editor-in-chief chose to change the story to protect sensitive intelligence procedures.

QUESTION 19:

Policies and procedures relating to the media, including the use of media pools.

As in all previous American conflicts, the rules for news coverage of Operations Desert Shield and Desert Storm were driven by the need to balance the requirements of operational security against the public's right to know about ongoing military operations. Department of Defense policy calls for making available "timely and accurate information so the public, Congress, and the news media may assess and understand the facts about national security and defense strategy," withholding information "only when disclosure would adversely affect national security or threaten the safety or privacy of the men and women of the Armed Forces." The news media feel compelled to report as much information about current newsworthy events as possible. This perpetual dilemma was best described by General Eisenhower in 1944: "The first essential in military operations is that no information of value shall be given to the enemy. The first essential in newspaper work and broadcasting is wide-open publicity. It is your job and mine to try to reconcile those sometimes diverse considerations."

The challenge to provide full news coverage of Operations Desert Shield and Desert Storm was complicated by several factors:

- The host nation, closed to Western media before the operation began, was reluctant to permit reporters to enter the country and was concerned about reporting of cultural sensitivities.
- More than 1,600 news media representatives eventually massed in Saudi Arabia to report about the war.
- The combat actions of Operation Desert Storm used high technology, long range weapons and occurred on and over a distant, vast, open desert and from ships operating in adjacent bodies of water.
- The speed of the combined armor and airmobile attacks and drives through Kuwait and Iraq was unusually rapid.
- This was the first US war to be covered by news media who were capable of broadcasting reports instantaneously to the world, including the enemy.

From the outset of the crisis, the Department worked closely with US Central Command (CENTCOM), the military departments, the Joint Staff, and news media organizations to balance the news media's needs with the military's ability to support them and its responsibility to preserve operational security for US combat forces. The goal was to provide as much information as possible to the American people without endangering the lives or missions of US military personnel.

When the USS Independence Carrier Battle Group arrived in the Gulf of Oman on 7 August and the first US Air Force F-15s landed on sovereign Saudi territory on 8 August, approximately one week after Iraq invaded Kuwait, there were no Western reporters in the Kingdom. The US Government urged the Saudi government to begin granting visas to US news organizations, so that reporters could cover the arrival of the US military. On 10 August, Secretary Cheney called Prince Bandar, the Saudi Ambassador to the United States, to inquire about the progress for issuing visas. Prince Bandar said the Saudis were studying the question but agreed in the meantime to accept a pool of US reporters if the US military would arrange their transportation. The DOD National Media Pool, a structure that had been in use since 1985, was alerted that same day. The purpose of the DOD National Media Pool is to enable reporters to cover the earliest possible action of a US military operation in a remote area where there is no other presence of the American news media, while still protecting the element of surprise–an essential part of operational security.

Starting with those initial 17 press pool members–representing Associated Press (AP), United Press International (UPI), Reuters, Cable News Network (CNN), National Public Radio, Time, Scripps-Howard, the Los Angeles Times, and the Milwaukee Journal–the number of reporters, editors, photographers, producers, and technicians grew to nearly 800 by December. Except during the first two weeks of the pool, those reporters all filed their stories independently, directly to their own news organizations.

To facilitate media coverage of US forces in Saudi Arabia, CENTCOM established a Joint Information Bureau (JIB) in Dhahran and, later, another in Riyadh.

EMERGING OBSERVATIONS

Some Accomplishments

— The Department acted quickly to move news reporters into place to cover the early stages of the American military buildup in Saudi Arabia, providing access for the first western reporters to the early stages of the operation. The Central Command, in conjunction with the Department, established a pool system, enabling the news media to cover Operation Desert Storm through 159 reporters and photographers who were with combat units. By way of contrast, only 27 reporters were with the D-Day invasion force in 1944 when the first wave of troops went ashore.

— The media pool system placed pool members in positions to witness actual combat or interview troops immediately after combat, as evidenced by the fact that approximately 300 reports filed during the ground war were filed from forward deployed units on or near the front lines. Of that number, approximately 60% appeared to contain eyewitness accounts of the fighting.

— Pool members were permitted to interview front line troops. Some 362 stories filed from the front included interviews with front line troops.

— Frequent public briefings were held on details of the operation.

Some Shortcomings

— Command support for the PAO effort was uneven. Some component commands were highly cooperative while others did not appear to place a priority on getting the story out. In some cases, this meant lack of communication and transportation assets or priorities to get stories back to the Dhahran JIB in a timely manner.

— Because of the scope and sensitive nature of much of the operational planning, a significant number of PAO's were not able to stay fully abreast of daily developments, nor were they trained to conduct security reviews of pool products. Many were therefore unable to properly judge operational security violations.

— The public affairs escort officers displayed a wide range of expertise in performing their duties. While many received praise from the media and unit commanders for having done excellent jobs, others, overzealously performing their duties, made mistakes which sometimes became news items. Occasional, isolated incidents, such as public affairs officers stepping in front of cameras to stop interviews, telling reporters that they could not ask questions about certain subjects, and attempting to have some news media reports altered to eliminate unfavorable information, were reported. Although these incidents were the exception, not the rule, they nonetheless frequently were highlighted in media reports.

A Selected Issue

— Media sources have voiced dissatisfaction with some of the press arrangements, especially with the media pools, the need for military escorts for the news media, and security review of media pool products.

In addition to 27 reporters on ships and at air bases, at the initiation of ground combat by Coalition forces, the Central Command had 132 reporters in place with the US ground forces to cover their activity. This enabled reporters to accompany every combat division into battle.

Although plans called for expeditious handling of pool reports, much of it moved far too slowly. The JIB Dhahran reviewed 343 pool reports filed during or immediately after the ground war and found that approximately 21% arrived at the JIB in less than 12 hours, 69% arrived in less than two days, and 10% arrived in more than three days. In fact, five reports, hampered either by weather or by poor transportation, arrived at the JIB more than six days after they were filed.

The press arrangements in Southwest Asia were a good faith effort on the part of the military to be as fair as possible to the large number of reporters on the scene, to get as many reporters as possible out with troops during a highly mobile, modern ground war, and to allow as much freedom in reporting as possible, while still preventing the enemy from knowing precisely the nature of Coalition plans.

An unanticipated problem, however, grew out of the security review issue. Reporters were upset with the presence of public affairs escort officers. Although it is a common practice for a public affairs officer to be present during interviews with military personnel, the fact that the escort officer had the additional role of reviewing stories for conformance to ground rules led to the public affairs officer being perceived as an impediment. Normally the facilitators of interviews and the media's advocate, public affairs officers were now considered to be inhibiting the flow of information between the troops and the media.

The Department and the Central Command held extensive briefings on Operation Desert Storm. When the air war began on 16 January (7 p.m., Eastern Standard Time), the Secretary and the Chairman of the Joint Chiefs briefed the news media. Several hours later, during the morning of 17 January, General Schwarzkopf and Lieutenant General Horner, the Commander of CENTCOM air forces, conducted an extensive briefing in Riyadh. At the Pentagon, over the next 47 days, the Director of Operations and the Director of Intelligence for the Joint Staff – two of the most knowledgeable officials about the operation – along with the Assistant Secretary for Public Affairs conducted 35 televised news briefings. Likewise, in Saudi Arabia, the command provided a Deputy Director of Operations, Brigadier General Richard I. Neal, for daily, televised briefings and also provided background briefings at the news media's request. The command provided 98 briefings (53 on-the-record and 45 on background). Along with the news reports coming from reporters accompanying our forces in the field, these daily news briefings – conducted by the people who were responsible for planning and carrying out the operation – provided an unprecedented amount of information about the war to the American people.

QUESTION 20:

The assignment of roles and missions to the United States forces and other Coalition forces and the performance of these forces in carrying out their assigned roles and missions.

QUESTION 20:

The assignment of roles and missions to the United States forces and other Coalition forces and the performance of these forces in carrying out their assigned roles and missions.

Operations Desert Shield and Desert Storm provided the first occasion, since the implementation of the Goldwater-Nichols Act, to deploy and employ forces of all Services in a large-scale combined operation, although experience had been gained in smaller operations such as Operation Just Cause in Panama. Established joint policies, procedures and doctrine provided the basis for the integration of US forces. Commander-in-Chief, Central Command (CINCCENT) was designated the combatant commander responsible for all military operations within his area of responsibility, essentially Southwest Asia. He was to be "supported" by the other regional and functional CINCs, as needed. Commander-in-Chief, European Command (CINCEUR), Commander-in-Chief, Atlantic Command (CINCLANT), Commander-in-Chief, Pacific Command (CINCPAC), Commander-in-Chief, Special Operations Command (CINCSOC), Commander-in-Chief, Space Command (CINCSPACE), Commander-in-Chief, Transportation Command (CINCTRANS), Commander-in-Chief, Forces Command (CINCFOR) and Commander-in-Chief, Strategic Air Command (CINCSAC) were designated "supporting" commanders to aid CINCCENT. The Commander, Tactical Air Command (COMTAC) was designated a supporting resource manager.

US Army and Marine forces ashore, US Navy forces originally assigned to the Middle East Force, tactical US Air Force forces and Special Operations Forces ashore were placed under CINCCENT's combatant command. ("Combatant command" refers to a relationship in which a combatant commander performs those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned.) Other US Navy and Marine forces afloat, B-52 bomber forces from SAC and Air/Sea Lift Control Units from CINCTRANS were placed under CINCCENT's operational control. ("Operational control" refers to a relationship in which the higher headquarters exercises control of the subordinate unit's activities, but does not assume responsibility for administration and logistical support.) Other US SAC tankers and various other forces from supporting CINCs, while in the US Central Command (CENTCOM) area of responsibility, came under CINCCENT's tactical control. ("Tactical control" is similar to operational control in scope, but is for a specific mission and limited time frame that is normally specified in the orders.) Service component commanders, once deployed, reported directly to and were under the combatant command of CINCCENT.

The extraordinary extent of multi-national support for our effort meant we had Coalition allies with whom US forces had not previously exercised. These allies provided significant forces, including five divisions of land forces, eleven tactical fighter squadrons, two flotillas, one French aircraft carrier and two air defense groups. This report notes elsewhere (Appendix A) the military forces contributed by allied nations to support the enforcement of UN resolutions relating to the Gulf crisis.

Naval forces provided by other nations in support of enforcement of the UN resolutions coordinated with US naval forces, but the US did not assign them missions. Allied air forces were controlled by the Joint Forces Air Component Commander. They were assigned missions in accordance with their capabilities and employment restrictions announced by the providing government.

The multinational ground command had two major components. In the component of western nations, CINCCENT had operational control of the forces of the United Kingdom, France, Italy, and Canada. The second component, the Joint Forces/Theater of Operations, was led by Saudi Lieutenant General Khalid bin Sultan bin Abdul-Aziz. He commanded the Saudi forces and had operational control of all Arab/Islamic forces (including Afghanistan, Bahrain, Bangladesh, Egypt, Kuwait, Morocco, Niger, Oman, Pakistan, Qatar, Senegal, Syria, and United Arab Emirates). Close coordination was maintained with CINCCENT through a multinational coordination center, daily meetings of all coalition national force commanders, continuous collaboration between CINCCENT and LTG Khalid, and a combined planning team. The country representation on the team varied. It always included US and Saudi planners and eventually included planners from Kuwait, Egypt, France, and the United Kingdom. The US team briefed

CINCCENT's concept for employment of all forces. Coalition planners discussed this concept with their respective commanders and made minor changes to the Arab/Islamic task organization and assigned tasks. CINCCENT and LTG Khalid resolved any major issues. Although CINCCENT coordinated the efforts of all forces, either directly or through LTG Khalid, national command authority remained with the nation that provided the forces.

Coalition forces were assigned missions consistent with political restrictions on their use, mission requirements, and force capabilities. For example, both Syrian and Egyptian governments stated that their forces would not fight in Iraq, but could play a key role as part of the fixing force and in the liberation of Kuwait. This role played by Coalition forces was extremely valuable.

Militarily and politically, it was important that the US and its allies fight side-by-side against a common enemy. It was also desirable that the forces entering Kuwait City be able to speak the language and make the best use of information provided by Kuwaiti nationals. Forces that were reluctant to enter Iraqi territory obviously could not be used in the western penetration into Iraq. The East bloc equipment used by both the Syrian and Egyptian forces was similar to that used by Iraq and therefore some separation was required to minimize the risk of friendly fire incidents.

For logistical and tactical reasons, it made sense to assign US Marine forces to a role that would keep them closer to the Gulf where their support was located. However, the immediate coastline was more populated than other avenues of approach. The Saudi Arabian National Guard had worked with US advisors and had honed its ability to mount offensive operations. It was assigned a major combat role in JFC-E in the attack up the coastal road leading to Kuwait City, with US Marine forces on the immediate left. Placing the Marines between JFC-E and JFC-N enabled these forces to support one another as necessary. The Marine forces near the coast also reinforced deception efforts to convince Iraqi commanders that the Coalition intended to conduct amphibious assaults with Marine forces afloat.

The UK and France placed their ground forces under US operational control. Valuable experience gained working with our NATO allies meant that their armored forces could be integrated easily with our own forces. The French 6th Armor Division and the UK 1st Armor Division were assigned roles on the western flank alongside US Army forces in XVIII Airborne Corps and VII Corps sectors respectively. The US Army and NATO heavy units were well suited to meet the threat posed by the Republican Guard divisions during the penetration and exploitation envisioned in the operational plan for an "end run" into Iraq.

Some Coalition nations also contributed naval and air assets. These forces assisted US naval and air operations in accordance with any restrictions on their use and the capabilities of the force provided. British, French, Saudi and Italian aircraft fully participated in the air campaign, including strikes into Iraq. Coalition naval forces helped enforce the trade embargo and provided additional minesweeping capability.

These assignments for Coalition forces fostered international cooperation and coalition cohesion. The resulting multinational operation served to defeat rapidly a large, well-equipped enemy while sustaining minimal casualties.

The Gulf War presented some unique challenges to the assignment of missions. Although the resulting arrangements satisfied most participants, the brevity of the war did not test these arrangements as a longer war might have. The formal command relationship structure and attendant bureaucracy tended to complicate, rather than simplify, the command's ability to prosecute the war. Because the Arab/Islamic Coalition forces were not placed under the operational command of CINCCENT, a multinational coordination center was established as an expedient device to provide the necessary unity of command. While all coalitions are unique, there may be valuable lessons in this experience for dealing with future coalitions.

Throughout Operations Desert Shield and Desert Storm, CINCCENT deployed, employed, and maneuvered US forces of the command. Roles and functions were assigned in accordance with joint doctrine to meet operational needs. The command relationships in effect throughout complied with the intent of Title 10 USC by ensuring that the CINC, as theater commander, had sufficient command authority over all US forces operating in the theater. The CINC used or held the authority to organize forces for combat, to appoint/remove component commanders, and to influence resource allocation issues.

Some US component headquarters were dual-tasked as both component headquarters and tactical headquarters. For example, CENTCOM's Marine Component (MARCENT) doubled as both the Marine component force headquarters and the tactical headquarters for I MEF. It is difficult to perform both roles simultaneously, as the requirement to meet deployment and sustainment issues detracts from the capacity to conduct war planning. It may be preferable for a component headquarters to focus efforts on building the force capability through debarkation and sustainment while a tactical headquarters focuses on development of an operational plan to achieve political and military objectives. Such a division was successfully adopted by the Army and Air Force Components (ARCENT and CENTAF respectively) during the course of Desert Shield.

Because of deployment priorities and uncertainty about the ultimate deployment size, a theater support command was not initially deployed to provide command and control of logistics units for Echelons Above Corps (EAC). Prior to mobilization of reserve units, which provide most of the EAC force structure, no units were available to meet this requirement. CINCCENT established ARCENT Support Command as a provisional EAC logistics headquarters.

It appears that US Transportation Command (TRANSCOM) may not yet be the end-to-end transportation manager needed. Peacetime restructuring of TRANSCOM is being considered.

(See also the responses to Question 18, "Role of Supporting Commands", and Question 26, "Goldwater-Nichols.")

EMERGING OBSERVATIONS

Some Accomplishments

— Overall success in achieving unity of effort.

— Integration of two multi-national components (Western and Arab/Islamic) with arrangements that were militarily sound, used non-US force capability effectively, and were sensitive to political considerations.

— CINCCENT, in collaboration with LTG Khalid and other Coalition national command authorities, assigned roles and missions to Coalition members in accordance with the unique capabilities each member nation contributed to the conflict. The result was unity of effort. Members effectively worked together to eject Iraq from Kuwait.

— Operation Desert Storm validated joint battle doctrine with each Service reaffirming its unique capabilities within the defense establishment. Each Service played a key role during Desert Shield and Desert Storm operations. The US Navy conducted the maritime intercept operations. The US Air Force led the Multi-Service, Desert Storm air campaign. The US Army and US Marine Corps' execution of the ground campaign led to the expulsion of the Iraqi forces and the restoration of the legitimate government of Kuwait.

— Command and control of the entire operation was difficult and required two chains of command that were integrated by the CINC. C^3IC involvement facilitated the top down direction in this politically sensitive area and proved to be successful. In particular, command and control of joint operations was the best in US military history. The Joint Force Air Component Command (JFACC) doctrine demonstrated its utility and provided a central authority and effective means for efficient tasking of Coalition air assets.

Some Shortcomings

— Establishing Coalition command relationships met with difficulties. The resulting arrangements were complex, but workable.

— Peacetime responsibilities of TRANSCOM may be inconsistent with wartime responsibilities, which may hinder transition to war. Evaluation of the issues of TRANSCOM structure and peacetime roles are under active review.

A Selected Issue

— The conflict raises questions about the optimal organizational structures of the CINC staffs and supporting organizations needed to ensure that a CINC headquarters can plan for rapid transition to war. These issues are under review.

QUESTION 21:

Preparedness, including doctrine and training, of US forces.

QUESTION 21:

Preparedness, including doctrine and training, of US forces.

In many key respects, the Gulf crisis posed a sudden and sharply different set of military problems to US forces from those of the Cold War. Rather than executing the thoroughly planned and frequently rehearsed reinforcement of Europe as part of a global response to the canonical threat of a massive attack by the Warsaw Pact, US forces deployed to a more distant theater and a radically different Arabian Peninsula environment. Instead of calling up reserves as part of a rapid, general mobilization for global war as envisioned in statutes enacted during the Cold War, reserve forces were activated based on the evolving requirements of a major regional contingency. And, rather than engaging Warsaw Pact forces in defensive battles in Central Europe and in forward sea control campaigns using doctrine, tactics, and equipment developed primarily for those battles, US forces deployed and fought in company with an international military Coalition of unprecedented scope against a radically different opponent to achieve a far different set of objectives.

In these respects, US success hinged on a pervasive ability to execute decisively improvised and evolving plans, to adopt innovative procedures, and to incorporate new technology into new military applications. This collective capacity to adapt and to innovate – and the concomitant capacity for hard work and time to prepare – were among central contributors to the overall US military accomplishments in the Gulf.

That said, success in the Gulf was equally the product of persistent investments in US defense capabilities and security relationships over many years, indeed decades. Our investments in material persistently sought flexibility in design so that equipment could be used in a wide variety of settings and roles. Those investments achieved dramatic advances in equipment maintenance and training readiness levels from the days of the earlier, "hollow" military. Critically, those investments, coupled with strong military leadership, led to the flourishing of an especially high quality force of career men and women. And throughout, these investments continued to strive for competitive advantage: the strategic leverage which accrues from retaining the edge in net capabilities as technology, tactics, and threats evolve.

Few of these elements of preparedness can be reduced to mathematically quantifiable terms. The following sections provide a preliminary survey of several of the qualitative factors which facilitated our rapid adaptation to a major crisis in Southwest Asia only months after the "Revolution of '89" had capped a strategic shift away from four decades of deterring a third global war centered in Europe. Of special note is our extensive Southwest Asia security and crisis response planning, extending back fifteen years.

New Defense Strategy

At the beginning of the Gulf crisis, the DOD had already begun incorporating the tenets of the new Defense Strategy announced by President Bush on 2 August 1990. The studies and planning leading to the new strategy had made clear that US strategic interests in the Gulf centered on defense of the Arabian Peninsula against regional (e.g., Iraqi) threats. The new strategic framework also made it clear that such regional threats were likely to be the principal challenges to the peaceful evolution of the rapidly changing geostrategic climate. Thus, it was understood from the outset that such threats needed to be strongly countered and, given the transformation in the East-West security equation, that major investments of force in the Middle East were possible without incurring the former risks of being globally malpositioned. The US and many of its Coalition partners would not have been prepared to act so promptly and so decisively had the former Cold War circumstances still prevailed.

Regional Security Planning

The US has had an enduring interest in bolstering the security of the Middle East–Southwest Asia region. Presidential proclamations, notably the "Carter Doctrine," asserted important national security interests. Reagan and Bush Administration security documents reconfirmed the importance of sustaining a forward military presence and of developing a credible capability of joining regional states to respond to military threats in the region and the unimpeded flow of oil to global markets.

In the late 1970s and early 1980s, the US was primarily concerned about the impact of US interests that might stem from Soviet exploitation of the revolutionary instabilities in Iran. The Iranian Revolution itself, and the

protracted Iran-Iraq war heightened the fears of regional states and Western powers who were led to deploy naval forces into the region to protect shipping during the "Tanker War." As described above, the new strategy then advanced a changed framework as the end of Iran-Iraq fighting and the changes in the Soviet threat led to further shifts in the always turbulent Middle East security climate. Table 21-1 below highlights this extensive history of planning, investment, and operations bent toward the continual development of equipment, tactics, and trained personnel ready to begin a major deployment to the region.

Combined Operations

Operations throughout the Gulf crisis were notable for the cooperation achieved among a Coalition, many of whose military forces had not previously trained or operated together. Preliminary appraisals suggest that two important factors had prepared the way for such cooperative operations to be mounted so quickly: For some of the major forces engaged, NATO doctrine and exercises had provided for the sophisticated interoperability of land, air, and maritime forces. Interactions between US and Arab land forces were managed by the use of US teams whose linguistic and regional expertise permitted them to serve as bridges between very disparate national military forces.

Joint Doctrine

Operations Desert Shield and Desert Storm demonstrated a quantum advance in joint interaction among Army, Air Force, Marine, and Navy forces. This has been the explicit goal of joint doctrine development for some years. Joint doctrine – those principles that guide the planning and conduct of military operations – has advanced rapidly with the promulgation of a number of joint doctrine publications. For example, field reports indicate that Joint Publication 3.0, "Doctrine for Unified and Joint Operations," served as a basis for development of the Operation Desert Storm campaign plan. The Joint Forces Air Component Commander (JFACC) concept and the centralized air campaign also reflected this strengthened joint doctrinal foundation.

While the progress in operating under coherent joint doctrine is unmistakable, preliminary anecdotal reports tend to suggest that the high degree of cooperative combat operations actually achieved is not yet backed up by a fully mature and genuinely "purple" culture of integrated joint training and operations. Much of the aggregate combat power achieved by the highly integrated military campaign was facilitated by "work arounds" which bridged disparate Service planning procedures and cross-connected specialized intelligence and tactical data systems. Operations, logistics, and intelligence planners were not always supported by fully developed systems that let them easily integrate many different facets of these exceptionally complex operations. Evaluation of these lessons and the continued development of a comprehensive foundation of advanced joint doctrine will continue to be high priority objectives.

Training

The high quality of training was one of the most important contributors to the successes of the Gulf operations. US Service and joint training centers and exercises of many varieties provided realistic operational experiences that proved useful in the Gulf theater. One example is the Air Force "Red Flag" exercise program, which employs joint and multinational air elements in a realistic and demanding training scenario that provides an excellent forum for the exchange of tactics, techniques and procedures for the conduct of theater air warfare. Additionally, the value of modern tactical maneuver training centers, such as the Army National Training Center, the Marine Corps Air-Ground Combat Center, and the Navy Strike Warfare Center ("Strike U") for air-to-ground operations, was validated. Major multinational training commitments, such as REFORGER, Bright Star, RIMPAC, Teamwork, Display Determination, Team Spirit, and many others, helped develop the standard procedures and international cooperation that were the hallmarks of Operation Desert Storm. Simulation exercises, such as Internal Look 90, were instrumental to the development of concepts and plans employed by the Commander-in-Chief, Central Command, his staff, and component commanders.

Of course, the preparation in theater–several months for those who deployed early, only days for some units and individuals arriving on the eve of hostilities–provided an invaluable preparatory period. Forces undertook repeated rehearsals of virtually every aspect of defensive and offensive operations. Among these in-theater rehearsals were the widely publicized Marine amphibious operations. Less visible, but equally critical,

were the countless obstacle breaching rehearsals by ground forces. Aviation units with close air support missions practiced with ground units. Navy, Marine, and Air Force strike forces rehearsed the exact missions they were to fly during the first two days of the planned air offensive. Over time, live fire and live bombing practice ranges were established in the Saudi desert. And, as widely reported, individuals and combat units endlessly repeated CW and BW defensive drills. The result, as demonstrated throughout the combat phases, was to raise US forces to an exceptional peak of combat readiness tuned to the specific threats and theater of operation.

Planning

Finally, lying at the heart of our preparedness was the operational planning for the deployment of forces and for their defensive and then offensive employment. Despite the overall success of the planning efforts, the conflict highlighted the importance of modern, computer-based planning systems.

EMERGING OBSERVATIONS

Some Accomplishments

- — Advanced planning gave Central Command a head start when the crisis broke.
- — US forces rapidly and successfully adapted to what were, for many units, radically different operational circumstances than they had been trained and equipped to deal with.
- — The members of the US armed forces were well trained, highly educated, innovative, and able to exploit the advantages afforded the Coalition by superior technology.
- — The joint and combined exercise programs coupled with the Services' combat training center programs provided realistic training and enhanced interoperability which were directly applicable to the Gulf War.
- — Joint doctrine publications proved useful and will continue to improve our ability to operate jointly.
- — Joint/Combined doctrine will continue to be an evolutionary process which will refine US military doctrine, tactics, techniques and procedures. The campaign was planned in accordance with Joint Pub 3-0, "Doctrine for Unified and Joint Operations," and was effectively used to facilitate both planning and execution.

Some Shortcomings

- — The lack of JOPES trained planners slowed data entry and the development of force deployment lists.
- — Operations, logistics, and intelligence planners were not fully integrated into the planning process across the board, slowing and reducing the efficiency of plans development.

A Selected Issue

- — Requirements for prepositioning and for a continued US cooperative presence in the region will remain crucial to the US ability to exercise a stabilizing influence in this region of enduring importance. These requirements will remain under active review.

Table 21-1

HISTORY OF DEFENSE PLANNING AND PROGRAM DEVELOPMENT FOR PERSIAN GULF/SOUTHWEST ASIA PRESENCE AND CRISIS RESPONSE

The following highlight the key decisions and major events in the policy and programmatic actions to develop and improve US defense capabilities in the region:

- *1976. Saudi Naval Expansion Program (SNEP).* The US commenced sales, training, and logistics support in the expansion and modernization of the Saudi Navy.
- *1977. Presidential review of United States regional security commitments and capabilities.* Conducted primarily within the Office of the Secretary of Defense, the effort resulted in a series of Presidential Review Memorandums (PRMs), including PRM 10 that stipulated the need for:
  - A limited number of relatively light combat forces (such as Marine Corps divisions and some light Army divisions).
  - Naval and tactical air forces
  - Strategic mobility forces with the range and payload to minimize our dependence on staging and logistical support bases.
  - *July.* The US and Bahrain concluded an agreement for continued leasing of docking and shore facilities by the US Middle East Force (which had been stationed at Manama since 1949).
- *July 1978.* Presidential Directive 18 identified a strike force of about 100,000 troops to respond to regional contingencies. The Defense Department identified two Army divisions, one heavy and one light, and a Marine Amphibious Force. Additionally, the Pentagon was instructed to beef up its strategic airlift and sealift capability so that it could quickly transport these forces to potential combat zones. The strike force was to be backed up by two to four aircraft carrier task forces and by up to three Air Force tactical air wings totaling about 200 airplanes.
- *1979:*
  - *25 January.* In his second annual report to the Congress, Secretary of Defense Harold Brown spoke of rapid deployment forces, saying that "we must have sufficient capabilities to permit the rapid movement of substantial forces to threatened theaters."
  - *June.* As a result of the Iranian Revolution and increasing tension, the Secretary of Defense increased naval task force deployments to the Indian Ocean from two every other year to four per year and gradually expanded the duration of the deployments.
  - *August.* In DoD's Amended Program Decision Memorandum, Maritime Prepositioning was announced. It encompassed a combination of airlift and sealift, to include 13 Maritime Prepositioning Ships. These would carry the equipment and supplies for three Marine Amphibious Brigades for a rapid global response capability.
  - *1 October.* In an address to the Nation, President Carter announced that "rapid deployment forces" would be used to meet contingencies anywhere in the world. This publicly announced the new US emphasis on the importance of an intervention capability to be used in Third World contingencies.
  - *5 December.* At a press conference, Major General P.X. Kelley, Deputy Chief of Staff for Requirements and Programs at Headquarters Marine Corps revealed that the Secretary of Defense had ordered the Marine Corps to organize a 50,000 man spearhead for the Rapid Deployment Force (RDF). He also discussed the MPS program and underscored the glaring deficiency "in strategic mobility assets, particularly airlift" to respond to contingencies.
  - *13 December.* Secretary Brown described

the initial programs for enhancing rapid deployment capabilities before the Senate Armed Services Committee. Previewing the FY81 budget and the FYDP, the Secretary said:

> "We are undertaking two major initiatives to help the US cope with crises outside Europe. The first will be Maritime Prepositioning Ships that will carry, in dehumidified storage, the heavy equipment and supplies for three Marine brigades. These ships would be stationed in peacetime in remote areas where US forces might be needed. The Marines would be airlifted to marry up with their gear and be ready for battle on short notice. The other initiative will be the development and production of a new fleet of large cargo aircraft able to carry Army equipment, including tanks, over intercontinental distances. These aircraft would be used initially to deliver the outsize equipment of the advance forces necessary to secure air bases or the ports or the beaches needed by the MPS to deliver their heavy gear."

- *December.* DOD began negotiating with Oman, Somalia, Djibouti and Kenya to permit the increased use of ports in those countries by US forces.

- *1980:*

  - *23 January.* In the aftermath of the Soviet invasion of Afghanistan in December 1979, President Carter enunciated the "Carter Doctrine," which designated the Persian Gulf as an area of vital interest to the US. Specifically, the doctrine stated, "Any attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the USA and will be repelled by any means necessary, including military force."

  - *29 January.* In his third annual report, Secretary Brown further described the RDF. In addition to the hardware programs, the Secretary reported the creation of a rapid deployment force based in CONUS under a Marine lieutenant general.

  - *1 March.* The Rapid Deployment Joint Task Force (RDJTF) was established to protect US national interests, including assured access to oil, stable and secure regimes in Southwest Asia, and prevention of the influence or takeover of the region whose interests are inimical to those of the US and the region.

  - *5 March.* DOD announced that the Pentagon would deploy to the Indian Ocean seven existing cargo ships with enough equipment and supplies for early arriving forces of the RDF. This formalized the Near-Term Prepositioning Ships (NTPS) program.

- *Other Events:*

  - The RDJTF began its planning process for contingency operations and exercises throughout Southwest Asia under a variety of scenarios and potential threats to US security interests.

  - The RDJTF began exercises outside of the Continental US (Bright Star) with Egypt, Oman, Sudan, and Somalia and emphasized desert warfare training for component forces.

  - The RDJTF began to examine areas for desert training support. The Army National Training Center at Fort Irwin, California and the Marine Corps Air-Ground Combat Center at 29 Palms, California were ultimately established, in part, to support realistic terrain and environmental training for Southwest Asia.

  - The NTPS was expanded to include six additional ships to support RDJTF contingency responses in the region and development of fast sealift ships.

  - The US undertook expansion of security assistance programs and defense cooperative efforts with friendly states throughout the region:

    - Sales of modern US military equipment to Jordan, Egypt, Saudi Arabia and the rest of the Gulf Cooperation Council (GCC) states.

- Facilities support arrangements with Kenya, Somalia, Egypt, Saudi Arabia, Sudan. Oman, the UAE, and Bahrain were made. Specifically concluded the only formal access agreement with a Gulf nation with Oman for aircraft landing rights.
- Programs were initiated (throughout the 1980s) to improve support for US military capabilities in the region including land-based prepositioning, brigade staging areas, water production, logistics-over-the shore (LOTS), expansion of the Ready Reserve Force (RRF), and hospital ships.

– Enhanced deployments of naval combatants (CVBGs) and Amphibious Ready Groups (ARGs) to the North Arabian Sea and Indian Ocean.

– The RDJTF began its planning process for contingency operations and exercises throughout Southwest Asia under a variety of scenarios and potential threats to US security interests.

• *1981:*

– Military construction and improvements to existing facilities in Oman, Kenya, Somalia, Egypt, and Diego Garcia to support an increased capability for US forces in the region were approved.

– The Royal Saudi Air Force bought US Airborne Warning and Control System (AWACS) aircraft.

– President Reagan requested $81 million to begin development of a new transport plane, the CX, which would be capable of carrying US military equipment several thousand miles non-stop in support of Persian Gulf security.

– *1 October.* In a national press conference, President Reagan declared that "...there's no way the US could stand by and see that (Persian Gulf oil) taken over by anyone that would shut off that oil."

• *1983:*

– *1 January.* The Rapid Deployment Joint Task Force took on unified command status and became the US Central Command (CENTCOM).

– *20 October.* After Iran's threat to close the Persian Gulf and the Strait. President Reagan declared during a news conference that the Strait of Hormuz would not be allowed to be closed for oil traffic.

• *1984:*

– *6 April.* At the National Leadership Forum of the Center for International and Strategic Studies at Georgetown University, President Reagan stated, "...given the importance of the region (the Middle East), we must also be ready to act when the presence of American power and that of our friends can help stop the spread of violence. I have said, for example, that we'll keep open the Strait of Hormuz. the vital lifeline through which much oil flows to the US and other industrial democracies."

– *May.* CENTCOM spearheaded Operation Intense Look (Red Sea mine clearing operations) after a Libyan RO/RO ship probably dropped mines during its transit of the Red Sea/Suez Canal.

– *June.* CENTCOM commenced Shadow Hawk special operations exercises with Jordan.

• *1987-89:*

– CENTCOM created the Joint Task Force Middle East (JTFME) to spearhead efforts of the US reflagging of 11 Kuwaiti oil tankers (Operation Earnest Will) during the Iran-Iraq war. The US effort included a military structure of 22 naval combatants/support ships, 2 mobile sea bases used for operations against the Iranian Revolutionary Guard Corps Navy (IRGCN), 10 patrol boats, 8 attack helicopters, 8 mine clearing helicopters, and a Contingency Marine Air-Ground Task Force of approximately 400 Marines. US efforts in asserting the principle of freedom of navigation, providing distress assistance to neutral shipping, clearing mines from shipping lanes, and repelling Iranian gunboat and

missile attacks clearly improved US economic, military, and political ties to friendly Arab states while reaffirming our resolve to protect our interests in the Middle East.

- *17 January 1989.* In his FY 1990 Annual Report to the Congress, Secretary of Defense Carlucci defined maintaining access to regional oil supplies and promoting the security and stability of friendly states to be US regional goals in Southwest Asia. The report cited the continuing need for US rapid force deployment and resupply, access to local facilities, and assistance from local military forces to respond adequately to regional threats.
- *May 1989.* CENTCOM conducted the Commander-in-Chief, Central Command (CINCCENT) War Game.
- *October 1989.* USDP directed a review of US policy and strategy for Southwest Asia as part of a continuing assessment of our response capability to the range of threats in the region to US security interests.

- *1990:*
  - *February 1990.* USDP testimony to Congress noted that, "our planning (for Southwest Asia) will therefore focus on a broader range of potential threats to the energy sources in the region, particularly in the Arabian Peninsula itself."
  - *May 1990.* CENTCOM noted in its Security Environment 2000 study that its areas of responsibility would emerge as the most plausible arena for highly lethal, intense conflict. It further stated that to cope with regional turmoil, US strategy must be adaptable to a wide range of essentially unpredictable circumstances. The report also declared that Iraq had the capability to conduct offensive operations against the Arabian Peninsula oil producing targets.
  - *8 August 1990.* In an address to the nation, President Bush noted that his administration, as has been the case with every president from Roosevelt to Reagan, remained committed to the security and stability of the Persian Gulf.

- *Present Crisis:*
  - CINCCENT and his component commanders wargamed the scenario of an Iraqi invasion of Kuwait more than 15 months ago. The Joint Staff concurrently reevaluated CENTCOM's planning and findings.

QUESTION 22:

The acquisition of foreign military technology from Iraq, and any compromise of military technology of the United States or other countries in the multinational Coalition.

QUESTION 22:

The acquisition of foreign military technology from Iraq, and any compromise of military technology of the United States or other countries in the multinational Coalition.

The US Central Command (CENTCOM) made plans to exploit captured military equipment prior to the beginning of Operation Desert Storm and put these plans into effect on 17 January 1991. The Commander, US Army component Central Command (ARCENT) was given responsibility to establish the Joint Captured Materiel Exploitation Center. This center managed the collection effort, although other organizations and agencies also collected materiel as opportunities allowed. This center was able to acquire, numerous items of interest to the services.

An initial inventory of captured materiel has been completed and is under review. Some 1,800 specific items (65 vehicles) are being transported to the United States for exploitation, which will take 12 to 18 months. Systems to be evaluated include all types of vehicles, weapons and support equipment.

Some of this captured equipment already has been released to the Services for test, evaluation, and exploitation; the remainder will be distributed soon. We enjoyed initial success in exploiting some items that were acquired early in the crisis, and these results were of benefit during the conflict. Information derived from exploitation of captured materiel was provided to commanders within weeks.

It is more difficult to determine what US or Coalition equipment may have been compromised during our operations in the Persian Gulf. The speed of ground operations and our overwhelming success probably mean that there was little opportunity for the Iraqis to exploit ground equipment. A number of aircraft were downed during the conflict, and some of these fell within Iraqi controlled territory. We are continuing to pursue an examination of what the Iraqis may be able to glean from those crash sites.

More importantly, much useful information about the effectiveness of our forces, doctrine, technology, and weapons systems could be learned simply by observing their performance. Other nations already are conducting their lessons learned exercises. For example, the Soviets have publicly stated that they will review their air defenses. The war will undoubtedly interest other nations in pursuing high technology. The next potential aggressor may have learned to move before the US can build up forces, or may resort to unconventional systems.

EMERGING OBSERVATIONS

An Accomplishment

— Acquired a large variety of foreign weaponry for examination.

A Shortcoming

— Some US/allied technology was probably compromised.

A Selected Issue

— The comparatively full demonstration of US military capabilities and doctrines may enable other, potentially hostile, military establishments to refine and advance their own military capabilities. Net assessment of the potential impact on long-term regional balances will continue to be a factor in US long-term strategic capabilities appraisals.

QUESTION 23:

The problems posed by Iraqi possession and use of equipment produced in the United States and other Coalition nations.

QUESTION 23:

The problems posed by Iraqi possession and use of equipment produced in the United States and other Coalition nations.

In general, Iraq was not effective in employing US or Coalition-produced weapon systems. Nevertheless, Iraq did possess a considerable amount of high- technology Coalition equipment, including the French produced KARI air defense system, Mirage F-1 aircraft, Exocet air-to-surface missiles and the Milan anti-tank system. Additionally, night vision goggles, some of which Iraq obtained through Dutch sources, were recovered by US forces during the war.

At this early stage of analysis, reasons for the poor performance of Iraqi forces remain speculative. Among the contributing factors may be shortcomings in tactics and training and a general lack of technical expertise in operating and maintaining weapon systems to their full potential. US equipment captured from Kuwait (e.g., US Hawk missile system) was not effectively exploited by Iraq. Despite its efforts to do so, Iraq lacked the degree of technical sophistication necessary to adequately exploit the capabilities and discern the limitations of such equipment.

EMERGING OBSERVATIONS

An Accomplishment

— DIA Science and Technology Intelligence data proved helpful.

An Issue

— While Iraq was ineffective in exploiting US systems it captured, we are unable to assess fully the long-term effectiveness of individual US/Coalition measures taken to counter Iraqi use of such equipment.

QUESTION 24:

The use of deception by Iraqi forces and Coalition forces.

QUESTION 24:

The use of deception by Iraqi forces and Coalition forces.

Both Iraqi and Coalition forces used deception during Operations Desert Shield and Desert Storm. Deception has long been used by military commanders as a "force multiplier"–a way to increase the effectiveness of friendly forces and to decrease the effectiveness of the enemy. Iraq had some success in tactical deception. However, the Coalition's efforts overall were more significant, highlighted by the successful effort to dupe Iraq into expecting an amphibious and frontal assault into Kuwait, while our main effort was actually a large armored thrust far to the west that eventually enveloped and destroyed the bulk of Iraq's army in the Kuwait Theater of Operations (KTO). Coalition efforts were, of course, facilitated by the air superiority and complete command of space that together denied Iraq valuable intelligence-gathering opportunities.

Iraqi Deception and Disinformation

Iraqi armed forces and intelligence services conducted a coordinated and sophisticated military deception program directed against Coalition commanders, intelligence services, policymakers and foreign populations. Deception was conducted primarily using Soviet military deception methods and reflected Soviet training. The deception was designed to reduce the effectiveness of Coalition air strikes, enhance the survivability of Iraqi forces, destabilize the Coalition and increase uncertainty about Baghdad's future intentions. Iraqi deception and disinformation did not mislead Coalition intelligence activities regarding overall military capabilities and intentions, although Iraq was successful in complicating the Coalition effort.

Active measures by the Iraqis attempted to present a false picture. These included simulation, such as the use of decoys, and disinformation programs. Fake bomb craters were painted on undamaged runways, and Iraqi ground units constructed some false positions, including some dummy surface-to-air (SAM) and Silkworm missile sites. Decoy missile attack boats, artillery and tanks also were observed. These decoy positions drew fire and enhanced the survivability of operational equipment. Night capable smart munitions made this ruse ineffective when there was no heat source present. Soon, however, the Iraqis began burning tires near the decoys to simulate a heat signature. As Coalition aircraft engaged from ever shorter ranges, this ploy also became ineffective. Decoy Scud missile launcher sites, some incorporating heat producers to simulate active generators, complicated the Coalition effort to eradicate the Iraqi ballistic missile threat. Finding and destroying Iraq's mobile Scud launchers proved a difficult and vexing problem, diverting resources from other aspects of the air campaign and prolonging the threat to Israeli, Saudi and other civil and military targets throughout the region.

Iraqi industrial complexes frequently served dual purposes in an attempt to disguise their military value. For example, Iraq unsuccessfully tried to hide a biological agent production facility in a factory that it attempted to pass off as producing only infant formula. Iraq may have successfully concealed some unconventional weapon facilities. Some critical Iraqi leadership facilities evaded Coalition detection efforts.

Another aspect of the Iraqi effort was a disinformation campaign. Iraq attempted to blame the US for destroying an infant formula plant. US statements made it clear the facility had a biological warfare role. US intelligence unmasked several active Iraqi deception measures, such as the simulated destruction of a mosque. Some damage in downtown Baghdad, blamed by Iraq on US planes, was in fact caused by Iraqi antiaircraft fire and SAMs fired without guidance. Concerns about negative publicity, however, contributed to a decision to curtail bombing in downtown Baghdad after 16 February. Iraq planted disinformation stories in the Coalition press such as the US military consorting with Egyptian concubines, shooting Moroccan soldiers, or defiling Islamic Holy sites. While the Iraqi disinformation campaign directed against Arab governments and publics may have incited some popular opposition against the Coalition and the US, it did not cripple the execution of Operation Desert Storm. Iraq also failed in its pre-hostilities efforts to paint Kuwait as unworthy of international support and thereby block the formation of the Coalition, and it subsequent attempts to intimidate the Coalition. The Coalition was not deterred by Iraqi predictions of "the mother of all battles," "10,000 US casualties in a single day," and the "destruction of the Arab nation."

Finally, the Coalition faced the prospect that Saddam might use chemical and possibly biological weapons. Although it is believed that chemical agents were fielded

in forward areas in late 1990, it appears that they were later withdrawn, as none were found by Coalition forces during the ground offensive. There is no evidence of the use of these weapons. However, striving to deter use and planning to defend against their threat did consume Coalition attention and resources.

The US was aware generally of Iraqi deception measures used in the Iran-Iraq war and the US Central Command (CENTCOM) conducted air and ground operations accordingly. Certainly the Iraqi deception and disinformation efforts had some success in causing the Coalition to direct some munitions to decoy targets, as well as making the campaign against military infrastructure more difficult and more susceptible to propaganda exploitation.

Coalition Deception

Coalition force deception operations were an integral part of the overall strategy for Desert Storm. Planning began in early August and remained an essential element of the campaign. The goal of these operations was to keep the enemy off balance and disoriented as to the actual strength, location and intentions of Coalition forces.

A deception measure was designed to convince the Iraqis that Coalition forces would directly attack Iraqi positions in Kuwait supported by an amphibious assault on the Kuwait coastline when in fact our main ground effort would be a penetration in the west into Iraq itself. This deception played upon pre-existing Iraqi expectations, and CENTCOM implemented a plan which would reinforce those expectations. Prior to Operation Desert Storm, the deception plan included amphibious rehearsals and exercises, training airspace locations, air refueling and early warning orbits, air combat exercises, trench warfare training and minefield breaching operations. After hostilities began, but prior to the ground campaign, operations included border probes, artillery raids, feints and air strike packages. The Coalition's ability to deny airspace to Iraqi reconnaissance aircraft and its command of space helped to insure that the main effort to the west remained undetected throughout its long buildup after the air war started.

Prior to the execution of hostilities, Navy Central Command (NAVCENT) conducted a series of amphibious rehearsals throughout the Persian Gulf to include the highly publicized Exercise Imminent Thunder. The entire spectrum of amphibious capability and force structure was used with support from theater tactical air forces. Naval gunfire and ship concentrations were consistent with amphibious pre-invasion efforts. This caused the Iraqis to commit a large number of forces (at least six to seven divisions) to defending the Kuwait coastline against an expected amphibious assault.

In addition to supporting the deception objective of fixing Iraqi positions in Kuwait, CENTAF used deception to mask the beginning of the air campaign. Weekly sortie surges and periodic mass tanker launches portrayed increased activity. Continuous AWACS and Combat Air Patrols within Iraqi radar coverage conditioned the Iraqis to the presence of large numbers of Coalition aircraft. These portrayals were intended to convince the Iraqis that preparations for the initial attack were merely another training surge. That perception was used to help cover the air strike force marshaling out of range of Iraqi radar coverage. After marshaling, the packages entered Iraqi airspace with minimum warning.

Aggressive border probes and artillery raids against the Iraqis positioned in Kuwait also aided in deceiving Iraq about Coalition intentions. Further, as the ground offensive began, the 1st Cavalry Division feinted toward Wadi Al-Batin. Task Force Troy was employed along the southern Kuwait border to deceive the Iraqis as to the true location of the Marine attack. These efforts and the supporting attack by two Marine divisions into the "shoulder" of Kuwait, an obvious avenue of approach, and several demonstrations by 4th Marine Expeditionary Brigade off Ash Shuaybah, Bubiyan Island and Faylakah Island, served to fix the Iraqi forces in place and precluded their shifting to the west to meet the main attack or reinforce Iraqi forces to the west. When Coalition forces swept in from the west, they found the Iraqi defenders oriented to the east and south, allowing the allies to attack them from the flanks and rear.

EMERGING OBSERVATIONS

Some Accomplishments

- — Overall Coalition strategy deceived Iraqi commanders, who prepared for frontal and amphibious assaults into Kuwait. Enveloping armored thrust in the west appears to have been unexpected.
- — Iraqi threats and a sophisticated disinformation campaign did not paralyze the Coalition.
- — US intelligence unmasked several Iraqi deception measures.
- — Iraqi tactical deception efforts complicated Coalition efforts but were overcome.
- — Iraq failed in its efforts to paint Kuwait as unworthy of international support.

Some Shortcomings

- — Iraq may have successfully concealed some unconventional weapon facilities as confirmed by post-war information from an Iraqi defector and other intelligence sources.
- — Some critical Iraqi leadership facilities eluded Coalition search efforts.
- — The Coalition's difficulty in finding mobile Scuds absorbed resources. The ongoing Scud attacks threatened to draw Israel into the war.

Some Selected Issues

- — Iraqi decisions about chemical or biological weapons remain unclear and under continued appraisal.
- — Some early deception and psychological operations (PSYOPS) suffered delays before final approval.

QUESTION 25:

The military criteria used to determine when to progress from one phase of military operations to another phase of military operations, including transition from air superiority operations to operations focused on degrading Iraqi forces, transition to large-scale ground offensive operations and transition to cessation of hostilities.

QUESTION 25:

The military criteria used to determine when to progress from one phase of military operations to another phase of military operations, including transition from air superiority operations to operations focused on degrading Iraqi forces, transition to large-scale ground offensive operations and transition to cessation of hostilities.

Operation Desert Storm was based on a four phased plan. The phases were: Strategic Air Campaign, Attainment of Air Supremacy in the Kuwait Theater of Operations (KTO), Battlefield Preparation, and Ground Offensive. The first three phases were executed almost concurrently because of the large number of available aircraft and early attainment of air supremacy.

The near simultaneous execution of the three phases of the air campaign severely degraded much of Iraq's military forces and supporting infrastructure. Strategic air warfare effectively paralyzed the national command, control and communications system, grounded Iraq's air force, and degraded Iraq's strategic nuclear, biological and chemical threat. Early Coalition air supremacy and the destruction of Iraqi air defenses made Iraqi lines of communication and ground forces vulnerable to air attack. By early February, Coalition air forces had shifted their focus to the attrition of Iraqi armor and artillery in the Kuwait Theater of Operations (KTO).

At noon on 22 February, President Bush issued an ultimatum to Saddam to begin an unconditional withdrawal from Kuwait to be completed within a week. When the Iraqi leader rejected this ultimatum the next day, President Bush authorized ground operations. These operations began on 24 February.

Central Command considered several factors when recommending that Coalition ground forces were prepared to conduct offensive ground operations. First, the Coalition plans called for the air interdiction campaign to reduce the Iraqi numerical superiority approximately 50% in tanks and artillery in the KTO before commencing the ground attack. General Schwarzkopf considered this objective achieved before ground operations began on 24 February 1991. In addition, he noted from other evidence that the Iraqi will and capability to fight seemed to be eroding. General Schwarzkopf also considered the timing of cultural factors and weather conditions. Finally, it appeared that Coalition deception efforts to focus Iraq on the threat of an amphibious assault on the coast and to mask the movement of forces to the west continued to be successful.

The battle damage assessment (BDA) necessary to judge the effectiveness of the air interdiction campaign was difficult to obtain because of reconnaissance systems limitations and adverse weather. Estimating attrition of Iraqi defensive forces was often more art than science. It was often impossible to confirm destruction of dug-in targets until Coalition forces arrived to see for themselves. Damage to vehicles caused by modern weapons and damage to troops often cannot be verified by imagery. General Schwarzkopf has commented that there was a problem of discrepancies between the BDA provided by the national intelligence community and in the theater. There were significant differences in the level of attrition that the national intelligence community was willing to confirm as opposed to the damage estimates developed in theater, based on national intelligence, theater reconnaissance, pilot reports and other battlefield reports. In making his recommendation to begin the ground offensive to the President, General Schwarzkopf relied primarily on estimates developed in theater.

The decision to halt offensive operations was made following the achievement of Coalition military objectives. By the morning of 28 February, Coalition forces had degraded the Iraqi ballistic missile threat to Saudi Arabia and Israel and destroyed Iraq's known nuclear, biological, and chemical warfare production facilities. The Iraqi national leadership had lost command and control in the theater of operations. The Republican Guard divisions were combat ineffective and incapable of further coordinated resistance. Iraqi forces had fled Kuwait City. Surviving elements were in full retreat towards Basrah under heavy allied pressure. Coalition units were taking huge numbers of prisoners and inflicting heavy casualties on those Iraqi forces that continued to resist. Even before the end of hostilities, however, Coalition forces held their fire to allow Iraqis retreating without equipment to escape, although firing at retreating forces is permitted by the rules of war. With the achievement of the Coalition's military objectives, President Bush, with the concurrence of other Coalition leadership, ordered Coalition forces to cease offensive operations as of 0800 local time on 28 February.

EMERGING OBSERVATIONS

Some Accomplishments

- Simultaneous execution of the air campaign's three phases overwhelmed Iraqi defenses.
- As planned, early air supremacy was instrumental in the rapid advance of the ground forces and the minimal casualties experienced overall.
- The transition to the ground phase proceeded as planned; the speed and force of the ground campaign led to an early termination of hostilities.

Some Shortcomings

- Battle damage assessment was difficult, and complicated the decision of when to make the transition to the ground war.
- National Intelligence Community damage assessments were judged by CINCCENT as too conservative.

QUESTION 26:

The effect on the conduct of US military operations resulting from implementation of the Goldwater-Nichols Department of Defense Reorganization Act of 1986.

QUESTION 26:

The effect on the conduct of US military operations resulting from implementation of the Goldwater-Nichols Department of Defense Reorganization Act of 1986.

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 (GNA) sought to reorganize DOD to strengthen civilian control and oversight of military operations; improve the military advice provided to civilian officials; establish the Chairman of the Joint Chiefs of Staff (CJCS) as the principal military advisor to the national command authorities (NCA); place clear responsibility on combatant commanders while ensuring that the CINCs' authority is commensurate with their responsibilities; increase the attention devoted to strategy and contingency planning, to include ensuring a civilian role in that planning; provide for more efficient use of DOD resources; and otherwise enhance the efficiency and effectiveness of military operations. Operations Desert Shield and Desert Storm provided the first occasion to evaluate the efficacy of the GNA in a major conflict involving substantial contributions by all the Services. The success of these operations can be partially attributed to the impact GNA has had on the Defense Department.

Impact of Goldwater-Nichols

The system in place prior to GNA provided for the formulation and promulgation of national military strategy, translation of that strategy into specific missions for the unified and specified commanders, development of operational plans to accomplish assigned missions, and the periodic review and assessment of those plans. GNA enhanced this system by requiring the Secretary of Defense to issue contingency planning guidance that links the national military strategy with the Joint Strategic Capabilities Plan. GNA also increased civilian oversight of the operational planning process by requiring the Under Secretary of Defense for Policy (USDP) to review contingency plans.

The Defense Planning Guidance (DPG), prepared by USD/P and issued by the Secretary of Defense, is one of the Department's primary tools for linking strategy and resource planning. The DPG prepared in the fall of 1989 called for additional attention to the defense of the Arabian Peninsula against strong regional threats. This shift in focus reflected changes in the Soviet threat to the region and new regional dynamics. Due in large measure to this change, by the outset of the crisis in August 1990, the Commander-in-Chief, Central Command (CINCCENT) had already prepared a concept plan for the defense of the Arabian Peninsula that included a detailed estimate of the forces needed to respond to a regional threat. This concept provided the basis for the operations plan developed after the Iraqi invasion of Kuwait.

GNA strengthened and clarified CINC authority and the CINCs' relationships with the Services and the NCA. For example, for Operations Desert Shield and Desert Storm, CINCCENT was designated the supported CINC, to be provided with needed assistance and forces from the other CINCs and the Services, who assumed supporting roles. These supported and supporting relationships were clarified in GNA.

GNA did not resolve all of the CINC's intelligence problems, but it has redirected the flow of critical information. Prior to GNA, intelligence tended to be directed to the Service component level or retained at the national level, thus forcing the CINC to draw the intelligence needed for planning and operations from disparate sources. This was time consuming and inefficient. As a result of GNA, CINCCENT was able to influence intelligence efforts at all levels (national, theater, and tactical), and when Operation Desert Storm commenced, the Central Command (CENTCOM) became a primary focus for intelligence production and transmittal. Ironically, this positive result of GNA contained some hidden problems, because CINCCENT (and probably all other CINCs) was not staffed or equipped to handle the volume of raw and finished intelligence data he received, or to manage the intelligence collection assets he was allocated. During Operation Desert Storm, operators and intelligence specialists (at all levels in the chain of command) found ways to work around potential bottlenecks. In the future, however, the DOD and the entire national intelligence community will need to develop a process that delivers to the CINC the intelligence he needs, when he needs it, in the right place, and in the right amount.

The position of Vice Chairman, created in GNA, proved valuable, as he was able to handle those issues not directly related to the crisis but still requiring CJCS attention. This freed the Chairman to focus on monitoring the war and providing advice to the NCA. Additionally, the Vice Chairman served as a principal member of

the National Security Council-chaired interagency Deputies Committee.

While DOD continues to improve the nation's military capabilities and enhance the interoperability among various forces, the Department must ensure that it preserves Service-unique combat expertise and specialized knowledge of particular capabilities. The individual Services are charged by law to "train, organize, and equip" US military forces. The joint process should bring this Service expertise to the table where sound military advice is developed. One purpose of GNA is to ensure that the military advice of each individual member of the Joint Chiefs reaches the NCA in a coherent and streamlined manner.

EMERGING OBSERVATIONS

Some Accomplishments

— Civilian control and oversight of the Department of Defense was enhanced as was senior civilian cognizance of the strategy and planning process. Improved planning processes in 1989 helped prepare CENTCOM for the August 1990 crisis.

— The roles of the Services, the Defense Agencies, and the supporting CINCs were clarified, which enhanced the timely provision of assistance to CINCCENT when and where needed.

A Selected Issue

— The extent to which operations in the Gulf and within various staff echelons demonstrated the degree of jointness sought by GNA will likely remain an active topic in the media, in Congress, and in Departmental and professional circles. The Department is committed to continuing actively to foster jointness.

QUESTION C:

Number of military and civilian casualties sustained by Coalition forces. Estimates of military and civilian casualties sustained by Iraq and by nations not directly participating in the Gulf conflict.

QUESTION C:

Number of military and civilian casualties sustained by Coalition forces. Estimates of military and civilian casualties sustained by Iraq and by nations not directly participating in the Gulf conflict.

All casualties, military or civilian, are significant. But in historical terms, Coalition casualties were relatively light in Operation Desert Storm. The effectiveness of the Coalition campaign took the initiative from Iraq and prevented Iraq from regaining its balance or inflicting significant casualties on Coalition forces. The precision of the Coalition attack minimized Iraqi civilian casualties. The humaneness of the Coalition spared many Iraqi military casualties. At the same time, Iraqi Scud attacks inflicted civilian casualties with no military purpose.

There is as yet no final total of US casualties. During Operation Desert Shield there were 84 US non-battle deaths. Non-battle deaths include personnel lost by reason of disease or injury not related to the enemy (such as vehicle accidents or heart attacks). US commanders are not required by established reporting procedures to report non-battle injuries to the National Command Authority during non-combat situations such as Operation Desert Shield. During Operation Desert Storm, non-battle injuries were required to be reported. The official US military casualty figures as of 24 June 1991 are as follows: killed in action – 148; wounded in action – 458; non-battle deaths – 138; non-battle injuries – 2978. (Different organizations keep these figures on slightly different bases which accounts for slight discrepancies among different sources of data.) The vast majority of those receiving non-battle injuries have been returned to duty.

There were a number of Scud missile attacks on Coalition forces within the Kuwait Theater of Operations during Desert Storm. We do not know the number of casualties caused by particular weapon systems. However, the largest single cause of American losses was the 25 February Scud missile attack that hit a US barracks in Dhahran, Saudi Arabia, killing 28 US military personnel and injuring 97.

There is no formal system for reporting Coalition military casualty figures, much less Coalition civilian casualties. Estimates for non-US Coalition military casualties are: killed in action – 192; wounded in action – 318. Kuwaiti civilian casualties were undoubtedly substantial as a result of wanton acts of murder and torture on the part of Iraqi occupation forces. An accounting of these deaths continues.

Very limited information is available on which to base an assessment of Iraqi military casualties. Iraq probably cannot accurately account for its casualties given the destruction of administrative headquarters, the overrunning and scattering of entire divisions, the widespread desertions of officers and enlisted personnel, and the subsequent military actions against the Shi'ites in the south and the Kurds in the north.

In several ways, Coalition actions avoided unnecessary Iraqi military casualties. First, the Coalition Psychological Operations campaign induced Iraqi desertions and thereby lowered Iraqi and Coalition battle casualties. Coalition tactics also focused on targeting vehicles and equipment, not people. Coalition forces, on a number of occasions, held their fire to permit unarmed Iraqi soldiers to retreat, even though the rules of war would not have required this restraint.

The Department does not have accurate assessments of the collateral damage and casualties suffered as a result of Operation Desert Storm among the civilian population of Iraq. The accuracy of eventual estimates may be affected by the civilian deaths suffered when Saddam's regime crushed the Kurdish and Shi'ite uprisings following the war. The Coalition sought to minimize civilian losses through use of precision munitions and various restrictions on the employment of weapons during Desert Storm. For example, the Coalition restricted the use of weapons employed near civilian areas, permitting some attacks only during the night when most civilians would be home and not near the target area. Other restrictions included not allowing attacks if targets could not be positively identified and avoiding valid military targets in close proximity to civilian areas, including combat aircraft parked in civilian housing areas or near historic sites. In addition, as the ground war was prosecuted, the preparatory artillery fires and bombardment that would normally lead to further civilian casualties were obviated by the rapidity of the ground forces advance.

The Department has not developed an independent estimate of civilian casualties in Jordan, Iran, or Israel, although there were certainly Israeli civilian casualties

Appendix A:

Coalition Forces

from Scud missile attacks and, reportedly, Jordanian casualties along truck routes inside western Iraq. The Department knows of no military casualties sustained by countries not participating directly in the war.

EMERGING OBSERVATIONS

Some Accomplishments

- Although any losses are troubling, Coalition casualty figures were exceptionally light in historical terms.
- The precision and effectiveness of the Coalition campaign reduced Coalition casualties and Iraqi civilian casualties.
- The Coalition took several actions that reduced unnecessary Iraqi military casualties.

A Shortcoming

- There is limited information available to assess Iraqi military and civilian casualties.

Appendix A

COALITION FORCES

Countries Providing Forces or Combat Support Forces in the Area of Responsibility

Afghanistan	300 Mujahidin
Argentina	2 frigates, 450 troops
Australia	1 guided missile frigate, 1 destroyer, 1 supply ship
Bahrain	3,500 troops
Bangladesh	2,000 troops
Belgium	2 mine sweepers
	1 squadron of fighters to Turkey
Canada	2 destroyers, CF-18 squadron (30 fighter/transport aircraft), 1,700 troops
Czechoslovakia	200-man chemical defense unit, 150 medical personnel
Denmark	1 corvette
Egypt	40,000 troops, 358 tanks
	4th Armored Div, 3rd Mech Infantry Div
France	20,000 troops
	18 ships, 1 CV, more than 60 aircraft, 350 tanks
	6th Armored Div
Germany	1 squadron of fighters to Turkey
Greece	1 frigate in Red Sea
Hungary	40-man medical team
Honduras	150 troops (offered, not used)
Italy	4 ships, 8 Tornado fighters
	1 squadron of fighters to Turkey
Kuwait	7,000 troops (remnants of Kuwaiti armed forces)
	35 combat aircraft
Morocco	2,000 troops
Netherlands	2 frigates
	1 squadron of 18 F-16 fighters to Turkey
Niger	480 troops guarding shrines in Mecca and Medina
Norway	1 cutter, 1 military supply ship
New Zealand	2 C-130 aircraft
Oman	25,500-man armed forces
	12 patrol ships, 75 tanks, 50 combat aircraft
Pakistan	10,000 troops
Poland	2 ships, medical team
Portugal	1 support ship helping British forces
Qatar	7,000-man armed forces
	24 tanks, 9 coastal vessels, 19 combat aircraft
Republic of Korea	C-130 aircraft, medical team
Saudi Arabia	60,600 personnel
	267 main battle tanks, 216 combat aircraft
	15 combatant ships
Senegal	500 troops
Sierra Leone	27-man medical team

Appendix A (Continued)

Singapore	30-man medical team
Spain	2 corvettes and 1 destroyer patrolling near Bab al Mandeb
Sweden	40-man medical team for UK casualty support
Syria	14,300 personnel in 9th Armored Div and Special Forces
Turkey	2 frigates in the Gulf 120,000 on border with Iraq No commitment to involvement except if attacked US F-16 & F-111 squadrons at Incirlik
UAE	40,000-man army, 1500 in air force, 1500 in navy. 14 main battle tanks, 78 combat aircraft
United Kingdom	42,000 personnel, 22 ships, 85 aircraft 1st Armored Div HQ 7th Armored Bde 4th Armored Bde

Appendix B:

Glossary

Appendix B (Continued)

CAFT	center for anti-fratricide technology
CAS	close air support
CAT	crisis action team
CB	chemical/biological
CBU	cluster bomb unit
CBW	chemical or biological weapons
CCD	camouflage, concealment and deception
C-Day	deployment day
CENTAF	US Air Force, Central Command
CENTCOM	US Central Command
CI	civilian internees
CIA	Central Intelligence Agency
CINC	commander-in-chief
CINCCENT	Commander-in-Chief US Central Command
CINCSPACE	Commander-in-Chief US Space Command
CINCTRANSCOM	Commander-in-Chief US Transportation Command
CJCS	Chairman, Joint Chiefs of Staff
CNN	Cable News Network
COCOM	combatant command (command authority)
COMSEC	communications security
COMTAC	Commander of Tactical Air Command
CONUS	continental United States
CRAF	civil reserve air fleet
CSAR	combat search and rescue
CS	combat support
CSS	combat service support
CT	counterterrorism
CTJTF	counterterrorism joint task force
CW	chemical warfare
DIA	Defense Intelligence Agency
DMI	Israeli directorate of military intelligence
DMSP	defense meteorological satellite program
DOD	Department of Defense
DOE	Department of Energy
DOPMA	Defense Officer Personnel Management Act
DOS	Department of State
DOT	Department of Transportation
DPA	Defense Production Act
DPG	defense planning guidance
DSB	Defense Science Board
DSCS	defense satellite communication system
EAC	echelon above corps
EPW	enemy prisoner of war
EUCOM	European Command
EW	electronic warfare
FAC	forward air control

Appendix B

GLOSSARY

AAA	antiaircraft artillery
AAAM	advanced air-to-air missile
AAV	amphibious assault vehicle
ABCCC	airborne battlefield command and control center
ABF	advanced bomb family
AC	active component
ACO	airspace coordination order
ACR	Armored Cavalry Regiment
AEW	airborne early warning
AIWS	advanced interdiction weapons system
AMRAAM	advanced medium range air-to-air missile
ANG	Air National Guard
AO	area of operation
AOR	area of responsibility
ARCENT	US Army Forces, Central Command
ARM	antiradiation missiles
ARNG	US Army National Guard
ASARS	advanced synthetic aperture radar system
ASD(PA)	Assistant Secretary of Defense (Public Affairs)
ASD(SO-LIC)	Assistant Secretary of Defense (Special Operations and Low Intensity Conflict)
ATACMS	Army tactical missile system
ATO	air tasking order
AWACS	airborne warning and control system (USAF)
BAI	battlefield air interdiction
BAS	basic allowance for subsistence
BDA	bomb damage assessment
BDU	battle dress uniform
BMP	Soviet armored personnel carrier
BND	German Federal Intelligence Service
BVR	beyond visual range
BW	biological warfare
C^3CM	command, control, communications countermeasures
C^3	command, control, and communications
C^3I	command, control, communications, and intelligence
C^3IC	Coordination, Control, Communications, and Intelligence Center
C^4	command, control, communications, and computers
CA	civil affairs
CAFMS	computer aided force management system

Appendix B (Continued)

JFSOCC	joint forces special operations component commander
JIB	joint information bureau
JIC	joint intelligence center
JIPC	joint imagery processing complex
JOPES	joint operations planning and execution system
JRC	Joint Reconnaissance Center
JS	Joint Staff
JSCP	Joint Strategic Capabilities Plan
JSEAD	joint suppression of enemy air defenses
JSIPS	Joint Service Imagery Processing System
JSPS	joint strategic planning system
JTF	joint task force
JTIDS	joint tactical information distribution system
JTTP	joint tactics, techniques and procedures
JULL	joint uniform lessons learned
KCATF	Kuwait civil affairs task force
KHZ	kilohertz
KIA	killed in action
KTO	Kuwait theater of operations
LANDSAT	land satellite, NASA/NOAA satellite program
LANTIRN	low-altitude navigation and targeting infrared system for night
LAV	light armored vehicle
LCAC	air-cushioned landing craft
LGB	laser-guided bomb
LOC	lines of communication
LOGAIR	logistics airlift
LRC	logistics readiness center
LRI	long-range international
MAC	Military Airlift Command
MAGTF	Marine air ground task force
MARCENT	US Marine Corps, Central Command
MCM	mine countermeasures
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MIA	missing in action
MIF	maritime interdiction force
MILCON	military construction
MILSATCOM	military satellite communications
MILSTAR	military strategic and tactical relay system
MIO	maritime intercept operations
MLRS	multiple-launch rocket system

Appendix B (Continued)

FAE	fuel air explosive
FAPES	force augmentation planning and execution system
FEWS	follow-on early warning system
FHTV	family of heavy tactical vehicles
FID	foreign internal defense
FLIR	forward-looking infrared radar
FMTV	family of medium tactical vehicles
FORSCOM	US Army Forces Command
FSS	fast sealift ships
GAO	General Accounting Office
GC	Geneva Convention
GCC	Gulf Cooperation Committee
GCI	ground control intercept
G-Day	day the ground war began
GNA	Goldwater-Nichols DOD Reorganization Act
GOK	Government of Kuwait
GOSC	general officer steering committee
GPS	global positioning satellite
HA	heavy armor
HARM	high speed antiradiation missile
HEMTT	heavy expanded mobility tactical truck
HET	heavy equipment transporters
HF	high frequency
H-Hour	specific time at which operation commences
HMMWV	high mobility multipurpose wheeled vehicle
HNS	host-nation support
HUMINT	human intelligence
IADS	integrated air defense system
ICRC	International Committee of the Red Cross
IFF	identification friend or foe
IMINT	imagery intelligence
IRR	individual ready reserve
ISW	integrated strike warfare
ITAC	intelligence and threat analysis center (USA)
ITF	intelligence task force
JSTARS	joint surveillance target attack radar system
JCMEC	joint captured material exploitation center
JDS	joint deployment system
JFACC	joint forces air component commander
JFC	joint forces commander
JFC-E	Joint Forces Command East
JFC-N	Joint Forces Command North
JFLCC	joint forces land component commander
JFMCC	joint forces maritime component commander

Appendix B (Continued)

ROTHR	relocatable over-the-horizon radar
RPV	remotely piloted vehicle
RRF	ready reserve force
RSLF	Royal Saudi Land Force
S&TI	scientific and technical intelligence
SA	selective availability
SAC	Strategic Air Command
SAG	Saudi Arabian Government
SAM	surface-to-air missile
SANG	Saudi Arabian National Guard
SAR	search and rescue
SATCOM	satellite communications
SCUD	Soviet short-range surface/surface missile
SEAD	suppression of enemy air defenses
SEAL	sea air land
SECDEF	Secretary of Defense
SFG	special forces group
SFW	sensor fuzed weapons
SHF	super high frequency
SIGINT	signals intelligence
SINCGARS	single channel ground/airborne radio subsystem
SIOP	single integrated operational plan
SITREP	situation report
SLAM	standoff land attack missile
SMESA	Special Middle East Shipping Agreement
SOC	Special Operations Command
SOCCENT	Special Operations Command Central Command
SOF	special operations forces
SOG	special operations group
SPACC	US SPACECOM Space Control Center
SRBM	short-range ballistic missile
SRP	sealift readiness program
SSA	Selective Service Act
STU	secure telephone unit
SWA	Southwest Asia
TAC	Tactical Air Command
TACAIR	tactical aircraft
TACON	tactical control
TAF	tactical aircraft forces
TARPS	tactical air reconnaissance pod system
TBM	tactical ballistic missile
TIARA	tactical intelligence and related activities
TIBS	tactical information broadcast system
TLAM	TOMAHAWK land attack missile
TMD	tactical ballistic missile defense
TPFDD	time-phased force deployment data

Appendix B (Continued)

MOBREP	manpower mobilization and accession status report
MOPP	mission-oriented protective posture
MPF	maritime pre-positioning force
MPS	maritime pre-positioning ships
MRE	meals ready to eat
MRS	Mobility Requirements Study
MSC	Military Sealift Command
MSE	mobile subscriber equipment
MSI	multispectral imagery
MTI	moving target indicator
NATO	North Atlantic Treaty Organization
NAVCENT	US Navy, Central Command
NAVSTAR	navigational satellite timing and ranging
NBC	nuclear, biological, and chemical
NCA	National Command Authorities
NCTR	noncooperative target recognition
NMIC	National Military Intelligence Center
NMIST	national military intelligence support teams
NSA	National Security Agency
NSC	National Security Council
O&M	operations and maintenance
OASD/(DR&E)	Office of the Assistant Secretary of Defense (Defense Research & Engineering)
OASD/(SO/LIC)	Office of the Assistant Secretary of Defense (Special Operations/Low Intensity Conflict)
OB	order of battle
OICC	operational intelligence crisis center
OPCON	operational control
OPLAN	operation plan
OPSEC	operational security
OSD	Office of the Secretary of Defense
PAO	public affairs officer
PCITF	positive combat identification task force
PGM	precision guided munitions
PLS	palletized loading system
POG	psychological operation group
POMCUS	pre-positioning of material configured to unit sets
POW	prisoner of war
PREPO	pre-positioned
PSYOP	psychological operation
R&D	research and development
R&M	reliability and maintainability
RC	Reserve Component
RO/RO	roll on/roll off
ROE	rules of engagement

Appendix C:

Report #4, dated June 14, 1991, entitled:

UNITED STATES COSTS IN THE PERSIAN GULF CONFLICT AND FOREIGN CONTRIBUTIONS TO OFFSET SUCH COSTS

Appendix B (Continued)

TPFDL	time-phased force deployment list
TR	theater reserves
TRANSCOM	US Transportation Command
TRAP	tanks, racks, adapters, and pylons
TTP	tactics, techniques, and procedures
UAE	United Arab Emirates
UAV	unmanned aerial vehicle
UHF	ultra high frequency (300 MHz-3 GHz)
UK	United Kingdom
UN	United Nations
UNSC	United Nations Security Council
USAF	United States Air Force
USAR	US Army Reserve
USC	United States Code
USCINCCENT	Commander-in-Chief US Central Command
USEUCOM	US European Command
USG	United States Government
USMC	US Marine Corps
USN	US Navy
USNAVCENT	US Navy, US Central Command
USNR	US Navy Reserve
USPACCOM	US Pacific Command
USSOCOM	US Special Operations Command
USSPACECOM	US Space Command
USTRANSCOM	US Transportation Command
VA	Department of Veteran's Affairs
VCJCS	Vice Chairman, Joint Chiefs of Staff
WAM	wide area mine
WCDC	war crimes documentation center
WHNS	wartime host-nation support
WIA	wounded in action
WIN	worldwide military command and control system intercomputer network
WRM	war reserve material
WRSK	war reserve spares kits
WWMCCS	worldwide military command and control system

Appendix C (Continued)

materiel, equipment, ammunition and vehicles had not been shipped from Southwest Asia at the end of April. Materiel still in theater includes the large, heavy pieces of equipment which are costly and time consuming to prepare and transport. Combat aircraft continue to fly in the region and the U.S. forces will continue to remain in the region until all parties are satisfied with long term security arrangements. The costs through April plus the other costs not yet reported are expected to result in total incremental costs of $60 billion or more. A Department of Defense estimate of potential total incremental costs by major category of expense is attached. This estimate is preliminary and has not yet been reviewed by OMB.

Incremental Coast Guard costs of $1.8 million were incurred during this reporting period, with cumulative costs of $23.3 million through April to support military operations in the Persian Gulf.

Contributions

Section 401 of P.L. 102-25 requires that this report include the amount of each country's contribution during the period covered by the report, as well as the cumulative total of such contributions. Cash and in-kind contributions pledged and received are to be specified.

Tables 10 and 11 list foreign contributions pledged in 1990 and 1991, respectively, and amounts received in May. Cash and in-kind contributions are separately specified.

As of June 13, 1991, foreign countries contributed $8.0 billion of the $9.7 billion pledged in calendar year 1990, and $35.1 billion of the $44.9 billion pledged in calendar year 1991. Of the total $43.1 billion received, $37.8 billion was in cash and $5.3 billion was in-kind assistance (including food, fuel, water, building materials, transportation, and support equipment). Table 12 provides further detail on in-kind contributions.

Table 13 summarizes the current status of commitments and contributions received through June 13, 1991.

Future Reports

As required by Section 401 of P.L. 102-25, the next report will be submitted by July 15th. In accord with the legal requirement, it will cover incremental costs associated with Operation Desert Storm that were incurred in May 1991, and foreign contributions for June 1991. Subsequent reports will be submitted by the 15th day of each month, as required, and will revise preliminary reports to reflect additional costs as they are estimated or re-estimated.

Appendix C (Continued)

UNITED STATES COSTS IN THE PERSIAN GULF CONFLICT AND FOREIGN CONTRIBUTIONS TO OFFSET SUCH COSTS

Report #4: June 14, 1991

Section 401 of P.L. 102-25 requires a series of reports on incremental costs associated with Operation Desert Storm and on foreign contributions to offset such costs. This is the fourth of such reports. As required by Section 401 of P.L. 102-25, it covers costs incurred during April 1991 and contributions made during May 1991. Previous reports have covered the costs and contributions for the period beginning August 1, 1990, and ending on March 31, 1991, for costs and April 30, 1991, for contributions.

Costs

The costs covered in this and subsequent reports are full incremental costs of Operation Desert Storm. These are additional costs resulting directly from the Persian Gulf crisis (i.e., costs that would not otherwise have been incurred). It should be noted that only a portion of full incremental costs are included in Defense supplemental appropriations. These portions are costs that require financing in fiscal year 1991 and that are exempt from statutory Defense budget ceilings. Not included in fiscal year 1991 supplemental appropriations are items of full incremental costs such as August - September 1990 costs and costs covered by in-kind contributions from allies.

Table 1 summarizes preliminary estimates of Department of Defense full incremental costs associated with Operation Desert Storm from August 1, 1990, through April 30, 1991. The cost information is shown by the cost and financing categories specified in Section 401 of P.L. 102-25. Tables 2-9 provide more detailed information by cost category. Costs shown in this report were developed by the Department of Defense and are based on the most recent data available.

Through April 1991, costs of about $40 billion were reported by the Department of Defense. The costs reported so far are preliminary. This report includes an estimate of costs identified to date of equipment repair, rehabilitation, and maintenance caused by the high operating rates and combat use. The report also includes some of the costs of phasedown of operations and the return home of the deployed forces.

There are substantial costs that have not yet been reported. These include equipment repair, rehabilitation, and restoration that have not so far been identified, long-term benefit and disability costs, and the costs of continuing operations in the region. About 200,000 military personnel were in the region at the end of April, and approximately 150,000 reservists were still on active duty at that time. Approximately 50 percent of the

Appendix C (Continued)

Table 1

SUMMARY 1/

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

	FY 1990	FY 1991			Partial and Preliminary
	Aug – Sep	Oct – Mar	This period April	Total through Apr	Aug 1990 – Apr 1991
(1) Airlift	412	1,222	503	1,725	2,137
(2) Sealift	235	2,491	589	3,080	3,315
(3) Personnel	223	3,293	719	4,011	4,235
(4) Personnel Support	352	4,246	470	4,716	5,068
(5) Operating Support	1,210	9,467	1,987	11,454	12,663
(6) Fuel	626	2,767	385	3,152	3,778
(7) Procurement	129	8,203	40	8,243	8,372
(8) Military Construction	11	412	5	416	427
Total	3,197	32,100	4,698	36,798	39,995 2/
Nonrecurring costs included above 3/	201	11,745	479	12,224	12,425
Costs offset by:					
In-kind contributions	225	4,538	353	4,891	5,116
Realignment 4/	913	58	58	116	1,029

1/ Data was compiled by OMB. Source of data — Department of Defense. This report adjusts earlier estimates to reflect more complete accounting information.

2/ The costs reported so far are preliminary. This report includes an estimate of costs identified to date of equipment repair, rehabilitation, and maintenance caused by the high operating rates and combat use. Additional costs for these categories will be reported as more information becomes available. The report also includes some of the costs of phasedown of operations and the return home of the deployed forces. However, certain long-term benefit and disability costs have not been reflected in the estimates. Those costs will be reported in later reports. The costs through April plus the other costs not yet reported are expected to result in total incremental costs of $60 billion or more.

3/ Nonrecurring costs include investment costs associated with procurement and Military Construction, as well as other one-time costs such as the activation of the Ready Reserve Force ships.

4/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

Appendix C (Continued)

List of Tables

Appendix C (Continued)

Table 3

SEALIFT

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

	FY 1990	FY 1991			Partial and Preliminary
	Aug - Sep	Oct - Mar	This period April	Total through Apr	Aug 1990 - Apr 1991
Sealift					
Army	123	1,357	410	1,768	1,890
Navy	99	1,010	91	1,101	1,199
Air Force	12	110	86	196	208
Defense Logistics Agency		12	2	14	14
Special Operations Command	2	2		2	4
Total	235	2,491	589	3,080	3,315
Nonrecurring costs included above	57	1,294	163	1,457	1,514
Costs offset by:					
In-kind contributions	2	106	15	121	123
Realignment 1/	2				2

1/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

This category includes costs related to the transportation by sea of personnel, equipment and supplies.

During this period over 557,000 short tons of dry cargo were shipped back to the U.S. and Europe in 170 ships (66 of them foreign flag ships chartered by the U. S. government). In addition, 200,000 short tons of petroleum were transported to sustain U. S. forces still in the region.

Appendix C (Continued)

Table 2

AIRLIFT

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

	FY 1990	FY 1991			Partial and Preliminary
Airlift	Aug - Sep	Oct - Mar	This period April	Total through Apr	Aug 1990 - Apr 1991
Army	207	446	200	646	853
Navy	85	421	164	585	670
Air Force	114	338	133	470	585
Defense Intelligence Agency		0 1/	0 1/	1	1
Special Operations Command	6	17	6	24	29
Total	412	1,222	503	1,725	2,137
Nonrecurring costs included above		392	190	583	583
Costs offset by:					
In-kind contributions	7	70	11	81	88
Realignment 2/	6				6

1/ Costs are less than $500 thousand.
2/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

This category includes costs related to the transportation by air of personnel, equipment and supplies.

During this period over 1,900 redeployment missions were flown, which returned over 180,000 people and over 65,000 short tons of cargo to the U.S. and Europe. In addition, over 1,600 missions were flown to carry supplies to U. S. forces still in the region.

Appendix C (Continued)

Table 5

PERSONNEL SUPPORT

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

	FY 1990	FY 1991			Partial and Preliminary
	Aug - Sep	Oct - Mar	This period April	Total through Apr	Aug 1990 - Apr 1991
Personnel Support					
Army	209	3,343	278	3,621	3,830
Navy	104	576	88	664	768
Air Force	24	293	95	388	412
Defense Intelligence Agency	2	8	1	9	11
Defense Logistics Agency	12	14	1	15	26
Defense Mapping Agency		4		4	4
Special Operations Command	2	5	2	7	9
Office of the Secretary of Defense		4	5	9	9
Total	352	4,246	470	4,716	5,068
Nonrecurring costs included above	4	982	76	1,058	1,063
Costs offset by:					
In-kind contributions	28	1,273	214	1,487	1,514
Realignment 1/	3				3

1/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

This category includes subsistence, uniforms and medical costs.

The previous October-March estimate has been reduced by $541 million. Of this decrease, $300 million reflects a decision by Army to report subsistence costs only when the actual bills are received rather than to include an estimate of the accrued cost of such bills. The remaining reduction is the net effect of changes in the category in which costs are reported.

In April subsistence costs of over $225 million and medical costs of about $120 million were the major costs incurred.

Appendix C (Continued)

Table 4

PERSONNEL

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

	FY 1990	FY 1991			Partial and Preliminary
Personnel	Aug - Sep	Oct - Mar	This period April	Total through Apr	Aug 1990 - Apr 1991
Army	126	2,020	355	2,374	2,500
Navy	22	706	194	900	922
Air Force	75	567	170	737	812
Total	223	3,293	719	4,011	4,235
Nonrecurring costs included above		41	4	45	45
Costs offset by:					
In-kind contributions					
Realignment 1/	15				15

1/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

This category includes pay and allowances of members of the reserve components of the Armed Forces called or ordered to active duty and the increased pay and allowances of members of the regular components of the Armed Forces incurred because of deployment in connection with Operation Desert Storm.

The previous October - March estimate has been reduced by $243 million. Of this decrease, $172 million reflects greater savings in Reserve component accounts than previously estimated. The remaining reduction is the net effect of changes in the category in which costs are reported to better align reported costs with the appropriation structure, e.g. the category "personnel" now includes only costs of the Military Personnel appropriations. Operation and Maintenance costs, such as morale and welfare support, previously reported in this category are now reported under Operating Support.

At the end of April 150,000 Reservists were still on active duty and about 200,000 people were still in theater.

Appendix C (Continued)

Table 6

OPERATING SUPPORT

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

Operating Support	FY 1990 Aug - Sep	FY 1991 Oct - Mar	FY 1991 This period April	FY 1991 Total through Apr	Partial and Preliminary Aug 1990 - Apr 1991
Army	896	6,709	-216	6,493	7,388
Navy	223	1,424	1,404	2,828	3,050
Air Force	68	1,262	794	2,056	2,125
Defense Intelligence Agency		1	..	1	1
Special Operations Command	15	23	3	26	41
Defense Communications Agency		1		1	1
Defense Mapping Agency	8	44	2	46	54
Office of the Secretary of Defense		3		3	3
Total	1,210	9,467	1,987	11,454	12,663
Nonrecurring costs included above		421		421	421
Costs offset by:					
In-kind contributions	167	1,656	30	1,686	1,853
Realignment 1/	698	11	58	69	767

1/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

This category includes equipment support costs, costs associated with increased operational tempo, spare parts, stock fund purchases, communications, and equipment maintenance.

The previous October - March estimate has been reduced by $850 million. This reflects a decision by the Army to report in-country operating costs only when the obligations are recorded rather than to include an estimate of the costs incurred during the period.

In April, over $2 billion in accrued maintenance costs were identified. These costs were partially offset by the cancellation by Army of almost $1.2 billion of in-country maintenance contracts and requisitions for repair parts and supplies.

Appendix C (Continued)

Table 7

FUEL

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

	FY 1990	FY 1991			Partial and Preliminary
	Aug - Sep	Oct - Mar	This period April	Total through Apr	Aug 1990 - Apr 1991
Fuel					
Army	10	99	17	115	125
Navy	19	1,034	101	1,135	1,154
Air Force	137	1,628	267	1,894	2,031
Special Operations Command		7	1	8	8
Defense Logistics Agency	460				460
Total	626	2,767	385	3,152	3,778
Nonrecurring costs included above					
Costs offset by:					
In-kind contributions	21	883	79	961	982
Realignment 1/	60				60

1/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

This category includes the additional fuel required for higher operating tempo and for airlift and sealift transportation of personnel and equipment as well as for the higher prices for fuel during the period.

Costs reported during this period were about equally divided between higher operating tempo and higher prices.

Table 9

MILITARY CONSTRUCTION

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

	FY 1990	FY 1991			Partial and Preliminary
	Aug - Sep	Oct - Mar	This period April	Total through Apr	Aug 1990 - Apr 1991
Military Construction					
Army	7	410	5	415	422
Navy					
Air Force	4	2		2	6
Total	11	412	5	416	427
Nonrecurring costs included above	11	412	5	416	427
Costs offset by:					
In-kind contributions		395	5	400	400
Realignment 1/	11				11

1/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

This category includes the cost of constructing temporary billets for troops, and administrative and supply and maintenance facilities.

Costs reported in April reflect assistance-in-kind provided in-country.

Appendix C (Continued)

Table 8

PROCUREMENT

INCREMENTAL COSTS ASSOCIATED WITH OPERATION DESERT STORM
Incurred by the Department of Defense
From August 1, 1990 Through April 30, 1991
($ in millions)
Preliminary Estimates

Procurement	FY 1990 Aug - Sep	FY 1991 Oct - Mar	FY 1991 This period April	FY 1991 Total through Apr	Partial and Preliminary Aug 1990 - Apr 1991
Army	49	2,251	40	2,291	2,339
Navy	47	2,503		2,503	2,551
Air Force	32	3,324		3,324	3,356
Defense Intelligence Agency	1	1		1	2
Defense Communications Agency		0		0	0 1/
Special Operations Command		99		99	99
Defense Logistics Agency		4		4	4
Defense Mapping Agency		1		1	1
Office of the Secretary of Defense		21		21	21
Total	129	8,203	40	8,243	8,372
Nonrecurring costs included above	129	8,203	40	8,243	8,372
Costs offset by:					
In-kind contributions		155		155	155
Realignment 2/	119	47		47	165

1/ Costs are less than $500 thousand.
2/ This includes the realignment, reprogramming, or transfer of funds appropriated for activities unrelated to the Persian Gulf conflict.

This category includes ammunition, weapon systems improvements and upgrades, and equipment purchases.

The previous October-March estimate has been increased by about $1 billion. This increase in the previous estimate reflects more accurate accounting for costs of major weapons lost in action and munitions consumed, based on inspection of weapons and munitions inventories. The revised estimate also is more comprehensive in accounting for support equipment used to facilitate operations in Southwest Asia.

Costs for April reflect purchases of special-purpose equipment for the Army.

Appendix C (Continued)

Table 10

FOREIGN CONTRIBUTIONS PLEDGED IN 1990 TO OFFSET U.S. COSTS 1/
($ in millions)

	Commitments			Receipts in May			Receipts through June 13, 1991			Future Receipts
	Cash	In-kind	Total	Cash	In-kind	Total	Cash	In-kind	Total	
GCC STATES	5,861	984	6,845				4,256	984	5,240	1,605
SAUDI ARABIA	2,474	865	3,339				886	865	1,751	1,588 2/
KUWAIT	2,500	6	2,506				2,500	6	2,506	
UAE	887	113	1,000				870	113	983	17 3/
GERMANY 4/	260	812	1,072				272	782	1,054	18 5/
JAPAN 4/	961	779	1,740		1	1	961	637	1,598	142 6/
KOREA	50	30	80				50	30	80	
BAHRAIN		1	1					1	1	
OMAN/QATAR		1	1					1	1	
DENMARK		1	1					1	1	
TOTAL	7,132	2,608	9,740		1	1	5,539	2,436	7,975	1,765

1/ Data was compiled by OMB. Sources of data: commitments — Defense, State, and Treasury; cash received — Treasury; receipts and value of in-kind assistance — Defense.

2/ This is reimbursement for enroute transportation through December for the second deployment and for U.S. in-theater expenses for food, building materials, fuel, and support. Bills for reimbursement have been forwarded to Saudi Arabia.

3/ This is undergoing a final accounting.

4/ 1990 cash contributions were for transportation and associated costs.

5/ It is anticipated that this commitment will prove to have been fully met, though final accounting is not yet available.

6/ Resolution of balance is under discussion.

Appendix C (Continued)

Table 11

FOREIGN CONTRIBUTIONS PLEDGED IN 1991 TO OFFSET U.S. COSTS 1/
($ in millions)

	Commitments 2/			Receipts in May			Receipts through June 13, 1991			Future Receipts
	Cash	In-kind	Total	Cash	In-kind	Total	Cash	In-kind	Total	
GCC STATES	27,265	2,821	30,086	6,475	177	6,652	18,875	2,821	21,696	8,390
SAUDI ARABIA	10,791	2,710	13,500	3,650	168	3,818	7,300	2,710	10,010	3,491
KUWAIT	13,474	26	13,500	1,825	7	1,832	6,575	26	6,601	4,899
UAE	3,000	86	3,086	1,000	2	1,002	3,000	86	3,086	
GERMANY	5,500		5,500				5,500		5,500	
JAPAN 3/	9,000		9,000				7,832		7,832	1,168
KOREA	279	27	305		4	4	60	27	87	219
DENMARK		6	6					6	6	
LUXEMBOURG		6	6		1	1		6	6	
OTHER	4	2	6				4	2	6	
TOTAL	42,047	2,862	44,909	6,475	182	6,657	32,271	2,862	35,133	9,776

1/ Data was compiled by OMB. Sources of data: commitments — Defense, State, and Treasury; cash received — Treasury; receipts and value of in-kind assistance — Defense.

2/ 1991 commitments in most instances did not distinguish between cash and in-kind. The commitment shown above reflects actual in-kind assistance received.

3/ 1991 cash contributions are for logistics and related support.

Appendix C (Continued)

Table 12

DESCRIPTION OF IN-KIND ASSISTANCE RECEIVED
TO OFFSET U.S. COSTS AS OF MAY 31, 1991
($ in millions)

	Calendar Year 1990	Calendar Year 1991
SAUDI ARABIA		
Host nation support including food, fuel, housing, building materials, transportation and port handling services.	865	2,710
KUWAIT		
Transportation	6	26
UNITED ARAB EMIRATES		
Fuel, food and water, security services, construction equipment and civilian labor.	113	86
GERMANY		
Vehicles including cargo trucks, water trailers, buses and ambulances; generators; radios; portable showers; protective masks, and chemical sensing vehicles	782	
JAPAN		
Construction and engineering support, vehicles, electronic data processing, telephone services, medical equipment, and transportation.	637	
KOREA		
Transportation	30	27
BAHRAIN		
Medical supplies, food and water	1	
OMAN/QATAR		
Oil, telephones, food and water	1	
DENMARK		
Transportation	1	6
LUXEMBOURG		
Transportation		6
OTHER		
Transportation		2
TOTAL	2,436	2,862

Appendix C (Continued)

Table 13

FOREIGN CONTRIBUTIONS PLEDGED IN 1990 AND 1991 TO OFFSET U.S. COSTS
COMMITMENTS AND RECEIPTS THROUGH JUNE 13, 1991 1/
($ in millions)

	Commitments			Receipts 2/			Future
	1990	1991	Total	Cash	In-kind	Total	Receipts
GCC STATES	6,845	30,086	36,931	23,131	3,806	26,937	9,995
SAUDI ARABIA	3,339	13,500	16,839	8,186	3,575	11,761	5,078
KUWAIT	2,506	13,500	16,006	11,075	32	11,107	4,899
UAE	1,000	3,086	4,086	3,870	199	4,069	17 3/
GERMANY	1,072	5,500	6,572	5,772	782	6,554	18 4/
JAPAN	1,740	9,000	10,740	8,793	637	9,430	1,310
KOREA	80	305	385	110	57	167	219
OTHER	3	18	21	4	17	21	
TOTAL	9,740	44,909	54,649	37,810	5,298	43,108	11,541

1/ Data was compiled by OMB. Sources of data: commitments — Defense, State, and Treasury; cash received — Treasury; receipts and value of in-kind assistance — Defense.

2/ Cash receipts are as of June 13, 1991. In-kind assistance is as of May 31, 1991.

3/ This is undergoing a final accounting.

4/ It is anticipated that this commitment will prove to have been fully met, though final accounting is not yet available.

Appendix C (Continued)

ATTACHMENT

Department of Defense Preliminary Estimate of Full Incremental Desert Shield/Desert Storm Costs ($ in Billions)

	Reported 2 August 1990-30 April 1991	DOD Estimate of Additional Potential Exposure	Total Reported Plus Potential Costs *
Airlift	2.1	1.1	3.2
Sealift	3.3	2.5	5.8
Personnel	4.2	3.5	7.7
Personnel Support	5.1	2.4	7.5
Operating Support	12.7	5.8	18.5
Fuel	3.8	1.8	5.6
Investment	8.4	.1	8.5
Military Construction	.4	-	.4
Present Value of Long Term Personnel Benefits	-	3.9	3.9
Total	40.0	21.1	61.1 *

Estimating the full incremental cost of Desert Shield/Desert Storm requires assumptions about the scope and extent of operations in the region, the level of activity to occur in the phasedown period, the number of people and time it will take to prepare equipment and materiel for return, the availability of transportation, and needed equipment repair, rehabilitation and restoration due to combat stress, to name several of the more significant factors. Estimates may change as more information becomes available. It should be noted that substantial numbers of people and quantities of equipment and materiel remained in theater at the end of April.

- About 200,000 troops were in the region at the end of April, and approximately 150,000 reservists were still on active duty at that time.
- Approximately 50 percent of the materiel, equipment, ammunition and vehicles had not been shipped from Southwest Asia at the end of April. Materiel still in theater includes the large, heavy pieces of equipment which are costly and time consuming to prepare and transport.
- Combat aircraft continue to fly in the region and U.S. forces will continue to remain in the region until all parties are satisfied with long term security arrangements.

* A substantial fraction but not all of these costs require appropriations.

Appendix D:

Middle East Map

Appendix D

MIDDLE EAST MAP