

# NEWS BRIEFING



Office of the Assistant Secretary of Defense  
(Public Affairs)

**Secretary of Defense William J. Perry**  
**General John Shalikashvili, USA, Chairman of the Joint Chiefs of Staff**  
**Major General James Andrus, USAF, 3rd Air Force Commander**  
**Ms. Kathleen M. deLaski, ATSD (PA)**  
**Wednesday, July 13, 1994 - 2:15 p.m.**

Ms. deLaski: Good afternoon.

We are here today to present you with the findings of the Department into the circumstances surrounding the tragic incident in Northern Iraq in which two of our fighters accidentally shot down two of our helicopters.

Reporting to you today will be the Secretary of Defense, and he will introduce the other briefers.

I just want to stress at the outset that in the amount of time that we have for the news conference we'll try to give you as much information as possible, but it is a very complex subject. There's a lot to be said. So we've provided you with a lot of written materials which I think will really help you in understanding the issues, particularly the memos which detail a lot of the actions that are being taken. If you need help understanding those afterwards, we're available to help you on that.

With that, I turn it over to Dr. Perry.

Secretary Perry: Thank you very much, Kathleen.

As you all know, three months ago two Black Hawk helicopters lifted off from the ground on the type of mission that they've conducted hundreds of times before as part of Operation Provide Comfort in Northern Iraq. On board were 26 men and women, including a mix of Americans, French, British, Turkish, and Kurdish. A few hours into this mission, two American F-15s that were enforcing the no-fly zone

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misidentified the two Black Hawks as Iraqi Hinds and shot them down. All 26 men and women on board the Black Hawks died.

Hours after that accident, General Shalikashvili and I had the terrible responsibility of standing at this podium to inform you of this tragic incident. At that time, we made three promises. We promised to conduct and make public a thorough and exhaustive inquiry into the causes that led to this tragedy; a promise to ensure that corrective actions were taken; and a promise to address accountability.

Today General Shalikashvili and I stand before you to make good on that first promise. With us today is the Commander of the 3rd Air Force, General Andrus. He was the one who led the investigation. Shortly, he will lay out the results of that investigation for you.

General Shalikashvili and I have reviewed the work and recommendations of the investigative team, and we have both formally endorsed the report and accepted its findings. We both agree, as I believe you will on reading it, that it is a full and complete documentation and disclosure of what occurred.

The investigation involved 31 people who began that effort the day following the accident. The basic investigative work involved more than 20,000 work hours. They interviewed 137 witnesses. They spent several thousand hours inspecting and testing the equipment involved in the accident, and conducted more than 100 separate airborne tests, flying F-15s and Black Hawk helicopters, and another 1,000 hours in computer simulation.

This report tells in great detail the root causes of this tragedy -- a tragedy that never should have happened.

We are also ready, at this time, to partially make good on our second promise. General Shalikashvili will explain the corrective actions that he and I have directed worldwide to help prevent an accident of this nature from happening in any of the no-fly zones we enforce.

I have also directed that further investigation be made to determine what lessons we can learn from this tragedy that could lead to corrective actions to other air operations unrelated to Provide Comfort, or unrelated to no-fly zone operations. I am particularly concerned with assessing and improving the operational readiness and training of our AWACS aircraft, and in the procedures we use for coordinating joint service air operations -- particularly those involving both fixed wing aircraft and helicopters.

Our third promise was to address accountability, and we are taking today the first step, in fact, which is the only proper step I can take under the Uniformed Code of Military Justice. This investigative report will be the starting point for this process. I have directed that the report be forwarded to the Commander-in-Chief of USAFE -- that's the U.S. Air Force in Europe; to the Commander, Air Combat Command; and the Commander-in-Chief of the U.S. Army in Europe for determination of what, if any, administrative or disciplinary action is warranted in individual cases.

Before we discuss the investigation and corrective actions, let me briefly put Provide Comfort and this report in the proper context. Provide Comfort has been an extraordinarily noble and important effort made by a great coalition. It grew out of the Gulf War as a humanitarian operation to protect the Iraqi Kurds from starvation and murder. Over the period of the last three years, over 50,000 hours have been flown as part of that operation. Countless lives have been saved. Let me add, that countless lives continue to depend on this operation and the men and women in our task force as they continue their operations.

From the moment we were first notified of this accident, two concerns were paramount in our mind. First and foremost was to comfort and to care for the families and the loved ones of those who died. Second was to conduct a thorough investigation to get to the bottom of what happened -- not just to find out those who were responsible, but far more critically, to learn everything that went wrong and correct those problems so that we can minimize the chances of the same kind of accident happening again.

Today we will explain what we learned and what we are doing about it. To start off with this, I'd like to introduce General Andrus.

General Andrus: Good afternoon.

As the Secretary indicated, we will be briefing you today on the results of our investigation of the 14 April shoot-down of the Black Hawk helicopters. We'll begin by giving you a brief overview of Provide Comfort. Then I'll give you a rather more detailed sequence of events of what took place that morning. Finally, we will end by discussing the causes of the accident.

As you will see during the briefing, the accident was caused by a breakdown in command guidance and supervision, and the misidentification of the Black Hawks.

Following the Gulf War, Saddam Hussein began an aggressive campaign against the Kurdish people of Iraq. The world focused on the plight of the Kurds, and the UN condemned Iraqi actions. A security zone was established which

barred Iraqi forces from the area, and a no-fly zone was set up north of the 36th Parallel in Iraq.

A combined task force was formed that consisted of U.S., Turkish, British, and French forces -- a task force that's headquartered at Incirlik Air Base in Turkey, and answers directly to the U.S. European Command. The combined task force includes an air component also located at Incirlik. The air component commander has tactical control of the aircraft assigned to Operation Provide Comfort. He is responsible for the scheduling, direction, and control of all coalition aircraft operating in the no-fly zone. Most Provide Comfort aircraft, to include the E-3, the airborne AWACS, and the F-15 fighters, are located at Incirlik.

The combined task force also includes a Military Coordination Center located at Zakhu, approximately six miles inside the security zone in Iraq. Air transportation for the personnel at the Military Coordination Center is provided by a detachment of Black Hawk helicopters located at Diyarbakir in Turkey. Coalition forces conduct daily operations from Incirlik, Diyarbakir and Zakhu into the area of operations. During the past three years, coalition resolve has been tested in the area as Iraq has flown aircraft into the area, locked on with their fire control radars onto our aircraft, and fired at coalition ground personnel. Coalition forces have responded by shooting down an Iraqi MIG-23 and by bombing anti-aircraft and surface-to-air missile sites. The area is a declared combat zone, where coalition forces both on the ground and in the air maintain a high state of readiness.

On the morning of 14 April, the AWACS was scheduled to fly from Incirlik to an orbit north of the Iraqi border. The AWACS mission that day was to provide surveillance detection, threat warning, and control in the operating area. This included responsibility to track all friendly aircraft.

The AWACS has a complete communications package and can provide radar coverage over a 300 mile radius. In addition, the AWACS can interrogate Identification Friend or Foe equipment on board all Provide Comfort aircraft. The IFF signals are used to identify and track friendly forces. Each aircraft transmits in three separate IFF modes -- Mode One, Two, and Four -- when they're operating in the no-fly zone.

The F-15 mission was to ensure the area was clear of any Iraqi aircraft before the arrival of any Provide Comfort participants. The F-15s were then to maintain a defensive patrol overhead to protect our forces against any possible intrusion of Iraqi aircraft.

On the day of the accident the mission of the Black Hawks was to fly from Diyarbakir to Zakhu and pick up the Turkish and American co-commanders of the Military Coordination Center and their party, and transport them to the town of

Irbil located in the southeastern part of the theater of operations for a meeting with Kurdish representatives.

In reconstructing the sequence of events which we'll be discussing next, we were aided by witness testimony, documentary and physical evidence, and certain tape recordings. AWACS magnetic data tape documented the radar and IFF information that we required and used in the investigation. They also documented the controller switch actions that were taken during the flight.

In addition, the Board reviewed a tape from a VHF recorder on board the AWACS. The VHF recorder was running during portions of the accident sequence. Approximately four minutes of that tape, which covered the final portion of the engagement, were recorded over. An individual on the AWACS who had not been part of the shoot-down sequence, rewound the tape to view it. After it was rewound, the camera was turned on to record a later, unrelated event. The Board found no evidence indicating the tape-over was deliberate. The Board was able to reconstruct the accident sequence from other sources of information.

We also used the videotape recording from the F-15 wingman's aircraft, which did record the final portions of the engagement. Finally, the Board obtained a videotape taken by a Kurdish individual on the ground in the area. The tape did not add information not otherwise available to us in our investigation, and was not made a part of our report.

In briefing the sequence of events, all times will be briefed in local time in Iraq. You should know before we start that the accident took place in clear weather. Visibility was excellent. It was in a mountainous area. The shoot-down itself occurred at approximately 11:30 in the morning.

At 0836 on the 14th, the AWACS departed Incirlik as the first of 52 coalition sorties scheduled to be flown that day. The AWACS performed in-flight equipment checks, and the proceeded towards a holding orbit to await the F-15s. It would then proceed to a surveillance orbit located north of the Iraqi border.

At 0922 the Black Hawk flight departed Diyarbakir en-route to Zakhu. Each aircraft was configured with external fuel tanks for extended range operations.

AWACS made radar and radio contact with the Black Hawks, and a track designation symbol for the Black Hawks was placed on the AWACS radar scope. AWACS detected the Black Hawks IFF Mode One and Mode Two. There is no indication that the Black Hawks' Mode Four was checked. The Black Hawks landed at Zakhu at approximately 1027.

At 1035 the F-15 flight departed Incirlik en-route to the area. Shortly after takeoff, AWACS established radar and IFF contact with the F-15s. At Zakhu the Coordination Center co-commanders and their party, including U.S., British, French, Turkish, and Kurdish personnel, boarded the two Black Hawks for their flight to Irbil.

At 1054 the Black Hawks took off from Zakhu, contacted AWACS, and reported en-route from Zakhu to Irbil. AWACS acknowledged that call. At that time they began tracking the Black Hawks again on radar and IFF.

At approximately 1111, the Black Hawks' route of flight took them into a mountainous area, and radar and IFF contact faded from the AWACS radar scope.

At 1120, the F-15s entered the area and notified AWACS. No information concerning the Black Hawk flight, already airborne in the area, was passed to the F-15s. Although the radar and IFF returns from the Black Hawks had faded from the AWACS scopes, the computer-generated track designation symbol that represented the Black Hawk flight remained.

One minute later, at 1121, an AWACS controller assumed the helicopters had landed, and dropped the track designation symbol from the radar scope. This track symbology was the only remaining visual reminder to the mission crew that the Black Hawks were operating in the area.

At approximately 1122, the F-15 lead detected and locked on to a radar contact 40 miles southwest of his position. He checked for IFF Modes One and Four. The Black Hawks were transmitting a Mode One code designated for use in Turkish airspace, rather than the code designated for the tactical area. Therefore, the F-15 did not receive a Mode One IFF response. The F-15 lead did receive a momentary Mode Four indication. He continued to check Mode Four for another four to five seconds with no further results.

The F-15s informed AWACS of their radar contact at 40 miles. The AWACS response was "Clean there," meaning that AWACS had no returns in that area. Our review of the AWACS magnetic data tape indicated there were no radar, IFF, or computer-generated symbols present at the reported location at that time.

At 1123, intermittent IFF returns from the Black Hawks appeared on the AWACS scope in the area of the F-15s' radar contact. At this time, both F-15 pilots initiated Mode One and Mode Four IFF checks -- again, with no response.

At 1125 the AWACS radar scope displayed the Black Hawks' IFF returns with increased frequency. The F-15 lead reported the radar contact at 20 miles. The AWACS response was "Hits there," which according to standard terminology,

meant that AWACS had a radar return at that location. However, a review of the data tapes showed an IFF return at the time of the response.

At 1126, steady IFF returns and intermittent radar returns from the Black Hawks were displayed on the AWACS radar scopes. These returns were at the same location as the radar contact reported by the F-15 flight. The F-15s were not advised of the presence of IFF data in the target area.

The F-15 lead again checked for an IFF Mode One and Mode Four indication -- no response was received.

At 1127 an AWACS controller attempted an IFF identification. Due to the close proximity of the F-15s to the "unknown" return, the attempt was unsuccessful.

At 1128 the lead F-15 reported to AWACS that he was visual with a helicopter and began a visual identification path. The lead F-15 flew to a position approximately 1,000 feet left and 500 feet above the helicopter's flight path. Traveling at 450 knots, the F-15 rapidly overtook the helicopter which was flying at approximately 130 knots. The F-15 lead misidentified the helicopter and radioed "Hind" followed by "No, Hip." Those are NATO designations for Soviet-built helicopters.

The pilot testified that he knew what kind of helicopter he was looking at, but could not remember whether it was called a "Hip" or a "Hind." The F-15 lead then started a climbing right-hand turn to set up a race track pattern behind the helicopter. While in the turn he looked down, saw a shadow of a second helicopter, and then located the second helicopter.

At that time also, he took out his visual identification guide to check for the correct name of the aircraft he was looking at. The F-15 flight then reported, "VID" meaning visual identification, "Hind, Tally Two, Lead-Trail." He next transmitted, "Tiger Two," which was his wingman's call sign, "Confirm Hind." The F-15 wingman did a visual identification pass approximately 2,000 feet right and 500 feet above the training helicopter. He did not make a positive identification, but he did report "Tally Two."

AWACS transmitted "Cougar," (Cougar was the AWACS call sign), "Cougar copies Hinds." The F-15 lead believed his wingman's reply to mean that the identification had been confirmed.

The F-15 lead repositioned behind the Black Hawk flight, called, "Engaged," and instructed his wingman to "Arm hot."

At 1130 the F-15 lead attempted a final IFF Mode One check and again received no reply. He then fired one radar-guided missile at the trail helicopter. Missile fragments struck the helicopter and it crashed. The F-15 wingman fired one heat-seeking missile at the remaining helicopter. The missile hit the helicopter and it also crashed.

Following the shoot-down, the F-15s made two visual reconnaissance passes over the crash site, and then continued on their assigned mission.

As I mentioned at the beginning of this briefing, the accident was caused by a breakdown in command guidance, supervision, and the misidentification of the Black Hawks.

I will now summarize the causes of the accident. They're divided into three separate areas -- command, AWACS, and F-15s.

There were two principal causes in the command area. There was a breakdown in guidance from the combined task force to component organizations, including the Headquarters staff, the combined forces air component, and the Military Coordination Center. At the time of the accident there was no clear understanding among the task force participants regarding their responsibility for helicopter flight activities.

Second, component organizations did not fully integrate Black Hawk flights with other air operations in the tactical area of responsibility. Over the three years of Provide Comfort operations, fixed wing and helicopter activities had developed into two essentially separate operations.

The Provide Comfort operations plan published in 1991, set out the various tasks and responsibilities of the Combined Task Force headquarters and each component organization. By the fall of 1991, both the operations and the organizational structure had changed; however, the plan was not updated by the command to reflect the changes or reassign responsibilities. By the time of the accident, senior leaders in the command were unfamiliar with the contents of the plan and their particular responsibilities for coordination and control of Black Hawk helicopters.

The operations plan required AWACS warning and control for helicopters operating in the no-fly zone. However, the command routinely permitted the Black Hawks to operate in the area without AWACS coverage.

There was not a clear understanding regarding the application of the airspace control orders to Black Hawks. The orders directed that no aircraft would enter the tactical area before fighters had searched the no-fly zone for Iraqi aircraft.

However, the command allowed the Black Hawks to enter the area before the fighter sweep.

The air tasking order for 14 April did not list specific times or routes of flight for Black Hawks operating in the area. Although the information was available in the task force headquarters, it was not tasked to AWACS or to the F-15 pilots.

I will now discuss the AWACS-related causes of the accident. Members of the AWACS mission crew did not understand that the Black Hawks were an integral part of Operation Provide Comfort and did not understand their responsibility to support Black Hawk operations. Supervisors on board the AWACS did not ensure that the controllers working with the F-15s and Black Hawks accomplished their respective duties. Closely related to the AWACS causes is the fact that the mission crew commander was not mission ready. He had flown only one sortie in the previous three months and did not meet command standards for mission ready status.

AWACS was responsible for the control of the Black Hawks in the tactical area. However, AWACS did not adequately monitor their location throughout the flight. AWACS was responsible for checking coalition aircraft inbound to the area for a valid IFF Mode Four. There is no evidence that AWACS checked the Black Hawks' Mode Four.

One of the responsibilities of AWACS was to give the F-15s a description of air activity taking place in the tactical area. AWACS controllers were aware that the Black Hawks were in the area, and did not advise the F-15s of their presence. AWACS crew members had IFF information available which indicated the presence of friendly aircraft at the location of the F-15s reported radar contact, however, they did not inform the F-15 pilots. There is no indication that anyone on board the AWACS took any action to terminate the engagement or the intercept.

The F-15 related causes are as shown here. The airspace control orders directed that no aircraft would enter the no-fly zone prior to the fighter sweep. The air tasking order did not provide useful information on the Black Hawks operating in the area. And during check-in with AWACS, the F-15s were not advised of the Black Hawks' presence. Therefore, when the F-15 pilots entered the no-fly zone, they did not expect the Black Hawks to be in the area.

IFF Mode One checks by the F-15s were unsuccessful because the Black Hawk aircraft were using the Mode One code specified for helicopters outside the tactical area, instead of the Mode One code specified for aircraft inside the tactical area.

The F-15 lead's first IFF Mode Four check produced a momentary friendly indication, followed by no further Mode Four indications. The reason for the unsuccessful Mode Four interrogations could not be determined, despite checks of both

F-15s, tear-down inspections of all components, computer simulations, and flight testing. Possible explanations include IFF signals being incorrectly processed by the F-15 equipment, terrain masking of the Black Hawks, and garbling of transponder signals from the IFF on the Black Hawks, due to the proximity of the two helicopters.

Since December 1993 there had been little visual recognition training conducted in the F-15 squadron, due to unit relocation. Materials that were used for the training did not depict aircraft aspects viewed by the pilots during the intercept, or simulate the conditions of speed and distance encountered. Additionally, the F-15 pilots were not aware that the Black Hawk helicopters were painted in a dark green/black camouflage as opposed to Iraqi Hinds which are painted in a light tan and brown desert camouflage.

Hind helicopters have sponsons, or wings, which are used to carry ordnance. Black Hawks can be configured with sponsons to carry fuel tanks. However, the F-15 pilots were not familiar with the Black Hawk fuel tank configurations. The Black Hawks, as configured, had characteristics similar to Hinds, particularly from the rear aspect.

In addition, the pilots made visual identification passes at distances, altitudes, and speeds which made it unlikely that they would have been able to detect the Black Hawks' American flag markings located on the doors, fuel tanks, underside, and nose of the helicopter.

Finally, when the F-15 lead completed his visual identification pass, he asked his wingman to confirm Hinds. The wingman, who did not make a positive identification, responded, "Tally Two," which lead understood to be confirmation of the identification. Although he had been unable to confirm the identification of the helicopters, the wingman, who was a senior squadron supervisor, allowed the engagement to continue.

For three years, Operation Provide Comfort successfully protected the Kurdish people from the military forces of Iraq. The sequence of events which ended with the accidental shoot-down of two U.S. Black Hawks and the loss of 26 people was a tragedy. It need not have happened.

Our investigation found that there were multiple causes of the shoot-down, any one of which, had it not existed, may have prevented the accident.

That concludes my briefing.

General Shalikashvili: On Thursday of last week, the 7th of July, I forwarded the accident investigation report to Secretary Perry with the recommendations of General Joulwan, our senior commander in Europe, for correcting the problems within the task force, and more broadly, within the European Command, as well as my own recommended actions to be applied to American forces worldwide.

As General Andrus' report describes, there were a shocking number of instances where individuals failed to do their jobs properly. This fact, I'm convinced, more than any other contributing cause, led to this tragedy. Had everyone involved been doing their job correctly, this tragic accident would not have happened.

Now that Secretary Perry has accepted the findings and recommendations of this accident report, it has been forwarded, as he earlier mentioned, to the appropriate four star commanders for their review and their legal investigation, and where warranted, appropriate disciplinary action.

Neither the Secretary nor I can expand on this legal process beyond what I just said, without the fact or the appearance of improper command influence.

As far as the corrective actions are concerned, our first priority was to correct that which had gone so very wrong in northern Iraq. To that end, almost immediately after the accident, new rules of engagement were issued to our European Command that provide greater protection for helicopters. Within the task force, AWACS crews were directed to follow procedures that fully integrate the operation of helicopters and fixed wing aircraft. Command and control arrangements were revised to provide more effective oversight and direction over the task force. Communications with the task force were simplified, and all aircraft were directed to monitor a common radio frequency so they could communicate directly with one another.

In addition, the European Command has taken other steps that include checks to ensure that AWACS and flight crews are fully qualified to perform their missions, as well as making revisions to the techniques used by aircraft to visually and electronically identify other aircraft.

However, while these corrective actions in our European command are on track, we felt very strongly that it would have been a mistake to assume that what happened on the 14th of April in northern Iraq could not happen elsewhere. Therefore, Secretary Perry and I also directed a series of corrective actions aimed at our forces deployed worldwide.

We publish guidance to all forces that established procedures and guidelines that form the very basis of how we operate together to perform our mission. In this case, our forces were operating under the guidelines that pertain to joint task forces. These guidelines, if followed, should have ensured the safe integration of different forces and aircraft in the same area of operations. We found that the members of the task force were not adequately familiar with the guidelines they were given, and failed to follow some critical directives.

While proper actions have already been taken to correct it in Europe, more broadly, we have directed a complete review of all task forces operating worldwide to ensure they are complying with published guidance. Additionally, the higher headquarters of all joint task forces have been directed to ensure that they rigorously and routinely inspect and check their joint task force. In addition, I've directed the Joint Staff to examine, and if necessary, to make appropriate changes in the training we use to prepare our officers to serve in joint task forces.

The second problem was the performance of the AWACS crew. General Andrus described this problem in some detail. As a result, we are taking action to ensure that no other AWACS crews worldwide, or for that matter, any of the other types of tactical air command and control crews we have in our forces, have similar problems. Therefore, we have directed all the services to reexamine how they train and certify their people to perform this very vital function.

The Air Force specifically has been directed to use the lessons learned from this tragedy to develop a retraining program for all AWACS personnel, and then to certify the accomplishment of that retraining.

The third major problem was the fact that the F-15 pilots did not correctly identify the helicopters as friendly Black Hawks. As a result, the Air Force is well into reviewing and revising the visual identification techniques and procedures, with particular emphasis on helicopters. We have directed the other services to do the same and have it completed by 30 September. Additionally, we directed them to ensure that our air crews are trained to recognize all kinds and different configurations of aircraft they are likely to encounter in the area in which they might be operating.

The fourth problem which General Andrus described were the procedural problems of fast-flying fixed wing aircraft and helicopters operating in the same area. Different procedures were used for command and control of these two different kinds of aircraft. This led to confusion at the very moment when the decision had to be made about whether the helicopters were friendly or not.

While the European Command took immediate corrective action to end this problem, I have directed the Joint Staff to publish new guidelines for worldwide operations that build on the lessons learned from this tragedy, and to create a standard, uniform, operating procedure.

Complementing this effort, Secretary Perry has directed that in the broadest sense I examine the adequacy of our procedures for joint air operations and report back to him my findings as soon as possible.

The fifth major problem was the failure of the electronic identification system. Despite hundreds of hours of testing, we still don't know why the system failed to alert the F-15s that the helicopters were friendly. That is particularly in Mode Four. We will continue to try to find out why the systems didn't function as they were supposed to. But beyond that, we need to develop new and better technologies to minimize the chances of this happening again. As many of you know, we have been reviewing technological improvements for these kinds of systems, not just for our air forces, but also our land forces. Secretary Perry and I directed the services and the Joint Staff to expedite these reviews and to forward recommendations to us by the 30th of September.

Secretary Perry has also directed the Under Secretary for Acquisition and Technology to assure an aggressive acquisition effort to follow up on these recommendations.

As well, we directed the services to examine their training on these electronic systems and to expand their emphasis on the limitations of electronic identification systems.

The corrective actions that I have outlined have been communicated to the service chiefs and our senior commanders worldwide. I have also convened a conference of the Joint Chiefs and all of our senior commanders later this month. At that meeting we will review the progress made to date, and we will discuss what we need to do to implement all of these directives by the end of December.

Investigating a tragedy of this nature is an enormously difficult and emotionally straining task. I believe, and I hope you share the view, that the investigation was methodical, thorough, and candid. A wide range of errors and problems were disclosed, including leadership problems, which must and will be corrected.

Now, before I turn the floor back to Secretary Perry, let me convey one more time my deepest condolences and sympathy to the families and loved ones of those who died on October 14th. As I said on one previous occasion, the loss of these 26 men and women I think touches the very fabric of our institution -- the military.

An institution whose code and passion is to take care of each other and to make sure that we protect one another from any danger. So when a tragic incident like this happens, it is for us an especially deep loss. But it also moves us on to an unwavering commitment to correct that which went on. That is what we now must pursue. We owe no less to those who died that day.

With that, Mr. Secretary...

Secretary Perry: Thank you very much, John.

The exhaustive efforts led by General Andrus have provided answers to our many questions that are profoundly disturbing. Since we had multiple safeguards built into our procedures in order to prevent such an accident, multiple errors had to occur, and tragically, did occur, in order for this accident to happen.

There were flaws in the procedures for coordinating joint operations. There were lapses in human judgment. And there were errors in the performance of the air units involved.

In general, the equipment performed to specifications, with the exception of a possible failure in one of the four modes of the IFF system.

General Andrus has conducted a completely honest and thorough and accurate investigation. General Andrus has brought us the sad facts, but in truth, your efforts are only the beginning.

As General Shalikashvili has already indicated, I have been particularly concerned that the problems leading to this incident may extend beyond the specific command and theater of operations involved. You have heard in this briefing that many of the corrective actions have already been taken, and many more that are in progress. But I will not be satisfied until we examine the problems systematically, until we look at how we conduct joint operations across the board, and until we fully address accountability. Every commander at every level should know what needs to be done, and that he or she is responsible for getting it done right.

I have already noted that we are now taking the first step in accountability, which is the only proper step I can take at this time. Under our system of military justice, any speculation I make at this time as to individual culpability could be considered as command influence and be a basis for appeal of any discipline determined. Therefore, I should not and will not make such speculation.

But I pledge to you that we will take every action in our power to ensure full accountability and to ensure that this type of accident is never repeated.

We want to be as forthcoming as possible with the public. The full report you see here, 21 volumes, and more than 3,000 pages, will be available in the reading room in the Pentagon. I am also releasing two videotapes that were used in the investigation. The relevant video of the scopes inside the AWACS, and the F-15's gun camera footage.

You already know that we have a four minute gap in the AWACS tape. As you heard from General Andrus, the investigative board stated that it found no evidence indicating the tapeover was deliberate. The Board also stated that it was able to reconstruct the accident sequence from other sources of information.

Nevertheless, I believe that this is a matter that must be reviewed further. To that end, I have asked the Commander of the Air Combat Command to determine whether any administrative or disciplinary action is appropriate.

I want to be fully forthcoming on all of the information available to us, but I must tell you that we are withholding two pieces of information from you and from the public. Within the tapes of the F-15 gun camera footage, there is a very short audio section, after the operation has taken place, which included an unprofessional comment by the pilot which could only be hurtful to the families. This has been deleted, but the rest of the tape is intact. It had no relevance to the accident investigation.

Many of you have also asked about a video shot that was made by a Kurdish bystander. I have made the decision not to release that. You may disagree, and I want to explain my logic.

First of all, this tape was not used in the investigation; and secondly, more importantly, the tape shows little more than grisly shots of charred wreckage and bodies. I did not want to subject the families to any unnecessary public pain.

Let me speak for a moment to the families of these fallen men and women. Three days after your loved ones perished, a moving memorial service was held for them in the city of Zakhu in Northern Iraq. At the memorial service, a local religious leader named Sheik Ahmet eulogized your loved ones in a profound and meaningful statement. I would like to quote that to you now.

He said, "They came to save us, and to give us dignity. Their sacrifice will remain in the minds of our children for the rest of their lives. We will teach their names to our children, and keep their names in our books of history as heroes who gave their lives for freedom."

To the families I say you have my personal commitment and the commitment of the entire Department of Defense that your loved ones will not have died in vain.

We have learned from this tragedy, and we will continue to gain strength from their efforts and their memory.

Now I'm ready to take your questions. General Shali and General Andrus will come join me.

Q: Mr. Secretary, I have two quick questions. Number one, you've made very clear here that this was a preventable accident. In that light, will there be special government or military compensation for the victims of the accident? Financial compensation.

And number two, you made clear here that you will ensure that those responsible are held accountable. Without commenting directly, would you rule out the senior commanders -- for instance the Commander of the Air Combat Command and Commander of U.S. Air Forces Europe -- might be called to account for this, and in some way punished?

Secretary Perry: Let me take the first question. We have very rigid and precise legal restrictions on what we can do for compensation of people who are killed in military operations. We will follow those strictly. They are very restrictive on what we can do in that regard.

On the second question, basically the question you're asking is my confidence in the senior leadership, in the Secretary of the Air Force, the Commander-in-Chief in Europe, the Chief of Staff of the Air Force, the top leadership. I have full and complete confidence in them, continue to have that confidence. They have supported me and will continue to support me in pursuing the corrective action which we need to take on this operation.

I'd like to point out in particular that my assessment of their performance cannot be and should not be based on a single, or even several events. It has to be based on an aggregate evaluation of all of their performance through a period of time.

On this one issue, on this safety issue in particular, the fact is that the safety record of the United States Air Force has actually been improving through the last number of years, including this year. It may not seem that way to you, but that's what our records show. I will share those records with you in aggregate form.

Let me have the two charts that are relevant to that point. This represents the history of the last two decades of what are called the Class A flight mishaps.

You can see there are two important points about this curve. First of all, is that the last decade is a fairly flat trend at about half the level of the previous decade. The second, not surprisingly, with accidents is there's a certain amount of

jaggedness up and down to it. This, by the way, is normalized because it's per 100,000 flying hours.

The record in '94 to date, including the two major accidents which we've had at Pope and this accident, I think there are only one or perhaps two, two less than that over the previous decade. So that is one important assessment in how well we are doing overall in the Air Force.

Let me show you one other. This is the one we keep track of in the military services. These are active duty deaths all through the military services due to accidents measured over the last six years. These are the numbers that reflect the active deaths that we've had. You can see here that there is a distinct downward trend. In fact this year, for which we have the first three quarters, looks like it may be the lowest year in the last six years, even if you were to double this number in the last quarter. It is still less than any of the previous years.

I have also taken this chart and normalized it for the number of people in the services. It continues to show the same downward trend.

Q: You yourself and General Shali call to question AWACS operations worldwide. Are you saying that the senior command of AWACS operation, Air Combat Command, might not be responsible or are in no way responsible...

Secretary Perry: No, absolutely not. What I'm trying to do is distinguish between two different issues. The first issue is, does the Air Force overall have an appropriate program, an appropriate training and operation and discipline relative to readiness and relative to one aspect of readiness which is accidents. The answer to that question is clearly yes, and that's what I hold the senior leadership responsible for.

But there's a second question. Were the mistakes made in this operation, which should not have been made and which can be corrected so that we don't repeat them again, and the answer is clearly yes. Most outstanding of those was in the AWACS field. I think General Shalikashvili has already mentioned specific actions that will be taken in the AWACS. The issue here is not so much how many hours of training AWACS operators have. What we have disclosed were deficiencies in the training -- things that were missing from the training that should have been in there, primarily relative to joint training, joint operations and operations between fixed wing and helicopters.

Q: You are a distinguished mathematician by profession and statistics are part of that. I'm an old pilot and air traffic controller, and my antenna have quivered here, particularly because of the lack of a joint or common frequency. We've had several accidents involving Air Force aircraft causing loss of life lately,

which may not go into your statistics. One of them was an air traffic control problem, apparently, at Pope; and one of them possible grandstanding by a pilot in the State of Washington.

I would only ask you outright, this confidence you have in the leadership including the Chief of Staff, is that solid, or are you concerned about training and operational readiness in the Air Force?

Secretary Perry: Let me say again that I think one of the reasons that trend that I've shown you is going down is that we learn from accidents and we take corrective actions. We will learn from this one, we will take corrective actions.

The air operations we conduct -- we conduct thousands of flights -- many of these flights are dangerous flights, have an element of danger to them, nearly all of them with high performance aircraft. Some of them are pressing the edge of the envelope. This is a dangerous operation that's being conducted. There will be accidents. We cannot compare our standards with commercial air transport. We have to compare it with how we have done in previous years. I've given you a chart which is the best measure I have of whether we are learning and improving, and the evidence is we are learning and improving. My commitment to you is we will learn further and improve from this accident.

What I will hold General McPeak responsible for is learning from the results, the deficiencies of the AWACS training here, and improving so we will not have this sort of thing. I do not expect our procedures to be perfect, and I do not expect Air Force operations to be risk free or accident free.

Q: Mr. Secretary, can you or perhaps General Andrus address the issue of distractions that day aboard the AWACS? Apparently they were monitoring other things in the area, maybe on the Turkish side of the border. Apparently there were temperature problems in the aircraft that had been distracting. Can you address some of those things that may have been contributing to what was going on?

General Andrus: We looked into whether or not there may have been distractions. There, in fact, had been Turkish flights operating in the area prior to the arrival of the F-15s. Those flights had departed the area before any of our aircraft arrived. The crew indicated that that was not a distraction.

In reviewing the AWACS audio portion of the video tape, we heard discussions referenced, "Is it warm enough?", "Is it too cold?" and so forth in the mission area of the AWACS. This was taking place some minutes before the activity actually occurred.

Again, in questioning the AWACS crew, asking them if they were distracted, they did not even remember those discussions. So we had the information, but it was at such a low level for them that they had not remembered it, and indicated that they were not distracted.

Q: Everyone was at their scopes, everyone was apparently where they were supposed to be, doing what they were supposed to be doing throughout this sequence?

General Andrus: By their testimony, they were at their positions and they were performing their duties. We don't know why some of those things...

Q: Did anyone refuse to cooperate? Did any of the subjects of this investigation refuse to cooperate?

General Andrus: Every individual, of course, has their rights and those rights are protected. We had two individuals that, under advice of counsel, elected to not answer questions to the Board. We had a third individual, again under advice of counsel, that elected to not answer two to three questions that we asked.

Q: Were they on the AWACS?

General Andrus: These were individuals on board the AWACS. The information that they could have provided, of course, would have been such things as what they may have been thinking or things that we would not have another way to determine. It did not hinder our investigation.

Q: Is this a military equivalent of 5th Amendment protection, or is this, in fact 5th Amendment?

General Andrus: For every individual that we felt there was even a possibility that there could be any culpability, we ensured that we read them their rights, gave them the opportunity to have counsel. Those that elected to have counsel then, of course, received guidance that good lawyers give.

Q: Was there any indication in the traffic from the helicopters that they realized that they were about to come under friendly fire attack? Or was this a "they did not know what hit them" situation? As a followup, I would ask at what point did the AWACS and/or the F-15s realize they'd made a mistake?

General Andrus: We saw no evidence of any radio transmissions between the Black Hawks and the AWACS in those last few minutes before the shoot-down.

Q: When did it become apparent to the AWACS and the F-15s that a mistake had been made? Was it later in the day? Minutes later?

General Andrus: Some 45 minutes to an hour after the actual shoot-down, AWACS, and I believe it was 45 minutes, AWACS was asked to attempt to locate the Black Hawks. They went through a long sequence over a period of time attempting to contact them on the radio. Some hours later, it was determined that the Black Hawks had been shot down. The F-15 pilots completed their mission and were on the ground for some time before they were aware that two Black Hawks had been shot down.

Q: Can you comment on whether or not the fighter pilots and the crew members on the AWACS were all active duty? Were there any reservists among them?

General Andrus: They were all active duty.

Q: Were they on temporary duty?

General Andrus: You mean were they TDY from other locations? Yes, that's correct.

Q: Did that have a bearing upon their degree of readiness?

General Andrus: No, I don't believe so.

Q: Mr. Secretary, can you detail at all the technological fixes, things that can be done to help prevent this in the future? And who will be in charge of that since you don't currently have an Under Secretary for Acquisition or Technology?

Secretary Perry: That's an important question, and let me try to answer it very carefully. Part of what I will be giving you will be my own personal judgments on what was relatively more important, and what was relatively less important here. In my judgment, equipment problems were not the cause of this accident. It's conceivable that they made a small contributory effect in this one so-called Mode Four of the IFF system. But the equipment in general operated exactly as it was intended to operate. In the case of the F-15s and the missiles, it operated all too well.

In terms of the identification issue, there are three different components to identification. The first is the visual identification, which was obviously done wrong. And all you have to do is do a simulation of what it is the pilot could see at that distance and that speed to realize he had a faint chance of being able to make

that distinction, plus the fact he was not well trained in doing this with helicopter aircraft.

So that is a procedure that we need to fix, and General Shalikashvili has already described a program underway to fix it.

Secondly, with respect to IFF, I consider in a situation like this that the IFF is a backup rather than the primary means of identification. Nevertheless, had it been working properly, had the procedures been set up so they were working properly, they could have prevented the accident.

In the IFF there are two things that we are doing -- both of them relatively minor -- that will improve the situation with respect to the IFF. One of them is we have a program presently in the OT&E -- that's Operational Test and Evaluation phase -- to make a software improvement in the systems, which will incrementally improve the performance and make it somewhat less likely that this kind of a mistake could have happened. I have directed acceleration of that program and I expect to see those units start to go into the field this year.

I am not holding that out as a panacea. I'm just saying that's a modest improvement that can be made and will be made.

We have other improved IFF systems in advanced development phase. First of all, they're very expensive. Secondly, it's going to take a long time to produce them and get them into the field. I would not hold that out as a reasonable hope for being an improvement anywhere in the foreseeable future. I don't believe that's an important solution to the problem. The real way of solving the identification problem is to have situation awareness and to have it very, very well.

The key to that is AWACS. Had AWACS been operating properly, there would not have been the remotest chance of this operation happening.

Two things to say about the AWACS of importance. First of all, it is clear that there are some aspects of the training for AWACS which are not proper. There are some deficiencies, some shortages in that training. No matter how many hours of training they get, they're not getting enough training in joint operations and in operations involving helicopters. So we have to revive that part of the training program. That is underway.

Secondly, when we look at the data on the operation of AWACS crews, we find they're being operated beyond the standards which we hold for aircraft crews. We hold 120 days TDY a year as a standard; AWACS and one other category of aircraft have been consistently operating more than that. Therefore, I have directed the Secretary of the Air Force, and we will fund this immediately, to begin

the training of more AWACS crews. This isn't a question of a shortage of AWACS aircraft, it's a shortage of AWACS crews. So we will provide more AWACS crews so that the number of days TDY per year will be reduced to those standards.

**Q:** Prior to the shoot-down, the pilots had the authority to fire on the helicopters. Are there new rules in place now which will require these pilots to get authority from a higher command structure before firing?

**Secretary Perry:** The rules of engagement of this operation were set a good many years ago, recommended by the then Chairman to Secretary Cheney and approved by him. We have subsequently modified those rules. Those rules make it much less likely that a helicopter shoot-down will occur. Previous rules did not separate out, discriminate between helicopters.

No rules of engagement, if you're engaged in a combat operation, and this was a combat operation, no rules of engagement are foolproof. They have been modified to make this particular kind of accident less likely.

I'd like to ask General Shali to comment further on that.

**General Shalikashvili:** I think, Mr. Secretary, you covered it fully. You understand that a discussion of the specifics of rules of engagement would only endanger the pilots that have to fly in that environment. But what Secretary Perry said is absolutely correct. The rules have been adjusted immediately after this accident to make that kind of an accident almost impossible.

**Q:** The day of the accident, you both came out here and offered what seemed to be a very detailed explanation of almost a rehearsal that took place in which the AWACS people were told what the F-15 people were doing, and the Black Hawk helicopter pilots. Can you tell us who gave you that explanation, and how do you square that with today's report, when it makes it clear that nobody really knew what anybody was doing?

**General Shalikashvili:** The information we gave you was the best information that we had at that time. That was provided to us from the area of operations. I cannot tell you specifically who passed it, but I am perfectly convinced that the people who passed that information tried to do their very best as rapidly as possible to get to us so we could pass it on to you. If you think there was some sort of attempt to mislead, far from it. We all knew we were going to stand before you and explain exactly what happened. We gave you the very best information we had, and to the degree that it does not match now the facts as we uncovered, as a result of the detailed investigation, that should only be a lesson to us all that the first information always needs to be held suspect, and that we have to not make

judgments until we have really done all the work and tried to uncover all the things.

Q: The point is, do you believe, either one of you, that you were misled?

General Shalikashvili: I don't think we were somehow intentionally misled. I do not believe that at all. I believe that people tried to do their very best in an extraordinarily short period of time to pass up here so we could tell you the best that we could, what we believed had happened.

Secretary Perry: We had to make the judgment between saying to you nothing, because we didn't have the full facts, and we had a lot of advice to do just that. We were trying to satisfy your appetite by telling you something. Those of you who were at that hearing know that we were telling you we can't answer that to almost every question.

The second specific point is that what was described to you was accurate, relative to fixed wing aircraft. It was just that helicopters were not included in that, and we did not know that at the time.

Q: When and in what form has this information, this report been conveyed to the other nations who lost people in this helicopter?

General Shalikashvili: That information was relayed to the governments involved on Monday, and they have had that information since then. Today, at the same time we're doing this, they're prepared to release it publicly. But the next of kin of those who died were briefed at the same time as was done here in the United States, this morning, and the information is being released publicly at the same time as it is here.

Secretary Perry: I might add to that that I have spoken to all of the Ministers of Defense of those countries subsequent to their getting the briefing and getting the report. They were very appreciative of the information we're supplying them.

Thank you all very much.

**-END-**



# NEWS RELEASE

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## HELICOPTER SHOOTDOWN REPORT RELEASED

The Department of Defense today released the U.S. European Command (USEUCOM) investigation into the April 14, 1994 accidental shoot-down of two U.S. Army Black Hawk UH-60 helicopters by two Operation Provide Comfort U.S. Air Force F-15 aircraft. In releasing the report, both Secretary of Defense William J. Perry and Chairman of the Joint Chiefs of Staff General John M. Shalikashvili concluded the accident was an avoidable tragedy. Twenty six members of the Combined Task Force (CTF) lost their lives as a result of the incident.

Led by Major General James G. Andrus, commander, Third Air Force, the Accident Investigation Board conducted an exhaustive analysis of all evidence surrounding the incident. The report demonstrated that there were deficiencies in command guidance and direction, as well as human failure. Their effort involved more than 20,000 hours of work, interviews with more than 130 witnesses and several thousand hours of technical analysis and simulation.

In the opinion of the Accident Investigation Board, the shoot-down was caused by a chain of events which began with the breakdown of clear guidance from the Combined Task Force to its component organizations. This resulted in the lack of a clear understanding among the components of their respective responsibilities. Consequently, CTF component organizations did not fully integrate the Task Force's Military Coordination Center (MCC) helicopter activities with other Provide Comfort air operations in the Tactical Area of Responsibility (TAOR) in northern Iraq. There were individual human errors, procedural errors, errors in the performance of air units involved, and lastly, errors in the operation of the equipment they used. Attached are copies of the report's Executive Summary; the Summary of Facts; the USEUCOM and DOD endorsements, which describe immediate, corrective actions; and four facts sheets with information bearing on the incident.

In a joint letter of condolence to the families of those who lost their lives in this tragic accident, Secretary Perry and General Shalikashvili stressed the continued commitment of the Department of Defense.

"We believe that actions must speak louder than words." This accident "should not have happened" but these brave individuals "will not have died in vain if we learn from and correct our mistakes. We are determined to do everything in our power to insure that this type of accident is not repeated."

**-END-**

**AIRCRAFT  
ACCIDENT INVESTIGATION BOARD  
REPORT**

**US ARMY UH-60  
BLACK HAWK HELICOPTERS  
87-26000 AND 88-26060**

**VOLUME 1**

**EXECUTIVE SUMMARY**

27 May 1994

**EXECUTIVE SUMMARY  
UH-60 BLACK HAWK HELICOPTER ACCIDENT  
14 APRIL 1994**

**1. Introduction:**

Following the accidental shoot-down of two US Army UH-60 Black Hawk helicopters on 14 April 1994, an accident investigation board was convened. The accident investigation report provides the facts pertaining to the accident and presents the statement of opinion by the board president. This executive summary provides an overview of the report, a map of the Operation PROVIDE COMFORT area of operations, a short glossary of terms, and a time line.

**2. Authority and Purpose:**

At the direction of the United States Secretary of Defense and the United States Commander in Chief, Europe (USCINCEUR), the Commander in Chief, United States Air Forces in Europe (CINCUSAFE), appointed an Accident Investigation Board which was composed of the Board President, Maj Gen Andrus, 11 Board Members from the US Army and Air Force, 3 Associate Board Members representing France, Turkey and the United Kingdom, 4 legal advisors, and 13 Technical Advisors. The board convened at Incirlik Air Base, Turkey, on 15 April 1994. The investigation was conducted at the helicopter crash sites in Iraq, at Zakhu, Iraq, and at Incirlik AB. Interviews with witnesses were conducted at Incirlik AB and other locations. Technical assistance was obtained from sources in the United States, the United Kingdom, and Germany. The Board concluded its investigation on 27 May 1994.

This was an investigation into the circumstances surrounding the 14 April 1994 accidental shoot-down of two United States Army Black Hawk helicopters in northern Iraq, by two United States Air Force F-15 fighter aircraft participating in Operation PROVIDE COMFORT (OPC). The accident occurred at approximately 0730Z hours while the aircraft were engaged in missions to protect the Kurdish population in the area of Iraq designated as a security zone (SZ). The purpose of the investigation was to determine the relevant facts and circumstances of the accident and, if possible, to determine the cause or causes. The investigation obtained and preserved evidence for claims, litigation, disciplinary and administrative action, and for all other purposes deemed appropriate by competent authority.

**3. Summary of Facts:**

In April 1991, the US National Command Authority directed US forces to conduct Operation PROVIDE COMFORT. Under his authority, USCINCEUR directed the creation of a Combined Task Force (CTF) to conduct operations in northern Iraq. For three years, coalition air forces from Turkey, France, the United Kingdom and the United States have conducted air operations in a Tactical Area of Responsibility (TAOR) north of 36 degrees north latitude in Iraq. These air

operations have served as a symbol of coalition resolve and as a deterrent to Iraqi military encroachment into a United Nations-established security zone in northern Iraq. The Operation PROVIDE COMFORT (OPC) Combined Task Force (CTF) currently consists of a command element (US and Turkish co-commanders), a staff, a Combined Forces Air Component (CFAC), a Joint Special Operations Task Force, all based at Incirlik, Turkey, and a Military Coordination Center (MCC), located at Zakhu. The Military Coordination Center monitors Iraqi compliance with the United Nations Security Council Resolution 688 barring all Iraqi military, paramilitary, police, and security forces from the security zone.

The US CTF Commanding General has operational control of assigned US Army and Air Force units. Operational control of other coalition nations' forces is retained by their respective parent commands. The CTF has tactical control of those forces. The Combined Forces Air Component Commander (CFACC) is responsible for coordinating the employment of air forces to accomplish the OPC mission. He is delegated operational control of the US Airborne Warning and Control System (AWACS) aircraft, USAF airlift and fighter forces and has been delegated tactical control of the other OPC forces, including the Black Hawk helicopters.

The CFAC Deputy for Operations is responsible for ensuring all aircrews are informed of all unique aspects of the OPC mission, upon their arrival in theater. This includes the Rules of Engagement (ROE). He is also responsible for publishing the Airspace Control Order (ACO) which provides general guidance to aircrews regarding the conduct of OPC missions. The ACO is directive to all aircrews. The Deputy for Operations is also responsible for publishing the daily Air Tasking Order (ATO) which includes the daily flight schedule for aircraft operations over northern Iraq. All helicopter and fixed-wing aircraft are required to comply with this tasking order.

At the time of the 14 April 1994 accident, the Military Coordination Center exercised a high degree of flexibility in scheduling Black Hawk helicopter operations. Detailed information on Black Hawk helicopter flights within the TAOR was not requested or received by the Combined Forces Air Component, nor included in the daily ATO. The ATO and its accompanying "flow sheet" give individual crew members the information needed for their particular missions, and provide them with awareness of other aircraft scheduled to be in the area at the same time.

The accident occurred while two UH-60 Black Hawk helicopters, an E-3B Airborne Warning and Control System (AWACS) aircraft, two F-15Cs and other coalition aircraft were engaged in Operation PROVIDE COMFORT missions. The UH-60 Black Hawk helicopters were flying a transportation mission in support of the Military Coordination Center. An AWACS aircraft was assigned to provide airborne threat warning and air control for all Operation PROVIDE COMFORT aircraft operating inside the TAOR. Two F-15Cs were conducting a mission to detect, intercept, identify, and take appropriate action regarding any Iraqi military aircraft flying in the area.

At 0436Z (0736 local time in Turkey), an E-3B AWACS aircraft departed Incirlik AB. The AWACS was the lead aircraft in the coalition air forces, and would fly the first of the 52 sorties scheduled for that day's operations. The AWACS proceeded to its assigned air surveillance orbit

located on the northern border of Iraq. The onboard AWACS mission crew included a mission crew commander, who supervises all controllers, and a senior director, who supervises all weapons controllers. These weapons controllers included an enroute controller (responsible for clearing OPC aircraft in and out of the TAOR) and a TAOR controller (who controls OPC aircraft inside the TAOR). Other controllers and technicians are also part of the mission crew. Also on board the AWACS was an airborne command element (ACE), a representative of the Combined Forces Air Component Commander.

At 0522Z, the two UH-60 Black Hawk helicopters, (call signs Eagle 01 and Eagle 02) took off from Diyarbakir, Turkey, enroute to the Military Coordination Center's headquarters at Zaku. The Black Hawk pilots reported their entry into the no-fly zone of northern Iraq to the AWACS enroute controller, at 0621Z. They landed at Zaku six minutes later.

The flight of two F-15C fighter aircraft (call signs Tiger 01 and Tiger 02) took off from Incirlik AB at 0635Z. The F-15s were tasked to perform an initial fighter sweep of the no-fly zone to clear the area of any hostile aircraft prior to the entry of coalition forces. Following the fighter sweep, the F-15s were to conduct their defensive counter air mission/combat air patrol in the area.

At Zaku, the Military Coordination Center co-commanders and their party boarded the two UH-60s in preparation for a flight that was scheduled to take them to the towns of Irbil and Salah ad Din, Iraq, for meetings with United Nations and Kurdish representatives. At 0654Z, the Black Hawk flight contacted the AWACS enroute controller, reported their departure from Zaku, and informed AWACS of their destination. The enroute controller received the radio call.

Approximately thirty minutes later (0720Z), the F-15 flight lead reported entering northern Iraq to the AWACS TAOR controller, who was responsible for air traffic within the TAOR. The F-15 pilots then began their pre-briefed fighter sweep of the TAOR to ensure it was free of Iraqi aircraft. Since the ATO did not contain any detailed information on the Black Hawk helicopters, and the AWACS controllers did not advise the F-15s of the Black Hawks' presence, the F-15s had no knowledge of the helicopters in the area. At approximately 0722Z, the F-15 flight lead reported a radar contact on a low-flying, slow-moving aircraft approximately 52 miles north of the southern boundary of the no-fly zone, and 40 miles southeast of his position. The TAOR controller acknowledged the lead F-15 pilot's radio transmission with a "Clean there" call, indicating that he had no radar contacts in the area. Attempts by the F-15 pilots to identify the contacts by electronic means were unsuccessful, and they initiated an intercept to investigate. At 20 miles range, the F-15 flight lead again reported the radar contact. The TAOR controller responded, "Hits there" (radar contact at the reported location). At approximately five miles range, the F-15 flight lead visually detected a single helicopter and closed for an identification pass. The second F-15, approximately three miles behind his flight lead, also made an identification pass. The helicopters were at very low altitude, heading southeast in a valley, and were flying in a relatively close, lead-trail formation. The lead F-15 pilot visually misidentified the Black Hawks as Iraqi Hind helicopters. The wingman saw the two helicopters but did not positively identify them as Hinds.

The F-15 pilots repositioned their aircraft five to ten miles behind the helicopters for firing passes and the flight lead notified the AWACS TAOR controller that the fighters were "Engaged." At approximately 0730Z, the lead F-15 pilot fired an AIM-120 AMRAAM missile at the trail helicopter from a range of approximately four nautical miles. The F-15 wingman then fired an AIM-9 Sidewinder missile at the lead helicopter from an approximate range of one and one-half nautical miles. Both Black Hawk helicopters were destroyed. All 26 people on board were killed.

The F-15 pilots each made two visual reconnaissance passes over the crash sites, then continued their assigned mission. When their replacements arrived in the area, the F-15s returned to Incirlik AB and landed at 1000Z. The AWACS remained on station providing air surveillance and control for the ongoing Operation PROVIDE COMFORT mission, until relieved by a second AWACS aircraft at 1520Z. The first AWACS then returned to Incirlik AB and landed at 1615Z.

#### **4. Statement of Opinion**

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Under 10 U.S.C. 2254 (D) any opinion of accident investigators as to the cause of, or the factors contributing to the accident set forth in the accident investigation report, may not be considered as evidence in any civil or criminal proceeding arising from an aircraft accident, nor may such information be considered an admission of liability by the United States or by any person referred to in those conclusions or statements.

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Operation PROVIDE COMFORT has been a successful coalition effort in response to human rights abuses against the Kurdish population in northern Iraq. The operation has effectively deterred Iraq from disrupting peace and order in the UN-established security zone.

The 14 April 1994 shoot-down of two US Black Hawk helicopters by two US F-15C aircraft in northern Iraq was caused by a chain of events which began with the breakdown of clear guidance from the Combined Task Force to its component organizations. This resulted in the lack of a clear understanding among the components of their respective responsibilities. Consequently, CTF component organizations did not fully integrate Military Coordination Center helicopter activities with other OPC air operations in the Tactical Area of Responsibility. Additionally, OPC personnel did not receive consistent, comprehensive training to ensure they had a thorough understanding of the USEUCOM-directed ROE. As a result, some aircrews' understanding of how the approved ROE should be applied, became over-simplified.

MCC personnel were given a high degree of independence in helicopter operations, without an adequate consideration for the threat of engagement from other OPC aircraft. Neither the CTF staff nor the Combined Forces Air Component staff requested or received timely, detailed flight information on planned MCC helicopter activities in the TAOR. Consequently, the OPC daily Air Tasking Order was published with little detailed information regarding US helicopter flight activities over northern Iraq. Specific information on routes of flights and times of MCC

helicopter activity in the TAOR was normally available to the other OPC participants only when AWACS received it from the helicopter crews by radio and relayed the information on.

The AWACS mission crew commander on 14 April 1994, who had flown only one sortie in the previous three months, was not currently qualified in accordance with Air Force regulations. The AWACS weapons controllers, under his supervision, did not have a clear understanding of their individual responsibilities to provide support to MCC helicopters. They shared the common view, along with the CFAC airborne command element officer, that MCC helicopter activities were not an integral part of OPC air operations. There was general misunderstanding throughout OPC organizations regarding the extent to which the provisions of the Airspace Control Order applied to MCC helicopter activities. AWACS personnel did not routinely monitor the Black Hawk helicopter flights or pass information on those flights to other OPC aircraft. The result was that there was no effective coordination of OPC fixed-wing and helicopter operations within the TAOR.

On 14 April 1994, AWACS controllers were aware that the Black Hawk helicopters had departed Zakhu, and were proceeding east into the TAOR. The F-15 pilots were not aware of the Black Hawk helicopters already in the area. The fighters twice informed AWACS that they had unknown radar contacts in the TAOR. The AWACS mission crew commander, senior weapons director, enroute controller and TAOR controller had access to electronic information regarding the presence of friendly aircraft in the vicinity of the F-15s' reported radar contacts. However, there is no evidence that they were aware of, recognized, or responded to this information. They did not advise the F-15 pilots of the presence of friendly aircraft. The helicopters were unable to hear the radio transmissions between the F-15 flight and AWACS because they were on a different radio frequency.

The F-15 pilots attempted to electronically identify the radar contacts by interrogating the ATO-designated IFF Mode I and Mode IV aircraft codes. The helicopter crew members were apparently not aware of the correct Mode I code specified for use within the TAOR and had the Mode I code specified for use outside the TAOR in their IFF transponders. The result was that the F-15s did not receive a Mode I response. When the lead F-15 pilot interrogated the IFF Mode IV code, he received a momentary friendly response. However, on two subsequent attempts, no Mode IV response was received. The F-15 wingman attempted one Mode IV interrogation and received no response.

The reason for the unsuccessful Mode IV interrogation attempts cannot be established, but was probably attributable to one or more of the following factors: both F-15 pilots may have selected the incorrect interrogation mode; both F-15 Air-to-Air Interrogators (AAIs) may have incorrectly processed the Black Hawks' transponder signals; both helicopter IFF transponder codes may have been loaded incorrectly; there may have been "garbling" of the friendly Black Hawks' IFF responses, produced by two helicopters using the same code in close proximity to each other; there may have been intermittent loss of line-of-sight radar contact between the F-15s and the helicopters, due to mountainous terrain and the Black Hawks' low-altitude, which could have precluded a successful Mode IV interrogation.

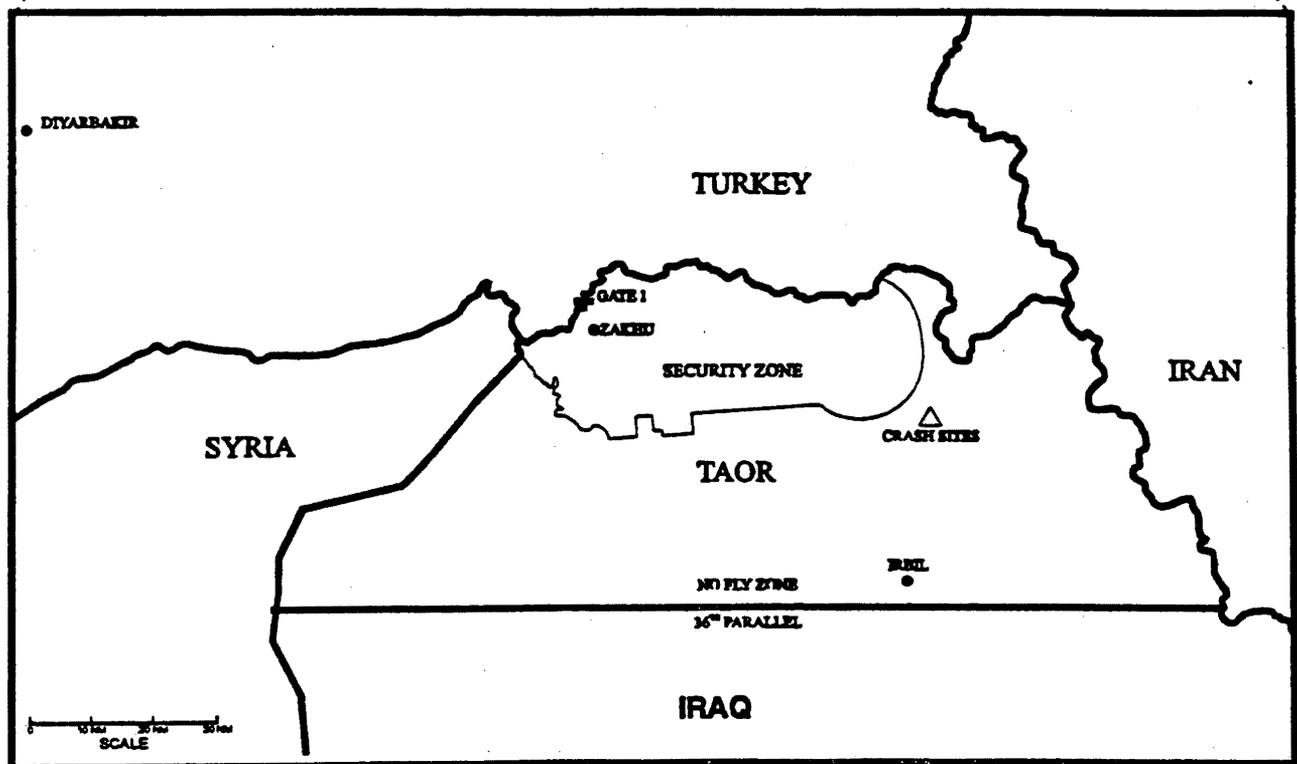
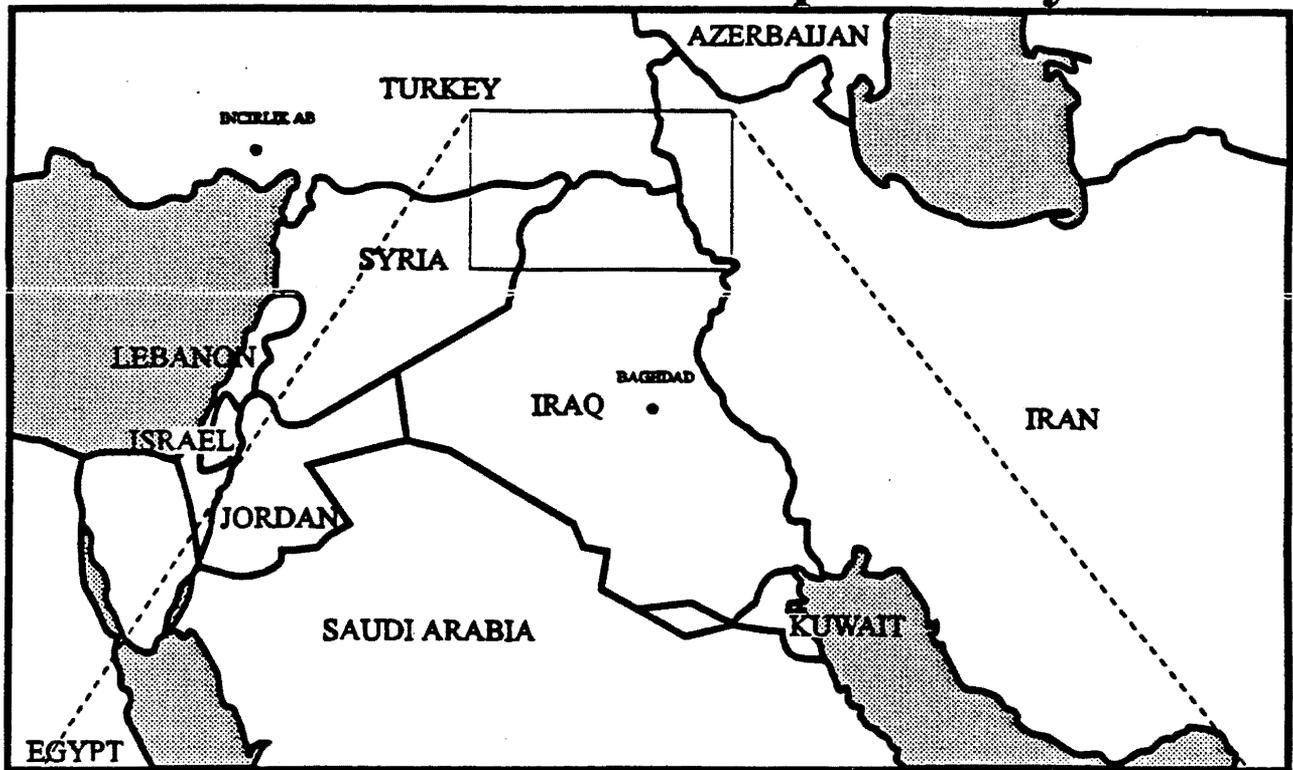
When the F-15 pilots were unable to get positive/consistent IFF responses they performed an intercept in order to visually identify the "unknown" aircraft. They each made a single identification pass on the Black Hawks. However, the identification passes were accomplished at speeds, altitudes and distances where it was unlikely that the pilots would have been able to detect the Black Hawks' markings. Neither F-15 pilot had received recent, adequate visual recognition training. The pilots did not recognize the differences between the US Black Hawk helicopters with wing-mounted fuel tanks and Hind helicopters with wing-mounted weapons. The F-15 flight lead misidentified the US Black Hawks as Iraqi Hind helicopters. Following his identification pass, he asked his wingman to confirm the identification. The wingman, who was a senior squadron supervisor and instructor pilot, saw two helicopters, but did not positively identify them as Hinds. The wingman did not notify the flight lead that he had been unable to make a positive identification, and allowed the engagement to continue. The flight lead, acting within the specified ROE, fired a single missile and shot down the trail Black Hawk helicopter. At flight lead's direction, the F-15 wingman also fired a single missile and shot down the lead Black Hawk helicopter.

  
JAMES G. ANDRUS  
Maj Gen, USAF  
Board President

- 3 Atchs
- 1. Map
- 2. Glossary
- 3. Time Line

# OPERATION PROVIDE COMFORT

## Tactical Area of Responsibility



## **EXECUTIVE SUMMARY**

### **GLOSSARY**

**AAI - Air-to-Air Interrogation**

**ACO - Airspace Control Order**

**ADR - Automatic Data Recorder**

**AIM - Air Intercept Missile**

**AMRAAM - Advanced Medium Range Air-to-Air Missile**

**ATO - Air Tasking Order**

**BLACK HAWK - A UH-60 Helicopter**

**BSD - Battle Staff Directive**

**CAP - Combat Air Patrol**

**CTF- Combined Task Force**

**EAGLE - Call sign of UH-60 helicopter formation (Eagle 01, flight lead; Eagle 02, wingman)**

**EID - Electronic Identification**

**IFF - Identification Friend or Foe**

**MCC - Military Coordination Center**

**NO FLY ZONE - Airspace in Iraq, north of 36 degrees north latitude**

**OPC - Operation PROVIDE COMFORT**

**ROE - Rules of Engagement**

**SPINS - Special Instructions**

**SZ - Security Zone**

**TAOR - Tactical Area of Responsibility**

**TIGER - Call sign of F-15C formation (Tiger 01, flight lead, Tiger 02, wingman)**

**VID - Visual Identification**

TIME LINE

Time (Z)	AWACS ("Cougar")	F-15s ("Tiger")	Black Hawks ("Eagle")
0436	AWACS departs Incirlik AB		
0522			Black Hawks depart Diyarkabir
0545	AWACS declares "On station" Surveillance section begins tracking aircraft		
0616	"H" character programmed to appear on senior director's radar scope whenever Eagle Flight's IFF Mode I, Code 42 is detected		
0621	AWACS answers Black Hawks Track annotated "EE01" for Eagle flight		Black Hawks Call AWACS on the enroute frequency at the "Gate" (entrance to TAOR)
*0624	Black Hawks' radar and IFF returns fade		Black Hawks land at Zakhu
0635		F-15s depart Incirlik AB	
0636	Enroute controller interrogates F-15s' IFF Mode IV		
0654	AWACS receives Black Hawks' radio call Enroute controller reinitiates "EE01" symbology to resume tracking		Black Hawks call AWACS to report enroute from "Whisky" (Zakhu) to "Lima" (Irbil)
0655	"H" begins to be regularly displayed on SD's radar scope (IFF Mode I, Code 42)		
0705		F-15s check in with AWACS on enroute frequency	
0711	"H" ceases to be displayed on SD's radar scope		
0712	Black Hawks' radar and IFF contacts fade; computer symbology continues to move at last known speed and direction		Black Hawks enter mountainous terrain
0713	ASO places arrow on SD scope in vicinity of Black Hawks' last known position		
*0715	ACE replies to F-15s "...negative words"	F-15s check in with the ACE	
0715	AWACS radar adjusted to low-velocity detection settings		

Time (Z)	AWACS ("Cougar")	F-15s ("Tiger")	Black Hawks ("Eagle")
0720		F15s enter TAOR and call AWACS at Gate on TAOR radio frequency	
0721	"EE01" (Black Hawk symbology) dropped by AWACS		
0722	TAOR WD responds "Clean there"	F-15 lead reports radar contact at 40 NMs	
0723	Intermittent IFF response appears in vicinity of F-15's reported radar contact		
0724	"H" symbol reappears on SD's scope		
0725	Black Hawk IFF response becomes more frequent TAOR controller responds to F-15s with "Hits There"	F-15 lead calls "Contact" (radar return approximately 20 NMs)	
0726	Black Hawk IFF response continuous; radar returns intermittent		
0727	Enroute controller initiates an "Unknown, Pending, Unevaluated" symbol in vicinity of Black Hawks' IFF/ radar returns; attempts IFF interrogation		
*0728	Black Hawk IFF and radar responses fade	F-15 lead "visual" with a helicopter at 5 NM	
*0728	AWACS replies "Copy Hinds"	F-15 lead conducts VID pass and calls "...Tally 2 Hinds ...."	
*0728.30		F-15 wingman conducts VID pass; calls "Tally 2"	
*0729		F-15 lead instructs No 2 to "Arm hot" and gives instruction for independent targeting	
*0730		F-15 lead fires AIM 120 at trail helicopter	Trail Black Hawk hit by missile
*0730		F-15 wingman fires AIM 9 at lead helicopter	Lead Black Hawk hit by missile
*0730+		F-15 lead reports "Splash 2 Hinds"	

**NOTE: All times preceded by a "\*" are estimates based on best available information. Local time at Diyarbakir is 3 hours later than Zulu time; and local time at Zakhu is 4 hours later than Zulu time.**

**AIRCRAFT  
ACCIDENT INVESTIGATION BOARD  
REPORT**

**US ARMY UH-60  
BLACK HAWK HELICOPTERS  
87-26000 AND 88-26060**

**VOLUME 2**

**SUMMARY OF FACTS**

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27 May 1994

AFR 110-14  
AIRCRAFT ACCIDENT INVESTIGATION  
REPORT OF INVESTIGATION

**1. AUTHORITY AND PURPOSE.**

**a. Authority:** On 14 April 1994, the Secretary of Defense directed the United States Commander in Chief, Europe (USCINCEUR) to conduct an investigation into the facts and circumstances of the 14 April 1994 crash of two United States Army UH-60 Black Hawk helicopters in northern Iraq, and the possible involvement of United States Air Force F-15C aircraft. Accordingly, USCINCEUR directed the Commander in Chief, United States Air Forces in Europe (CINCUSAFE) to order the investigation. Under this delegated authority, and in accordance with Air Force Regulation 110-14, CINCUSAFE appointed Major General James G. Andrus and other accident board members to conduct the investigation. The appointments were made by HQ USAFE memorandum dated 15 April 1994 and HQ USAFE special order M-02 dated 20 May 94.<sup>1</sup> The individuals appointed were:

**BOARD PRESIDENT**

MAJOR GENERAL JAMES G. ANDRUS

Board President

**BOARD MEMBERS**

COLONEL PATRICK J. BENNETT

Deputy Board President

COLONEL MICHAEL E. FAIN

Chief Investigator

LT COL WAYNE I. MUDGE

F-15 Pilot

LT COL RAY B. SHEPHERD

Public Affairs

MAJOR AARON D. BYAS

AWACS Crew Member

MAJOR CHRISTOPHER J. LISANTI

Flight Surgeon

MAJOR JEFFREY M. SNYDER

F-15 Maintenance

1LT GREG A. BROWN

Board Recorder

CW5 STEVE A. MELINE

UH-60 Pilot

CW4 DOUGLAS C. SOUSA

UH-60 Maintenance

**ASSOCIATE BOARD MEMBERS**

COLONEL REMZI ARMEN

Associate Member (Turkey)

GROUP CAPTAIN BARRY P. DOGGETT

Associate Member (United Kingdom)

LT COL CHRISTIAN VELLUZ

Associate Member (France)

**LEGAL ADVISORS**

COLONEL WILLIAM K. AT LEE, JR.

Legal Advisor

COLONEL CHARLES H. WILCOX, II

Legal Advisor

LTC SCOTT C. BLACK

Legal Advisor

LT COL BRYAN T. LAWLER

Legal Advisor

## **TECHNICAL ADVISORS**

**GS-15 DONALD NORRIS**  
**LT COL BERTRAM H. PRYOR, JR.**  
**LTC LENEAR ROYER III**  
**LT COL JOYCE E. TETERS**  
**MAJOR JAMES R. LITTLE**  
**CAPT MICHAEL E. TURNER**  
**1LT KELLY J. SCOTT**  
**CW5 DANIEL W. MEDINA**  
**CW2 JOHN B. HALL**  
**SSG FREDDIE L. HOLMES**  
**GS-11 CAROLE M. PYLES**  
**GS-11 GERALD D. SILVIUS**  
**MR DAVID BRUMMELL**

**Declassifier**  
**AWACS Systems**  
**Helicopter Systems**  
**Medical**  
**Medical**  
**AWACS Data Analysis**  
**AWACS Maintenance**  
**Helicopter Systems**  
**Helicopter Aircraft Survivability**  
**UH-60 Avionics**  
**Foreign Disclosure**  
**F-15 Maintenance**  
**Legal (United Kingdom)**

**b. Purpose:** This was an investigation into the circumstances surrounding the 14 April 1994 accidental shoot-down of two United States Army Black Hawk helicopters in northern Iraq, by two United States Air Force F-15 fighter aircraft, participating in Operation PROVIDE COMFORT (OPC). The accident occurred at approximately 0730Z hours while the aircraft were engaged in missions to protect the Kurdish population in the area of Iraq designated as a security zone (SZ). The purpose of the investigation was to determine the relevant facts and circumstances of the accident and, if possible, to determine the cause or causes. The investigation obtained and preserved evidence for claims, litigation, disciplinary and administrative action, and for all other purposes deemed appropriate by competent authority.

**c. Circumstances:** Since the beginning of Operation PROVIDE COMFORT, coalition aircrews have flown daily missions over active Iraqi air defenses to guard the 500,000 Kurdish refugees within the United Nations-designated security zone. Iraqi forces have tested coalition resolve by probing the no-fly zone with Iraqi aircraft, illuminating coalition aircraft with "fire control" radars, and firing on friendly forces. Coalition forces have responded by shooting down an Iraqi Mig-23 and bombing of Iraqi anti-aircraft artillery and surface-to-air-missile sites. Kurdish refugees within the security zone have been harassed and UN relief trucks have been sabotaged by Iraqis. On 21 December 1993, a small contingent of coalition personnel were attacked within the security zone. Coalition liaison personnel were fired upon as they left their support base in Zakhu, Iraq. In March 1994, Saddam Hussein publicly stated that he would be "forced to take other means" in response to renewed United Nations sanctions. Non-government organization personnel have had bounties placed on their heads.<sup>2</sup> On 3 April 1994, a female civilian journalist employed by a French news agency was murdered in northern Iraq by unknown assailants.<sup>3</sup> Iraqi forces have maintained a capability to attack coalition personnel and the local Kurdish population. Tensions have remained strong in the area and coalition aircrews and ground personnel have operated at a high state of readiness.<sup>4</sup>

On 14 April 1994, the Turkish and US co-commanders of the Military Coordination Center (MCC), a component of the Operation PROVIDE COMFORT Combined Task Forces (CTF) and

other staff officers were scheduled to meet with UN representatives and officials of the Kurdish Democratic Party. Two Black Hawk helicopters transporting the group from MCC (Forward) headquarters in Zakhu, to Irbil and Salah ad Din, Iraq, were shot down by US F-15C fighter aircraft patrolling the no-fly zone. All individuals on board the two helicopters were killed. The individuals who died in the accident are listed below:<sup>5</sup>

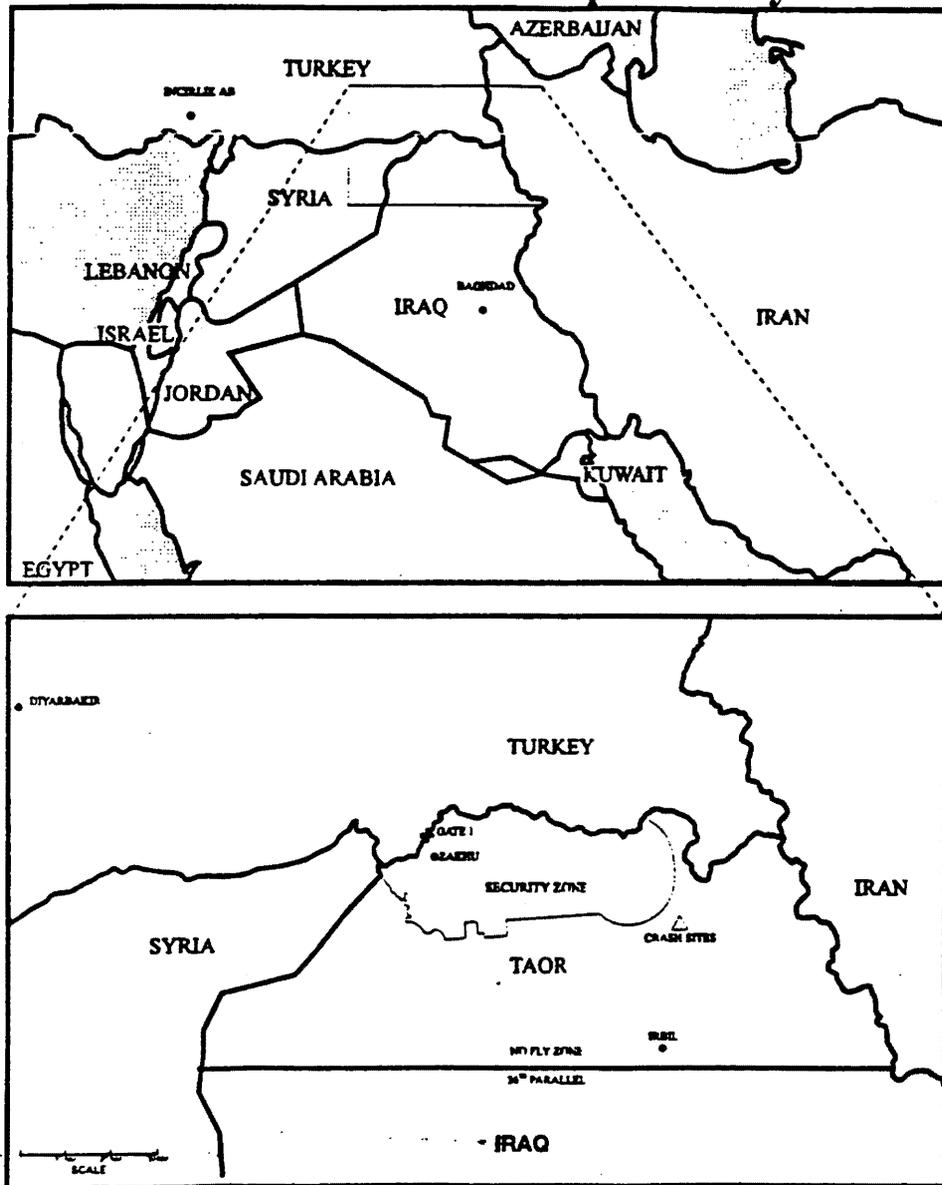
<u>RANK/NAME</u>	<u>NATIONALITY</u>	<u>POSITION/REASON</u>
COL HIKMET ALP	TURKISH	MCC CO-COMMANDER
MR ABDULSATUR ARAB	KURDISH	MISSION SECURITY
SSGT PAUL N. BARCLAY	US	COMMUNICATIONS NCO
SPC CORNELIUS A. BASS	US	UH-60 CREW CHIEF
1LT CEYHUN CIVAS	TURKISH	TU LIAISON OFFICER
SPC JEFFREY C. COLBERT	US	UH-60 CREW CHIEF
LT COL GUY DEMETZ	FRENCH	SENIOR FRENCH REP
PFC MARK A. ELLNER	US	UH-60 CREW CHIEF
W01 JOHN W. GARRETT, JR.	US	UH-60 PILOT
1LT M. BARLAS GULTEPE	TURKISH	TU LIAISON OFFICER
CW2 MICHAEL A. HALL	US	UH-60 PILOT
SFC BENJAMIN T. HODGE	US	TRANSLATOR
MR GHANDI HUSSEIN	KURDISH	MISSION SECURITY
CPT PATRICK M. MCKENNA	US	UH-60 PILOT
MR BADER MIKHO	KURDISH	MISSION SECURITY
MR AHMAD MOHAMMAD	KURDISH	MISSION SECURITY
W01 ERIK S. MOUNSEY	US	UH-60 PILOT
COL RICHARD A. MULHERN	US	NEW MCC CO-COMMANDER
1LT LAURA A. PIPER	US	IRAQI AIR ANALYST C2
SPC MICHAEL S. ROBINSON	US	U-60 CREW CHIEF
SSGT RICKY L. ROBINSON	US	MEDIC
MR SALID SAID	KURDISH	INTERPRETER
MS BARBARA L. SCHELL	US	POLITICAL ADVISOR
MAJ HARRY C. SHAPLAND	BRITISH	SECURITY OFFICER
LT COL JONATHAN C. SWANN	BRITISH	SENIOR UK REPRESENTATIVE
COL JERALD L. THOMPSON	US	MCC CO-COMMANDER

## 2. SUMMARY OF FACTS.

a. **Mission:** In April 1991, the US National Command Authority directed US forces to conduct Operation PROVIDE COMFORT. Under his authority, the USCINCEUR directed the creation of a Combined Task Forces to conduct operations in northern Iraq. Coalition air forces from Turkey, France, the United Kingdom and the United States were assembled to conduct frequent air operations, including reconnaissance and surveillance, in the Tactical Area of Responsibility (TAOR) north of 36 degrees north latitude in Iraq. These air operations served as a symbol of coalition resolve and as a deterrent to Iraqi military encroachment into the United Nations-established security zone (SZ) in northern Iraq. CTF ground forces included a Battalion Task Force consisting of a reinforced coalition infantry battalion, a lift helicopter task force, an

attack helicopter battalion, and a Military Coordination Center. The coalition ground forces were tasked to monitor Iraqi compliance with the United Nations Security Council Resolution 688 that established the SZ and to maintain contact and coordination with Kurdish civil and military authorities in the area.<sup>6</sup>

## OPERATION PROVIDE COMFORT Tactical Area of Responsibility



(Figure 1 - Map)

In order to satisfy the requirements of the CTF mission, specific organizations and aircraft were tasked as follows:

(1) **Command and Control Structure:** USCINCEUR Operations Orders (OPORDs) 002 and 003 defined the command and control of the CTF forces, as exercised by USCINCEUR, through the Commanding General of the CTF (CTF CG). USCINCEUR delegated operational control (OPCON) of the assigned US Army ground and air units to the CTF CG.<sup>7</sup> (OPCON is the authority to command subordinate forces, assign tasks, designate objectives and give authoritative direction necessary to accomplish the mission.)<sup>8</sup> OPCON of other coalition nations' forces was retained by their respective parent commands. The CTF CG was given tactical control (TACON) of participating US Navy, Turkish, French and British forces.<sup>9</sup> (TACON is the detailed, and usually local, direction and control of movements and maneuvers necessary to accomplish the assigned mission. TACON also provides the authority to direct military operations and control designated forces.)<sup>10</sup> Tactical aircraft and US Joint Special Operations Task Force (JSOTF) helicopters were co-located with CTF Headquarters at Incirlik Air Base (AB), Turkey. Other US Army helicopters and coalition ground forces established operations at sites in eastern Turkey and northern Iraq.<sup>11</sup> The CTF CG retained authority for all cross-border operations, both air and ground, into Iraq.<sup>12</sup>

USCINCEUR OPORD 003 directed the CTF CG to develop an operation plan (OPLAN) to govern the conduct of the OPC mission.<sup>13</sup> OPLAN 91-7, dated 20 July 1991, was developed and implemented to delineate the command relationships and organizational responsibilities within CTF PROVIDE COMFORT.<sup>14</sup> USCINCEUR OPORD 004, 14 September 1991, directed the withdrawal of the OPC Battalion Task Force. OPORD 004 further directed an increase in the size of CTF air forces and the retention of the JSOTF at Incirlik AB. The MCC and its supporting helicopter assets remained under the OPCON of the CTF and consolidated operations at Diyarbakir, Turkey.<sup>15</sup> The MCC later established a forward operating location at Zakhu, in the extreme northwestern corner of Iraq. OPLAN 91-7 provided comprehensive guidance for the OPC mission as it existed in July 1991. With the redeployment of the Battalion Task Force beginning in September 1991, the MCC and its supporting helicopter detachment were all that remained of the original CTF ground component.<sup>16</sup> OPORD 004 requested the CTF provide a supporting plan to implement provisions of OPORD 004.<sup>17</sup> However, although an effort was begun in 1991 to revise OPLAN 91-7, no evidence could be found to indicate that OPLAN 91-7 was actually updated to reflect the change in command and control relationships and responsibilities that resulted from the departure of the previously designated CTF Ground Component Commander and his forces.<sup>18</sup> OPLAN 91-7 remained in effect at the time of the accident.<sup>19</sup>

Under OPLAN 91-7, CTF PROVIDE COMFORT was organized using a modified joint task force (JTF) structure. (A CTF is a JTF which incorporates forces of other nations).<sup>20</sup> The OPC CTF organizational structure consists of a command element (US and Turkish co-commanders), a staff, a Combined Forces Air Component (CFAC), the JSOTF, and the MCC.<sup>21</sup> The CTF Chief of Staff serves as the CTF CGs' deputy and is responsible for supervising the functions of the staff. The CTF staff includes personnel (C1), intelligence (C2), operations (C3), logistics (C4), and communications (C6).<sup>22</sup> (The planning responsibilities normally executed by the plans staff

officer (C5) had been absorbed by the CTF C3.)<sup>23</sup> JSOTF forces provide special operations support and search and rescue.<sup>24</sup> The CFAC Commander (CFACC) is responsible for coordinating the employment of air forces to accomplish the OPC mission. He is delegated OPCON of the Airborne Warning and Control System (AWACS), USAF airlift, and fighter forces, and has TACON of the MCC, JSOTF, and US Navy, Turkish, French, and British fixed-wing and helicopter assets.<sup>25</sup>

CFAC responsibilities are assigned to personnel in the 39th Wing (USAF) at Incirlik AB, augmented with temporary duty personnel. The 39th Wing Commander also functions as both the Commander, 7440th Composite Wing (Provisional) and as the CFACC.<sup>26</sup> As the Commander of the 7440th Composite Wing, he exercises OPCON of US forces deployed to Incirlik AB, through the individual units' detachment commanders (DETCOs).<sup>27</sup> As the CFACC, he exercises TACON over forces participating in the daily OPC flying operation through a ground-based mission director, positioned in the command post at Incirlik AB and an airborne command element (ACE) on board the AWACS.<sup>28</sup>

The 39th Wing Operations Group Commander serves as the 7440th Composite Wing Deputy Commander for Operations (DO) and as the CFAC DO.<sup>29</sup> The CFAC DO is responsible for ensuring aircrews are informed of all unique aspects of the OPC mission upon their arrival in theater.<sup>30</sup> He is also responsible for publishing an Aircrew Read File (ARF).<sup>31</sup> The ARF includes the Rules of Engagement (ROE) for OPC and is mandatory reading for each assigned aircrew member.<sup>32</sup>

ROE are policies and procedures developed by National Command Authority (NCA) and subordinate military commanders, governing actions of US military forces to protect themselves, the United States, its possessions, bases and other property and personnel, against attack or hostile incursion. They are based upon legal, political and military considerations and are intended to provide for adequate self defense and to ensure that military activities are consistent with current national objectives. Unified combatant commanders establish ROE for their areas of responsibilities that are consistent with Joint Chiefs of Staff (JCS) guidelines. These may be modified for specified operations and for changing conditions. ROE are not designed to be specific operational orders; they are intended to describe clear circumstances and limitations under which US forces--from senior commanders to individual airman--may take necessary actions, consistent with legal, political and military requirements.<sup>33</sup> The OPC ROE are the peacetime ROE for the United States European Command, with modifications approved by National Command Authority for OPC.<sup>34</sup>

In addition to his responsibilities to incoming crew members, the CFAC DO is also responsible for publishing an Airspace Control Order (ACO), a daily Air Tasking Order (ATO) and mission-related special instructions (SPINS).<sup>35</sup> The ACO provides general guidance regarding the conduct of OPC missions, and is directive to all OPC aircrews. It provides rules and procedures that govern OPC flight operations.<sup>36</sup>

The ATO includes the daily flight schedule and provides authority for over-flight of northern Iraq.<sup>37</sup> All flights, both rotary and fixed-wing, will be in accordance with the CTF Air Component

Commander's ATO, as approved and promulgated by Headquarters, 2d Turkish Air Force.<sup>38</sup> The ATO lists radio frequencies, Identification Friend or Foe (IFF) codes, and other information pertinent to each day's mission.<sup>39</sup> Both the ACO and ATO are developed with consideration given to inputs from other CTF organizations. The CTF C2 is responsible for providing reconnaissance targeting information. Individual flying units input data such as aircraft availability and special training requests.<sup>40</sup> OPLAN 91-7 directs that the Combined Forces Ground Component Commander will coordinate rotary wing sorties in Iraq within the fighter flying window.<sup>41</sup> With the departure of the Combined Forces Ground Component Commander, no individual was assigned to coordinate rotary wing sorties.<sup>42</sup> OPLAN 91-7 specifies that the CTF C3, through the CFAC scheduling office, is the focal point for coordination of Army rotary wing flights with available fighter assets.<sup>43</sup>

The Joint Operations and Intelligence Center (JOIC), responsible to the C3, provides a 24 hour point of contact for communications within the CTF. When tasked, the JOIC receives, delivers, and transmits communications up, down, and across the CTF command and control structure. An Army Liaison Officer is available to provide liaison between the MCC helicopter detachment and its parent unit. He is not assigned to the JOIC, but is available to provide liaison between the MCC helicopter detachment and the CTF staff, on request.<sup>44</sup>

OPC daily flight operations are scheduled as mission packages. A typical package consists of a wide variety of aircraft with specific mission capabilities. When combined, these aircraft form a complex package capable of meeting OPC tactical objectives. A mission AWACS aircraft provides the airborne force with flight following, to and from the TAOR, as well as threat warning and fighter control within the TAOR. Six to seven air refueling aircraft [KC-135, F-135 (French Air Force), VC-10 (Royal Air Force)] provide inflight refueling for the AWACS and fighter aircraft. As many as 30 to 40 fighter aircraft [F-15, F-16, F-4G, F-15E, EF-111, Jaguar (FAF), Harrier (RAF)], flying two-ship and four-ship formations, provide visual and sensor reconnaissance of military targets, defensive counter air (DCA) capability, suppression of enemy air defense (SEAD) capability, and an on-call precision-guided munitions (PGM) capability. In addition, MCC Black Hawk helicopters maintain a visible presence in the security zone through air patrols and visits to Kurdish villages, and conduct transport and search and rescue (SAR) missions.<sup>45</sup>

The OPC aircraft normally remain on station in the TAOR 6 to 8 hours daily.<sup>46</sup> The flying "window" is randomly selected to avoid predictability.<sup>47</sup> The AWACS typically takes off from Incirlik AB approximately 2 hours before the first air-refueling and fighter aircraft.<sup>48</sup> Once the AWACS is airborne, the AWACS' systems are brought on-line and a Joint Tactical Information Distribution System (JTIDS) link is established with a Turkish Sector Operations Center (radar site). After the JTIDS link is confirmed, the CFAC airborne command element (ACE) initiates the planned launch sequence for the rest of the force.<sup>49</sup> Normally, within a one hour period, tanker and fighter aircraft takeoff and proceed to the TAOR in a carefully orchestrated flow.<sup>50</sup> Fighters may not cross the political border into Iraq without AWACS coverage.<sup>51</sup> No aircraft may enter the TAOR until fighters with airborne intercept (AI) radars have searched the TAOR for Iraqi aircraft.<sup>52</sup> Once the AI radar equipped fighters have "sanitized" the TAOR, they establish an orbit and continue their search for Iraqi aircraft.<sup>53</sup>

Additional fighters and tankers flow to and from the TAOR throughout the flying period. Air-to-air fighters fly combat air patrol. "Wild Weasels" and EF-111 electronic jamming aircraft maintain a watch for Iraqi surface-to-air missile activity, and the remaining aircraft conduct aerial reconnaissance of Iraqi military activity and provide a visible presence in the area. The MCC Black Hawk helicopters fly between their main base at Diyarbakir, Turkey, and Zakhu, Iraq, to resupply the MCC (Forward) operating location and to stage for missions into the TAOR. At the end of the flying window, the OPC aircraft return to their home bases, as scheduled. Air-to-air fighter aircraft equipped with AI radars leave the TAOR last to protect the package from Iraqi fighters.<sup>54</sup>

(2) **E-3B AWACS Mission.** The AWACS OPC mission is to control aircraft enroute to the TAOR, coordinate air refueling, and provide airborne threat warning and control for all OPC aircraft operating inside the TAOR. The AWACS also provides surveillance, detection and identification of all unknown aircraft.<sup>55</sup>

In order to fulfill its mission, the AWACS carries a large component consisting of a flight crew and a mission crew. The flight crew (a pilot, copilot, navigator and flight engineer) is responsible for the safe ground and flight operation of the aircraft. The mission crew has overall responsibility for command, control, surveillance, communications and sensor systems of the AWACS. The mission crew is made up of approximately 19 personnel and is divided into weapons and surveillance sections. The mission crew commander has overall responsibility for the AWACS mission. He is responsible for the management, supervision and training of the mission crew. The senior director (SD) supervises and directs the activities of the assigned weapons directors (WDs) and conducts the air battle.<sup>56</sup>

The WDs are responsible for locating, identifying, tracking and controlling all friendly aircraft, and regulating air traffic in the AWACS' area of responsibility. In addition to their normal duties, each WD has specific responsibilities for OPC aircraft. One WD acts as an enroute controller, responsible for controlling the flow of aircraft to and from the TAOR. This person also conducts IFF and radio checks on all OPC aircraft.<sup>57</sup> A second WD, the tanker controller, is responsible for controlling air-refueling operations.<sup>58</sup> A third WD, the TAOR controller, is assigned to provide threat warning, and tactical control for all OPC aircraft operating in the TAOR.<sup>59</sup> The Air Surveillance Officer (ASO) and up to four technicians are responsible for the detection, tracking, and identification of non-OPC aircraft.<sup>60</sup>

The airborne command element (ACE) is also on board. He is the CFACC's representative and works directly with the mission crew commander and SD. CTF PROVIDE COMFORT OPLAN 91-7 provides that, "An airborne command element (ACE) will be aboard [AWACS] to serve as the representative of the CFACC for time critical decisions."<sup>61</sup> CFAC operating instructions for the ACE provide that the ACE will act as the "eyes and ears" of the CFAC DO in the execution of the combat operations. They provide that the ACE has primary responsibility for the mission outside of a 50 NM circle of Incirlik, but emphasize that reference should be made to the CFAC DO. They imply that actions required for emergency or unsafe conditions can be taken by the ACE, who would then contact the CFAC DO as soon as possible.<sup>62</sup> The CFACC, in his testimony, stated that the ACE had no decision-making authority.<sup>63</sup>

# E-3B AWACS

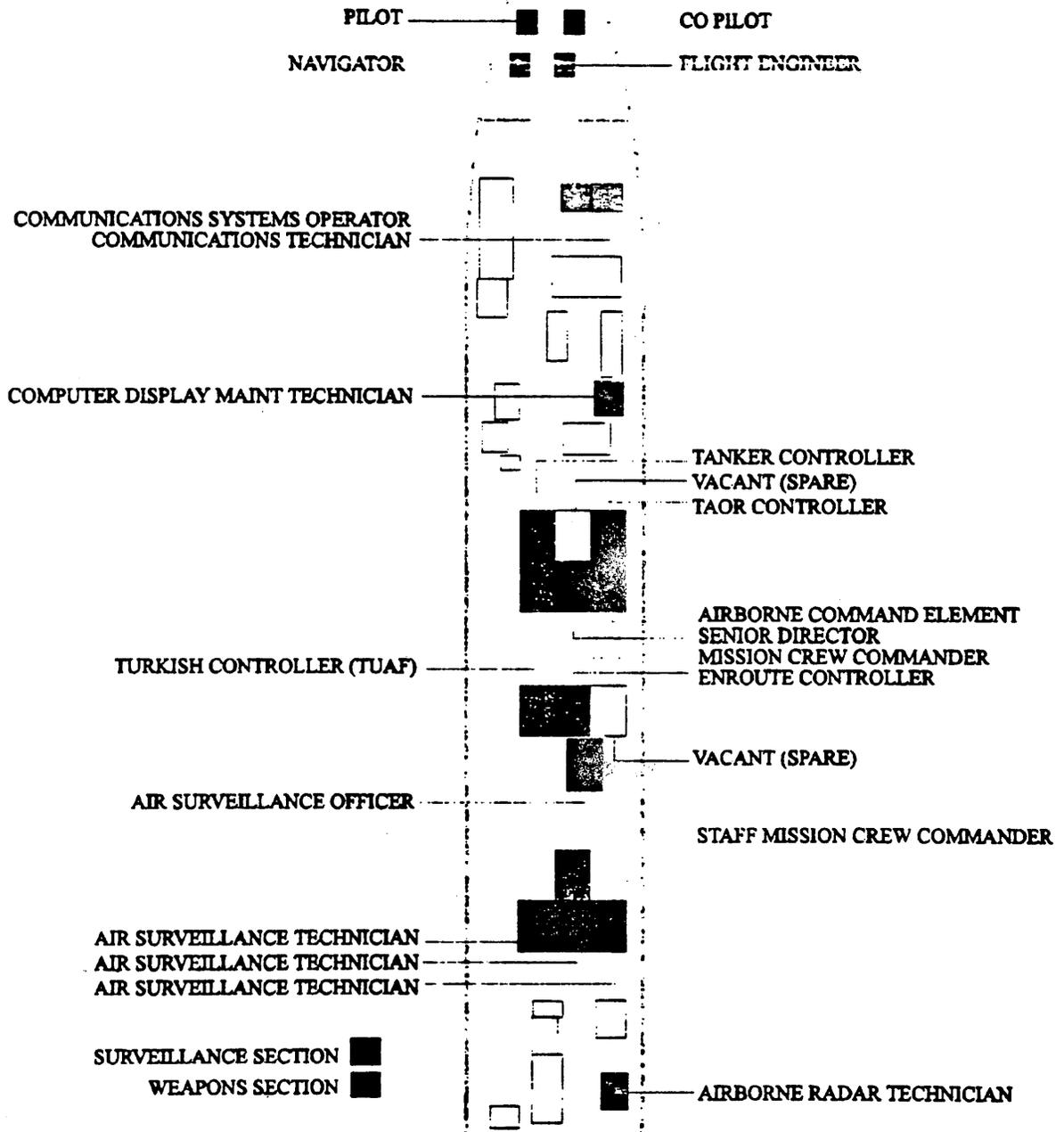


Figure 2 (AWACS Layout)

On 14 April 1994, an AWACS aircraft was tasked to provide airborne threat warning, command, control and communication in the TAOR from 0730Z to 1330Z for a mission package of 52 OPC aircraft, of which 28 were to be airborne by 0800Z.<sup>64</sup> After takeoff from Incirlik AB, the AWACS proceeded to an orbit area located 50 miles north of Incirlik, in order to allow its systems to "warm up" before beginning its task. After completion of system checks (radar, IFF and data link), AWACS proceeded to its assigned orbit area in a restricted operating area north of the TAOR.<sup>65</sup>

**(3) F-15C Mission.** As a part of the OPC coalition air forces, USAF F-15C fighter aircraft operating from Incirlik AB conduct missions in the TAOR in accordance with the standing ACO, SPINS and daily ATO.<sup>66</sup> The F-15s are tasked to protect friendly forces from enemy attack.<sup>67</sup> When the F-15s first enter the TAOR, they conduct a thorough radar search of the area to ensure the TAOR is clear of hostile aircraft ("sanitize" the airspace).<sup>68</sup> After "sanitizing" the airspace, the F-15Cs fly an orbit, designed to provide Defensive Counter Air (DCA) cover. When necessary, they intercept, identify, and take appropriate action, as prescribed by the ROE.<sup>69</sup> On 14 April 1994, the two F-15Cs involved in the accident were tasked to depart from Incirlik AB at 0635Z to conduct a DCA combat air patrol (CAP) mission in the TAOR.<sup>70</sup>

**(4) UH-60 Black Hawk Mission.** US Army Black Hawk helicopters provide air transportation for the MCC liaison team and conduct resupply missions as required. The helicopters also have a secondary search and rescue (SAR) mission.<sup>71</sup> On 14 April 1994, the two accident helicopters were tasked to support the MCC by transporting passengers and cargo from the Turkish Air Base at Diyarbakir to the MCC Headquarters at Zakhu. From Zakhu, their mission was to transport the co-commanders of the MCC and other staff officers to the Kurdish towns of Irbil and Salah ad Din, Iraq, and return.<sup>72</sup>

## **b. Summary of Events:**

### **(1) Command and Control.**

**Aircrew Preparation.** Aircrews flying OPC missions are responsible for understanding the directives governing the air operations. These directives include the ACO, ATO, SPINS, and ARF. The CFAC DO is responsible for ensuring arriving aircrews are briefed on all aspects of the OPC flying mission. Prior to the time of the accident, the CFAC DO provided ROE briefings for change-outs of complete flying units. However, there was no arrangement to ensure that individual replacement pilots coming to OPC were centrally briefed. Briefings for these personnel were left as an individual squadron responsibility.<sup>73</sup> The two F-15 accident pilots came to OPC on temporary duty assignment rotations. They had both read the ARF and had received a squadron briefing on the ROE.<sup>74</sup>

The ROE as provided by USEUCOM were reduced, in briefings and in individual crew members' understandings, to a simplified form.<sup>75</sup> This simplification of the ROE resulted in some crew members not being aware of specific considerations required prior to engagement. These considerations included identification difficulties, the need to give defectors safe conduct, and the possibility of an aircraft being in distress and the crew being unaware of their position.<sup>76</sup>

[Classified portion deleted 145 words-ROE]<sup>77</sup> 78

**Directives.** Contents of the ACO, dated 12 December 1993, largely reflect the guidance given in the OPC Operations Orders and OPLAN 91-7. However, key CTF personnel at the time of the 14 April 1994 accident were either unaware of the existence of OPLAN 91-7 or considered it too outdated to be applicable.<sup>79</sup> No updated supporting plan or comprehensive alternative guidance regarding component responsibilities was issued by CTF.<sup>80</sup> Most key personnel within the CFAC and the CTF staff did not consider coordination of MCC helicopter activities to be part of their respective CFAC/CTF responsibilities.<sup>81</sup> The last CTF staff member who appears to have actively coordinated rotary-wing flying activities with the CFAC organization departed in January 1994.<sup>82</sup> No representative of the MCC was specifically assigned to the CFAC for coordination purposes.<sup>83</sup> Since December 1993, no MCC helicopter detachment representative had attended the CFAC weekly DETCO scheduling meetings.<sup>84</sup> The Army Liaison Officer (LNO), attached to the MCC helicopter detachment at Zakhu and assigned to Incirlik AB, was new on station (arrived April 1994) and was not fully aware of the relationship of the MCC to the OPC mission.<sup>85</sup> The CFACC, through the CFAC DO, did not, in fact, exercise TACON of MCC helicopter operations with respect to planning and scheduling.<sup>86</sup> Specific helicopter flight information was not included in the daily ATO, and no helicopter data was provided to OPC aircrews on the scheduling flow sheet, their principal planning tool.<sup>87</sup> Although the ACE had primary responsibility for the OPC mission outside of a 50 NM circle of Incirlik,<sup>88</sup> his knowledge of MCC helicopter flight activity was dependent on AWACS radar, IFF, and radio contacts, as the helicopters entered and worked within the TAOR.<sup>89</sup>

CTF CG policy letter (Subject: UH-60 Flight Policy), September 1993, implemented the following policy for UH-60 helicopter flights supporting the MCC: "All UH-60 flights into Iraq outside of the security zone require AWACS coverage."<sup>90</sup> Helicopter flights had routinely been flown within the TAOR security zone without AWACS or fighter coverage and CTF personnel at various levels were aware of this.<sup>91</sup> MCC personnel were aware of the requirement to have AWACS coverage for flights outside the security zone and complied with that requirement.<sup>92</sup> However, the accident F-15C pilots, relying on the written guidance in the ACO, believed that no OPC aircraft, fixed or rotary wing, were allowed to enter the TAOR prior to a fighter sweep.<sup>93</sup>

**Scheduling.** Since the MCC daily mission requirements were generally based on the events of the previous day, the MCC exercised flexibility in scheduling supporting helicopter flights. A weekly flight schedule was developed and provided to CTF C3, but a firm itinerary was usually not available until after the next day's ATO was published.<sup>94</sup> The weekly schedule was briefed in both the C3 and CTF CG staff meetings on Mondays, Wednesdays, and Fridays; however, the information was neither detailed nor firm enough for effective rotary-wing and fixed-wing coordination and scheduling purposes.<sup>95</sup>

The MCC provided a SITREP to the JOIC each evening that listed the helicopter flights for the following day, but the information was usually general in nature. Information in the SITREP

was received too late to be included in the daily ATO.<sup>96</sup> Each daily ATO was published showing several Black Hawk helicopter lines. Of these, two helicopter lines (two flights of two helicopters each) were listed with call signs (Eagle 01/02, and Eagle 03/04), mission numbers, IFF Mode II codes, and a route of flight described only as LLTC (the identifier for Diyarbakir) to TAOR to LLTC. No information regarding route or duration of flight within the TAOR was given on the ATO. Information concerning takeoff time and entry time into the TAOR was listed as "A/R" (as required).<sup>97</sup> The MCC would call the JOIC the night prior to the scheduled mission to "activate" the ATO line.<sup>98</sup> The takeoff times and the times the helicopters would enter northern Iraq ("gate" times) were passed by the JOIC duty officer to the Turkish C3 for approval. No procedures existed for passing this information from the JOIC to the CFAC who had TACON responsibility for the helicopters.<sup>99</sup>

A CTF C2 representative obtained available MCC helicopter information from the JOIC. This information, consisting of the MCC weekly schedule and the daily MCC SITREP, was passed from the C2 to individual units at Incirlik AB through a mail pickup point in the command post.<sup>100</sup>

On 8 April 1994, the MCC weekly schedule was provided to CTF C3 through the JOIC. That schedule showed a two-ship, MCC helicopter "administrative flight" on 14 April.<sup>101</sup> On 12 April, the MCC Commander requested approval for a 14 April flight outside the SZ. The requested flight of two helicopters was to proceed from Zakhu to the towns of Irbil and Salah ad Din, Iraq. The CTF CG approved the written request on 13 April, and the JOIC transmitted the approval to the MCC.<sup>102</sup> The 13 April MCC SITREP listed the 14 April flight as "mission support", but contained no other details. The MCC weekly schedule update, received by the JOIC on the evening of 13 April with the MCC SITREP, gave the destinations for the mission as Salah ad Din and Irbil.<sup>103</sup> This information was not passed to the CFAC.<sup>104</sup> At 1538Z on 13 April, the MCC contacted the JOIC duty officer and activated the ATO line for the accident mission. A takeoff time from Diyarbakir of 0520Z and a "gate" time of 0635Z were requested. No takeoff time or route of flight beyond Zakhu was specified. The 13 April SITREP, weekly flying schedule update, and ATO line-activation request were received by the JOIC too late to be briefed during the Wednesday (13 April) C3 and CTF CG staff meetings. None of the information was passed to the CFAC scheduling shop, the ground-based mission director, or the ACE on board the AWACS.<sup>105</sup>

An MCC schedule giving some information regarding the MCC helicopter flight, received through the C2 channels, was posted on the intelligence briefing board at the F-15 squadron operation center, but the information was not briefed to the air crews.<sup>106</sup> When the F-15 pilots departed Incirlik AB at 0635Z on 14 April, they were unaware that the MCC helicopters would be operating east of Zakhu in the TAOR.<sup>107</sup>

**Control.** When the F-15s arrived on station in the TAOR at 0720Z, they were not informed that the Black Hawk helicopters had already entered the TAOR, by either the AWACS controllers or the ACE on board the AWACS. The ACE did not consider it his responsibility to monitor the helicopters.<sup>108</sup> Neither the ACE nor the AWACS controllers gave any direction to either the helicopters or the fighters throughout the intercept and engagement.<sup>109</sup>

## **(2) E-3B AWACS**

**AWACS Flight Authorization:** The AWACS detachment at Incirlik AB was tasked by the CFAC DO through the ATO (ATO, PC1103, 14 April 1994) to provide airborne warning and control in the TAOR on 14 April 1994.<sup>110</sup> The accident flight was the AWACS crew's first OPC mission as a crew.<sup>111</sup> The AWACS DETCO authorized the crew to fly the tasked mission in accordance with appropriate directives.<sup>112</sup>

**AWACS Flight Plan.** The OPC ACO, the ATO for 14 April 1994, and one change to the daily ATO, Battle Staff Directive (BSD) #1, provided direction and guidance for the flight.<sup>113</sup> The planned route of flight was from Incirlik AB to an orbit in Restricted Operations Zone 1 (ROZ 1) near the northern border of Iraq. The aircraft was to remain in orbit from 0730Z to 1330Z in support of aircraft operations in the TAOR, and return to Incirlik AB.<sup>114</sup> In accordance with established Air Force procedures, each crew member initialed the flight authorization form, accepting responsibility for executing the ATO-tasked mission.<sup>115</sup>

**AWACS Communications.** The crew did not encounter any communication equipment malfunctions during the flight.<sup>116</sup> The only communication limitation which may have been experienced by the crew was a problem in maintaining line-of-sight with the helicopters.<sup>117</sup> The effect may have been intermittent loss of radio contact with the helicopters. This was a regularly encountered situation with low flying aircraft.<sup>118</sup> The AWACS crew monitored the prebriefed aircraft radio control frequencies. These included VHF and UHF guard, enroute control, TAOR "Have Quick II" (jamming resistant radio), and TAOR clear (non-secure tactical radio) frequencies.<sup>119</sup> The enroute controller received check-in calls on the enroute frequency.<sup>120</sup> The ACO required aircraft in the TAOR to monitor the TAOR tactical frequency;<sup>121</sup> however, the normal practice by the OPC helicopter crews was to remain on the enroute frequency and report to the enroute controller, unless directed to change frequencies by the enroute controller.<sup>122</sup> The last radio transmission received from the UH-60 Black Hawk helicopters was at 0654Z when they reported departing Zakhu for Irbil. This transmission was made on the enroute controller's frequency. There is no indication that communications equipment serviceability was related to the accident.<sup>123</sup>

**AWACS Navigation.** No navigational difficulties were encountered by the aircrew during the flight. There is no indication that navigation was a factor in the accident. The weather was clear.<sup>124</sup>

**AWACS Briefing and Preflight:** The crew conducted the required briefings and pre-mission planning on 12 April 1994 in preparation for the mission on 14 April 1994.<sup>125</sup> On the afternoon of 13 April 1994, the mission crew commander, and the surveillance section and weapons section personnel conducted additional specialized mission planning.<sup>126</sup> Pre-mission and specialized mission planning items required by regulations and directives were covered.<sup>127</sup>

The crew members went to bed on 13 April between approximately 1700Z and 2000Z and awoke between approximately 0100Z and 0230Z on 14 April 1994.<sup>128</sup> All crew-rest requirements

as specified by Air Force regulations were met.<sup>129</sup> The flight and mission crews arrived at the AWACS squadron operations building at approximately 0310Z.<sup>130</sup>

The aircrew, including the ACE and a Turkish controller, attended a preflight briefing at AWACS operations at approximately 0330Z.<sup>131</sup> The aircraft commander and mission crew commander conducted the briefing, addressing their respective mission areas.<sup>132</sup> The detachment staff mission crew commander and the staff weapons director attended the entire briefing.<sup>133</sup> The Detachment Commander attended the portion of the briefing covering flight operations.<sup>134</sup> The briefing was conducted using the standard squadron briefing guide for the OPC theater of operations.<sup>135</sup>

The aircraft commander briefed the forecast weather, crew manifest, aircraft status, mission timing, safety considerations, emergency procedures, elements of basic airmanship, and the wing operations security policy.<sup>136</sup>

The AWACS staff intelligence representative briefed escape and evasion procedures, the previous day's Iraqi air activity, and threat capabilities. He also briefed a United Nations support mission/scheduled to take place on 14 April.<sup>137</sup> There is no evidence that the briefing included any mention of the UH-60 Black Hawk helicopter mission. AWACS technician topics were briefed which included the JTIDS and maintenance debriefing requirements.<sup>138</sup>

After the aircraft commander, intelligence, and technician briefings were completed, the AWACS technicians and flight engineer departed for the aircraft to begin preflight inspections.<sup>139</sup> The mission crew commander then briefed mission crew topics which included the weapons plan for the mission and the activity flow sheet provided by the CTF.<sup>140</sup> The activity flow sheet, which is derived from the ATO, listed the F-15C flight (call sign Tiger). The MCC helicopter flight (call sign Eagle) was not listed on the flow sheet. The preflight briefing did not address the OPC Air Tasking Order.<sup>141</sup> The mission crew commander also covered lessons learned from previous missions and special notes for the mission.<sup>142</sup>

Technician and flight engineer preflight checks were accomplished and indicated no previously undocumented equipment discrepancies.<sup>143</sup>

**AWACS Sequence of Flight Events.** At 0436Z, the AWACS took off from Incirlik AB, Turkey.<sup>144</sup> The AWACS established an initial orbit approximately 50 miles north of Incirlik AB.<sup>145</sup> While holding in the initial orbit, the mission crew began conducting mission systems (communications, computers, radar, IFF) "power-up" checks and establishing the required JTIDS communication and data link with the Turkish ground radar sites.<sup>146</sup>

At 0545Z, the mission crew commander declared "on station,"<sup>147</sup> indicating the AWACS' mission systems were powered up, required checks with ground stations had been accomplished, and the AWACS was ready and prepared to accomplish its assigned missions.<sup>148</sup> At this time, the AWACS departed the initial orbit and proceeded to its operational orbit in ROZ 1, at 32,000 feet pressure altitude.<sup>149</sup> The AWACS scheduled time for arrival at the operational orbit in ROZ 1 was 0730Z.<sup>150</sup>

Shortly after 0545Z, the AWACS surveillance section began tracking aircraft in southeast Turkey and northern Iraq.<sup>151</sup> (The AWACS tracks aircraft by radar returns and/or Identification Friend or Foe (IFF) transponder returns.)

**NOTE:** The IFF system is an electronic means of identifying friendly aircraft. Each friendly aircraft is equipped with an electronic device (transponder) that transmits a coded reply when the transponder is electronically "queried" by an aircraft or ground-based interrogator. Specific codes are listed in the ATO to be set into each OPC aircraft's transponder. AWACS and F-15 aircraft have the capability to electronically interrogate transponder systems of other aircraft to detect correct, friendly codes. Mode I codes are used tactically to confirm the friendly status of aircraft. Different Mode I codes are listed for OPC fixed-wing and rotary-wing aircraft operating outside the TAOR. A single Mode I code is listed in the ATO for all OPC aircraft flying inside the TAOR. Mode II codes are used to determine the identity of a known friendly aircraft. Each OPC aircraft is assigned its own distinct Mode II code for each mission. Mode II is used by AWACS to identify and flight follow individual, friendly aircraft, but is not practical for tactical use by F-15s to differentiate between "friend and foe." Mode III is an air traffic control mode that is turned off when entering the TAOR, in order to avoid detection by Iraqi radar. Mode IV is used to differentiate between friend and foe. Mode IV uses an encrypted code that is changed daily and requires special equipment, encrypting codes, and loading procedures for both the IFF transponders and the AWACS and F-15 interrogation systems. IFF signals are not continuously transmitted by aircraft transponders. Each mode/code must be specifically interrogated to activate and identify the signal.<sup>152</sup>

The MCC Black Hawk helicopters, which were enroute from Diyarbakir, Turkey, to Zakhu, Iraq, were detected by the AWACS shortly after the AWACS onboard systems reached operational status. The surveillance section assigned the Black Hawk flight a "friendly general" track symbology and a track designator of "TY06."<sup>153</sup> At 0613Z, the senior director requested display of a track tabular display (TD) on track "TY06."<sup>154</sup> The track TD included IFF Mode II, and III codes.<sup>155</sup> At 0616Z, an "H" character was programmed to appear at the Black Hawk flight's location on the senior director's radar scope whenever any IFF Mode I, Code 42 reply (squawk) from the helicopters was detected by the AWACS.<sup>156</sup>

At 0621Z, AWACS received a "check-in" radio call on the enroute UHF radio frequency from the MCC Black Hawk helicopters.<sup>157</sup> This call was made just prior to the helicopters entering the TAOR entry point (Gate 1).<sup>158</sup> The enroute controller acknowledged the helicopters' entry into the TAOR, and observed their Mode I and Mode II IFF codes.<sup>159</sup> The senior director changed the Black Hawk helicopter "friendly general" symbology to a "friendly helicopter" symbology.<sup>160</sup> The enroute controller changed the helicopter track designator from "TY06" to "EE01" (call sign Eagle 01).<sup>161</sup> There is no evidence to indicate that the enroute controller attempted to perform a Mode IV check on the Black Hawk helicopters.<sup>162</sup> The AWACS Mode IV interrogator was functioning correctly.<sup>163</sup> The ACO implies that the AWACS

crew will conduct a Mode IV check on each aircraft but does not direct that it be accomplished. The ACO states that, "On initial check-in with AWACS, ...Mode IV is 'sweet' (operational) unless AWACS tells you otherwise."<sup>164</sup> The enroute controller monitored the Black Hawk helicopters until the IFF returns faded from AWACS coverage at approximately 0624Z.<sup>165</sup> The helicopters landed at Zakhu shortly thereafter.<sup>166</sup> The helicopters' symbology was then suspended, an action that maintained the symbology in the vicinity of Zakhu.<sup>167</sup>

At 0635Z, the F-15Cs launched from Incirlik AB.<sup>168</sup> The AWACS enroute controller identified the F-15Cs and maintained radar contact with them as they proceeded to the TAOR.<sup>169</sup>

The Black Hawk helicopters contacted AWACS at 0654Z and reported that they were enroute from "Whiskey to Lima" (Whiskey was a codeword for Zakhu and Lima was a codeword for Irbil). The AWACS enroute controller received their call.<sup>170</sup> He was not familiar with the location of "Lima" and did not look it up, although materials to do so were available.<sup>171</sup> At that time, the AWACS enroute controller reinitiated the helicopter track designator (EE01).<sup>172</sup>

The enroute controller was responsible for controlling OPC aircraft in Turkish airspace west of Gate 1.<sup>173</sup> The TAOR controller was responsible for controlling aircraft inside the TAOR, east of Gate 1.<sup>174</sup> Neither the enroute controller nor the senior director instructed the Black Hawk helicopters to change from the enroute radio frequency to the TAOR clear frequency that was being monitored by the TAOR controller.<sup>175</sup> However, the TAOR controller had the capability to monitor the enroute frequency.<sup>176</sup> The Black Hawks were squawking the wrong Mode I code; there is no evidence that either the enroute controller or the senior director told the helicopters that they were still "squawking" the Mode I code for outside the TAOR.<sup>177</sup>

From 0655Z until 0711Z, the "H" character assigned to the Black Hawk flight was regularly displayed on the senior director's radar scope.<sup>178</sup> At 0711Z, the F-15Cs were heading east, approximately 100 NM west of the Black Hawk helicopters.<sup>179</sup> At that same time, the helicopter flight entered mountainous terrain at low altitude and faded from AWACS radar and IFF coverage.<sup>180</sup> After losing IFF and radar contact with the Black Hawk helicopters at 0712Z, no AWACS controller suspended (stopped at one location) the helicopters' track symbology.<sup>181</sup> As a result, the AWACS computer continued to move the symbology based on the last available heading and airspeed information from the helicopters.<sup>182</sup> The enroute controller, who had not transferred control of the Black Hawk flight to the TAOR controller, did not note the heading and speed the helicopters were flying to get to point Lima, nor did he identify the flight path the helicopters reported they would follow.<sup>183</sup>

At 0713Z, the air surveillance officer designated the Black Hawk flight's last known location on the senior director's radar scope, by placing a computer-generated "attention arrow" (used to point out an area of interest.) The attention arrow is accompanied by a blinking alert light.<sup>184</sup> The senior director did not acknowledge the arrow or the blinking alert light on his console.<sup>185</sup> The arrow and light were automatically dropped after 60 seconds.<sup>186</sup> At 0715Z, the air surveillance officer directed that the AWACS radar be adjusted to low velocity detection settings which improved the capability of the radar to detect slow-moving targets.<sup>187</sup> At

approximately the same time, the F-15s checked in with the ACE and received "...negative words," (indicating no changes in previously briefed information).<sup>188</sup>

At 0720Z, the F-15C flight arrived at Gate 1 and entered the TAOR to "sanitize" the area.<sup>189</sup> They contacted the AWACS TAOR controller on the "Have Quick II" TAOR frequency.<sup>190</sup> The TAOR controller did not pass a "picture" call (situation update giving air activity) to the F-15C flight when they entered the TAOR.<sup>191</sup> At this time, the AWACS mission crew did not have radar or IFF contact with the Black Hawk helicopters, although the Black Hawk track symbology continued to appear on the AWACS radar scopes moving on a computer-generated southeasterly path.<sup>192</sup> No one on board the AWACS informed the F-15 pilots of the friendly Black Hawk helicopters in the TAOR, their last known position, or their route of flight.<sup>193</sup>

At 0721Z, the enroute controller dropped the symbology for the Black Hawk helicopters from the radar scopes.<sup>194</sup> The track symbology was the only visual reminder to the AWACS crew that the helicopters were inside the TAOR, after the radar contact and IFF signals had faded.<sup>195</sup>

At approximately 0722Z, the F-15 flight lead reported to the TAOR controller that he had a radar contact approximately 40 NM to the southeast, in the TAOR.<sup>196</sup> The TAOR controller reported, "Clean there," meaning AWACS had no radar returns or IFF replies from that location. (AWACS magnetic tapes indicate there were none at that time.)<sup>197</sup> When the F-15C flight lead made his first "contact" call, the mission crew commander and senior director did not take any action to direct the weapons or surveillance sections to locate and identify the F-15C's reported contact.<sup>198</sup>

At approximately 0723Z, intermittent IFF signals were received by the AWACS from the helicopters, in the area where the F-15 pilot had called his contact.<sup>199</sup> These IFF signals would have appeared on every AWACS radar scope that had the "IFF feature select switch" turned on, except seat 10, which was inoperative and not manned.<sup>200</sup> All six radar and IFF/SIF switches at each weapons section's manned positions should have been on, in accordance with AWACS training guides.<sup>201</sup> Testimony by the senior director, the enroute controller, the air surveillance officer and technicians, and the tanker controller indicates that they had both radar and IFF switches on.<sup>202</sup> The TAOR controller and the mission crew commander declined to testify, through counsel, and the position of their switches could not be confirmed by other means.

The "H" character also reappeared on the senior director's radar scope at approximately 0723Z.<sup>203</sup> The Black Hawk helicopters were squawking the same IFF Mode I and II codes that they were squawking before the AWACS lost IFF and radar contact at 0712Z.<sup>204</sup> No radio calls regarding the IFF returns were made from AWACS to the fighters.<sup>205</sup> The intermittent IFF returns, which had begun at 0723Z, increased in frequency until 0726Z.<sup>206</sup> They then remained on display, without interruption, from 0726Z to just before 0728Z.<sup>207</sup>

At approximately 0725Z, the F-15 flight lead made another "contact" call at about 20 NM range from the helicopters. The TAOR controller acknowledged the radio call and responded that he had "Hits there," which implied that he had radar returns on his radar scope corresponding to the F-15Cs' contact.<sup>208</sup> However, the AWACS magnetic tape recordings (replayed through a

radar console with a "IFF feature select switch" in the on position), clearly show "IFF paints" at the reported location. (A "hit" is a term to describe a radar return. A "paint" is a term to describe an IFF reply.)<sup>209</sup>

At 0726Z, the Black Hawk helicopters' IFF returns were clearly visible, along with intermittent radar returns, on the AWACS radar scopes. The returns were at the same location as the radar contact identified by the F-15 flight.<sup>210</sup> The AWACS crew did not advise the F-15C flight of the presence of IFF data in the target area.<sup>211</sup>

NOTE: The AWACS crew had some confusion regarding tracking responsibilities of unknown aircraft in the TAOR. The air surveillance technicians believed their tracking responsibility was south of the 36th parallel and the weapons section was responsible for tracking all aircraft north of the 36th parallel. In contrast, the weapons section believed the surveillance section was responsible for tracking and identifying all unknown aircraft, regardless of location.<sup>212</sup> The applicable Air Force regulations state the surveillance section had tracking responsibility for unknown and unidentified tracks throughout the TAOR.<sup>213</sup> The mission crew commander is tasked with coordinating and directing the activities of both the surveillance and the weapons sections.<sup>214</sup> The Black Hawk helicopters were initially identified and tracked by the enroute controller, a member of the weapons section.<sup>215</sup> At approximately 0642Z, a member of the surveillance section asked the identity of the Eagle Flight track, and the senior director said it was Eagle Flight; a member of the weapons section said they were tracking it.<sup>216</sup>

At 0727Z, the enroute controller initiated an "Unknown, Pending, Unevaluated" track symbology in the area of the helicopters' radar and IFF returns and attempted an IFF identification.<sup>217</sup> During the F-15 flight's intercept of the helicopters, no one else on board the AWACS attempted to determine specific IFF aircraft identification, or to do a Mode IV check on the helicopters.<sup>218</sup> The "H" character previously attached to the helicopters' IFF return was still present on the senior director's radar scope.<sup>219</sup>

At approximately 0728Z, the F-15 flight lead transmitted to the TAOR controller that he saw "...a Hind" (NATO designation) followed by "no, Hip" (NATO designation). He then made a correction and reported a Hind helicopter.<sup>220</sup> At this time, the AWACS track symbology for the F-15s and the Black Hawk helicopters' radar and IFF data were too close together for the AWACS crew to identify the Black Hawk helicopters.<sup>221</sup> (Analysis of an AWACS audio tape indicates that, at approximately this time (0728Z), the ACE said, "Eagle One," on internal AWACS intercom; but, there is no further information available because of a blocking radio transmission.)<sup>222</sup> The F-15 flight lead again reported "...two Hinds" and the TAOR controller responded, "Copy Hinds."<sup>223</sup> The F-15 flight lead reported that he was "Engaged".<sup>224</sup> At 0730Z the F-15 flight lead reported they had "splashed" (shot down) two Hind helicopters.<sup>225</sup> There is no indication that the AWACS senior director, the mission crew commander, and/or the ACE made any radio calls throughout the intercept, or that they issued any guidance to either the AWACS crew or the F-15 pilots.<sup>226</sup>

**AWACS flight activity following the accident:** At approximately 0831Z, the CFAC ground-based mission director called the ACE and indicated that the Black Hawk helicopters were unaccounted for.<sup>227</sup> At 0914Z, the CFAC ground-based mission director instructed the ACE to find the Black Hawk helicopters and confirm good radar contact with them.<sup>228</sup> Attempts by AWACS crew members and the ACE to locate the Black Hawk helicopters by radar and/or radio, to include calls on UHF and VHF "guard" were unsuccessful. At 0926Z, AWACS placed its radar and IFF sensors to stand-by in preparation for air refueling.<sup>229</sup> At approximately 1010Z, the AWACS resumed actions to locate the Black Hawk helicopters.<sup>230</sup> The AWACS continued to support search and rescue/crash-response activities until reaching fuel minimums. The aircraft departed the TAOR at 1520Z and landed at Incirlik AB at 1615Z.<sup>231</sup> A second AWACS supported the remainder of the search and rescue activity.<sup>232</sup>

### **(3) F-15C**

**F-15C Flight Authorization:** On 14 April 1994, the F-15C fighter squadron was tasked to provide a flight of two F-15Cs to fly a DCA mission in the TAOR.<sup>233</sup> The squadron commander authorized the F-15 pilots to fly the tasked mission.<sup>234</sup>

**F-15C Flight Plan:** The ACO, the ATO for 14 Apr 94 and one change to the daily ATO, (Battle Staff Directive #1), provided the operating instructions and procedures for the F-15C flight (call signs Tiger 1 and Tiger 2).<sup>235</sup> The F-15s were the first OPC aircraft scheduled into the TAOR by the ATO.<sup>236</sup> Their planned route of flight was to proceed from Incirlik AB to the TAOR, and return.<sup>237</sup> In accordance with established Air Force procedures, the F-15 pilots signed a flight authorization form accepting responsibility for executing the ATO-tasked mission.<sup>238</sup>

**F-15C Communications:** The main and auxiliary radios, "Have Quick II" and the secure voice communications systems in the aircraft flown by the two F-15 pilots operated normally throughout the flight. No communications equipment serviceability difficulties with any ground or airborne agencies were experienced by either aircraft.<sup>239</sup>

**F-15C Navigation:** No navigation difficulties were experienced by either F-15C aircraft during the flight.<sup>240</sup>

**F-15C Briefing and Preflight:** The two F-15 pilots involved in the accident, call signs Tiger 1 (flight lead) and Tiger 2 (wingman), left the Squadron Operations Building (SOC I) before 1230Z on 13 April and went to bed at approximately 2030Z.<sup>241</sup> They awoke at approximately 0330Z on 14 April,<sup>242</sup> departed their quarters at 0420Z and arrived at SOC I at approximately 0430Z.<sup>243</sup> All crew rest requirements specified by Air Force regulations, were met.<sup>244</sup>

The F-15 flight lead prepared the flight briefing materials while the wingman checked the forecast weather and Notices to Airmen (NOTAMS). The squadron duty supervisor and the flight lead then reviewed the flight's tasking in the ATO. They modified the mission flow sheet and the flight's line-up cards to reflect a change to the ATO made by BSD #1.<sup>245</sup> (The BSD

changed the number of KC-135 air-refueling tanker aircraft available for the day's mission). Both pilots completed the flight authorization form and received a briefing from the squadron intelligence officer.<sup>246</sup> The briefing included a summary of the previous day's Iraqi air activity, information concerning the movement of an Iraqi surface-to-air missile site, search and rescue procedures, and current intelligence regarding the situation in Rwanda.<sup>247</sup> The intelligence officer made no reference to either friendly or Iraqi helicopter activity in or near the TAOR.<sup>248</sup> The intelligence officer had posted the limited available information about Eagle 01 and 02 on the intelligence situation map in SOC I. Based on the MCC (Forward) SITREP he received from CTF C-2, the intelligence officer had posted the Black Hawk helicopters' mission as "two-ship admin" which was understood to mean the helicopters would fly from Diyarbakir to Zakhu and return.<sup>249</sup>

The F-15 flight lead started the mission briefing at 0445Z using the standard squadron briefing guide.<sup>250</sup> All briefing items required by regulations and directives were covered.<sup>251</sup> During the tactical portion of the mission briefing, the flight lead discussed the OPC ROE, radar search responsibilities, intercept and visual identification procedures.<sup>252</sup> The flight lead briefed electronic identification (EID) procedures that could be used on the mission. This included a discussion on the use of the Air-to-Air Interrogation (AAI) systems to attempt to identify any unknown aircraft. The flight lead specified that IFF Modes I and IV codes would both be interrogated in the identification process.<sup>253</sup> He also briefed that the aircraft video tape recorder (VTR) would be turned on when the decision was made to "commit" (to engage or intercept.)<sup>254</sup>

Following the mission briefing, the F-15 pilots picked up their required flying equipment and inflight publications. At 0540Z, the pilots signed for their weapons, ammunition, and other controlled combat equipment and departed SOC I for their assigned aircraft.<sup>255</sup> Both pilots conducted standard aircraft preflights of their respective aircraft, which included a review of the aircraft's maintenance history forms.<sup>256</sup> The aircraft forms reflected that the correct Mode IV codes had been loaded into the aircraft transponders.<sup>257</sup> No discrepancies were recorded in the aircraft maintenance forms that would have apparently affected either aircraft's capability to perform the tasked mission.<sup>258</sup> During the preflight inspections, the pilots confirmed that the AAI system switches in the nose of each aircraft (inaccessible in flight) were set to allow continuous Mode IV interrogation when the cockpit AAI switches were activated in the Auto position.<sup>259</sup> No aircraft discrepancies were noted during the preflights.<sup>260</sup>

**F-15C Sequence of Flight Events:** At 0600Z the F-15 pilots started their aircraft engines. After engine start, the flight lead called the ground-based CFAC mission director to get any additional information pertaining to the mission. The mission director informed the F-15 flight lead that there were no changes to the tasking, or to the ATO. The mission director made no mention of any helicopter flight activity.<sup>261</sup> The pilots completed their normal ground checks as prescribed in the F-15 preflight checklist. This included accomplishing built-in-tests (BIT) of the AAI system and the IFF system. The AAI and IFF systems on both aircraft were checked and determined to be operational.<sup>262</sup> The F-15s took off at 0635Z.<sup>263</sup>

Both pilots reported conducting successful weapons systems checks after takeoff. These included checks of each aircraft's capability to respond to Mode I, II and Mode IV IFF

interrogations, and each aircraft's AAI system's ability to detect correct responses from other aircraft.<sup>264</sup>

The F-15s checked in with the AWACS enroute controller on the enroute frequency at the first checkpoint (K-Town) and proceeded toward the second checkpoint (Derik) at Flight Level (FL) 270 (27,000 feet above mean sea level). While enroute to Derik, the F-15 pilots checked their "Have Quick II" and the secure voice radio systems (KY-58) with AWACS. At the third enroute checkpoint (Jump), the F-15 flight checked in with the ACE on board the AWACS aircraft who did not report any changes to their tasking or to the ATO. The ACE made no mention of any helicopter flights, friendly traffic, or Iraqi threats in the TAOR. At 0720Z, the F-15 pilots checked in with the TAOR controller on the TAOR "Have Quick II" frequency, as they entered the TAOR. The TAOR controller acknowledged the radio call from the F-15s and made no mention of any other aircraft in the TAOR.<sup>265</sup>

The F-15s remained at FL 270 and headed southeast. The flight lead used his radar to search the airspace from ground elevation to 25,000 feet. The wingman set his radar to search the airspace above 20,000 feet.<sup>266</sup> Shortly after entering the TAOR, the flight lead detected a radar contact in the TAOR approximately 52 NM north of the 36th degree latitude. The contact was 40 NM to the southeast of his position. The flight lead relayed this information to his wingman on the auxiliary radio.<sup>267</sup> The flight lead then selected a radar mode that electronically captured ("locked on") and evaluated the radar contact to provide detailed flight information. The radar contact was heading approximately east (100 degrees) at 130 knots, very close to the ground. After "locking-on" to the radar contact, the flight lead attempted an electronic identification of the aircraft. He used the AAI system to interrogate IFF Mode I, code 52, (the correct Mode I code for OPC aircraft operating in the TAOR) and Mode IV. The flight lead received no response to the Mode I interrogation. He did receive a momentary Mode IV response.<sup>268</sup> The flight lead continued to interrogate the contact's IFF Mode IV for another 4 to 5 seconds, but received no further responses. The flight lead believed the momentary Mode IV positive response was due to a possible anomaly in the F-15 AAI system.<sup>269</sup>

At approximately 0722Z, the F-15 flight lead relayed to the TAOR controller the contact's position in relation to a predetermined, common point.<sup>270</sup> The TAOR controller acknowledged the call, transmitting, "Clean there," meaning AWACS had no radar returns or IFF replies from that location.<sup>271</sup> The F-15 flight lead then switched his radar to a search mode and began looking for additional aircraft. The flight lead thought his radar might have detected road vehicle traffic due to the proximity of the radar contact to a road. Using his AAI system, with his radar in the search mode, the flight lead again interrogated the radar contact for IFF Mode I and Mode IV codes. No response was received.<sup>272</sup> Simultaneously, the wingman lowered his radar search pattern to locate the radar contact that his flight lead had reported. The wingman detected the contact at the reported location and initiated a radar lock-on. He then interrogated the radar contact for IFF Mode I and Mode IV codes, with no response. The wingman informed the flight lead that the contact he had locked-on to was traveling at 130 knots. The wingman returned his radar to a search mode and began looking for other aircraft in the TAOR.<sup>273</sup>

At a range of approximately 20 NM from the radar contact, the flight lead began to descend from FL 270, locked-on to the radar contact, and reported the contact to AWACS on the TAOR "Have Quick II" frequency (not being used by the Black Hawk helicopter flight).<sup>274</sup> At approximately 0725Z, the TAOR controller acknowledged the call and transmitted, "Hits there", indicating that AWACS had a radar contact at the same location.<sup>275</sup> During the descent, the F-15 wingman maneuvered to a position approximately 3 NM behind the flight lead. The wingman at this time observed two radar contacts displayed on his radar scope. The contacts were his flight lead and an unidentified radar contact in front of the lead F-15. The wingman again initiated an AAI Mode I interrogation and received a reply from his flight lead, indicating the flight lead's IFF Mode I was set to Code 52 and that his IFF transponder was replying correctly. The wingman received no Mode I reply from the unidentified radar contact. (The Black Hawks' Mode I code was set on 42 - the code for OPC aircraft operating outside of the TAOR).<sup>276</sup> Because the flight lead had not been able to get an IFF Mode I or a Mode IV reply from the radar contact, he closed to conduct a visual identification (VID) pass.<sup>277</sup>

At approximately 0727Z, as the flight lead approached within 5 NM of the unidentified aircraft, he saw a single helicopter flying at a very low altitude. The flight lead began his VID pass at approximately 450 knots indicated airspeed. The helicopter was flying down the middle of a valley, approximately 120 to 200 feet above the ground.<sup>278</sup> The valley was oriented northwest-southeast and was approximately 2.5 NM wide at the elevation and position where the flight lead approached the helicopter.<sup>279</sup> The hills on either side of the valley were between 1,500 and 3,000 feet above the valley floor. Additionally, the valley narrowed from approximately 2.5 NM wide where the VID pass was made to approximately 1 NM at the eastern end (4 to 5 NM to the east).<sup>280</sup> In an attempt to make a visual identification, the flight lead descended below the tops of the hills and flew to a position reported by the pilot to be 1000 feet left and 500 feet above the helicopter's flight path. At approximately 0728Z, the flight lead observed what he thought was a helicopter with a sloped vertical tail, sponsons (wings) on the fuselage, ordnance, and a dark green camouflage paint scheme.<sup>281</sup> He transmitted on the "Have Quick II" radio frequency that he saw a "Hind" (NATO designation). He then changed the call to "No, Hip" (NATO designation).<sup>282</sup> As the flight lead started a right hand climbing turn to set up an oval racetrack pattern behind the helicopter, he saw a second helicopter in trail. As the flight lead passed above the helicopter in the climbing right turn, he referred to his inflight visual recognition guide and determined that the helicopters were "Hinds," as he had first reported. He transmitted "VID Hind, Tally Two, lead-trail."<sup>283</sup> The flight lead then transmitted, "Tiger 2, confirm Hinds?" The F-15 wingman replied, "Standby."<sup>284</sup> The wingman conducted a VID pass (approximately 2000 ft right) of the trailing helicopter, but did not confirm the identification. In response to the flight lead's radio call, the wingman responded "Tally 2." The wingman testified that he intended this call to indicate he saw two helicopters.<sup>285</sup> The F-15 flight lead understood his wingman's transmission to mean that he confirmed the identification.<sup>286</sup> The AWACS TAOR controller said, "Copy Hinds."<sup>287</sup>

The F-15 flight lead flew to a position approximately 5-10 NM behind the helicopters and called, "Engaged" to AWACS, indicating he intended to attack the helicopters. He also told his wingman to "Arm hot" (arm the missiles in preparation for launch). The F-15 flight lead advised his wingman that he, the flight lead, would shoot the trailing helicopter and that the wingman was

to shoot the lead helicopter.<sup>288</sup> At approximately 0730Z, the flight lead turned to the southeast, locked his radar on to the trailing helicopter, and attempted a final Mode I interrogation of the helicopter's transponder and received no reply. When the flight lead had closed to approximately 4 NM behind the trailing helicopter, he fired an AIM-120, radar-guided missile.<sup>289</sup> Fragments from the missile's warhead hit the helicopter approximately 7 seconds later. The helicopter burst into flames and crashed.<sup>290</sup> Moments later, the F-15 wingman, having flown to a position approximately 2 NM behind the flight lead, locked-on to the remaining helicopter, selected an AIM-9 heat-seeking missile, and fired at a range of approximately 9,000 feet. The missile hit the helicopter and detonated. The helicopter burst into flames and crashed.<sup>291</sup>

Although the flight lead had briefed that the flight would turn on the aircraft VTR system at the "commit" point, he testified that he forgot to turn on his VTR system.<sup>292</sup> The wingman turned his VTR system on as he turned to engage the helicopters after the VID pass.<sup>293</sup>

The F-15 pilots flew two visual reconnaissance passes over the helicopter crash sites. One pass was flown from west to east, and one pass was flown from east to west.<sup>294</sup> The pilots could not identify anything other than burning debris.<sup>295</sup> The F-15 flight then climbed back to altitude and began searching the TAOR airspace for Iraqi aircraft. The F-15 flight refueled with a KC-135 tanker aircraft and resumed the tasked defensive counter air mission for approximately another 1.5 hours.<sup>296</sup> During this time, both the F-15 flight lead and the wingman had numerous radar contacts that they interrogated with their AAI systems. Both reported receiving Mode I and Mode IV responses from those contacts.<sup>297</sup> The F-15 pilots completed their mission and landed at Incirlik AB at 1000Z.<sup>298</sup>

#### **(4) UH-60 Black Hawk**

**UH-60 Flight Authorization:** On 13 April 1994, the Military Coordination Center Commander tasked the Black Hawk helicopter detachment at Diyarbakir AB to provide two UH-60 Black Hawk helicopters to fly a support mission in the TAOR on 14 April 1994.<sup>299</sup> This mission had been specifically authorized by the CTF CG, since the mission involved flight outside the security zone to the Kurdish cities of Irbil and Salah ad Din, Iraq.<sup>300</sup>

**UH-60 Flight Plans:** A flight plan for the flight of two UH-60 Black Hawk helicopters, (call signs Eagle 1 and Eagle 2) was completed using a joint, preprinted Turkish/US form. The flight plan was filed with Diyarbakir AB Base Operations Section. From Base Operations, the flight plan was sent to Diyarbakir AB Sector Operations (equivalent to US departure control). Sector Operations relayed the flight plan information to Turkish air defense radar installations.<sup>301</sup> The flight plan listed the published Low Level Transit Routes from Diyarbakir AB to Zakhu, Iraq, continuing on into the TAOR. Departure and return times at Zakhu and route of flight and destinations within the TAOR were not listed.<sup>302</sup> The return leg of the flight from Zakhu listed the Low Level Transit Route to Diyarbakir AB.<sup>303</sup> The flight plan was signed by the pilot in command and filed in accordance with Turkish regulations, flight information publications, and the OPC Airspace Control Order (ACO).<sup>304</sup>

**UH-60 Communications:** The Black Hawk helicopter crews reported no radio communications discrepancies to helicopter maintenance personnel, prior to takeoff from Diyarbakir AB.<sup>305</sup> All required radio transmissions to Eagle Operations, AWACS, and the MCC (Forward) were accomplished. No indications of any radio malfunctions were noted.<sup>306</sup> All helicopter radios received extensive damage from the crash and post-crash fires, precluding conclusive analysis of their operational status.<sup>307</sup>

**NOTE:** One Black Hawk helicopter was equipped with a "Have Quick I" (HQI), UHF radio; the other was equipped with a "Have Quick II" radio. The radios provide UHF air-to-air and air-to-ground radio communications capability. The "Have Quick" Mode provides anti-jam capabilities using a frequency hopping method which changes the frequency many times a second.<sup>308</sup> The F-15C's are equipped with an ARC-164 "Have Quick II" UHF radio, and the AWACS is equipped with an ARC-204 "Have Quick II" UHF radio.<sup>309</sup> The "Have Quick II" radios are an updated version of the "Have Quick I" radio. "Have Quick I" operation is not compatible with "Have Quick II" operation. "Have Quick II" radios can, with difficulty, be set up to communicate with "Have Quick I" radios. The Black Hawks therefore would be limited to flight operations on "Have Quick I," if they used it at all. There is no evidence that "Have Quick" was used by the unit, generally, or by this flight.<sup>310</sup>

There is no indication that communication equipment serviceability was related to the accident.

**UH-60 Navigation:** Interviews with other pilots and maintenance personnel from the Black Hawk unit revealed no known problems or discrepancies with the navigation equipment on board the two accident Black Hawk helicopters.<sup>311</sup> All navigation equipment received extensive damage from the crash and post-crash fires, precluding conclusive analysis of their operational status.<sup>312</sup> There is no evidence that navigation was a factor in the accident. There is no evidence that weather hampered navigation or was a factor in the accident.<sup>313</sup>

**UH-60 Black Hawk Briefing and Preflight.** On 13 April, the helicopter flight assistant operations officer confirmed the next day's mission with the operations officer at MCC (Forward) at Zakhu.<sup>314</sup> The helicopter flight assistant operations officer prepared the mission schedule, requested the weather briefing, and called the CTF Joint Operations Intelligence Center (JOIC) at Incirlik AB, activating the ATO line numbers. (Activating the ATO line number identified what type of mission would be conducted and started a process to notify Turkish controllers for the portions of the flight to occur in Turkey.)<sup>315</sup> The noncommissioned officer in charge also assembled required mission documents and survival gear for the crew members.<sup>316</sup>

The helicopter aircrews, call signs Eagle 1 (flight lead) and Eagle 2 (wingman), completed their assigned duties at approximately 1430Z on 13 April and went to bed at approximately 1830Z.<sup>317</sup> On 14 April, the aircrews awoke at approximately 0215Z and departed their quarters at 0310Z, arriving at the Black Hawk helicopter flight operations building at 0315Z.<sup>318</sup> All crew rest requirements specified by Army regulations were met.<sup>319</sup>

On 14 April, the air mission commander (the Black Hawk flight lead) conducted the flight mission briefing using the preprinted mission briefing form from Army regulations.<sup>320</sup> All required briefing items were covered. The Eagle Flight Detachment Aircrew Mission Briefing form requires Identification Friend or Foe (IFF) to be briefed.<sup>321</sup> All published unencrypted IFF codes and radio frequencies were photocopied from the Air Tasking Order (ATO) and were provided to the Pilot in Command of each aircraft in accordance with the Black Hawk detachment procedures.<sup>322</sup> Encrypted IFF codes were loaded by operations personnel in the KYK 13 encoding device, which was then given to the helicopter crews to load each aircraft's IFF transponder.<sup>323</sup>

Helicopter pilots assigned to the Black Hawk unit were not aware that the ATO specified separate transponder Mode I codes for operating inside and outside of the TAOR. The unit had routinely flown in the TAOR using the Mode I code designated for use outside the TAOR. On previous missions, AWACS had not pointed out the incorrect Mode I code to the helicopter crews. There is nothing to indicate that the pilots who flew the 14 April mission were briefed on, or were aware of, the correct Mode I code specified for use in the TAOR.<sup>324</sup> AWACS interrogation of the accident helicopters' Mode I IFF codes showed that the helicopters' transponders were transmitting on Mode I, Code 42 (the code for operations outside the TAOR.)<sup>325</sup>

After the mission briefing, the helicopter aircrews began their mission planning. They received intelligence and weather briefings, and completed their flight plan. The pilots signed for and were issued the ATO, night vision goggles, survival radios, authentication tables, and weapons.<sup>326</sup>

The helicopter crews departed Pirinlik AB, Turkey at approximately 0335Z, arrived at Diyarbakir base operations at approximately 0400Z, and passed their flight plan to the Turkish Air Traffic Control Section.<sup>327</sup> The aircrews then departed Diyarbakir base operations and drove to the US flight line area.<sup>328</sup>

The helicopter crews conducted preflight checks of the Black Hawk helicopters. (Aircraft serial numbers 87-26000 and 87-26001). The helicopter detachment's standard practice was to conduct all aircraft preflight checks in accordance with the aircraft operator's manual, the aircraft checklist and Army regulations.<sup>329</sup> When the lead aircrew performed their aircraft run-up checks on aircraft 87-26001, they discovered an electrical problem which required an aircraft change.<sup>330</sup> The lead aircrew changed to aircraft 88-26060, and after a normal preflight and engine run-up, both Black Hawk helicopters departed as a flight of two at 0522Z for Zakhu, Iraq.<sup>331</sup> No maintenance discrepancies on the two accident aircraft were reported to maintenance personnel at Diyarbakir AB.<sup>332</sup> As they entered the TAOR, the helicopter flight contacted AWACS at 0621Z and landed at Zakhu shortly thereafter.<sup>333</sup>

NOTE: The initial plan for the next flight had been for the helicopters to fly to a village which was just within the security zone to wait until AWACS was on station, before proceeding outside the security zone.<sup>334</sup> The US co-commander had requested permission from the CTF CG for an early departure from Zakhu. The proposed departure time would

have meant that the helicopters would have flown outside the SZ before the AWACS was scheduled to be on station. The CTF CG had denied the request.<sup>335</sup> There is no indication that any of the MCC or helicopter personnel were aware of the ACO requirement for fighter aircraft to "sanitize" the TAOR before any OPC aircraft could enter the area.<sup>336</sup>

At 0536Z, the radio operator at MCC (Forward) received word that AWACS was flying and JTIDS was operational.<sup>337</sup> When the helicopters arrived at Zakhu, the air mission commander confirmed AWACS was airborne and operational.<sup>338</sup> The MCC (Forward) operations officer conducted a mission briefing for the helicopter aircrews, MCC co-commanders, and the accompanying staff officers. The briefing covered the passenger manifest, seating, and the route of flight from Zakhu to Irbil to Salah ad Din, and return to Zakhu.<sup>339</sup> Army procedures require an aircraft thru-flight inspection (check that the aircraft is functioning properly) be performed prior to each takeoff.<sup>340</sup> Although there is no evidence to indicate whether or not the required inspection was complied with on this flight, normal practice by the unit's helicopter pilots was to conduct a thorough thru-flight in accordance with the aircraft operator's checklist.<sup>341</sup> At 0650Z, following the briefing, the helicopters were loaded and prepared to depart from Zakhu.<sup>342</sup>

**UH-60 Sequence of Flight Events:** The Black Hawk helicopters departed Zakhu, and at 0654Z, the pilots contacted the AWACS enroute controller and reported that they had departed Zakhu and were enroute to Irbil, using code words for the locations.<sup>343</sup> They proceeded at low altitude to the southeast through a valley between mountainous ridge lines.<sup>344</sup> The Airspace Coordination Order requires helicopters to remain below 400 feet above ground level (AGL) to provide deconfliction from jet aircraft.<sup>345</sup> An April 1993 helicopter detachment memorandum for flight crews states that flights in the TAOR will be straight line from point to point.<sup>346</sup> However, helicopter routes of flight within the TAOR were selected to use the most favorable terrain to avoid Iraqi air defense locations.<sup>347</sup> The route from Zakhu to Irbil which avoided the Iraqi air defenses took the helicopters on a dogleg approximately 26 NM to the northeast of the straight line route.<sup>348</sup>

The helicopters' transponders were operational and transmitting Mode I, code 42 after departing Zakhu, inside the TAOR.<sup>349</sup> This was the Mode I code for operations outside the TAOR. Mode I, code 52 was specified in the ATO for all aircraft operating inside the TAOR.<sup>350</sup> Additionally, the lead helicopter's transponder transmitted Mode II, code 5530 and the wingman's transponder transmitted Mode II, code 5531, both as specified in the ATO.<sup>351</sup> A Mode III code was not required in the TAOR.<sup>352</sup> There is no evidence to indicate that AWACS attempted to interrogate either of the helicopters' Mode IV codes on this flight either.<sup>353</sup>

The Black Hawk helicopters were engaged by the F-15 flight at a location 71 NM southeast of Zakhu.<sup>354</sup> They were between 120 feet and 200 feet above the ground in a staggered left trail formation.<sup>355</sup>

At approximately 0730Z, the trail Black Hawk, (serial number 87-26000) was flying approximately 120 feet above the ground on a heading between 100 and 120 degrees, when it was hit in the left rear fuselage by warhead fragments from the AIM-120, radar-guided missile.<sup>356</sup>

Kurdish witnesses reported fire behind the rotor mast and on top of the aircraft (in the area of the auxiliary power unit) following warhead detonation. Fire was also reported inside the cabin area.<sup>357</sup> The Black Hawk began to break up in the air, with pieces of the aircraft landing approximately 1,320 feet short of the main impact point. The helicopter impacted on the valley floor. Impact was estimated to be at an angle of 8 degrees nose low at approximately 72 knots airspeed.<sup>358</sup> The aircraft was destroyed by fire after impact with the ground.<sup>359</sup>

The lead Black Hawk, (serial number 88-26060) continued flying up the valley on a heading of approximately 100 degrees at an undetermined airspeed and at a low altitude.<sup>360</sup> Just after the trailing Black Hawk crashed, the lead helicopter made a series of rapid left and right banking maneuvers, finally turning left and entering a narrow, steep valley running generally on a heading of 040 degrees.<sup>361</sup> The lead Black Hawk was struck by the heat-seeking AIM 9 missile.<sup>362</sup> Kurdish witnesses reported an explosion with a fireball after missile impact.<sup>363</sup> The Black Hawk began to break up in the air with pieces of wreckage landing 2,118 feet short of the main impact point. At least one main rotor blade and one tail rotor paddle landed 900 feet short of the main impact point.<sup>364</sup> At approximately 0730Z, the helicopter impacted on a 45 degree mountain slope. Impact was estimated to be at an angle of 56 degrees nose low at an undetermined airspeed.<sup>365</sup> The aircraft was destroyed by fire after impact with the ground.<sup>366</sup>

### c. Search and Rescue:

Each of the two cockpit doors on the Black Hawk helicopters was equipped with a jettison system for emergency release of the door assembly. The two windows on each helicopter cabin door (a total of four door windows per aircraft) were equipped with a jettison system.<sup>367</sup> Aircraft emergency equipment consisted of two hand-held fire extinguishers, one crash axe, and three first aid kits.<sup>368</sup> Black Hawk helicopters are not equipped with inflight emergency ejection/egress systems. No evidence was found to indicate that egress was attempted from either aircraft or that any emergency equipment was used.<sup>369</sup>

Each Black Hawk crew member had been issued and was wearing the approved flight uniform, combat boots, flight gear, and survival vest (SRU 21P) with standard issue survival gear.<sup>370</sup> The US military passengers were all wearing the standard battle dress uniform (BDU) and combat boots. Civilian passengers wore appropriate civilian clothing. The civilian Kurdish guards wore civilian clothing and flak vests.<sup>371</sup> Minor discrepancies in aircrew member aviation and life support equipment were noted, but were not related to the accident.<sup>372</sup> There is no indication that any survival equipment was used.<sup>373</sup>

At 0806Z, the JSOTF operations office at Incirlik AB received initial notification from CTF C2 of an accident allegedly involving Hind helicopters and that the location of the Black Hawk helicopter flight was unknown.<sup>374</sup> At 0915Z, the JSOTF directed their response force at the MCC (Forward), to prepare to dispatch a ground search and rescue (SAR) team.<sup>375</sup>

At 1015Z, Kurdish civilians notified MCC (Forward) that two US helicopters had been shot down and gave them the location of the crash sites.<sup>376</sup> At 1052Z, the CTF gave authorization to launch the SAR force from Incirlik AB.<sup>377</sup> The SAR team that was assembled included an

AWACS aircraft for command and control, fighters for air cover, MH-60G Pave Hawk helicopters to carry the SAR force, and HC-130 Hercules aircraft to provide inflight refueling for the helicopters.<sup>378</sup> The MH-60 helicopter crews prepared the aircraft for the mission while the Turkish liaison officers were notified and clearance from the Turkish authorities was obtained.<sup>379</sup> JSOTF SAR forces departed Incirlik AB in MH-60 Pave Hawk helicopters at approximately 1200Z, and the HC-130 departed Incirlik AB at 1302Z. The AWACS and supporting fighters were already airborne. At 1315Z, a team of Special Forces personnel and civilian interpreters departed MCC (Forward) at Zakhu, by ground transportation, enroute to the crash site.<sup>380</sup>

The Pave Hawk helicopters arrived at the two crash sites at approximately 1615Z.<sup>381</sup> At approximately 1650Z, the MCC (Forward) ground team arrived at the crash sites.<sup>382</sup> At 1715Z, the JSOTF on-scene commander reported to the CTF commander that the helicopter wreckage was from the two US Black Hawk helicopters. He confirmed that there were 26 casualties, and no survivors.<sup>383</sup> Recovery and transport of the remains began immediately and continued throughout the night.

A medical/mortuary affairs team from Incirlik AB set up operations at Diyarbakir AB to receive and prepare the remains for transport to Rhein Main AB, Germany. Several helicopter flights were required to transport the remains and SAR personnel, first to Zakhu and then on to Diyarbakir AB. The last helicopter flight landed at Diyarbakir AB at approximately 0330Z, 15 April 1994.<sup>384</sup> At 1831Z, on 15 April 1994, a C-141 carrying the remains departed Diyarbakir AB for Rhein Main AB.<sup>385</sup>

#### **d. Maintenance:**

##### **(1) E-3B AWACS.**

**Maintenance Documentation.** Aircraft maintenance records, airborne radar technician logs, sortie debrief reports, maintenance log books, and the equipment review report for aircraft 77-0351 were reviewed. There were no documented maintenance discrepancies which appeared to be related to the accident.

**Maintenance Personnel and Supervision.** The aircraft was serviced for flight in accordance with Air Force directives, and the appropriate documentation was accomplished.<sup>386</sup> Squadron maintenance personnel were experienced, and were trained in accordance with Air Force standards to maintain the aircraft and mission systems.<sup>387</sup>

**Engine, Fuel, Hydraulic, and Oil Inspection Analysis.** With the exception of minor engine discrepancies which were unrelated to the accident, all engine, flight control, and aircraft accessory systems functioned normally during the mission. Post-flight fuel, oil, and hydraulic samples and a post-flight engine inspection were not required.<sup>388</sup>

**Airframe and Aircraft Systems.** Aircraft airframe and systems, including hydraulic, electric, mechanical, avionics, and power plant, were reviewed. Two AWACS aircraft systems, the mission crew commander's console monitor and one Magnetic Tape Transport, had

discrepancies which were reviewed during the accident investigation. Additionally, the aircraft was equipped with a commercial VHS video camera to record video/audio from a specific scope display. The video camera recorded information related to the accident, and was the only device on board which had audio recording capability.

**Video Camera.** The onboard VHS video camera was installed to provide an additional record of any flight safety problems or significant events in flight.<sup>389</sup> It recorded the scope display from a spare monitor during the F-15C intercept of the Black Hawk helicopters. According to crew members' testimony, the tape was rewound so a crew member could view the intercept. It was turned back on, after it was rewound, to record Iraqi air activity south of the no-fly zone after the accident, and a portion of the tape was recorded over. Approximately four minutes were lost--from 0728Z to 0732Z.<sup>390</sup> Extensive reconstruction efforts on the audio segment did not recover any of the lost data. However, expert analysis of the portions of the tape that were not recorded over disclosed audio material not otherwise available.<sup>391</sup>

**Magnetic Tape Transports.** One of the three Magnetic Tape Transports (MTT) was inoperable. The unit is used to record mission data or load mission programs. With one Magnetic Tape Transport (MTT) inoperable, the onboard computer technician was required to manually rewind and reload the magnetic recording tapes. Although this caused three to five minute gaps in the recorded data, video recording capability during the F-15 intercept was not affected.<sup>392</sup>

**Mission Crew Commander Radar Scope.** The mission crew commander's radar scope experienced "ballooning" problems during the mission. Every five to ten minutes, displayed images would expand, then blank out for about 20 seconds. The inflight technician assessed the problem as not serious. A fully functional spare monitor was available; however, the mission crew commander did not deem it necessary to change monitors.<sup>393</sup>

## **(2) F-15C.**

**Maintenance Documentation.** Aircraft maintenance records, maintenance forms, sortie debrief reports, and the equipment review report for 84-0025 (lead's aircraft) and 79-0025 (wingman's aircraft) were reviewed.

**Serial number 84-0025.** The aircraft (84-0025) had no grounding discrepancies or overdue Time Compliance Technical Orders (TCTO), (aircraft/engine modifications) or engine inspections in the aircraft status, maintenance and inspection records. Additionally, the aircraft had no abnormal trends in either engine's oil analysis records. The aircraft's historical flight records indicated no recurring maintenance problems with engine, airframe, or avionics systems (except as noted below.) Aircraft maintenance records showed that the aircraft had experienced four Air-to-Air Interrogation (AAI) system discrepancies in the 90 days prior to the accident. All four discrepancies had been documented as corrected by maintenance personnel.<sup>394</sup> It cannot be determined if they were related to the accident.

**Serial number 79-0025.** The aircraft (79-0025) had no grounding discrepancies or overdue TCTOs (aircraft/engine modifications) or engine inspections in the aircraft status, maintenance and inspection records. Additionally, the aircraft had no abnormal trends in either engine's oil analysis records. The aircraft's historical flight records indicated no recurring maintenance problems with engine, airframe, or avionics systems. The aircraft had not experienced any AAI system discrepancies since 28 February 1994.<sup>395</sup>

**Maintenance Personnel and Supervision.** Both aircraft were serviced for flight on 13 April in accordance with applicable technical directives and the appropriate documentation was accomplished. On the morning of 14 April, a qualified squadron avionics technician loaded the Mode IV codes for 14 April (Mode IVA) and 15 April (Mode IVB) into both aircraft's IFF and AAI systems. Both accident aircraft's IFF systems were electronically checked prior to flight, by a second avionics technician using an IFF ground test set. Both aircraft passed this check confirming that valid Mode IV codes were loaded in each aircraft. The training records of the second avionics technician did not reflect that he had completed training on the use of the test set. He was subsequently tested and found qualified to perform the task.<sup>396</sup> Other squadron maintenance personnel records were not reviewed.

**Engine, Fuel, Hydraulic, and Oil Inspection Analysis.** All engine, flight control, and aircraft accessory systems functioned normally during the accident sortie.<sup>397</sup> Post-flight fuel and hydraulic samples and post-flight engine inspections were not required.

**Airframe and Aircraft Systems.** The status of aircraft airframe and aircraft systems, including hydraulic, electrical, mechanical, avionics and power plant, was reviewed. Aircraft canopy and windscreen condition and the AAI/IFF systems for both F-15C aircraft were identified as components/systems requiring detailed evaluation.

**Canopy and windscreen.** Both aircrafts' (79-0025 and 84-0025) canopies and windscreens were inspected and met all technical data requirements for optical clarity.<sup>398</sup>

**Serial number 84-0025.**

The aircraft's AAI system was reported to have been successfully checked against airborne targets by the accident pilot and by the pilots on the sorties immediately prior to and after the accident sortie.<sup>399</sup> The aircraft had experienced no AAI malfunctions between 1 December 1993 and 9 March 1994. Since 9 March 1994, the aircraft had experienced four problems with its AAI/interference blanking systems. One of these problems involved an AAI Built In Test (BIT) light illuminating in flight. On another flight, the AAI was inoperative in all modes. The two other problems involved the interference blanking system. In addition, there was one interference blanking system discrepancy on the sortie following the accident flight.<sup>400</sup>

**NOTE: AAI/IFF System.** When interrogated, the F-15 aircraft IFF system transmits a coded response to identify itself as a "friendly" aircraft. The F-15 aircraft AAI system transmits interrogation signals, evaluates coded IFF replies, and displays symbology in the cockpit to tell the pilot if the interrogated IFF signal

is from a friendly aircraft. The F-15 aircraft interference blanking system prevents interference between an aircraft's own internal systems that use radio frequency transmitters and receivers. For example, when an F-15 aircraft's AAI system interrogates a target, the interference blanker prevents that same interrogation from being received by the F-15's own IFF system. Without the interference blanker, the interrogating aircraft's own IFF system would reply. That reply would be picked up by the F-15's own AAI system and displayed as an erroneous target on the cockpit display. (See paragraph 2i of this report for a discussion of AAI/IFF anomalies, and Tab O4b for additional discussion of the interference blanker.)

The aircraft's AAI system was ground-tested on 21/22 April 1994 by an F-15 technical advisor using an AAI ground test set and the applicable F-15 technical data. The test indicated the aircraft's AAI system was capable of interrogating, receiving replies, evaluating, and displaying Mode I, II, III, and IV targets generated by the ground test set. However, the aircraft failed the Mode IV loop check, an internal self-test of the Mode IV system. In the loop test, the aircraft's interference blanking system is disabled, allowing the AAI transmitter to send a signal to the aircraft's own IFF transponder. The IFF transponder's reply to that interrogation is received by the AAI system's receiver. Failure of the loop test indicated that the continuity of the internal test circuit was not complete. The technical advisor suspected, but was unable to positively confirm, that the interference blanking system problems and the failure of the Mode IV loop check were related. Even though the AAI had been unable to interrogate the F-15's own IFF during the loop test, it had successfully interrogated the external AAI ground test set in the previously mentioned test. The wiring between the interference blanker, IFF system, and AAI system was tested for continuity with no defects noted.<sup>401</sup>

The IFF reply evaluator and AAI receiver/transmitter from the aircraft's AAI system were then sent to Warner Robins Air Logistics Center at Robins AFB, Georgia, for tear-down analysis. The interrogator computer was also sent to the Air Force Cryptologic Support Center, Kelly AFB, Texas, for tear-down analysis. The tear-down analysis revealed no discrepancies in any of the components that would have adversely affected system performance on the aircraft. The interference blanker and AAI cockpit control panel from aircraft 84-0025 were sent to Warner Robins Air Logistics Center at Robins AFB, Georgia, for tear-down analysis. The analysis revealed each component passed all test requirements.<sup>402</sup> The successful AAI interrogations by pilots on sorties before, during and after the accident, and the lack of deficiencies noted during the tear-down analysis indicate the AAI system was functioning normally. However, because the AAI failed the Mode IV loop check and had a history of AAI write ups, the possibility of intermittent failure of the AAI system could not be ruled out. A malfunction of the F-15 interference blanking system normally does not interfere with the receipt of another aircraft's IFF transponder reply.<sup>403</sup>

#### **Serial number 79-0025.**

The aircraft's AAI system was reported to have been successfully checked against airborne targets by the pilots on the sorties before, during, and after the accident sortie.<sup>404</sup> The aircraft had experienced two AAI malfunctions in the last 90 days. Both malfunctions (December 1993 and

January 1994) involved the Mode IV portion of the AAI system. There were no pilot-reported AAI discrepancies in the 45 days prior to the accident.<sup>405</sup>

The aircraft's AAI system was ground-tested on 21/22 April 1994 by an F-15 technical advisor, using an AAI ground test set and the applicable F-15 technical data. The aircraft passed all of the test, except the Mode IV portion. When the aircraft's AAI system interrogated the test set, it failed to display Mode IV returns in the cockpit, indicating it had not successfully received/evaluated the reply from the test set. The test set indicated it had received an interrogation from the aircraft and had sent a reply. The test set had been used on aircraft 84-0025 just prior to being used on aircraft 79-0025 and the Mode IV portion of the test had worked correctly. The test set also passed a built-in self-test prior to the test on aircraft 79-0025.<sup>406</sup>

The IFF reply evaluator and the AAI receiver/transmitter from the aircraft's AAI system were then sent to the Warner Robins Air Logistics Center at Robins AFB, Georgia, for tear-down analysis. The interrogator computer from the aircraft was sent to the Air Force Cryptologic Support Center, Kelly AFB, Texas, for tear-down analysis. The tear-down analysis revealed no discrepancies in any of the components that would have adversely affected system performance on the aircraft. The interference blanker and AAI cockpit control panel from 79-0025 were sent to the test facilities at Warner Robins Air Logistics Center at Robins AFB, Georgia, for tear-down analysis. Each of these components passed all test requirements.<sup>407</sup> The lack of a history of AAI write ups, the reported successful AAI interrogations by the pilots on the sorties before, during, and after the accident sortie, and the lack of deficiencies noted during the tear-down analysis indicate the AAI system was functioning normally. However, because the AAI failed the Mode IV portion of the ground test, the possibility of an intermittent failure of the AAI system in flight could not be ruled out.

### **(3) UH-60 Black Hawks.**

**Maintenance Documentation.** Historical aircraft maintenance records and forms for helicopters 88-26060 and 87-26000 were reviewed. Available documentation indicates that maintenance procedures and practices were in accordance with applicable directives. Daily maintenance forms carried on board the accident helicopters in accordance with Army directives, could not be reviewed. The documents were destroyed when the helicopters crashed and burned. There were no known, uncorrected maintenance discrepancies on either helicopter that appear to have been related to the accident.<sup>408</sup>

**Serial number 88-26060.** Historical maintenance records revealed that all aircraft modification work orders had been completed.<sup>409</sup> There were no abnormal trends in the oil analysis records. No oil samples were overdue.<sup>410</sup> The records showed that the aircraft had 17 non-grounding discrepancies that would have been carried forward in the aircraft forms that were destroyed in the crash.<sup>411</sup>

Aircraft maintenance records for 88-26060 showed that there were six IFF system (transponder and KIT 1C) discrepancies in the 210 days prior to the accident. These included a failed Mode IV check, two transponder self-test failures, an incorrect knob installation, an IFF

caution light illuminated in flight, and a Mode II button stuck. All writeups had been documented as repaired or checked and found to be functioning properly.<sup>412</sup> It cannot be determined whether these corrected discrepancies were related to the accident.

**Serial number 87-26000.** Historical maintenance records revealed that all modification work orders had been completed.<sup>413</sup> There were no abnormal trends in the oil analysis records. No oil samples were overdue.<sup>414</sup> The records showed that the aircraft had seven non-grounding discrepancies that would have been carried forward to the aircraft forms that were destroyed in the crash. None of these discrepancies appear to have been related to the accident.<sup>415</sup>

Aircraft maintenance records for 87-26000 showed that there was one IFF system (transponder and KIT 1C) discrepancy in the 210 days prior to the accident. The records indicated that the transponder would not hold the Mode IV code. The corrective action taken was to replace the KIT 1C battery.<sup>416</sup> It cannot be determined whether this corrected discrepancy was related to the accident.

**Maintenance Personnel and Supervision.** The aircraft were serviced for flight in accordance with Army directives. Preflight servicing of the aircraft was conducted by the accident flight crew chiefs.<sup>417</sup> Servicing records, including refueling, replenishing component fluid levels, and the completion of daily scheduled inspections for the 14 April 1994 flight, were carried in the logbooks. The logbooks were destroyed in the accident.<sup>418</sup> Training records revealed that the servicing personnel (crew chiefs) were experienced and qualified.<sup>419</sup> Contractor maintenance personnel were also experienced and qualified.<sup>420</sup>

The servicing personnel (crew chiefs) were responsible for loading (keying) the encrypted Mode IV code into the aircraft transponders.<sup>421</sup> The Army has no requirement to document the keying process. A representative of the US Army Aviation Electronic Combat Project Manager's Office evaluated all Black Hawk crew chiefs at Diyarbakir on 28 April 94 and determined that keying of Mode IV of the transponders was being accomplished in accordance with applicable technical manuals.<sup>422</sup>

**Engine, Fuel, Hydraulic, and Oil Inspection Analysis.** Available information indicates that the engine, fuel, hydraulic, and lubrication systems were functioning properly prior to the accident. Post-crash fuel, hydraulic fluid, and oil samples were not taken from either Black Hawk helicopter due to the extensive destruction of the components caused by impact forces and post-crash fires.<sup>423</sup>

**Airframe and Aircraft Systems.** Records and recovered components from the helicopter wreckage were examined. The IFF transponders were the only Black Hawk systems recovered from the crash sites whose operation may have been related to the accident. Tear-down analysis was conducted on the two IFF transponders and one cryptographic computer (KIT 1C).<sup>424</sup>

**Serial number 88-26060.** The AN/APX-100 (Transponder) was recovered and shipped to the Naval Air Warfare Center, Indianapolis, Indiana, for tear-down analysis.<sup>425</sup> Tear-down

analysis indicated that, due to the damage to the AN/APX-100 (transponder), it was not possible to ascertain the operational condition of the unit, or if the Mode IV control switch was activated (on) at the time of the accident.<sup>426</sup> The KIT 1C was recovered and sent to the Air Force Cryptologic Support Center, Kelly AFB, Texas, for tear-down analysis.<sup>427</sup> Tear-down analysis of the KIT 1C indicated that, due to extensive damage to the component, no determination could be made about the condition of the component prior to the accident, or whether or not the unit was turned on at the time of the accident.<sup>428</sup>

**Serial number 87-26000.** The AN/APX-100 (Transponder) was recovered and sent to the Naval Air Warfare Center, Indianapolis, Indiana, for tear-down analysis.<sup>429</sup> Tear-down analysis showed that transponder power was on at the time of the accident.<sup>430</sup> The KIT 1C of this aircraft was not recovered. Observations made during the tear down analysis which relate to possible transponder switch positions and the operational status of the Mode IV function are discussed below.

**e. Summary of AAI and IFF Anomalies.**

The following areas have been identified as possible reasons for the lack of Mode IV IFF indications received by the F-15s during the intercept.

**Terrain masking.** The signals between aircraft AAI systems and transponders require line-of-sight in order to be effectively received.<sup>431</sup> The intercept's parameters raise the possibility that terrain masking may have intermittently interrupted the signals, preventing a valid Mode IV identification.<sup>432</sup>

**Signal interference by proximity.** The F-15C manufacturer, McDonnell Douglas Aircraft Corporation, and the Department of Defense's IFF Program Office indicate the theoretical possibility that an F-15 aircraft, electronically interrogating two other aircraft flying in close proximity to each other, could experience difficulty receiving the IFF reply from those aircraft. The close proximity of two aircraft could result in a situation where neither aircraft's transponder signal would be received by an AAI system.<sup>433</sup> On the other hand, an independent input by the Naval Air Warfare Center, Aircraft Division at Indianapolis, Indiana, indicated that the AAI interrogator should have seen, as a minimum, one valid Mode IV response.<sup>434</sup>

Computer simulation testing by the Theater Air Command and Control Simulation Facility (TACCSF) at Kirtland Air Force Base, New Mexico, revealed that, using certain interrogation modes, the F-15 AAI system would not consistently get successful interrogations of two UH-60s flying in close proximity.<sup>435</sup> Subsequent flight tests at Nellis AFB, Nevada, using F-15Cs and MH-60 helicopters indicated a very high success rate in interrogations of two helicopters flying in close proximity. Interrogation failures observed during the flight test were attributed to terrain masking and a lack of the required radar contacts during some interrogations.<sup>436</sup>

**Insufficient AAI interrogation time.** TACCSF simulator results indicated that the probability of an IFF response being received by the F-15 AAI system was "largely determined by the amount of time the 'coolie switch' was held in position during any particular interrogation

request." (The "coolie switch" is a multi-function switch which includes the AAI function.) The TACCSF report also stated, "It was often necessary to hold the coolie switch in the interrogate position for several seconds to obtain a response while in 'Track-While-Scan' or 'Search' modes". The probability of a positive IFF response is dependent on the number of times the transponder is "swept" by the interrogator. Depending on the radar antenna scan pattern, several sweeps of the radar (several seconds of sweep time) may be required to get a successful response.<sup>437</sup>

**Interrogator and Receiver Side Lobe Suppression (ISLS and RSLs).** The interrogator and receiver side lobe suppression systems are designed to reduce the interrogating pilot's screen "clutter" caused by multiple, excessive replies to an interrogation. Indications are that it is possible that the relative angles of intercept between the F-15Cs and the Black Hawk helicopters could have produced a condition where either of these suppression functions may have prevented a transponder reply by the helicopters.<sup>438</sup>

**Effect of helicopter low level flight profile on the correlation between the F-15 Fire Control Computer and AAI interrogator.** The F-15's fire control radar (FCR) uses a target's "doppler shift" to track the target and direct the interrogator. The FCR computer may have difficulty tracking a low altitude, slow moving target. Without a reliable radar lock, the F-15's interrogator might not present a response to the pilot, even though a valid reply was transmitted by the transponder.<sup>439</sup>

**Possible Black Hawk Crew Actions.** Potential problems could arise as a result of mistakes during the Mode IV keying process. They include issue/receipt of an incorrect Mode IV code, equipment malfunctions, and errors by personnel conducting the loading process. However, the available evidence indicates that the keying of 88-26060 and 87-26000 on 14 April 1994 was done with the correct code for the day and that the loading procedures were accomplished in accordance with applicable directives and technical manuals.<sup>440</sup> The detachments KYK 13s were determined to be fully operational by Tobyhanna Army Depot.<sup>441</sup>

Improper helicopter engine shut-down procedures could result in the loss of the Mode IV code from the transponder's memory. The board could not determine whether this occurred following the shut down of the Black Hawks at Zakhu on 14 April 1994.<sup>442</sup>

It is possible that the Mode IV switches were turned off during flight; however, there is no evidence indicating that the Black Hawk pilots deliberately turned off the Mode IV switch on both helicopters while in flight.<sup>443</sup>

The accident board was unable to determine from the information available why the F-15 AAI's did not receive a Mode IV response from the Black Hawk helicopters' transponders.

#### **f. Crew Qualifications:**

**(1) AWACS Crew Qualifications.** The Individual Training Records and Flight Evaluation Folders (FEF) for each member of the AWACS crew were reviewed. Except for the mission crew commander, all of the AWACS crew members were qualified and mission ready.<sup>444</sup>

Except for the instructor computer display maintenance technician, all crew members were current in OPC theater certification.<sup>445</sup> Upon arrival at Incirlik AB each crew member received additional theater-specialized training for OPC and a local orientation briefing.<sup>446</sup> Several members had participated in previous deployments to OPC.<sup>447</sup>

**Mission Crew Commander.** The accident mission crew commander, who had a total of 518 total hours of flying time, completed initial qualification training (IQT) on 3 February 1993 with a "Qualified" rating.<sup>448</sup> No evaluation discrepancies were noted and no additional training was recommended.<sup>449</sup> He completed mission qualification training (MQT) within the prescribed time and was certified as mission ready (MR) in March 1993.<sup>450</sup> To maintain MR status, the mission crew commander was required to fly at least one sortie per month, or at least three sorties within the previous three month period.<sup>451</sup> On 22 December 1993, he was placed in a "duty-not-involving-flying" (DNIF) status. Subsequently, the mission crew commander underwent a hearing evaluation that required a waiver prior to his return to flying status. The waiver was effective beginning 14 February 1994.<sup>452</sup> Because he had not flown since 22 December 1993, his MR status was downgraded to basic qualified (BQ) supervised status.<sup>453</sup> In BQ status, the mission crew commander was ineligible to fly without the supervision of an instructor, and was not certified to perform those duties required in contingency or wartime operations.<sup>454</sup> He flew an instructor supervised sortie on 23 February 1994, and was returned to MR status.<sup>455</sup> The mission crew commander was again placed in DNIF status on 29 March 1994, but was returned to flying status on 8 April 1994.<sup>456</sup> However, because he flew no sorties in March and had flown only one sortie in the first three months of 1994, he did not meet the minimum sortie requirements for being MR. The mission crew commander had flown only the one 8.3 hour sortie in the last 90 days.<sup>457</sup> He was incorrectly left in MR status, and was deployed to OPC on 9 April 1994.<sup>458</sup> Since he was incorrectly designated MR on the flight authorization orders for 14 April 94, he was not placed under the supervision of an instructor.<sup>459</sup> An instructor mission crew commander (the AWACS staff mission crew commander) flew on the 14 April 94 mission, but was not designated for, and did not perform, instructor duties on 14 April 1994.<sup>460</sup> The AWACS accident mission crew commander, who had flown only one sortie in the previous three months, was not currently qualified on 14 April 1994, in accordance with Air Force regulations.

**Senior Director.** The accident senior director (SD), who had 2383.7 total hours of flying time, completed weapons director (WD) initial qualification training on 5 July 1989, with a "Qualified" rating.<sup>461</sup> In October 1990, he was rated "Unsatisfactory" on the simulator portion of his first checkride with discrepancies noted for not properly positioning aircraft under his control. After additional training, he successfully completed the checkride on 6 November 1990.<sup>462</sup> In January 1992, he received another "Unsatisfactory" on a simulator checkride, again for poor aircraft positioning. After additional training, the checkride was successfully reaccomplished.<sup>463</sup> The senior director completed the Senior Director Upgrade Training course on 6 October 1992, receiving a "Qualified" rating. Additional training was recommended to improve his ability to prioritize mission radios during periods of heavy radio use.<sup>464</sup> During his senior director upgrade training, he had one "Unsatisfactory" mission on 12 August 1992 (Student Non-Progress [SNP] report for safety) in the flying training phase. The SNP for safety was because he had fallen asleep while the WDs under his supervision were controlling fighters.<sup>465</sup> Normal progress and instructor comments were evident on the remainder of his senior director upgrade training

missions. The senior director's mission qualification training simulator record noted several areas for improvement, including the need to be more familiar with the skill levels of the WDs under his supervision, the need to insure that both he and the WDs he supervised understood the ROE, and the need to insure WDs under his supervision totally understood their various responsibilities.<sup>466</sup> Mission Qualification training comments during the flying training phase were positive and indicated no problems.<sup>467</sup> A review of the Deployment Training Feedback form for a previous deployment to Saudi Arabia (November through December 1992), indicated that he demonstrated strong leadership and aggressive attributes during the deployment.<sup>468</sup> On 15 April 93, the SD successfully completed his mission qualification evaluation with one discrepancy and no additional training recommended.<sup>469</sup> A review of the flight training data for the SD indicated that he had completed all flying, ground, and simulator requirements. His flight training sortie accomplishments as an SD were well above Air Force requirements. The accident SD was current and mission ready to perform his assigned duties on 14 April 1994.<sup>470</sup>

**Enroute Controller.** The accident enroute controller, who had 1109 total hours of flying time, received an "Unsatisfactory" rating on his first simulator check ride on 21 February 1992. The "Unsatisfactory" rating was for safety, and additional training was recommended prior to his simulator re-evaluation.<sup>471</sup> He completed WD initial qualification training on 14 April 1992 with a "Qualified" rating.<sup>472</sup> However, once the enroute controller began MQT, he required additional sorties to complete training objectives. His MQT was extended an additional 30 days to accomplish the required training.<sup>473</sup> Prior to 18 March 1993, the enroute controller's status was downgraded from MR to BQ when he did not fly an effective weapons sortie for more than 60 days. On 18 March 1993, he was returned to MR status after flying a sortie under an instructor's supervision.<sup>474</sup> On 14 June 1993, the enroute controller failed his annual simulator evaluation with "Unsatisfactory" ratings for safety and airspace coordination. As a result, he was downgraded to an "Unqualified" (UQ) status. His squadron operations officer stated that the UQ evaluation was "...as much a reflection of the high out of CONUS TDY load/lack of home station flying training for our WDs, as it is an indication of (his) failure to prepare himself for this evaluation."<sup>475</sup> Eight additional simulator training sessions were conducted prior to his re-evaluation.<sup>476</sup> The re-evaluation was conducted on 13 August 1993 with an overall "Qualified" rating, although an "Unsatisfactory" grade was given for improper aircraft positioning.<sup>477</sup> Deployment Training Feedback forms were reviewed for a November-December 1992 OPC deployment and a March 1993 GREEN FLAG training exercise. Both indicated that the enroute controller performed well and was motivated and hard working.<sup>478</sup> A review of flight training data indicated that he had completed all of his semi-annual aircraft control requirements. The enroute controller was current and mission ready to perform his assigned duties on 14 April 1994.<sup>479</sup>

**TAOR Controller.** The accident TAOR controller, who had 161.5 total hours of flying time, completed WD initial qualification training on 5 January 1994 with a "Qualified" rating. No additional training was recommended.<sup>480</sup> His training summary report indicates that he displayed "impeccable officership" and "professional qualities" through all phases of training, but that he needed time and practice to develop more self-confidence.<sup>481</sup> His initial qualification training Individual Mission Grade Sheets indicated no problems in training. The TAOR controller completed MQT within syllabus guidelines, and instructor comments on the MQT Individual

Mission Grade Sheets were positive. They indicated that he controlled his missions well, demonstrated knowledge of the ROE, and showed good situational awareness. However, one instructor commented that he needed to "...know his limits and communicate to SD/WDs when he needs help."<sup>482</sup> A review of flight training data indicated that the TAOR controller had met all applicable training requirements. The accident TAOR controller was current and mission ready to perform his assigned duties on 14 April 1994.<sup>483</sup>

**Instructor Computer Display Maintenance Technician.** The instructor computer display maintenance technician's (ICDMT) flight training data indicated that his theater certification for the OPC area of responsibility had expired on 11 December 1993.<sup>484</sup> Theater training is required prior to aircrew members assuming duties within the OPC theater.<sup>485</sup> A review of the ICDMT's flight evaluation folder and individual training records indicated no other discrepancies. The instructor computer display maintenance technician, who had 3515 total hours of flying time, was current and mission ready in his crew position.<sup>486</sup> However, due to his expired theater certification, he was not currently qualified to perform duties in OPC on 14 April 1994.<sup>487</sup>

**Staff Mission Crew Commander.** The detachment staff mission crew commander who was on board the accident AWACS had 2527.7 total flying hours. He completed initial mission crew commander qualification training on 10 February 1993 with a "Qualified" rating. No discrepancies were noted.<sup>488</sup> His upgrade training to instructor mission crew commander was completed with a "Qualified" rating on 15 March 1994. No discrepancies were noted. The end-of-course summary report for his instructor mission crew commander course indicated that he excelled during the flying phase and was an effective leader and instructor.<sup>489</sup> On 14 April 1994, the staff mission crew commander was tasked to fly with the AWACS accident mission crew commander to provide assistance if required.<sup>490</sup> The staff mission crew commander logged primary flight time (not instructor time) on the AF Form 781, and the flight orders indicate he was not flying as an instructor.<sup>491</sup> He logged an instructor sortie on the AF Form 3526 Event Accomplishment Report.<sup>492</sup> The staff mission crew commander on board the accident AWACS aircraft was current and mission ready on 14 April 1994.<sup>493</sup>

**Qualification and Training Course Materials.** A review of the mission crew training process was conducted by the AWACS technical advisor. Initial upgrade and mission qualification training syllabi and course materials addressed those tasks required to attain mission ready qualification in the AWACS.<sup>494</sup> Continuation training materials and requirements were designed to maintain or improve capabilities needed to perform AWACS roles and missions.<sup>495</sup> Pre-deployment training materials covered the OPC theater of operations and AWACS responsibilities.<sup>496</sup> However, theater certification material was based on USCENCOM Southwest Asia plans rather than OPC plans.<sup>497</sup> The OPC simulator training materials stressed the importance of AWACS support to MCC helicopter operations.<sup>498</sup> In-theater briefing materials did not address AWACS support to MCC helicopter operations.<sup>499</sup> The AWACS in-theater weapons training book contained conflicting, unit-generated ROE guidance.<sup>500</sup>

## **(2) F-15C Crew Qualifications.**

**F-15C Flight Lead.** The flight lead, who had 1561.9 total hours of flying time (656.1 hours in the F-15) completed initial qualification training in the F-15, on 28 January 1991, with a "Qualified" rating. No discrepancies were noted.<sup>501</sup> He completed mission qualification training on 12 July 1991 with a "Qualified" rating. No major discrepancies were noted.<sup>502</sup> The F-15 flight lead was qualified as a two-ship flight lead on 30 November 1992.<sup>503</sup> He was qualified as a four-ship flight lead on 22 October 1993.<sup>504</sup> A review of his training records revealed no problem areas. The F-15 flight lead completed his low altitude training requirements and was certified to fly operational missions as a flight lead as low as 500 ft AGL, on 19 April 1993.<sup>505</sup> During the time he was qualified as an F-15 pilot (3 years and 3 months), he had flown a total of two air-to-air training sorties below 1,000 ft AGL.<sup>506</sup> The F-15 flight lead had flown 26 sorties and 77.7 hours in the 90 days through 14 April 1994.<sup>507</sup> He was current and mission ready to perform his assigned duties on 14 April 1994.<sup>508</sup>

**F-15C Wingman.** The wingman, who had 3009.6 total hours of flying time (1126.3 hours in the F-15), completed initial qualification training in the F-15 on 21 November 1983 with a "Qualified" rating. No discrepancies were noted.<sup>509</sup> By 12 February 1985, he was mission ready, and two-ship flight lead, four-ship flight lead, and instructor pilot qualified.<sup>510</sup> After four years of non-flying duties, he completed initial requalification training in the F-15 on 11 June 1990, with a "Qualified" rating. No discrepancies were noted.<sup>511</sup> By 22 March 1991, the wingman had completed mission requalification training, two-ship flight lead and four-ship requalification training, low altitude step down training, and instructor pilot requalification training.<sup>512</sup> The wingman was again assigned to non-flying duties from 24 June 1992 until 1 June 1993.<sup>513</sup> He completed requalification training in the F-15 on 2 August 1993 with a "Qualified" rating. No discrepancies were noted.<sup>514</sup> The wingman requalified as a two-ship flight lead on 14 January 1994.<sup>515</sup> He requalified as a four-ship flight lead on 8 February 1994.<sup>516</sup> He completed instructor pilot requalification training on 10 March 1994.<sup>517</sup> Based on the wingman's previous low altitude qualification, the wingman's previous squadron commander had certified the wingman to fly operational missions as low as 500 feet AGL.<sup>518</sup> Because he had not flown a low-altitude sortie since 18 November 1993, he was currently qualified to perform missions down to 1000 feet AGL.<sup>519</sup> He had flown 18 sorties and 34.5 hours in the 90 days through 14 April 1994.<sup>520</sup> The F-15C wingman was current and mission-ready to perform his assigned duties on 14 April 1994.<sup>521</sup>

**F-15C Visual Recognition Training.** The Air Force threat recognition training program "...stresses crew members' ability to identify...operational air, naval, ground, missile and electronic equipment of any nation which could threaten US and allied forces. Aircrews must be able to identify both friendly and enemy equipment..."<sup>522</sup> USAFE regulations give responsibility for establishing an intelligence program, to include visual recognition training, to wing commanders.<sup>523</sup> The parent fighter wing of the accident pilots further delegated that responsibility to each fighter squadron commander.<sup>524</sup>

The accident pilots' fighter squadron last conducted formal, visual recognition training in December 1993.<sup>525</sup> The training in 1993 included viewing 35 mm slides of friendly and enemy

helicopters.<sup>526</sup> The accident pilots stated that the majority of the helicopter slides used in their training were from ground level looking up, and showed either the front or side of the helicopter.<sup>527</sup> Differences between friendly and hostile helicopter camouflage and color schemes were not discussed during the squadron's training.<sup>528</sup> The accident pilots may not have been aware that Iraqi Hind helicopters had a different color scheme (light tan and brown camouflage) from that of the US Black Hawk helicopters (dark green and black camouflage).<sup>529</sup> The lead pilot stated he had never seen a Black Hawk helicopter with the wings and auxiliary tanks attached.<sup>530</sup> The wingman stated that he had never seen a photo of a Black Hawk with the wings and auxiliary tanks attached.<sup>531</sup> One of the squadron's visual training slides at home station depicts a Black Hawk helicopter with the wings and auxiliary tanks attached.<sup>532</sup> It could not be determined if either of the accident pilots had ever viewed that slide.

**(3) UH-60 Black Hawk Crew Qualifications.** The individual training records and flight evaluation folders for each of the accident Black Hawk helicopters crew members were reviewed. All Black Hawk helicopter crew members were qualified, current, and mission ready. Each crew member had completed all training appropriate for the mission prior to deployment to Turkey and had received theater specific training upon arrival at Diyarbikir AB. There were no training deficiencies noted.<sup>533</sup>

**g. Medical:**

**(1) AWACS.** A review of all the medical and dental records of the accident crew members was accomplished. No disqualifying conditions were documented in any of the medical or dental records. All personnel had current flying class physicals and were medically qualified for flying duties at the time of the accident. Their flying experience is summarized at Tab T1a.<sup>534</sup>

Complete physical examinations were performed on all crew members, including full eye and hearing tests.<sup>535</sup> Full dental exams were not performed since no crew member reported any dental problems and no dental abnormalities were detected. There were no defects noted that were related to the accident.<sup>536</sup>

Body fluids from the staff mission crew commander and the TAOR controller for blood alcohol and urine toxicologic screenings were taken on 14 April 1994. All tests were negative. When the accident board learned that screenings had not been accomplished on all AWACS crew members,<sup>537</sup> all required screenings were directed and conducted. All additional screenings were accomplished on 17 April 1994.<sup>538</sup> The body fluid tests disclosed nothing which appeared related to the circumstances of the accident.<sup>539</sup> There were no illegal drugs detected. No crew member had a carbon monoxide level above normal limits. Complete blood counts and blood glucose levels were within normal limits for all crew members.<sup>540</sup>

Complete psychosocial interviews, including 72-hour and 14-day histories, were conducted with each crew member except the mission crew commander, the enroute controller, the TAOR controller, and the ACE on board the AWACS. These individuals declined the interviews on the advice of defense counsel. The ACE, through counsel, provided a limited 24-hour history which revealed adequate crew rest and poor nutrition. Associates were interviewed regarding the

72-hour and psychosocial backgrounds on the mission crew commander, the enroute controller, the ACE, and the TAOR controller. All crew rest requirements were reportedly met.<sup>541</sup>

**(2) F-15C:** A review of all the medical and dental records of the accident pilots was accomplished. No disqualifying conditions were documented in any of the medical or dental records. The records indicated that both pilots had current flying physicals and were medically qualified for flying duties.<sup>542</sup>

Complete physical examinations were performed on both F-15C pilots, including full eye and hearing tests. Full dental exams were not performed, since neither F-15C pilot reported any dental problems and no dental abnormalities were detected. Both pilots were given full optometric examinations.<sup>543</sup> The wingman had previously been fully qualified for flying duties. However, he had a condition that resulted in a slowly progressive eyelid droop. The wingman was evaluated by an ophthalmologist on 7 April 1993, and was given the option of corrective surgery, which he declined. At that time, the condition was not severe enough to medically disqualify the pilot from flying duties. The wingman's flight physical on 17 May 1993 noted "mild eyelid ptosis (droop) bilaterally (both eyes)." His most recent routine flight physical, performed on 14 February 1994, made no comment regarding the eyelid droop, and noted that he had 20/20 visual acuity in both eyes, near and far, without correction. A full optometric examination on 24 April 1994 found the wingman to have minimal upper/outer visual field loss in his right eye due to the eyelid droop. All other tests of his eyes and vision were normal. He was evaluated by an ophthalmologist on 5 May 1994 who confirmed the visual field loss, characterizing it as "visually significant right brow (eyelid) ptosis." This visual field loss, which on 5 May 1994 exceeded Air Force standards, did not affect his central vision which is the source of sharp visual acuity. Central vision with its sharp acuity is the type of vision normally used to attempt specific recognition of an object such as an aircraft. However it could have affected his peripheral vision on the upper right side at the time of the accident.<sup>544</sup>

Body fluids from both F-15C pilots, for blood alcohol and urine toxicologic screenings, were taken on 14 April 1994. All tests were negative. Neither pilot had a carbon monoxide level above normal limits. Complete blood counts and blood glucose levels were within normal limits for both pilots.<sup>545</sup>

Complete psychosocial interviews, including 72-hour and 14-day histories, were conducted with both the F-15C pilots. All crew rest requirements were met.<sup>546</sup>

**(3) UH-60 Black Hawk:** A review of all the medical and dental records of the accident Black Hawk crew members was accomplished. No disqualifying conditions were documented in any of the medical or dental records. All personnel had current flying class physicals and were qualified for flying duties at the time of the accident.<sup>547</sup>

Complete autopsies including microscopic and toxicological evaluations were performed on all casualties. There were no pre-existing medical abnormalities found in the helicopter crew members. Several passengers had minor pre-existing medical abnormalities at the time of death.

Toxicological screens and blood alcohol levels were negative for all casualties. The cause of death for all casualties was multiple blunt force injuries.<sup>548</sup>

Associates were interviewed regarding the 72-hour and psychosocial backgrounds on the eight helicopter crew members. All crew rest requirements were reportedly met.<sup>549</sup>

**Medical Summary:** A review of medical records, physical examination results, toxicological reports, autopsy findings and interviews, disclosed no pre-existent mental or physical defects, other than those noted above, that were relevant to this accident.<sup>550</sup>

#### **h. Human Factors:**

##### **(1) E-3B AWACS.**

**Crew-Mindset.** Some of the accident crew members indicated they were not responsible for controlling Black Hawk helicopters.<sup>551</sup> This perception was compounded by the seemingly separate nature of the Black Hawk operations.<sup>552</sup> Additionally, there was confusion within the crew regarding who was responsible for tracking helicopters in the TAOR.<sup>553</sup> The crew members also indicated they lacked adequate control authority over fighter aircraft.<sup>554</sup> On 14 April 94, the Black Hawk helicopters entered the TAOR prior to the fighters. The AWACS crew members did not acknowledge responsibility for tracking or predicting the Black Hawks' flight path enroute to their announced destination when the Black Hawk flight faded from the AWACS radar scope. They assumed that the helicopter track had faded from radar because the helicopters had landed at an intermediate stop. AWACS crew members did not try to validate this assumption.<sup>555</sup>

**Crew-Circadian Rhythm.** Low grade circadian rhythm desyncrony (commonly referred to as "jet lag") was present in all crew members except the staff mission crew commander, staff weapons director, air surveillance officer, computer technician and the ACE. With the exception of the individuals noted, the crew departed Oklahoma City, Oklahoma, on 10 April at 1300Z, and arrived at Incirlik AB on 11 April at 1100Z. The crew members appeared to adjust fairly rapidly to the time changes, considering they had traveled eastbound through 8 time zones in 24 hours. No crew member complained of fatigue on the morning of 14 April. The International Civil Aviation Organization formula for recommended rest time indicates a need for 1.8 days of rest before performing flight duties after such a trip.<sup>556</sup> The accident crew flew their first mission on this rotation at Operation PROVIDE COMFORT on day four in country; this was standard for AWACS crews operating in the OPC theater.<sup>557</sup> The accident crew reported no ill effects from circadian rhythm desyncrony, and had the required crew rest to fly this mission.<sup>558</sup>

##### **(2) F-15C.**

**Pilots-Mindset.** Based on the Airspace Control Order requirement for a fighter sweep to "sanitize" the area before other OPC aircraft could enter the TAOR, and the Air Tasking Order (ATO) of 14 April 1994 which did not show any OPC aircraft scheduled into the TAOR before the first F-15C flight, the accident pilots believed there would be no friendly aircraft in the area.<sup>559</sup> This mindset was reinforced when the F-15C pilots acquired the Black Hawk helicopters on radar,

but received no valid friendly indications by electronic interrogation.<sup>560</sup> This mindset was further reinforced when AWACS transmitted to the F-15C flight "Clean there," meaning AWACS had no contacts at the reported location.<sup>561</sup> The F-15C pilots may have begun the visual intercept with a mindset that the unknown aircraft were probably not "friendly."<sup>562</sup>

**Aircraft Visual Identification.** Both pilots had received only limited visual recognition training in the previous four months.<sup>563</sup> The process of identifying the two "unknown" helicopters was complicated by the presence of wings (sponsons) and external fuel tanks, giving an appearance, from the high aft quadrant, similar to a Hind helicopter with sponsons and weapons.<sup>564</sup> There were US flags painted on the bottom of the fuselage, the external fuel tanks and the side doors of the Black Hawk helicopters.<sup>565</sup> However, calculations based on the size of the flags relative to the reported slant range distances between the fighters and the helicopters indicate that the flags were most likely indiscernible.<sup>566</sup> At the slant ranges reported, the flags would have appeared as bright spots.<sup>567</sup> However, the surrounding terrain was dotted with light gray rocks which could have minimized this feature.<sup>568</sup> The F-15C flight lead wore an authorized high contrast yellow visor.<sup>569</sup> This visor blocks out blue colors, functionally reducing the visible portions of the flag against a dark green/black background.<sup>570</sup> The relatively low contrast between the dark green/black camouflaged Black Hawks and the green terrain, compounded visual recognition problems, making identification more difficult.<sup>571</sup>

In the accident sequence, available visual recognition time was most likely divided between the attempted identification of the helicopters, terrain avoidance, and flying the aircraft.<sup>572</sup> The over-take time between the accident F-15Cs and the Black Hawk helicopters limited the time during which the F-15s would have been close enough to make an accurate visual identification. Finally, the F-15C pilots had limited low altitude experience, which may have increased the stress of operating in a low altitude environment.<sup>573</sup>

### **(3) UH-60 Black Hawk.**

**Crew-Mindset.** Although no Black Hawk crew members survived the accident, testimony from other Black Hawk pilots from their unit indicated that they did not believe that AWACS coverage or a fighter sweep was required before helicopters could fly within the security zone of the TAOR. However, they stated that AWACS coverage was required for flights outside the security zone.<sup>574</sup> The Black Hawk unit pilots also testified that they usually had limited communication with AWACS in the TAOR, due to the mountainous terrain.<sup>575</sup> Finally, one of the helicopter pilots testified that he assumed that if the AWACS crew wanted him to leave the enroute frequency, they would tell him.<sup>576</sup>

**i. Nav aids and Facilities.** There were no Notices to Airmen (NOTAMS) that affected the accident missions. All navigational aids and facilities required to perform the mission were fully operational.<sup>577</sup>

**j. Weather.** The forecast weather in the TAOR on 14 April 1994 was for clear skies with unlimited visibility. The forecast winds were variable at 5 knots and the altimeter setting was 29.75 inches of mercury. No hazards to flight (turbulence, icing, hail, etc.) were forecast. The

maximum forecast temperature in the TAOR was 26 degrees Celsius. The forecast sunrise was 0236Z, and sunset was forecast for 1540Z.<sup>578</sup>

The Surface Weather Observation at Zakhu at 0345Z reported the skies were clear and the visibility was unlimited. The winds were from 090 degrees at 5 knots. The temperature was 20 degrees Celsius.<sup>579</sup>

At approximately 0715Z, the F-15 flight lead reported to the ACE on board the AWACS that the weather in the TAOR was "clear" and the contrail level was 31,000 to 35,000 feet.<sup>580</sup> Weather was not related to the accident.

**k. News media:** There was extensive media coverage of the initial events surrounding the accident. Press releases were managed by USEUCOM/PA and OATSD/PA.<sup>581</sup>

**l. Directives and Publications.** The following directives and publications were relevant to the accident:

**(1) Command and Control Directives and Publications.**

(a) USEUCOM Directive (ED) 55-47, 22 May 1989, Appendix A, Peacetime ROE, (SECRET)

(b) USCINCEUR 062043Z Apr 91. OPOD Ser 001, Humanitarian Relief Operations (SECRET)

(c) USCINCEUR 162230Z Apr 91. OPOD Ser 002, Temporary Refugee Shelters (SECRET)

(d) USCINCEUR 040900Z Jul 91. OPOD Ser 003, Residual Forces (SECRET)

(e) USCINCEUR 141333Z Sep 91. OPOD Ser 004, Redeployment of Ground Forces (SECRET)

(f) USCINCEUR 141609Z Aug 92. ROE Review for OPC (SECRET)

(g) USCINCEUR 151203Z Oct 92. ROE Request (SECRET)

(h) CTF Provide Comfort/CS 2041-15Z Jul 91, CTF Provide Comfort OPLAN 91-7, Residual Force (SECRET)

(i) PROVIDE COMFORT Airspace Control Order (ACO) and Standing Special Instructions (SPINS), Volume I, Volume II, dated 12 Dec 93.

(j) CFAC/DO letter, undated, Rules of Engagement, (SECRET), with one attached, Aircrew Read File (ARF) 183, ROE/Procedures for Provide Comfort Aircraft (SECRET)

(k) 7440CWP 131400Z Apr 94, Air Tasking Order (ATO), 14 Apr 94 (SECRET)

(l) Battle Staff Directive #1, Change to PC ATO #1103, 14 Apr 94 (SECRET)

**(2) AWACS Directives and Publications.**

(a) AFR 60-1, Flight Management, Feb 90

(b) MCR 55-33, E-3 Operating Procedures - Aircrews, 3 May 93

(c) ACC Reg 51-60 Vol 2, E-3 Aircrew Training, 1 Jun 92

(d) 522 Operations Group Operating Instruction 60-2, Flying 522 ACW (Deployed) Turkey Operating Procedures, 7 Sep 93

**(3) F-15 Directives and Publications.**

(a) USAFER 51-50, Vol 7, Tactical Pilot Training F-15, Jun 91

(b) USAFER 60-2, Vol 1, Aircrew Standardization/Evaluation Program Organization and Administration, Jun 89

(c) USAFER 55-115, USAFE 1-15 Pilot Operational Procedures, Jan 87

(d) AFR 160-43, Medical Examinations and Standards, 16 Feb 93

(e) AFR 60-16, General Flight Rules, Jan 92

**(4) Black Hawk Directives and Publications**

(a) FM 1-302 Aviation Life Support Equipment (ALSE) for Army Aircrews, dated 30 September 1983.

(b) MCC SOPs (Standard Operating Procedures) dated 6 Apr 93, incorporating change dated 19 May 93

(c) Eagle Flight Detachment SOPs, dated 18 Mar 94

### **3. Statement of Opinion**

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Under 10 U.S.C. 2254 (D) any opinion of accident investigators as to the cause of, or the factors contributing to the accident set forth in the accident investigation report, may not be considered as evidence in any civil or criminal proceeding arising from an aircraft accident, nor may such information be considered an admission of liability by the United States or by any person referred to in those conclusions or statements.

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Operation PROVIDE COMFORT has been a successful coalition effort in response to human rights abuses against the Kurdish population in northern Iraq. The operation has effectively deterred Iraq from disrupting peace and order in the UN-established security zone.

The 14 April 1994 shoot-down of two US Black Hawk helicopters by two US F-15C aircraft in northern Iraq was caused by a chain of events which began with the breakdown of clear guidance from the Combined Task Force to its component organizations. This resulted in the lack of a clear understanding among the components of their respective responsibilities. Consequently, CTF component organizations did not fully integrate Military Coordination Center helicopter activities with other OPC air operations in the Tactical Area of Responsibility. Additionally, OPC personnel did not receive consistent, comprehensive training to ensure they had a thorough understanding of the USEUCOM-directed ROE. As a result, some aircrews' understanding of how the approved ROE should be applied, became over-simplified.

MCC personnel were given a high degree of independence in helicopter operations, without an adequate consideration for the threat of engagement from other OPC aircraft. Neither the CTF staff nor the Combined Forces Air Component staff requested or received timely, detailed flight information on planned MCC helicopter activities in the TAOR. Consequently, the OPC daily Air Tasking Order was published with little detailed information regarding US helicopter flight activities over northern Iraq. Specific information on routes of flights and times of MCC helicopter activity in the TAOR was normally available to the other OPC participants only when AWACS received it from the helicopter crews by radio and relayed the information on.

The AWACS mission crew commander on 14 April 1994, who had flown only one sortie in the previous three months, was not currently qualified in accordance with Air Force regulations. The AWACS weapons controllers, under his supervision, did not have a clear understanding of their individual responsibilities to provide support to MCC helicopters. They shared the common view, along with the CFAC airborne command element officer, that MCC helicopter activities were not an integral part of OPC air operations. There was general misunderstanding throughout OPC organizations regarding the extent to which the provisions of the Airspace Control Order applied to MCC helicopter activities. AWACS personnel did not routinely monitor the Black

Hawk helicopter flights or pass information on those flights to other OPC aircraft. The result was that there was no effective coordination of OPC fixed-wing and helicopter operations within the TAOR.

On 14 April 1994, AWACS controllers were aware that the Black Hawk helicopters had departed Zakhu, and were proceeding east into the TAOR. The F-15 pilots were not aware of the Black Hawk helicopters already in the area. The fighters twice informed AWACS that they had unknown radar contacts in the TAOR. The AWACS mission crew commander, senior weapons director, enroute controller and TAOR controller had access to electronic information regarding the presence of friendly aircraft in the vicinity of the F-15s' reported radar contacts. However, there is no evidence that they were aware of, recognized, or responded to this information. They did not advise the F-15 pilots of the presence of friendly aircraft. The helicopters were unable to hear the radio transmissions between the F-15 flight and AWACS because they were on a different radio frequency.

The F-15 pilots attempted to electronically identify the radar contacts by interrogating the ATO-designated IFF Mode I and Mode IV aircraft codes. The helicopter crew members were apparently not aware of the correct Mode I code specified for use within the TAOR and had the Mode I code specified for use outside the TAOR in their IFF transponders. The result was that the F-15s did not receive a Mode I response. When the lead F-15 pilot interrogated the IFF Mode IV code, he received a momentary friendly response. However, on two subsequent attempts, no Mode IV response was received. The F-15 wingman attempted one Mode IV interrogation and received no response.

The reason for the unsuccessful Mode IV interrogation attempts cannot be established, but was probably attributable to one or more of the following factors: both F-15 pilots may have selected the incorrect interrogation mode; both F-15 Air-to-Air Interrogators (AAIs) may have incorrectly processed the Black Hawks' transponder signals; both helicopter IFF transponder codes may have been loaded incorrectly; there may have been "garbling" of the friendly Black Hawks' IFF responses, produced by two helicopters using the same code in close proximity to each other; there may have been intermittent loss of line-of-sight radar contact between the F-15s and the helicopters, due to mountainous terrain and the Black Hawks' low-altitude, which could have precluded a successful Mode IV interrogation.

When the F-15 pilots were unable to get positive/consistent IFF responses they performed an intercept in order to visually identify the "unknown" aircraft. They each made a single identification pass on the Black Hawks. However, the identification passes were accomplished at speeds, altitudes and distances where it was unlikely that the pilots would have been able to detect the Black Hawks' markings. Neither F-15 pilot had received recent, adequate visual recognition training. The pilots did not recognize the differences between the US Black Hawk helicopters with wing-mounted fuel tanks and Hind helicopters with wing-mounted weapons. The F-15 flight lead misidentified the US Black Hawks as Iraqi Hind helicopters. Following his identification pass, he asked his wingman to confirm the identification. The wingman, who was a senior squadron supervisor and instructor pilot, saw two helicopters, but did not positively identify them as Hinds. The wingman did not notify the flight lead that he had been unable to make a positive

identification, and allowed the engagement to continue. The flight lead, acting within the specified ROE, fired a single missile and shot down the trail Black Hawk helicopter. At flight lead's direction, the F-15 wingman also fired a single missile and shot down the lead Black Hawk helicopter.

*James G. Andrus*  
JAMES G. ANDRUS  
Maj Gen, USAF  
Board President

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FOOTNOTES

- 1 TAB Y1; Y2
- 2 TAB AC8i
- 3 TAB AC8j
- 4 TAB AC8i; V92/Q92
- 5 TAB AC8d
- 6 TAB AA9
- 7 TAB AA9/p2, para 5A1 (compare AA24, Annex F, para 2E)
- 8 JCS Pub 02, 21 Apr 89/p3-9
- 9 TAB AA9/tab14; V92/Q8
- 10 JCS Pub 02, 21 Apr 89, p3-17, para 3-16
- 11 TAB AA9/tab7, para 1A1
- 12 TAB AA9/p3, para 4D4
- 13 TAB AA9/p2, para 3H, 3Q2
- 14 TAB AA9/tab14
- 15 TAB AA9/tab8, para 1A1, 3H5
- 16 TAB V33/Q11; V100A/Q8
- 17 TAB AA9/tab8, para 3P2
- 18 TAB V116/p1-3
- 19 TAB V116/p1, para 4
- 20 JCS Pub 02, 21 Apr 1989
- 21 TAB V33/Q8,9
- 22 TAB V33/Q9
- 23 TAB V97/Q6
- 24 TAB AA9/tab3, para 3G5
- 25 TAB AA9/p5, para 2E; V34/Q11,12
- 26 TAB V34/Q6,11,20
- 27 TAB V34/Q47,50,51; V32/Q10,12
- 28 TAB V34/Q54
- 29 TAB V32/Q7,31,32
- 30 TAB V32/Q21; V80/Q58; V92/Q23
- 31 TAB V80/Q22
- 32 TAB V32/Q26,67; AA3
- 33 See TAB AA29
- 34 TAB AA25; AA29
- 35 TAB V34/Q20; V80/Q25
- 36 TAB AA1
- 37 TAB AA9/p3, para 4D4; p4, para 2D; K3a
- 38 TAB AA9/p3, para 4D3
- 39 TAB K3a
- 40 TAB V109/Q17; AA18/p1-2
- 41 TAB AA9/p4, para 2C
- 42 TAB V100A/Q43,45-47,53
- 43 TAB AA9/p4, para 2C
- 44 TAB V95/p1, para 2; V97/Q11
- 45 TAB K3a; AA1; AA9
- 46 TAB K3a; AA9

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- 47 TAB AA9/tab14, Annex F, para 2b
  - 48 TAB K3a; V92/Q10,13
  - 49 TAB V26/Q49,64; O3D, Atch 8
  - 50 TAB K3a; K3d
  - 51 TAB AA9/p5, para 2G1
  - 52 TAB AA1/Vol II/p8, para 16C
  - 53 TAB AA1; V29/Q45; V28/Q13
  - 54 TAB K3a; K3d
  - 55 TAB O3d, Atch 6; AA9/p5, para 2K
  - 56 TAB AA4/para 5-3; V14/Q43
  - 57 TAB O3d, Atch 6,8
  - 58 TAB O3d, Atch 6,8
  - 59 TAB O3d, Atch 6,8
  - 60 TAB AA4/para5-3b; V18/Q8; V21/Q69
  - 61 TAB AA9/p6, para 2K
  - 62 TAB AA19/OG OI 55-7
  - 63 TAB V92/Q16,17,18
  - 64 TAB K3a; K3d
  - 65 TAB K3a; K3d; AC3e
  - 66 TAB K3a; AA1
  - 67 TAB K3a; K3b; MCM 3-1, Vol IV, para 1-1
  - 68 TAB V29/Q29; AA1/p8, para 16C; AC4h
  - 69 TAB AA-24, Annex F, para 2J2
  - 70 TAB K3a; K3b
  - 71 TAB AA12/p1, para 1; p2, para 2
  - 72 TAB V69/p1, para 3
  - 73 TAB V32/Q21,67-68; V62/Q274; V34/Q24-25; V92/Q23; AA1; K3a; AA3; V80/Q58
  - 74 TAB V28/Q200; V29/Q165
  - 75 TAB V80/Q107-109,176,188-193; V30/Q22-40; V62/Q102
  - 76 TAB AA3; V80/Q188-193; V30/Q37; V62/Q110-112
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  - 78 See V30/Q21-40(interview continuation); V31/Q22-25,28-29,39,41,47,66-68, 86-91; V80/Q176, 183-193; V62/Q102-103, 107-111, 128; V28/Q204/223; V29/Q181-190
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THE SECRETARY OF DEFENSE  
WASHINGTON, THE DISTRICT OF COLUMBIA

12 July 1994

MEMORANDUM FOR THE SECRETARY OF THE ARMY  
SECRETARY OF THE NAVY  
SECRETARY OF THE AIR FORCE  
CHAIRMAN, JOINT CHIEFS OF STAFF  
CHIEF OF STAFF OF THE ARMY  
CHIEF OF NAVAL OPERATIONS  
CHIEF OF STAFF OF THE AIR FORCE

SUBJECT: Aircraft Accident and Corrective Action

On April 14, two Air Force F-15 fighters under the control of an Air Force airborne control plane (AWACS) accidentally shot down two Army Black Hawk helicopters in northern Iraq, resulting in the loss of 26 lives. After three months of inquiry, we now have answers to many questions, and they are profoundly disturbing. The accident was the result of errors, omissions and failures in the procedures of Operation PROVIDE COMFORT, the performance of air units involved, and the operation of equipment used:

- The Combined Task Force failed to integrate helicopter operations with other air operations in the "no fly zone." Consequently, on April 14, the F-15 pilots were not made aware of the Black Hawk flight prior to takeoff, the Black Hawks were allowed to enter the "no fly zone" before the F-15s, and the aircraft were not all communicating on the same radio frequencies.
- Although the Black Hawks checked in with the AWACS twice, no one effectively monitored the flight while in the "no fly zone" or told the F-15 pilots that there were Black Hawks in the area. Then, even though the AWACS's Identification-Friend-or-Foe system indicated that friendly aircraft were in the vicinity of the F-15s' engagement, no one advised the F-15 pilots, warned the Black Hawks or otherwise tried to stop the engagement.

- The F-15s' Identification-Friend-or-Foe systems did not effectively alert the F-15 pilots that the helicopters were friendly aircraft.
- The F-15 pilots did not correctly identify the helicopters after one visual identification pass each and proceeded to shoot them down. The flight lead misidentified them as Iraqi Hind helicopters; the wingman was unable to make a positive identification.

When confronting a tragedy of this nature and magnitude, a fair and effective response is imperative. First, we must support the families of those who died. Second, we must determine what caused the accident. Third, we must make sure that the specific deficiencies identified are promptly remedied by the Combatant Commander. Fourth, we must ensure that those responsible are held accountable as appropriate, with their rights properly protected. And fifth, we must decide what further action is warranted to the extent that the problems may extend beyond the specific command and theater of operations involved.

1. The wellbeing of those who lost loved ones remains foremost in our minds. We will continue to provide them the support they deserve, including casualty assistance services. In this regard, they are being furnished all available information regarding the accident.

2. On April 14, pursuant to President Clinton's instructions, I directed that a full inquiry into the circumstances of the incident be conducted. The results of that inquiry are presented in the Aircraft Accident Investigation Board Report, dated May 27, 1994. I have reviewed the Report; the endorsements of the Chairman, Joint Chiefs of Staff, and the Commander-in-Chief, United States European Command; and the comments of the Commander-in-Chief, United States Air Forces in Europe, and the Commander-in-Chief, United States Army, Europe. I approve the findings of fact and opinions stated in Volumes 1 and 2 of the Report, as modified by the comments of CINCUSAREUR. The Report, endorsements and comments are to be released to the public (except to the extent classified or restricted).

3. A large number of serious deficiencies were found in the Combined Task Force/Operation PROVIDE COMFORT. As reflected in the endorsement of USCINCEUR, several remedial measures were taken immediately by the Commanding General of the Combined Task Force; others have since been taken at USCINCEUR's direction; and still others are proposed. I believe that these measures adequately

address the command- and theater-specific problems identified in the Report, and I therefore approve the corrective actions noted in the endorsement (and accompanying comments).

4. Under our system of military justice, whether any administrative or disciplinary action is warranted in individual cases is determined in the first instance by the appropriate commanders. Accordingly, as recommended, I direct that the Report be forwarded to CINCUSAFE for such a determination with respect to Air Force personnel assigned to the Combined Task Force from USAFE or otherwise within USAFE's authority (including members of the general staff, the air component staff and the fighter squadron); to the Commander, Air Combat Command, for such a determination with respect to Air Force personnel assigned to the Combined Task Force from ACC or otherwise within ACC's authority (including members of the AWACS detachment); and to CINCUSAREUR for such a determination with respect to Army personnel. I have reached no conclusion as to appropriateness of action in any individual case and cannot properly comment further.

5. I am particularly concerned that the problems leading to this incident may extend beyond the specific command and theater of operations involved. It is essential that we properly assess and remedy completely such problems. For that purpose, the Chairman has recommended steps to address actual or suspected deficiencies in five critical areas, and I approve these recommendations. We regard this effort as part of a continuing process to ensure that air operations are as free from accident as possible.

The role of the AWACS in this incident leads me to question whether adequate attention has been given to the operational readiness of AWACS units to perform their vital mission world-wide. If the operational readiness of AWACS units does not meet operational standards and requirements, we should learn from these shortcomings and promptly rectify them. Accordingly, in addition to the measures that the Chairman has recommended, I have requested the Secretary of the Air Force to initiate an inquiry in this regard, without exclusive reference to the April 14 incident, and to report back to me as soon as possible.

Similarly, the structure and functioning of the Combined Task Force described in the Report give rise to concern over the adequacy of command and control in joint air operations generally. Accordingly, I have asked the Chairman to examine this issue, again without exclusive reference to the April 14 incident, and to report back to me as soon as possible.

o O o

The events of April 14 must be viewed in the context of three years of safe and successful operations in deterring Iraqi aggression and assisting the people of northern Iraq. At the same time, it is clear that this tragedy did not have to happen. We must do all that we can to prevent such a tragedy from happening again, there or anywhere else.

*William J. Perry*



CHAIRMAN, JOINT CHIEFS OF STAFF

WASHINGTON, D.C. 20318-0001

CM-353-94  
7 July 1994

MEMORANDUM FOR THE SECRETARY OF DEFENSE

Subj: Transmittal of Report of Investigation into the Accidental Shootdown of Two U.S. Army UH-60 Helicopters by two Operation Provide Comfort F-15 Aircraft which occurred on 14 April 1994

Encl: (1) USCINCEUR endorsement dtd 24 June 1994 (w/ attachments)  
(2) Report of Aircraft Accident Investigation dtd 27 May 1994

1. For over 1000 days, the pilots and crews assigned to Operation Provide Comfort flew mission after mission, totalling over 50,000 hours of flight operations, without a single major accident. Then, in one terrible moment on the 14th of April, a series of avoidable errors led to the tragic deaths of 26 men and women of the American Armed Forces, United States Foreign Service, and the Armed Forces of our coalition allies. In place were not just one, but a series of safeguards -- some human, some procedural, some technical -- that were supposed to ensure an accident of this nature could never happen. Yet, quite clearly, these safeguards failed.

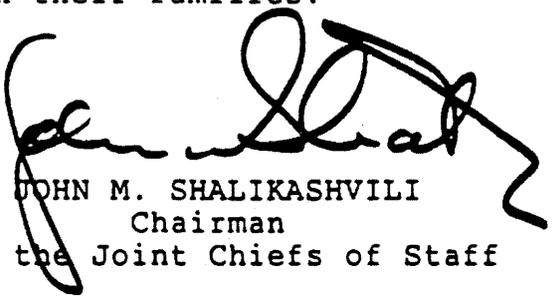
2. On the day of this tragedy, in accordance with your directions, I directed the European Command to conduct a thorough, deliberate, and exhaustive investigation to determine every one of the causes that contributed to this tragedy. The enclosed report and endorsements detail the findings of the investigation and recommended corrective actions.

3. After careful review of the enclosures, I recommend you approve the findings of fact and opinions related to the cause of the subject incident contained in volumes 1 and 2 of the basic report (enclosure (2)), as modified by the comments of the Commander-in-Chief, U.S. Army Forces Europe (CINCUSAREUR) (attachment (3) to enclosure (1)).

4. I further recommend you concur in the problem assessment and recommendations contained in the Commander-in-Chief, U.S. Air Forces Europe (CINCUSAFE) memorandum to the Commander-in-Chief, U.S. Forces Europe (USCINCEUR) (attachment (2) to enclosure (1)), and approve the actions directed by USCINCEUR in his endorsement of the Investigation at enclosure (1). I specifically urge your approval of the recommendation contained in enclosure (1) that USCINCEUR refer the Report of Investigation to the appropriate commanders for such disciplinary action as may be appropriate in the discretion of these commanders.

5. In addition to those actions recommended by USCINCEUR and CINCUSAFE, which I endorse, I recommend we direct a series of actions, at the attachment, that will apply these lessons learned to all joint operations. Because many of these "lessons learned" have world-wide application, I have asked the regional CINCs to be prepared to assess progress in applying these lessons at our next CINCs Conference.

6. As you and the President directed, this inquiry was conducted in a thorough and professional manner. By design, this report portrays a wrenching human tragedy in cold, clinical terms, without any evidence of the great sadness and remorse that all of us feel. The loss of these 26 men and women touches the very fabric of our institution, an institution whose code and passion is to take care of each other and protect one another from any danger. The only solace is in remembering the words that hung from a banner in the Kurdish town of Zakhu for weeks after the accident: "We mourn the the loss of our heroes. God bless their souls, and God be with their families."



JOHN M. SHALIKASHVILI  
Chairman  
of the Joint Chiefs of Staff

Attachment

RECOMMENDED CORRECTIVE ACTIONS TO ACCOMPANY  
TRANSMITTAL BY CHAIRMAN OF THE JOINT CHIEFS OF STAFF  
OF REPORT OF INVESTIGATION INTO THE ACCIDENTAL SHOOTDOWN  
OF TWO US ARMY UH-60 HELICOPTERS BY TWO OPC F-15 AIRCRAFT

The investigation and endorsements to the investigation of the 14 April 1994 shootdown of two US Army UH-60 helicopters warrant the following proposed actions on my part along with the following specific recommendations for action by the Secretary of Defense to help ensure that similar tragedies can be prevented.

1. Pertaining to compliance with Joint Task Force doctrine:

a. I will direct that all Commanders-in-Chief (CINCs) review their Joint Task Force operations to ensure they are conducted in accordance with published joint doctrine (e.g., Joint Pub 1, Joint Warfare for the US Armed Forces; Joint Pub 3-0, Doctrine for Joint Operations, Joint Pub 5-00.2, Joint Task Force Planning Guidance and Procedures).

b. Further, I will direct the CINCs to establish a program of regular oversight of all their Joint Task Force operations.

c. Finally, I will direct my staff to review the curricula of all appropriate Professional Military Education institutions to ensure proper emphasis on Joint Task Force organization, procedures, and operations.

2. In regard to the AWACS crew members:

a. I recommend that you direct the Chief of Staff of the Air Force to conduct a review of the adequacy of AWACS training programs and certification procedures and report results not later than 30 September 1994.

b. I also recommend you task him to develop a retraining program based on the lessons learned from this incident and ensure that all mission aircrews undergo this training, with appropriate formal certification, by 30 September 1994.

c. Finally, in recognition that these same problems could exist in other air command and control organizations, I recommend we direct the Services to conduct a review of the training and certification procedures for all land, sea and air based tactical air command and control centers with the results reported not later than 30 September 1994.

ATTACHMENT

3. With respect to the F-15 crew members:

a. I recommend you direct the Chief of Staff of the Air Force to conduct a review of the adequacy of F-15 visual and electronic identification training and certification procedures, with emphasis on low/slow flying aircraft, with results to be reported not later than 30 September 1994.

b. I further recommend you direct all the Services to review and revise, as required, their visual identification techniques and procedures, with particular emphasis on low, slow-flying aircraft. I recommend this be accomplished no later than 30 September 1994.

c. Finally, I recommend we direct the Services to ensure that visual identification training for aircrews include all possible types of aircraft, fixed- and rotary-wing, that could be encountered in an assigned operating area.

4. With regard to intregation of helicopters and fixed-wing aircraft in air operations:

a. I will direct my staff to complete within 90 days the doctrine for air operations between joint forces. This doctrine will address both operations in war and operations other than war. This will enhance existing guidance contained in Joint Pub 3-52, Doctrine for Joint Airspace Control in the Combat Zone.

b. As soon as completed, I will direct that this doctrine be immediately incorporated in all applicable training and operations.

5. With respect to electronic identification systems:

a. I will direct the Joint Requirements Oversight Council (JROC) to expedite their ongoing review of the adequacy of existing combat identification systems and requirements for future enhancements, and to report their results by 30 September 1994.

b. I further request that you task the Under Secretary of Defense (Acquisition and Technology), with the support of the Assistant Secretary for Command, Control, Communications and Intelligence (C3I), to assure aggressive technology development and acquisition actions to remedy this deficiency.

c. I also recommend we direct the Services and the CINCs to re-emphasize training in the operation of our air electronic identification systems and in the limitations of these systems.

6. I am convening a conference of the Joint Chiefs and all Commanders-in-Chief. My primary agenda item will be the actions we are taking to prevent an accident of this type from happening again. At that meeting, I will direct a number of follow-up actions and will conduct a discussion session so that we can share our views and correct other problems that were discovered. In addition to the major contributory causes that I have discussed today, there were a number of other minor problems discovered during the investigation, many of which had nothing to do with the accident. We will correct these deficiencies in our comprehensive approach to prevent future accidents.



COMMANDER IN CHIEF  
UNITED STATES EUROPEAN COMMAND

24 June 1994

MEMORANDUM FOR THE SECRETARY OF DEFENSE  
THROUGH CHAIRMAN OF THE JOINT CHIEFS OF STAFF

Subject: Endorsement of Report of Investigation into the Accidental Shoot-Down of two U.S. Army UH-60 Helicopters by two Operation Provide Comfort F-15 aircraft which occurred on 14 April 1994

1. I concur with the findings of fact and opinion as to cause factors contained in the basic report (Attachment 1) and with the problem assessment and recommendations presented in the Commander in Chief, U.S. Air Force Europe (CINCUSAFE) endorsement (Attachment 2). I have reviewed and taken into consideration the comments of the Commander in Chief U.S. Army Forces Europe (CINCUSAREUR) (Attachment 3), and agree with his specific objection to the statement of opinion.
2. This was an avoidable tragedy. The report demonstrates that there were deficiencies in command guidance and direction as well as human failure. I have taken the corrective actions which I report below. Upon your release of the report, I will take the additional actions noted. As part of these actions, I will forward the report of investigation, without recommendation or suggestion regarding disposition in any particular case, to appropriate commanders. I will request that they review the report to determine what, if any, action is appropriate in individual cases. In so doing, it is my expressed intention to avoid even the appearance of unlawful command influence, and to fully ensure that the due process rights of all individuals are protected.

a. Headquarters US European Command (USEUCOM) Actions.

(1) As you directed, I have modified the Rules of Engagement to reduce the likelihood of an inadvertent engagement of non-hostile helicopters while maintaining the necessary deterrent posture in the "no-fly" zone. In addition, I have directed a comprehensive review of the Rules of Engagement (ROE) for appropriateness relative to the mission.

(2) I am revising the Commander in Chief, U.S. European Command (USCINCEUR) Operations Order which governs Operation Provide Comfort (OPC) to include the following:

- (a) Updated mission and operational guidance.

(b) A reorganization of the Combined Task Force (CTF) to free the Combined Forces Air Component Commander (CFACC) from other command responsibilities, to improve the interface between the UH-60 detachment and the CFACC, and to improve intelligence support to the CFACC and to the Commanding General of the Combined Task Force (CG/CTF).

(c) Provisions for a periodic assessment of the safety and mission effectiveness of OPC operations.

(3) I have incorporated the requirement for a periodic operational assessment of all Joint Task Forces and other ongoing operations into HQ USEUCOM directives.

(4) I have directed the establishment of an Army Liaison Officer billet on the  
– CFACC staff.

(5) I have removed the Commander CTF Provide Comfort from his responsibilities as Commander.

b. Commanding General Combined Task Force Provide Comfort (CG/CTF) Actions.  
I have reviewed and approved the immediate steps taken by the CG/CTF to ensure adequate coordination and deconfliction of CTF air operations, especially between helicopter and fixed wing operations. These actions are described in Attachment 4. In addition to institutionalize the immediate remedies and to further address the causes of the mishap and the recommendations of the OPC operational assessment team, I have directed the CG/CTF to take the following actions:

(1) Update OPC OPORDER 91-7 to:

(a) Clarify responsibility for supervision of helicopter operations and for coordination/deconfliction of helicopter and fixed-wing operations.

(b) Clarify the responsibility and authority of the airborne and ground-based operational command elements regarding engagement of suspected Iraqi aircraft and coordination/deconfliction of air operations.

(2) Revise the Airspace Control Order to provide clearer and more effective procedures for coordinating and deconflicting helicopter and fixed-wing operations, including the following:

(a) Provide specific information on the ATO and related materials (such as flow sheets) regarding helicopter operations, including a thorough and timely dissemination of information on short-notice operations.

(b) Specify AWACS responsibilities for coordinating and deconflicting all air operations, including helicopter operations, in the Tactical Area of Responsibility (TAOR). Include a requirement for AWACS to provide the tactical "picture," including presence of friendly aircraft, to all OPC aircraft upon initial check-in.

(c) Ensure that the command and control relationship between the Airborne Command Element (ACE) and the AWACS mission crew are clearly stated and regularly briefed to AWACS and ACE personnel.

(d) Require all known air operations in the TAOR to be briefed to all fixed-wing and helicopter flight crews prior to conducting a mission in the area.

(e) Require a fully functioning IFF with provisions for pre-flight and in-flight checks for applicable codes before operation in the TAOR.

(f) Require all aircraft operating in the TAOR to monitor a common frequency.

(3) Improve and standardize the indoctrination and training of all OPC fixed-wing and rotary-wing flight crews to ensure a thorough, consistent knowledge of ROE, the Air Control Order (ACO), the Air Tasking Order (ATO), the operations of other OPC components, visual identification tactics, and the danger of "blue-on-blue" engagements in the "no-fly zone."

(4) Improve the quality of recognition training and in-flight guides provided to PC fighter crews. The recognition training/guides should include accurate information on such distinctive features as paint schemes and external stores configurations. Ensure that U.S. aircraft in OPC paint schemes/configurations/profiles likely to be encountered are included in the recognition training/guides.

(5) Monitor and enforce compliance with the ACO and ATO procedures, including adherence to assigned IFF codes and communication frequencies.

(6) Conduct a one-time review of the training and medical qualifications of all OPC flight crews, and establish procedures to ensure the currency of qualifications of personnel reporting to OPC for duty.

(7) Ensure that thorough turnover and indoctrination procedures are in place for operational billets to minimize the effect of personnel rotations on the efficiency and safety of OPC operations.

(8) Improve the quality control and review of CG/CTF and CFACC guidance to OPC units, including the Aircrew Read Files.

(9) Produce more logical and usable standing special instructions and communications plan.

(10) Clarify CG/CTF guidance on ROE.

(11) Provide standardized training requirements to deploying units for pre-deployment and in-theater preparation.

c. CINCUSAFE Actions. I have directed CINCUSAFE to take the following actions:

(1) In coordination with OPC CG/CTF, review the adequacy of aircrew training to support OPC operations and take corrective action as required.

(2) In coordination with the Chief of Staff of the Air Force, review and revise, as required, the tactics used by fighters to visually identify helicopters to ensure that the tactics provide adequate opportunity for identification while respecting the air-to-air threat presented by armed helicopters.

(3) Ensure that flight crews detailed to OPC are fully qualified.

(4) Require a tour length of 179 days for the OPC CG/CTF, CTF Operations Officer, and CFACC.

(5) Review, in coordination with Air Combat Command, and Air Education and Training Command, whether IFF interrogation techniques and training are adequate, and take corrective action as appropriate.

d. CINCUSAREUR Actions. I have directed CINCUSAREUR to take the following actions:

(1) Continue to ensure that flight crews detailed to OPC are fully qualified.

(2) In coordination with CG/CTF, ensure that a qualified individual is assigned at all times to the Army Liaison Officer billet to be established on the CTF or CFACC staff.

3. After the release of the investigation report, I will take the following actions:

a. Commander Air Combat Command (ACC) Actions. I will request that the Commander ACC:

(1) Ensure that flight crews detailed to OPC and other operations under CINCEUR operational control are properly trained and qualified.

(2) Determine if the deficiencies in AWACS crew performance present in this mishap were the result of shortfalls in doctrine, procedures, or training, and take corrective action as appropriate.

b. Air Force Material Command Actions. I will request, through the Chief of Staff of the Air Force, that the Air Force Material Command conduct a thorough material investigation to determine if deficiencies exist in the interface between Identification-Friend-or-Foe (IFF) Mode IV interrogating and transponding systems, with particular emphasis on the interface between the systems, with particular emphasis on the interface between the systems on fighters and helicopters; to correct such deficiencies as necessary and feasible; and to ensure that aircrews are made aware of all operational limitations of these systems.

c. Personnel Actions. I will forward the report for review by the responsible commanders to determine whether administrative and/or disciplinary action is appropriate with regard to specific individuals.

4. Prior to receipt of the accident investigation report, I initiated a thorough assessment of the OPC mission, organization, and operations. The assessment team, led by a USAF Brigadier General selectee, placed particular emphasis on the following areas: adequacy of guidance and oversight by this headquarters; adequacy of the Combined Task Force (CTF) command structure and organization; adequacy of manning and support; adequacy of operating doctrine and procedures. As a result of this now completed assessment, I have taken the following actions in addition to those actions delineated above which follow directly from the findings of the investigation:

a. CG/CTF Action.

(1) Improve the interface between the intelligence and operations functions in the CTF by improving the organization, coordination procedures, and training of associated personnel.

(2) In coordination with HQ USEUCOM and with the contributing commands, ensure that the personnel assigned to CTF and CFACC staffs reflect a balance of experience in the types of aircraft deployed to OPC.

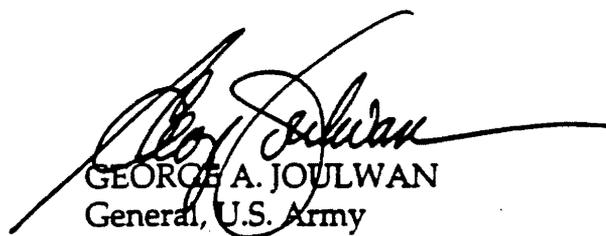
b. CINCUSAREUR Action.

(1) Review the organizational structure of the OPC helicopter detachment, to include the seniority of the detachment officer-in-charge and the method of assigning crews to the detachment.

5. The accident contains some important lessons that go beyond the specific findings and actions addressed above. It identifies three apparent shortfalls in our joint and service cultures which bear further consideration. They are: a lack of baseline training in joint doctrine and procedures for units being assigned to a joint task force; and inadequate doctrine and procedures for "operations other than war." Therefore, upon release of the accident investigation, I will request that the Chairman of the Joint Chiefs of Staff, in coordination with the Service Chiefs, review and take action to correct these deficiencies as necessary. I will also take corresponding action within my command and provide any assistance needed by the Joint Staff and the services in this effort. In addition, I will submit a Joint Universal Lessons Learned report and a personal message to the other Unified Commanders summarizing the lessons learned from this accident.

6. This tragic accident should be viewed in the context of three years of safe and highly successful operations in deterring aggressive Iraqi behavior and assisting the people of Northern Iraq. However, during this period the environment and mission have changed significantly without a formal change in the USCINCEUR mission statement for Operation Provide Comfort since July 1991. By separate correspondence, I am

submitting a request for a clarification of national policy with respect to Northern Iraq and a review of the OPC mission statement to ensure that it is consistent with national policy.

A handwritten signature in black ink, appearing to read "George A. Joulwan", with a long horizontal flourish extending to the right.

GEORGE A. JOULWAN  
General, U.S. Army  
Commander in Chief  
European Command



DEPARTMENT OF THE AIR FORCE  
UNITED STATES AIR FORCES IN EUROPE

27 May 1994

**MEMORANDUM FOR GENERAL JOULWAN**

**FROM: CINCUSAFE**  
**UNIT 3050 Box 1**  
**APO AE 09094-0501**

**SUBJECT: Report of Aircraft Accident Investigation**

1. Attached is the Report of the Aircraft Accident Investigation Board which you directed me to convene regarding the accidental shoot down of the two U.S. Army Black Hawk helicopters on 14 April 1994. This board conducted its investigation in accordance with AFR 110-14, collecting relevant testimony and other evidence, summarizing appropriate facts and factors in the accident, and concluding with the Board President's Statement of Opinion.

2. As you would expect, the report on a mishap of this nature highlights many items that require immediate attention. In the attached document (Atch 2), I provide my assessment of problems related to the accident with a proposed OPR and the initiated or suggested corrective action as appropriate. In accordance with SECDEF guidance, no action can be taken which will compromise the report contents prior to SECDEF's release of the report. Also for your information, I have attached a copy of our legal review (Atch 3).

3. The Accident Investigation Board is standing by to provide answers to any questions you may have, or to extend the investigation to other areas you may feel necessary.

A handwritten signature in black ink, appearing to read "Robert C. Oaks", is positioned above the typed name.

**ROBERT C. OAKS**  
**General, USAF**  
**Commander in Chief**

**Attachments:**

1. Report of Aircraft Accident Investigation (24 vol)
2. CINCUSAFE Assessment of Problems (S)
3. Legal Review

cc:  
DCINCEUR

## **Black Hawk Accident Problems/Corrective Action**

(U) The accidental shutdown of two US Army Black Hawk helicopters by two US Air Force F-15s on 14 April 1994 in Operation Provide Comfort (OPC) highlighted several problem areas which require immediate attention. Below is CINCUSAFE's list of these areas with suggested OPR and initiated or recommended corrective actions. They are grouped under the general headings of command and control procedures, training and qualification, individual performance, and equipment.

### **Command and Control Procedures**

- (U) **Problem:** Lack of integration of all phases of Operation Provide Comfort air activities into a tightly knit operation.

— Some manifestations of the problem:

— There is not a current operations plan governing OPC.

— Lack of understanding of who had TACON of Military Coordination Center (MCC) helicopter operations.

— The Air Tasking Order (ATO) did not include adequate detail on helicopter flights, to include ETD, ETA and route of flight.

— Consequently, fighter aircraft were not routinely pre-briefed by Intel nor by AWACS about helicopter operations in the TAOR.

— There was no common communication procedure which permitted all aircraft operating in the TAOR to talk to each other.

— Helicopters did not know about fighter requirements to sweep or sanitize the area on the first sortie of the day.

— Helicopters did not know the correct IFF Mode I squawk for the TAOR.

— AWACS did not direct helicopters to change to TAOR IFF squawk and radio frequency from enroute IFF squawk and radio frequency at appropriate time.

— AWACS did not understand its responsibility to track the helicopters in the TAOR.

— OPR: EUCOM thru Operation Provide Comfort Commanding General (OPC/CG).

**- Recommended Corrective Action:**

**— EUCOM direct OPC/CG to take immediate corrective action on these and other specific manifestations that may emerge as the report is staffed; i.e.,**

**— The ATO should include the same level of detail for MCC helicopter flights as for all other OPC flights.**

**— All OPC flight briefings should include information on other air activity in the TAOR, including helicopters.**

**— Establish mandatory briefing item for AWACS to all flights on initial check-ins regarding other flight activity in TAOR.**

**— A communication procedure should be established which permits all aircraft operating in the TAOR to talk directly to each other.**

**— Rigid discipline should be exercised with respect to IFF Mode I squawks enroute, and in the TAOR.**

**— In addition to this immediate interim guidance, an Operations Team evaluation of all operational phases of OPC should be conducted, with special emphasis on organizational relationships, adequacy and currency of HHQ guidance, position continuity instructions, and manning levels.**

Classified Security Information Removed

### Training and Qualifications

- (U) Problem: Some OPC TDY personnel arrived at Incirlik Air Base not fully qualified to perform their assigned duties.

— Some manifestations of the problem:

— The F-15 flight lead and wingman aircraft recognition training had not adequately prepared them to make correct identification of Black Hawk helicopters equipped with sponson mounted fuel tanks in the brief time allowed by their low altitude, high speed intercept.

— The F-15 wingman's clean bill of eye health on his last flying physical is suspect, based on post-mishap eye exams.

— The AWACS mission crew commander was not current in his flying requirements when he arrived at OPC on 10 April 1994.

— The adequacy of the indoctrination briefings provided to newly assigned crew members was questioned by the Accident Investigation Board.

— The AWACS crew demonstrated significant misunderstanding regarding individual and overall crew responsibilities.

— Recommended Corrective Action:

— EUCOM direct, thru OPC/CG, an immediate one-time check by detachment commanders of medical and training requirements of all assigned aircrew personnel assigned to their respective detachments.

— Upon release of the Board Report, CINCUSAFE will direct an investigation into the February 1994 medical examination of the F-15 wingman to resolve questions regarding his eye status.

— CINCUSAFE has directed a review of aircraft recognition training program requirements and training aids. New standards and instruction techniques will be implemented.

— Upon release of the report, CINCUSAFE will advise all OPC force providing commanders of the unsatisfactory conditions found in this investigation and direct/recommend careful review of all medical and training records of personnel before deployment.

— Near term, the EUCOM Operations Evaluation Team should pay particular attention to AWACS Ops in their review. Longer term, upon release of the report, CINCUSAFE will request AWACS parent command, Air Combat Command (ACC), send an ACC Operational Evaluation Team to Incirlik for an additional in-depth review of OPC AWACS Ops.

### Personnel Performance

- (U) Problem: Several persons involved in this mishap failed to perform their assigned duties. Especially critical was the apparent failure of senior supervisors and leaders to take charge of a fast moving, rapidly deteriorating situation and provide the direction expected of persons of their position and experience.

— Manifestations of the problem will not be provided to avoid any infringement on UCMJ authorities.

— Recommended Corrective Action:

— Upon release of the Board Report, recommend CINCEUR forward to appropriate commanders a request for evaluation of the duty performance of specific individuals for possible punitive action.

### Equipment

- (U) Problem: The IFF Mode IV squawk did not provide the tactical protection for which it was designed.

— Manifestations of the problem:

— Despite attempts by the F-15's to interrogate the Black Hawk IFF Mode IV function, no effective reply was received.

— Corrective Action:

— Upon release of the Board Report, a total review of all relevant data by Air Force Materiel Command will be requested. It will be useful to relate this mishap to worldwide Mode IV experience to determine if there is a broader problem, or if there is additional information to help explain this mishap.



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS UNITED STATES AIR FORCES IN EUROPE

27 May 94

MEMORANDUM FOR CINCUSAFE/CC

FROM: HQ USAFE/JA

SUBJECT: Legal Review—AFR 110-14 Report of Accident Investigation; the  
14 April 1994 Shootdown of Two UH-60 Helicopters in Iraq  
- INFORMATION MEMORANDUM

1. As required by AFR 110-14, paragraph 9b(1)(b), I have carefully reviewed the report of the Accident Investigation Board President, Major General James G. Andrus, as well as the more than 1000 pages of testimony or witness statements, and scores of exhibits accompanying the report, and find it to be legally sufficient.

2. My review, to determine the investigation's compliance with AFR 110-14 and the report's reasonable factual sufficiency, included an assessment of the following:

a. *Whether the report provides a thorough, clear, and complete presentation of all available facts about the accident.* The accident was the culmination of factors and events involving three weapon systems and their crews, as well as the command and control of those systems and crews. The report effectively presents all those elements in a clear and complete narrative. Major General Andrus was specifically authorized to create an Executive Summary in order to further clarify the report. Although acronyms are used throughout the document, their use is judicious and their meaning clearly explained. I believe the report meets the regulatory requirement to be "intelligible to all who read it, regardless of their level of technical expertise."

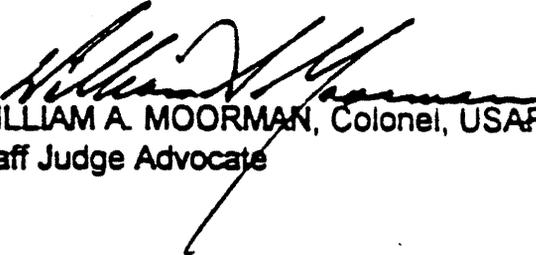
b. *Whether the statements of fact included in the report are adequately supported by documents and/or testimony.* The facts surrounding this accident are complex. Through an extensive system of footnotes the reader is led to the specific portion of a referenced document, testimony, or both which supports the statement of fact in the report. A team of technical experts from the USAFE staff has reviewed the entire report, including all of the evidence. Their review confirms my own opinion that the referenced material was indeed adequate to support each factual statement in the report.

c. *Whether the opinions of the Board President concerning the causes of the accident are supported by clear and convincing evidence.* As defined in AFR 110-14, Attachment 2, paragraph 3b, "evidence is clear and convincing if it enables the investigator to reach a conclusion in which there is no serious or substantial doubt," and which "shows it is highly probable that the conclusion is correct." The Board President cites a number of factors which contributed to the causal chain of events

which resulted in this accident. As a result of my review of the testimony and documents obtained by the board, I believe that the Board President's opinions as to the causes of the accident are supported by clear and convincing evidence

3. In accordance with guidance from the Chairman, Joint Chiefs of Staff, and your direction, the report has been prepared in a manner which protects the identity of the military members who were directly involved in the incident. Upon SECDEF approval of the report, it may be forwarded to the commands involved for whatever disciplinary or administrative action they may deem appropriate. Original statements and other evidence will be maintained in our office for further use as required.

4. The Board President has thoroughly examined the facts and circumstances resulting in the accident. His report is in compliance with AFR 110-14 and his opinions as to the causes of the accident are supported by the evidence

  
WILLIAM A. MOORMAN, Colonel, USAF  
Staff Judge Advocate



AEACC

REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
HEADQUARTERS, UNITED STATES ARMY, EUROPE, and SEVENTH ARMY  
THE COMMANDER IN CHIEF  
UNIT #29351  
APO AE 09014



14 June 1994

MEMORANDUM FOR GENERAL JOULWAN

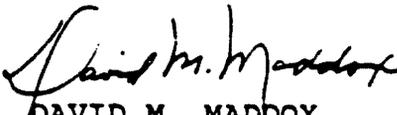
SUBJECT: Report of Aircraft Accident Investigation

1. I have reviewed the Executive Summary and the Summary of Facts, which comprise volumes 1 and 2, of the Aircraft Accident Investigation Report relating to U.S. Army UH-60 Black Hawk Helicopters 87-26000 and 88-26060. I have also been briefed by General Oaks and by the two U.S. Army Europe members of the EUCOM — Review Board which reviewed the report.
2. Except as noted below, I have no objection to the report. I disagree with the statement, in statement of opinion, that one of the factors to which the unsuccessful Mode IV interrogation attempts was "probably attributable" was that "both helicopter IFF transponder codes may have been loaded incorrectly." (This statement appears in the seventh paragraph of paragraph 4 of volume 1, on page 5; and in the seventh paragraph of paragraph 3 of volume 2, on page 47.) No evidence in the report suggests this; in fact, the available evidence supports the conclusion that the codes were loaded properly.
  - a. The Summary of Facts, at page 35, in discussion of "Possible Black Hawk Crew Actions," states, "the available evidence indicates that the keying of 88-26060 and 87-26000 on 14 April 1994 was done with the correct code for the day and that the loading procedures were accomplished in accordance with applicable directives and technical manuals."
  - b. There is evidence, from the receipt of Mode I and II signals by the AWACS, that the transponder was operational.
  - c. The tear down analysis of 87-26000 states: "Some evidence exists that indicates a MODE 4 caution condition was not present at the time of the EOS incident. A MODE 4 caution condition would be present if there were a AN/APX-100(V) MODE 4 hardware failure or if the codes entered into the AN/APX-100 were incompatible with the interrogator codes."
  - d. The evidence reflects that the lead F-15 received "a momentary Mode IV response."

Based on the foregoing, I strongly recommend that incorrect loading of the helicopter transponder codes not be included as a "probabl[e]" factor for the unsuccessful Mode IV interrogation attempts. I believe it is essential to address this point for accuracy, the peace of mind of the UH-60 crew next of kin, and

the concurrence by all in the conclusions of the investigation.

3. I concur with General Oaks' assessment of problems and suggested corrective actions. Additionally, I recommend that action be taken to verify and ensure that all codes and frequencies (including those to be used inside the TAOR) are routinely provided to and understood by all helicopter crews; and that the Military Coordination Center provide a liaison officer to the CFAC "frag shop" and that this LNO understands his tasks and responsibilities to help the MCC routinely coordinate with the "frag shop" IAW OPLAN 91-7, annex F, paragraph 2d.

  
DAVID M. MADDOX  
General, USA  
Commander in Chief

ATTACHMENT 4

THE FOLLOWING ACTIONS WERE IMMEDIATELY TAKEN TO ENSURE COORDINATION AND DECONFLICTION BETWEEN COMBINED TASK FORCE OPERATION PROVIDE COMFORT FIXED WING AND HELICOPTER OPERATIONS.

**RULES OF ENGAGEMENT (ROE).**

- Have been modified in regard to helicopter operations per SECDEF direction.

**PRE MISSION PLANNING.**

- Air Coordination Order (ACO) directs:
  - The Air Tasking Order (ATO) will be executed as published and any changes will be coordinated through the Combined Forces Air Component Commander (CFACC).
  - All aircraft including helicopter flights scheduled into the Tactical Area of Responsibility (TAOR) will be reflected in the ATO and on the daily flow sheet.
  - Routing and timing points for helicopters operating in the TAOR will be annotated, by enroute points, on the daily flow sheet.
  - Helicopter operations planned for the TAOR will be included in intelligence update briefings and aircrew pre-flight briefings.
- All aircrews (including helicopter)
  - Responsible for reviewing all information in the ACO.
  - Will fly with a copy of the daily flow sheet depicting helicopter enroute stops.
  - Helicopters will strictly adhere to their ATO published routing and times.

**OPERATIONS PRIOR TO ENTERING TAOR.**

- All aircraft (including helicopters)
  - Require contact with Airborne Warning and Control System (AWACS) on TAOR Ultra High Frequency (UHF) Have Quick or UHF clear radio frequencies and confirmation of Identification Friend or Foe (IFF) Modes I, II, and IV.
  - If either negative radio contact with AWACS or inoperative Mode IV do not proceed into TAOR.
- AWACS
  - Required for all TAOR flights.
    - Without AWACS coverage only administrative helicopter flights between Diyarbakir and Zakhu are allowed, provided they are on ATO.
- Helicopters
  - Require positive IFF/Special Identification Feature (SIF) and radio checks be accomplished while enough fuel remains to return to Diyarbakir AB.

## TAOR OPERATIONS

- All Aircraft (including helicopters)
  - Must be under positive control (i.e. radio contact and positive IFF/SIF) of AWACS to operate inside the TAOR.
  - Will monitor common TAOR radio frequency.
  - Fighters entering the low altitude environment will check-in with AWACS and remain on the TAOR clear frequencies for deconfliction with helicopters.
  
- AWACS
  - In addition to normal responsibilities, will specifically maintain radar surveillance of Tactical Area of Responsibility (TAOR) airspace.
  - Issue advisory/deconfliction assistance on all operations to include helicopters.
  - Will periodically broadcast friendly helicopter locations operating in the TAOR to all aircraft.
  
- Helicopters
  - Confirm radio contact with AWACS at least every 20 minutes unless they are on the ground.
  - Inform AWACS upon landing.
  - Make mandatory radio calls at each enroute point.
  - If radio contact cannot be established, the wingman will climb to line of sight with AWACS until contact is reestablished.
  - Prior to landing in the TAOR (including Zakhu), helicopters will inform Airborne Mission Director of anticipated delays on the ground which will preclude taking off at the scheduled time.
  - Immediately after takeoff contact AWACS and reconfirm IFF Modes I, II and IV are operating.

FACT SHEET

OPERATION PROVIDE COMFORT

BACKGROUND INFORMATION

FOLLOWING THE GULF WAR, SADDAM HUSSEIN BEGAN AN AGGRESSIVE CAMPAIGN AGAINST THE KURDISH PEOPLE OF IRAQ. PURSUED BY IRAQI MILITARY UNITS, SOME FIVE HUNDRED THOUSAND (500,000) PEOPLE WERE FORCED TO LEAVE THEIR HOMES AND TAKE REFUGE IN THE SURROUNDING MOUNTAINS.

THE WORLD FOCUSED ON THE PLIGHT OF THESE REFUGES AND THE UNITED NATIONS PASSED RESOLUTION 688 WHICH CONDEMNED IRAQI ACTIONS. A SECURITY ZONE WAS ESTABLISHED TO BAR IRAQI FORCES FROM THE AREA.

IN APRIL 1991, OPERATION PROVIDE COMFORT BEGAN. A COMBINED TASK FORCE (OR CTF) WAS FORMED THAT CONSISTED OF U.S., TURKISH, BRITISH AND FRENCH FORCES.

THE TASK FORCE, HEADQUARTERED AT INCIRLIK AB, TURKEY, REPORTED DIRECTLY TO THE UNITED STATES EUROPEAN COMMAND.

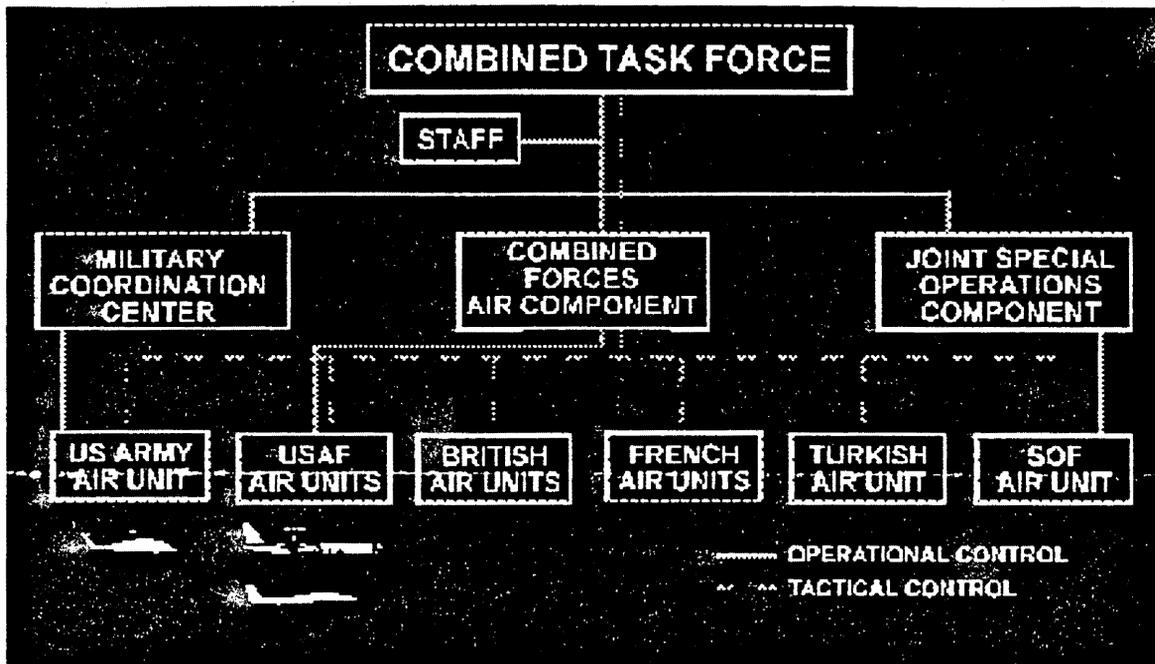
THE TASK FORCE STAFF CONSISTS OF MEMBERS FROM ALL PARTICIPATING NATIONS, AND PARALLELS A JOINT COMMAND STRUCTURE.

WHEN ESTABLISHED, THE CTF HAD A COMBINED FORCES GROUND COMPONENT LOCATED AT SILOPI, TURKEY, WHICH INCLUDED A MILITARY COORDINATION CENTER (MCC), A BATTALION TASK FORCE, A LIFT HELICOPTER TASK FORCE, AND AN ATTACK HELICOPTER BATTALION. THESE FORCES MONITORED IRAQI ACTIONS AND MAINTAINED COORDINATION WITH KURDISH AUTHORITIES IN THE AREA.

THE CTF ALSO INCLUDED A COMBINED FORCES AIR COMPONENT (CFAC) LOCATED AT INCIRLIK AB, TURKEY.

FINALLY, THE CTF HAD A JOINT SPECIAL OPERATIONS TASK FORCE (JSOTF) WHICH CONSISTED OF HC-130 AND MH-60 HELICOPTERS, WHICH ALSO OPERATED FROM INCIRLIK AB, TU. THE JSOTF WAS NOT INVOLVED IN THE EVENTS LEADING TO THE BLACK HAWK ACCIDENT.

IN SEPTEMBER 1991, AFTER THE IMMEDIATE HUMANITARIAN EFFORT HAD BEEN SATISFIED, THE BATTALION TASK FORCE WAS WITHDRAWN, AND THE COMBINED FORCES GROUND COMPONENT HEADQUARTERS WAS DEACTIVATED; THE MILITARY COORDINATION CENTER, AND REMAINING HELICOPTER SUPPORT FOR IT, CONSOLIDATED OPERATIONS AT DIYARBAKIR AB. THE MCC LATER ESTABLISHED A FORWARD OPERATING LOCATION AT ZAKHU, IRAQ.



THIS GRAPH SHOWS THE ORGANIZATION ON THE 14TH OF APRIL 1994.

ACCORDING TO HIGHER HEADQUARTERS DIRECTIVES, THE COMBINED TASK FORCE COMMANDER HAD OPERATIONAL CONTROL OF THE US AIRCRAFT AS SHOWN BY THE SOLID LINE. OPERATIONAL CONTROL OF OTHER COALITION FORCES WAS RETAINED BY THEIR RESPECTIVE NATIONS.

THE COMBINED FORCES AIR COMPONENT WAS TASKED BY THE OPERATION PLAN TO EXERCISE TACTICAL CONTROL OF OPERATION PROVIDE COMFORT AIRCRAFT OPERATING IN THE TACTICAL AREA OF OPERATIONS, AS SHOWN BY THE DASHED LINE. THIS INCLUDED TACTICAL CONTROL OF THE BLACK HAWK, AWACS, AND THE F-15 AIRCRAFT INVOLVED IN THE ACCIDENT.

OPCON IS THE AUTHORITY TO COMMAND SUBORDINATE FORCES, ASSIGN TASKS, DESIGNATE OBJECTIVES AND GIVE AUTHORITATIVE DIRECTION NECESSARY TO ACCOMPLISH THE MISSION.

TACON IS THE DETAILED, AND USUALLY LOCAL, DIRECTION AND CONTROL OF MOVEMENT AND MANEUVERS NECESSARY TO ACCOMPLISH THE ASSIGNED MISSION. TACON ALSO PROVIDES THE AUTHORITY TO DIRECT MILITARY OPERATIONS AND CONTROL DESIGNED FORCES.

COALITION FORCES CONDUCT DAILY OPERATIONS FROM INCIRLIK, DIYARBAKIR, AND ZAKHU IN THE TACTICAL AREA OF RESPONSIBILITY (TAOR) NORTH OF THE 36TH NORTH PARALLEL IN IRAQ.

COALITION RESOLVE HAS BEEN TESTED, AS IRAQ HAS FLOWN AIRCRAFT INTO THE TAOR, TARGETED COALITION AIRCRAFT WITH "FIRE-CONTROL" RADARS, AND FIRED ON COALITION GROUND PERSONNEL. COALITION FORCES HAVE RESPONDED BY SHOOTING DOWN AN IRAQI MIG 23 AND BY BOMBING ANTI-AIRCRAFT AND SURFACE-TO-AIR MISSILE SITES.

THE AREA IS A DECLARED COMBAT ZONE, WHERE THE DANGER OF IRAQI AGGRESSION REMAINS. COALITION FORCES, BOTH ON THE GROUND AND IN THE AIR, OPERATE AT A HIGH STATE OF READINESS.

# AWACS FACT SHEET

## AWACS Capability

- IFF: Modes I, II, III, IV and C
- Radar: Maritime, Beyond the Horizon and Pulse Doppler (range 335 NM)
- Radios: UHF (Ultra High Frequency; line of sight; clear/secure capable) - 13  
VHF (Very High Frequency; line of sight; clear) - 2  
HF (High Frequency; Beyond the horizon; clear/secure) - 3  
SATCOM (Satellite Communication; clear/secure) - 2  
Have Quick II (Jam resistant; line of sight; secure) capable radios - 5
- Data Link: Joint Tactical Information Distribution System (JTIDS) and Tactical Digital Information Link (TADIL A/Link 11).
- Operator Consoles - 14 (Each console has a situation display (radar scope), communication access and emergency equipment)
  - Each operator console has one situation display console that allows the mission crewmember to obtain information (Tabular Displays, Radar and IFF data), insert commands and data. All information, commands and data is available to each operator console.
  - The data received by the aircraft radar and IFF systems are displayed on the situation display consoles and is available to each mission crewmember.
  - Each operator console has the capability to monitor and transmit on three internal communication net, four radios plus one guard radio.

## AWACS Mission

AWACS primary mission in support of Operation Provide Comfort (OPC) is to provide surveillance, detection, threat warning and control in the Tactical Area of Responsibility (TAOR).

## AWACS Crew Composition

- AWACS crew consists of flight crew and mission crew
  - Flight crew (Pilot, Co-pilot, Navigator and Flight engineer) responsible for the safe ground and flight operations of the E-3 aircraft

— Mission crew consists of approximately 14 personnel lead by the mission crew commander and is divided into technicians, surveillance and weapons section

### **Mission Crew Position and Responsibilities**

- The Mission Crew Commander has overall responsibility for the AWACS mission. He/she is responsible for the management, supervision and training of the mission crew.

- Technicians - there are four technicians (operations and maintenance) for the aircraft systems

— Communication system operator (operates all radios)

— Communication Technician (maintains all radios and operates the JTIDS).

— Computer Display Maintenance Technician (operates and maintains the aircraft computer system)

— Airborne Radar Technician (operates and maintains the mission radar and IFF systems).

- Surveillance section consists of one Air Surveillance Officer, one Advance Air Surveillance Technician and three Air Surveillance Technicians

— Primary tasks are detection, tracking and identification on non-OPC aircraft, and management of the data link (JTIDS and LINK 11) system

- Weapons section consists of the Senior Director and the Weapons Directors

-- Senior Director (SD) is responsible to the MCC for conduct of the air battle and for the control of all assigned aircraft and weapons systems in the E-3 area of responsibility (AOR). He/she is responsible for the supervision of the weapons section.

-- Weapons Directors is responsible to the SD for locating, identifying, tracking, controlling and the regulation of all assigned air traffic in the AWACS' AOR.

-- In order to accomplish AWACS assigned OPC mission the weapons section was organized to perform the following tasks.

— Enroute controller - controls the flow of aircraft to and from the TAOR; conducts IFF (Mode IV) checks on OPC aircraft. Area of responsibility: Incirlik to Gate 1

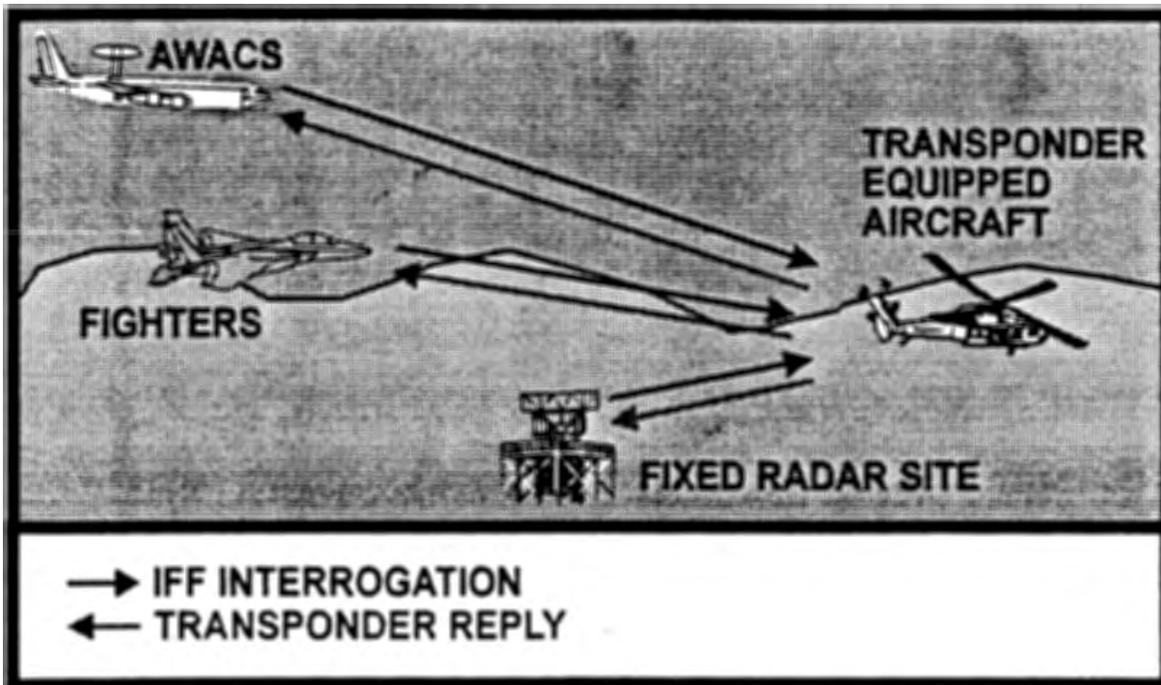
— Tanker controller - controls air-refueling operations and provides picture call for aircraft completing their refueling

— TAOR controller - provides "picture call" threat warning and tactical control for OPC aircraft operations in the TAOR. Area of responsibility inside the TAOR.

**Specific AWACS Switch Actions:**

- MODE IV Requested -- Used to do a Mode IV IFF interrogation of a specified aircraft being tracked by the E-3.
- REQUEST SIF -- Used to display IFF information associated with a specific aircraft, or to identify targets squawking a specific IFF mode and code (I, II, III and C). The average response time from selection to response is 30 seconds.
- ARROW -- Used to point out an area of interest to one or more console operators on board AWACS or at an adjacent facility. The attention arrow is accompanied by an arrow alert console flashing light.
- LOCATE SIF -- Used to display the location of IFF returns for which a specified mode/code has been entered into the operator's console via the keyboard. The location of each specified mode/code return will be represented by a single character (A-Z) on the console screen.
- TRACK TD -- Used to display a block of text at the bottom of the operator's screen which shows information on a particular aircraft being tracked by the E-3. Information such as the track's current latitude and longitude, airspeed, heading, and IFF Mode, I, II and III codes are available. Call sign and data link reference number are displayed. The average response time from selection to response is 30 - 40 seconds.
- DROPS -- Used to drop a track or a group of tracks. The track symbology and tabular displays for dropped tracks will no longer be displayed on the console screen.
- INIT (Initiate) -- Allows the operator to initiate a surface or airborne track into the system. A track will display symbology e.g. (TY06) parameters of a track, such as its identity and call sign.
- RE-INIT (reinitiate) -- Used to relocate a track's symbology onto its radar and/or IFF data. Also used to change the symbology parameters of a track, such as its identity e.g. (TY06 to EE01) and call sign.
- HOOK -- by placing the cursor over a track and pressing "HOOK", the track and its position are input as part of a complete switch action. This switch actions used in conjunction with other switch actions to identify what track to take action on.
- ENTER -- Used to complete a switch action.

FACT SHEET  
INFORMATION FRIEND OR FOE (IFF) SYSTEM



THE IFF SYSTEM IS USED TO IDENTIFY INDIVIDUAL AIRCRAFT OR FLIGHTS, PARTICIPATING IN OPERATION PROVIDE COMFORT. THERE ARE TWO INTERACTING COMPONENTS OF THE SYSTEM: A TRANSPONDER AND AN INTERROGATOR. EACH COALITION AIRCRAFT IS EQUIPPED WITH AN IFF TRANSPONDER. WHEN THE TRANSPONDER IS INTERROGATED FROM A GROUND OR AIRBORNE SOURCE, IT WILL RESPOND WITH A NUMERICALLY IDENTIFIABLE PULSE. EACH TRANSPONDER CAN REPLY IN SEPARATE MODES. EACH MODE CAN BE PROGRAMMED TO REPLY WITH A SEPERATE NUMERIC CODE. THESE REPLIES ARE DISPLAYED ON A RADAR SCOPE.

<u>MODE</u>	<u>CODE</u>	<u>OPC AIRCRAFT</u>
I	42	HELICOPTER OUTSIDE TAOR
	43	FIXED WING OUTSIDE TAOR
	52	ALL AIRCRAFT INSIDE TAOR
II	5530	BLACKHAWK LEAD
	5531	BLACKHAWK WING
IV	ENCRYPTED	ALL AIRCRAFT

KEY MODES AND CODES USED IN THE TACTICAL AREA OF RESPONSIBILITY (TAOR) ON 14 APRIL 1994 ARE SHOWN ABOVE. MODES I AND II USE UNENCRYPTED TRANSPONDER CODES. MODE IV USES AN ENCRYPTED CODE WHICH MUST BE LOADED ELECTRONICALLY. (MODE III IS A MODE USED FOR CIVILIAN AIRCRAFT CONTROL AND WAS NOT USED BY OPERATION PROVIDE COMFORT AIRCRAFT IN THE TAOR.)

ON 14 APRIL 1994, MODE I CODE 42 WAS DESIGNATED FOR HELICOPTERS FLYING OUTSIDE THE TAOR. MODE I CODE 52 WAS DESIGNATED FOR ALL AIRCRAFT FLYING INSIDE THE TAOR. MODE II CODES ARE UNIQUE CODES FOR EACH AIRCRAFT. THE BLACK HAWK MODE II CODES WERE AS SHOWN ABOVE.

AWACS AND F-15 AIRCRAFT ARE EQUIPPED WITH INTERROGATORS.

THE AWACS CAN AUTOMATICALLY INTERROGATE, OR CHECK, FOR MODE I AND MODE II RESPONSES. AN AIRCREW SWITCH ACTION CAN FURTHER IDENTIFY THE SPECIFIC MODE I OR MODE II CODE FROM EACH AIRCRAFT. A SEPARATE ACTION IS REQUIRED TO CHECK FOR A MODE IV RESPONSE.

IN OPERATION PROVIDE COMFORT, F-15S NORMALLY INTERROGATED MODE I AND MODE IV WHEN ATTEMPTING TO ELECTRONICALLY IDENTIFY AN UNKNOWN AIRCRAFT. EACH INTERROGATION, OR CHECK, REQUIRED A SEPARATE SWITCH ACTION BY THE PILOT.

## FACT SHEET

### UNITED STATES MILITARY JUSTICE

Military Justice is based on the congressionally enacted Uniform Code of Military Justice (UCMJ), implemented through the Manual for Courts-Martial, a Presidential Executive Order. It is a carefully, constructed set of checks and balances which allows commanders to respond to alleged misconduct, while protecting the individual rights of service members.

Anyone subject to the UCMJ may accuse another service member under oath (prefer charges), when under the belief that an offense has been committed. Military offenses range from common law crimes, such as larceny, through uniquely military offenses, such as dereliction (or negligence) in the performance of duty.

If charges are preferred, an impartial commander must determine how they should be addressed. In making these decisions, a commander must consider possible defenses, matters in extenuation (the particular circumstances which may favor the accused) and matters in mitigation (the favorable history and duty performance of the accused), as well as all other relevant facts of the case. A commander may, lawfully, decide that the matters which favor an accused, outweigh the evidence of criminal conduct, and take no military justice action or substitute administrative action, such as a flying qualification review, discharge, demotion, or reprimand. If military justice action is considered to be appropriate, the commander may initiate non-judicial punishment procedures under Article 15 of the UCMJ, or forward the charges to a court-martial convening authority.

The convening authority, who must also be impartial, has the same options as the initial reviewing commander. In addition, the convening authority may refer charges directly to a "special court-martial" (maximum punishment jurisdiction of a Bad Conduct Discharge and six months confinement) or forwarded charges to an Article 32 Investigating Officer (the military equivalent of a grand jury, but with the additional rights of an accused to be present, represented by counsel and to submit evidence). An investigating officer reviews the evidence and submits a report, with recommendations, to the convening authority. While these recommendations are not binding on a convening authority, they are given great weight. If supported by the evidence from an Article 32 investigation, charges may be

referred to a "general court-martial," with a punishment jurisdiction limited only by the maximum punishments prescribed by Congress and the President for specific offenses.

Accused service members are represented by military defense counsel, free of charge, throughout these proceedings. These defense counsel are specialists, whose duties and responsibilities are independent of command lines. In addition, an accused member may obtain civilian counsel of his choosing, at his own expense.

Because independence and impartiality are essential to the decisions made by commanders and convening authorities, no superior authority may attempt to influence their judgments. Cases may be referred to subordinate commanders for decision but, in doing so, a superior may make no suggestion or recommendation regarding the outcome. To do so would not only be unfair, it could make it difficult, if not impossible, to successfully prosecute a case, no matter how compelling the evidence.

The President, the Secretary of Defense and the Secretary of the service are the three highest military justice authorities for a military service. Therefore, it is essential that they, and all subordinate commanders, other than those actually deciding a specific case, refrain from commenting on individual cases.

Processing of individual cases can sometimes be lengthy, as adequate time must be taken to ensure that individual rights are protected, as well as the rights of the United States.

Courts-martial are matters of public record. Specific administrative and non-judicial punishment actions are not.